Australian Government
Department of the Environment and Energy

**Title of Proposal** - Walyering 3D Seismic Survey, Cataby

# Section 1 - Summary of your proposed action

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

### 1.1 Project Industry Type

Exploration (mineral, oil and gas - non-marine)

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

Bombora Natural Energy (Bombora) is an Australian company proposing an onshore petroleum exploration program. The program will be conducted within petroleum exploration permit EP477 in the Perth Basin, Walyering, near Cataby – approximately 170 km north of Perth (Figure 1). The proposed program will involve a 3 dimensional (3D) seismic survey using a vibroseis truck to drive along source lines within the Seismic Survey Area; receiver lines will run perpendicular to source lines. The scope of the proposed action is a 96 km2 grid of orthogonal seismic lines. The lines in the north-south direction are 280 m apart and the lines in the east-west direction are 360 m apart. The total line length for the program is estimated to approximately 595 km. See section 2.3 of Walyering Environment Plan for more details on methods of conducting the Seismic Survey.

The only areas that require clearing are the source lines and 1 in 3 receiver lines falling within the boundary of the Botanical Survey Area (BSA) (Figure 2). Clearing is not required outside of the BSA as all native vegetation can be avoided; the majority of the Seismic Survey Area (SSA) has already been cleared. Bombora's initial plans to clear all source and receiver lines within the BSA were modified once the environmental values of the area were understood. In this way Bombora has demonstrated good environmental due diligence and applied the top level of the mitigation hierarchy to avoid environmental disturbance to the lowest practical level while still enabling a fit-for-purpose seismic survey. The second level of hierarchy - mitigation has also been employed in the proposed action whereby a mulching tractor will be used ahead of the vibroseis truck to immediately mitigate the impact of clearing within the BSA.

In order for the seismic survey to still be fit for purpose while avoiding botanically important areas and mitigating impacts - it is required that all source lines within the BSA are to be cleared. However where the source lines traverse a wetland or creekline - the truck will use existing tracks to cross them and thus no clearing will be required in these areas. This proposed clearing will occur in Carnaby's Black Cockatoo (Calyptorhynchus latirostris) potential habitat as well as Banskia Woodland of the Swan Coastal Plain Threatened Ecological Community (Banksia TEC) both of which are listed under the EPBC Act and thus forms the basis of this referral.

According to the EBPC Act referral guidelines for three threatened black cockatoo species, the clearing of any part of a vegetation community known to contain breeding habitat, or more than

1 ha of quality foraging habitat (woodland dominated by proteaceous plant species such as Banksia spp.) or degradation of more than 1 ha of foraging habitat may be considered a significant impact and is recommended to be referred for assessment under EBPC Act (DSEWPaC 2012). Within the BSA there were several vegetation association areas classified as Carnaby's Black Cockatoo habitat and are as follows:
Ecam 103.22 ha Roosting
Cc 42.09 ha Foraging/nesting/roosting
Xp 31.84 ha Foraging
BW10% 708.36 ha Foraging (also considered Banksia TEC)
BW30% 92.83 ha Foraging (also considered Banksia TEC)
Prt 640.73 ha Foraging

It is proposed that 17.1 ha of Carnaby's Black Cockatoo foraging habitat (also considered the Banksia TEC) will be mulched/cleared within the BSA. This is 2.1% of the total 801.9 ha (BW10% and BW30% combined) of Banksia Woodland in the BSA. It is also proposed that 14.72 ha of Prt will be mulched. This is 2.3% of the total Prt area (640.73 ha). Bombora has minimised clearing in some areas of Banksia to minimise impacts to The Banksia TEC and Carnaby's Black Cockatoos foraging habitat (see Figure 2 for a comparison of the original proposal and the current proposal).

**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 |
|---|---|---|---|
| Walyering 3D Seismic Survey Area | 1 | -30.696325111554 | 115.48907452603 |
| Walyering 3D Seismic Survey Area | 2 | -30.696325111554 | 115.48916035672 |
| Walyering 3D Seismic Survey Area | 3 | -30.709609011266 | 115.46272450467 |
| Walyering 3D Seismic Survey Area | 4 | -30.709609011266 | 115.45019322415 |
| Walyering 3D Seismic Survey Area | 5 | -30.655871760583 | 115.44967824002 |
| Walyering 3D Seismic Survey Area | 6 | -30.65572408959 | 115.49645596524 |
| Walyering 3D Seismic Survey Area | 7 | -30.703114888794 | 115.49645596524 |
| Walyering 3D Seismic Survey Area | 8 | -30.696325111554 | 115.48907452603 |

**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).**

The Seismic Survey Area is in Walyering, 17 km north of Cataby, 21 km west of Dandaragan and 170 km North of Perth in Western Australia (Figure 1). The area contains a number of live exploration licences and mining leases as well as one general purpose lease and retention licence. These live licences and leases exist predominantly in the southern and central portions of the site. The underlying tenure is a mixture of Freehold, Crown, Reserve and Easement - road.(Figure 3).

A large portion of the Seismic Survey Area is currently used for agricultural purposes, and previously cleared for mineral exploration and mining. The south western section of the Botanical Survey Area is a rehabilitated area as part of the Tronox mining operation. The north west section of the Botanical Survey Area has been previously cleared for grazing purposes.

The area is located in the Perth subregion (SWA02) of the Swan Coastal Plain bioregion and the Lesueur Sandplain subregion (GES02) of the Geraldton Sandplains bioregion (Figures 4 and 5).

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

Within the Botanical Survey Area (2,361 ha) - only 40 ha (including a 15% contingency) is proposed to be cleared.

**1.7 Is the proposed action a street address or lot?**

Lot

**1.7.2 Describe the lot number and title.**Exploration permit (447 R1)

**1.8 Primary Jurisdiction.**

Western Australia

**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 12/2017

End date 04/2018

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

Bombora is currently proposing onshore oil and gas exploration activities on a Dept. of Mines and Petroleum (DMP) exploration permit EP 447 R1 granted under the *Petroleum and Geothermal Energy Resources Act 1967*. An Environment Plan has been lodged with the DMP under the same Act in order to proceed with the seismic survey activities. In order to obtain approval to clear native vegetation for the seismic survey, a Native Vegetation Clearing Permit is being sought from the DMP under the WA *Environmental Protection Act 1986*. Once these State approval requirements are obtained, Bombora aim to commence the survey in late 2017.

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

Bombora is currently engaging with the Yued People who are the traditional owners through the South-West Land and Sea Council (SWALSC). Bombora has engaged the services of Brad Goode and Associates who have completed a desktop study of the area and identified completed anthropological and archaeological reports and known sites of significance. Bombora will then undertake an anthropological and archaeological survey in areas identified as high risk in the desktop study in cooperation with the traditional owners.

Consultations with Tronox regarding access to the mineral sands mining leases has also occured.

Further consultation will be undertaken to obtain consent to enter the freehold land held by Iluka and local graziers.

See Table 11: Stakeholder Consultation Register of attached Walyering Environment Plan for full Stakeholder Consultation details.

**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.**

The project has not been subject to any environmental impact assessment under the Commonwealth or State legislation. However, approval documentation for the current proposed project inlcude an Environment Plan already submitted to Department of Mines and Petroluem (DMP) under the *Petroleum and Geothermal Energy Resources Act 1967* and a Native Vegetation Clearing Permit will be submitted to the DMP under Part IV of the state *Environmental Protection Act 1986.*

The attached Environment Plan was prepared and submitted in accordance with the DMP's *Guideline for the Development of Petroleum and Geothermal Environment Plans in WA, November 2016.* In February 2017 Bombora submitted the Environmental Plan Walyering 3D Seismic Survey EP447-ENVPLN-3DSS Rev.4.0. The Summary is available for public review on the DMP website. On 19/04/2017 DMP advised Bombora that DMP's approval is pending subject to the Department of Environmentand Energy's (DEE) decision and outcomes of this EPBC referral.

Note that the attached Environment Plan is still a draft submission, and all clearing will be adjusted to match this EPBC referral document. In other words, the 50.14 ha proposed to be cleared/mulched in the Environment Plan is incorrect and will be adjusted to 40 ha and match the attached GIS shapefiles in this EPBC referral.

