GOVERNMENT OF WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose permit number:	CPS 1918/4
Permit holder:	Electricity Networks Corporation, trading as Western Power
Purpose of clearing:	Clearing for *project activities*
Duration of permit:	10 February 2008 – 10 February 2015

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Purpose permit number:	CPS 1918/4
Permit holder:	Electricity Networks Corporation, trading as Western Power
Purpose of clearing:	Clearing for *project activities*
Duration of permit:	10 February 2008 – 10 February 2015

The permit holder is authorised to clear native vegetation for the above stated purpose, subject to the conditions of this Permit, including as amended or renewed.

PART I - TYPE OF CLEARING AUTHORISED

1. Type of clearing authorised

(a) In accordance with this Permit, the permit holder may clear native vegetation for *project activities*, which means any one or more of the following:
- (i) new underground distribution lines;
- (ii) new overhead distribution lines;
- (iii) new voltage regulator sites;
- (iv) new padmount transformer sites;
- (v) new ring main sites;
- (vi) new switching stations;
- (vii) radio towers and associated infrastructure;
- (viii) mono towers and associated infrastructure;
- (ix) new zone substation sites;
- (x) new terminal substation sites;
- (xi) new underground transmission lines;
- (xii) new overhead transmission lines
- (xiii) new infrastructure such as buildings, fences, gates, posts, boards, scaffolding, hurdles, other erections and structures to support the construction or operation of electricity infrastructure;
- (xiv) new *sightline* or centreline clearing;
- (xv) new storage, laydown or winch/brakes site areas;
- (xvi) *project surveys* including surveying and geotechnical studies;
- (xvii) pre-construction activities;
- (xviii) native vegetation clearing for the purposes of upgrading any of the above activities where such activities are not exempt from requiring a *clearing permit*; and
- (xix) decommissioning (removal of redundant infrastructure).

(b) This Permit authorises the permit holder to clear native vegetation for *project activities* to the extent that the permit holder has the power to clear native vegetation for those *project activities* under the *Energy Operators (Powers) Act 1979* or any other *written law*.

2. Clearing not authorised

(a) This Permit does not authorise the permit holder to clear native vegetation for *project activities* where:
- (i) it does not have the power to clear native vegetation for those *project activities* under the *Energy Operators (Powers) Act 1979* or any other *written law*;
- (ii) the clearing may be seriously at variance with the *clearing principles*; or

(iii) those *project activities* are incorporated in any *proposal* that is *referred* to and assessed under Part IV of the *EP Act* by the *EPA*.

(b) If a *proposal* incorporating a *project activity* has been *referred* to the *EPA*, this Permit does not authorise any clearing for that *project activity* until:
   (i) the *EPA* has given notice under section 39A(3) of the *EP Act* that it has decided not to assess the *proposal*; and
   (ii) either:
      (A) the period within which an appeal against the *EPA's* decision may be lodged has expired without an appeal being lodged; or
      (B) an appeal has been lodged against the *EPA's* decision not to assess the *proposal* and the appeal was dismissed.

(c) If the permit holder intends to clear native vegetation under this Permit for a *project activity* that is incorporated in a *proposal* referred to in condition 2(b), then the permit holder must have regard to any advice or recommendations made by the *EPA* under section 39A(7) of the *EP Act*.

3. 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.

4. Requirements prior to undertaking clearing

(a) Prior to clearing any native vegetation under this Permit, the permit holder must:
   (i) comply with the *Assessment Procedure* and the *Assessment Principles* set out in this Permit;
   (ii) if an *offset* is required to be implemented pursuant to condition 8(c), provide the CEO with an *offset proposal* for the CEO's approval;
   (iii) if a *management strategy* is required to be implemented pursuant to condition 8(d), provide the CEO with a *management strategy* for the CEO's approval; and
   (iv) if *revegetation* and *rehabilitation* is required to be done pursuant to condition 12, provide the CEO with a *Revegetation Plan*.

(b) The permit holder need not comply with condition 4(a)(iv) if the area to be *revegetated* and *rehabilitated* is:
   (i) less than 0.5 hectares;
   (ii) not located in an *ESA*; and
   (iii) an area where the proposed clearing that triggers the obligation to *revegetate* and *rehabilitate* is not at variance with one or more of the *clearing principles*.

PART II - ASSESSMENT PROCEDURE

5. Avoid, minimise etc clearing

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*.

6. Assessment of Clearing Impacts

(a) Once the permit holder has complied with condition 5 of this Permit, if any native vegetation is to be cleared the permit holder must conduct a *desktop study* assessing the clearing to be undertaken against each of the *clearing principles* in accordance with the *Assessment Principles* set out in Part III of this Permit.

(b) The *desktop study* must be conducted having regard to the permit holder's *Environmental Policy for the Assessment of Environmental and Social Issues in the Line Route Selection and Design Process* and, subject to condition 6(l), must include production of a *PEIA Report*.

(c) The *PEIA Report* must set out:

(i) the manner in which the permit holder has had regard to the principles set out in condition 5;

(ii) the manner in which the permit holder has had regard to the permit holder's *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* in conducting a *desktop study*;

(iii) the amount (in hectares) and boundaries of clearing required for the *project activity*;

(iv) how each of the *clearing principles* has been addressed through the *desktop study*;

(v) whether there are likely to be any *impacts* that may be at variance or seriously at variance with the *clearing principles*; and

(vi) whether, in accordance with the *Assessment Principles*:

(A) *rehabilitation* and *revegetation*, or a *management strategy*, is likely to be required under Part IV of this Permit; and

(B) an *offset* is likely to be required under Part V of this Permit.

(d) Where the outcome of the *desktop study* indicates that the clearing may be at variance or seriously at variance with one or more of the *clearing principles*, the permit holder must undertake *EIA* in accordance with this condition, and seek submissions in accordance with condition 7 of this Permit.

(e) Without limiting condition 6(d), where the information available is insufficient to allow the permit holder to assess the proposed clearing against one or more of the *clearing principles* as part of the *desktop study*, the permit holder must undertake *EIA* in accordance with this condition.

(f) Where required pursuant to condition 6(d), the permit holder must conduct an *EIA* addressing those *environmental values* identified in the *desktop study* as likely to be affected by the clearing to an extent that may be at variance or seriously at variance with the *clearing principles*.

(g) Where required pursuant to condition 6(e), the permit holder must conduct an *EIA* assessing each of those *clearing principles* for which there was insufficient information available to undertake a *desktop study*.

(h) *EIA* must be conducted having regard to the permit holder's *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* and, subject to condition 6(l), must include production of an *EIA Report*.

(i) *EIA* must include a *biological survey*, and:
   (i) where the area to be cleared may be affected by *dieback*, a *dieback survey*;
   (ii) where the clearing may have a detrimental impact on the *environmental values* of a *wetland*, a *wetland field assessment*; and
   (iii) any additional surveys and field assessments that are required to determine the *impacts* of the clearing on any *environmental value* protected by the *clearing principles*,

   and every such survey or field assessment must be conducted by an *environmental specialist*.

(j) Any *biological survey* carried out pursuant to condition 6(i) that relates to flora must be conducted having regard to *EPA Guidance Statement No.51*.

(k) The *EIA Report* must set out:
   (i) copies of any submissions received pursuant to condition 7, and a statement addressing each of those submissions;
   (ii) the manner in which the permit holder has had regard to the permit holder's *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* in conducting an *EIA*;
   (iii) the results of any surveys and field assessments carried out pursuant to conditions 6(h) and 6(i);
   (iv) any *impacts* likely to occur as a result of the clearing, including a description of those *impacts* that may be at variance or seriously at variance with the *clearing principles*;
   (v) any *rehabilitation, revegetation, management strategy* or other means of rectification that the permit holder will adopt to address the *impacts*; and
   (vi) any *offsets* developed in accordance with Part V of this Permit that the permit holder will implement to address the *impacts*.

(l) Where the permit holder conducts a *PEIA* and an *EIA* simultaneously:
   (i) the permit holder may produce one report, to be known as an *Assessment Report*, which contains all of the information required to be provided by this condition in a *PEIA Report* and an *EIA Report*; and
   (ii) if the permit holder produces an *Assessment Report,* there is no need to produce a *PEIA Report* or an *EIA Report* for the proposed clearing.

(m) Subject to condition 6(n), after undertaking the *EIA* the permit holder must prepare, implement and adhere to an *EMP* to address the *impacts*, in accordance with condition 10 of this Permit.

(n) Where the results of the *EIA* indicate that clearing for the *project activity* may be seriously at variance with the *clearing principles*, the permit holder must apply to the CEO for a *clearing permit* in respect of that clearing.

7. Submissions

(a) The permit holder must invite submissions from the following parties about those *impacts* of the proposed clearing that may be at variance or seriously at variance with the *clearing principles*:
   (i) the *Department*'s Native Vegetation Conservation Branch;

(ii) the Office of the Commissioner of Soil and Land Conservation in the Department of Agriculture and Food;
(iii) Department of Water;
(iv) the Conservation Council of Western Australia Inc.;
(v) the local government responsible for the area that is to be cleared;
(vi) the owner (as defined in section 51A of the *EP Act*), or occupier (as defined in section 3 of the *EP Act*), of any land on which the clearing is proposed to be done;
(vii) any other environment or community groups that the permit holder reasonably considers may have an interest in the clearing that is proposed to be done; and
(viii) any other party that the permit holder reasonably considers may have an interest in the clearing that is proposed to be done.

(b) The permit holder must provide the following information to the parties from whom it invites submissions under condition 7(a):
(i) a description of the land on which the clearing is to be done;
(ii) a description of the *project activities* for which the clearing is to be done;
(iii) the size of the area to be cleared (in hectares);
(iv) in what manner the permit holder considers that the clearing may be at variance or seriously at variance with the *clearing principles*;
(v) an outline of any *rehabilitation*, *revegetation*, *management strategy* or *offset* proposed to be implemented in relation to the clearing;
(vi) the contact details of the person to whom submissions must be sent; and
(vii) the date by which submissions must be made.

(c) The permit holder must allow a period of at least 21 days for submissions to be made.

(d) Any submissions received by the permit holder under this condition 7 must be addressed in the *EIA Report* in accordance with condition 6(k) of this Permit.

PART III - ASSESSMENT PRINCIPLES

8. Assessment against the Clearing Principles

(a) In complying with condition 6 of this Permit, the permit holder must have regard to the *Department*'s *Guidelines for Assessment: Clearing of Native Vegetation under the Environmental Protection Act 1986*, contained in Annexure 9 to this Permit, when conducting an assessment of the proposed clearing against the *clearing principles*.

(b) If part or all of the clearing to be done may be seriously at variance with one or more of the *clearing principles* then condition 6(n) applies.

(c) If part or all of the clearing to be done is or is likely to be at variance with one or more of the *clearing principles*, then the permit holder must implement an *offset* in accordance with Part V of this Permit with respect to that native vegetation.

(d) If part or all of the clearing to be done is or is likely to be at variance with *clearing principle (g)*, *clearing principle (i)* or *clearing principle (j)*, the permit holder must implement a *management strategy*, approved by the CEO in accordance with conditions 4(a)(iii) and 11 of this Permit, with respect to that clearing.

(e) In making a determination under condition 8(b) as to whether part or all of the clearing to be done may be seriously at variance, or under conditions 8(c) and 8(d) as to whether part or all of the clearing to be done is or is likely to be at variance, with one or more of the *clearing principles*, the permit holder must obtain and have regard to the advice of an *environmental specialist*.

9. Other

In assessing the clearing for the *project activity* against the *clearing principles*, the permit holder must have regard to any approved policy (as defined in section 3 of the *EP Act*) and any planning instrument (as defined in section 51O of the *EP Act*), that applies to the area of native vegetation to be cleared.

PART IV – MANAGEMENT

10. Environmental management plan

(a) The permit holder must prepare, implement and adhere to an *EMP* if required by condition 6(l) of this Permit.

(b) The *EMP* must have regard to the permit holder's *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* and include:

(i) a plan for managing the *impacts*;

(ii) a table setting out the permit holder's commitments to the *EMP*'s requirements;

(iii) a program for monitoring compliance with the permit holder's commitments;

(iv) a copy of the *Revegetation Plan*, where required under condition 12 of this Permit.

11. Management strategy

(a) Where the permit holder is required under this Permit to comply with this condition 11, the permit holder must prepare, implement and adhere to a strategy designed by an *environmental specialist*, in consultation with the Commissioner of Soil and Land Conservation, to avoid, mitigate or manage the *land degradation*, *water quality deterioration*, or flooding that triggered the permit holder's obligation to comply with this condition.

(b) Once the permit holder has developed a *management strategy*, the permit holder must provide that *management strategy* to the CEO prior to undertaking any clearing of an area to which the *management strategy* is related, and prior to implementing the *management strategy*.

12. Revegetation and Rehabilitation

(a) The permit holder must *revegetate* and *rehabilitate* the following areas once those areas are no longer required for the following purpose for which they were cleared under this Permit:

(i) *temporary works*;

(ii) *project surveys*;

(iii) *pre-construction activities*; or

(iv) other *project activities* where part or all of the area cleared is no longer required to be used for the purpose for which it was cleared.

(b) The permit holder need not *revegetate* and *rehabilitate* an area specified in condition 12(a) if the permit holder intends to use that cleared area for another *project activity* within 12 months of that area no longer being required for the purpose for which it was originally cleared under this Permit.

(c) The *revegetation* and *rehabilitation* of an area pursuant to this condition 12:
(i) must be carried out as soon as possible once the permit holder no longer requires that area for a *project activity*, in accordance with conditions 12(a) and 12(b); and
(ii) must be undertaken according to a *Revegetation Plan* that the permit holder must provide to the CEO prior to clearing native vegetation from the area that is to be *revegetated* and *rehabilitated*.

(d) The permit holder need not comply with condition 12(c)(ii) if the area to be *revegetated* and *rehabilitated* is:
(i) less than 0.5 hectares;
(ii) not located in an *ESA*; and
(iii) an area where the proposed clearing that triggers the obligation to *revegetate* and *rehabilitate* is not at variance with one or more of the *clearing principles*.

(e) A *Revegetation Plan* must be developed having regard to the permit holder's *Environmental Guideline: Revegetation Planning and Techniques* and must involve the following steps:
(i) *site preparation*;
(ii) *weed* control;
(iii) *regeneration, direct seeding* or *planting*, at an *optimal time*;
(iv) a *vegetation establishment period*; and
(v) ongoing maintenance and monitoring.

(f) Any area of native vegetation that does not form part of the area to be cleared for the *project activity* and that has been damaged as a result of the clearing by the permit holder must be *revegetated* and *rehabilitated* in accordance with conditions 12(c) and 12(d).

13. Dieback, other pathogen and weed control

(a) When undertaking any clearing, *revegetation* and *rehabilitation*, or other activity pursuant to this Permit in any part of a *region* that has an average annual rainfall of greater than 400 millimetres and is south of the 26th parallel of latitude, the permit holder must take the following steps to minimise the risk of introduction and spread of *dieback*:
(i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(ii) avoid the movement of soil in wet conditions;
(iii) if movement of soil in wet conditions is necessary, the permit holder must prepare, implement and adhere to a *dieback* management plan developed in consultation with the *Department* for minimising the spread of *dieback*;
(iv) ensure that no *dieback*-affected *road building materials*, *mulches* or *fill* are brought into an area that is not affected by *dieback*; and
(v) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) Where the permit holder considers, having regard to the advice of an *environmental specialist*, that the area to be cleared may be susceptible to a pathogen other than *dieback*, the permit holder must take appropriate steps to minimise the risk of the introduction and spread of that pathogen.

(c) When undertaking any clearing, *revegetation* and *rehabilitation*, or other activity pursuant to this Permit the permit holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
   (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
   (ii) ensure that no *weed*-affected *road building materials*, *mulch*, *fill* or other material is brought into the area to be cleared; and
   (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(d) 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, *revegetated* and *rehabilitated*, or the subject of an *offset* implemented by the permit holder under this Permit where those *weeds* are likely, having regard to the advice of an *environmental specialist*, to spread to and result in environmental harm to adjacent areas of native vegetation that are in *good or better condition*.

PART V – OFFSETS

14. Determination of offsets

(a) 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 15 of this Permit.

(b) 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 in accordance with condition 4(a)(ii), prior to undertaking any clearing to which the *offset* related, and prior to implementing the *offset*.

15. Offset principles

For the purpose of this Part, the offset principles are as follows:
(a) *direct offsets* should directly counterbalance the loss of the native vegetation;
(b) *contributing offsets* should complement and enhance the *direct offset*;
(c) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
(d) 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*;
(e) 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;
(f) *offsets* must entail a robust and consistent assessment process;

(g) 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;
(h) 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;
(i) *offsets* must satisfy all statutory requirements;
(j) *offsets* must be clearly defined, documented and audited;
(k) *offsets* must ensure a long-term (10-30 year) benefit; and
(l) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

16. Duration of offsets

(a) The permit holder must ensure that an *offset* implemented under this Permit continues to be implemented for the *term* of this Permit.

(b) If for any reason an *offset* is not continually implemented for the *term* of this Permit, the permit holder must:
  (i) implement the *offset* again within 12 months of becoming aware that the *offset* is not being maintained; and
  (ii) if necessary, modify the *offset* in a manner that increases the likelihood that the *offset* will be implemented for the *term* of this Permit.

PART VI – MONITORING, REPORTING & AUDITING

17. Monitoring

(a) The permit holder must monitor:
  (i) areas *revegetated* and *rehabilitated* under this Permit to determine compliance with the relevant *Revegetation Plan* and the conditions of this Permit; and
  (ii) areas the subject of an *offset* implemented under this Permit to determine compliance with the relevant *offset proposal* and the conditions of this Permit.

(b) Monitoring pursuant to this condition 17 must be done having regard to the permit holder's *Environmental Guideline: Revegetation Planning and Techniques*.

18. Records of assessment and clearing

The permit holder must maintain the following records for activities done pursuant to this Permit, as relevant:

(a) in relation to the clearing of native vegetation:
  (i) a copy of any *PEIA Report*, *EIA Report* and *Assessment Report* produced in accordance with condition 6;
  (ii) a copy of the *EMP* produced in accordance with conditions 6 and 11;
  (iii) for a cleared area greater than 0.5 hectares, a map showing the location where the clearing occurred, recorded in an *ESRI Shapefile*;
  (iv) for a cleared area of 0.5 hectares or less, a co-ordinate of the location where the clearing occurred;
  (v) the size of the area cleared (in hectares); and
  (vi) the dates on which the clearing was done;

(b) in relation to the *revegetation* and *rehabilitation* of areas:
  (i) a copy of each *Revegetation Plan* provided to the CEO in accordance with condition 12(c);
  (ii) a map showing the location of any area *revegetated* and *rehabilitated* in accordance with condition 12, recorded in an *ESRI Shapefile*;
  (iii) a description of the *revegetation* and *rehabilitation* activities undertaken pursuant to condition 12; and
  (iv) the size of the area *revegetated* and *rehabilitated* (in hectares);

(c) in relation to each *offset* implemented:
  (i) a copy of each *offset proposal* approved by the CEO in accordance with condition 15(b);
  (ii) a map showing the location of any *offset* implemented pursuant to condition 15, recorded in an *ESRI Shapefile*;
  (iii) a description of the *offset* implemented pursuant to condition 15; and
  (iv) the size of the area of the *offset* (in hectares);

(d) in relation to each *management strategy* implemented:
  (i) a map showing the location of any area to which a *management strategy* has been applied in accordance with condition 11, recorded in an *ESRI Shapefile*;
  (ii) a description of the *management strategy* implemented under condition 11; and
  (iii) the size of the area to which the *management strategy* was applied (in hectares);

(e) in relation to the control of *weeds*, *dieback* and other pathogens:
  (i) a copy of any management plan prepared in accordance with condition 13(a)(iii); and
  (ii) for any pathogen other than *dieback*, the appropriate steps taken in accordance with condition 13(b).

19. Reporting

(a) The permit holder must provide to the CEO, on or before 30 June of each year, a written report of activities done by the permit holder under this Permit between 1 January and 31 December of the preceding year.

(b) The report must set out the records required to be maintained pursuant to condition 18 of this Permit, except for those records relating to cleared areas of less than 0.5 hectares that:
  (i) are not located in an *ESA;*
  (ii) do not require an *offset* to be implemented; and
  (iii) are not at variance with one or more of the *clearing principles*.

20. Internal auditing

(a) The permit holder must conduct *internal environmental audits* for areas specified in condition 20(c) to determine the permit holder's compliance with the conditions of this Permit, with particular emphasis on:
  (i) the location and extent of native vegetation cleared;
  (ii) the implementation status of any *offsets* imposed;
  (iii) the effectiveness of any *management strategies* implemented; and
  (iv) the implementation status of any *revegetation* or *rehabilitation* undertaken.

(b) The permit holder must conduct its first *internal environmental audit* within 6 months of the commencement date of this Permit. Subsequent *internal environmental audits* must be conducted annually.

(c) The areas to be audited under condition 20(a) must be selected by the auditor using a structured and documented risk-based selection framework, and must include at least one cleared area in each *region* in which clearing has been done under this Permit within the previous 12 months.

(d) The permit holder must provide written reports of the *internal environmental audits* conducted pursuant to this condition 20 to the CEO on or before 30 December of each year for the *term* of this Permit, which reports must include details of steps taken by the permit holder to address any non-compliance with conditions of this Permit.

21. External auditing

(a) The permit holder must engage an external accredited *lead environmental auditor* to undertake environmental audits of the permit holder's compliance with the conditions of this Permit for each of the *regions* in which clearing is done under this Permit.

(b) The *external environmental audits* must be done on or before 31 December each year of the permit and/or as otherwise required by the CEO.

(c) The permit holder must provide the *lead environmental auditor's* written reports of the *external environmental audits* to the CEO on or before 30 December in each year that an *external environmental audit* is conducted and/or as otherwise required by the CEO.

PART VII – INTERPRETATION & DEFINITIONS

22. Interpretation

The following rules of interpretation apply to this Permit:

(a) a reference to any *written law* includes a reference to that *written law* as amended, repealed or replaced from time to time;

(b) if a word or phrase is defined, other parts of speech and grammatical forms of that word or phrase have corresponding meanings.

23. Severance

It is the intent of these conditions that they shall operate so that, if a condition or part of a condition is beyond the CEO's power to impose, or is otherwise ultra vires or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the CEO's power to impose and are not otherwise ultra vires or invalid.

24. Inconsistency

(a) The *EP Act* prevails to the extent of any inconsistency between its provisions and the conditions of this Permit.

(b) Subject to condition 24(a), this Permit prevails to the extent of any inconsistency between its conditions (including its Schedules), and the provisions of any other document referred to in this Permit.

