



SUPPLEMENTARY REPORT

EPA Ref: CMS 15202; AC01-2016-0017

UIL Energy 2D Seismic survey, Onshore, Perth Basin, WA

May 2016

Document Information

Operation area	Onshore, Shire of Dandaragan and Shire of Coorow, WA	Document No	UIL-REF-EPA-01-RAI
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Register of Amendments

Rev	Description	Date	Prepared by	Reviewed by	Approved by
1.0	Initial Draft	April 2016	LV	VP	
2.0	Approval for submission to EPA	May 2016	LV	VP	JD
3.0					
4.0					

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PURPOSE

This document is prepared in response to a request from the Office of the Environmental Protection Authority (OEPA) to provide additional information to support UIL Energy's project referral under s.38 of the Environmental Protection Act to undertake a 2D seismic survey within EP 488, EP489 and EP447.

In the OEPA letter, dated 30 March 2016, the OEPA requested UIL Energy provide additional information regarding potential impact associated with Amenity (potential visual impact), Heritage (Aboriginal Heritage) and Flora and Vegetation (potential impacts from dieback). These environmental aspects have been identified by the OEPA as potential key environmental factors.

Additionally, the OEPA requested UIL Energy resubmit the spatial data to ensure consistency with the project layout and the DMP permit boundaries.

ENVIRONMENTAL IMPACTS

In the OEPA's request for further information dated on 30 March 2016, the OEPA advised UIL Energy that the following potential key environmental factors and issues may be impacted by implementation of the Proposal:

- Amenity (visual impacts);
- Aboriginal Heritage;
- Flora and vegetation (potential impacts from Phytophthora disease).

During the project planning period, UIL Energy undertook a risk analysis for all aspects of the Proposal in accordance with procedures outlined in the Australian and New Zealand Standard *AS/NZS ISO 31000:2009 Risk management* and *HB 203:2006 Environmental Risk Management – Principles and Process*. As a result, UIL has identified suitable management measures to avoid and mitigate such impacts. For more details refer to this document Part B: Environmental factors.

SPATIAL DATA

The OEPA requested that the spatial data should be re-submitted as the following issues have been identified:

- Spatial data showing the location of survey lines extends outside of the proposed development envelope in five locations.
- Permit data provided by UIL Energy does not align with the DMP data set;
- The Development Envelope does not align with permit boundaries provided in the UIL referral or with current DMP permit boundaries for EP447, EP488 and EP489.

The seismic survey layout is designed so that some lines extend outside the UIL permit boundaries. The extensions are called "tails" and are necessary to ensure a full seismic dataset is obtained right up to the permit boundary. Under the PGER Act and Environmental Regulations, the extensions are defined as "ingress" and the exploration permit holder (UIL Energy) must obtain written consent/s (Ingress Agreement) from relevant land users including relevant landholders to access the land. This exemption is only related to low impact exploration activities such as seismic surveys. The DMP manages this process through the application for grant of an access authority under section 106 of the PGERA 1967 in conjunction with the application for approval of survey under the Regulation 6 of the PGER (Resource Management and Administration) Regulations 2015.

The Environmental Protection (Clearing of Native Vegetation) Regulations 2004 provide exemptions for petroleum exploration activities where clearing of native vegetation is required, provided clearing is outside of the ESAs declared under section 51B of the EP Act. To justify the clearing permit exemption, UIL Energy conducted the on-ground ecological survey within the extensions that potentially contain native vegetation. The on-ground ecological survey shows that no environmental sensitivities were found.

As shown on the maps, the proposed seismic extensions are located on private properties and follow existing tracks. No clearing of native vegetation is proposed within these "extensions". As a result, it was expected that this would not affect the referral which is predominantly associated with impacts on Environmentally Sensitive Areas and significant conservation land declared under the CALM Act.

Taking into account matters raised by the OEPA, UIL Energy has amended the Development Envelope by including the extensions (tails) and aligning the Development Envelope with permit boundaries to ensure that the maximum area within which the disturbance footprint will be located are captured, *Figure 1: Revised Proposal area*. It should be noted that the eastern part of the Development Envelope does not align with the EP447 eastern boundaries. In 2013 UIL Energy carried out the Badgingarra 2D seismic survey in the eastern part of the exploration permit EP447. The current proposal links to the Badgingarra 2D SS 2013 in the eastern part, hence the Development Envelope slightly overlaps the previous seismic survey to achieve consistency in interpretation of acquired data across the region.

Despite the changes to the shape of the Development Envelope, the Development Envelope area remains the same, approximately 101,813ha. Therefore, there is no change to the Table 1.2.2 Key Proposal Characteristics of the Environmental Review Document.

UIL Energy permit data (EP447, EP488 and EP489) was acquired from the DMP website in April 2014 under the licence WAPTITLES ANZWA1220000512 and WAPAPPLICATIONS D31AC729-7680-4047-8FD5-31839B7238C5. If there are any further discrepancies with the spatial data provided, UIL will endeavour to rectify the data.

In regard to the request to submit the seismic line layout as a polygon file format to enable the OEPA to estimate actual disturbance area, UIL Energy has provided the detailed estimate of the maximum disturbance (based on 4.5m width of the seismic lines) associated with clearing of native vegetation throughout the application and particular in Table 2 of the Environmental Review Document. Due to the proposed survey being linear infrastructure with a maximum cleared width of 2.25m either side of a defined center-line, the actual disturbance within ESAs can be readily calculated based on provided GIS data. Nonetheless, UIL has created a polygon file of the seismic survey layout with a buffer of 2.25m from a center-line as was requested.