**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?

No

### 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 |
|---|---|
| Carnaby's Black Cockatoo (Calyptorhynchus | According to the EBPC Act Referral Guidelines |

| Species | Impact |
| --- | --- |
| latirostris) | for Three Threatened Black Cockatoo species, the clearing of more than 1 ha of quality foraging habitat or degradation of more than 1 ha of foraging habitat may be considered a significant impact and is recommended to be referred for assessment under EBPC Act (DSEWPaC 2012). Black Cockatoos feed on a variety of seeds, nuts and flowers from a range of native and exotic plants. Food plants include a number of Banksia species, Pine trees, Marri, Jarrah (eucalypt woodlands) and proteaceous plants (DSEWPaC 2012). In August 2016 a Threatened & Priority Flora and Vegetation Survey was undertaken within the Botanical Survey Area (BSA). The flora survey was conducted along source lines and one receiver line within the BSA (Figure 1). The flora survey determined the area contains 9 vegetation association types, of which 7 of them are relevant to Carnaby's Black Cockatoo habitat. These vegetation types are classified as BW10% which contains Banksia menziesii and B.attenuata woodland with scattered E.todtiana and Nuytsia floribunda over Restionaceae and Proteaceae dominated Open Heath with Banksia coverage at around 10%. The BSA also contains a vegetation association BW30% which is the same as BW10% however, the coverage of Banksia is denser at 30%. The BSA also contains vegetation association Prt which contains Proteaceous Open Low heath (Figure 6). Vegetation association Ecam also exists in the BSA and contains Eucalyptus camaldulensis and E.spp over weedy grass. And finally vegetation association Xp which consists of Xanthorrhoea preissii and Regelia sp. Closed Heath. The BSA is a total 2,371.42ha and each size of the vegetation associations and their relevance to Carnaby's Cockatoos are as follows: Ecam 103.22 ha Roosting Cc 42.09 ha Foraging/nesting/roosting Xp 31.84 ha Foraging BW10% 708.36 ha Foraging BW30% 92.83 ha Foraging Prt 640.73 ha Foraging Within the BSA it is proposed to mulch source lines and 1 in 3 receiver lines, the proposed mulching in each vegetation |

| Species | Impact |
| --- | --- |
| | association is as follows: BW30% - 0.36ha out of 92.83ha, BW10% - 16.74ha out of 708.36ha. This means that 2.1% of the banskia woodland (BW10% plus BW30%) vegetation will be mulched, and 0.7% of the total mulching in the BSA. It is proposed to mulch 14.72ha out of 640.73ha of Prt. This means 2.3% of the total Prt area and 0.6% of the total proposed mulching of the whole BSA. Bombora has minimised clearing in some areas of Banksia to mitigate impacts to Black Cockatoos, see Figure 2 for a comparison of the original proposal and the current proposal. Note that there are extensive areas of un-cleared Banksia and Proteaceous shrubland between areas proposed to be cleared. The clearing width for source and receiver lines is 4.5 m. Source lines will be mulched every 280 m, leaving 275.5 m uncleared. Two out of three receiver lines will not be mulched. Every third receiver line will be mulched every 1,080 m leaving an uncleared area of 1,075.5 ha. This means that throughout the clearing footprint there will still be large intact pockets of vegetation. The method of mulching the clearing areas means that rehabilitation will be prompted early, this method involves clearing of above ground vegetation only; the root stock is left intact for regrowth and to minimise soil erosion. The vegetation will be mulched and mulched material will be respread at the point of its origin. Mulched material is expected to become composted within 6-12 months introducing nutrients to soil to facilitate regrowth with provenance-correct seed. Additionally, the mulch will act as a biomass cover over exposed soils and thus soil erosion and drainage patterns will not be affected by the proposed action. |
| Banksia Woodlands of the Swan Coastal Plain - Threatened ecological community | Banksia Woodlands of the Swan Coastal Plain is listed (16 September 2016) as an Endangered community under the EPBC Act. As a result of this 360 Environmental was commissioned by Bombora to undertake a targeted vegetation survey, including the recording of quadrats inside and outside of the |

| Species | Impact |
| --- | --- |
| | SSA and condition mapping of the Banksia Woodland vegetation associations (subsequent the August 2016 T/DRF Survey) of the proposed mulched receiver lines. See Figure 1 in attached report: 1845AC Walyering Flora Letter Report Final - Part 2). Results from the statistical analysis and the site information, identified that all the quadrats showed the highest similarity with Banksia woodland communities from the Gibson et al. 1994 study. These were: FCT SCP 23a: Central Banksia attenuata – B. menziesii woodlands; FCT SCP 23b: Northern Banksia attenuata – B. menziesii woodlands; FCT SCP 21c: Low lying Banksia attenuata woodlands or shrublands; FCT SCP 20a: Banksia attenuata woodlands over species rich dense shrublands; FCT SCP 28: Spearwood Banksia attenuata or B. attenuata – Eucalyptus woodlands; FCT SCP 21b: Southern Banksia attenuata woodlands; FCT SCP 22: Banksia ilicifolia woodlands; and FCT SCP 20c: Eastern shrublands and woodlands. The vegetation in the Survey Area has been determined to have affiliation with Banksia woodland FCTs (as listed above). These FCTs are listed as sub-communities under the EPBC Act listed TEC Banksia Woodlands of the Swan Coastal Plain (DEE 2016). A key diagnostic feature is a prominent tree layer of Banksia, with scattered Eucalypts and other tree species often present among the Banksia canopy. The vegetation association BW10% and BW30% within the Survey Area are therefore considered to be the Banksia Woodland TEC. For vegetation remnants to be under full national protection the community has to meet key diagnostic characteristics. In regards to the presence of the TEC, the Approved Conservation Advice for the thresholds state that: Vegetation in Excellent Condition should have a minimum patch size of 0.5 ha; Vegetation in Very Good condition should be a minimum of 1 ha; and Vegetation in Good condition should be a minimum of 2 ha. If a vegetation patch is considered Degraded or worse it is not considered favourable for |

| Species | Impact |
| --- | --- |
| | national protection. Based on this information, and the survey results, the vegetation in in the Survey Area is considered suitable for National protection as the condition and area of Banksia Woodland in the Survey Area exceeds Conservation Advice thresholds. The seismic survey proposes to mulch 17.1ha out of 801.19ha of banksia woodland TEC, this is 2.1% of the total proposed mulching within the Banksia Woodland area and 0.7% of the total proposed mulching in the BSA.This means that throughout the clearing footprint there will still be large intact pockets of vegetation. The method of mulching the clearing areas means that rehabilitation will be prompted early, this method involves clearing of above ground vegetation only; the root stock is left intact for regrowth and to minimise soil erosion. The vegetation will be mulched and mulched material will be respread at the point of its origin. Mulched material is expected to become composted within 6-12 months introducing nutrients to soil to facilitate regrowth with provenance-correct seed. Additionally, the mulch will act as a biomass cover over exposed soils and thus soil erosion and drainage patterns will not be affected by the proposed action. |

**2.4.2 Do you consider this impact to be significant?**

No

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

No

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

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.**

**FLORA**

A threatened and priority flora survey and report was undertaken across a section of the Seismic Survey Area (SSA) referred to as the Botanical Survey Area (BSA). Refer to attached Walyering T & P Flora Survey Report - Part 1 and 2 for full report details (360 Environmental 2017a). The surveyed BSA is located in the north west corner of the SSA – this location was selected as it contains the majority of the remnant vegetation in the proposed SSA and the clearing of vegetation cannot be avoided in this area. The survey report included a desktop assessment of the BSA and found the area has been previously cleared for agricultural and grazing purposes (Figure 4 of attached Walyering T & P Flora Survey Report). The BSA is not part of any Regional Ecological Linkage as defined by the Perth Biodiversity Project's Draft Regional Ecological linkage network. There are small pockets of Environmentally Sensitive Areas (ESAs) located within the BSA. These pockets represent the historical locations of T/ DRF and their buffer zones. Particular attention was given to an area where a source line dissected an ESA 'pocket'. However no T/DRF were recorded during the 2016 survey, and the majority of the previously located ESA/DRFs are in areas now cleared for mining.

The Interim Biogeographical Regionalisation for Australia (IBRA) was developed to identify land of conservation value. IBRA7, the latest version, classifies Australia's landscapes in geographically distinct bioregions based on climate, geology, landform and vegetation. The Botanical Survey Area lies on the junction of two IBRA regions; Swan Coastal Plain and Geraldton Sandplain. Vegetation across the State has been mapped at different scales by various people. The Botanical Survey Area has been mapped by both Beard (1979) which was later reassessed by Shepherd et al. (2001). There are four Beard / Shepherd vegetation units in the Botanical Survey Area. Two of these units have the same vegetation description; however they occur within different regions. The Shepherd et al. (2001) vegetation types (along with the corresponding Beard [1979] type in brackets), are described below:

Bassendean_1030 (b1,2Li): Low woodland; Banksia attenuata and B. menziesii;

Bassendean_1031(hSZc/dZc): Mosaic-Shrublands-hakea scrub-heath/Shrublands, banksia heath;

Lesueur_1031(hSZc/dZc): Mosaic-Shrublands-hakea scrub-heath/Shrublands, banksia heath; and

Lesueur_7(e5,6Mi): Medium woodland; York gum (Eucalyptus loxophleba) and wandoo

The vegetation complexes within the survey area that may be considered regionally significant are; The Lesueur_7 vegetation complex and the Bassendean_1031 vegetation complex. The Lesueur_7 complex has 14.21% of its extent remaining within the state and is represented in the survey area by the vegetation association Cc - *Corymbia calophylla*, *Eucalyptus spp*. Open Woodland over a mixed Tall Shrubland. The Bassendean _1031 vegetation complex has 19.3% of its extent remaining within the Swan Coastal Plain Bioregion and is represented in the survey area by the vegetation association Prt - Proteaceous Open Low Heath.

