Appendix K Stakeholder Consultation

SBR strongly values stakeholder input to ensure stakeholder views are understood and any issues raised are addressed early in the environmental assessment process or through appropriate Project management. An overview of the stakeholder consultation and document references to address stakeholder comments are provided in the Tables K.1 andK.2. SBR will continue to consult with stakeholders prior to and during the Project and provide updates to stakeholders via their website and email handouts. Further detail may be provided on request.

Table K.1 Overview of stakeholder correspondence/meetings/presentations and forums

Stakeholder group	Type of consultation	Date
Shark Bay World Heritage Advisory Committee	Project info sheet and/or feedback form via email Pre-referral meeting Additional targeted stakeholder information	24 July 2019 8 June 2020 29 May 2020 4 March 2021 1 June 2021
Department of Mines Industry Regulation and Safety	Project info sheet and/or feedback form via email	26 July 2019 8 June 2020
EPA Services	Project info sheet and/or feedback form via email Pre-referral meeting Post-referral meeting	8 June 2020 6 August 2019/15 May 2020 27 November 2020
Western Australian Fishing Industry Council	Project info sheet and/or feedback form via email Pre-referral meeting Additional targeted stakeholder information Letter acknowledging level of referral Additional targeted stakeholder information	24 August 2019/8 June 2020 19 June 2020 8 September 2020 22 December 2021 8 April 2021
Department of Agriculture, Water and the Environment, including Sea Dumping Section	Pre-referral meeting Project info sheet and/or feedback form via email Post referral meeting	15 May 2020 8 June 2020 28 October 2020 27 November 2020
Department of Biodiversity, Conservation and Attractions – Shark Bay	Brief project outline meeting Project info sheet and/or feedback form via email Pre-referral meeting	21 June 2019 24 July 2019/8 June 2020 29 May 2020
Department of Water and Environmental Regulation	Project info sheet and/or feedback form via email Pre-referral meeting	24 July 2019/8 June 2020 15 May 2020
Department of Jobs, Tourism, Science and Innovation	Phone meeting Pre-referral meeting	18 June 2019 15 May 2020
Department of Primary Industries and Regional Development	Project info sheet and/or feedback form via email Pre-referral meeting Additional targeted stakeholder information	19 August 2019/8 June 2020 19 June 2020 8 September 2020
Yamatji Marlpa Aboriginal Corporation and Malgana Aboriginal Corporation	Meeting to discuss heritage survey Project info sheet and/or feedback form via email	21 June 2019 24 July 2019/8 June 2020 Regular ongoing communications.

Table K.1 Continued

Dirk Hartog Island	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
RecFish West	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
Department of Transport (Marine)	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
Shark Bay Tourism Association	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
Western Australia Marine Science Institute	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
Shire of Shark Bay	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020
Friends of Shark Bay	Project info sheet and/or feedback form via email	24 July 2019/8 June 2020

Table K.2 Overview of stakeholder consultation comments and responses

Stakeholder	Comment[1]	Response and document reference
Department of Agriculture, Water and the Environment (DAWE)	Use of the inner disposal site, as it contains important seagrasses and is within the Shark Bay World Heritage Area (SBWHA).	Inner disposal site no longer being considered (Section 2.2).
	Prefer that the timing of dredging is outside the whale migration period.	Preference to include monitoring and mitigation risks that are suitable for application at any time throughout the year. The DEMP is provided in Appendix A and includes standard monitoring zones, start-up and shut down procedures for marine fauna.
	Identify another location for disposal of dredge spoil from berth pocket.	Alternatives to ocean disposal assessed in Section 2.3 and recent updates to project removes disposal of berth material offshore.
	Preference would be to use only one disposal site.	Only one disposal site will be used, which is located outside of the Shark Bay Marine Park (SBMP; Section 2.2). The outer disposal site does not contain any seagrass habitat and was previously used for ocean disposal of dredged material in 1982 (Section 2.1 and 4.3.1).
	Draft DEMP to be submitted with the referral to DAWE at the same time the sea dumping permit application is submitted.	DEMP included in Appendix A and provided on referral.
	Adverse weather conditions may potentially worsen the impacts to the local environment.	Management outcomes are based on predictive modelling of the dredge plume extent/intensity and ecologically relevant trigger criterion measured as PAR at the seabed. Modelled and proposed in-field measurements of PAR account for ambient light conditions at the seabed.
	All dredge equipment to include turtle exclusion devices.	Table 3.1 of the DEMP updated to include detail of a turtle exclusion device installed on the dredge
	Clarify how the threats to threatened and marine species will be mitigated during night-time operations.	Section 3.3.1 of the DEMP updated to include night and low visibility procedures for MFOs.
Department of Agriculture, Water and the Environment (Queensland Sea Dumping Section)	DEIA and supporting information to be referred and shared with all regulators at the same time to assist with alignment of consultation and public review period.	Completed, as requested.
	Provide an additional map(s) to clearly show the entire extent of the Shark Bay World Heritage Area (WHA) and Marine Park (MP) boundaries with labelling of the proposed dredging areas and disposal site.	Update Section 1.1 of the DEIA to include the additional map showing entire extent of the SBWHA relevant to the proposed project.
	Analysis of additional disposal site alternatives.	Update Section 2.3 and Table 2.3 of the DEIA to include additional disposal site options.

