



1. Application details

1.1. Permit application details

Permit application No.: 8474/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Vicki Annette Harper
Application received date: 16 April 2019

1.3. Property details

Property: Lot 43 on Deposited Plan 69043, Ludlow
Local Government Authority: Shire of Capel
Localities: Ludlow

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
2.2	0	Mechanical Removal	Extractive industry

1.5. Decision on application

Decision on Permit Application: Refusal
Decision Date: 4 September 2020

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance with principles (f) and (i), may be at variance with principles (a), (b), (c), and is not likely to be at variance with the remaining principles.

Through assessment it was determined that the proposed clearing and associated extractive industry is likely to degrade the quality of wetland vegetation located adjacent to the application area through changes to the hydrological regime, water quality, weed invasion, sedimentation and plant disease. The proposed clearing is also likely to increase nutrient enrichment which will result in the deterioration of surface water and groundwater quality if the groundwater table is intercepted. Evidence of a suitable buffer to the nearby wetland was not provided.

The Delegated Officer determined through the assessment that the denser portions of the application area where the understorey and/or soil structure remain relatively undisturbed are likely to support suitable habitat for the threatened flora species '*Drakaea elastica*'. A Reconnaissance survey was undertaken of the application area in 2014, however the survey did not target this species and was undertaken outside of the species flowering time, therefore would not have been identifiable during the survey.

The Delegated Officer determined that the applicant has not been granted Development Approval and an Extractive Industry Licence from the Shire of Capel for the purpose of sand extraction.

On 8 May 2020, a Department of Water and Environmental Regulation (DWER) Delegated Officer wrote to the applicant, outlined the abovementioned environmental impacts and requesting additional information to address these impacts be provided within 30 days from the date of the letter. As no response to the letter was received, DWER wrote to the applicant on 16 July 2020 to advise that if the information is not received by 21 July 2020, the application may be refused.

To date, a response has not been received by DWER. Given the time and opportunities afforded to the applicant to provide this information, the Delegated Officer decided to determine this application on the information available at this time. In the absence of receiving a targeted flora survey to verify the presence of conservation significant flora within the application area, planning approvals not being obtained and in consideration of the environmental impacts discussed above, the Delegated Officer determined to refuse to grant a clearing permit.

2. Site Information

Clearing Description: The application is to clear 2.2 hectares of native vegetation within Lot 43 on Deposited Plan 69043, Ludlow, for the purpose of sand extraction. The application area is indicated in Figure 1.

Vegetation Description

The application area intersects the Swan Coastal Plain 'Southern River' vegetation complex described as an open woodland of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - *Banksia* species with fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca raphiophylla* (Swamp Paperbark) along creek beds (Heddlie et al., 1980).

Lundstrom Environmental Consultants Pty Ltd conducted a reconnaissance survey over the application area on 16 December 2014 for previous clearing permit application CPS 6373/1 that overlaps largely the same area as CPS 8474/1. The survey identified two broad vegetation types within the application area, described as:

- Woodland: *Nuytsia floribunda*/*Kunzea ericifolia* with or without *Banksia attenuata*, *B. ilicifolia*, *Corymbia calophylla*, *Agonis flexuosa*, *Melaleuca raphiophylla* over *Xanthorrhoea preissii*, unidentified shrub species, *Adenanthos meisneri*, *Calytrix fraseri*, *Jacksonia* sp., *Patersonia occidentalis*, *Dasyopogon bromeliifolius*, *Phlebocarya ciliata*, Cyperaceae spp.; and
- Wetland: *Kunzea ericifolia* with or without *Melaleuca raphiophylla* over *Thryptomene* sp., unidentified shrub species, *Philothea spicata*, *Stylidium* spp., Cyperaceae spp., *Leucopogon* sp. (Lundstrom Environmental Consultants Pty Ltd, 2015).

Vegetation Condition

The condition and structure of the vegetation within the application area was obtained via a site inspection undertaken by officers of DWER on 19 November 2019 (DWER, 2019). The vegetation within the application area was identified as being in a good (Keighery, 1994) to completely degraded (Keighery, 1994) condition, described as:

- Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994), to
- Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994).

The site inspection determined that the majority of the vegetation under application is dryland vegetation considered to be in a degraded (Keighery 1994) condition with small pockets of vegetation progressing to the eastern portion of the application area in a good (Keighery 1994) condition (DWER 2019). The former Department of Parks and Wildlife identified that the remnant native vegetation surrounding the application area to the north, east and south is in a good (Keighery, 1994) condition, with a large patch considered to be in very good (Keighery, 1994) condition (Parks and Wildlife, 2015).

Soil type

According to available datasets, the application area has been mapped by the Department of Primary Industries and Regional Development (DPIRD) as the following land subsystems:

- Bassendean B1b Phase (majority of the application area): Very low relief dunes of undulating sand plain with deep bleached grey sandy surface layer (A2 horizons) and pale yellow subsoil (B horizons).
- Bassendean B3 Phase (approx. 0.011ha of the application area): Closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam (Schoknecht *et al.*, 2004).

The site inspection identified sandy grey soils within the application area (DWER, 2019).

