Acknowledgments

The Department of Planning, Lands and Heritage acknowledges the traditional owners and custodians of this land. We pay our respect to Elders past and present, their descendants who are with us today, and those who will follow in their footsteps. DPLH gratefully acknowledges the support and assistance of consultants Urbagua Land and Urban Water Solutions in the development of this document.

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website: www.dplh.wa.gov.au email: info@dplh.wa.gov.au

tel: 08 6551 8002 fax: 08 6551 9001 National Relay Service: 13 36 77

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1	INTRODUCTION	1	4	ASSESSMENT ()F	
1.1	Purpose	1		PROPOSALS FO	or Idustries	6
2	BASIC RAW MATERIALS		4.1	Planning for co	mpletion	6
2	IN WESTERN AUSTRALIA	1	4.2	Pit design		7
2.1	What are basic raw		4.3	Operating hou	rs	7
	materials?	1	4.4	Conservation v	alues	7
2.2	Extractive industries and basic raw materials		4.5	Water supply a availability	nd	7
	categories	1	4.6	Transport mana	agement	7
2.3	Map of Significant	1	4.7	Visual impacts		8
2.4	Development approvals	1	4.8	Noise, dust and management	l risk	8
2 F	for basic raw materials	2				
2.5	Submission procedures	2	A , ,	7		
Α., 1				10		
<u></u>	A	2	-	CENEDAL		
- /		3	5	GENERAL REQUIREMENT	S	10
3	BASIC RAW MATERIALS		5.1	Legislation, reg	ulation	
	PLANNING PROPOSALS	3		and policies		10
31	Higher order strategic	_	5.2	Site selection		10
5.1	planning instruments	3	5 2	Considerations	+-Y-TWAD) Dall	
3.2	Local planning		5.5	Consult relevan		(PP)
	instruments	3				
3.3	Subdivision and development	4				
3.4	Separation distances	5				
3.5						
	Transitional land uses	5				

A.

4.1	Planning for completion	6	
1.2	Pit design	7	
1.3	Operating hours	7	
1.4	Conservation values	7	
4.5	Water supply and availability	7	
1.6	Transport management	7	
1.7	Visual impacts	8	
4.8	Noise, dust and risk management	8	
. , ,	T		
, j	1 martine	10	
5	GENERAL REQUIREMENTS	10	
5.1	Legislation, regulation and policies	10	
5.2	Site selection considerations	10	
- 2	Consult valation for Tol (D) B		





mapped based on the quality and quantity of BRM and are the highest priority for BRM extraction. Boundaries of SGS are often indicative.

Further mapping will occur as more information on BRM resource locations and demand become available.

Strategic BRM resource mapping in Perth and Peel has been developed to enable adequate supply of BRM for a population of 3.5 million, and is publicly viewable as spatial layers through *Ge VIEW.WA*. The mapping considers the quality and quantity of resources available and presents SGS areas, ES and BRM exclusion areas. Exclusion areas are locations that may contain BRM but have been excluded

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decision-maker. When a special control area is utilised for separation distances, they should accommodate the movement of excavation operations.

Scheme provisions should identify incompatible land uses within the separation distance based on potential impacts to adjacent land. The following land uses should not be considered within the separation distance:

- (a) sensitive land uses;
- (b) land uses with o -site impacts or other requirements that may constrain the operations of the existing BRM operations;
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Separation between extractive industries and sensitive land uses in accordance with the EPA's Se a B_{1} , r D_{1} , a ce, be, ee Id_{-1} , Ba a dSe_{-1} , reLa dU, e_{-1} (GS3) should guide the establishment of separation distances to protect community health, safety and amenity. These are available at www.epa.wa.gov.au

Separation distances are in uenced by the activity being undertaken, site characteristics, the proposed location of infrastructure, access routes, pits and stockpiles, and the extraction method. Separation distances are not required where there are no current or planned sensitive land uses.

A separation distance is measured from the shortest distance between the extraction area boundary and the sensitive land use and does not always relate to cadastral boundaries.

The extent of a separation distance depends on the following elements:

- (a) the type and scale of the proposal;
- (b) Government requirements for a separation distance;
- (c) existing or potential requirement for environmental licensing and/or works approval;
- (d) industry-speci c guidelines;
- (e) technical studies;
- (f) potential cumulative impacts;
- (g) amenity, visual impact;
- (h) environmental and topographic features;
- (i) cadastre; and
- (j) the continuation and/or expansion of the land use in the context of surrounding land uses.

