Mineral Resources Tasmania
Municipal Planning Information Project
Explanatory Notes

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CONTENTS

SUMMARY

Twenty-one pairs of 1:100,000 map sheets covering all of Tasmania have been produced to provide geological and mineral resource planning information to Tasmanian councils.

Maps 1-A to 21-A relate to exploration activities and the geological basis to prospectivity. They show a simplified version of the regional geology for all areas available to explorers, the location of all recorded mineral and coal prospects, abandoned mines and active mines and a zoned identification of those areas considered most likely to attract relatively high levels of future exploration.

The companion series of maps, 1-B to 21-B, relate to mining activities. They show current Mine Leases and the locations of currently operating mines, pits and quarries, for all commodity categories. The maps are designed to be used in pairs.

All data sets from which the information on the maps was sourced are continuously being updated and refined, so a final stage of the project will be to provide current versions of the maps for public access via the MRT web site.

The planning information project is an example of the potential to use existing earth resource and geoscience data to service information requirements across a broad spectrum of economic activities additional to the traditional exploration and mining industry applications.

BACKGROUND

Mineral Resources Tasmania (MRT) is the custodian of a large library of geoscience, earth resource and tenement management information, and is developing a strategy to provide appropriate packages of information to Tasmanian councils for use in the drafting of planning schemes and the assessment of development proposals.

By August 2001, data compilation for a series of maps depicting groundwater prospectivity was well underway and the concept of a companion project covering exploration and mining activities was being developed. MRT organised a facilitated workshop in Launceston on 22 August 2001 to discuss all issues related to the application of resource information for use by planners. Delegates from a range of planning and land management occupations, in both local government and private practice, actively aired their views, concerns and suggestions.

As a result of the predominant views and conclusions arising from the Launceston workshop, an information provision project was designed to meet the following criteria:

- Information to be presented as a set of 1:100,000 scale maps covering all of Tasmania.
- The maps need to show the location and geological basis of current and likely future exploration and mining activities.
- A strong emphasis on plain English presentation and simplification of technical detail, to facilitate easy use of the products.
- The products need to be generated initially as paper print maps, but ultimately as regularly updated digital maps available on line at the MRT web site.

On 5 November 2001, Ken Morrison commenced work at MRT on a fixed term part time basis, with a brief to design a set of maps which comply with the stated criteria, using in-house MRT data. Digital drafting and map construction is being done by Jo-Anne Bowerman, Data Management section, MRT, under the management of Ken Bird.

The project is to be completed in time for a product launch before 30 June 2002.

THE PRODUCTS

Twenty-one pairs of 1:100,000 scale map sheets, covering all of Tasmania including the Bass Strait islands, have been produced initially as printed paper maps. Consideration of the optimum plan size and the degree of quadrangle overlap resulted in the coverage shown on the index (Figure 1).

The maps comprise an A-series (1-A to 21-A) containing exploration information and a companion B-series (1-B to 21-B) containing mining information. For any given quadrangle on Figure 1, the A and B maps are both constructed on the same base.

DATA SOURCES & LIMITATIONS

Six layers of information have been incorporated into the two sets of maps. All information was sourced from MRT data bases and all drafting and map construction was done by the Data Management section at MRT.

A-SERIES MAPS — EXPLORATION INFORMATION LAYERS

1. Areas Unavailable for Exploration and Mining

All parks, reserves and sanctuaries which at present are unavailable for Exploration Licence or Mining Lease application are indicated with green hatching, without the geology, and annotated with the name of the reserve. Unavailable areas listed under the *National Parks and Wildlife Act 1970* comprise:

- National Parks
- State Reserves
- Nature Reserves
- Game Reserves
- Historic Sites
- Private Sanctuaries, and
- Private Nature Reserves

2. Simplified Geology

The existing 1:250,000 digital geology coverage of Tasmania has been simplified by removing all structural symbols and boundaries and consolidating the rock associations normally correlated between tectonic elements of the State into a simplified, more descriptive legend. The new legend lumps and consolidates lithological subdivisions of the main the rock units, whilst preserving the time scale framework of the State's geology.