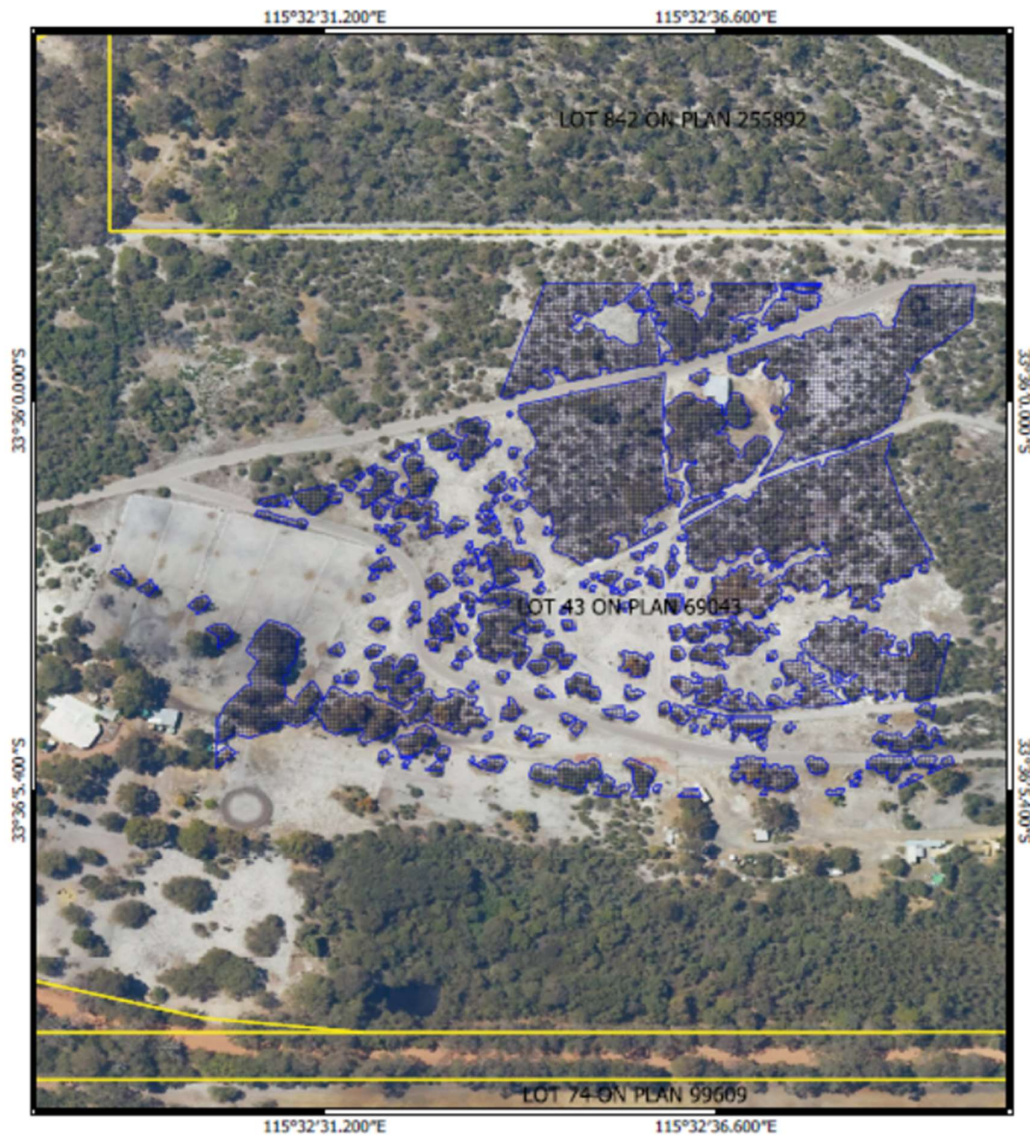


Figure 1: Application area cross-hatched blue

3. Minimisation and mitigation measures

The applicant indicated on the clearing permit application form that avoidance and mitigation measures have not been considered to minimise the need for and scale of the proposed clearing of native vegetation.

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing may be at variance with this Principle

As discussed under Section 2, a site inspection of the application area undertaken by DWER officers identified the application area ranges from a good to completely degraded (Keighery, 1994) condition, with the majority of the application area in a degraded (Keighery, 1994) condition (DWER, 2019). The structure of the vegetation within the application area has been significantly impacted by human disturbance through historical land clearing, livestock grazing, vehicle use, weed invasion and horse tracks that traverse the property (DWER, 2019). It is noted that the areas located immediately adjacent to the areas proposed for clearing (cross-hatched blue as shown in Figure 1) appear to contain no native vegetation cover. However, the site inspection observed these areas are naturally regenerating. If clearing is proposed within these areas, the application area will need to be revised to include these areas.

The local area considered in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area. The local area retains approximately 22.83 per cent native vegetation cover (6,925.76 hectares).

According to available databases, 56 priority (P) flora species and 17 threatened flora species have been recorded within the local area (Western Australian Herbarium, 1998-). Advice received from the Department of Biodiversity, Conservation and Attractions (DBCA) noted that the application area is likely to support the P4 species *Acacia semitrullata* which has been recorded within the local area (DBCA, 2020a). However, if this species was present in the application area, it is likely that any population would be small and the proposed clearing is not likely to adversely affect the species conservation status. The application area is unlikely to support any other priority flora species that have been recorded within the local area.

The application area is located adjacent to a larger remnant of native vegetation that is known to be important habitat for and support populations of the Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*). A site inspection undertaken by DWER officers in November 2019 determined that the application area is not likely to contain significant habitat for WRP's giving the lack of continuous canopy throughout the application area and that no evidence of foraging or nesting was observed (DWER, 2019). A fauna management condition that requires a fauna spotter to be present on site at the time of clearing will ensure any resident WRP's can safely disperse or be taken to suitable habitat away from the proposed clearing. Habitats for indigenous fauna are assessed in more detail under Principle (b).

