

Date: 16 October 2020

ASX Code: MAN

#### Capital Structure

Ordinary Shares: 312,349,843 Unlisted Options: 164,000,078 (3c exercise) Current Share Price: 6.8c Market Capitalisation: \$21.2M Cash: \$4.2M Debt: Nil

# Directors

Patrick Burke Non-Executive Chairman James Allchurch Managing Director

Ben Phillips Non-Executive Director

Lloyd Flint Company Secretary

#### **Contact Details**

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# Frontier drilling at Berinka returns high grade gold-silver-copper mineralisation

# **Highlights**

- Drilling of greenfields frontier targets at the Berinka Pine Creek Gold Project in the Northern Territory has returned high grade gold, silver and copper intercepts including RC hole FBRC005:
  - $_{\odot}$  3m @ 1.8g/t Au, 32 g/t Ag and 2.1% Cu from 124m including;
    - 1m @ 3.7 g/t Au, 69 g/t Ag and 3.1% Cu from 124m
- Only very preliminary RC drilling totaling 5 effective holes for 733m has been completed to date across two distinctly greenfields prospects
- Specialist downhole optical imaging has provided valuable data as to the orientation of mineralised veins – crucial to subsequent drill targeting
- The discovery of high grade Au mineralisation at the Vegetation Anomaly which, contrary to previous work in the area is associated with high Ag/Cu concentrations, may indicate a potentially different mineralising system/event
- Plans well advanced for further drilling following the wet season
- Newleyine drill permitting progressing well EL grant imminent
- Mandrake now dual listed on the Frankfurt Stock Exchange

Mandrake Managing Director James Allchurch commented:

"Mandrake made the decision to undertake a relatively speculative frontier drilling programme at Berinka based on limited historic surface geochemistry and structural trends identified on magnetics.

To have drilling return coincident high grade gold, silver and copper on a gabbro/granite structural contact in our first limited programme is very exciting for the Company. Specialist downhole imaging has been crucial in improving our understanding of the orientation of structures and veining and this information will be used to plan further drilling."

Mandrake Resources Limited (ASX: MAN) (Mandrake or the Company) is pleased to provide results from a recently completed reverse circulation (RC) drilling programme targeting gold mineralisation at the Berinka Pine Creek Gold Project in the Northern Territory.

Mandrake investigated two greenfield prospects, Vegetation Anomaly and Terry's Gap, identified from aeromagnetics and historic gold results derived from costeans.



RC hole FBRC005 at Vegetation Anomaly returned the following high grade gold-silver-copper intercept:

- o 3m @ 1.8g/t Au, 32 g/t Ag and 2.1% Cu from 124m including;
  - <u>1m @ 3.7 g/t Au, 69 g/t Ag and 3.1% Cu from 124m</u>

FBRC004, also at Vegetation Anomaly, returned 9m @ 0.31 g/t Au from 22m whilst FBRC002, targeting Terry's Gap recorded 7m @ 0.32 g/t Au from 120m. See Table 2 for significant intercepts.



Plate 1: RC drilling FBRC004 at Vegetation Anomaly

Gold appears to be hosted in a series of veins in close proximity to a faulted contact between a gabbro and granite and is associated with sulphides, particularly pyrite and chalcopyrite (copper). The presence of high concentrations of silver and copper is particularly noteworthy in that previous drilling work at Berinka, primarily at Terry's Prospect in the mid-80s, identified gold with significantly lower copper and silver concentrations. This suggests that the mineralisation at the Vegetation Anomaly may represent a different mineralised system/event.

To assist in understanding the structural controls on mineralisation Mandrake engaged specialist downhole logging consultants to run an optical probe in two holes. This information has greatly assisted in determining the orientation of structures/veins of interest and has been invaluable in assisting with the generation of a follow-up drilling programme (see example in Figure 3).

The generation of the above results from a small RC programme designed to scout prospects with little to no previous work is outstanding and has confirmed the gold prospectivity of the Berinka Project and compelled the Company to complete further drilling.