Stakeholder	Comment[1]	Response and document reference
	Assess the potential for human health risks from TBT exposure through dietary exposure.	Based on outcomes in Section 5.2.2, and an ability to meet the relevant ANZG (2018) species protection value, the chance of higher order/food-web effects is negligible No updates to referral documentation.
	Further information on the dilution calculations for the disposal site.	Superseded by subsequent changes following the change of proposal to seabed levelling at the berth pocket. Section 5.2.2 of the DEIA.
	Provide a more detailed analysis of potential impacts of exposure to TBT on marine species at the dredge site, and during and after dumping at the disposal site.	Superseded by subsequent changes following the change of proposal to seabed levelling at the berth pocket. Section 5.2.2 of the DEIA.
	Provide further clarification and information concerning the capping process.	No longer applicable. Proposal changed to seabed levelling of berth material (Section 2.2).
	Provide detailed plans for TBT management (including monitoring)	TBT compliance monitoring detailed in Section 3.2.3 of the DEMP Release of Contaminants and Environmental Monitoring Commitments detailed in Table 3.2 of the DEMP.
	Requests further information on how contaminants, including contaminants of potential concern, were identified.	Provided Section 5.1 of the Sampling and the Sampling and Analysis Plan (BMT 2019) approved by DAWE Sea Dumping Section on 19 June 2019.
	Please confirm the proposed depths of maintenance dredging as part of this permit application compared to those approved in 2001 (Annex A) and extended in 2004.	The previously approved project included extensive capital dredging through Bar Flats and the shipping and is beyond the scope of the current proposed Project.
	There is also reference to an approval in 2007 for the same disposal site. Our records do not include a copy of that 2007 approval. Please provide a copy of the 2007 approval referred to the application.	Reference to 2007 approval removed from Section 2 and Table 2.2 of the DEIA.
Department of Water and Environmental Regulation – Environmental Protection Authority Services	DEIA and supporting information to be referred and shared with all regulators at the same time to assist with alignment of consultation and public review period.	Completed, as requested.
	Use of the inner disposal site, as it contains important seagrasses and is within the SBWHA/SBMP.	Inner disposal site no longer being considered (Section 2.2).
	The importance of stakeholder consultation, especially considering the SBWHA status.	Stakeholder consultation began in the early project planning phases and has continued throughout the Project. The Shark Bay World Heritage Advisory Committee (SBWHAC) and Department of Biodiversity, Conservation and Attractions (DBCA) are being consulted as part of this process.

Stakeholder	Comment[1]	Response and document reference
	Stability of the disposal site and additional post-dredging monitoring be added to the DEMP to demonstrate that the deposited dredge spoil material is stable.	The deposition site is not in the breaking zone and has a depth of ~15.5 m or more. The wave shear would be less than the material shear at this depth and therefore not resuspend the sediment at this site. The settled sediment is therefore stable (Appendix G).
	Identify another location for disposal of dredge spoil from berth pocket.	Alternatives to ocean disposal assessed in Section 2.3. The updated Project definition has been updated to exclude berth pocket material from offshore disposal; seabed levelling only (Section 2.2.2).
	Preference would be to use only one disposal site.	Only one disposal site will be used, which is located outside of the SBMP (Section 2.2). This disposal site does not contain any seagrass habitat and was previously used for ocean disposal of in 1982 (Section 2.1 and 4.3.1).
	Meeting with BMT to discuss Loss Assessment Unit (LAU).	LAU definition and cumulative loss assessment included in Section 5.1. Update Section 5.1.4 and Table 5.4 of the DEIA to reflect changes made to percentage cumulative loss assessments to ensure alignment with EPA technical guidance for Benthic Habitats and Communities (BCH).
	Cumulative loss assessment required (including previous loss of seagrass).	
	Situations in which PAR loggers would not be deployed, as outlined in footnote 2 in Section 3.1 in the dredging environmental management plan (DEMP).	The Footnote 2 in Section 3.1 of the DEMP will be revised to clarify acceptable measurements of light for compliance purposes.
	It is also recommended that seagrass rehabilitation should be added to the DEMP	Seagrass rehabilitation works are already underway in the region. Should there be a threshold exceedance of criterion for the protection of benthic communities and habitats, SBR will consult with relevant departments (including DWER) and determine whether an appropriate management action for the exceedance is to undertake seagrass rehabilitation specific to the Project.
	Further information on the dilution calculations for the disposal site.	Superseded by updates made to Section 5.2.2 of the DEIA Release of Contaminants to reflect seabed levelling of berth material.
Department of Biodiversity, Conservation and Attractions	Stability of the disposal site.	The deposition site is not in the breaking zone and has a depth of ~15.5 m or more. The wave shear would be less than the material shear at this depth and therefore will not resuspend the sediment at this site. The settled sediment is therefore stable (Appendix G).
	Differentiation between capital and maintenance dredging in project definition.	Project definition includes reference to the towlines that will be dredged below the original design (-0.5 m; Section **0**).
	Management and mitigation measures should be determined so that they are environmentally suitable for any time of year.	Management and mitigation measures detailed in the draft DEMP are considered appropriate for potential environmental risk associated with the Project being executed at any time of the year (Appendix A).
	Monitor tributyltin (TBT) concentrations at disposal site.	Berth pocket area to be levelled and will not be disposed offshore (Section 2.2). TBT compliance monitoring detailed in Section 3.2.3 of the