Revised spatial data is attached to this Supplementary report:

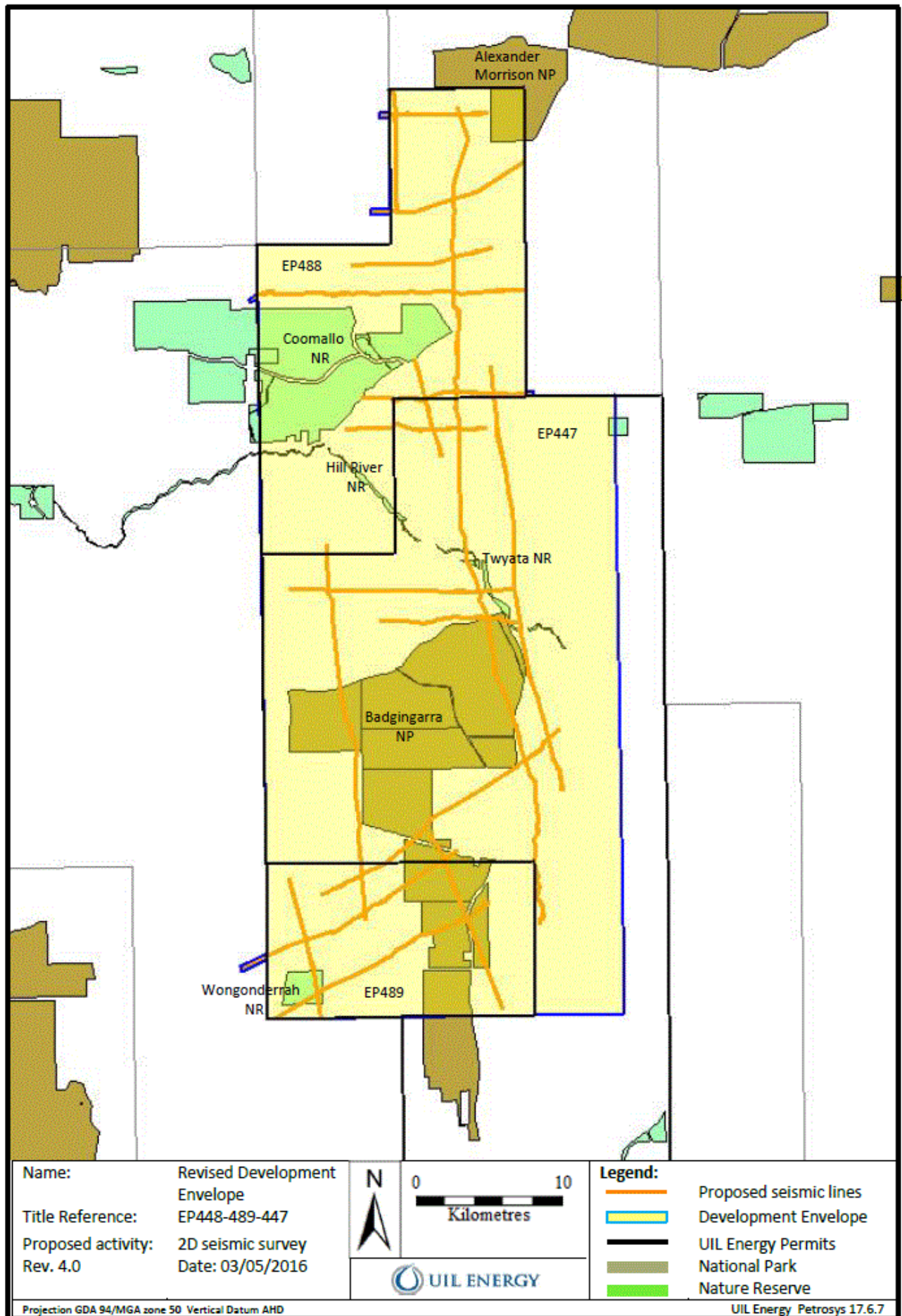
- UIL permits – UIL EP488-489-447 *.shp (shape file);
- Development Envelope – DA_Rev1.0 *.shp (shape file);
- DA_Rev1.0*.ply (polygon file);
- 2D SS layout with maximum line width of 4.5m - 2DSS_Rev1.0 *.ply (polygon file).

Declaration

I, Lana Volkova., (*full name*) declare that I am authorised on behalf of UIL Energy Ltd (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature <i>Volkova</i>		Name (print) <i>Lana Volkova</i>	
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Date	10 May 2016		

Figure 1: Revised Development Envelope



PART B: ENVIRONMENTAL FACTORS

The purpose of Part B is to assist the EPA to determine the significance of the likely environmental impacts of the proposal in accordance with the EPA's *Environmental Assessment Guideline for Environmental factors and objectives* (EAG 8) and *Environmental Assessment Guideline for Application of a significant framework in the EIA process* (EAG 9). Referrers completing Part B should refer closely to EAG 8 and EAG 9.

The EPA has prepared [Referral of a Proposal under s38 of the EP Act EAG No.16 - Appendix A](#) (Appendix A) to assist in identifying factors and completing the below table. Further guidance can be found in the guidance and policy documents cited in Appendix A under each factor.

