TOP IRON PTY LTD

Mummaloo Iron Ore Project

EPA REFERRAL FORM PROPONENT

Environmental Protection Authority

GOVERNMENT OF WESTERN AUSTRALIA

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.	✓	
Included Attachment 1 – location maps.	✓	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✓	
Included Attachment 3 – confidential information (if applicable).	N/A	
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✓	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?

☐ Yes ☐ No ☑ Not sure

If yes, what level of assessment?

☑ Assessment on Proponent Information or Not Assessed ☐ PER

PROPONENT DECLARATION (to be completed by the proponent)

I, Bruce Richardson *(full name)* declare that I am authorised on behalf of Top Iron Pty 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 	Name (print) Bruce Richardson
Position Director	Company Top Iron Pty Ltd
Date 12th September 2012	

PART A - PROPONENT AND PROPOSAL INFORMATION
(All fields of Part A must be completed for this document to be treated as a referral)

1 PROPONENT AND PROPOSAL INFORMATION

1.1 Proponent

Name	Top Iron Pty Ltd
Joint Venture parties (if applicable)	N/A
Australian Company Number (if applicable)	146 976 060
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	Level 1 8 Outram St West Perth WA 6005
Key proponent contact for the proposal: • name • address • phone • email	Bruce Richardson Level 1, 8 Outram St West Perth WA 6005 9226 0299 bricharson@topiron.com.au
Consultant for the proposal (if applicable): • name • address • phone • email	Laura Todd 37 Kensington St East Perth WA 6004 Ph. 9221 9500 laura.todd@enviroworks.com.au

1.2 Proposal

Title	Mummaloo Iron Ore Project
Description	The Mummaloo Project located approximately halfway between Wubin and Paynes Find, in the Mid West of Western Australia (WA) – *Figure 1 "Locality Plan Mummaloo Project" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).* Mining of the Mummaloo Channel Iron Deposit (CID) will be conducted using shallow, open pit strip mining practices using conventional mining equipment. Ore will be hauled to a stockpile area and transferred to a dry mineral separation plant. It is expected the mine life will be approximately 7 - 10 years. The mine depth is likely to be 4 - 6m below surface. Potential mine infrastructure includes: • Mine administration and technical offices • Dry Processing plant • Maintenance workshops and stores • Initial waste dumps (to be reclaimed into pit) • Fuel storage facilities • Access roads • Power station • Domestic and industrial tip • Product stockpiles.

No on site borefield is required. Given groundwater is at 35 m below surface, dewatering is not required. Given processing utilises dry magnetic separation methods, a borefield is not required to supply a wet processing plant. Water supply for potable and dust suppression uses will be trucked or piped from an off-site (already approved) source. A chemically benign iron ore waste will be produced.

Temporary iron ore waste stockpiles will be developed out of the pit for reclamation into the pit. Once the pit is open sufficiently to allow room, it will be backfilled with waste material and progressively rehabilitated. Approximately 25% of the material will be removed as iron ore, with the remaining material returned to the pit.

Ore will be hauled by road train via the Mount Gibson road, onto the Great Northern Highway and likely shipped out of Geraldton port. Mining will be on a campaign basis due to port capacity limitations.

Proposed Key Characteristics Table is as follows:

Summary of the Proposal		
Proposal title	**Mummaloo Iron Ore Mining Project**	
Proponent name	Top Iron Pty Ltd	
Short Description	The proposal is to mine iron ore from the Mummaloo deposit 75 km northeast of Wubin WA, including the construction of associated mine infrastructure (offices, workshop, roads and dry processing plant), with interim iron ore waste dumps which will be reclaimed into the pits.	
Physical Elements		
Element	**Location**	**Proposed Extent**
Mine	Figure 2	Clearing no more than 200 ha within 440 ha development envelope
Associated Infrastructure	Figure 2	Clearing no more than 100 ha within 440 ha development envelope
Operational Elements		
Element	**Location**	**Proposed Extent**
Dry processing iron ore waste (reject material)	Figure 2	Interim starter waste dumps to be reclaimed into the pits (disturbance included within 100 ha for infrastructure above)