Six natural vegetation associations were described for the BSA. In addition to the associations, four vegetation units were mapped, these included areas that have been altered by disturbance.

The (natural) vegetation associations are as follows;

BW30% - *Banksia menziesii and B. attenuata* Woodland with scattered *E. todtiana* and *Nuytsia floribunda* over *Restionaceae* and *Proteaceae* dominated Open Heath

BW10% - *Banksia menziesii* and *B. attenuata* Open Woodland with scattered *E. todtiana* and *Nuytsia floribunda* over *Restionaceae* and P*roteaceae* dominated Open Heath

Xp - *Xanthorrhoea preissii* and *Regelia sp*. Closed Heath

Prt - *Proteaceous* Open Low Heath

Cc - *Corymbia calophylla*, *Eucalyptus spp*. Open Woodland over a mixed Tall Shrubland.

Creek - Eucalyptus camaldulensis and E. spp over weedy Grassland

The vegetation units (previously disturbed) are as follows;

Ecam - *Eucalyptus camaldulensis* and *E. spp* over riparian spp.

EM - Scattered *Eucalyptus rudis* and *Melaleuca rhaphiophylla* over weedy grassland

Rehab - Areas of rehabilitation/revegetation

Paddock - Cleared paddock of weedy grasses

A total of 56 taxa (including species, subspecies, varieties and forms) from 34 genera and 14 families were recorded in the Botanical Survey Area. The commonly occurring families were; *Myrtaceae* (19 taxa), *Restionaceae* (11 taxa) and *Proteaceae* (6 taxa). A total of 5 Priority flora species were recorded in the Botanical Survey Area. The species names and the number of individuals recorded, in brackets, are as follows; *Lyginia excelsa* P1 (195), *Babingtonia delicata* P1 (12), *Beaufortia eriocephala* P3 (18), *Conostephium magnum* P4 (107) and *Eucalyptus macrocarpa subsp*. *elachantha* P4 (30). In total 362 Priority Flora specimens were located.

Introduced species were observed during the survey; however no Declared Plants, as listed under the Biosecurity and Agriculture Management Act 2007 (BAM Act) or Weeds of National Significance (WONS) were recorded.

No Threatened species pursuant to the Environment Protection and Biodiversity Act 1999 (EPBC Act) and/or gazetted as Declared Rare Flora (DRF) pursuant to the Wildlife Conservation Act 1950 (WC Act) were recorded during the survey.

Banksia dominated woodlands of the Swan Coastal Plain are now all listed as a Threatened Ecological Community (TEC) under the EPBC Act. Since this listing occurred, 360 Environmental was commissioned by Bombora to undertake a targeted vegetation survey, including the recording of quadrats inside and outside of the SSA and condition mapping of the Banksia Woodland vegetation associations (subsequent to the 360 Environmental 2017a T/DRF Survey) of the proposed mulched receiver lines. Refer to attached 1845AC Walyering Flora Letter Report Final - Part 1 and 2 (360 Environmental 2017b). One Priority 1 (P1) species, *Lyginia excelsa*, as listed by DPaW was recorded during the survey from nine locations. One specimen of Priority 4 (P4) species E*ucalyptus macrocarpa subsp. elecantha* was recorded from one location during the survey. Another Priority 4 species *Conostephium magnum* was recorded from six locations (Table 2 and Figure 2 of 360 Environmental 2017b). The Threatened (T) species *Macarthuria keigheryi* was not located along any of the surveyed receiver lines during the targeted searches.

The targeted vegetation report established nine quadrats in Banksia Woodland during the Survey, this included six within the SSA and three quadrats outside of the SSA. Results from the statistical analysis and the site information identified that all the quadrats showed the highest similarity with Banksia woodland communities from the Gibson et al. 1994 study. These were:

FCT SCP 23a: Central *Banksia attenuata – B. menziesii* woodlands;

FCT SCP 23b: Northern *Banksia attenuata – B. menziesii* woodlands;

FCT SCP 21c: Low lying *Banksia attenuata* woodlands or shrublands;

FCT SCP 20a: *Banksia attenuata* woodlands over species rich dense shrublands;

FCT SCP 28: Spearwood *Banksia attenuata* or *B. attenuata* – Eucalyptus woodlands;

FCT SCP 21b: Southern *Banksia attenuata* woodlands;

FCT SCP 22: *Banksia ilicifolia* woodlands; and FCT SCP 20c: Eastern shrublands and woodlands.

The vegetation in the Survey Area has been determined to have affiliation with Banksia woodland FCTs (as listed above). These FCTs are listed as sub-communities under the EPBC Act listed TEC Banksia Woodlands of the Swan Coastal Plain (DEE 2016). A key diagnostic feature is a prominent tree layer of Banksia, with scattered Eucalypts and other tree species

often present among the Banksia canopy. The vegetation association BW10% and BW30% within the Survey Area are therefore considered to be the Banksia Woodland TEC.

The targeted flora survey (360 Environmental 2017b) also determined that the Banksia TEC within the BSA is represented outside of the disturbance area. The quadrats within the BSA were similar to those established in the surrounding bushland, and statistical analysis showed that all the quadrats within the BSA show similarity to Banksia woodland Floristic Community Types (FCT). The condition of the quadrats outside of the Survey Area vary between Pristine and Excellent, while the majority of the Banksia TEC inside the BSA varied between Excellent and Excellent-Very Good and therefore are also considered the same value (360 Environmental 2017b).

Additionally the Banksia Woodland vegetation association is also known to exist within a number of conservation reserves located in close proximity to the proposed action area (Figure 10):
- (R 40916) Nature Reserve (1km west of project area, 1012 ha) and
- (R 41986) Conservation Park (10km north of project area)

**FAUNA**

A DPaW NatureMap Fauna Search and a DEE Protected Matters Search were undertaken with a 10 km buffer from the centre of the site (DPaW 2016; DEE 2016). The NatureMap Report identified one Threatened fauna species (Carnaby's Cockatoo, *Calyptorhynchus latirostris*), one Priority 1 fauna species (Land Snail, *Bothriembryon perobesu*s,), three fauna species protected under international agreement (Eastern Great Egret, *Ardea modesta*; Rainbow Bee-eater, *Merops ornatus*; Glossy Ibis, P*legadis falcinellus* and one other specially protected fauna species (Peregrine Falcon, *Falco peregrinus*) as occurring within 10 km of the centre of the study area.

The PMST identified four Threatened fauna species (Malleefowl, *Leipoa ocellata*; Australian Painted Snipe, *Rostratula australis*; Carnaby's Cockatoo, *Calyptorhynchus latirostris*; and Western Quoll, *Dasyurus geoffroii*) and four Migratory species (Fork-tailed Swift, *Apus pacificu*s; Grey Wagtail, *Motacilla cinerea*; Osprey *Pandion haliaetus*; Common Greenshank *Tringa nebularia*) as occurring within 10 km of the centre of the site.

The majority of the conservation significant fauna species identified in the State and Federal database searches are bird species and therefore are unlikely to be impacted by the short-term movement of trucks within the BSA with the exception of Black Cockatoos if potential breeding or foraging trees are cleared.

The only ground dwelling conservation significant fauna identified in the searches are the Land Snail (*Bothriembryon perobesus*), Malleefowl (*Leipoa ocellata*) and Chuditch (*Dasyurus geoffroii*). According to NatureMap there are no recent (within the last 10 years) records of either species in the area, and the records that do exist (e.g. from the 1980's) are sparse. Even if they are present in the area, Malleefowl and Chuditch are not likely to be significantly

impacted by the temporary use of the site by vehicles. Fauna are generally mobile and will use an area larger than the clearing lines for habitat use.

Although Land Snails are not highly mobile, the one and only record of the species is from Eneabba, approximately 100km north of the Seismic Survey Area (*per comms*, Tim Moulds 2017). The Land Snail was identified on *Casuarina cunninghamiana spp*. – which is an alien plant in WA and was not identified in the BSA. Therefore the probability of the snail species occurring in the Seismic Survey Area is unlikely. See attached Walyering Matters of National Environmental Significance (MNES) Likelihood table.