25. Definitions

The following meanings are given to terms used in this Permit and the attached Advice:

Assessment Principles	means the assessment principles set out in Part III of this Permit;
Assessment Procedure	means the assessment procedure set out in Part II of this Permit;
Assessment Report	has the meaning given to that term in condition 6(l) of this Permit;
biological survey	means a site visit undertaken by an *environmental specialist* to: (a) verify *desktop study* information; (b) delineate key flora, fauna, soil, and groundwater and surface water values and potential sensitivity to impact; (c) undertake *vegetation condition mapping*; and (d) undertake vegetation mapping by delineating on a map the *ecological communities* formed within a given area, and the nature and extent of each combination, within the area to be cleared at the scale of the best available mapping information;
bioregion	has the meaning given to it in regulation 3 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*;
clearing permit	has the meaning given to it in section 3 of the *Environmental Protection Act 1986*;
clearing principles	means the principles for clearing native vegetation set out in Schedule 5 of the *Environmental Protection Act 1986*;
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;
defined wetland	has the meaning given to it in clause 3 of the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*;
Department	means the Department of Environment Regulation (Western Australia);
desktop study	means a literature review, including a map-based information search of all current and relevant literature sources and databases;

deterioration	in relation to water quality, includes sedimentation, turbidity, eutrophication, salinity, or any alteration of pH affecting surface water or groundwater;
dieback	means the effect of *Phytophthora* species on native vegetation;
dieback survey	means a site visit undertaken by an *environmental specialist* to: (a) verify *desktop study* information; (b) identify indicator species; and (c) carry out soil sampling in areas significantly affected by *dieback*;
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). The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified. An ecological community is a naturally occurring biological assemblage that occurs in a particular type of habitat;
EIA	means environmental impact assessment, as described in conditions 6(h)-(k) of this Permit;
EIA Report	means the document produced as an outcome of conducting an *EIA* in accordance with conditions 6(h)-(k) of this Permit;
EMP	means environmental management plan, as described in condition 10 of this Permit;
engineering survey/s	means any inspection or measurement taken by a surveyor engaged by the permit holder for the purpose of planning, investigating and design for a *project activity*;
Environmental Guideline: Revegetation Planning and Techniques	means the permit holder's corporate procedure for providing guidance on undertaking revegetation, contained in Annexure 8 to this Permit;

Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions	means the permit holder's corporate procedure for undertaking preliminary environmental impact assessment, dated 6 February 2003, contained in Annexure 2 to this Permit;
Environmental Policy for the Assessment of Environmental and Social Issues in the Line Route Selection and Design Process	Means the permit holder's corporate procedure for assessing environmental and social issues to determine their significance in the transmission and distribution line route selection and design process, dated 6 February 2003, contained in Annexure 1 to this Permit;
environmental specialist	means a person 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, or who is approved by the CEO as a suitable environmental specialist.
EP Act	means the *Environmental Protection Act 1986*;
EPA	means the Western Australian Environmental Protection Authority;
EPA Guidance Statement No.51	means the publication "Guidance for the Assessment of Environmental Factors: Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia", No.51, (2004), Environmental Protection Authority;
ESA	means an environmentally sensitive area, as declared by a notice under section 51B of the *Environmental Protection Act 1986*;
ESRI Shapefile	means an ESRI Shapefile with the following properties: (a) Geometry type: polygon; (b) Geographic Coordinate System: Geocentric Datum of Australia 1994; (c) Datum: Geocentric Datum of Australia 1994;
external environmental audit	means an audit conducted by a *lead environmental auditor* in accordance with condition 21 of this Permit;
fill	means material used to increase the ground level, or fill a hollow;
geological survey/s	means a survey conducted in order to obtain information about

	the suitability of the ground for a *project activity*, and includes geotechnical surveys;
good or better condition	means that the vegetation is in either pristine, excellent, very good or good condition according to *Keighery scale*;
impacts	means any impact of clearing on environmental values;
internal environmental audit	means an audit conducted by the permit holder in accordance with condition 20 of this Permit;
Keighery scale	means the vegetation condition scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia;
land degradation	includes salinity, erosion, soil acidity and waterlogging;
lead environmental auditor	means an individual certified as a lead environmental auditor by either: (a) RABQSA International; or (b) an organisation accredited to ISO/IEC 17024 by, or by a body recognised by, the Joint Accreditation System of Australia and New Zealand);
management strategy	means any activity, method or approach implemented pursuant to condition 11 of this Permit;
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 Part V of this Permit;
offset proposal	means an offset determined by the permit holder in accordance with condition 14(a) of this Permit;
optimal time	means the optimal time for undertaking *direct seeding* and *planting* as set out in the table in Schedule 1 of this Permit;
PEIA Report	means the document produced as an outcome of conducting a preliminary environmental impact assessment in accordance with conditions 6(a) and (c) of this Permit;
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;
pre-construction	means establishing storage areas, erecting fences and doing

activities	similar activities that are required to be done prior to, and in association with, the carrying out of a project activity;
project activity/ies	means those activities described in condition 1(a) of this Permit;
project surveys	means *authorised surveys*, *engineering surveys* and *geological surveys*;
proposal	has the meaning given to it in section 3 of the *Environmental Protection Act 1986*;
referred	means referred to the Environmental Protection Authority under Part IV of the *Environmental Protection Act 1986*;
regeneration	means *revegetation* that can be established from in situ seed banks contained either within the topsoil or seed-bearing *mulch*;
region	means one of the following regions as designated by Western Power at the date of issue of this Permit and depicted in the map that forms part of this Permit in Schedule 2: (a) Metro; (b) Northern Region; (c) Eastern Region; (d) South West Region; and (e) Great Southern Region;
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 natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;
Revegetation Plan	means a plan developed by the permit holder for the *revegetation* and *rehabilitation* of a site in accordance with condition 12 of this Permit;
site preparation	means management of existing site topsoil and preparation of the finished soil surface, for example by ripping or tilling the soil surface and respreading site topsoil and chipped native vegetation;
temporary works	means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas and similar works associated with a project activity that are temporary in nature;

term	means the duration of this Permit, including as amended or renewed;
vegetation condition mapping	means to delineate on a map the condition attributes of vegetation within an area, according to the *Keighery scale*;
vegetation establishment period	means a period of at least two summers after the *revegetation* during which time replacement and infill *revegetation* works may be required for areas in which revegetation has been unsuccessful, and involves regular inspections of *revegetation* sites to monitor the success of *revegetation*;
water quality deterioration	includes sedimentation, turbidity, eutrophication, salinity, or alteration of pH affecting surface water or groundwater;
weed/s	means any plant - (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Parks and Wildlife Regional Weed Summary, regardless of ranking; or (c) not indigenous to the area concerned.
wetland/s	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.
wetland field assessment	means a site visit by an *environmental specialist* to: (a) verify *desktop study* information; and (b) delineate key flora and fauna values of *defined wetlands* and their potential sensitivity to impact, in accordance with the Permit Holder's [internal EIA procedures document];
written law	has the same meaning as it is given in section 5 of the *Interpretation Act 1984*.

Jane Clarkson
ACTING MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

9 January 2014

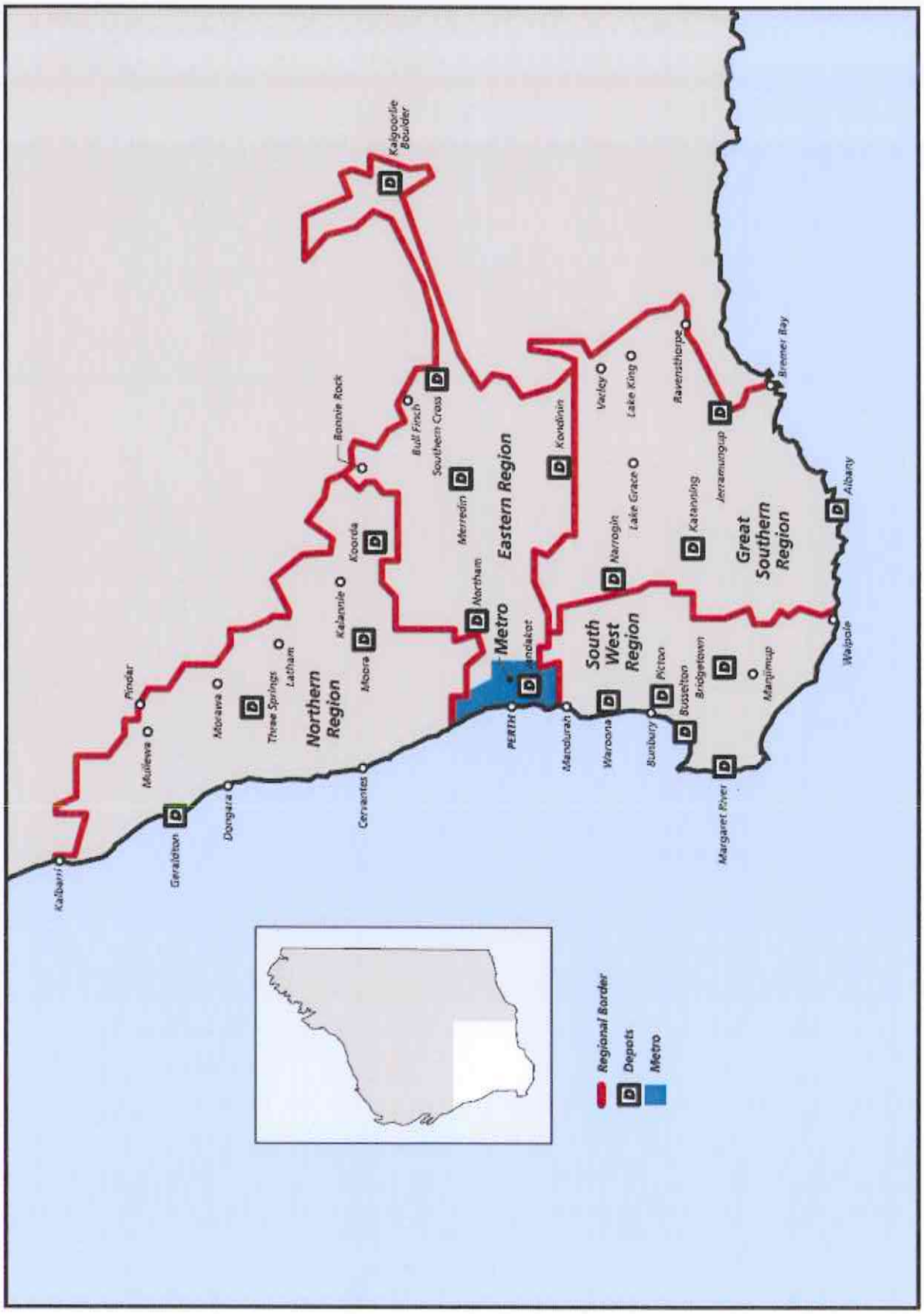
SCHEDULE 1

Optimal Timing for Seeding and Planting

Region	Optimal Timing	
	Seeding	Planting
Goldfields – Esperance	April-May. Earlier in south than in north.	No *planting* without irrigation.
Great Southern	April-May throughout region. Seeding during September-October within 30km of the coast can also be successful due to warm temperatures and spring coastal showers.	May-June.
Metropolitan	April-June.	May-July.
Midwest	April-May in south of region; November-December in extreme north of region.	May-June in southern part of region only.
South West	April-June.	May-June.
Wheatbelt North	May – June.	June- July.
Wheatbelt South	April-June.	May-June.

SCHEDULE 2

Regional Map



ADVICE

1. **Monitoring by the CEO**
   The CEO may monitor the implementation of clearing and other activities done under this Permit in order to determine whether the permit holder is complying with the conditions of this Permit. In the event that the CEO determines that the permit holder is not complying with one or more conditions of this Permit, the CEO may amend, suspend or revoke this Permit as the CEO considers necessary.

2. **Reports**
   Reports provided by the permit holder to the CEO under Part VI of this Permit may be made publicly available.

3. **Clearing likely to have a significant impact on the environment**
   The permit holder must ensure that it complies with any obligation under section 38(5) of the *EP Act* to refer to the *EPA* a *proposal* that appears to the permit holder to be likely, if implemented, to have a significant effect on the environment.

4. **Cumulative impacts of clearing**
   In accordance with the intent of the *clearing principles* in Schedule 5 of the *EP Act*, the permit holder must consider the cumulative *impacts* of clearing of native vegetation done under this Permit and other clearing done in that *bioregion*. The cumulative *impacts* of clearing done under this Permit will be considered by the CEO annually upon receipt of the permit holder's reports pursuant to Part VI of this Permit, and this Permit may be amended as necessary.

5. **Temporary clearing**
   The permit holder must ensure that, wherever possible, new *temporary works*, *camps* and rest areas are located in areas that have already been cleared of native vegetation.

6. **Review of Assessment Procedure**
   If the permit holder amends its *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* in a manner that affects the assessment of the proposed clearing against the *clearing principles* in accordance with condition 7 of this Permit, the permit holder must provide a copy of that amended document to the CEO within 1 month of finalising the amendments. The CEO will consider whether the amended document is sufficient to meet the requirements of this Permit and, if so, the CEO may amend this Permit in accordance with section 51K of the *EP Act*.

7. **Review of Environmental Guideline: Revegetation Planning and Techniques**
   If the permit holder amends its *Environmental Guideline: Revegetation Planning and Techniques* in a manner that affects the *revegetation* and *rehabilitation* of areas in accordance with condition 14 of this Permit, the permit holder must provide a copy of that amended document to the CEO within 1 month of finalising the amendments. The CEO will consider whether the amended document is sufficient to meet the requirements of this Permit and, if so, the CEO may amend this Permit in accordance with section 51K of the *EP Act*.

8. **Offset Principles**
   The offset principles set out in condition 17 of this Permit are based on the *EPA's* Preliminary Position Statement No.9, Version 2, "Environmental Offsets", June 2005.

9. **External Audit**
   When conducting an *external audit* under condition 23 of this Permit, the *lead environmental auditor* will determine which conditions of this Permit in respect of which he or she will conduct the audit.

ANNEXURE 1

Environmental Policy for the Assessment of Environmental and Social Issues in the Line Route Selection and Design Process

Policy/Business Process
Number: DMS #1374758

Date: 06/02/2003

APPROVED (*Networks Support Services Manager*)	*Rudy Teh*	Date 11/4/03
AUTHORISED (*General Manager*)	*Doug Aberle*	Date 22/4/03

TITLE: ENVIRONMENTAL POLICY FOR THE ASSESSMENT OF ENVIRONMENTAL AND SOCIAL ISSUES IN THE LINE ROUTE SELECTION AND DESIGN PROCESS

PURPOSE AND PROCESS OVERVIEW

The purpose of this policy is to set out the framework for the assessment of environmental and social issues to determine their significance in the transmission and distribution line route selection and design process. This policy also includes information on relevant legislative requirements.

SCOPE

This policy applies to the System Optimisation Branch employees and contractors who undertake transmission and distribution line route selection and design and whose projects may involve activities that have a significant impact on the environment. More specifically these activities include

- construction of new transmission and distribution lines and associated access;
- extension of transmission and distribution lines;
- significant modifications to transmission and distribution lines;
- surveying;
- vegetation clearing;
- pole / tower foundations;
- pole / tower erection; and
- line stringing

Individual Sections may produce processes and procedures related to this policy as set out within the policy.

Safety Aspects and Implications

There are no safety aspects or implications relating to this procedure.

Environmental Aspects and Implications

Activities associated with the route selection and design of transmission and distribution line have the potential to significantly impact the environment and public.

Related environmental and social aspects include:
- Visual aesthetics
- Disturbance and/or harm to natural and cultural heritage areas
- *Disturbance* and/or harm to Aboriginal Heritage sites
- *Disturbance* and/or harm to declared rare flora, priority listed flora, listed migratory species and threatened ecological communities
- *Disturbance, clearing* and/or contamination of groundwater / wet areas
- Entry into vegetated areas of high conservation value
- Entry into areas subject to native title
- Entry into areas subject to quarantine notice
- Spread of dieback
- Spread of noxious weeds
- Vegetation *clearing*

POLICY

Western Power shall investigate *environmental and social issues* in accordance with its legal obligations when designing transmission and distribution lines to minimise environmental and social impacts from line construction activities.

Western Power shall determine the *significance* of the *environmental and social issues* encountered in the transmission and distribution line route design.

Western Power shall obtain the necessary environmental approvals and permits for entering land, preparing the land for construction and constructing transmission and distribution lines.

EXPLANATION OF ENVIRONMENTAL AND SOCIAL ASPECTS

Aboriginal Heritage

Aboriginal Heritage Act 1972 (WA)

Under the *Aboriginal Heritage Act 1972 (WA)* it is an offence to disturb any site of archaeological and ethnographic *Significance* to Aboriginal people. Where possible, distribution lines shall not be constructed in close proximity to any known Aboriginal Heritage sites.

Dieback (Disease Risk Areas)

Conservation and Land Management Act 1984 (WA)

Dieback is a disease caused by the introduced plant disease *Phytophthora cinnamomi*. So far, the disease has infected about 14 per cent of the forest and strict hygiene procedures have been implemented to help prevent the pathogen being spread further. It is spread when infested soil or root material is moved.

Declared Rare Flora, Priority Listed Flora, & Threatened Ecological Communities

Wildlife Conservation Act 1950 (WA); Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

It is an offence to gather, pluck, cut, pull up, destroy, dig up, remove or injure protected flora and *declared rare flora* or permit the same to be done by any means without approval from DEC.

It is an offence to take, kill, injure, move, trade or keep a member of a listed species or ecological community in a Commonwealth area without approval from the Commonwealth Minister.

Where possible, transmission and distribution lines shall not be constructed in close proximity to threatened or protected vegetation where *disturbance* is probable.

Listed Migratory Species

Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

It is an offence to kill, injure, take, trade, keep, or move, any member of a *listed migratory species* on Commonwealth land without approval from the Commonwealth Minister.

Where possible, transmission and distribution lines shall not be constructed where a significant impact on a *listed migratory species* is probable.

Groundwater

Metropolitan Water Supply, Sewerage and Drainage By-Laws 1981 (WA); Health Act 1911 (WA); Country Areas Water Supply Act, 1947 (WA); Rights in Water and Irrigation Act 1914 (WA); and Environmental Protection Policies

Water quality is important for our health and the environment. The location and slow movement of *groundwater* makes it very difficult to remove pollution once it has occurred, so protection and prevention is the best strategy to maintain *groundwater* quality. Construction activities in *groundwater* source areas (includes designated water catchments and water resources of high value) that have the potential to adversely impact the environment require a high degree of diligence to ensure no environmental impact on the *groundwater* resource. Controls are in place over certain activities, which can reduce or degrade the levels and quality of *groundwater*.

Wet areas

Metropolitan Water Supply, Sewerage and Drainage By-Laws 1981 (WA); Health Act 1911 (WA); Country Areas Water Supply Act, 1947 (WA); Rights in Water and Irrigation Act 1914 (WA); and Environmental Protection Policies

Biologically productive systems that support a diverse and distinctive array of plants and animals, many of which are unique. Many *wet areas* are highly valued for their scenic beauty and popularity as recreation areas. Where possible transmission and distribution lines shall not be constructed in close proximity to *wet areas* as *disturbance* is probable.

Native Title

Native Title Act 1993 (Cth)

When planning to enter Crown Land and other lands administered by Department of Land Administration, Native Title legislation is applicable.

Noxious Weeds

Noxious Weeds Regulations, 1973 (WA)

Weeds are among the most serious threats to sustaining Australia's agricultural and forestry practices and conserving biodiversity. *Western Power* shall conduct its activities in weed-infested areas in a diligent manner so as to not spread weeds further.

Quarantine Areas

Agriculture & Related Resources Protection (Property Quarantine) Regulations 1981(WA)

Quarantine inspection prevents the entry and spread of exotic diseases, pests and weeds to the agricultural, forestry and aquaculture industries and the environment. A DOA Agriculture Protection Inspector may issue a Quarantine Notice under the Regulations. Entry onto quarantined land without written approval from a *DOA* Agriculture Protection Inspector is an offence.

Western Power shall conduct it activities on quarantined land in accordance with a written approval from *DOA* and as directed by a *DOA* Agriculture Protection Inspector.

Vegetation *clearing* – Environmental Protection Act 1986 (WA); Soil and Land Conservation Act 1914 (WA)

Loss of native vegetation and unsustainable agricultural practices have led to an extreme decline in the biodiversity of plants and animals, a dramatic rise in salinity and a number of other significant problems. The destruction of native vegetation is also a major contributor to Australia's net Greenhouse gas emissions. All remaining bush land is valuable. It is an offence (without approval from EPA, DEC and/or *DOA*) to cause harm to the environment by removing, destroying or damaging native vegetation and/or native vegetation habitats.

REFERENCES

Aboriginal Heritage Act 1972 (WA)

Agriculture & Related Resources Protection (Property Quarantine) Regulations 1981 (WA)

Conservation and Land Management Act 1984 (WA)

Country Areas Water Supply Act, 1947 (WA)

Environmental Protection Act 1986 (WA)

Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

Environmental Protection Policies

Health Act 1911 (WA)

Metropolitan Water Supply, Sewerage and Drainage By-Laws 1981 (WA)

Native Title Act 1993 (Cth)

Noxious Weeds Regulations, 1973 (WA)

Rights in Water and Irrigation Act 1914 (WA)

Soil and Land Conservation Act 1914 (WA)

Wildlife Conservation Act 1950 (WA)

RELATED POLICIES

Environmental Policy For Assessing, Registering And Maintaining Assets Near Environmentally Sensitive Areas (ESAs), DMS# 1295309

Environmental Policy For Conducting Environmental Impact Assessment (EIA) And Implementing Environmental Conditions, DMS# 1374972

Environmental Policy for Entry to Land Subject To Native Title, DMS# 1369500

Environmental Policy On Ground Disturbance And Excavation Activities when Suspected Objects of Aboriginal Significance are Discovered, DMS# 1308888

Environmental Policy for the Management of Phytophthora Dieback during Maintenance and Construction Activities, DMS# 1382172

DEFINITIONS

Word	Definition
Aboriginal heritage sites	Registered aboriginal sites of cultural and historical significance, including aboriginal artifacts
Areas subject to inundation	Covers water types such as floodways, areas with shallow water tables, depressions and other wetlands prone to water logging, either permanently or seasonally
DEC	Department of Environment & Conservation (WA)
DEC vested land	Land on which DEChas responsibility for managing the land for the purpose for which the land has been specified (e.g. flora and fauna conservation in a Nature Reserve or multiple purpose such as conservation and tourism in a National Park).
Clearing	To cut down, destroy, remove or otherwise damage (e.g. driving over, trampling, crushing) trees, shrubs, grasses or plants to enable: - placement of a structure; - construction activities; and/or - ongoing access.
Close proximity to any known Aboriginal Heritage sites	Within 500m of an Aboriginal Heritage Site.
Close proximity to threatened or protected vegetation	Within 50m of the identified threatened or protected vegetation
Commonwealth Minister	Commonwealth Minister for Environment
Crown reserve land	Commonwealth land that has been reserved for some purpose
Declared rare flora	Under the Wildlife Conservation Act, the Minister may declare species of protected flora to be "Rare Flora" if they are considered to be in danger of extinction, rare or otherwise in need of special protection. These species are identified by DEC, published in the WA Government Gazette and registered on DEC's declared rare flora list.
Designated water catchments	Includes Public Drinking Water Source Areas, Underground Water Pollution Control Areas, Water Reserves and Public Water Supply Catchment Areas.
DIA	Department of Indigenous Affairs

Dieback (Disease Risk Areas)	An area quarantined from general access by DEC to minimise the risk of spread of Phytophthora plant disease (commonly referred to as dieback) which attacks the roots of susceptible plants including trees and many native Western Australian species.
Disturbance	To cut down, destroy, remove or otherwise damage (e.g. driving over, trampling, crushing) trees, shrubs, grasses or plants to enable: - placement of a structure; - construction activities; and/or - ongoing access. In wet areas, disturbance may involve the action of - removing trees, shrubs, grasses or plants surrounding a wet area - driving through a wet area - conducting work such as clearing or earthworks that may cause increased runoff and/or erosion in a wet area - placing structures in a wet area - enabling ongoing access in a wet area
DOA	Department of Agriculture
EMISWeb	An intranet based software package (PowerNet) to facilitate the systematic management of Western Power's environment-related activities and associated legal compliance.
Environment Australia	Commonwealth Department of Environment and Heritage
Environmental approvals and permits	- WA Environmental Impact Assessment & Approvals (EPA) - Commonwealth Environmental Impact Assessment & Approvals (Environment Australia) - Works Approval (EPA) - Native Title Notice of Entry - Dieback Entry Permit (DEC) - Vegetation clearing/burning permit (DEC) - Vegetation clearing permit (Water Corporation) - Notice of Intention to Clear Land (DOA) - Quarantine Area Entry Permit (DOA) - Permit to disturb objects of Aboriginal Significance (DIA) - Permit to take declared rare flora (DEC)
Environmental and social issues	- Areas subject to inundation - DEC vested land - Clearing - Crown reserve land - Designated water catchments

	- Dieback (Disease Risk Areas) - Environmentally Sensitive Areas - Ground disturbance - Natural and cultural heritage - Remnant vegetation - Reserved lands (other than vegetated areas of high conservation value) - Road Reserve - Threatened or protected vegetation - Vegetated areas of high conservation value - Wet areas
Environmentally Sensitive Areas	An area that requires special considerations and/or precautions to be taken during work processes at Western Power facilities or adjacent land. Environmentally Sensitive Areas are marked on *Western Power* mapping systems and detailed in the Corporate environmental database on PowerNet (EMISWeb). Environmentally Sensitive Areas include: • Wetlands • Declared Rare Flora • Priority Flora • Threatened Ecological Communities • Noxious Weeds • Stock Disease • Disease Risk Areas • Organic Farms
Groundwater	Groundwater is derived from rain, which percolates down through the soil or fractures in rock, so filling up the pores between sand grains or the fissures in rocks.
Listed species or ecological community	Identified by Environment Australia and registered in the national list of threatened species, ecological communities and threatening processes.
Listed migratory species	Species listed in - appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals) for which Australia is a Range State under the Convention; - the Agreement between the Government of Australia and the Government of the Peoples Republic of China for the Protection of Migratory Birds and their Environment (CAMBA); and - the Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (JAMBA). Migratory species listed by Environment Australia also include any native species identified in an international

	agreement approved by the Commonwealth Environment Minister.
Minister	WA Minister for Environment
Native Title	Describes the rights and interests of Aboriginal people in land and waters according to their traditional laws and customs that are recognised under Australian law.
Natural and cultural heritage areas	A specified area or site, which is valued by people for its natural and/or cultural significance. Natural heritage significance means the importance of ecosystems, biological diversity and geodiversity for the existence value and for present or future generations for Australians in terms of their scientific, social, aesthetic and life support value. Cultural heritage significance means aesthetic, historic, scientific or social value or other special value for future generations of Australians as well as for the present community. Covers places, structures etc, classified by Local Government, Heritage Council or the National Trust and includes such things as heritage buildings, bridges, streetscapes, landscapes, planted trees, relics, industrial and mine sites, cemeteries and jetties.
Priority listed flora	Because of the large Western Australian flora, there are many species that are known from only a few collections, or a few sites, but which have not been adequately surveyed. Such flora may be rare or threatened, but cannot be considered for declaration as rare flora until such survey has been undertaken. These flora are included on a supplementary conservation list by DEC called the Priority Flora List.
Protected flora	All flowering plants, conifers, cycads, ferns, fern allies, mosses, liverworts, algae, fungi and lichens (including any part of flora and all seed and spores thereof) that are native to Western Australia or declared to be flora under the Wildlife Conservation Act.
Remnant vegetation	Native vegetation that has not been planted or cultivated. Includes trees, shrubs, grasses and plants.
Reserved lands (other than *vegetated areas of high conservation value*)	Includes DEC tenure, local government reserves, commonwealth/state government reserves, and road reserves containing remnant vegetation
Road reserve	Land which is gazetted (officially recognised) and managed either by the local Shire or Main Roads

	Department (WA)
Significance	A judgement on the degree of importance and consequence of anticipated change imposed on the environment or society by a proposal. This is based upon the following factors: - Character of the receiving environment and the use and value which society assigned to it; - Magnitude, spatial extent and duration of anticipated change - Resilience of the environment to cope with change - Confidence of the prediction of change - Existence of policies, programs, plans and procedures against which the need for applying the EIA process to a proposal can be determined - Existence of environmental standards against which a proposal can be determined; and Degree of controversy on environmental issues likely to be associated with a proposal
Threatened ecological communities	Naturally occurring groups of plants that occur in a particular type of habitat and require protection from threatening processes. Threatened ecological communities are similar in their requirement for protection to declared rare flora. Threatened ecological communities differ from declared rare flora in that they are comprised of assemblages of a number of species of plants and habitat types rather that an individual species. Threatened ecological communities are identified by Environment Australia and registered in the national list of threatened species, ecological communities and threatening processes
Threatened or protected vegetation	Vegetation that includes protected flora, declared rare flora, priority rare flora and threatened ecological communities.
Vegetated areas of high conservation value	Includes National Parks, Conservation Parks, Nature Reserves, Land recommended for Reservation, System 1-6 land classifications, Bush Forever Plan sites and Australian Heritage listed sites.
Visual aesthetics	Personal appreciation and enjoyment of things (e.g. objects, places and processes) can include beauty, functioning and non-functioning aspects of things and does not always include visual qualities.
Water resources of high value	Covers Environmental Protection Policy Wetlands including the South West Agricultural Zone wetlands and Swan Coastal Plain Wetlands, the Conservation and Resource Enhancement Category wetlands, other water

	courses with fringing vegetation
Wet areas	Includes rivers, floodways, seasonally wet depressions, bogs, wetlands, swamps, estuaries, lakes, waterlogged areas, creeks and areas with shallow water tables.