How to complete Part B

For each environmental factor, that is likely to be significantly impacted by the implementation of the proposal, make a copy of the table below and insert a summary of the relevant information relating to the proposal. The table can be broken down into more than one table per factor, if the need arises. For example the hydrological processes factor can be presented in two separate tables, one for surface water and one for groundwater, or similarly one for construction and one for operations.

For complex proposals a supplementary referral report can be provided in addition to the referral form. If this option is chosen the table must still be completed (summaries are acceptable) to assist the Office of the EPA with statistical reporting and filtering proposals for processing.

Proponents expecting an API level of assessment must provide information in accordance with the EPA's *Environmental Assessment Guideline for Preparation of an API-A environmental review document* (EAG 14).

For each of the significant environmental factors, complete the following table (Questions 1 – 10).

POTENTIAL KEY FACTOR – AMENITY		
1	Factor, as defined in EAG 8	Landscape and visual amenity
2	EPA Objective, as defined in EAG 8	To ensure that impacts to amenity are reduced as low as reasonably practicable
3	Guidance - what established policies, guidelines, and standards apply to this factor in relation to the proposal?	The following guidelines and documentation have been used to assess visual impact on amenity: <i>Visual Landscape Planning in WA, Part 2 and Part 3, 2007</i> <i>Guidelines for Landscape and Visual Impact Assessment (the Landscape Institute, 2011),</i> <i>Topic Paper 1: Recent practice and the evolution of Landscape Character Assessment, 2002</i> <i>Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity (Scottish Natural Heritage & The Countryside Agency, 2006).</i> <i>APPEA Code of Environmental Practice 2008</i>
4	Consultation - outline the need for consultation and the outcomes of any consultation in relation to the potential environmental impacts, including: <ul style="list-style-type: none"> • <i>anticipated level of public interest in the impact;</i> 	UIL Energy consulted with the OEPA at the pre-referral stage on 21 July 2015. At that meeting, UIL was advised that there was no requirement to address amenity as a key environmental factor in the application process (a copy of the meeting minutes are available upon request). UIL Energy has addressed this factor as barrier effects caused by linear clearing in UIL's EPBC Act referral application. This matter was addressed by UIL to the DotE's satisfaction.

POTENTIAL KEY FACTOR – AMENITY

	<ul style="list-style-type: none"> • <i>consultation with regulatory agencies; and</i> • <i>consultation with community.</i> 	<p>On private land UIL Energy is continuing to consult relevant landholders in regard to land access and compensation, including damage to amenity.</p>
5	<p>Baseline information - describe the relevant characteristics of the receiving environment.</p> <p><i>This may include: regional context; known environmental values, current quality, sensitivity to impact, and current level of cumulative impacts.</i></p>	<p>The visual impact assessment method was based on: UIL desktop study, reconnaissance and the on-ground field survey. The survey area occurs within three land systems namely Bassendean, Nylagarda and Yerramullah. These land systems are described as:</p> <ul style="list-style-type: none"> - sand dunes and sandplains with pale deep sand, semi-wet and wet soil with banksia-paperbark woodlands and mixed heaths; - alluvial plains and terraces of the Hill River and major creeks of the north coastal plain. Brown deep sands and brown sandy earths predominate, with minor pale deep sand and saline wet soil, with all supporting woodlands. - subdued dissected lateritic plateau, undulating low hills and rises on lateritic weathered sandstone. Pale deep sand, sandy gravels and yellow deep sand with banksia woodlands on lower slopes/depressions, heathlands elsewhere. <p>The receiving environment contains conservation significant lands protected by State designation.</p> <p>The Iain Wilson Nature Trail including lookout and Lang lookout (Watheroo West Road) have also been identified within the Project area.</p> <p>Existing firebreaks, fence lines and linear infrastructure corridors (transmission lines, pipeline easements and access tracks) also visually interrupt the landscape.</p> <p>The sensitive visual receptors could be described as residents living in settlements and on rural properties, tourists and travelers passing through the project area by vehicle using major and minor roads.</p> <p>Key characteristics of sensitive amenities and visual receptors that may be affected by the Proposal are identified as being:</p> <ul style="list-style-type: none"> - The area that has important natural elements (the Badgingarra National Park, Wongonderrah Nature Reserve and UCL) providing a strong sense of naturalness, remoteness and visual continuity. General absence of infrastructure, except cleared corridors for pipelines and firebreaks. Key species include Banksia, shrub land and low heath. Sensitivity value is moderate to high. - The area that has a strong rural character with some remnant natural areas. The landscape is predominantly open plains of grazing pastures for cattle or a variety of crops. The area exhibits a perceived sense of remoteness and tranquility away from major transport corridors and infrastructure development except the Emu Down Wind Farm, cleared corridors for transmission towers and an open cut mineral sand mine to the south. Sensitivity value is low. - The area that is sparsely settled with the small town of Badgingarra located at road junctions. A relatively small number of tourists and travelers with a passing interest in the environment visit the area. - Roads are straight in character with long-distant views occasionally broken by undulated hills and breakaways. Contains several unsealed local roads. Sensitivity value is low.
6	<p>Impact assessment - describe the potential</p>	<p>The visual impact on identified amenity is potentially associated with temporary clearing of native vegetation. The impact will be</p>