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

The study area lies over a number of separate catchment areas as shown in Figure 7. Each catchment area is associated with the significant streams in the landscape. The site is located outside of the DoW 100 year Average Recurrence Interval (ARI) floodplain development control area (DoW 2015). The closest 100 year ARI floodplain development control area is in excess of 30 km from the study area.

A significant watercourse, Mullering Brook, flows through the very north-western portion of the study area (DoW 2015) (Figure 7) Another significant watercourse, Minyulo Brook, flows through the site from the north-eastern portion to the western portion of the site (Figure 5). The Douaraba Swamp exists along the Minyulo Brook within the site. A minor tributary flows from the swamp to the south-western portion of the study area (DoW 2015). Eneminga Brook a major drain flows through the southern portion of the study area. Other minor tributaries of the watercourses flow across the site (Figure 7).

The study area does not fall within any Priority Drinking Water Source Areas (PDWSAs). The closest PDWSA is approximately 12.5 km to the east of the study area. Review of DoW WIN bore data identifies a number of bores within the study area (DoW 2012).

WIN bores in the southern portion of the study area historically identified the depth to groundwater below ground level to be between 6 to 9.14 m. The DoW Groundwater Mapping identified the site as containing a groundwater salinity of between 1,000 to 1,500 mg/L which is hyposaline (DoW 2016).The project area is not subject to inundation based on DoW hydrography mapping (DoW 2015).The Geomorphic Wetlands dataset is identified and utilised by the Environmental Protection Authority (EPA), Department of Environment Regulation (DER) and the Department of Planning as a basis for planning and decision making. Geomorphic wetlands are identified by their unique identification number (UFI). There were seven geomorphic wetlands identified within the Botanical Survey Area (Table 1 & Figure 3 of Walyering T/DRF Report) none of these are classified as Conservation Category Wetlands (CCW) or Resource Enhancement Wetlands (REW):

**Management Category - Wetland UFI**

Creek - 708

Floodplain - 709

Dampland - 758

Dampland - 834

Dampland - 810

Dampland - 811

Palusplain - 802

However, several wetlands which are ‘not assessed’ by DPaW were recorded across the Botanical Survey Area with the wetland vegetation conditions ranging from Very Good to Degraded. The wetlands that were located within areas of minimal disturbance were in better condition that those affected by historical clearing. Wetlands that were classed as Degraded or Good-Degraded had been significantly impacted by clearing and weed dominance. Wetlands that were classed as Very Good had minor structure alteration from kangaroos and weeds (Figure 8). Wetland areas will be avoided where possible as the trucks will not be able to manoeuvre through these areas.

The nature of the Walyering Seismic Survey does not require any interference or interception with groundwater systems. There were no Groundwater Dependent Ecosystems (GDEs) identified within the project area and given there will be no drawdown effects, the clearing of vegetation is not likely to have an impact on GDEs. No impacts to surface water quality are anticipated, as creek line areas will be avoided and no use of chemicals is needed other than hydrocarbons (diesel) to power the vehicles on site will be managed in accordance to DMP Codes of Practice.

No Ramsar wetlands are present in the Seismic Survey Area.

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

The Interim Biogeographical Regionalisation for Australia (IBRA) was developed to identify land of conservation value. IBRA7, the latest version, classifies Australia’s landscapes in geographically distinct bioregions based on climate, geology, landform and vegetation. The Botanical Survey Area lies on the junction of two IBRA regions; Swan Coastal Plain and Geraldton Sandplain (Figure 4).

The Botanical Survey Area contains the following geological units:

Dunes 38496: Dunes, sandplain with dunes and swales; may include numerous interdune claypans; residual and Aeolian sand with minor silt in clay; Aeolian red quartz sand, clay and silt, in places gypsiferous; yellow hummocky sand;

Alluvium 384485: Channel and flood plain alluvial; gravel, sand, silt, clay, locally calcreted;

Bassendean Sand; Basal conglomerate overlain by dune quartz sand with heavy mineral concentrations;

Ferruginous duricrust 38498: Pisolitic, nodular or vuggy ferruginous laterite; some lateritic sols; duricrusts and reworked products, calcrete kaolinised rock, gossan; residual ferruginous saprolite; and

Sandplain 38499: Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, Aeolian sand. (GSWA 2010).

The Botanical Survey Area has been mapped by both Beard (1979) which was later reassessed by Shepherd et al. (2001) (Tables 2 of 360 Environmental 2017a). The Shepherd et al. (2001) study has been used to estimate how much vegetation is currently present in comparison to the pre-European extent of the same vegetation types. From these comparisons, it can be determined what vegetation types have been extensively cleared and therefore in need of protection.

There are four Beard / Shepherd vegetation units in the Botanical Survey Area. Two of these units have the same vegetation description; however they occur within different regions. The Shepherd et al. (2001) vegetation types (along with the corresponding Beard [1979] type in brackets), are described below, and their representation within the Botanical Survey Area, subregion, region and State is shown in Table 2 of the attached Walyering TDRF Flora Survey Report (360 Environmental 2017a)

Bassendean_1030 (b1,2Li): Low woodland; Banksia attenuata and B. menziesii;

- Bassendean_1031(hSZc/dZc): Mosaic-Shrublands-hakea scrub-heath/Shrublands, banksia heath;

- Lesueur_1031(hSZc/dZc): Mosaic-Shrublands-hakea scrub-heath/Shrublands, banksia heath; and

- Lesueur_7(e5,6Mi): Medium woodland; York gum (Eucalyptus loxophleba) and wandoo

In the TDRF survey report (360 Environmental 2017a), Beard/Shepherd vegetation types were matched as closely as possible to the vegetation types onsite at the survey area, this resulted in:

- 1030 (b1,2Li) corresponding to BW30% and BW10%;

- 7 (e5,6Mi) corresponding to Cc; and

- 1031(hSZc/dZc) corresponding to Prt.

To encompass current recognised levels of remnant native vegetation retention, the WA Environmental Protection Authority (EPA) research shows that ecosystems experience species

losses that accelerate exponentially when clearing causes the remaining native vegetation to dip below a level of 30% of the pre-clearing extent of the vegetation type (EPA 2008). From a purely biodiversity perspective, a level of 10% of the original extent of a vegetation community is regarded as being a level representing 'endangered' (EPA 2008). The remaining extents of the majority of the vegetation complexes in the Botanical Survey Area are above 30%. The exceptions are The Lesueur_7 vegetation complex has 14.21% of its extent remaining within the state. Bassendean _1031 vegetation complex has 19.3% of its extent remaining within the Swan Coastal Plain Bioregion (Table 2 of attached 360 Environmental 2017a). Therefore these two complexes may be considered regionally significant.

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

NA

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

A large portion of the south western part of the BSA is under rehabilitation as part of mining disturbance (479.71 ha) consisting of mixed tall open scrub. Another portion of the north western section of the BSA has been cleared for grazing (202.22 ha) consisting of a cleared paddock of weedy grasses.

The majority of the areas considered to be the Banksia Woodland TEC (and Black Cockatoo foraging habitat) are in very good condition:

**BW10%**

• Excellent: 366.73 ha

• Excellent-Very Good: 112.39 ha

• Very Good: 165.77 ha

• Very Good-Good: 56.69 ha

• Degraded: 6.48 ha

**BW30%**

• Excellent-Very Good: 79.16 ha

• Very Good: 13.66 ha

Several geomorphic wetlands (wetlands), as defined by DPaW, were recorded across the Botanical Survey Area. The wetland vegetation conditions ranged from Very Good to Degraded.

This was due to a varying degree of disturbance from weeds, kangaroos and historical clearing. The extent of each wetland vegetation condition category is presented below:

• Very Good - 51.33 ha,

• Good-Degraded 8.79 ha and

• Degraded 3.74 ha.

No Declared flora, as listed under the BAM Act or flora species registered as WONS were identified along the surveyed source and receiver lines within the Botanical Survey Area.

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

The topography of the site sits at an elevation of between 150 m Australian Height Datum (AHD) in the north eastern portion of the site to 100 m AHD in the southern central portion of the site.

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

The majority of the current environment across the Seismic Survey area has been previously disturbed either for agricultural (grazing) or mineral purposes (clearing for mineral exploration or mining operations).

Six natural vegetation associations were described for the Botanical Survey Area (Figure 6). In addition to these associations, three vegetation units were mapped; these three units have been altered by disturbance (Figure 6). The intact native vegetation of the Botanical Survey Area was Banksia spp. Woodland (BW30% & BW10%), Proteaceous Heath, Riparian vegetation, Corymbia calophylla/ Eucalyptus spp. Open Woodland and a Closed Heath. The remaining disturbed vegetation of the Botanical Survey Area consisted of rehabilitated vegetation and cleared areas that contained Eucalyptus spp. and/ or Melaleuca spp. over weedy grasses.