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Section Head)	Authorised (Branch Manager)
6/2/2003		Original Issue		

ANNEXURE 2

Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions

Policy / 6.1.1A
Number: 1374972

Date: 06/02/2003

APPROVED *(Networks Support Services Manager)*	*Rudy Teh*	Date 11/4/03
AUTHORISED *(General Manager)*	*Doug Aberle*	Date 22/4/03

TITLE: ENVIRONMENTAL POLICY FOR CONDUCTING ENVIRONMENTAL IMPACT ASSESSMENT AND IMPLEMENTING ENVIRONMENTAL CONDITIONS

PURPOSE AND PROCESS OVERVIEW

The purpose of this policy is to provide a framework and process for conducting Environmental Impact Assessment when transmission and/or distribution capital works are considered likely to have a significant impact on the environment. This policy also advises on the implementation of environmental conditions and includes information on relevant legislative requirements.

SCOPE

This policy applies to Network Business Unit (NBU) employees and contractors who are involved with planning, design, construction, maintenance and where appropriate decommissioning of transmission and distribution line and substation *capital works* that may have a *significant impact* on the environment. More specifically these activities include

- construction of new transmission and distribution lines and associated access;
- extension of transmission and distribution lines;
- significant modifications to transmission and distribution lines;
- construction of new transmission and distribution substations; and
- vegetation clearing.

The method for determining whether a *capital works* will have *significant impact* on the environment is outside the scope of this policy. This is covered by the Policy described in DMS# 1374758. Branches and Sections may produce processes and procedures supporting this policy.

Safety Aspects and Implications

There are no safety aspects or implications relating to this procedure.

Environmental Aspects and Implications

NBU capital works have the potential to significantly impact the environment and the public by clearing, traversing and/or disturbing remnant vegetation, wet areas and/or CALM land within vegetated areas of high conservation value; reserved lands; threatened or protected vegetation; water resources of high value; areas subject to inundation; vegetation clearing in designated water catchments; aboriginal heritage areas; and areas subject to native title.

Furthermore, environmental impacts associated with *NBU capital works* include increased noise emissions, loss of, or disturbance to, remnant or protected vegetation, disturbance to native habitat and fauna, creation of pollution, introduction of electromagnetic fields and change of visual amenity.

All efforts shall therefore be made to plan, design, construct, design, maintain and where necessary, decommission *NBU* developments in accordance with requirements under environmental legislation.

POLICY

NBU shall consider the environmental significance of *capital works*, by identifying relevant environmental issues and impacts and designing to avoid or minimise *significant impacts* and reduce ongoing costs of environmental management in accordance with DMS# 1374758.

If an *NBU capital works* is determined to not have the potential to significantly impact the environment, this policy does not apply and *NBU* shall undertake the capital works.

If an *NBU capital works* is determined to have the potential to cause significant impacts or requires design to minimise significant impact, *NBU* shall

a) if distribution *capital works*, submit an environmental management plan (EMP) to manage the environmental impacts to the appropriate DMAs and enter into discussions with the *DMAs* to reach agreement on proposed routes/locations and the management of environmental impacts through environmental commitments and *environmental conditions*.

   On reaching agreement with the *DMAs* on the route, *environmental management plan* and *environmental conditions*, *NBU* shall undertake the *capital works* in accordance with the environmental commitments made in the *environmental management plan* and agreed environmental conditions set by the *DMAs*.

   If, despite environmental commitments made, one or more of the *DMAs* request that the distribution *capital works* be referred, *NBU* shall assess the need to enter the WA Environmental Impact Assessment Process.

b) if transmission *capital works*, enter the WA environmental impact assessment process and submit a referral to the EPA. As part of the referral process, *NBU* shall consult with State and local government authorities and members of the *public* interested or affected by the *capital works*, to:

   - ensure people are informed about the *capital works* and its impacts; and
   - provide an opportunity to respond to issues and make appropriate adjustments to the *capital works* during planning and design.

WA Environmental Impact Assessment Process

If the *EPA* determines that the transmission *capital works referral* shall

- not be assessed under s38 of the *Environmental Protection Act 1986,* and assigns one of the following categories:
  - Not Assessed – no advice given
  - Not Assessed – public advice given

  NBU shall evaluate the *EPA*'s advice and recommendations (if provided), commence construction in accordance with any environmental commitments made in the *referral* and ensure appropriate measures are taken to minimise environmental impact.
- be *assessed* under s38 of *the Environmental Protection Act 1986*, the *EPA* shall determine one of the formal levels of assessment outlined below and advise *NBU*:
  - Assessment on Referral Information (ARI);
  - Proposal Unlikely to be Environmentally Acceptable (PUEA);
  - Environmental Protection Statement (EPS); or
  - Public Environmental Review (PER).

ARI

On receipt of an *ARI* level of assessment, *NBU* shall prepare an *EMP*, and on endorsement by the Audit Branch of the *EPA,* commence construction in accordance with environmental commitments made in the *capital works referral* and any formal *EPA* conditions.

PUEA

If a *PUEA* level of assessment is likely, *NBU* shall meet with the *EPA* Chairman or delegate to agree on alternative route, location and/or design options likely to be environmentally acceptable.

NBU shall withdraw the capital works or refer a new capital works to the *EPA* for assessment prior to a *PUEA* level of assessment being advertised.

EPS

On receipt of an *EPS* level of assessment, *NBU* shall prepare an EPS document in accordance with the *Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002.*

NBU shall submit the final *EPS document* to the *EPA* for evaluation and approval.

On approval of the EPS document, *NBU* shall prepare an *EMP*, and on its endorsement by the Audit Branch of the *EPA,* commence construction in accordance with environmental commitments made in the referral, *EPS document* and any other formal *EPA* conditions.

PER

On receipt of a *PER* level of assessment,, *NBU* shall prepare an Environmental Scoping Document in accordance with the EIA *Scoping Document – Guide to Preparing an Environmental Scoping Document.*

NBU shall submit the *Environmental Scoping Document* to the *EPA* for evaluation and approval.

On approval of the *Environmental Scoping Document*, *NBU* shall prepare a *PER* in accordance with the *PER/ERMP* Guidelines – Guidelines for Preparing a Public Environmental Review / Environmental Review and Management Program

NBU shall submit the Public Environmental Review Document to the *EPA* for evaluation and approval.

NBU shall release the approved *PER* for review by the *public*, relevant *DMA*s and government agencies in accordance with the *Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002.*

On receipt, from the *EPA*, of the *public* submissions, *NBU* shall summarise and provide a written response to the issues raised to the satisfaction of the *EPA*.

On the Minister's approval and endorsement by the EPA's audit branch, *NBU* shall prepare an *EMP*, and on its endorsement by the Audit Branch of the *EPA*, commence construction in accordance with environmental commitments made in the *referral* and any formal *EPA* conditions.

Commonwealth Environmental Impact Assessment Process

When developing a capital works, *NBU* shall consider actions that have, will have or are likely to have a significant impact on a matter of national environmental significance in accordance with the EPBC Act *Administrative Guidelines on Significance.*

NBU shall not take a controlled action unless approved by the Commonwealth Minister.

NBU shall refer *capital works* to take an *action* that may be or is a *controlled action*, to Environment Australia in accordance with the *Guide for Format, Content and Submission of Referrals under Chapter 4 of the EPBC Act 1999.*

NBU shall request that a decision from the *Commonwealth Minister* on whether or not the proposed *action* is a *controlled action* and requires approval under the *EPBC Act.*

If, the *Commonwealth Minister* decides that the proposed *action* is

- not a *controlled action* and advises that approval under the *EPBC Act* is not required if the *action* proposed is undertaken in a specified manner; *NBU* shall undertake the action in the specified manner.
- a *controlled action*, the *Commonwealth Minister* shall determine one of the formal levels of assessment outlined below and advise *NBU*:
  - accredited state process under bilateral agreement

- assessment on preliminary documentation
- public environmental report
- environmental impact statement
- public inquiry
- bilateral agreement

Assessment

If the *Commonwealth Minister* decides to assess the *controlled action* by an *accredited state process under bilateral agreement, NBU* shall undertake the assessment in accordance with the *Commonwealth Minister*'s directions.

If the *Commonwealth Minister* decides on one of the following assessment approaches

- *assessment on preliminary documentation*;
- *public environmental report*; or
- *environmental impact statement*

NBU shall prepare all documentation in keeping with the *Commonwealth Minister*'s decisions and the Guide for Format, Content and Submission of Referrals under Chapter 4 of the *EPBC Act* 1999.

If the *Commonwealth Minister* decides to assess the *controlled action* via a *public inquiry, NBU* shall undertake the assessment in accordance with the *Commonwealth Minister*'s guidance.

Approval

Following approval to take a *controlled action* by the *Commonwealth Minister, NBU* shall prepare an *EMP*, and on its endorsement by the *Commonwealth Minister* or delegate, commence construction in accordance with environmental commitments made in the *referral, environmental conditions* documented in the Assessment Report and any formal *EPA* conditions

REFERENCES

EIA Factors Guidelines - Guide to EIA Environmental Factors and Objectives, *EPA* 2002

EIA Scoping Document – Guide to Preparing an *ERMP*, *EPA* 2002

Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002, Government Gazette 2002

Environmental Protection Act 1986 (WA)

Environmental Protection Biodiversity Conservation Act 1999 (Cth)

EPBC Act Administrative Guidelines on Significance, *Environment Australia* 2000

Guide for Format, Content and Submission of *Referrals* under Chapter 4 of the Environment Protection and Biodiversity Conservation Act 1999, *Environment Australia* 2002

PER/ERMP Guidelines – Guidelines for Preparing a Public Environmental Review / Environmental Review and Management Program, *EPA* 2002

RELATED POLICIES

Environmental Policy for the Assessment of Environmental and Social Issues in Line Route Selection and Design, DMS #1374758

DEFINITIONS

Word	Definition
Accredited state process under bilateral agreement	A Commonwealth level of assessment, where the State or Territory will manage the assessment, or the Commonwealth will do so under other legislation. The Commonwealth Environment Minister must be satisfied that certain standards will be met, that the process will ensure the relevant impacts of the controlled action will be fully addressed and that he or she will receive an adequate report on those impacts. The accredited State EIA processes in WA with Environment Australia are PER and ERMP.
Action	Includes a capital works project, development, undertaking or an activity or series of activities.
Assessed	EPA determines that the capital works shall be assessed formally under the WA environmental impact assessment process.
Assessment on preliminary documentation	A Commonwealth level of assessment likely to be appropriate when: - the number and complexity of relative impacts is low and locally confined; or - the relevant impacts of the controlled action can be predicted with a high degree of confidence; or - the relevant impacts have been or are being adequately assessed under Commonwealth or State or Territory legislation
ARI	Assessment on Referral Information: An EPA level of assessment typically applied to capital works which raise one or a small number of significant Environmental Factors which can be readily managed, but where it is considered that Environmental Conditions under Part IV of the Environmental Protection Act 1986 are required to ensure that the capital works is implemented and managed in an environmentally acceptable manner and this cannot be appropriately achieved through conditions set by

	DMAs.
Assessment Report	A report written by Environment Australia on its assessment of the controlled action and associated documentation provided by the proponent (NBU), at the final stages of the formal Commonwealth EIA process. It is a public document and is provided to the Commonwealth Minister as one component of the package of matters to be considered in making an approval decision
Bilateral agreement	An agreement between Environment Australia and the relevant State that accredits a State EIA process. In WA, the Bilateral Agreement accredits WA's PER assessment processes, thus enabling the EPA to assess the controlled action under the terms of that agreement. This means that a single assessment process can be carried out to satisfy both State and Commonwealth requirements.
CALM	Department of Conservation and Land Management (WA)
Capital works	NBU capital works project, plan, program, policy, operation, undertaking or development.
Controlled action	An action on or outside Commonwealth land that has, will have or is likely to have a significant impact on a matter of national environmental significance
Commonwealth Minister	Commonwealth Minister for Environment and Heritage
DMA	Decision Making Authority - A public authority empowered by or under written law or any agreement to which the State is a party and which is ratified or approved by an Act to make a decision in respect of any capital works. DMA's include - Department of Agriculture - Department of Conservation and Land Management - Department of Environmental Protection - Department of Indigenous Affairs - Department of Minerals & Petroleum Resources

	- Department of Planning and Infrastructure - Swan River Trust - Water & Rivers Commission
Environment Australia	Commonwealth Department of Environment and Heritage
Environmental conditions	Legally binding requirements associated with an environmental approval to ensure environmental protection
Environmental factors	Environmental issues considered by the EPA to be relevant to capital works assessment. Environmental Factors include: - Integration: sustainability etc - Biophysical: flora, fauna etc - Pollution Management: air quality, noise etc - Social Surrounds: heritage, visual amenity - Other: decommissioning
Environmental Impact Assessment (EIA)	An orderly and systematic process for evaluating a capital works including its alternatives and objectives and its effect on the environment including the mitigation and management of those effects. The process extends from the initial concept of the capital works through implementation to commissioning and operation, and where appropriate, decommissioning. The EIA process formally begins on the submission of a referral to the EPA for assessment under s38 (1) of Environmental Protection Act, or on referral to Environment Australia under Part 7 of EPBC Act.
Environmental impact statement	A Commonwealth level of assessment likely to be appropriate when: - an assessment of the relevant impacts is expected to raise complex issues, or a large number of issues; and - an adequate assessment of these issues will require the collection of new information and/or further analysis of existing information.

Environmental management plan	A document advising of capital works that if implemented appears likely to have a significant impact on the environment. The document outlines the potential environmental impacts of the capital works and the proposed management mechanisms (environmental commitments) to be implemented to minimise these impacts.
Environmental scoping document	A document required at a PER level but is not a prescribed document. For further details refer EIA Scoping Document – Guide to Preparing an Environmental Scoping Document.
EPA	WA Environmental Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EPS	Environmental Protection Statement: An EPA level of assessment that will typically be applied to capital works of local interest that raise a number of significant environmental factors which can be readily managed, where it is considered that environmental conditions under Part IV of the Environmental Protection Act 1986 are required to ensure that the capital works is implemented and managed in an environmentally acceptable manner, and where in the judgement of the EPA, a formal public review period may be unnecessary because the proponent has adequately consulted with stakeholders.
EPS document	A document that demonstrates to the EPA that: - the community and key stakeholders, including DMA's, have been adequately consulted and their views taken into account; - all necessary studies have been undertaken in a competent manner; - the results of studies have been incorporated into the design and intended operation and management of the capital works;

	- the capital works conforms with applicable environmental, guidelines, policies, standards and procedures; - the required environmental factors have been adequately addressed; and - appropriate environmental management commitments have been made.
Matter of National Environmental Significance	Matters identified as triggers for the Commonwealth environmental impact assessment and approval regime: - World Heritage - Ramsar wetlands - Nationally threatened species and ecological communities - Migratory species - Commonwealth marine areas - Nuclear Actions
Minister	WA Minister for Environment
NBU	Networks Business Unit
PER	Public Environmental Review: An EPA level of assessment that will typically be applied to capital works of local or regional significance that raise a number of significant environmental factors, some of which are considered complex and require detailed assessment to determine whether, and if so how, they can be managed. The EPA considers that such capital works should be subject to a formal public review period, and the setting of environmental condition under Part IV of the WA Environmental Protection Act 1986 to ensure that are implemented and managed in an environmentally acceptable manner.
Public	The general population including any individual or group.

Public Environment Report	A Commonwealth level of assessment likely to be appropriate when: - an assessment of the relevant impacts is expected to focus on a relatively small number of key issues; and - an adequate assessment of these issues will require the collection of new information and/or further analysis of existing information.
Public Environmental Review Document	The document/s containing all information relevant to the assessment of a capital works under PER.
Public inquiry	A Commonwealth level of assessment likely to be appropriate when: - the relevant impacts are likely to be relatively high; or - the relevant impacts, or the management of those impacts, are outside the control of a single proponent; or - a public inquiry is necessary or desirable to ensure effective and efficient public involvement in the assessment process.
PUEA	Proposal Unlikely to be Environmentally Acceptable: An EPA level of assessment that applies to capital works that are clearly in contravention of established or applicable environmental policy, standards or procedures, could not be reasonably modified to meet the EPA's environmental objectives are proposed in a special environmental area.
Referral	A written document addressed to the EPA or Environment Australia from the proponent (NBU) advising of capital works that appears likely, if implemented, to have a significant effect on the West Australian environment or on a matter of national environmental significance.
Significant impact	A judgement on the degree of importance and consequence of anticipated change imposed on the environment by a capital works. This is based upon the following factors: - Character of the receiving environment and the use

and value which society assigned to it

- Magnitude, spatial extent and duration of anticipated change
- Resilience of the environment to cope with change
- Confidence of the prediction of change
- Existence of policies, programs, plans and procedures against which the need for applying the EIA process to a capital works can be determined
- Existence of environmental standards against which a capital works can be determined
- Degree of controversy on environmental issues likely to be associated with a capital works

For further information refer to the Environmental Policy for the Assessment of Environmental and Social Issues in Line Route Selection and Design" (DMS #1374758) and Transmission Division Engineering Design Standard C1.2 – Substation Site Evaluation and Selection.

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Section Head)	Authorised (Branch Manager)
06/02/2003		Original issue		

ANNEXURE 3

Environmental Policy for the Management of *Phytophthora* Dieback During Maintenance and Construction Activities

APPROVED (*Networks Support Services Manager*)	*Rudy Teh*	**Date** 27/3/03
AUTHORISED (*General Manager*)	*Doug Aberle*	**Date** 27/3/03

TITLE: ENVIRONMENTAL POLICY FOR THE MANAGEMENT OF *PHYTOPHTHORA* DIEBACK DURING MAINTENANCE AND CONSTRUCTION ACTIVITIES

PURPOSE AND PROCESS OVERVIEW

The purpose of this policy is to provide a uniform process for the management of Phytophthora Dieback during maintenance and construction activities. This policy also includes information on relevant legislative requirements.

SCOPE

This policy applies to Network Business Unit employees and contractors. Branches and Sections may produce processes and procedures supporting this policy.

Safety Aspects and Implications

There are no specific safety aspects or implications relating to this process.

Environmental Aspects and Implications

Phytophthora Dieback *- Conservation and Land Management Act 1984 (WA), Forest Management Regulations 1993 (WA)*

NBU's activities have the potential to spread *Phytophthora Dieback*. *Phytophthora Dieback* is found in soil and plant tissue. The presence of *Phytophthora Dieback* can be detected by the death of a group of native plants. It spreads quickly down slopes because its microscopic spore's move in surface and sub-surface water flows and spread up slopes through root to root contact. Human activity is a significant agent for the spread of the pathogen. The movement of soil and plant material through construction, earthmoving, and vehicle movement contribute to the spread of *Phytophthora Dieback*. All efforts shall be made to prevent the spread of *Phytophthora Dieback* during any *NBU* activities.

REFERENCES

Conservation and Land Management Act 1984 (WA)

Dieback Consultative Council (2000) A Protocol for Identifying Protectable Areas and Priority for Management

Forest Management Regulations 1993 (WA)

POLICY

Construction
Dieback surveys shall be conducted for new transmission works traversing susceptible areas and new distribution works presenting a significant risk of infestation to *susceptible areas*. Based on these surveys, sections of line corridor free of *Phytophthora Dieback* will be designated protectable areas. Hygiene plans shall be developed and implemented for all works in *protectable areas*.

All other planned *NBU* construction activities, that promote the spread of soil or plant material into disease risk (quarantine) areas, and *susceptible areas*, (such as activities during wet periods when soil may adhere to vehicles or machinery) shall be avoided, where possible, to prevent the spread of the pathogen *Phytophthora Dieback*.

Maintenance
Planned *NBU* maintenance activities that promote the spread of soil or plant material into disease risk (quarantine) areas, and susceptible areas (such as activities during wet periods when soil may adhere to vehicles or machinery) shall be avoided, where possible, to prevent the spread of the pathogen *Phytophthora* Dieback.

When an activity, other than an unplanned activity, involves travelling through a *disease risk (quarantine) area*, an access permit shall be obtained from CALM as required by the *Conservation and Land Management Act 1984*. The activity shall be subject to the conditions specified in the access permit.

When an activity is an unplanned maintenance activity, and it involves travelling through a *disease risk (quarantine) area*, post-incident notifications and retrospective approvals and permits shall be sought by the Support Services Manager, in accordance with DMS# 1295222.

DEFINITIONS

Word	Definition
CALM	Department of Conservation and Land Management
Disease Risk (Quarantine) Area	An area quarantined from general access by *CALM* to minimise the risk of spread of *Phytophthora* plant disease (commonly referred to as dieback).
NBU	Networks Business Unit
Phytophthora Dieback	A genus of destructive plant disease, which attacks the roots of susceptible plants including trees and many native Western Australian species.
Protectable areas	These areas as defined in the *Protocol for Identifying Protectable Areas and Priority Management* are: • Vulnerable areas and landforms with a rainfall greater than 600mm per annum or altered sites which receive higher effective rainfall or are natural water gaining sites situated between 400 to 600mm isohyets; • Areas where it has been determined to be free of the pathogen *Phytophthora* dieback; and • Positioned in the landscape and are sufficient in size so that it is determined that the spread of the pathogen will not engulf more than a significant remnant within 2 or 3 decades.
Susceptible areas	Areas of native vegetation with a rainfall greater than 600mm per annum or altered sites, which receive higher effective rainfall or are natural water gaining sites situated between 400 to 600mm isohyets.

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Management Representative)	Authorised (Branch Manager)
06/03/2003		Original issue		

ANNEXURE 4

Assessing, Registering & Maintaining Assets near Environmentally Sensitive Areas - Standard

APPROVED (*Networks Support Services Manager*)	*Rudy Teh*	Date 30/1/03
AUTHORISED (*General Manager*)		Date 10/2/03

TITLE: ASSESSING, REGISTERING & MAINTAINING ASSETS NEAR ENVIRONMENTALLY SENSITIVE AREAS - STANDARD

PURPOSE

The purpose of this policy is to provide a framework and process for assessing, registering and maintaining assets near environmentally sensitive areas. This policy also includes information on relevant legislative requirements.