As discussed under Principle (c), the dense areas of the application area in good (Keighery, 1994) condition may support suitable habitat for the threatened flora species *Drakaea elastica* which is known to occur within 1.2 kilometres of the application area (DBCA, 2020). Therefore, a targeted flora survey of the application area specifically targeting *Drakaea elastica* is required.

According to available datasets, a portion of the application area (approximately 0.015 hectares (0.7 per cent)) is located within the boundary of a mapped occurrence of the 'Banksia Dominated Woodlands of the Swan Coastal Plain' Threatened Ecological Community (TEC). Two other mapped occurrences approximately 3.3 hectares and 38.6 hectares in size occur approximately 22 metres south and 24 metres north respectively. This TEC is listed as 'endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 Act* (EPBC Act) and as a 'Priority 3' Priority Ecological Community (PEC) by DBCA.

The Approved Conservation Advice for the TEC states that to be considered representative of the TEC, a remnant in the Swan Coastal Plain bioregion must include at least one of four Banksia species being *Banksia attenuata* (candlestick banksia), *B. menziesii* (firewood banksia), *B. prionotes* (acorn banksia) and/or *B. ilicifolia* (holly-leaved banksia); must include an emergent tree layer often including marri, jarrah, or tuart, and other medium trees including *Eucalyptus tottiana* (pricklybark), *Nuytsia floribunda* (WA Christmas tree), western sheoak, *Callitris pyramidalis* (swamp cypress) or *Xylomelum occidentale* (woody pear); and must include an often highly species-rich understorey (TSSC, 2016). In addition, it is noted within the conservation advice that if a patch of Banksia woodland vegetation is dominated by *Banksia littoralis*, it is unlikely to be representative of the TEC and may indicate a different dampland community type (TSSC, 2016).

Although the site inspection undertaken by DWER officer's observed mature Banksia species within the 'Woodland' vegetation type of the application area, these species were scattered through the application area and not considered to be a prominent tree layer canopy, which is a key diagnostic feature of this ecological community. The areas of dense vegetation located in the north eastern portion of the application area as shown in Figure 1, are dominated by *Kunzea ericifolia* species, which are not a key species of this TEC. In consideration of the above and given the completely degraded (Keighery, 1994) condition of the understorey, the application area is not considered to be representative of this TEC.

Noting the mapped TEC is located immediately adjacent to the application area, the disturbance caused by the proposed clearing may degrade the quality of the TEC vegetation through increased weed invasion and human disturbance. Noting the extent of the proposed clearing that will occur adjacent to the TEC, it is expected that impacts to the TEC will be minimal. Weed and dieback management measures will assist in mitigating this risk.

Given the above, the proposed clearing may be at variance with this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing may be at variance with this Principle

According to available databases, 31 records of conservation significant fauna taxa have been recorded within a 10 kilometre radius of the application area which comprises of eight threatened fauna species, 14 species protected under international agreement and nine priority fauna species. The majority of these species are avian species that utilise wetlands that occur within the local area. These species may sporadically utilise the application area given the close proximity of the multiple-use wetland. However, noting the highly mobile nature of these species that are likely to be transient visitors only, the application area is not likely to provide significant habitat for these species.

Of the species recorded, the application area may provide suitable habitat for seven terrestrial/aboreal conservation significant fauna listed under the *Biodiversity Conservation Act 2016* (BC Act) including:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (listed as Endangered under the EPBC Act and the BC Act);
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*); (listed as Vulnerable under the EPBC Act and the BC Act);
- Baudins cockatoo (*Calyptorhynchus baudinii*) (listed as Endangered under the EPBC Act and the BC Act);
- Chuditch (*Dasyurus geoffroyi*) (listed as Vulnerable under the EPBC Act and the BC Act);
- WRP (listed as Critically Endangered under the EPBC Act and the BC Act)
- Quenda (*Isodon fusciventer*); (state listed as Priority 4); and
- Western Brush Wallaby (*Macropus irma*) (state listed as Priority 4).

Carnaby's cockatoo, Baudin's cockatoo and Forest Red-tailed black cockatoo (collectively referred to as black cockatoos within the report) forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), *Eucalyptus*, *Corymbia* species and a range of introduced species (Valentine and Stock, 2008). As described under Section 2 'Site information', the application area contains *Banksia* sp. and *Eucalyptus* sp. which are the preferred food source for all three species. Although the application area contains suitable foraging habitat for black cockatoos, the site inspection undertaken by DWER's officers in 2019 observed only scattered mature *Banksia* species throughout the application area that are not likely to provide significant foraging habitat (DWER, 2019). In addition, vegetation in a better condition consisting of

Banksia woodland occurs to the north of the proposed clearing that contains foraging habitat of a higher quality for black cockatoos (Lundstrom Environmental Consultants Pty Ltd, 2015).

Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri (*Eucalyptus diversicolor*), marri, wandoo, tuart (*Eucalyptus gomphocephala*), salmon gum (*Eucalyptus salmonophloia*), jarrah, flooded gum, York gum (*Eucalyptus loxophleba*), powder bark (*Eucalyptus accedens*), bullich (*Eucalyptus megacarpa*) and blackbutt (*Eucalyptus* spp.) (Commonwealth of Australia, 2012). To be suitable as a black cockatoo breeding site, trees require a suitable nest hollow or need to be of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). There were no large trees with hollows that would provide suitable breeding habitat for black cockatoo species observed during DWER's site inspection. Given this, the application area is not likely to provide suitable breeding habitat for black cockatoo species.