Extent (area) of proposed ground disturbance.	The mining pits and infrastructure layout has not yet been optimised and finalised. However a "Development Envelope" within which disturbance will occur has been delineated *(Figure 2 "Site Plan - Proposal Details" Hard Copy Attachment 1 and Electronic Copy Enclosure 1).* The extent of ground proposed ground disturbance within this Development Envelope is as follows: • Mining: up to 200 ha. • Infrastructure, waste stockpiles, plant, access roads: up to 100 ha. • TOTAL DISTURBANCE: 300 ha
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	It is expected the mine life will be approximately 7 - 10 years. It is anticipated mining will commence at the end of 2013 and be completed by 2020 to 2023.
Details of any staging of the proposal.	No staging of the proposal is planned.
Is the proposal a strategic proposal?	The proposal is not a strategic proposal.
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: • title of the strategic assessment; and • Ministerial Statement number.	The proposal is not a derived proposal.
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	The proposal is unrelated to other proposals in the region. It should be noted that the Mumaloo deposit is not within an area of Banded Ironstone Formation (BIF) – it is a Channel Iron Deposit (CID) formed in a paleodrainage channel which contains colluvial clays, silt and iron mineralisation. The majority of the iron occurs as the maghemite, titanomagnetite, hematite and goethite mineralisation located above bedrock in the colluvium.
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	Top Iron do not own the land freehold, however Top Iron hold a Mining Act tenement over the land. The Mummaloo Project is contained in Top Iron's Exploration Licence (E 59/1694) currently under application for conversion to a Mining Lease (M59/744).

What is the current land use on the property, and the extent (area in hectares) of the property?	The project occurs within the Mount Gibson Pastoral Lease. The pastoral lease is currently held by Australian Wildlife Conservancy (AWC) who whist meeting their pastoral lease requirements are managing the land as a wildlife sanctuary with progressive de-stocking occurring. The Mount Gibson Pastoral Lease is 130,500 ha in total size – the Mummaloo Tenement is a small fraction of this pastoral lease being 895 ha in size. The maximum area of disturbance for the Mummaloo project is 300 ha in size. This represents approximately 0.2% of the total pastoral lease area. - *Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

1.3 Location

Name of the Shire in which the proposal is located.	Shire of Yalgoo
For urban areas: • street address; • lot number; • suburb; and • nearest road intersection.	N/A
For remote localities: • nearest town; and • distance and direction from that town to the proposal site.	The nearest settlements are Wubin, approximately 75 km to the southwest, and Paynes Find, approximately 60 km northeast - *Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.	Enclosed?: Yes – *Refer to Enclosure 1*

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	No

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	**Application lodged Yes / No**	Agency/Local Authority contact(s) for proposal
Shire of Yalgoo	• Development approval for site amenities such as buildings and infrastructure. • Access to local road approvals (if required).	No	Address: 37 Gibbons Street, Yalgoo WA 6635 Ph: (08) 9962 8042 Email: pa@yalgoo.wa.gov.au
Department of Indigenous Affairs (DIA)	• Section 18 Grant to disturb heritage site (if a heritage site is identified through further studies).	No	Address: Ground Floor, 151 Royal St, East Perth 6004. Postal: PO Box 3153, East Perth 6892. Ph: 1300 651 077.
Department of Environment and Conservation (DEC)	• Works Approvals. • Operating licence and/or Plant Registration.	No	DEC Industry Regulation Office - Midwest/Geraldton Postal: PO Box 72, Geraldton 6530. Address: 201 Foreshore Drive, Geraldton. Ph: (08) 9921 5955 Fax: 08 9964 0948
Department of Mines and Petroleum (DMP)	• Mining Lease. • Project Management Plan. • Mining Proposal • Transport and storage of dangerous goods (if required). • Vegetation clearing permits.	Mining Lease: Yes Others: No	Address: Mineral House 100 Plain Street, East Perth WA 6004. Ph: (08) 9222 3333 Fax: (08) 9222 3862
Department of Water (DoW)	• Bed and Banks approval (if disturbance of a watercourse is required).	No	Address: The Atrium 168 St Georges Terrace, Perth WA 6000. Postal: PO Box K822, Perth WA 6842. Ph: (08) 6364 7600 Fax: (08) 6364 7601