SCOPE

This policy applies to Networks Business Unit employees and contractors who assess, register or maintain assets near environmentally sensitive areas. Branches and Sections may produce processes and procedures that support this policy.

SAFETY ASPECTS AND IMPLICATIONS

There are no specific safety aspects or implications relating to this process.

ENVIRONMENTAL ASPECTS AND IMPLICATIONS

Western Power's activities, by their nature, have the potential to impact the environment. Activities that could impact ESAs include but are not limited to:

Discharge of Waste

Spread of Phytophthora Dieback

Spread of Noxious Weeds

Taking of Protected Native Flora and Fauna

Damage to Wetlands

Herbicide and Pesticide Use

POLICY

Assessment of *ESAs*
Network Support Services on behalf of NBU shall monitor environmental information from government agency correspondence and databases, members of the public and Western Power employees and contractors. Network Support Services will determine whether the environmental issues need to be managed as *ESAs* and advise appropriate branches accordingly.

A farm that produces organic or biodynamic products must be certified through an approved certifying organisation for inclusion in the *ESA* program.

Organic farms shall be reassessed annually for continued inclusion in the *ESA* program.

Registration of ESAs
ESAs shall be registered in the EMIS Web *ESA* database.

ESAs shall be signposted with ESA signs unless the *ESA* is a disease risk area.

Site specific management procedures shall be developed for *ESAs*.

Assets located in *ESAs* shall be identified on NMS, DFIS, DFMS and TLS.

Maintenance of ESAs
Employees and contractors shall take all the precautionary measures to ensure safety and environmental protection is maintained in *ESAs*.

Employees and contractors shall make certain fire prevention measures are conducted at *ESAs*, in accordance with the *Bush Fires Act 1954*.

When an activity involves travelling through a *Disease Risk (Quarantine) Area*, a permit shall be obtained from CALM as required by the *Conservation and Land Management Act 1984*. All efforts shall be taken to ensure that Western Power activities do not promote the spread of the pathogen within *Disease Risk (Quarantine) Areas*.

Employees and contractors shall not access a property that has been served a property quarantine notice for stock disease unless written approval from an inspector or authorised person has been granted. All efforts shall be taken to ensure that Western Power activities do not promote the spread of stock disease.

Employees and contractors shall advise a *CALM* officer prior to commencing any activity other than an unplanned activity (refer to DMS# 1295222) that involves working in an *ESA*, which contains declared rare/priority flora.

Employees and contractors shall not take *declared rare/priority flora* unless licensed to do so by the Minister for the Environment.

Employees and contractors shall not damage or clear native vegetation at or from an *ESA* unless it is on an *organic* farm that has requested the clearing of native vegetation, which may interfere with Western Power assets.

Western Power employees and contractors shall not use pesticides or herbicides on *organic* farms.

When an activity involves travelling through an area infested with noxious weeds, all efforts shall be made to ensure that Western Power activities do not promote the spread of weeds.

Employees and contractors shall not cause *waste* to be placed or permit *waste* to be placed in any position from which the *waste* could be expected to gain access to the environment and result in pollution to an *ESA*.

Employees and contractors shall not cause or permit pollution to be caused on an *ESA*.

Employees and contractors engaged in pole treatment for termites, borers and fungal decay shall take all precautionary measures to ensure safety and environmental protection are maintained on *ESAs*.

EXPLANATION OF ENVIRONMENTAL ASPECTS AND IMPLICATIONS

Discharge of Waste – *Environmental Protection Act 1986 (WA)*
Discharge of *waste*(s) may cause a direct or indirect impact on the environment. Western Power is required under *the Environmental Protection Act 1986 (WA)* to protect the environment from any *waste* that could be expected to gain access to any portion of the environment and result in pollution. Therefore, all efforts shall be made to ensure *waste*(s) is (are) not discharged during any Western Power activities.

Herbicides and Pesticides
Herbicides and Pesticides are agents, either *organic* or inorganic, used to destroy unwanted vegetation, especially weeds and grasses, and unwanted pests, especially termites. Herbicides and Pesticides can be highly mobile and therefore readily leach into groundwater. When released into water, they may bioconcentrate in aquatic organisms and are also subject to biodegradation. All efforts shall be made to ensure herbicides and pesticides are not applied on *organic* farms during any Western Power activities.

Noxious Weeds - *Noxious Weeds Regulations, 1973 (WA)*
Weeds are among the most serious threats to sustaining Australia's agricultural and forestry practices and conserving biodiversity. Human activity causes the most significant and widespread distribution of noxious weeds. Construction, earthmoving and dirty vehicles all contribute to the spread of noxious weeds. All efforts shall be made to prevent the spread of noxious weeds during any Western Power activities.

Phytophthora Dieback - *Conservation and Land Management Act 1984 (WA)*
Western Power's activities have the potential to spread *Phytophthora Dieback*. *Phytophthora Dieback* is found in soil and plant tissue. The presence of *Phytophthora Dieback* can be deduced from the death of native plants. It spreads quickly down slopes because its microscopic spore's move in surface and sub-surface water flows and spread up slopes through root to root contact. Human activity is a significant vector for the spread of the pathogen. The movement of soil and plant material through construction, earthmoving, and vehicle movement contribute to the spread of *Phytophthora Dieback*. All efforts shall be made to prevent the spread of *Phytophthora Dieback* during any Western Power activities.

Protected Native Flora and Fauna - *Wildlife Conservation Act, 1950, Environmental Protection and Biodiversity Act 1999 (Cth)*
Western Power's activities have the potential to "*take*" *declared rare/priority flora*, threatened ecological communities and/or migratory species. Construction and maintenance activities cause the most significant impacts to these flora and fauna communities. All efforts shall be made to prevent "taking" of *declared rare/priority flora*, threatened ecological communities and migratory species during any Western Power activities.

Stock Disease -- *Agriculture & Related Resources Protection (Property Quarantine) Regulations 1981 (WA)*
Stock disease can have detrimental effects on animal stocks as well as economic impacts for those farmers affected. Some forms of stock disease have the potential to infect humans. Stock disease can spread by many different avenues including but not limited to soil, water, vehicles or machines that have been used for agricultural, excavation or earthmoving purposes. All efforts shall be made to prevent the spread of stock disease during any Western Power activities.

Wetlands - *Metropolitan Water Supply, Sewerage and Drainage By-Laws 1981; Health Act 1911 (WA); Country Areas Water Supply Act, 1947; Rights in Water and Irrigation Act 1914 (WA); and Environmental Protection Policies.*
Wetlands are biologically productive systems that support a diverse and distinctive array of plants and animals. *Wetlands* are also an important source of public drinking water. Construction and maintenance activities have the potential to reduce or degrade water quality at *wetlands*. All efforts shall be made to prevent damage to *wetlands* during any Western Power activities.

DEFINITIONS

Word	Definition
CALM	Department of Conservation and Land Management
DFIS	Distributed Facilities Information System
DFMS	Distributed Facilities Management System
Declared Rare Flora (DRF), Priority Listed Flora, Migratory Species & Threatened Ecological Communities	Protected Flora and Fauna identified by CALM and gazetted as being rare and/or threatened by development.
Disease Risk (Quarantine) Area	Area quarantined from general access to minimise the risk of spread of Phytophthora plant disease (commonly referred to as Dieback).
EMISWeb	An intranet based software package (PowerNet) to facilitate the systematic management of Western Power's environment-related activities and associated legal compliance.
Environmentally Sensitive Area (*ESA*)	An area that requires special considerations and/or precautions to be taken during work processes at Western Power facilities or adjacent land. ESAs are marked on NBU mapping systems (DFIS, NMS) and detailed in the Corporate environmental database on PowerNet (EMISWeb). ESAs include:

	• Wetlands • Declared Rare Flora • Priority Flora • Threatened Ecological Communities • Noxious Weeds • Stock Disease • Disease Risk (Quarantine) Areas • Organic Farms
ESA Sign	A green and white reflective sign placed in an ESA, and usually attached to power poles. Each sign is marked with a unique ESA site number and a letter to indicate the environmental issue ie, • F Declared Rare/Priority Flora • C Threatened Ecological Community (TEC) • N Noxious Weeds • O Organic Farm • W Wetlands
NBU	Networks Business Unit
NMS	Networks Mapping System
Organic	Organic as defined by the Draft National Standards for Organic and Biodynamic Produce means to utilise environmental maintenance practices, while producing optimum quantities of produce without the use of artificial fertilisers or synthetic chemicals.
Phytophthora Dieback	A genus of destructive plant disease, which attacks the roots of plants and trees.
TLS	Transmission Line System
To "Take" Flora	To gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means.
Waste	Includes matter whether liquid, solid, gaseous or radioactive and whether useful or useless, which is discharged into the environment and/or prescribed to be waste.
Wetlands	For the purpose of this policy wetlands is defined as rivers, floodways, seasonally wet depressions, bogs, wetlands, swamps, estuaries, lakes, waterlogged areas, creeks, and areas with shallow water tables. Other areas included under this definition include designated water catchments (Public Drinking Water Source Areas, Underground Water Pollution Control Areas, Water Reserves and Public Water Supply Catchment Areas),

areas subject to inundation (floodways, areas with shallow water tables, and depressions) and water resources of high conservation value (The South West Agricultural Zone wetlands and Swan Coastal Plain Wetlands, the Conservation and Resource Enhancement Category wetlands, and other water courses with fringing vegetation).

REFERENCES

Agriculture & Related Resources Protection (Property Quarantine) Regulations 1981 (WA)

Bush Fires Act 1954

Conservation and Land Management Act 1984 (WA)

Country Areas Water Supply Act, 1947

Draft National Standard for Organic and Biodynamic Produce

Environmental Protection Act 1986

Environmental Protection and Biodiversity Act 1999 (Cth)

Environmental Protection Policies

Health Act 1911 (WA)

Metropolitan Water Supply, Sewerage and Drainage By-Laws 1981

Noxious Weeds Regulations, 1973 (WA)

Rights in Water and Irrigation Act 1914 (WA)

Wildlife Conservation Act 1950 (WA)

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Management Representative)	Authorised (Branch Manager)
24/1/2003		Original Issue		

ANNEXURE 5

Ground Disturbance & Excavation Activities when Objects Discovered are Suspected of being of Significance to Aboriginal People

APPROVED (*Networks Support Services Manager*)	*Rudy Teh*	Date 14/2/2003
AUTHORISED (*General Manager*)	*Doug Aberle*	Date 24/2/2003

TITLE: GROUND DISTURBANCE & EXCAVATION ACTIVITIES WHEN OBJECTS DISCOVERED ARE SUSPECTED OF BEING OF SIGNIFICANCE TO ABORIGINAL PEOPLE

PURPOSE AND PROCESS OVERVIEW

The purpose of this policy is to provide a framework and process for ground disturbance and excavation activities when objects discovered are suspected of being of significance to Aboriginal people. This policy also includes information on relevant legislative requirements.

SCOPE

This policy applies to Network Business Unit (NBU) employees and contractors who are involved with ground disturbing activities that may impact on sites of significance to *Aboriginal* people. Branches and Sections may produce processes and procedures supporting this policy.

SAFETY ASPECTS AND IMPLICATIONS

There are no safety aspects or implications relating to this process.

ENVIRONMENTAL ASPECTS AND IMPLICATIONS

Ground disturbing activities including excavation for new distribution and transmission structures have the potential to disturb sites of significance to *Aboriginal* people. *NBU* has a commitment under the *Aboriginal Heritage Act 1972* and *the Aboriginal and Torres Strait Islander Protection Act 1984 (Cth)* to protect anything of significance to *Aboriginal* people. All efforts shall therefore be made to prevent disturbance to anything of significance to *Aboriginal* people during all *NBU* activities.

REFERENCE

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)

Aboriginal Heritage Act 1972 (WA)

Aboriginal Affairs Planning Authority Act 1972 (WA)

RELATED ACTS

Aboriginal Heritage Regulations 1974 (WA)

Aboriginal Affairs Planning Authority Act Regulations 1972 (WA)

POLICY

Objects, which have been declared by the Minister of Indigenous Affairs to be of great significance to *Aboriginal* people, shall not be destroyed, damaged, removed or interfered with.

A discovery of anything of significance to *Aboriginal* people shall be reported to the Registrar of *Aboriginal* Sites within the Department of Indigenous Affairs.

A "no-work" zone shall be established by *NBU* when anything of *Aboriginal* significance is discovered.

Following a discovery of anything of significance to *Aboriginal* people the Registrar, with advice from the Aboriginal Cultural Material Committee, shall authorise, entry to and/or excavation of, an *Aboriginal* site and the examination or removal of anything on or under the site.

An archaeologist shall be contacted following authorisation from the *Registrar* and the relevant *Aboriginal* people when anything that is discovered is reasonably suspected to be non-skeletal *Aboriginal cultural material.*

When non-skeletal *Aboriginal cultural material* is discovered, the *Registrar* and the relevant *Aboriginal* people shall determine the procedures to be followed for the management of the materials discovered.

When an object classified as *Aboriginal cultural material* is discovered the *Minister* shall be notified in writing.

When anything reasonably suspected to be human skeletal remains is discovered, a no-work zone shall be immediately established around the area.

A veterinarian shall be contacted to examine the skeletal material to determine if it is of animal origin.

An "exclusion zone" shall be established if the veterinarian cannot positively identify the skeletal remains as being of animal origin. Western Power shall engage an *archaeologist* and anthropologist to professionally assess the area before work is permitted to proceed.

When the skeletal remains are determined to be human in origin, the Police and coroner shall be notified.

When the skeletal remains are determined to be Ancestral remains, the *Minister* shall be notified in writing.

Prior to work proceeding, *NBU* shall submit the archaeological and anthropological findings to the *Registrar* and the relevant *Aboriginal* people for assessment. *NBU* shall only proceed once instructed by the *Registrar* and the relevant *Aboriginal* people.

DEFINITIONS

Word	Definition
Aboriginal	A member of the Aboriginal race of Australia, including a descendant of the indigenous inhabitants of the Torres Strait Islands.
Aboriginal cultural material	An object of Aboriginal origin which is of sacred, ritual or ceremonial importance; of anthropological, archaeological, ethnographical or other special national or local interest; or of outstanding aesthetic value.
Anthropologist	One who studies human origins, institutions and beliefs.
Archaeologist	One who studies ancient cultures from their physical remains.
Committee	Aboriginal cultural material Committee
Exclusion zone	An area around a suspected object of Aboriginal significance in which access is denied to personnel and contractors.
Minister	Minister of Indigenous Affairs
NBU	Networks Business Unit
No-work zone	An area around a suspected object of Aboriginal significance in which no construction activities are to be conducted.
Object of Aboriginal significance	An object, including Aboriginal remains, of particular significance to Aboriginals in accordance with Aboriginal tradition.
Registrar	The person appointed Registrar of Aboriginal Sites within the Department of Indigenous Affairs.

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Management Representative)	Authorised (Branch Manager)
22/01/2003		Original Issue		

ANNEXURE 6

Environmental Policy for Entry to Land Subject to Native Title

APPROVED (*Environmental and Land Manager*)	*Rudy Teh*	Date 18/3/03
AUTHORISED (*General Manager*)	*Doug Aberle*	Date 20/3/03

TITLE: ENVIRONMENTAL POLICY FOR ENTRY TO LAND SUBJECT TO NATIVE TITLE

PURPOSE AND PROCESS OVERVIEW

The purpose of this policy is to provide a framework and process for entry to land subject to native title. This policy also includes information on relevant legislative requirements.

SCOPE

This policy applies to Network Business Unit employees and contractors who are involved with entry to land subject to *native title*. This policy does not cover other aspects of new development works such as the EIA process. The *EIA* process is covered in DMS# 1374972. Branches and Sections may produce processes and procedures supporting this policy.

ENVIRONMENTAL ASPECTS AND IMPLICATIONS

The common law of Australia recognises a form of *native title* to land, which reflects the entitlement of the indigenous inhabitants, in accordance with their traditional laws or customs, to their traditional lands. Certain NBU activities have the potential to impact upon *native title* rights and therefore all efforts shall be made to ensure these rights are considered when planning future acts and that any requirements of the *Native Title Act 1993* are complied with.

REFERENCES

Energy Operators (Powers) Act 1979 (WA)

Land Administration Act 1997 (WA)

Native Title Act 1993 (Cth)

POLICY

Notice of Entry
When entry for *future acts,* which do not require the prior acquisition of land, is required to land, a notice of entry shall be given to the owner or occupier of that land before entry in accordance with the *Energy Operators (Powers) Act 1979* and, where applicable, the *Native Title Act 1993.*

When entry for *future acts* is required to land that is unallocated Crown Land, DLI shall be notified and a *notice of entry* shall be issued.

When entry for *future acts* is required to land that is unallocated Crown Land or any other type of land where *native title* may exist, a *notice of entry* shall be issued to the Native Title Party and the Native Title Representative Body in accordance with the *Native Title Act 1993.*

Within a *notice of entry* the recipient shall be given the opportunity to provide comments to *NBU* on the intention to enter the land for *future acts.* Any comments received shall be considered before proceeding with the *future act.*

Acquisition of Interest in Land
When it is necessary to acquire an interest in land for the purpose of a *future act* a Notice of Intention to Take is required to be given in accordance with the *Land Administration Act 1997* and, where relevant, the *Native Title Act 1993.*

Where the acquisition of the *interest in land* would have an impact on any *native title* rights and interests, a *Notice of Intention to Take* shall be given in accordance with the *Native Title Act 1993. DLI* shall be notified and shall issue the required notices to the *Native Title Party* and the *Native Title Representative Body. DLI* shall notify the public in the determined way.

Compensation
When a future act results in any damage to the land or premises defined in the *Notice of Entry,* the *native title holder* shall be compensated or the damage done to the land or premises shall be rectified in accordance with the *Energy Operators (Powers) Act 1979.*

When a *future act* results in any loss or impairment of *native title* rights and interests, compensation can be sought by the native title holders. The procedures for dealing with compensation claims provided in the *Land Management Act 1997* and the *Native Title Act 1993* shall be adhered to.

DEFINITIONS

Word	Definition
Determination	A decision by an Australian court or other recognised body that native title does or does not exist in a particular area of land or waters.
Determined Way	The way to give notice determined by the Commonwealth Minister which may include: • Newspapers, including those which cater mainly or exclusively for the interests of Aboriginal peoples or Torres Strait Islanders; or • Radio broadcasts or television transmissions.
DLI	Department of Land Information
EIA	Environmental Impact Assessment
Future Act	A proposed activity or development on land and/or waters that may affect *native title*.
Interest in Land	Interest in land as defined in the *Native Title Act 1993* means: • A legal or equitable estate or interest in the land; or • Any other right, charge, power or privilege over, or in connection with the land or an estate or interest in the land; or • A restriction on the use of the land, whether or not annexed to other land.
Native Title	Traditional rights and interests in land and waters, which are held under traditional laws and customs of Aboriginal people or Torres Straight Islanders. *Native title* may exist on: • Unallocated Crown Land; • Other types of Crown Land which do not confer exclusive possession; • Oceans, seas, reefs, lakes and inland waters; and • Some non-exclusive leases, such as non-exclusive pastoral and grazing leases.
Native Title Holder	The person or persons who hold the *native title*.
Native Title Party	A registered native title claimant(s), or registered native title body corporate.
National Native Title Register	A register, which contains approved determinations of *native title* by the High Court of Australia, the Federal Court of Australia or a recognised body.
Native Title Representative Body	An organisation appointed to represent *native title*

	claimants within a specified geographic region.
NBU	Networks Business Unit
Notice of Entry	A notice which details: • A clear description of the land, or waters, affected by the works • A description of the general nature of the works; • The address where comments may be lodged and the postal address where they may be sent; • The closing day; • How further information about the works can be obtained; • The time at which it is intended that the works begin; • The time during which it is intended that the works will continue; and • An indication of the kind of disturbance that the doing of the works will cause to the land or waters.
Notice of Intention to Take	Includes: • A description of the land required; • A description of the purpose of the proposed public work; • The nature of the interests to be taken; • A place where persons interested may at any time inspect a plan of the land; • The reasons why the land is suitable for, or is needed for, the public work; • The date from which the land is likely to be required; • The name of the contact officer in the acquiring authority; • An address for lodging objections; • A statement which addresses the requirement that no transactions which may affect the land included in the *Notice of Intention to Take* may occur without the approval of the Minister; and • A statement, which addresses the requirement that no improvements may be made to the land, included in the *Notice of Intention to Take* without the approval of the Minister.
Registered Native Title Body Corporate	A body corporate whose name and address are registered on the National Native Title Register which hold native title following a determination of native title.
Registered Native Title Claimants	*Native title* claimants who have met the conditions of the registration test.

AMENDMENT AUTHORISATION & APPROVAL

Date of Issue/ Revision	Page(s)	Description of Amendment	Approved (Management Representative)	Authorised (Branch Manager)
21/2/2003		Original issue		
10/7/2003	1	Correction to referenced document for EIA process	*JohnRoche*	

ANNEXURE 7

Procedure for the Application of the Environmental Filter

AUTHOR (Position)		**Date** DD/MM/YYYY
PROCESS OWNER (Environment & Land Manager)		**Date** DD/MM/YYYY
AUTHORISED *(General Manager)*		**Date** DD/MM/YYYY

PROCEDURE FOR THE APPLICATION OF THE ENVIRONMENTAL FILTER

PURPOSE AND PROCESS OVERVIEW

The purpose of this procedure is provide a framework to guide use of the Western Power Environmental Filter for incorporating environmental issues in the design considerations of new distribution lines where there is potentially significant environmental issues.

SCOPE

This procedure applies to Works Delivery employees and contractors.

SAFETY AND ENVIRONMENTAL ASPECTS AND IMPLICATION

Activities associated with the route selection and design of distribution lines have the potential to significantly impact the environment. For details on these environmental aspects and impacts, refer to *Environmental Standard for the Assessment of Environmental and Social Issues in the Distribution Line Route Selection and Design Process* (DMS# 1374758).

There are no safety aspects or implications relating to this procedure.