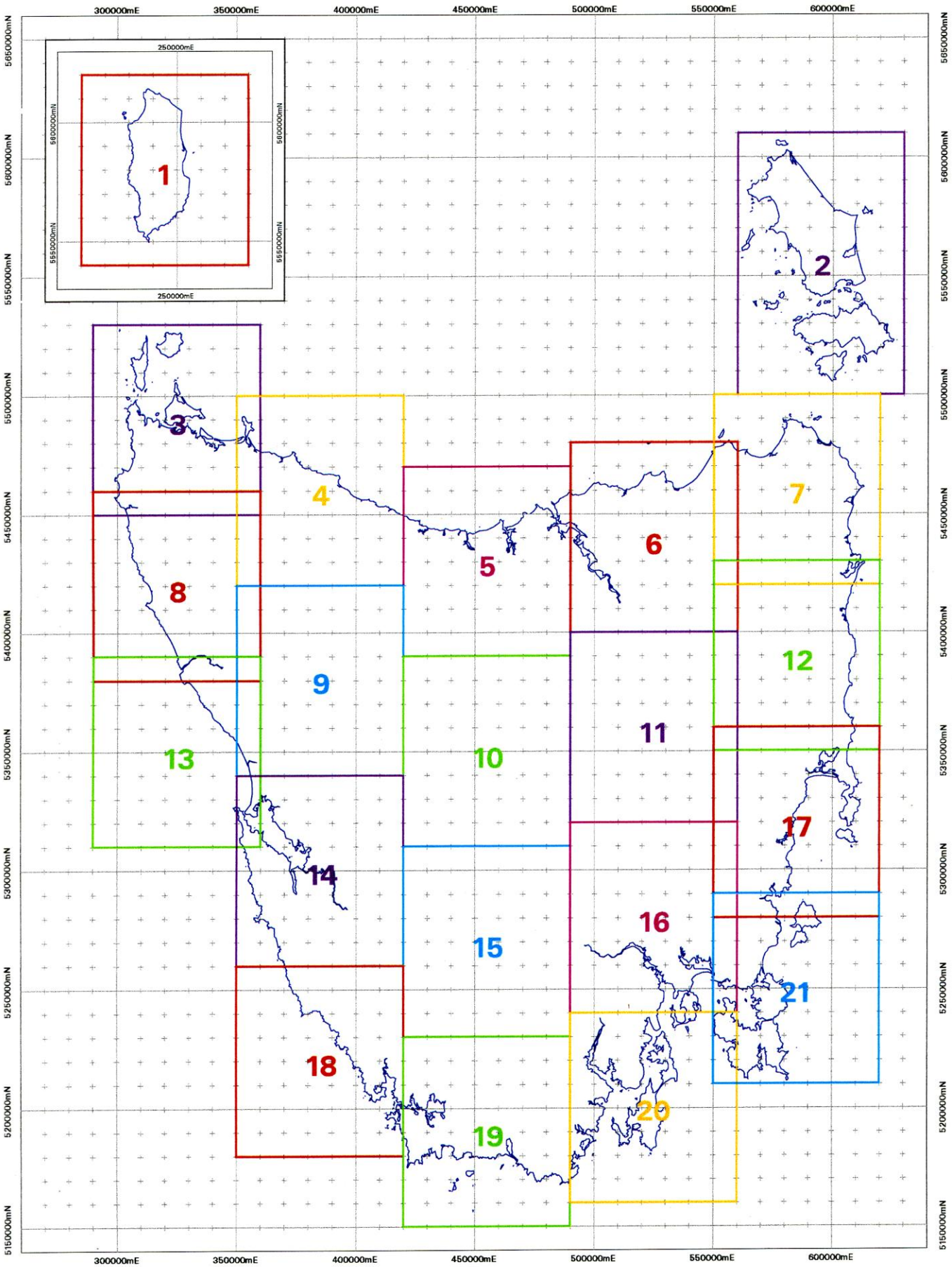

Figure 1. Index to Map Sheets

An abbreviated plain English description of the range of rock types present accompanies each of the 16 colour coded rock associations used in this legend.