Chuditch are present in approximately five per cent of their former range, with most chuditch now found in varying densities in jarrah forests and woodlands in the south west corner of Western Australia, in woodlands, mallee shrublands and heaths along the south coast, east to the Ravensthorpe area, and at lower densities in drier woodland and mallee shrubland in the Wheatbelt and Goldfield regions (DEC, 2012a). Chuditch require large areas of intact habitat to survive and are rarely found where habitat is severely fragmented by clearing, except as transient visitors. Suitable habitat for the chuditch may be present within the dense wetland vegetation in the application area. Noting the degraded open understorey of the 'Woodland' vegetation type described under Section 2, it is not likely the application would support significant habitat for this species. The Banksia woodland remnant vegetation located to the north of the proposed clearing area is likely to provide suitable habitat in a better condition than that of the application area.

The highest densities of WRP occur on the Swan Coastal Plain and in south coast areas. The Swan Coastal Plain population of WRP has undergone a substantial range contraction since the early 1990s, which is predominantly due to habitat loss and fragmentation from clearing for urban development and mining (Parks and Wildlife, 2017). Three key management zones have been identified in the WRP Recovery Plan as areas known to currently, or previously support large numbers of WRPs and are considered the most important extant populations at present. The key management zones identified currently are the 'Swan Coastal Plain zone', 'Southern Forest zone' and the 'South Coast zone' (Parks and Wildlife, 2017). The application area falls within the 'Swan Coastal Plain zone', described as the 'peppermint woodlands of and peppermint/tuart forests on the southern extremity of the Swan Coastal Plain, extending from the north of Bunbury to Augusta, but principally around Busselton' (Parks and Wildlife, 2017). The populations of WRP that occur within the 'Swan Coastal Plain management zone' are associated with stands of myrtaceous trees (usually peppermint trees (*Agonis flexuosa*)) growing near swamps, watercourses or floodplains (Parks and Wildlife, 2017). Vegetation communities critical to WRP include long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity, high nutrient foliage availability for food and habitat connecting patches of remnants (Parks and Wildlife, 2017).

The application area contains numerous mature peppermint trees that may provide suitable habitat for WRP (DWER, 2019). Scats of a WRP were observed under a large *Corymbia calophylla* located approximately 60 metres west of the application area during a previous site inspection undertaken by the former DER in 2015 (DER, 2015). Evidence of WRP in the form of four dreys, two scats and one individual was also identified during a WRP habitat survey conducted on 24 March 2015 in the remnant native vegetation located immediately south of the application area (Harwood, 2015). Although the application area contains suitable habitat for WRP, the habitat is not considered to be significant habitat for this species given the lack of continuous canopy and that no evidence of WRP in the form of scats or dreys were observed in the application area during DWER's site inspection in 2019. Noting a known record of this species occurs only 50 metres south of the application area, there may be a risk of direct impacts to individuals during the clearing process. Therefore the implementation of a fauna management condition that requires a fauna spotter to be present on site at the time of clearing to ensure any resident WRP's can safely disperse or be taken to the appropriate carers is required.

On the Swan Coastal Plain, the quenda has a preference for a dense understorey often associated with wetland vegetation (DEC, 2012b). The areas of dense wetland vegetation within the application area may be intermittently utilised by the quenda, however the wetland surrounding the application area is likely to be the preferred habitat for this species. Noting the very open and degraded condition of the understorey within the majority of the application area, it is not likely that the application area will provide significant habitat for this ground dwelling fauna species. However, indirect impacts of the proposed clearing to this wetland habitat needs to be considered. The inclusion of a 50 metre vegetative buffer to the surrounding wetland from the application area would protect the fauna values of the wetland habitat. The risk of impacting individuals through the clearing process can be addressed through a fauna management condition that aims to enable fauna to move on to utilise adjacent areas of suitable habitat.

The western brush wallaby inhabits open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland. Noting that this species is highly mobile and does not rely on specialist niche habitats, the proposed clearing is not likely to impact on significant habitat for this species. Slow progressive one directional clearing will help to allow this species to disperse ahead of the clearing activity should it occur on site at the time of clearing.

Given the above, the proposed clearing may be at variance with this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing may be at variance with this Principle

A search of DBCA's threatened flora database revealed records of 17 threatened flora species within the local area. Noting the habitat requirements of the threatened flora species recorded in the local area, the application area may support suitable habitat for one of the 17 flora species, being *Drakaea elastica*.

The closest record of *Drakaea elastica* is located approximately 1.2 kilometres from the application area. This species is a tuberous, perennial herb that flowers between October to November and prefers a habitat of low-lying depressions and swamps (Western Australian Herbarium, 1998-). The nearby Capel Nature Reserve and surrounding public reserves support large populations of *Drakaea elastica*. Noting the application area is in close proximity to these reserves and of the same soil/vegetation type, this species of threatened flora may occur within application area where the understorey and or soil structure remain relatively undisturbed. The level of disturbance within the application area would mean that if *Drakaea elastica* is present, plant numbers are likely to be very low (DBCA, 2020a).

It is noted that the survey undertaken by Lundstrom Environmental Consultants Pty Ltd in 2014 was only a reconnaissance survey which focused on characterising the flora and range of vegetation units present within the application area, it did not target this species. In addition, the survey was undertaken in December which is outside of the species flowering time, therefore would not have been identifiable during the survey. Given the application area is in close proximity to known populations and that suitable habitat occurs in the denser portions of the application area, a targeted flora survey is required to be undertaken. This species is identified by targeting the leaves which should be detectable by mid to late August.

