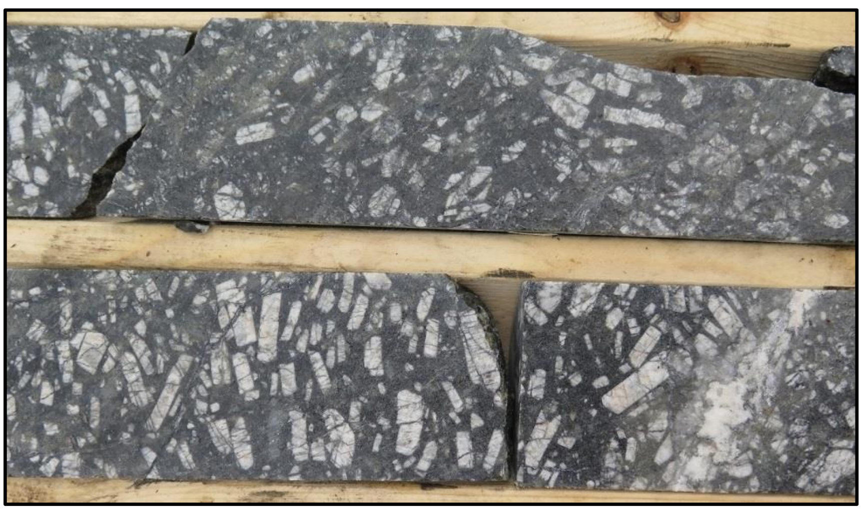
Preliminary Economic Assessment Update for the Springpole Gold Project, Ontario, Canada

Report Prepared for:

First Mining Finance Corp.



Report Prepared by:

srk consulting

SRK Consulting (Canada) Inc.
2CF019.000
Effective Date: June 6, 2017
Report Date: October 16, 2017

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Disclaimer

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Important Notice

This preliminary economic assessment (PEA) report is intended to provide an initial review of the Springpole Gold Project's potential and is preliminary in nature. The PEA includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA based on these mineral resources will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

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Executive Summary

Background

SRK Consulting (Canada) Inc. (SRK) was retained by First Mining Finance Corp. (First Mining) of Vancouver, British Columbia, to prepare a technical report summarizing the mineral resources for the Springpole Gold Project. The mineral resource estimate forms the basis of this preliminary economic assessment (PEA) prepared by SRK.

In 2013, SRK produced an initial preliminary economic assessment on the Springpole Gold Project for then owners, Gold Canyon Resources Inc. Several sections of this report are sourced from the 2013 PEA report where no new data are available and no technical or cost estimate changes are warranted.

Project Concept

The proposed Springpole Gold Project concept is to develop a greenfield bulk tonnage project using open pit mining and conventional milling and processing methods to produce gold and silver. The production rate is designed to be 36,000 tonnes per day (t/d) with a total of 151.4 million tonnes (Mt) of mineralised material mined, and 138.5 Mt processed, during the project life. The production plan incorporates stockpiling of low grade material in order to maximize the mill feed grade in the earlier years of the project. Reclamation of the stockpiled low grade mineralised material once mining of *insitu* mineralised material is completed has been restricted to 59% of material (18.5 Mt low grade processed of 31.4 Mt low grade stockpiled), to limit costs of the consequent expansion of the tailings facility. The average overall strip ratio (the ratio of waste rock to economic mineralised rock) of the mine is approximately 2.1:1 over the life-of-mine, 2.4:1 for the material processed, and the average grade of the plant feed is estimated at 1.00 gram per tonne (g/t) of gold and 5.33 g/t of silver.

Property Description and Ownership

The Springpole Gold Project is located 110 km northeast of Red Lake, Ontario, and is 100% owned by First Mining Finance Corp. The project's land position comprises 30 patented claims and 300 unpatented, contiguous mining claims and 6 leased unpatented mining claims totalling an area of approximately 32,448 hectares (80,181 acres).

SRK has not conducted detailed land status evaluations and has relied upon previous qualified reports, public documents and the Title Opinion provided by The Claim Group Inc. dated July 6, 2016 regarding property status and legal title to the project.

During late spring, summer, and early fall, the project is accessible by float-plane direct to Springpole Lake or Birch Lake. During winter, an ice road approximately 85 km long is typically constructed from the South Bay landing point on Confederation Lake to a point about 1 km from the Springpole camp.

Geology and Mineralization

The Springpole area is underlain by a polyphase alkali, trachyte intrusive displaying autolithic breccia. The intrusive is comprised of a system of multiple phases of trachyte that is believed to be part of the roof zone of a larger syenite intrusive; fragments displaying phaneritic textures were observed from deeper drill cores in the southeast portion of the Portage zone. Early intrusive phases consist of megacrystic feldspar phenocrysts of albite and orthoclase feldspar in an aphanitic groundmass.

Successive phases show progressively finer grained porphyritic texture while the final intrusive phases are aphanitic. Within the country rocks to the north and east are trachyte and lamprophyre dikes and sills that source from the trachyte- or syenite-porphyry intrusive system.

The main intrusive complex appears to contain many of the characteristics of alkaline, porphyry style mineralization associated with diatreme breccias (e.g., Cripple Creek, Colorado). This style of mineralization is characterized by the Portage zone and portions of the East Extension zone where mineralization is hosted by diatreme breccia in aphanitic trachyte. It is suspected that ductile shearing and brittle faulting have played a significant role in redistributing structurally controlled blocks of the mineralised rock. Diamond drilling in the winter of 2010 revealed a more complex alteration with broader, intense zones of potassic alteration replacing the original rock mass with biotite and pyrite. In the core area of the deposit where fine grained disseminated gold mineralization occurs with biotite, the primary potassic alteration mineral, gold displays a good correlation with potassium/rubidium.

Exploration Status

The initial geologic and engineering studies completed in late 2009 resulted in the establishment of systematic drill sections at 50 m intervals across the three identified prospect areas, namely Portage zone, East Extension zone, and Camp zone. The subsequently developed drill program lead to a multi-phase drill campaign starting in the summer of 2010 and ending in the summer of 2012, resulting in the completion of 77,275 m of diamond core drilling in 196 drill holes. During the course of the 2010, 2011, and 2012 programs, drilling identified a precious metal deposit of significant strike, depth and width within the Portage zone.

Mineral Resource Estimate and Mineable Resource

The mineral resource model prepared by SRK considers 644 core boreholes drilled by previous owners of the property during the period of 2003 to 2014 and four holes drilled by First Mining Finance in 2016. The resource estimation work was completed by Dr. Gilles Arseneau, Ph.D., P.Geo. (APEGBC #23474), an independent Qualified Person as this term is defined in NI 43-101. The effective date of the resource statement is March 17, 2017.

The revised mineral resource estimate (March 17, 2017) was based on a gold price of $1,400/oz and a silver price of $15/oz, both considered reasonable economic assumptions by SRK. To establish a reasonable prospect of economic extraction in an open pit context, the resources were defined within an optimized pit shell with pit walls set at 45°. Assumed recoveries of 80% for gold and 60% for silver were used. (Note: A silver recovery assumption of 85% was used for mine design and evaluation based on more recent data.) Mining costs were estimated at $2/tonne (t) of total material, processing costs estimated at $12/t and general and administrative (G&A) costs estimated at $2/t. A cut-off grade (COG) of 0.4 g/t gold was calculated, and is considered to be an economically reasonable value corresponding with breakeven mining costs. Approximately 90% of the revenue for the proposed project is derived from gold and 10% from silver.

Note: *For the mine development (Whittle™ optimization) and economic analysis in this PEA, updated input parameters were used.*

Mineral resources were estimated by ordinary kriging using Gemcom block modelling software in 10 m x 10 m x 6 m blocks. Grade estimates were based on capped, 3 m composited assay data. Capping levels were set at 25 g/t for gold and 200 g/t for silver. Blocks were classified as indicated mineral resources if at least two drill holes and six composites were found within a 60 m x 60 m x 40 m search ellipse. All other interpolated blocks were classified as inferred mineral resources. Mineral resources were then validated using Gemcom GEMS (6.7) software.

This resource model includes mineralised material in the Main, East Extension and Portage zones spanning from geologic sections 0-1, 500 m in the northwest to 0-250 m in the southeast. Along the axis of the Portage zone, resource modelling includes mineralised material generally ranging from the surface to a depth of 340-440 m below surface.

Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues. The quantity and grade of reported inferred mineral resources in this estimation are uncertain in nature. There has been insufficient exploration to define these inferred mineral resources as an indicated or measured mineral resource but SRK is of the opinion that with additional drilling, the majority of the inferred mineral resources could be upgraded to indicated mineral resources.

The mineral resources in this report were estimated using the current 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) standards, definitions and guidelines. The updated resource estimate is summarized in Table i below.

Table i: Mineral Resource Statement, Springpole Gold Project (March 17, 2017)

Category	Quantity	Grade		Contained Metal	
	(Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Open Pit**					
Indicated	139.1	1.04	5.4	4.67	24.19
Inferred	11.4	0.63	3.1	0.23	1.12

Source: Springpole Gold Project, Northwestern Ontario, SRK Consulting, March 17, 2017
Note: Mineral resources are reported in relation to a conceptual pit shell. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.
***Open pit mineral resources are reported at a COG of 0.4 g/t gold. COGs are based on a gold price of $1,400/oz and a gold processing recovery of 80% and a silver price of $15/oz and a silver processing recovery of 60%.*

Inferred mineral resources were used in the life of mine (LOM) plan with inferred mineral resources representing 7.5% of the material planned for processing (4.7% of gold ounces). Mineral reserves can only be estimated as a result of an economic evaluation as part of a preliminary feasibility study or a feasibility study of a mineral project. Accordingly, at the present level of development, there are no mineral reserves at the Springpole Gold Project.

Mine Development and Operations

The mine development plan for Springpole contemplates open pit mining with a mine plan to mine a total of 151 Mt of mineralised material (139 Mt of processing plant feed) and 319 Mt of waste (2.1:1 overall strip ratio mined and 2.4:1 strip ratio for material processed) over a twelve-year mine production life, including stockpile reclamation. The current LOM plan focuses on achieving steady plant feed production rates, and mining of higher grade material early in schedule, as well as balancing grade and strip ratios. An elevated cut-off grade is applied throughout the mine life. Low grade mineralised material is stockpiled and processed at the end of mining.

Figure i illustrates the proposed overall site layout for the project, including the open pit, waste rock facilities, and proposed plant site locations. Much of the planned open pit lies beneath a small portion of Springpole Lake. The mine plan requires that an embayment of this small part of Springpole Lake which overlies the Portage Zone resource be dammed and dewatered, prior to mining commencement. The proposed dammed portion of Springpole Lake totals 152 Ha representing 6.1% of the total surface area of the lake.

The mine design process for the deposit commenced with the development of Whittle optimization input parameters. These parameters included estimates of metal price, mining dilution, process recovery, offsite costs, geotechnical constraints (slope angles) and royalties (Table ii).

Facilities including the tails management facility, waste rock storage facilities, stockpiles and process plant facilities were sited to keep impacted areas within the Springpole Lake watershed.

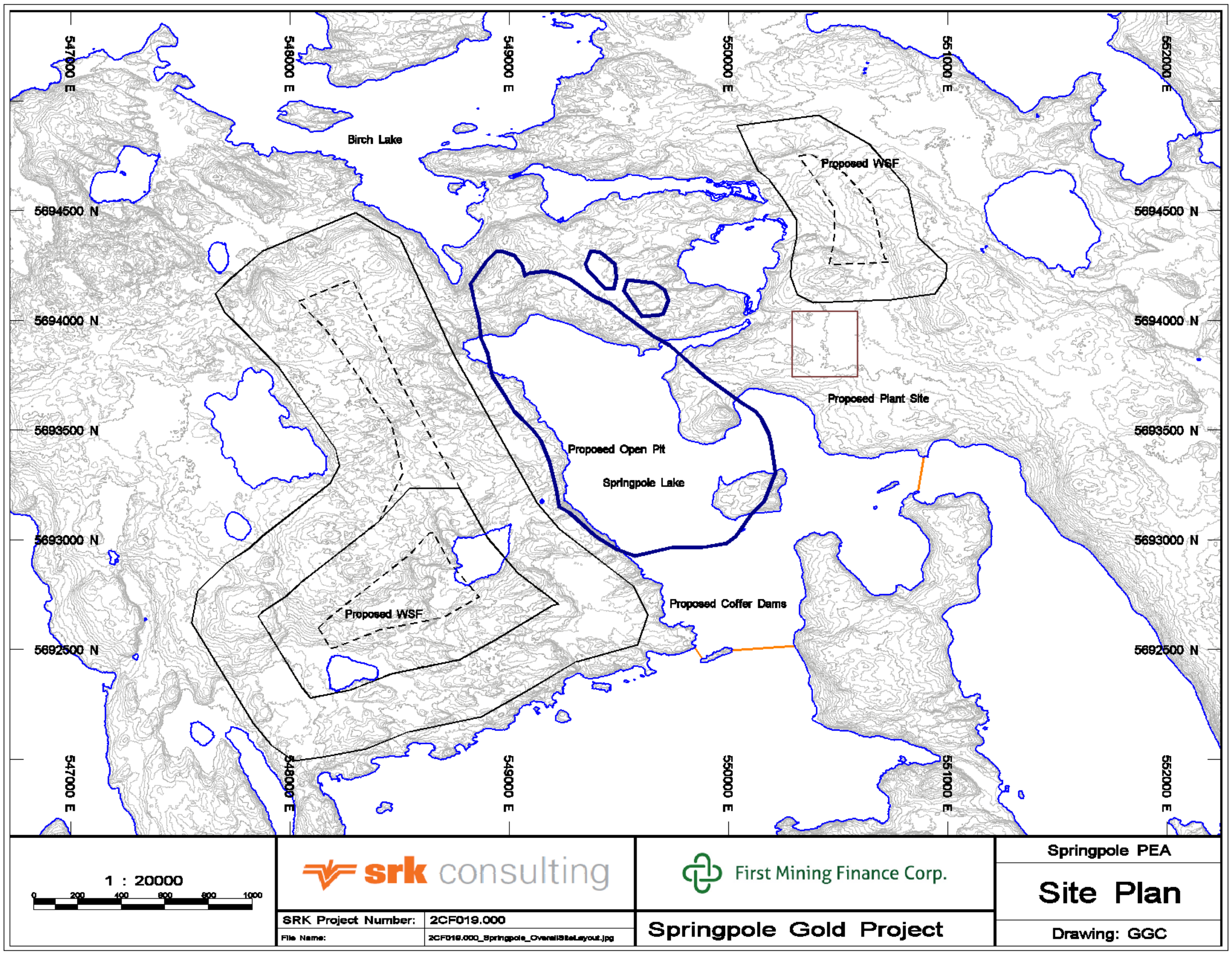

Figure i: Overall Springpole Site Plan

Table ii: Mine Planning Optimization Input Parameters

Item	Unit	Value
Metal Prices		
Au	$/oz	1,300
Ag	$/oz	20
Recovery to Doré		
Au	%	80
Ag	%	85
Smelter Payables		
Au in doré	%	99.5
Au deduction in doré	g/t	0
Ag in doré	%	98
Ag deduction in doré	g/t	0
Offsite Costs		
Au refining/transportation charge	$/oz pay Au	5
Other Parameters		
Royalties	%	3
Operating Costs		
Open Pit Waste mining Cost	$/t	1.60
OP Mineralised Material Mining Cost	$/t	1.60
OP Processing and G&A Cost	$/t milled	10.73
Overall Pit Slope Angles	degrees	35 to 50
Portage Zone Dilution	%	Variable
Camp Zone Dilution	%	9
East Ext. Zone Dilution	%	7
Mining Recovery	%	100
Strip ratio (est.)	t:t	2.1
Processing rate	t/day	36,000

Whittle software was used to determine the optimal mining shells with the assumed overall slope angles based on a preliminary geotechnical assessment. Preliminary phases were selected and preliminary mine planning and scheduling was then conducted on these selected optimal shells. The mineable resources for the deposit are presented in Table iii. Indicated and inferred mineral resources were used in the LOM plan of which indicated mineral resources represent about 93% (~140 Mt) of the material planned to be mined. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources would be converted into mineral reserves. Mineral reserves can only be estimated as a result of an economic evaluation as part of a pre-feasibility study or a feasibility study of a mineral project. Accordingly, at the present level of development there are no mineral reserves at the Springpole project.

Table iii: Springpole PEA—Proposed Mining Plan

Description	Unit	Value
Mine Production Life	yr	12
Mineralised Material Mined (mill feed and stockpile)	Mt	151.4
Mill Feed Material	Mt	138.5
Diluted Au Grade (mill head grade)	g/t	1.00
Contained Au	koz	4,470
Diluted Ag Grade (mill head grade)	g/t	5.28
Contained Ag	koz	23,509
Waste	Mt	319.0
Total Material	**Mt**	**470.4**
Strip Ratio	t:t	2.1

The mining sequence was divided into a number of stages designed to maximize grade, reduce pre-stripping requirements in the early years, and maintain the plant at full production capacity. The LOM production schedule is shown in Table iv. The open pit mining operation is planned as an owner-operated scenario. A total of 151.4 Mt of mineralised material is proposed to be mined, with 138.5 Mt proposed to be processed.

Metallurgy and Mineral Processing

The Springpole PEA envisages a 36,000 t/d process plant treating moderate hardness (BWi of 12 to 14 kWh/t) material averaging 1 g/t gold and 6 g/t silver. Testwork has determined that a moderate grind P_{80} size of 70 µm should achieve 80% gold extraction through cyanide leaching for at least 24 hours (design of 36 hours). Gravity recovery is considered optional, as only higher grade feed would benefit from including this circuit.

Additional testwork should be undertaken to confirm whether cyanide detoxification can be completed successfully and within normal reagent cost levels. Thickening and filtering characteristics should be confirmed so that unexpected dewatering costs are not needed.

The 2016-2017 metallurgical test program substantially improved the confidence in grinding power requirements over a much greater volume of the Portage Zone from previous test work. Further variability testing is warranted to confirm the expected cyanide consumption. Opportunities exist to recover some of the cyanide in the leach tailings rather than destroy it prior to being pumped to the tailings management facility. Cyanide recovery would need to be tested to confirm expected cost savings and this may require specialised facilities to conduct the testwork.

Table iv: Proposed LOM Production Schedule

Item	Units	Total	Years											
			1	2	3	4	5	6	7	8	9	10	11	12
Mineralised Material Mined	kt	151,408	7,796	16,593	16,705	16,721	16,388	16,416	18,703	16,543	14,984	9,583	976	0
Au Mined Grade	g/t	1.10	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.91	0.94	0.00
Ag Mined Grade	g/t	5.77	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	4.90	5.01	0.00
Contained Au	koz	5,355	301	566	655	658	750	643	495	504	473	280	29	0
Contained Ag	koz	28,066	540	2,422	3,081	3,477	3,904	3,247	3,012	3,436	3,280	1,508	157	0
Waste Mined	kt	319,002	57,204	48,407	48,295	48,279	43,612	43,584	20,758	6,414	2,090	324	36	0
Strip Ratio	w:o	2.1	7.3	2.9	2.9	2.9	2.7	2.7	1.1	0.4	0.1	0.0	0.0	0.0
Total Material Mined	kt	470,411	65,000	65,000	65,000	65,000	60,000	60,000	39,462	22,956	17,074	9,907	1,012	0
Stockpiled Mineralised Material	kt	31,435	1,797	3,458	3,566	3,591	3,250	4,069	5,563	3,403	1,844	825	68	0
Stockpile Reclaim	kt	18,555	0	0	0	0	0	0	0	0	0	4,382	12,232	1,940
Mill Feed	kt	138,528	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	13,140	13,140	1,940
Au Grade	g/t	1.00	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.73	0.42	0.38
Ag Grade	g/t	5.28	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	3.94	2.22	2.02

Note: Table shows diluted mineralised material and grades

Waste Management

The waste rock facility is planned to be located immediately adjacent to the final pit limits. Given the deposit configuration and extraction sequence, no backfilling into previously mined out areas has been planned for Springpole.

The waste rock facility would be built in a series of lifts in a "bottom-up" approach, and the facility would be constructed by placing material at its natural angle of repose (approximately 1.5H:1V) with safety berms spaced at regular intervals giving an overall operational slope of 2:1. The total design capacity of the waste rock facility is 319 Mt.

Roughly 139 Mt of thickened tailings (about 60% solids by mass) will be centrally discharged at a site located about 5 km southeast of the proposed mill site. This results in an estimated 87 Mm^3 of tailings to be stored, based on conservative estimates for a tailings density of 1.6 t/m^3.

Due to the flat topographical relief of the project area, the tailings will be contained by a ring dam which will prevent migration of tailings, lake bed sediments, and any free water. To minimize pre-production capital cost, a dam continuously raised over the LOM is the preferred construction method. The dam will be raised as required to a final elevation of 419 masl.

Springpole Lake Dewatering

Three dewatering dikes with a total length of approximately 510 m will be constructed in Springpole Lake to allow a small portion of the lake to be dewatered. The dikes will be constructed to elevation 391 m above mean sea level, which allows 3 m of freeboard above the lake level. The dikes will be constructed under wet conditions; therefore, two silt entrapment curtains will be deployed downstream of the dike locations to prevent high suspended solids in the remainder of the lake. Prior to the placement of fill material, the foundation of the dam will be dredged to remove any soft lakebed sediments. The rock fill material will be placed, and then the grout curtain and plastic concrete cut-off wall will be built through the completed dike.

An estimated 21.7 Mm^3 of water will need to be removed from the area of Springpole Lake within the dewatering dikes. Of this, ~80% (17.4 Mm^3) is estimated to be clean water which can be discharged directly over the dewatering dikes into Springpole Lake, inside the silt curtain. The remaining 20% (4.3 Mm^3) is assumed to be "murky" (i.e., have suspended solids higher than the allowable discharge limits). The murky water will be pumped to the tailings management facility (TMF) which will act as a sedimentation pond; no tailings will be in the TMF at this time. Clear water from the TMF will be pumped to Springpole Lake. Steps will be taken during the dewatering process to reduce the amount of sediments that become suspended in the water, including silt entrapment curtains around the water intake area and downstream of the containment dikes.

Project Cost Estimates

Project costs were estimated from a combination of sources including first principles, reference projects, vendor's quotes, cost service publications and SRK experience. Costs are considered from the commencement of production forward. Costs incurred prior to this date are considered as "sunk" for the purposes of economic assessment.

The capital cost (capital cost) estimate for the project is shown in Table v at a total of $723M. Contingency of 10% was included for mine capital costs and 13.5% for process plant while a 40% contingency of direct capital cost estimates was used for the TMF and other infrastructure. EPCM costs are contained within the underlying estimates. Property acquisition costs are not included in the capital estimate.

Table v: Capital Cost Estimates

Item	$M
Preconstruction Owners Costs	7
Initial Capital	579
Sustaining Capital	117
Mine Closure	20
***Total Capital Costs**	**723**

Including 10% contingency on mine, 13.5% on process plant, and 40% infrastructure capital including tailings facility.

A summary of the operating cost (operating cost) estimate by SRK is shown in Table vi. The OP mining operating cost assumes owner-operated mining including technical/supervisory support staff. Diesel fuel was estimated to cost $0.78/L and power was estimated to cost $0.08/kWh.

Table vi: Operating Cost Estimates

Activity	LOM ($M)	Per Tonne of Mill Feed ($)	Per Ounce of AuEq* ($)
Mining including stockpile re-handle	733	5.29	190.00
Processing	1,038	7.49	268.87
Water Management	2	0.01	0.44
Tailings Handling	202	1.47	52.41
G&A	247	1.78	63.90
Total Operating Cost	**2,221**	**16.04**	**575.62**
Treatment and Refining Charges	18	N/A	4.61
Royalty Per Ounce @3%	150	N/A	38.86
Total Cash Costs including Royalty and TCRC	**2,389**	N/A	**619.09**

**Troy Ounce of AuEq = total revenue from precious metals divided by gold price per ounce*

Economic Analysis

The economic analysis that forms part of this PEA report is intended to provide an initial review of the Springpole Gold Project's potential and is preliminary in nature. The economic analysis included in this PEA includes consideration of inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA based on these mineral resources will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The base case economic analysis results indicate an after-tax NPV of $792M at a 5% discount rate with an IRR of 26.2%. Payback will be in early year four of production in a projected twelve-year LOM. The economics are based on a base case of $1,300/oz long-term gold price, $20/oz long-term silver price, and production rate of 36,000 t/d over 365 d/yr. Direct operating costs are estimated to be $619/oz of AuEq. Total capital costs are estimated at $723M, consisting of initial capital costs of $586M, ongoing sustaining capital of $117M and mine closure costs estimated at $20M.

Conclusions

Industry standard mining, process design, construction methods, and economic evaluation practices were used to assess the Springpole Gold Project. Based on current knowledge and assumptions, the results of this study demonstrate that the project has positive economics within the preliminary parameters of a PEA and should be advanced to the next level of study—either a preliminary feasibility study or a feasibility study.

The PEA is preliminary in nature; it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

While a significant amount of information is still required to do a complete assessment, at this point there do not appear to be any fatal flaws for the Springpole Gold Project. The study achieved its original objective of providing a preliminary review of the potential economic viability of the Springpole Gold Project.

Risks and Opportunities

As with all mining ventures, there are a large number of risks and opportunities that can affect the outcome of the project. Most of these risks and opportunities are based on uncertainty, such as lack of scientific information (test results, drill results, etc.) or the lack of control over external factors (metal price, exchange rates, etc.).

Subsequent higher-level engineering studies would be required to further refine these risks and opportunities, identify new risks and opportunities, and define strategies for risk mitigation or opportunity implementation.

The principal risks identified for the Springpole Gold Project are summarized as follows:

- Geological interpretation and mineral resource classification (7.5% of the resource tonnes containing 4.7% of the resource Au used in the mine plan are Inferred);
- Larger variations in mineralogy and metal recovery may exist than have been observed to date;
- Geotechnical and hydrogeological considerations;
- No information on baseline groundwater quality;
- No physical characterization of the tailings material has been done;

- No waste rock characterization has been done;
- Construction management and cost containment during development of the project;
- High exposure to potential escalation of costs associated with latent ground conditions due to need for dewatering dykes and large, shallow TMF;
- The permitting period associated with the project could be significantly longer than assumed in this study;
- Increased operating cost and/or capital cost; and
- Reduced metal prices.

The following opportunities may improve the project economics:

- More refined pit optimization parameters could result in better optimized open pit limits than the pit shell selected for this PEA;
- Better hydrogeological and geotechnical understanding may increase pit slope angles over those used in this PEA;
- There are other geophysical targets around the current resource, particularly to the southwest of the current resource. Additional drilling has the potential to add resources;
- Investigations may reveal that sufficient quantities of low permeability material for dam core construction may be available on-site and bedrock may be located at a shallower depth than assumed in the cost estimate;
- Lake dewatering could occur at a faster rate if the water was discharged into several different lakes; and
- Improved metal prices.

Recommendations

SRK believes the Springpole Gold Project should be taken to the next level of engineering study and economic assessment, typically a pre-feasibility study. It is estimated that a pre-feasibility, along with all of the accompanying engineering and field work would cost approximately $1.5M (excluding additional resource development drilling programs). Some of the activities involved to advance the project include:

- Additional metallurgical testwork;
- Initiate project permitting;
- Consummate agreements with First Nations groups; and
- Resource definition that is sufficient to advance the resource to a pre-feasibility study.

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1 Introduction and Terms of Reference

This report comprises a technical report that has been prepared in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101) and Form 43-101F1, and that summarizes the findings of an independent resource estimate and preliminary economic assessment of the Springpole Gold Project in northwest Ontario, Canada. SRK Consulting (Canada) Inc. prepared this report in collaboration with First Mining Finance Corp. (TSX: FF) at the request of Dr. Chris Osterman, CEO and a director of First Mining, which currently owns a 100% interest in the Springpole Gold Project. SRK is not an insider, associate, or an affiliate of First Mining and does not hold any interest in the Springpole Gold Project.

This report is an update to the preliminary economic assessment titled “Preliminary Economic Assessment for the Springpole Gold Project, Ontario, Canada” with an effective date of March 25, 2013, as amended October 7, 2016, and sections of this report are copied verbatim where no new data is available and no technical or cost estimate changes have been made.

The contents of this report reflect various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Accordingly, actual results may be significantly more or less favourable.

In addition, this report may include technical information that requires subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, SRK does not consider them to be material.

The estimate of mineral resources conforms to the current 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves. These standards were prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM council on May 10, 2014. They are referred to in NI 43-101.

The economic analysis provides only a preliminary overview of the possible project economics based on broad, factored assumptions. As per CIM guidelines, reserves can only be declared with a preliminary feasibility-level study.

The mineral resources used in the life of mine (LOM) plan and economic analysis include inferred material. Inferred mineral resources are considered too speculative geologically to have economic considerations applied to them for categorization as mineral reserves, and there is no certainty the inferred mineral resources will be upgraded to a higher resource category. Consequently, there is no certainty that the results of this PEA will be realized.

This report is considered current as of June 6, 2017.

1.1 Source of Information

This report is based, in part, on internal company technical reports and maps, published government reports, company letters and memoranda, and public information (Section 27). Several sections from reports authored by other consultants are directly quoted in this report and are referenced accordingly.

SRK has not conducted detailed land status evaluations and has relied upon previous reports, public documents, and the Title Opinion provided by The Claim Group Inc. dated July 6, 2016 regarding property status and legal title to the project.

In addition to the site visits described below, a Qualified Person (as that term is defined in NI 43-101) carried out a study of all relevant parts of the available literature, documented results concerning the project, and held discussions regarding all pertinent aspects of the project with technical personnel from First Mining.

1.2 Site Visits

In accordance with NI 43-101, Dr. Gilles Arseneau, Ph.D., P.Geo., an Associate Consultant with SRK, visited the Springpole Gold Project between February 10 and 12, 2012, for two days and again on August 8 and August 9, 2012. An additional site visit to the Springpole property was conducted by Dr. Ewoud Maritz Rykaart, Ph.D., P.Eng.; and Bruce Andrew Murphy, P.Eng., from November 27 to November 29, 2012, accompanied by personnel from the project's then owners, Gold Canyon.

The purpose of those site visits was to review the digitalization of the exploration database and validation procedures, review exploration procedures, define geological modelling procedures, examine drill core, interview project personnel, and collect all relevant information needed for preparing the revised mineral resource estimate and preliminary economic assessment. The site visits also aimed at investigating the geological and structural controls on the distribution of the gold mineralization to aid in the construction of three dimensional gold mineralization domains.

SRK was given full access to relevant data and conducted interviews with project personnel to obtain information on past exploration work and to understand procedures used to collect, record, store, and analyze historical and current exploration data. During the visits, particular attention was given to the treatment and validation of historical drilling data.

1.3 Springpole Gold Project

Abbreviations

A list of abbreviations and acronyms used throughout this report are provided in Section 25.12.

Units and Currency

Unless otherwise stated, all units used in this report are metric. Gold and silver assay values are reported in grams per metric tonne (g/t) unless some other unit is specifically stated. The currency used throughout this report is in U.S. dollars unless otherwise noted.

2 Reliance on Other Experts

SRK and its QPs reserve the right to, but will not be obligated to, revise this report if additional information becomes available subsequent to its date (Section 1).

All data used within this report were supplied by First Mining. All assay certificates were supplied directly to SRK by the assay laboratory, SGS Canada Inc. (SGS), Toronto, Ontario. The associated QP has not carried out an independent review of mineral titles, but has relied on information provided by First Mining.

Although copies of the tenure documents, operating licences, permits, and work contracts were previously reviewed, an independent verification of land title and tenure was not performed. SRK has not verified the legality of any underlying agreement(s) that may exist concerning the licences or other agreement(s) between third parties, but has relied on First Mining’s lawyers to have conducted the proper legal due diligence. Information on tenure and permits was obtained from First Mining. The reliance is limited to Section 3.3 of the technical report.

A copy of this report was reviewed for factual errors by First Mining, and SRK has relied on First Mining’s historical and current knowledge of the property in this regard. Any statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false or misleading as of the date of this report (Section 1).

