
AUTHORISATION	16 October 2018 PS02-10/18
REVIEW	16 October 2022

Part 1

POLICY OPERATION

Policy Development

This Policy has been prepared under Clause 3 of the deemed provisions of the City of Wanneroo District Planning Scheme No. 2.

Application and Purpose

This Policy applies to all planning proposals that affect or are affected by Caves or Karstic features.

The purpose of this Policy is to outline the City's information requirements required for the investigation and management of caves and karstic features to assist in design, assessment, and determination of:

- Structure Plans;
- Subdivision applications; and
- Development applications.

Subject to compliance with all other scheme and policy requirements, planning proposals shall not be deemed complete until such time as all relevant information in Column C of **Table 1** of this Policy has been provided to the City.

Objective

The objectives of this Policy are to:

1. Conserve caves and significant karstic features for their geological, cultural and environmental values; and
2. Minimise risks to people and property in karst hazard areas.

Structure

The Policy contains two parts:

- Part 1: Policy Operation, which includes the policy context and objectives.
- Part 2: Policy Provisions, which includes minimum standard requirements for the assessment and management of all planning proposals in relation to caves and karstic features.

Part 2

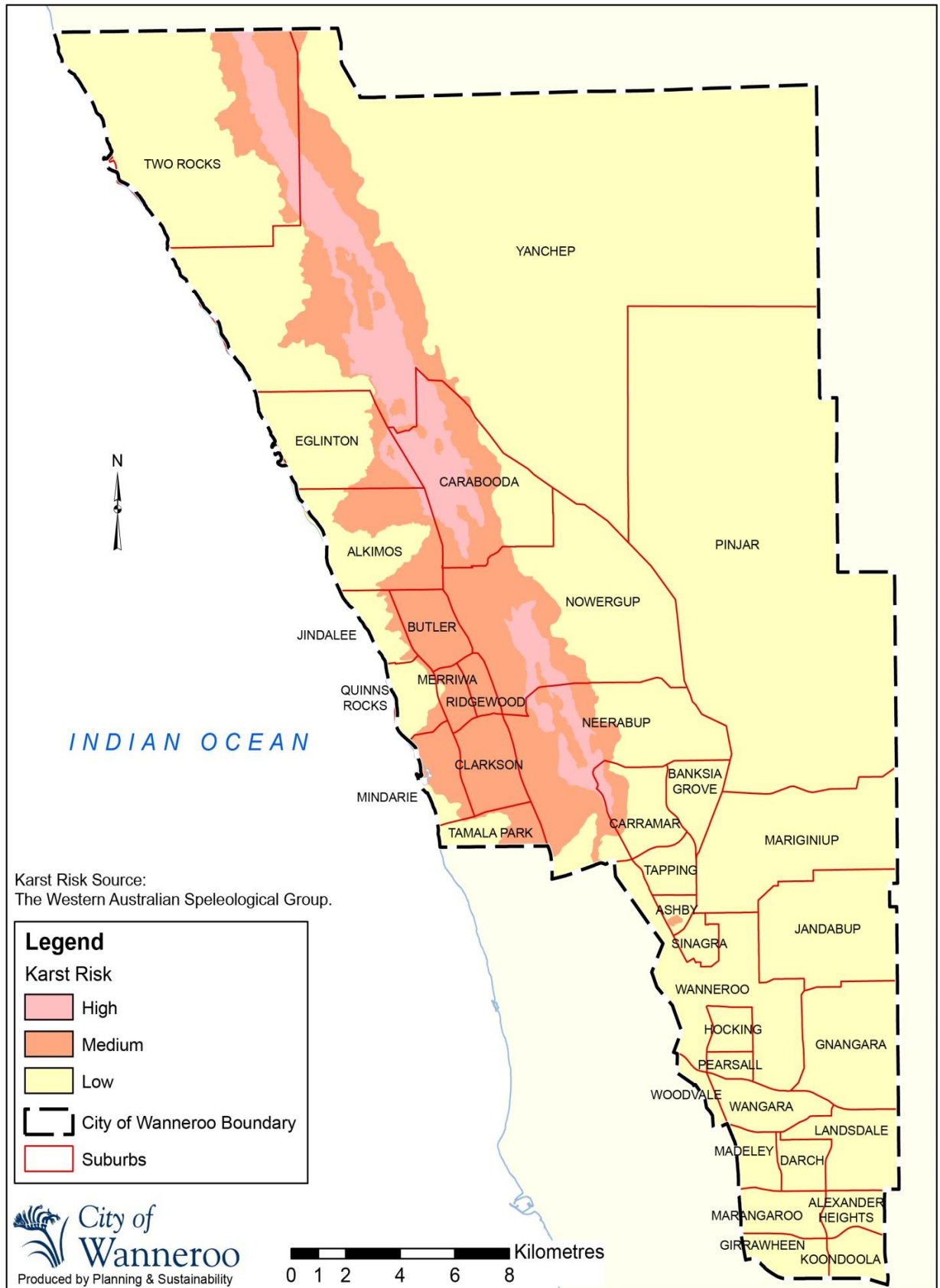
POLICY PROVISIONS

- 2.1 Karst Risk levels shown in Column A of **Table 1** are defined by the Risk Zone dataset as developed by the Western Australian Speleological Group (WASG) as illustrated in **Figure 1** of this Policy.
- 2.2 Column B of **Table 1** identifies the various planning stages of a particular proposal.
- 2.3 Column C of **Table 1** sets out the minimum requirements for planning information pertaining to karstic features and is dependant on both Karst Risk Level (Column A) and the applicable planning stage of a given planning proposal (Column B). The minimum standard requirements for supporting information as outlined in Column C are further detailed in **Schedule 1** of this Policy.
- 2.4 Column D of **Table 1** sets out the relevant conditions / provisions to be applied to a planning proposal. 'Conditions' relate to Subdivision and Development Applications only, and are derived from the specific planning information required in Column C. Similarly, 'provisions' relate to Local Structure Plans only, and are also derived from the specific planning information required in Column C.
- 2.5 Where there are two or more different karst risk levels across a subject site, the highest risk level will apply.
- 2.6 Where a property is located within 400 metres of a higher karst risk level, the higher risk level will be used when determining the requirements for karst assessment.
- 2.7 The City may, at its discretion, waive the requirements for a 'Geotechnical Report' where the following criteria have been met to the satisfaction of the City:
- The nature of the proposed development is such that karstic features will pose no impact on the development; or
 - Information provided at prior planning stages is sufficient in determining whether the subject land is capable of the proposed development.

