ENVIRONMENTAL SCOPING DOCUMENT

PROPOSAL NAME:	**BLUE HILLS MUNGADA EAST EXPANSION PROJECT**
ASSESSMENT NUMBER:	**2028**
LOCATION:	**APPROXIMATELY 66 KILOMETRES NORTH-EAST OF PERENJORI IN THE MIDWEST REGION**
LOCAL GOVERNMENT AREA:	**SHIRE OF PERENJORI**
PROPONENT:	**SINOSTEEL MIDWEST CORPORATION LIMITED**
PUBLIC REVIEW PERIOD:	**6 WEEKS**

1. Introduction

The above proposal is being assessed by the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986* (EP Act) at the level of Public Environmental Review (PER). This Environmental Scoping Document (ESD) sets out the requirements for the environmental review of the proposal. The purpose of an ESD is to:

- provide proposal-specific guidelines to direct the proponent on the preliminary key environmental factors or issues that are to be addressed during the environmental review and preparation of the environmental review report;
- identify the required work that needs to be carried out; and
- identify the timing of the environmental review.

The proponent must conduct the environmental review in accordance with this ESD and then report to the EPA in an environmental review report (PER document). As well as the proposal-specific requirements for the environmental review identified in this ESD, the PER document must also address the generic information requirements listed in section 10.2.4 of the EPA's *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* (Administrative Procedures). When the EPA is satisfied that the PER document adequately addresses both of these requirements, the proponent will be required to release the document for a public review period of 6 weeks.

Approved by EPA Chairman Dr Paul Vogel 27 July 2015

This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities (DMA's) and interested agencies consistent with EPA Environmental Assessment Guideline (EAG) 10 – *Scoping a proposal*. ESDs prepared by the EPA are not subject to public review. The ESD will be available on the EPA website (www.epa.wa.gov.au) upon endorsement and must be appended to the PER document.

2. Background

Sinosteel Midwest Corporation Limited (SMC) is seeking to expand its existing operations in the Midwest Region of Western Australia (WA).

SMC is developing and operating several iron ore projects in the Midwest Region including the Koolanooka/Blue Hills (Mungada) Direct Shipping Iron Ore Project (DSO Project). The DSO Project involves mining iron ore from three pits: one pit at Koolanooka Iron Ore Mine and two pits known as Mungada West and Mungada East, located on the Mungada Ridge landform at the Blue Hills Iron Ore Mine.

In September 2013 SMC referred its proposal for the expansion of its current mining operations at the Mungada West and Mungada East pit areas on the Mungada Ridge, to the EPA under section 38 of the EP Act. In June 2014 SMC modified the proposal such that it only included the expansion of the Mungada East pit. Details on the modified proposal were finalised in September 2014.

On 10 November 2014 the EPA released its report and recommendations to the Minister for Environment (EPA Report 1532) which concluded that the proposal could not be managed to meet the EPA's objectives for Landforms and is environmentally unacceptable and should not be implemented.

Following consideration of the appeals, on 22 April 2015, the Minister for Environment remitted the proposal back to the EPA pursuant to Section 101(1)(d)(i) of the EP Act and directed that the EPA reassess the proposal more fully and more publicly. The reassessment of this proposal more fully and publicly will provide the Minister with more detailed information to enable it to make a decision in relation to whether or not the proposal should be implemented.

The reassessment of the proposal is to be undertaken by way of a PER in accordance with the procedures set out in the EPA's Administrative Procedures and sections 40 to 48 of the EP Act shall apply to the reassessment.

The EPA considered this proposal at EPA Meeting No. 1078 on 21 May 2015. At this meeting the EPA determined that the PER document should be subject to a 6 week review period, and that the EPA would prepare the ESD. The EPA also determined the preliminary key environmental factors to be included in this ESD are Flora and Vegetation; Landforms; Subterranean Fauna; Terrestrial Fauna; Amenity; Offsets; and Rehabilitation and Decommissioning. These are discussed further in Section 4 below. The EPA determined that Hydrological Processes and Inland Waters Environmental Quality and Heritage should be considered as Other Factors which are discussed further in Section 7 of this ESD.

3. The proposal

It is SMC's modified proposal of September 2014 (Ecological Australia, 2014b) that is the subject of the EPA's PER assessment.

The proposal is to expand SMC's approved DSO Project with the development of one new mine pit known as the Mungada East Expansion pit, located on the Mungada Ridge immediately east of the existing Mungada East mining area. The proposal is located approximately 66 kilometres (km) north-east of Perenjori in the Midwest Region of WA. The regional location of the proposal is shown in Figure 1. The proposal also includes a waste dump, processing plant and haul roads which would connect the newly proposed mine to the existing mine operations (Figure 2). Export product would be transported along existing roads to Karara Mining Limited's rail and on to the Geraldton port.

The proposal would provide an additional 4.4 million tonnes of hematite over a three year life of mine. The proposal would result in the clearing of 53.5 hectares (ha) of native vegetation on and adjacent to the Mungada Ridge within a 172.56 ha development envelope. 17.3 ha of clearing will occur on the Mungada Ridge landform.

The key characteristics of the proposal are set out in Table 1, in accordance with EPA EAG 1 – *Defining the key characteristics of a proposal*. The development envelope encompassing the physical elements of the proposal is delineated in Figure 2.

It should be noted that the key proposal characteristics may change as a result of implementation of the mitigation hierarchy by the proponent on account of the findings of studies and investigations conducted as part of the environmental review.

Table 1 Key Proposal Characteristics

Summary of the proposal		
Proposal Title	Blue Hills Mungada East Expansion Project	
Proponent Name	Sinosteel Midwest Corporation Limited	
Short Description	The proposal is to construct and operate one open-cut hematite iron ore mine referred to as the Blue Hills Mungada East Expansion and associated mine waste dump, haul roads and access road and supporting mine infrastructure. The proposal is located approximately 66 kilometres north-east of Perenjori in the Midwest Region of Western Australia.	
Physical Elements		
Element	**Location**	**Proposed Extent**
Mine pit and pit bund	Figure 2	Clearing no more than 18.6 hectares (ha) of native vegetation within a 172.56 ha development envelope.
Waste dump	Figure 2	Clearing no more than 11 ha of native vegetation within a 172.56 ha development envelope.
Supporting infrastructure	Figure 2	Clearing no more than 11.3 ha of native vegetation within a 172.56 ha development envelope.
Haul roads and access road	Figure 2	Clearing of no more than 12.6 ha within a 172.56 ha development envelope.
Operational Elements		
Element	**Location**	**Proposed Extent**
Waste material	Figure 2	Disposal of 1.6 million tonnes of waste (approximately 65% of the waste rock would be used to backfill the existing Mungada East pit. The remaining 35% will be disposed of to the new waste dump).