3 Property Description and Location

3.1 Project Location

The Springpole Gold Project lies approximately 110 km northeast of the Municipality of Red Lake in northwest Ontario, Canada (Figure 3.1). The property is centered on a temporary tent-based camp on a small land bridge between Springpole Lake and Birch Lake. The latitude and longitude coordinates are:

Latitude	N51° 23' 44.3"
Longitude	W92° 17' 37.4"

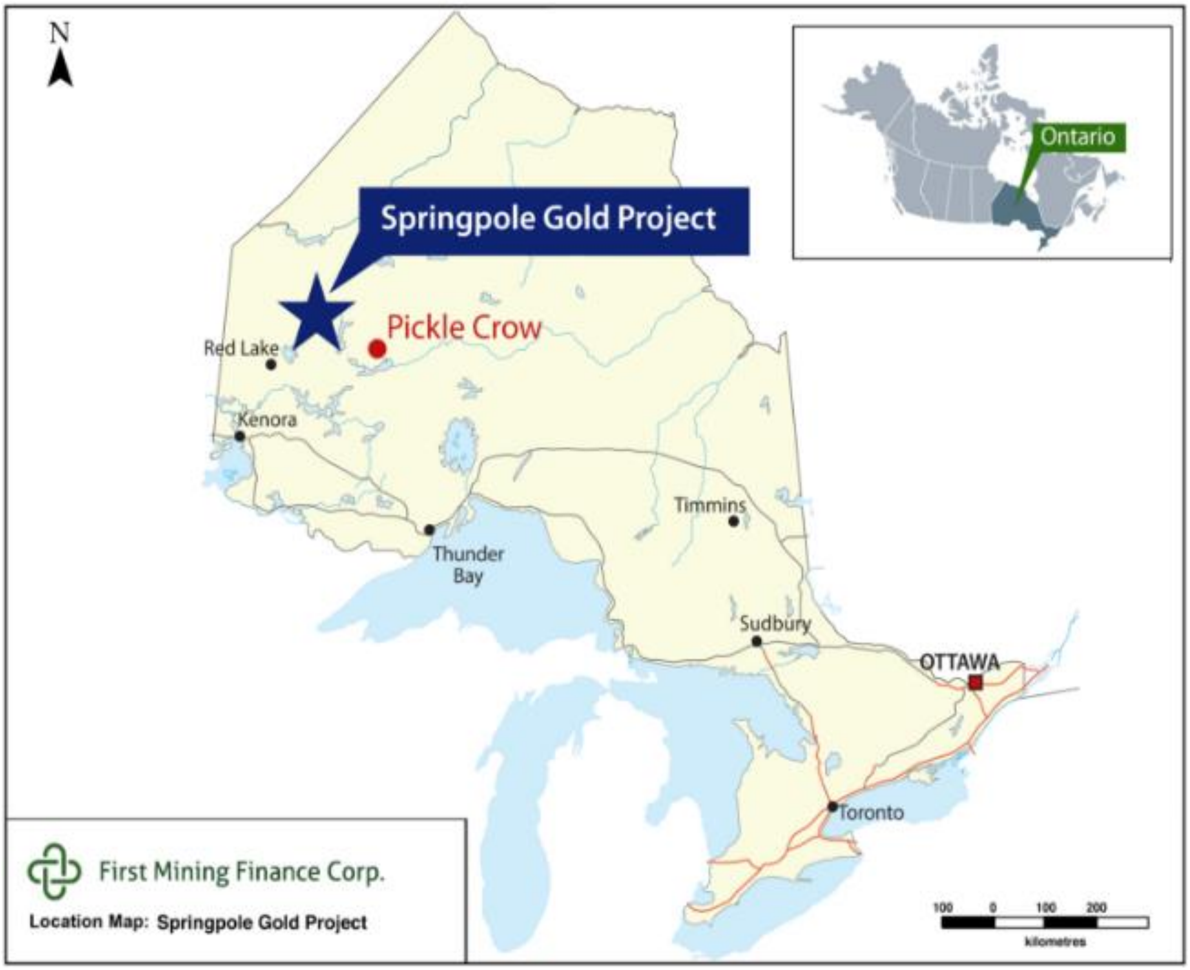
The Universal Transverse Mercator (UTM) map projection based on the World Geodetic System 1984 (WGS84) zone 15N is:

Easting	549,183
Northing	5,693,578
Average Elevation	395 m

3.2 Land Area

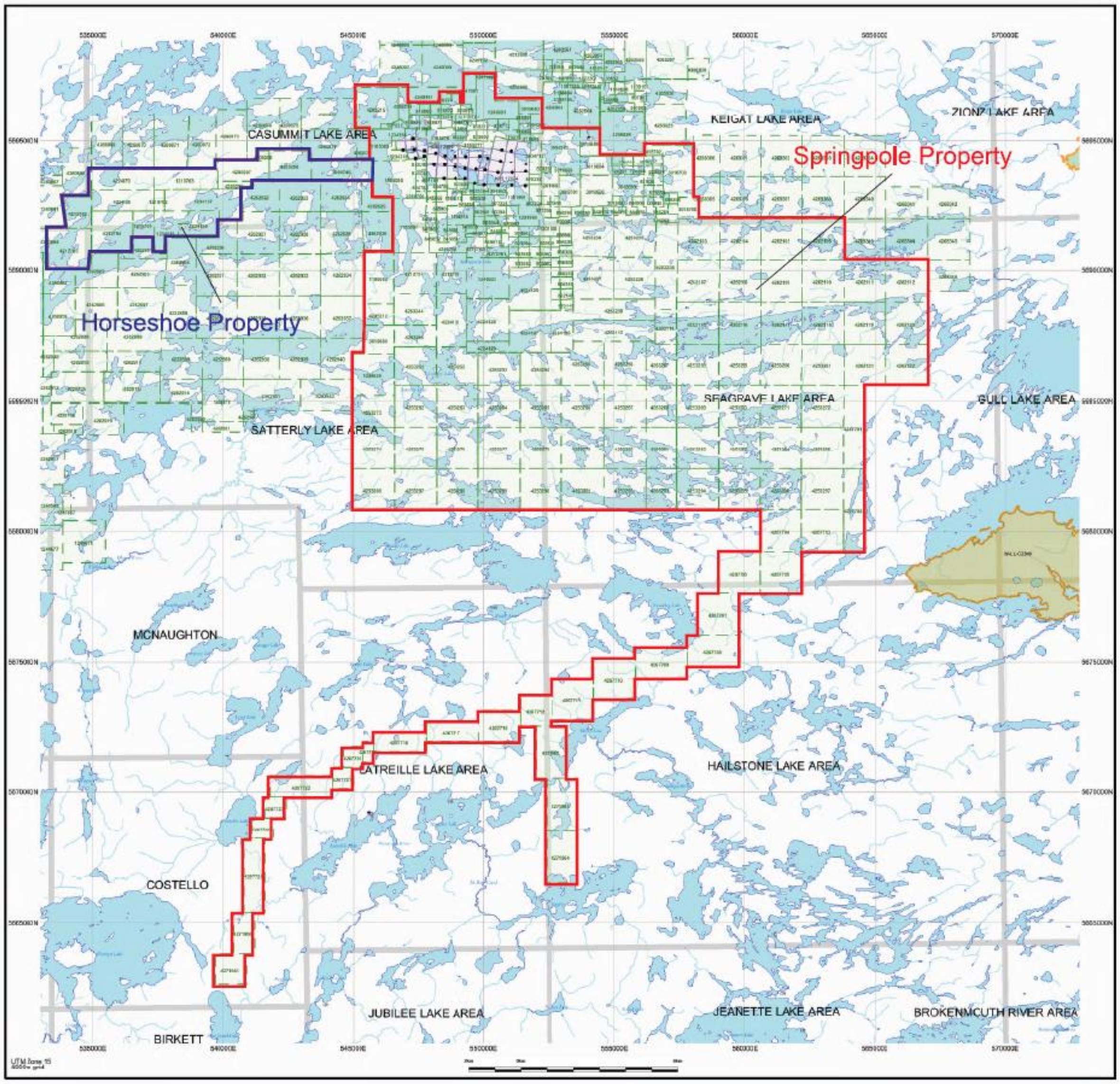
The Springpole Gold Project land area, wholly owned and controlled by First Mining, comprises 30 patented mining claims and 300 unpatented, contiguous mining claims and six leased unpatented mining claims totalling an area of approximately 32,448 hectares (80,181 acres). The overall Springpole Gold Project land area is represented in Figure 3.2.

SRK has relied on statements from First Mining regarding the surveying and valid status of the leases and mining claims that make up the Springpole Gold property.



Source: First Mining 2017

Figure 3.1: Springpole Gold Project Location Map



Modified from Gold Canyon: 2011

Figure 3.2: Springpole Gold Project Land Tenure Map

3.3 Mineral Tenure

First Mining Finance Corp. acquired 100% of the Springpole Gold Project on November 13, 2015 when it completed the acquisition of Gold Canyon Resources Inc. When the project was acquired from Gold Canyon, it consisted of 30 patented mining claims and 300 unpatented, contiguous mining claims and 6 leased unpatented mining claims, totalling an area of approximately 32,448 Ha (80,181 acres).

SRK has not conducted detailed land status evaluations and has relied upon previous qualified reports, public documents, and the Title Opinion provided by The Claim Group Inc. dated July 6, 2016 regarding property status and legal title to the project.

3.3.1 Jubilee Gold Claims and Royalty

Gold Canyon had acquired ownership of five patented mining claims in 1993 (11229, 11230, 11231, 12868, and 12869) covering a total area of 96.54 Ha (238.55 acres) from Milestone Exploration Limited, a predecessor entity by way of amalgamation of Jubilee Gold Inc. (Jubilee). These claims are subject to a 3% net smelter returns royalty (NSR) on all minerals mined, produced, and sold from these patented claims, provided the monthly average gold price is $700 or more. The NSR was increased to 5%, together with a NSR of 1 to 2.5% on other adjoining properties in which Gold Canyon conducted any mining operations.

In 2010, Gold Canyon renegotiated the applicable NSR on these patented claims with Jubilee. This agreement terminated any applicable royalty on adjoining claims and set the applicable NSR rate payable upon commencement of commercial production at 3% with advance royalty payments of $70,000/yr, adjusted using the yearly Consumer Price Index.

Gold Canyon retained an option to acquire 1% of the NSR for $1,000,000 at any time. As consideration for the renegotiated NSR, it was agreed that previously paid advanced royalties would be forfeited and not credited to any NSR subsequently payable to Jubilee. Gold Canyon paid Jubilee $50,000 and issued to it 100,000 common shares and agreed to issue a further 100,000 common shares on each anniversary date up to the fifth anniversary of the date of approval of the new agreement by the TSX Venture Exchange. As a result of its acquisition of Gold Canyon, First Mining is subject to this royalty agreement with Jubilee.

First Mining may terminate all royalty obligations by transferring the patented mining claims back to Jubilee. First Mining retains a right of first refusal on any sale of the remaining royalty interest on certain terms and conditions. The five patented claims identified above are fee simple parcels with mining and surface rights attached to all five claims registered with the Land Registry Office, Kenora, Ontario. First Mining has confirmed via independent legal counsel that the five claims have been surveyed, are in good standing, and the property taxes are paid to date.

3.3.2 Leased Claims from Shirley Frahm

10 patented mining claims (11233-11235, 12896-12901, and 13043) covering a total area of 182.25 Ha (450.34 acres) are leased from Shirley Frahm of Rochelle, Illinois, USA. These 10 patented claims are fee simple parcels with mining and surface rights attached to all 10 patented claims registered, together with the notices of lease, with the Land Registry Office in Kenora, Ontario. The lease is for a term of 21 years less one day and terminates on April 14, 2031. The lease stipulates First Mining is to pay all applicable property taxes related to the 10 claims during the lease term together with advance royalty payments on a sliding scale of $50,000/yr (2011-2016), $60,000 (2016-2021), and $80,000 (2021-2031). These payments are to be credited to future NSR payables, if any.

A 3% NSR is payable upon commencement of commercial production. On the 10 patented claims, First Mining retained an option to acquire up to 2% of the NSR for $1,000,000 per 1% at any time. First Mining has the right to access the 10 claims to conduct mining operations and produce all ores, minerals, and metals that are or may be found therein or thereon— provided First Mining has reserved a small portion of the aggregate surface area for recreational use by Ms. Frahm.

First Mining holds an option to acquire the 10 patented claims and would be required to do so upon the commencement of commercial production on these or certain adjoining patented claims, exercisable by the company within five years of date of the lease agreement. This option term is renewable for a further period of five years by providing notice and a $25,000 payment to Ms. Frahm. The consideration payable is, at the option of First Mining on exercise, or at the option of Ms. Frahm upon commencement of commercial production, either (a) $5M with Ms. Frahm retaining a 1% NSR or (b) $4M with Ms. Frahm retaining a 2% NSR. First Mining retains a right of first refusal on any sale of the remaining royalty interest on certain terms and conditions.

3.3.3 Lease Claims from Springpole Group

First Mining has an option and lease to a further 15 patented mining claims (11236, 12867, 12871-12874, 12902-12909) covering a total area of 310.19 Ha (766.5 acres) from a group of individuals and/or companies collectively referred to as the “Springpole Group”. These 15 patented claims are fee simple parcels with mining and surface rights attached to all 15 patented claims registered, together with the notice of option and lease, with the Land Registry Office, Kenora, Ontario. The term of the option is for five years with five renewal option periods of five years each. These options can be exercised by First Mining before expiry of the earlier option period by confirmation of good standing of the agreement and payment of a $50,000 renewal fee.

First Mining is required to make option payments in the aggregate amount of $35,000/yr and to expend an aggregate of C$300,000 on mining operations in each option term as a condition of any renewal and to pay all property taxes related to these patented claims. During the option term, First Mining has been granted the exclusive lease, the right and interest to enter upon the 15 patented claims, the right to conduct mining operations, and the right to have quiet possession thereof. First Mining also has the right, at its discretion, to make any use or uses of the 15 patented claims consistent with the foregoing including the construction of roads, railways, conveyors, plants, buildings, and aircraft landing areas, as well as the alteration of the surface of the property subject to all applicable laws. First Mining has reserved a small portion of the aggregate surface area for the recreational use of a cabin by the members of the Springpole Group.

First Mining holds an option to acquire the 15 claims and would be required to do so upon the commencement of commercial production at any time during the option period by payment of an aggregate of $2M. Upon exercise of the purchase option, First Mining must also acquire the cabin on the property for the lesser of fair market value or $20,000. A 3% NSR is applicable during the option term upon commencement of commercial production or a 1% NSR if the purchase option is exercised prior to commercial production. First Mining can acquire the remaining 1% NSR by a payment of $500,000.

3.3.4 Claims Leased from the Crown

In Ontario, Crown Lands are available to licenced prospectors for the purposes of mineral exploration. A licenced prospector must first stake an unpatented mining claim to gain the exclusive right to prospect on Crown Land. Claims can also be staked in areas where surface rights are not owned by the Crown if the ground is open for staking and mineral rights can be obtained. Claim staking is governed by the Ontario Mining Act and is administered through the Provincial Mining Recorder and Mining Lands Consultant Office of the MNDM. A total of 300 contiguous unpatented mining claims covering approximately 31,776 Ha (78,520 acres) make up the greater area of the Springpole Gold

Project and were staked directly by the previous property owners and are now held by First Mining. A list of these unpatented claims including township/area, claim number, recording date, claim due date, and status is included in Appendix A**.**

An additional six unpatented mining claims (KRL562895 to KRL562900) and related Crown leases for surface rights were acquired by the previous property owners from an individual in July 2011 for an aggregate payment of $300,000. These claims are subject to a 3% NSR payable upon the commencement of commercial production, with advance royalty payments of $50,000/yr. First Mining retained an option to acquire all or a portion of the applicable NSR at a rate of $500,000 per 1% of the NSR at any time. First Mining has permitted the vendor to use a small portion of the property subject to the Crown leases, including a vacation home, for recreational purposes provided First Mining was granted a 20 year option to purchase the vacation home for the price determined by an AACI valuator. The vacation home is required to be purchased upon commencement of commercial production.

Subsequent to the acquisition, the Crown leases were to expire. In consultation with the MNDM, the previous property owners applied for the lease of these claims to be renewed for an additional 21 years, effective August 31, 2011.

3.3.5 Claim Maintenance

All unpatented claims are liable for inspection at any time by the MNDM and may be cancelled for irregularities or fraud in the staking process. Disputes of mining claims by third parties are accepted after one year of the recording date or after the first unit of assessment work is filed and approved. A claim remains valid as long as the claim holder properly completes and files the assessment work as required by the Mining Act and the Minister approves the assessment work.

To keep an unpatented mining claim current, the mining claim holder must perform $400 per mining claim unit worth of approved assessment work per year, immediately following the initial staking date. The claim holder has two years to file one year worth of assessment work.

Surface rights are separate from mining rights. Should any method of mining be appropriate, other than those claims for which Crown leases were issued, the surface rights would need to be secured.

3.3.6 Royalties Assumptions for Mine Planning and Economic Evaluation

For the purposes of mine planning, optimisation economic evaluation, aggregated royalties were approximated by a flat 3% rate applied to all NSRs.

3.4 Environmental Liabilities

PDAC's Excellence in Environmental Stewardship e-toolkit (PDAC 2009) is used to ensure best practice methods are applied to mineral exploration at Springpole. Improvements to critical areas that affect the environment are underway at all times in an attempt to reduce the environmental footprint of exploration activities. No material environmental liabilities or public hazards associated with the Springpole Gold Project are known to exist on the property. A temporary camp (~0.5 Ha) with wood frame tents was erected for ongoing drilling campaigns. There has been occasional surface clearing related to past drilling work.

3.5 Permits

First Mining complies with permit, notice and consultation requirements as they relate to the on-going exploration work on the Springpole Gold Project. Legislation that requires material permits and notices include the provincial *Mining Act, Public Lands Act, Lakes and Rivers Improvement Act, Ontario Water Resources Act*, as well as the federal *Fisheries Act*.

To date, no formal memorandum of understanding agreements have been signed with local First Nations.

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Accessibility

During late spring, summer, and early fall, the Springpole Gold Project is accessible by floatplane direct to Springpole Lake or Birch Lake. All fuel, food, and material supplies are flown in from Red Lake or Pickle Lake, Ontario, or from Winnipeg, Manitoba, with flight distances of 110 km, 167 km, and 370 km, respectively. The closest road access at present is the landing at the old South Bay Mine on Confederation Lake, approximately 50 km away by air.

During winter, an ice road approximately 85 km long is constructed from the South Bay landing point on Confederation Lake to a point about 1 km from the camp (Figure 3.1). During breakup in spring and freeze-up in fall, access to Springpole is by helicopter.

4.2 Local Resources and Infrastructure

There is no existing infrastructure within 50 km of the Springpole Gold Project area. Businesses in Red Lake, a long established mining community 110 km to the southwest, provide the majority of the camp's supply needs. The nearest emergency medical facilities are at the Margaret Cochenour Hospital in Red Lake.

The nearest major city is Winnipeg, Manitoba, which is approximately 370 km southwest of Springpole and about a 1.3 hour flight by Cessna Caravan.

4.3 Climate and Physiography

January temperatures range between -40°C and 0°C, and July temperatures range between 20°C and 40°C.

Springpole and Birch Lakes are part of the Albany River system, which flows eastward into Cat River and then northward into Hudson Bay. The property is underlain by glaciated terrain characteristic of a large part of the Canadian Shield. Land areas are generally of low relief with less than 30 m of local elevation and are separated by a series of interconnected, shallow lakes.

Tree cover consists of mature spruce, balsam, birch and poplar. Black spruce and muskeg swamps occupy low-lying areas. Glacial till is generally less than 1 m in thickness. Outcrops are limited and small and are generally covered by a thick layer of moss or muskeg.

Figure 4.1 displays the typical landscape of the Springpole Gold Project area. Note the drill rig working on Springpole Lake near the shore.

Figure 4.1: Typical Winter Landscape in the Project Area

5 History

The history of the Springpole Gold Project prior to 2006 is excerpted from the Technical Report and Resource Estimate on the Springpole Lake Gold Property (Armstrong et al 2006). Drill log compilation and assay data compilation have formed an important part of the work presented in this report.

Gold exploration on the property was carried out during two main periods, one during the 1920s to 1940s, and a second period from 1985 to the present.

In 1925, the discovery of gold at Red Lake brought prospectors into the Springpole Lake area. Visible gold in outcrop on the property was first discovered north of the Birch-Springpole Lake portage and prospected by Northern Aerial Mineral Exploration Ltd. in 1928 (Harding 1936). The showing was initially covered with eight claims around 1933 by prospector Tom Dunkin, who then completed the first stripping and shallow trenching in 1934.

Between 1933 and 1936, the Windigokan Sturgeon Mining Syndicate conducted extensive trenching and prospecting, including 10 short holes totalling 458.5 m (1,504 ft). The claims were then transferred to Springpole Mines Ltd. who carried out limited trenching and prospecting in 1945.

The Casey Summit Mine (later renamed the Casummit Mine), approximately 10 km to the north, started operation around this time. This mine ultimately produced 101,975 oz of gold and 9,788 oz of silver (Beakhouse 1990) and is the only significant past producer of precious metals in the Birch-Springpole Lake area.

This early prospecting activity and production from the Casummit Mine region prompted a more detailed geological investigation of the vicinity by the Ontario Department of Mines. The Birch Lake area was mapped at a scale of 1:63,360 by Harding (1936).

Reconnaissance-style mapping of the Birch-Springpole Lake area has since been repeated four times:

1. To study volcanic characteristics of selected Superior Province greenstone belts (Goodwin 1967),
2. To extend volcanic stratigraphy hosting the South Bay base metal mine into the Springpole area (Thurston et al. 1981),
3. To stimulate gold exploration in the area after closure of several mines near Red Lake (Good et al. 1988), and
4. To study the stratigraphy of epiclastic and volcaniclastic facies units, northern Birch-Uchi greenstone belt (Devaney 2001a).

The area remained dormant until 1985 when Goldfields Canadian Mining, Ltd. (GFCM) optioned the Frahm claims and, in 1986, the Milestone claims and Maple Leaf (now Springpole Group) claims. GFCM conducted an airborne (Aerodat) geophysical survey in 1985 over the entire claim group. On the 30 patented mining claims (Frahm, Milestone, and Springpole Group), line cutting was done at both 30.5 m (100 ft) centres (Milestone claims) and 61 m (200 ft) centres (Frahm and Springpole Group claims). Subsequently, geological mapping, humus geochemistry, and ground geophysics (VLF, Mag, and IP) were conducted over the grids.

From 1986 through 1989, GFCM completed 118 diamond drill holes in seven drill phases totalling 38,349 m (125,816 ft). In addition, during 1986 and 1987, approximately 116,119 m^2 (1.25 million ft^2) of mechanical stripping was carried out by GFCM, and four petrographic reports were produced. As a result of this work, GFCM identified several gold-bearing zones on the property that included:

- the Portage zone, entirely under a portion of the Springpole lake but the largest of the zones and, therefore, the main focus of the bulk of the exploration work;
- the Jasper zone, a deep narrow higher grade zone in a banded iron formation horizon; and
- several smaller but higher grade zones on the land portion of the property and close to surface, including the Main zone, Vein zone, Hillside zone, Camp zone, North Porphyry zone and East Extension zone.

Late in 1989, GFCM entered into a 50/50 joint venture with the combined interests of Noranda and Akiko-Lori Resources Ltd.

From 1989 through 1992 Noranda conducted an IP survey over the central portion of the Portage zone and tested the property with eighteen core holes totalling 6,195 m (20,323 ft). The majority of the drilling was conducted on the Portage zone.

At the same time, and under a separate option agreement with BP Resources Canada, Noranda completed a seven core hole drill program around the east margins of Springpole Lake on claims then owned by BP Resources. BP Resources in turn completed lake-bottom sediment sampling of Springpole Lake east of Johnson Island.

In 1992, Noranda dropped its interest in the property leaving Akiko-Lori to carry out further exploration while carrying its 50% partnership with GFCM. During 1993 and 1994, Akiko-Lori/Akiko Gold completed an additional 15 diamond drill holes on the Portage zone totalling 4,850 m (15,913 ft).

By 1995, Akiko Gold was reorganized into Gold Canyon Resources Inc. and GFCM's interest was acquired by Santa Fe Mining as part of an asset exchange with London based Hanson Plc., which controlled GFCM. During 1995, a joint venture between Gold Canyon and Santa Fe carried out an exploration program consisting of remapping of the main area, of some of the existing drill core, and a reinterpretation of the geology.

During the 1995 and 1996 programs, Santa Fe drilled an additional 69 holes totalling 15,085 m (49,492 ft) on the Springpole Gold Project proper and two drill holes on Johnson Island. By late 1996, the takeover of Santa Fe by Newmont Gold Company was nearing completion. Just prior to the merger with Newmont, Santa Fe exchanged their 50% interest in the property for a tax credit that left Gold Canyon with a 100% ownership. After Santa Fe's departure, Gold Canyon continued exploration in 1997 and 1998 with another 51 core holes totalling 5,642 m (18,510 ft).

Paso Rico Resources Ltd. had an option to earn an interest in the project and, in the summer of 1998, conducted with Gold Canyon a lake bottom sediment sampling program in several areas of Springpole. The results of this survey identified several follow-up targets that were tested in 1999 by Paso Rico with 12 core holes totalling 2,779 m (9,117 ft). In 2000, Paso Rico withdrew from the project leaving Gold Canyon with its current 100% interest.

During 2004, 2005 and 2006, diamond drilling programs were conducted on the property by Gold Canyon. Summaries of the drilling results are reported in Section 9 of the 2006 technical report (Armstrong et al.) and are summarized in Table 5.1 below.

Table 5.1: Summary of Historic Drilling at Springpole 1986-2006

Diamond Drill Hole	Company	Period	Number of Holes	Metres drilled
BL-1 to BL124	Goldfields Canadian Mining Ltd	1986-1989	118	38,350
BL-125 to BL-141, OB-1 incl. ext 4 holes	Noranda / Akiko JV	1990-1991	18	6,167
SP-01 to SP-09	Akiko-Lori Gold Resources Ltd	1992	9	2,085
BL-142 to BL-147	Akiko Gold Resources Ltd	1993-1994	6	2,765
BL-148 to BL-216	Santa Fe Canadian / Gold Canyon Resources Inc. JV	1995-1996	69	15,085
BL-271 to BL-248 incl. 1 ext. hole	Gold Canyon Resources Inc.	1997	32	3,593
BL-249 to BL-268	Gold Canyon Resources Inc.	1998	19	2,050
BL-268 to BL-279	Paso Rico	1999	12	2,779
BL-280 to BL-304 Incl. 2 holes ext.	Gold Canyon Resources Inc.	2004	25	2,152
BL-304 to BL-320 incl. 3 hole ext. BL-284D, -285D & 304D	Gold Canyon Resources Inc.	2005	19	2,983
BL06-321 to BL06-373	Gold Canyon Resources Inc.	2006	21	2,752

5.1 Fall 2007 Program

In the fall of 2007, Gold Canyon embarked on a limited exploration program to further investigate the Fluorite zone that was identified by Noranda during its trenching program in 1990. Noranda identified the potential for Ontario’s largest undeveloped fluorite deposit in the form of a Sovite (calcitic carbonatite) from four trenches and having over 850 m of strike with high grade values up to 35.6% fluorite (CaF_2).

During the course of the program 46 1-metre samples were collected from four “cuts” across a previously identified 23 m wide zone of fluorite mineralization at the western end of Long Skinny Pond — a thin, narrow pond to the north of camp that channels water from Birch Lake to Round Pond and into Springpole Lake via a narrow stream channel.

Sampling results were inconclusive as fluorite content (CaF_2) was not analyzed. Additionally, the samples were tested for their rare earth element potential but these results were also inconclusive. Gold values were borderline anomalous and did not warrant any follow up.

5.2 Summer–Fall 2009 Program

From early August thru the end of October 2009, Gold Canyon embarked on a core re-logging and re-sampling program. Five geologists, under the supervision of Jeff Chambers, a senior consulting geologist, re-logged and re-sampled a portion of the historic drill core stored at the Springpole project site and temporary tent camp.

A total of 417 diamond drill holes were completed on the Springpole Gold Project prior to 2009; drilling had begun in 1933 (Zabev 2004). This amounted to a total of approximately 98,262 m of core drilled. Unfortunately, not all the drill core is on-site. The 1933 thru 1936 drill holes 1 to 10 are missing. Also missing are drill holes BL-20 thru BL-53 completed by the GFCM exploration program from 1986 to 1988. From drill log records, it appears the whole cores were sent for analysis. Drill hole BL-95A is missing — extension of BL-95 completed during the Noranda program in early 1990. In addition to missing holes, there are many intervals throughout the core inventory that are missing.

At the time the re-logging and re-sampling program was conducted, the full database of available historic core logs and historic assay data was not fully compiled and was not available to the geologists working in the field. The dataset used in the field was a compilation from the database that was compiled as a result of the work carried out for the previous technical report (Armstrong et al. 2006).

5.3 Core Re-Logging Program

A total of 115 drill holes were re-logged during the fall 2009 program, which equates to approximately 31% of the 374 drill holes that are believed to be on the property. Forty-nine drill holes are known to be missing, and the above count does not include the numerous mineralised intervals that are missing within drill holes that were and were not re-logged.

Core re-logging was carried out in a summary format designed to be easily incorporated into later modelling efforts. This meant drill holes were divided into broad units based upon average lithology, alteration, and mineralization. Quality of logging varied between geologists, as it was clear that a formal standard for logging was not adopted. Logging efforts were further hampered by core intervals that contained little, if any, useful material due to sampling of all or nearly all of the recovered core, as well as degradation and decay of core boxes and core racks.

The information obtained from the re-logging exercise was used to plan the phased drill program of 2010 to 2012. All re-logged core forms were scanned and now form a part of the digital database stored at First Mining’s office in Vancouver, British Columbia.

At the end of the core re-logging program, several days were taken to examine drill core from critical areas. The top 6 to 12 m (20 to 40 ft) of core was examined briefly, and a simplified lithology was assigned. Overburden was excluded. The intent of the exercise was to apply the noted lithology to produce a crude geologic map. This could then be used to assess the outline geometry of the trachyte intrusive, and all the associated breccia phases.

A total of 2,580 samples were taken from the historic drill core. This included 132 standards, blanks, and duplicates, totalling approximately 5% of the number of samples collected. All samples were taken from drill core that was re-sampled by cutting the remaining drill core in half. This resulted in either a half or a quarter of the core remaining, depending on whether the interval had been sampled originally. Due to the small core diameter, core was not cut to less than one-quarter to preserve material for future reference. Table 5.2 represents significant intercepts from historic drilling combined with the re-sampling work outlined here.

At the end of the core re-sampling program, 14 samples for thin-section petrographic analysis and 3 samples for mineral petrographic analysis were collected. The samples collected were deemed representative of the principal lithologies occurring across the Springpole Gold Project.

Table 5.2: Historic Significant Intercepts from 2009 Re-Sampling Program

Main Zone					Portage Zone					East Extension & Main Zone				
Drill Hole	From	To	Interval	Au grade	Drill Hole	From	To	Interval	Au grade	Drill Hole	From	To	Interval	Au grade
	(m)	(m)	(m)	(g/t)		(m)	(m)	(m)	(g/t)		(m)	(m)	(m)	(g/t)
01	22.48	27.14	4.65	6.04	92-01	100.43	118.44	18.01	3.72	BL12	25.92	38.72	12.80	1.85
BL1	43.90	53.96	10.06	4.57	92-04	194.66	204.88	10.22	7.11	BL115	99.38	110.98	11.59	2.73
BL102	42.38	49.08	6.70	11.60	92-06	175.45	191.80	16.34	5.58	BL162	35.98	56.41	20.43	1.15
BL103	29.27	34.45	5.18	2.44	BL100	158.23	178.66	20.43	3.53	BL163	7.10	28.05	20.95	4.78
BL11	214.63	224.09	9.45	6.53	BL121	104.91	140.55	35.64	7.57	incl	16.16	28.05	11.89	7.92
BL11	295.42	317.38	21.96	1.75	BL122	163.41	241.16	77.75	1.57	BL163	88.20	102.44	14.23	2.07
BL157	60.68	62.20	1.52	206.74	incl	166.77	177.13	10.36	6.70	BL165	9.45	39.94	30.49	2.92
BL160	16.46	26.53	10.06	16.19	BL125	110.13	117.53	7.40	2.41	incl	17.98	33.23	15.24	4.38
BL161	4.48	25.61	21.13	3.61	BL125	150.74	158.74	8.00	5.68	BL166	10.36	24.39	14.02	1.42
BL183	105.80	119.82	14.02	1.33	BL126	104.33	120.13	15.80	2.60	BL168	72.26	87.50	15.24	1.60
BL190	110.06	111.28	1.22	15.70	BL127	123.53	131.73	8.20	7.07	BL172	18.14	39.63	21.49	10.44
BL197	40.30	54.60	14.30	1.54	BL128	174.04	211.65	37.61	2.13	incl	25.92	29.27	3.35	50.50
BL198	87.68	99.99	12.31	1.52	BL129	139.04	185.05	46.01	1.57	BL202	40.24	68.97	28.73	1.73
BL209	455.48	456.34	0.85	182.06	BL131	91.32	238.26	146.94	1.09	BL204	44.82	53.96	9.14	20.53
BL23	77.65	87.50	9.85	9.60	Incl	199.05	214.05	15.00	2.06	incl	45.73	47.16	1.43	136.58
incl	86.89	87.50	0.61	109.37	BL132	234.66	258.97	24.31	2.06	BL217	14.66	42.07	27.41	14.96
BL25	200.97	233.54	32.57	1.66	BL26	93.29	154.27	60.98	2.29	incl	14.66	15.24	0.58	46.18
BL264	5.18	45.73	40.55	4.56	BL308	154.76	179.27	24.51	1.29	incl	19.55	22.26	2.71	39.08
incl	5.18	13.72	8.54	7.04	BL308	214.45	321.34	106.89	2.35	incl	35.06	42.07	7.01	35.37
incl	34.39	42.56	8.17	8.96	Incl	225.06	241.49	16.43	5.81	BL220	16.25	54.52	38.26	3.54
BL280	15.85	23.14	7.28	4.59	BL310	98.08	118.54	20.46	1.77	incl	16.25	17.38	1.12	54.17
BL282D	95.70	97.41	1.70	17.84	BL310	136.62	151.53	14.91	2.91	BL221	2.13	17.34	15.21	2.92
BL285D	20.63	26.53	5.89	2.23	BL311	133.23	145.43	12.19	2.48	BL222	3.66	28.66	25.00	5.85
BL3	4.27	55.48	51.21	2.14	Incl	134.75	137.49	2.74	6.91	incl	17.38	18.76	1.38	73.03
incl	45.12	50.00	4.88	14.87	BL312	36.89	66.16	29.27	1.43	BL225	3.05	26.22	23.16	2.66
BL300	45.73	49.69	3.96	4.01	BL33	258.94	274.69	15.75	1.22	incl	21.95	26.22	4.26	12.13
BL302	27.44	31.53	4.09	3.73	BL41	110.37	134.63	24.27	2.70	227	87.95	92.98	5.03	5.25
BL303	44.82	63.94	19.12	5.00	BL41	164.63	282.92	118.29	1.64	BL228	43.29	67.84	24.55	18.63
BL305	67.56	68.90	1.34	23.87	Incl	233.84	263.11	29.27	2.92	incl	65.25	66.16	0.91	120.99
BL306	23.88	63.85	39.97	1.01	Incl	235.67	242.99	7.32	5.15	BL292	20.63	40.67	20.04	10.28
incl	33.84	38.29	4.45	4.76	BL42	101.52	127.44	25.92	1.05	incl	37.62	39.24	1.62	49.99
BL307	16.31	49.78	33.47	1.21	BL67	196.95	218.30	21.34	2.11	BL296	53.72	103.54	49.81	3.87
BL354	85.03	85.79	0.76	30.31	BL69	216.77	219.82	3.05	21.07	incl	59.40	59.84	0.45	102.00
BL356	36.89	40.91	4.02	31.67	BL79	248.78	253.35	4.57	6.09	incl	63.91	65.37	1.46	47.85
incl	39.94	40.91	0.97	127.13	BL80	448.47	460.67	12.20	2.52	incl	85.97	87.50	1.53	32.16
BL68	150.15	284.36	134.21	1.41	BL85	344.59	380.80	36.21	1.40	BL328	8.99	54.02	45.03	3.25
incl	150.15	181.16	31.01	1.88	BL88	297.52	350.91	53.38	1.97	incl	41.34	49.69	8.35	8.61
incl	217.98	243.90	25.92	2.30	BL90	65.86	76.04	10.18	3.92	BL330	33.84	34.45	0.61	16.59
BL7	50.61	68.90	18.28	1.57	BL93	169.20	178.66	9.45	2.25	BL336	173.72	174.60	0.88	14.02
BL9	25.00	37.20	12.20	4.23	BL94	264.03	271.65	7.62	2.09	BL340	25.46	39.97	14.51	15.54
incl	28.87	34.76	5.89	7.18	BL95	396.04	417.11	21.07	1.66	incl	35.34	39.97	4.63	43.64
BL96	39.63	58.71	19.08	2.89	BL99	198.47	314.33	115.86	1.53	BL343	25.70	56.13	30.43	4.33
incl	53.56	58.72	5.15	8.49						incl	25.70	29.64	3.94	27.38
BL98	39.94	73.48	33.54	1.16										

5.4 Acquisition by First Mining Finance Corp.

On November 13, 2015, First Mining completed the acquisition of Gold Canyon, and as a result, acquired the Springpole Gold Project.