Given the above, the proposed clearing may be at variance with this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing not likely to be at variance with this Principle

According to available datasets, seven state listed TEC's have been recorded within the local area, with the closest being the 'Shrublands on dry clay flats' TEC located approximately 1.5 kilometres east of the application area.

Given the long history of disturbance and vegetation types present within the application area, it is unlikely that the vegetation under application is considered to be representative of any state listed TEC's, or be necessary for the maintenance of a TEC. In addition, the reconnaissance survey undertaken in 2014 and DWER's site inspection confirmed that the vegetation within the application area is not consistent with any state listed TEC's (Lundstrom Environmental Consultants Pty Ltd, 2015; DWER, 2019).

Given the above, the proposed clearing is not likely to be at variance with this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not likely to be at variance with this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is situated within a Greater Bunbury Regional Scheme regionally significant east to west ecological linkage known as the Capel/Boyanup Ecological linkage. The proposed clearing is not considered likely to contribute to the fragmentation of this ecological linkage given the predominantly degraded (Keighery 1994) condition of the vegetation within the application area and that there is remnant vegetation surrounding the application area.

As indicated in Table 1 below, the remaining extents of native vegetation within the bioregion and mapped vegetation association are both below the 30 per cent threshold. DWER's site inspection determined that the vegetation within the application area is not considered to be representative of the Southern River vegetation complex as described under Section 2 of this report. Given this, and noting that the long term impact of the proposed clearing can be mitigated through the requirements to revegetate all cleared areas post extraction to represent vegetation of the surrounding area, the application area is not likely to be considered significant as a remnant of native vegetation in an area that has been extensively cleared.

Given the above, the proposed clearing is not likely to be at variance with this Principle.

Table 1: Vegetation remaining statistics (Government of Western Australia, 2018)

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current extent in DBCA Managed Lands (%)	Extent remaining in DBCA Managed Lands (proportion of Pre-European extent) (%)
IBRA Bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Swan Coastal Plain vegetation complex**					
Southern River Complex	58,781.48	10,832.18	18.43	940.36	1.60
Local Area Remnant Native Vegetation					
		6,925.76	22.83		-

* Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001). Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
 ** Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance with this Principle

According to available databases and as demonstrated in Figure 2, approximately 0.021 hectares of the application area is mapped within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland with the Unique Feature Identifier (UFI) 15809. UFI 15809 is characterised as a seasonally waterlogged flat that forms part of an extensive wetland system that extends along the Swan Coastal Plain from Boyanup in the northeast down to Carburnup River to the west (DBCA, 2015).

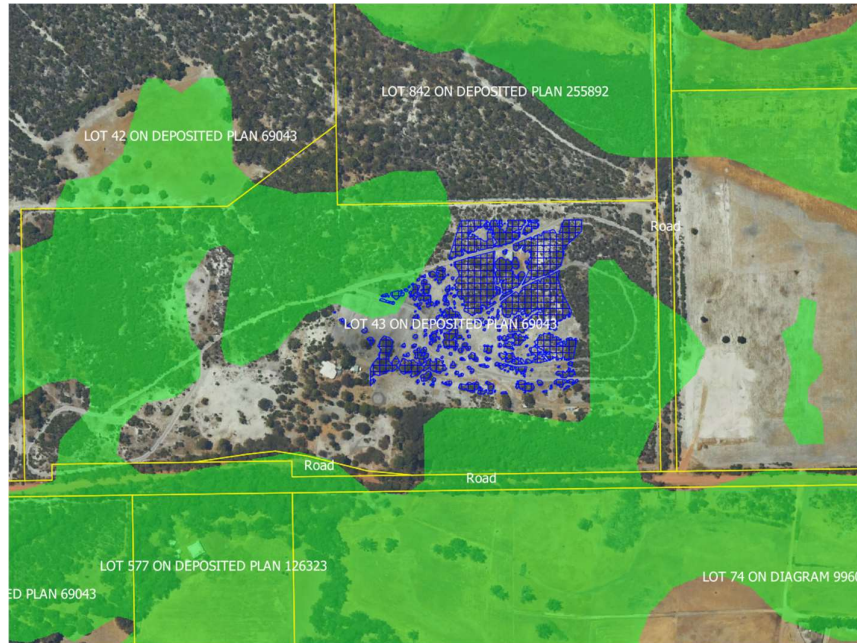


Figure 2: Application area (CPS 8474/1) and Geomorphic Wetland Mapping shaded in light green.

Multiple use category wetlands are wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare (Water and Rivers Commission, 2001).

Although mapping indicates that UFI 15809 is of multiple-use category, vegetation condition mapping of UFI 15809 provided by the former Department of Parks and Wildlife demonstrates that the native vegetation associated to UFI 15809 is in a good to excellent (Keighery, 1994) condition (refer to Figure 3) (Parks and Wildlife, 2015). Based on this information, the vegetated portions of the wetland area on Lot 43 are likely to commensurate as Conservation Management Category under the preliminary evaluation criteria of the draft *A methodology for the evaluation of specific wetland types on the Swan Coastal Plain, Western Australia* (Department of Parks and Wildlife 2013). It is therefore likely that a reassessment of this wetland would lead to a modification of its management category from multiple use to conservation category in the dataset. The vegetated portion meets criteria three, five and seven within the methodology;

- Criterion 3: The wetland supports significant habitat for *WRP* which is listed as Critically Endangered BC Act and EPBC Act;
- Criterion 5: Equal to or greater than 90% of the wetland supports vegetation in a good or better condition; and

- Criterion 7: The wetland is reported as being spatially dominated by vegetation in good or better condition and less than 10% (by area) of wetlands of the same type in its consanguineous suite are assigned Conservation management category.