The proposal development envelope is on former pastoral lease purchased by the State Government for the purpose of inclusion in the conservation reserve system, and includes proposed recreational use.

The proposal is expected to directly impact a part of the Mungada Ridge landform and its associated environmental values including direct and indirect impacts to threatened flora (Declared Rare Flora, DRF) listed under the *Wildlife Conservation*

Act 1950 (WC Act) and Priority flora. The threatened flora species *Acacia woodmaniorum* has an International Union for Conservation of Nature threat category ranking of vulnerable and Priority 1 Banded Ironstone Formation (BIF) specialist flora species *Lepidosperma* sp. Blue Hills is currently being assessed by the Department of Parks and Wildlife (Parks and Wildlife) to determine whether there is sufficient information for determining whether the taxon meets the criteria for nomination and subsequent consideration for listing as threatened flora. The proposal area occurs within the Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) vegetation complexes (banded ironstone formation) Priority Ecological Community (Priority 1) (PEC).

Direct and indirect impacts are also expected from the proposal on terrestrial fauna listed as threatened fauna species under the WC Act and species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

4. Preliminary key environmental factors and scope of work

The EPA used the proponent's referral information in addition to the EPA's professional judgement to assist in identifying the preliminary key environmental factors as outlined in EPA Environmental Assessment Guideline (EAG) 8 – *Environmental principles, factors and objectives*. The preliminary key environmental factors for this proposal and the EPA's objective for each of those factors are identified in Table 2.

To provide context to the preliminary key environmental factors, Table 2 also identifies the aspects of the proposal that cause the factors to be preliminary key factors, and the potential impacts and risks likely to be relevant to the assessment. All of this in turn has informed the work required to be conducted in the environmental review.

Finally, Table 2 identifies the policy documents that establish how the EPA expects the environmental factors to be addressed in the environmental review and the PER document that follows. Impacts associated with proposals are to be considered at a local and regional scale, including evaluation of cumulative impacts, and provide details of proposed management/mitigation measures. This includes whether environmental offsets are required by application of the mitigation hierarchy, consistent with the Government of Western Australia (2014) WA Environmental Offsets Guidelines.

In addition to the preliminary key environmental factors, the proponent is also required to demonstrate in the PER that the proposal is consistent with the environmental principles in EAG 8.

Table 2 Preliminary key environmental factors and required work

Flora and Vegetation	
EPA objective	To maintain representation, diversity, viability and ecological function at the species, population and community level.
Relevant aspects	• Clearing of native vegetation; • Construction of mine infrastructure; and • Operation of mine.
Potential impacts and risks	• Clearing of native vegetation; • Indirect impacts on vegetation dependent on surface water due to alterations and disruptions to surface water flows; • Indirect impacts on flora and vegetation from dust; • Indirect impacts on flora and vegetation from fragmentation and change in microclimate; • Introduction and/or spread of introduced flora (weed) species into mining areas and adjacent native vegetation; and • Altered fire regimes.
Required work	1. Undertake a Level 2 flora and vegetation survey for the entire development envelope and any additional areas where vegetation may be indirectly impacted as a result of the proposal, or where local population information is required for conservation significant species and vegetation units. Surveys are to be undertaken in accordance with EPA Guidance Statement 51 and the Department of Environment and Conservation (now the Department of Parks and Wildlife) *Recommended interim protocol for flora surveys of banded ironstone formations of the Yilgarn Craton*. A peer review of the vegetation and flora information by a suitably qualified professional will also be required. The peer reviewer should be selected in accordance with the criteria outlined in EPA Guidance Statement 51. Should the proponent intend to rely on results from previous surveys a literature review and justification will be required to ensure those surveys are relevant, representative of the development envelope, provide suitably current information on populations and locations of flora of conservation significance, and were carried out using methods consistent with EPA Guidance. 2. Identify and map threatened flora (Declared Rare Flora, DRF), Priority flora and other conservation significant flora species and vegetation units (including those vegetation units associated with the Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) vegetation complexes (BIF) PEC and their areas to be cleared or indirectly impacted as defined in EPA Guidance Statement 51. Provide details of the methodology used in the identification and mapping of vegetation units. The vegetation units should be classified based on floristics, rather than structural vegetation features utilising the methodology of the recommended interim protocol above. Describe and map the condition of the vegetation. The definition of conservation significant species or vegetation incorporates the assigned status from State and/or Commonwealth lists and/or the EPA's definition of significant species and vegetation in EPA Guidance Statement 51. Significant species and vegetation are defined in EPA Guidance Statement 51 as species and vegetation that may be significant for a range of reasons other than listing under State or Commonwealth legislation as

threatened, Priority and specially protected (e.g. endemic or restricted taxa, new taxa or affinities, taxa at the limits of their range, etc).

3. Provide a detailed description and figure(s) of the proposed clearing and impacts associated with the proposal.

4. Predict the residual impacts from the proposal on flora and vegetation, both direct and indirect, after considering and applying avoidance and minimisation measures. Impact predictions are to include, but not be limited to:

    a) The extent of impacts on conservation significant flora species (noting those flora species that have ranges either centred on BIF (specialist) or restricted to a single BIF range (endemic), including the number of plants in the affected populations, the percentage of plants in the affected populations, the number of plants and populations to be impacted in a 'worst case scenario', and the number of plants and populations known to occur outside the disturbance footprint at both a local and regional scale.

    b) The extent of impacts on the different vegetation units including those vegetation units associated with the Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) vegetation complexes (BIF) PEC. Analysis should include local and regional distribution of vegetation units.

    c) Provision of information on the representation of conservation significant flora and vegetation units on the remaining, unmined, areas of the Mungada Ridge. Provide information on the tenure of those occurrences, such as managed for conservation or within an exploration licence, mining lease or other mining tenure.

    d) Discussion of the cumulative impacts of past, current and approved mining activities on the Mungada Ridge and surrounding area on the conservation significant flora and vegetation units utilising quantitative data from relevant local and regional surveys.

    e) Provision of information on the representation of impacted conservation significant flora species and vegetation communities in secure conservation tenure.

    f) Provision of information on the implications of the proposal on the genetic diversity and structuring of *Acacia woodmaniorum* and *Lepidosperma* sp. Blue Hills, including consideration of the implications of the proposal on population dynamics and functionality (connectivity etc).

    g) Analysis and collation of the information from all the relevant flora reports to address impacts (direct and indirect) and risk of mining related activities to the long term survival and population viability of *Acacia woodmaniorum* and *Lepidosperma* sp. Blue Hills. Indirect impacts include dust, changed microclimate, changed hydrology, changed ecosystem processes, including impacts to pollinators and reduced reproductive success, reduced genetic diversity, fragmentation, introduced weeds/disease, trampling by introduced fauna and changes to seed dispersal.

