

Keel Zinc-Lead-Silver-Barite Deposit: Open Pit Concept Study

The remarkably rapid advance of Ireland's next open pit Zinc-Lead-Silver-Barite mine. Positioned within the world famous zinc belt that dominates central Ireland the current resources are shallow with open pit potential and remain open along strike and at depth. A transition to underground mining offers additional upside to an already economic conceptual open pit mine.



Authors:Daniel Bloor & Will Coverdale5/16/2018



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EXECUTIVE SUMMARY

The last 18 months have been a busy period at the Keel Zinc-Lead-Silver-Barite Project as held privately by Diversified Asset Holdings Pty Ltd (DAH). Located in the world renowned Irish Zinc district, home to past and present producing mines such as Tara, Lisheen, Galmoy and the Tynagh Open Pit, Keel strives to be the next in line to continue the grand tradition which has seen Ireland ranked as Europe's top zinc producing country.

During a brief joint venture period with ASX listed junior Longford Resources a maiden JORC resource estimate was released in early 2017 from credible consultants CSA Global. The resource as reported to an inferred level of confidence is 6.9Mt @ 6.4% Zn+Pb.

JORC Resource at the Keel Project, March 2017 @ 4% Zn Cut-off								
Prospect	Category	Mt'c	Zn	Pb	Zn + Pb	Contained	Contained	Contained
		MUS	(%)	(%)	(%)	Zn (t)	Pb (t)	Zn+Pb (t)
Keel	Inferred	6.9	5.6	0.8	6.4	385,00	55,000	440,000

CSA recommended further work to be carried out to improve both the resource tonnes and confidence level which set the present day framework for Keel and indeed DAH as the company looks to prove both the economic viability and increase the resources at the project once again alone, post the 12 month option agreement lapsing without further commitment from Longford where a change in management and indeed focus reverted the Keel project back to DAH ownership.

Upon the recommendation and immediately following the maiden resource DAH began extensional and infill drilling with results indicating that the new drilling is expected to lift the number of tonnes while simultaneously identifying additional mineralisation.



Recent intercepts include hole KD-2017-006 which reports:

5m @ 12.84% Zn + 0.91% Pb + 59g/t Ag from 191m; including 2m @ 25.17% Zn + 0.88% Pb + 122g/t Ag; including 0.5m @ 39.61% Zn + 0.5% Pb + 212 g/t Ag

These intercepts are not included in the current reported resource estimate, which is currently being upgraded and renewed.

While continuing with their work to expand and improve the confidence level of the current resource, internally DAH have also been working on the design of an open pit mining operation. The operation has been designed with the view to taking advantage of the shallow mineralisation



encountered in both the historical and more recent drilling while maintaining the deeper underground potential to further extend the mine life.



The current pit design contains 11.7Mt with a Zinc grade of 4% and a Lead grade of 0.5% at a 2% Zinc cut-off and forms the basis for the TCM analysis in this concept study. TCM was engaged to better judge the potential viability of an open pit project when compared with similar projects globally. In this instance two models were generated adopting slightly different methodologies namely; the NPV was generated using TCM's predictive analytics, which relies on TCM's extensive dataset of comparable technical information. This provided a very approximate gauge of the project. Whereas, the second method was a more involved modelling exercise incorporating experience and benchmarking further complimented by some basic first principal estimations.

Using the Predictive approach; comparable data suggests that a medium scale production rate of 2.1Mtpa could be plausible, whereas TCM opted for a smaller operation in the economic modelling that ran at 1.25Mtpa for a period of 10 years. The two differing approaches directly impact the capital and operating costs associated with each method, yet both yielded a positive outcome as tabulated below.



Summary of Economic Results				
	NPV Predictor	TCM Economic Model		
Reserve Size & Grade	11.7Mt @ 4.5% ZnEq	11.7Mt @ 4% Zn & 0.5% Pb		
Production Scale	2.1Mtpa	1.25Mtpa		
Recovery	ZnEq: 83%	Zn: 86%, Pb: 65%		
Operating Cost	\$50/t ore	\$65/t ore		
Capital Cost	\$121M	\$85M		
Pre-tax NPV ¹⁰	\$187M	\$151M		
Post-tax NPV ¹⁰		\$110M		
Post-tax IRR		38.5%		





From a wider market perspective the value accretion in taking a project from exploration through to development climbs significantly when revieiwing all global zinc companies with the average EV/t for an exploration company being \$15t, this climbs to \$30t and eventually to \$235t ZnEq as companies advance through feasibility and into production.



While the global earlier staged peers trade at a mean EV/t ZnEq of US\$19.2t, explorers closer to home in Ireland are valued at a mean of US\$8.75t ZnEq, a potential reflection of market sentiment towards what have typically been deeper orebodies which are both capital intensive and costly to operate. Thus meaning the current new wave of exploration which is uncovering shallower mineralisation amenable to open pit operations are perhaps not factored in.

With Keel boasting the open pit with exploration upside along strike as well as maintaining the deeper underground transition as an option, the competitive edge over local incumbents means a current estimated value more in line with their global peers would be more appropriate i.e. US\$9M based on the current resources. The yardstick calculation suggests US\$26M based on the current market spot prices with a 97% discount rate for the confidence level in the resource's as they currently stand.

Market Valuation Based on Peers both locally and Globally						
Project	ZnEq Tonnes	Yardstick	Global Peers EV/t	Irish Peers EV/t		
Keel & Garrycam Projects	465,000	\$26M	\$9M	\$4M		



As work progresses towards the initial Scoping Study one would not be surprised to see the valuation rise in line with their global peers that have already completed economic studies, especially should such studies prove as positive as the conceptual studies estimated within this report.

Further opportunity exists at Keel and the wider area, a recent ionic leach survey showed raised Zinc-Cadmium (ZnCd) levels over the established Keel Resource that were elevated to at least 50 times the background readings. Along the 2.5km strike length ZnCd levels were up to 75x background showing excellent targets for further testing and potentially significantly adding to the resource. While in the existing open pit the inclusion of silver as a by-product offers further upside along with a transition to underground exploitation. inclusion of the The historical Garrycam Barite deposit which reports a historical resource of 1.35Mt at a barite grade of 36.14%, 2.67% Zinc and 0.18% lead shows more distal potential.



The Keel Project currently sits in an interesting space, the last 18 months has seen the asset advance with the release of a current updated JORC 2012 Resource Estimate while also identifying the optionality of an open pit opertaion. The initial review of such an option looks positive and should warrant serious consideration. While on the other hand the general market has yet to reward the renaissance in zinc exploration that is currently taking place not only at Keel but across their Irish peer community.

The identified mineralisation style on the Keel Project has a well-known history of developing into world class deposits such as the Tara Mine and although further work is required to better understand the metallurgy at Keel the inclusion of key by products in the pit design and an intial credited economic study should see further value added to the project in line with its global peers.

The positive results of this concept study validate that the management team are on the right track and there is clear value to be created at the deposit in the current price environment.



VALUE ACCRETIVE STRATEGY & REVIEW METHODOLOGY

Purpose

The purpose of this document is to review Diversified Asset Holdings (DAH) current Zinc-Lead-Silver-Barite asset the Keel Project, its status, potential and indicative value versus its global peers.