Stakeholder	Comment[1]	Response and document reference
		DEMP Release of Contaminants and Environmental Monitoring Commitments detailed in Table 3.2 of the DEMP.
	Dredge berth pocket area first to cap potentially contaminated sediments with clean entrance channel dredge material.	No longer relevant under updated Project definition (Section **2.2**)
Shark Bay World Heritage Advisory Committee (SBWHAC)	Wish to be kept fully informed with future developments and be provided with the opportunity to comment further on the referral and environmental documentation, as soon as it is available.	Stakeholder consultation began in the early project planning phases and has continued throughout the Project, including a pre-referral meeting and presentation.
	Disposal of contaminated sediment in the SBWHA is inconsistent with maintaining World Heritage values and therefore alternative disposal options would need to be sought if this were the case. Onshore disposal is preferred by SBWHAC.	The updated Project definition has been updated to exclude potentially contaminated berth pocket material from offshore disposal (Section 2.2.2). Alternative disposal options are discussed in Section 2.3. The salt operations, including dredging of the Denham channel and disposal of dredge spoils within the World Heritage property were “not deemed to be a threat to the heritage values or integrity” (Heron et al. 2020).
	Invasive marine species (IMS) risk assessment and management.	The potential for introduction of IMS by dredging vessels will be managed through SBR's existing IMS management plan (SBR 2018) and as outlined in the DEMP (Appendix A).
	The timing of the dredging is critical in regard to potentially negative environmental outcomes.	Given the diverse range of threatened and ecologically significant flora and fauna species present within Shark Bay the preference is to include monitoring and mitigation of risks that are protective of all species at any time throughout the year. The DEMP is provided in Appendix A.
	Adverse impacts to Benthic Communities and Habitats (BCH) from increased turbidity, and potential loss of habitat for dugongs.	Assessment of potential direct, indirect and cumulative impacts to BCH provided in Section 5.1.
	Recommended that dredging not occur in the winter months whilst dugong are reproductively active and food sources are more abundant, or during dugong migration.	Preference to include monitoring and mitigation of risks that are protective of all species at any time throughout the year. The draft DEMP is provided in Appendix A.
	Ecological windows for dugong breeding and migration, fish spawning, whale migration and turtle breeding and nesting seasons.	Given the diverse range of threatened and ecologically significant flora and fauna species present within Shark Bay the preference is to include monitoring and mitigation of risks that are protective of all species at any time throughout the year. The draft DEMP is provided in Appendix A.
	Significant changes in the unique hydrological salinity structure of the area.	Changes to hydrological/salinity structures are not anticipated due to the relatively small dredge volume proposed (Sections 2.2).
	Provide a presentation to the SBWHAC or a fieldtrip to Useless Loop.	Presentation with SBWHAC completed 29 May 2020.

Stakeholder	Comment[1]	Response and document reference
	Undertake plume modelling to predict spatial and temporal extent of plume.	Plume modelling indicating the spatial and temporal extent of the plume completed and the model report provided in Appendix G.
	Turbidity triggers to be established based on tolerance thresholds of BCH (including stop work triggers).	Plume modelling and tolerance thresholds for BCH were used to develop zones of impact relating to BCH (Section 5.1.3).
	Determine zones of impact in relation to BCH.	
	An oil spill contingency plan is required with its status and adequacy reviewed by the State Emergency Management Committee prior to dredging occurring.	Hydrocarbon use and waste will be actively managed as outlined in the DEMP (Appendix A).
	Expected that the Committee will be provided with a copy of the referral and environmental documentation when it is available to allow for a more comprehensive and informed response to the proposal.	Stakeholder consultation began in the early project planning phases and has continued throughout the Project, including a pre-referral meeting, presentation and targeted stakeholder engagement.
	Recommended that the Shark Bay World Heritage and Marine Park values be included in the environmental impact assessment.	Potential interactions with the Shark Bay World Heritage values are addressed in Section 4.1.
Yamatji Marlpa Aboriginal Corporation (YMAC) and Malgana Aboriginal Corporation (MAC)	Cumulative impacts since establishment of the salt mine and from previous maintenance campaigns.	Previous works are summarised in Section 2.1. The current proposed disposal site was previously used for the removal of 98 260 m^3 of material from the channel. The same site was previously approved by DAWE in 2001 (extended in 2004) for disposal of 722 000 m^3 of material, but these works were never progressed (Section 2.1). Cumulative impacts in relation to BCH are presented in Section 5.1.
	Concern that dredge spoil be disposed to original disposal sites to limit extent of impacts.	
	Impacts to commercial fishing and local fisherman, including passage to fishing grounds in the shallows of Heirisson Prong.	Impacts to commercial and recreational fishing have been addressed in Sections **4.4.1**and 5.4.1. The Project is to the east of Useless Loop and will not impact fishing grounds in the shallows of Heirisson Prong.
	Impacts to BCH (particularly seagrass) from increased turbidity and associated potential impacts to marine fauna. Impacts to marine fauna such as dugongs, turtles and fish.	Potential impacts to BCH and marine fauna are detailed in Sections 5.1 and 5.3, including a cumulative loss assessment (Section **5.1.4**). Proposed monitoring and management are outlined in the DEMP (Appendix A).
	Continued consultation with relevant stakeholders, including local fisherman, DBCA, Department of Primary Industries and Regional Development (DPIRD) and the SBWHAC.	Stakeholder consultation began in the early project planning phases and has continued throughout the Project. The SBWHAC, DPIRD, DBCA and WAFIC are being consulted as part of this process.
	Continued consultation with the Malgana people and inclusion of cultural management in the DEMP.	MAC and YMAC will continue to be consulted throughout the throughout the Project to further minimise any risk to Aboriginal heritage and culture. In addition, monitoring and management outlined in the DEMP will