In the Botanical survey report (360 Environmental 2017a), Beard/Shepherd vegetation types were matched as closely as possible to the vegetation types onsite at the survey area, this resulted in:

• 1030 (b1,2Li) corresponding to BW30% and BW10%;

• 7 (e5,6Mi) corresponding to Cc; and

• 1031(hSZc/dZc) corresponding to Prt.

In some parts of the BSA, vegetation types 7(e5,6Mi) and 1031(hSZc/dZc) fall below the 30% retention threshold as contained in the National Objectives and Targets for Biodiversity

Conservation 2011-2005. At the subregional scale 1031 is below the threshold in the Perth Subregion, but not in the Lesueur Sandplain subregion. At the Bioregion scale 1031 is below threshold on the Swan Coastal Plain, but above threshold on the Geraldton Sandplain. At the state level, 7 is below the threshold but it is above threshold at the Bioregion and Subregion relevant to Walyering.

A large portion of the wetlands mapped within the study area are cleared and unlikely to contain important attributes and functions. Wetlands that were classed as Degraded or Good-Degraded had been significantly impacted by clearing and weed dominance. Wetlands that were classed as Very Good had minor structure alteration from kangaroos and weeds (see Figure 8).

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

NA

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

A search of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System identified a number of 'Other Heritage Places' and one 'Registered Site' within the study area (Figure 9) (DAA 2015).

'Registered Sites' have been assessed as meeting Section 5 of the Aboriginal Heritage Act 1972 (AH Act). 'Other Heritage Places' consists of Stored Data/Not a Site or Lodged places, described below:

- Stored Data/Not a Site: not assessed as meeting Section 5 of the AH Act; and

- Lodged: information on the place has been received by the DAA, but an assessment has not been completed to determine if the place meets Section 5 of the AH Act.

The majority of 'Other Heritage Places' within the study area are lodged places. Therefore following assessment of these places they could become 'Registered Sites'.

A number of Registered Sites exist to the north-west of the study area, but outside of its boundary. The Registered Site, Mullering Brook (Place ID. 4640) runs through the very north-western corner of the study area. This site is registered due to mythological significance of the brook to the aboriginal people. No parts of this creekline area will be cleared/disturbed.

The north-western portion of the study area is listed under the RNE as the Northern Bassendean Dunes Area (Place ID. 18584). However it the RNE was closed in 2007 and is no longer a statutory list. The RNE was replaced by the National Heritage List and Commonwealth Heritage List. The study area does not contain any places listed under the current Commonwealth heritage lists. A Commonwealth Heritage Place, Lancelin Defence Training Area (Place ID. 105578) exists 1.5 km to the west of the study area (Figure 9).

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

A tenure data request was made to Landgate on 19 July 2016 to determine the land ownership within the study area. The study area consists of Freehold land, Crown land and Reserve land, see Figure 3.The Reserve (ID 27216 which incorporates PINs 582888, 580332 and 580333 in the north western corner of the study area on Figure 2) is not listed for a special purpose in the Shire of Dandaragan Local Planning Scheme No. 7.

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

The Seismic Survey Area contains a number of live exploration licences and mining leases as well as one general purpose lease and retention licence (Figure 3). These live licences and leases exist predominantly in the southern and central portions of the site. The three mining leases within the study area held by Iluka are not currently being mined.

A village has been developed in Mining Lease M70/194 which is operating in the eastern portion of the site in Land PIN ID: 580105 (Figure 3). After obtaining relevant approvals, Iluka will undertake mining operations for heavy mineral concentrate.

Tronox Western Australia (WA) currently mine for heavy mineral concentrate at Cooljarloo Mine (mining lease M 268SA) directly to the north-west of the study area.

A large portion of the land is currently used for agricultural purposes. A proposed power plant ‘Joanna Plains Wind-peaker Power’ exists in the western portion of the site (Figure 3). Infrastructure associated with the Parmelia gas pipeline is located Land PIN ID: 580110, on the western portion of the study area; it is operated by CMS Gas Transmission of Australia.

The proposed Waddi Wind Farm exists in the north-eastern portion of the study area (Figure 3). There is evidence of previous exploration for gas due to abandoned gas wells being present on the site (Figure 3).

# 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.**

The proposed seismic survey mulching/clearing footprint has been reduced significantly since the original project was developed. The Botanical Survey results and subsequent targeted flora survey results were both used to inform areas of biological importance and thus these areas will now be avoided and/or clearing footprint reduced to reduce the impacts of the activities, see Figure 2. The following measures have been undertaken:

- No wetland or creek areas will be mulched. Seismic lines will terminate prior to the mapped creek areas. Two creeks, the Mullering Brook and the Minyulo Brook, flow through the project area. No new crossings of either brook will be constructed as part of the 3D survey; existing creek crossings will be used.

- No areas to the north of Mullering Brook will be mulched (thus 175.31 ha of potential Carnaby's Black Cockatoo foraging and potential breeding habitat will remain)

- Impacts have been minimised by a re-design of source and receiver lines - only one in every three receiver lines will be mulched. A mulching tractor will be used when clearing vegetation which will aim to mitigate the impact of clearing native vegetation and facilitate recovery and regrowth of the native vegetation to prompt the progress of rehabilitation in the area. this method involves clearing of above ground vegetation only; the root stock is left intact for regrowth and to minimise soil erosion. The vegetation will be mulched and mulched material will be respread at the point of its origin. Mulched material is expected to become composted within 6-12 months introducing nutrients to soil to facilitate regrowth with provenance-correct seed.

- The majority of the BW30% vegetation association area will be avoided, except for 0.36ha for a single receiver line (thus 92.47 ha of potential Carnaby's Black Cockatoo foraging habitat and Banskia woodland TEC will remain)

- The majority of the mine rehabilitation area will be avoided, except for 2.10 ha (out of 479.71 ha) for 3 receiver lines.

- The extent of the clearing in the BW10% vegetation association area will not be

comprehensive, with source lines (4.5 m wide) only being cleared every 280 m, and receiver lines (also up to 4.5 m) only being cleared every 1,080 m. In other words, 16.74 ha of BW10% will be mulched, thus 691.62 ha of potential black cockatoo foraging habitat and Banksia Woodland TEC will remain

- The scale of the proposed clearing (46.63 ha) within the 9,794.96 ha of the Seismic Survey Area and the 2,361.68 ha of the Botanical Survey Area is minimal and is not likely to cause appreciable land degradation, particularly since a mulching tractor will be used when clearing the source and receiver lines. The proponent is only clearing approximately 1% of the total Seismic Survey Area.

- Weed control methods will be implemented during operations - including vehicle and machinery hygiene producers, this will include dieback control methods

**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.**

**Black Cockatoo Species:** 31.82 ha of potential Carnaby's Back Cockatoo foraging habitat will be cleared and 1,410.1 ha will remain. The 31.82 ha to be cleared will be immediately rehabilitated via mulching.

**Banksia Woodlands of The Swan Coastal Plain Threatened Ecological Community (TEC):** According to the targeted flora survey report (360 Environmental 2017b) both the BW10% and BW30% is considered Banksia Woodland TEC. Therefore 17.1 ha of the TEC will be cleared and 784.09 ha of the TEC will remain. The 17.1 ha will be immediately rehabilitated by mulching.

The Walyering 3D seismic survey is a short term, small scale exploration program leaving intact large areas of TEC and Black Cockatoo habitat areas and therefore considered not to have any significant/lasting impacts on matters of national environmental significance.

# 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)

No

### 5.1.4 Listed threatened species or any threatened ecological community

No

### 5.1.5 Listed migratory species

No

### 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.

**1. Carnaby's Black Cockatoo**

The Significant Impact Guidelines (DoEE 2013) define the significant impact criteria for critically endangered and endangered species as follows:

- lead to a long-term decrease in the size of a population;

- reduce the area of occupancy of the species;

- fragment an existing population into two or more populations;

- adversely affect habitat critical to the survival of a species;

- disrupt the breeding cycle of a population;

- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;

- introduce disease that may cause the species to decline; or

- interfere with the recovery of the species.

These guidelines were used to assess the impacts of the Carnaby's Black Cockatoo species as outlined below.

