



Title of Proposal - Toondah Harbour Development

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Residential Development

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The Toondah Harbour Priority Development Area (PDA) was declared under the Economic Development Act 2012 at the request of Redland City Council (RCC) on 21 June 2013. PDAs are parcels of land within Queensland, identified for specific accelerated development, with a focus on economic growth. Along with Weinam Creek, Toondah Harbour is one of only two PDAs located within or adjacent to Moreton Bay and is the only site identified by the State with the potential to provide for additional marina facilities within Moreton Bay. Planning of the Toondah Harbour PDA is being managed by the Minister for Economic Development Queensland in partnership with RCC. Planning intent for the site is to reinforce Toondah Harbour as a community focus and a regional gateway to Moreton Bay and North Stradbroke Island.

The Toondah Harbour Project (the project) is a joint initiative of RCC and the State Government through Economic Development Queensland (EDQ). In June 2015, Walker Group Holdings Pty Ltd (Walker) was selected as the preferred developer. In January 2016 Walker entered into a development agreement with EDQ and RCC to undertake the project over a 15 to 20 year period. Walker is the project proponent and will be responsible for obtaining project approvals.

Toondah Harbour is an existing marine area that serves as the base for water taxi, passenger and vehicular ferry services between the mainland and North Stradbroke Island. It is located approximately one kilometre east of the Cleveland CBD, which is Redland City's civic, commercial and cultural hub and a principal regional activity centre under the South East Queensland Regional Plan 2009-2031.

The PDA has a total area of 67 hectares, encompassing 17.9 hectares of existing land and 49.5 hectares of marine and tidal environments, approximately 20 ha of which is subject to intermittent disturbance from maintenance dredging to provide for safe navigation and access to the boat harbour. Much of the landward portion of the PDA was previously reclaimed from the 1960s onwards.

The proposed action will be carried out over a period of 15 – 20 years and include the following activities and uses:

- New ferry terminals to improve access to North Stradbroke Island;



- Mixed use development including residential, retail, commercial and tourism uses;
- A marina;
- Public open space and boardwalks providing foreshore access;
- Dredging of the existing Toondah Harbour marine access (Fison Channel) to allow for safe navigation for all vessels; and
- Reclamation of areas within Moreton Bay.

The Project context is provided in Attachment 1 as Figure 1. A concept master plan is provided as Figure 2, which also forms the referral area covering an area of approximately 73 ha. The referral area provided is the maximum possible footprint of the development for impact assessment purposes and it is anticipated this footprint will be refined through detailed ecological and engineering studies.

The referral footprint will generally remain within the PDA aside from the access channel, which will be dredged to safe navigation depths, and the toe of the reclamation batters, which extend outside of the PDA in some locations. Reclaimed areas currently shown outside of the PDA boundary will be used for open space and recreational purposes and provide an interface with intertidal mudflats and beaches created by the reclamation that will provide habitat for wader and migratory birds. The interface will include educational features such as signage, observation areas and a learning centre. No residential or commercial development will occur in these areas. The current footprint includes approximately 40 ha of reclamation, including approximately 10 ha of foreshore open space and migratory bird habitat (7.5 ha of which is outside of the PDA boundary), 2 ha of parkland and 28 ha of urban area, and 10.5 ha marina basin and access channel.

The dredging and land reclamation activities are expected to occur in discrete stages that in aggregate amount to approximately three to five years of intermittent activity. The project is being designed with the intent of achieving a net balance between dredging and reclamation. If an additional dredge material disposal location is required options, including offshore, onshore and beneficial reuse will be investigated through the detailed design process.

Part of the proposed development extends into the Moreton Bay Ramsar wetland site, which overlaps with the PDA boundary. Other major development areas within Moreton Bay include the Port of Brisbane, Manly Boat Harbour, Raby Bay, Victoria Point and various navigation channels associated with these areas and other marinas and creeks where maintenance dredging is required. Many of these were completely or partially excluded from the Moreton Bay Ramsar Wetland when it was established in 1993, to reflect their existing and future uses as economic and community hubs in Moreton Bay.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Referral Area	1	-27.525512077025	153.28159123621
Referral Area	2	-27.52349500848	153.28616172037



Area	Point	Latitude	Longitude
Referral Area	3	-27.523076366976	153.28625827989
Referral Area	4	-27.523304717085	153.28673034868
Referral Area	5	-27.522952677135	153.28767448625
Referral Area	6	-27.522077329672	153.28800708017
Referral Area	7	-27.521601594432	153.2900670167
Referral Area	8	-27.521125857135	153.2903674241
Referral Area	9	-27.52158256498	153.29109698496
Referral Area	10	-27.522648209243	153.29150468073
Referral Area	11	-27.523047823179	153.2922986146
Referral Area	12	-27.524189569279	153.29232007227
Referral Area	13	-27.524589177613	153.2915261384
Referral Area	14	-27.525673821485	153.29154759607
Referral Area	15	-27.526358854206	153.28989535532
Referral Area	16	-27.530373821276	153.28987389765
Referral Area	17	-27.531705768478	153.29023867807
Referral Area	18	-27.532695204523	153.28910142145
Referral Area	19	-27.53136326931	153.28770667276
Referral Area	20	-27.529022829769	153.28100115022
Referral Area	21	-27.528794491536	153.28100115022
Referral Area	22	-27.528547124581	153.28133374414
Referral Area	23	-27.525512077025	153.28159123621

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

Toondah Harbour is located on the foreshore of Moreton Bay, 1.5km from the region's principal activity centre of Cleveland and 30km southeast of Brisbane.

The referral area encompasses freehold land and State land, including land below High Water Mark. It currently includes an existing marine area that serves as the base for water taxi, passenger and vehicular ferry services between the mainland and North Stradbroke Island. Other on land areas include park and foreshore open space with the overwater areas made up of a mix of tidal and intertidal habitats with the majority being intertidal mudflat.

The Toondah Harbour Priority Development Area also contains privately owned land, including an existing residential area, that is not part of the development proposal.

A site and location plan for the area are provided in **Attachment 1 as Figure 1 and 2.**

1.6 What is the size of the development footprint or work area?



The PDA has a total area of 67 hectares and the masterplan currently covers an area of approximately 73ha.

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title.L58 on SP115554, L1 on RP145396, L33-35 on C618, L20 on SP153278, L79 on SL7088, L119 on SL9713

1.8 Primary Jurisdiction.

Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 02/2019

End date 02/2039

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

In June 2013, the State Government declared a PDA at Toondah Harbour pursuant to the *Economic Development Act 2012* (ED Act) to provide opportunities for community infrastructure including new ferry terminals, open space and tourism infrastructure, as well as mixed use and medium density residential development and a marina. The Toondah Harbour PDA Development Scheme was approved by the state government on 29 May 2014.

In July 2014 the State Government and RCC jointly tendered the development rights to their respective landholdings in the Toondah Harbour PDA to attract private sector investment in public and private infrastructure that will create tourism opportunities and improved amenity for the local community. Walker was selected as the preferred development proponent in June 2015 following a competitive bid process for the development rights. In January 2016 Walker and entered into a development agreement with EDQ and RCC.

The development aligns with government and community policies at national, state, regional, and local levels including:



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- Tourism 2020
 - Regional Education, Skills and Jobs Plan for Queensland – Logan and Redlands (2013)
 - Smart Cities Plan Toondah Harbour Priority Development Area Development Scheme
 - North Stradbroke Island Economic Transition Strategy
 - Advancing our cities and regions strategy – delivering economic and community development outcomes
 - Shaping SEQ [Draft South East Queensland Regional Plan]
 - State Infrastructure Plan Queensland Charter for Local Content
 - Queensland Government Building and Construction Training Policy
 - Redland City Tourism Strategy and Action Plan 2015-2020
 - Redland City Economic Development Framework 2014-2021
 - Redland City Corporate Plan 2015-20

In December 2016 the Federal Minister for Trade, Tourism and Investment recognised the Toondah Harbour development's national significance by granting the project Tourism Major Project Facilitation (TMPF) status.

