



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 3491/2
Permit Holder:	WA Gas Network Pty Ltd
Duration of Permit:	21 February 2010 – 21 February 2015

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of construction of the Mandurah Lateral Gas Pipeline Project.

2. Land on which clearing is to be done

ROAD RESERVE (STAKE HILL 6181) PIN 1376975
LOT 9037 ON PLAN 64471 (MEADOW SPRINGS 6210)
LOT 803 ON PLAN 31127 (Lot No. 803 MULGA PARKLANDS 6180)
LOT 2667 ON PLAN 64444 (PARKLANDS 6180)
LOT 97 ON PLAN 14984 (House No. 121 MULGA PARKLANDS 6180)
LOT 73 ON PLAN 16751 (Lot No. 73 SHEOAK STAKE HILL 6181)
LOT 74 ON PLAN 16751 (Lot No. 74 WOODLAND STAKE HILL 6181)
LOT 68 ON PLAN 16752 (House No. 190 WOODLAND STAKE HILL 6181)
ROAD RESERVE (STAKE HILL 6181) PIN 1376976
ROAD RESERVE (STAKE HILL 6181) PIN 1376978
LOT 3043 ON PLAN 16751 (Lot No. 119 EVERGREEN STAKE HILL 6181)
LOT 82 ON PLAN 38270 (STAKE HILL 6181)
LOT 83 ON PLAN 38270 (STAKE HILL 6181)
LOT 604 ON PLAN 59103 (STAKE HILL 6181)
LOT 91 ON PLAN 741 (House No. 791 LAKES STAKE HILL 6181)
ROAD RESERVE (NAMBEELUP 6207) PIN 1346057
ROAD RESERVE (NAMBEELUP 6207) PIN 1346058
LOT 12 ON DIAGRAM 60239 (NAMBEELUP 6207)
ROAD RESERVE (NAMBEELUP 6207) PIN 1346059
ROAD RESERVE (NAMBEELUP 6207) PIN 1346029
LOT 88 ON PLAN 741 (House No. 138 NAMBEELUP NAMBEELUP 6207)
LOT 27 ON PLAN 24067 (House No. 98 NAMBEELUP NAMBEELUP 6207)
LOT 4638 ON PLAN 28052 (NAMBEELUP 6207)
LOT 208 ON PLAN 52793 (NAMBEELUP 6207)
LOT 209 ON PLAN 52793 (NAMBEELUP 6207)
ROAD RESERVE (NAMBEELUP 6207) PIN 11605936
ROAD RESERVE (NAMBEELUP 6207) PIN 11605935
LOT 73 ON PLAN 739 (House No. 964 READHEADS NAMBEELUP 6207)
LOT 3 ON DIAGRAM 42627 (House No. 1582 HOPELAND NAMBEELUP 6207)
LOT 11 ON PLAN 14393 (House No. 1573 HOPELAND NORTH DANDALUP 6207)
LOT 4696 ON PLAN 27217 (NORTH DANDALUP 6207)

3. Area of Clearing

The Permit Holder must not clear more than 7.93 hectares of native vegetation within the area shaded yellow on attached Plan 3491/2a, 3491/2b, 3491/2c, 3491/2d, 3491/2e, 3491/2f, 3491/2g, 3491/2h, 3491/2i, 3491/2j & 3491/2k.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Petroleum Pipelines Act 1969 (Pipeline Licence PL 83)*, the *Energy Operators (Powers) Act 1979* and the *Dampier to Bunbury Pipeline Act 1997*.

6. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

8. Dieback and weed control

(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) shall not move soils in wet conditions;
- (iii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) At least once in each 12 month period for the *term* of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

9. Fauna management

(a) Prior to undertaking any clearing authorised under this Permit, the area(s) shall be inspected by a *fauna specialist* who shall identify *habitat/habitat tree(s)* suitable to be utilised by fauna species listed below:

- (i) Splendid fairy-wren (*Malurus splendens*);
- (ii) Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*);
- (iii) Carnaby's black cockatoo (*Calyptorhynchus latirostris*); and
- (iv) Baudin's black cockatoo (*Calyptorhynchus baudinii*)

(b) Prior to clearing, any *habitat/habitat tree(s)* identified by condition 9(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in condition 9(a).

(c) Prior to clearing, the Permit Holder shall ensure that any fauna identified by condition 9(b) shall be removed and relocated by a *fauna clearing person*, in accordance with a licence issued by the Department.

10. Retain vegetative material and topsoil, revegetation and rehabilitation

- (a) The Permit Holder shall retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) Within twelve months of the area no longer being required for construction or maintenance of the Mandurah Lateral Gas Pipeline, the Permit Holder must *revegetate* and *rehabilitate* the areas shaded yellow on attached Plan 3491/2a, 3491/2b, 3491/2c, 3491/2d, 3491/2e, 3491/2f, 3491/2g, 3491/2h, 3491/2i, 3491/2j & 3491/2k by:
 - (i) laying the vegetative material and topsoil retained under condition 10(a) on the cleared area;
 - (ii) deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area; and
 - (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- (c) Within twelve months of undertaking *revegetation* and *rehabilitation* in accordance with condition 10(b) of this Permit, the Permit Holder must:
 - (i) determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 10(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the Permit Holder must undertake additional *planting* or *direct seeding* of native vegetation in accordance with the requirements of condition 10(b)(ii) and (iii) of this Permit.

11. Offsets

As the clearing to be done is or may be at variance with one or more of the clearing principles, then the Permit Holder must implement an *offset* in accordance with conditions 11(a) and 11(b) of this Permit with respect to that clearing.

- (a) Determination of *offsets*:
 - (i) in determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the Permit Holder must have regard to the *offset* principles contained in condition 11(b) of this Permit;
 - (ii) once the Permit Holder has developed an *offset proposal*, the Permit Holder must provide that *offset proposal* to the CEO for the CEO's approval prior to undertaking any clearing to which the *offset* relates, and prior to implementing the *offset*;
 - (iii) clearing shall not commence until and unless the CEO has approved the *offset proposal* to which the clearing relates;
 - (iv) the Permit Holder shall implement the *offset proposal* approved under condition 11(a)(iii); and
 - (v) each *offset proposal* shall include a *direct offset*, timing for implementation of the *offset proposal* and may additionally include *contributing offsets*.
- (b) For the purpose of this condition, the *offset* principles are as follows:
 - (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
 - (ii) *contributing offsets* should complement and enhance the *direct offset*;
 - (iii) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
 - (iv) the environmental values, habitat, species, *ecological community*, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
 - (v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is offset to compensate for the risk that the *offset* may fail;
 - (vi) *offsets* must entail a robust and consistent assessment process;

- (vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, *vegetation condition*, habitat quality and area of native vegetation cleared;
- (viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the *condition* of the natural environment;
- (ix) *offsets* must satisfy all statutory requirements;
- (x) *offsets* must be clearly defined, documented and audited;
- (xi) *offsets* must ensure a long-term (10-30 year) benefit; and
- (xii) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

PART III - RECORD KEEPING AND REPORTING

12. Records must be kept

- (a) The Permit Holder must maintain the following records for activities done pursuant to this Permit in relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to fauna management pursuant to condition 9 of this Permit:
 - (i) the location of each habitat or *habitat tree* identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) the species name of fauna reasonably likely to utilise, or that have been observed utilising, the habitat/habitat tree(s); and
 - (iii) the location and date where relocated fauna was released, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings.
- (c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 10 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares); and
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*.
- (d) In relation to the offset of areas pursuant to condition 11:
 - (i) the location of any area of *offsets* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) a description of the *offset* activities undertaken; and
 - (iii) the size of the *offset* area (in hectares).

13. Reporting

- (a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 12 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 29 November 2014, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

Definitions

The following meanings are given to terms used in this Permit:

condition means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

contributing offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

dieback means the effect of *Phytophthora* species on native vegetation;

direct offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

ecological community/ies means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999);

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fauna clearing person means a person who has obtained a licence from the *Department*, issued pursuant to the *Wildlife Conservation Regulations 1970* authorising them to take fauna;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

fill means material used to increase the ground level, or fill a hollow;

habitat tree(s) means trees that have a diameter, at average adult human chest height, of greater than 70cm, healthy but with dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna, or where these are not present then healthy but with the potential to contain hollows and roosts;

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared.