5. Demonstrate how the EPA's objective for this factor can be met.

6. Identify management and mitigation measures for the proposal to ensure residual impacts are not greater than predicted. The PER is to include:

    a) A description of the management and mitigation measures for flora and vegetation; and

    b) A conservation significant species and communities management plan including environmental outcomes/objectives; other key regulatory

	requirements; management actions; monitoring (including methodology, frequency, location and rationale); trigger criteria; contingency actions; review, reporting and consultation. 7. Provide quantitative information (peer reviewed or an independent report) from a suitably qualified professional on the outcomes of the proponent's threatened flora (Declared Rare Flora, DRF) and Priority flora (including *Acacia woodmaniorum* and *Lepidosperma* sp. Blue Hills) management, rehabilitation and restoration associated with the existing operations. Information should include, but not be limited to: a) The outcomes of research projects; b) The implementation of plans; c) The current status of any attempts to establish or improve populations of the species in the wild; and d) Implications of findings for other potential BIF specialist flora species. 8. Complete the EPA Checklist for documents submitted for Environmental Impact Assessment on terrestrial biodiversity.
Relevant policy	DEC (2006) *Recommended Interim Protocol for Flora Surveys of Banded Ironstone Formations of the Yilgarn Craton*. Unpublished. Department of Environment and Conservation, Perth, Western Australia. EPA (2003) *Position Statement 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection*. Perth, Western Australia. EPA (2004) *Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*. Perth, Western Australia. EPA Checklist for documents submitted for Environmental Impact Assessment on marine and terrestrial biodiversity.
Landforms	
EPA objective	To maintain the variety, integrity, ecological functions and environmental values of landforms.
Relevant aspects	• Mining excavation and earthworks.
Potential impacts and risks	• Structural alteration of landform(s) (temporarily or permanently); • Impacts to the ecological function of the landform(s) (temporarily or permanently); and • Impacts to the environmental values of the landform(s) it supports (temporarily or permanently).
Required work	9. For the purpose of characterising the significance of landforms and assessing the potential impacts of the proposal on landforms, including from cumulative impacts, the EPA has identified the affected landform (Figure 3), the local assessment unit (Figure 4) and the regional context (Figure 5). 10. Characterise the significance of the affected landform in a local and regional context and the local assessment unit in a regional context, having regard to the following (include relevant maps, figures and aerial photography): a) Variety – are the landforms considered a particularly good or important example of their type? How adequately are these types of landforms represented in the local and regional area? How do the landforms differ

	from other examples at these scales? b) Integrity – are the landforms intact, being largely complete or whole and in good condition? To what extent have the landforms, and the environmental values they support, been impacted by previous activities or development? For example; have part of the landforms been removed? c) Ecological importance – do the landforms have a role maintaining existing ecological and physical processes? For example; do the landforms provide a microclimate, source of water flow or shade? Include a discussion on complexity of the landforms. For example; do the landforms have important geological features like cliffs, caves, monoliths or outcropping? d) Scientific importance – do the landforms provide evidence of past ecological processes or are they an important geomorphological or geological site? Are the landforms of recognised scientific interest as a reference site or an example of where important natural processes are operating? and e) Rarity – are the landforms rare or relatively rare; being one of the few of its type at a local and regional level? 11. Identify the environmental values of the affected landform and note which of these environmental values will be addressed through other preliminary key environmental factors identified in this ESD. Identify and discuss any environmental values which are entirely dependent on the landform. 12. Identify the current land tenure of each of the landforms within the local assessment unit and the level of protection the land tenure affords, from any loss of the landforms integrity. 13. Identify and describe the aspects of the proposal which may potentially affect the landforms within the local assessment unit, including both direct and indirect impacts and for construction, operation and closure. 14. Based on the findings above identify, map (3 dimensionally) and describe the areas: a) That will be altered, both temporarily (define timescales) and permanently; and b) That will remain as a structural impact on the landforms. 15. Predict the impacts from the proposal, both direct and indirect, on the landforms within the local assessment unit after considering and applying avoidance and minimisation measures. Impact predictions are to include, but not be limited to: a) The likely extent, severity and duration of direct and indirect impacts on the landforms; and b) The direct and indirect impacts to variety, integrity, ecological functions and environmental values of the landforms. 16. Evaluate the cumulative impacts on the landforms (both individually and collectively) within the local assessment unit from the proposal and other currently approved exploration and developments. Provide information on any other reasonably foreseeable developments in the local assessment unit. Include relevant maps, figures and aerial photography. 17. Demonstrate how the EPA's objective for this factor can be met. 18. Identify management and mitigation measures for the proposal to demonstrate and ensure residual impacts are not greater than predicted (e.g. measures to stabilise the affected landforms during mining activities). This is to include a monitoring and management program to avoid and minimise

	indirect impacts and identify feasible contingencies. 19. Describe measures and actions to minimise permanent impacts to the structure of the affected landform(s) within the local assessment unit. Provide evidence to demonstrate that the proposed measures and actions are feasible and achievable. 20. A peer review of the landforms section of the PER, including any technical studies, by a suitably qualified professional is also required.
Relevant policy	EPA (2015) *Environmental Assessment Guideline for Environmental principles, factors and objectives.* Perth, Western Australia. EPA (2015) *Environmental Protection Bulletin No. 23 Guidance on the EPA Landforms factor*. Perth, Western Australia.
Subterranean Fauna	
EPA objective	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.
Relevant aspects	• Clearing and excavation; • Water abstraction; • Waste generation, storage and disposal; • Vibration; and • Haulage and stockpiling of ore.
Potential impacts and risks	• Mortality and loss of habitat from excavation; and • Impacts to habitat from ground disturbance, stockpiling and surface contamination.
Required work	21. In accordance with EPA Environmental Assessment Guideline 12 and Guidance Statement 54a: a) Conduct a desktop study, incorporating existing regional subterranean fauna surveys and databases to confirm whether subterranean fauna are present or likely to be present. b) If the area is prospective for subterranean fauna, undertake a Level 2 survey, this should include sampling inside and outside the impact areas. Consider cumulative impacts. If the proponent intends to rely on results from previous surveys, justify how those surveys are relevant, representative of the development envelope, and were carried out using methods consistent with EPA Guidance. 22. Provide figure(s) showing the local extent of subterranean fauna habitat in relation to the proposal and species distributions. Provide a detailed description of impacts associated with the proposal. 23. Predict the residual impacts from the proposal on subterranean fauna, including direct, indirect and cumulative, after considering and applying avoidance and minimisation measures. 24. Demonstrate how the EPA's objective for this factor can be met. 25. Identify management measures and monitoring for the proposal to ensure residual impacts are not greater than predicted.
Relevant policy	EPA (2013) *Environmental Assessment Guideline 12: Consideration of subterranean fauna in environmental impact assessment in Western Australia*.