Mandrake completed a very limited drill programme of seven holes (five effective, two abandoned) for 733m of RC drilling. The programme was prematurely curtailed due to rig



breakdown and as a result, only two (Vegetation Anomaly and Terry's Gap) prospects were drilled. The Cross and Sandy Creek prospects remain undrilled.



Figure 1: Plan showing inferred lithology, drill hole locations and results



Figure 2: Plan showing 2010 Thomson Aviation high resolution aerial magnetics (1VD) and drill hole locations/results



#### Brief Exploration History – Berinka Gold Project

Carpentaria Exploration (CEC) first explored in the area in 1975 when a reconnaissance visit found quartz veining at what is now known as the Terry's Prospect that assayed 5.5g/t Au.

Over the next six years CEC conducted soil sampling, mapping, gridding, rock chip sampling and ground magnetics. Most of these activities were focused on the Terry's Prospect area which is situated approximately 2km south-east of Vegetation Anomaly. Importantly, Vegetation Anomaly and Terry's Prospect appear 'connected' by a distinct NW-SE lineament as interpreted from magnetic imagery (Figure 2).

In the mid-1980s CEC drilled 36 RC drill holes totalling 3,014m at Terry's prospect. Best intersections include\*:

- 4m @ 6.6g/t from 32m
- 6m @ 3.1g/t from 18m
- 5m @ 2.6g/t from 30m

\*A complete list of all historic drill intercepts is contained in the Mandrake Resources prospectus lodged with the ASX on 24 May 2019.





Figure 3: Borehole image of FBRC005 showing structure and veining between 124m and 126m downhole (grading 2.6 g/t Au, 48 g/t Ag and 3% Cu)





Figure 4 - Location of Berinka Pine Creek Project

# Admission to Frankfurt Stock Exchange

Prompted by enquiries from European-based investors, Mandrake has dual-listed on the Frankfurt Stock Exchange. The dual listing facilitates greater exposure to European markets and increases reach to investors in other jurisdictions.

Mandrake's code on the Frankfurt Stock Exchange is CQ4.

The capital structure of Mandrake remains unchanged.

This announcement has been authorised by the board of directors of Mandrake.

#### About Mandrake Resources

Mandrake is a junior exploration company established with the purpose of exploring and developing gold, nickel, copper and PGE opportunities. The Company recently entered into an agreement to earn-in to exploration tenure prospective for Ni/Cu/PGEs in the exciting Jimperding Metamorphic Belt, 70km NE of Perth.

Mandrake also owns a mineral exploration project located in the prolific Pine Creek Orogen of the Northern Territory prospective for gold, silver and base metals. For further information visit <u>www.mandrakeresources.com.au</u>



#### **Competent Persons Statement**

The technical information in this announcement complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled and assessed under the supervision of Mr Harry Mees, consulting geologist to Mandrake Resources. Mr Mees is a Member of the Australian Institute of Geoscientists. He has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Mees consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.



#### Table 1: Summary of RC drill collars – Berinka Pine Creek Gold Project

HOLE_ID	Prospect	EAST*	NORTH*	Azimuth (deg)	Dip (deg)	RL (m)	TOTAL DEPTH (m)	COMMENT
FBRC001	Terry's Gap	666273	8439135	177	-60	62	138	125-130m quartz stockwork/breccia zone
FBRC002	Terry's Gap	666271	8439280	177	-60	59	150	127-128m quartz-epidote-pyrite lode, other minor zones of alteration, veining
FBRC003	Vegetation Anomaly	665031	8439775	27	-60	54	72	EOH early; no significant intercepts, no change in lithology (gabbro)
FBRC004	Vegetation Anomaly	665097	8439704	27	-60	54	120	Multiple zones of alteration/veining/sulphides associated with multiple granite-gabbro contacts
FBRC005	Vegetation Anomaly	665179	8439668	27	-60	56	162	124-126m strong sulphidic quartz breccia lode
FBRC006	Vegetation Anomaly	665363	8439571	27	-60	56	72	Hole abandoned
FBRC007	Sandy Creek	665314	8440779	267	-60	60	19.5	Hole abandoned