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

offset/s means an offset required to be implemented under condition 11 of this Permit;

offset proposal means an *offset* determined by the Permit Holder in accordance with condition 11 of this Permit;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as *regeneration, direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

term means the duration of this Permit, including as amended or renewed;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

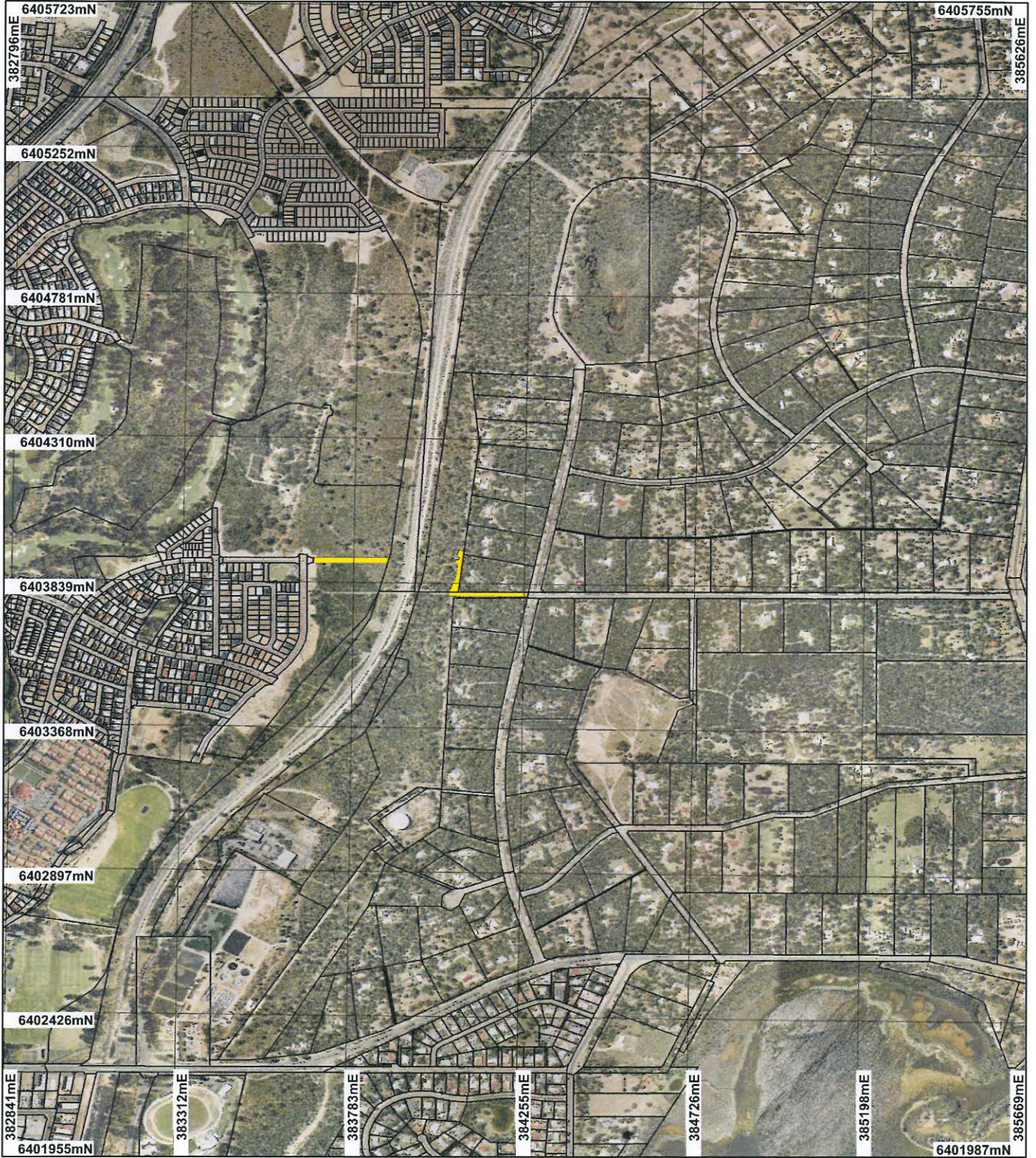


Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

10 May 2010

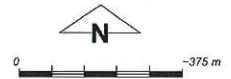
Plan 3491/2a



LEGEND

Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South 20 cm Orthomosaic - Landgate 2009



Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

K Faulkner Date 10/5/10
K Faulkner

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Plan 3491/2b



LEGEND

Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South 20 cm Orthomosaic - Landgate 2009



Scale 1:13609

(Approximate when reproduced at A4)

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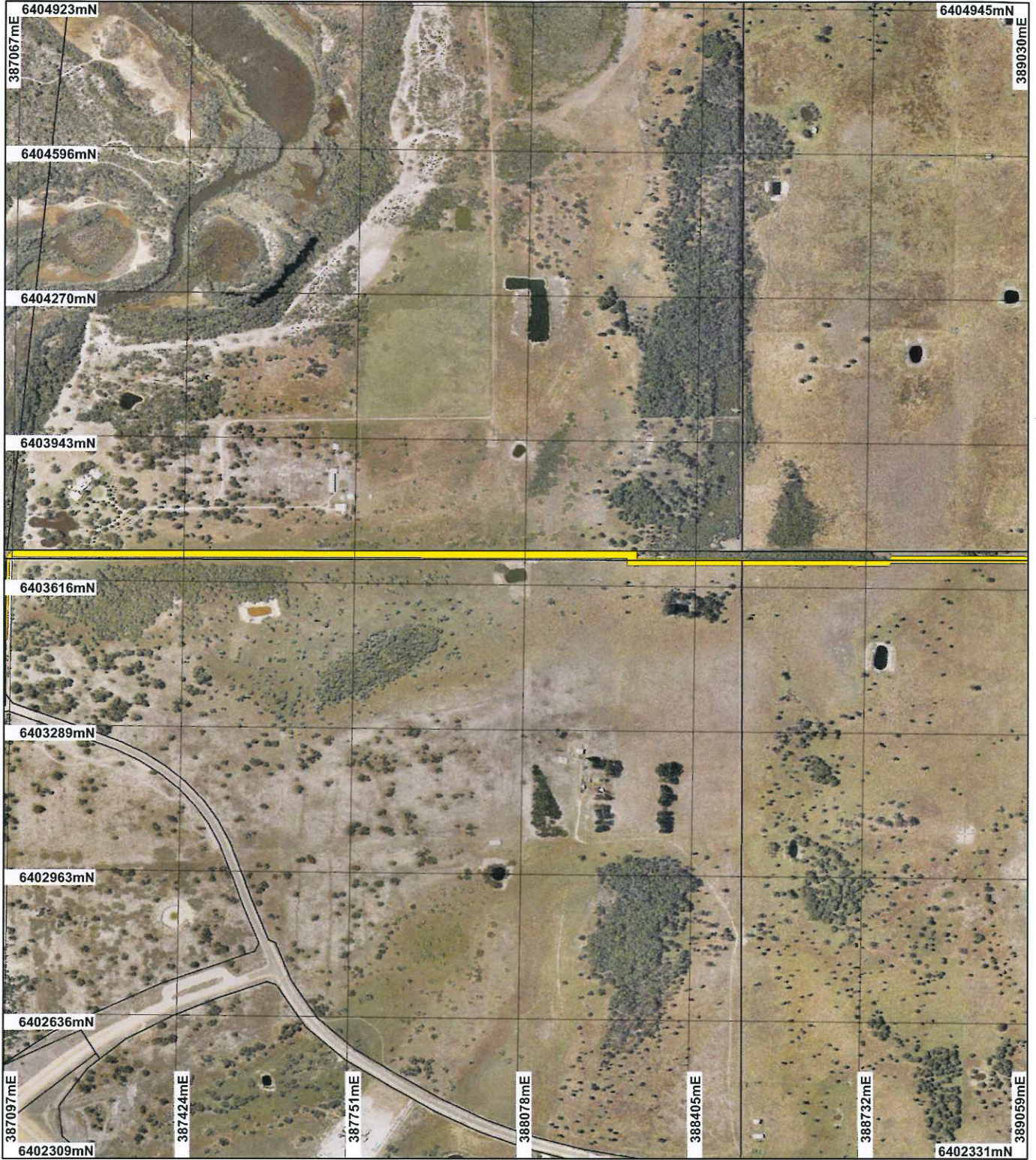
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Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South 20
cm Orthomosaic - Landgate
2009