	Perth, Western Australia. EPA (2007) *Guidance Statement No. 54a: Sampling methods and survey considerations for subterranean fauna in Western Australia*. Perth, Western Australia. EPA Checklist for documents submitted for Environmental Impact Assessment on marine and terrestrial biodiversity.
Terrestrial Fauna	
EPA objective	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.
Relevant aspects	• Clearing of fauna habitat; • Excavation, haulage and stockpiling of ore; • Dust suppression; • Lighting; • Vehicle movements; and • Noise and vibration.
Potential impacts and risks	• Death or displacement of fauna species; • Loss or fragmentation or change in quality/condition of fauna habitat; • Attraction of fauna to areas used for storage of water or food wastes; • Changes to feral animal populations; • Increased risk of collision with vehicles; • Introduction and spread of weeds; • Dust; • Noise and vibration; • Lighting; and • Loss of habitat from altered fire regimes.
Required work	26. In accordance with EPA Guidance Statement 56 and the EPA/DEC Technical Guide - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment: a) Carry out a desktop assessment of previous surveys, justification should be provided to demonstrate that they are relevant and consistent with the EPA Guidance; b) Conduct a Level 1 fauna survey including local and regional mapping of habitats (including rare or unusual habitat types) inside and outside of the development envelope. Where existing local information is inadequate or incomplete, comprehensive Level 2 fauna surveys may be required; c) Prepare a comprehensive listing of fauna species likely to occur in habitats to be directly or indirectly impacted; and d) Provide figure(s) showing the likely extent of loss of the habitat types and the extent of areas where vegetation is expected to recover, from both direct and indirect impacts. e) Conduct targeted Level 2 surveys within the development envelope and immediate surrounds, to identify potential impacts to conservation

	significant vertebrate and invertebrate fauna species listed under the WC Act and the EPBC Act. Include mapping of the locations of any conservation significant fauna in relation to the proposal. 27. In accordance with EPA Guidance Statement 20, assess the likelihood of the habitats to support short range endemic invertebrate species. If the area is prospective for these species, undertake short range endemic invertebrate fauna sampling as per Guidance Statement 20. Include mapping of any short range endemic invertebrate fauna in relation to the proposal. Consider cumulative impacts. 28. If the proponent intends to rely on results from previous surveys, justify how those surveys are relevant, representative of the development envelope, and were carried out using methods consistent with EPA Guidance. 29. Provide a detailed description and figure(s) of the proposal impacts on terrestrial fauna, including an analysis of the likely loss of fauna habitat, including percentages of habitat types to be impacted. 30. Predict the residual impacts from the proposal on terrestrial fauna, including short range endemic fauna, both direct and indirect and cumulative, after considering and applying avoidance and minimisation measures. 31. Demonstrate how the EPA's objective for this factor can be met. 32. Identify management measures and monitoring and feasible contingencies for the proposal to ensure residual impacts are not greater than predicted.
Relevant policy	EPA (2000) *Position Statement 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection.* Perth, Western Australia. EPA (2009) *Guidance Statement No. 20: Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia.* Perth, Western Australia. EPA (2004) *Guidance Statement No. 56: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia*. Perth, Western Australia. EPA Checklist for documents submitted for Environmental Impact Assessment on marine and terrestrial biodiversity. EPA and DEC (2010) *Technical Guide - Terrestrial Vertebrate Fauna Surveys for Environmental Impact* Assessment**.** Technical report of the Environmental Protection Authority and the Department of Environment and Conservation.
Amenity	
EPA objective	To ensure that impacts to amenity are reduced as low as reasonably practicable.
Relevant aspects	• Clearing of native vegetation; and • Mining construction, operation and closure.
Potential impacts and risks	• Impacts to amenity values; and • Impacts to the social values (e.g. aesthetics or active use) of the landform(s) it supports (temporarily or permanently).
Required work	33. Characterise the environment by providing a description of the visual landscape character and provide maps of the visual landscape units that may potentially be visually affected. This should include, but not limited to: landforms; vegetation; any waterways and can be undertaken by way of 3 dimensional modelling and/or photographs. 34. Characterise the current, and any other reasonably foreseeable, land uses

	and amenity values of the Mungada Ridge. 35. Design and undertake a visual impact assessment (VIA) for before, during and after the proposed mining activities, to assess the impacts of the proposal on visual amenity in accordance with the Western Australian Planning Commission (2007) *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design*, and in consultation with Parks and Wildlife. 36. The VIA should identify and describe the aspects of the proposal which may potentially affect the visual landscape units both temporarily and permanently, using agreed (by EPA, in consultation with Parks and Wildlife) reference and vantage points of surrounding areas including travel routes and use areas, viewer positions and perceptions. 37. A peer review of the VIA information by a suitably qualified individual with appropriate experience and expertise is also required. 38. Predict the residual impacts from the proposal on the landscape after considering and applying avoidance and minimisation measures. Impact predictions are to include, but not be limited to: a) The likely extent, severity and duration of the impacts to the visual landscape; and b) Simulations of the predicted residual impacts from the proposal, changes to the landscape from the agreed reference and vantage points. Include the cumulative impacts on visual amenity from the proposal and other currently approved developments. 39. Demonstrate how the EPA's objective for this factor can be met. 40. Identify management and mitigation measures for the proposal to ensure residual impacts are not greater than predicted.
Relevant policy	Western Australian Planning Commission (2007) *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design*. Perth, Western Australia.
Offsets (Integrating Factor)	
EPA objective	To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.
Relevant aspects	Residual environmental impacts will be determined through the assessment in alignment with the WA Environmental Offsets Guidelines.
Potential impacts and risks	Residual environmental impacts will be determined through the assessment in alignment with the WA Environmental Offsets Guidelines.
Required work	41. Describe the residual impacts for the proposal and analyse these impacts to identify and detail any that are significant. 42. If the proposal is likely to have any significant residual environmental impacts, identify environmental offsets, consistent with the requirements in the: - WA Environmental Offsets Guidelines which includes the use of the WA Environmental Offsets Template; and - EPA Environmental Protection Bulletin No. 1: Environmental Offsets.
Relevant policy	Government of Western Australia (2011) *WA Environmental Offsets Policy.* Perth,