6 Geological Setting and Mineralization

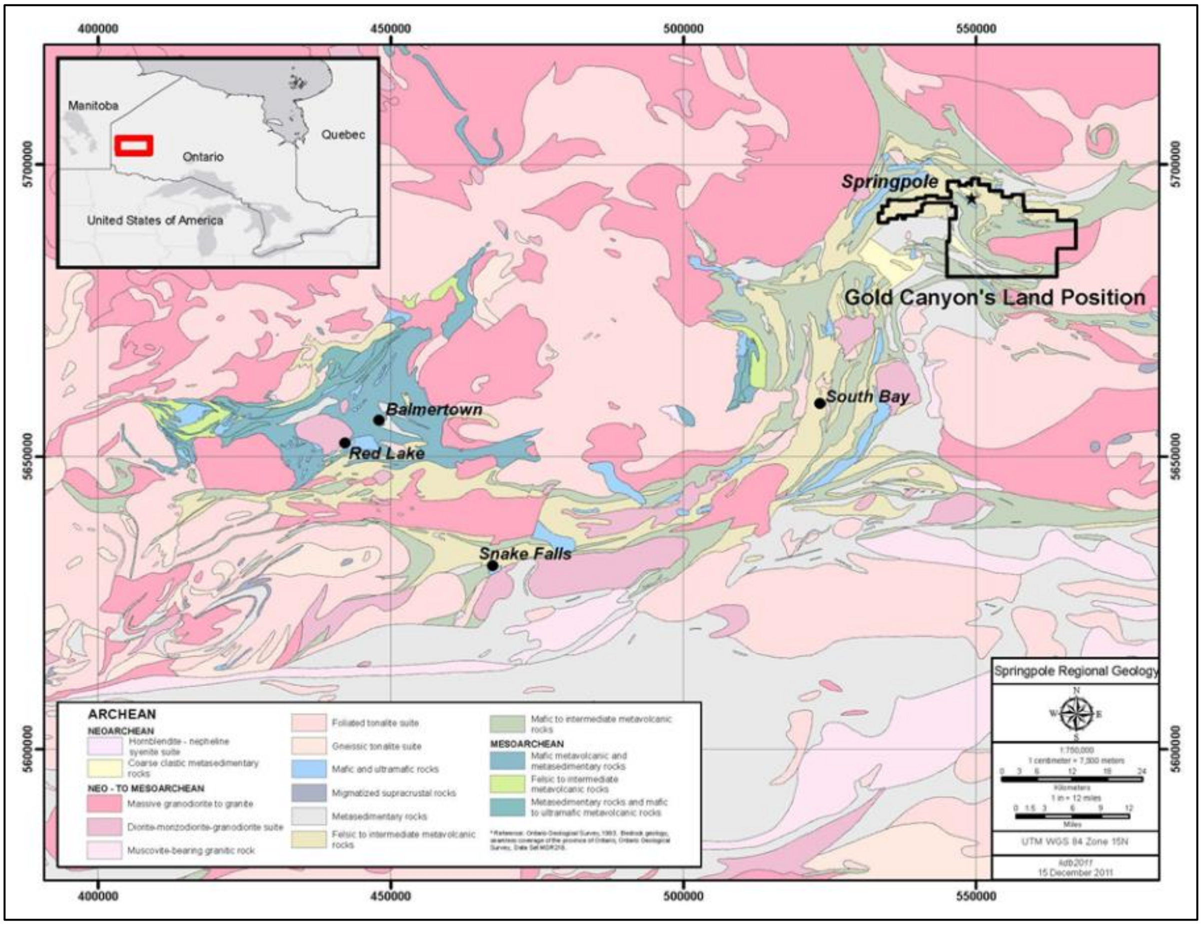
6.1 Regional Geology

The following excerpt is quoted from Devaney (2001b) and provides the most concise geologic description of the regional geology of the Springpole-Birch Lake area:

> *The Birch-Uchi Greenstone Belt (*Figure 6.1*) is the portion of the Uchi Sub-province with an arcuate, concave to the southeast, (i.e., a major oroclinal bend between the Red Lake and Meen-Dempster portions of the sub-province). Studies of the southern part of the Birch-Uchi greenstone belt as a rootless greenstone belt only a few kilometres thick, have revealed a long (ca. 3.0 to 2.7 Ga), multistage history of crustal development. Based on mapping, lithogeochemistry, and radiometric dating, the supracrustal rocks of the greenstone belt were subdivided into three stratigraphic group-scale units (listed in decreasing age): the Balmer, Woman and Confederation assemblages. This three-part subdivision was applied to most of the Uchi Subprovince. The Confederation assemblage is thought to be a continental margin (Andean-type) arc succession, versus the less certain tectono-stratigraphic context of the other assemblages. Workers performing recent and ongoing studies of the southern Birch-Uchi greenstone belt and the Red Lake greenstone belt (i.e., the Western Uchi Subprovince NATMAP Project) have proposed some modifications and additions to the Balmer-Woman-Confederation stratigraphic scheme. As discussed herein, some relatively small conglomeratic units likely form a synorogenic, discontinuously distributed, post-Confederation assemblage in the Birch-Uchi greenstone belt. Radiometrically dated plutons within the Birch-Uchi greenstone belt are of post-Confederation assemblage, ca. 2725-2700 Ma age.*
>
> *The northern margin of the Birch-Uchi greenstone belt forms a pattern of sub-regional scale cusps of supracrustal strata alternating with batholiths. Basaltic units are prominent around the periphery of the greenstone belt and may be part of the Woman assemblage but the accuracy of this stratigraphic assignment is unknown. Based on a ca. 2740 Ma age of Shabumeni Lake [intermediate to felsic fragmental] volcanic rocks at a site near the northern greenstone belt margin, suggested that Confederation assemblage age rocks make up the bulk of the greenstone belt.*

It is noteworthy that in many of the regional geology descriptions of the Birch-Uchi Greenstone Belt, especially those in the vicinity of Springpole and Birch Lakes, the structural geology is poorly understood. Many authors make relatively brief mention of the complexities that dominate the geology and geomorphology of the low lying areas. However, the Archean Orogenic gold deposit model developed by various authors has been applied to the mineral deposits of the Archean Superior Province. Recent concise summaries of these orogenic gold deposits can be found: Groves et al. (1998), Hagemann and Cassidy (2000), Goldfarb et al. (2005), and Robert et al. (2005).

Orogenic gold deposits are epigenetic, structurally controlled gold deposits that are hosted in orogenic belts. They are generally accepted as having formed during late stages of continental collision. Most of the discovered orogenic gold deposits in the world occur in greenstone belts situated on the margins or within Archean cratons in North America, Australia, and southern Africa.



(Source: Ontario Geological Survey 2000)

Figure 6.1: Springpole Gold Project – Regional Geology

6.2 Property Geology

The Springpole prospect has been extensively studied during past programs and the findings of those studies will not be covered in detail here; however, they are adequately covered in the technical reports of Zabev (2004) and Armstrong et al. (2006).

The following subsections summarize the geology interpreted from field observations and petrographic analysis of drill core from the 2009 re-logging program and from drill core produced during the 2010 and 2011 programs. Simplified drill hole geology from a number of selected sections can be found in Appendix B.

6.2.1 Trachyte Porphyry Intrusive

A polyphase alkali, trachyte intrusive displaying autolithic breccia textures lies at the heart of the Springpole Gold Project. The intrusive is comprised of a system of multiple phases of trachyte believed to be part of the roof zone of a larger syenite intrusive, as fragments displaying phaneritic textures were observed from deeper drill cores in the southeast portion of the Portage zone. Early intrusive phases consist of megacrystic feldspar phenocrysts, up to 5 cm long, of albite and orthoclase feldspar in an aphanitic groundmass. Successive phases show progressively finer grained porphyritic texture while the final intrusive phases are aphanitic.

In 2009 and 2010, Gold Canyon carried out petrographic studies (Saunders and McIntosh 2009, 2010) of historic drill core and drill core from the drill holes SP10-001 through SP11-006. The study confirmed trachyte intrusive is the dominant lithology within the project area and is a host to mineralization. Interpretation of the intrusive complex is complicated by a mixture of overprinted regional and local metamorphic events related to burial and tectonism.

Pervasive alteration and metamorphism have reduced the original porphyry intrusive to a complex alteration assemblage dominated by sericite, biotite, pyrite, calcite/dolomite, and quartz. Primary igneous textures are remarkably well preserved in places and give indications to the possible genesis of the initial phase of gold mineralization. Within the country rocks to the north and east are trachyte and lamprophyre dikes and sills that source from the trachyte - or syenite-porphyry intrusive system.

6.2.2 Confederation Age Volcanic and Siliciclastic Rocks

The country rocks pre-date the alkali intrusive and are composed of a complex sequence of altered and metamorphosed intermediate andesitic volcanic rocks and associated volcaniclastics, siliciclastic sedimentary rocks, chemical sediments including banded iron formation (BIF), and coarse pebble conglomerates. Devaney (2001a) indicates that the sediments are likely of the Confederation assemblage dating at around 2,740 Ma, representing the proximal portions of a mixed volcanic-sedimentary basin.

6.2.3 “Timiskaming-type” Conglomerates

Barron (1996) states pebble conglomerate outcrops between Springpole Lake and Birch Lake contain clasts of the trachyte porphyry, suggesting that the “Timiskaming-type” conglomerates postdate intrusion. Devaney (2001a) suggests these arcuate form conglomerates represent late orogenic, deformed, dextral sense strike-slip (pull-apart) basins of “Timiskaming-type,” late Archean, post Confederation assemblage age rocks.

6.3 Structure

Deformation has added complexity to the apparent geometry of, and the potential of, the Springpole gold deposit. Gravity and magnetic surveys carried out across the Springpole Gold Project demonstrate that several phases of deformation are evident. Banded iron formations describe north-northwest facing tight to isoclinal antiforms and synforms, and are illustrated on the property geologic map produced during the Summer 2005 Mapping Program (Armstrong et al. 2006) and are evident as strong magnetic anomalies on the aeromagnetic surveys conducted by Fugro.

In 2011, SRK was contracted to carry out a preliminary study of the structural controls on mineralised deposit geometry. The study found the deposit was subjected to several deformational events including, but not limited to:

- Early folding resulting in tight to isoclinal fold geometries and development of associated shear zones,
- Intermediate large scale, potentially deep rooted shear zones, and
- Late stage brittle faulting.

Further study is required to definitively establish the relationship of the timing of deformational events with respect to economic mineralization.

6.4 Alteration

All rocks on the property exhibit pervasive alteration that consists of multiple overprinted phases. Distinguishing between the individual phases will take considerable study on a microscopic scale. The country rocks and alkali intrusive rocks exhibit pervasive green-schist facies metamorphism and alteration, probably the result of burial. This manifests as chlorite, calcite, and pyrite in the intermediate volcanic rocks, pyritization of the banded iron formation, and sericite-pyrite alteration within the alkali intrusive associated rocks.

Studies conducted as a part of the exploration work carried out from the fall of 2009 and the winter/spring of 2010 show there is evidence of early alteration phases. These probably resulted from magmatic hydrothermal fluids associated with porphyry gold mineralization and the associated epithermal/mesothermal style gold mineralization. This occurs as potassic and phyllic/sericitic alteration: K-feldspar, biotite, and muscovite (sericite), respectively, and is nearly pervasive in the alkali intrusive rocks and surrounding country rocks. Regional metamorphism has subsequently altered the primary hydrothermal mineral assemblages, but textures have been preserved with the exception of areas of high strain (e.g., northwest trending shear zones).

Advanced argillic alteration appears throughout the trachyte intrusive and occurs in some of the late stage lamprophyre dikes though on a small scale. It is difficult to assess at what stage argillic alteration occurs, but it appears to define an envelope around the Portage zone potassic-alteration/mineralization, suggesting an origin more in keeping with zoned alteration associated with epithermal-style porphyry intrusive hosted gold deposits.

6.5 Mineralization

6.5.1 Porphyry Style Mineralization

The main intrusive complex appears to contain many of the characteristics of alkaline, porphyry-style mineralization associated with diatreme breccias (e.g., Cripple Creek, Colorado). Direct comparison with drill core from the two sites shows a number of consistent textures and styles of mineralization. A recent observation made from drilling, combined with the airborne magnetic survey, shows that potentially economic gold mineralization is coincident with an unexplained geophysical anomaly. This style of mineralization is characterized by the Portage zone and portions of the East Extension zone where mineralization is hosted by diatreme breccia in aphanitic trachyte. It is suspected that ductile shearing and brittle faulting have played a significant role in redistributing structurally controlled blocks of the mineralised rock. Yet confirmed is a form of porphyry style alteration zoning consisting of an outer zone of phyllic (sericite) dominant alteration with narrow zones of advanced argillic alteration characterized by illite and kaolinite, and a core zone of intense potassic alteration characterized by biotite and K-feldspar.

Multi-element analysis conducted during the 1992 program on the Portage zone, combined with gold assays, gave the first indication of the style of mineralization at Springpole. Diamond drilling in the winter of 2010 revealed a more complex alteration with broader, intense zones of potassic alteration replacing the original rock mass with biotite and pyrite. The expected alteration zone envelopes or shells are very difficult to define due to complex sheared geometry and poorly defined contact zones of the deposit. In the core area of the deposit where fine grained disseminated gold mineralization occurs with biotite, the primary potassic alteration mineral, gold, displays a good correlation with potassium/rubidium.

6.5.2 Lode Gold Mineralization

The intrusion of the trachyte complex into the volcanic pile, as well as the chemical and siliciclastic sedimentary rocks in a near surface environment, produced mesothermal to epithermal style lode vein mineralization. The difference between mesothermal and epithermal mineralization regimes is the temperature and pressure of the mineralizing fluids.

Higher temperature (mesothermal) fluids would have existed within the emplaced intrusive, associated with the diatreme breccias, and in the immediately adjacent wall rock/country rocks. In the porphyry intrusive, and at the contact between intrusive and wall rock in the East Extension zone, and localized within the Main zone, mesothermal style quartz-biotite-calcite-sulfide veins with occasional tourmaline are observed with occasional coarse, visible gold.

Further from the intrusive complex and wall rock contact zones, where meteoric fluids have a greater influence, epithermal style vein textures and mineralization styles dominate. These consist of banded to sucrosic quartz-calcite veins with a lower temperature mineral assemblage including sericite, minor biotite, possible adularia, calcite, dolomite and ankerite; here gold-silver and tellurium alloys dominate including electrum and gold-silver tellurides.

6.5.3 Gold Remobilization during Metamorphism

As evidenced from the high degree of deformation, both ductile and brittle—in the form of isoclinal folding, ductile shear zones with protomylonite and blastomylonite textures, and brittle fault textures—the Springpole prospect has been subjected to alteration and metamorphism. These processes alone have remobilized gold in epithermal quartz veins that were the principal motivation for exploring Springpole in the late 1980s and early 1990s, when shear zone hosted gold deposits were the targets of choice in the Red Lake area.

7 Deposit Types

Mineralization at the Springpole Gold Project is dominated by large tonnage, low grade disseminated porphyry-style or epithermal-style gold mineralization associated with the emplacement of the alkali trachyte intrusive. Textures observed in the extensive repository of drill core appear to confirm that the disseminated gold-silver-sulfide mineralization, the mesothermal to epithermal lode vein gold mineralization, and the branded iron-formation hosted gold mineralization are all the result of the emplacement of multiple phases of trachyte porphyry and associated diatreme breccias, hydrothermal breccias, dikes and sills.

The initial exploration on the property was conducted on the assumption the mineralization was a typical example of Archean mesothermal, sulfide-hosted lode gold type. While this model has not been completely ruled out, it has been replaced in favor of a high level emplacement porphyry model. Barron's thesis (1996) work presented strong evidence that the gold and associated fluorite mineralization at Springpole are genetically related to the high level emplacement of a large, alkaline porphyry intrusive and breccia pipe complex.

Barron considered the Springpole Complex to be the end product of magmatic fractionation processes and of fluids that evolved from magmatic to hydrothermal in the high level, sub-volcanic porphyry environment. These processes produced a low-grade gold-porphyry-epithermal type deposit and associated high-grade veins and breccia pipes.

Santa Fe geologists felt the nature of the mineralization at Springpole had many similarities with deposits of the Cripple Creek District, Colorado, including the Cresson Mine. Detailed mapping on the land based portions of the property by Santa Fe geologists showed that most, if not all, of the gold mineralization at the Springpole Gold Project is spatially associated with the feldspar porphyry diatreme dikes, veins, and diatreme breccia. The following is a brief description of this model in the Springpole area.

7.1 Depositional Environment

Based upon the abundance and size of epizonal trachyte porphyry intrusive masses and the widespread brecciation and alteration centered on the Portage zone, Barron (1996) considered this area to be the apex of a buried syenite stock. A high emplacement level for the Portage zone and surrounding porphyry is further supported by the lack of contact metamorphic effects in the enclosing country rocks. Trachyte clasts within the basal conglomerate overlying the intrusive complex indicate it was subjected to surface erosion.

The rarity of trachyte clasts and their restriction to the base of the conglomerate unit would seem to indicate erosion over a short time interval. The lack of voluminous trachyte flows suggests there was no markedly positive volcanic edifice. Barron (1996) concluded that collectively these features suggested that the Portage zone and surrounding Main and East Extension zones existed as a small island of maar craters of low relief in a rapidly deepening shallow basin.

This interpretation has its closest modern analogue in the Ladolam Gold Deposit, Lihir Island, Papua New Guinea. Mineralization at Lihir is believed to be less than 500,000 years old and is telescoped upon an earlier porphyry environment (Carman 2003). Deposition of gold is still an active process at

Ladolam as the hydrothermal system remains active. Host rocks at Ladolam can be divided into three groups (Carman 2003):

- Mafic lavas composed of alkali basalt, porphyritic trachybasalt, trachyandesite, and rare trachyte and phonolite;
- Alkali intrusions that are composed of multi-phase porphyry stocks with the most voluminous phase being biotite monzonite; and
- Ladolam Breccia Complex that is composed of porphyry breccias and volcanic breccias.

Porphyry breccias are dominantly monzonite composition and occur as poorly sorted, massive, matrix supported breccias with some rounding of clasts caused by magmatic milling; the clasts are supported by a cement of altered rock flour and anhydrite. The volcanic breccias are massive, moderately to poorly sorted, rock flour matrix supported breccias containing mafic clasts.

Mineralization/alteration at Ladolam can also be sub-divided into three broad phases:

- Biotite-orthoclase-anhydrite ± magnetite with minor copper-gold-molybdenum disseminated porphyry mineralization and veinlets;
- Refractory sulfide-gold mineralization associated with pervasive adularia-pyrite (leucoxene-illite) alteration near surface that comprises the bulk of the near surface bulk mineable mineralised material; and
- Quartz-calcite-adularia-pyrite-marcasite ±electrum stockwork veins.

If the Ladolam Gold deposit is accepted as a reasonable genetic analogue to the Springpole deposit, then the following genetic model can be applied. This model is adapted from Barron's thesis (1996), Zabev's genetic summary (2004), and the genetic model of Armstrong et al. (2006), as well as observations made during the 2009 through 2012 diamond drilling programs.

7.1.1 Springpole Genetic Model

The follow list summarizes the genetic model of the Springpole Gold Project area:

- Intrusion into the lower crust of parental alkaline primitive and anhydrous magma slightly enriched in incompatible elements including fluorine.
- Fractionation at depth, precipitation of hornblende and apatite as early crystalline phases. The magma becomes increasingly anhydrous. Gold is retained in the melt.
- Diapiric uprise from 4 to 8 km levels into hydrous wall rock with the apex of the magma chamber at <2 km depth. Continued fractionation producing an increasingly fluorine-rich melt. Feldspar of extreme composition is precipitated and the lowered solidus allows emplacement of porphyry dykes and sills to very high crustal levels.
- High diffusivities and convection promotes water partitioning from wall rock into magma.
- The magma is quickly saturated and the sudden pressure is released (possibly from venting) prompting the immiscible separation of fluorine and carbon dioxide-rich phases, which escapes to

high structural levels. Breccia pipes with rock fluorite and rounded clasts indicating turbulent fluidized and erosional vertical emplacement.

- Fluid pressures generate dyke offshoots.
- Fluorine escapes from brecciated wall-rock causing biotization or fluoritization of breccia and wall rock. Ultimately, the fluorine-water-carbon dioxide vapours condense, resulting in the precipitation of fluorite and calcite. Magmatic gold-rich fluids permeate the breccia and surrounding porphyry, depositing porphyry style, disseminated, pyritic mineralization. The fractures along the margins of breccia pipes acts as preferred sites for later deposition of quartz, electrum and tellurides.
- Intrusion of a series of lamprophyre and carbonatite dikes, sills and veinlets—due to the intensity of deformation.
- The complex is then buried by conglomerates derived from the complex and other areas (Devaney 2001b).
- Continued intense deformation and associated metamorphism manifesting as folding, strike-slip faulting and shearing, coupled with regional green schist metamorphism of the region obscures primary textures and likely leads to some (possibly minor) degree of precious metal remobilization.

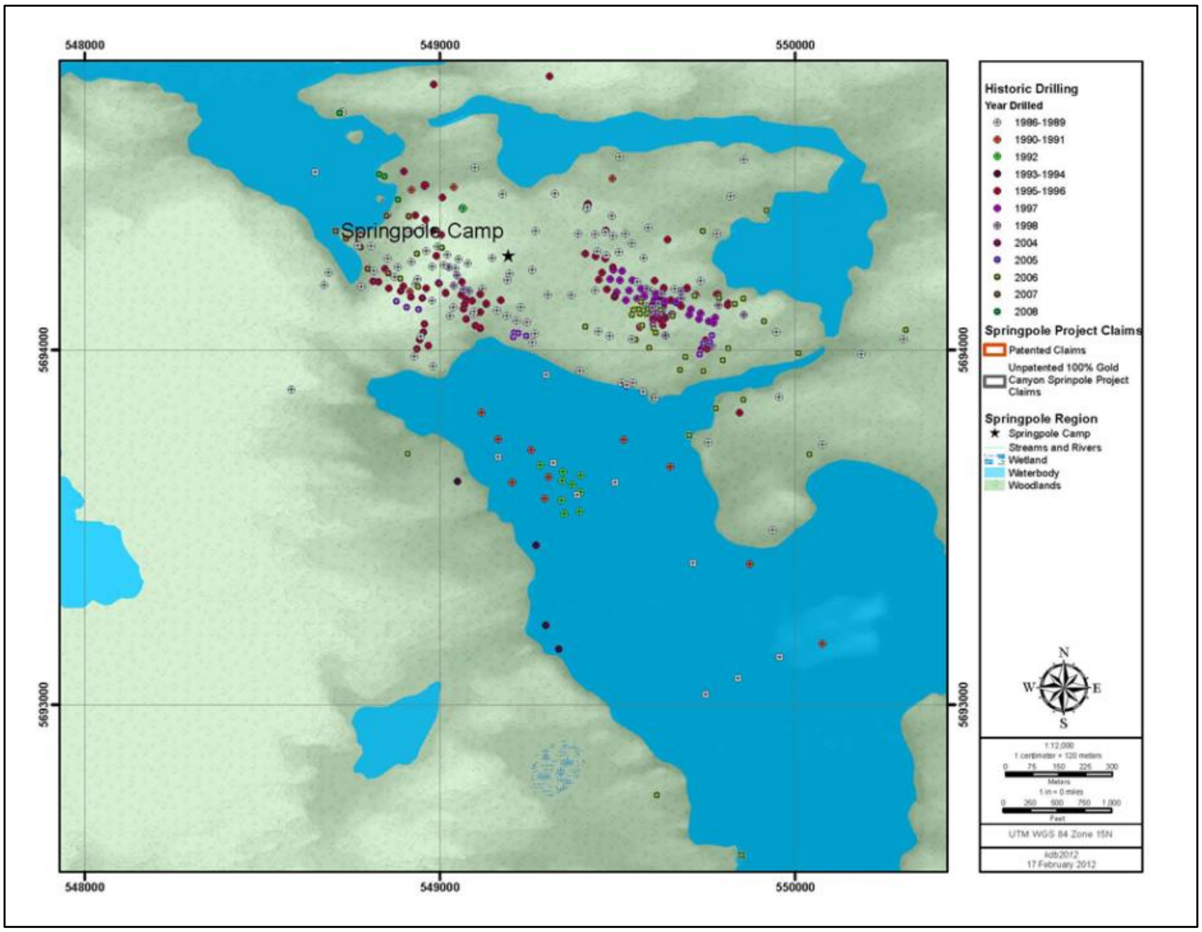
8 Exploration

There is no on-going exploration taking place on the Springpole Gold Project at this time. First Mining drilled four core holes in 2016 to collect samples for metallurgical testing. Results of this drilling program are discussed in Section 12 below. Recommendations for future exploration activities are included in that section of the report.

9 Drilling

9.1 Gold Canyon Drilling

During the winters of 2007 and 2008 Gold Canyon conducted drill programs that completed 21 holes totalling 3,159 m, 11 holes totalling 2,122 m, and 7 holes totalling 2,452 m of diamond core drilling, respectively (Figure 9.1). The details of the exploration work carried out are covered in Gold Canyon's internal Winter Drilling Report 2006-2007 (Smith 2008a) and Winter Drilling Report 2008 (Smith 2008b).



(Source Gold Canyon, 2011)

Figure 9.1: Springpole Gold Project Historical 2007 and 2008 Drill Hole Collar Location Map

9.2 2007 Diamond Drilling Program

During the winter of 2007 Gold Canyon conducted an 11 diamond drill hole program that totalled 2,122 m of drilling. Table 9.1 summarizes drill hole collar information and significant results of the 2007 diamond drill program are summarized in Table 9.2.

Table 9.1: Summary Data of 2007 Winter Diamond Drill Program

Hole ID	Azimuth	Dip	Length (m)	Easting* (m)	Northing* (m)	Elevation (m)
BL-07-374	180°	-45°	200.0	549,170	5,692,280	405.7
BL-07-375	180°	-45°	200.0	549,425	5,692,330	402.8
BL-07-376	180°	-45°	113.0	549,427	5,692,190	401.5
BL-07-377	180°	-45°	194.4	549,653	5,692,406	400.7
BL-07-378	230°	-45°	149.0	548,868	5,693,995	405.0
BL-07-379	230°	-45°	200.0	548,810	5,694,006	402.3
BL-07-380	230°	-45°	196.2	548,789	5,694,068	398.9
BL-07-381	230°	-45°	194.0	548,748	5,694,092	398.4
BL-07-382	240°	-45°	251.0	548,720	5,694,114	398.3
BL-07-383	240°	-45°	203.0	548,863	5,694,156	399.5
BL-07-384	230°	-45°	221.0	548,925	5,694,155	404.1
Total			2,122			

* World Geodetic System 1984 (WGS84) converted from NAD27 original handheld GPS survey.

Table 9.2: Summary of Significant Drill Results from 2007 Drill Program

Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Au (oz/t)
BL-07-374	93.33	95.00	1.07	0.41	0.012
	163.00	167.00	4.00	0.69	0.02
BL-07-375	110.55	111.24	0.69	2.32	0.068
BL-07-376	29.20	29.93	0.73	2.44	0.071
BL-07-377	105.45	105.95	0.50	3.16	0.092
	148.12	152.00	3.88	1.08	0.031
BL-07-378	89.62	90.16	0.54	19.32	0.564
	114.22	116.00	1.78	2.85	0.083
BL-07-379	56.89	57.26	0.37	14.07	0.410
	60.81	61.10	0.29	5.65	0.165
	107.00	107.51	0.51	2.13	0.062
	117.26	117.76	0.50	2.21	0.065
BL-07-380	116.05	116.61	0.56	1.05	0.031
	138.00	138.42	0.42	4.19	0.122
BL-07-383	42.00	47.26	5.26	9.79	0.286
BL-07-384	80.54	81.54	1.00	1.52	0.044
	149.36	149.91	0.55	2.85	0.083

9.3 Winter 2008 Drill Program

The winter 2008 program comprised seven core holes totalling 2,452 m and was designed to focus on step-out drilling to test the strike and down-dip potential of the new sedimentary hosted, semi-massive sulfide environment. The first 1 km of strike potential for the sedimentary hosted semi-massive sulfide environment has now been tested at a vertical depth of between 100 and 200 m. The results of the 2008 drilling program were inconclusive and did not return any gold intersections comparable to BL07-383. The sedimentary hosted gold target horizon is believed to continue for at least 7 additional km beyond the area tested.

Table 9.3 summarizes the 2008 drilling program and Table 9.4 summarizes the significant intersections from the drilling campaign.

Table 9.3: Winter 2008 Diamond Drill Hole Program Summary

Hole ID	Azimuth	Dip	Length (m)	Easting* (m)	Northing* (m)	Elevation (m)
BL08-385	240°	-45°	208.00	548,895	5,694,201	400.0
BL08-386	215°	-45°	272.00	548,856	5,694,267	400.0
BL08-387	215°	-45°	395.00	548,841	5,694,273	400.0
BL08-388	215°	-60°	356.00	548,841	5,694,273	400.0
BL08-389	258°	-45°	356.00	548,841	5,694,273	400.0
BL08-390	268°	-45°	446.00	548,841	5,694,273	400.0
BL08-391	240°	-45°	419.00	548,730	5,694,446	400.0

Note: Universal Transverse Mercator (UTM) datum projection is North American Datum 1927 (NAD27)

Table 9.4: Significant Drill Intersections from 2008 Drilling Program

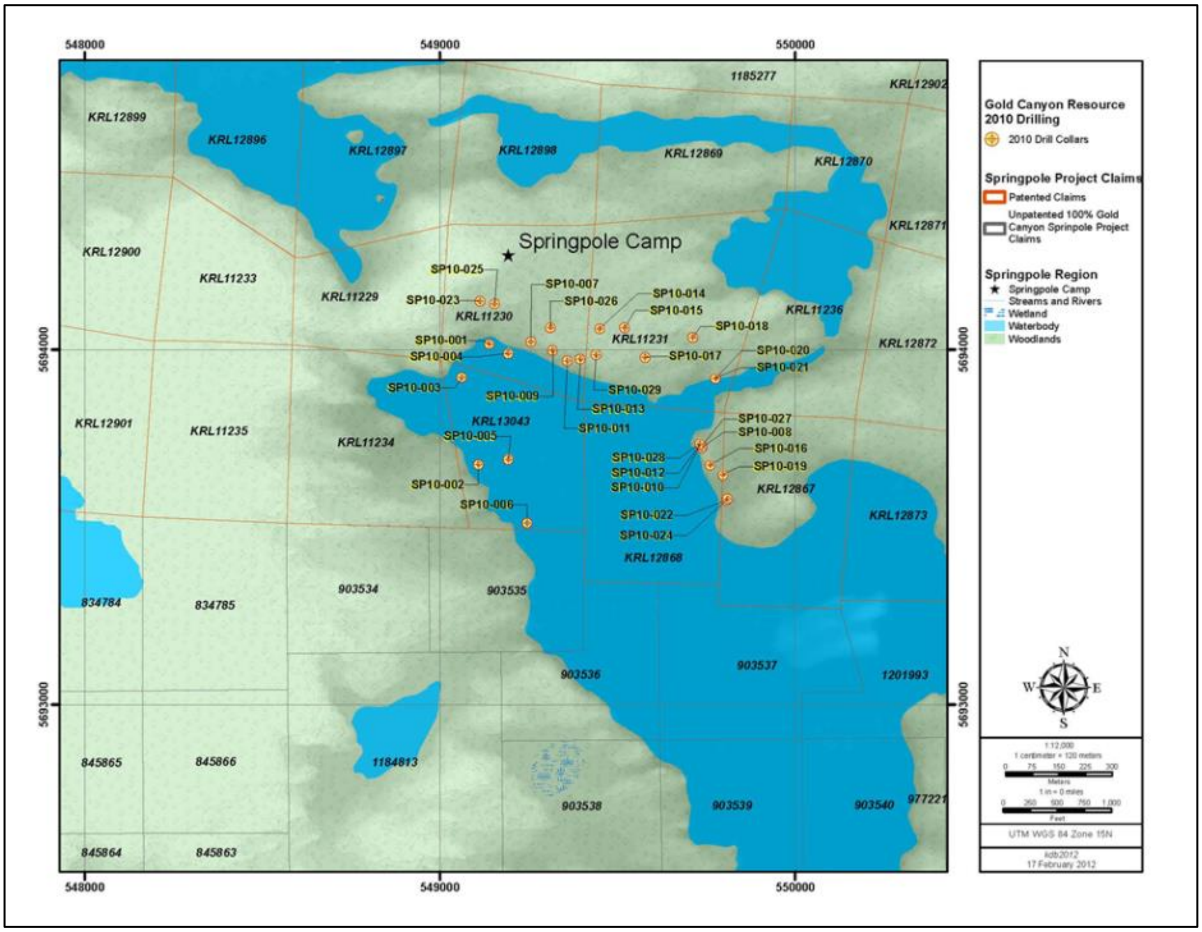
Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Au (oz/t)
BL08-385	74.00	75.56	1.56	3.28	0.10
	167.39	168.39	1.00	2.37	0.07
BL08-386	99.28	100.25	0.97	2.53	0.08
	222.44	223.24	0.80	13.17	0.38
BL08-387	193.06	194.00	0.94	1.59	0.05
	292.71	296.67	3.96	1.63	0.05
BL08-389	167.00	168.23	1.23	2.04	0.06
	207.00	207.93	0.93	1.78	0.06
	305.92	307.59	1.67	1.47	0.04
	345.50	346.52	1.02	5.98	0.17

9.4 2010 Drill Program

Winter 2010 drilling operations began on February 17, 2010 with mobilization of two Longyear 38 drills from Boart-Longyear International's (BLI) base in Red Lake. Drilling commenced on February 23, 2010. A total of six diamond drill holes (SP10-001 thru SP10-006) were drilled for a total of 1,774.5 m of HQ drilling (Figure 9.2). A summary of the 2010 drilling can be found in Table 9.5.