Department of Sustainability, Environment, Water, Population and Communities (SEWPaC)	• Approval may be required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to presence of listed species Malleefowl.	No	Address: John Gorton Building, King Edward Terrace, Parkes ACT 2600. Postal: GPO Box 787, Canberra ACT 2601. Ph: 1800 803 772 Switchboards: (02) 6274 1111
Main Roads Western Australia (MRWA)	• Restricted Access Vehicle (RAV) Permits. • Roads approvals.	No	Head Office Address: Waterloo Crescent, East Perth WA 6004. Postal: PO Box 6202, East Perth WA 6892. Ph: 138 138 Heavy Vehicle Operations Ph: (08) 9311 8450 Email: enquiries@mainroads.wa.gov.au

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

2.1 flora and vegetation;

2.2 fauna;

2.3 rivers, creeks, wetlands and estuaries;

2.4 significant areas and/ or land features;

2.5 coastal zone areas;

2.6 marine areas and biota;

2.7 water supply and drainage catchments;

2.8 pollution;

2.9 greenhouse gas emissions;

2.10 contamination; and

2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

(a) the source of the information; and

(b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick) ☑ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

Up to 300 ha

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes ☑ No **If yes**, on what date and to which office was the application submitted of the DEC?

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

☑ Yes ☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Level 2 Flora Survey conducted by EnviroWorks Consulting (2012) – *Refer to Attachment 2A*

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

☑ Yes ☐ No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

DEC searches conducted as part of Level 2 Flora Survey conducted by EnviroWorks Consulting (2012) – *Refer to Attachment 2A*

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

☑ Yes ☐ No

If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

As depicted in *Figure 3A "Vegetation Communities & Priority Flora" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1*) four priority species were located during field studies within the tenement. These included:

- *Allocasuarina tessellata* (Priority 1)
- *Grevillea scabrida* (Priority 3)
- *Grevillea subtiliflora* (Priority 3)
- *Persoonia pentasticha* (Priority 3).

No Rare Flora or Threatened / Priority Ecological Communities were located on site.

As shown on *Figure 3A* all recorded locations of *Allocasuarina tessellata* (Priority 1) occur outside the development envelope and will not be cleared by this proposal.

As outlined below and shown on *Figure 3A* many recorded locations of the remaining 3 species also occur outside the development envelope and will not be cleared.

Species	**Number of Records Inside Development Envelope**	**Number of Records Outside the Development Envelope**
Grevillea scabrida (Priority 3)	6	6
Grevillea subtiliflora (Priority 3)	2	6
Persoonia pentasticha (Priority 3)	7	5

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure) Not applicable – not in Perth Metropolitan Region

☐ Yes **N/A** ☐ No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

The vegetation covering much of the tenement has an average condition rating of "good", according to the condition rating scale outlined in Keighery (1994). Localised areas of degraded and very degraded vegetation also exist. Historically, grazing has been a severe disturbance, however vegetation is recovering with pastoral de-stocking.

Details (including vegetation condition map) contained in Level 2 Flora Survey report - EnviroWorks Consulting (2012) – *Refer to Attachment 2A.*

2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick) ☑ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

.2.2 Describe the nature and extent of the expected impact.

Clearing of up to 300 ha of native vegetation will result in clearing of fauna habitat. However the clearing of significant fauna habitat will be minimised as far as practicable and the proportional habitat loss is not expected to be high in the context of surrounding available similar habitat types.