	Western Australia. Government of Western Australia (2014) *WA Environmental Offsets Guidelines.* Perth, Western Australia. WA *Environmental Offsets template* (230914). EPA (2014) *Environmental Protection Bulletin No. 1: Environmental offsets*. Perth, Western Australia.
Rehabilitation and decommissioning (Integrating Factor)	
EPA objective	To ensure that premises are decommissioned and rehabilitated in an ecologically sustainable manner.
Relevant aspects	• Clearing of vegetation and site works; • Pits; and • Waste rock disposal.
Potential impacts and risks	• Permanent impacts to landform(s); • Acid and/or metalliferous drainage (AMD); • Unsuccessful rehabilitation of flora and vegetation in cleared/developed areas; • Impact on soils from compaction and erosion; • Impediment of rehabilitation success due to the spread of weeds; and • Other threatening processes (i.e. trampling and grazing by livestock, increased risk of fire) impeding rehabilitation success.
Required work	43. Provide an assessment on the physical and chemical characteristics of soil to be disturbed by the proposal, with particular focus on the ability to use such soil materials in post-mining rehabilitation works. 44. In consultation with the Department of Mines and Petroleum (DMP), provide a detailed study on the waste characteristics (volume, chemical and physical properties) of waste rock material generated as part of the proposal. The proposed waste landform design should be based on the outcomes of the waste characterisation study to ensure the final design will achieve desired long term stability and visual amenity as identified in completion criteria and ensure that the final landform design is non-polluting (i.e. any AMD materials are appropriately encapsulated within the waste dump or buffered by other waste). 45. Undertake a literature review and provide evidence of successful best practice mining rehabilitation procedures, include a review of learnings from the rehabilitation currently being undertaken at other BIF environments in the Yilgarn Craton, including provision of outcomes to date. Include a review of the Closure and Rehabilitation Plan for the current operations at the DSO Project. 46. Prepare a Rehabilitation and Mine Closure Plan consistent with the DMP and EPA (2015) *Guidelines for Preparing Mine Closure Plans*. The Plan should include but not be limited to: a) Completion criteria and closure objectives addressing, native vegetation and habitat for conservation significant flora and fauna and base the conclusions on the availability of suitable substrates and landform design; and b) Establish and measure vegetation and fauna reference sites to inform

	completion criteria. 47. Demonstrate that the proposal has been designed to avoid and minimise impacts including the placement of any access roads and infrastructure within vegetated areas has had regard to utilising existing areas of disturbance. 48. Describe the techniques of rehabilitation proposed, including but not limited to: a) Topsoil management; b) Retention or reuse of vegetative material; c) Return of species and communities consistent with the pre-existing composition of the affected area where this is likely to be feasible and the standards that will apply; and d) Identify a timeframe for establishment of the intended species and vegetation units. 49. Identify completion criteria, including criteria for reconstructed soils and soil profiles (identification and profile reconstruction), landform stability, drainage/erosion control and species and communities. 50. Provide information on whether backfilling of the mine pit would be undertaken. 51. Demonstrate how the EPA's objective for this factor can be met.
Relevant policy	DMP and EPA (2015) *Guidelines for Preparing Mine Closure Plans.* Department of Mines and Petroleum and Environmental Protection Authority. EPA (2006) *Guidance Statement No. 6: Rehabilitation of Terrestrial Ecosystems*. Perth, Western Australia.

5. Stakeholder consultation

The EPA expects that the proponent will consult with stakeholders who are interested in, or affected by, the proposal. This includes DMAs, other relevant State government departments and local government authorities, environmental non-government organisations and the local community.

The proponent must document the stakeholder consultation undertaken and the outcomes, including any adjustments to the proposal and any future plans for consultation. This is to be addressed in a specific section of the PER document and, in addition, key outcomes of consultation are to be reported against the preliminary key environmental factors as relevant.

It is expected that as a part of the consultation with DMA's there will be discussion around each agency's specific regulatory approvals, and a demonstration that other factors can be managed by another regulatory body.

6. Peer review

Where a peer review is required it will be undertaken in accordance with the following:

a) The peer review must be undertaken by a suitably qualified and experienced professional;

b) The peer review is conducted at the expense of the proponent;

c) The choice of the reviewer/s is made by a body independent of the author and the report commissioners (in this case, the EPA is the independent body); and

d) The terms of reference of the peer review is agreed by the EPA.

7. Other factors or matters

During assessment of proposals, other factors or matters will be identified as relevant to the proposal, but not of significance to warrant further assessment by the EPA, or impacts can be regulated by other statutory processes to meet the EPA's objectives.

These factors do not require further work as part of the environmental review, or detailed discussion and evaluation in the PER document, although they must be included in the PER document in a summarised, tabular format noting that the PER document will be subject to public review.

In some circumstances other factors, while not being considered as preliminary key environmental factors, may require greater emphasis in the PER document. This may be due to high public interest or at the request of another stakeholder, so that the potential impacts and management measures associated with the other factor are sufficiently articulated for the public review. For this assessment, the other factors that need to be concisely described and discussed in the PER document are:

- Hydrological Processes and Inland Waters Environmental Quality, including but not limited to:
    - Existing studies to confirm that the Gilgai formation is not groundwater dependant;
    - Evidence to support the assumption that all groundwater abstraction will be in accordance with existing licence conditions;
    - Information to demonstrate that the potential impacts to hydrogeological regimes and the environmental quality of groundwater and surface water are not significant and can be regulated under other statutory processes; and
    - Outcomes of consultation with Parks and Wildlife and the Department of Water in relation to the above points.
- Heritage, including but not limited to:
    - Archaeological and ethnographic surveys undertaken;
    - Information to ensure that historical and cultural associations and natural heritage are not adversely affected; and
    - Outcomes of consultation with the Department of Aboriginal Affairs and the relevant Traditional Owner groups in relation to the above points.

It is also important that the proponent be aware that other factors or matters may be identified during the course of the environmental review that were not apparent at the time that this ESD was prepared. If this situation arises, the proponent must consult

with the EPA to determine whether these factors and/or matters are to be addressed in the PER document, and if so, to what extent.

8. Agreed assessment timeline

Table 3 sets out the timeline for the assessment of the proposal agreed between the EPA and the proponent. Proponents are expected to meet the agreed timeline, and in doing so, provide adequate, quality information to inform the assessment.