BLI pulled out of the drill program and demobilized the drills on March 10, 2010, citing critical ice thickness problems with the access ice road to Springpole camp from the South Bay Mine landing. In doing so, BLI failed to complete drill holes SP10-005 and SP10-006, and both holes ended in altered and mineralised rock. Significant intercepts of the 2010 drill program are listed in Figure 9.2.

Drilling was suspended during the ice break-up on Springpole Lake and Birch Lake as the project has no land access route. Rodren Drilling Ltd of Winnipeg, Manitoba, was awarded the drilling contract in spring 2010 and mobilization of two Boyles 37 drills to the project site by helicopter began in June 2010. Drilling commenced on July 5, 2010, and ended on October 17, 2010. A total of 8,664.2 m of HQ core drilling was completed in 23 drill holes, averaging 44.23 m of drilling per 24 hour shift, including time for moving the drill between drill sites.



(Source Gold Canyon, 2011)

Figure 9.2: Springpole Gold Project - 2010 Drill Hole Collar Location Map

Table 9.5: 2010 Diamond Drill Program Summary Data

Hole ID	Azimuth	Dip	Length (m)	Easting* (m)	Northing* (m)	Elevation (m)
SP10-001	220	-45	252	549140.1	5694017	388.7
SP10-002	40	-45	392	549109.1	5693677	395
SP10-003	40	-45	225	549062.1	5693922	389.7
SP10-004	220	-45	274.5	549192.1	5693990	384.6
SP10-005	40	-59	268	549193.1	5693691	386
SP10-006	40	-45	363	549246.1	5693512	386
SP10-007	220	-45	252	549256.4	5694022	396.11
SP10-008	231	-45	451	549739.1	5693725	397
SP10-009	220	-45	322	549318.1	5693998	390
SP10-010	242	-45	317	549732.5	5693733	392.32
SP10-011	220	-45	328	549359.1	5693969	390
SP10-012	226	-45	431	549731.6	5693734	392.32
SP10-013	54	-45	313	549396.1	5693974	393
SP10-014	36	-45	262	549450.1	5694059	402
SP10-015	40	-45	272	549521.1	5694062	402
SP10-016	225	-45	511	549761.8	5693676	394.54
SP10-017	35	-45	298	549578.1	5693979	407
SP10-018	38	-50	226	549713.1	5694035	400
SP10-019	220	-45	490	549797.2	5693648	392.11
SP10-020	35	-45	349	549777.1	5693920	389
SP10-021	220	-45	502.2	549777.1	5693920	391
SP10-022	220	-45	396	549807.4	5693576	391.63
SP10-023	220	-45	454	549112.9	5694136	397.68
SP10-024	220	-45	505	549810.8	5693580	391.08
SP10-025	220	-45	430	549154.1	5694129	398.94
SP10-026	220	-45	466	549312.1	5694063	400
SP10-027	240	-45	115	549739.1	5693730	396.9
SP10-028	245	-45	475	549732	5693735	392.4
SP10-029	222	-45	499	549440.1	5693986	400

*Universal Transverse Mercator (UTM): World Geodetic System 1984 (WGS84) projection

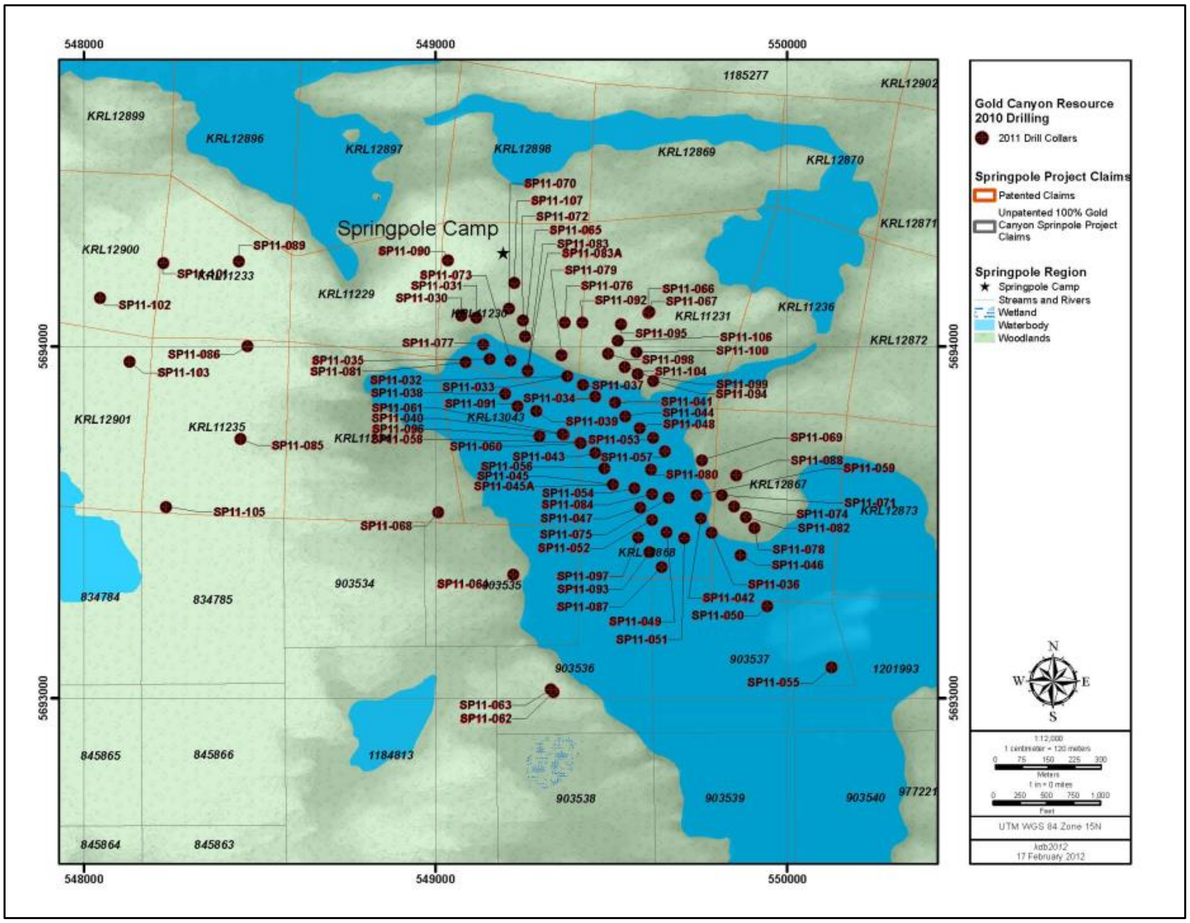
Table 9.6: Summary of Significant Gold and Silver Assays from 2010 Drill Holes

Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Au (oz/t)
SP 10-001	12.5	64	51.5	0.93	0.027
SP 10-002	242	335	93	2.4	0.07
SP 10-004	31	182	151	0.72	0.021
SP 10-006	278	363	85	0.93	0.027
SP 10-007	33	250	217	1.57	0.046
SP 10-008	257	451	194	1.22	0.036
SP 10-009	3	167	164	2.68	0.030
SP 10-011	229	323	94	2.51	0.073
SP 10-012	275	408	133	0.79	0.023
SP 10-016	206	511	305	1.03	0.030
SP 10-019	182	489	307	1.44	0.042
SP 10-024	166	391	225	1.48	0.043
SP 10-026	54	407	353	1.17	0.034

9.5 2011 Drill Program

The 2011 drill program totaled 28,750 m in 80 diamond core holes. The drill hole dataset is illustrated in Figure 9.3 and summarized in Table 9.7. Five of the diamond core holes were drilled for the purpose of metallurgical testing. All of these holes (SP11-061, -065, -066, -069 and -090) were twins of previously drilled holes. The core obtained from SP11-061, -065 and -069 was not sampled in order to send the whole core for metallurgical testing. The drill core from SP11-066 and -090 was quartered and one-quarter was sent to SGS's Red Lake laboratory for assaying. The remaining three-quarters were sent to SGS's Lakefield metallurgical laboratory facility along with the whole cores. Results from the metallurgical testing are discussed in Section 12.

Table 9.8 summarizes the significant gold and silver intercepts from the 2011 diamond core drilling program.



(Source Gold Canyon, 2011)

Figure 9.3: Springpole Gold Project - 2011 Drill Hole Collar Location Map

Table 9.7: 2011 Diamond Drill Hole Program Summary Data

Hole ID	Azimuth	Dip	Length (m)	Easting* (m)	Northing* (m)	Elevation (m)
SP11-030	220	-45	238	5,694,088	549,074	396.73
SP11-031	220	-45	241	5,694,081	549,116	395.34
SP11-032	220	-45	70	5,693,915	549,376	391.06
SP11-033	220	-45	350.7	5,693,915	549,376	391.06
SP11-034	220	-55	379.5	5,693,857	549,454	390.32
SP11-035	0	-90	200.5	5,693,964	549,154	391.6
SP11-036	220	-45	396	5,693,470	549,785	390.06
SP11-037	220	-45	372	5,693,891	549,420	389.4
SP11-038	0	-90	202	5,693,865	549,199	390.25
SP11-039	220	-90	176	5,693,816	549,287	392.89
SP11-040	0	-90	151.5	5,693,749	549,364	390.95
SP11-041	220	-45	250.5	5,693,841	549,510	389.6
SP11-042	220	-45	411	5,693,511	549,755	390.49
SP11-043	0	-90	153	5,693,698	549,455	385.86
SP11-044	220	-45	351	5,693,802	549,540	389.79
SP11-045	0	-90	90	5,693,607	549,505	389.05
SP11-045A	0	-90	213	5,693,607	549,505	389.05
SP11-046	220	-45	395	5,693,406	549,867	389.41
SP11-047	0	-90	177	5,693,542	549,582	391.15
SP11-048	220	-45	360	5,693,768	549,581	389.85
SP11-049	0	-90	152	5,693,471	549,657	389.22
SP11-050	220	-45	402	5,693,262	549,944	389.06
SP11-051	0	-90	164	5,693,455	549,707	391.17
SP11-052	0	-90	158	5,693,508	549,616	389.49
SP11-053	220	-45	351	5,693,741	549,619	390.4
SP11-054	0	-90	165	5,693,597	549,565	390.46
SP11-055	220	-45	407.5	5,693,088	550,126	390.72
SP11-056	0	-90	228	5,693,653	549,481	391.9
SP11-057	220	-45	348	5,693,702	549,653	390.35
SP11-058	0	-90	159	5,693,727	549,411	389.73
SP11-059	220	-45	369	5,693,577	549,743	390.99
SP11-060	0	-90	255	5,693,725	549,413	391
SP11-061	0	-90	132	5,693,751	549,361	385.55
SP11-062	40	-45	462	5,693,018	549,335	401.5
SP11-063	40	-45	980	5,693,025	549,328	399.97
SP11-064	40	-45	980	5,693,351	549,221	395.9
SP11-065	220	-45	387.5	5,694,095	549,255	394.71
SP11-066	20	-45	301	5,694,095	549,606	403
SP11-067	40	-45	337	5,694,098	549,608	400.64
SP11-068	40	-50	902	5,693,529	549,009	398.72
SP11-069	225	-45	410	5,693,677	549,758	396.96
SP11-070	220	-55	491	5,694,107	549,209	396.94
SP11-071	220	-60	494	5,693,577	549,814	390.47
SP11-072	220	-55	492	5,694,073	549,248	397.07
SP11-073	0	-90	401	5,693,960	549,214	391.34
SP11-074	220	-45	498	5,693,546	549,849	393.83
SP11-075	0	-90	399	5,693,569	549,664	390.07
SP11-076	220	-45	409	5,694,068	549,368	400.69
SP11-077	0	-90	342	5,694,006	549,135	390.14
SP11-078	220	-45	494	5,693,485	549,908	391.9
SP11-079	220	-60	426.5	5,693,976	549,359	394.86
SP11-080	0	-90	420	5,693,651	549,614	389.2
SP11-081	0	-90	361	5,693,954	549,086	390.42
SP11-082	220	-45	481	5,693,515	549,883	397.69
SP11-083A	0	-90	144	5,693,930	549,262	389
SP11-083	0	-90	381	5,693,932	549,262	390.3
SP11-084	0	-90	349.5	5,693,580	549,616	390
SP11-085	220	-45	301	5,693,737	548,446	406.9
SP11-086	220	-45	302	5,694,001	548,465	409.6
SP11-087	0	-90	396	5,693,373	549,643	390.2
SP11-088	220	-60	598	5,693,634	549,856	392.64
SP11-089	220	-45	300	5,694,242	548,441	415.22
SP11-090	200	-45	206	5,694,244	549,035	410.8
SP11-091	0	-90	400.5	5,693,830	549,234	391.14
SP11-092	220	-55	424	5,694,068	549,418	400.51
SP11-093	0	-90	316.5	5,693,415	549,609	390.59
SP11-094	222	-50	570	5,693,902	549,619	395
SP11-095	220	-45	441	5,694,063	549,528	400.36
SP11-096	0	-90	327	5,693,745	549,295	391.38
SP11-097	0	-90	291	5,693,457	549,576	387.1
SP11-098	223	-45	401.5	5,693,979	549,491	398.29
SP11-099	223	-45	466	5,693,921	549,575	396.63
SP11-100	223	-50	521.5	5,693,984	549,572	392.84
SP11-101	220	-45	302	5,694,237	548,226	415.8
SP11-102	220	-45	302	5,694,138	548,047	417.33
SP11-103	220	-45	290	5,693,957	548,130	415.2
SP11-104	220	-45	458	5,693,942	549,538	395.14
SP11-105	220	-45	302	5,693,544	548,233	421
SP11-106	220	-45	508	5,694,016	549,519	400.12
SP11-107	220	-45	515	5,694,180	549,224	398.91

*Universal Transverse Mercator (UTM): World Geodetic System 1984 (WGS84) projection

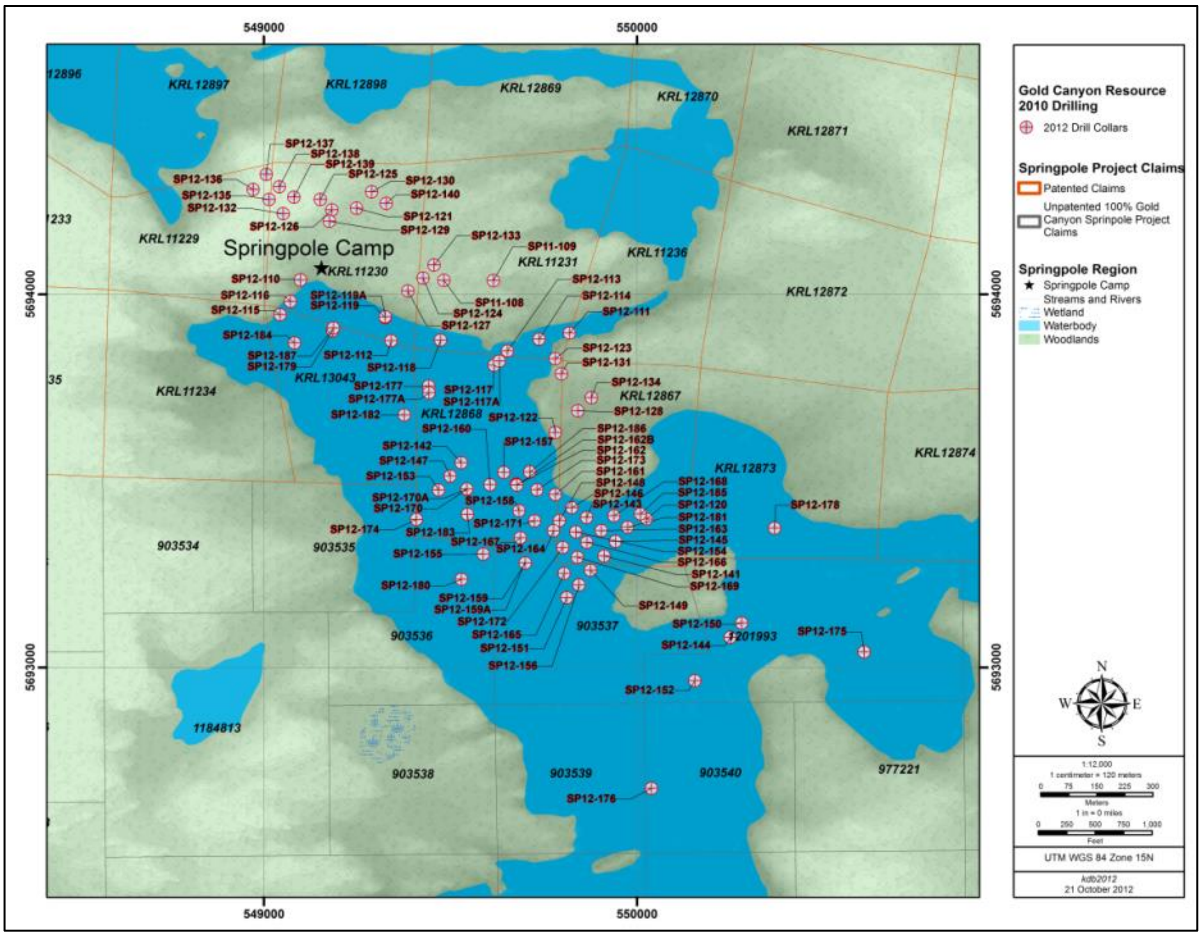
Table 9.8: Significant Intercepts from 2011 Diamond Core Drilling Program

Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Au (oz/t)
SP11-030	14.0	73.0	59.0	2.51	1.98	0.073
SP11-033	13.0	315.0	302.0	1.39	7.16	0.041
SP11-034	37.0	110.5	73.5	1.18	6.18	0.034
	162.0	331.0	169.0	1.08	6.29	0.032
SP11-035	37.0	68.0	31.0	1.01	3.60	0.029
	105.0	200.5	95.5	1.22	3.26	0.036
SP11-036	204.0	394.5	190.5	0.90	3.96	0.026
SP11-037	54.0	316.5	262.5	0.92	4.67	0.027
SP11-038	61.0	79.0	18.0	0.89	4.62	0.026
SP11-039	60.0	117.0	57.0	0.40	3.07	0.012
	132.0	165.0	33.0	0.53	4.72	0.015
SP11-040	51.0	151.5	100.5	7.23	8.83	0.211
SP11-041	161.0	237.0	76.0	1.50	5.60	0.044
SP11-042	9.0	411.0	402.0	0.76	2.88	0.022
SP11-043	42.0	153.0	111.0	2.03	7.00	0.059
SP11-044	132.0	351.0	219.0	0.71	11.80	0.021
SP11-045	36.0	90.0	54.0	2.15	19.13	0.063
SP11-045A	63.0	213.0	150.0	2.56	12.48	0.075
SP11-046	34.0	63.0	29.0	0.57	5.46	0.017
	238.0	306.5	68.5	0.82	6.74	0.024
SP11-047	22.7	177.0	154.3	0.99	8.69	0.029
SP11-048	121.0	315.0	194.0	1.11	13.79	0.032
SP11-049	20.0	152.0	132.0	1.37	7.59	0.040
SP11-050	139.0	247.0	108.0	0.54	3.30	0.016
	304.0	328.0	24.0	0.63	3.96	0.018
SP11-051	14.0	164.0	150.0	1.15	3.92	0.034
SP11-052	19.0	158.0	139.0	1.04	10.83	0.030
SP11-053	11.4	21.0	9.6	2.95	13.32	0.086
SP11-054	23.0	165.0	142.0	0.81	17.63	0.024
SP11-055	18.0	33.0	15.0	0.36	3.07	0.011
SP11-056	55.5	228.0	172.5	0.93	21.38	0.027
SP11-057	91.5	312.0	220.5	0.84	4.91	0.025
SP11-058	48.4	159.0	110.6	2.48	4.56	0.072
SP11-059	72.0	364.5	292.5	1.13	4.13	0.033
SP11-060	51.0	255.0	204.0	1.15	4.87	0.034
SP11-066	16.0	40.0	24.0	17.48	3.19	0.510
SP11-067	15.0	54.0	39.0	2.93	1.01	0.086
SP11-070	93.0	401.0	308.0	1.29	1.33	0.038
SP11-071	149.0	435.0	286.0	1.03	7.73	0.030
SP11-072	63.0	382.0	319.0	0.97	2.49	0.028
SP11-073	17.0	267.0	250.0	1.46	2.99	0.043
SP11-074	121.0	490.0	369.0	0.91	5.57	0.027
SP11-075	113.0	319.0	206.0	0.91	2.84	0.027
SP11-076	28.0	149.0	121.0	0.70	1.46	0.020
	295.0	387.0	92.0	0.60	2.15	0.018
SP11-077	10.0	87.0	77.0	0.73	0.43	0.021
	130.0	236.0	106.0	3.36	2.13	0.098
SP11-078	249.0	363.0	114.0	0.58	4.09	0.017
SP11-079	3.0	177.5	174.5	0.56	1.98	0.016
	312.0	416.0	104.0	0.59	2.12	0.017
SP11-080	48.0	124.0	76.0	0.62	1.90	0.018
SP11-081	92.0	321.0	229.0	0.82	2.39	0.024
SP11-082	85.0	171.0	86.0	1.07	17.95	0.031
	262.0	403.0	141.0	0.72	5.93	0.021
SP11-083	24.0	155.0	131.0	0.77	3.12	0.022
SP11-084	15.0	349.5	334.5	0.83	5.26	0.024
SP11-087	159.0	353.0	194.0	0.96	5.98	0.028
SP11-088	7.0	36.0	29.0	0.62	1.19	0.018
	300.0	346.0	46.0	0.58	7.17	0.017
	364.0	441.0	77.0	0.72	4.62	0.021
SP11-091	66.0	376.0	310.0	1.87	6.59	0.055
SP11-092	109.0	177.0	68.0	0.58	0.96	0.017
SP11-093	122.0	316.5	194.5	0.85	3.72	0.025
SP11-094	312.5	455.0	142.5	0.71	5.01	0.021
SP11-096	66.0	323.0	257.0	1.48	5.83	0.043
SP11-097	27.0	60.0	33.0	0.71	0.72	0.021
	200.0	291.0	91.0	0.79	4.62	0.023
SP11-098	3.0	124.0	121.0	1.67	3.61	0.049
	311.5	401.5	90.0	2.00	7.17	0.058
SP11-099	254.0	430.0	176.0	0.80	7.61	0.023
SP11-100	404.5	482.0	77.5	0.62	5.37	0.018
SP11-104	279.0	427.0	148.0	1.66	6.10	0.048
SP11-106	256.0	269.0	13.0	0.77	2.84	0.022
	344.5	472.0	127.5	3.51	10.70	0.102
SP11-107	247.0	377.0	130.0	0.72	2.39	0.021

9.6 2012 Drill Program

The 2012 drill program commenced on January 18, 2012, using the two Boyles 37 from Rodren and one discovery EF-50 drill from the 2011 program. Three Discovery LF-75 drills, mobilized to the Springpole Gold Project via the winter road, were also used. The drill program began in-filling the Portage zone based upon results of the 2011 drill program. The goal was to in-fill areas where inferred mineral resources had been defined in the February 2012 mineral resource update and to expand the mineral resource area to the southeast.

The 2012 drill program totaled 38,069 m in 87 diamond core holes. The drill hole dataset is illustrated in Figure 9.4 and summarized in Table 9.9. Significant drill intersections from the 2012 drilling program are summarized in Table 9.10.



(Source Gold Canyon, 2012)

Figure 9.4: Springpole Gold Project – 2012 Drill Hole Collar Location Map

Table 9.9: 2012 Diamond Drill Hole Program Summary Data

Hole ID	Azimuth	Dip	Length (m)	Easting* (m)	Northing* (m)	Elevation (m)
SP11-108	0	-45	540	549,483	5,694,037	400
SP11-109	0	-45	600	549,615	5,694,037	398
SP12-110	0	-90	480.5	549,098	5,694,038	392
SP12-111	220	-45	568	549,819	5,693,896	387
SP12-112	0	-90	824.2	549,341	5,693,876	390
SP12-113	221	-45	496	549,653	5,693,848	391
SP12-114	220	-45	569.6	549,738	5,693,880	388
SP12-115	0	-90	527	549,044	5,693,945	391
SP12-116	0	-90	449	549,071	5,693,981	389
SP12-117	220	-45	75.2	549,618	5,693,809	388
SP12-117A	220	-45	426	549,631	5,693,821	389
SP12-118	220	-45	413	549,474	5,693,877	389
SP12-119	0	-90	26	549,326	5,693,937	390
SP12-119A	0	-90	449	549,325	5,693,940	389
SP12-120	220	-45	332	550,026	5,693,397	390
SP12-121	220	-45	518	549,249	5,694,231	400
SP12-122	220	-45	587	549,781	5,693,629	392
SP12-123	221	-45	566	549,781	5,693,827	393
SP12-124	220	-45	491.5	549,427	5,694,043	401
SP12-125	221	-45	392	549,152	5,694,254	407
SP12-126	219	-45	509	549,183	5,694,226	402
SP12-127	221	-45	547	549,386	5,694,009	400
SP12-128	222	-45	654	549,841	5,693,688	394
SP12-129	221	-45	494	549,176	5,694,196	400
SP12-130	219	-45	614	549,289	5,694,275	401
SP12-131	222	-45	656	549,798	5,693,787	396
SP12-132	220	-45	287	549,052	5,694,216	411
SP12-133	220	-45	527	549,456	5,694,078	401
SP12-134	220	-45	701	549,878	5,693,723	394
SP12-135	220	-45	305	549,014	5,694,254	410
SP12-136	220	-45	251	548,972	5,694,281	408
SP12-137	220	-45	377	549,007	5,694,321	409
SP12-138	220	-45	404	549,042	5,694,288	410
SP12-139	220	-45	341	549,081	5,694,260	411
SP12-140	212	-55	618.5	549,328	5,694,243	401
SP12-141	0	-90	516	549,912	5,693,299	391
SP12-142	0	-90	361.5	549,529	5,693,549	391
SP12-143	0	-90	432	549,865	5,693,402	391
SP12-144	0	-90	473	550,250	5,693,081	391
SP12-145	0	-90	478	549,943	5,693,338	391
SP12-146	0	-90	455	549,825	5,693,428	391
SP12-147	0	-90	499.5	549,500	5,693,513	391
SP12-148	0	-90	534	549,792	5,693,394	392
SP12-149	0	-90	500	549,876	5,693,260	391
SP12-150	0	-90	602	550,280	5,693,119	391
SP12-151	0	-90	503	549,812	5,693,187	392
SP12-152	0	-90	671	550,155	5,692,964	392
SP12-153	0	-90	477	549,469	5,693,475	392
SP12-154	0	-90	525	549,836	5,693,363	392
SP12-155	0	-90	443	549,588	5,693,304	392
SP12-156	0	-90	435	549,844	5,693,221	393
SP12-157	0	-90	379.5	549,643	5,693,523	392
SP12-158	0	-90	395	549,684	5,693,420	392
SP12-159	0	-90	59	549,701	5,693,280	392
SP12-159A	0	-90	355.5	549,677	5,693,492	392
SP12-160	0	-90	420	549,606	5,693,490	391
SP12-161	0	-90	362	549,781	5,693,463	392
SP12-162	0	-90	29	549,678	5,693,489	391
SP12-162B	0	-90	468	549,678	5,693,488	391
SP12-163	0	-90	431	549,904	5,693,367	392
SP12-164	0	-90	464	549,776	5,693,366	392
SP12-165	0	-90	495.5	549,805	5,693,252	393
SP12-166	0	-90	354	549,866	5,693,335	392
SP12-167	0	-90	400	549,688	5,693,347	393
SP12-168	0	-90	473	549,939	5,693,406	391
SP12-169	0	-90	362	549,840	5,693,295	391
SP12-170	0	-90	257	549,544	5,693,477	391
SP12-170A	0	-90	458	549,544	5,693,478	391
SP12-171	0	-90	440	549,726	5,693,393	391
SP12-172	0	-90	405.1	549,801	5,693,322	391
SP12-173	0	-90	434	549,732	5,693,476	391
SP12-174	0	-90	506	549,409	5,693,397	392
SP12-175	0	-90	384.2	550,609	5,693,042	391
SP12-176	0	-90	296	550,039	5,692,676	392
SP12-177	0	-90	30	549,442	5,693,754	392
SP12-177A	0	-90	450	549,443	5,693,736	392
SP12-178	0	-90	395	550,369	5,693,373	392
SP12-179	0	-90	381	549,185	5,693,903	391
SP12-180	0	-90	440	549,529	5,693,236	392
SP12-181	0	-90	350	549,975	5,693,376	391
SP12-182	0	-90	395	549,377	5,693,676	392
SP12-183	0	-90	449	549,546	5,693,410	391
SP12-184	0	-90	398	549,082	5,693,870	391
SP12-185	0	-90	371	550,009	5,693,411	391
SP12-186	0	-90	468	549,713	5,693,524	391
SP12-187	0	-90	394	549,186	5,693,910	392
SP12-197	0	-90	400	549,511	5,693,612	392

*Universal Transverse Mercator (UTM): World Geodetic System 1984 (WGS84) projection

Table 9.10: Significant Intercepts from 2012 Diamond Core Drilling Program

Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Au (oz/t)
SP12-127	251.0	398.0	147.0	1.14	0.037
SP12-128	230.0	549.0	319.0	1.02	0.033
SP12-131	301.3	546.0	244.7.0	0.80	0.023
SP12-146	77.0	91.0	14.0	5.03	0.147
SP12-158	16.7	60.2	43.5	1.81	0.053
SP12-160	23.0	384.0	361.0	1.08	0.032
SP12-163	130.9	265.0	134.1	0.91	0.027
SP12-181	157.0	225.0	68.0	0.72	0.021
SP12-183	202.0	385.0	183.0	0.61	0.018
SP12-186	114.0	240.0	126.0	1.17	0.034

9.7 2013 Oriented-Core Drill Program

The 2013 oriented-core drill program was implemented to collect rock geotechnical data within the immediate vicinity of the proposed open pit. Approximately 2,450 m of drilling was completed on 7 drill-holes (SG13-200 to SG13-206) as summarized in Table 9.11. The processing of the data acquired for these drillholes was postponed until the start of the PFS.

Table 9.11: 2013 Oriented-Core Drilling Program

Hole ID	LOCATIONX (m)	LOCATIONY (m)	LOCATIONZ (m)	LENGTH (m)	AZIMUTH (deg)	DIP (deg)
SG13-200	549650	5693250	400	350	200	-50
SG13-201	549800	5693270	400	350	135	-70
SG13-202	549500	5693425	400	350	270	-70
SG13-203	549300	5693680	400	350	225	-65
SG13-204	549520	5693735	400	350	020	-65
SG13-205	549800	5693475	400	350	030	-70
SG13-206	549140	5693890	400	350	030	-50

2016 Drill Program

The 2016 drill program was implemented by First Mining to collect additional material from the Portage Zone so that additional metallurgical testing could be carried out. In total, 1,712 m were drilled in the four holes (PM-DH-01 to 04). Results of the metallurgical test results are discussed in Section 12 of this report.

9.8 Drill Collar Surveying

All historic holes drilled prior to 2010 were surveyed using various earth projections, either NAD27 (North American Datum 1927) Canada, WGS or NAD83 projections. In September 2006, W.J. Bowman Ltd. of Dryden, Ontario, surveyed 275 historic drill hole collars from collar numbers BL-1 thru BL-373. For the purposes of inclusion in the data set for 3-D modelling, all the historic collar locations were converted to the UTM WGS84 projection.

For the 2007 and 2008 drill programs, the drill hole collars were located and surveyed using a handheld GPS and recorded in UTM NAD27 Canada projection. For the purposes of this report all the collar survey information has been converted to WGS84 and field checked against collar locations using handheld Trimble GeoXH DGPS.

The 2010 to 2012 drill hole collars were initially surveyed using handheld GPS devices. During the initial phases of the offshore 2010 drill program, drill hole collars on the lake ice were surveyed by handheld, real-time differential GPS with an average accuracy of 4 to 5 m and recorded in UTM NAD27 Canada projection. On-shore drill holes were initially located with handheld GPS and once the drill hole was complete, the hole location was temporarily marked; subsequently, the collars were surveyed using a Trimble GeoXH handheld DGPS device with an external antenna giving submetre (~10 cm) location accuracy.