The Company's current value-creation strategy

DAH, a private company, holds a highly prospective zinc-lead-silver-barite exploration package located in County Longford (Ireland) which includes the historical Garrycam orebody as well as the Keel Fault. DAH in conjunction with a former JV partner have continued to consolidate and improved upon the historical work in the area which culminated in a resource release in March, 2017. Internal open pit scenarios have been designed on the Keel Orebody while the historical Garrycam project remains an asset ready for a similar modernisation.

Based on this, The CloudMiner (TCM) has undertaken an analysis of the project and attempted to determine the potential in the context of other analogous projects (peer-projects) in this concept study.

Possible scenarios for future value creation strategy

TCM has carried out extensive studies on different mining companies' and their strategies for growth and value creation. Generally, there are three distinct ways in which a junior mining company can create value for its shareholders, TCM refers to these strategies as the 3xD's as summarised accordingly:

- **Discover** the asset e.g. find something attractive enough to excite the majors to acquire.
- **De-risk** the asset by undertaking feasibility studies designed to increase understanding of the various associated technical, social, environmental, financial and political risks on a project. Then identify and execute the various mitigating strategies to deal with the respective risks or attract acquisitive buyers.
- **Develop** and raise the finance (debt, royalty, off-take, streaming, &/or equity) on a project with the view towards bringing into operation.

Evaluating the Value of the opportunity

TCM aims to assess DAH's Keel Project with the view towards understanding how value is derived, namely:

- 1. Value based on worth of an asset
- 2. Value based on possible entry & exit strategies of potential projects
- 3. Staged approach to investment/development of project

Valuing opportunities that exist within a project is an art-form and is at times highly subjective. Hence, TCM has chosen the keep-it-simple approach by relying mainly on peer comparison using an Enterprise Value (EV) per contained tonne of zinc equivalent (ZnEq) analysis.



IRELANDS ZINC BELT.

Today, Ireland is internationally renowned as a major zinc-lead mining province. Over the last 40 years a string of significant base metal discoveries has been made, including the giant ore deposit at Navan now operated by Boliden as the Tara Mine (>70Mt). Equally zinc-lead ores have also recently been exploited from two other underground operations in south-central Ireland: Lisheen and Galmoy and via open pit at Tynagh. The combined output from these mines, make Ireland the

largest zinc producer in Europe and the second largest producer of lead.

Source: http://www.mineralsireland.ie/MiningInIreland

Several multi-national mining companies such as; Glencore, Boliden, Lundin, Rio Tinto have all operated in country for a number of decades proving the viability of such assets.

In addition to metal mining, Ireland has a rich heritage of industrial mineral and coal extraction. Both gypsum and brick shale are currently worked from open pit operations in Co. Cavan, whilst dolomite and fireclay are exploited from two sites in Co. Kilkenny. Other industrial minerals previously extracted in Ireland include barite (another mineral part of Keel's portfolio), dimension stone, phosphate, silica sand and slate.

During the early 1980s, the Ballynoe barite deposit was amongst the top 5 producers in the world. Coal was worked in Ireland as recently as the early 1990s, although it was most extensively worked in the 19th century.

Government appears pro-mining with a policy to support the development of Ireland's mineral resources in an environmentally and socially responsible way. The economic contribution of mineral exploration and extraction is recognised through the provision of well-paid secure jobs in rural areas that often have relatively limited employment opportunities.



Valley Type (MVT) Pb-Zn Model

The Minister for Communications, Climate Action and Environment has statutory responsibility for regulation of the exploration for and development of all minerals, other than stone, clay, sand and gravel.

Mineral exploration and mining are regulated under the Minerals Development Acts 1940 to 1999. The Minerals Development Act 2017 was enacted on 26 July 2017 and is due to be commenced. There were also a number of Regulations covering fees, information to be provided with licence applications, procedures for claiming compensation etc.

Source: http://www.mineralsireland.ie/LegislationFeesAndPolicy



THE KEEL PROJECT OVERVIEW

Keel has long been revered for its mineral potential having been studied during the 1970's and held by some of mining's most illustrious names, during which time drilling and the sinking of both a shaft and minor underground drives for the purposes of exploration yielded a historical reserve (non-JORC) of 4.95Mt @ 6.8% Zn, 1.2% Pb, 28g/t Ag. Similarly, the Garrycam prospect, which falls within the tenement package, underwent exploration work and boasts a historical resource rich in barite while



still holding respectable zinc and lead grades - 1.35Mt grading 36.14% BaSO4, 2.67% Zn & 0.18% PB.

The granted Prospecting Licences cover 66km² and to date DAH have focused on further understanding the potential held at and around the Keel shaft. The mineralization, Irish Mississippi Valley Type (MVT), occurs both as disseminations and as stockwork sulphide mineralization in the Upper Devonian and Lower Carboniferous clastics and carbonates which are faulted against the Lower Palaeozoic metasediments. Similar to that of the world-renowned Navan.

Previous explorers include multibillion dollar mining companies – Rio Tinto (for 35 years), Boliden & Lundin Mining have all held the property prior to DAH. Rio Tinto built scale production infrastructure including the 5m wide exploration shaft down to 175m with 3 main drives however did not commence mining despite Rio Tinto themselves seeing significant exploration potential. Incredibly Rio chose to drop the Navan deposit in favour of

Keel, a project that has now mined 80Mt and only recently found extensional resource to yet again prolong the mine life.

Andrew Dawes, who was contracted on 14th May 2016 to review the exploration history of Prospecting Licence's (PL) 185 and (PL) 186 – The Keel Project suggests the region holds two exploration targets which could represent a potential resource of 17Mt and up to 314Mt for Keel and Garrycam style orebodies respectively based on polygonal zonation.



Exploration drill-hole benchmarking

Since procuring the property DAH have worked smartly alongside JV partner Longford Resources to consolidate, test and enhance the historical work which has been carried out by the illustrious previous owners. Additional drilling through 2017 identified much shallower mineralisation which is optimal to open pit mining while maintaining the deeper resources which were the target of the initial Rio Tinto shaft (Figure 8).



Figure 7 provides a comparative view of the drill intercepts plotted across select Irish Zinc projects that fall within the identified styles of mineralisation including the recent drilling carried out by Zinc of Ireland, Hannan Resources and Group Eleven, three listed entities that are leading the resurgence of interest in Irish brownfield zinc projects.

Drilling in the immediate Keel Fault area, south of the Keel Inlier, is extensive and formed the basis for the CSA Global Resource Estimate released in March 2017. Following recommendations made during this period additional drilling has now been carried out to assist with both increasing the potential resource and the category and includes new intercepts, not within the current resource, with grades as high as 39.6% Zinc in parts:

Hole KD-2017-006: 5m @ 12.84% Zn + 0.91% Pb + 59g/t Ag from 191m; including 2m @ 25.17% Zn + 0.88% Pb + 122g/t Ag; including 0.5m @ 39.61% Zn + 0.5% Pb + 212 g/t Ag

Drilling on the north side of the Keel Inlier is relatively sparse and is not sufficiently spaced to determine high angle normal faulting which is found on the southern side of the inlier a target which means the body remains open both a long strike and at depth (*Source: Exploration Report for PL185 and PL186, Andrew Dawes 14th May 2016*).



