



## **Bulk Sampling Commences at Butcherbird for Pilot Plant Test Material**

Element 25 Limited (E25 or Company) is pleased to advise that bulk sampling work has commenced at the Company's 100% owned Butcherbird High Purity Manganese Project (Project).

The programme is expected to mine approximately 30-35 tonnes of ore from the Project area in up to seven small pits which will provide representative material for the pilot test programme scheduled for 2020.

The location of the pits has been designed to provide geometallurgical variability data as well as confirming geological and diggability assumptions in relation to the Project.

As announced on 9 August 2019, the Company was awarded funding of \$1,342,223 under the seventh round of the Cooperative Research Centres Project (CRC-P) grant program to co-fund the pilot plant test programme. The material from the bulk sampling programme will provide the feedstock for the pilot plant.

E25 Managing Director Mr Justin Brown commented, "This is a key component of the metallurgical test programme. It will provide the detailed data for the flowsheet implementation required for the Bankable Feasibility Study to follow the Pre-Feasibility which is currently being undertaken. Butcherbird is the foundation of the Company's ambition to become a long life, low cost producer of sustainable, high quality, low carbon intensity manganese products for traditional and New Energy markets."





### **Company Snapshot**

ASX Code: F25 Board of Directors: 92M Seamus Cornelius Shares on Issue: Chairman Share Price: \$0.17 Justin Brown MD Market Capitalisation: \$15.6M John Ribbons NFD

Element 25 Limited is developing the world class Butcherbird manganese project in Western Australia to produce electrolytic Manganese Metal (EMM) and high purity manganese sulphate (HPMSM) for lithium ion batteries.

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The aim of this bulk sampling exercise is to collect 25 representative bulk samples (a minimum 1 tonne each) from up to seven pre-determined sites within the indicated and measured resource areas for metallurgical pilot plant test work.

## **Programme Design**

Seven trenches are being excavated to a minimum depth of 5m below the surface. Bulk samples will be collected at 1m intervals as each pit is being excavated with approximately 1 tonne of material collected for each sample. The designed locations of the pits are centred on existing drill holes to allow for grade reconciliation against existing data.

Pit No	Easting (GDA94)	North (GDA94)	Rl Nominal	Drill Hole
А	774498	7297901	629	10BB156
В	774701	7297701	627	10BB312
С	774801	7297902	623	BBRC00192
F	775105	7297902	618	10BB328
G	775301	7297899	615	10BB338
D	774301	7298003	632	10BB292
Е	774597	7298101	624	BBRC00197

Table 1: Bulk sample pit coordinates.

The programme is utilising a 30t excavator with rock breaker attachment, a D4 bulldozer, and a Bobcat with fork attachments. Samples will be transported to Perth via Newman.





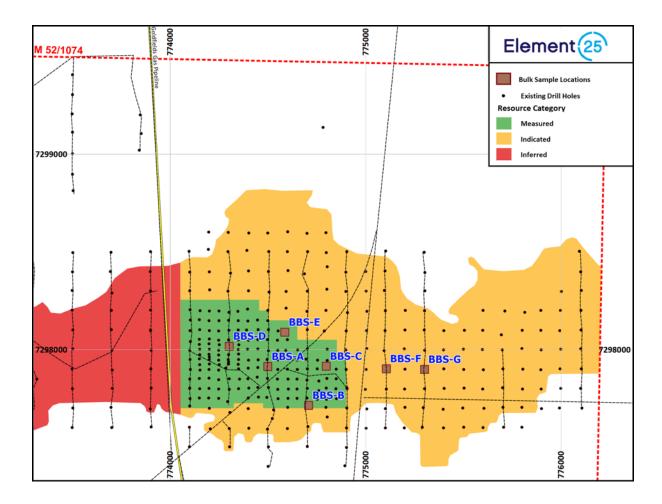


Figure 1: Proposed location of the bulk sample pits.