State and Local Approval Requirements

Development permits will be required for all aspects of assessable development under the ED Act in the Toondah Harbour PDA. Assessable development under the ED Act will be assessed against the Toondah Harbour PDA Development Scheme. The PDA development scheme is the regulatory document that controls land use, infrastructure planning and development in the PDA, rather than the local government planning scheme. The development scheme overrides other local and state government planning instruments related to the use of the land within the PDA.

For the Toondah Harbour PDA, the Minister for Economic Development Queensland (MEDQ) has delegated development assessment powers and authority under the ED Act to a Local Representative Committee (LRC) comprising representatives of the Department of Infrastructure, Local Government and Planning (DILGP) and Redland City Council.

Under the *Sustainable Planning Act 2009* (the SPA) a development permit will be required for all aspects of development outside the PDA, as well a development permit for tidal works involving major earthworks in a referable wetland within and external to the PDA.

The State Assessment and Referral Agency (SARA) within the Department of Infrastructure,



Local Government and Planning (DILGP) will be the assessing authority for the SPA application and will coordinate the state government's response to the development applications. As the assessing agency, DILGP must assess and decide the development application with consideration for the purposes of the state planning legislation and relevant state planning instruments. It is noted that, from 3 July 2017, Queensland will operate under new planning legislation. The new *Planning Act 2016* (Planning Act) will replace the SPA, however significant changes to the arrangements outlined above are not anticipated at this time.

Under the *Marine Parks Act 2000* (Qld), a permit would be required for any works in the Moreton Bay Marine Park, including material disposal if required. If applicable, endorsement from the Department of Transport and Main Roads (TMR) would also be needed for the disposal of any dredge material at the Mud Island Disposal Area under the Mud Island tidal works approval held by TMR. A permit would also be required for any works, including material extraction (if applicable) in the marine park. The Queensland Parks and Wildlife Service has advised that the proposed works for dredging and reclamation will require legislative amendment to declare a works area and/or revoke the area from the marine park prior to any permit assessment.

Under the *Environmental Protection Act 1994* (Qld), dredging of Fison Channel and any other areas would be considered an environmentally relevant activity (ERA16) requiring an environmental authority. In addition - if an alternative disposal option is required for dredge spoil that is found to be unsuitable for reclamation, beneficial reuse or disposal at sea - transportation of any contaminated sediment (if applicable) may be a notifiable activity under the EP Act.

Under the *Nature Conservation Act 1992* (Qld) (NC Act), clearing of any protected plants under the Nature Conservation Act would require a permit. A search of the flora survey trigger map indicates that there are no high risk areas in or near Toondah Harbour PDA and no endangered, vulnerable or near threatened (EVNT) plants were located during fieldwork.

Under the *Coastal Protection and Management Act 1994* (Qld) (CPM Act), an allocation for quarry material will be required for dredging. Under the *Fisheries Act 1994* (Qld), a development permit for operational work that is the removal, destruction or damage of marine plants may apply. Under the *Vegetation Management Act 1999*, a development permit for clearing of remnant native vegetation may be required.

It is proposed that the assessment for non-ED Act approvals, as far as practicable, be coordinated through the EIS.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Prior to Walker's selection as preferred development proponent for the Toondah Harbour PDA, Redland City Council (RCC) and EDQ conducted comprehensive public consultation on the Toondah Harbour PDA Development Scheme. Consultation was undertaken in two separate phases:



The first phase of consultation occurred in August 2013. The purpose was to engage with the community in advance of planning for the Toondah Harbour PDA and inform residents of the PDA process. Engagement included targeted stakeholder meetings, Open House community forms and online surveys. Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) representatives were consulted by RCC at this time.

A statutory consultation phase occurred between 10 January and 24 February 2014 pursuant to public notification of the draft development scheme for Toondah Harbour PDA. In total, there were 10 community forums, an online submission process and distribution of five community mail-outs, advertisements, and public displays. More than 3000 people participated in these engagement activities and 583 submissions were received. The results of assessment were documented in a submissions report (**Attachment 2**) which is publicly available on EDQ's website.

Based on feedback from the public during the consultation on the draft development scheme, elements of the development scheme for Toondah Harbour were amended. This included reducing maximum building heights to 10 storeys, no net loss of public open space within the PDA, greater protection for the recreational function of GJ Walter Park, and reducing the size of the proposed marina from a maximum of 800 berths to 400. The development scheme was also amended to reflect establishment of a vegetated corridor for wildlife habitat for koalas and their safe movement. Walker's proposed master plan has incorporated this feedback and is consistent with the PDA development scheme vision.

Further consultation will be undertaken by Walker as part of any future Federal and State assessment process. A communication and engagement plan has been prepared, which includes establishment of a project website with Fact Sheets, Project Team contacts, a program of public notices, formal correspondence, static information displays, newsletters, surveys, key stakeholder meetings and briefings, staffed information sessions and events, and establishment of a community reference group.

The community will also have opportunity to provide feedback on the proposed Plan of Development for Toondah Harbour during the development assessment process under the EPBC Act and the ED Act.

Each of these statutory processes requires public notice advertisements to be placed in local media and information provided on either State and Federal government websites.

Alongside the commissioning of technical studies, public notification and consultation with Indigenous stakeholders will form a key part of the assessment process, reflecting their important ongoing role and knowledge as custodians of the land and sea country and Aboriginal cultural heritage.

Additionally, the State Government, as the owner of the state land, has advised that it intend to negotiate an Indigenous Land Use Agreement (ILUA) in the form of an Area Agreement with parties that have or may possibly hold native title in the area. Public notification of the proposed ILUA commenced in early November 2015.



On 8 March 2017, Queensland South Native Title Services submitted the Quandamooka Coast Claim (QC2017/004) with the National Native Title Tribunal. The claim area includes the Toondah Harbour PDA.

Once the claim is registered, the claimants will be the Aboriginal Party under section 35 of the *Aboriginal Cultural Heritage Act 2003*. During the course of the environmental impact assessment process, Walker will seek to initiate a formal Cultural Heritage Management Plan process as required under Part 7 of the *Aboriginal Cultural Heritage Act 2003* (Qld). Walker will endeavour to align EIS consultations with these processes to ensure all potential native title holders and parties for the Cultural Heritage Management Plan are informed and consulted.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

If the project is declared a 'controlled action' under the EPBC Act, the project assessment is proposed to be conducted under the Queensland environmental assessment bilateral agreement.

Walker may seek declaration of the project as a 'coordinated project' under the State Development and Public Works Organisation Act 1971 (SDPWO Act) to streamline environmental assessment processes. It is proposed that the Coordinator-General's coordinated process will address the assessment requirements of the EPBC Act (if deemed a 'controlled action'), Marine Parks Act (excluding assessments for marine park permits) and development applications under the SPA.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

No



Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The [interactive map tool](#) can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

- [Profiles of relevant species/communities](#) (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#);
- [Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies](#).

2.1 Is the proposed action likely to impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to impact on the ecological character of a Ramsar wetland?