One of the key attributes regarding the Keel project is the depth of the deposit relative to its peers in Ireland. A depth which suggests that there is strong potential for an open cut operation to be implemented. Figure 8 and Figure 7 below illustrate the work that has been carried out to delineate an open pit target at Keel in the recent drilling. With the reported mineralisation all falling within the top 200m of the surface and having a median grade of around 6.4% Zn or 6.8% for Zn+Pb. The project is the shallowest of its peers alongside the Kinnity Deposit but holds a superior median grade and has the benefit of the deeper mineralisation which was the focus of historical work.





Resource Estimate (JORC 2012)

As discussed in the previous chapter exploration to date has delivered a resource estimate as outlined in Table 1 below, reported in March 2017 for the Keel Deposit only.

Table 1: JORC Resource at the Keel Project, March 2017 @ 4% Zn Cut-off								
Prospect	Category	Mt's	Zn (%)	Pb (%)	Zn + Pb (%)	Contained Zn (t)	Contained Pb (t)	Contained Zn+Pb (t)
Keel	Inferred	6.9	5.6	0.8	6.4	385,00	55,000	440,000

Using a 4% Zinc Cut-off CSA was able to improve on the historical resource estimate and reported 6.9Mt and a zinc grade of 5.6% for 385,000 tonnes of contained zinc. CSA go on to discuss there being reasonable prospects for the eventual economic extraction of the mineralisation at Keel on the following basis:

- The project is located close to road, rail and port infrastructure, approximately 112 km west of Dublin
- The mineralisation contains elevated Zn and Pb grades over a reasonable strike length
- The mineralisation forms a continuous, coherent zone in a favourable orientation which should allow mining with acceptable dilution (subject to robust grade control and mining processes)
- The mineralisation reported lies within 350 m of surface, and it is therefore practical to mine with conventional underground methods
- Results from historic metallurgical testing indicate that the mineralisation is amenable to conventional sulphide flotation processing (Dawes, 2016)
- There is potential to increase and upgrade the Mineral Resource with additional drilling.

Similarly, they make recommendations to improve both the resource tonnes and the confidence level of the resources with the following:

- There appears to be more data that could be captured into the drillhole database both from old drill logs and historic reports (American Smelting and Refining Company, 1971). A thorough review of these data is warranted to ensure they are incorporated into the drillhole database.
- Infill drilling around high-grade zones should be considered to improve resolution on the grade distribution. This would permit estimation over a smaller support (block size) and potentially give a more selective model which might see it report higher grade.
- A series of confirmation (twin) drillholes should be drilled, with subsequent geochemical analyses subject to rigorous quality control. This may enable upgrade to a higher resource classification.
- Density measurements should be completed on available drill core. This is non-destructive, and so should be possible using core stored at Minerals Ireland.

A program of 12 holes totalling 2,925 m was proposed by CSA to provide the data to raise the resource classification to include Indicated as well as to establish the silver grades. These holes were completed in late 2017 with success and the project is awaiting re-estimation.



Resource Peer-Analysis

Figure 9 and **Figure 10** compare the current resource for the Keel Project with other predominately Irish Zinc projects, most of which are either in operation, have released positive economic studies or are commencing studies in the coming 12 months.

As is typical with Mississippi Valley Type (MVT) deposits the resources typically fall within the 4 – 40Mt range and while Keel is at the smaller end of that scale it has the potential to increase both the resource and grade.





Former greats like Galmoy, Lisheen and Tara all stand out for the obvious reasons however it is the former producing open pit deposit of Tynagh that offers greatest interest. At 7.4Mt with a grade of 3.2% Zinc and 3% Lead for a combined 6.2% Zinc plus Lead grade offers a very good comparable for Keel. As can be seen in the grade tonnage curve at Keel, Figure 11 below shows a similar scenario at a lower cut-off rate (3%) to that of Tynagh with the reported resource having similar tonnes, 10.7Mt and a greater zinc grade, 4.8% but lower Lead, 0.75%.



Internal work carried out during the JV between DAH and LFR has resulted in the design of a conceptual open pit as depicted in Figure 12 below. At a 2% zinc cut-off the pit holds 11.74Mt at 4.01% zinc and 0.54% lead for a total of 470,000 tonnes of contained zinc and 63,000 tonnes of lead respectively. This estimate will form the basis of the peer analysis work to follow. No silver has been reported however it provides additional upside as work continues to further delineate the silver mineralisation.





ANALOGOUS PROJECTS

As touched upon in earlier chapters the selection of analogous projects was based on them being of a commodity that matched DAH's Irish projects. Regard was also given to other projects similar either in terms of grade, scale of operation, mining method, operational environment and/or mineralisation style.

TCM have identified several analogous projects in this regard as summarised below:

Project: Tara Company: Boliden	Tara in Ireland is Europe's largest zinc mine and also one of the largest in a global comparison. Since mining began in 1977, more than 85 million tonnes of ore have
Location: Ireland	been extracted. Boliden acquired the mine in 2004.
Stage: Operations	
Mining Method: Underground	Thanks to exploration and acquisitions, the mineral reserve and mineral resources
Resource: 22.1Mt's @ 7.1% Zn &	have grown continuously. In recent years, Tara has focused on improving its cost
1.91% Pb (9.01% Zn + Pb)	position through productivity enhancing investments and savings measures.
Mineralisation Style: Mississippi	Around 2.6 million tonnes of ore are mined annually for the production of zinc
Valley Type Zn-Pb	and lead concentrates.

Project: Tynagh Mine	The Tynagh Mine which hosted 9.4Mt at 3.2% Zn, 3.0% Pb, 0.3% Cu and 1 oz/ton
Company: n/a	Ag, and they cover similar geology to Tynagh. The Tynagh mine operated from
Location: Ireland	1965 to 1981 and was the start of a new mining era in Ireland, leading to the
Stage: Decommissioned	development of base metal mines at Silvermines, Gortdrum, Navan, Galmoy and
Mining Method: Open Cut	Lisheen.
Resource: 9.4Mt's @ 3.2% Zn & 3%	
Pb (6.2% Zn+Pb)	
Mineralisation Style: Mississippi	
Valley Type Zn-Pb	

Project: Lisheen	Lisheen Mine is a lead and zinc mine located between the villages of Moyne and
Company: Vedanta Resources	Templetuohy in County Tipperary, Ireland. In the Rathdowney Trend Lisheen is an
Location: Ireland	underground mine where the Lisheen deposit lies at an average depth of 170
Stage: Decommissioned	metres below surface.
Mining Method: Underground	
ROM Production: 22.5Mt's @	The mine ceased operations in 2015 having exhausted a total of 22.5Mt of ore at
11.7% Zn & 2% Pb (13.7% Zn+Pb)	a grade of 11.7% Zn & 2% Pb having been in production from 1999. The mine is
Mineralisation Style: Mississippi	currently undergoing a world class closure process.
Valley Type Zn-Pb	

Project: Galmoy	The Galmoy zinc-lead deposit, owned and operated by the Lundin Mining
Company: Lundin Mining	Corporation, was discovered in 1986. With production commencing in early 1997
Location: Ireland	until 2006 producing a total of 5.67Mt at 11.4% Zn and 2.3% Pb. The Proven and
Stage: Decommissioned	Probable Reserves at the end of 2006 still totaled 2.58Mt at 15% Zn, 4.3% Pb &
Mining Method: Underground	40g/t Ag. In addition, resources amounted to 1.46Mt at 16.7% Zn and 3.63% Pb.
ROM Production: 5.67Mt's @	
11.4% Zn & 2.3% Pb	Private Company Shanoon Resources plans to now re-open the mine and access
Mineralisation Style: Stratabound	the remaining Zinc.
Replacement	