Conservation Category wetlands are wetlands that support a high level of ecological attributes and functions and are of highest priority for preservation (Waters and Rivers Commission 2001).

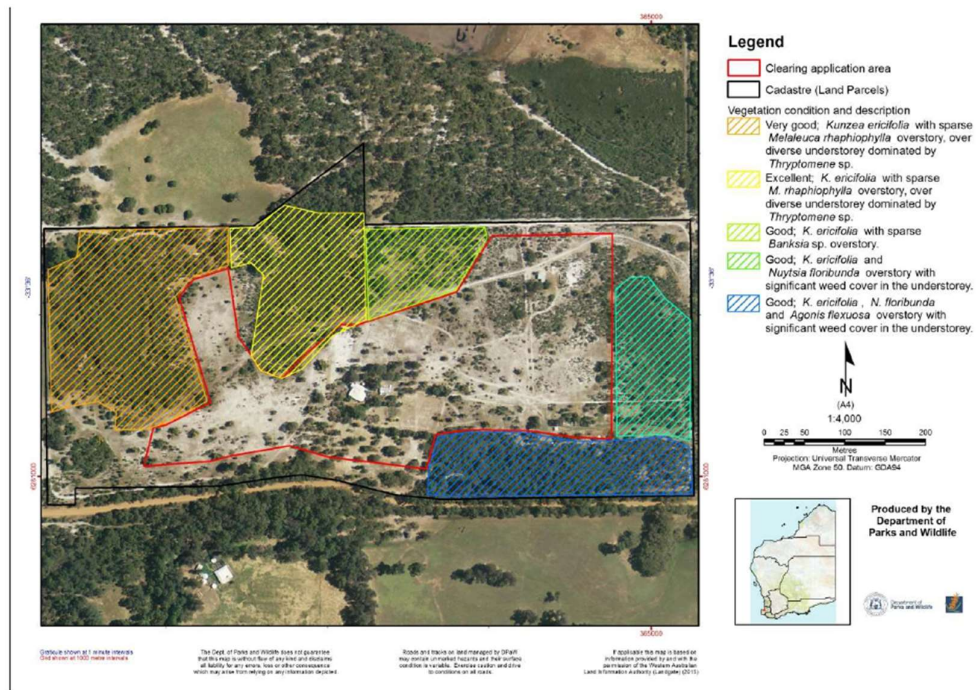


Figure 3: Vegetation condition mapping of UFI 15809 (Parks and Wildlife, 2015)

The proposed clearing and associated land-use will result in the direct loss of 0.021 hectares of wetland vegetation in a good (Keighery, 1994) condition and will impact upon the buffer to this wetland that is in a good to excellent (Keighery, 1994) condition. Furthermore, the proposed clearing is likely to degrade the quality of wetland vegetation adjacent to the application area as a result of increased weed invasion, sedimentation and plant disease. There is also the potential for the proposed clearing and associated land-use activity to modify the hydrological system in the adjacent wetland as a result of altered drainage patterns and a lowered water table as a result of post-mining drawdown around the excavation area (Parks and Wildlife, 2015). Altering the hydrology of a wetland can result in degradation of its flora and fauna values.

Conservation and Resource Enhancement wetlands require an appropriate buffer to be implemented to protect them from adverse impacts and to maintain ecological processes and functions within the wetland. A minimum wetland buffer width of 50 metres is recommended in most circumstances for Conservation and Resource Enhancement wetlands to ensure the values of the wetland are protected against the threats posed by the adjacent land use (Parks and Wildlife, 2015). As illustrated in Figure 3, the vegetation located to the northwest of the application area cross-hatched in yellow is in excellent condition commensurate with a wetland of Conservation category. Given the proximity of a potential conservation category wetland to the proposed clearing, and the potential impacts of localised draw down and alternation to groundwater flows following sand mining, a greater than 50 metre wide wetland buffer would be appropriate in this instance (DBCA, 2020b). A review of aerial imagery indicates that native vegetation growth has regenerated since the last assessment of clearing permit CPS 6763/1 in 2015, warranting retention of the 50 metre wetland buffer. A less than 50 metre buffer distance is unlikely to offer long term protection to the remaining wetland.

In order to mitigate the hydrological impacts of the proposed clearing and land-use activity outlined above, a minimum 50 metre buffer is required from the boundary of the mapped multiple-use wetland in accordance with the Environmental Protection Authority's Guidance Statement 33. It is noted that Section 5.5.2.3 of the Extractive Industry Licence Application refers to wetland areas that are fenced to prevent machinery entry into the wetlands during extractive industry works. It is presumed that the wetland fencing is proposed to be located outside of the wetland buffer area, however there is no reference to any buffer distances.

The applicant is required to provide a map depicting a 50 metre buffer from wetland UFI 15809 and locations of wetland fencing. DBCA also recommends that the applicant considers submitting an application to have wetland UFI 15809 re-assessed with a view to its potential reclassification to the Conservation management category within the Geomorphic Wetlands Swan Coastal Plain dataset (DBCA, 2020b).

Given the above, the proposed clearing is at variance with this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance with this Principle

As discussed in Section 2, the majority of the application area is mapped as the Bassendean B1b Phase subsystem, described as very low relief dunes of undulating sand plain with deep bleached grey sandy A2 horizons and pale yellow B horizons (Schoknecht et al., 2004).