Where excavation work in hard rock quarries requires blasting, the blasting area is an important consideration in de ning separation distances and managing the risk to sensitive land uses.

Screening, washing, crushing, grinding, milling, sieving and aeration are activities associated with BRM extraction that may require a di erent separation distance.

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Within an established separation distance, a series of transitional land uses may be used to transition between the extractive industry and a sensitive land use. Common transitional land uses include rural and commercial.

A separation distance is measured from the shortest distance between the extraction area boundary and the sensitive land use and does not always relate to cadastral boundaries. The nature of the extractive industry and the separation distance are an important consideration in determining the appropriateness of transitional land uses and permitted activities. Transitional land uses should only be incorporated if they





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BRM proposals may include plans for several pits staged over the lifespan of the operation. Smaller pits may achieve better environmental outcomes as the removed top soil is returned within a shorter timeframe. Pit rehabilitation generally follows excavation however decision-makers need to be aware of the proposed arrangements.

Further guidance on site rehabilitation is available in $G \cdot ide = e_i f \square he Ma age e_i a d Rehabing a = f Ba_i ic$ $Ra = Ma_i e \square a P_{i_i}$ (Dec 2008). The availability and suitability of road access is an important consideration and may require a Transport Impact Assessment (TIA) and management plan. Both proponents and local government can seek a TIA and/or general advice from Main Roads WA regarding trucks and transport routes. These studies are usually undertaken by, or on behalf of, a proponent and consider the following:

- (a) road suitability and the number of truck movements;
- (b) frequency and size of truck movements;
- (c) load considerations;
- (d) route selection and any road upgrading requirements;
- (e) impacts on sensitive land uses and other roads users;
- (f) likely noise impacts;
- (g) any extractive industry license or planning approval conditions limiting cartage activities;
- (h) safety and sight distance in both directions from the proposal's access to a road; and
- (i) safety and road crossing.

To assist with improving referral response times, proponents are encouraged to undertake pre-referral of a TIA to the relevant authorities, particularly where access and proposed haulage routes include major and/ or regional roads. DPLH's $T_{\rm M}$, $Q_I = a_{\rm C} A_{\rm I} e_{\rm I}$, $e_{\rm C}$ *G*- *ide* $r = e_{\rm I}$ (2016) may assist both transport and land use planning professionals in undertaking transport impact assessments of land use development proposals.

A pre-assessed TIA can assist decision-makers in determining the need for future transport studies particularly where access and proposed haulage routes are frequent and include major and regional roads. The Western Australian Local Government Association (WALGA) *Hea* Vehic $e C_{p}$. Rec $e \boxtimes P$ ic G-ide r e $f \boxtimes Sea \ ed R \ ad_{p}$ (2017) assists decision-makers and proponents in understanding the principles of heavy vehicle cost recovery.

Through local law provisions, a local government may prescribe:

- (a) the routes to be taken for the transport of BRM from a site through the roads within the district, if the proposed routes are not suitable for the proposed haulage;
- (b) the tonnage limits to be transported along a particular route;
- (c) the times during which materials from the site may be transported through the roads within the district.

See Appendix 1 for further guidance on Restricted Access Vehicle (RAV) route assessment guidelines.

4.

Preserving or replanting vegetation can assist in minimising visual impacts from roads, adjoining properties and other key viewing locations. Depending on the size and life of a quarry, a vegetative screen of at least 50 meters width is recommended to assist with visual impacts and help mitigate dust impacts.

The WAPC's V_{Γ} - a La d_i ca e P a r g r WA (2007) contains detailed guidance on addressing visual impacts, including ways to minimise the visibility of operations. Noise, dust and blasting are the main risks that require management to avoid adverse health and amenity impacts to sensitive land uses and the community in general.

Noise from BRM extraction is subject to the *E* I I I I e_a P I e_c $r^ Ac_c$ 1986 and the prescribed standards under the *E* I I I I e_a P I e_c $r^ (N_r)e_r$ $Reg^ a_c$ r^- , 1997.

Noise impacts to can be reduced through choice of quieter equipment, enclosing xed plant, construction of barriers such as bunds, 'best practice' site management practices, and appropriate separation distances.