POTENTIAL KEY FACTOR – AMENITY

	<p>impact/s that may occur to the environmental factor as a result of implementing the proposal.</p>	<p>limited to temporary visual change in the view affecting continuous visibility of existing amenity characteristics.</p>
<p>7</p>	<p>Mitigation measures - what measures are proposed to mitigate the potential environmental impacts? The following should be addressed:</p> <ul style="list-style-type: none"> • <i>Avoidance - avoiding the adverse environmental impact altogether;</i> • <i>Minimisation - limiting the degree or magnitude of the adverse impact;</i> • <i>Rehabilitate – restoring the maximum environmental value that is reasonably practicable; and</i> • <i>Offsets – actions that provide environmental benefits to counterbalance significant residual environmental impacts or risks of a project or activity.</i> 	<p>Avoidance</p> <p>The primary means by which avoidance is achieved is through design and site selection. UIL has identified further reductions to the initially proposed disturbance footprint. This was based on the results of subsequent reviews, proposed variations (which include seismic reprocessing of historic lines and reducing the footprint of new seismic lines in order to minimise impacts). Part of this work involved the re-design of some lines to place them on existing disturbance (e.g. tracks / firebreaks) and undershoot some sections associated with isolated patches of native vegetation.</p> <p>UIL has also modified the seismic survey methodology to remove up-holes from the seismic survey program, totally eliminating visual impacts associated with drilling activities.</p> <p>No trees or vegetation with a trunk diameter greater than 150mm will be cleared.</p> <p>Minimisation</p> <p>Mulching will be adopted for native vegetation clearing. This method involves removal of vegetation above ground only. Cleared vegetation will be mulched and respread immediately over cleared areas to facilitate rehabilitation and vegetation re-growth.</p> <p>The proposed “mulching” method will facilitate recovery and regrowth of the native vegetation with the expectation that linear pathways will be concealed within three wet seasons. This method was adopted as ‘best practice’ by Warrego Energy and Norwest Energy in their 3D seismic programs.</p> <p>UIL Energy will endeavour to further minimise the disturbance footprint and reduce the width of cleared lines to 3.6m where possible. This will depend on factors such as equipment configuration, terrain, vegetation cover and density, valued ecosystem components and safety.</p> <p>To reduce barrier effects, only low shrubs and trees less than 100-150mm in trunk diameter will be mulched. In this case, the root stock is left intact for regrowth. Mulched material will be respread at the point of its origin. Mulched material will become composted within 6-12 months introducing nutrients to soil to facilitate regrowth.</p> <p>Planned movement of seismic trucks, equipment and machinery to/from site will occur during time of least visual impact (i.e. early morning/ late afternoon) where practicable.</p> <p>The survey will be timed to target dry weather periods when clearing of native vegetation in sensitive landscape areas causes minimal visual impacts due to erosion.</p> <p>Width of the cleared seismic lines will be minimised to the practicable extent.</p> <p>Existing roads and tracks will be used where practicable. Low speed limits will be applied to minimise dust generation and maintain integrity of unsealed roads/tracks.</p> <p>Waste management procedures will be implemented in accordance with an approved Environmental Management Plan. All waste generated on-site during clearing and seismic activities will be removed off site daily to prevent visual impact from littering.</p> <p>Sensitive visual receptors (i.e. landholders and councils) will be notified.</p>

POTENTIAL KEY FACTOR – AMENITY

		<p>Rehabilitation</p> <p>Cleared and disturbed areas will be rehabilitated immediately after completion of the seismic survey. Rehabilitation will be subject to previous land use conditions. Rehabilitation success will be monitored for at least 5 years.</p> <p>Offsets</p> <p>No direct long-term visual impacts and significant residual impacts on amenities are expected. Therefore, no requirement for offsets is anticipated for this factor.</p>
8	<p>Residual impacts – review the residual impacts against the EPA objectives.</p> <p><i>It is understood that the extent of any significant residual impacts may be hard to quantify at the referral stage. Referrers are asked to provide, as far as practicable, a discussion on the likely residual impacts and form a conclusion on whether the EPA’s objective for this factor would be met if residual impacts remain. This will require:</i></p> <ul style="list-style-type: none"> • <i>quantifying the predicted impacts (extent, duration, etc.) acknowledging any uncertainty in predictions;</i> • <i>putting the impacts into a regional or local context, incorporating knowable cumulative impacts; and</i> • <i>comparison against any established environmental policies, guidelines, and standards.</i> 	<p>There are no established, measurable technical thresholds to assess significance for visual impacts. For the purpose of this assessment, the significance of impacts has been determined by considering the sensitivity of the amenity and visual receptors and the magnitude of change expected as a result of the Proposal.</p> <p>The magnitude of change in visual amenity depends on the nature, scale and duration of the particular change that is expected to occur. The magnitude of change will depend on the loss or change in visual amenity. The effect on amenity will depend on visibility, degree of contrast with the existing view, angle of view, duration of view and distance from the particular change. General guidance for the determination of significant impacts on the amenity is provided in Table B-1.</p> <p>In accordance with Table B-1, UIL assessed that the impact on visual amenity is not of significance due to the short-term impact and small number of sensitive receptors to be impacted. The visual amenity impact will be reduced further with the implementation of mitigation measures and rehabilitation. It is expected that visual impact from clearing of native vegetation will be diminished quickly over time, with recovery of vegetation after three years, so the change will be visible for a short duration expecting to blend with the existing view after 5 years. As a result, the significance of the residual impacts on visual amenity is considered to be low.</p>
9	<p>EPA’s Objective – from your perspective and based on your review, which option applies to the proposal in relation to this factor? Refer to EAG 9</p>	<p><input checked="" type="checkbox"/> <i>meets the EPA’s objective</i></p> <p><input type="checkbox"/> <i>may meet the EPA’s objective</i></p> <p><input type="checkbox"/> <i>is unlikely to meet the EPA’s objective</i></p>
10	<p>Describe any assumptions critical to your conclusion (in Question 9). <i>e.g. particular mitigation measures or regulatory conditions.</i></p>	<p>There are no established, measurable technical thresholds or criteria provided by WA guidelines to assess significance for visual impacts.</p>