Stakeholder	Comment[1]	Response and document reference
		reduce any further risk of disturbance to unregistered indigenous or non-indigenous heritage sites or values (Appendix).
	Meeting to discuss the project with MAC and YMAC.	SBR has engaged MAC and YMAC throughout the process, including regular ongoing communications.
	Access to information regarding previous dredging works environmental reports, and project updates.	Environmental reporting as required by the DEMP (Appendix A) and project updates can be made available to stakeholders on request.
	Environmental reporting from an independent party to both MAC and Shark Bay Resources.	SBR will engage an environmental consultant to complete environmental reporting against the requirements of the DEMP (Appendix A). These environmental reports can be made available to stakeholders like MAC on request for review.
Western Australian Fishing Industry Council (WAFIC), Shark Bay Prawns	Lack of information regarding impacts to commercial fishing provided in initial project information sheet emailed during project planning stages.	Potential impacts to commercial fisheries are discussed in Section 5.4.1. Only the disposal area is outside of the SBMP, which is permanently closed to trawling activities. The Project footprint and the extent of the zone of influence (visible plume of 2 mg/L above ambient) are south of the Denham Sound area where the southern extent commercial trawling operations are concentrated for prawns and scallops (Section 4.4.1). The Project footprint is also outside of the regions of likely importance for crab spawning; in deeper waters of the southern area of the eastern bay and north-east of Koks Island (Section 4.4.1). The habitats identified within the Project area are representative of the broader Shark Bay region, and so any direct loss of habitat specific to species targeted via the Inner Shark Bay Scalefish Resource/Shark Bay Beach Seine and Mesh Net Fishery is not expected to significantly reduce habitat availability for commercially important species. Noting that exclusion areas for specific species like prawns are in the eastern bay, beyond the extent of the project footprint (CPLs; Section 4.4.1). See also the additional information provided in Sections 5.4.1.1 to 5.4.1.3
	Potential impacts to the scallop fishery, prawn fishery and blue swimmer crab resource (including juveniles, breeding grounds and adult stock).	
	Potential impacts to BCH (particularly seagrass).	Plume modelling and tolerance thresholds of BCH were used to develop zones of impact relating to BCH (Section **5.1.3**).
	Avoidance of critical windows for environmental sensitivity.	Given the diverse range of threatened and ecologically significant flora and fauna species present within Shark Bay the preference is to include monitoring and mitigation of risks that are protective of all species at any time throughout the year. The draft DEMP is provided in Appendix A.
	Environmentally damaging activities occurring during critical Shark Bay windows.	
	Provide copy of the DEMP (highlighting mitigation, monitoring and management relating to commercial fisheries) to allow for a	All stakeholders will be able to comment on referral documentation as soon as these are available via the relevant websites (https://consultation.epa.wa.gov.au/ and

Stakeholder	Comment[1]	Response and document reference
	more comprehensive and informed response to the proposal.	https://www.environment.gov.au/epbc/public-notices). WAFIC was also contacted for targeted stakeholder comments on the changed proposal (4 March 2021).
	Provide copies of plume modelling report, sediment sampling and analysis plan implementation report and show compliance with marine environmental quality guidelines.	Fisheries in Shark Bay are not anticipated to be significantly impacted by the Project (Section 5.4.1), and indirect impacts on recreational and commercial fisheries due to loss of significant habitats, decreased marine environmental quality, and access issues/navigational hazards have been addressed in the DEMP (Appendix A).
	Provide further project updates as available (when works are scheduled to take place and expected duration of works).	At this stage it is unclear when works will be completed as SBR are waiting to gain appropriate environmental approvals prior to entering into contract negotiations with relevant dredge contractors. Stakeholders will be notified prior to the commencement of the Project.
	Consultation with relevant stakeholders including DPIRD, license holders and other commercial fishing representative bodies.	Stakeholder consultation began in the early project planning phases and will continue throughout the Project. WAFIC has been consulted as the key presentative for the interests of all of the commercial fisheries that operate in Shark Bay region.
	Investigation of alternatives to ocean disposal.	Alternatives to ocean disposal assessed in Section 2.3.
	Provide information on the spatial and temporal extent of the turbid plume as a result of the two dredging scenarios, and the impact associated with the turbid plume. How will the potential impacts related to plume dispersion be monitored?	Plume modelling indicating the spatial and temporal extent of the plume was completed and the model report provided in Appendix G. Results of plume dispersion modelling were used to develop ecologically relevant monitoring and management triggers/thresholds (Appendix A).
	Provide a summary of advice SBR has received from EPA Services on the revised proposal.	Indicated that no formal advice had been provided on the updated Project definition, and that WAFIC were reviewing the same information as the regulators.
	Concern that removal of berth pocket dredging may not result in a better overall outcome.	The proposed updates to the original proposal will reduce the potential environmental impacts related to plume and release of potentially contaminated material beyond the berth pocket. In this context, the reduced/restricted project scope will result in a significant reduction in the risk to commercial fisheries, and a better overall outcome.
	Referenced a preference for a 2-day dredging option and how this differs from the updated Project definition.	The time to complete the work will depend on the size/type of dredge equipment employed. Dredging and disposal of channel material will take place over an estimated 1–2-week period. This estimated time to complete the project is conservative and remains unchanged from the original proposal and includes demobilisation and mobilisation activities and is subject to delays due to inclement weather etc., as with any project. Seabed levelling operations will take ~4 weeks to complete.

Stakeholder	Comment[1]	Response and document reference
		This is due to the slow processes of moving a suspended heavy steel sweep bar along the seabed at a set height. Refer Section 2.2.
	Timing and seasonal windows for commercially significant species.	Addressed in Section 5.4.1.
	Consideration of alternative disposal sites on land or offshore.	SBR considered in detail the environmental costs and benefits of several alternatives for the disposal of material dredged from the channel (and the berth, under previous iterations of Project scope), including land and ocean disposal options (Section 2.3).
	Define risks to commercial fisheries based on scientific literature.	Risk assessment based on science-based technical studies and modelling that indicate that the EPA's relevant objectives will be met while implementing this Project, and indicating a negligible risk to adjacent commercial fisheries (Section 5.4.1.).
	Monitoring and management measures are too late and would be considerably reduced with onshore disposal options.	The monitoring proposed will be completed using telemetered or real-time data acquisition (light monitoring) to ensure pre-emptive management response to any trigger/threshold exceedance (which are in themselves conservatively based on modelled outputs and relevant scientific literature), to prevent and ensure lack of any significant impacts (Appendix A). Onshore disposal would require similar or more intensive monitoring as detailed in Section 2.3.
	Will ongoing monitoring be open and transparent and distributed to Shark Bay commercial fishing stakeholders?	Compliance monitoring reports can be made available on request to commercial fishing stakeholders, as indicated in the EMP.
	Consideration of the scallop fishery and that a 0.2% impact by area of the Denham Sound fishing area is not considered negligible.	Section 4.4.1 of the EIA notes closures to the scallop fishery, however SBR is not in a position to comment on the reasons behind the collapse of the scallop fishery. Regardless, the results of the impact assessment on key commercial fisheries, with reference to specific concerns raised by DPIRD regarding crabs, prawns, snapper and scallops, indicated a low risk, regardless of the season for dredging and/or the current status of the fishery (Section 5.4.1.1 to 5.4.1.3 of the EIA). By comparison, the scallop trawling area represents 20% of the “Inner Shark Bay region” (DPIRD 2020b), which is considered negligible risk to the marine environment as the area trawled is largely sandy benthic habitat. If SBR were to apply a similar assessment, the predicted zone of impact resulting from SBR’s Project, and inclusive of the berth and channel areas, represents 0.03% of the Inner Shark Bay region and is also in a region dominated by sandy benthic habitat. By this measure, the assessment of the SBR Project having a negligible impact on commercial fisheries holds.