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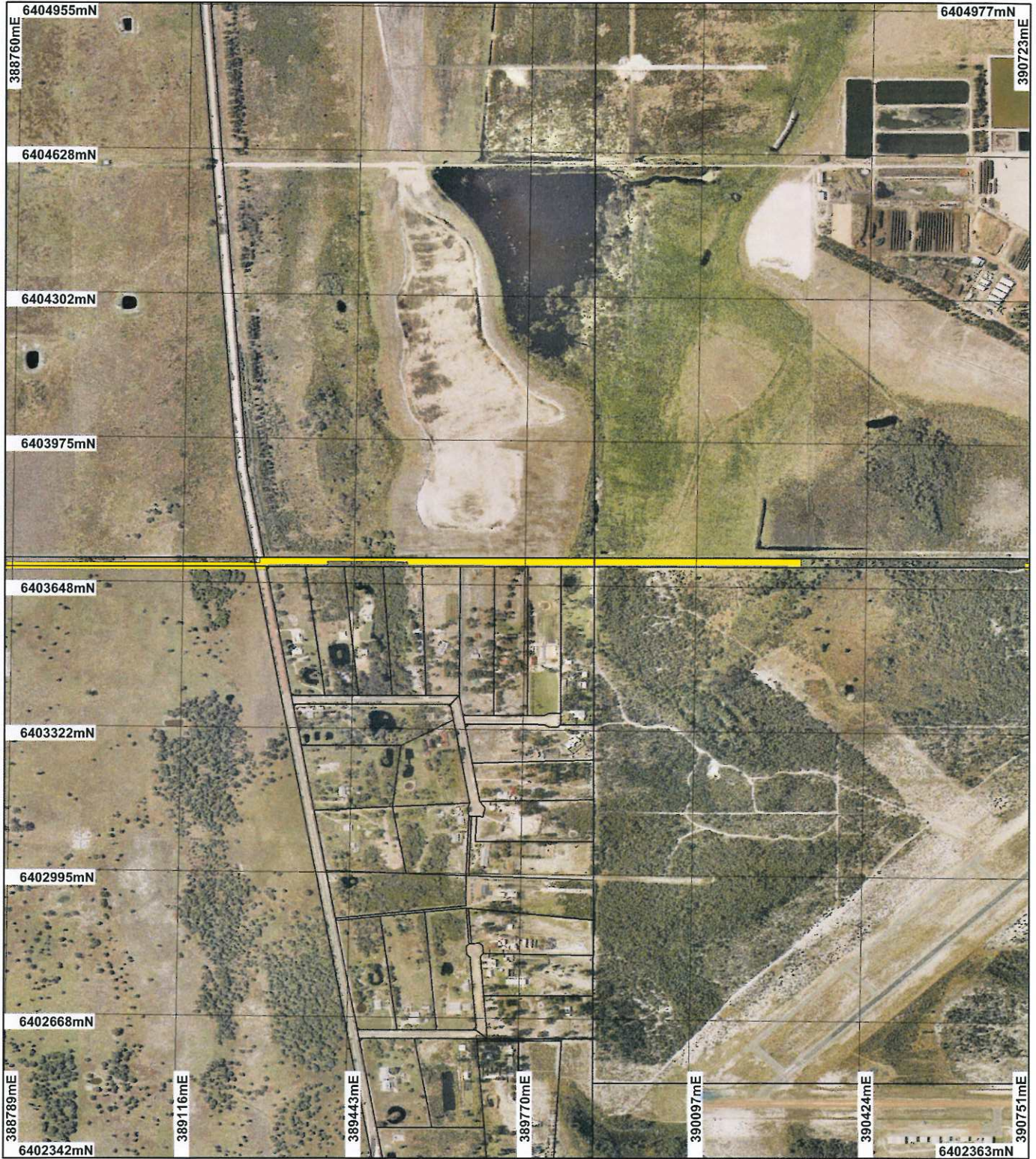
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LEGEND

Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South
20 cm Orthomosaic - Landgate
2009



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Geocentric Datum Australia 1994

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[Signature] Date 10/5/10

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Plan 3491/2e



LEGEND

Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South 20 cm Orthomosaic - Landgate 2009



Scale 1:6675
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K Fatkner Date 10/5/10

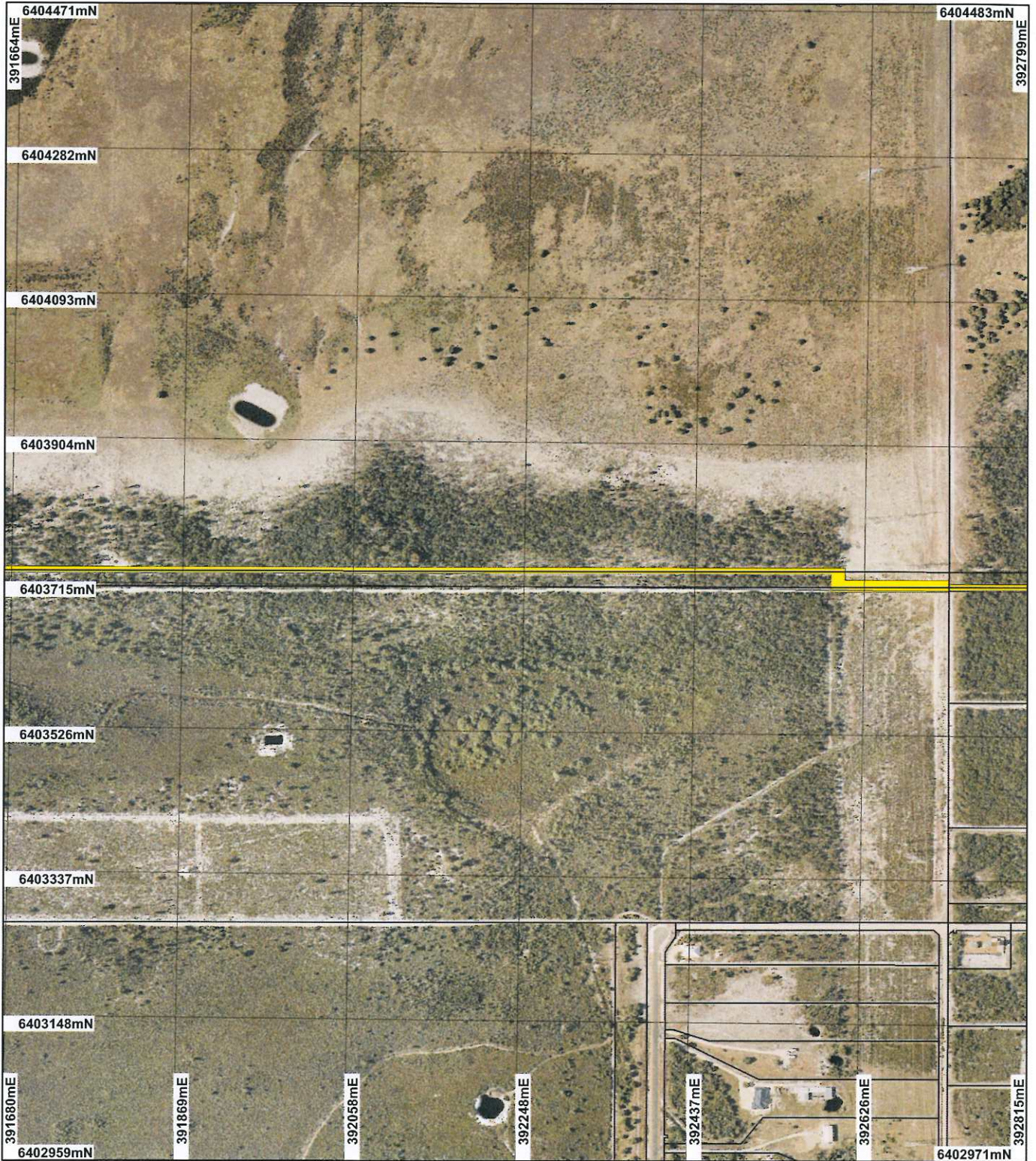
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Plan 3491/2f



LEGEND

Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South 20
cm Orthomosaic - Landgate
2009



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Geocentric Datum Australia 1994

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[Signature] Date 10/5/10
K Faulkner