Table 1: Karst Assessment and Management Requirements for Planning Proposals

COLUMN A Karst Risk Level	COLUMN B Planning Stage	COLUMN C Planning Information	COLUMN D Conditions / Provisions
Low	Local Structure Plan	A "Desktop Karst Survey" shall be prepared and included in Part 3 of the Local Structure Plan. The outcome and recommendations of the Survey will determine whether a "Geotechnical Report" and/ or "Karstic Features Management Plan" is required as a condition of Subdivision.	Where a "Desktop Karst Survey" provided with a Local Structure Plan identifies further investigations or management measures to be undertaken, a provision shall be added to Part 1 of the Local Structure Plan that requires a "Karstic Features Management Plan" to be prepared and implemented as a condition of subdivision.
	Subdivision	The requirement for a "Geotechnical Report" shall be recommended by the City as a condition of Subdivision only where: <ul style="list-style-type: none"> no prior karst assessment has been conducted at Local Structure Plan stage; or where the "Desktop Karst Survey" undertaken at structure planning stage requires one to be prepared. 	The City will recommend the following model condition where a "Geotechnical Report" is deemed to be required be prepared as a condition of subdivision: <i>'Prior to the commencement of subdivisional works, the landowner/applicant is to provide a pre-works geotechnical report certifying that the land is physically capable of development or advising how the land is to be remediated and compacted to ensure it is capable of development; and In the event that remediation works are required, the landowner/applicant is to provide a post-works geotechnical report certifying that all subdivisional works have been carried out in accordance with the pre-works geotechnical report. (Local Government)'</i>
		The requirement for a "Karstic Features Management Plan" shall be recommended by the City as a condition of Subdivision where a provision has been included in Part 1 of the Local Structure Plan requiring one to be prepared.	The City will recommend the following model subdivision condition where a 'Karstic Features Management Plan' is deemed to be required as a result of karst investigations at the Structure Plan and Subdivision stages: <i>Prior to the commencement of subdivisional works a Karstic Features Management Plan for [INSERT SITE ADDRESS] is to be prepared and approved to ensure the protection and management of the sites environmental assets with satisfactory arrangements being made for the implementation of the approved plan. (Department of Water) OR (Local Government) OR (Department of Environment and Conservation) [DELETE AS APPLICABLE]</i>
Development Application	A "Geotechnical Report" shall be prepared only where prior planning stages specifically request further karst investigation.	In instances where a "Geotechnical Report" was required, the following condition will be included in the approval of the Development Application to implement the recommendations of the Geotechnical Report: <i>'In development of the subject site, the proponent shall adhere to the recommendations as outlined by [AUTHOR OF GEOTECHNICAL REPORT] in the Technical Memorandum of [DATE OF GEOTECHNICAL REPORT].'</i>	
Medium	Local Structure Plan	A "Desktop Karst Survey" shall be prepared and included in Part 3 of the Local Structure Plan. The outcome and recommendations of the Survey will determine whether a "Geotechnical Report" and/ or "Karstic Features Management Plan" is required at Subdivision.	Where a "Desktop Karst Survey" provided with a Local Structure Plan identifies further investigations or management measures to be undertaken, a provision shall be added to Part 1 of the Local Structure Plan that requires a "Karstic Features Management Plan" to be prepared and implemented as a condition of subdivision.
	Subdivision	The requirement for a "Geotechnical Report" shall be recommended by the City as a condition of Subdivision only where: <ul style="list-style-type: none"> structure planning has not been undertaken; a "Desktop Karst Survey" has not been prepared at Local Structure Plan stage; the "Desktop Karst Survey" undertaken at structure planning stage requires one to be prepared; or high risk karstic features have been identified in the "Desktop Karst Survey". 	The City will recommend the following model condition where a "Geotechnical Report" is deemed to be required be prepared as a condition of subdivision: <i>'Prior to the commencement of subdivisional works, the landowner/applicant is to provide a pre-works geotechnical report certifying that the land is physically capable of development or advising how the land is to be remediated and compacted to ensure it is capable of development; and In the event that remediation works are required, the landowner/applicant is to provide a post-works geotechnical report certifying that all subdivisional works have been carried out in accordance with the pre-works geotechnical report. (Local Government)'</i>