Dust can be generated in several ways including:

- (a) blasting and extraction;
- (b) stockpiling of material;
- (c) processing of material;
- (d) processingm2sismNoieters width t ,h as bunrpi1b/Actuzrwni ing

Proposals for hard rock or materials which require blasting should be accompanied by a blasting management plan detailing the blasting method, including directed blasts, frequency and the expected y rock range and subsequent exclusion zones for blasting.

DMIRS manage the requirements for blasting in hard rock quarries.



The following section outlines a range of additional considerations to be addressed when preparing a new extractive industry proposal or an extension of existing operations.

Proponents should also familiarise themselves with the content in Part 1 of this manual.

Proponents may require an extractive industry license and/or a development approval on freehold land, both issued by the relevant Local Government. Development approvals may be subject to di erent conditions prior to, during and after the operation of an extractive industry.

Extractive industry proposals or other development proposals that may a ect extractive industries must demonstrate e ective and appropriate community consultation. This includes consultation with neighbouring and a ected properties plus relevant local governments leading up to the submission of a proposal. Proponents should also demonstrate ongoing stakeholder engagement via their Environmental Management System. Further advice can be found on the DMIRS website.

A list of other key responsibilities for proponents proposing an extractive industry on either freehold or Crown land is outlined below.

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Proponents should consider the legislation, policy and guidelines relevant to an application and the issues needing to be addressed by proposals. This will help avoid potential delays (see Appendix 2) by proposals. This will help avoid potential delays (see d the 0ut24.1

Any proposal involving BRM extraction from waterways requires careful risk assessment of the location's suitability, its management and rehabilitation.

Under the *E* \bowtie *e*, *a* \bowtie *e*, *c*, *L*, *1986* it is an o ence to cause an emission or discharge from activities carried out on a prescribed premise (an industrial premise with potential to cause emissions and discharges to air, land or water) unless a works approval or licence is held for the premises. Prescribed premises are listed in Schedule 1 of the *E* \bowtie *e*, *a* \bowtie , *Reg*-*a*, *r*, *1987* and may include activities undertaken by extractive industries.

DWER's Guideline Industry Regulation Guide to Licensing (2019) provides guidance on strategic and statutory land use planning processes, with reference to roles and responsibilities under Part IV and V of the E R e_a P e_a P e_c r Ac_a 1986.

Allow time to address issues that may arise after the application has been lodged. Assessments and studies require time to complete and sometimes can only be undertaken under certain conditions and at speci c time of year (for example, ora surveys being undertaken in spring). · A · · · · · ·

Should a proponent disagree with a decision, they can seek a review by the State Administrative Tribunal (SAT) for all or part or of a decision made, under the Pa rgadDee e Ac 2005, or L ca G e e Ac 1995.

Appeals for decisions made under the $E I \boxtimes e_a$ $P \boxtimes e_c \cap Ac$, 1986 are determined by the Minister for Environment.

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The WAPC's I, $\boxtimes d \cdot c$, r, he We, $e \boxtimes A \cdot f$, $\boxtimes na Pa r g$ S, e (2014) provides an overview of the planning system in Western Australia. This document clari es the various roles, responsibilities and functions of the key players involved in the planning system. It also describes the various legislation relevant to land use planning in Western Australia and it outlines the key features of the statutory and strategic planning instruments that together make up the State's planning framework.

The decision-maker is required to give due regard to relevant planning policy when making decisions on BRM proposals, particularly the impacts on sensitive land uses.

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Planning applications for extractive industries may require an accompanying management plan which provides details of the proposed use, development and management of the site. Management plans need to be submitted before the application is determined. Issues of relevance may include, but are not restricted to:

- (a) operational areas including:
 - i. extraction and stock piles areas;
 - ii. crushing/screening process areas; and
 - iii. machinery maintenance areas, plant and fuel storage.

- (b) separation distances;
- (c) environmental management requirements;
- (d) surface water and groundwater management;
- (e) secure water supplies to meet domestic and operational demands;
- (f) measures to mitigate impacts on surrounding land from dust, noise and ying rock;
- (g) landscaping to screen activity on the site;
- (h) on-site access roads, parking for cars and other vehicles used on the site; and
- (i) rehabilitation, closure for future land use of a BRM extraction area.

For more information on the matters to be addressed by a management plan, refer to Appendix 3 - Management Plans.

It is helpful for proponents to submit all required applications simultaneously. This saves time and assists the relevant agencies assessing the proposal by ensuring a more coordinated approach. A covering letter referencing any other approvals being sought from other authorities should be attached to the planning proposal to avoid communication overlaps or misunderstanding among di erent approval authorities.