Table 3 Assessment Timeline

Key Stages of Assessment	Agreed Completion Date
EPA approval of ESD	16 July 2015
Proponent submits first adequate draft PER document	13 November 2015
Office of the Environmental Protection Authority (OEPA) provides comment on first adequate draft PER document (6 weeks)	8 January 2016 *(2 weeks added for Xmas period)*
Proponent submits adequate revised draft PER document (4 weeks)	5 February 2016
EPA authorises release of PER document for public review (2 weeks)	19 February 2016
Proponent releases authorised PER document for public review (1 week)	26 February 2016
Public review of PER document (6 weeks)	8 April 2016
EPA provides Summary of Submissions (3 weeks)	29 April 2016
Proponent provides Response to Submissions (2 weeks)	13 May 2016
OEPA reviews the Response to Submissions (4 weeks)	10 June 2016
OEPA assesses proposal for consideration by EPA (7 weeks)	29 July 2016
Preparation and finalisation of EPA assessment report (including two weeks consultation on draft conditions with proponent and key Government agencies) (5 weeks)	2 September 2016

If any stage in the agreed timeline is not met or inadequate information is submitted by the proponent, the timing for the completion of subsequent stages of the process

will be revised. Equally, where the EPA is unable to meet an agreed completion date in the timeline, the proponent will be advised and the timeline revised.

The proponent should refer to EPA's Environmental Assessment Guideline (EAG) 6 – *Timelines for environmental assessment of proposals* for information regarding the responsibilities of proponents and the EPA for achieving timely and effective assessment of proposals.

9. Decision-making authorities

At this stage, the EPA has identified the authorities listed in Table 4 as DMAs for the proposal. Additional DMAs may be identified during the course of the assessment.

Table 4 Decision-making authorities

Decision-making authority	Relevant legislation
Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972* S18 approval
Minister for Environment	*Wildlife Conservation Act 1950* Licence to take protected flora and fauna
Minister for Mines and Petroleum	*Mining Act 1978*
Minister for Water	*Rights in Water and Irrigation Act 1914* S5c groundwater extraction licence
Department of Environment Regulation	*Environmental Protection Act 1986* Works approvals and licences
Department of Mines and Petroleum	*Mining Act 1978* Approval of mining proposal *Dangerous Goods Safety Act 2004;* Storage and handling of hazardous materials Chief Dangerous Goods Officer *Mines Safety and Inspection Act 1994*

10. Parallel processing

The EP Act constrains DMAs from making any decision that could have the effect of causing or allowing the proposal to be implemented. However, the proponent is encouraged to pursue other approvals in parallel with the EPA's assessment noting that the constraint only relates to making an approval decision.

11. PER document

When the EPA is satisfied with the standard of the PER document (refer to section 4.4 of EAG 6) it will provide written authorisation for the release of the document for public review. The proponent must not release the PER document for public review until this authorisation is provided.

The proponent is responsible for advertising the release and availability of the PER document in accordance with instructions that will be issued to the proponent by the EPA. The EPA must be consulted on the timing and details for advertising.

12. References

Ecological Australia (2014a) *Environmental Review Blue Hills Expansion.* Prepared for Sinosteel Midwest Corporation Ltd. 10 March 2014.

Ecological Australia (2014b) *Blue Hills Mungada East Expansion Further Information.* Prepared for Sinosteel Midwest Corporation Ltd. 26 September 2014.

Environmental Protection Authority (2012) *Environmental Assessment Guideline (EAG) 1 - Defining the key characteristics of a proposal.* Perth, WA.

Environmental Protection Authority (2012) *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012.* No 223. 7 December 2012. Western Australian Government Gazette. Perth, WA.

Environmental Protection Authority (2013) *Environmental Assessment Guideline (EAG) 10 – Scoping a proposal*. Perth, WA.

Environmental Protection Authority (2015) *Environmental Protection Bulletin No. 23 Guidance of the EPA Landforms factor.*

