REDSTONE EXPLORATION SERVICES: 'FILE NOTE SERIES'
Note **06**

A BRIEF GUIDE TO PROPERTY EVALUATION

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You have been tasked with visiting a number of mineral properties and conducting a basic review of their prospectivity. The pages that follow are merely an introduction to the key aspects to consider when evaluating a project, and are not meant to substitute any of the extensive due diligence checklists that are publically available. The objective of this note is to highlight the need for a very rigorous exercise in which you should get down to the rocks and dirty, keep an open but critical mind, and remember that all too often the 'devil is in the details'. As John Barry says: "Don't assume anything, suspect everything !". Here are some points to consider:

- **General characteristics of the jurisdiction in question & 'above-ground risk' -** Country's political stability; legal and fiscal regime; sovereign risk and security of the land tenure system; fairness/transparency/consistency in the application of the exploration & mining regulations; foreign company participation in the mineral industry; foreign ownership of mining facilities & repatriation of profits; exploration permitting practicalities (including the duration and cost of the process); exploration to mining rights transition (including implications of surface vs. mining rights); mining royalties & taxes; environmental protection restrictions; metal endowment, mining history, and 'exploration maturity' of the region in question; other foreign mineral exploration companies operating in the area; availability & quality of geological information; availability of prospective/additional ground for staking; safety of working in the region.

- **Access to the property -** Topography, elevation, vegetation cover, quality of the road network, distance from major city & airport, seasonal weather variations that could influence access to the site & conducting field work (if so, length of the operating season), distance from major road/railway/navigable river/mill/smelter/ maritime port/other mining operations in the region. Also, remember to accurately confirm the property boundaries in the field w.r.t. the official exploration/mining permit documents (*here I recall a case when the main historical resource, deemed to lie within the limits of the property, was actually located just outside of it*...).

- **Ownership of the property -** What is the type of mineral tenure (e.g., claim/license/lease/concession/permit) and its expiration date ? Have all the mineral rights owners been identified and do they have full legitimate rights, including surface rights ? Is there a mineral title risk ? Are there any obligations that must be met to retain the property ? What are the terms of any royalties, back-in rights, payments, or other agreements and encumbrances to which the property is subject ? Are all necessary permits to conduct exploration in place, and if not what does it take

to obtain them ? Is there any 'negative baggage' (liabilities) on the property ? Also, what was the previous ownership and the past operators on the property ? *If you decide to proceed further with the property, remember to always have the validity of the mineral titles confirmed by independent lawyers.*

• **Local infrastructure -** Availability of power lines, their output and the local cost of energy; availability, ownership, and cost of usable water; available commercial supplies; proximity to a population centre and the nature of transport; presence of a local workforce; etc.

• **Community & societal issues -** Degree of urbanization of the land and its current use; existence of an official land zoning plan and its possible implications for future mine development; surface right ownership and level of 'considerations' to be paid for temporary land occupation; procedure required to be granted temporary land occupation; level of local unemployment and availability of qualified workforce; local living standards; general approach to the mining industry and how easy it is to get the social license to operate; indigenous rights applicable to the area of interest; presence of any sacred/religious/archeological/national heritage/burial sites; etc. *Remember that 'if you do not have the local community on your side, you do not have a project'.*

• **Environmental aspects -** Applicable forms of environmental protection, such as natural parks and reserves; specific risks posed by future mining to the local environment (e.g., endemic/protected fauna & flora, fish farming areas, close proximity of reservoirs supplying good quality water to a local city, etc.); existing environmental liabilities, such as mine workings, old tailings, acid mine drainage, etc.; baseline studies done in the past; NGO's operating in the area; and so on. *Note that in some western world jurisdictions the cost of environmental permitting of a mining project amounted to as much as the total cost of drilling.*

• **GEOLOGY OF THE PROSPECT/DEPOSIT, including:**

- Is the project at the grass-roots stage, advanced stage, or pre-feasibility stage ?
- General geology of the prospect/deposit - rock types, structure, alteration styles, type/character/distribution of mineralization, tentative assignement to a deposit type. What are the principal targets on the property and how well are they defined? How good is the understanding of the deposit's geology and is the geology 'right' for the inferred deposit type ?

- Is there a mineral resource estimate for the property, and if so what is the ore grade and overall tonnage (*Remember that grade is king !*). What is the deposit depth and the geometry of the mineralized zone (dip/plunge, thickness, width, length, continuity) ? Is there potential to expand this resource, i.e., is the orebody 'open' or has it been closed off by past drilling ?