\* - Coordinates are in GDA94 MGA Zone 52

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Drill Hole ID	Sample Type	From (m)	Interval (m)	Au (g/t)	Ag (g/t)	Cu (%)	Summary Description
555.0004	1m individual	66	2	0.7	<1	0.02	Epidotised, quartz veined granite
FBRCUUI	Includes	66	1	1.17	<1	0.03	
	4m composite	0	4	0.16	1	0.02	Cover - veining
	1m individual	9	1	0.34	<1	0.03	Quartz veined granite
FBRC002	1m individual	47	1	0.56	<1	1.2	Quartz veined granite
	1m individual	120	7	0.32	<1	0.1	Quartz veined granite
	Includes	121	1	0.68	<1	0.08	
FBRC004	1m individual	22	9	0.31	<1	0.07	Quartz-pyrite veined granite- gabbro contact zone
	Includes	25	4	0.49	<1	0.04	
FBRC005	1m individual	124	5	1.19	19.8	1.3	Sulphide-silica breccia lode, pyrite and chalcopyrite
	includes	124	3	1.79	32	2.1	
	Includes	124	1	3.74	69	3.1	

#### Table 2: Summary of significant (>0.1g/t Au) RC drill intercepts – Berinka Pine Creek Gold Project

Note: An accurate dip and strike and the controls on mineralisation are only interpreted and the true width of the mineralisation are unconfirmed at this time.

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# • JORC Code, 2012 Edition – Table 1 report template

#### • Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

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. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Holes were drilled to variable depth dependent on geological observation of the rig geologist.</li> <li>RC samples were collected from a rig mounted cyclone. A 3kg sub sample was split into a calico bag from the main sample through a riffle splitter mounted under the cyclone; the remainder of the sample was collected in a green plastic bag and placed on the ground in rows of 20.</li> <li>Composite samples (3kg) were collected over 4 metre intervals by spear sampling the four green plastic bags corresponding to the sample interval.</li> <li>All samples were dry.</li> <li>Appropriate standards were inserted in to the sample sequence at regular intervals.</li> <li>Composite samples and selected individual 1 metre splits were pulverized to produce a 50 g charge for fire assay and a sub-sample for 4-Acid digest 48-element determination by MS. Samples were analysed by Intertek Genalysis Perth and North Australian Assay</li> </ul>
		Laboratories, Pine Creek.
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</li> </ul>	Ine noies were drilled using reverse circulation drilling. Holes FBRC001-FBRC006 were drilled with a 5 1/2"face sampling hammer. Hole FBRC007 was drilled using conventional hammer and cross-over sub.