Yes

2.3.1 Impact table

Wetlands	Impact
Moreton Bay Ramsar Wetland	See attached technical note (Attachment 3) addressing the Potential Impacts on the Ecological Character of the Moreton Bay Ramsar Wetland from the Toondah Harbour Project. While the EPBC Significant Impact Guidelines provide some guidance on how to assess impacts to a Ramsar Wetland, the



Wetlands

Impact

criteria are broad and difficult to apply at a site level to large and ecologically diverse wetlands. Moreton Bay covers an area of approximately 113,314 ha and contains a variety of ecosystems ranging from perched freshwater lakes and sedge swamps on the offshore sand islands, to intertidal mudflats, marshes, sandflats and mangroves next to the Bay's islands and the mainland. To provide a more accurate assessment of potential impacts to the Ramsar wetland at the site level a significant impact assessment methodology was developed and is provided with Attachment 3. The method is adapted from a previously accepted approach developed for the Great Barrier Reef World Heritage Area (Adaptive Strategies 2016), which, while protected under a different international convention, has many similarities in terms of scale, ecological process and protection. The method comprises two components: 1. Contextual information about ecological character to provide a framework for the analysis; and 2. A process to be applied at the local scale. An ecological character description is still in preparation for Moreton Bay Ramsar wetlands (DoEE 2017a). In the absence of a formal ecological character description for the site, the ecological character of the Moreton Bay Ramsar wetland has been defined as those key environmental values that contribute to the listing criteria of the site. Based on this description a number of key attributes have been identified for the Wetland categorised under seven key environmental features; estuarine/intertidal areas, coastal and sub-coastal vegetation, migratory shorebirds, threatened plant species, marine fauna habitat, fish species, and lakes and enclosed water systems. Assessment of these categories were carried out at the site level with the result summarised below: Estuarine/Intertidal Areas – The PDA contains a moderate to minor presence of estuarine and intertidal habitats including sparse seagrass beds, a small area of mangroves and mud flats providing feeding habitat for migratory shorebirds. The PDA



Wetlands

Impact

contains less than 0.001% of the total area of potential feeding habitat from migratory birds in Moreton Bay and would be considered to provide a minor contribution to the overall ecological character of the wetland. Coastal and sub-coastal vegetation - No swamps were identified by the terrestrial or aquatic ecological surveys as being present within or adjacent to the PDA therefore the site does not provide a contribution to the ecological character of the wetland for these attributes. Migratory shorebirds – The PDA area contains intertidal feeding habitat for a number of migratory shorebirds including the critically endangered Eastern Curlew, the critically endangered Great Knot and the vulnerable Bar-tailed Godwit (Western Alaskan). Similar habitat is found throughout Moreton Bay with the site providing less than 0.001% of this habitat type. Two high tide roost sites are located adjacent to the PDA being the Nandeebie Claypan and Cassim Island (refer to Plan 2). These areas are recognised as having high importance to shorebirds in the region and site design and management will focus on avoiding any permanent or long term impacts to these areas. The site is considered to provide a moderate to minor contribution to shorebird feeding habitat, while adjacent areas provide a significant contribution to shorebird roosting sites. Plan 2 shows the location of the shorebird habitat and roost sites in relation to the PDA. Threatened Plant Species - No threatened flora species have been recorded within a 1 km radius of the study area on the databases that were searched, none were detected during the field survey of the study area, and the study area does not contain habitat suitable for any of the threatened flora species identified as having the potential to occur. The site does not provide a contribution to the ecological character of the wetland for these attributes. Marine Fauna Habitat - Twenty-one migratory marine species were listed as potentially occurring within 5 km of the proposed project using the protected matters search tool. Of these listed migratory



Wetlands

Impact

species, 12 species are also listed as threatened species. Of the listed migratory species, loggerhead turtles, green turtles, Indo-Pacific humpback dolphins and dugong are highly likely and hawksbill turtles are moderately likely to occur in the potential area of impact. While potential habitat for these species is located in Toondah Harbour similar or better habitat is present throughout Moreton Bay. The site is considered to provide a minor contribution to the ecological character of the wetland for its marine fauna habitat attributes.

Fish - No protected fish habitat is located within or adjacent to the PDA and no threatened fish species are expected to utilise the areas including Oxleyan pygmy perch which are generally regarded as restricted to streams, swampy areas and lakes in coastal wallum. The site does not provide a contribution to the ecological character of the wetland for these attributes.

Lakes and Enclosed Water Bodies - No lakes or enclosed water bodies are present within or adjacent to the PDA. The site does not provide a contribution to the ecological character of the wetland for these attributes.

The project is likely to result in permanent impacts to a small area of shorebird feeding habitat as a result of dredging and reclamation works. While the impact will be small in comparison to habitat for native species present throughout the Moreton Bay Ramsar wetland, as the impact will be permanent and affect an area of minor to moderate ecological character there is the potential for significant impacts to occur. If detailed studies identify significant impacts will occur an offsets package would be developed in consultation with the DoEE and in accordance with the EPBC Act Environmental Offsets Policy (refer to section 4 of the referral for further details of proposed offsets and benefits). The project will be designed and managed to avoid any permanent impact on the adjacent high tide roost sites (Nandeebie Claypan and Cassim Island) through the use of minimum 100m buffer areas and a number of other measures including: Construction of



Wetlands

Impact

appropriate barriers, such as fences to restrict access; ideally, there should be no public access (by humans and/or domestic animals) to areas identified as important to migratory shorebirds; Landscape and urban design to include sympathetic lighting strategies, vegetation screening and sound attenuation; and Increased community education through mechanisms such as a learning centre and interpretive signs. While impacts to the high tide roost sites that adjoin the PDA will be mitigated, given these areas provide a significant contribution to the ecological character of the Moreton Bay Ramsar Wetland, the precautionary principle has been applied and therefore it is considered likely the project will result in temporary impacts to the roost sites which may have a significant impact on migratory shorebirds. Further detailed studies will be carried out as part of future assessment processes including development of a shorebird management plan to ensure protection of the high tide roost sites is considered during the planning, construction and ongoing use phases of the development. It is also noted that the sites are only utilised by migratory shorebirds over the summer period (approximately December – March) therefore some mitigation measures will be designed to target these times. While appropriate management measures will minimise the potential to impact on the Moreton Bay Ramsar wetland it is acknowledged that, if a precautionary approach is applied, the potential for significant impacts exist therefore the project is referred as a controlled action to allow more detailed assessment under the EPBC Act to be carried out. It is noted that once projects are within a controlled action process offsets and benefits associated the project can be considered. The project will seek to provide an overall benefit to the Moreton Bay Ramsar Wetland through an offsets package that will provide direct and indirect benefits to the wetland environment. Specific activities may include creation of new intertidal habitat around the reclamation area,



Wetlands

Impact

increased protection of existing high value shorebird animals from disturbance by dogs and people, rehabilitation of areas offsite to increase habitat value and improved management of the area through funding for a community ranger program. These beneficial actions will be explored further as part of the controlled action assessment process.

2.3.2 Do you consider this impact to be significant?

Yes

2.4 Is the proposed action likely to impact on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Loggerhead Turtle (<i>Caretta caretta</i>) Green Turtle (<i>Chelonia mydas</i>) Hawksbill Turtle (<i>Eretmochelys imbricate</i>) Koala (<i>Phascolarctos cinereus</i>) Curlew Sandpiper (<i>Calidris ferruginea</i>) Great Knot (<i>Calidris tenuirostris</i>) Bar Tailed Godwit (<i>Limosa lapponica bauera</i>) Eastern Curlew (<i>Numenius madagascariensis</i>)	See attached technical note (Attachment 4) addressing the Potential Impacts on Threatened Species. A likelihood of occurrence assessment has been carried out by BAAM (terrestrial species including wader birds) and FRC environmental (marine species) using information from the desktop and field surveys assessing the potential for each threatened species and community to utilise the site. Threatened species considered likely to utilise the site are addressed below: Loggerhead Turtle - Moreton Bay supports a significant loggerhead turtle feeding population. Loggerhead turtles are moderately likely to occur in marine habitats within and adjacent to the Toondah Harbour project, particularly in the seagrass beds. Green Turtle - Moreton Bay supports feeding populations of green turtles. Green turtles often are observed in the seagrass beds adjacent to the proposed project. Green turtles are highly likely to occur