Project: Pallas Green	The Pallas Green Project is located between Limerick and Tipperary in Ireland. The
Company: Glencore	Project focuses on exploration of the Pallas Green Alteration Trend which is
Location: Ireland	considered to be analogous to the Lisheen Alteration trend.
Stage: Pre-Feasibility	
Mining Method:	Prospecting licenses held by the project covers an area of approximately 294km2.
Resource: 44.2Mt @ 7.2% Zn &	Glencore estimated inferred mineral resources to be 44Mt at a grade of 7% Zn
1.2% Pb (8.4% Zn+Pb)	and 1% Pb, as at 31 December 2016.
Mineralisation Style: Mississippi	
Valley Type Zn-Pb	



Project: Kilbricken	The Kilbricken project is a new high-grade Zn-Pb-Ag-Cu discovery and is the
Company: Hannan Metals	Company's flagship project. The project is drilled over more than 1km and is ready
Location: Ireland	to explore and expand within a 40km strike area.
Stage: Exploration	
Mining Method:	Massive sulphide mineralization at Kilbricken most commonly consists of early
Resource: 2.7Mt's @ 8.8% ZnEq	massive-textured, fine-grained pyrite, galena and sphalerite cross-cut by coarse-
Mineralisation Style: Massive	grained sphalerite and galena, resembling sulphides found in the overlying veins.
Sulphide	It differs from most other Irish zinc/lead prospects in that it is rich in silver, where
	the silver is generally associated with galena-rich zones.
Project: Kildare	The Kildare Project comprises 6 contiguous licenses covering ~250km2, which are
Company: Zinc of Ireland	located ~40km south-west of Dublin and within the Rathdowney mineralised
Location: Ireland	trend. The region hosts several world-class zinc mines including Vedanta's Lisheen
Stage: Exploration	Mine
Mining Method:	
Resource: 5.2Mt's @ 7.2% 7n &	Kildare District is host to numerous Mississinni Valley Tyne ("MVT") zinc-rich
1 4% Ph (8 6% 7n+Ph)	breccias and the favourable "Waulsortian Limestone" host rock forms a bed
Mineralisation Style: Mississinni	across the district
Valley Type 7n-Ph	
valley type 21110	
Project: Dellinglash	Dellinglash contains what Grown Flavor ballows to be the second largest
	Ballinalack contains what Group Eleven believes to be the second largest
Company: Group Eleven	undeveloped zinc-lead occurrence in ireland, after Glencore's Pallas Green
Location: Ireland	Deposit. The historical estimate of mineralization at Ballinalack suggests the
Stage: Brownfield Exploration	resource extends over an area of 1600m by 650m. The maximum thickness of the
Wining Wethod: Open Cut &	resource is estimated at 100m.
	The second second is increased with death second a face 5 40/ 7a and 0 50/ Ph is
Resource: 7.7Mit's @ 7.3% Zn+Pb	The grade generally increases with depth, ranging from 5.1% Zh and 0.5% Pb in
Valley Type Zr. Db	the upper horizons, to 11.2% Zh and 2.3% Pb in the lowest horizons.
Valley Type Zn-Pb	
Project: Stonepark	The Stonepark project is a joint venture between Group Eleven (76.56% interest)
Company: Group Eleven	and Connemara Mining Company plc (23.44% interest) located near Limerick,
Location: Ireland	Ireland. The property is adjacent to Glencore's Pallas Green deposit, which is one
Stage: Exploration	of the largest undeveloped zinc projects in the world.
Mining Method:	
Resource: 5.3Mt's @ 8.55% Zn &	In 2018 the company announced a maiden independent Mineral Resource
2.6% Pb (11.15% Zn + Pb)	estimate of 5.3 million tonnes grading 11.15% Zn+Pb combined (8.55% zinc and
Mineralisation Style: Mississippi	2.60% lead) in the Inferred Mineral Resource category.
Valley Type Zn-Pb	
Project: The Silvermines	Silvermines is considered highly prospective for Irish-type zinc-lead deposits and
Company: Group Eleven	has had little to no exploration activity over the past 20 years due to a now
Location: Ireland	resolved reclamation dispute on an adjoining property.
Stage: Brownfield	
Mining Method:	The property is located adjacent to the historic Silvermines Zinc Mine which
ROM Production: 10.8Mt's @	produced approximately 10.8 million tonnes grading 7.4% zinc and 2.7% lead2
7.4% Zn & 2.7% Pb (10.3% Zn + Pb)	between 1968 and 1982.
Mineralisation Style: Mississippi	
Valley Type Zn-Pb	



When is the right time to start a Feasibility Study?

The resources are continuing to grow at the Keel Project and with more drilling imminent, one may

expect the management team to focus solely on increasing resources and targeting larger scale production potential. However, what many forget is that like everything else, mining is a business and the prospect of cash flow should always be of a paramount concern.

this basis, evaluating On the potential of an asset to produce whilst concurrently maintain a focus on exploration should become common practice. The potential of an early open pit starter operation is an attribute of the Keel Project that differentiates it from many of its peers. While the deeper mineralisation that appears to exist



offers further potential upside that could extend the mine life.

The objective of early feasibility studies such as a Scoping or Preliminary Economic Assessment (PEA) is to identify and focus on the most appropriate development strategy.

This activity is an iterative process as depicted in Figure 13 and on this basis, there is no "right time" to commence feasibility studies. Rather, feasibility work should be reviewed and updated periodically as new information comes in from the various exploration, metallurgical and engineering studies allowing for the management team to improve the model and react in a more agile manner to changing market conditions and technical understanding on the project at that time.

Based on Keel's current resource size, TCM feels that Keel's current focus of continuing to explore, delineate and indeed expand the respective orebodies is a prudent strategy. Prior to embarking on a full economic study, it is often a good practice to be able to draw comparisons from other similar projects globally and regionally. In doing so, provide insight into the potential economics of the project along with various technical requirements that may be associated with bringing the project into production.

This is in no way intended to replace competent third party detailed studies moreover to provide the current management team with a broader base of business intelligence to assist with decision making and future strategies.

PROJECT DEVELOPMENT BENCHMARKING & PREDICTIVE ANALYTICS

The CloudMiner carried out a predictive analytics exercise intended purely as a guide to assist the project developer in understanding potential development scenarios based each level of resource delineation that may be achieved and/or targeted in the future.

Table 2 contains a select list of projects used to carry-out the analysis which contains a mix of operational and feasibility stage projects. The list is by no means exhaustive but is sufficient and broad enough to give the reader an indication of the types of projects globally that are advancing towards development and the costs associated to do so. Each deposit has its own unique set of characteristics and challenges, as do the deposits contained on the Ireland Project. In time, the list should be further refined as project knowledge is improved and a more realistic handle on the relative scale and costs can be determined.