DPIRD undertook a land degradation assessment report for the proposed clearing which identified that the risk of wind erosion is considered to be high, based on the sandy surface soils associated to the mapped subsystem (Commissioner of Soil and Land Conservation (CSLC) (CSLC, 2020). The CSLC concluded that the risk of wind erosion is unlikely to increase as a result of the proposed clearing and subsequent rehabilitation of the site following extraction activities (CSLC, 2020). Noting the relatively small size of the application area, the current lack of understorey within the application area and that remnant native vegetation surrounds all four sides of the proposed sand extraction site, the risk of appreciable land degradation is likely to be minimal and short term.

The mapped subsystem within the application area is considered to have a high risk of eutrophication. The land degradation assessment concluded that the proposed clearing is unlikely to increase the risk of eutrophication provided that the water table is not intercepted and an adequate ground cover is maintained following rehabilitation of the site.

The risk of land degradation in the form of water erosion as a result from the proposed clearing is considered to be low, given the highly permeable soils within the application area which typically have high infiltration rates and given the absence of hydrological features within the application area. The risk of water logging is also considered to be low provided the sufficient depth of soil remains above the winter water table levels and rehabilitation of the site. The removal of native vegetation is not expected to contribute to flooding in the application area (CSLC, 2020).

Given the relatively small size of the proposed clearing, and the requirement to rehabilitate the land once extractive industries have been completed, it is not considered likely for appreciable land degradation in the form of wind erosion and eutrophication to occur.

Therefore, the proposed clearing is not likely to be at variance with this Principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance with this Principle

According to available datasets, there are numerous mapped conservation areas within the local area. There are three conservation areas that occur within a four kilometre radius of the application area which include:

- Capel Nature Reserve located approximately 1.4 kilometres north of the application area;
- Coolilup State Forest located approximately 1.6 kilometres west of the application area; and
- Tuart Forest National Park located approximately 3.3 kilometres north-west of the application area.

None of these conservation areas are directly adjacent to the application area, and are separated from the application area by other areas of remnant vegetation, roads and farmland. Noting this, the proposed clearing is not likely to impact on the environmental values of these conservation areas. Although there is unlikely to be impacts to conservation areas from the proposed clearing, the disturbance caused by the proposed clearing is likely to increase the risk of weeds and dieback being introduced into adjacent areas of remnant vegetation. Weed and dieback management practices will assist in mitigating this risk.

Given the above, the proposed clearing is not likely to be at variance with this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing may be at variance with this Principle

As discussed under Principle (f), approximately 0.021 hectares of the application area is mapped within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland with the Unique Feature Identifier (UFI) 15809. A site inspection of the application area confirmed the presence of transitional wetland dependent vegetation growing in association with this mapped wetland (DWER, 2020).

As discussed under Principle (g), the mapped subsystem within the application area is considered to have a high risk of eutrophication. The proposed clearing is likely to increase nutrient enrichment which will result in the deterioration of surface water and groundwater quality if the groundwater table is intercepted (CSLC, 2020). This is likely to impact the surface water quality of the adjacent wetland through removing the vegetative buffer to the wetland and alter the hydrology of wetland UFI 15809 and the suite of wetlands surrounding the application area.

Salinity levels within the application area are mapped at between 500 and 1000 milligrams per litre total dissolved solids. DPIRD's land degradation assessment report noted that no salinity is occurring within the application area. The report concluded that no significant change to salinity levels is expected and the risk of salinity causing land degradation is low (DPIRD, 2020).

To reduce the impacts to surface water quality through increased nutrient enrichment and to ensure the groundwater table is not intercepted, the applicant should retain a 50 metre buffer from wetland UFI 6669. The applicant will also be required to rehabilitate the application area with native species once extractive industry activities are completed.

Given the above, the proposed may be at variance with this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance with this Principle

As discussed under Principle (f), a small portion of the application area (0.021 hectares) occurs within a mapped multiple use palusplain wetland and the same wetland surrounds the application area on all sides. Transitional wetland dependent vegetation growing in association with this mapped wetland was observed during DWER's site inspection (DWER, 2020). As discussed under Principle (g), the soils mapped within the application area and observed during DWER's site inspection are sandy soils considered to be highly permeable.

Noting the sandy soils present and small portion of the application area containing wetland vegetation (0.021 hectares), the proposed clearing is not likely to result or exacerbate the incidence or intensity of flooding.

DPIRD's land degradation assessment report noted that the proposed clearing is not expected to contribute to flooding, and concluded that the risk of flooding causing land degradation is low.

The proposed clearing is not likely to be at variance with this Principle.

Planning instruments and other relevant matters.

The application area overlaps previous clearing permit application CPS 6373/1 that was submitted by the same applicant. The proposed clearing is similar as what was proposed under CPS 6373/1. The applicant withdrew the application on the 23 December 2015 on the basis that the proposed project would not be viable should a wetland buffer of anything more than 15 metres buffer be applied. A preliminary assessment of CPS 6373/1 determined that the proposed clearing and extractive industry has the potential to impact on the adjacent area of wetland vegetation through changes to the hydrological regime, water quality and weed invasion. A letter was sent to the applicant on 24 November 2015 advising that a 50 metre buffer to the wetland is required and that an Extractive Industry Licence (EIL) had not yet been obtained. The applicant was advised that on this basis it was unlikely a clearing permit would be granted and invited the applicant to provide additional information addressing the issues identified including avoidance/mitigation measures or modifying/withdrawing the application.