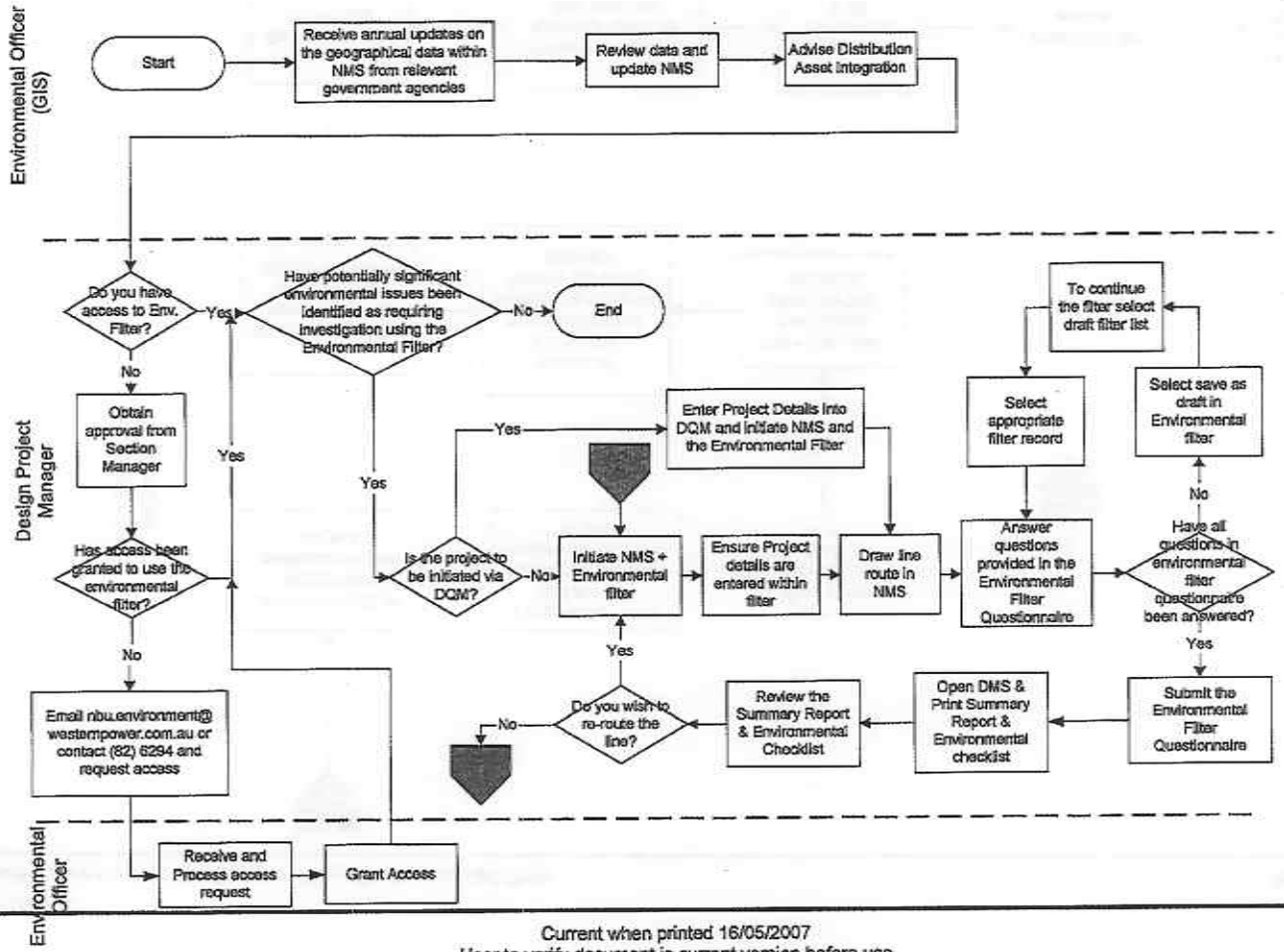
CUSTOMER ASPECTS AND IMPLICATIONS

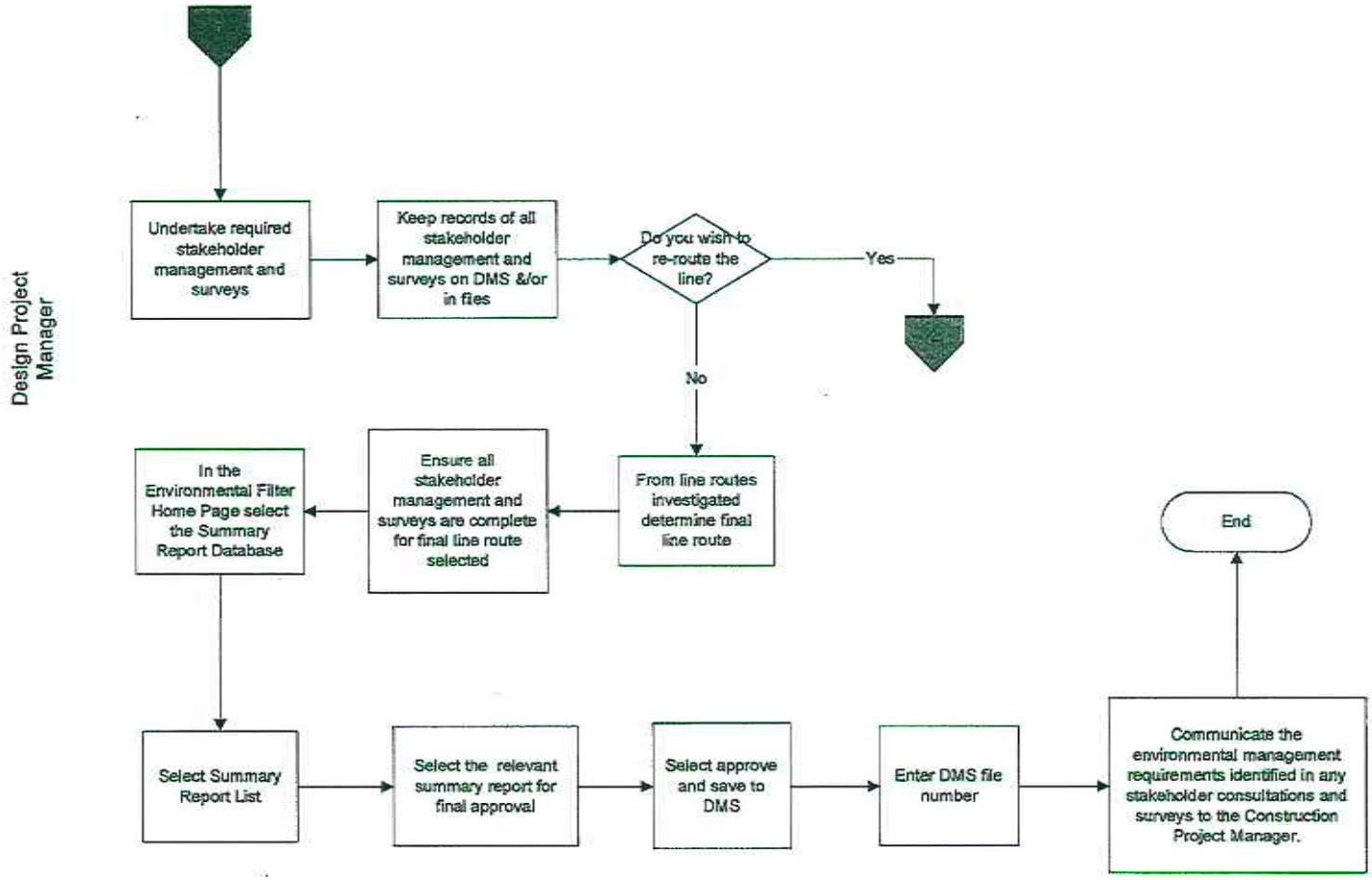
There are no specific community aspects or implications relating to this standard, however, should an issue pertaining to the application of the Environmental Filter arise which specifically impacts on community health, safety or similar concerns, the matter is to be made known to the Western Power Environment & Land Management Section as soon as practicable.

STANDARD

Refer to Environmental Standard for the Assessment of Environmental and Social Issues in the Distribution Line Route Selection and Design Process (DMS# 1374758)

FLOWCHART


Environmental Officer (GIS)
Start
Receive annual updates on the geographical data within NMS from relevant government agencies
Review data and update NMS
Advise Distribution Asset Integration
Design Project Manager
Do you have access to Env. Filter?
Yes
No
Have potentially significant environmental issues been identified as requiring investigation using the Environmental Filter?
No
End
Yes
Obtain approval from Section Manager
Has access been granted to use the environmental filter?
No
Yes
Email nbu.environment@westernpower.com.au or contact (82) 6294 and request access
Is the project to be initiated via DQM?
Yes
No
Enter Project Details into DQM and initiate NMS and the Environmental Filter
Initiate NMS + Environmental filter
Ensure Project details are entered within filter
Draw line route in NMS
Do you wish to re-route the line?
Yes
No
Review the Summary Report & Environmental Checklist
Open DMS & Print Summary Report & Environmental checklist
Submit the Environmental Filter Questionnaire
To continue the filter select draft filter list
Select appropriate filter record
Answer questions provided in the Environmental Filter Questionnaire
Have all questions in environmental filter questionnaire been answered?
No
Yes
Select save as draft in Environmental filter
Environmental Officer
Receive and Process access request
Grant Access


Design Project Manager
Undertake required stakeholder management and surveys
Keep records of all stakeholder management and surveys on DMS &/or in files
Do you wish to re-route the line?
Yes
No
From line routes investigated determine final line route
Ensure all stakeholder management and surveys are complete for final line route selected
In the Environmental Filter Home Page select the Summary Report Database
Select Summary Report List
Select the relevant summary report for final approval
Select approve and save to DMS
Enter DMS file number
Communicate the environmental management requirements identified in any stakeholder consultations and surveys to the Construction Project Manager.
End

BUSINESS PROCESS ACTIVITY

STEPS	ACTION	RESPONSIBILITY
	DATA	
1	**Arrange to receive annual updates on the geographical data within NMS from relevant governmental agencies.** [1]	**Environmental Officer (GIS)**
2	**Review any new geographical data received from governmental agencies and update *NMS* accordingly.**	**Environmental Officer (GIS)**
3	**Advise Distribution Works Delivery once *NMS* has been updated.**	**Environmental Officer (GIS)**
	THE DESIGN PROCESS	
4	If during the planning of new distribution lines potentially significant environmental issues are not identified as requiring investigations using the *Environmental Filter*, Go to End.	**Design Project Manager**
5	If access has not been granted, seek approval from the Section Manager and contact the System Administrator in ELM nbu.environment@westernpower.com.au or (82) 6294 to obtain access to use the *Environmental Filter*.	**Design Project Manager**
6	Obtain the Design Project Manager's details from the Western Power Address Book and enter the new designer into the Notes Client Group: Environmental Filter Users. Advise the Design Project Manager of their access.	**Environmental Officer**
7	If the project is to be initiated via DQM and enter the project description, creation date, project designer, drawing number, DFIS coordinates and DMS File Location into DQM. The information shall be transferred automatically to the *Environmental Filter*. Go to Step 9.	**Design Project Manager**
8	If the project is to be initiated outside of *DQM* go to Open Notes, open the *Environmental Filter*. This first page is the Environmental Filter Home Page, select "Start Filter" and enter the project description, creation date, project designer, drawing number, *DFIS* coordinates and *DMS* File Location; and Open PowerNet, go to the Western Power Company Pages and select *NMS* from the side menu Go to Step 10.	**Design Project Manager**

[1] Changes to the procedure are shaded grey and bold in the flowchart

9	From within *DQM* • Initiate the *Environmental Filter* • Initiate *NMS*	**Design Project Manager**
10	Draw the line route in *NMS*. Save the drawing.	**Design Project Manager**
11	Complete the Environmental Filter Questionnaire by selecting the appropriate answers with reference to the line route drawing in *NMS*. Words or phrases are defined where underlined and comments may be entered into the Notes field for later reference. • Select "Submit" to save the completed record • Select "Save as Draft" if unable to complete the *Environmental Filter Questionnaire* in this session and to save the record. • Select "Cancel" to return to the beginning of the *Environmental Filter*.	**Design Project Manager**
12	To continue working on a "Draft" select the appropriate record from the Draft Filter List (database accessed via the *Environmental Filter Home Page*). Continue working on the *Environmental Filter Questionnaire*: • Select "Submit" to save the completed record • Select "Save as Draft" if unable to complete the *Environmental Filter Questionnaire* in this session and to save the record.	**Design Project Manager**
13	On completion of the *Environmental Filter Questionnaire*, select submit. A Summary Report shall be produced. • Select "Print Summary Report" for a copy of the *Summary Report*. • Open *DMS*, Go back to the *Summary Report* and select "Print Summary Report and Checklist". This will print *the Summary Report* and *Environmental Checklist* with instructions on completing the environmental review using *NMS*. Close *DMS* once the *Environmental Checklist* has printed. By closing the *Summary Report* you will ensure that a record is automatically saved in the Summary Reports Database (accessible via the Environmental Filter Home page).	**Design Project Manager**
14	Evaluate the *Summary Report* and determine whether to	**Design Project**

	• continue with the *Environmental Checklist* or • Reinitiate the *Environmental Filter* and redraw the line route – Go to Step 8.	Manager
15	Using NMS follow the instructions included in *the Environmental Checklist*. On completion: • Determine whether to undertake the appropriate stakeholder management and surveys; or • Redraw the line route and reinitiate the *Environmental Filter* process – Go to Step 8. Keep records of action undertaken and file these in the assigned *DMS* File.	**Design Project Manager**
16	Evaluate the line route selection/s following appropriate stakeholder management and surveys and determine the final line route. • Access the Summary Reports Database (accessible via the Environmental Filter Home page). • Within Summary Reports Database, select Summary Reports List. • Select the appropriate *Summary Report*. • Select Approve and Save to DMS. • Enter the *DMS* File Number	**Design Project Manager**
17	Communicate the environmental management requirements identified in any stakeholder consultations and surveys to the Construction Project Manager. Procedure Complete	**Design Project Manager**

DEFINITIONS

Word	Definition
DQM	Distribution Quotation Management System
DFIS	Distribution Facilities Information System
DMS	Document Management System
Environmental Filter	A software package accessed via a bookmark on Notes for the assessment of environmental issues when designing new distribution lines.
Environmental Filter Home page	Opening page of the Environmental Filter. Displays all the applicable Environmental Filter databases, the initiating point for the Environmental Filter and a Quick Reference Chart for the Environmental Checklist.
Environmental Filter Questionnaire	A series of questions designed to filter out new distribution works that pose very little or no risk to the environment.
Environmental Checklist	Distribution works that pose a risk to the environment are captured by the Environmental Filter Questionnaire and directed to the Environmental Checklist for further assessment. The Environmental Checklist • addresses the potential significant environmental and social issues; • provides guidance to address these issues using NMS; and • advises on the consultation with stakeholders, relevant permits, notices of entry, and whether surveys are required. The Environmental Checklist comprises of the following documents: 1.1 Vegetated Areas of High Conservation Value; (DMS# 1296665) 1.2 Reserved Vegetated Lands; (DMS# 1356445) 1.3 Threatened or Protected Vegetation/Flora; (DMS# 1356559) 1.4 Vegetation Clearing Greater than 1 Hectare; (DMS# 1356945)

	2.1 Water Resources of High Value; (DMS# 1408041) 2.2 Areas Subject to Inundation; (DMS# 1408165) 2.6 Vegetation Clearing in Designated Water Catchments; (DMS# 1408226) 3.1 Aboriginal Heritage; (DMS# 1408377) 3.2 Native Title; (DMS# 1408521)
NMS	Networks Mapping System
Significant	A judgement on the degree of importance and consequence of anticipated change imposed on the environment or society by a proposal. This is based upon the following factors: • Character of the receiving environment and the use and value which society assigned to it; • Magnitude, spatial extent and duration of anticipated change • Resilience of the environment to cope with change • Confidence of the prediction of change • Existence of policies, programs, plans and procedures against which the need for applying the EIA process to a proposal can be determined • Existence of environmental standards against which a proposal can be determined; and • Degree of controversy on environmental issues likely to be associated with a proposal
Summary Report	On completion and submission of the Environmental Filter Questionnaire a summary report is produced which displays • a unique identifier number • the Environmental Filter Questionnaire and responses given; and • the relevant sections of the Environmental Checklist that need to be addressed based on the responses given in the Environmental Filter Questionnaire

WESTERN POWER REFERENCES

Environmental Policy

- Corporate Environmental Governance Policy (DMS# 2773619)

Strategic Environmental Policy

- Strategic Environmental Policy for Environmental Performance (DMS# 3044761)

Environmental Standards

- Environmental Standard for Assessment of Environmental and Social Issues in the Line Route Selection and Design Process (DMS# 1374758)

AMENDMENT AUTHORISATION & APPROVAL

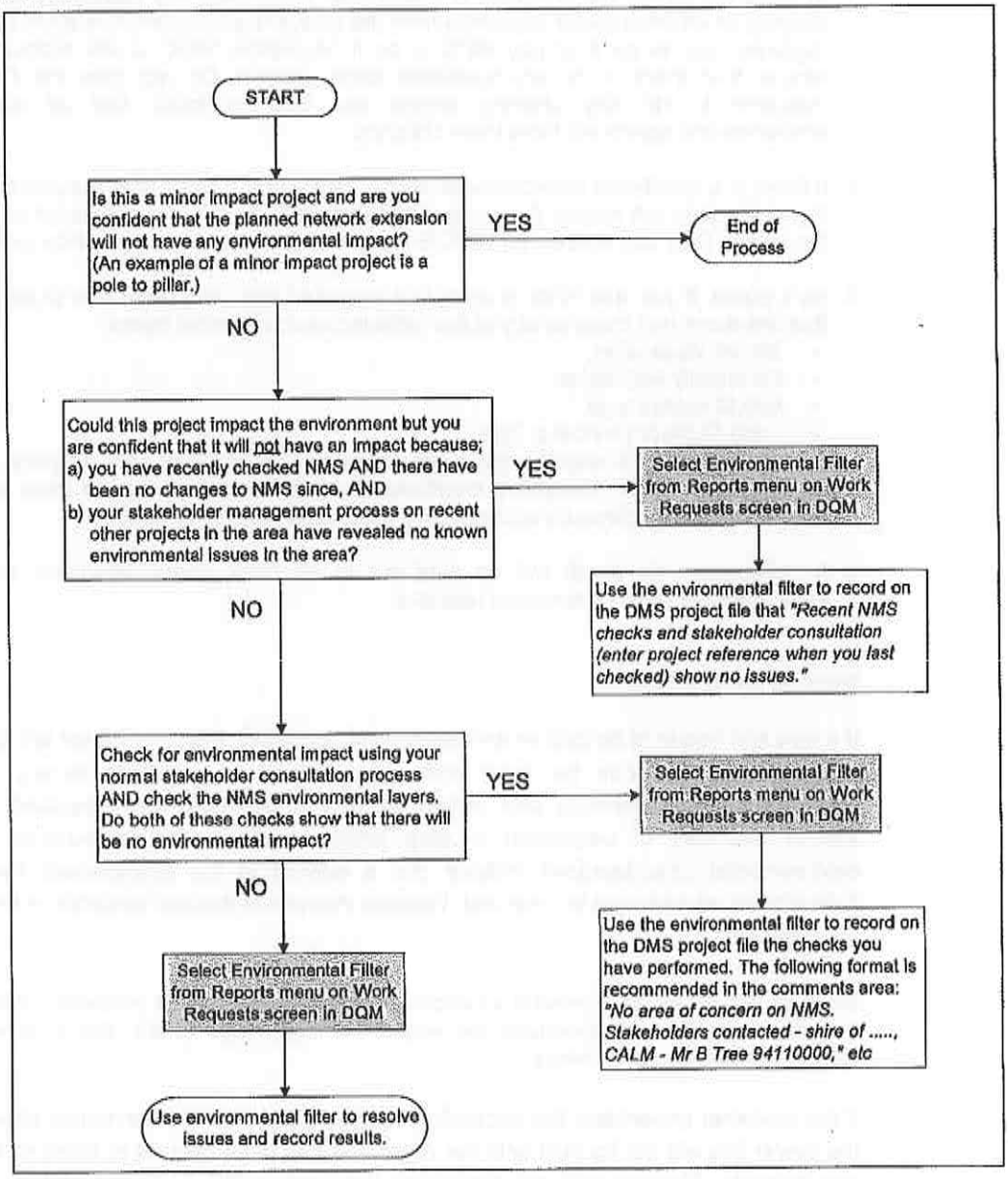
Date of Issue/ Revision	Page(s)	Description of Amendment	Approved	Authorised
28/04/2003		Original Issue		
23/09/2003	2,3,4	Steps 1 to 3 added. Flowchart updated.	*John Roche*	*Rudy Teh*
03/04/2006	All	Reform Update	*Rudy Teh*	*Duncan Whitfield*

ENVIRONMENTAL FILTER PROCESS

Western Power

Title:	DAI Environmental Filter Process Flow Chart		
DMS:	# 1545211v1	Prepared:	Sandeep Magan
Date:	2nd September 2003	Authorised:	Glen Pearce
NETWORKS: System Optimisation – Distribution Asset Integration			*Page 1 of 3*

The process flow chart details the steps to ensure the appropriate environmental checks are performed.



NMS – Networks Mapping System located at http://nms/

General Notes:

1. In instances where the customer is responsible for gaining any necessary vegetation clearing or environmental approvals from the relevant authorities, this means that the customer has to do it or pay WPC to do it. **However,** WPC is still accountable to ensure that there is no environmental harm caused. Do not give the OK for a customer to do any clearing unless you have checked that all necessary environmental approvals have been obtained.

2. If there is a significant environmental study required then liaise with Support Services. Generally they will handle the study. Occasionally the customer may want to conduct the study. They can do this but WPC Support Services has to give the final clearance.

3. As a guide, if you use NMS to draw in a proposed line from point A to point B and if that line **does not** traverse any of the following environmental layers:
   - Native Vegetation,
   - Potentially wet areas,
   - CALM vested land,
   - Land Subject To Native Title,

   then there are **no significant environmental issues that will require further investigation.** *Note:* the above mentioned environmental layers have been set up in NMS so that they come on automatically every time NMS is opened.

4. A notification via email will be sent out to all NMS users whenever the NMS environmental layers have been updated.

General Information:

If a new line needs to be built or an existing one upgraded, Western Power will carry out a design that provides the least cost option taking into account terrain, access, environmental requirements and vegetation. Any preliminary quote supplied will not include the cost of vegetation clearing and/or environmental clearances. Should environmental considerations indicate that a referral to the Environment Protection Authority for assessment be required, Western Power will discuss available options with the customer.

Western Power will also provide appropriate vegetation clearance profiles/drawings and may be contracted to undertake the vegetation clearances and/or the environmental clearances at full cost recovery.

If the customer undertakes the vegetation clearing and/or the environmental clearances, the power line will not be built until the vegetation has been cleared to Western Power's requirements. Clearing may not commence until appropriate environmental clearances have been obtained to Western Power's satisfaction. If the customer undertakes the

environmental clearances, any documents for submission to government authorities must be endorsed by Western Power prior to submission to the relevant government agency.

If the initial vegetation clearance is undertaken by the customer and there is subsequently significant regrowth toward the clearance zones of the power line the cost of the first maintenance Western Power carries out (when and if required) of naturally occurring vegetation is recoverable as a debt due to Western Power. Any work at any time on any cultivated vegetation is recoverable a debt due to Western Power from the occupier of the land from which the vegetation arises.

Notes for the customer on vegetation clearing to establish a power line :
(The customer must refer all initial vegetation clearing enquiries to their local Shire/Council)

- The customer must inform the Shire Council of clearing to be done on their land or land owned or managed by others. Permission from affected landowners will be required. The Department of Environment may need to be informed.
- CALM is to be notified to ensure that no Declared Rare Flora (DRF) or Threatened Ecological Communities (TEC) are disturbed or damaged. If the customer damages or removes DRF or TECs you could incur a substantial fine.
- Application is to be made to the Waters and Rivers Commission if the proposed clearing is to be on controlled land under Part IIA of the Country Areas Water Supply Act.

A document (DMS#1232207) containing Frequently Asked Questions (FAQs) has been created by Networks Support Services, which you may issue to customers.

ANNEXURE 8

Environmental Guideline: Revegetation Planning and Techniques

Environmental Guideline: Revegetation Planning and Techniques

December 2007

Document release information

Project name	EM/77/M41(37A)V1
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Document prepared by:

Western Power
ABN 18540492861

363 Wellington Street, Perth WA 6000

Prepared by:	Reviewed by:
Kelly Freeman	John Morrell

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1 Introduction

1.1 Purpose

The Electricity Networks Corporation, trading as Western Power, is a wholly Western Australian government owned business with the primary function to manage, plan, develop, expand, enhance, improve and reinforce electricity transmission and distribution systems.

The functions and powers of Western Power are legislated by the *Electricity Corporations Act 2005, Electricity Industry Act 2004* and the *Energy Operators (Powers) Act 1979*.

Western Power manages the transmission and distribution electricity network within the South West Interconnected System (SWIS). The area within SWIS is generally defined by Kalbarri to the north-west and Ravensthorpe to the south-east and extends to the Kalgoorlie-Boulder region.

The distribution network operates at voltages up to 66,000 volts and is used to provide power to businesses and domestic consumers. The transmission electricity network connects power stations and substations at voltages from 66,000 volts to 330,000 volts. Substations are used to transform power from higher voltages to lower voltages and range in size from hectares with many pieces of equipment to a single transformer.

This document provides guidance on planning and implementing revegetation projects within easements and corridors, and other areas for which Western Power is responsible. It is designed to guide project managers on the steps involved and is intended to support, but not replace, specialist advice on revegetation projects.

1.2 Scope

This document addresses the following areas:

- Definition of what revegetation is and why it is necessary;
- Key issues affecting the planning, implementation and ultimate success of revegetation works;

Landscaping techniques (eg transplanting, grassing and turf establishment, irrigation) and the ongoing maintenance of existing vegetation are not covered in this document. Specialist advice on landscaping works and ongoing maintenance of vegetation is available from Western Power's Environment and Land Management Branch.

1.3 Contacts for more information

Additional support, guidance and planning for revegetation is available from Western Power's Environment and Land Management Branch.

2 Revegetation Planning and Techniques

Revegetation refers to the re-establishment of a cover of vegetation suited to the location. This usually means a cover of local native plants and involves regeneration, direct seeding, and/or planting methods. Definitions of terms associated with revegetation are given in Section 3.

Revegetation involves a number of actions to restore a vegetative cover including the preparation of finished soil surfaces, eg by ripping or tilling the soil surface and respreading site topsoil and chipped vegetation, to assist regeneration to occur naturally. In most

cases, environmentally sensitive clearing management can ensure that natural regeneration alone is successful. Generally, understorey species are harder to establish than canopy species in most environments.

Western Power has adopted a minimal clearance practice for project clearing to ensure low impact to the environment. Clearing practices include only of larger trees with a corridor and the retention of rootstock when clearing to allow resprouting.

In many locations, the additional seeding and planting of vegetation may be necessary within the project area. Seeding can be undertaken by the direct broadcast (by hand or machine) of plant seed onto the prepared soil surface. When planting is required, nursery grown plants (in pots or small tubes – "tubestock") are placed into the soil by hand or machine.

Landscaping refers to revegetation or additional works like grassing and irrigated planting beds, feature paving etc undertaken for functional and amenity objectives, for example at key locations such as substations.

2.1 Requirement for Revegetation

Revegetation must occur in certain areas once those areas are no longer required for the purpose for which they were cleared under this Permit.