.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

☑ Yes ☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

- Level 2 Vertebrate Fauna Survey conducted by Phoenix Environmental Sciences (2012) – *Refer to Attachment 2B*
- Targeted Malleefowl Survey conducted by EnviroWorks Consulting (2012) – *Refer to Attachment 2C*
- Significant Fauna Habitat Assessment conducted by EnviroWorks Consulting (2012) – *Refer to Attachment 2D*
- Subterranean Fauna Assessment conducted by Bennelongia Environmental Consultants (2012) – *Refer to Attachment 2E*
- Short Range Endemic Fauna Assessment conducted by Bennelongia Environmental Consultants (2012) – *Refer to Attachment 2F*

.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

☐ Yes ☐ No (please tick)

Searches conducted as part of:

- Level 2 Vertebrate Fauna Survey conducted by Phoenix Environmental Sciences (2012) – *Refer to Attachment 2B*
- Subterranean Fauna Assessment conducted by Bennelongia Environmental Consultants (2012) – *Refer to Attachment 2E*
- Short Range Endemic Fauna Assessment conducted by Bennelongia Environmental Consultants (2012) – *Refer to Attachment 2F*

.2.2 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

☑ Yes ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Four conservation significant fauna species have been located during field studies as follows.

Species	**Conservation Rating**	**Details**	**Reference**	**Proposed Management Measures**
Malleefowl (*Leipoa ocellata*)	Schedule 1 Wildlife Conservation Act Vulnerable under EPBC Act	1 active, 2 recently active and 2 inactive mounds within/near the development envelope (*Figure 3B*)	Phoenix Environmental Sciences, 2012 – *Attachment 2B* and EnviroWorks 2012 - *Attachment 2C*	• Clearing to occur outside the breeding season for Malleefowl. • Clearing to be minimised to 300 ha (estimated to represent only 1.8% of available habitat within a surrounding 10km buffer) • Referral of project under EPBC Act. • Development of a Malleefowl Management Plan for the project.
Crested Bellbird (wheatbelt) *Oreoica gutturalis gutturalis*	DEC Priority 4	3 records within the development envelope and 1 record outside the development envelope (*Figure 3B*)	Phoenix Environmental Sciences, 2012 – *Attachment 2B*	• Clearing to be minimised to 300 ha. • Development of a Significant Species Management Plan for the project.
Major Mitchell's Cockatoo *Cacatua leadbeateri*	Schedule 4 Wildlife Conservation Act	33 habitat trees identified within the tenement and the species was opportunistically observed by EnviroWorks (2012) (*Figure 3B*)	EnviroWorks Consulting, 2012 – *Attachment 2D*	• Clearing to be minimised to 300 ha (estimated to represent only 0.9% of preferred habitat within a surrounding 10km buffer) • Clearing to occur outside the breeding season for Major Mitchells Cockatoo. • Conservation of at least 20 of the habitat trees within the tenement. • Development of a Significant Species Management Plan for the project.
Black Rugose Trapdoor spider (*Idiosoma nigrum*)	Schedule 1 under Wildlife Conservation Act	2 recorded locations within the development envelope and 13 recorded locations outside the tenement *(Figure 3C)*	Bennelongia Environmental Consultants, 2012 – *Attachment 2F*	• Clearing to be minimised to 300 ha and will only include two recorded locations of this species (a small fraction of the recorded population and available habitat outside the tenement) • Development of a Significant Species Management Plan for the project.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick) ☑ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

No significant defined creeks, rivers, wetlands or estuaries occur within the project area. Inundation observed on the tenement is generally shallow (<0.5 m deep), indicating that during high rainfall overland or 'sheet' flow is likely in many areas. Some flow is transported via minor, un-named ephemeral erosional drainage lines / gullies / tracks, however these are not major established creeks or rivers. The Mummaloo-Wye-Bubba Hill within the middle of the tenement acts as a natural drainage divide, with water shedding from the tenement in multiple directions predominantly via sheet flow towards internally draining salt basins / lakes which are all at least 1 km from the tenement.