The applicant submitted an application for an EIL and development approval (DA) to the Shire of Capel (the Shire) in April 2019 to allow for the extraction of sand for a period of approximately five years which is currently under assessment. The Shire advised during DWER's site inspection in November 2019 that a 50 metre buffer between extractive industries and wetlands is the distance that is required under the Extractive Industry local law, unless it can be demonstrated that the extraction will have no unacceptable impact to the wetland (DWER, 2019). The Shire advised on 6 April 2020 that the DA and EIL has not yet been determined as the fees have not yet been paid (Shire of Capel, 2020). In addition, the outstanding information that was requested to be submitted to the Shire in relation to the figures provided for separation to maximum ground water level and justification for the reduced setback to the wetland, both of which do not comply with the Shire's local law, have not been provided to date (Shire of Capel, 2020). This information is required to be provided to the Shire in order to progress the assessment of the applications.

It is noted in the Environmental Management Plan provided with the Extractive Industries Licence Application that the majority of the extracted area will be sown with pasture grasses (Shire of Capel, 2019). This is not considered to be appropriate given the local area retains less than 30 per cent remnant native vegetation. If a permit was granted, it is expected that the entire application area would be rehabilitated with native species in accordance with DWER's revegetation guidelines. The Plan also mentions that the most northern portion of the application area is proposed to be rehabilitated using native species (Shire of Capel, 2019). This may impact upon values of the adjacent wetland. It is also noted that the stockpile material for rehabilitation will be stored on the boundary of the extraction area (Shire of Capel, 2019). Further clarification is required from the applicant to determine whether the stockpile will be located within the wetland buffer or within the application area.

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the DWER website on 14 June 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

5. Applicant's Submissions

On 8 May 2020, a Delegated Officer wrote to the applicant, outlining the environmental impacts and planning issues identified during the assessment of the application. The letter invited the applicant to address the following matters:

- A modification of the proposed area to be cleared to include a 50 metre buffer to the multiple use wetland considered to be of a high conservation value, that is located within and adjacent to the application area;
- A targeted flora survey within the area proposed to be cleared to determine the presence of the threatened flora species *Drakaea elastica*;
- The provision of a copy of the Extractive Industry Licence and Development Approval from the Shire of Capel that supports the clearing of native vegetation for the purpose of sand extraction; and
- Further clarification on the proposed rehabilitation of the application area following completion of extractive industry activities as detailed in the Environmental Management Plan provided with the Extractive Industry Licence application.

On 16 July 2020 and 20 August 2020, attempts were made to contact the applicant by email, to obtain a response to DWER's previous letter requesting the information above in order progress and make a decision on the application. To date, no response has been received by DWER.

6. References

- Commissioner of Soil and Land Conservation (CSLC) (2020) Direct Interest Advice for Clearing Permit Application CPS 8474/1. Received 9 July 2019. (DWER Ref A1804036).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020a) Regional received in relation to clearing permit application CPS 8474/1, Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A1872855).
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020b) Species and Communities (wetlands) advice received in relation to clearing permit application CPS 8474/1, Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A1872856).
- Department of Environment and Conservation (2012a). Chuditch (*Dasyurus geoffroii*) Recovery Plan. Wildlife Management Program No. 54. Department of Environment and Conservation, Perth, Western Australia.
- Department of Environment and Conservation (DEC) (2012b) Quenda *Isoodon fusciventer* (Shaw 1797). Department of Environment and Conservation, Western Australia. Accessed via https://www.dpaw.wa.gov.au/images/documents/conservation-management/pests-diseases/quenda_2012.pdf
- Department of Environment Regulation (DER) (2017) Site Inspection Report for Clearing Permit Application CPS 6763/1. Site inspection undertaken 28 January 2015. Department of Environment Regulation. Western Australia (DWER Ref: A1454247).
- Department of Parks and Wildlife (Parks and Wildlife) (2015) Wetlands advice received in relation to clearing permit application CPS 6373/1. Department of Parks and Wildlife, Perth, Western Australia (DWER Ref: A863973).
- Department of Parks and Wildlife (Parks and Wildlife) (2017). Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.
- Department of Water and Environmental Regulation (DWER) (2015) Site Inspection Report for Clearing Permit Application CPS 6373/1. Site inspection undertaken 19 November 2019. Department of Environment Regulation, Western Australia (DWER Ref A861350).
- Government of Western Australia (2019). 2018 Statewide Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Harewood, Greg (2015) Lot 43 Plantation Road, Ludlow - Western Ringtail Possum Assessment. April, 2015. Greg Harewood. Zoologist. Bunbury, Western Australia (DWER Ref: A975786).
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Lundstrom Environmental Consultants Pty Ltd (2015) Preliminary Assessment Report. Lot 43 Plantation Road, Ludlow. January 2015. Perth, Western Australia (DWER Ref: A855241).
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Shire of Capel (2019) Application for an Extractive Industry Licence and Environmental Management Plan provided by applicant to Shire of Capel (DWER, Ref: A1853997).
- Shire of Capel (2020) Email correspondence received in relation to clearing permit application CPS 8474/1. Capel, Western Australia (DWER Ref: A1882364).
- Threatened Species Scientific Committee (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain Ecological Community. Canberra: Department of the Environment and Energy. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Gngangara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Water and Rivers Commission (2001) Position Statement: Wetlands, Water and Rivers Commission, Perth.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed August 2020).

GIS databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Managed Tenure
- Hydrography Linear – Linear
- Hydrography WA 250K – Surface Water Lines
- IBRA Australia
- PDWSA
- Pre-European Statistics
- RIWI Act Areas
- SAC bio datasets
- Soil Landscape Mapping - Best Available
- Soil landscape land quality
- Threatened and Priority Fauna Data
- TPFL Data
- WA Herb Data
- WA TECPEC Boundaries
- WA TECPEC Buffers