**Lead to long term decrease in the size of a population**

Four potential areas of Carnaby's Black Cockatoo foraging habitat were mapped within the

Botanical Survey Area – banksia woodland (BW10% and BW30%), Marri, *Corymbia calophylla* (Cc), Proteaceous heath (Prt) and *Xanthorrhea preissii* (Xp). The proposed action will result in clearing a maximum of 31.82 ha of two out of the four potential foraging habitats. 17.1 ha (2.1%) of the total 801.19 ha of banksia woodland is proposed to be cleared and 14.72 ha (2.3%) of the total 640.73 ha of Prt is proposed to be cleared. No trees within the Cc vegetation areas will be mulched (only ground vegetation) and the Xp area will be avoived completely and therefore no Black Cockatoo habitat will be affected in these areas. The targeted flora survey (360 Environmental 2017b) mapped the condition of the BW10% and BW30% vegetation areas, and found the following:

**BW10%**

Excellent: 366.73 ha

Excellent-Very Good: 112.39 ha

Very Good: 165.77 ha

Very Good-Good: 56.69 ha

Degraded: 6.48

**BW30%**

Excellent-Very Good: 79.16 ha

Very Good: 13.66 ha

Given that large areas (558.28 ha) of the banksia woodland which range from excellent to excellent-very good condition will remain, the proposed mulching/clearing will result in a continous patchwork of remaining native vegetation which will allow foraging by Carnaby's Black Cockatoo populations. Therefore it is unlikely the proposed clearing will lead to a long-term decrease in the size of the cockatoo population.

**Reduce the area of occupancy of the species**

Within the Botanical Survey Area there is approximately 1515.85 ha of potential foraging habitat, of this 42.09 ha is also potential breeding and roosting habitat (Vegetation association Cc (42.09 ha) contains *Corymbia calophylla* species, which is considered a potential breeding and roosting species for Carnaby's Cockatoos). However, no trees in this area will be cleared/mulched, only ground vegetation and therefore will not impact the breeding/nesting trees.

Given that no roosting or breeding trees will be cleared and only 31.82 ha out of 1515.85 ha of potential foraging habitat is proposed to be cleared, it is unlikely that the proposed action will significantly reduce the area of occupancy of the Carnaby’s Black Cockatoo. In addition there are a number of nearby large DPaW managed lands that provide long-term protection for the

Black Cockatoos. The closest DPaW managed land exists approximately 700m to the north of the project area.

**Fragment an existing population into two or more populations**

Clearing of the development envelope will not create a significant gap between patches of Black Cockatoo habitat, as the clearing is limited to source lines and 1 in 3 receiver lines only and there are extended areas of un-cleared Banksia and Proteaceous shrubland between areas proposed to be cleared. The clearing width for source and receiver lines is 4.5 m. Source lines will be mulched every 280 m, leaving 275.5 m uncleared. Two out of three receiver lines will not be mulched. Every third receiver line will be mulched every 1,080 m leaving an uncleared area of 1,075.5 ha. This means that throughout the clearing footprint there will still be large intact pockets of vegetation remaining. The proponent re-designed the seismic program to avoid and minimise environmental impacts. Given the above, the proposed clearing of a maximum of 31.82 ha will not fragment an existing population of Carnaby's Black Cockatoo. Weed hygiene procedures and management plans will be implemented during operations to prevent invasive weed species outcompeting natural vegetation.

**Adversely affect habitat critical to the survival of the species**

The seasonal movements of Black Cockatoos means they require large areas of habitat for breeding, roosting and foraging, as well as connectivity between habitats to assist their movement through the landscape (DSEWPaC 2012). Based on the EPBC Act referral guidelines for three threatened black cockatoo species, critical habitat for the Black Cockatoos is defined as providing breeding, roosting and foraging habitat which also provides connectivity between habitats. Habitat that accommodates for all three Black Cockatoo species would be defined as most critical.

Within the Botanical Survey Area there will remain 42.09 ha of the Cc vegetation association which contains potential breeding habitat for Carnaby's Cockatoos. There will also remain 103.22 ha of vegetation association Ecam - *Eucalyptus camaldulensis* which is considered roosting habitat for Carnaby's Black Cockatoos. Given that only 31.82 ha out of 1515.85 ha of potential foraging and breeding habit is proposed to be cleared and that there will be connectivity between these patches of breeding and foraging habitat - it is unlikely that the proposed action will adversely affect habitat critical to the survival of the Carnaby's Black Cockatoo.

During the flora surveys (360 Environmental 2017a and 2017b) no WONS or Declared Plants as listed under the Biosecurity and Agriculture Management Act 2007 (BAM Act) were recorded within the BSA. However introduced species were observed. During operations weed hygiene procedures and weed management plans will be implemented and communicated to all operators and contractors working the area.

**Disrupt the breeding cycle of a population**

According to the EPBC Act referral guidelines for three threatened black cockatoo species (DSEWPaC 2012) Carnaby's Cockatoos breed "generally in woodland or forest, but also

breeds in former woodland or forest now present as isolated tress and nest in hollows of marri - *Corymbia calophylla*". 42.09 ha of vegetation association Cc - *Corymbia calophylla* will remain in the Botanical Survey Area. All large trees will be avoided across the whole Seismic Survey Area. Therefore breeding cycles should not be significantly impacted by the clearing of source and receiver lines.

**Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

The EPBC Act Referral Guidelines for the Black Cockatoos state that creating a gap of greater than 4 km between patches of Black Cockatoo habitat is at a high risk of causing a significant impact (DSEWPaC 2012). The clearing width for source and receiver lines is 4.5 m. Source lines will be mulched every 280 m, leaving 275.5 m uncleared. Two out of three receiver lines will not be mulched. Every third receiver line will be mulched every 1,080 m leaving an uncleared area of 1,075.5 ha. The proposed action will not be creating any gaps between habitat sites and therefore is not deemed to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

The impact of the loss of 31.82 ha would be negligible given that the total potential foraging and breeding habitat is 1515.85 ha and contains remnant native vegetation containing key structural species that represent a food source for Black Cockatoos. Additionally, approximately 558.28 ha of the banksia woodland ranges from excellent to excellent-very good condition and this will remain (360 Environmental 2017b).

A significant impact is not expected.

**Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat**

The proposed action alone is unlikely to introduce or spread invasive species that are harmful to Black Cockatoos. No declared plants under the BAM Act or weeds of national significance were recorded at the Botanical Survey Area.

An increase in weeds and feral animals, which commonly results from modified, cleared sites, is not seen as likely to result from the proposed action. Areas of native vegetation cleared will be mulched immediately to prompt rehabilitation and vegetation growth. Weed and dieback control measures will be applied to all machinery (mulching tractor and vibroseis truck) before mobilising to site, to provide a functioning native vegetation community.

**Introduce disease that may cause the species to decline**

Phytophthora cinnamomi (Dieback) has the potential to affect breeding and foraging habitat for Black Cockatoos, as the disease affects Banksia woodlands and Jarrah forests. Though no evidence of dieback disease was recorded during the ecological survey, mitigation measures and management of Phytophthora cinnamomi will be undertaken in accordance with *WA DPAW Phytophthora cinnamomi management guidelines* and *WA Dieback Working Group Best Practices Guidelines for management of phytophthora in extractive industries.* According to

these guidelines clean-down stations will be established with strict hygiene procedures. All equipment and vehicles will be cleaned prior to entering and on exiting from clearing areas. See attachment 5 of Walyering 3D Seismic Survey Environmental Plan (Bombora 2017).

**Interfere with the recovery of the species**

The proposed action is unlikely to interfere with the recovery of the Carnaby's Black Cockatoo species as large areas of potential breeding (42.09 ha) and foraging habitat (1484.03 ha) will remain across the Seismic Survey Area and large pockets of foraging habitat are represented in surrounding bushland areas (360 Environmental 2017b) as well as in two surrounding nature reserves R40916 and R41986. Only a minimal area of potential foraging habitat is proposed to be cleared, that is 31.82 ha out of 1515.85 ha.

The nature of the clearing at the project allows large pockets of connected native vegetation to remain. Since only source lines will be mulched every 280 m, leaving 275.5 m of uncleared vegetation and only every third receiver line will be mulched at every 1,080 m, leaving an uncleared area of 1,075.5 ha. This allows Carnaby's Cockatoo to move between foraging and breeding habitat areas.

**2. Banksia Woodland of the Swan Coastal Plain TEC**

In addition to Carnaby's Black Cockatoo, the Botanical Survey Area also contains the Banksia Woodland of the Swan Coastal Plain Threatened Ecological Community (Banskia TEC). The Significant Impact Guidelines (DEE 2013) define the significant impact criteria for critically endangered and endangered ecological communities as follows:

- reduce the extent of an ecological community

- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

- adversely affect habitat critical to the survival of an ecological community

- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns

- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- assisting invasive species, that are harmful to the listed ecological community, to become

established, or

- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or

- interfere with the recovery of an ecological community.