An ephemeral creek occurs in the centre of the tenement (*Figure 3A*) - most of this drainage line and its catchment (as mapped by Water Technology, 2012 – *Attachment 2G*) are outside the development envelope and will not be disturbed by the proposed project. Appropriate surface water management measures will be implemented as recommended by Water Technology (2012 – *Attachment 2G*) to ensure that water flows and quality impacts are minimised. On this basis, impacts to surface water are unlikely to be significant.

For further details refer to Mummaloo Hydrology Study (*Water Technology, 2012 – Attachment 2G*)

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

☑ Yes ☐ No **If yes**, please describe the extent of the expected impact.

Some minor ephemeral drainage lines and surrounding vegetation may be cleared, however the impact is considered to be low given:

- No significant riparian vegetation communities have been identified.
- The area is internally draining and dominated by sheetflow.
- Mine site surface water management measures will be put in place to intercept surface water in sedimentation basins and manage surface water quality.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

☑ Yes ☐ No **If yes**, please describe the extent of the expected impact.

Some minor ephemeral drainage lines and surrounding vegetation may be cleared, however the impact is considered to be low given:

- No significant riparian vegetation communities have been identified.
- The area is internally draining and dominated by sheetflow.
- Mine site surface water management measures will be put in place to intercept surface water in sedimentation basins and manage surface water quality.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

☐ Yes ☑ No **If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

☐ Yes ☑ No **If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	☐ Yes	☑ No	☐ Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	☐ Yes	☑ No	☐ Unsure
Perth's Bush Forever site	☐ Yes	☑ No	☐ Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	☐ Yes	☑ No	☐ Unsure
The management area as defined in s4(1) of the *Swan River Trust Act 1988*	☐ Yes	☑ No	☐ Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	☐ Yes	☑ No	☐ Unsure

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

☐ Yes ☑ No **If yes**, please provide details.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

☐ Yes ☑ No **If yes**, please provide details.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ☑ No **If yes**, please provide details.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick) ☐ Yes **If yes**, complete the rest of this section.

☑ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune? N/A

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst? N/A

☐ Yes ☐ No **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves? N/A

☐ Yes ☐ No **If yes**, please describe the extent of the expected impact.

2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

☐ Yes ☑ No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

☐ Yes ☑ No **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

☐ Yes ☑ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☑ Yes ☐ No **If yes**, please describe what category of area.

The project lies within the proclaimed East Murchison Groundwater Area under Section 26B(1) of the Rights in Water and Irrigation Act 1914 (RIWI Act) (RIWI Groundwater Areas). A licence would need to be sought to extract groundwater, however this is not relevant because groundwater abstraction is not proposed for this project.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ☑ No **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes ☑ No **If yes**, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

☑ Yes ☐ No (please tick)

Given mining is well above the water table dewatering will not be required. Dry processing will be utilised, eliminating the need for a borefield to supply a wet processing plant. Water for potable uses and dust suppression will be trucked/piped onto site from an off site (already approved) source.

2.7.5 Will the proposal require drainage of the land?

☐ Yes ☑ No **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick) ☑ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

Water for potable uses and dust suppression will be trucked/piped onto site from an off site (already approved) source. Campaign mining will allow high dust conditions to be avoided reducing the need for significant dust suppression water requirements.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

Estimated at approximately 85 Megalitres per year (based on campaign mining to avoid months where evaporation exceeds rainfall, as these months would require a more significant dust suppression water requirement, particularly on haul roads).

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Stormwater will be contained on site in clay-lined sediment ponds to allow settling of sediment and retention to prevent off site surface water quality impacts. This stormwater will be re-used for dust suppression.

Any additional water required for potable uses and dust suppression will be trucked/piped onto site from an off site (already approved) source.

2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick) ☑ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

Potential discharges will be managed to ensure there are no unacceptable environmental impacts. Potential discharges include:

- Noise
- Vibration
- Gaseous emissions from power generators and vehicles.
- Dust
- Stormwater
- Solid waste.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

It is possible that the dry processing plant (based on gravity and magnetic separation methods) may be a prescribed premise.