Species	Impact
	<p>in marine habitats within and adjacent to the Toondah Harbour, particularly in the seagrass beds. Hawksbill Turtle - Despite not providing critical habitat, there is a small resident population of hawksbill turtles in Moreton Bay, and they may feed in, or traverse, the proposed project area. There is a moderate likelihood that hawksbill turtles occur in marine habitats within and adjacent to the Toondah Harbour project. Eastern Curlew - During the summer months October 2014 to February 2015, an average of 4.8 and maximum of 7 Eastern Curlew were recorded feeding on mudflats within the study area. Eastern Curlews were recorded roosting at the Nandeebie Claypan roost site. Bar-tailed Godwit (Western Alaskan) - surveys identified an average of 24.8 and maximum of 36 Bar-tailed Godwits were recorded feeding on intertidal mudflats within the Toondah Harbour PDA. The feeding density recorded within the study area (average 0.62 birds/ha, maximum 0.9 birds/ha) is substantially less than the densities of 3 to 8 birds/ha recorded in the highest quality feeding habitats on the eastern side of Moreton Bay. Bar-tailed Godwits were recorded roosting at the Nandeebie Claypan roost site (south of the existing ferry terminals, outside of the PDA) and at Oyster Point located 600 m from the PDA). Great Knot - During the low tide surveys, only a single Great Knot was recorded feeding on intertidal mudflats within the Toondah Harbour PDA on a single survey. The high tide survey results suggest that Great Knot occasionally roosts in relatively small numbers at the Nandeebie Claypan roost (south of the PDA) site as well as at Oyster Point roost site located 600 m from the PDA. Curlew Sandpiper - During the low tide surveys, Curlew Sandpiper was not recorded feeding on intertidal mudflats within the Toondah Harbour PDA. Furthermore, very few, if any, Curlew Sandpipers appear to use nearby mudflats. This suggests that feeding habitat within the PDA and nearby mudflats is of marginal importance to Curlew Sandpiper. The high tide survey results suggest that Curlew Sandpiper</p>



Species

Impact

very rarely roosts at the Nandeebie Claypan roost site south of the PDA. Koala - The initial field survey identified a total of 286 habitat trees important for Koala are scattered across the western portion of the PDA as a component of the urban environment. Koala scats were observed under 33 of these trees, confirming recent Koala use of trees in the PDA, but no Koalas were observed. On later occasions, up to two Koalas were observed in habitat trees within the PDA, and up to three Koalas were observed in trees at Nandeebie Park immediately south of the PDA. Potential direct impacts relate to the clearing of habitat or vegetation for infrastructure, the marina basin or reclamation. The loss of intertidal feeding habitat for migratory shorebirds, including for threatened species, has the potential to lead to a corresponding decrease in the number of migratory shorebirds using the Moreton Bay wetlands proportional to the loss of habitat if migratory shorebird populations in Moreton Bay were currently subject to density-dependent population regulation. However, since migratory shorebird populations using Moreton Bay have undergone substantial declines due to factors outside of Moreton Bay, the carrying capacity of the Moreton Bay wetlands for supporting migratory shorebirds is likely to be underutilised. That is, migratory shorebirds may not be currently subject to density-dependent population regulation due to the substantial loss of birds from the system. The declining numbers year on year mainly associated with disruption in staging sites in other parts of the flyway (refer to Studds et al, 2017). In this case, the loss of a relatively small area of intertidal feeding habitat is unlikely to lead to a corresponding reduction in the number of migratory shorebirds using Moreton Bay. Impacts on migratory shorebirds are not expected to be significant and a number of management measures will be put in place to mitigate any indirect impacts to threatened and migratory species. While the removal of an area of low tide feeding habitat will reduce the area



Species	Impact
	<p>of occupancy for endangered and critically endangered species and/or disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of migratory species only small number of these species utilise the area at Toondah Harbour and they are expected to move to nearby areas to feed minimising any impacts. Potential impacts to the Koala include loss of food trees in an urban area that is not recognised as 'habitat critical to the survival of Koala', risk of mortality during clearing and Increased risk of mortality due to increased vehicle traffic and dog ownership resulting from increased urbanisation. The potential impacts of the Project on Koalas that currently utilise feed trees will be mitigated by: Adopting a landscape and urban design that retains as many of the primary food trees as possible and includes a linear strip of public open space to serve as a corridor connecting retained Koala food trees with bushland habitat in Nandeebie Park to the south of the PDA; Planting additional Koala food trees both within the PDA and surrounding areas where possible, to mitigate any loss of Koala food trees within the PDA; Ensuring that the clearing of any trees during Project construction is performed under the guidance of a licenced fauna spotter; and Using Koala exclusion fencing to fence off areas that may pose a risk of injury to Koala during construction.</p>

2.4.2 Do you consider this impact to be significant?

Yes

2.5 Is the proposed action likely to impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table



Species	Impact
Various	<p>See attached technical note (Attachment 4) addressing the Potential Impacts on Migratory Species. Database searches identified a total of 33 terrestrial fauna species or sub-species listed as migratory shorebird species under the EPBC Act that may occur within the study area or environs. Eleven of these species (including three critically endangered and one vulnerable species) were recorded within or immediately adjacent to the study area during field surveys, and a further eight species were identified as having the potential to occur based on database records for the local area and presence of suitable habitat. The remaining 14 species or sub-species were assessed as unlikely to occur. Potential direct impacts relate to the clearing of habitat or vegetation for infrastructure, the marina basin or reclamation. The loss of intertidal feeding habitat for migratory shorebirds, including for threatened species, has the potential to lead to a corresponding decrease in the number of migratory shorebirds using the Moreton Bay wetlands proportional to the loss of habitat if migratory shorebird populations in Moreton Bay were currently subject to density-dependent population regulation. However, since migratory shorebird populations using Moreton Bay have undergone substantial declines due to factors outside of Moreton Bay (refer to Studds et al, 2017) the carrying capacity of the Moreton Bay wetlands for supporting migratory shorebirds is likely to be underutilised. That is, migratory shorebirds may not be currently subject to density-dependent population regulation due to the substantial loss of birds from the system. Declining numbers year on year are mainly associated with disruption in staging sites in other parts of the flyway. In this case, the loss of a relatively small area of intertidal feeding habitat is unlikely to lead to a corresponding reduction in the number of migratory shorebirds using Moreton Bay. Impacts are not expected to be significant and a number of management measures will be put in place to mitigate any indirect impacts to threatened and migratory</p>



Species	Impact
	species. The removal of an area of low tide feeding habitat will reduce the area of occupancy for endangered and critically endangered species and/or disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of migratory species. While Moreton Bay's carrying capacity of migratory shorebirds and marine fauna species is unlikely to be affected, the project is referred as a controlled action to allow more detailed assessment under the EPBC Act to be carried out. It is noted that once projects are within a controlled action process offsets and benefits associated the project can be considered.

2.5.2 Do you consider this impact to be significant?

Yes

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

Yes

2.6.1 Is it likely to impact on the Commonwealth Marine environment?

No

2.6.2 Describe the nature and extent of the likely impact on the whole of the environment.

Impacts to MNES associated with the marine environment are addressed through responses to section 2.3, 2.4 and 2.5. General impacts to the marine environment are also addressed in **Attachment 5**.

Potential direct impacts to the marine environment include the loss of habitat directly under the footprint of the proposed project. There will also be a gain of habitat in some of these areas. Marine fauna may also potentially be trapped or injured in wet extraction areas however management measures including the use of fauna spotters would mitigate the potential for fauna to become trapped or injured.

Following dredging of Fison Channel, water quality is likely to improve around the channel, as deepening the channel will reduce the current disturbance of bottom sediments from boating activities (particularly large passenger and vehicle ferries).



Indirect impacts to the marine ecosystem may include:

§ disturbance of sediments and soil (increasing turbidity, suspended solids, sedimentation, nutrients, contaminants and potential acid sulfate soils);

§ spills of hydrocarbons and other contaminants;

§ increased stormwater runoff (with greater non-permeable surfaces on the subject site) and associated contaminants and foreshore erosion;

§ altered hydrodynamics;

§ increased site access and boating;

§ spread of weeds and pests; and

§ increased litter.