		The requirement for a "Karstic Features Management Plan" shall be recommended by the City as a condition of Subdivision where a provision has been included in Part 1 of the Local Structure Plan requiring one to be prepared.	The City will recommend the following model subdivision condition where a 'Karstic Features Management Plan' is deemed to be required as a result of karst investigations at the Structure Plan and Subdivision stages: <i>Prior to the commencement of subdivisional works a Karstic Features Management Plan for [INSERT SITE ADDRESS] is to be prepared and approved to ensure the protection and management of the sites environmental assets with satisfactory arrangements being made for the implementation of the approved plan. (Department of Water) OR (Local Government) OR (Department of Environment and Conservation) [DELETE AS APPLICABLE]</i>
Development Application	A "Geotechnical Report" shall be prepared where: <ul style="list-style-type: none"> prior planning stages specifically request further karst investigation; or in the opinion of the City, the proposed development in conjunction with the associated karst risk poses a threat to people, property, or the environment. 	In instances where a "Geotechnical Report" was required, the following condition will be included in the approval of the Development Application to implement the recommendations of the Geotechnical Report: <i>'In development of the subject site, the proponent shall adhere to the recommendations as outlined by [AUTHOR OF GEOTECHNICAL REPORT] in the Technical Memorandum of [DATE OF GEOTECHNICAL REPORT].'</i>	
High	Local Structure Plan	A "Desktop Karst Survey" shall be prepared and included in Part 3 of the Local Structure Plan. The outcome and recommendations of the Survey will determine whether a "Geotechnical Report" and/ or "Karstic Features Management Plan" is required at Subdivision.	Where a "Desktop Karst Survey" provided with a Local Structure Plan identifies further investigations or management measures to be undertaken, a provision shall be added to Part 1 of the Local Structure Plan that requires a "Karstic Features Management Plan" to be prepared and implemented as a condition of subdivision.
	Subdivision	A "Geotechnical Report" shall be recommended as a condition of Subdivision by the City in all instances unless investigations carried out in previous planning stages specifically state that this is not required.	The City will recommend the following model condition where a "Geotechnical Report" is deemed to be required be prepared as a condition of subdivision: <i>'Prior to the commencement of subdivisional works, the landowner/applicant is to provide a pre-works geotechnical report certifying that the land is physically capable of development or advising how the land is to be remediated and compacted to ensure it is capable of development; and In the event that remediation works are required, the landowner/applicant is to provide a post-works geotechnical report certifying that all subdivisional works have been carried out in accordance with the pre-works geotechnical report. (Local Government)'</i>
		The requirement for a "Karstic Features Management Plan" shall be recommended by the City as a condition of Subdivision where a provision has been included in Part 1 of the Local Structure Plan requiring one to be prepared.	The City will recommend the following model subdivision condition where a 'Karstic Features Management Plan' is deemed to be required as a result of karst investigations at the Structure Plan and Subdivision stages: <i>Prior to the commencement of subdivisional works a Karstic Features Management Plan for [INSERT SITE ADDRESS] is to be prepared and approved to ensure the protection and management of the sites environmental assets with satisfactory arrangements being made for the implementation of the approved plan. (Department of Water) OR (Local Government) OR (Department of Environment and Conservation) [DELETE AS APPLICABLE]</i>
Development Application	A "Geotechnical Report" shall be provided in all instances unless investigations carried out in previous planning stages specifically state that this is not required.	In instances where a "Geotechnical Report" was required, the following condition will be included in the approval of the Development Application to implement the recommendations of the Geotechnical Report: <i>'In development of the subject site, the proponent shall adhere to the recommendations as outlined by [AUTHOR OF GEOTECHNICAL REPORT] in the Technical Memorandum of [DATE OF GEOTECHNICAL REPORT].'</i>	