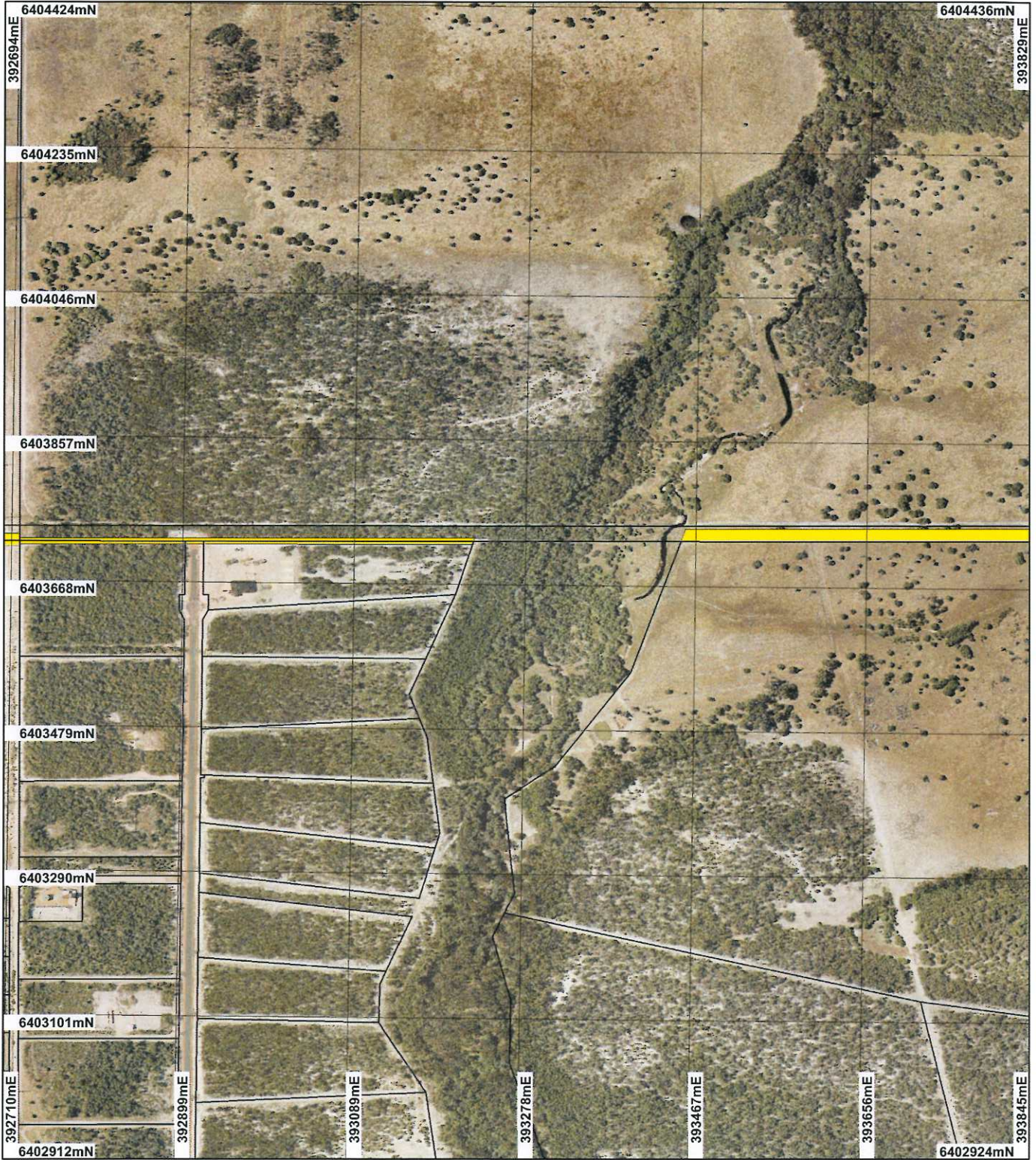
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Clearing Instruments

- Areas Approved to Clear
 - Cadastre
- Swan Coastal Plain South
20 cm Orthomosaic - Landgate
2009



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Geocentric Datum Australia 1994

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Clearing Instruments

- Areas Approved to Clear
- Cadastre
- Swan Coastal Plain South
20cm Orthomosaic - Landgate
2009



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K Faulkner Date *10/5/10*

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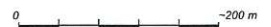
Plan 3491/2i



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Cadastre
- Swan Coastal Plain South
20cm Orthomosaic - Landgate
2009



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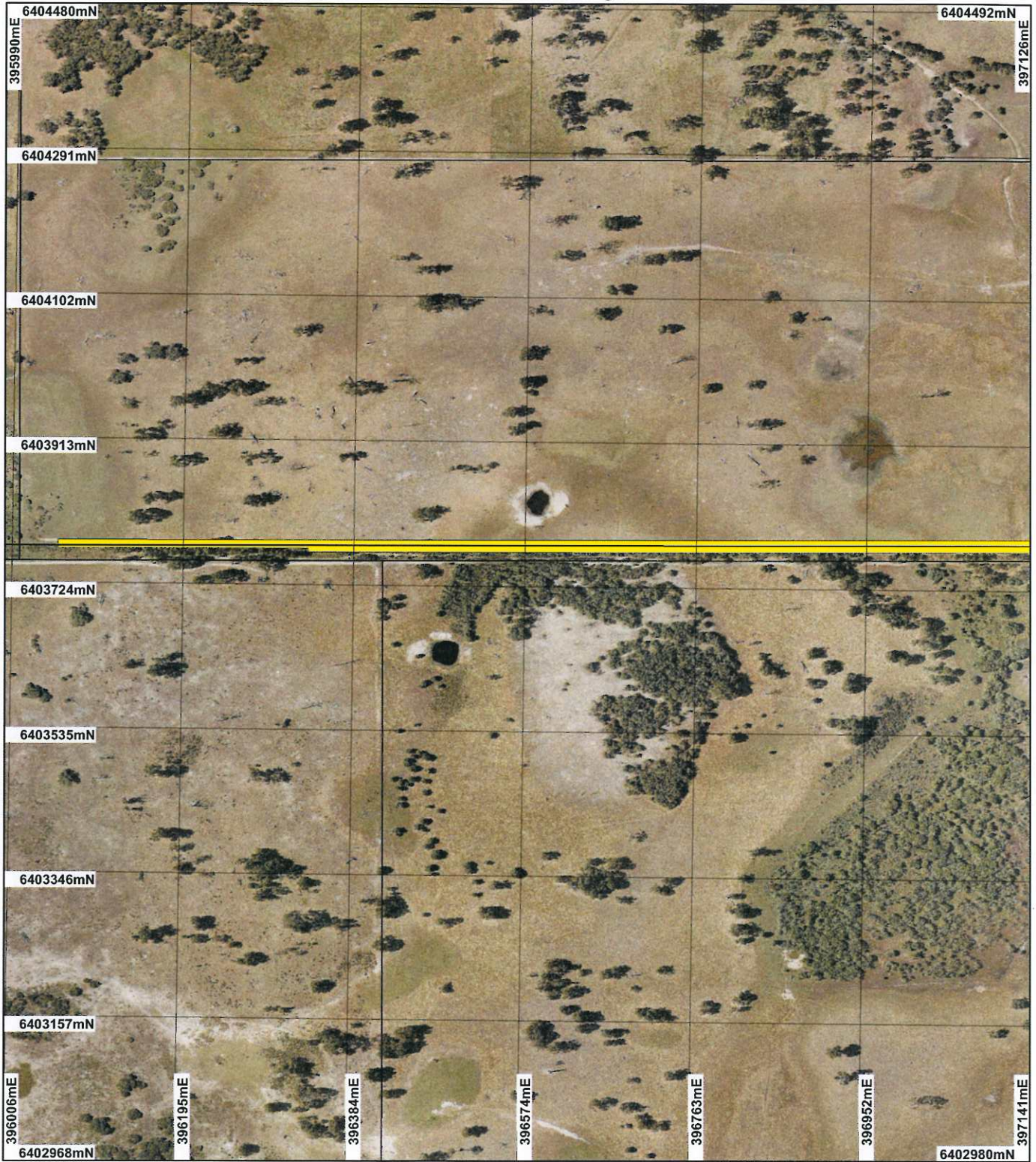
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Clearing Instruments

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 - Cadastre
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cm Orthomosaic - Landgate
2009



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[Signature] Date 10/5/10
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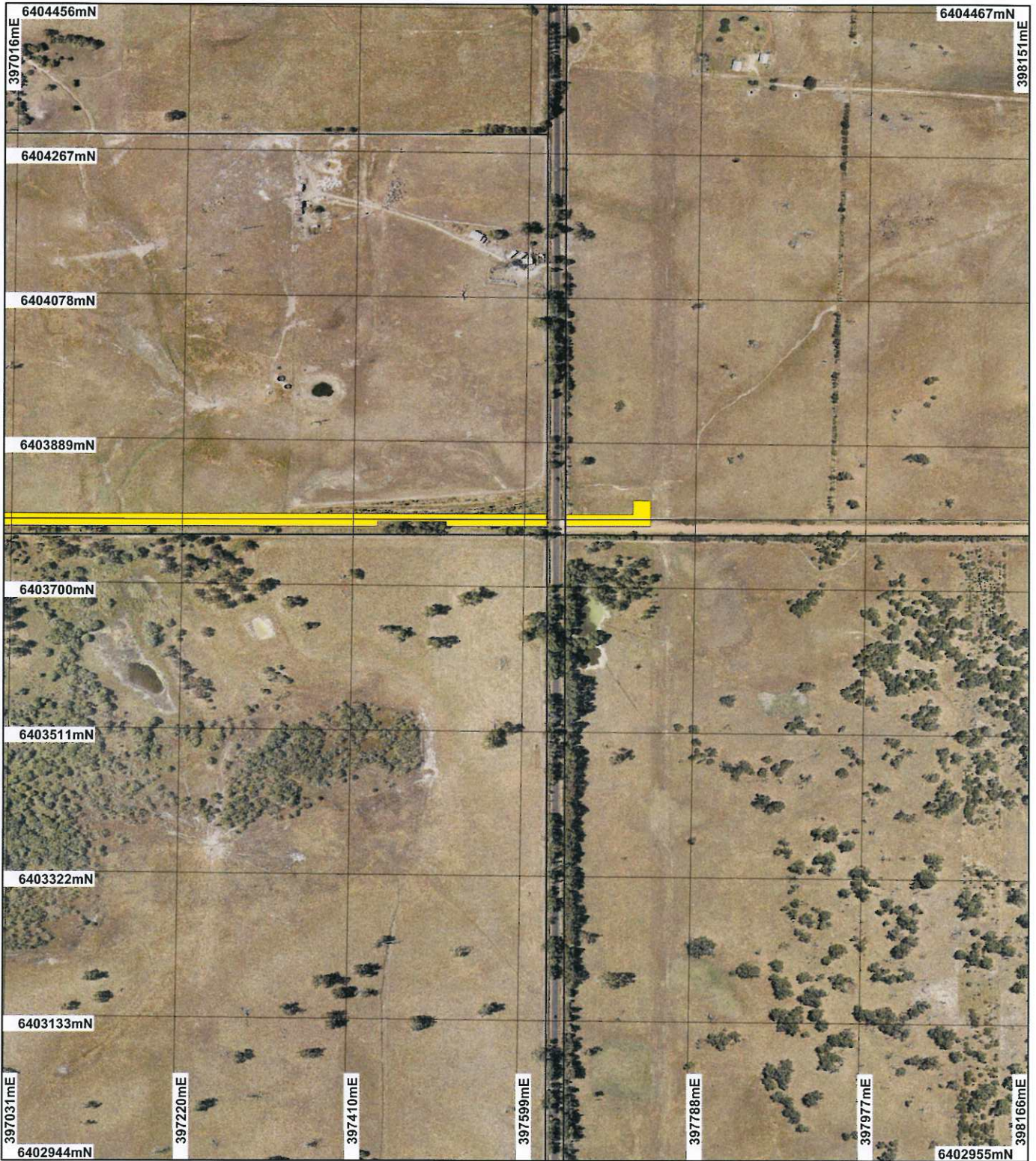
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Clearing Instruments