Figure 1 – Regional location

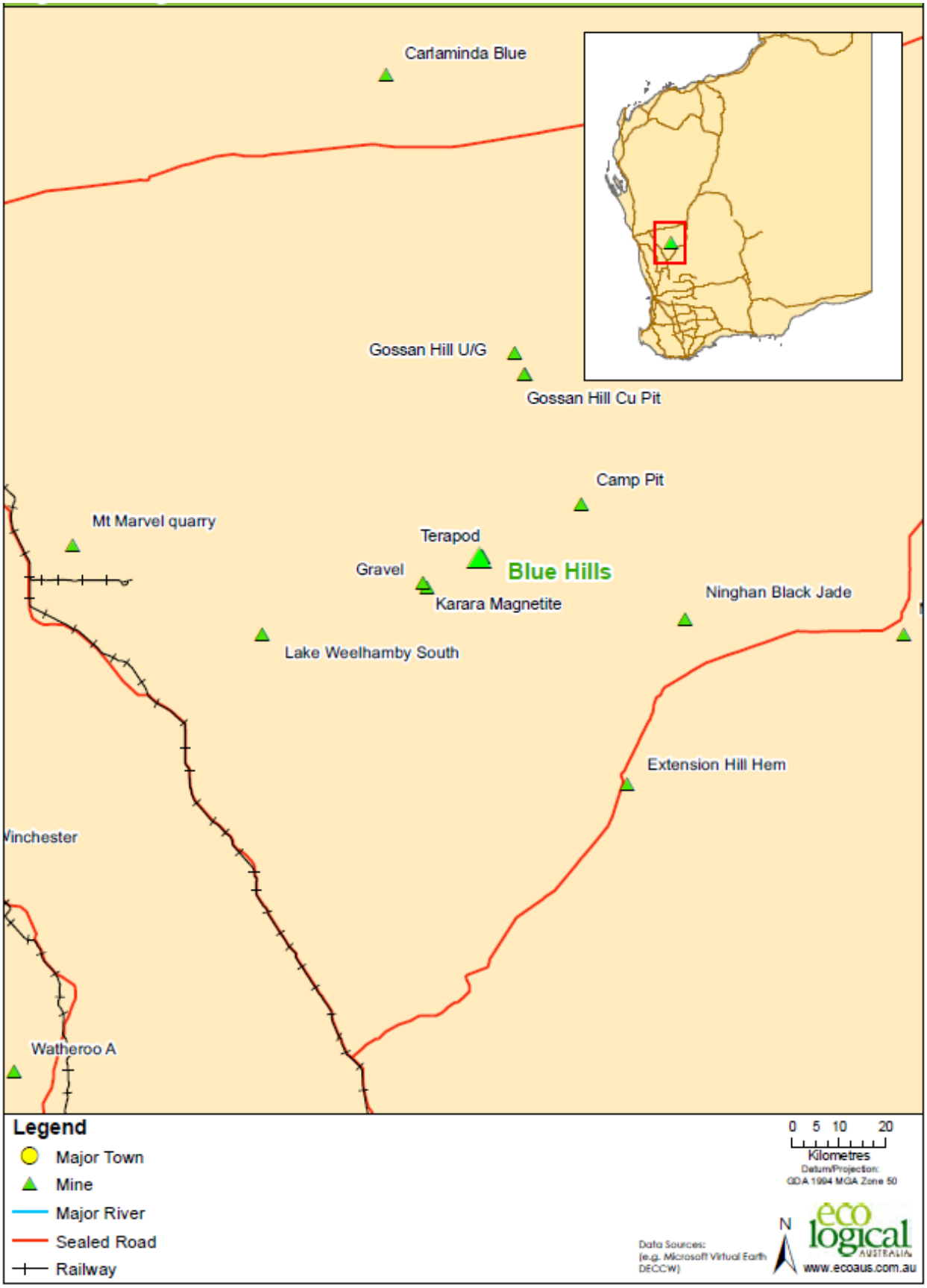


Figure 2 – Development envelope

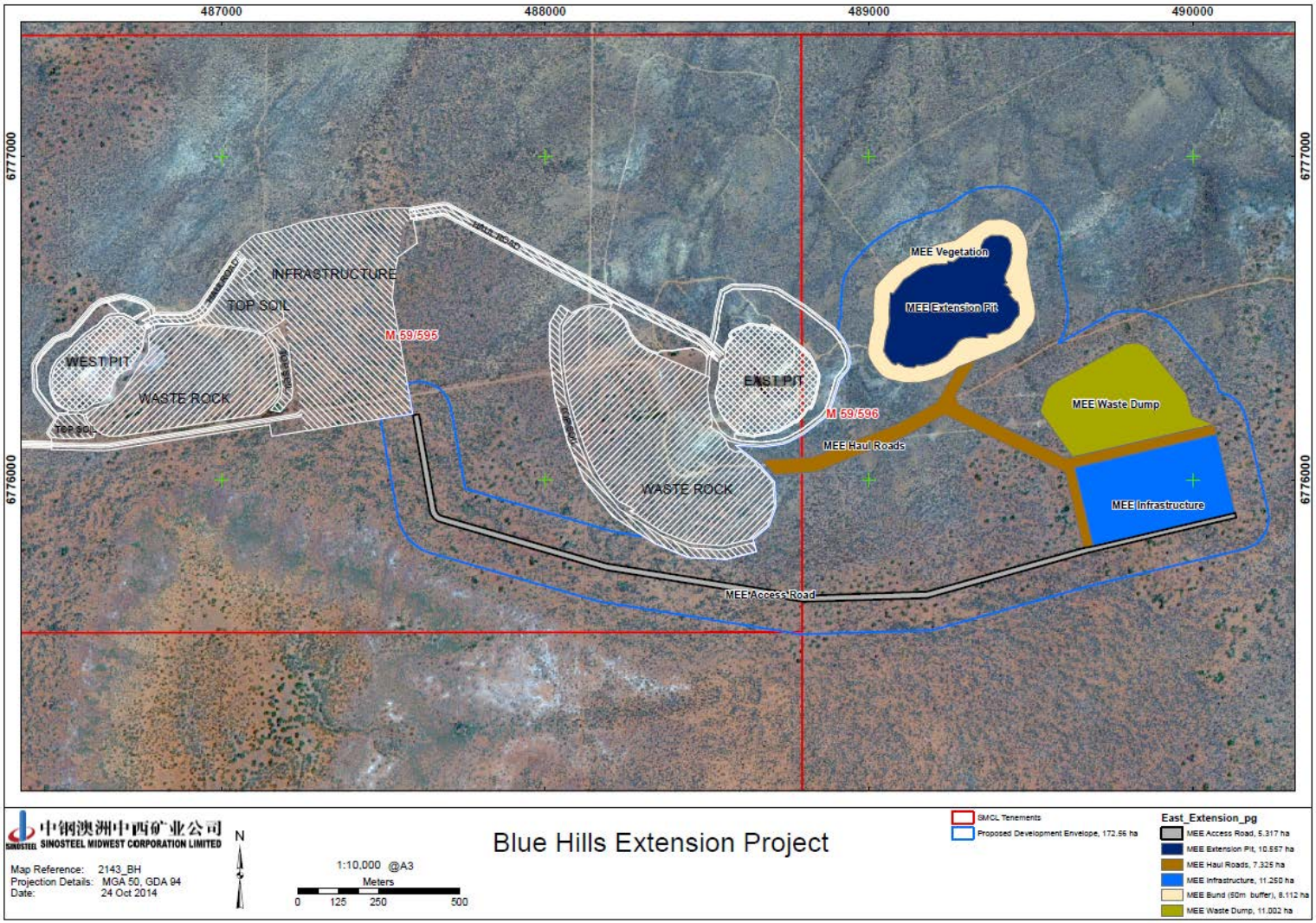
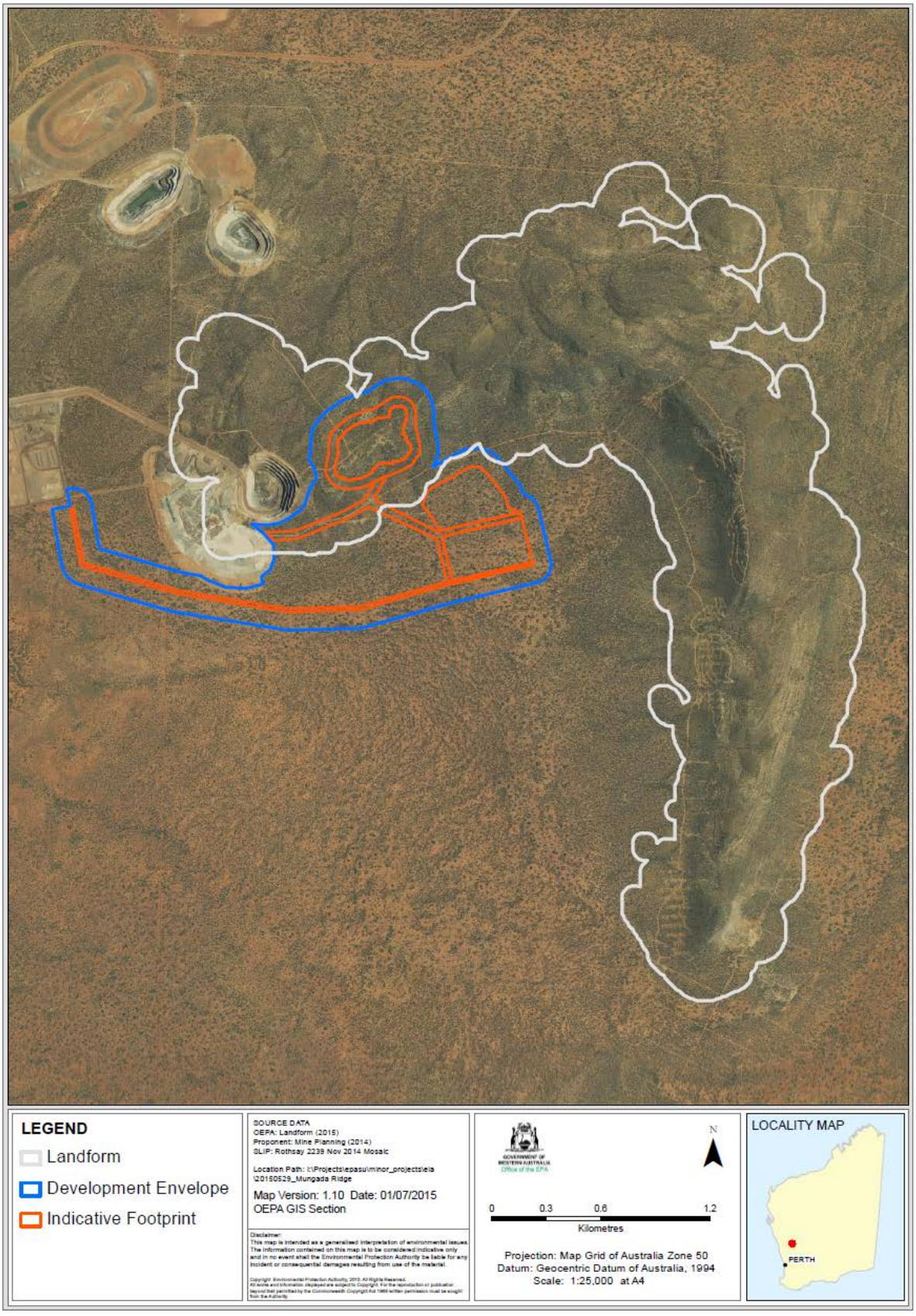