These areas are:

- Temporary works such as some stringing tracks or temporary clearing for tower erection whereby the clearing is no required for operation of the line;
- Project surveys such as clearing for sight line;
- Pre-construction activities such as set down areas; or
- Other project activities where part of all of the area cleared is no longer required to be used for the purpose for which it was cleared.

2.2 Revegetation Issues

Failure of revegetation works is often attributed to externalities, such as 'lack of rain', or wildfire. While these externalities may be factors, poor revegetation outcomes can sometimes be traced to lack of planning and inadequate implementation.

The main reasons for the failure of revegetation works are associated with:

- Lack of early planning for revegetation works in the project process,
- Lack of expertise available within the project management and superintendence of the contract works,
- Failure to co-ordinate the revegetation with the clearing and earthworks,
- Inadequate provision for soil preparation and weed control,
- Poor timing of the revegetation works, and
- No follow up care to establish the vegetation.

2.3 Objectives

For areas of terrestrial vegetation the objectives will need to reflect typical undisturbed vegetation composition (e.g. reference sites for the relevant pre-European regional ecosystem).

For areas of disturbed vegetation, the objectives will need to reflect typical undisturbed vegetation composition (e.g. reference sites) where the rehabilitation is to occur. Where environmental values of the project area have been established the objectives need to be consistent with those values.

The level of treatment must be determined on a project-specific basis. As a minimum, revegetation should achieve stability and minimise on-going maintenance.

For larger projects that have been subject to statutory assessment by the Environmental Protection Authority, specific objectives will be set. Environmental constraints may apply on plant species selection, seed collection and propagation. EMLB may also set revegetation objectives. Goals and targets for revegetation must be realistic for the location and project.

In agricultural regions some level of seeding and/or planting and weed control would be the expected minimum level of treatment. In urban areas a higher standard of revegetation/landscaping is the expected minimum level of treatment.

Natural regeneration, direct seeding or regeneration from topsoil is the preferred approach for all regions of the state where re-establishment of 'natural' vegetation is the objective. This may be supplemented by some planting. Planting alone is not the preferred approach.

2.4 Planning

Successful revegetation requires some level of planning well in advance of any physical activities. Effective revegetation means identifying and responding to the site constraints and project commitments. It also involves making the best use of the materials available on site by not wasting the existing soil and vegetation resources.

Some level of community consultation or involvement of stakeholders will often be associated with revegetation works.

The key steps in the revegetation process are summarised below.

- Set objective for revegetation works;
- Prepare a site-specific plan;
- Establish the vegetation; and
- Monitor and maintain.

Once the need for revegetation work has been identified and a project objective set, preliminary planning can be carried out. Site assessment should be used as a basis for preliminary planning but other issues could emerge as the project commences.

The preferred Western Power approach to revegetation works is to accelerate the natural processes that occur following clearing of vegetation areas and soil disturbance. This means that successful revegetation projects require careful planning, with the timing of particular activities being critical.

The following points should be considered when planning revegetation works:

- Seed collection from site may need to be conducted over an extended period as the seeds of different species mature at different times. In a year with poor rainfall, seed set may be limited and collection may need to be conducted in the following year;

- Where seed other than that occurring on site is required, seed collectors may require significant advance notice in order to meet the specifications; and
- Several rounds of weed control may be necessary to adequately control the new growth of weed species (from the weed seeds existing in the soil) and reduce the competition on site for the planting or seeding. Weed control is most effective at particular times of the year.
- Where establishment of self-sustaining native vegetation is the aim, planting is used to supplement direct seeding. Planting alone does not achieve the required diversity of species and plant forms.
- For seedlings/tubestock, watering the first summer is required for successful establishment.

2.5 Revegetation Methods

The following table summarises different revegetation methods and the advantages and disadvantages of each.

Method	Advantages	Disadvantages
Natural Regeneration	Low cost Less loss of biodiversity as it encourages regeneration of species naturally present in the area.	Unfavourable clearing methods may reduce natural regeneration. Can result in the spread of weed seed
Regeneration from topsoil	Low cost Can be used in addition to other methods Reliable source of local species and provenance seed if topsoil is in good condition.	Limited to species in soil seed bank. Topsoil must be fresh or only stored for a short time for best results. Can result in the spread of weed seed.
Application of seed-bearing mulch	Low cost if suitable equipment available. Will contribute more species than topsoil alone if seed stored in canopy.	Can only be used where native vegetation with low weed content is present. Cannot be stockpiled. Poor availability of equipment in some regions. Only some species carry seed in canopy.
Direct seeding	Costs less than planting. Seed is easier to handle than seedlings. Seed mixtures give a more 'natural' distribution of plants. More species available as seed. Better root growth than plantings and therefore potentially better survival. Higher diversity and similarity to local native plant communities.	Higher cost than regeneration from topsoil or mulch application. Less reliable establishment on low rainfall sites. Results less reliable on sandy sites due to sand blasting and drying of the soil profile. Weed management can be labour-intensive and timing may be critical. More time required than planting to determine if successful.

Method	Advantages	Disadvantages
Planting	Immediate visual result. Complete control over what occurs where. Most suitable method to establish amenity plants. Water can be applied if necessary to enhance survival. Best method to establish plants for which seed is hard to get or difficult to germinate.	Only suitable in south-western corner of State (without irrigation). Probably the most expensive approach but depends on species selected. Labour intensive and slower than direct seeding (4 ha/day versus up to 50 ha/day) Mature plants may be susceptible to wind blow. Water should be planned for in the first season.

2.5.1 Natural Regeneration

Environmentally sensitive clearing management can ensure that natural regeneration is successful. Generally, understorey species are harder to establish than canopy species in most environments.

Western Power has adopted a minimal clearance practice for project clearing to ensure low impact to the environment. Clearing practices include only of larger trees with a corridor and the retention of rootstock when clearing to allow resprouting.

2.5.2 Regeneration from topsoil

In some instances, establishment of a satisfactory revegetation outcome can be achieved through management of existing seed banks or the use of seed banks contained within topsoil 'grafted' from elsewhere. *In situ* seed banks can be used where the topsoil is largely intact and weed seed numbers are low. Regeneration can be encouraged by scarification of the soil. This method may be particularly suitable for very small areas.

Where regeneration from existing topsoil alone will be inadequate, there may be the opportunity to apply a fresh topsoil containing seed of target plant species. Within reason, topsoil can be spread more thinly when reapplied to cover a larger area than originally stripped.

Be aware of the potential for dieback infection when handling soils as discussed in Section 2.6.5.

While fresh topsoil is clearly preferable to optimise revegetation outcomes, temporary stockpiling of topsoil may be unavoidable. Researchers have found that stockpiling of topsoil leads to a significant decline in seedling recruitment over time. Immediate re-use is always desirable. When stockpiling is necessary, windrows up to 1m in height is the preferred method. Stabilisation of stockpiles with mulch or vegetation should be considered if the stockpiles are expected to be required for more than a few months before reuse.

The Plan should outline the measures proposed to ensure an adequate quantity of topsoil will be obtained for rehabilitation. This should entail procedures for stripping and stockpiling (if suitable material is on site), soil amendment and/or fertilizer requirements and management of noxious plant seed material (if soil is infected).

2.5.3 Regeneration from seed-bearing mulch

Where vegetation has been stripped and mulched, the returned material can be an important source of seed and organic material. If cleared vegetation is to be used as a

source of seed, it must be mulched immediately. Only those species that carry their seed in the canopy (bradysporous species) can be re-established in this manner.

Laying of freshly-cut brush ('brushing') can be used to introduce species without mulching. The sand mining industry has obtained good results with this method. It is not the same as brushwood layering where stems are encouraged to take root. Western Australian species are not amenable to layering.

Caution should be taken when collected or applying mulch to ensure weeds are excluded.

2.5.4 Direct seeding

Direct seeding involves distributing seed directly onto sites that have been suitably prepared to encourage germination and growth. Considerable success has been achieved revegetating areas using direct seeding.

Direct seeding plans should take into account the objective of the revegetation works with specific reference to species used. In most cases only endemic species should be seeded to prevent the introduction of environmental issues.

2.5.5 Planting

While direct seeding can be carried out in any part of the State, tree and shrub planting is only likely to be successful in those areas that experience reliable rainfall (see Section 2.6.8). This restricts planting without irrigation to the south-west corner of the State.

Where establishment of self-sustaining native vegetation is the aim, planting is only used to supplement direct seeding. For example in some locations, tree species may be planted and the understorey layer direct seeded. Spacing of plantings varies between projects and species but should reflect naturally-occurring densities in the local area.

2.6 Revegetation Considerations

2.6.1 Site Preparation Techniques

The success of a revegetation program will hinge upon the correct preparation of the soil conditions for seeding or planting. Adverse factors for plant establishment must be recognised and the appropriate steps taken to ameliorate their effects. Examples of seed or planting bed preparation include deep ripping to alleviate soil compaction and mounding to alleviate the potential effects of waterlogging. In some cases soil amendments (such as adding nutrients) may be necessary.

Uncontrolled erosion has the potential to damage revegetation work and requires expensive remedial works. Most revegetation work will require preparation of a seedbed and this would normally involve ripping along the contour.

Cuttings and batters in the south west of the State are often gravelled rather than topsoiled. This gives batters more stability while still allowing revegetation. There are some successful examples, however, where topsoil has been used and its success is probably dependent on the length of slope, aspect and other environmental variables. Where rocky material is present, an option is to leave steps with natural ledges and projections and topsoil lightly for revegetation.

On steep sandy slopes through cuttings or around flyovers, gravel and mulch, including hydromulch, can be used to stabilise the surface. Mulch can be incorporated into the soil to provide resistance to erosion.

2.6.2 Species Selection and Planting

In sourcing and selecting species for revegetation, due consideration will need to be given to the overall objectives for the project. This will include determination of species consistent

with the regional ecosystem type defined in the objectives, identification of suitable suppliers, quantity and timing of plant deliveries, types of plant stock to be used, planting procedures and drawings, protection measures (e.g. from fauna and human activities).

Any seed or seedlings used in revegetation work should be of a known quality. There are steps that can be taken to reduce the risk of obtaining poor stock. These may include certification of the viability of seed and adherence to certain industry standards for the production of seedlings.

There is evidence that different seeding methods can produce markedly different results. Following consultation with industry personnel and researchers, this appears to be related to seed burial, with seed that is buried too deeply unable to establish. Small-seeded species are at greater risk of loss through burial than large-seeded species. Excessive seed burial appears to occur only with some mechanical methods, with hand seeding producing satisfactory results. If mechanical seeding is to be used, advice should be obtained on this aspect.

2.6.3 Weed and Pest Management

Seeding or planting of native plants in weed-affected areas, such as former agricultural land and in urban areas, is unlikely to be successful without careful planning for weed control. Competition from weed species is a major cause in the failure of revegetation projects.

Weeds once established in the soil may inhibit the establishment of native plant species. Successful weed control may require action at several stages of the project until weed numbers (a store of seed is retained in the topsoil) are reduced to levels that allow native plant seedlings to grow and establish successfully.

2.6.4 Fauna Habitat Creation

If suitable, creation of artificial components to assist the recovery of fauna should be considered. Vegetative material cleared for project works, such as tree stumps and logs, can be stacked to allow predator protection for small animals.

2.6.5 Management of Phytophthora

Detection of dieback (*Phytophthora sp.*) within susceptible sites is best achieved through the observation of indicator species health and patterns within susceptible vegetation communities that can be associated with *Phytophthora* disease.

Soil and root tissue samples can be taken from suspect sites and processed in any of a small number of laboratory facilities that specialise in the isolation of *Phytophthora* from such a medium.

The presence of dieback is usually managed under the project Environmental Management Plan and should be considered when planning revegetation works to prevent soil movement between hygiene boundaries.

2.6.6 Regional differences

Climate is an important determinant of the methods used across the state. Not only does climate determine the timing of activities but it can also determine the method used. Historically in the more arid areas, (i.e. where the *rainfall variability* is moderate to high) the most cost effective method has proven to be topsoil management along with some direct seeding and allowing natural regeneration to occur over time.

Planting and seeding is generally limited to the Southwest corner of the State where the annual rainfall is historically more reliable.

Where the rainfall is very low or not reliable, additional watering may be required for any planting in the first and second year. Planting during the year, other than with the seasonal rains, is limited to locations where irrigation (from scheme water, bore or by tanker) is available to establish the vegetation.

2.6.7 Timing of seeding or planting

Seeding or planting should occur when the likelihood of survival and establishment is greatest. This would normally be immediately prior to or at the 'break of season' as shown in the table below. For example, in Jarrah forest rehabilitation after bauxite mining, the best results are achieved when soil preparation and direct seeding both occur by April, with no cultivation occurring after the break of season. If the earthworks occur later, the soil surface disturbance may potentially kill any germinating seeds present in the topsoil.

Late seeding can reduce the amount of moisture available to germinating seeds and can ultimately lead to failure of seeding. There is anecdotal evidence that seeding as the first 'break of season' rains occur can be very successful.

Region	Optimal Timing	
	Seeding	Planting
Gascoyne	May in south of region; November-December in north of region.	No planting without irrigation.
Goldfields-Esperance	April-May. Earlier in south than in north.	No planting without irrigation.
Great Southern	April-May throughout region. Seeding during September-October within 30 km of the coast can also be successful due to warm temperatures and spring coastal showers.	May-June.
Kimberley	October-December, preferably just before rain.	No planting without irrigation.
Metropolitan	April-June.	May-July.
Midwest	April-May in south of region; November-December in extreme north of region.	May-June in southern part of region only.
Pilbara	November-December but preferably just before rain.	No planting without irrigation.
South West	April-June.	May-June.
Wheatbelt North	May-June.	June-July.
Wheatbelt South	April-June.	May-June.

Planting should be conducted slightly later than seeding, when there is sufficient moisture in the ground to sustain the young plant but not so late that there would be insufficient moisture for establishment. In wet areas, seeding and planting can be delayed to late spring.

2.6.8 Expertise

The use of appropriate skills and advice is necessary. This will ensure the critical factors for the specific project are identified and considered in the planning, design and implementation of the revegetation works.

If sufficient expertise is not available from within Western Power, outside assistance should be sought. Local experience is particularly valuable. The local Department of Environment and Conservation may be a useful resource to assist with revegetation planning and contractors.

2.7 Implementation

The revegetation works may only be partially successful in the first year. Replacement and infill revegetation works may be required for unsuccessful areas within the project area. Once the initial seeding and planting works have been completed, the new vegetation must also be allowed to establish and grow. It is essential to allow for a vegetation establishment period with adequate funding, to ensure that follow up works (replacement or infill) are identified and will occur in subsequent years. .

Key activities during the vegetation establishment period include

- regular inspection to monitor the success of the revegetation,
- to assess need for weed and pest control and
- to assess the need for follow up revegetation work.

Inspection may highlight losses of seedlings. Control of site factors such as pest infestations may be necessary. Replacement of seedlings or reseeding of bare areas can be undertaken in the following planting season. Losses of seedlings will be reduced if a weed-free zone is maintained around them. Control of any dry or herbaceous weeds is highly desirable as they represent a fire threat, which could kill young plants. Signage helps to prevent unauthorised access and assists in the promotion of revegetation work.

A minimum vegetation establishment period of at least two summers is essential to achieve the project objectives, prior to a handover of the revegetation works for ongoing routine roadside maintenance activities.

2.8 Maintenance and Monitoring

The site may also need to be monitored for a period of years after the handover of the contract works to meet conditions of project approval.

The maintenance practices will need to address:

- Replanting failure/remediation works;
- Erosion repair;
- Fire management;
- Pest and weed control;
- Fauna management;
- Watering;
- Further soil modification (fertilisers, amendment); and
- Monitoring, including criteria for regular progress reporting.

2.8.1 Completion Criteria

Completion criteria are measured at the completion of the maintenance period, and are the measure of revegetation success. Depending of the objectives of the Plan, some examples of completion criteria may be:

- Plants are healthy in appearance, diverse with not mass losses or species dominance.
- The species diversity and average seedling height has increased between assessments.
- More than 90% of tube stock (from original and replacement plants) plants are present;
- At least 75% of the species seeded are represented;
- The density averages two plants per square metre or greater; or
- Weed presence is minimal and not inhibiting native plant survival and growth.

Criteria must be practical and realistic based on other rehabilitation works in the area and the direct seeding and seedling planting rates provided. These expectations are also for a period of normal weather conditions. .

2.8.2 Monitoring

The Plan should specify indicators for monitoring the success of rehabilitation that are consistent with the Plan's objectives and completion criteria, and at least include the following:

- Physical (stability, resistance to erosion etc); and
- Ecological (plant condition, fauna disturbance, human disturbance species richness, density, canopy cover, weed colonisation etc).

The Plan should also determine reporting requirements for the monitoring program as they may be required to demonstrate the success of implementation of the Plan.

2.8.3 Remedial works

Revegetation work that does not meet the expected standards will require remediation. Remediation works are usually highlighted from the monitoring programme and are required to be undertaken to meet the completion criteria.

Actions that may be undertaken are:

- Replanting;
- Erosion repair;
- Fire management;
- Pest and weed control;
- Watering; and
- Further soil modification (fertilisers, amendment).

3 Definition of Terms

Revegetation refers to the re-establishment of a cover of vegetation suited to the location. This usually means a cover of local native plants and involves regeneration, direct seeding, and/or planting methods.

Rehabilitation refers to earthworks associated with revegetation work and includes removal and replacement of topsoil. In this document, the term 'revegetation' is used to cover both the establishment of vegetation and the preceding physical processes.

Regeneration describes situations where vegetation can be established from *in situ* seed banks contained within either topsoil or seed-bearing mulch. Regeneration is a

revegetation technique that can be used in isolation or with other techniques. If used in isolation, it is usually in the more remote areas where other methods may not be suitable.

Landscaping refers to the establishment of special roadside treatments to meet functional or aesthetic objectives, which may include native or non-native vegetation (including grass turf) as well as other surface treatments or built elements. In most cases, this vegetation will be irrigated and will have establishment and maintenance requirements (e.g. mowing and pruning) well above those associated with most roadsides. Landscaping is generally limited to urban areas. This guideline does not cover landscaping *per se*.

Restoration refers to the return of an area to a state that is, in form and composition, as similar as practicable to its pristine condition. It is not covered in this Guideline and specialist advice would be required where restoration is an objective.

Direct seeding is a method of re-establishing vegetation through the establishment of a seedbed and the introduction of seeds of the desired species. Seeding can be either by mechanical means using agricultural equipment or by hand. It is used in many parts of the State as a means of establishing a wide range of species.

Planting refers to the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species. It may or may not involve irrigation. Without irrigation, it is used only in those areas where there is sufficient reliable rainfall and where an outcome is required that cannot be achieved by other means. The required outcome may relate to particular visual objectives, or may involve the establishment of species for which sufficient seed for direct seeding is not readily available.

4 Useful References

The listings below may provide useful references for a variety of rehabilitation issues.

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Bicknell, D., Baxter, A. and Denham, R. (1998). Site assessment for successful revegetation for agricultural regions with less than 600 mm rainfall. Dept of Agriculture Western Australia, Farmnote 36/98.

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Topsoil Management

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Soil Types and Amendments

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Weed and Pest Control

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Brown, K and Brooks, K (2003). Bushland Weeds: a practical guide to their management. With case studies from the Swan Coastal Plain and beyond. Environmental Weeds Action Network, Perth.

Disease Control

Department of Conservation and Land Management (2003). Phytophthora cinnamomi and disease caused by it - Vol. 2: Interpreter's Guidelines for Detection, Diagnosis and Mapping.

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ANNEXURE 9

Guidelines for Assessment: Clearing of Native Vegetation under the *Environmental Protection Act 1986*

CPS 1918/1

10 January 2008

GUIDE TO ASSESSMENT
CLEARING OF NATIVE VEGETATION

under the Environmental Protection Act 1986

Purpose of these guidelines

Under the Part V Division 2 of the *Environmental Protection Act 1986* (*EP Act*) clearing of native vegetation must be done under the authority of a clearing permit, unless subject to an exemption. The Chief Executive Officer of the Department of Environment (CEO) must have regard to the clearing principles outlined in Schedule 5 of the *EP Act*, approved policies, planning instruments, and other matters, that the CEO considers are relevant in deciding whether or not to issue a permit.

This guideline has been prepared to provide guidance regarding how to assess clearing of native vegetation against the clearing principles and to take into account any other relevant information. It is intended to assist proponents, consultants and assessors to:

- Understand how assessment occurs;
- Plan to undertake appropriate studies for projects that involve clearing; and
- Provide advice and recommendations to the CEO.

Persons who intend to undertake activities that may involve clearing are advised to consult the actual legislation and seek advice, including legal advice, where necessary. Whilst the Department has endeavoured to ensure the accuracy of the contents of this document, it accepts no responsibility for any inaccuracies and persons relying on this document do so at their own risk.

Process to assess the environmental impacts of clearing of native vegetation

1. Assessment methodology

Native vegetation in Western Australia cannot be cleared unless a permit has been granted, or the activity is subject to an exemption. Further details on exemptions are provided in Guidelines.

Clearing applications are assessed against a number of factors including principles outlined in Schedule 5 of the *EP Act*. If a proposal is also likely to have a significant environmental impact, the proposal could be subject to assessment by the Environmental Protection Authority. The Department would then provide specialist advice to the Environmental Protection Authority (EPA) on the impacts of the clearing.

The CEO makes decisions on clearing applications and must consider a range of factors in making the decision. In practice, the CEO will use advice and recommendations from assessors in reaching a decision.

It is recognised that some of the principles are difficult to address through desktop study and brief site visit only, especially where existing information for the area is limited. Guidance is therefore given as to which principles can reasonably be addressed through desktop study and site visit alone, and those principles for which additional studies may be required to determine whether the principles apply.

The assessor should consider each of the principles, and note the extent to which they have been addressed, including methodologies used; the limitations that apply to the assessment; and the relevance of the principle to the current clearing proposal. Other factors and planning matters also need to be considered. The results of the assessment should be documented in an assessment report. A proforma assessment report is provided which outlines the form and content expected of this report.

Assessment techniques should take into account EPA standards and policies for environmental impact assessment as outlined in Guidance Statements and Position Statements. Relevant Guidance Statements and Position Statements are detailed in relation to each principle.

> The assessment is a judgement against the principles and other matters. These guidelines and listed tools are intended to assist assessors in making that judgement.

Firstly, assessments should be conducted at the level of a **desktop study**.

A **desktop study** involves a literature review, including a map-based information search of all current and relevant literature sources and databases.

In some circumstances further work may be required, such as a site visit by qualified personnel to:

(a) verify desktop survey information;
(b) delineate key flora, fauna, soil, and groundwater and surface water values and potential sensitivity to impact; and
(c) undertake broad-scale vegetation and vegetation condition mapping based on selected sites rather than regular gridding.

Note that a site visit may involve more than one agency to identify the multiple environmental values of an area.

A secondary assessment may be required whenever there is insufficient information to make an informed decision on an application.

The methodology of this handbook is designed to make recommendations according to the best available information.

2. Clearing Principles and Guidelines

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

Guidelines

This principle protects areas of outstanding biodiversity. This principle also protects intact natural systems with naturally occurring species diversity, ecosystem diversity or genetic diversity and natural systems that may be degraded but contain high levels of species diversity, ecosystem diversity or genetic diversity compared with the remaining native vegetation of that ecological community.

Measures of plant species diversity include:

- total vascular plant taxa (species, subspecies and varieties) diversity;
- vascular plant taxa diversity for each ecological community.

Measures of fauna species diversity include:

- total vertebrate and invertebrate fauna taxa (genera, species and subspecies) diversity.

Measures of ecosystem diversity include:

- number of ecological communities (plant communities);
- number of ecological communities (fauna communities (assemblages));
- macrohabitat diversity;
- microhabitat diversity in each macro-habitat;
- a variety of soil types or geological formations;
- micro topographical diversity and edaphic variation.

Assessment of biodiversity is complex because of the huge number of species, genetic variation within species and associations of species that exist within Western Australian ecosystems. In general, there are only reasonable data on the diversity and distribution

of vertebrates, limited data on the diversity and distribution of vascular plants, few data on invertebrates and negligible information on micro-organism diversity.

It is recognised that this principle may concentrate on vascular flora as information on vascular plant biodiversity is relatively easy to collect and there are sufficient regional datasets available to allow for the comparisons that are inherent in the principle. This focus does not exclude other measures of biological diversity.

The EPA has noted that ecosystem diversity is harder to measure than species or genetic diversity because the boundaries of communities (i.e. variety of unique assemblages of plants and animals and ecosystems) are hard to define. As long as a consistent set of criteria is used to define communities and ecosystems, their number and distribution can be measured. Even using a relatively simplified measure, any given area contributes to biodiversity in at least two different ways: through its richness in numbers of species and through the endemism (geographical uniqueness) of these species. The relative importance of these two factors changes at different geographical scales (EPA Position Statement No.3).