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

☑ Yes ☐ No **If yes**, please describe what category of prescribed premise.

The proposal may fall into the following prescribed premise categories:

- Category 5: Processing or beneficiation of metallic or non-metallic ore premises on which 50,000 tonnes or more per year of metallic or non-metallic ore is crushed, ground, milled or otherwise processed.

2.8.3 Will the proposal result in gaseous emissions to air?

☑ Yes ☐ No **If yes**, please briefly describe.

Gaseous emissions may be generated by power generation and vehicles. These emissions are considered to be minor and will be managed by purchasing power generation equipment and vehicles which utilise currently accepted technology including emission controls.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

☐ Yes ☑ No **If yes**, please briefly describe.

The proposed mine site is in a remote location with no nearby neighbours, residents or other sensitive receptors. The Mount Gibson homestead is approximately 17 km east-northeast and the White Wells homestead is approximately 24 km west-northwest. Ninghan homestead is approximately 20 km to the north. The nearest mining operations are Mount Gibson Mine approximately 8 km to the south-west and Extension Hill Mine approximately 8 km to the north-west. No on site accommodation camp is proposed (workers will be transported from Wubin). *Refer to Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

Therefore it is unlikely that the minor emission sources above would cause any significant individual or cumulative environmental or health impact.

2.8.5 Will the proposal result in liquid effluent discharge?

☐ Yes ☑ No **If yes**, please briefly describe the nature, concentrations and receiving environment.

Stormwater will be retained in detention ponds to allow sediment to settle out and water used on site for dust suppression – these ponds would only overtop in major rainfall events when sedimentation is already part of the receiving environment.

No accommodation camp is required on site (workers will be transported daily from Wubin). Therefore a large waste water treatment facility is not required. A small waste water treatment plant will be required for administration and mine site crib rooms, however it is not anticipated this would result in liquid effluent discharge (any waste water will be retained on site). Local government and health department approvals will be sought as required.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

☐ Yes ☐ No **If yes**, please describe. Not applicable

No discharges to a watercourse or marine environment are proposed.

2.8.7 Will the proposal produce or result in solid wastes?

☑ Yes ☐ No **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

The following wastes will be produced:

Waste Type	**Nature / Concentration / Composition**	**Disposal Location / Method**
Iron Ore Waste	• Not chemically altered. • Non-acid forming.	• Initial waste dumps will be created until the pits have sufficient room for the waste dumps to be reclaimed into the pit. • From this point waste will be disposed in the pits.
Domestic Waste	• General domestic waste from administration and crib rooms (no accommodation camp on site – staff accommodated at Wubin)	• Removed and disposed off site by a licenced waste contractor.
Industrial Waste	• Tyres • Hydrocarbon waste • Scrape metal • etc	• Removed and disposed off site by a licenced waste contractor.

Waste Type	Nature / Concentration / Composition	Disposal Location / Method
Sewerage	• No accommodation camp is required on site (workers will be transported daily from Wubin). • Therefore a large waste water treatment facility is not required. • A small waste water treatment plant will be required for administration and mine site crib rooms.	• Waste water will be treated to acceptable standard and retained on site in accordance with local government and department of health requirements.

An Acid Mine Drainage characterisation of iron ore waste material has confirmed the iron ore waste does not contain acid forming material – *Refer to Attachment 2H "Mummaloo Deposit Geochemical Characterisation (Soil Water Group, 2012)".*

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes ☑ No **If yes**, please briefly describe.