Figure 3 – Potentially Affected Landform

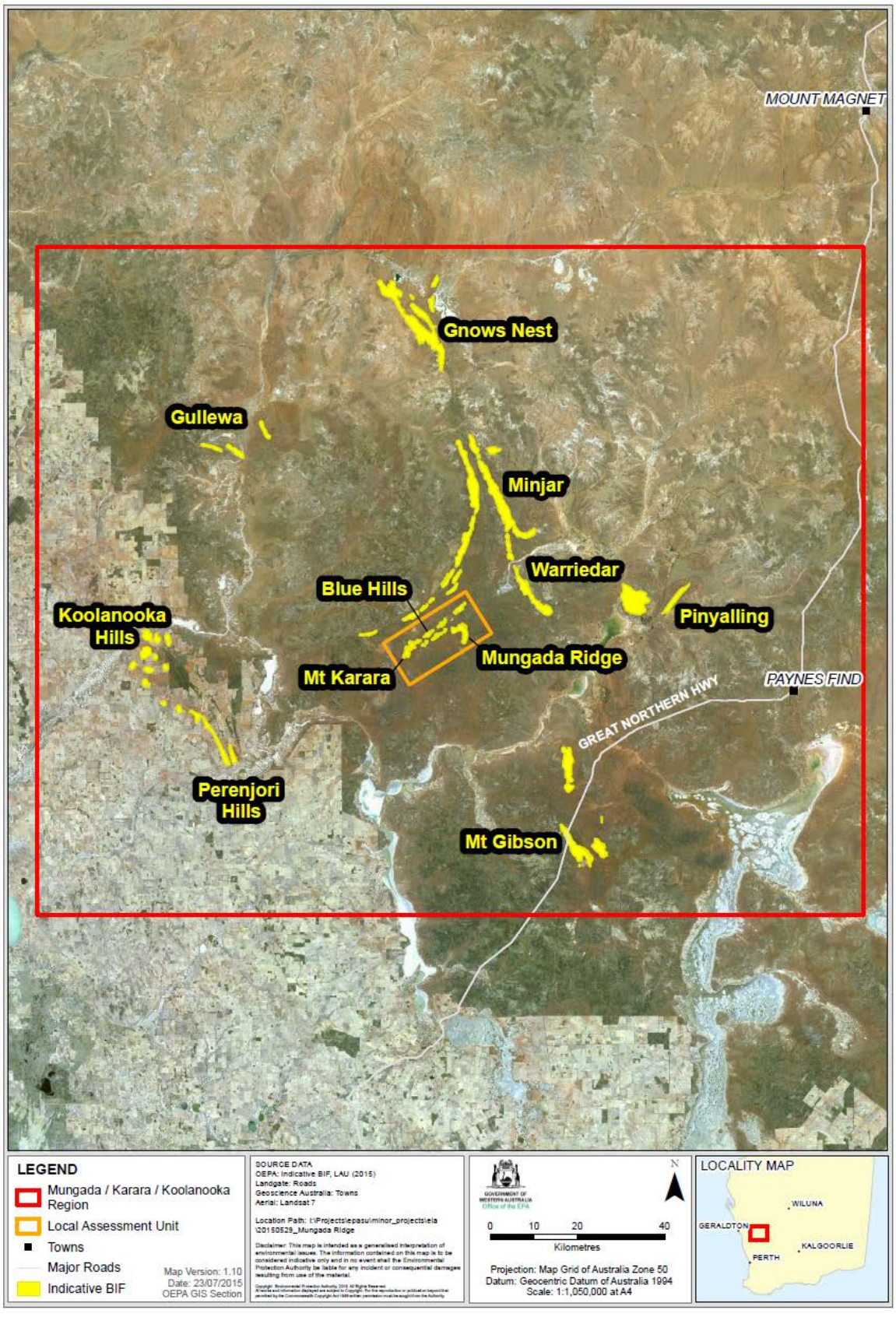


** Landform boundary is determined based on geology and morphology and is shown as the area with a slope of 5 degrees or greater and with an additional 50 metre area to allow for lower resolution source data.*

*** In the Minister's Appeal Determination of July 2009 on the Mungada Iron Ore Project the Minister noted that from a landform perspective Terapod is separate from the main ridge of Mungada.*

Figure 4 - Local Assessment Unit

Figure 5 – Mungada/Karara/Koolanooka Region



** Indicative banded iron formation (BIF) (OEPA 2009): derived from geology (GSWA) and land systems (DAFWA) spatial data.*