POTENTIAL KEY FACTOR – HERITAGE		
1	Factor, as defined in EAG 8	Aboriginal Heritage
2	EPA Objective, as defined in EAG 8	To ensure that historical and cultural associations are not adversely affected.
3	Guidance - what established policies, guidelines, and standards apply to this factor in relation to the proposal?	Native Title Act 1972; Aboriginal Heritage Act 1972 and Native Title (State Provisions) Act 1999; Aboriginal and Torres Strait Islander Heritage Protection Act 1984; Guidelines for Aboriginal I Heritage Assessment in Western Australia 1994; UIL Energy /Yued People Heritage Protection Agreement.
4	Consultation - outline the need for consultation and the outcomes of any consultation in relation to the potential environmental impacts, including: <ul style="list-style-type: none"> • <i>anticipated level of public interest in the impact;</i> • <i>consultation with regulatory agencies; and</i> • <i>consultation with community.</i> 	Consultations with the Yued People and executed Heritage Protection Agreements for EP488, EP489 and EP447.
5	Baseline information - describe the relevant characteristics of the receiving environment. <i>This may include: regional context; known environmental values, current quality, sensitivity to impact, and current level of cumulative impacts.</i>	A search of the Aboriginal Heritage Inquiry System was conducted during 2013 and 2015 to identify potential registered aboriginal heritage sites. One registered Aboriginal Heritage site was identified within the boundaries of the Proposal area located to the east of the Brand Hwy namely Mullering Brook (ID 4640). The Mullering Brook has mythological significance to Yued People. However, the proposed 2D seismic layout does not overlap or cross Mullering Brook.
6	Impact assessment - describe the potential impact/s that may occur to the environmental factor as a result of implementing the proposal.	<ul style="list-style-type: none"> - Disturbance to documented Aboriginal Sites and Aboriginal Objects; - Loss of artefacts; - Disruption of Indigenous activities.
7	Mitigation measures - what measures are proposed to mitigate the potential environmental impacts? The following should be addressed: <ul style="list-style-type: none"> • <i>Avoidance - avoiding the adverse environmental impact altogether;</i> • <i>Minimisation - limiting the degree or magnitude of the adverse impact;</i> • <i>Rehabilitate – restoring the maximum environmental value that is reasonably practicable; and</i> • <i>Offsets – actions that provide environmental</i> 	<p>Avoidance</p> <p>The primary means by which avoidance is achieved is through design and site selection. No documented aboriginal Sites or Aboriginal Objects were identified within seismic alignments.</p> <p>The Proposal does not involve ground disturbance such as excavation or removal of topsoil as defined under the Heritage Protection Agreement executed between The Yued People and UIL Energy.</p> <p>It is reasonable to assume, therefore that no potential artefacts will be affected by the Proposal.</p> <p>Minimisation</p> <p>UIL Energy has initiated a heritage survey with the Native Title Party to assist UIL Energy in the planning of the project layout in order to identify any possible aboriginal sites or avoidance areas.</p> <p>If required (as identified in the heritage survey), representatives of the Native Title Party will be present on site during activities within identified areas. Management of aboriginal heritage will be undertaken in accordance with the provisions of the Heritage</p>

POTENTIAL KEY FACTOR – HERITAGE

	<p><i>benefits to counterbalance significant residual environmental impacts or risks of a project or activity.</i></p>	<p>Protection Agreement.</p> <p>Heritage survey to be conducted in accordance with requirements of the HPA.</p> <p>Field personnel are inducted on heritage values.</p> <p>In the event of a discovery of skeletal remains or the identification of an area or object reasonably suspected of being an Aboriginal Site or Aboriginal Object, during the Proposed Activities, the following procedures apply:</p> <ul style="list-style-type: none"> - Stop all work in the immediate vicinity of such remains, areas or objects, - Do not take possession of, move, interfere, or disturb any Aboriginal Site or Object; - Immediately notify the South West Aboriginal Land and Sea Council (SWALSC) (ph. 08 9358 7400) and the Native Title Party of the findings - Meet with representatives of SWALSC and the Native Title Party on site & discuss in good faith a culturally appropriate method of managing the discovery and to deal with it in accordance with the provisions of the Heritage Act or other applicable statutory law; - Notify the Registrar of Aboriginal Sites, Department of Aboriginal Affairs (DAA), on 1300 651 077 or via email: heritageenquiries@daa.wa.gov.au; - Contact the Jurien Bay Police Station (in case of remains) on (08) 9652 0600; <p>Contact details will be updated prior to the survey and incorporated into UIL/Contractors Emergency response Plan (ERP).</p> <p>Rehabilitation Not applicable</p> <p>Offsets Not applicable</p>
<p>8</p>	<p>Residual impacts – review the residual impacts against the EPA objectives.</p> <p><i>It is understood that the extent of any significant residual impacts may be hard to quantify at the referral stage. Referrers are asked to provide, as far as practicable, a discussion on the likely residual impacts and form a conclusion on whether the EPA’s objective for this factor would be met if residual impacts remain. This will require:</i></p> <ul style="list-style-type: none"> • <i>quantifying the predicted impacts (extent, duration, etc.) acknowledging any uncertainty in predictions;</i> • <i>putting the impacts into a regional or local context, incorporating knowable cumulative impacts; and</i> <p><i>comparison against any established environmental policies, guidelines, and standards.</i></p>	<p>The Proposal does not interact with registered Aboriginal Sites or Aboriginal Objects. With the proposed mitigation measures implemented, including consultation with the Yued people, the heritage survey, no ground disturbance and appropriate procedures to follow should there be any discoveries, it was considered that the Proposal is unlikely to result in any direct impacts on aboriginal heritage values and therefore there are no residual impacts expected.</p>