A number of industry standard measures will be put in place to mitigate these impacts, including:

§ Designing the project to minimise the area of disturbance (project footprint); the volume of sediment and / or soils disturbed; and, any changes to hydrodynamics;

§ Using the project footprint for any temporary construction and storage;

§ Incorporating structures that provide valuable habitat for fish in the design;

§ Identifying and managing acid sulfate soils and other contaminants;

§ Using temporary enclosures (e.g. complete enclosures such as sheet piles) to reduce the intensity and spatial distribution of turbid plumes during construction;

§ Installing any temporary enclosures at low tide to minimise the number of marine vertebrates caught in the area;

§ Catching any animals that are trapped in the enclosures and releasing them in appropriate habitat outside the area;

§ Using trained marine mammal and turtle spotters prior to commencement of excavation and dredging activities and appropriate management tools to avoid impacts to them (e.g. triggers for cessation of excavation or dredging works);

§ Developing turbidity and suspended solids thresholds and appropriate management (e.g. triggers for ceasing works) for seagrass and corals and monitoring water quality during construction;



§ Avoiding disturbance of sediment and / or soils during important periods of reproduction for coral and seagrass (e.g. late spring and summer);

§ Minimising litter, waste and the use of hydrocarbons and other chemicals;

§ Following national and international best practice standards, including Australian standards relating to antifouling paints and contaminants, *Nature Conservation (Wildlife Management) Regulation 2006*, vessel and vehicle management and site management strategies and fuel storage and handling activities outlined in AS1940

§ Implementing environmental management plans, including a Marine Fauna Management Plan, Stormwater Management Plan, Sediment and Erosion Management Plan, Waste Management Plan, Weed Management Plan and Spill Management Plan; and

§ Monitoring changes in seagrass and coral communities to determine any potential impacts.

With the use of appropriate mitigation measures, potential impacts to aquatic habitats and communities are likely to be of low significance, other than the direct impacts to marine plants and soft sediment within the footprint, and changes to water quality and soft sediment communities within the dredging and reclamation area.

2.6.3 Do you consider this impact to be significant?

No

2.7 Is the proposed action likely to impact on any part of the environment in the Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Will there be any impact on a water resource related to coal / gas / mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No



2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to impact on any part of the environment in the Commonwealth marine area?

No



Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

All Flora and fauna relevant to the project area has been addressed through the assessment of MNES including the Moreton Bay Ramsar Wetland and threatened and migratory species (see **Attachments 3 and 4** to this referral).

Terrestrial and marine ecology technical reports are provided as **Attachments 5 and 6** to this referral.

3.2 Describe the hydrology relevant to the project area (including water flows).

The site is located on the shore of Moreton Bay, away from major rivers or estuarine systems. Consequently, the site is not affected by river flooding.

Being located on the coast, the site may be affected by storm surges. A storm tide hazard study was commissioned by RCC in 2009 to determine storm tide risks in Moreton Bay. The study determined that the 100-year planning level, taking into account storm surge and 0.8 metre sea level rise, should be 3.4 m AHD. This level will be adopted for finished floor levels for the Toondah Harbour development.

It is possible that the proposed reclamation and channel dredging could affect coastal currents in the area. Potential impacts will be assessed through detailed hydrological modelling the scope of which will be discussed and agreed with DoEE prior to being carried out.

Most stormwater runoff from the site is currently managed as overland and open channel flow, discharging either to the south into a mangrove area, or to the east through G J Walter Park. Preliminary stormwater plans for the proposal are to maintain these overland flow paths and discharge points however water quality of releases into Moreton Bay would be improved through the implementation of stormwater treatment trains. Within the reclamation area, stormwater would be managed through a combination of kerb and channel, pit and pipe and open channel drainage. Stormwater runoff will be discharged into the marina, Fison Channel, or along the new eastern shoreline. It is planned that Water Sensitive Urban Design (WSUD) features, such as vegetated swales and/or in-pipe gross pollutant traps (GPT), will be incorporated into the stormwater management system for the development.

A Stormwater Quality Management Plan (SQMP) will developed for the site providing a conceptual assessment and plan of site runoff and how it will achieve stormwater quality



management objectives during the operational phase of the development. Stormwater quality objectives for sites in Queensland are highly regulated and governed by the State Planning Policy (DSDIP 2013). Specific performance criteria include:

- 80% reduction in total suspended solids;
- 60% reduction in total phosphorus;
- 45% reduction in total nitrogen; and
- 90% reduction in gross pollutants.

Load reductions will be met and exceeded using a combination of public education and Water Sensitive Urban Design (WSUD) measures such as bioretention basins. Stormwater treatment modelling software such as MUSIC will be used to assess the generation, transportation and treatment of flows and pollutant loads from the site and ensure the reduction criteria will be met.

Education has significant potential to decrease pollutant loads at the source and increases people's understanding and acceptance of water quality issues and stormwater treatment devices. It is proposed that signage be installed at appropriate locations (e.g. adjacent to proposed bioretention basins).

Such features will be developed further through the design process with the intention of protecting the environmental characteristics of the Moreton Bay Ramsar Wetland and achieving applicable water quality objectives consistent with the Moreton Bay environmental values and water quality objectives (State of Queensland, 2010) pursuant to the Environmental Protection (Water) Policy 2009.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

The referral area is located in an area of known high risk of ASS presence. A significant volume of marine sediment will likely be dredged and used as reclamation material. The dewatering activities proposed may also generate acidic water with potential resulting risks to the adjacent environment if not treated properly.

Prior to any works occurring, a detailed assessment of the sediments within the project footprint, including the Fison Channel, will be undertaken for both potential contaminants and ASS in accordance with the relevant guidelines including the National Assessment Guidelines for Dredging 2009. Following the investigation, management plans describing the management of potential contaminants (if identified) and ASS will be prepared prior to any construction activities commencing.

ASS will be managed in accordance with the latest version of the Queensland Acid Sulfate Soil Management Guidelines.



3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

All outstanding natural features have been addressed in previous sections including the Moreton Bay Ramsar Wetland.

3.5 Describe the status of native vegetation relevant to the project area.

The Toondah Harbour PDA contains patches of vegetation currently mapped by the Queensland Government as remnant vegetation of the following two regional ecosystems (REs), both of which have a 'least concern' status under the VM Act:

- RE 12.1.2 (Saltpan vegetation including grassland, herbland and sedgeland on marine clay plains); and
- RE 12.1.3 (Mangrove shrubland to low closed forest on marine clay plains and estuaries).

A ground-truthed map of remnant regional ecosystems within the boundaries of the PDA is shown in **Figure 4.1 of the Terrestrial Ecology Report (Attachment 6)**.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The existing land areas have elevations up to approximately 3 m AHD, gradually grading downwards to the eastern coastline. The tidal area of the PDA ranges in depth up to -1 m AHD (+0.25 m CD); much of this area is exposed at low tide. The final development levels would range from approximately -13 m AHD in the marina to 3 m AHD for the final reclamation level. During construction of the reclamation, temporary surcharge may be placed, which would temporarily increase the ground levels in parts of the reclamation above 3 m AHD.

Fison Channel is relatively shallow, with depths of approximately -2.7 m AHD (-1.5 m CD). The proposal includes extending, straightening, widening and deepening the channel to -4.25 m AHD (-3 m CD).

3.7 Describe the current condition of the environment relevant to the project area.

At Toondah Harbour, previous land reclamation and dredging activities have altered the topography and coastline considerably. Part of the referral area under tidal waters and a broader area within the Bay were subject to a coral dredging lease in favour of Queensland Cement Limited until the 1990s.

The aquatic ecological field survey found that the habitats within the Moreton Bay Ramsar wetland at Toondah Harbour were of varying quality and condition.



The mangrove forests along the foreshore within the referral area are highly disturbed. These mangrove forests receive local runoff from developed areas and litter was caught in the roots and along the shoreline. The mangroves along the shoreline and to the east of the PDA were in fair condition with evidence of insect damage.

The areas of intertidal and sub-tidal, unvegetated mud and sand habitat around Fison Channel are extremely disturbed by frequent boat and ferry traffic, with wash affecting exposed areas at low tide. The rest of the area is moderately disturbed, with runoff from developed areas and impacts due to recreational use.

There has been some disturbance of the seagrass meadows by recreational boat traffic and wash from ferries on the southern section adjacent to the channel. The seagrass meadows are in good condition, although there is some epiphytic algal growth on the leaves.