Table 2. Projects used in predicative analytics									
Project	Country	Stage	Mining Method	Reserve (Mt)	Mine Prod Ore (Mt)	Total Unit Opex (\$/t)	Initial Capex (\$M)		
Hackett River Zinc Project (PEA - July2010)	Canada	Operations	UG	27.3	2.9	36.3	931.9		
Jervois Copper-Silver Project (PFS - Oct2015)	Australia	Scoping	OC	8.9	4.4	20.1	152.4		
Kipushi Zinc Project (PFS - Jan2018)	DRC	PFS	UG	8.6	0.8	88.3	338.1		
Citronen Project (Feasibility - 2013)	Greenland	Feasibility	UG	35.8	3.3	73.2	492.1		
Reed Copper Project	Canada	PFS	UG	2.2	0.5	79.2	63.4		
Woodlawn Zinc-Copper Project (PEA)	Australia	PEA	UG	15.0	1.5	63.2	114.1		
Woodlawn Zinc-Copper Project (Feasibility)	Australia	Feasibility	UG	14.0	1.5	67.9	128.1		
Paguanta Project (Feasibility - 2013)	Chile	Feasibility	OC	3.8	0.9	64.9	68.6		
Paguanta Project (Feasibility - 2008)	Chile	Feasibility	OC	2.7	1.0	70.6	71.0		
South Crofty Tin Project (PEA - 2017)	UK	PEA	UG	2.6	0.4	104.6	122.5		
J&L (PEA - 2011)	Canada	Project Development	UG	4.9	0.5	102.4	238.3		
Chinchillas Silver Project (PFS)	Argentina	PFS	OC	11.7	1.3	46.6	83.3		
Torlon Hill Zinc-Lead-Silver Project	Guatemala	PEA	OC	2.0	0.5	48.8	30.2		
Platosa Mine (PEA - 2015)	Mexico	PEA	UG	0.5	0.9	284.1	12.9		
Kutcho Project	Canada	PFS	UG	10.4	0.9	56.5	169.2		
Viken Project (PEA - 2010)	Sweden	PEA	OC	695.0	20.5	12.6	1,385.4		
Jiama Phase 2 Expansion Project	China	Feasibility	OC	440.8	16.5	27.6	805.6		
Metates Project (PEA - 2013)	Mexico	PEA	OC	1,148.9	46.0	15.6	3,552.0		
Metates Project (Updated PFS -2016)	Mexico	PFS	OC	1,102.3	30.0	19.4	2,025.2		
Prairie Creek Property (PFS - 2016)	Canada	PFS	UG	7.6	0.5	240.0	254.6		
Kudz Ze Kayah Project (KZK)	Canada	PFS	OC	17.6	2.0	56.3	284.1		
Corani silver-lead-zinc deposit - Feasibility	Peru	Feasibility	OC	137.7	7.9	23.7	680.4		



Table 2 continued

Project	Country	Stage	Mining Method	Reserve (Mt)	Mine Prod Ore (Mt)	Total Unit Opex (\$/t)	Initial Capex (\$M)
Hermosa Project (Taylor and Central Deposit)	USA	PEA	UG	96.7	4.8	50.8	521.3
Back Forty Gold-Zinc Deposit	USA	PEA	OC	7.8	0.9	73.5	196.5
Parys Mountain Mine	UK	Scoping	UG	2.5	0.4	47.9	54.0
Keno Hill Silver District (PEA-update)	Canada	PEA	UG	0.8	0.1	250.7	20.8
Keno Hill Silver District (PEA)	Canada	PEA	UG	0.8	0.1	279.6	105.3
Yenipazar Project	Turkey	Feasibility	UG	29.2	2.5	33.1	256.5
Gediktepe Project	Turkey	PFS	OC	24.9	2.3	29.7	126.1
Curipamba Project, El Domo Deposit - PEA	Ecuador	PEA	OC	8.0	1.1	70.5	138.1
Curipamba Project, El Domo Deposit - PEA	Ecuador	PEA	OC	8.0	1.1	70.5	138.1
The Outokumpu Project - DFS	Finland	DFS	UG	4.3	0.6	56.3	48.3
Ambler Copper-Zinc Project	USA	PEA	UG	29.2	1.2	119.9	315.9
Tulsequah	Canada	Feasibility	UG	5.4	0.7	86.4	201.0
Red Dog	USA	Operations	OC	50.9	3.8	58.8	610.2
Geditepe Project	Turkey	PFS	OC	24.9	2.2	18.1	126.1
East Kemptville Project	Canada	PFS	OC	49.3	3.5	12.3	163.7
King Vol Zinc Project (Scoping)	Australia	Scoping	UG	1.3	0.4	97.1	30.3
Juancipio Property (UPEA)	Mexico	PEA	UG	13.3	0.9	58.5	265.6
Sierra Mojada Project	Mexico	Exploration	OC	55.9	3.1	30.1	336.9
Fuwan Property	China	Feasibility	UG	9.1	1.0	46.6	91.8
The Caribou underground mine - PEA	Canada	PEA	UG	17.1	0.2	81.1	39.4
Tala Hamza Zinc Project - DFS	Algeria	DFS	UG	39.9	4.0	24.0	708.0
The Olza Zinc-Lead Project - PEA	Poland	PEA	UG	17.6	2.2	76.6	248.8



Reserve & Production Rate

To determine the potential production rates, the peer projects' reserves have been plotted against their respective mill throughputs as both scatter plots and box and whisker plots in normal and in log scale. The data was separated into mining method, production scale and commodity. The data accumulated focussed primarily on open pit zinc projects, however underground has been including as it offers further optionality to the Keel project.

Deposits with higher-grade reserves become increasingly more viable to mine at a small-to-modest scale of production. In certain cases, it is potentially feasible to mine on a scale between 500ktpa to 750ktpa where not only does the required footprint reduce for operation size but also the accompanying required capital to bring the project into production is reduced. The estimated reserve of 11.7Mt at Keel places the project on the boundary between small and medium scale operations, approximately 1 to 2Mtpa.





Operating & Capital Costs

A statistical line of best fit was created using a relationship between the production scale in Millions of Tonnes per annum (Mtpa) and the Operational Costs (Opex, \$t milled). The purpose is to provide guidance on the appropriate production rate for small, medium and large-scale projects.

The Keel project is at a relatively early stage of exploration, as such the extent and geometry of the deposits are not yet fully defined. TCM therefore put together a breakdown of unit and capital operating costs versus size of deposit and scale of production to better understand the relationship and impact on overall economics.

Operating Costs

Higher unit cost per tonne milled on small to medium scale operations is typically off-set by the higher grade. Based on **Figure 16** below; as the operation increases in scale, there is a diminishing effect on the unit rates as the scale of the operation reaches a certain inflexion point e.g. above 30Mtpa.





At the small to medium scale of production (<1Mtpa), the average operating costs per tonne milled for open cut and underground operations is \$65t and \$123t USD respectively. While the cost for a larger scale operation (2.5Mtpa) is more likely around the \$50t mark.

Capital Costs

As depicted in **Figure 19**, capital requirements are linked to target scale of production. Higher throughput equates to higher capital expenditure. However, this is typically off-set by higher margins due to lower operating costs per unit of ore.



Cautionary Statement: This analysis is intended as a guide only. The ability to physically mine at the different volumes per annum will be dependent on the characteristics of the mineralised zone which includes; orebody strike, width, shape and dip etc. Therefore, to better understand the respective orebodies, additional drilling and exploration must be undertaken to ensure the orebody is sufficiently delineated and understood.



PREDICTIVE ANALYTICS

Typically for scoping studies and preliminary feasibility studies the operating parameters can be estimated by looking at comparable operations for which published data is available. This method is quick and provides a reality check on projects whilst they are in their early stages of development often to a \pm 35% to \pm 50% accuracy.