For the offshore drill programs (2011 to 2016), drills were mounted on barges, the drill sites were marked by floating buoy and located using the Trimble GeoXH from a boat. All onshore drill collars were located and subsequently surveyed using the Trimble GeoXH. At the beginning of the winter 2011 drill program, the UTM WGS84 projection was adopted as the standard for surveying drill collars and other surface landmarks. All previously recorded UTM measurements were converted accordingly.

All drill site locations for inclined drill holes, onshore or offshore on the ice, were marked using two to four painted laths aligned along strike either side of the proposed drill hole location. These laths were used as fore- and back-sights for setting the drill location and orientation. Inclination of the drill hole was checked on the drill head, prior to commencing drilling, using either a Brunton compass or inclinometer accurate to half of one degree.

9.9 Oriented Core Surveying

Oriented core measurements were collected from a total of 44 drill holes (added to which are the six holes drilled in 2013). Oriented core is used to evaluate the structural geology by allowing the geologists to measure the real angular relationships, as opposed to apparent angles. The tool used was the ACT 2 from Reflex Technologies. This system is fully digital, using solid-state 3-axis accelerometers to record the orientation of the core-barrel when the core is taken off-bottom at the end of each drill run. There were significant problems encountered during the winter 2011 drill program due to tool failures. Some oriented core information was collected, but too little to be of widespread use. The 2013 program successfully collected data from all six holes, and this dataset will be processed during the next level of study.

Where down-hole poor ground conditions were encountered, the oriented core tool proved to be of little value due to the incompetent nature of intensely altered and mineralised rock. Wherever competent rock was encountered, oriented core data were collected.

9.10 Down-Hole Surveying

All drill holes during the 2010 drill program were surveyed using a Reflex Technologies single EZ-Shot or EZ-Trax down-hole survey system. Drill holes were surveyed once completed – this procedure was used because of the chance that bad ground conditions encountered in the drill holes increased the risk of cave-in when pulling the drill string backwards to conduct a survey. A cave-in can result in increased cost due to time spent reaming the drill hole clean back to the bottom, or from the possibility of sticking the drill string, causing loss of drilling tools. The presence of magnetite in banded iron formation and relatively unaltered trachyte or greenstone caused problems with respect to azimuth readings and also the azimuth of the drill traces. This required many repetitions of the down-hole survey readings, which in some cases resulted in an inability to record consistent data.

For the 2011 and 2012 programs, the Reflex Down-Hole Gyro survey system was adopted with the EZ-Trax or EZ-Shot down-hole survey tools as back up. The Reflex Gyro is built around a digital micro-gyro, which consists of a silicon sensor chip and an integrated circuit assembled in a ceramic (non-magnetic) package. The gyro provides directional data (azimuth and dip) at any interval from inside the drill rods. This system is used to provide azimuth and inclination data in rocks with strong magnetic fields, because the gyros operate independently of the earth’s magnetic field. The system also records ambient temperature as well as collecting basic gravity measurements. The gyro system was successfully applied to the majority of the 2011 and 2012 drill programs.

Data recorded from the down-hole surveys was incorporated into 3-D planning and modelling.

9.11 Drilling Pattern and Density

The overall drill pattern approximates a 50 m grid along the long axis of the Portage zone and about 45 to 65 m spacing down the dip of the mineralised zone. SRK is of the opinion that the drill spacing and density is appropriate for this type of deposit and style of mineralization.

10 Sample Preparation, Analyses, and Security

The following sections outlining sample preparation, analysis and security refer only to drill programs carried out by Gold Canyon and First Mining, and not to drilling conducted by prior operators.

10.1 Core Drilling Sampling

Detailed descriptions of the drill core were carried out under the supervision of a senior geologist, a member in good standing of the APGO (Association of Professional Geologists of Ontario) and AIPG (American Institute of Professional Geologists). The core logging was carried out on-site in a dedicated core logging facility. Drill log data were recorded onto paper logs that were later scanned and digitized.

Core was laid out 30 to 40 boxes at a time. First, the core was photographed in 15 m batches prior to logging or sampling. This was followed by a geotechnical log that recorded quantitative and qualitative engineering data including detailed recovery data and rock quality designation. Any discrepancies between marker blocks and measured core length were addressed and resolved at this stage. The core was then marked up for sampling.

For the 2010 and 2011 drill programs, all the drill core intervals were sampled using sample intervals of 1 m. During the 2012 drilling program, Gold Canyon changed its standard sample length from 1 to 2 m lengths. However, in zones of poor recovery, 1.5 or 3 m samples were sometimes collected. Samples over the standard sample length were typically half core samples and whole core was generally only taken in intervals of poor core recovery across the sampled interval. Sampling marks were made on the core and sample tickets were stapled into the core boxes at the beginning of each sample interval. Quality control samples were inserted into the sample stream.

Inserting quality control samples involved the addition of certified blanks, certified gold standards, and field and laboratory duplicates. Field duplicates were collected by quartering the core in the sampling facility on-site. Laboratory duplicates were collected by splitting the first coarse reject and crushing and then generating a second analytical pulp. Blank, standards and duplicates made up 10% of the total sample stream. Sample tickets were marked blank, field or laboratory duplicate, or standard, and a sample tag was stapled into the core box within the sample stream.

Geological descriptions were recorded for all core recovered. Separate columns in the log allow description of the lithology, alteration style, intensity of alteration, relative degree of alteration, sulphide percentage, rock colour, vein type, and veining density. A separate column was reserved for written notes on lithology, mineralization, structure, vein orientations/relations etc. The header page listed the hole number, collar coordinates, final depth, start/end dates, and the name of the core logging geologist.

10.1.1 Core Sampling, Handling and Chain-of-Custody

Following the logging and core marking procedures described above, the core was passed to the sampling facility. Core sampling was performed by experienced sampling technicians from Ackewance Exploration & Services of Red Lake, Ontario, and quality control was maintained through regular verification by on-site geologists. Core was broken, as necessary, into manageable lengths. Pieces were removed from the box without disturbing the sample tags, were cut in half lengthwise with a diamond saw, and then both halves were carefully repositioned in the box. When a complete hole was processed in this manner, one half was collected for assay while the other half remained in the core box as a witness. The remaining core in the boxes was then photographed at 51 cm (20 inch) intervals. All logs and photographs were then submitted to the senior geologist/project manager for review and were archived. Data were backed up.

The sampling technician packed one half of the split core sample intervals into transparent vinyl sample bags that were sequentially numbered to match the sample number sequences in the sample tag booklets used by the core-logging geologists. The numbered, blank portion of the triplicate sample tag was placed in the bag with the sample; the portion that was marked with the sample interval remained stapled into the bottom of the core box at the point where the sample interval begins. Sample bags were then sealed with plastic tags. Sealed sample bags were packed into rice sacks five samples at a time. All sacks were individually labeled with the name of the company, number of samples contained therein, and the number sequence of the samples therein. Sacks were assigned sequential numbers on a per shipment basis. A project geologist then checked the sample shipment and created a shipping manifest for the sample batch. A copy was given to the project manager and a copy was sent along with the sample shipment. A copy of the sample shipment form was also sent via e-mail to the analytical laboratory.

The project geologist prepared the sample submission form for the assay laboratory. This form identifies the number of sample sacks as well as the sequence of sample numbers to be submitted. Due to the remote location, the shipment was then loaded on to a plane or helicopter and flown direct to Red Lake where representatives of the commercial analytical laboratory met the incoming flight and took the samples to the laboratory by pickup truck.

Once at the laboratory, a manager checked the rice sacks and sample numbers on the submission form. The laboratory then split the received sample manifest into batches for analysis, assigned a work order to the batch, and sent a copy of the mineral analysis acknowledgement form to the project manager.

Aluminum tags embossed with the hole number, box number, and box interval (from/to) were prepared and stapled onto the ends of each core box. Core boxes were cross-stacked on pallets and then moved to on-site storage.

10.2 Sample Security

Core samples collected at the drill site were held in closed core boxes sealed with fiber tape; at various times of day, camp staff collected the core boxes that were then delivered to the core logging facility. All core logging, sampling and storage took place at the Springpole Gold Project site. Following the logging and marking of core (described in the preceding section), all core preparation and sampling was performed by technicians from Ackewance of Red Lake, Ontario, under the supervision of the project manager. All on-site sampling activities were directly supervised by the project manager.

10.3 Sample Preparation and Analytical Procedures

10.3.1 Analytical Laboratories

All primary assay work since the 2010 drill program has been performed by SGS Laboratories in Red Lake (gold), Ontario and Don Mills (silver and multi-element) in Toronto, Ontario. The SGS Red Lake and Don Mills facilities are certified and conform to requirements CAN-P-1579 and CAN-P-4E (ISO/IEC 17025:2005). Certification is accredited for precious metals including gold and silver and 52 element geochemical analyses.

First Mining has attested that there is no commercial nor other type of relationship between First Mining and SGS Laboratories that would adversely affect the independence of SGS Laboratories.

10.3.2 Analytical Procedures

All samples received by SGS Red Lake were processed through a sample tracking system that is an integral part of the company's laboratory information management system. This system utilizes bar coding and scanning technology that provides complete chain of custody records for every stage in the sample preparation and analytical process.

Samples were dried, and then crushed to 70% of the sample passing 2 mm (-70 mesh). A 250 g sample was split off the crushed material, and pulverized to 85% passing 75 micron (-200 mesh). A 30 g split of the pulp was used for gold fire assay and a 2 g split was used for silver analysis. Crushing and pulverizing equipment was cleaned with barren wash material between sample preparation batches and, where necessary, between highly mineralised samples. Sample preparation stations were also equipped with dust extraction systems to reduce the risk of sample contamination. Once the gold assay was complete, a pulp was sent to the SGS Toronto facility for silver and possibly for multi-element geochemical analysis.

As part of the standard internal quality control procedures used by the laboratory, each batch of 75 Springpole core samples included four blanks, four internal standards, and eight duplicate samples. In the event that any reference material or duplicate result would fall outside the established control limits, the sample batches would be re-assayed.

Pulps and rejects of the samples were stored by SGS at its Red Lake facility at the request of Gold Canyon.

10.3.3 Gold, Silver and Multi-Element Analysis

Prepared samples were analyzed for gold by fire assay with atomic absorption finish. Samples returning assays in excess of 10 g/t gold were re-analyzed with a gravimetric finish.

Prepared pulp samples shipped from SGS Red Lake to SGS Toronto were analyzed for silver by three-acid digestion with atomic absorption finish.

During the winter 2010 program, prepared samples were analyzed for 52 elements by acid digestion (3:1 HCl: HNO3). The list of elements is included in Table 10.1.

Table 10.1: SGS Multi-Element Analysis Method ICM14B – Detection Limits

Elements	Limits	Element	Limits	Element	Limits
Ag	0.01 – 10 ppm	Hg	0.01 ppm - 1%	Se	1 ppm - 0.1%
Al	0.01 - 15%	In	0.02 ppm - 0.05%	Sn	0.3 ppm - 0.1%
As	1 ppm - 1%	K	0.01 - 25%	Sr	0.5 ppm - 1%
B	10 ppm - 1%	La	0.1 ppm - 1%	Ta	0.05 ppm - 1%
Ba	5 ppm - 1%	Li	1 ppm - 5%	Tb	0.02 ppm – 1%
Be	0.1 ppm - 0.01%	Lu	0.01 ppm - 0.1%	Te	0.05 ppm - 0.1%
Bi	0.02 ppm - 1%	Mg	0.01 - 15%	Th	0.1 ppm - 1%
Ca	0.01 - 15%	Mn	2 ppm - 1%	Ti	0.01 - 15%
Cd	0.01 ppm - 1%	Mo	0.05 ppm - 1%	Tl	0.02 ppm - 1%
Ce	0.05 ppm - 0.1%	Na	0.01 - 15%	U	0.05 ppm - 1%
Co	0.1 ppm - 1%	Nb	0.05 ppm - 0.1%	V	1 ppm - 1%
Cr	1 ppm - 1%	Ni	0.5 ppm - 1%	W	0.1 ppm - 1%
Cs	0.05 ppm - 0.1%	P	50 ppm - 1%	Y	0.05 ppm - 1%
Cu	0.5 ppm - 1%	Pb	0.2 ppm - 1%	Yb	0.1 ppm - 0.01%
Fe	0.01% - 15%	Rb	0.2 ppm - 1%	Zn	1 ppm - 1%

10.4 Bulk Density Data

Bulk density was obtained for select core samples using the paraffin wax method at SGS Lakefield Research Ltd. laboratory in Lakefield, Ontario. The bulk density of a sample is the weight of the sample divided by the volume of the sample including voids.

The procedure as applied by SGS metallurgical laboratory was as follows:

1) Oven-dry the samples and then cool to room temperature.
2) Label and weigh each sample in grams.
3) Coat the sample with paraffin wax heated in a container immersed in boiling water.
4) Repeatedly immerse the sample in the wax until completely sealed.
5) Avoid heating the sample.
6) Weigh the waxed sample and record.
7) Weigh the waxed samples (g) by suspending in water and recording the displaced volume (mL) and the water temperature (ºC).
8) Remove the wax by placing in boiling water, or freezing the core and chipping off if return of the sample is required.

Calculations:

1) Weight of wax = (weight of sample + wax) – (weight of sample)

2) Volume of wax = weight of wax /specific gravity (s.g.) of wax corrected for temperature.

3) Volume of sample = (volume of sample + wax) – (volume of wax)

4) Bulk density (t/m^3) = weight of sample (g) / volume of sample (mL)

5) Bulk Density (lb/ft^3) = (t/m^3) / 0.0160.

Results from selected analysis of bulk density are summarized in Table 10.2 and discussed in Section 13.14 of the report.

Table 10.2: Summary of Wax Bulk Density Measurements

Sample					Weight (g)				Volume (cm^3)			Rock Density	
No.	Description		Box No	m	Dry Rock	Rock Coated with wax	Weight in Water	Water Displace-ment	Rock Coated with wax	Wax	Rock	Density (g/cm^3)	Density (lbs/ft^3)
1	SP11-061	1	1	40.5 - 59	804.0	815.2	497.2	318.0	318	12.6	305.8	**2.63**	164.2
2		2	8	81.7 - 85.5	523.1	533.1	223.1	310.0	310	11.2	299.1	**1.75**	109.2
3		3	13	98.2 - 101	219.7	227.5	95.1	132.4	133	8.8	123.8	**1.77**	110.8
4		4	18	113.9 - 114.2	397.1	407.3	192.8	214.5	215	11.4	203.3	**1.95**	122.0
5		5	24	131.3 - 132	517.7	528.7	263.5	265.2	265	12.3	253.1	**2.05**	127.7
6	SP11-065	1	21	590.1 - 62.6	805.0	820.3	522.9	297.4	298	17.2	280.5	**2.87**	179.2
7		2	37	104.2 - 106.8	1042.4	1062.1	665.1	397.0	397	22.1	375.3	**2.78**	173.4
8		3	49	138.4 - 140.5	662.3	684.0	408.0	276.0	276	24.3	251.9	**2.63**	164.1
9		4	72	199.3 - 201.8	634.6	650.6	363.5	287.1	287	18.0	269.5	**2.36**	147.0
10		5	82	226.4 - 229.6	769.8	793.0	467.1	325.9	326	26.0	300.2	**2.56**	160.1
11	SP11-069	1	97	265.5 - 267.2	871.5	895.5	512.3	383.2	384	26.9	356.7	**2.44**	152.6
12		2	108	295.1 - 297.2	532.7	546.7	271.3	275.4	276	15.7	260.0	**2.05**	127.9
13		3	130	345.2 - 346.7	630.7	647.5	364.3	283.2	283	18.8	264.6	**2.38**	148.8
14		4	146	376.8 - 379.1	625.4	641.5	368.3	273.2	273	18.1	255.4	**2.45**	152.9
15		5	158	401.9 - 403.9	826.4	847.1	520.6	326.5	327	23.2	303.6	**2.72**	169.9

10.5 Quality Assurance and Quality Control Programs

10.5.1 Pre-2007 QA/QC Program

No documentation relating to sample handling and preparation or sample QA/QC documentation for the pre-2003 drilling were provided to SRK.

The QA/QC procedures for 2003 through 2006 drilling totaling 105 drill holes and comprising 12,956 assay intervals are summarily described by Armstrong et al. (2006). The reader is referred to this report for additional relevant descriptions.

A total of 1,725 database entries were checked against the original certificates. Only a few data entry errors were observed and corrected; however, the total number of errors was not reported.

The QA/QC program for 2003 to 2007 consisted of:

- Resubmission of approximately 10% of the sample pulps to a second laboratory (ALS Chemex);

- Insertion of two commercial standard reference materials (standards submitted every 30th sample); and
- Insertion of blanks.

There were no field or bulk reject duplicates submitted. Also, no pulp duplicates were submitted to the primary laboratory.

Due to the lack of detailed documentation, particularly for pre-2003 drilling, in 2013, Gold Canyon decided to initiate a core-resampling program focussing on the pre-2003 drilling. Specifically, Gold Canyon carried out silver assays for sections that were previously un-assayed for silver, expanded the assay intervals to include previously un-sampled intervals in the older core and carried out an extensive re-sampling of the previously sampled core to improve on the quality control procedures. A total of 3,352 samples were collected for assays, these include 2,768 check assays for gold, 2,179 check assays for silver, 457 new gold assays and 1,173 new silver assays. SRK reviewed the results of the re-sampling program and concluded that the results didn't identify any bias with the pre-2003 drilling and that the pre-2003 drilling was acceptable for inclusion in the resource estimate. The East Extension and Camp zones as now defined correspond to the deposits estimated by P&E in their 2006 study (Armstrong, 2006),

10.5.2 2007/2008 QA/QC Program

A total of 18 drill holes were completed in 2007 and 2008 comprising a total of 1,374 assay intervals. These samples were assayed for gold only by the Accurassay Laboratories of Thunder Bay, Ontario. SRK checked a total of 137 samples representing 10% of the total against the original certificates. No errors were found.

No program was set up for duplicates, standards, or blanks for this drilling program. The laboratory ran their own set of duplicates for internal monitoring purposes; however, those data were not available to SRK.

10.5.3 2010 to 2012 QA/QC Program

A total of 196 drill holes, comprising 76,875 m, were completed and assayed in time for inclusion in this study. The vast majority of these drill holes targeted the Portage zone. The drill hole samples generated by the 2010 to 2012 drill programs were assayed by SGS Red Lake and SGS Mineral Services of Toronto, Ontario.

In 2010, Gold Canyon instituted a QA/QC program consisting of commercial standard reference materials for gold, and it instituted, consistent with current industry practice, blanks, field duplicates, and pulp duplicates. In addition, a "round robin" program was instituted in 2011 with ACT Labs of Red Lake, Ontario, that compared pulp re-assay results against the original SGS results for 469 samples.

SGS conducted their own program of internal duplicate analysis as well. The results of this program were also analyzed by SRK as a valuable comparison against the "blind" pulp duplicates submitted. The results are presented in Appendix C.

A summary of the blanks and standards submissions are presented below:

- A total of 1,336 field duplicates were submitted for gold;
- A total of 1,359 field duplicates were submitted for silver;
- A total of 1,303 lab or pulp duplicates were submitted for gold;
- A total of 1,302 lab or pulp duplicates were submitted for silver;
- A total of 1,377 commercial gold standards were submitted from a set of 14 different commercial standards;
- No commercial standards were submitted for silver;
- A total of 1,371 blanks were submitted with the gold assays;
- A total of 1,006 blanks were submitted with the silver assays.

The total submissions for gold duplicates, standards and blanks was 5,387; 10.1% of the samples assayed for gold. The total submissions for silver duplicates and blanks was 3,667; 7% of the total samples assayed for silver.

10.6 SRK Comments

In the opinion of SRK, the sampling preparation, security and analytical procedures used in the drill programs conducted by Gold Canyon for gold analyses are acceptable but not fully consistent with generally accepted industry best practices because of the lack of standard reference material for silver. However, because of the relative low economic value of silver, SRK concludes that the assay data are adequate for use in resource estimation. SRK recommends that First Mining establishes a written QA/QC protocol for the acceptance of assay batches with respect to the performance of standard reference material, duplicates and blanks. SRK also recommends that First Mining procure some standard reference material for silver before the beginning of the next drilling campaign.

11 Data Verification

Of the 18 drill holes completed in 2007 and 2008, comprising a total of 1,374 assay intervals analyzed for gold, SRK checked a total of 137 samples representing 10% of the total against the original certificates. No errors were found.

A total of 3,135 assay values for gold and 3,161 assay values for silver in the database were compared against the original protected PDF assay certificates submitted by SGS Red Lake. These totals represent 10.1% and 10.4% of the total number of assays for gold and silver, respectively.

Of the original assay values checked against certificates, the focus was on values material to any resource estimate, either higher-grade intervals or very low-grade intervals in proximity to higher-grade intervals. The average grade of gold samples verified was 2.05 g/t gold. The average grade of silver samples checked was 8.27 g/t silver.

Only two errors were found for gold:

- The gold value of sample interval SP10-028 from 433 m to 436 m (sample number 8287) was found to have an entered value of 5.96 g/t gold against a value on the assay certificate of 9.00 g/t gold.
- The gold value of sample interval SP11-076 from 69 to 70 m (sample number 14583) having the value of 0.45 oz/t was incorrectly placed in the parts per billion column.

No errors were found with respect to silver assays.

This represents an error rate of 0.064% in gold assays and an error rate of 0.0% in silver assays. This error rate is well within acceptable industry standards.

11.1 Verifications by SRK

11.1.1 Site Visit

SRK carried out visits to the Springpole site on February 10 and 11, 2012, and again on August 8 and 9, 2012. During the site visits, core logging procedures were reviewed. Several sections of core from the Portage, Camp, and East Extension zones were examined. Sampling procedures and handling were observed. The deposit geology, alteration, and core recovery data were observed for the Portage zone. SRK was fully assisted during the site visits by Springpole personnel and was given full access to data during the site visits. Springpole field personnel were very helpful and fully cooperative during both site visits.

During the site visits, SRK re-logged mineralised sections of drill core from the Springpole deposit and checked geological units against the recorded written logs. Down-hole survey data entered in the digital database was checked against data entered on paper logs at the site and no errors were noted. Drill site locations could not be verified as most drill sites are situated under Springpole Lake, but SRK did observe two drill platforms drilling on the lake during the visit.

11.1.2 Verifications of Analytical Quality Control Data

As part of the mineral resource estimation process, SRK reviewed the QA/QC data collected by Gold Canyon, reviewed the procedures in place to assure assay data quality, and verified the assay database against original assay certificates provided directly to SRK by SGS Red Lake, the assay laboratory. A total of 53,431 gold assays, 46% of the assay data, were checked against original assay certificates. No significant database errors were identified. About 143 minor rounding errors were observed. None of the rounding errors are deemed material or of any significance to the mineral resource estimate presented in this report.

11.1.3 Independent Verification Sampling

A total of three mineralised quarter core samples were collected during the February 2012 site visit. The intent of the sampling program was only to determine if gold did occur in concentrations similar to what had been reported by Gold Canyon. Assays from the samples collected by SRK are presented in Table 11.1. The re-sampling agrees with the original Gold Canyon sampling.

Table 11.1: Assays from Duplicated Samples Collected During Site Visit

SRK Check Assay		Gold Canyon Original	
Sample	**Au (g/t)**	**Sample**	**Au (g/t)**
9135	8.64	9135	9.04
9136	7.49	9136	7.85
6152	2.37	6152	2.77

11.2 SRK Comments

In the opinion of SRK, the integrity of the sample data for the Springpole Gold Project is adequate for inclusion in mineral resource estimation and for the purpose that it is used in this report.

12 Mineral Processing and Metallurgical Testing

Over the period from 1989 to 2013, three testwork campaigns were completed on samples of Springpole mineralised material by SGS Lakefield in Ontario and SGS Mineral Services in Vancouver, Canada (Lakefield Research, 1989; SGS Canada 2011, 2013). Since 2013, one testwork program has been completed by Base Metallurgical Laboratories Ltd. in 2017 (Base Met 2017).

These programs performed mineralogical analysis (including trace mineral searches on gold particle occurrence), comminution testing, gravity recovery, whole mineralised material/feed leaching as well as rougher flotation followed by concentrate leaching. In addition, geochemical analysis of expected plant tailings samples.

12.1 Summary of Historical Testwork

A summary of all metallurgical testwork up to 2013 is included in the previous PEA report on the Springpole project (SRK 2013).

Testing in 1989 was performed on two samples from the Portage zone, grading 1.8 g/t and 3.0 g/t gold. The results showed finer grind size improved whole feed leach extractions, with a carbon-in-leach (CIL) test showing little evidence of cyanicides or preg-robbing agents.

In 2011, eight metallurgical samples were tested with six from the Portage zone and one each from the Main and Oxide zones. These samples graded 1.3 g/t to 3.0 g/t gold, with the Oxide zone reporting the highest grade. Again, finer grinding to an 80% passing (P_{80}) size of 65µm was tested and achieved a range of gold extractions over 24 hours from 67% to 93% (highest for the Oxide sample).

New holes were drilled in 2012 for metallurgical sample collection with each hole twinned to holes drilled in 2010 and 2011. A total of five samples of varying mass were collected from the Portage, Oxide, East Pit Extension and Main zones. The Portage samples graded 1.2 g/t to 1.9 g/t gold with 4% to 5% sulphur.

These samples were tested for mineralogy, hardness, gravity recovery and whole feed leaching. In addition, rougher flotation of a pyrite concentrate was tested to reduce the grinding energy and tankage requirements for a smaller, concentrate leaching circuit.

Screen metallics assays showed limited +106µm gold present, with the exception of the higher grade, Oxide sample. Gravity concentration tests at 160µm to 56µm P_{80} sizes showed typically 5% gold recovery for the Portage samples. Trace mineral searches on the gravity concentrate showed the liberated gold particles were generally 20µm in diameter while exposed gold grains were <5µm in size for the two Portage samples. The majority of unliberated gold grains were associated with petzite – a telluride mineral. The gold association for the two Portage samples was quite different from the Oxide, East Pit and Main zone samples, where native gold was predominant.

Due to the sample particle size, only Bond Ball Mill Work Index (BWi) tests could be performed. At a closing screen size of 150µm, BWi_{150} values ranged from 12kWh/t to 17kWh/t for Portage while the softer Oxide zone reported a 7kWh/t BWi_{150} value.

While rougher flotation generally recovered >90% of the gold, leaching kinetics of the concentrate were affected by the telluride minerals and required a fine grind, higher cyanide concentration and up to 48 hours of leaching time (tested up to 96 hours).

Overall, the whole feed leaching option was preferred as it consistently generated higher gold and silver extractions, with a strong correlation to grind size.

Rougher flotation tailings and leach residues were analysed for acid-base accounting and ageing over 28 days. While the flotation tailings samples were not net-acid generating (as the sulphides had been recovered to the concentrate), the leach residues contained some sulphur and were somewhat net-acid producing.

Further work was conducted on the two Portage samples in 2013, with grind P_{80} sizes reduced to 30 microns for both whole feed and flotation concentrate leaching. However, poor control over the grind size using a laboratory rod mill questioned the accuracy of the results. Whole feed leaching was still the preferred option, with higher extractions demonstrated. The outcome of the 2013 PEA study was a target grind P_{80} size of 70µm achieving 80% gold and 85% silver extractions on <2.0 g/t material.

12.2 Base Metallurgical 2017

To further investigate the option of flotation followed by concentrate leaching, new metallurgical samples from the Portage zone were tested by Base Metallurgical Laboratories Ltd. in 2017. A Master composite was prepared from the drillcore intervals and tested for both rougher flotation as well as whole feed leaching at grind P_{80} sizes down to 20µm. Additional comminution tests were conducted along with an estimate of the fine grind power requirements based on a Levin test and Eliason test (small mass, IsaMill signature plot).

As a second phase, five samples were prepared at a range of head grades from 1.0 g/t to 7.0 g/t to investigate the effect of head grade on leach extraction.

12.2.1 Sample Origin and Composite Preparation

First Mining completed a drilling program in early 2017 with four holes drilled through the Portage zone (see Figure 12.1). Intervals of half-core material from three of the four holes were selected to generate a 600 kg Master composite at 1.0 g/t gold and 5.0 g/t silver. Sulphur content was lower at 2.8% with total organic carbon content at 0.05%. No intervals were selected from PM-DH-04 in Figure 12.1.

Prior to preparing the Master composite, material from each of the three drillholes was submitted for comminution testing and QEMSCAN mineralogy using bulk mineral analysis determination.

It should be noted that the drillcore intervals were covered in a drilling mud viscosity modifier, similar in nature to flocculant or a water-soluble, anionic polymer. The samples were washed with saline water (as recommended by the polymer supplier) and the post-wash head grades were comparable to the pre-wash values.

During the flotation testing, a number of conditions were trialed including low % solids conditions and further saline washing. It did not appear that any remaining polymer had a negative impact on the flotation test results, but this could not be verified with clean core samples.

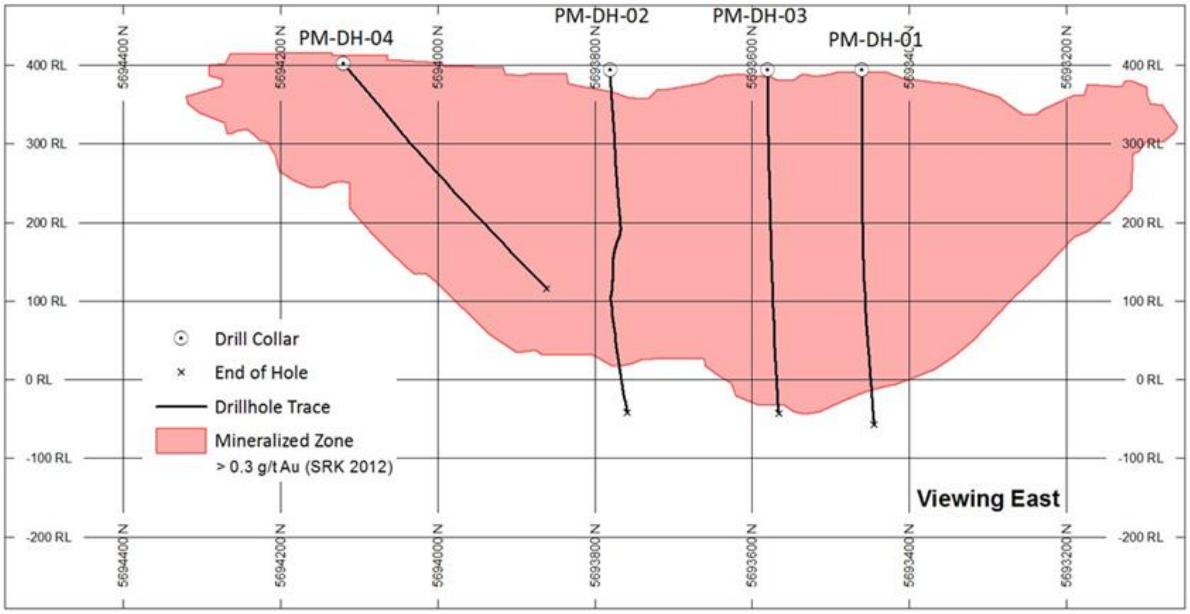


Figure 12.1: North-South Long Section Showing Mineralised Zone and Metallurgical Drillhole Locations

(source: First Mining 2016)

12.2.2 Mineralogical Analysis

The mineral composition of the three drillhole composites was very consistent with 4% to 6% pyrite along with 6% to 10% quartz. The main non-sulphide minerals included feldspar (33% to 45% of the samples), muscovite, biotite, phlogopite and quartz. It was noted in the Base Met report that the level of mica present in the samples could contribute to flotation problems including high pulp viscosity.

A trace mineral search of the three drillhole composites confirmed the same gold association as the earlier Portage zone samples tested by SGS in 2012/2013. The gold particles were generally very small at less than 3µm in diameter. In addition, the majority of gold was present in the telluride mineral petzite. Some sylvanite and hessite tellurides were also observed in the three samples.

12.2.3 Comminution

The three drillhole samples were hardness tested and found to be very consistent in their properties. From an impact perspective, SMC tests showed DWi values of 3kWh/m^3 to 4kWh/m^3 or Drop Weight A*b values of 53 to 58. Bond Ball Mill Work Index (BWi) values were tested at 150µm and all three samples reported 13kWh/t with test product P_{80} sizes of 108µm. Particle specific gravities were around 2.6 with Bond Abrasion Index (BAi) values of 0.08 g to 0.14 g.

SRK estimated the grinding circuit specific energy requirements to be 17kWh/t to achieve a product grind P_{80} size of 70µm. This should be readily achieved by a semi-autogenous grinding (SAG) mill followed by a ball mill.

In addition, Levin and Eliason fine grinding tests were conducted on a whole feed sample ground to a P_{80} size of 93µm. The plots of specific energy requirements for a ball mill (Levin) or stirred mill with ceramic media (Eliason) are shown in Figure 12.2. For the P_{80} size of 40µm being considered during the testwork, it was shown that a ball mill would require 15kWh/t and a stirred mill 10kWh/t from a feed

P_{80} size of 93µm. It was recommended by Base Met in their report that detailed engineering of fine grinding power requirements should be done based on a IsaMill signature plot test.