These guidelines have been used to assess the impacts on the Banksia TEC as follows:

**Reduce the extent of an ecological community**

The proposed action will involve the mulching of up to 17.1 ha of Banksia TEC. This clearing will not significantly reduce the extent of the TEC within the proposed action area, given that the total TEC area is 801.19 ha. In other words, only 2.1% of the total mapped TEC is proposed to be cleared. A targeted flora survey (360 Environmental 2017b) also determined that the Banksia TEC within the Botanical Survey Area (BSA) is represented outside of the disturbance area. The quadrats within the BSA were statistically similar to those established in the surrounding bushland, and statistical analysis showed that all the quadrats within the BSA show similarity to Banksia woodland Floristic Community Types (FCT). The condition of the quadrats outside of the Survey Area vary between Pristine and Excellent, while the majority of the Banksia TEC inside the BSA varied between Excellent and Excellent-Very Good (360 Environmental 2017b).

Additionally the Banksia Woodland vegetation association is also known to exist within a number of conservation reserves located in close proximity to the proposed action area (Figure 10):

- (R 40916) Nature Reserve (1km west of project area, 1,012 ha) and

- (R 41986) Conservation Park (10km north of project area)

Given that 97.8% of the known extent within the proposed action areas is proposed to be retained and given the large areas of the TEC that are protected in adjacent conservation areas and surrounding bushland - the proposed action is considered unlikely to significantly reduce the extent of the Banksia TEC.

**Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines**

The proposed action will involve the clearing of up to 17.1 ha of Banksia TEC out of a larger patch of 801.19 ha. The nature of mulching/clearing will be 4.5m in width for both source and receiver lines. Source lines will be mulched every 250 m, leaving 245.5 uncleared between cleared lines. Two out of three receiver lines will not be mulched. Every third receiver line will be mulched every 1,080 m leaving an uncleared area of 1075.5 ha. It is not considered that the nature of this clearing will fragment the Banksia TEC, given that only 2.1% of the total TEC area is being cleared and the proposed clearing area is in close proximity to two conservation areas that support Banksia Woodland vegetation associations; and that the Banksia TEC is

represented in surrounding bushland (360 Environmnetal 2017b). These areas of retained vegetation will assist to maintain the connectivity of the community, and the habitat it provides, with surrounding vegetation. Additionally, the nature of the project is temporary, the mulching allows immediate rehabilitation and respread of the mulch material directly from where it was cleared.

No WONS, Declared Plants under the BAM Act or Dieback disease (Phytophthora cinnamomi) areas were observed during the flora surveys but some introduced species were observed (360 Environmental 2017a and 2017b). Though no evidence of problematic weed species or dieback disease was recorded during the ecological survey, mitigation measures and management of *Phytophthora cinnamomi* will be undertaken in accordance with *WA DPAW Phytophthora cinnamomi management guidelines and WA Dieback Working Group Best Practices Guidelines for management of phytophthora in extractive industries*. Clean-down stations will be established with strict hygiene procedures. All equipment and vehicles will be cleaned prior to entering and on exiting from clearing areas. See Attachment 5 of Walyering Environmental Plan (Bombora 2017) for weed and dieback hygiene procedures.

The proposed action is considered unlikely to significantly increase the fragmentation of the Banksia woodland TEC.

**Adversely affect habitat critical to the survival of an ecological community**

The proposed action will involve the clearing of up to 17.1 ha of Banksia Woodland TEC. The proposed action is unlikely to adversely affect habitat critical to the survival of the ecological community due to:

- the larger extent of the TEC to be retained within the proposed Botanical Survey Area (Figure 2)

- the extent of the TEC in surrounding conservation areas (Figure 10)

- the representation of the TEC in surounding bushland outside of the disturbance area (360 Environmental 2017b)

- Implementation of dieback and weed hygiene procedures as part of the dieback management plan during the proposed exploration activities (Attachment 5 of Walyering Environmental Plan, Bombora 2017)

**Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns**

The impacts are confined to the clearing up to 17.1 ha of the TEC. No groundwater will be intercepted and all creek lines and wetland areas will be avoided. Due to the use of the mulching tractor, the mulch will act as a biomass cover over exposed soils and thus soil erosion and drainage patterns will not be affected by the proposed action. Implementation of dieback hygiene procedures during proposed activities will prevent the impact of the disease in soils.

The clearing/mulching is not significant in the overall 801.19 ha of the TEC patch size. Therefore the proposed action is considered unlikely to significantly increase the fragmentation of the Banksia woodland TEC.

**Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting**

While the proposed action will clear up to up to 17.1 ha of Banksia TEC, 801.19 ha will remain, therefore it is unlikely that the proposed action will cause a substantial change to the ecological community. The nature of the clearing project (source lines mulched every 280 m, leaving 275.5 m uncleared. Two out of three receiver lines will not be mulched. Every third receiver line will be mulched every 1,080 m) – means that large connected pockets of the Banksia TEC will remain. The mulching of the Banksia TEC means that rehabilitation will be promoted early, this method involves clearing of above ground vegetation only; the root stock is left intact for regrowth and to minimise soil erosion. The vegetation will be mulched and mulched material will be respread at the point of its origin. Mulched material is expected to become composted within 6-12 months introducing nutrients to soil to facilitate regrowth with provenance-correct seed. Weed and dieback hygiene procedures will be implemented during operations and thus reducing the impacts of invasive weed species on the Banksia TEC habitat (Attachment 5 of Walyering Environmental Plan, Bombora 2017). Therefore the proposed action is considered unlikely to cause a substantial change in the species composition of the Banksia woodland TEC.

**Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to**:

**Assisting invasive species, that are harmful to the listed ecological community, to become established, or**

The proposed action will not cause a substantial reduction in the quality or integrity of the TEC, during the botanical survey, no evidence of dieback was noted. Weed hygiene management processes will be implemented for all vehicles maneuvering through the site and dieback management measures will also be implemented during the project operations. No WONS or Declared Plants under the WA BAM Act were recorded in the survey. Before any machinery/equipment or vehicles ente the site, they will be subject to a weed and dieback hygiene procedure. Refer to vehicle hygiene procedure in Attachment 5 of Walyering Environmental Plan (Bombora 2017).

**Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or**

Weed prevention and management measures will be implemented during activities and thus there will be no chemicals used during the proposed action (Bombora 2017). A mulching tractor will immediately rehabilitate the area to allow for a more rapid response to vegetation regrowth. No groundwater or water surface areas will be intercepted or altered, clearing in wetland and

riparian areas will be avoided. Bombora have committed to conducting the proposed action in the dry weather to minimise spread of weeds and dieback disease. During clearing vegetation will be removed above ground only (no contact with topsoil and roots, mulched and respread immediately at its point of origin to eliminate a spread of contaminated material. Geophones removed from ground will be brushed down to remove any soil before being carried to the next location (Bombora 2017). Vehicles will stay within designated corridors. Vehicle movements will be minimised. No short-cuts and traversing. Vehicles and equipment will require inspection or clean-down prior to entering and leaving the project area. Project Specific Vehicle Hygiene (in-field) Procedures will be implemented (Attachment 5 of Walyering Environmental Plan). Personnel will be inducted on requirements for vehicles, PPE and clean down equipment and how to use a personal hygiene kit (Bombora 2017)

**Interfere with the recovery of an ecological community.**

The Approved Conservation Advice for Banksia TEC (EPBC 2016) states that smaller pockets of the TEC are more at risk of decline or degradation. Given that the patch size is 801.19 ha and 784.09 ha will remain and the majority (over 500 ha) is in excellent and very good condition, the proposed action will have a negligible impact on the recovery of the TEC. Although the nature of clearing will create patches of cleared areas, immediate rehabilitation via a mulching tractor will encourage prompt re-growth of cleared TEC patches. The mulched material is expected to breakdown and regrowth to begin within 6-12 months and therefore the impact will only be short term. The large areas of the TEC retained within surrounding local conservation areas and TEC patches represented in surrounding bushland means the TEC is well represented within the region and therefore recovery will not be interfered.

# 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.**

This is the first project undertaken by Bombora Energy in the Perth Basin, however the employees and consultants engaged by the company are very well experienced at undertaking surveys in Western Australia. The botanical surveys (360 Environmental 2017a and 2017b) have formed the basis for the construction of a comprehensive Environment Plan written by an experienced Environmental Engineer on secondment from UIL Energy.

**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.**

NA

**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.**

Bombora Natural Energy work towards:

- comply rigorously with environmental laws and regulations.

- during operations and within facilities, Bombora is committed to reduce our rates of emissions, energy and waste.

- build a clear understanding of the risks to our Company of key environmental issues and building strategic plans to address these risks.

- develop a culture of sustainable environmental management by:

- developing the awareness and involvement of our Board and employees o implementing systems for environmental management.

- setting objectives and associated monitoring systems to enable continuous improvement processes.

- actively consider the use of alternative energy sources, and low emissions technology, as these become economically viable.