Criteria	JORC Code explanation	Commentary
	oriented and if so, by what method, etc).	
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 were noted in the drill logs for each individual metre interval. Recoveries were visually estimated from the quantity of drill chips collected in standard plastic sample bags for each metre drilled.</li> <li>Samples were collected through a cyclone to maximise recovery of fines.</li> <li>A well-fitting stuffing box was used around the collar to minimise material to the outside return.</li> <li>The samples were kept dry by using a booster.</li> <li>Rods, cyclone and splitter were regularly cleaned.</li> <li>Moisture content was semi qualitatively estimated.</li> <li>There is no observable relationship between recovery and grade in the RC drilling at this stage.</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>The lithology, colour, weathering, texture, mineralogy, alteration and vein percentage were recorded for each metre interval. Data was captured using Excel spreadsheets on a field logging computer.</li> <li>Logging is both qualitative and quantitative.</li> <li>Downhole optical imaging was used in holes FBRC002 and FBRC005 to determine structural orientation associated with mineralization.</li> <li>All holes were logged in full.</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 representivity of samples.</li> <li>Measures taken to ensure that the sampling is</li> </ul>	<ul> <li>RC samples were split at a ratio of 87.5%-12.5% through a riffle splitter.</li> <li>RC composite samples were collected by spear sampling of the riffle split bulk sample contained in green plastic bags.</li> <li>The samples were sent to an accredited laboratory for sample preparation and analysis. All samples were sorted, dried, crushed and pulverized to -75um to produce a homogeneous 50g subsample for analysis. A</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>grind quality target of 85% passing -75um was established.</li> <li>Quality control procedures included the insertion of certified standards every 25 samples.</li> <li>Intertek Genalysis' internal QAQC procedures included insertion of certified standards, blanks, check replicates and testing for grind fineness of 85% passing -75um.</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>The analytical technique used a 50g charge fire assay and is considered appropriate to detect gold, mineralization. Fire assaying is considered a total assay.</li> <li>The 4 acid digest 48 element analytical technique is considered a total assay for Ag, As, Bi, Ca, Cd, Ce, Co, Cs, Cu, Ga, Ge, In, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Rb, Re, S, Se, Sr, Te, Tl, Zn. It is considered near total for Al, Ba, Be, Cr, Fe, Nb, Sb, Sc, Sn, Ta, Th, Ti, U, V, W, Y. It is a partial technique for Hf and Zr.</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> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>The company used industry standard techniques for sampling and used independent laboratories.</li> <li>Primary geological and sampling data were recorded digitally.</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>The grid system used is MGA GDA94 Zone 52</li> <li>A handheld GPS (Garmin 66i) was used to locate the drillhole collars to an estimated accuracy of +_3m. Topographic control was not established; all holes are located in an area of subdued topography and topographic effects are not considered material at this stage of the drilling program.</li> </ul>



Criteria	JORC Code explanation	Commentary
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>Hole spacing is variable</li> <li>The reported drilling is reconnaissance in nature at this stage</li> <li>Samples were collected continuously at regular downhole intervals.</li> </ul>
Orientation of data in relation to geological structure	<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>Samples were collected continuously at regular downhole intervals.</li> <li>The drilling is reconnaissance in nature. There is limited orientation data for key mineralized structures. There is no indication of bias based on the currently known orientation of geological structures.</li> </ul>
Sample security	• The measures taken to ensure sample security.	<ul> <li>Samples were placed in tied calico bags with unique sample numbers. Calico bags were bagged in zip tied polyweave sacks. Once delivered from the field the samples were housed in secure premises prior to laboratory submission by Mandrake personnel.</li> <li>The assay laboratory confirms that all samples have been received and that no damage has occurred during transport.</li> <li>Results data was emailed to the Mandrake MD</li> </ul>
Audits or reviews	<ul> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	No audits/reviews have been undertaken to date.

### **Section 2 Reporting of Exploration Results**

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

Criteria	JORC Code explanation	Commentary
Mineral	<ul> <li>Type, reference name/number, location and ownership</li> </ul>	The RC holes were drilled on EL31710
tenement and land tenure status	including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, pative title interests, historical sites, wilderness or pational	<ul> <li>EL31710 is held by Focus Resources Ltd, a wholly owned subsidiary of Mandrake Resources</li> <li>There are no material interacts or issues associated with</li> </ul>
510105	park and environmental settings.	the tenement.



Criteria	JORC Code explanation	Commentary
	<ul> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>Costeaning, rock-chip sampling and ground magnetics work carried out by Carpentaria Exploration Company in the mide-1980's showed indications of gold mineralisation in the area of drilling.</li> </ul>
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul> <li>Sulfide-quartz lodes associated with Proterozoic granitoid intrusions and the regional Halls Creek/Giants Reef Fault zone.</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> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>Refer to Table 2 for significant results from the RC drilling.</li> <li>Drill hole locations are described in Table 1 and on related figures.</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> </ul>	<ul> <li>No length weighting or cut-off grades have been applied.</li> <li>No metal equivalent values have been reported.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <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>At this stage the main primary mineralised structural orientations are still being ascertained and are inconclusive. Downhole lengths are reported; true widths are unknown.</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 in announcement.
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 significant results are reported in Table 2.</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>	• All meaningful information provided.
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale stepout 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>	<ul> <li>Extensions of intercepts are likely to be further tested in the next field season by further RC drilling</li> </ul>