Stakeholder	Comment[1]	Response and document reference
Department of Primary Industries and Regional Development (DPIRD) and WAFIC	Additional comments regarding: • Smothering and potential impacts to scallops • Risks to crabs and juvenile prawn migration • Risks to snapper spawning • Release of contaminants (tributyltin) at the offshore disposal site	Additional risk assessment included in Sections 5.4.1.1 to 5.4.1.3, indicating a low risk to adjacent commercial fisheries. The Project definition has been updated to exclude berth pocket material from offshore disposal (Section 2.2.2), removing this risk from the offshore disposal site.

Notes:
1. In some instances, the comments/suggestions provided by stakeholders have been paraphrased from meetings, emails or phone conversations.
2. BCH = Benthic Communities and Habitats, DAWE = Department of Agriculture, Water and the Environment, DBCA = Department of Biodiversity, Conservation and Attractions, DEIA = Dredging Environmental Impact Assessment, DEMP = Dredging environmental Management Plan, DPIRD = Department of Primary Industries and Regional Development, IMS = invasive marine species, LAU = Loss Assessment Unit, MAC = Malgana Aboriginal Corporation, SBMP = Shark Bay Marine Park, SBWHA = Shark Bay World Heritage Area, SBWHAC = Shark Bay World Heritage Advisory Committee, TBT = tributyltin, WAFIC = Western Australian Fishing Industry Council, YMAC = Yamatji Marlpa Aboriginal Corporation.

Table K.3 Response to observations/suggestions provided by the Shark Bay World Heritage Committee following consultation on 1 June 2021

Item	SBWH Comment (3 June 2021)	SBR Comment (10 June 2021)
a.	The sediment dump site should preferably be moved north into deeper water further away from seagrass beds	There was preference not to create a new disturbed site, and the offshore disposal site represents an area previously approved and used for disposal material during the 1982 campaign. There have also been ongoing stakeholder conversations representing conflicting stakeholder concerns regarding key commercial fisheries north of the proposed offshore disposal site. The zones of potential impact and subsequent estimates for seagrass loss were based on thresholds developed by Collier et. al. (2016) for *Halophila spinulosa* and are protective of other dominant seagrass species in the region (including *Posidonia* and *Amphibolis* spp.). These recommended light management thresholds are "*...more conservative than the biological thresholds derived from studies and long-term datasets. If light is maintained above these management recommendations, seagrass abundance (biomass, density, percent cover) and in turn, the structure and habitat function of the meadow should be preserved*" (Collier et al 2016). As such, the zone of moderate impact that extends into the adjacent sparse seagrass meadows represents sublethal impacts to seagrass and would be better defined as an area of influence, with potential for early physiological response but no morphological adjustments (e.g. loss of biomass). The areas of potential shading were also conservatively based on the areas adjacent to dredging and disposal that will receive a reduced light environment resultant of a 7-day and 2-day rolling average for total suspected solids. However, research indicates that *H. spinulosa* can tolerate light levels as low as 1–11% of surface irradiance (<2–4 mol photons m^{-2} d^{-1}) for up to 28 days without a reduction in biomass or abundance and significant declines only occur after 30 days exposure. Therefore, the 14-day light threshold, which includes a provision to cease dredging, is considered sufficient to protect the nearby seagrass meadows from turbidity generated from dredging. In order to further mitigate the risks associated with a turbid plume extending over the seagrass meadows adjacent (south) of the disposal area. The dredge contractor will dispose of material to the most northern area of the disposal area on incoming spring tides (e.g., grid squares closer to A1; Figure K1).
b.	Although the sediment plume modelling suggests that there is less sediment spread by adopting sea floor levelling in the berthing pocket, it may represent a greater risk to the environment than dredging dur to the additional length of time taken for the operation, allowing more sediment spread (i.e. less sediment for a longer time).	In comparison to a trailing suction hopper dredge (TSHD) operation, the turbidity generated via seabed levelling is significantly lower due to the following differences in the methods and equipment used: • The drag-head on a TSHD contains water jets that will hydraulically discharge water to assist in loosening and fluidising sediment on the seabed. This assists in the suction of the slurry up the drag-