3. Active Mines, Abandoned Mines and Prospects

All sites registered on the MIRLOCH data base, which covers metallic minerals, industrial minerals and coal, have been rearranged into three summary classes, shown as stars, triangles and dots respectively on the A-series maps. Under this classification system, Active Mines need not work continuously but must show evidence of at least occasional operation and site occupation. At the other end of the scale, Prospects include all registered mineral occurrences regardless of their historical status as exploration targets.

4. Areas Considered Highly Prospective for Future Exploration

The black hatched overlay areas are derived from a comprehensive study of the geological potential for undiscovered deposits of all metallic, industrial and coal commodity groups, which was prepared by MRT for the Regional Forest Agreement (RFA) negotiations during the 1990s. Figure 2 shows a quantified, Weighted Composite Mineral Potential of the State produced in the RFA study. The application of this map to the Planning Information Project has involved empirical determination of the minimum values which best fits a combination of the distribution of MIRLOCH sites and general knowledge of geological and strategic factors which influence present day explorers. As a general rule, areas with a high density of MIRLOCH sites are likely to attract near-continuous exploration activity and are most likely to contain new discovery sites. Areas scoring 72 or more on Figure 2 form the basis of the prospectivity zoning on the A-series maps. Minor modifications have been made to the boundaries where it was judged that improvements could be made for the specific application of the Planning Information Project. Boundaries were locally enlarged to accommodate post-RFA exploration and mine development interest on some nickel, coal and alluvial tin prospects, and to incorporate King Island. Boundaries were locally reduced where small areas of inherently prospective rocks are located in strategically risky positions close to sensitive areas of habitation or reserves.

B-SERIESMAPS — MINING INFORMATION LAYERS

1. Mine Leases

All current Mine Lease boundaries have been plotted as a theme from the MRT tenement data management systems, irrespective of the commodity category.

2. Active Mines, Pits and Quarries

All sites currently registered as producing operations are indicated by stars, colour coded according to the commodity. These data are derived from the MIRLOCH and CONMAT data bases and a temporary listing of Forestry Tasmania construction material sites, which will in the near future be added to CONMAT. Construction material sites by far outnumber metallic mineral and coal sites but it is metals and coal which form the basis of the exploration and mining industries. In the general case, no exploration is conducted to develop new sand, gravel or crushed rock aggregate production for the construction industry and many construction material sites are merely small ‘borrow pits’ which may only be used for a single episode of road works.