As the project advances, a definitive feasibility study (DFS) will require a greater level of detail and rigour of cost-estimation and application of engineering design principals. Such inputs include; mine planning, metallurgical test-work, process flowsheet design, logistics, product marketing, environmental considerations and closure costs etc.

But what does this analysis tell us for similar projects generally and specifically about those most relevant to the Keel Project? To assist the predictive analytics, TCM utilised data from peer projects classified as either several small to medium scale projects or large-scale projects taking into consideration relevant peers only. Specifically, TCM categorised small to medium scale peers as projects that would likely become underground mines or are already in operation, produce zinc and have a reserve than 10Mt's. A summary of some of the key projects used in the analysis is provided in **Table 2**.

Characteristics of mineralised zones

The geometrical shape, dips and strike lengths of the Keel deposit ultimately drive the decisions around the selected extraction sequence, methodology, and scale of production.

The mineralisation at Keel is at a depth that supports open-cut mining. With further definition drilling and resource expansion drilling along strike and depth, the grades, widths and dip of the deposit could soon support a case for Scoping Study, PEA or equivilant.

Key facets	Units	Lead-Zinc Target	Barite Target
Deposit Style		Irish MVT	SEDEX
Mineralised zone depth	m	Surface to -125m	-120m to -240m
(from surface)			
Strike Length	m	750 – 1,000	300-400m
Orebody Dip	Degrees	70 - 80°	20 - 30°
Orebody Width (true)*	m	2 – 10	5 - 20
		(multiple parallel)	(singular)

*Expected orebody width estimated based on drill-hole intercepts (sourced from publicly available information)

Amenability to milling; Rio Tinto carried out test-work on various samples of the different ore types and ore grades to determine mineral dressing characteristics of the Keel mineralization (Warren Spring Laboratories, 1968). The Warren Spring tests indicated that the Keel ores were readily amenable to normal sulphide flotation techniques although the grindability and flotation characteristics can vary within quite wide limits. Excellent concentrate grades were obtained and zinc-cadmium recoveries were consistently high.



Key High-Level Engineering Assumptions

TCM undertook a conceptual analysis based on publicly available data pertaining alongside data provided by DAH for the Keel Project. The accuracy of such an analysis is typically ±50% and should be referred to as a guide only.

A summary of the key driving assumptions is provided below:

• Likely project development sequence:

- Stage 1: resource definition and expansion drilling; followed by
- **Stage 2:** early scoping/PEA style study to confirm initial economics of the project and refine target resource
- **Stage 3:** enter into detailed feasibility study stage
- **Stage 4:** seek finance, off-take and development partners to take Keel to production should stage 1, 2, and 3 provide the desired results.
- Principal mining methodology:
 - Mineralised zones can be seen close to the surface at the Keel deposit. The respective mineralised zones defined thus far have modest widths and are relatively steeply dipping. Therefore, the principal mining methodology is expected to be Open Cut initially. Potential then exists to eventually transition to an underground operation should the reserves provide sufficient.
- Process Facility:
 - **Concentrate Grade;** Conventional 3,000tpd to 3,500tpd flotation plant to produce 25% to 30% zinc concentrate product.
 - **Location;** the facility should be as centrally located to key areas of mining activity as much as practicable whilst also taking into consideration; tailings, access etc.
 - **Metallurgical Recoveries;** metallurgical was based entirely on benchmark projects as no definitive test-work has been carried out on Keel yet. A factor of 83% ZnEq recovery was applied in the model based on the author's experience.
 - **Process flowsheet design considerations;** no detailed consideration has been made.
- Initial target production rate:
 - Based on TCM's benchmarking exercise, the target reserve is 11Mt's @ 4.5% Zn+Pb with an indicative production target of 1Mtpa to 1.5Mtpa open cut operation for 7 to 10yr mine-life.

Discussion on limitations and opportunities of using a probabilistic approach

The statistical approach is intended as a guide only and does not purport to have undertaken detailed engineering studies on the specific project in question. Engineering constraints include but are not limited to; physical capacity of the project/mine to reach the proposed target derived from the analysis. Specifically, this may be referring to such things as geological, technological, manpower or scheduling related etc.

This exercise presents an opportunity to understand better the impact of project scale, grade, scheduling and engineering, mine planning on the economics of the projects and to define targets for the project during the study phase.



Breakeven Reserve Target

Based on data analysed from similar projects it is possible to envisage what the break-even target reserve size might need to be in order for Keel to achieve a size that is potentially economic. A break-even Reserve size is approximately 6Mt's @ 4.5% ZnEq or 2.5Mt's @ 7% ZnEq, it should be noted that the current pit design for Keel reports only zinc and lead and the inclusion of silver should further raise the zinc equivalent grade. The current non-JORC reserve of 11.7Mt therefore shows positive economic returns at a medium scale of production. Estimates are based on EBITDA only, refer to Figure 22.



Notes;

- Estimated reserve grade was based on resource grade. Therefore, it is important to note that based on a sample of the drill-hole intercepts, it is possible to expect that the reserve grades will likely be somewhat higher comparative to resource grade (impact of dilution and recovery not yet fully understood). This will reduce the required target Reserve tonnes significantly.
- All calculations are denominated in United States Dollar (USD)
- Inflation adjustment factor of 3% pa was applied to each project used in the analysis, from date of report
- All NPV's are based on EBITDA which excludes tax, depreciation and amortisation
- All figures rounded to one decimal place
- Equivalents are based on in-situ grades and take no account of metallurgical recovery factors
- TCM used a ZnEq price of US\$2800/t. As a comparison the price as of 14th May 2018

Commodity	Gold	Silver	Cobalt	Zinc	Lead	Copper
Unit	Oz	Oz	Tonnes	Tonnes	Tonnes	Tonnes
Amount USD	1,320	16.71	89,500	3,370	2,580	6,862



Following the positive outcomes from the NPV predictor, TCM undertook a more detailed model to factor in tax, depreciation and amortisation based on the current pit design by attempting to apply relevant engineering 1st principals. The production rate was adjusted to 1.15Mtpa for a 10-year operation which would produce around 43,000 tonnes of contained zinc and 4,000 tonnes of lead per annum. The capital expenditure was also reduced due to the fact the project is located in an area with existing infrastructure, power and water that is easily accessible however the operating cost was increased in line with the smaller production scale to US\$65t. Again, both the pre and post-tax NPV's yielded positive results based only on the zinc. Models are available upon request at <u>www.thecloudminer.com</u> while a short summary of the results is provided in Table 3 below.

Table 3: Summary of Economic Results									
	NPV Predictor	TCM Economic Model							
Reserve Size & Grade	11.7Mt @ 4.5% ZnEq	11.7Mt @ 4% Zn & 0.5% Pb							
Production Scale	2.1Mtpa	1.25Mtpa							
Recovery	ZnEq: 83%	Zn: 86%, Pb: 65%							
Operating Cost	\$50/t ore	\$65/t ore							
Capital Cost	\$121M	\$85M							
Pre-tax NPV ¹⁰	\$187M	\$151M							
Post-tax NPV ¹⁰		\$110M							
Post-tax IRR		38.5%							

While a lot of work remains to be carried out to further understand the geological, metallurgical and geotechnical constraints on any potential mining operation, the results of the concept study show that there is scope and economic reason to proceed with more detailed studies. Furthermore, the potential inclusion of silver into the equation should offer better returns given the minimal addition in both capital and operating expenditure required.