- In the case of a defined resource and reserves, how confidently were they established and have they been audited by reputable experts ? Examine very critically the method of assay compositing, cut-off grades and other parameters used to estimate the resource; the density and quality of historical drilling & assaying and whether it can be validated by limited drill hole twinning; the geometry of mineralization with respect to the drill hole angle (i.e., what is the <u>true</u> thickness of mineralization?); the existence of any historical drill core preserved and how well it is labeled; the drill core recovery figures; the representativity of drilling/sampling and any risk of sample bias; the quality of bulk density measurements performed; the adequacy of QAQC procedures; the consistency of core logging; and the overall quality of the resource modeling. *Caveat emptor !*

- What is the complexity of the deposit (faulting/folding/discontinuities), bearing down on the continuity of mineralization and how dense & how deep drilling will be required to confirm a resource. *Remember that drilling costs a lot of dollars...*

- What is the grade distribution like, i.e., presence or absence of high-grade zones and ore grade consistency & predictability ? Are there any significantly higher grade intervals within lower grade intersections ? (Always get the individual, original assay values and do not be satisfied with composites). Is high grade restricted to narrow veins with barren rock in between or scattered in an 'ocean' of very low grade or, conversely, are there moderate grade zones linking higher grade and producing better grade continuity? *Do get your own visual estimate of the grade !*

- Ore mineralogy & metallurgy: what mineral phases are the metals in ? (bear in mind that sulfide/carbonate/oxide ores will dictate a very different metallurgical process down the road). What is their grain size ? How easily can be the mineralization boundaries defined ? Are the ore minerals intergrown with waste mineral, i.e., how easy it is to separate ore and waste ? Has there been any metallurgical testing done in the past ?

- Are there any additional commodities of interest that could add value (e.g., trace/precious metals in a base metal deposit) or, conversely, are there any deleterious elements that could trigger smelter/environmental penalties ?

- What geological information is available for the deposit and what's the quality of it? How good & detailed is the geological map ? Are there any geological cross-sections ? How good is the structural interpretation ?

- How good is the geological model and is it supported by the data or is it just 'wishful thinking' ? Is the data density adequate to support the model being advanced ? Are there alternative interpretations of the geological information and what is their potential impact on the resource ? **A key thing to do here is to check the model: pull out drill core along 2-3 sections across the deposit, relog it, and check if the data supports the model. Whenever this can be done, it is a must!**

- Does the deposit have the right size and could it supply a long life mine ? Is the whole deposit preserved or has part of it been eroded/oxidized/faulted away? Is there upside potential and what is the likelihood of finding additional orebodies in the vicinity ? Are there any untested drill targets (such as geophysical/geochemical anomalies), any open extensions of the mineralization ? Where do you see favourable geology / favourable alteration styles / favourable structures ? How large and how strong is the alteration halo (allowing us to indirectly infer on the possible size of the mineral system) ? What are the geological controls on mineralization ? *"If there is gold, where should it be ???"*

- What are the practicalities of future mining ?, e.g., physical lay of the land; physical properties of the rock to be extracted (such as its hardness); any ground stability considerations; availability of water, but also the risk of having a 'wet' mine; availability of electrical power; cost of transporting ore to a mill/smelter. What amount of development is required to launch production ? What grade & tonnages do you need to build a mine in this precise location ? Is there a possibility of open pit mining the resource ? (a low strip ratio makes for cheap mining). Are there potential tailings storage areas, waste disposal areas, heap leach pad areas, and processing plant sites available in the vicinity ? *Does the project have a fatal flaw ?*

- Has there been any airborne/ground geophysics done, by whom, and could possibly the raw data be reprocessed ? Are there any soil/rock/stream sediment geochem data that we could 'play' with our way ? What was the sampling pattern, density, and could there have been some sampling bias ? Was there a decent QAQC system in place and was the analytical lab reputable ? Are lab certificates available ? Are there any sample pulps that could be re-assayed ? Is it possible to contact former exploration personnel to find out more about how was the past program carried out ? Is there any additional information on the project available on SEDAR ?

- What work is required to move this project forward ?
- Do not forget to sample the properties visited generously and send grab samples for assaying to a reputable, independent lab. As they say in Nevada: *"If you wonder whether you should sample an outcrop, the rock samples should probably be already in your backpack !"*
- Identify all the historical prospects in the vicinity of the project, as well as any adjacent mineral properties and what is going on there, so as to gain a broader geological understanding of the area of interest. It is also useful to compare the quality of the prospect/deposit with similar projects in the same region (how does it fare ?).

  When all this is done, rank the properties visited. You can use as categories: 'Must get'/'Should get'/'Could get'/'Best to leave it'/'Drop it quick!'), and only select the best, that is... the one on which you would bet half of your retirement money...

Checking the model....