The saltmarsh near (but outside of) the referral area is highly disturbed, receiving runoff from developed areas along the foreshore. Rubbish was found throughout.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

No Commonwealth Heritage Places are located on or adjacent to the site.

The *Queensland Heritage Act 1992* (QH Act) protects historical (non-Indigenous) heritage that is of known or potential State significance, including archaeological remains and shipwrecks, and establishes the Queensland Heritage Register (QHR). A search of the National Shipwrecks database indicates that there are no known shipwrecks within 1km of the PDA. A search of the QHR indicates that there are seven State heritage sites in proximity to the Toondah Harbour PDA.

One of these, Fernleigh (SHR# 601374), is located within the PDA. An early residence with an external kitchen (formerly the Cleveland school) Fernleigh is situated on Shore Street, across allotments 14/C14563, 15/C14563 and 16/C14563. There are a further three State listed sites adjacent to the PDA: St Pauls Anglican Church (SHR# 600769), the Grandview Hotel (SHR# 600771), and Cleveland Hotel (former) (SHR# 601130). Finally, there are three State heritage sites located within 500m of the PDA: Cleveland Police Station and Court House (former) (SHR#601933), Norfolk Island Pine Trees (SHR#602181) and Ye Olde Court House Restaurant (SHR#600770).

In addition to these registered heritage places, there is also potential for archaeological remains of state significance to be located in this area. Cleveland was an important wool trade port during the first half of the 19th century, boasting its own customs house, wool stores and stone jetty. There is the potential for remains of this early port activity, as well as of the daily lives of Cleveland's inhabitants, to be preserved in and around the PDA.

The QH Act also protects local heritage places in conjunction with the Sustainable Planning Act 2009 and local planning schemes, in this case the Redlands Planning Scheme. While the PDA



supersedes the local planning measures, it should be noted that the Toondah Harbour PDA encompasses a local heritage place, GJ Walter Park, and part of the Cleveland Point Character Precinct, which are not part of the development proposal.

3.9 Describe any Indigenous heritage values relevant to the project area.

Toondah Harbour is located in the traditional lands of the Koobenpul peoples, a coastal tribe of the Jagera language group who spoke Jandai and whose territory extended from the mouth of the Brisbane River to Redland Bay. The Aboriginal Cultural Heritage Act 2003 (ACH Act), administered by the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP), provides for the recognition, protection and management of Aboriginal cultural heritage.

A search has been undertaken of the Cultural Heritage Register to identify any known places, areas or objects of Indigenous or cultural heritage significance within the project area. No registered Aboriginal Cultural Heritage places were identified in the project area or environs through this search; however, this may be due to lack of survey information rather than the absence of Aboriginal cultural heritage.

The general duty of care under the ACH Act applies to any activity where Aboriginal cultural heritage is located regardless of whether or not it has been identified or recorded in a database. Land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal cultural heritage. Potential remains for sub-surface Aboriginal archaeological objects to exist along the original coastal foreshore area.

On 8 March 2017, Queensland South Native Title Services submitted the Quandamooka Coast Claim (QC2017/004) with the National Native Title Tribunal. The claim area includes the Toondah Harbour PDA. Once the claim is registered, the claimants will be the Aboriginal Party under section 35 of the *Aboriginal Cultural Heritage Act 2003*. During the course of the environmental impact assessment process, Walker will seek to initiate a formal Cultural Heritage Management Plan process as required under Part 7 of the *Aboriginal Cultural Heritage Act 2003* (Qld).

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The development footprint comprises freehold land and State land including leasehold, reserve and unallocated state lands.

It is understood that the state land is to be vested in EDQ. In order for this to occur, EDQ has indicated that it intends to:

- negotiate an ILUA with parties that have or may possibly hold native title in the area
- prepare interim leases/licences for current lessees (operators, RCC) during tenure conversion and future leases/licences for new ferry terminal area as appropriate to ensure no interruption to



ferry operating services.

- ensure that all state land that is currently held in trust or is the subject of a lease will be converted to appropriate tenure before it is made available to Walker for the purposes of the project
- seek a Development Lease under the Land Act 1994 to facilitate construction of the marina and land reclamation activities on state land below high water mark, with a view to obtaining the freehold over reclaimed land at the completion of the works.

EDQ expects to maintain continuous ownership of the state land, including the reclamation area, throughout the construction phase of the project.

The developed lots that are reclaimed land will eventually be transferred to private ownership with the exception of the ferry terminals and car parking which will be transferred to the ownership of RCC and the foreshore park and road reserves which will be State reserves managed by council.

The marina will be sold out of state ownership into private ownership either en globo or as a strata subdivision lot by lot.

3.11 Describe any existing or any proposed uses relevant to the project area.

The existing land uses within the Toondah Harbour PDA include:

- GJ Walter Park, which includes fields, play space and an unfenced) off leash dog park
- commercial passenger and vehicle ferry operations and associated car parking
- a dredge material spoil pond
- public boat ramp
- former council office facilities subject to a short term lease by a private trade college
- existing privately-owned low and medium density residential development, which is not part of the development area.

Large areas of surface car parking dominate the southern part of the PDA, while the green space of GJ Walter Park dominates the northern portion.

Fison Channel provides access for ferries and water taxis which operate between the mainland and North Stradbroke Island.

Walker proposes to develop new harbour and tourism facilities, a master planned community and marina in line with the vision for the Toondah Harbour PDA.





Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Management measures specific to the various MNES that have the potential to be impacted by the action are outlined throughout this referral. In addition to these measures, it is expected that further detailed studies will be carried out as part of the controlled action assessment process. These studies will provide a more detailed analysis of the existing environment and impacting processes and it is expected that the design of the project site included in this referral will be modified in response to these studies

Key studies proposed are outlined below. These studies or expected to be mandated through tailored guidelines issued as part of the EPBC Act controlled action assessment process.

Dredging Requirements and Sediment Analysis

Detailed assessment of all sediments to be dredged will be carried out including:

- Quantification of the amount of material be dredged and a map of the dredge footprint including proposed staging of dredging activities.
- Assessment of sediment according to the National Assessment Guidelines for Dredging 2009 (NAGD) including an assessment of the suitability of this material for land deposition and reclamation and offshore disposal at any proposed dredged material disposal ground.
- Assessment of the risk and potential impacts of acid sulfate soils (ASS) and potential acid sulfate soils (PASS).
- Consideration of potential impacts of mobilised sediments (e.g. metal or contaminant release).
- Details of future maintenance dredging requirements over the life of the project. It is expected an on land disposal area will be incorporated into the development.



- It is expected that most of the dredged material will be used for the reclamation. However, if other disposal options are required, detailed evaluation of all potential onshore and offshore disposal options will be carried out in accordance with the NAGD 2009 and Annex 2 of the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1972 (as amended in 2006) (London Protocol).

Dredge Plume Modelling

Peer reviewed, predictive three dimensional modelling of indirect impacts of dredge generated sediment will be carried out, including:

- Hydrodynamic modelling;
- Sediment transport modelling where the range of particle fractions are all modelled;
- Modelling will include all types of resuspension possibilities including currents and wave-induced bottom shear stresses as well as wave induced mud fluidisation. If not modelled a justification as to why this phenomena was not relevant will be provided.
- Ecological responses will be included in modelling where possible; and
- The modelling will represent the conditions at the time of year in which the dredging will occur.

Modelling must include likely dispersion and resuspension from both dredging operations and dredge material disposal (if relevant) during a range of probable hydrodynamic conditions, weather events and expected dredge equipment scenarios.