Conversely at this point a simplified mine plan has been assumed with a consistent grade throughout, in reality the ore body will vary and as such the grade year on year. It is TCM's opinion that a more detailed mine design should be carried out to address each of these points and in turn re-evaluate the asset based on the findings as depicted in Figure 13.



OPPORTUNITY & VALUE PROPOSITION

The Keel Project has undergone renewed focus in the last two years under DAH with the project advancing from a brownfield to having both a current JORC 2012 Resource and an initial, albeit internal, open pit design that shows potential. As a private entity it is difficult however to present a clear value to potential investors where listed peers are able to draw from the markets opinion and therefore their respective market cap or enterprise value.

A very quick in situ and yardstick calculation for example at Keel based on the current resource and the spot commodity price taken at the time of writing (16th May 2018) would yield a valuation of US\$1300M for ins situ and US\$26M for a yardstick valuation whereby a discount multiple of 2% is applied to reflect both the stage and confidence category.

Category		Zinc(Zn)			Lead (Pb)			Zn+Pb				
		Price: USD\$ 3,044.00	/ t		Price: USD\$ 2,391.00	Price: USD\$ 2,391.00 / t F			Price: USD\$ 0.0 / t			
	Multiplier (%)	Contained Metal (t)	In Situ Value (\$M)	In Situ Value (Discounted) (\$M)	Contained Metal (t)	In Situ Value (\$M)	In Situ Value (Discounted) (\$M)	Contained Metal (t)	In Situ Value (\$M)	In Situ Value (Discounted) (\$M)	Total In Situ Value (Discounted) (\$M)	
Measured	3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Indicated	3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
M+I	3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(
Inferred	2.00	386,400.00	1,176.20	23.52	55,200.00	131.98	2.64	441,600.00	0.0	0.0	26.	
Total	2.00	386,400.00	1,176.20	23.52	55,200.00	131.98	2.64	441,600.00	0.0	0.0	26.	

Figure 23: Yardstick Valuation of the Keel Deposit based on the 2017 Resource Estimate Source: Calculated real-time within www.thecloudminer.com

A more relevant approach however would be to review the current status of DAH's publicly listed peers on an EV/t basis. In general, the public market tends to have a good consensus on the value of a company based on the management team, projects potential and current performance. General observations (refer to Figure 25) from this exercise show that companies with their primary activity in Ireland generally rank relatively consistently in terms of EV/t ZnEq when compared with companies whose projects are located in Canada, Africa and Australia.

The overall weighted average of all the companies included as per Table 4 on EV/t ZnEq basis is \$65t (Figure 25) however by applying a top cut to remove the operational multinationals and advanced stage projects a more realistic mean of \$19.2t is representative of the global peers in the exploration and early study phase. (Figure 24).

Table 4. Selected peers for EV analysis									
Company	Symbol	Status	Country of principal activity	Grade ZnEq %	Total Contained (kt's ZnEq)				
Alta Zinc Ltd.	AZI.AX	Brown	Italy	6.04	199.37				
Anglesey Mining Plc.	AYM.L	Scope	UK	1.89	1,723.08				
Ardea Resources Ltd.	ARL.AX	Exp'n	Australia	4.64	10,321.60				
Bear Creek Mining Corporation	BCM.V	Feas	Peru	1.15	4,319.01				
Blue Moon Zinc Corp.	MOON.V	Exp'n	USA	5.24	476.62				
Boliden	BOL.ST	Opt's	Sweden	1.00	28,969.59				
Callinex Mines Inc.	0UN3.L	Exp'n	Canada	2.86	962.08				
Canadian Zinc Corporation	CZN.TO	PFS	Canada	4.75	3,212.10				



Table	40	`onti	nued	

			Country of	Grade	Total Contained
Company	Symbol	Status	principal activity	ZnEq %	(kt's ZnEq)
Connemara Mining Company Plc	CON.L	Exp'n	Ireland	10.54	130.95
Consolidated Zinc Ltd.	CZL.AX	Exp'n	Mexico	16.39	80.93
Constantine Metal Resources Ltd.	CEM.V	Exp'n	USA	3.01	374.16
Kutcho Copper Corp (frmly Desert Star Resources Ltd.)	KC.V	PFS	Canada	7.00	1,586.69
Fireweed Zinc Ltd.	FWZ.V	Exp'n	Canada	8.47	4,291.97
Group Eleven Resources Corp.	ZNG.V	Exp'n	Ireland	8.82	764.96
Hannan Metals Ltd.	HANNF	Exp'n	Ireland	8.08	350.57
Hecla Mining Company	HL	Opt's	Canada	2.40	5,692.96
Heron Resources Limited	HRR.AX	Feas	Australia	15.95	765.75
HudBay Minerals Inc	HBM	Opt's	Canada	6.93	11,823.37
Lundin Mining Corp.	LUN.TO	Opt's	Europe	1.05	33,915.24
Pistol Bay Mining Inc.	PST.V	Exp'n	Canada	8.52	195.25
Rathdowney Resources Ltd	TSX-V:RTH	PEA	Poland	7.65	1,437.69
Stavely Minerals Ltd.	SVY.AX	Exp'n	Australia	0.93	275.01
Terramin Australia Ltd	TZN.AX	DFS	Australia	5.55	2,574.17
Todd River Resources Ltd.	TRT.AX	Exp'n	Australia	2.28	665.96
Trevali Mining Corp.	TV.TO	Exp'n	Namibia	9.48	6,513.47
Trilogy Metals Inc.	TMQ.TO	PEA	USA	4.81	10,666.88
Vendetta Mining Corp.	VTT.V	Exp'n	Australia	6.89	819.54
Venturex Resources Ltd.	VXR.AX	DFS	Australia	6.88	1,680.58
Nexa Resources	NEXA	PEA	Brazil	5.64	10,819.51
White Rock Minerals Ltd.	WRM.AX	PFS	Australia	4.55	1,613.21
Zinc One Resources Inc.	Z.V	Brown	Peru	17.28	319.77
Zinc of Ireland NL (ZMI)	ASX:ZMI	Exp'n	Ireland	8.25	428,907







On an even closer inspection, specifically, exploration stage companies focussed on Irish zinc projects the valuation is less again. Table 5 summarises such projects which are typical of the deeper orebodies where underground extraction is the primary option along which comes with the resultant higher capital and operating costs.

Table 5. Europe zinc explorers EV/t peer-analysis										
			Country of	EV/t	Grade	Total Contained				
Company	Symbol	Status	principal activity		ZnEq %	(kt's ZnEq)				
Group Eleven Resources Corp.	ZNG.V	Exp'n	Ireland	8.01	8.82	764.96				
Hannan Metals Ltd.	HANNF	Exp'n	Ireland	16.17	8.08	350.57				
Alta Zinc Ltd.	AZI.AX	Brown	Italy	47.54	6.04	199.37				
Zinc of Ireland NL (ZMI)	ASX:ZMI	Exp'n	Ireland	8.72	8.25	428,907				
Connemara Mining Company Plc	CON.L	Exp'n	Ireland	38.19	10.54	130.95				
Total Weighted Average			Europe	8.75	8.25	430.35				

The market may yet have come to realise the potential that comes with the new wave of exploration where shallower ore bodies are being discovered. As such it is TCM's belief that these are less likely to represent a basis for Keel's approximate valuation and therefore a more global perspective should be applied. The table below gives a good summary of the range based on the varying techniques:

Table 6: Market Valuation Based on Peers both locally and Globally									
Project	ZnEq Tonnes	Yardstick	Global Peers EV/t	Irish Peers EV/t					
Keel & Garrycam Projects	465,000	\$26M	\$9M	\$4M					

As discussed Keel is currently regarded as an exploration stage company. As illustrated in the below charts, it is possible to enhance value significantly by progressing the project from exploration stage through to feasibility and eventually production. The progressive value accretion appears to go from an average EV/t of \$15t, to \$30t and eventually to \$235t ZnEq as companies advance from exploration, through feasibility then eventually production respectively. Thus, the value uplift is greatly enhanced as the project is derisked and moves closer to becoming production ready.