Figure 1: Karstic Features Risk Zones in the City of Wanneroo



Schedule 1

MINIMUM STANDARD REQUIREMENTS FOR SUPPORTING INFORMATION

3.1 Desktop Karst Survey – This assessment is a geological study undertaken to determine the risks related to karst landforms. Initial investigations of a ‘Desktop Karst Survey’ may recommend that on ground geotechnical investigations be undertaken where necessary. The survey is to be prepared to the satisfaction of the City by a certified Geotechnical Engineer or similarly qualified karst expert and is to include the following:

- Analysis of existing site specific field data where it is available, and other existing resources and literature on karst in the specified area including the City’s ‘Karstic Features Risk Zones’ found in Figure 1;
- Consideration of significant karst features and subterranean fauna of conservation significance in accordance with the *Environmental Protection Act 1986* and related guidelines;
- Associated mapping showing the extent and severity of karst risk;
- Information pertaining to the capacity for the subject land to support a proposed development;
- Confirmation of the actual karst risk when taking into account existing literature outlined in the above point. Where there is uncertainty as to the on ground karst risk, a field investigation (including drilling/ radar where necessary) will need to be undertaken;
- Recommendations for the management of the site in response to karstic features; and
- Where initial desktop and field investigations indicate the presence of karst, the survey shall include comprehensive geomorphic analysis, exploration drilling and geophysical studies that will result in recommendations for investigations and management measures to be undertaken at future planning stages.

3.2 Geotechnical Report – To be prepared to the satisfaction of the City by a certified Geotechnical Engineer or similarly qualified karst expert and to include the following:

- Detailed site investigation including drilling for proposals located within areas of medium or higher karst risk;

- Consideration of significant karst features and subterranean fauna of conservation significance in accordance with the *Environmental Protection Act 1986* and related guidelines;
- Anticipated site classification in accordance with 'AS2870: Residential Slabs and Footings' and requirements to improve the classification, in so far as this is relevant to the proposed development;
- Information pertaining to the capacity for the subject land to support a proposed development; and
- Recommendations for the management of the site in response to karstic features.

3.3 Karstic Features Management Plan - To be prepared for the entire development area to the satisfaction of the City by a certified Geotechnical Engineer or similarly qualified karst expert and to include the following:

- Detailed site investigation including Ground Penetrating Radar for proposals located within areas of high karst risk;
- Consideration of significant karst features and subterranean fauna of conservation significance in accordance with the *Environmental Protection Act 1986* and related guidelines;
- Information pertaining to how the proposed development may affect or be affected by nearby karst features on adjacent or nearby land parcels, and detail on how impacts to off-site karst formations will be mitigated where necessary;
- Detail on the management of significant karstic features identified or to be retained and protected within POS. It must be adequately demonstrated as to how the protection of life, property and significant karstic features is to occur in response to the proposed development; and
- Recommendations provided in karst investigations undertaken in prior planning stages shall be addressed to the satisfaction of the City.