It is recognised that genetic diversity is poorly understood and that adequate information to assess this aspect is difficult to obtain. Taxon diversity (species, subspecies, variety and forms) should be used to address this issue where data is not available.

An adequate assessment of this principle is possible as part of a desktop assessment and the assessor should use existing site and regional studies for comparative purposes. The assessor will need to have skills in assessing vegetation condition, and in determining floral species diversity and plant ecological community diversity to enable such comparisons to be made.

Tools used by proponents and assessors

EPA Position Statement No.3 outlines the EPA's principles in respect of environmental impact assessment of biodiversity. The EPA sees the proper understanding of the requirements of adequate surveys as central to achieving a sound assessment of biodiversity.

Some key factors in using surveys to assess biodiversity include:

- The methodology used should be consistent with the approaches recommended in the EPA Guidance Statement;
- The timing and time allocated should be determined by the natural cycles of the region (such as growth and flowering);
- The intensity of the sampling (number of sites, their spacing, and their area) should be based on the complexity of the flora, vegetation and faunal assemblages of the permit application area;
- The level of effort should be commensurate with the existing data for that area (i.e. where less existing information is available, a greater survey effort would be required).

(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.

Guidelines

This principle aims to maintain indigenous fauna species and assemblages of species in their local natural habitat and to ensure that fauna are not further threatened.

Fauna plays an important role in maintaining ecosystems and the life-supporting services provided by ecosystems by:

- cycling of material, through the browsing of flora, predation, digging, the consumption of organic matter generally, excretion, death and decay;
- the pollination, fertilisation and germination of plants; and
- maintaining the dynamic "balance" in ecosystems. The balance between assemblages of plants, animals and diseases, and environmental elements such as fire, soil structure and chemistry, can be destabilised by changes to any of the ecosystem components.

The ecological relationships between fauna, vegetation and their physical environment are affected by habitat decline and a consequent loss of ecological functions and processes. These may include:

- increasing edge to area ratios of native vegetation, which reduce the width of a remnant and increase its perimeter;
- loss of corridors, stepping stones (ecological linkages) and buffering vegetation;
- loss of large intact areas of native vegetation capable of supporting breeding populations of species with limited dispersal;
- loss of vegetation areas that support meta-populations;
- the loss of key habitat requirements, e.g. loss of tree hollows and fallen trees and branches that may be used for breeding or sheltering sites, the loss of proximity of the required combination of habitat types, e.g. Carnaby's Cockatoo is threatened because it requires a combination of woodland for breeding and heath habitat for feeding (both habitat types have been extensively cleared);
- increased probability of weed invasion due to external influences such as nutrient enrichment, drainage water or wind blown material;
- increased risk of disease entry and subsequent reduction in habitat values; and
- adjacent land uses which may impact adversely on habitat values.

In extensively cleared landscapes habitat specialist fauna species have declined as a result of habitat loss and in many cases are declining further as a result of natural attrition and an inability to recruit. For example, specialist bird species of heathlands and specialist bird species of woodlands in the wheatbelt and Swan Coastal Plain have declined at least in proportion to the loss of those habitats.

Fauna species may be resource-limited, dispersal-limited or area-limited. Significant habitat is habitat which provides resources (breeding, sheltering and feeding), connectivity or habitat area for a species or community that is critical for its survival.

It may be necessary to identify, from the total pool of faunal species present, the species that would become more vulnerable if a habitat was lost. For example, in the

fragmented habitats of the WA wheatbelt Lambeck (1997) found that birds were useful indicators of habitats.

To identify which species or communities may be vulnerable to local extinction, consideration should include whether:

- the breeding, sheltering and feeding sites within the subject land were lost or reduced;
- the subject land provided an important linkage; or
- the habitat area was reduced so that a breeding pair or functioning social group could not survive.

Tools used by proponents and assessors

To determine the likelihood of significant fauna species, populations, ecological communities or their habitat within the site or its vicinity, the following considerations should be addressed:

1) Consult fauna references and/or key agencies (CALM, WA Museum) to determine whether any Declared Rare Fauna, Other Specially Protected Fauna, Priority Listed Fauna or fauna otherwise of significance occurs within the geographic range of the land. Compile a field list of each of these species, and their habitat requirements.

2) Note the presence or absence of each of the specific habitat elements required by field list species. Identify relevant areas on the property map.

3) Determine if any of the following habitats are present in the area where significant fauna species or populations may exist:

    - foraging areas (food sources). Studies need to record species that may be only present on a seasonal basis and rely on the vegetation in that season, eg nest hollows or an autumn food source;
    - trees with hollows;
    - abundance of ground cover and/or fallen trees;
    - caves, rock outcrops, overhangs or crevices;
    - permanent or intermittent waterways or water bodies;
    - other (describe).

4) Is the habitat part of either an ecological linkage or does it form a large area of intact vegetation which may support meta-populations of fauna?

5) Note any signs of fauna presence, including distinctive scratches, nests, diggings, scats, pellets, calls, burrows, bones, etc. Record any sightings of fauna, including the habitat in which they were seen.

The scope of the assessment will be determined on a case-by-case basis, but would be consistent with EPA Guidance Statement No. 56. In marine environments, EPA Guidance Statement No. 29, *Benthic Primary Producer Habitat Protection for Western Australia's Marine Environments*, provides a set of principles to be applied when considering proposals that may result in removal or destruction of, or damage to, marine benthic primary producer communities or the habitats which support them.

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

Guidelines

This principle aims to provide for the continuing *in situ* existence of Declared Rare Flora (DRF), other significant flora and significant habitat for priority flora species. The intent is to also protect habitat necessary for the maintenance of DRF and significant flora.

The assessment should consider the flora themselves and the buffer necessary to protect the flora from deleterious impacts by maintaining ecological processes and functions within the habitat of the DRF and significant flora. Buffer areas are measured from location of the flora, or in the case of more than one individual, from the outermost individual(s). To ensure an ongoing and viable area remains to protect the flora and ecological processes and functions, the minimum buffer radius recommended is 200m. This should be ideally determined on a case by case basis and is related to the characteristics of the species being protected, and the surrounding land uses.

Significant flora may include habitats of rare, uncommon or restricted flora species and/or species outside of or at the limit of their range.

Studies must be undertaken by suitably qualified people of a timing, duration and extent necessary for the adequate identification of rare flora, other significant flora and priority flora species.

Note that DRF are protected under the *Wildlife Conservation Act 1950* and may not be taken except with the written permission of the Minister for the Environment. Taking includes "includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means" and includes activities such as burning and grazing.

Flora listed as other significant flora such as rare, uncommon or restricted flora species and/or species outside of or at the limit of their range may not be cleared under these criteria.

Buffers necessary to maintain ecological processes and functions for DRF and significant flora may not be cleared under these criteria. The value of the subject land for the ongoing maintenance of Declared Rare, significant and priority flora species should be determined.

Tools used by proponents and assessors

The highest level of knowledge should be used.

1. Refer to CALM databases for the presence of known populations of DRF, and priority flora species. Refer to DEP database for the presence of known populations of other significant flora.

2. Refer to CALM FloraBase and any appropriate region or area-specific studies to determine whether habitats likely to support DRF, significant or priority flora are present.

If the results of the assessment show the potential for DRF, a more detailed assessment of flora habitats and values may need to be undertaken.

GIS themes

CALM DRF and Priority Flora species

(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.

Guidelines

An ecological community is a naturally occurring biological assemblage that occurs in a particular type of habitat.

The aim of this principle is to provide for the continuing *in situ* existence of threatened ecological communities (TECs) under the *Environment Protection and Biodiversity Conservation Act 1999*, other significant ecological communities (SECs) and significant examples of priority threatened ecological communities as listed by CALM. This principle also aims to protect habitat necessary for the maintenance of these communities.

Vegetation that has a bioregional conservation status of depleted or worse (< 50% representation) is more likely to contain TECs, or other significant ecological communities.

The assessment should consider the ecological communities themselves and the buffer necessary to protect the communities from deleterious impacts by maintaining ecological processes and functions within these habitats. Buffer areas are measured from the outermost edge of the community. To ensure an ongoing and viable area remains to protect the ecological communities and ecological processes and functions, the minimum buffer radius recommended is 200m. This should be ideally determined on a case-by-case basis and is related to the characteristics of the communities being protected, and the surrounding land uses.

Tools used by proponents and assessors

The highest level of knowledge should be used.

1) Refer to CALM database for known sites of TECs listed in the *Environment Protection and Biodiversity Conservation Act 1999*.

2) Refer to CALM database for known sites of other SECs.

3) Refer to CALM database for known sites of priority threatened ecological communities listed by CALM.

4) Refer to any appropriate region or area-specific studies to determine whether areas likely to support TECs, SECs or priority CALM TECs flora are present.

GIS Themes

CALM TECs

(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.

Guidelines

This principle aims to maintain sufficient native vegetation in the landscape for the maintenance of ecological values. It also recognises the need to protect ecological communities that have been extensively cleared and to retain a representation of each ecological community in local areas throughout its pre-European range.

The *National Objectives and Targets for Biodiversity Conservation 2001-2005* (Commonwealth of Australia 2001a) recognise that the retention of 30%, or more, of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected. This level of recognition is in keeping with the targets recommended in the review of the *National Strategy for the Conservation of Australia's Biological Diversity* (ANZECC 2000) and in the EPA's Position Statement No.2 on environmental protection of native vegetation in Western Australia (EPA 2000).

A typical pattern of vegetation clearing in highly fragmented landscapes (e.g. from analysis of vegetation in the Greater Bunbury Scheme study area) shows that relatively few large remnants remain, and the vast majority of remnant areas are small, mostly less than 5 ha. In these fragmented landscapes, larger remnants should be retained as a priority as they provide core habitat areas necessary to support populations of species that are unable to survive in smaller areas of native vegetation.

The best available knowledge should be used in determining the ecological communities in an area. In terms of these criteria, vegetation complexes, which are mapped for the entire extent of the Swan Coastal Plain in the System 6 and System 1 Region (Heddle *et al.* 1980; Mattiske and Havel 1998) and the area covered by the Regional Forest Agreement, which includes the Jarrah Forest Bioregion within System 6 (Mattiske and Havel 1998; Havel 2000), are used as the base mapping of ecological communities. On the Swan Coastal Plain this should be supplemented by information on floristic community types (Gibson *et al.*, 1994 , Department of Environmental Protection, 1996). Outside of these areas, vegetation types as defined by Beard (1990) are used as the base mapping of ecological communities.

In considering ecological values consider the vegetation type/complex and floristic community type at IBRA region, subregion scale and the local area of that type.

In recognition of past land use planning decisions, constrained areas have been identified on the Swan Coastal Plain of the Greater Bunbury Region Scheme and within the Bush Forever Study. Within these constrained areas, criteria may be varied to "at least 10%". However, other principles and criteria do apply within these constrained areas, subject to exemptions for assessed schemes and deemed works of subdivisions under Schedule 6. This includes the need to recognise locally significant bushland.

Tools used by proponents and assessors

Percentage remaining criteria provide absolute minimum figures but reliable statistics may be difficult to obtain.

1) Determine the ecological communities on the subject land. The highest level of knowledge should be used, i.e. regional studies and/or area-specific studies.

2) Determine the percentage remaining of these types within the bioregion, subregion (Arc View tables) and local area (DEP_CAT).

3) Determine if the area is constrained land (including urban, urban deferred or industrial) within the Bush Forever study area or the Great Bunbury Region Scheme. Apply a benchmark of at least 10% for these areas. For other areas, consider planning instruments and other factors to achieve a greater percentage of protection of remnant vegetation.

GIS themes and tools

NLWRA (Beard/Hopkins) vegetation mapping
NLWRA remnant vegetation extent
Heddle
RFA
IBRA regions and subregions
DEP_CAT (calculates representation at local area scale)
Vegetation trends 88-00

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

Guidelines

This principle aims to conserve all vegetated watercourses and wetlands.

The principle must consider both the area identified as watercourse or wetland and an appropriate buffer required to maintain the hydrological and ecological values of the watercourse or wetland. The watercourse or wetland buffer is defined in an area outside of vegetation dependent on waterlogged soil.

Under this principle, vegetation dependent on waterlogged soils would be protected e.g. damplands and floodplains.

Watercourses are an integral part of our heritage, have diverse ecological functions and support a wide range of activities including agriculture and tourism. In our predominantly dry landscape, watercourses are a focus for recreational activities such as swimming, boating, picnicking and bushwalking. Watercourses provide important linkages between landforms.

Wetlands are widely recognised as important wildlife habitats and as being among the most biologically productive and biologically diverse habitats on the planet. They directly and indirectly supply food to a broad range of animals including microorganisms, invertebrates, fish, birds, mammals and reptiles. Wetlands also serve to purify water by removing suspended matter (settling of particles), reducing numbers of faecal microorganisms and using dissolved nitrogen and phosphorus for plant growth.

Buffers are designed to protect watercourse and wetland vegetation from potential deleterious impacts from adjacent or surrounding land uses and associated impacts. For wetland and watercourse ecosystems, the buffers are measured from the edge of the

boundary, which encompasses both waterlogged and inundated areas and the wetland-dependant vegetation, to the outside edge of any proposed development or activity.

EPA Position Statement No.4 *Environmental Protection of Wetlands* has as a goal no net loss of wetland values and functions. The EPA has noted that a lack of understanding of or interest in wetlands in the past has contributed to a focus on their economic benefits rather on a broader understanding of all their environmental values.

Tools used by proponents and assessors

1) Identify watercourses and wetlands including their associated riparian zones, wetland dependent vegetation and appropriate buffers.

2) Determine whether the watercourse or wetland is listed as significant.

   Sources of information that will aid in the identification of significant watercourses and wetlands include:

   - Swan Coastal Plain wetland mapping north of Bunbury is available through the Geomorphic Wetlands Database;
   - Swan Coastal Plain wetland mapping south of Bunbury is available in Hill *et al.*, (1996) Wetlands of the Swan Coastal Plain Volume 2B: Wetland Mapping, Classification and Evaluation. Wetland Atlas.

   Significant watercourses and wetlands include those listed as:
   - Environmental Protection Authority (1992). *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*. Western Australian Government Gazette, 24 December , 1992, pp 6287-93;
   - Environmental Protection Authority (1998). *Environmental Protection (South West Wetlands) Policy 1998*;
   - Conservation Category Wetlands as identified by the Water and Rivers Commission;
   - Significant wetlands of the South Coast Region;
   - RAMSAR wetlands;
   - A Directory of Important Wetlands in Australia (ANCA);
   - Freshwater wetlands in the Agricultural Zone;
   - Wild rivers;
   - Significant watercourses and wetlands as identified by the Water and Rivers Commission; and
   - Watercourses and wetlands listed in EPA Systems 1-12.

3) Determine appropriate buffers (where necessary) for watercourses and wetlands.

   Additional information that may aid in the application of buffers to watercourses and wetlands:

   - Water and Rivers Commission (2001) Determining Foreshore Reserves. Water and Rivers Commission River Restoration Report No. RR16, Perth;
   - Water and Rivers Commission Position Statement: Wetlands; and
   - Guide to Water and Rivers Commission Foreshore Policy 1: Identifying the Foreshore Area.

For a guide to the Commission's wetland buffer requirements for a range of land uses on the Swan Coastal Plain (Davies and Lane 1995) refer to the table in Position Statement No.4.

GIS Themes

Geomorphic Wetlands Dataset (includes conservation category wetlands)
South Coast Wetlands
Rivers at 1:250,000
Rivers at 1:1,000,000
Hydrography, Linear Features
ANCA wetlands
Wild rivers
Lakes at 1:1,000,000
EPP Lakes
South west Wetlands EPP when available
Ramsar wetlands

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

Guidelines

Native vegetation should not be cleared if it is likely to cause land degradation. This includes soil erosion, salinity, nutrient export, acidification, waterlogging and flooding that affects the present or future use of land.

The assessment of land degradation risk takes into consideration a number of often interacting factors including soil type, landform and slopes, rainfall zone and intended land use. Low pH soils are usually those below 4 while high pH soils are those above 9.

Salinity risk assessment is site specific taking into account site and catchment information and the intended use of the land post clearing. Assessment of salinity risk should consider the average annual rainfall soil types, landform, underlying geology and hydrology of the site and its subcatchment. Clearing is unlikely to be approved where the clearing and subsequent use of the land is likely to increase ground water recharge resulting in rising saline ground water tables.

Tools used by proponents and assessors

Land evaluation Standards for Land Resource Mapping. Department of Agriculture, Technical Report 181.

Rapid Catchment Appraisal process - estimates current and predicted areas of secondary salinity in catchments.

AgMaps (CD)

Land degradation is assessed with reference to the Land Capability Class of the area where applicable.

Soil landscape mapping and land degradation quality data - contact Dennis Van Gool Department of Agriculture.

The Department of Agriculture has developed land capability classes. In general, Classes IV and V should not be cleared.

Land capability classes

Capability Class	General Description
I	Very high capability for the proposed activity or use. Very few physical limitations present which are easily overcome. Risk of land degradation is negligible.
II	High capability. Some physical limitations affecting either productive land use or risk of land degradation. Limitations overcome by careful planning.
III	Fair capability. Moderate physical limitations significantly affecting productive land use or risk of land degradation. Careful planning and conservation measures required.
IV	Low capability. High degree of physical limitations not easily overcome by standard development techniques and/or resulting in a high risk of land degradation. Extensive conservation requirements.
V	Very low capability. Severity of physical limitations is such that its use is usually prohibitive in terms of either development costs or the associated risk of land degradation.

Guidelines developed by the Department of Agriculture are used to assess the likelihood of other land degradation hazards occurring as a result of clearing. These guidelines are summarised in the tables below.

Soil erosion – determine land capability classes for water and wind-generated soil erosion.

Water erosion

Agricultural region	Soil surface texture	Land Capability Class				
		I	II	III	IV	V
		% slope				
South West	Sand	0-2	3-4	5-8	9-15	>15
	Sandy Loam and Loams	0-2	3-5	6-8	9-20	>20
	Clay Loams and heavier	0-1	2	3-8	9-25	>25
Northern	Sand	0-2	3-4	5-8	9-15	>15
	Sandy Loams	0-2	3-5	6-8	9-20	>15
	Clay Loams and heavier	0-1	2	3-8	9	>9
South Coast	Sand	0-2	3-4	5-8	9	>9
	Sandy Loam and Loams	0-2	3-5	6-8	9-15	>15
	Clay Loams and heavier	0-1	2	3-8	9	>12
Great Southern	Sand	0-2	3-4	5-8	9	>9
	Sandy Loam and Loams	0-1	2	3-8	9-15	>15
	Clay Loams and heavier	0-1	2	3-8	9	>9
Central	Sand	0-2	3-4	5-8	9	>9
	Sandy Loam and Loams	0-1	2	3-8	9	>15
	Clay Loams and heavier	0-1	2	3-8	9	>9

Class IV and V lands should generally not be cleared.

Wind erosion
The process to follow for the assessment of wind erosion hazard is as follows:

1. Determine the strength of the soil in terms of consistency (McDonald *et al.* Australia Soil and Land Survey - Field Handbook p. 115-116). Strength is determined by the force just sufficient to break or deform a 20mm diameter piece of dry soil when a compressive shearing force is applied between thumb and forefinger.

Force	Description		Hazard "rating"
0	Loose	No force required. Separate particles as found in loose sands	6
1	Very weak	Very small forces, almost nil	5
2	Moderately weak	Small but significant force	4
3	Moderately firm	Moderate to firm force	2
	Very firm to rigid	Disregard as wind erosion hazard, if particles are >2mm	1

2. Determine the particle or ped size: if the majority of sizes are less than 2 mm it should be regarded as a wind erosion hazard.

Particle or ped size	Hazard rating
< 1 mm	6*
1-2 mm	5
2-5 mm	3

3. Relief and aspect is also important. This can be combined to give ratings on the following landforms:

Landform	Hazard rating
Dune system	6
Exposed flat plain	5
Undulating country	4
Hilly terrain	2
Depressions	1

4. Add totals from 1-3 to determine the land capability class for wind erosion hazard.

Added points	Land capability class	Comments
18	V	No clearing
16-16	IV	Clearing with wind protection left
<16	I-III	Normal district practice

Determine soil pH and heavy metal levels.

Soil acidity
(Central and Northern agricultural regions only)

Soil acidity should be tested on yellow or pale yellow sandplain supporting Wodgil vegetation (*Acacia* spp.) or where naturally acidic soils are suspected.

1. Identify areas of uniform vegetation (sandplain vegetation).

2. Soil sampling (subsoil 15-20 cm). Take one sample per hectare systematically across the unit, with a minimum of 30 samples within a sandplain unit. Then bulk each 30 samples and take a subsample for soil testing.

3. pH test on subsample (1:5 0.01M $CaCl_2$)

   pH ≥ 4.5 Not highly acidic, no clearing restrictions
   pH < 4.5 Proceed to 4

4. Al test on subsample (1:5 0.05M KCl extract)

   <20 □mol Al Not highly acidic, no clearing restrictions
   ≥20 □mol Al Do not clear

   These levels of Aluminium significantly reduce plant growth resulting in an increased wind erosion risk and increased groundwater recharge.

Determine land capability class for water logging.

Waterlogging

Agricultural region	Soil surface texture	Land Capability Class				
		I	II	III	IV	V
		% slope				
South West	Drainage	Well-drained	Moderately drained	Imperfectly drained	Poorly drained	V. poorly drained
	Landform element	Undulating	Undulating	Plain		Swamp
	Soil type	S	SL	SCL duplex	Valley floor	C
	Soil depth	>1.0 m	0.5-1.0 m	soils	C	<0.2 m
	Mottling	0-10%	10-20%	0.2-0.5 m	<0.2 m	Gleyed
	Inundation risk	Nil	Low	20-30%	30-70%	Very high
				Medium	High	
Northern	Drainage	Well-drained	Moderately drained	Imperfectly drained	Poorly drained	V. poorly drained
	Landform element	Undulating	Undulating	Plain		Swamp
	Soil type	S	SL	SCL duplex	Valley floor	C
	Soil depth	>1.0 m	0.5-1.0 m	soils	C	<0.2 m
	Mottling	0-10%	10-20%	0.2-0.5 m	<0.2 m	Gleyed
	Inundation risk	Nil	Low	20-30%	30-70%	Very high
				Medium	High	
South Coast	Drainage	Well-drained	Moderately drained	Imperfectly drained	Poorly drained	V. poorly drained
	Landform element	Undulating	Undulating	Plain	Valley floor	Swamp
	Soil type	S	SL	SCL duplex	C	C
	Soil depth	>1.0 m	0.5-1.0 m	soils	<0.2 m	<0.2 m
	Mottling	0-10%	10-20%	0.2-0.5 m	30-70%	Gleyed
	Inundation risk	Nil	Low	20-30%	High	Very high
				Medium		
Note: low-lying depressions with poorly drained soils should not be cleared						
Great Southern	Slope	>5%	5-3%	3-1%	1-0.1%	0%
	Depth to clay	>1 m	> 1m	0.5-1.0 m	0.5-0.15 m	<0.15 m
	Soil type	deep S	SL	SC	LC	HC
	% gleyed	0-10%	10-20%	20-30%	30-70%	>70%
	Site drainage	1	2	3	4	5
	Landform			plain/plateau	valley floor	swamps
	Drainage capacity			capable	uneven	incapable
Central	Drainage	Well-drained	Moderately drained	Imperfectly drained	Poorly drained	V. poorly drained
	Landform element	Undulating	Undulating	Plain		Swamp
	Soil type	S	SL	SCL duplex	Valley floor	C
	Soil depth	>1.0 m	0.5-1.0 m	soils	C	<0.2 m
	Mottling	0-10%	10-20%	0.2-0.5 m	<0.2 m	Gleyed
	Inundation risk	Nil	Low	20-30%	30-70%	Very high
				Medium	High	

Soils classified as Class IV or V should generally not be cleared.

Determine if water logging is a problem on adjacent land and whether clearing is likely to increase the problem.

Determine the status of salinity on the land and in the region, determine the current rate of water table rise. Determine if the rate of rise is likely to be increased and if this is likely to lead to increased salinisation or earlier onset of salinisation.

GIS themes

Salinity Mapping (Land Monitor)
Salinity Monitoring (Land Monitor)
Salinity Risk (Land Monitor)
Groundwater Salinity, Confined Aquifers
Groundwater Salinity, Superficial Aquifers
Acid sulphate soil risk on Swan Coastal Plain

(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.

Guidelines

Habitat fragmentation poses one of the greatest threats to biodiversity. When core habitat reserves are isolated from one another by human land uses, the diversity of native species generally declines and the probability of species extinction increases. This process of ecosystem decay has been well-documented in fragmented landscapes throughout the world.

Ecological linkages and buffers in the context of this principle contribute to the functioning and viability of existing conservation estate by:

- establishing connectivity between conservation areas and other areas of native vegetation;
- contributing to the maintenance or restorability of one or more key ecological processes required to sustain the conservation areas; and
- expanding the functional size of an existing conservation area or partially compensating for less than ideal shape.