The proposed mine site is in a remote location with no nearby neighbours, residents or other sensitive receptors. The Mount Gibson homestead is approximately 17 km east-northeast and the White Wells homestead is approximately 24 km west-northwest. Ninghan homestead is approximately 20 km to the north. The nearest mining operations are Mount Gibson Mine approximately 8 km to the south-west and Extension Hill Mine approximately 8 km to the north-west. No on site accommodation camp is proposed (workers will be transported from Wubin). *Refer to Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

Therefore, due to distance from receptors, it is unlikely that the mine noise emission sources would cause any significant individual or cumulative environmental impact.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

☑ Yes ☐ No **If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

The proposed mine site is in a remote location with no nearby neighbours, residents or other sensitive receptors. The Mount Gibson homestead is approximately 17 km east-northeast and the White Wells homestead is approximately 24 km west-northwest. Ninghan homestead is approximately 20 km to the north. The nearest mining operations are Mount Gibson Mine approximately 8 km to the south-west and Extension Hill Mine approximately 8 km to the north-west. Refer to *Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

Therefore due to distance, it is unlikely that the operation would cause an individual or cumulative exceedance of these regulations.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

☐ Yes ☑ No **If yes**, please describe and provide the distance to residences and other "sensitive premises".

The proposed mine site is in a remote location with no nearby neighbours, residents or other sensitive receptors. The Mount Gibson homestead is approximately 17 km east-northeast and the White Wells homestead is approximately 24 km west-northwest. Ninghan homestead is approximately 20 km to the north. The nearest mining operations are Mount Gibson Mine approximately 8 km to the south-west and Extension Hill Mine approximately 8 km to the north-west. No on site accommodation camp is proposed (workers will be transported from Wubin). *Refer to Figure 1 "Locality Plan" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

Therefore due to distance from receptors, it is unlikely that the mine air emission sources would cause any significant individual or cumulative environmental or health impact.

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

☐ Yes ☐ No ☑ Not Applicable No residential component or sensitive premises involved in proposal

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☐ Yes ☑ No **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☐ Yes ☑ No ☐ Unsure **If yes**, please describe.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

☐ Yes ☑ No **If yes**, please describe.

No previous uses have occurred which are potentially contaminating.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

☐ Yes ☑ No **If yes**, please describe.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

☑ Yes ☐ No ☐ Unsure **If yes**, please describe.

One of the water holes identified as potentially significant fauna habitat has also been identified as a culturally significant site based on artefact scatters (Water Hole 1, located at 522407 m E, 6718461 m N). As a result Top Iron has committed to a 150 m non-disturbance buffer around the water hole and another adjacent water hole as shown on *Figure 3 "Site Plan – Existing Environment" (Hard Copy Attachment 1 and Electronic Copy Enclosure 1).*

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

☐ Yes ☑ No **If yes**, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☐ Yes ☑ No **If yes**, please describe.

Iron ore will be transported to Geraldton port, however transport will be managed in such a way to minimise dust, noise and traffic issues.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

1. The precautionary principle.	☑ Yes	☐ No
2. The principle of intergenerational equity.	☑ Yes	☐ No
3. The principle of the conservation of biological diversity and ecological integrity.	☑ Yes	☐ No
4. Principles relating to improved valuation, pricing and incentive mechanisms.	☑ Yes	☐ No
5. The principle of waste minimisation.	☑ Yes	☐ No

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

☑ Yes ☐ No

The following environmental management measures are proposed to minimise and mitigate potential environmental impacts of the project.

Potential Impact	Proposed Management Measures
Loss or impact to fauna and fauna habitat	• Minimising clearing to 300 ha. This represents only a small proportion of fauna habitat suitable for significant species within the surrounding area (e.g. 1.8% of preferred Mallefowl habitat and 0.9% of Major Mitchell's Cockatoo habitat within a 10 km buffer) • Clearing will occur outside the breeding season for Malleefowl and Major Mitchells Cockatoo. • Conserving 20 of the identified 33 habitat trees within the tenement. • Clearing only two locations of the total of 13 locations of *Idiosoma nigrum*. • Clearing only 1 active Malleefowl mound (outside of the breeding season). • Conserving 2 of the 3 identified water holes. • Conserving the majority of the central drainage line and its catchment. • Referral of project under EPBC Act due to Malleefowl presence. • Development of a Malleefowl Management Plan. • Development of a Significant Species Management Plan.