Reclamation

Detailed assessment of the impacts of the proposed reclamation on Moreton Bay will be carried out. Impact assessment will include direct and indirect impacts to ecological features such as seagrass beds, intertidal habitats and roost sites as well as changes to hydrodynamic and coastal processes. Information provided will include:

- The boundary of the land to be reclaimed, tied to real property boundaries;
- The location of the line of mean high water spring tide and highest astronomical tide in relation to the area of reclamation;
- Existing levels of the land and proposed final levels of reclamation in relation to the lowest astronomical tide (LAT) or Australian Height Datum (AHD);
- Location of marine plants and species habitat within the land to be reclaimed;



- Typical cross section across the land to be reclaimed showing the proposed finished levels and method of protecting the seaward boundary of the reclamation from erosion;
- Discussion of how the land reclamation may affect the current erosion and deposition patterns in terms of changes to the low water mark of the Moreton Bay Ramsar Wetland;
- Discussion of the impacts to the roosting sites (sand bars) at Cassim Island and the Nandeebie Claypan due to potential hydrological changes from dredging and land reclamation. Impacts to other ecologically sensitive areas will also be addressed once modelling has been completed including intertidal habitat and marine vegetation; and
- Three-dimensional modelling of the impacts of the land reclamation on the current sediment transport and hydrodynamic patterns within Moreton Bay.

In addition the following details will be considered during the design of the reclamation and resulting impacts assessed:

- Quantities and quality of tail water likely to be generated from dredging activities and the rate of their discharge;
- The settling rate of fine sediments from all dredge material types;
- Where relevant the residence time within settling ponds prior to discharge (related to dredge pumping rate, ratio of solids to water in the dredged material, settling rates, available capacity of the disposal and settling areas, potential bulking factor, intensity and duration of rainfall events with consideration given to the worst case scenario for these factors); and
- The source of material for bunds and bund wall stability.

Ecological Studies

While initial terrestrial and marine ecology studies have been completed for the referral a more detailed assessment will be carried out as part of the controlled action assessment process encompassing all areas that may be affected by the action. Additional ecological studies will include the following information:

- Listed migratory species and threatened species and ecological communities that are likely to be present in the vicinity of the site, including but not limited to marine turtles, inshore dolphins, cetaceans, dugong and migratory birds including shorebirds;
- Information on listed threatened and migratory species, including foraging, roosting, resting and nesting habitats, must include but not be limited to:
 - o describe and map critical habitat for threatened species, ecological communities and migratory species;



-
- o the importance of habitat in a local, regional, national and international context;
 - o the status of the population (e.g. abundance) in the area likely to be affected by the proposed development relative to other areas outside the area likely to be affected;
 - o genetic diversity;
 - o the viability of the local, regional and overall populations;
 - o local and regional representation;
 - o conservation and biodiversity values;
 - o economic, social and cultural values of species;
 - o the extent (in hectares) of any areas of important or unique habitat; and
 - o seasonality influences.
- Identify the desired conservation outcomes that the project has for MNES;
 - Describe the biophysical/regional conditions that are required for MNES to be maintained and that are required to reach articulated conservation objectives for MNES;
 - Describe and quantify natural variability of MNES where adequate data is available or can be sourced;
 - Describe the extent to which the general environment, ecosystems and MNES are already stressed by natural and anthropogenic effects;
 - Identification of the Moreton Bay Ramsar Wetland's listing criteria attributes expressed in the vicinity of the proposed development, including an evaluation of the contribution that the values expressed at this location make to the overall ecological character of the Ramsar Wetland;
 - Provide a description of biota/biotic habitats, including a map of marine/intertidal habitats (including information on seasonal fluctuations e.g. seagrass prevalence), likely to be affected by the proposed development;
 - Identify, describe and map environments important to the health of the Moreton Bay Ramsar Wetland, including terrestrial and intertidal habitats, that are likely to be affected by the proposed development;
 - Identify, describe and map reef communities and those species supported by reef communities in areas likely to be affected by the proposed development, including information on species diversity and abundance;
 - Identify, describe and map seagrass communities in areas likely to be affected by the



proposed development, including information on species diversity, seasonality and abundance;

- Identify, describe and map soft sediment fauna communities (e.g. infauna, benthic invertebrates) in areas likely to be affected by the proposed development, including information on species diversity, seasonality and abundance;
- Describe oceanographic conditions in the region, especially those that may have a bearing on the proposal. Include information on seasonal variation, waves, tides, currents, water salinity, clarity, temperature and depths. Discuss the frequency and severity of weather conditions such as storms and cyclones, for two, ten and 100 year conditions; and
- Identify and describe the existing uses of the area and nearby areas that may be affected by the proposed action (for example; tourism, commercial and recreational fishing, research and traditional use activities).

Direct and indirect impacts to MNES will be assessed from construction to on-going use of the area as a marina and urban development using information obtained through the above studies. Impact assessment will include a detailed analysis of any effects on the ecological character of the Moreton Bay Ramsar Wetland by building on the assessment carried out for this referral (refer to **Attachment 3**). It is expected that the Method for Assessing Impacts on the Ecological Character of Moreton Bay Wetland will be modified in consultation with DoEE to ensure all potential impacts are addressed adequately. Impact assessment will include consequential and cumulative impacts on the project area and Moreton Bay.

As previously stated it is expected that the development footprint, construction methodology and ultimate uses of the different components of the development will be modified as a result of detailed assessment to ensure indirect impacts are minimised and mitigated.

Management Measures

Detailed assessment will include information on avoidance measures, proposed safeguards and mitigation measures to deal with the impacts of the action. Environmental management will meet or exceed industry standard and will include the following elements:

- Identify the level of risk associated with potential impacts identified and those that require mitigation, monitoring or management to avoid or reduce impacts to an acceptable level;
- A consolidated list of measures proposed to be undertaken to avoid, prevent, minimise or manage the impacts of the action;
- Particular focus will be given to:
 - o determining factors in the planning of the proposal so as to avoid damage to the environment;



- o measures to avoid or minimise damage to the character of the Moreton Bay Ramsar Wetland;
 - o articulating conservation objectives for individual matters of National Environmental Significance with a focus on receptors;
 - o describing how this project is likely to contribute to protection of MNES;
 - o outline how any avoidance, safeguards, management and mitigation measures will increase resilience of the environment, ecosystems and MNES within the region;
 - o demonstrate how impact management and mitigation measures would ensure that MNES in the affected region are maintained or improved;
 - o characterise, quantify and address uncertainties that may affect the effectiveness of management measures and therefore on the confidence that biodiversity values would be maintained (or improved) during and after the project;
 - o measures to avoid or minimise disturbance to fauna and flora found around and within the proposal area (particularly listed threatened species and communities and listed migratory species);
 - o management of the dredged material during the loading of the dredged material;
 - o management strategies for dredging, loading and dredged material disposal, including trigger levels for management actions linked to quantitative measurements of water quality and Benthic Primary Producer Habitat (BPPH) based on baseline data; and
 - o management of disposal for reclamation-based dredge material, including how water quality will be monitored and managed to ensure that water quality objectives for this area are achieved and the environmental values of the connected surface water and groundwater are maintained.
- An outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the impacts of the action.

Offsets

While it is acknowledged offsets cannot be considered as part of the referral they provide an additional tool that can be used during project design and the environmental impact assessment process to ensure a project provides an overall benefit to any MNES impacted. A detailed offsets package will be developed through the controlled action assessment process however Walker Group have held discussions with a number of stakeholders to identify a range of offset measures to be put in place as part of the project. These measures include:

- Identifying new conservation areas in partnership with the Queensland Government;



- Community ranger education and sponsorship programs to ensure active land and sea country management in Moreton Bay;
- A feral pest management program;
- Various remediation and rehabilitation projects within and adjacent to the Moreton Bay Ramsar Wetland. These could include management of *mangrove incursion in Nandeebie Claypan and rehabilitation of salt marsh south of the PDA. Further opportunities will be discussed with the community and relevant government agencies;*
- Koala habitat tree planting in the PDA and surrounding koala movement corridors, and a collaring and monitoring program;
- Use of sea life friendly propellers for vessels using marina (potential Australia first);
- Development of a learning centre in open space within the development area;
- Creation of new conservation park on eastern boundary with restricted access;
- Implementation of bird hide/s in various areas;
- Community awareness programs (koalas, birds, marine life, Aboriginal cultural heritage);
- Exploration of Moreton Bay fishing net buy back partnership; and
- A pilot migratory shorebird offset in the Yellow Sea with an international wetlands organisation, which would address one of the key reasons for a general decline in migratory birds in Moreton Bay.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The project is expected to impact on the following MNES:

1. Wetlands of international importance
2. Listed threatened species and ecological communities
3. Listed migratory species.