Item	SBWH Comment (3 June 2021)	SBR Comment (10 June 2021)
		head pipe. The sweep bar will not utilise water jets and move the seabed material mechanically by pulling high spots into the deeper areas • Turbidity is generated from the overflow weir in a TSHD, when operating in overflow mode, i.e. discharge of fine dredged material, which remains in suspension during the loading process. During seabed levelling, the material always remains near the seafloor. • Propellor wash and entrainment is much lower for a Tug than a TSHD due to the shallower draft and engine power involved. • The tolerances and allowances for seabed levelling operations are significantly smaller (0.3 m versus 0.5 m overdredge tolerances), reducing total expected volume to be moved to achieve the design levels within the berth area. The length of time required to complete seabed levelling albeit longer, will still lead to lower environmental impact, in so much as the plume is significantly reduced to within the immediate vicinity of the berth pocket. The above reasons were referenced in support of a change to the Proposal to seabed levelling at the berth (Section 43A approved by WA EPA on 1 June 2021) in response to the risk of spreading potentially contaminated material into the Shark Bay Marine Park [SBMP] and Shark Bay World Heritage [SBWH] areas.
c.	Input into monitoring locations and reference sites was provided, with coral patches (identified on BMT mapping during the meeting presentation) noted as very important local sites that should be identified and monitored.	Plume dispersion modelling does not indicate extension into the areas of coral patches, and it is anticipated that plumes generated from seabed levelling will be small-scale, dissipate rapidly and of short duration. Nevertheless, SBR will complete additional mapping (towed video ground truthing) of the important local sites identified during the meeting. SBR will collect quantitative and qualitative data during seabed levelling activities to ensure the turbid plume has not extended beyond modelled predictions. This will include: • In-water monitoring at a site adjacent to the berth pocket seabed levelling area. • Daily visual plume observations using satellite/aerial imagery review, remote imagery cameras and plume sketches. In addition, SBR will collect Photosynthetically Active Radiation (PAR) (light) data near one of the coral patches. This will not be associated with specific daily compliance monitoring requirements detailed in the DEMP but can be used for additional context should it appear that a turbid plume has extended beyond the

Item	SBWH Comment (3 June 2021)	SBR Comment (10 June 2021)
		modelled predictions for a period of time during seabed levelling.
d.	Whilst recognising there are competing demands for timing of the operation, local observations suggest it will impact on dugong calving/suckling less if conducted during March-April (dugongs with young head to shallow water to suckle them).	As discussed during the consultation meeting, there are a diverse range of threatened/ecologically/commercially significant flora and fauna species present within Shark Bay, with critical ecological windows that occur throughout the year, and vary between species. Given the relatively small and short duration of the Project, the preference is to include monitoring and mitigation of risks that are protective of all species at any time throughout the year. Regardless, SBR understand that there is considerable concern regarding dugong and calves feeding in the shallow areas adjacent to the channel area and south of the dredge disposal site, and a potential inability for dugongs, specifically calves, to move or dive to escape collision with the dredge vessel. Most Project works will be carried out within active Port waters where large vessels are common and an ambient level of existing disturbance. The transit between the entrance channel and the disposal site is in relatively deep water (~12–16 m; Figure K2), and at relatively slow speeds (7-14 knts while sailing), depending on laden or ballast-only dredge vessel and 1.5-2 knts while dredging. Transiting through deeper and open waters is considered to reduce (though not eliminate) the risk of collisions with dugongs (Maitland et al. 2006). Noting that recreational and fishing vessels travel at much faster speeds (up to ~30 knts) and through much shallower waters throughout the region year-round. In addition to the implementation of Marine Fauna Monitoring in-line with the DEMP, and in the unlikely event that the dredge is required to traverse shallow areas (<10 m) over seagrass meadows where dugongs are more likely to occur, the dredge will transit at slower speeds (<8 knts) to reduce the risk of collision and allow considerable time for the dugongs to avoid the dredge. SBR has also invited the SBWH Committee member that raised concerns regarding interactions with dugongs to take part in marine fauna observations during the Project (after appropriate training) and/or to be present on site to observe implementation of the marine fauna monitoring requirements detailed in the DEMP first-hand.
e.	The dredging should be carried out in accordance with weather and tides (dredging and dumping on outgoing tides, where possible).	Refer to ‘a’ above regarding disposal activities during incoming spring tides.