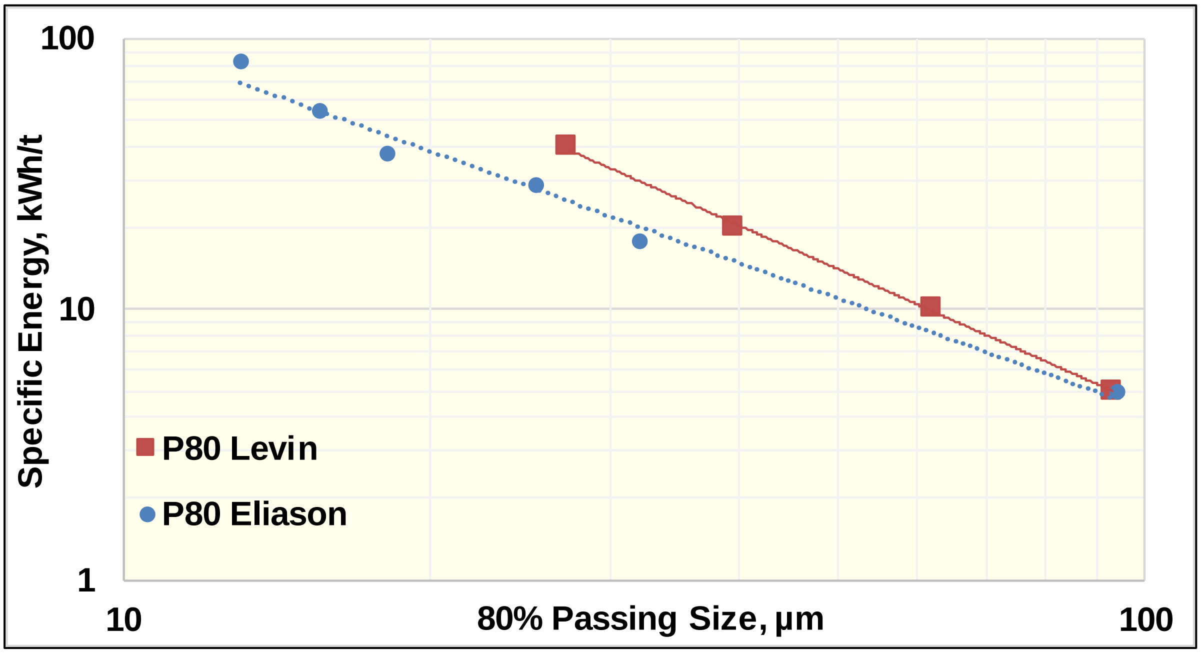


Figure 12.2: Levin vs. Eliason Fine Grinding Specific Energy Plots

12.2.4 Rougher Flotation

A number of rougher float tests were performed on the Master composite (made up of the three drillhole samples). The test conditions and results are shown in Table 12.1.

Table 12.1: Summary of Master Composite Rougher Flotation Testwork

Test	Grind P_{80} µm	Collector		Description	Recovery %			
		Type	g/t		Mass	Au	Ag	S
1	212	PAX	120	Baseline	**23.2**	83.1	79.9	90.2
2	150	PAX	120	Baseline	**30.2**	85.2	83.9	93.1
9	74	PAX	250	Baseline	**46.2**	92.8	91.2	98.0
12	74	PAX	250	Low Density	**22.8**	82.1	82.4	96.2
13	74	PAX	250	Wash	**32.6**	91.2	88.2	97.7
14	74	PAX	250	Prefloat	**34.9**	76.2	73.1	89.7
15	74	PAX	250	PE26 (starch depressant)	**30.5**	89.3	88.7	95.9
16	74	DF468	250	Low Density, DF468	**23.5**	81.0	79.7	91.2
17	212	PAX	250	Low Density	**19.3**	82.7	80.3	90.6
18	212	PAX	250	Low Density, CuSO4	**17.7**	74.1	76.4	88.4
19	212	PAX/DF468	250	Low Density DF468	**17.6**	77.5	76.9	88.2
20	212	PAX	120	NaCl Wash	**19.2**	82.4	77.9	92.3
21	74	PAX	250	NaCl Wash	**36.9**	89.5	86.6	97.2

To match the estimated gold extractions of 80% to 85% from whole feed leaching, the rougher flotation gold recovery would need to exceed 90%. The results indicated that gold recovery tapered off after 20% mass pull, and that 40% mass recovery would be needed for the target gold recovery.

Figure 12.3 shows the gold versus mass recovery curves for the flotation testwork on the Master composite. Based on these results showing high mass pulls at less than 90% recovery, the whole feed leach flowsheet was selected as the preferred option.

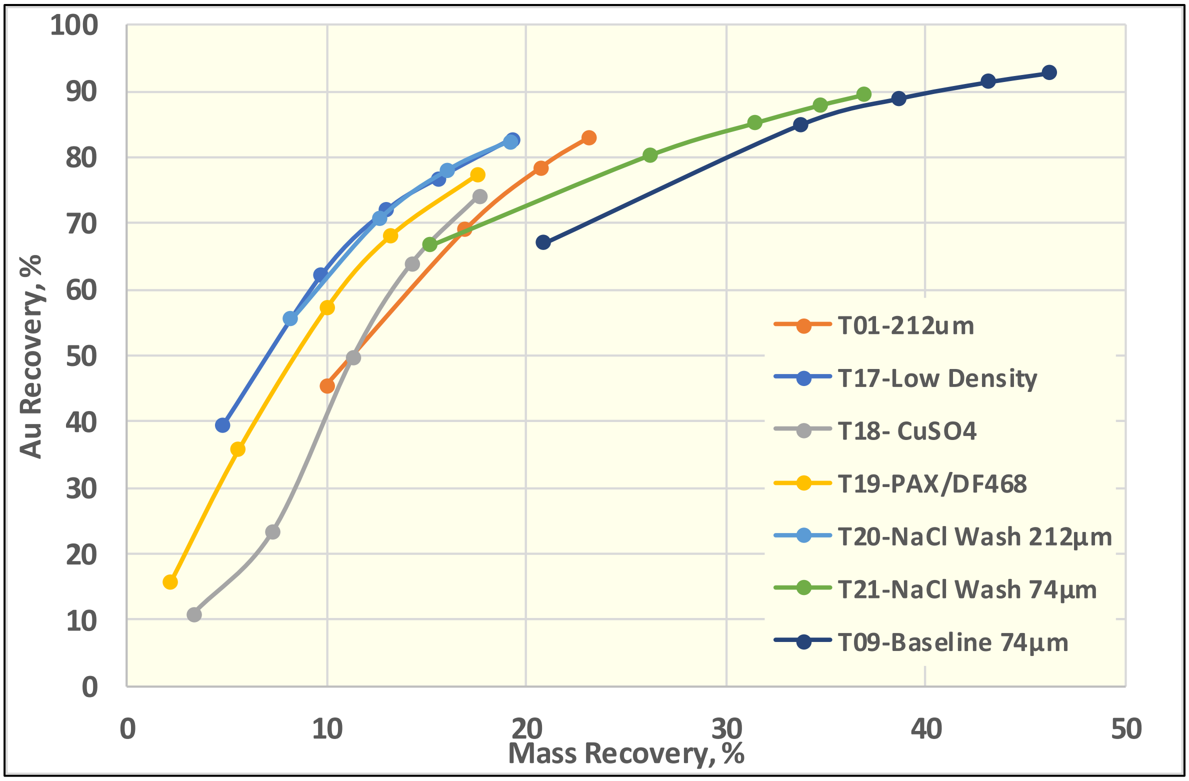


Figure 12.3: Master Composite Rougher Flotation Gold Recovery vs. Mass Pull

12.2.5 Whole Feed Leaching

A series of whole feed leach tests were performed on the Master composite under a range of grind sizes (P_{80} size of 60µm to 20µm) and cyanide concentrations. A final test with the addition of lead nitrate and pH adjusted with sodium hydroxide was also conducted. Table 12.2 summarises the leach testwork results.

Table 12.2: Master Composite Whole Feed Leach Testwork

Test	Grind P_{80} µm	NaCN ppm	% Gold Extraction, hours					Leach Tailing	Consumption, kg/t	
			2	6	24	48	72	Au, g/t	NaCN	Lime
T03	60	2,000	56.5	75.7	83.6	85.9	84.4	0.166	1.2	1.3
T04	40	2,000	58.8	75.1	84.4	84.8	87.0	0.146	2.3	1.4

T05	20	2,000	64.0	78.8	87.4	87.9	88.3	0.114	1.6	1.8
T06	60	5,000	68.0	79.7	85.7	84.3	84.7	0.164	2.6	1.3
T07	40	5,000	66.0	82.9	83.3	85.5	86.0	0.154	3.7	1.2
T08	20	5,000	68.2	83.8	84.2	88.4	90.7	0.098	3.3	1.5
T10	40	5,000 #	71.8	82.1	85.9	84.6	86.7	0.159	3.1	3.0

 # pH 12 with lead nitrate addition

As shown in Figure 12.4, gold leach kinetics were rapid in the first six hours and then diminished considerably. The effect of grind size and cyanide concentration was noticeable in the first 24 hours and then gold dissolution was minimal for the remaining 48 hours.

Cyanide consumption increased with grind fineness and cyanide concentration, varying from 1.2 kg/t to 3.7 kg/t for the range of conditions tested. Lime consumption was stable at around 1.5 kg/t.

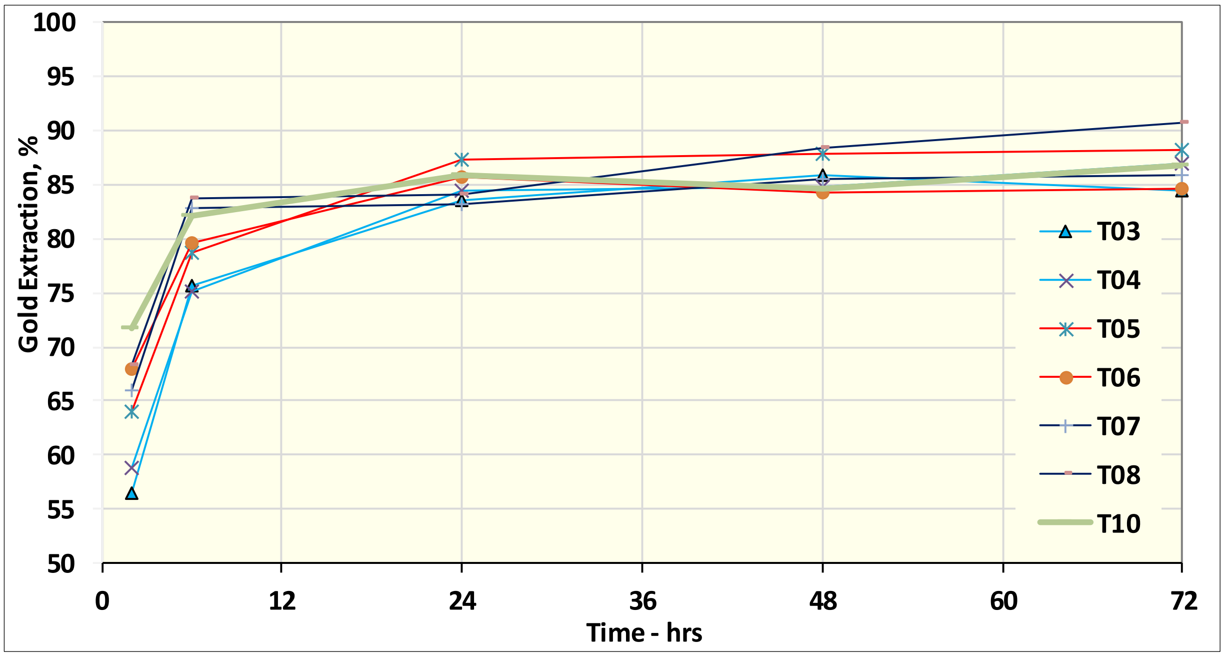


Figure 12.4: Master Composite Gold Extraction Leach Kinetics

Overall, the 24 hour gold extraction versus grind size plot (see Figure 12.5) extended the 2012/2013 testwork results which tested down to 40µm but were leached for 96 hours.

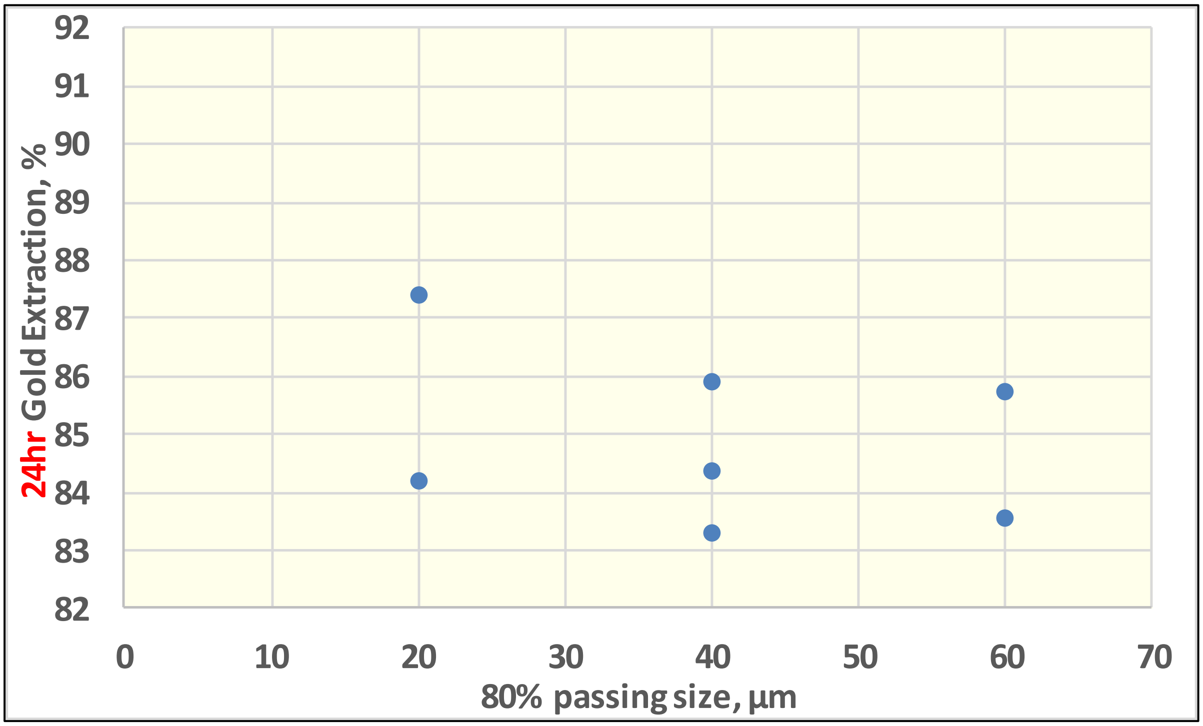


Figure 12.5: 24 Hour Gold Extraction vs. Grind P80 Size (Master Composite)

Based on these test results, SRK estimated the additional operating costs associated with grinding to a P_{80} size of 40µm and the higher cyanide consumption. It was found that the process operating cost increase outweighed the value gained from the higher metal recovery.

As part of the second phase of leach testing, a range of head grades were blended from the Master composite (1 g/t Au) and a higher-grade second composite (6.5 g/t Au). These five blended samples showed a small effect of head grade on 24 hour gold extractions (see Figure 16.2 in Section 16), with a minor proportion of the Portage zone being above 2 g/t Au.

For the process plant design, it was assumed that the 2013 PEA conditions would be used: grinding to a P_{80} size of 70µm, 2 g/L cyanide concentration and leaching for 24 hours (36 hour design).

12.2.6 Ancillary Testing

To investigate the effect of fine grinding on pulp rheology, a leach residue was viscosity tested and found to be acceptable for pumping applications up to 60% solids (w/w). At this density, viscosity modifying agents may be required.

12.3 Recommended Future Testwork

The metallurgical testwork programs conducted to date suggest the Portage zone to be quite consistent in its properties, with fine-grained gold particles associated mainly with petzite.

Additional testwork should be undertaken to confirm whether cyanide detoxification can be completed successfully and within normal reagent cost levels. Thickening and filtering characteristics should be confirmed to increase confidence in the estimation of dewatering costs.

Further variability testing is warranted to confirm the expected grinding power requirements as well as cyanide consumption. Opportunities exist to recover some of the cyanide in the leach tailings rather than destroy it prior to being pumped to the tailings management facility. Cyanide recovery would need to be tested to confirm expected cost savings and this may require specialised facilities to conduct the testwork.

13 Mineral Resource Estimates

13.1 Introduction

The mineral resource statement presented herein represents the fourth mineral resource evaluation that has been prepared for the Springpole Gold Project in accordance with the Canadian Securities Administrators' NI 43-101.

There are a total of 648 drill holes in the Springpole database. The current mineral resource model prepared by SRK used 401 core boreholes drilled by previous owners of the property during the period of 2003 to 2016. The resource estimation work was completed by Dr. Gilles Arseneau, Ph.D., P.Geo. (APEGBC #23474), an independent Qualified Person as this term is defined in NI 43-101. The effective date of the mineral resource statement is March 15, 2017.

This section describes the resource estimation methodology and summarizes the key assumptions considered by SRK. In the opinion of SRK, the resource evaluation reported herein is a reasonable representation of the global gold and silver resources found in the Springpole Gold Project at the current level of sampling. The mineral resources were estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices guidelines and are reported in accordance with the Canadian Securities Administrators' NI 43-101. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The database used to estimate the Springpole Gold Project mineral resources was audited by SRK. SRK is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for porphyry gold mineralization and that the assay dataset is sufficiently reliable to support mineral resource estimation.

GEMS (6.7) was used to construct the geological solids, prepare assay data for geostatistical analysis, construct the block model, estimate metal grades and tabulate mineral resources. The Geostatistical Software SAGE2001 was used for variography.

13.2 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification,
- Construction of wireframe models for the boundaries of the Springpole gold mineralization,
- Definition of resource domains,
- Data compositing and capping for geostatistical analysis and variography,
- Block modelling and grade interpolation,
- Resource classification and validation,

- Assessment of “reasonable prospects for economic extraction” and selection of appropriate cut-off grades (COGs), and
- Preparation of the mineral resource statement.

13.3 Drill Hole Database

The Springpole Gold Project currently consists of three separate mineralised zones: East Extension, Camp or Main and Portage. The Portage zone is by far the largest of the three and represents more than 90% of the stated resource.

The entire Springpole database consists of 648 drill holes totalling 181,005 m. Of these, 247 drill holes were discarded. One hundred and seventy-five holes didn’t intersect the mineralised zones and two metallurgical holes had no assay data due to having been completely sampled for metallurgical testing.

Seventy historical BL series holes were discarded because of apparent bias due to poor core recovery (Figure 13.1).

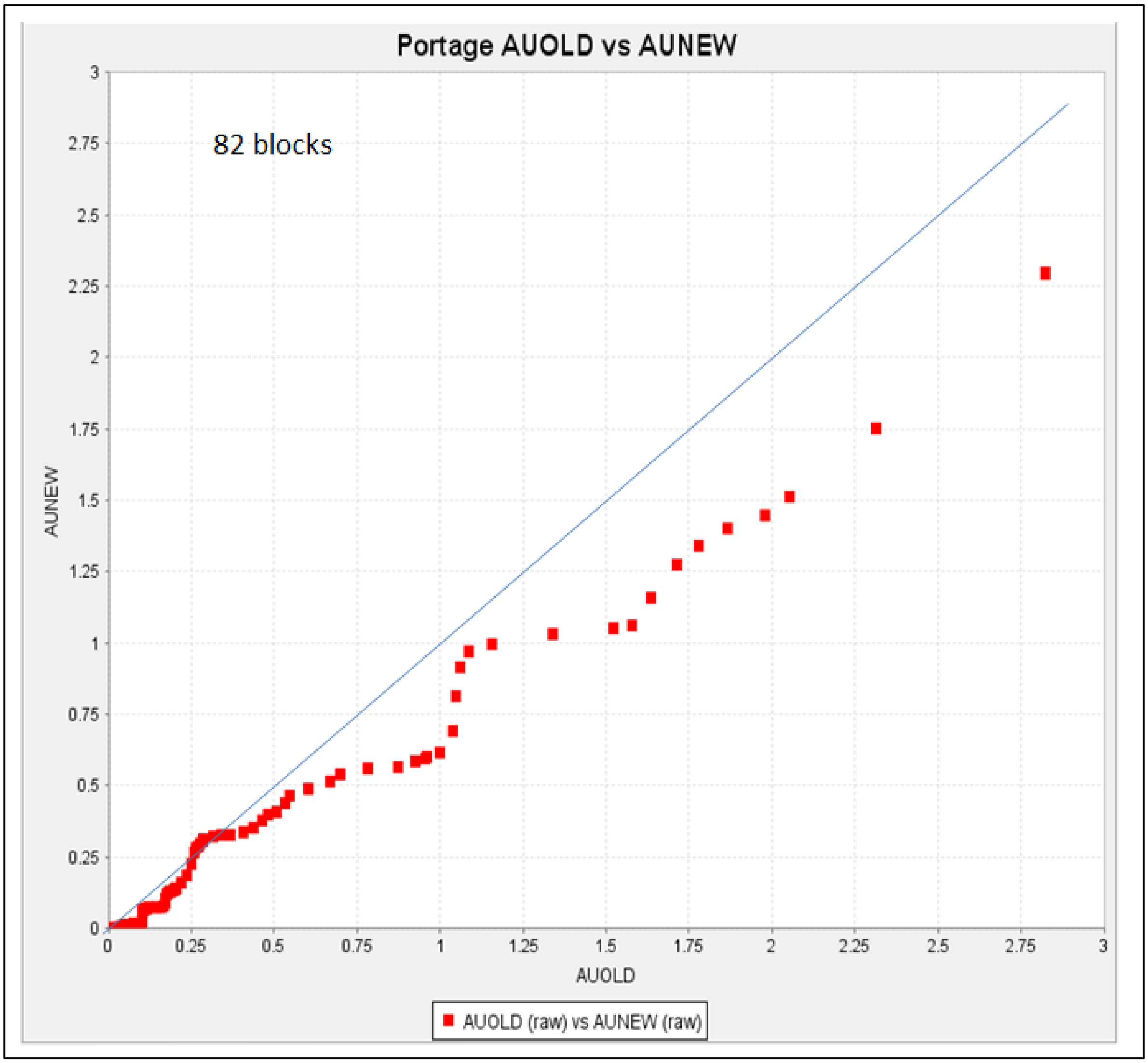


Figure 13.1: Comparison of Historic and Recent Drilling for the Portage Zone

Consequently, because of the good agreement between the recent and old drilling for the Camp and East Extension zones (Figure 13.2), it was decided that all historic drilling from 1986 to present would be included for estimation of these two zones. The Portage zone was estimated using only 2003 and later drill holes.

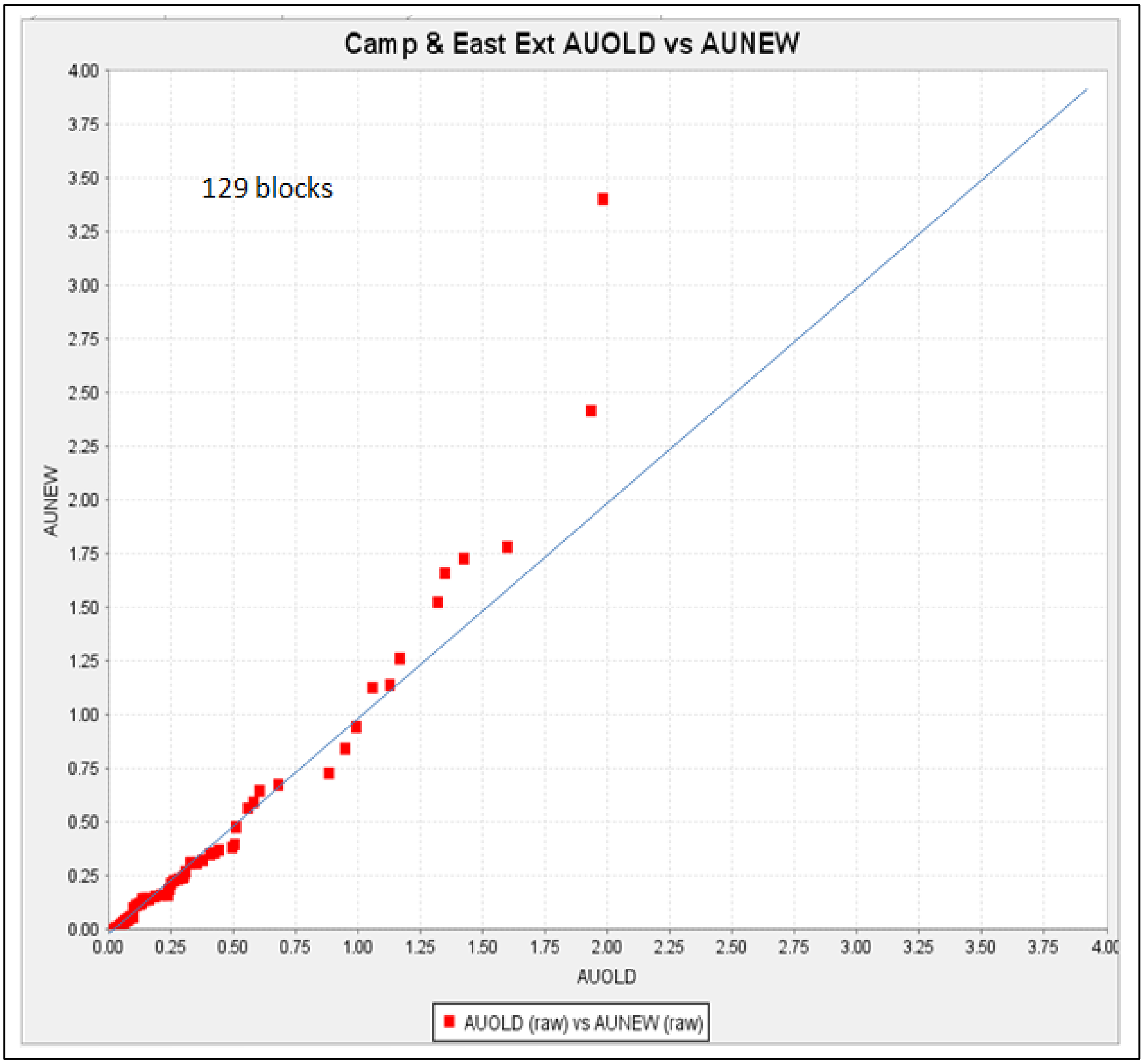


Figure 13.2 Comparison of Historic and Recent Drilling for the Camp and East Extension Zones

13.4 Core Recovery

Drill core recovery for both East Extension and Camp zones was generally very good with average recovery recorded as approximately 97%. For Portage, with areas of intense argillic and potassic alteration, core recovery was a much more significant issue, primarily affecting near surface intervals and intervals that appear to intersect a narrow zone of intense biotitic alteration.

SRK conducted studies to determine if there was any significant bias indicated, either high or low, as a function of core recovery. To a certain extent it was anticipated that more intense zones of alteration could also often reflect more intense mineralization.

Core recovery was generally recorded in 3 m intervals, with some data recorded in 1.5 m intervals. Consequently, for this analysis, it was decided to composite the core recovery values to the 3 m sample lengths and compare them with assay grades. The comparison indicates that the gold grade is generally lower with the increased recoveries (Figure 13.3). For this reason, SRK decided to separately model areas of low core recoveries and treat those volumes as having hard boundaries during grade interpolation.

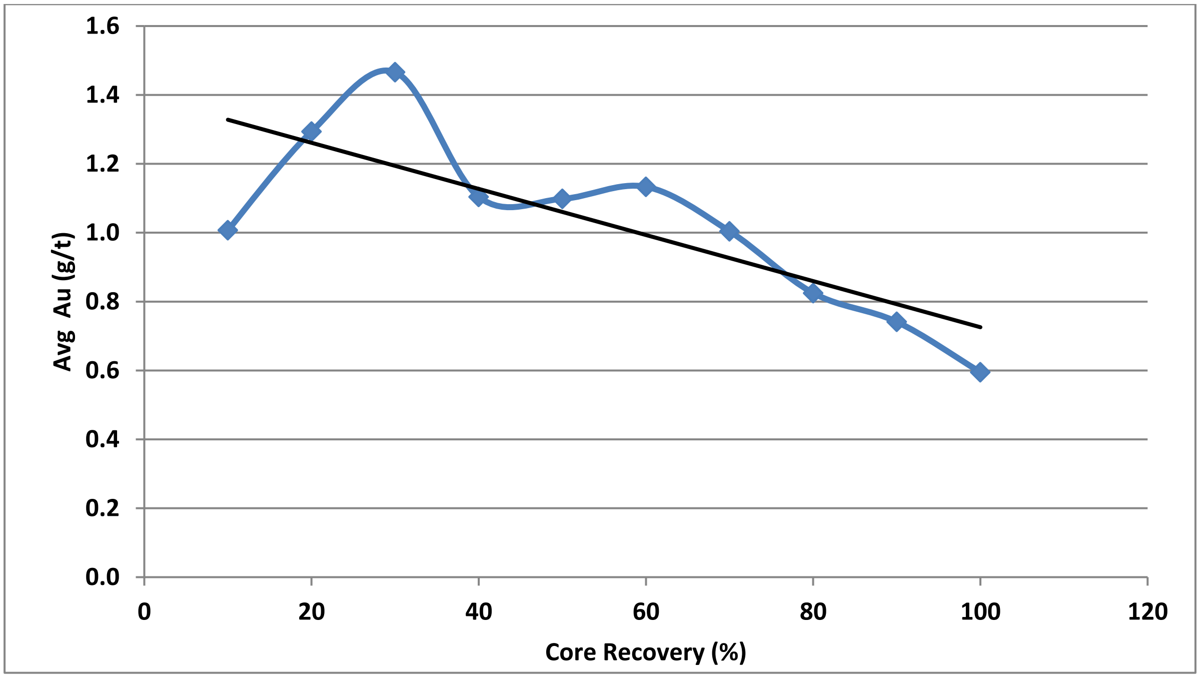


Figure 13.3: Gold Grade versus Core Recovery Relationship

13.5 Geological Domains

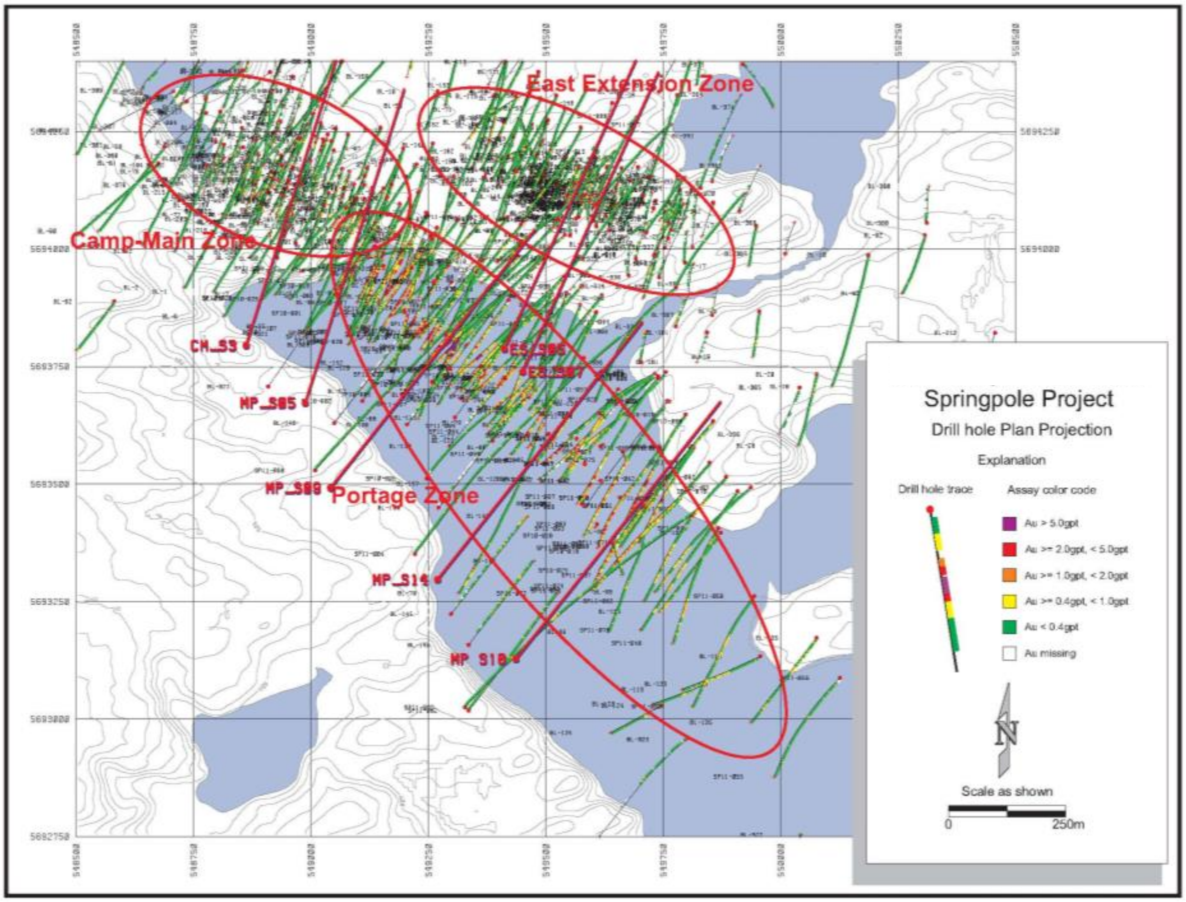
The Springpole Gold Project is comprised of three distinct domains: East Extension, Camp zone and Portage zones.

The East Extension zone lies to the east of Camp and Portage and is strike-oriented approximately 105° (N105°E). The zone exhibits erratic gold mineralization with slightly clustered "bonanza" grade drill hole intercepts intermixed with lower grade and barren intercepts.

The Camp zone lies to the north and, where the two domains overlap, above the Portage zone. The Camp zone strikes approximately 120° (N120°E) and part of the zone is very similar in character to East Extension with highly erratic grades showing very little spatial organization.