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 - Cadastre
- Swan Coastal Plain South 20
cm Orthomosaic - Landgate
2009



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Scale 1:6675
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Geocentric Datum Australia 1994

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K Faulkner Date 10/5/10

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1. Application details

1.1. Permit application details

Permit application No.: 3491/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: WA Gas Networks Pty Ltd

1.3. Property details

Property:

ROAD RESERVE (STAKE HILL 6181)
 LOT 9037 ON PLAN 64471 (MEADOW SPRINGS 6210)
 LOT 803 ON PLAN 31127 (Lot No. 803 MULGA PARKLANDS 6180)
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 LOT 4696 ON PLAN 27217 (NORTH DANDALUP 6207)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.99		Mechanical Removal	Water/gas pipeline installation
6.94		Mechanical Removal	Water/gas pipeline installation

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The vegetation under application is mapped as being comprised of the following Heddle Complexes:</p> <p>- GUILDFORD COMPLEX : A mixture of open forest to tall open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus wandoo</i> (Wandoo) - <i>Eucalyptus marginata</i> (Jarrah) and woodland of <i>Eucalyptus wandoo</i> (Wandoo) (with rare occurrences of <i>Eucalyptus lane-poolei</i> (Salmon White Gum)). Minor components include <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark). Vegetation within this complex is restricted to a narrow band on the east of the proposed pipeline location. A total of 1.23ha is proposed to be cleared, 0.37ha is described a being in good condition and 0.85ha is in a degraded condition.</p> <p>- BASSENDEAN COMPLEX - CENTRAL AND SOUTH : Vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - <i>Banksia</i> species to low woodland of <i>Melaleuca</i> species, and sedgelands on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus tottiana</i> (Pricklybark) in the vicinity of Perth. Vegetation within this complex is the most widespread, totalling approximately 7.5km of the proposed pipeline route. A total of 3.47ha of this complex is proposed to be cleared of which, 0.137ha is completely degraded and 0.86 is degraded.</p> <p>- SOUTHERN RIVER COMPLEX : Open woodland of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Banksia</i> species with fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark) along creek beds. This complex comprises approximately</p>	<p>During a flora and vegetation survey undertaken by Niche Environmental Services (2009) eleven broad associations were described, within which a total of 32 vegetation units were defined. The eleven associations consisted of:</p> <p>-<i>Melaleuca</i> species Woodlands in seasonally wet areas.</p> <p>-<i>Corymbia calophylla</i> Woodlands in low-lying areas.</p> <p>-<i>Eucalyptus marginata</i> ssp <i>marginata</i> Woodlands on grey sands.</p> <p>-<i>Jacksonia</i> - <i>Adenanthos</i> Open Shrubland on grey sands.</p> <p>-<i>Acacia</i> Scrub on grey sands</p> <p>-<i>Juncus pallidus</i> Sedegland on seasonally inundated grey sands.</p> <p>-<i>Hakea varia</i> Shrubland.</p> <p>-<i>Banksia</i> Low Open Forests on grey sands.</p> <p>-<i>Eucalyptus rudis</i> Low Woodland on low-lying areas.</p> <p>-<i>Dasyopogon bromeliifolius</i> Heath on grey sands.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)</p>	<p>The condition and description of the vegetation under application was determined via the use of aerial imagery, a DEC conducted site visit (DEC, 2008) and a flora and vegetation survey (Niche Environmental Services, 2009).</p>

2.5km of the proposed clearing. A total of 0.737ha of this complex is proposed to be cleared. Of this, 0.115ha is in good condition, while the majority of the vegetation (0.622ha) is considered to be degraded.

- YOONGARILLUP COMPLEX : Woodland to tall woodland of Eucalyptus gomphocephala (Tuart) with Agonis flexuosa in the second storey. Less consistently an open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri). A total of 0.899ha is proposed to be cleared. The condition is considered to range from very good (0.293ha), good (0.2ha) to completely degraded (0.05ha).

- HERDSMAN COMPLEX : Sedgeland and fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca species. A total of 0.552ha is proposed to be cleared, with the majority of the vegetation considered to be in completely degraded condition.

(Hedde, 1980)

The vegetation under application is mapped as being comprised of the following Beard vegetation associations:

- Beard 968: Medium woodland; jarrah, marri & wandoo
- Beard 998: Medium woodland; tuart
- Beard 1000: Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree (Melaleuca spp.)
- Beard 1001: Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina

(Shepherd, 2007)

As Above	As Above	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	As Above
As Above	As Above	Degraded: Structure severely disturbed;	As Above

As Above	As Above	regeneration to good condition requires intensive management (Keighery 1994)	As Above
		Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	

3. Assessment of application against clearing principles

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

Comments

Proposal is at variance to this Principle

This application for a clearing permit is the result of an amendment to CPS 3491/1. The proposed changes will increase the area to be cleared by 0.99ha. The alignment will not change, only a small area that has already been surveyed by Niche Environmental (2009) is to increase in width. This increase may not eventuate if the applicant can obtain permission from the landowner to access this area of land, however due to the significance of the project the applicant must plan for all foreseeable outcomes and an application is necessary. The assessment findings for CPS 3491/1 have been used in this assessment as they are current and relevant.

The proposed clearing is for the purpose of construction, commissioning operations, maintenance, modifications, additions and alterations of a gas pipeline. Due to recent population growth in the areas of Rockingham and Mandurah, the demand and consumption of gas has increased. In order to keep up with increased demand, works to the Rockingham sub-network is required (Westnet Energy, 2009).

The pipeline will consist of approximately 7.5km of 200mm diameter Class 600 pipeline from the Dampier to Bunbury Natural Gas Pipeline (DBNGP) to a Pressure Reduction Station (PRS), and approximately 9km of 250mm diameter Class 150 pipeline from the PRS connecting to the sub-network (pipeline) (Westnet, 2009). The clearing of vegetation varies from a maximum of 16m and a minimum of 8m wide corridor, which will allow for the pipeline trench, excavated spoil, plant and equipment and a passing lane for traffic (Westnet Energy, 2009).

The western extent of the proposed pipeline is located mostly within a residential area, while the eastern extent of the pipeline traverses area of rural land and future light industry. The proposed pipeline is to commence near to the intersection of Hopelands Road and Readheads Road, North Dandalup and will terminate on the northern side of Mandurah near the intersection of Mandurah Road and Meadow Springs Drive, Mandurah (Westnet, 2009).

The total length of the pipeline is approximately 16km. Throughout this assessment where ever distances are referred to, they are estimated distances along the length of the proposed pipeline (in kilometres) using Hopelands Road as a starting point (0km) and increasing in a westerly direction toward the intersection of Mandurah Road and Meadow Springs Drive, Mandurah.

A total of 222 native species were recorded during the flora survey (Niche Environmental Services, 2009) which when considering that the total area to be cleared is 6.94ha, represents an area high in biodiversity. In addition to this two priority listed flora species will be impacted by the proposed clearing; *Acacia benthamii* (P2) and *Boronia capitata* spp. *Gracilis* (P2) (DEC, 2010a).

There is a number of Environmentally Sensitive Areas (ESAs) that occur within the vicinity of the pipeline corridor and the pipeline Construction Right of Way (CROW) will cross a number of resource enhanced wetlands and a number of these wetlands offer good cover and shelter for several fauna species where they have been protected from stock (Ecoscape, 2008). However given the linear nature of the clearing the impacts to these systems are not likely to be significant.