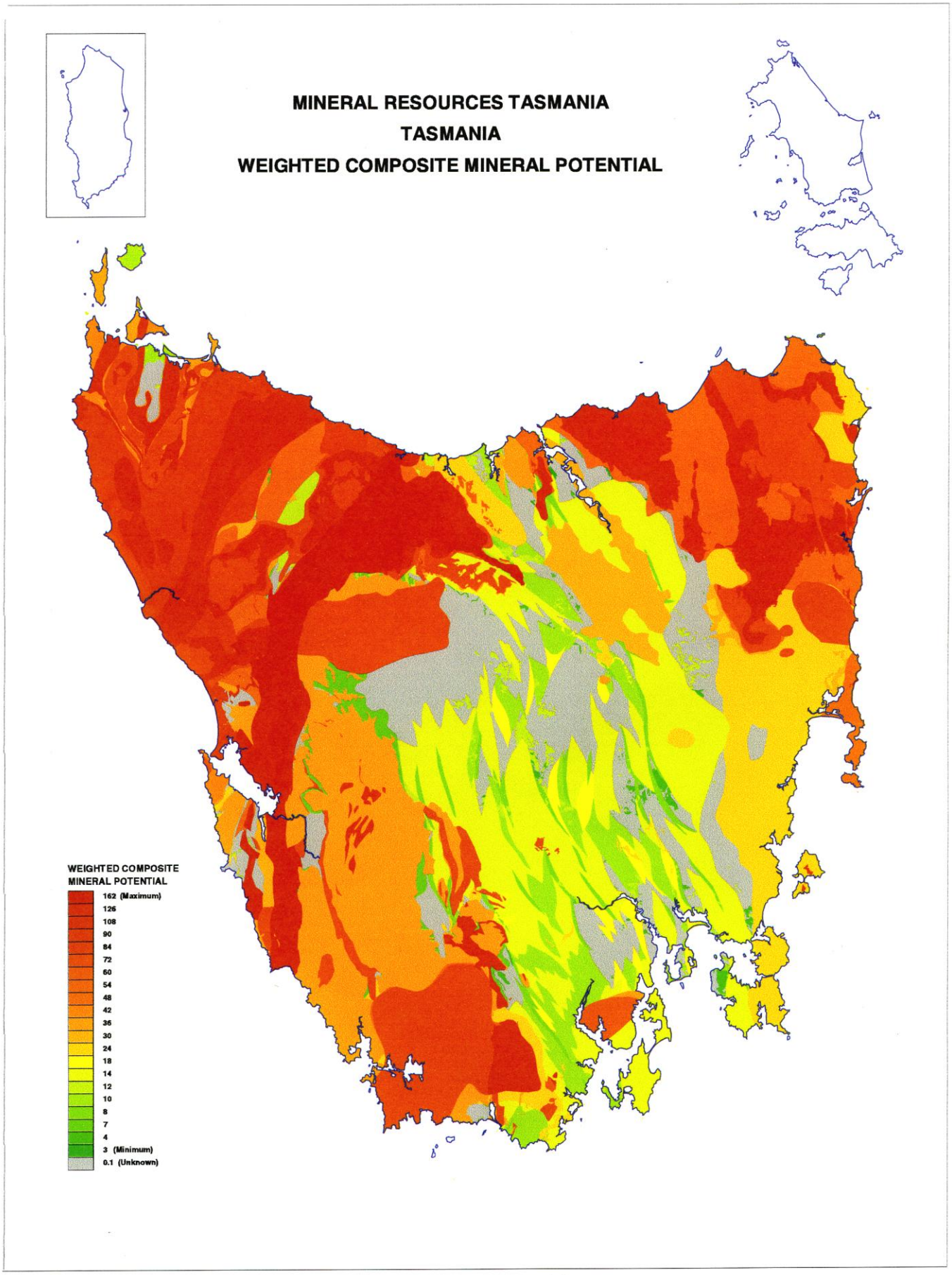

Figure 2. Regional Forest Agreement Weighted Composite Mineral Potential

It must be stressed that all of the information incorporated into this project is continuously being added to, validated and refined. At the time of writing, the locations of MIRLOCH and CONMAT sites are being checked by MRT and adjusted where necessary. This is a major task and grows in magnitude with the size of the data bases. New, more detailed geological mapping is always in progress somewhere in Tasmania. New prospects are discovered, new mines open and old mines are abandoned. Prospectivity ranking changes with commodity prices, new concepts in economic geology and new exploration techniques. The net effect of all this activity is that the mapped information is the most accurate available only at the time of printing and will require frequent updating.

Although the initial set of maps is being printed by MRT, and it is likely that paper maps will always be available for sale, an essential element of this new product is that it is to be available to the user via the MRT web site and will be able to be incorporated into the user's own GIS plan production procedure.

FUTURE DEVELOPMENTS

Internet delivery of the planning information used in this project is tied to the progress of the Tasmanian Information on Geoscience and Exploration Resources (TIGER) project and the flexibility of combining various themes for which the system is designed. Some of the information layers used are already available at the MRT web site and the complete maps will be available as an option to the user, as a final stage in the project.

On the broader horizon, there is considerable potential to apply the principles behind the Planning Information Project and provide information products to a range of organisations working in Tasmania. As an example, it is likely that simplified geology maps in general (i.e. maps which are accurate but readable to non-specialists) would have wide appeal with civil engineers, foresters, Parks and Wildlife officers and some tourist operators. The degree of simplification/complexity can easily be adjusted to suit the demand.

Feedback from the Planning Information Project will provide a measure of the acceptance for this style of information presentation and flag areas where refinement is needed. The basic principles behind this project however, clearly demonstrate the benefits of meeting the growing demand for earth science information by using the wealth of data and expertise at Rosny Park to service demand in sectors additional to the traditional customer base in the exploration and mining industries.