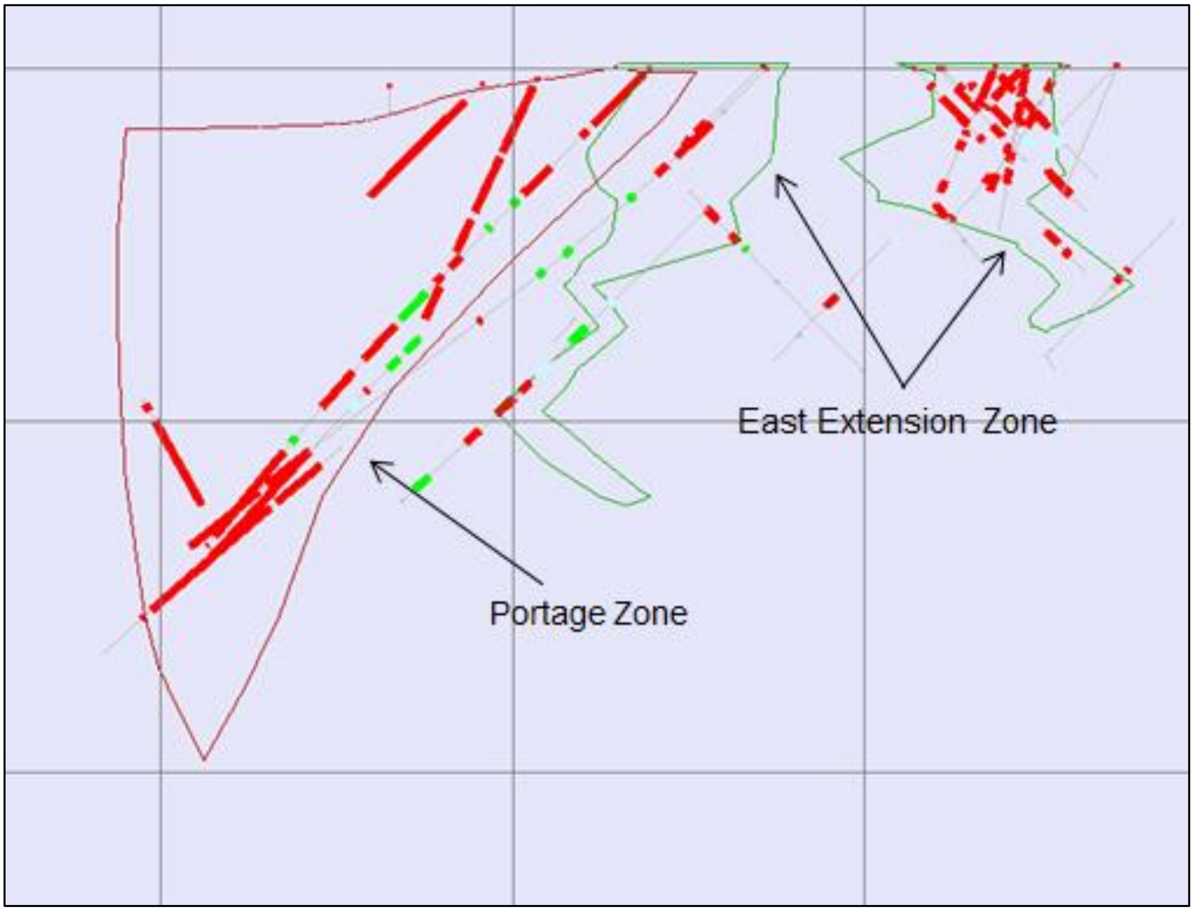
The Portage zone is by far the most significant domain, extending from beneath the southern extent of the Camp zone for more than 1,500 m to the southeast. Other than location, the Portage zone exhibits few similarities with the other two domains. Also in contrast with East Extension and Camp, Portage has significant silver mineralization closely associated with gold. Drill-tested mineralization is extremely continuous with very little evidence of isolated erratic higher-grade intervals. As drilled, Portage represents a zone of largely disseminated mineralization striking 135° (S45°E) and extending from the surface to a depth of over 400 m, on average approximately 150 m in width and over 1,500 m in length.

Geological domains were defined on sections spaced at 50 m intervals and a cut-off of 0.2 g/t was used to identify the geological domains on sections. Figure 13.4 shows the Springpole drill plan with the three geological domains and Figure 13.5 shows the domain boundaries on a typical section.



Modified from Gold Canyon 2011

Figure 13.4: Geological Domains for Springpole Gold Project



Note: Grid is 200 by 220 m. Green drill hole traces are > 0.2 g/t and red traces are > 0.3 g/t gold.

Figure 13.5: Cross Section 1100NW Looking NW Showing Portage and East Extension Domains

13.6 Surface Topography

Topography was provided in the form of a Drawing Interchange Format file containing data from a LIDAR survey with vertical precision of 1 m. The topographic surface beneath the small portion of the lake overlying the Portage zone was established by ground penetrating radar, Echo Sounder and sub-bottom profiling surveys conducted by Terrasond Ltd. of Palmer, Alaska, from the frozen surface (March 2011) and water lake surface (June 2011). These multiple surfaces were then merged to create a continuous surface to constrain the top of the block model. Overburden surface was modelled by extracting the base of the overburden from all available drill hole logs and generating a surface by simple triangulation of drill hole points.

13.7 Compositing

An analysis of the sample lengths within the mineralised domains shows that sample lengths are variable ranging from a low of 0.1 m to a maximum of 21 m; however, the majority of the samples are between 0.5 and 3 m in length with the largest proportion of the samples at 1 m in length (Figure 13.6). Most samples, 99%, are less than 3 m in length and for this reason SRK decided to composite all assays to a 3 m length within the mineralised envelopes. Compositing was generated from the drill collars and compositing was interrupted at domain boundaries. The compositing process generated 18,576 composites. A total of 274 composites with length less than 1.5 m were discarded from the database prior to resource estimation.

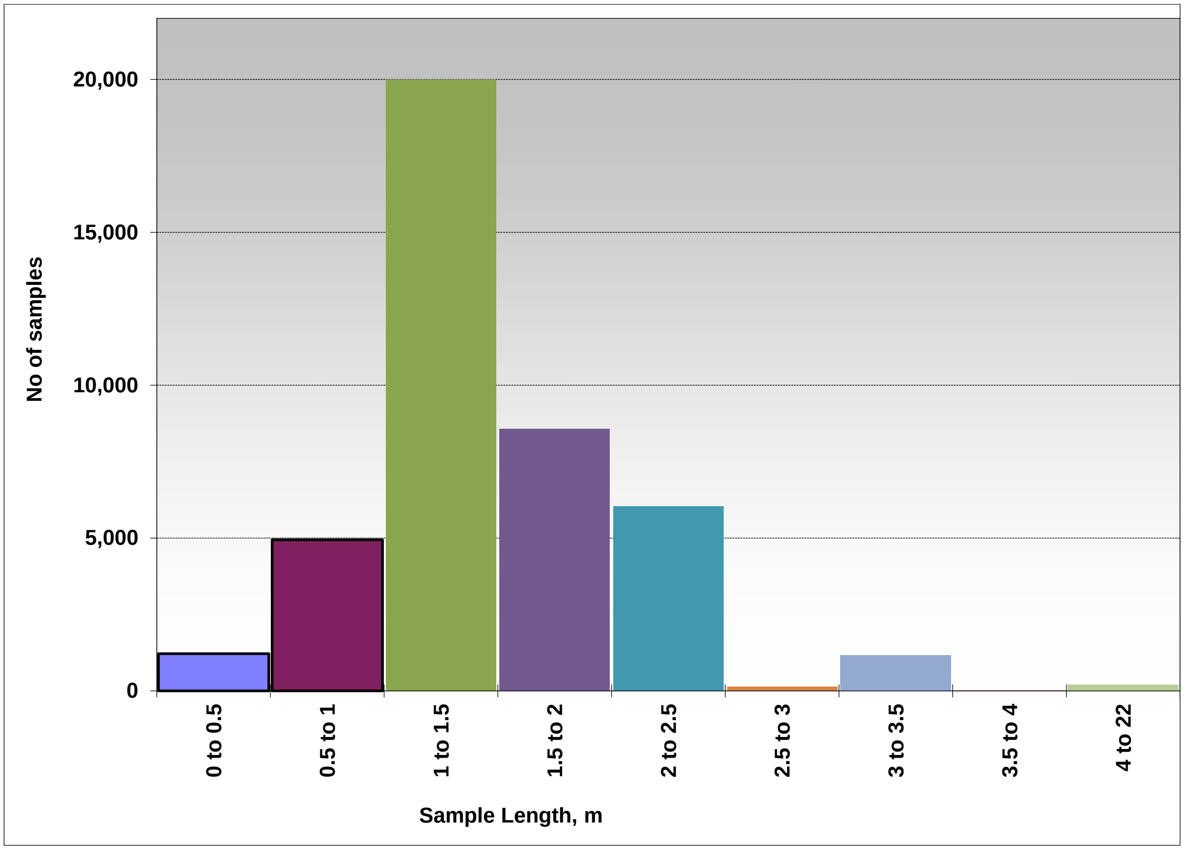


Figure 13.6: Histogram of Sample Lengths within Mineralised Domains

13.8 Grade Capping

The primary goal of grade capping is to identify and restrict the influence of suspected “outlier” grades in an estimate.

Grade capping for the Springpole Gold Project was carried out in two stages. First the assay dataset was investigated to determine if sample length could bias the average grade. An analysis of gold grade against sample length seems to indicate that sample length of less than 1 m has a significantly higher average grade than other sample lengths, indicating these samples were taken over a specific geological domain, perhaps quartz veins or narrow siliceous zones with visible gold (Figure 13.7). Most short sample lengths seem to have been taken from the Camp and East Extension zones; for this reason, SRK decided to treat these short sample lengths as a separate statistical population and capped these short assays prior to compositing. SRK capped all gold assays for sample lengths less than 1 m to 100 g/t gold prior to compositing.

All assays were then composited to 3 m lengths and all 3 m composites were evaluated for outliers by examining their distribution on cumulative probability plots and capped as outlined in Table 13.1.

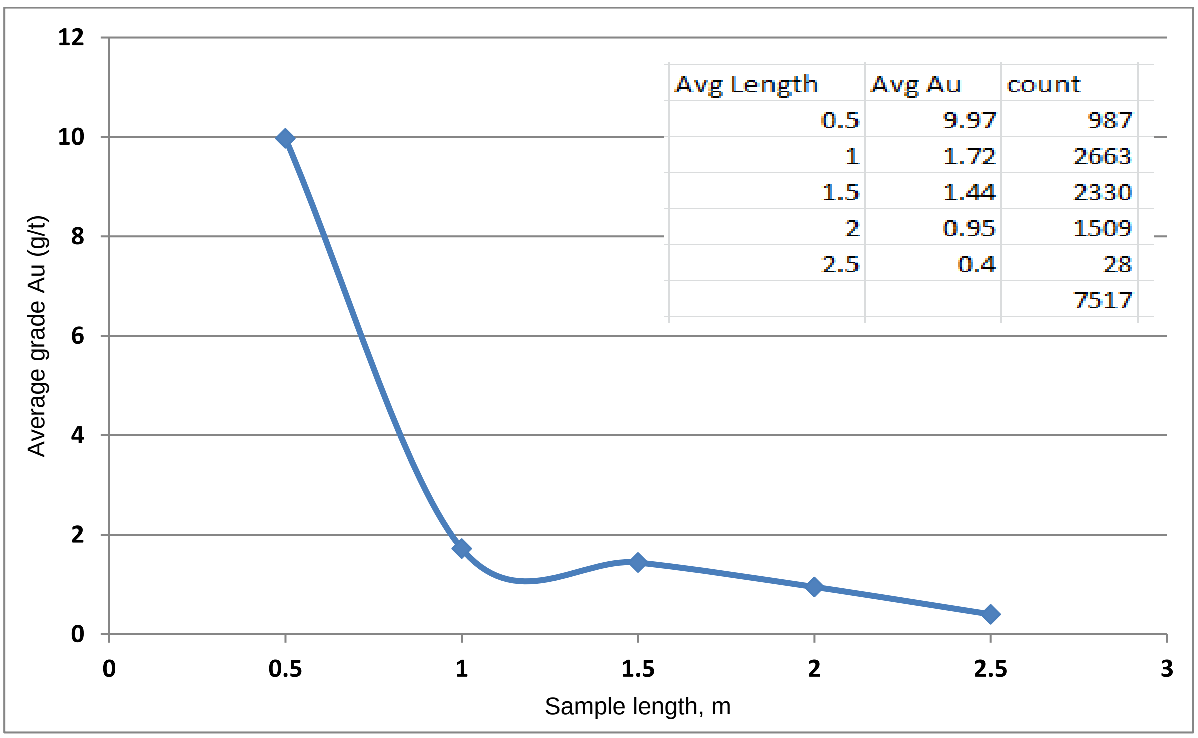


Figure 13.7: Comparison of Sample Length and Average Gold Grade

Table 13.1: Capping Levels for Springpole

Element	3 m Composite Capping Level
Au	25 g/t
Ag	200 g/t

13.9 Statistical Analysis and Variography

Statistical analyses were carried out on both the raw assay data and on the 3 m composited data. There are a total of 116,320 entries in the drill hole assay table for the Springpole Gold Project. Of these, 42,325 are within the interpreted wireframes representing the three mineralised domains. Some 8,191 historical assays within the mineralised domains were rejected because of uncertainties relating to quality control procedures. Of these, 138 samples did not have gold assays because of missing core resulting from poor recovery. Data for these cores were omitted from the statistical analysis presented in Table 13.2. Statistical data for the 3 m composited data are presented in Table 13.3.

Table 13.2: Basic Univariate Statistical Information for Raw Assay Data

Zone	Max (g/t)	Min	Mean (g/t)	Std. Dev.	CoV	Count
East Extension Au	1568	0	1.65	27.23	16.50	8,198
Camp Au	459	0	1.15	10.6	9.16	3,854
Portage Au	207	0	0.77	2.26	2.93	39,312[1]
Portage Ag	300	0	3.96	10.59	2.67	30,500[1]

[1]Note: 136 samples in the Portage Zone don't have gold assays and 8,948 samples have no silver assays, the missing data were excluded from the above table.

Table 13.3: Basic Univariate Statistical Information for 3 m Composites

Zone	Max (g/t)	Missing values	Mean (g/t)	Std. Dev.	CoV	Count[1]
East Extension Au	269.27	154	0.88	6.03	6.85	3312
East Extension Capped Au	25.00	154	0.70	2.43	3.47	3312
Camp Au	89.65	85	0.81	3.37	4.16	1443
Camp Capped Au	25.00	85	0.75	2.31	3.08	1443
Portage Au	95.30	693	0.77	1.76	2.29	18,282
Portage Capped Au	25.00	693	0.76	1.33	1.75	18,282
Portage Ag	280.51	4280	4.27	9.36	2.19	14,695
Portage Capped Ag	200	4280	4.26	9.12	2.14	14,695

[1]Note: In addition, there are 932 composites with missing gold assays and 4,280 composites with missing silver assays, these were excluded from the table above and were not used during grade interpolation.

Spatial continuity of gold and silver was evaluated with correlograms developed using SAGE 2001 version 1.08. The correlogram measures the correlation between data values as a function of their separation distance and direction. The distance at which the correlogram is close to zero is called the "range of correlation" or simply the range. The range of the correlogram corresponds roughly to the more qualitative notion of the "range of influence" of a sample or composite.

Variographic analysis was completed for gold in the Portage, Camp, and East Extension zones and for silver in the Portage zone. Directional correlograms were generated for composited data at 30° increments along horizontal azimuths. For each azimuth, correlograms were calculated at dips of 0°, 30°, and 60°.

A vertical correlogram was also calculated. Using information from these 37 correlograms, SAGE determines the best fit model using the least square fit method. The correlogram model is described by the nugget (C_0) and two nested structure variance contributions (C_1, C_2) with ranges of the variance contributions and the model type (spherical or exponential). After fitting the variance parameters, the algorithm then fits an ellipsoid to the 37 ranges from the directional models for each structure. The final models of anisotropy are given by the lengths and orientations of the axes of the ellipsoids.

The experimental and modelled directional correlograms are presented in Appendix D. The correlogram models applied in the resource estimates in each domain are presented in Table 13.4.

Table 13.4: Gold and Silver Spherical Correlogram Parameters by Domain

Domain	Metal	Nugget C_0	Sill C_1, C_2	Gemcom Rotations (RRR rule)			Ranges a1, a2		
				around Z	around Y	around Z	X-Rot	Y-Rot	Z-Rot
Camp	Au	0.30	0.67	-27	57	52	26	8	5
			0.03	-27	57	52	61	57	180
East Extension	Au	0.30	0.48	-6	-67	-72	7	11	15
			0.22	-6	-67	-72	20	49	150
Portage	Au	0.19	0.56	31	8	34	20	40	20
			0.25	31	8	34	60	138	168
Portage	Ag	0.10	0.61	-48	30	27	22	9	18
			0.29	-48	30	27	100	76	174

13.10 Block Model and Grade Estimation

Block modelling was carried out in GEMS (6.4) software by Dr. Gilles Arseneau, Ph.D., P.Geo., an Associate Consultant with SRK. Block estimates were carried out in 10 by 10 by 6 m blocks using a percent model to weight partial blocks situated at zone boundaries. Block model parameters are defined in Table 13.5.

Table 13.5: Block Model Setup Parameters

	Model origin (WGS 84)	Block Size (m)	No. of blocks
Easting	548,500	10	220
Northing	5,692,400	10	210
Elevation	418	6	90

13.10.1 Grade Models

Grades were estimated by ordinary kriging with a minimum of 4 and a maximum of 15 composites with no more than three composites permitted from a single drill hole. Grade interpolations were carried out in three passes with each successive pass using a larger search radius than the preceding pass and only estimating the blocks that had not been interpolated by the previous pass. Table 13.6 summarizes the search parameters for each interpolation pass.

Table 13.6: Search Parameters by Zone and Metal

Metal	Zone	Pass	Rotation			Search Ellipse Size			Number of Composites		Max. Samples per DDH
			Z	Y	Z	X (m)	Y (m)	Z (m)	Min.	Max.	
Au	Camp	1	-84	7	-32	20	30	20	4	15	3
Au	Camp	2	-84	7	-32	40	60	60	4	15	3
Au	Camp	3	-84	7	-32	60	138	168	4	15	3
Au	East Ext	1	-84	7	-32	20	30	20	4	15	3
Au	East Ext	2	-84	7	-32	40	60	60	4	15	3
Au	East Ext	3	-84	7	-32	60	138	168	4	15	3
Au	Portage	1	-84	7	-32	20	30	20	4	15	3
Au	Portage	2	-84	7	-32	40	60	60	4	15	3
Au	Portage	3	-84	7	-32	60	138	168	4	15	3
Ag	Portage	1	-48	30	27	20	30	20	4	15	3
Ag	Portage	2	-48	30	27	40	60	60	4	15	3
Ag	Portage	3	-48	30	27	100	76	100	4	15	3

Uncapped gold was also estimated for all three domains for comparison against the capped results. The capped estimates were used for use in resource reporting and classification.

13.10.2 Bulk Density Model

There are 140 bulk density measurements in the Springpole database with an average of 2.89 t/m^3. SRK is of the opinion that while these are sufficient to estimate a mineral resource, the amount of bulk density dataset is very limited for a deposit of this size and additional data should be collected to develop a more robust density model. SRK recommends that First Mining initiates an aggressive campaign of bulk density measurements for the next mineral resource update.

Previous property owners collected samples for bulk density from 37 widely-spaced drill holes in the Portage zone. These samples attempted to represent the spectrum of alteration types and intensities, but are too few in number to derive volumetrically representative values for bulk density. The samples were tested by SGS Mineral Services in Toronto, Ontario using the waxed-immersion method to establish density values for each. The results ranged in value from a high of 3.08 t/m^3 to a low of 2.70 t/m^3 with an average of 2.89 t/m^3. The lowest values are generally representative of a narrow zone of intense argillic/biotitic alteration that will require additional drilling to define an accurate envelope.

In light of the paucity of bulk density data, SRK decided to estimate the bulk density by inverse distance squared where dataset was nearby or assign an average density to unestimated blocks, as presented in Table 13.7.

Table 13.7: Bulk Density of Unestimated Blocks in the Model

Zone	Average density of Un-Estimated Blocks (t/m³)
Camp	2.88
East Extension	2.88
Portage	2.65
Waste rock	2.88
Overburden	1.90

13.11 Model Validation

The Springpole resource block model was validated by completing a series of visual inspections. It was additionally validated by comparing local "well-informed" block grades with composites contained within those blocks, and by comparing average assay grades with average block estimates along different directions – swath plots.

Figure 13.8 shows a comparison of estimated gold block grades with borehole composite assay data contained within those blocks within the mineralised domains and Figure 13.9 compares the silver grades. On average, the estimated blocks are similar to the composite data, although there is a large scatter of points around the x = y line. This scatter is typical of smoothed block estimates compared to the more variable assay data used to estimate those blocks. The thick white line that runs through the middle of the cloud is the result of a piece-wise linear regression smoother.

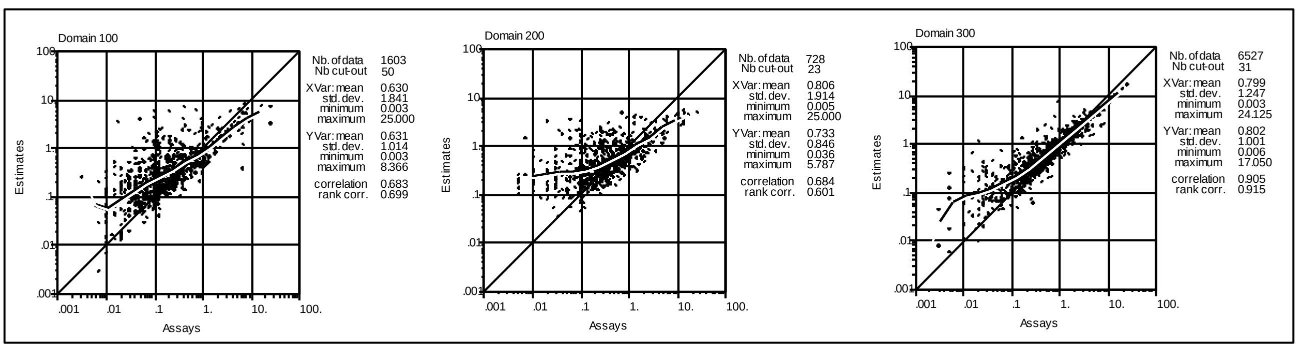


Figure 13.8: Comparison of gold grades for well-informed blocks

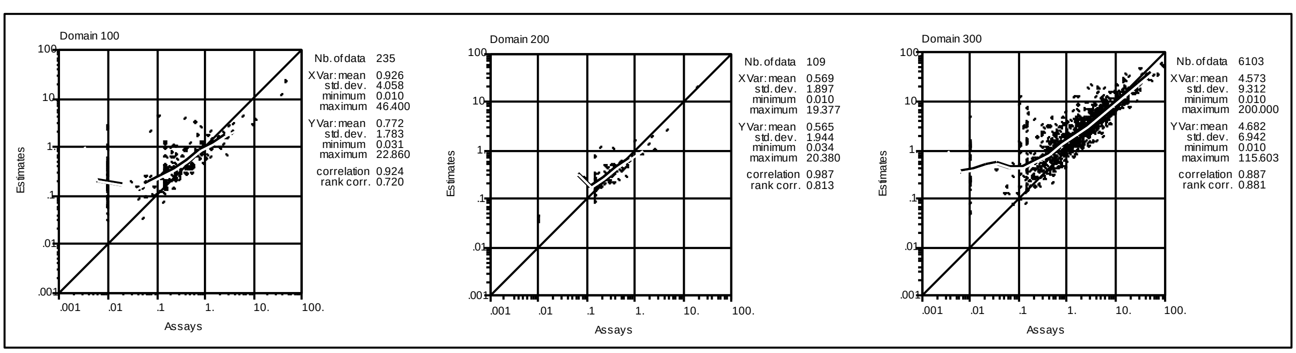
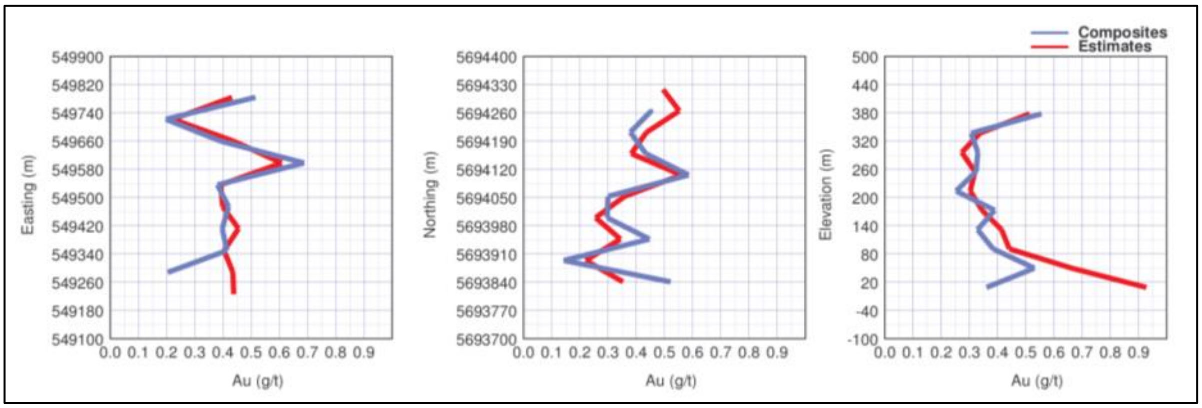


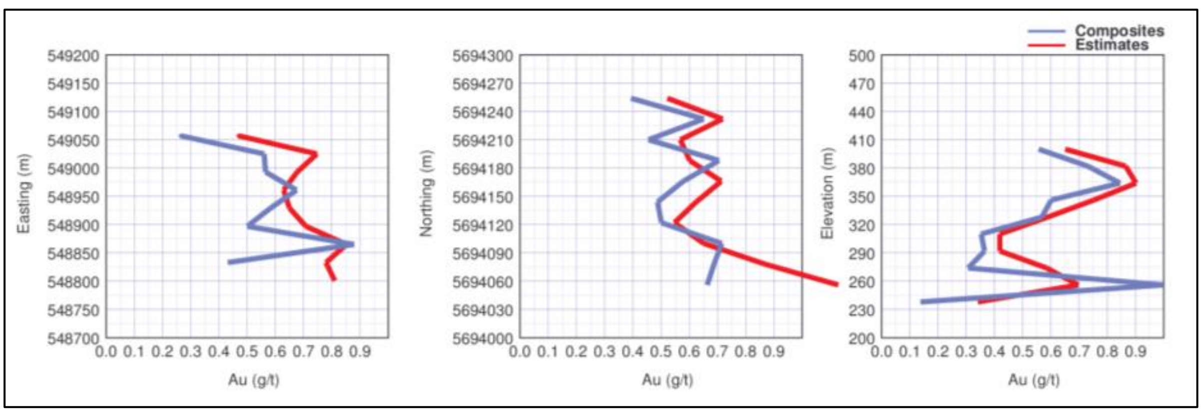
Figure 13.9: Comparison of Silver Grades for Well-Informed Blocks

Note that there are relatively few data for silver for the East Extension (domain 100) and Camp zone (domain 200). This is due to the fact that only the Gold Canyon drill holes had silver assay data for these two mineralised zones.

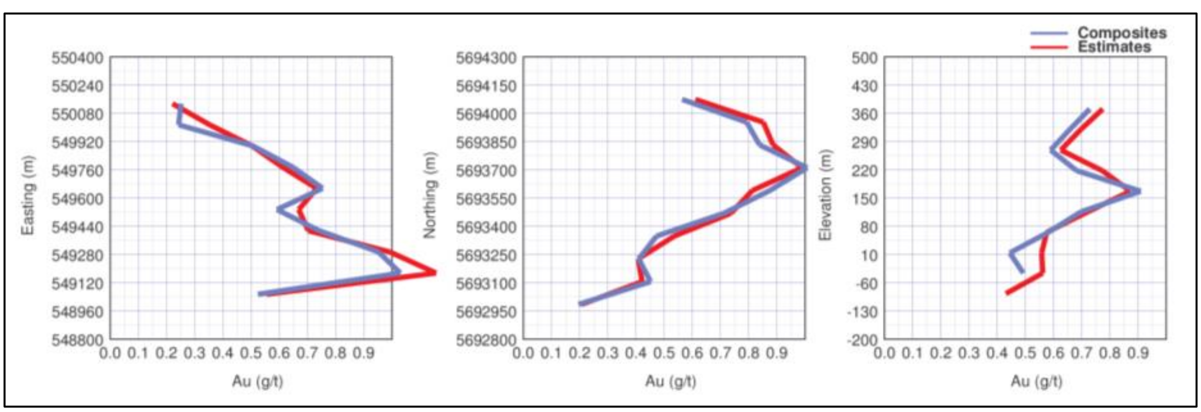
As a final check, average composite grades and average block estimates were compared along different directions. This involved calculating de-clustered average composite grades and comparing them with average block estimates along east-west, north-south, and horizontal swaths. Figure 13.10 shows the swath plots in the three mineralised zones, and Figure 13.11 shows the swath plot for silver within the Portage zone. The average composite grades and the average estimated block grades are quite similar in all directions. Similar behaviour was documented for all other mineralised zones. Overall, the validation shows that the current resource estimate is a good reflection of drill hole composited data for the Springpole Gold Project.



(a)



(b)



(c)

Figure 13.10: Swath Plots for gold for (a) the East Extension, (b) the Camp, and (c) the Portage Zone

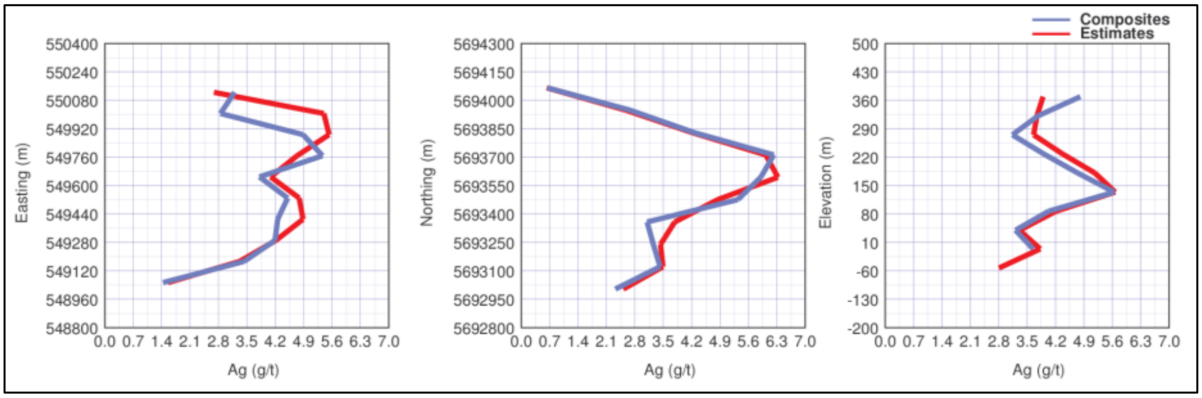


Figure 13.11: Swath Plot for Silver within the Portage Zone

13.12 Mineral Resource Classification

Block model quantities and grade estimates for the Springpole Gold Project were classified by Dr. Gilles Arseneau, Ph.D., P.Geo. (APEGBC #23474), an independent Qualified Person for the purposes of NI 43-101. The classification was completed according to the current CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

Mineral resource classification is typically a subjective concept; industry best practices suggest that mineral resource classification should consider the confidence in the geological continuity of the mineralised structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification.

SRK is satisfied the geological modelling honours the current geological information and knowledge. The location of the samples and the assay dataset is sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by core drilling on sections spaced at 50 m.

The mineral resources were classified according to the following rules:

1) For the East Extension zone, any blocks estimated during Pass 1 or Pass 2 with at least two drill holes and six composites were classified as indicated mineral resources. All other estimated blocks were classified as inferred mineral resources.

2) The Portage and Camp classification was based solely on the gold estimate. Silver, as a minor by-product, carries the classification associated with the gold. Any blocks that were estimated during Pass 1 or Pass 2 with at least two drill holes and six composites were classified as indicated mineral resources. All other interpolated blocks were classified as inferred mineral resources.

13.13 Mineral Resource Statement

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a mineral resource as:

"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

The "material of economic interest" refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.

The "reasonable prospects for economic extraction" requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. In order to meet this requirement, SRK considers that major portions of the Springpole Gold Project are amenable for open pit extraction.

To determine the quantities of material offering "reasonable prospects for economic extraction" by an open pit, SRK used a pit optimizer and reasonable mining assumptions to evaluate the proportions of the block model (Indicated and Inferred blocks) that could be "reasonably expected" to be mined from an open pit.

The optimization parameters were selected based on experience and benchmarking against similar projects (Table 13.8). The reader is cautioned that the results from the pit optimization are used solely for the purpose of testing the "reasonable prospects for economic extraction" by an open pit and do not represent an attempt to estimate mineral reserves. There are no mineral reserves on the Springpole Gold Project. The results are used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cut-off grade.

Table 13.8: Assumptions Considered for Conceptual Open Pit Resource Optimization

Parameter	Units	Value
Au Price	$/oz	1,400
Ag Price	$/oz	15
Exchange Rate	$US/$CAD	1.00
Mining Cost	$/t mined	2
Processing	$/t of feed	12
General and Administrative	$/t of feed	2
Overall Pit Slope	degrees	45
Au Process Recovery	percent	80
Ag Process Recovery	percent	60
In Situ COG	g/t	0.4

SRK considers that the blocks located within the conceptual pit envelope show “reasonable prospects for economic extraction” and can be reported as a mineral resource (Table 13.9).