While the proposed pipeline route has been designed to minimise the amount of vegetation to be cleared, it is likely that several fauna species will be impacted. The majority of the vegetation along the length of the proposed pipeline is considered to be habitat for Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) as it offers feeding habitat and nesting sites (Niche Environmental Service, 2009).

Flora advice (DEC, 2010a) has stated that although *Drakaea elastica* was not recorded within the flora survey, the survey was not undertaken at the appropriate time of year. Niche Environmental Services acknowledged this and have stated that while no rare or priority orchid species were recorded during the flora survey, orchids can be highly variable in relation to emergence and flowering patterns and as a precaution, potential impacts on suitable habitat should be minimised or avoided (Niche Environmental Services, 2009). The applicant has advised that clearing will be avoided where possible and existing cleared areas, road reserves and firebreaks will be utilised where possible (Westnet Energy, 2009).

The local area (10km radius) has approximately 15% remaining vegetation. In addition, the area under

application acts as a linkage between vegetated area such as the Nambeelup Brook, Resource Enhancement Wetlands and the Murrayfield Aerodrome along the pipeline route and occurs within an area which has been extensively cleared for agriculture. There are a number of vegetation complexes found along the length of the proposed pipeline that retain less than EPA supported 30% retention threshold level (EPA 2000). However the application area is within a constrained area where the acceptable threshold level is 10% (EPA, 2006). Several vegetation types to be cleared have less than 10% remaining pre-European levels.

The Niche Environmental Services (2009) flora data and analysis noted the presence of areas which aligned to floristic community type 21c, which is a Priority 3 community on DEC's informal list of communities that area poorly known and are a priority for clarification of status (DEC, 2010b). However it should be noted that the relatively poor species richness of the data within the survey may result in unreliable outcomes for the analysis (DEC, 2010b).

Between Nambeelup Brook and Nambeelup Road dieback is known to occur along the proposed pipeline route, added to this risk is the spread of weeds throughout the application area which included *Zantedeschia aethiopica* (arum lily), *Moraea flaccida* (one leaf cape tulip) and *Echium plantagineum* (Paterson's Curse) (Niche Environmental Services, 2009). To reduce the risk of invasive species and pathogens spreading, weed and dieback control conditions will be imposed on the permit. The applicant has outlined in their construction management plan (Westnet Energy, 2009), that all vehicles and equipment movement form dieback affected areas to dieback free areas will not occur unless the vehicles have been cleaned of adhering soil.

Access to the pipeline corridor would be achieved via the many roads that run within close proximity and where agreed, access through private property will assist in minimising the potential environmental impacts. During construction, a pipe storage lay down area will be established on Lakes Road in an existing cleared area and any other laydown and associated working areas will be located on existing cleared areas with the permission of the landholder (Westnet, 2009).

Where possible the pipeline is to be aligned within road reserves and at locations where the pipeline crosses private property the alignment is predominantly maintained at a distance of 1.5m from the property boundary. At other locations, such as along Stock Road, the pipeline is to be laid beneath existing footpaths (Westnet, 2009).

Given the high number of native flora species recorded along the length of the proposed pipeline, the potential existence of threatened and priority ecological communities and the potential habitat and linkage potential of the vegetation for fauna species, the proposed clearing is at variance to this principle. To reduce the impacts of clearing on areas where the clearing of native vegetation is temporary and necessary for construction activities of the pipeline, revegetation conditions will be imposed on the permit in conjunction with the prescribed management procedures set out in Westnet Energy's Construction Environmental Management Plan (Westnet Energy, 2009) such as Horizontal Direct Drilling and avoidance measures. Further to this, offset conditions will be imposed on the permit to reduce the impacts of clearing on the biodiversity values of the local area.

Methodology DEC (2010a)
DEC (2010b)
Ecoscape (2008)
Westnet Energy (2009)
Niche Environmental (2009)
DEC (2010)
EPA (2000)

(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 indigenous to Western Australia.

Comments **Proposal is at variance to this Principle**

While the proposed pipeline route has been designed to minimise the amount of vegetation to be cleared, it is likely that several fauna species will be impacted. The local area (10km radius) has approximately 15% remaining vegetation. In addition, the area under application acts as a linkage between vegetated areas such as the Nambeelup Brook, Resource Enhancement Wetlands and the Murrayfield Aerodrome along the pipeline route and occurs within an area which has been extensively cleared for agriculture.

The majority of the vegetation along the length of the proposed pipeline is considered to be habitat for Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) as it offers feeding habitat and nesting sites (Niche Environmental Service, 2009).

The Rainbow bee-eater was also recorded within the applied area. This species is listed as a Migratory and Marine species under the EPBC Act 1999, but is not likely to be significantly impacted by the proposed clearing given that it is considered to be a low priority for management and the only known threat is the cane toad (DEHWA, 2010) and that no nesting sites for this species were observed, only calls were heard during the fauna survey (Ecoscape, 2008). The wetlands that occur along the length of the proposed pipeline offer good cover and shelter for several fauna species where they have been protected from stock (Ecoscape, 2008).

The Chuditch (*Dasyurus geoffroii*) (VU), which was recorded 1.9km south of the proposed alignment, is unlikely

to be impacted by the clearing given that are known to occupy a wide range of habitat types (DEC, 2010) and can easily relocate.

The Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Splendid Fairy-Wren (*Malurus splendens*) were observed within the application area during a DEC site visit (DEC 2008). The Splendid Fairy-Wren is listed as regionally significant on the Swan Coastal Plain (Government of Western Australia 2000), having a limited distribution range and are particularly sensitive to habitat loss (Bamford 2006).

The Graceful Sunmoth (EN) was also recorded within the local area (10km radius). This species is currently known from only two general vegetation types (Banksia woodland/woolly bush in the northern suburbs of Perth, breeding on *Lomandra hermaphrodita* and Open areas of herbland, heathland and shrubland on Quidalup soils close to the coast where it breeds on *Lomandra maritima* (DEC, 2009). Given that only *Lomandra caespitosa* was observed along the proposed pipeline route, it is unlikely that this species will be impacted.

The applicant has advised that habitat trees will be retained wherever possible. Instead of removing the entire tree, limbs will be trimmed and the pipeline will be diverted around or under trees. The applicant has stated other methods such as fauna relocation, retention of portions of felled trees for utilisation as habitat and nest boxes will be erected in remaining trees to replace any hollows destroyed in the clearing (Westnet Energy, 2009).

The proposed alignment has been altered to avoid nesting trees as much as possible and nesting trees will only be removed where safety issues demand it. Fauna management conditions will be imposed on the permit to ensure impacts to local fauna species are kept to a minimum.

Open trenches also pose a threat to ground dwelling fauna species. The applicant has advised that ramps or steps will be placed in the excavated trenches, open trenches will be inspected for fauna within 4 hours of sunrise each day and trenches will be progressively backfilled as works progress (Westnet Energy, 2009). On areas where the clearing of native vegetation is temporary and necessary for construction activities of the pipeline, revegetation conditions will be imposed on the permit in conjunction with the prescribed management procedures set out in Westnet Energy's Construction Environmental Management Plan (Westnet Energy, 2009) such as Horizontal Direct Drilling and avoidance measures.

Given that the vegetation under application offers potential habitat and linkage for local fauna species, the proposed clearing is considered to be at variance to this principle, therefore offset conditions will be imposed on the permit to reduce impacts to local fauna.

Methodology Bamford (2006)
DEC (2008)
DEC (2009)
Ecoscape (2008)
Government of Western Australia (2000)
Niche Environmental Services (2009)
Westnet Energy (2009)

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

Comments Proposal may be at variance to this Principle

During a flora survey conducted by Niche Environmental Services (2009) between late September to mid November 2009, one rare flora and two priority flora were recorded. *Diuris drummondii* was collected from one location along the proposed alignment, with a total of three individuals being recorded. Further survey work within in the vicinity of the proposed alignment recorded additional 500 - 1000 plants (Niche Environmental Services, 2009). However the proposed alignment has been altered to avoid impacts to this species.

The following species were noted as occurring within or in close proximity to the proposed pipeline alignment (Niche Environmental Services, 2009):

- *Parsonia diaphanophleba* (Apocynaceae) (P4), recorded ~120m from the clearing area. This species is considered unlikely to occur within the applied area.
- *Johnsonia pubescens* ssp *cygnorum* (Hemerocallidaceae) (P2), recorded 700m from the applied area.

The closest recorded flora species recorded within the local area (10km radius), not already mentioned, include *Acacia benthamii*, recorded 65 metres north; *Drakaea elastica* recorded 190 metres south and *Jacksonia sericea*, which was recorded 940 metres south west of the applied area.

Flora advice (DEC, 2010) has stated that although *Drakaea elastica* was not recorded within the flora survey, the survey was not undertaken at the appropriate time of year. Niche Environmental Services acknowledged this and have stated that while no rare or priority orchid species were recorded during the flora survey, orchids can be highly variable in relation to emergence and flowering patterns and as a precaution, potential impacts on suitable habitat should be minimised or avoided (Niche Environmental Services, 2009).