The only way in which many of the basic ecological functions of smaller, remnant natural areas can be maintained is by maintaining connectivity with the broader natural landscape.

Native vegetation adjacent to or near conservation reserves improves the viability and conservation values of the reserve by providing larger core areas, buffering the reserve from edge effects, consolidating boundaries or adding plant communities and habitats not represented or under represented in the reserve. The size of an effective buffer will depend on the vegetation types present and their resilience.

Ecological linkages of vegetation between larger areas of conservation value are important for enabling fauna to continue to move through the landscape and between reserves. This is vital both for species that are nomadic and for maintaining populations of less mobile species that may otherwise become locally extinct in individual reserves.

Remnant patches within the vicinity of large contiguous areas of native vegetation (outliers) are more likely to support wildlife than more isolated patches - with greater separation distances fewer and fewer species will have the mobility necessary to maintain access.

Tools used by proponents and assessors

1. Determine if land held or managed for conservation is present. Need to refer to:

   - land status maps for existing reserves and CALM region plans/EPA System 1-12 reports and Bush Forever for proposed reserves and protected areas;
   - may need to access DOLA data for reserves that have a dual purpose (e.g. recreation and conservation) and are not vested in CALM;
   - check with LGA for Shire reserves that may have a dual purpose;
   - check with CALM for covenants, Land for Wildlife sites, World Heritage areas, biosphere reserves;
   - National Trust for covenanted and Bush bank sites;
   - World Wildlife Fund for Woodland Watch sites;
   - wetlands identified under principle f; and
   - Perth Biodiversity Project Local Biodiversity Guidelines and subsequent Local Biodiversity Plans for regional and local ecological linkages and Local Biodiversity Areas with high priority for retention and protection (i.e. Local Conservation Areas).

   Determine whether the land provides a buffer, ecological linkage or outlier to a conservation area. These may include areas that provide large, regional connections to conservation areas to facilitate animal movements and other essential flows between different sections of the landscape, and buffer the conservation area from adverse impacts. Alternatively, a narrow, disjunct, impacted, or otherwise tenuous habitat linkage connecting to conservation areas may exist. These are essential to maintain landscape-level connectivity, but are particularly in danger of losing connectivity function. An example is a narrow peninsula of habitat, surrounded by human-dominated land uses, that connects larger habitat blocks. See South Coast Region Macrocorridor project.

   Factors to consider in determining whether an area has a function as an ecological linkage or buffer, or contributes significantly to the environmental values of a conservation area, include:

   - distance to the conservation area and between other possible ecological linkages;
   - size and shape of the ecological linkage or buffer;
   - types of habitats (riparian, coastal, woodland, etc.) present within the linkage or buffer and key focal species and ecological processes that may be present that would indicate connectivity;
   - types of land cover (eg. natural vegetation, pastoral/grazing, cropland/irrigated agricultural, low density residential, etc.) within and immediately adjacent to the linkage;
   - primary barriers that are impediments to faunal movement, gene flow and ecological processes, and features that facilitate these within linkage. For example, watercourse, riparian habitat, dirt road, continual habitat coverage, underpasses/bridges, agriculture, urban areas; and

- any studies that exist to demonstrate the use and functions of the linkage or buffer, including any anecdotal evidence or field studies conducted on this particular linkage or buffer.

GIS themes

CALM Estate
WRC Estate
EPA System boundaries and areas
Bush Forever areas
Register of the National Estate

(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.

Guidelines

This principle considers biological, chemical and physical parameters, and water quantity as far as these affect overall environmental quality.

This principle aims to ensure that the quality of water supplies are not reduced, that levels of nutrients in water bodies and discharge water, salinity or pH levels are not significantly altered by land clearing, and that water regimes and environmental water provisions are not adversely affected.

The assessment should consider both onsite and offsite impacts, so that problems are not transferred from the cleared site to another part of the catchment or aquifer.

Native vegetation should be retained if clearing is likely to lead to sedimentation entering water bodies.

Native vegetation should be retained if impacts on it are likely to contribute to increased nutrient levels in the catchment. Soils with low and very low phosphorous retention ability should not be cleared.

Native vegetation should be retained if there is potential for low pH waters and/or acid sulphate soils to form as a result of clearing.

Within the north-west of the State, mangrove areas and tidal flats provide the main indicator of conditions that may potentially result in acid sulfate soils and low pH waters.

Acid sulfate potential has been mapped for the Swan Coastal Plain but not for the remainder of the southwest. The Acid Sulfate Soils Guideline Series provide further information on this issue.

Within Public Drinking Water Supply Catchments (PDWSA), the impacts of the land use and clearing must be compatible with the PDWSA guidelines and Water Source Protection Plans.

On Water Reserves under the Country Areas Water Supply Act (CAWS), clearing controls are in place. In these areas, the CAWS Clearing Guidelines should be consulted to

identify additional water quality considerations. Clearing may be restricted through compensation payments or due to location in the catchment and salinity risk.

Biological communities associated with GDEs, such as wetlands, groundwater-dependent terrestrial vegetation, cave streams and springs, have adapted to existing water regimes. Clearing of relatively substantial areas of vegetation can alter these regimes and cause degradation of existing biological communities. On the Swan Coastal Plain, GDEs most likely to be affected by a rising water table are those in areas with a depth to groundwater of 0 to 6 metres.

Native vegetation should be retained if clearing is likely to lead to changes in water regimes of GDEs on or off site and subsequent degradation of the biological communities associated with these systems. Degradation could entail local extinction of vegetation species, loss of diversity of fauna, loss of habitat diversity, etc.

In areas where Environmental Water Provisions (EWPs) have been set for groundwater-dependent ecosystems, the clearing of native vegetation should not result in breaches of EWPs.

Tools used by proponents and assessors

General

- Environmental Geology Series (Department of Industry and Resources)- identifies soil types, land use suitability and geomorphology.

Groundwater:

- Estimate depth to water table and identify existing water quality readings from Water Information Network (WIN) sites and drilling project reports.
- Consult salinity risk mapping series to identify if salinity (electrical conductivity) is rising in the area (south west only). If it is, then obtain all water quality monitoring parameters from WIN and look at the long term trend, focusing on pH and electrical conductivity.
- On Swan Coastal Plain, consult the acid sulphate soil GIS data to identify whether the area is in area of moderate or high risk.
- In other areas, determine whether soil types have the potential to generate acid sulphate soils. Consult the Acid Sulfate Soils Guideline Series for information on this. Consider any previous studies carried out in the area.
- Any increase in rate of water table rise in catchments affected by or likely to be affected by salinity or changes in pH of discharge groundwater is unacceptable.
- Hydrogeologic modelling and assessment to determine the likely spatial and temporal extent and magnitude of impact on the water table of clearing, particularly where large areas of vegetation are proposed to be cleared.
- Where GDEs are likely to be affected by water table rises, assessment of the Ecological Water Requirements (EWRs) of groundwater-dependent ecosystems and setting of maximum water level criteria (generally by qualified ecologists) may be required. Hydrogeologic modelling can then be employed to ensure that the proposed clearing of native vegetation does not breach the water level criteria.

Surface water

- Identify the nearest gauging station and view historical pH, electrical conductivity and nitrogen and phosphorus readings. The Phosphorus Retention Index (PRI) may be useful to determine the nutrient capacity of the soils. If there is a trend then obtain all WIN readings for the area and consider long term trends.

- Determine nutrient trends for wetlands in the catchment. Determine soils in the catchment and their risk of erosion and nutrient holding capacity.
- Determine likely impact of clearing on nutrient levels from leaching of nutrients or from erosion carrying nutrient rich soil particles. No increase in nutrient levels is acceptable in systems with a trend towards elevated nutrient levels.

GIS Themes

Salinity Risk (SW only)
Salinity Mapping (SW only)
Salinity Monitoring (SW only)
PDWSA Policy Area
Acid Sulphate Soil Potential for Swan Coastal Plain
Soil Mapping Series - show PRI - but don't cover much of the state.
WIN database - provides water quality information from monitoring bores and gauging stations throughout WA

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

Guidelines

Consideration of this principle may require extensive modelling of the whole catchment and should only be considered for large clearing proposals.

For smaller proposals, clearing should not cause water logging (localised flooding). This is already considered under principle g (land degradation). Flooding and/or water logging may also exacerbate criteria under principle (i) such as salinity, sedimentation, low pH waters or eutrophication or result in unacceptable changes in water regimes or environmental water provisions, both on and offsite.

Tools used by proponents and assessors

Hydrological modelling may be required.

Indicators of possible water logging problems:

- soil compaction and infiltration
- soil profile depth
- soil drainage/recharge rates
- perched water tables - groundwater contours and monitoring well water levels could be considered
- water logging observed on adjacent properties

Floodplain mapping for major towns (1 in 100 year flood levels).

GIS themes

Perth Basin Hydrogeology, Base Superficial formation
Aquifer theme from DWAID

Planning Instruments

The *EP Act* requires that the CEO shall have regard to the clearing principles, so far as they are relevant to the matter under consideration. The *EP Act* also prescribes that in considering a clearing matter the CEO shall have regard to any planning instrument, or other matter that the CEO considers relevant.

Planning instruments are defined in the *EP Act* as:

(a) a scheme or a strategy, policy or plan made or adopted under a scheme;
(b) a statement of planning policy approved under section 5AA of the *Town Planning and Development Act 1928*; or
(c) a local planning strategy made under the *Town Planning and Development Act 1928*.

Local and regional level planning strategies, by-laws and policies should be considered as part of the recommendations to the CEO and decision-making. Examples of these include Local Biodiversity Guidelines and related Local Biodiversity Plans prepared by Local Government, or regional planning strategies dealing with public infrastructure.

Other Matters

The other factors which can be taking into account by the CEO in considering a clearing application are not defined in the EP Act, and consequently are any matters the CEO considers relevant. As a matter of policy, these matters should be detailed in the assessment and decision reports. Generally, other factors could include such matters as:

- offset provisions;
- research undertakings;
- social inputs;
- community infrastructure needs;
- transportation requirements;
- listing of property and provisions undertakings; and
- matters of public interest.

Offsets and undertakings should be pursued through direct negotiations and could include fencing areas to limit stock access or funding a local landcare project.

These matters should be considered in the context of discussions with proponents, through submissions related to application advertising, or in response to direct interest letters.

Any other matters for consideration in decision-making should be detailed in that section of the assessment and decision reports.

Glossary

Biological diversity
The variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity. It is also referred to as *biodiversity*.

Bioregion
IBRA regions represent a landscape-based approach to classifying the land surface. Specialist ecological knowledge, combined with regional and continental scale data on climate, geomorphology, landform, lithology and characteristic flora and fauna were interpreted to describe these patterns. The resulting integrated regions were ascribed the term biogeographic regions. The Interim Biogeographic Regionalisation for Australia (IBRA) was developed in 1993-94 under the coordination of Environment Australia by the States and Territories as a basis for developing priorities for the Commonwealth in funding additions to the reserve system under the National Reserve System Cooperative Program. It has been subsequently revised in the light of new knowledge.

Bioregional Conservation Status of Ecological Vegetation Classes

Presumed extinct	Probably no longer present in the bioregion
Endangered*	<10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

*** or a combination of depletion, loss of quality, current threats and rarity gives a comparable status** (Department of Natural Resources and Environment 2002)

Buffer
Area designed to protect significant environmental values, including significant flora, significant ecological communities, and wetlands and watercourses, from deleterious impacts by maintaining ecological processes and functions in the habitat.

Clearing
(a) the killing or destruction of;
(b) the removal of;
(c) the severing or ringbarking of trunks or stems of; or
(d) the doing of any other substantial damage to,

some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity that causes-

(e) the killing or destruction of;
(f) the severing of trunks or stems of; or
(g) any other substantial damage to

some or all of the native vegetation in the area.

Condition
Condition is a rating given to vegetation to categorise disturbance related to human activities. This rating refers to the degree of change in the structure, density and species present in vegetation in relation to undisturbed vegetation of the same type.

The most widely used condition system is that of Keighery (1994):

1. Pristine: no obvious signs of disturbance.
2. Excellent: vegetation structure intact; disturbance affecting individual species and weeds are non-aggressive.
3. Very Good: vegetation structure altered; obvious signs of disturbance.
4. Good: Vegetation structure significantly altered by obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it.
5. Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration of vegetation structure, but not to a state approaching good condition without intensive management.
6. Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

Other condition ratings used commonly are described in Government of WA 2000.

Conservation area
A conservation park, national park, nature reserve, marine nature reserve, marine park or marine management area within the meaning of the *Conservation and Land Management Act 1984* or any other land or waters reserved or managed for the purpose of, or purposes including, nature conservation.

Constrained Area
An identified area within the Swan Coastal Plain portion of the Greater Bunbury Region Scheme and the Bush Forever Study area where there is a reasonable expectation that development will be able to proceed. This may include areas zoned urban, urban deferred or industrial zoned land or land with existing development approvals.

Declared Rare Flora
Species protected under the *Wildlife Conservation Act 1950* as identified in the current listing.

Depleted
Refer to Bioregional Conservation Status of Ecological Vegetation Classes.

Ecological community
A naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999). The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified.

Ecological linkage
Are a network of native vegetation that maintain some ecological functions of natural areas and counter the effects of habitat fragmentation.

Ecosystem Diversity
Ecosystems are the critical biological/ecological operating units in nature. Ecosystem diversity is the diversity of all living organisms and non-living components within a given area and their relationships. Ecosystems include abiotic components, being partly

determined by soil, parent material and climate. Ecological system diversity is the variety of habitats, biotic communities and ecological processes in a given area. Ecological processes are the interactions, changes or evolutionary development processes of the ecosystem over time.

Fauna that is otherwise significant
These are defined as:

- Fauna Threatened Ecological Communities as endorsed by the Minister;
- fauna species that are habitat specialists;
- wide-ranging fauna species with reduced populations in the Bioregion;
- short-range endemic species;
- fauna species that have few populations in the Bioregion;
- fauna species which have reduced ranges or few recent records in the Bioregion; and
- internationally-listed migratory species.

Foreshore reserve
Where the foreshore area or watercourse buffer is to be set aside as a reserve under planning legislation, it is generally known as a foreshore reserve.

Fringing or riparian vegetation
Vegetation adjacent to the water body and directly dependent on the proximity of the watercourse or wetland. Riparian vegetation may include both wetland and dryland vegetation. Wetland vegetation can tolerate some period of inundation and is typically found below the high water mark or within the floodway, for example flooded gums and paperbarks, and submerged and emergent species like rushes. Dryland vegetation is not tolerant of permanently or seasonally waterlogged conditions. Riparian vegetation provides many important functions including habitat for many aquatic and terrestrial species, stabilisation of the banks, energy dissipation, ecological linkages, and sediment and nutrient retention; it assists in maintaining the integrity of the watercourse or wetland in a number of ways.

Genetic Diversity
Variation of genes/genetic information contained in all individual plants, animals and microorganisms both within and between populations of organisms that comprise individual species as well as between species. Genetic diversity represents the heritable variation within and between populations of organisms. There are so many genes and different possible combinations of genes that for most types of organism every individual, population and species is genetically distinct.

Landscape
Made up of basic elements - climate, geology, topography, vegetation, fauna and humans - biophysical characteristics that can be used to identify differences between different landscapes.

Local area
Varies with region and indicates the distance across which there is little change in a vegetation community. For example in the mallee region of the south-west a local area is typically a radius of 15 km from the subject land. For ecological communities where there is rapid change over distance such as the Lesueur and Fitzgerald River areas a distance of 5 km is more appropriate. In the Eremaean Province a distance of 50km is recommended. This will need to be determined on a region and vegetation specific basis.

Meta-population
A population of populations. A defined set of geographically separate populations with at least some exchange of individuals between the separate populations - in other words, systems of local populations connected by dispersing individuals.

Native vegetation
Indigenous aquatic or terrestrial vegetation but does not include vegetation that was intentionally sown, planted or propagated unless

(a) that vegetation was sown, planted or propagated as required under this Act or another written law; or
(b) that vegetation is of a class declared by regulation to be included in this definition

and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded.

Note that this includes non-vascular plants (e.g. mosses, fungi, algae) and marine plants (seagrass, macroalgae (seaweed)).

Priority Flora
Plant taxa, lists of which are maintained by the Department of Conservation and Land Management, that are either under consideration as threatened flora but are in need of further survey to adequately determine their status, are adequately known but require ongoing monitoring to ensure their security does not decline, or are conservation dependent, that is they require active management to maintain their status.

Priority Fauna
Conservation significant animal species listed by CALM's Threatened Species Consultative Committee but which are not currently listed under Section 14(2)(ba) of the *Wildlife Conservation Act 1950* as Specially Protected Fauna.

Protected area.
An area of land especially dedicated to the protection and maintenance of biological diversity and managed through legal and other effective means. (ICUN 1994)

Representativeness
The extent to which areas selected for inclusion in the national reserves system are capable of reflecting the known biological diversity and ecological patterns and processes of the ecological community or ecosystem concerned (Commonwealth of Australia 1996).

Significant ecological community
- CALM Threatened Ecological Communities (TECs) as listed through an existing Ministerial approval process;
- Priority TECs as listed by CALM - under consideration as CALM TECs but need further survey; and
- Geographically Restricted Ecological Communities.

Significant flora
- Species that are confined to a specific area (ie endemic to the Bioregion) or otherwise geographically restricted;
- Distinctive local forms that have not been recognised taxonomically (not a species, subspecies or variety);
- Populations that are outside the main geographic range (ie disjunct populations)

- Populations at the end of the plant's geographic range;
- Populations that represent a significant number of the known individuals of the taxon in the bioregion; and
- Priority one to four flora as listed by CALM - taxa that are under consideration as DRF but are in need of further survey or continued monitoring.

Significant habitat
Habitat that provides resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival.

Specially Protected Fauna
Species protected under the *Wildlife Conservation Act 1950*. The latest listing is Wildlife Conservation (Specially Protected Fauna) Notice 2001 (Government of Western Australia 2001b).

Species Diversity
This can be considered as the variety of individual species within a given area, such as a region. While such diversity can be measured in many ways, the number of species (species richness) is most often used. A more precise measurement of taxonomic diversity also considers the relationship of species to each other. The greater the difference between one species and another species, the greater its contribution to any overall measure of biological diversity. The ecological importance of a species can have a direct effect on community structure and thus on overall biodiversity. The variety of species increases with genetic change and evolutionary processes.

Threatened ecological communities
Those (ecological communities) that have been assessed through a procedure (coordinated by CALM) and assigned to one of the following categories related to the status of the threat to the community. The categories are "Presumed Totally Destroyed", "Critically Endangered", "Endangered" or "Vulnerable" (English and Blyth 1997, 1999). One of the criteria used to determine the categories is an estimate of the geographic range and/or the total area occupied and/or the number of discrete occurrences reduced since European settlement, where $\leq$ 10% is Critically Endangered and $\leq$ 30% is Endangered.

Vegetation complex
As defined by Heddle *et al.* (1980) and Mattiske and Havel (1998). The vegetation complexes are based on the pattern of vegetation at a regional scale as it reflects the underlying key determining factors of landforms, soils and climate.

Vegetation Type
Vegetation types as defined by Beard (1990) are based on three principal characteristics of vegetation:

1. Floristic Composition: the species of plants which comprise vegetation.

2. Vegetation Structure: the height of plants in layers, their shape and their spacing

3. Growth-form: the morphological characteristics of the component plants, such as woody or herbaceous, annual or perennial, thorny or succulent, evergreen or deciduous, and leaves of a certain texture, size and shape.

4. Plant Association: the component species, with particular dominants, of a given area. If the vegetation of another area has the same dominants it is in the same association. The association is the basic unit of vegetation.

5. Plant Formation: a vegetation unit that considers plant associations that have a similar physiognomy (a combination of vegetation structure and growth-form), independent of specific floristic composition.

Watercourse
(a) any river, creek, stream or brook in which water flows;
(b) any collection of water (including a reservoir) into, through or out of which any thing coming within paragraph (a) flows;
(c) any place where water flows that is prescribed by local by-laws to be a watercourse,

and includes the bed and banks of any thing referred to in paragraph (a), (b) or (c).

For the purposes of the definition: a flow or collection of water comes within that definition even though it is only intermittent or occasional; a river, creek, stream or brook includes a conduit that wholly or partially diverts it from its natural course and forms part of the river, creek, stream or brook; and it is immaterial that a river, creek, stream or brook or a natural collection of water may have been artificially improved or altered.

Watercourse or wetland buffer
Land adjoining, or directly influencing a watercourse or wetland that is managed to protect watercourse and wetland values, including any riparian areas. It is basically an area outside a watercourse or wetland where clearing and certain activities are inappropriate. The size of the buffer area should take into account watercourse or wetland values, condition, pressures and responses to pressures.

Wetland
Areas of seasonally, intermittently or permanently waterlogged soils or inundated land whether natural or otherwise, including lakes, swamps, marshes, springs, damplands, intertidal flats, mangroves and estuaries.

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Petroleum Division- Department of Industry and Resources website

Water and Rivers Commission Position Statement: Wetlands

Western Australian *Wildlife Conservation Act 1950*

ADVICE

1. **Monitoring by the CEO**
   The CEO may monitor the implementation of clearing and other activities done under this Permit in order to determine whether the permit holder is complying with the conditions of this Permit. In the event that the CEO determines that the permit holder is not complying with one or more conditions of this Permit, the CEO may amend, suspend or revoke this Permit as the CEO considers necessary.

2. **Reports**
   Reports provided by the permit holder to the CEO under Part VI of this Permit may be made publicly available.

3. **Clearing likely to have a significant impact on the environment**
   The permit holder must ensure that it complies with any obligation under section 38(5) of the *EP Act* to refer to the *EPA* a *proposal* that appears to the permit holder to be likely, if implemented, to have a significant effect on the environment.

4. **Cumulative impacts of clearing**
   In accordance with the intent of the *clearing principles* in Schedule 5 of the *EP Act*, the permit holder must consider the cumulative *impacts* of clearing of native vegetation done under this Permit and other clearing done in that *bioregion*. The cumulative *impacts* of clearing done under this Permit will be considered by the CEO annually upon receipt of the permit holder's reports pursuant to Part VI of this Permit, and this Permit may be amended as necessary.

5. **Temporary clearing**
   The permit holder must ensure that, wherever possible, new *temporary works*, *camps* and rest areas are located in areas that have already been cleared of native vegetation.

6. **Review of Assessment Procedure**
   If the permit holder amends its *Environmental Policy for Conducting Environmental Impact Assessment and Implementing Environmental Conditions* in a manner that affects the assessment of the proposed clearing against the *clearing principles* in accordance with condition 7 of this Permit, the permit holder must provide a copy of that amended document to the CEO within 1 month of finalising the amendments. The CEO will consider whether the amended document is sufficient to meet the requirements of this Permit and, if so, the CEO may amend this Permit in accordance with section 51K of the *EP Act*.

7. **Review of Environmental Guideline: Revegetation Planning and Techniques**
   If the permit holder amends its *Environmental Guideline: Revegetation Planning and Techniques* in a manner that affects the *revegetation* and *rehabilitation* of areas in accordance with condition 14 of this Permit, the permit holder must provide a copy of that amended document to the CEO within 1 month of finalising the amendments. The CEO will consider whether the amended document is sufficient to meet the requirements of this Permit and, if so, the CEO may amend this Permit in accordance with section 51K of the *EP Act*.

8. **Offset Principles**

The offset principles set out in condition 17 of this Permit are based on the *EPA's* Preliminary Position Statement No.9, Version 2, "Environmental Offsets", June 2005.

9. External Audit

When conducting an *external audit* under condition 23 of this Permit, the *lead environmental auditor* will determine which conditions of this Permit in respect of which he or she will conduct the audit.

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

Government of Western Australia
Department of Environment Regulation

1. Application details

1.1. Permit application details

Permit application No.: 1918/4
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Electricy Networks Corporation TA Western Power

1.3. Property details

Property: -
Local Government Area: -
Colloquial name: -

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
		Mechanical Removal	Infrastructure Maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 9 January 2014

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
	Clearing for project activities will occur throughout the southwest of Western Australia for Western Power's 'South West Interconnected System' transmission network (north to Kalbarri, east to Kalgoorlie and south to Ravensthorpe). The proposed clearing of native vegetation is likely to impact on many vegetation associations in varied condition.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	

3. Assessment of application against clearing principles

Comments

This amendment has been made to extend the permit duration until February 2015 and include decommissioning (removal of redundant infrastructure) under permit condition 1.

The assessment against the clearing principles has not changed and can be found in Decision Report CPS 1918/1, CPS 1918/2 and CPS 1918/3.

Methodology

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

Comments

The assessment against Planning and Other Matters has not changed and can be found in Decision Report CPS 1918/1, CPS 1918/2 and CPS 1918/3.

Methodology

4. References

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.