## **About the Butcherbird High Purity Manganese Project**

The Butcherbird High Purity Manganese Deposit is a world class manganese resource with current JORC resources in excess of 263 Mt of manganese ore. The Company has completed a positive scoping study with respect to developing the deposit to produce high purity manganese sulphate for lithium ion battery cathodes as well as Electrolytic Manganese Metal for use in certain specialty steels. A PFS is currently being completed and is expected to further confirm the commercial potential of the Project.

The Project straddles the Great Northern Highway and the Goldfields Gas Pipeline providing turnkey logistics and energy solutions. The Company is also intending to integrate renewable energy into the power solution to minimise the carbon intensity of the Project as well as further reducing energy costs.



### **Mineral Resources**

Category	Tonnes (Mt)	Mn (%)	Si (%)	Fe (%)	AI (%)
Measured	16	11.6	20.6	11.7	5.7
Indicated	41	10.0	20.9	11.0	5.8
Inferred	206	9.8	20.8	11.4	5.9
Total	263	10.0	20.8	11.4	5.9

#### Notes:

- Reported at a 7% Mn cut-off for the Measured and Indicated categories and an 8% Mn cut-off for the Inferred categories.
- All figures rounded to reflect the appropriate level of confidence (apparent differences may occur due to rounding)

#### Justin Brown

#### **Managing Director**

Company information, ASX announcements, investor presentations, corporate videos and other investor material in the Company's projects can be viewed at: http://www.element25.com.au.

### **Competent Persons Statement**

The information in this report that relates to Mineral Resources is based on information announced to the ASX on 17 April 2019. Element 25 confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements, and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled by Mr Justin Brown who is a member of the Australasian Institute of Mining and Metallurgy. At the time that the Exploration Results and Exploration Targets were compiled, Mr Brown was an employee of Element 25 Limited. Mr Brown is a geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Brown consents to the inclusion of this information in the form and context in which it appears in this report.

Please note with regard to exploration targets, the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to define a Mineral Resource and that it is uncertain if further exploration will result in the determination of a Mineral Resource.



# JORC Code, 2012 Edition - Table 1 - Butcherbird Project - Bulk Sampling Exercise

# Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems.</li> </ul>	<ul> <li>Bulk samples are being collected from seven sites within the Butcherbird manganese resource. These bulk sample will be utilised for metallurgical and pilot plant test work. Bulk samples averaging one tonne are being collected from each vertical metre from each pit down to a maximum depth of seven metres.</li> <li>Bulk samples are collected in such a manner as to ensure minimal dilution as the pits get deeper.</li> <li>Mineralisation in these areas has previously been defined from reverse circulation (RC) drilling and forms part of the Butcherbird Manganese Resource.</li> <li>The depth of the pits vary from 5m to 7m depending on whether caprock is present.</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>A 30 tonne Volvo excavator is being utilised to dig the pits. A rock breaker attachment is used at the surface on some of pits to break up the caprock. This material is removed and stockpiled prior to the commencement of collecting the bulk samples.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Recoveries are aimed at retrieving one tonne per vertical metre. A number of bulka bags have been weighed with an average of one tonne per bag being achieved.</li> <li>Each vertical metre (bench) is cleaned before the next vertical metre is taken.</li> <li>The excavator bucket is inspected (empty and clean) between samples.</li> <li>No wet samples are noted.</li> <li>The bulk samples include all material (coarse and fine).</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>All bulk sample pits are being mapped along with the exposed sidewalls. A number of photographs are taken of each of the pits as they are completed.</li> <li>Selected geological reference samples are collected at the discretion of the site supervising geologist.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise</li> </ul>	<ul> <li>The bulk samples are of the in-situ material directly from the surface or below the caprock. Each vertical metre of sample is collected in bulka-bags and temporarily stored next to each pit.</li> <li>The bulk samples are dry and are double bagged and sealed for later moisture readings to be ascertained.</li> <li>The bulk samples will undergo a number of metallurgical tests including hydrometallurgical and comminution tests at bench and pilot plant scales.</li> </ul>
	representivity of samples.  • Measures taken to ensure that the sampling is representative of the in situ material	The bulk samples are located adjacent to drill hole sites so that grades can be