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Proponents should consider the following two checklists when preparing an extractive industry proposal.

- Checklist 1: 'Site selection considerations' includes issues that should be considered when selecting a site for extractive industries.
- Checklist 2: 'Application submission checklist local government' includes standard requirements for local government development applications, which also apply to applications referred to the WAPC for determination.

These checklists highlight the issues most local governments consider when assessing proposals for extractive industries and may help to ensure submissions are complete. However they do not replace documentation used in assessing an application. Local governments may also have speci c requirements not included in these checklists, so proponents should contact the relevant local government to nd out if there are any additional requirements. Local governments may wish to adapt Checklist 2 to address any speci c variations within their municipality.



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Local government is empowered to make an extractive industry local law under the *L* ca *G* e [A] e , *Ac*, 1995 which establishes license conditions. Elements of these guidelines may be relevant in relation to a proponent's submission and State and local government license requirements for:

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(a) an excavation site plan;

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- (b) a works and excavation program;
- (c) a rehabilitation and decommissioning program; and
- (d) the transportation of BRM.

Limitations on excavation may be restricted to:

(a) 20 metres from the boundary of any land on which

Summary - Extracted from Mar R ad, WA Hea Vehic e Set re_{i} S a dat Re_{i} re_{i} ed Acce, Vehic e (RAV) R · e A, e, e g · ide r e, (2018).

Decision-makers need to consider potential community impacts as part of assessing route suitability. The following factors are considered in determining potential community impacts:

In determining noise impacts in relation to RAVs, the following issues are considered:

- (a) areas sensitive to road tra c noise, including residences, schools and hospitals;
- (b) the likely number of RAVs in comparison to existing number of large trucks (three or more axles);
- (c) factors contributing to noise generated by RAVs such as gradients, acceleration/deceleration areas, and road pavement irregularities; and
- (d) factors mitigating RAV noise impact (distance, topography, bunds, cuttings or walls.

The main criterion for noise impact assessment is the change in the numbers of large trucks. Where noise impacts are expected to be signi cant, mitigating measures such as the following will be considered:

- (a) approved noise reduction request signs;
- (b) a curfew for RAVs during night time hours;
- (c) consideration of alternative routes;
- (d) noise certi cation of RAVs as a condition of access; and
- (e) speed restrictions.

Where noise impacts are expected to remain signi cant despite mitigation actions, Main Roads WA will consult with the relevant local government and consider a route noise impact study.

Where the RAV route passes close to abutting development there may be adverse impacts upon people and property due to dust, especially where a route is unsealed. The decision-maker shall consider whether the introduction of the RAVs onto the route has potential to cause signi cant dust impact by considering:

- (a) distance to buildings and their use;
- (b) likely numbers of RAVs using the route;
- (c) likelihood and amount of dust being produced by RAVs; and
- (d) spreading dust impacts from RAVs entering onto a sealed road from a dirt road.

Where dust and dirt impacts are expected to be signi cant, the decision-maker will consider options such as alternative routes, speed restrictions and possibly sealing road sections. For short-term projects, when sealing the road is not practical, the proponent shall consider dust suppression (water or chemical stabilisation) and wheel washing at site exit.

In line with government policy, Main Roads WA may require a route that has been given a favourable assessment to undergo community consultation. Main Roads WA and local government will determine the need for community consultation.

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Alternative transport modes need to be considered to ensure RAV road transport is the most e ective form of transport available for the operation.

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Additional information and guidance is available from Main Roads WA Heavy Vehicle Services.



Various regulations and guidelines complement and overlap with the planning system, and some BRM

the Wa $e^{\mathbb{K}}Age\ cree,\ (P\ e^{\mathbb{K}})Ac\ 1984, Righ,\ F\ Wa e^{\mathbb{K}}a\ a\ d\ \mathbb{K}$ a $d\ \mathbb{K}$ ga r Ac 1914 and Wa $e^{\mathbb{K}}a\ a\ ,\ C\ ,\ e^{\mathbb{K}}a\ r$ Ac 1976. Water resource availability is informed by allocation plans and limits under the Rights in Water and \mathbb{K} ga r Ac 1914. Clearing within gazetted Controlled Catchment Areas under the $C\ \cdot\ \mathbb{K}$ A \mathbb{K} a Wa $e^{\mathbb{K}}$ Ac 1947 Pa \mathbb{K} IIA is regulated by the DWER for salinity management purposes.