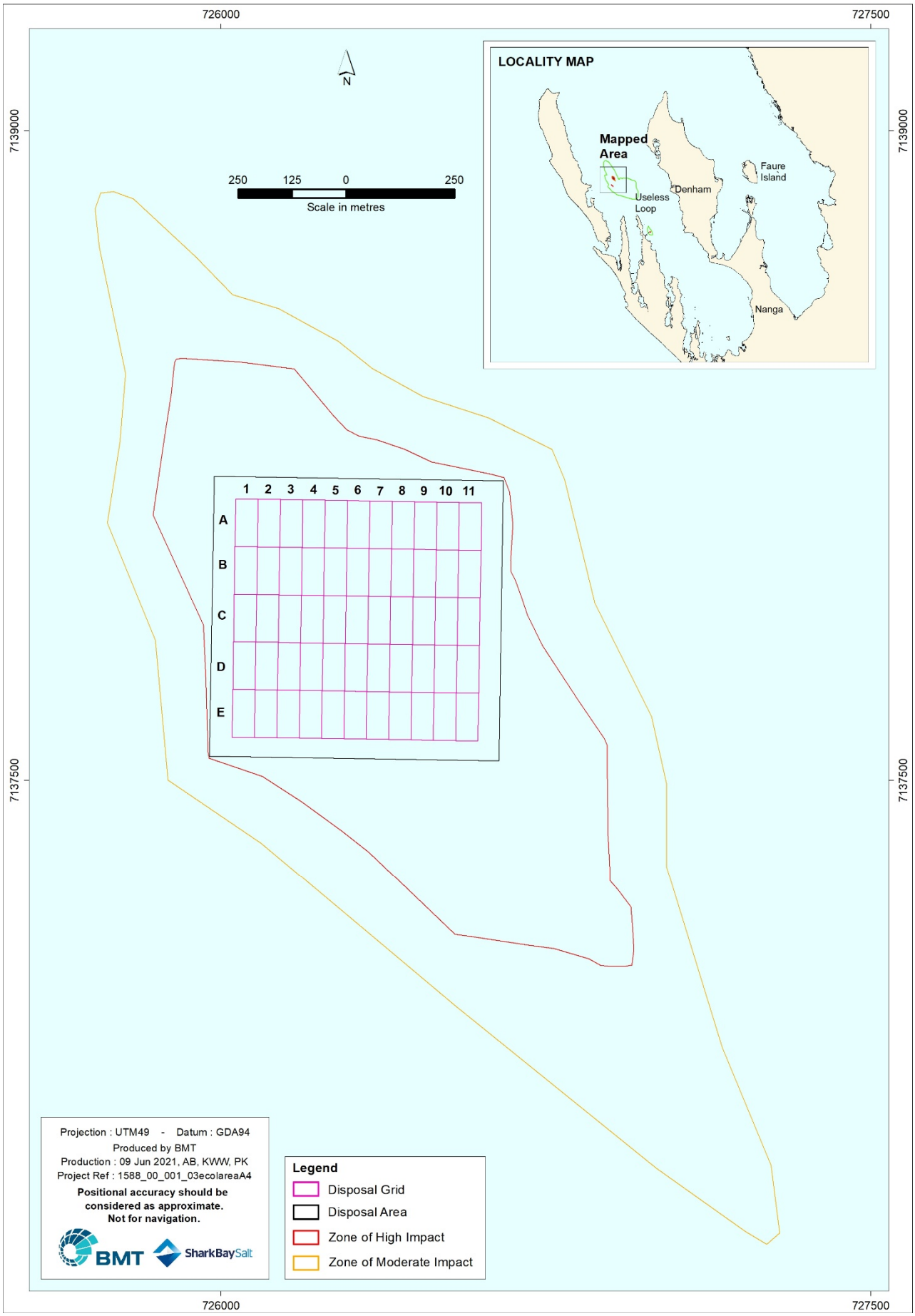

Figure K.1 **Indicative schematic of disposal grid with buffer to disposal of material during incoming spring tides**

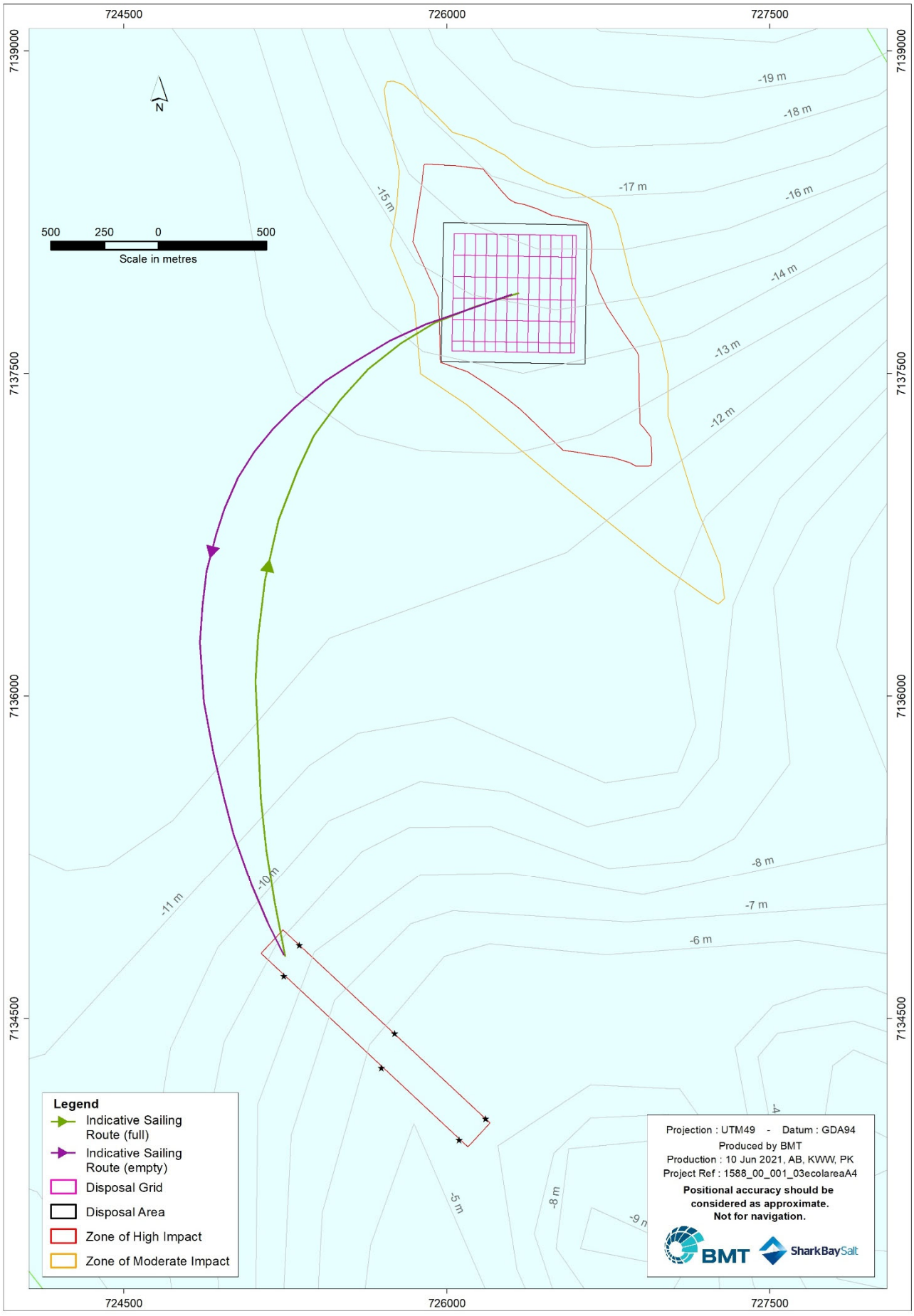

Figure K.2 Indicative sailing route between channel dredge area and disposal area