Potential Impact	Proposed Management Measures
Loss or impact to flora	• Minimising clearing to only 300 ha. • Conserving the 2 recorded locations of *Allocasuarina tessellata* (Priority 1) identified within the tenement. • Conserving 17 of the total of 32 recorded locations of the three Priority 3 species identified within the tenement (*Grevillea scabrida, Grevillea subtiliflora* and *Persoonia pentasticha).* • Maximising rehabilitation success by: ▪ Reclaiming all iron waste into the pit (only 25% of the material will be removed as ore and the remaining 75% will be used to backfill the pits). ▪ Rehabilitating progressively. ▪ Avoiding out of pit waste dumps or tailings facilities (these are inherently difficult to rehabilitate). ▪ Development of a Progressive Rehabilitation Management Plan and a Closure Plan which are acceptable to the regulators and effective.
Impact to surface water quality or flows	• Containing stormwater on site in clay-lined sediment ponds to allow settling of sediment and retention for any other water quality treatment which may be required (such as oil-water separation) • Re-using collecting stormwater on site. • Creating bunding around areas being excavated to protect off site surface water from runoff with a potentially high sediment load. • Conserving 2 of the 3 identified water holes. • Conserving the majority of the central drainage line and its catchment. • Appropriate management of potential contaminants such as hydrocarbons and chemicals. • Implementing a suitable surface water monitoring program to verify that the project is not causing unacceptable surface water impacts. • Inclusion of surface water management within an Environmental Management Plan for the project.
Impact to groundwater quality or levels	• Avoiding the need for dewatering (the pit is 6 m deep, whereas the groundwater table is at approximately 35 m). • Using a dry processing plant, to avoid the need for a borefield to supply a wet processing plant. • All other water needs will be trucked or piped from an off site source to avoid the need for a borefield. • Appropriate management of potential contaminants such as hydrocarbons and chemicals (note the project geochemical assessment – Attachment 2H has confirmed the iron ore waste does not contain acid forming material). • Implementing a suitable groundwater monitoring program to verify that the project is not causing unacceptable groundwater impacts. • Inclusion of ground management within an Environmental Management Plan for the project.
Waste Generation	• Implement the principles of reduce, reuse recycle. • All waste to be managed as described above in Question 2.8.7. • All waste requiring disposal off site will be removed by a licenced waste contractor. • Inclusion of waste management within an Environmental Management Plan for the project.
Noise or Air Emissions	• No major air emissions sources will be required on site. • The site has been located a large distance from sensitive receptors. • No accommodation camp to be located on site (workers will be transported from Wubin) • Campaign mining will aim to avoid dusty (hot, dry and windy) conditions. • Inclusion of noise and air emissions management within an Environmental Management Plan for the project.

Potential Impact	Proposed Management Measures
Contamination by hydrocarbons/ chemicals	• Correct storage, use and disposal of hydrocarbons and chemicals. • Inclusion hydrocarbon and chemical management within an Environmental Management Plan for the project.
Energy use and greenhouse gas emissions	• Selection of energy efficient plant and equipment. • Rehabilitation of cleared areas to re-establish a carbon sink. • Inclusion energy use, efficiency and greenhouse gases within an Environmental Management Plan for the project.
Water use	• Using a dry processing plant, to avoid the need for a borefield to supply a wet processing plant. • Collection and re-use of stormwater falling within the mine site. • Inclusion of water use and efficiency within an Environmental Management Plan for the project.

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

☑ Yes ☐ No **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

Key stakeholders consulted to date include:

- Office of the Environmental Protect Authority (OEPA)
- Australian Wildlife Conservancy (AWC - holder of the Mount Gibson pastoral lease)
- Shire of Yalgoo
- Shire of Perenjori
- Shire of Dalwallinu
- Surrounding Mining and Exploration Tenement Holders.

For further details refer to Attachment 2I "Summary of Consultation – Mummaloo Iron Ore Project (EnviroWorks, 2012).