POTENTIAL KEY FACTOR – HERITAGE		
9	EPA's Objective – from your perspective and based on your review, which option applies to the proposal in relation to this factor? Refer to EAG 9	<input checked="" type="checkbox"/> <i>meets the EPA's objective</i> <input type="checkbox"/> <i>may meet the EPA's objective</i> <input type="checkbox"/> <i>is unlikely to meet the EPA's objective</i>
10	Describe any assumptions critical to your conclusion (in Question 9). <i>e.g. particular mitigation measures or regulatory conditions.</i>	No anything that UIL is aware of.

POTENTIAL KEY FACTOR – FLORA and VEGETATION (Dieback)		
1	Factor, as defined in EAG 8	Flora and Vegetation (<i>Phytophthora cinnamomi</i> - Dieback)
2	EPA Objective, as defined in EAG 8	To maintain representation, diversity, viability and ecological function at the species, population and community level.
3	Guidance - what established policies, guidelines, and standards apply to this factor in relation to the proposal?	<p>WA <i>Best practice guidelines for the management of Phytophthora cinnamomi</i>, 2004; WA, <i>Best Practice Guidelines Management of Phytophthora Dieback in Extractive Industries</i>, Dieback Working Group 2004; WA Department of Conservation and Land Management, <i>Phytophthora cinnamomi and disease caused by it Volume 1 – Management Guidelines</i>, 2003; <i>Arrive Clean, Leave Clean - Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems</i>, Commonwealth of Australia, DotE, 2015; <i>Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi</i>, DotE, 2014; <i>Background: Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi</i>, DotE, 2014.</p>
4	<p>Consultation - outline the need for consultation and the outcomes of any consultation in relation to the potential environmental impacts, including:</p> <ul style="list-style-type: none"> • <i>anticipated level of public interest in the impact;</i> • <i>consultation with regulatory agencies; and</i> • <i>consultation with community.</i> 	<p>UIL Energy referred the proposal under the EPBC Act to the DotE. The potential impact from dieback has been addressed in the Supplementary Report to UIL EPBC Referral. The referral decision is “the proposed seismic survey is not a controlled action if undertaken in a particular manner”. In this regard, to prevent spread of the plant pathogen (<i>Phytophthora cinnamomi</i>) the project must be undertaken in accordance with the WA Department of Conservation and Land Management (2003) <i>Phytophthora cinnamomi and Disease Caused By It, Volume 1 - Management Guidelines</i> and the Western Australian Dieback Working Group (2004) <i>Best Practices Guidelines for Management of Phytophthora Dieback in Extractive Industries</i>.</p> <p>UIL Energy has consulted with the DMP, DPaW Moora District office (Jurien Bay) regarding environmental aspects of the survey including dieback.</p> <p>UIL Energy has consulted with overlapping land users (Tronox, APA Group) and was advised on locations of established clean-down points.</p> <p>Consultation with landholders will be undertaken to identify hygiene station locations and mark areas where vehicles and footwear clean down will occur.</p>
5	Baseline information - describe the relevant characteristics of the receiving environment.	Declared <i>Phytophthora</i> Dieback infestation occurs within the far eastern boundary of the Badgingarra National Park (DPAW, 2015). However, the proposed seismic layout does not interact or overlap declared dieback infestation areas. During the on-ground

POTENTIAL KEY FACTOR – FLORA and VEGETATION (Dieback)