- (h) If abstraction or de-watering is required to enable the extraction to occur, this could result in signi cant environmental e^{i} ects (such as impacts on native vegetation, wetlands or waterways), the DWER may need to refer the proposal to the EPA under s38 of the $E R = a R = e^{i} Ac$, 1986.
- Public drinking water source areas are de ned by the DWER and proclaimed as water reserves, catchment areas or underground water pollution control areas under the Me A ra Wa exes , Se exage a d DWar age Ac 1909, or water reserves or catchment areas under the C A a Wa exes Ac 1947. Land use and development in public drinking water source areas is guided by the following documents:
 - i. WAPĆ's S'a e Parg Picre, 2.2 G'a gá \mathbf{X} g \mathbf{X} - da e \mathbf{X} \mathbf{X} ec r (2005), 2.3 Ja da g \mathbf{X} - da e \mathbf{X} \mathbf{X} ec r (2017), 2.7 P bic a \mathbf{X} r r g a e \mathbf{X} - \mathbf{X} er ic (2003), 2.9 Wa e \mathbf{X} \mathbf{X} - \mathbf{X} ere (2006).
 - ii. DWER'S Wa $e^{I\!\!S}Q$ ar $P^{I\!\!S}$ err $N e^{I\!\!S}Ba$ ic Ra Ma $e^{I\!\!M}a$, E $I\!\!S$ ic r (2019), Wa $e^{I\!\!S}Q$ ar $P^{I\!\!S}$ err $N e^{25:La} d$, er a ibit, abe, f $I\!\!S$ bic $d^{I\!\!M}a$ if g, a, $e^{I\!\!S}$ $I\!\!S$ ere $d^{I\!\!M}a$ (2016).
 - iii. Sub-regional planning frameworks, region and local planning schemes.

(j) Where a planning proposal may be negatively impacted by a BRM mining operation undertaken through the *Mi* ~ r g Ac, 1978, the planning decisionmaker should seek advice from DMIRS regarding the risk and acceptability of potential o site impacts.

While the Minister for Mines and Petroleum, the Warden or the Mining Registrar will consider planning instruments when considering an application for a mining tenement, a planning instrument cannot operate to prohibit or a ect the grant of such tenement.

- (k) Industries involving explosives and other dangerous goods including extractive industries with potential o -site risks are regulated by the DMIRS under the Da geta -, G d Safe, Ac 2004 and the Mr e, Safe, a d1, ec, r Ac, 1994. Information on the types of goods and the critical qualities which require licensing are listed in the DMIRS's Safety Guidance Minimum separation distances between explosive facilities and various categories of incompatible land uses are provided in Australian Standard AS2187.1(1998) and the DMIRS', Da geta -, G d, Safe, G-ida ce N, e. S, tage ff, re, (2018).

An application for the establishment, extension or expansion of an extractive industry should be accompanied by a management plan and should typically address:

- (a) site description and analysis;
- (b) consideration of statutory and strategic planning;
- (c) management and operations of the proposal;
- (d) consideration and management of impacts on amenity;
- (e) biosecurity measures to prevent the spread of weeds and diseases; and
- (f) environmental impact assessment and management.

Critical elements of management plans may also be addressed as conditions of approval.

Other important elements that may need to be considered depending on the site location and circumstances include:

- (g) demonstration that the existing sensitive land uses within the guidance separation distance of the extractive industry will not be unduly a ected by the extractive industry operations;
- (h) identi cation and justi cation of appropriate transitional land uses;
- (i) identi cation of any environmental values requiring protection under Commonwealth and State legislation and appropriate strategies to protect the values;

- (j) in the Perth and Peel regions, proposals aligned with the BRM resource mapping will help address (c) above;
- (k) details of the proposed use, development and management of the site including the environmental and water resource management standards, extractive area, stock piles, machinery maintenance areas, processing plants, fuel storage and on-site access roads, parking for cars and other vehicles used on the site, and proposals for landscaping to screen activity on the site;
- details of arrangements for access to the site, including the roads which it proposes will provide the main vehicular access and likely tra c ows; and
- (m) consideration of sequential land use by establishing a plan for the progressive and ultimate rehabilitation of the site for its intended long-term use. Site rehabilitation should not include waste disposal.