Expanding Keel

While the Keel orebody shows immediate potential in the open pit region of the current resource and the possibility of further underground extensions, recent geochemical work including ionic leach soil sampling further shows how prospective the new mineralisation is as identified in recent drilling. The known Keel orebody shows a 50x elevation in Zinc-Cadmium (ZnCd) ratio's against the background readings whereas along the 2.5 km strike up to 75x elevations in the ratio are seen, especially immediately down strike from the known resource. Additional drilling designed to step out from the current ore body could quickly add tonnes and in return value to the current resource.





Garrycam Barite Deposit.

The majority of this report has focused on the potential held at and around the existing Keel Shaft and rightly so due to the level of data on hand and the prospectivity offered, however the Garrycam deposit should not be overlooked. With a historical resource of 1.35Mt grading 2.67% Zinc, 0.18% lead and 36.14% Barite as defined by Slowey, 1986 Garrycam offers a very interesting addition on a market currently looking for new Barite supplies. The orebodies proximity to a potential Keel underground makes it suitable to *piggy-back* off of existing underground access capital through the Keel orebody.

With a renewed interest in drilling brought about in part by the resurgence in exploration and mining in general but more so by the growing reliance on Natural Gas as a cheaper and more readily available energy source, Barite has become a key focal mineral. So much so in 2016 Schlumberger successfully applied for a permit to reopen the former producing Duntanlich Mine, Perthshire in Scotland. With over 7.5Million tonnes of barite available in simple geology Schlumberger are attempting to meet some of their own demand with a 120,000 tonne per annum operation.

On the international scene the U.S. remained a 75% net importer of Barite, predominantly from China, through 2017 (<u>http://americanresources.org/tag/resource-dependency/</u>).

Currently DAH has done limited additional work at Garrycam while they focus has been on Keel, however desk studies have defined a potential mineralisation area to target totalling 314Mt, Dawes 2016 which would be the focus for testing moving forward.



PROJECT DEVELOPMENT EXECUTION RISKS Management

As an essential ingrediant for success, Keel appears to posess a good management team that have set about aggregating and updating historical data culminating in the JORC 2012 resource estimate released in March last year. At the current stage of development, the company personnel have significant experience and success in the junior resources sector, and also have well aligned interests with shareholders as a result of significant holdings in Keel.

Jurisdiction & Soveriegn Risk Aspects

As discussed in earlier sections of the report, Ireland is a well regarded and mature mining jurisdiction, with a long history of successful mining operations and low perceived soveriegn risk with high standards of health and safety.

Climatic & Environmental Conditions

Climate conditions play an important role in the planning and execution of any mining project with the largest consideration being logistics and the importance of providing year-round access to site to ensure operational continuity throughout the year. The Keel Project being located in Ireland, a temperate location with little to no adverse weather conditions offers limited risk.

Infrastructure & Transportation

A singular public sealed road intersects the project tenement area. Depending on eventual pit location, the public road may need to be re-routed following approval to do so. A low volume of small to medium size vehicular traffic utilise this road. However, alternative routes do exist allowing the area to be isolated entirely if required.

Permitting

A singular centralised state based permitting system applies in Ireland thereby providing a streamlined system of approvals. The agricultral land on which Keel sits is not defined as pristine. Apporval for open pit operations would need to be sought however is not considered of major concern at this time. Henceforth, as the project advances from exploration to mining, permitting will continue to be state based.

Ownership

DAH holds 100% ownership thereby ensuring control over the direction of future development of the project.



CLOSING REMARKS

The Keel Project currently sits in an interesting space, the last 18 months has seen the asset advance with the release of a current updated JORC 2012 Resource Estimate while also identifying the optionality of an open pit operation. The initial review of such an option looks positive and should warrant serious consideration. While on the other hand the general market has yet to reward the renaissance in zinc exploration that is currently taking place not only at Keel but across their Irish peer community.

The identified mineralisation style on the Keel Project has a well-known history of developing into world class deposits such as the Tara Mine and although further work is required to better understand the metallurgy at Keel the inclusion of key by products in the pit design and an intial credited economic study should see further value added to the project in line with its global peers.

The positive results of this concept study validate that the management team are on the right track and there is clear value to be created at the deposit in the current price enviormnet.



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ANNEXURE A – QUALIFICATIONS AND EXPERIENCE



Daniel Bloor: BSc (Geology), MSc (Applied Geosciences) Senior Geologist

Daniel has over a decade of experience in the mineral and engineering geology industry with a further three years in the UK financial industry. Having worked with multiple commodities as an exploration and production geologist Daniel moved to Hong Kong where he was a consulting resource geologist both for due diligence and independent technical assessments for investment purposes. Daniel Co-Founded the

CloudMiner Limited in 2012 and has spent the last five years evaluating and researching a wide spectrum of minerals projects around the globe.



Will Coverdale: BEng (Mining), MAusImm Senior Mining Engineer

Will is a qualified Mining Engineer with a diverse of experiences and specialties encompassing both underground and open cut mining across several commodities. This includes specific underground operational experience with the following methodologies; large sub-level caving operations (Cu & Au), board & pillar (coking coal), remnant mining (Au)

and cut & fill mining (Au). Technical experience also covers a number of other commodities including uranium, gold, iron ore and high-grade silica. Country specific mining experience includes Australia, Kazakhstan, Mongolia and the Philippines. Roles have varied from design work, modelling, mine planning and scheduling through to feasibility study management and operational management.



ANEXURE B -

Limitations and Exclusions

TCM's opinions contained herein are based on information held in the public domain, which in turn reflect various technical and economic conditions at the time of writing. This is an initial review of what is provided but in no way is to be classified as an in-depth due diligence report. As previously discussed these are typically carried out by a team of experienced professionals which would include reviewing the geology, block models, mine plans, schedule, metallurgy and cost assumptions from an independent view point.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals, averages and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, TCM does not consider them to be material.

It is also TCM's opinion that the information provided at the time of writing was complete and not incorrect, misleading or irrelevant in any material aspect.

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- Without derogating from the aforesaid provisions, we shall not under any circumstances whatsoever be liable to any third party whether or not they are shown a copy of any work that we have done pursuant to the terms of our engagement and whether or not we have consented to such work being shown to them, save and except where we specifically agreed in writing to accept such liability;
- Except as a result of our own negligence or wilful default, in the event that we find ourselves subject to a claim or incur legal costs from another party as a result of false or misrepresented information provided by Management in connection with this engagement, any claim established against us and the cost we necessarily incur in defending it would form part of the expenses we would look to recover from the management of the Company.



Mining Unknown Factors

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