	<i>This may include: regional context; known environmental values, current quality, sensitivity to impact, and current level of cumulative impacts.</i>	ecological survey the evidence of dieback infestations were observed in Wongonderrah Nature Reserve and on adjacent private properties, <i>Figure 2: Dieback locations and hygiene stations.</i>
6	Impact assessment - describe the potential impact/s that may occur to the environmental factor as a result of implementing the proposal.	Introduction and spread of dieback disease may result in permanent loss of native vegetation, protected flora species and habitat for native fauna species. In addition it may result in rehabilitation failure.
7	<p>Mitigation measures - what measures are proposed to mitigate the potential environmental impacts? The following should be addressed:</p> <ul style="list-style-type: none"> • <i>Avoidance - avoiding the adverse environmental impact altogether;</i> • <i>Minimisation - limiting the degree or magnitude of the adverse impact;</i> • <i>Rehabilitate – restoring the maximum environmental value that is reasonably practicable; and</i> • <i>Offsets – actions that provide environmental benefits to counterbalance significant residual environmental impacts or risks of a project or activity.</i> 	<p>Avoidance Evidence of dieback within the Project area was identified and recorded during the on-field ecological survey. Proposed activities will be carried out in the dry season when dieback pathogens are not active. No topsoil disturbance including removal of topsoil is proposed. UIL has also modified the seismic survey methodology to remove up-holes from the seismic survey program, totally eliminating impacts associated with drilling activities. Clearing will involve removal of vegetation above ground level (no contact with topsoil and roots). Mulched material will be left in situ to avoid a spread of contaminated materials.</p> <p>Mitigation The “Partially infested and uninfested <i>Phytophthora</i> dieback” mitigation will be adopted with clean on entry to dieback free areas and clean on exit from infested areas hygiene protocol being implemented. Hygiene stations will be established, clean-down protocols and procedures will be implemented (refer to <i>Figure 2 –Dieback locations and hygiene stations</i>). Disturbance will be minimised by applying “mulching” method or roll vegetation flat. Prior to entry to a private property clean-down procedures will be also in accordance with Land Access Agreement. Vehicles will stay within designated corridors, no unauthorised access outside designated tracks, no traverse or short-cutting. All vehicles and machinery will be inspected on arrival to the site and any equipment carrying evidence of soil or vegetative matter on wheels, body panels, undercarriage or in cabs, will not be accepted until they comply with biosecurity requirements. Geophones removed from infested areas will be brushed down to remove any soil, weeds and plant pathogens. All field personal on foot leaving/ entering dieback disease areas will undertake cleaning of footwear using bleach, methyl spirits or the fungicide Phytoclean, in a footbath, to decontaminate footwear. A small portable footbath, a scrubbing brush and a container of clean water will be carried in an “on foot” personnel vehicle and set up at appropriate locations at exit points from dieback infested zones. Dry cleaning with stiff brushes is considered preferential to avoid creating run-off. Field personnel will be inducted on dieback infested areas and prevention measures including training on use of the personal hygiene kit and the clean down procedure.</p>

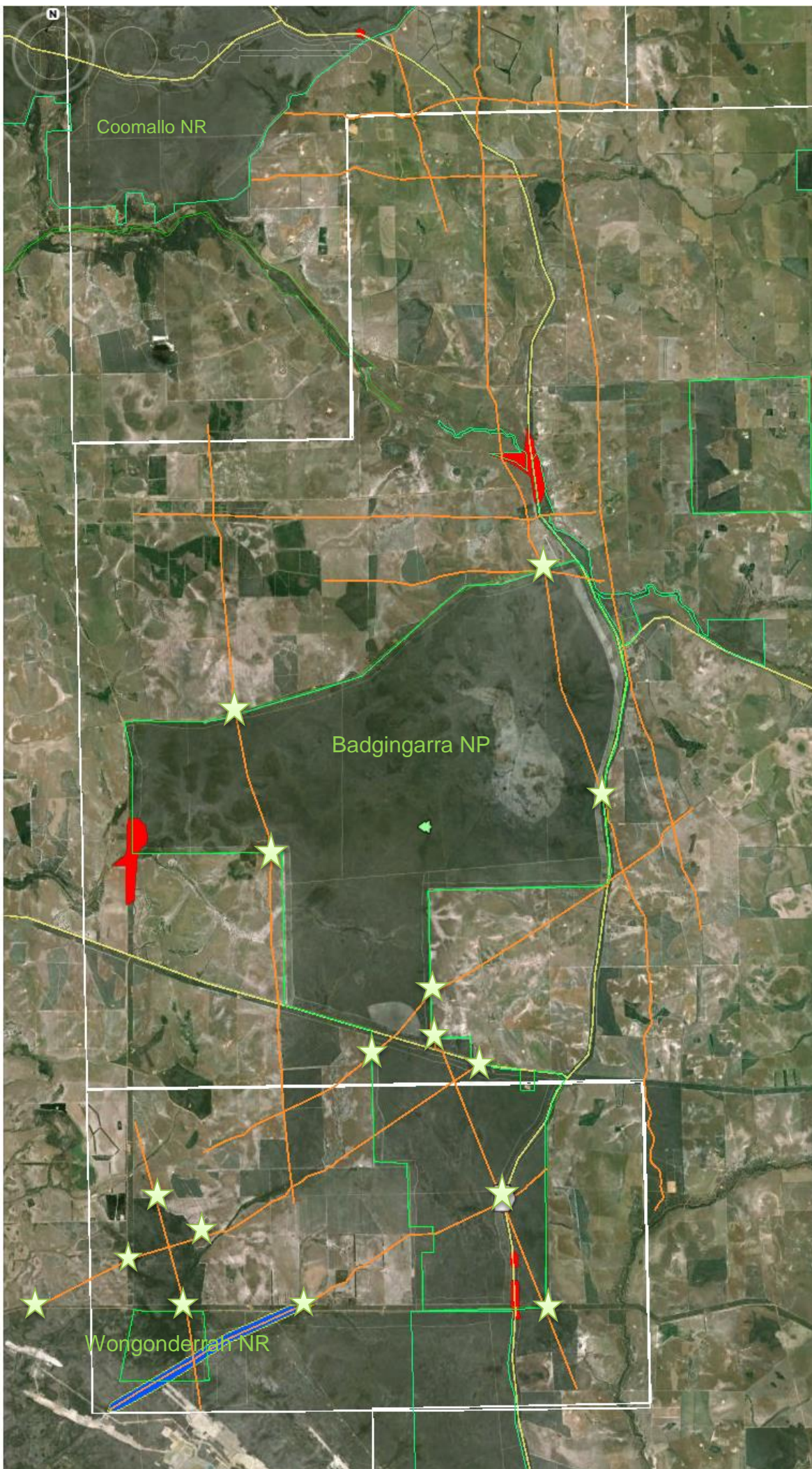
POTENTIAL KEY FACTOR – FLORA and VEGETATION (Dieback)