- share best practices for environmental management across our Company, partners and stakeholders.

- incorporate environmental considerations into our business decision-making processes, particularly for capital allocation.

- engage with our contractors, joint venture partners and stakeholders to develop improved environmental sustainability practices.

Review this policy and our overall performance every two years against our environmental targets and legislative standards.

**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?**

No

# 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 |
|---|---|---|
| 360 Environmental. (2017a). Threatened & Priority Flora and Vegetation Report: EP 447 R1, prepared for Bombora Natural Energy. | Environmental survey undertaken using current guideline specifications | NA |
| 360 Environmental. (2017b). Second Phase Flora and Vegetation Survey: EP 447 R1 – North Perth Basin, Walyering, prepared for Bombora Natural Energy. | Environmental survey undertaken using current guideline specifications | NA |
| 360 Environmental. (2016). Environmental Opportunities and Constraints Assessment – North Perth Basin (Cataby Locality), prepared for Bombora Natural Energy. | Report undertaken using state and commonwealth publicly available data | NA |
| Beard, J.S. 1972-80. Vegetation Survey of Western Australia: The Vegetation of the Perth Area, Western Australia. Perth: Vegmap Publications. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Cale, B. (2003). Carnaby's Black Cockatoo (Calyptorhynchus latirostris) Recovery Plan. Perth: Department of Conservation and Land Management. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of the Environment and Energy (DoEE), 2016, Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community (s 266B), Commonwealth of Australia. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| Department of the Environment and Energy (DoEE). (2016). Protected Matters Search Tool. Retrieved December 2016 from http://www.environment.gov.au/epbc/protected-matters-search-tool | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of the Environment and Energy (DoEE). (2013). Matters of Environmental Significance, Significant impact guidelines 1.1. Commonwealth of Australia | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of the Environment and Energy (DoEE). (2012). Interim Biogeographical Regionalisation for Australia Version 7 (IBRA7). Retrieved December 2016 from http://www.environment.gov.au/land/nrs/science/ibra/australias-bioregions-maps | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Environment and Conservation (DEC) 2008. Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso) Recovery Plan, Government of Western Australia. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of the Environment and Heritage (DEH). (2001). National Objectives and Targets for Biodiversity Conservation 2001-2005, Commonwealth of Australia | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife (DPaW) 2013a. Carnaby Cockatoo Potential Foraging Habitat, GIS Shapefile, Government of Western Australia. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife (DPaW) 2013b. | Government Publication All references are peer reviewed | NA |

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan Government of Western Australia. | articles in reputable papers or are government publications. | |
| Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2012). EPBC Act referral guidelines for three threatened black cockatoo species. Australian Government | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife (DPaW). (2016), Geomorphic Wetlands Swan Coastal Plain and Cervantes South datasets. Government of Western Australia. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife (DPaW). (2016a). Request for Threatened and Priority Flora Information (custom search). Requested December, 2016. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife (DPaW). (2016b). NatureMap: Mapping Western Australia's Biodiversity. Government of Western Australia. Available from: http://naturemap.dpaw.wa.gov.au/default.aspx/ | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Parks and Wildlife [DPaW]. (2016c). Threatened and Priority Ecological Communities Information (custom search). Requested December, 2016. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Department of Sustainability, Environment, Water, Population and Communities [DSEWPaC]. (2012). EPBC Act referral guidelines for three threatened black cockatoo species. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Shepherd, D. P., Beeston, G. R., and Hopkins, A. J. M. (2001). Native Vegetation in | Government Publication All references are peer reviewed articles in reputable papers or | NA |

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| Western Australia (Technical Report 249). Perth: Department of Agriculture. | are government publications. | |
| Bombora Natural Energy (2017). Walyering 3D Seismic Survey Environmental Plan, prepared for Department of Mines and Petroleum. | Environmental plan undertaken using current government guideline specifications | NA |
| Gibson, N., Keighery, B., Keighery, G., Burbidge, A., & Lyons, M. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Unpublished report for the Australian Heritage Commission. Western Australia: Department of Conservation and Land Management and the Western Australian Conservation Council of Western Australia. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | NA |
| Environmental Protection Authority (EPA) (2008). Environmental Guidance for Planning and Development, Guidance Statement No. 33. | Government Publication All references are peer reviewed articles in reputable papers or are government publications. | 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?**

Bombora's initial plans to clear all source and receiver lines within the BSA were modified once the environmental values of the area were understood (Figure 2).

**8.1 Select the relevant alternatives related to your proposed action.**

**8.27 Do you have another alternative?**

No

# 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**

Chairman

**9.2.2 First Name**

John

**9.2.3 Last Name**

Begg

**9.2.4 E-mail**

jbegg1209@gmail.com

**9.2.5 Postal Address**

P.O Box 538
Subiaco WA 6094
Australia

**9.2.6 ABN/ACN**

ACN

611581778 - BOMBORA NATURAL ENERGY PTY LTD

**9.2.7 Organisation Telephone**

0419 903 268

Australian Government
Department of the Environment and Energy

**9.2.8 Organisation E-mail**

jbegg1209@gmail.com

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

Small business

**9.2.9.1 You must provide the Date/Income Year that you became a small business entity:**

Fri, 01/01/2016

**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: ....11/7/17.....

**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**

Yes

**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**

Bombora Natural Energy is considered a small business under section 520(4C)(e)(v) of the EPBC Act.

**Person proposing the action - Declaration**

I, JOHN BEGG, 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: ....11/7/17.....

I, JOHN BEGG, the person proposing the action, consent to the

Australian Government
Department of the Environment and Energy

designation of BOMBORA NATURAL ENERGY PTY LTD as the proponent of the purposes of the action describe in ~~this~~ EPBC Act Referral.

Signature:..... Date: ....11/7/17.....

**9.3 Is the Proposed Designated Proponent an Organisation or Individual?**

Organisation

**9.5 Organisation**

**9.5.1 Job Title**

Chairman

**9.5.2 First Name**

John

**9.5.3 Last Name**

Begg

**9.5.4 E-mail**

jbegg1209@gmail.com

**9.5.5 Postal Address**

P.O Box 538
Subiaco WA 6094
Australia

**9.5.6 ABN/ACN**

ACN

611581778 - BOMBORA NATURAL ENERGY PTY LTD

**9.5.7 Organisation Telephone**

0419 903 268

**9.5.8 Organisation E-mail**

Australian Government
Department of the Environment and Energy

jbegg1209@gmail.com

**Proposed designated proponent - Declaration**

I, JOHN BEGG, 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:..... Date: 11/7/17

**9.6 Is the Referring Party an Organisation or Individual?**

Organisation

**9.8 Organisation**

**9.8.1 Job Title**

Principal Environmental Consultant

**9.8.2 First Name**

Felicity

**9.8.3 Last Name**

Jones

**9.8.4 E-mail**

felicityjones@360environmental.com.au

**9.8.5 Postal Address**

10

Bermondsey Street
West Leederville WA 6007
Australia

**9.8.6 ABN/ACN**

ACN

109499041 - 360 Environmental Pty Ltd

Australian Government
Department of the Environment and Energy

### 9.8.7 Organisation Telephone

93888360

### 9.8.8 Organisation E-mail

admin@360environmental.com.au

### Referring Party - Declaration

I, FELICITY JONES, 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: 10/7/17

Australian Government
Department of the Environment and Energy

## Appendix A - Attachments

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

1. 1775_epbc_figure_1_-_site_location.pdf
2. 1775_epbc_figure_2_-_disturbance_area_comparison.pdf
3. 1775_epbc_figure_3_-_tenure.pdf
4. 1775_epbc_figure_4_-_ibra_bioregions.pdf
5. 1775_epbc_figure_5_-_vegetation_associations_shepherd.pdf
6. 1775_epbc_figure_6_-_vegetation_associations_surveyed.pdf
7. 1775_epbc_figure_7_-_surface_hydrology.pdf
8. 1775_epbc_figure_8_-_vegetation_condition_wetlands.pdf
9. 1775_epbc_figure_9_-_heritage.pdf
10. 1775_epbc_figure_10_-_conservation_areas.pdf
11. bombora_natural_energy_environment_policy.pdf
12. epbc_cover_letter_300617.pdf
13. walerying_gis_data.zip
14. walyering_environment_plan_for_dmp_-_part_1.pdf
15. walyering_environment_plan_for_dmp_-_part_2.pdf
16. walyering_epbc_act_mnes_likelihood_table.pdf
17. walyering_tdrf_flora_survey_report_-_part_1.pdf
18. walyering_tdrf_flora_survey_report_-_part_2.pdf
19. walyering_tec_flora_letter_report_-_part_1.pdf
20. walyering_tec_flora_letter_report_-_part_2.pdf