Proposed clearing may be at variance to this principle. To reduce the impacts clearing may have on rare and priority flora the applicant has advised that where possible, the pipeline is to be aligned within road reserves and at locations where the pipeline crosses private property the alignment is predominantly maintained at a distance of 1.5m from the property boundary. At other locations, such as along Stock Road, the pipeline is to be laid beneath existing footpaths (Westnet, 2009). In addition to this avoid minimize conditions will be placed on the permit.

- Methodology** DEC (2010)
 Niche Environmental Services (2009)
 Westnet Energy (2009)
 GIS Databases:
 - SAC Biodatasets - accessed 11 Jan 10
 - Declared Rare and Priority Flora List - CALM 13/08/03
 - Hedde Vegetation Complexes - DEP 22/06/95
 - Pre European Vegetation - DA 01/01

(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.

Comments **Proposal may be at variance to this Principle**
 The Threatened Ecological Community (TEC) SCP9 was inferred to occur within the Hakea Shrubland along Readheads Road between 1.69 and 1.88km along the length of the proposed pipeline. This area will be avoided by the use of Horizontal Directional Drilling (HDD) (Niche Environmental Services, 2009). The nearest TEC was recorded 6.6 km north, FCT 15: Forests and woodlands of deep seasonal wetlands. It is unlikely that this TEC will be adversely impacted by the proposed clearing.

The quadrat data recorded during the flora survey undertaken by Niche Environmental Services (2009) found an average species richness of 24 native taxa (in quadrat RHQuad that aligned with FCT 3a) which is less than half the average species richness for FCT 3a. Niche Environmental (2009) concluded that the statistical analysis done on the quadrats with such a low species richness meant that a Gibson FCT could not be assigned.

DEC (2010b) does not support this conclusion given the number of species found within the quadrat that are only found within FCT 2 and 3a (both of which are TECs) and that the vegetation present also closely aligned with vegetation only found within the highly cleared heavy soils on eastern side of the swan coastal plain.

Given this, DEC (2010b) concluded it is likely that that FCT 3a is present within the vegetation under application and the proposed clearing may be at variance to this principle and offsets conditions will be required as a condition of the permit.

- Methodology** DEC (2010b)
 Niche Environmental Services (2009)
 GIS Databases:
 - SAC Biodatasets - accessed 11 Jan 10
 - Declared Rare and Priority Flora List - CALM 13/08/03
 - Hedde Vegetation Complexes - DEP 22/06/95
 - Pre European Vegetation - DA 01/01
 - Clearing Regulations, Environmentally Sensitive Areas 30 May 2005

(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.

Comments **Proposal is at variance to this Principle**
 The local area (10km radius) has approximately 15% remaining vegetation. In addition, the area under application acts as a linkage between vegetated area such as the Nambelup Brook, Resource Enhancement Wetlands and the Murrayfield Aerodrome along the pipeline route and occurs within an area which has been extensively cleared for agriculture. Therefore, it is considered likely for the area under application to be significant remnant vegetation in an area that has been extensively cleared and is considered likely to be at variance to this Principle.

The Environmental Protection Authority (EPA) supports the retention of remnant native vegetation to a 30% threshold level as recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). However, as the proposed clearing is within a constrained area the acceptable threshold level is 10% and the vegetation types listed below that retain less than this threshold level are considered to be critical assets as per the EPA's position statement No. 9 and require offsets (EPA, 2006). Offset conditions will be imposed on the permit to reduce the impacts of clearing.

	(ha)	(ha)	(%)	DEC Managed Land
IBRA Bioregions				
SCP	1,501,208.80	583,140.87	38.84	32.55
Shire				
City of Mandurah	16,795.07	8,470.15	50.43	43.93
Shire of Murray	177,618.71	99,614.14	56.08	84.94
Beard Vegetation Association within Bioregion				
1000	94,175.33	25,235.08	26.80	16.14
968	136,188.62	8,637.93	6.34	14.17
1001	57,410.26	14,545.92	25.34	5.13
998	50,866.97	21,225.69	41.73	38.10
Beard Vegetation Association within shire of Murray				
1000	677.62	183.14	27.03	22.19
998	4,251.84	2,896.74	68.13	38.88
1001	2,072.28	266.39	12.85	0.00
Beard Vegetation Association within shire of Murray				
968	47,585.64	4,236.77	8.90	19.92
998	1,415.12	639.74	5.21	6.97
1000	20,311.00	4,767.56	23.47	15.42
Hedde				
Bassendean				
Central & south	87,477	23,624	27.0	0.7
Guildford Complex	92,497	4,662	5.0	0.2
Southern River Complex	57,979	11,501	19.8	1.5
Herdsmen Complex	8,309	2,875	34.6	11.5
Yoongarillup Complex	24,767	11,140	45.0	13.9

(Shepherd et al. 2007; Hedde, 1980)

Methodology References:
 EPA (2000)
 EPA (2006)
 Hedde (1980)
 Shepherd (2007)
 GIS Databases:
 - NLWRA, Current Extent of Native Vegetation 20 Jan 2001

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

Comments Proposal is at variance to this Principle

Along the eastern portion of the proposed pipeline (between Hopelands Road and the Serpentine River), the water table is relatively shallow, sitting between 0 - 5 metres below the grounds surface. Large parts of the area are inundated in winter and are mapped as multiple use wetlands (Westnet Energy, 2009).

There is a number of Environmentally Sensitive Areas (ESAs) that occur within the vicinity of the pipeline corridor. A conservation category wetland is located to the south of the proposed route along Redheads Road. The proposed alignment avoids the wetland and does not encroach on the buffer to this wetland.

There is also an EPP Lake to the south of the route along Readheads Road at 6.35 to 6.5 along the length of the proposed pipeline. The northern boundary to this EPP Lake is classed as a Resource Enhanced Wetland. The proposed alignment is totally contained within the Readheads Road Reserve at this site (Westnet Energy, 2009).

Another EPP Lake is located along Readheads Road at 6.55 to 6.75km along the length of the proposed pipeline. At its northern boundary, a Resource Enhanced Wetland is located 40m south of the proposed Construction Right of Way (CROW).

The proposed pipeline follows the road reserve and crosses an EPP lake (resource enhanced wetland) along Readheads Road east of Gull Road at 8.26 to 8.4km along the length of the proposed pipeline. The area has experienced past clearing activities and the CROW has been reduced to limit the impact on this system.

The EPA has authorised the impact to the EPP Lakes and expects that the construction will be carried out in accordance with the applicant's construction management plan (Trim Ref: DOC88746).

At 9.36km to 9.54km along the length of the proposed pipeline, a resource enhanced wetland is located to the north of the proposed route along Readheads Road. The CROW avoids the wetland but does encroach on the 50m buffer. The CROW has been reduced and is minimised within the road reserve, with the majority of the clearing to occur within adjacent cleared paddocks.

The clearing along Lakes Road crosses the Serpentine River at 11.37km to 11.8km along the length of the proposed pipeline; however the clearing will avoid the river by using Horizontal Directional Drilling (HDD), which will mean that the pipeline will be installed under the river. Construction activities will impact the buffer to the Serpentine River on the eastern side, however clearing is to occur within the existing road reserve and only minimal clearing is required on road verges (Westnet Energy, 2009).

In addition to these areas the proposed clearing crosses Resourced Enhanced Wetlands at the following lengths along the proposed pipeline (km):

- 0.57 to 0.82
- 1.67 to 1.91
- 2.07 to 2.24
- 4.33 to 4.51
- 7.06 to 7.6
- 7.82 to 8.01
- 8.34 to 8.44
- 10.29 to 11.34

The proposed pipeline route will also cross Nambeelup Brook between 4.33 to 4.51km along the length of the proposed pipeline. Where the proposed pipeline is to cross wetlands, the installations are to be buried and once works are completed, water flow is not expected to be impeded or altered. The only EPP Lake where the proposed route actually crosses will be crossed by the use of trenching (in dry weather) and the removal of groundwater may be required.

The crossing at Serpentine River and Nambeelup Brook will be done using trenchless technology known as Horizontal Directional Drilling (HDD) so that the wetland system and associated riparian vegetation are not significantly impacted.

Given the linear nature of the proposed clearing and avoidance measures such as HDD and clearing within existing cleared area and road reserves, impacts to wetlands and lakes are unlikely to be significant. However as the proposed clearing will impact on approximately 3ha of vegetation growing in association with wetlands or wetland buffers, offset conditions will be imposed on the permit.

Methodology Westnet Energy (2009)
GIS Databases:
- EPP Lakes Policy Area - DEP 14/05/97
- EPP, Wetlands 2004 (DRAFT) - EPA 21/7/04
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06

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

Comments **Proposal may be at variance to this Principle**

The area under application contains poorly drained deep, bleached sands with clay subsoil throughout the western extent and mottled yellow soils with pale sands and loamy sand over clay throughout the eastern extent of the area under application (Department of Agriculture, 2005). These soils are known to have a high Phosphorus Export Risk and a high risk of water logging with moderate risk of water erosion (Department of Agriculture, 2005). The majority of the applied area is associated with a low risk of salinity with the exception of areas associated with wetlands which have a higher risk of salinity.