		<p>Rehabilitation Rehabilitation progress will be monitored, including weeds and pathogens, annually for at least 5 years.</p> <p>Offsets No specific requirement for offsets is anticipated for potential impacts associated with dieback. It is more appropriate to take account of any potential impacts when considering offsets associated with the overall impact of clearing of native vegetation. In this regard, UIL Energy is currently investigating environmental offset options.</p>
8	<p>Residual impacts – review the residual impacts against the EPA objectives.</p> <p><i>It is understood that the extent of any significant residual impacts may be hard to quantify at the referral stage. Referrers are asked to provide, as far as practicable, a discussion on the likely residual impacts and form a conclusion on whether the EPA’s objective for this factor would be met if residual impacts remain. This will require:</i></p> <ul style="list-style-type: none"> • <i>quantifying the predicted impacts (extent, duration, etc.) acknowledging any uncertainty in predictions;</i> • <i>putting the impacts into a regional or local context, incorporating knowable cumulative impacts; and</i> • <i>comparison against any established environmental policies, guidelines, and standards.</i> 	<p>The proposed layout does not interact with existing/known dieback infestation areas. Evidence of dieback was recorded during the on-ground ecological survey area within Wongonderrah Nature Reserve and on adjacent private properties.</p> <p>Mitigation measures and management of <i>Phytophthora cinnamomi</i> will be undertaken in accordance with WA DPAW Phytophthora cinnamomi Management Guidelines and WA Dieback Working Group Best Practices Guidelines for Management of Phytophthora in Extractive Industries.</p> <p>Considering proposed avoidance and mitigation measures such as no topsoil and roots disturbance, mulching in situ, conducting activities in dry periods and under dry conditions when dieback pathogens are not active, UIL Energy believes that the residual environmental impact is unlikely to be significant.</p>
9	<p>EPA’s Objective – from your perspective and based on your review, which option applies to the proposal in relation to this factor? Refer to EAG 9</p>	<p><input checked="" type="checkbox"/> <i>meets the EPA’s objective</i></p> <p><input type="checkbox"/> <i>may meet the EPA’s objective</i></p> <p><input type="checkbox"/> <i>is unlikely to meet the EPA’s objective</i></p>
10	<p>Describe any assumptions critical to your conclusion (in Question 9). e.g. <i>particular mitigation measures or regulatory conditions.</i></p>	<p>UIL Energy considers that the Proposal can be managed to meet the EPA’s objectives for this factor. Additionally, UIL Energy commits to offset any significant residual impact resulting from the proposed seismic survey.</p>

Table B-1 Significance of visual impacts

		Amenity impact				
		Large	Moderate	Small	Negligible	
		A substantial/obvious change to the amenity due to total loss of, or change to, elements, features or characteristics of the amenity. Would cause an amenity to be permanently changed and its quality diminished. Change is likely to cause a direct adverse permanent or long-term (more than 10 years) impact on the value of the visual receptor.	Considerable changes in the amenity due to partial loss of, or change to the elements, features or characteristics of the amenity. Maybe partly mitigated. The change would be out of scale with the amenity and at odds with the local pattern and will leave an adverse impact on an amenity of recognised quality. Change is likely to impact adversely integrity/value of the visual receptor but recovery is predicted in the medium term (5-10 years)	Minor loss or alteration to one or more key amenity elements, features, or characters, or the introduction of elements that may be visible but may not be uncharacteristic within the existing amenity. Change is likely to adversely impact the integrity/value of the visual receptor but recovery is expected in the short term (0-4 years).	Almost imperceptible or no change in the view as there is little or no loss of/ or change to the elements, features or characteristics of the amenity. The existing amenity quality is maintained but be slightly at odds to the scale, landform and pattern of the amenity.	
Visual Sensitivity	High	Large number of viewers/visitors with interest in outdoor recreational areas including nature reserves and nature based recreation (walking, horse riding) where they attention or interest is likely to be focused on the landscape and on particular views. Large number of visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience.	Major significance	High significance	Moderate significance	Minor significance
	Medium	Medium numbers of residents or occupiers of places of work where views are an important contributor to the setting and to the quality of working life. Moderate numbers of visitors within an interest in the environment, e.g. visitors to state reserves, bush walking, horse riding. Large numbers of travellers on road, where appreciation of the landscape is an important part of the experience - such as scenic routes.	High significance	Moderate significance	Minor significance	Not significant
	Low	Small numbers of visitors and road users in motor vehicles with a passing interest in their surrounding and therefore have short term views. Viewers whose interest is not specifically focussed on the landscape and its amenity, e.g. workers, commuters.	Moderate significance	Minor significance	Not significant	Not significant
	Negligible	Viewers from locations where there is screening by vegetation or where only occasional screened views are available and viewing time is short. Road users in motor vehicles that are passing through the survey area with short viewing times.	Minor significance	Not significant	Not significant	Not significant

Landscape Institute and Institute for Environmental Management and Assessment, 2013



Legend:

- Seismic line
- Existing/ known infestations
- Evidence of dieback
- Hygiene stations

Figure 2: Dieback Locations and Hygiene Stations

2D Seismic Survey
Date: 06/04/2016

DIDMS 2014/Astron 2015
Image Landsat 2016
Google Earth Projection
GDA 94/MGA zone 50
Vertical Datum AHD



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