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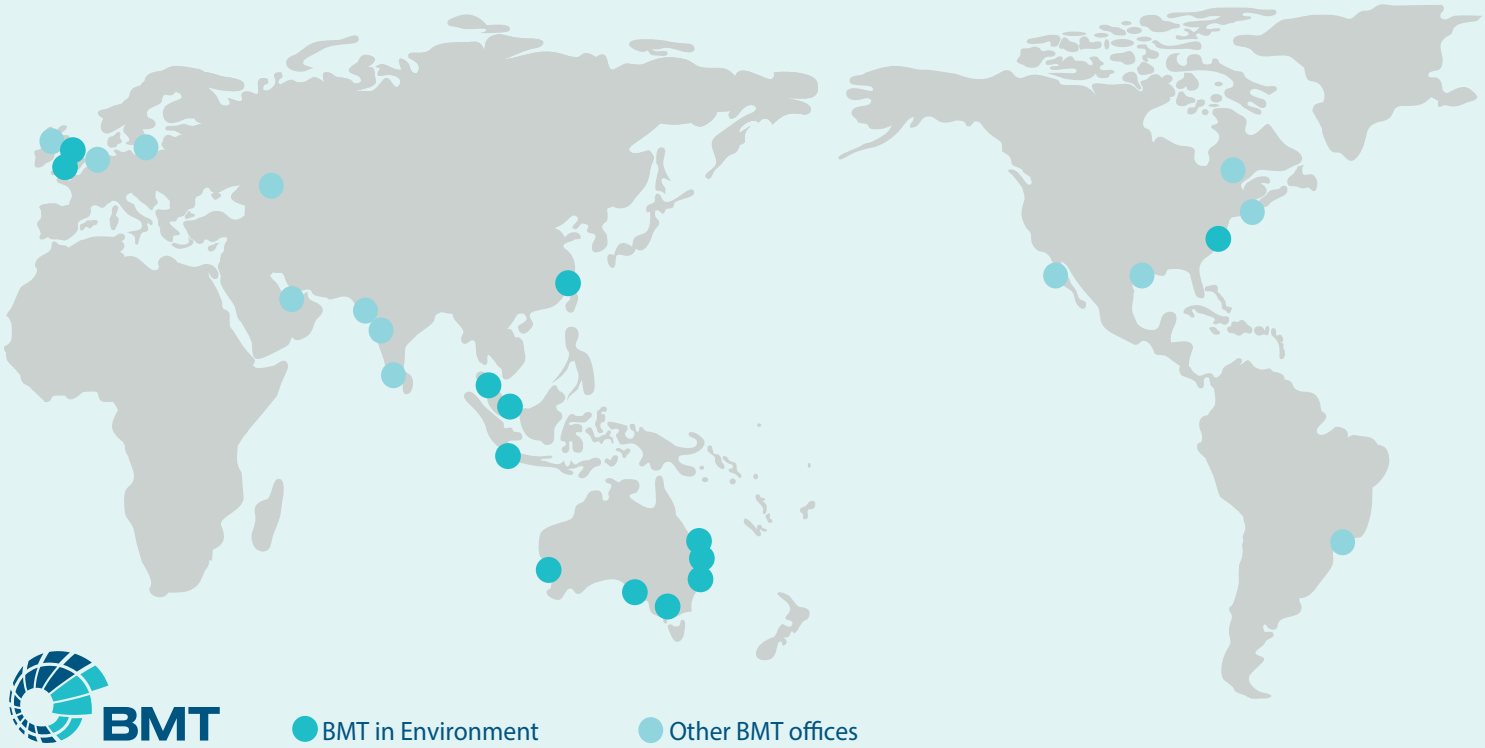

Perth
Level 4, 20 Parkland Road
Osborne Park Western Australia 6017
PO Box 2305 Churchlands WA 6018
Australia
Tel +61 8 6163 4900
Email environment@bmtglobal.com

Brisbane
Level 5, 348 Edward Street
Brisbane Queensland 4000
PO Box 203 Spring Hill Queensland 4004
Australia
Tel +61 7 3831 6744
Fax +61 7 3832 3627
Email environment@bmtglobal.com

Melbourne
Level 5, 99 King Street
Melbourne Victoria 3000
Australia
Tel +61 3 8620 6100
Fax +61 3 8620 6105
Email environment@bmtglobal.com

Newcastle
Level 1, 161 King Street
Newcastle New South Wales 2300
Tel +61 2 4940 8882
Fax +61 2 4940 8887
Email environment@bmtglobal.com

Adelaide
5 Hackney Road
Hackney Adelaide South Australia 5069
Australia
Tel +61 8 8614 3400
Email info@bmtdt.com.au

Northern Rivers
Suite 5
20 Byron Street
Bangalow New South Wales 2479
Australia
Tel +61 2 6687 0466
Fax +61 2 6687 0422
Email environment@bmtglobal.com

Sydney
Suite G2, 13-15 Smail Street
Ultimo Sydney New South Wales 2007
Australia
Tel +61 2 8960 7755
Fax +61 2 8960 7745
Email environment@bmtglobal.com

London
Zig Zag Building, 70 Victoria Street
Westminster
London, SW1E 6SQ
UK
Tel +44 (0) 20 8090 1566
Email environment.uk@bmtglobal.com

Leeds
Platform
New Station Street
Leeds, LS1 4JB
UK
Tel +44 (0) 113 328 2366
Email environment.uk@bmtglobal.com

Aberdeen
11 Bon Accord Crescent
Aberdeen, AB11 6DE
UK
Tel +44 (0) 1224 414 200
Email environment.uk@bmtglobal.com

Asia Pacific
Indonesia Office
Perkantoran Hijau Arkadia
Tower C, P Floor
Jl: T.B. Simatupang Kav.88
Jakarta, 12520
Indonesia
Tel: +62 21 782 7639
Email asiapacific@bmtglobal.com

Arlington
2900 South Quincy Street, Suite 210
Arlington, VA 22206
United States
Tel: +1 703 920 7070
Email inquiries@dandp.com