Criteria	JORC Code explanation	Commentary
	collected, including for instance results for field duplicate/second-half sampling.  • Whether sample sizes are appropriate to the grain size of the material being sampled.	<ul> <li>correlated to the results obtained from resource drilling.</li> <li>Sample sizes (greater than one tonne) are considered appropriate for the bulk samples.</li> <li>The bulk samples have not yet been analysed and the technique and element suite will be determined during test work programme design.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Analysis has not been completed and will be determined by the test work program.</li> <li>All samples collected have been completed under full geological supervision.</li> <li>Samples have not been assayed.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> </ul>	<ul> <li>No results are reported as no samples have been submitted for assay.</li> <li>All data is manually collected in the field at the time of the sample collection.</li> <li>This data includes pit locations, geological mapping, sample recording and photographs.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All pit coordinates are recorded using a hand-held GPS in MGA 94 – Zone 50 (+/- 5m).</li> <li>All previous drill holes at the Butcherbird have been surveyed by licenced surveyors to an accuracy of two decimal places (10 millimetres). Each pit was located adjacent (+/- 10m) an existing surveyed drill hole.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>The bulk sample pits were selectively sited within the Measured Resource in order to achieve a representative spread of samples. A further two samples are planned to be collected within the Indicated Resource. The spacing of the pits is approximately 200m apart.</li> <li>Bulk sample pit spacing is considered appropriate for the test work.</li> <li>At this stage there has been no composite or subset sampling undertaken.</li> </ul>
Orientation of data in relation	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The orientation of structures is not known with certainty, but the sample pits are orientated with a north-south long axis in order to be orthogonal to the general flat to shallow northly dip of mineralisation.</li> <li>Bias introduced by the orientation of the pits with respect to structures is not known.</li> </ul>

Criteria	JORC Code explanation	Commentary
to geological structure		
Sample security	The measures taken to ensure sample security.	Chain of custody of the bulk samples is managed by company representatives and is considered appropriate. All bulk samples are collected in bulka bags which have internal plastic liners. Both the liner and bulka bag are sealed using cable ties. Each bag is clearly labelled with the delivery address. The bags are delivered to a transport yard in Newman for transport to Perth. The samples will be delivered to a transport yard in Midvale (Perth) for temporary storage (under cover) over the christmas period. The bulk samples will then delivered to ALS laboratories in Balcatta in the New Year.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No external audits or reviews have been conducted apart from internal company review.

# Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known</li> </ul>	• The Butcherbird Project consists of granted Exploration Licenses E52/2350 and E52/3606, Exploration Licence Applications E52/3704, E52/3706, E52/3710, E52/3735 and E52/3769, Miscellaneous Lease Application L52/211 and Mining Lease Application M52/1074.
	impediments to obtaining a licence to operate in the area.	• The tenure is 100% owned by Element 25 Ltd.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>The historical exploration data has been collected by Element 25 Limited and has been previously reported to high standards.</li> <li>Refer to previous ASX announcements (ASX:E25)</li> </ul>

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>Butcherbird is a stratiform sedimentary manganese deposit.</li> <li>The deposits are hosted within the Ilgarari Formation which is generally flat lying with gentle open folding in places.</li> <li>The manganese mineralisation within the ore zones is divided into three distinctive units – a high grade manganiferous cap, supergene enriched manganiferous laterite and basal shale.</li> </ul>
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> </ul>	<ul> <li>The location of the bulk sample sites (within tables and figures) is contained within this report.</li> <li>Refer to historical ASX releases (ASX:E25) regarding the Butcherbird Mineral Resource.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	No assays are reported in this report.
Relationship between mineralisation widths and intercept lengths	<ul> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>The mineralisation is flat lying to shallow northly dipping, the bulk sample pits are vertical and have been orientated in a north-south direction.</li> <li>The bulk sample pits do not extend through the entire width of the mineralisation.</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Refer to Figures and Photographs in this report.

Criteria	JORC Code explanation	Commentary
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul> <li>All bulk sample pit locations are detailed within tables and figures within the body of this report.</li> </ul>
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	• NA
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	The next phase of work will involve a metallurgical pilot test program which will utilise the bulk samples collected in this program.