Further information regarding these impacts is provided in this referral. Walker has committed to completing an environmental assessment as part of the approval process through which impacts to MNES will be assessed and environmental outcomes determined (refer to the response to section 4.1).

Where impacts to MNES or other environmental aspects are identified, these impacts will be



addressed in accordance with the following mitigation hierarchy:

- Avoid – measures taken to avoid creating impacts from the outset.
- Minimise – measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided.
- Rehabilitate / restore – measures taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised
- Offset – measures taken to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy.

Walker will explore the appropriateness of outcome-based conditions and advanced offsets as part of the ongoing assessment process.



Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

Wetlands of international importance - Yes

5.1.4 Listed threatened species or any threatened ecological community

Listed threatened species and communities - Yes

5.1.5 Listed migratory species

Listed migratory species - Yes

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No



5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

No world heritage properties occur in or near the referral area.

No national heritage places occur in or near the referral area.

The referral area is not located within or adjacent to the Commonwealth Marine Environment.

No Commonwealth land occurs in or near the referral area.

The referral area is not located in or near the GBRMP.

The referral does not relate to a water resource, in relation to coal seam gas development and large coal mining development.

The referral does not relate to a nuclear action.

The referral does not relate to a Commonwealth action.



Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Walker Group Holdings Pty Ltd is the party taking the action and has a satisfactory record of responsible environmental management.

Lang Walker is the majority shareholder of both Walker Group Holdings and Walker Corporation Pty Ltd, which was established in the 1960s and is one of Australia's largest private, diversified development companies.

Walker entities have developed more than 1,000 projects in all states and territories and in all property sectors over a period spanning 50 years. Apart from three instances, outlined below, the companies have a strong record of responsible environmental management.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Walker Group Holdings Pty Ltd has not been subject to proceedings under a Commonwealth, State or Territory Law.

A subsidiary of Walker Group Holdings, Kew Development Corporation was subject to proceedings under State law:

Kew Development Corporation Pty Ltd and Heritage Victoria: In 2007 Kew Development Corporation (a Walker subsidiary) pleaded guilty to excavating within a Tree Preservation Zone at its Kew Cottages site in Melbourne resulting in the damage to the root of a tree. Kew Development Corporation was required to fund heritage tree protection measures in Kew Cottage's future stages. The tree was retained and is in good health today.

For transparency, Walker Corporation Pty Ltd has been subject to two proceedings under State law:

Director-General Department of Environment and Climate Change (NSW) Walker Corporation



Pty Limited: Walker was found guilty of clearing native vegetation without development consent on land at Picton Road, Wilton NSW on 14 May 2010.

Director-General Department of Environment and Climate Change (NSW) Walker Corporation Pty Limited: Walker was found guilty of clearing native vegetation without development consent on land at Macquariedale Road, Appin NSW on 30 November 2011.

6.3 Will the action be taken in accordance with the corporation's environmental policy and planning framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Walker Group Holdings Pty Ltd is not a publicly listed company and therefore there are no statutory requirements for it to have a formal environmental policy. However, in recognising the value of the surrounding natural environment, Walker is committed to ensuring the proposal is sustainable. All works will be controlled by conditions of consent associated with approvals issued under Federal and State environmental law.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

On 25 November 2015, Walker Group Holdings Pty Ltd referred a proposed action to construct a residential, commercial and tourism based development, ferry terminals, open space, and marina at Toondah Harbour, located on the foreshore of Moreton Bay, Queensland (EPBC Act referral 2015/7612). The referral was formally withdrawn on 4 May 2017.

Other Walker entities have previously referred an action, specifically:

In 2009 Walker Corporation Pty Ltd lodged an EPBC referral for Precinct 1 of the Buckland Park Residential Subdivision and Development (EPBC 2009/4903). The action was determined as not a controlled action.

In 2010 Walker Corporation Pty Ltd's proposal to construct and operate a residential and marina development in in Ralphs Bay, Lauderdale was refused (EPBC 2006/3193).

In 2013 Walker Group Constructions Pty Ltd lodged an EPBC referral for Precinct 2 of the Buckland Park Residential Subdivision and Development (EPBC 2013/6947). The action was determined as not a controlled action.



In May 2016, Banksia Grove Development Nominees Pty Ltd – a joint venture arrangement in which Walker Corporation has an interest - sought a Prior Authorisation Exemption under the EPBC Act for the Banksia Grove development in Perth, WA.



Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Studds et al 2017. Rapid population decline in migratory shorebirds relying on Yellow Sea tidal mudflats as stopover sites. Nature Communications 13 April 2017	High	NA
Adaptive Strategies 2016. Method for identifying the presence of OUV within the Great Barrier Reef World Heritage Area. Prepared for Queensland Department of State Development.	High	NA
FRC Environmental 2017. Toondah Harbour Marine Ecology Report.	High	NA
BAAM 2017. Toondah Harbour Terrestrial Ecology Assessment.	High	NA



Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

There are no feasible alternatives to the project as the Priority Development Area has been identified by the State government as one of only two the locations for future development of marine infrastructure in Moreton Bay and to provide a regional gateway to Moreton Bay and North Stradbroke Island. The project footprint will be refined as part of the ongoing assessment process.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?



Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

General Manager Development

9.2.2 First Name

Peter

9.2.3 Last Name

Saba

9.2.4 E-mail

peter.saba@walkercorp.com.au

9.2.5 Postal Address

GPO Box 652
Brisbane QLD 4000
Australia

9.2.6 ABN/ACN

ABN

81001215069 - WALKER GROUP HOLDINGS PTY LIMITED

9.2.7 Organisation Telephone

07 3007 7400



9.2.8 Organisation E-mail

peter.saba@walkercorp.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date:

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Peter Saba, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:.....  Date: 9/5/17

I, Peter Saba, the person proposing the action, consent to the designation of Walker Group Holdings Pty Ltd as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:.....  Date: 9/5/17

9.3 Is the Proposed Designated Proponent an Organisation or Individual?



Organisation

9.5 Organisation

9.5.1 Job Title

General Manager Queensland Development

9.5.2 First Name

Peter

9.5.3 Last Name

Saba

9.5.4 E-mail

peter.saba@walkercorp.com.au

9.5.5 Postal Address

GPO Box 652
Brisbane QLD 4000
Australia

9.5.6 ABN/ACN

ABN

81001215069 - WALKER GROUP HOLDINGS PTY LIMITED

9.5.7 Organisation Telephone

07 3007 7400

9.5.8 Organisation E-mail

peter.saba@walkercorp.com.au

Proposed designated proponent - Declaration

I, Peter Saba, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.



Signature:.....*Sam Maynard*..... Date:9/5/17.....

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Snr Environmental Scientist

9.8.2 First Name

Sam

9.8.3 Last Name

Maynard

9.8.4 E-mail

sammaynard@saundershavill.com

9.8.5 Postal Address

9 Thompson Street
Bowen Hills QLD 4006
Australia

9.8.6 ABN/ACN

ABN

24144972949 - Saunders Havill Group Pty Ltd

9.8.7 Organisation Telephone

07 3251 9455

9.8.8 Organisation E-mail

mail@saundershavill.com

Referring Party - Declaration



I, Sam Maynard, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:  Date: 9/5/17



Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 8444_att_3_-_toondah_harbour Ramsar wetland assessment.pdf
2. 8444_att_4_-_toondah_harbour threatened and migratory species assessment.pdf
3. 8444_e_site_aerial_e.pdf
4. 8444_e_site_aerial_jpeg.jpg
5. 8444_e_site_context_a.pdf
6. att_1_-_figures.pdf
7. att_2_-_submissions-report-toondah-harbour.pdf
8. att_5_-_marine_ecology_technical_report.pdf
9. att_6_-_terrestrial_ecology_technical_report_1.pdf
10. att_6_-_terrestrial_ecology_technical_report_2.pdf