Given the vegetation under application is thin and linear with a total of 6.94ha and occurs within an area that has been extensively cleared, it is not considered likely that the proposed clearing would have a significant impact on salinity in the local area or cause appreciable land degradation from Phosphorus Export or water

logging.

However, the clearing of native vegetation does have the potential to impact on the soils found along the length of the proposed pipeline that may result in short term erosion concerns. Where necessary, temporary soil beams, drains and sediment barriers will be installed to assist in erosion management during the construction phase. The applicant has stated that trenches will not remain open for longer than 7 days and on completion of construction activities, compacted areas would be ripped or scarified, soil would be re-contoured to conform to the surrounding landscape and cleared vegetation would be stored and re-spread on site to promote stabilization of soils (Westnet Energy, 2009). As a further mitigation measure, on areas where the clearing of native vegetation is temporary and necessary for construction activities of the pipeline, revegetation conditions will be imposed on the permit in conjunction with the prescribed management procedures set out in Westnet Energy's Construction Environmental Management Plan (Westnet Energy, 2009) such as Horizontal Direct Drilling and avoidance measures.

Methodology Department of Agriculture (2005)
Westnet Energy (2009)
GIS Databases:
- Hydrographic catchments, catchments - DoW 01/06/07
- Soils, Statewide DA 11/99
- Topographic contours statewide - DOLA and ARMY 12/09/02

(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.

Comments Proposal may be at variance to this Principle

While the proposed pipeline alignment runs through a conservation area (Crown Reserve 44986, an A Class Reserve), no clearing is to occur within it. The proposed activities are to occur on the adjacent WAPC land and will utilise existing firebreaks. Horizontal Direct Drilling will be used to avoid clearing within the conservation area.

However, Between Nambelup Brook and Nambelup Road dieback is known to occur along the proposed pipeline route, added to this risk is the spread of weeds throughout the application area which included *Zantedeschia aethiopica* (arum lily), *Moraea flaccida* (one leaf cape tulip) and *Echium plantagineum* (Paterson's Curse) (Niche Environmental Services, 2009). To reduce the risk of invasive species and pathogens spreading, weed and dieback control conditions will be imposed on the permit. The applicant has outlined in their construction management plan (Westnet Energy, 2009), that all vehicles and equipment movement from dieback affected areas to dieback free areas will not occur unless the vehicles have been cleaned of adhering soil.

Additionally, the area under application acts as a linkage between vegetated area such as the Nambelup Brook, Resource Enhancement Wetlands and the Murrayfield Aerodrome along the pipeline route and occurs within an area which has been extensively cleared for agriculture. Therefore, it is considered likely for the area under application to be significant remnant vegetation in an area that has been extensively cleared

Therefore, given the above, the proposed clearing may be at variance to this principle. To reduce the impacts of clearing on areas where the clearing of native vegetation is temporary and necessary for construction activities of the pipeline, revegetation conditions will be imposed on the permit in conjunction with the prescribed management procedures set out in Westnet Energy's Construction Environmental Management Plan (Westnet Energy, 2009) such as Horizontal Direct Drilling and avoidance measures. Further to this, offset conditions will be imposed on the permit to reduce the impacts of clearing on conservation areas in the local area.

Methodology GIS Databases:
- Dec tenure (28 October 2009)
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001

(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.

Comments Proposal may be at variance to this Principle

Short term impacts to local hydrology and water quality is a potential risk. The clearing of native vegetation is likely to result in an increase in the amount of runoff and sedimentation into waterways. Given that the proposed pipeline route will cross the Serpentine River and Nambelup Brook, disturbances may result, however the use of Horizontal Directional Drilling will significantly reduce the impacts on these bodies (Westnet Energy, 2009).

The EPA acknowledges that the construction of the proposed pipeline has the potential to impact on local hydrology and water quality from clearing and trenching activities, however the EPA is of the opinion that these impacts will be short-lived (Trim Ref: DOC88746).

Groundwater quality has the potential to be adversely impacted by the proposed clearing, as many of the area along the eastern portion of the proposed pipeline (between Hopelands Road and the Serpentine River), the water table is relatively shallow, sitting between 0 - 5 metres below the grounds surface. Groundwater is likely

to accumulate in trenches and may require removal via pumping, however the applicant has advised that construction will occur within the drier months, therefore impacts area likely to be reduced. In addition to this soil stockpiles will be positioned to direct surface water drainage away from the stockpile, temporary soil erosion berms, drains, sediment barriers and settlement basins will be installed and maintained near wetlands and streams to preserve surface water quality.

Methodology Westnet Energy (2009)
GIS Databases:
- Groundwater Salinity Statewide DoW 13/07/06
- EPP Lakes Policy Area - DEP 14/05/97
- EPP, Wetlands 2004 (DRAFT) - EPA 21/7/04
- Hydrographic catchments, catchments - DoW 01/06/07

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

Comments **Proposal is not likely to be at variance to this Principle**
Flooding is unlikely to result given the linear nature of the clearing.

Methodology GIS Databases:
- Topographic Contours, Statewide - DOLA 12/09/02

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The eastern end of the applied area is within a Priority two Public Drinking Source Area - the Karnup-Dandalup Water Reserve.

The area under application is located within the Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992, an approved policy that aims to limit nutrient loads entering the Peel Harvey Estuary via changes in land use within the catchment. The current proposal for a gas pipeline would not be considered a change in land use and furthermore the proposed clearing is not considered likely to result in any significant increase in nutrient export. The clearing of native vegetation is not explicitly protected within the EPP and it is not considered that the proposal will result in a significant increase in nutrient export from the site. When considering this proposal the CEO would not be making a decision inconsistent with an approved policy and therefore would not be restricted by Section 51P.(2) of the Environmental Protection Act 1986.

The clearing permit application has been made based on land tenure rights and obligations and pending grants under the Energy Operators Powers Act, Petroleum Pipelines Act and Dampier Bunbury Pipeline Act. The previous application (CPS 2833/1) was made with supporting evidence for individual landowners and permission is obtained, where necessary from individual landholders for construction access. This application was referred to the EPA. The EPA gave the proposal a status of Not Assessed - Public Advice Given & Managed under Part V of the EP Act.

WA Gas Networks is approved under the Energy Operators (Powers) Act and are the proponent for this project.

The applicant has obtained permission to clear within Shire managed lands and is currently negotiating options for impacts on the City of Mandurah offset site, which is required under CPS 394/1. The applicant had advised that clearing will occur within existing cleared areas and HDD technology will also be used. The applicant will be required to offset any clearing that occurs within this area.

The applicant has obtained permission to access WAPC land (Trim Ref: DOC116340).

The Pressure Reduction Skid is to be located on the Murrayfield Aerodrome land parcel owned by the Royal Aero Club of Western Australia (RACWA). The applicant has entered into an agreement with RACWA to purchase the PRS land parcel and buffer zone. In addition, the applicant has an agreement with RACWA for the purchase of a suitable offset area which has been supported by DEC's Swan Coastal Region and Land Unit.

Submissions were received from the Shire of Mandurah and Murray (Trim Ref: DOC115496 & DOC117156 and DEC Ref: A302105) and issues raised were addressed within the assessment report where relevant.

Methodology

4. Assessor's comments

Comment

The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986 and found that :

- Principle (j) is not likely to be at variance
- Principle (a), (b), (e) & (f) are at variance

- All other Principles may be at variance

5. References

- Bamford Consulting Ecologists (2006) Jindalee Fauna Assessment CPS 1694/1. Unpublished report prepared for RPS Bowman Bishaw Gorham.
- DEC (2008) Site Inspection Report for Clearing Permit Application CPS 2833/1, Fowler and Readheads Road reserves, Stakehill and Nambeelup. Site inspection undertaken 16/12/2008. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC71742).
- DEC (2010a) Flora Advice. Department of Environment and Conservation Trim Ref DOC115942.
- DEC (2010b) TEC Advice, Species and Communities Branch, Department of Environment and Conservation Trim Ref DOC116897.
- Department of Agriculture (2005) AgMaps Land Manager CD-rom for the Shires of Serpentine-Jarrahdale, Kwinana, Rockingham, Mandurah, Murray, Boddington, Waroona and Harvey. Department of Agriculture, Western Australia. ISSN: 1448-235X.
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- Ecoscape (2008) Mandurah Gas Pipeline Route - Vegetation, Flora and Fauna Survey, Perth WA.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P. (2007). 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Westnet Energy (2009) Construction Plan for the Mandurah Lateral Gas Project

6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management (now DEC)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment (now DEC)
DoW	Department of Water
DMP	Department of Mines and Petroleum (ex DoIR)
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)