Table 13.9: Mineral Resource Statement* (March 17, 2017)

Category	Quantity (Mt)	Grade		Metal	
		Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Open Pit**					
Indicated	139.1	1.04	5.4	4.67	24.19
Inferred	11.4	0.63	3.1	0.23	1.12

Source: Springpole Gold Project, Northwestern Ontario, SRK Consulting, March 17, 2017

**Mineral resources are reported in relation to a conceptual pit shell. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.*

***Open pit mineral resources are reported at a COG of 0.4 g/t gold. COGs are based on a gold price of $1,400/oz and a gold processing recovery of 80% and a silver price of $15/oz and a silver processing recovery of 60%.*

This resource model includes mineralised material in the Camp, East Extension and Portage zones spanning from geologic sections 0-1,500 m in the northwest to 0-250 m in the southeast. Along the axis of the Portage zone resource modelling includes mineralised material generally ranging from 340 m to 440 m below surface.

Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues. The quantity and grade of reported inferred mineral resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred mineral resources as an indicated or measured mineral resource and it is uncertain if further exploration will result in upgrading them to the indicated or measured mineral resource category. SRK is of the opinion that further attempts to convert the remaining inferred material to indicated would be of questionable value. The current proportion of the resource classified as inferred is 7.6% of total tonnes, and 4.7% of contained Au. The mineral resources in this statement were estimated using the current CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM May 2014).

13.14 Grade Sensitivity Analysis

The mineral resources of the Springpole Gold Project are variable depending upon the selected COG. To illustrate this sensitivity, the global block model quantities and grade estimates within the conceptual pit used to constrain the mineral resources are presented at different cut-off grades in Table 13.10 for the indicated mineral resource and in Table 13.11 for the inferred mineral resource. The reader is cautioned that the figures presented in this table should not be misconstrued with a mineral resource statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of COG. Figure 13.12 presents this sensitivity as grade tonnage curves for the indicated mineral resource and Figure 13.13 displays the same sensitivity curve for the inferred mineral resource.

Table 13.10: Indicated Block Model Quantities and Grade Estimates* at Cut-off Grades

COG Au (g/t)	Quantity (Mt)	Grade Au (g/t)	Grade Ag (g/t)
0.10	203.6	0.79	4.31
0.20	183.1	0.86	4.66
0.40	**139.1**	**1.04**	**5.41**
0.50	117.8	1.15	5.77
0.60	99.1	1.29	6.12
0.70	82.8	1.39	6.48
0.80	68.9	1.51	6.81
1.0	47.9	1.79	7.41
3.0	4.6	4.3	11.53

Source: Springpole Gold Project, Northwestern Ontario, SRK Consulting, March 17, 2017

* The reader is cautioned that the figures in this table should not be misconstrued with a mineral resource statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of COG.

Table 13.11: Inferred Block Model Quantities and Grade Estimates* at Cut-off Grades

COG Au (g/t)	Quantity (Mt)	Grade Au (g/t)	Grade Ag (g/t)
0.10	22.8	0.44	2.20
0.20	18.7	0.50	2.50
0.40	**11.4**	**0.63**	**3.07**
0.50	7.7	0.71	3.32
0.60	4.8	0.81	3.69
0.70	2.9	0.92	4.07
0.80	1.8	1.03	4.46
1.0	0.7	1.28	5.24
3.0	0	0	0

Source: Springpole Gold Project, Northwestern Ontario, SRK Consulting, March 17, 2017

* The reader is cautioned that the figures in this table should not be misconstrued with a mineral resource statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of COG.

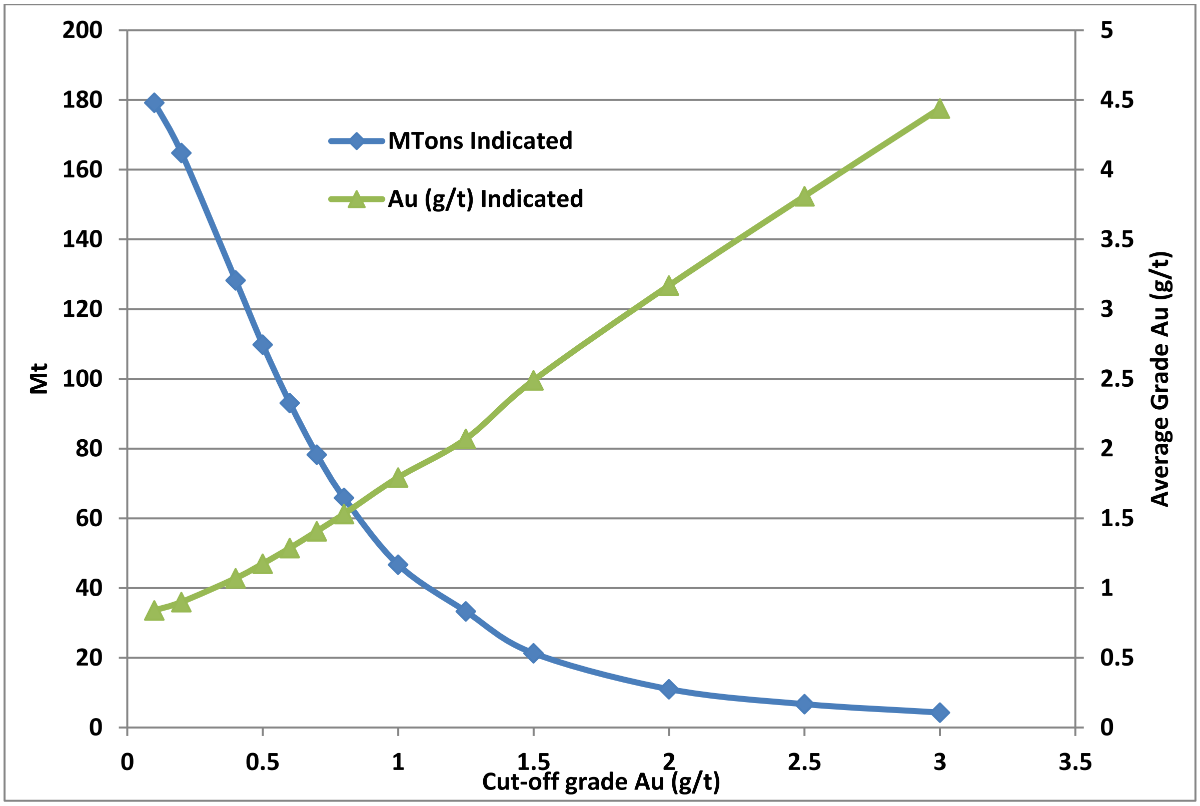


Figure 13.12: Grade-Tonnage Curves for the Springpole Indicated Mineral Resource

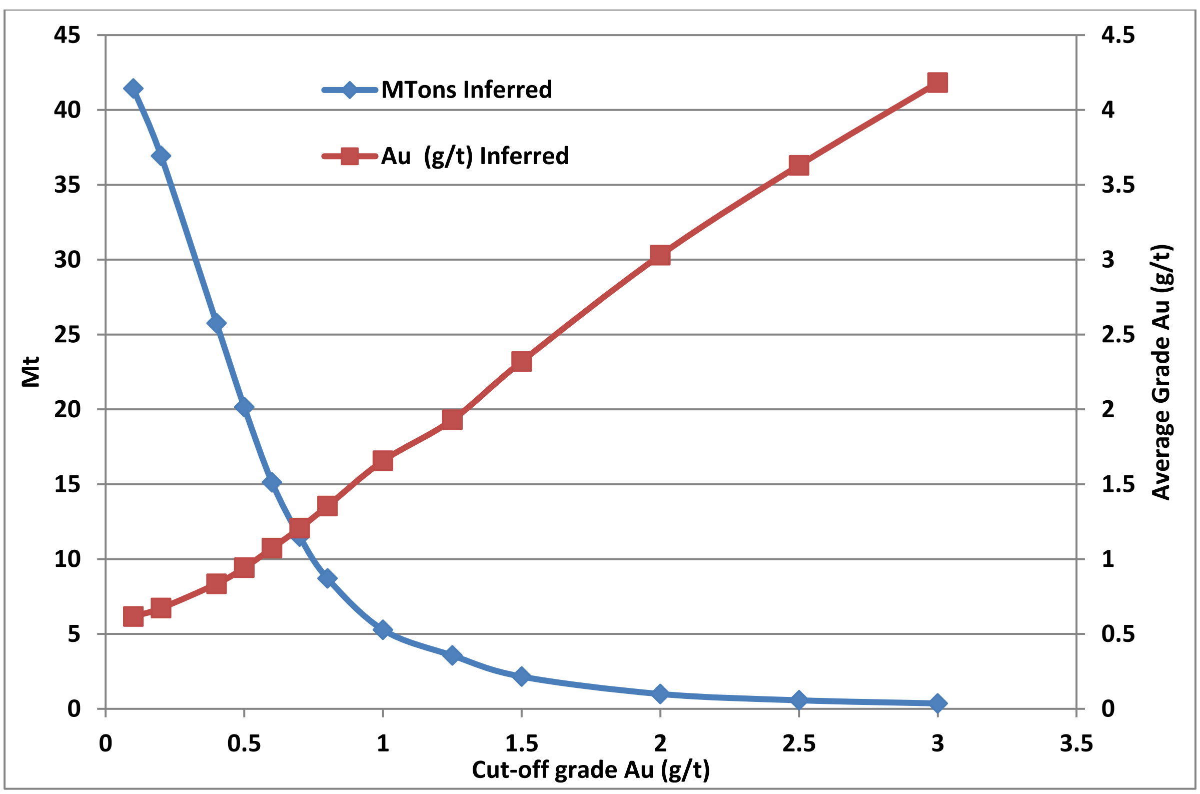


Figure 13.13: Grade-Tonnage Curves for the Springpole Inferred Mineral Resource

13.15 Previous Mineral Resource Estimates

Mineral resources for the Springpole property were estimated and reported in a technical report filed on April 6, 2012 (Arseneau 2012). This resource model included mineralised material in the Main, East Extension, and Portage zones spanning from geologic sections 0+1,150 m in the northwest to 0-150 m the southeast. Along the axis of the Portage zone, resource modelling includes mineralised material generally ranging from the surface to a depth of 240 m to 360 m below surface and included a total of 426 drill holes. Mineral resources were reported in accordance with NI 43-101 and are summarized in Table 13.12. These mineral resources are no longer current and are now replaced by the mineral resources presented in Table 13.9 of this report.

Table 13.12: Previous Mineral Resource Statement of April 6, 2012

Classification	Tonnage (Mt)	Au (g/t)	Ag (g/t)	Au Contained (Moz)	Ag Contained (Moz)
Indicated	30	1.26	5.0	1.22	4.82
Inferred	60	1.27	6.0	2.45	11.58

14 Mineral Reserve Estimates

Inferred mineral resources were used in the LOM plan with inferred resources representing 13% of the material planned for processing. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources would be converted into mineral reserves. Mineral reserves can only be estimated as a result of an economic evaluation as part of a preliminary feasibility study or a feasibility study of a mineral project. Accordingly, at the present level of development, there are no mineral reserves at the Springpole Gold Project.

15 Mining Methods

15.1 Open Pit Optimization

15.1.1 Input Parameters

The 3-D mineral resource block model, as developed by Dr. Gilles Arseneau, Ph.D., P.Geo., an Associate Consultant with SRK, was used as the basis for deriving the economic shell limits for the Springpole Gold Project. The block model dimensions were 10 m x 10 m x 6 m (X,Y,Z).

Estimates were made for gold and silver prices, mining dilution, process recovery, offsite costs and royalties. Mining, processing, and general administration operating costs were also estimated based on assumed processing throughput and, along with geotechnical parameters, formed the basis for open pit optimization (Table 15.1). The open pit mining costs assumed owner-operated mining. Mining dilution was calculated for the Camp and East Extension zones by applying a dilution skin to the surface area of the mineralised shell. Dilution grade is assumed to be 0 g/t for these zones, and the calculated dilution percentage is applied as a global factor - a further evaluation of dilution grade represents an opportunity for future studies. Dilution for the Portage zone, which makes up a significant proportion of the resource and is less variable in both grade and grade distribution, is based on the concept that dilution only occurs at a mineralised material-waste interface, and that the relative extent of dilution can be calculated in terms of a “dilution factor” which quantifies the proportion of each block perimeter which interfaces with one or more waste-grade blocks. The estimated grade of dilution is derived directly from the neighboring blocks that contribute to dilution.

Table 15.1: Mine Planning Optimization Input Parameters

Item	Unit	Value
Metal Prices		
Au	$/oz	1,300
Ag	$/oz	20
Recovery to Doré		
Au	%	80
Ag	%	85
Smelter Payables		
Au in doré	%	99.5
Au deduction in doré	g/t	0
Ag in doré	%	98
Ag deduction in doré	g/t	0
Offsite Costs		
Au refining/transportation charge	$/oz pay Au	5
Other Parameters		
Royalties	%	3
Operating Costs		
Waste Mining Cost	$/t	1.6
Mineralised Material Mining Cost	$/t	1.6
Processing and G&A Cost	$/t milled	10.73
Pit Slope Angles	overall degrees	35 to 50
Mining Dilution – Portage Zone	%	Variable
Mining Dilution – Camp Zone	%	9.0
Mining Dilution – East Ext.	%	7.0
Mining recovery	%	100
Strip ratio (est.)	t:t	2.1
Processing rate	t/day	36,000

The mineral inventory block model for the Springpole deposit was then used with Whittle™ open pit optimization software to determine optimal mining shells. This evaluation included the aforementioned parameters.

The economic shell limits included indicated and inferred mineral resources. Inferred mineral resources are considered too speculative geologically to have the economic considerations applied to them to be categorized as mineral reserves. There is no certainty that the inferred mineral resources will be upgraded to a higher resource category.

15.1.2 Cut-Off Grade

For the pit optimization process, which was undertaken with Whittle™ mine optimization software, mill feed selection was determined using the cash flow method. With this method, mineralised material is selected by comparing the cash flow (calculated from both block Au and Ag diluted grades) which would be produced by processing it and the cash flow which would be produced by mining it as waste.

If the cash flow from processing the mineralised material is higher, the material is treated as mill feed. If not, it is treated as waste. In this particular case mill feed selection by cash flow will produce the same result as that produced by the use of marginal cut-offs.

15.1.3 Optimization Results

A series of optimized shells were generated for the Springpole deposit based on varying revenue factors. The results were analyzed with shells chosen as the basis for ultimate limits and preliminary phase selection.

The results of the pit optimization evaluation on the deposit for varying revenue factors values are summarized in Table 15.2 and Figure 15.1 to Figure 15.3 for inferred and indicated mineral resources. Note the NPV in this optimization summary does not take into account capital costs and is used only as a guide in shell selection and determination of the mining shapes. The actual NPV of the project is summarized in the economics section of this report.

Whittle produces both “best case” (i.e., mine out shell 1, the smallest shell, and then mine out each subsequent shell from the top down, before starting the next shell) and “worst case” (mine each bench completely to final limits before starting next bench) scenarios. These two scenarios provide a bracket for the range of possible outcomes. The shells were produced based on varying revenue factors (0.3 through to 1.3 of base case) to produce the series of nested shells with the NPV results shown.

Table 15.2: Overall Optimization Results

	Revenue	Mine	Total Mineralised Diluted					Waste	Strip		Total CF	NPV Best	NPV Worst
Final Pit	Factor	Life	(Mt)	Au (g/t)	Au (M oz)	Ag (g/t)	Ag (M Oz)	(Mt)	Ratio	Total (Mt)	($M)	($M)	($M)
1	0.30	1.8	14	1.49	0.7	7.13	3.3	14	1.0	29	543	502	502
2	0.32	2.0	17	1.42	0.8	6.70	3.8	16	0.9	34	613	563	562
3	0.34	4.0	43	1.23	1.7	5.52	7.6	56	1.3	99	1,195	1,046	1,031
4	0.36	4.8	54	1.18	2.1	5.55	9.6	69	1.3	123	1,425	1,227	1,197
5	0.38	4.9	56	1.18	2.1	5.55	9.9	73	1.3	129	1,466	1,258	1,226
6	0.40	5.5	63	1.17	2.3	5.60	11.3	85	1.4	147	1,610	1,368	1,328
7	0.42	5.6	64	1.17	2.4	5.59	11.5	89	1.4	153	1,642	1,392	1,350
8	0.44	5.7	66	1.16	2.5	5.59	11.8	93	1.4	159	1,672	1,414	1,369
9	0.46	5.8	67	1.16	2.5	5.55	11.9	96	1.4	163	1,694	1,429	1,383
10	0.48	5.8	68	1.16	2.5	5.54	12.0	98	1.4	165	1,705	1,438	1,390
11	0.50	7.4	87	1.11	3.1	5.40	15.1	151	1.7	238	2,015	1,652	1,573
12	0.52	7.5	88	1.11	3.2	5.38	15.3	154	1.7	243	2,033	1,664	1,583
13	0.54	7.7	91	1.10	3.2	5.35	15.7	160	1.8	251	2,067	1,686	1,599
14	0.56	7.9	94	1.09	3.3	5.31	16.0	167	1.8	260	2,101	1,708	1,613
15	0.58	8.0	96	1.09	3.4	5.31	16.4	173	1.8	269	2,128	1,725	1,625
16	0.60	8.2	98	1.08	3.4	5.29	16.7	178	1.8	277	2,151	1,740	1,635
17	0.62	9.3	113	1.04	3.7	5.12	18.5	206	1.8	318	2,286	1,826	1,686
18	0.64	9.6	116	1.03	3.8	5.09	19.1	214	1.8	331	2,321	1,847	1,698
19	0.66	9.8	120	1.02	3.9	5.08	19.5	221	1.9	341	2,347	1,862	1,705
20	0.68	11.2	136	0.98	4.3	5.15	22.5	268	2.0	404	2,480	1,938	1,736
21	0.70	11.4	139	0.97	4.3	5.13	22.9	276	2.0	415	2,501	1,950	1,739
22	0.72	11.6	141	0.97	4.4	5.13	23.2	282	2.0	423	2,514	1,957	1,740
23	0.74	11.8	144	0.97	4.5	5.13	23.7	291	2.0	434	2,532	1,966	1,741
24	0.76	11.9	144	0.96	4.5	5.12	23.8	294	2.0	439	2,538	1,969	1,740
25	0.78	12.1	147	0.96	4.5	5.11	24.1	301	2.1	448	2,549	1,975	1,739
26	0.80	12.2	148	0.96	4.6	5.10	24.3	307	2.1	455	2,558	1,980	1,737
27	0.82	12.3	149	0.95	4.6	5.09	24.4	310	2.1	459	2,561	1,982	1,737
28	0.84	12.5	152	0.95	4.6	5.08	24.8	319	2.1	470	2,570	1,986	1,731
29	0.86	12.6	153	0.95	4.6	5.07	24.9	322	2.1	475	2,573	1,988	1,729
30	0.88	12.8	154	0.94	4.7	5.06	25.0	326	2.1	480	2,577	1,990	1,726
31	0.90	12.9	155	0.94	4.7	5.05	25.2	331	2.1	487	2,580	1,991	1,724
32	0.92	13.2	158	0.94	4.7	5.03	25.5	342	2.2	500	2,585	1,994	1,717
33	0.94	13.6	160	0.93	4.8	5.00	25.8	357	2.2	517	2,590	1,996	1,705
34	0.96	13.7	161	0.93	4.8	4.99	25.9	361	2.2	522	2,591	1,996	1,700
35	0.98	13.8	162	0.93	4.8	4.98	26.0	364	2.2	526	2,591	1,997	1,697
36	1.00	14.0	164	0.93	4.9	4.97	26.2	371	2.3	535	2,591	1,997	1,690
37	1.02	14.1	165	0.92	4.9	4.97	26.3	375	2.3	540	2,591	1,996	1,685
38	1.04	14.4	167	0.92	4.9	4.95	26.6	386	2.3	553	2,590	1,996	1,674
39	1.06	14.6	169	0.91	5.0	4.94	26.8	394	2.3	563	2,588	1,995	1,664
40	1.08	14.7	169	0.91	5.0	4.93	26.9	397	2.3	566	2,587	1,995	1,661
41	1.10	14.9	171	0.91	5.0	4.92	27.0	403	2.4	574	2,585	1,993	1,652
42	1.12	14.9	171	0.91	5.0	4.91	27.1	405	2.4	577	2,584	1,993	1,650
43	1.14	15.1	172	0.91	5.0	4.90	27.2	410	2.4	582	2,581	1,992	1,644
44	1.16	15.1	173	0.91	5.0	4.90	27.3	414	2.4	587	2,579	1,991	1,639
45	1.18	15.2	173	0.91	5.0	4.90	27.3	415	2.4	588	2,579	1,991	1,637
46	1.20	15.3	174	0.90	5.1	4.89	27.4	418	2.4	592	2,576	1,989	1,632
47	1.22	15.3	175	0.90	5.1	4.89	27.4	421	2.4	595	2,574	1,988	1,629
48	1.24	15.4	175	0.90	5.1	4.88	27.5	424	2.4	599	2,571	1,987	1,625
49	1.26	15.5	176	0.90	5.1	4.88	27.5	429	2.4	605	2,568	1,985	1,618
50	1.28	15.8	177	0.90	5.1	4.86	27.6	440	2.5	617	2,560	1,982	1,601
51	1.30	15.8	177	0.90	5.1	4.86	27.7	442	2.5	619	2,558	1,981	1,598

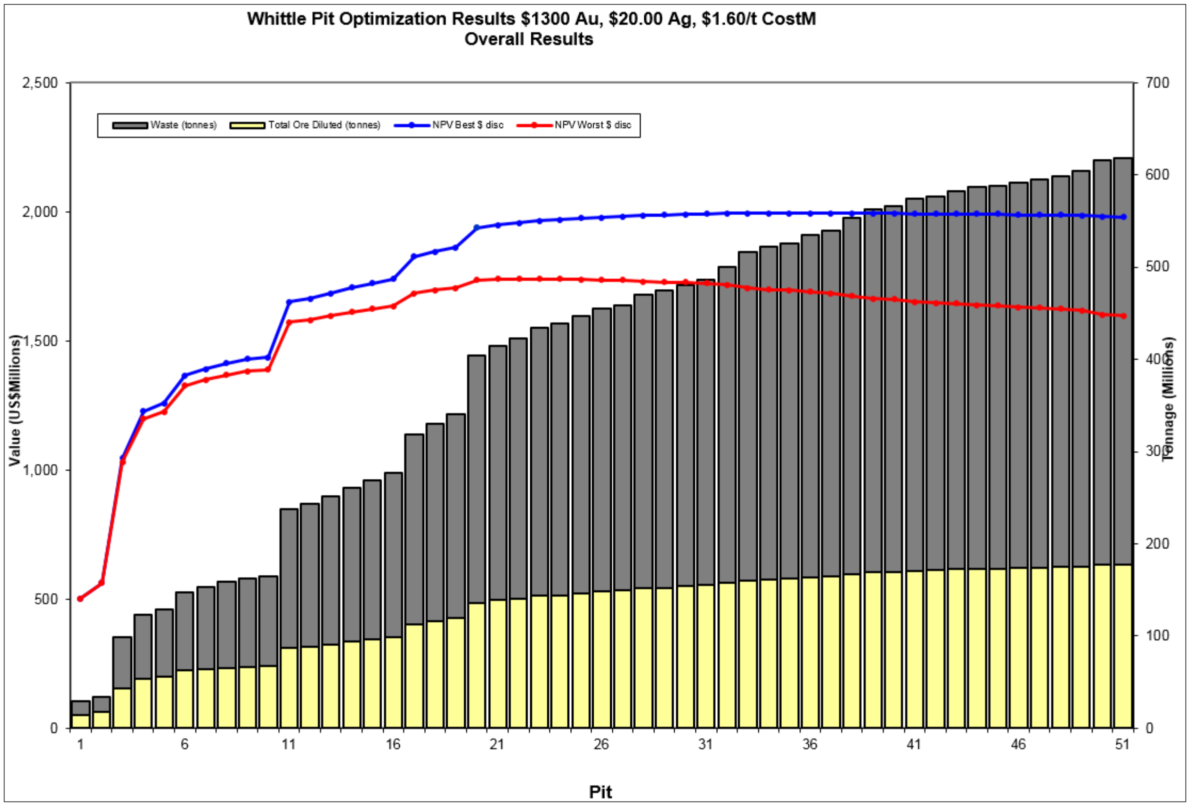


Figure 15.1: Open Pit Optimization Cumulative Results

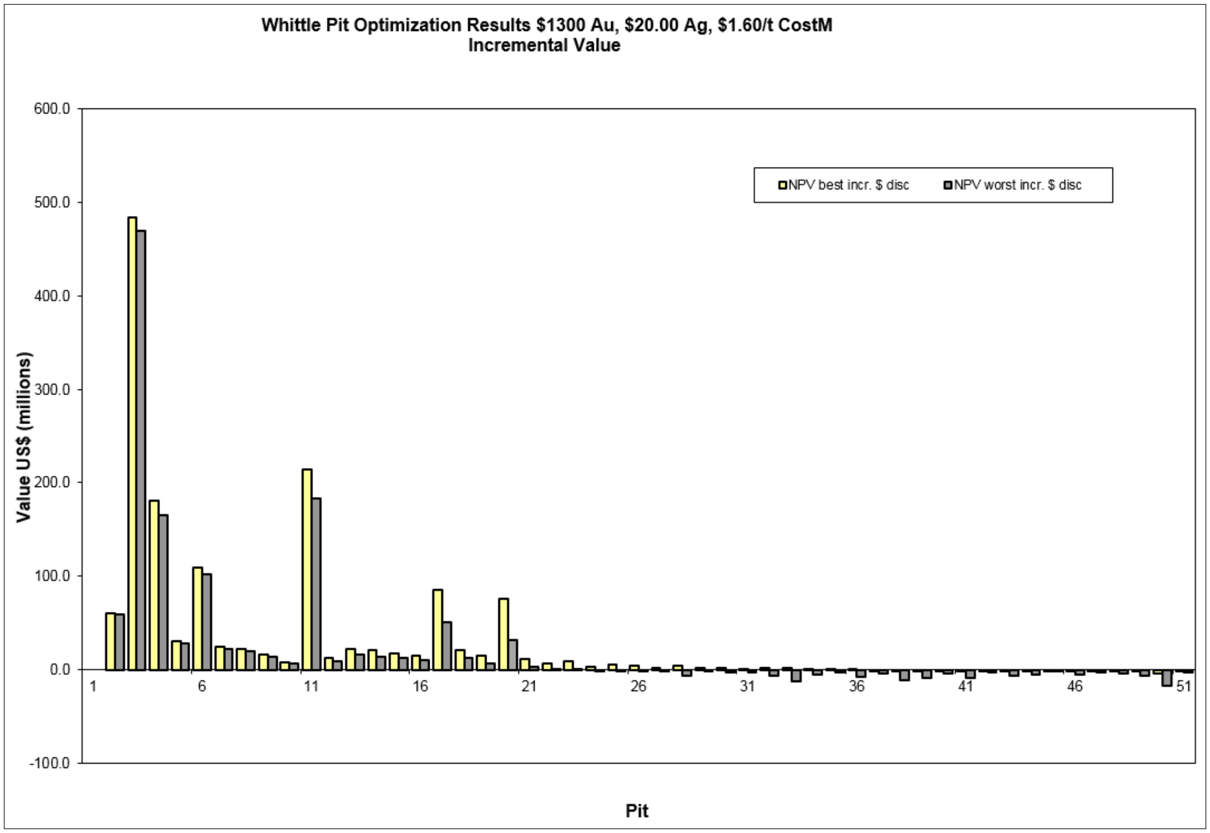


Figure 15.2: Open Pit Optimization Incremental Value Results

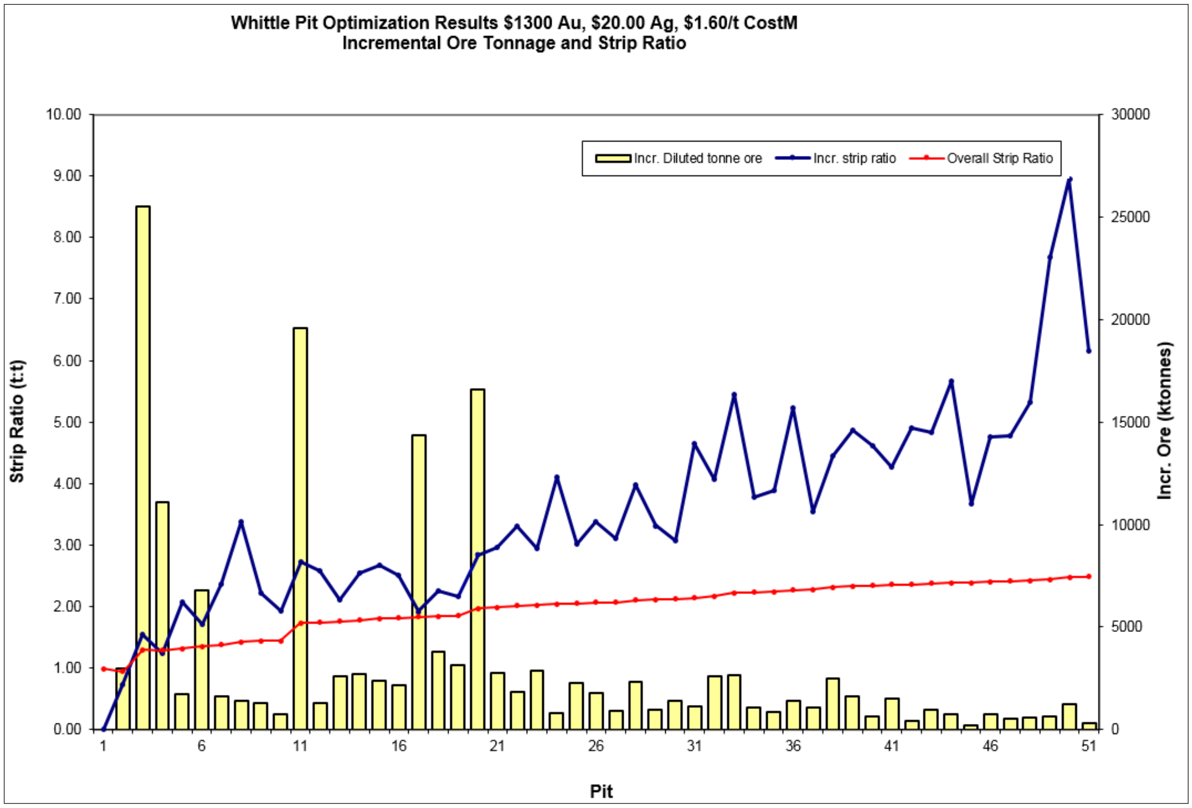


Figure 15.3: Open Pit Optimization Incremental Tonnage Results

For the Springpole deposit, shells beyond Pit Shell 28 add mineralised rock and waste tonnages to the overall pit, but have higher incremental strip ratios with minimal positive impact on the NPV. To better determine the optimum shell on which to base the phasing and scheduling and to gain a better understanding of the deposit, the shells were analyzed in a preliminary schedule. The schedule assumed a maximum processing rate of 13 Mt/yr. Low grade material was stockpiled with 95% reclaimed at the end of mine life, and no capital costs were added.

Based on the analysis of the shells and the preliminary schedule, Pit Shell 28 was chosen as the base case shell for further phasing and scheduling of the deposit. This shell contains 151 Mt of mineralised material above cut-off with an average diluted gold grade of 0.95 g/t and 4,624 koz contained gold along with a silver grade of 5.08 g/t and 24,736 koz of contained silver. The total waste tonnage in the shell is 319 Mt for a strip ratio of 2.1:1.

Both indicated and inferred mineral resources were used in the LOM plan. Indicated mineral resources represent 93% (~129 Mt) of the material planned to be processed. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources would be converted into mineral reserves. Mineral reserves can only be estimated as a result of an economic evaluation as part of a Pre-Feasibility study (PFS) or a Feasibility study (FS) of a mineral project. Accordingly, at the present level of development, there are no mineral reserves at the Springpole Gold Project.

Table 15.3 summarizes the tonnages and grades contained within the shell limits, using the incremental cut-off values in Table 15.1. Table 15.4 further summarizes the resources by classification.

Table 15.3 Resources to be Extracted in LOM Plan

Description	Unit	Value
Mine Production Life	yr	12
Total Mineralised Material Mined	Mt	151
Stockpiled Material	Mt	31
Direct Process Feed	Mt	120
Stockpile Reclaim	Mt	19
Total Process Feed Material	**Mt**	**139**
Diluted Au Grade (mill head grade)	g/t	1.00
Contained Au	koz	4,468
Diluted Ag Grade (mill head grade)	g/t	5.33
Contained Ag	koz	23,740
Waste	Mt	319
Total Material	**Mt**	**470**
As-mined Strip Ratio	t:t	2.1
As-processed Strip Ratio	t:t	2.4

Approximately 12 Mt of intermediate-grade material is stockpiled but is not currently part of the scheduled mill feed. This material was not considered to be value accretive based on current assumptions.

Table 15.4: Total Process Feed in LOM Plan by Classification

Resource Category	Mineable Resource by Classification				
	(Mt)	Au (g/t)	Au (koz)	Ag (g/t)	Ag (koz)
Indicated	129	1.03	4,280	5.51	22,807
Inferred	10	0.59	188	2.96	933
Total	**139**	**1.00**	**4,468**	**5.33**	**23,740**

15.2 Open Pit Mine Design

Mine planning for the Springpole deposit was conducted using a combination of software packages, including MINTEC Inc. MineSight™ and Gemcom GEMS™ (6.4) and Whittle™. The base 3-D block model was analyzed using GEMS (6.4). The phase selection and production scheduling was undertaken with the use of MineSight and Whittle software.

For the Springpole deposit, directional phase shells were developed from the northwest to south east within the ultimate shell limits. These phases were designed to provide a practical approach to extracting the highest grade zones as early in the mine life as possible as well as smoothing waste stripping requirements over the life of mine. Preliminary waste dumps were then designed to account for the material produced in each mining phase and shell.

Shell 28 was chosen as the mining shape limit for the deposit. Figure 15.4 and Figure 15.5 represent plan and section views of the ultimate pit shape.

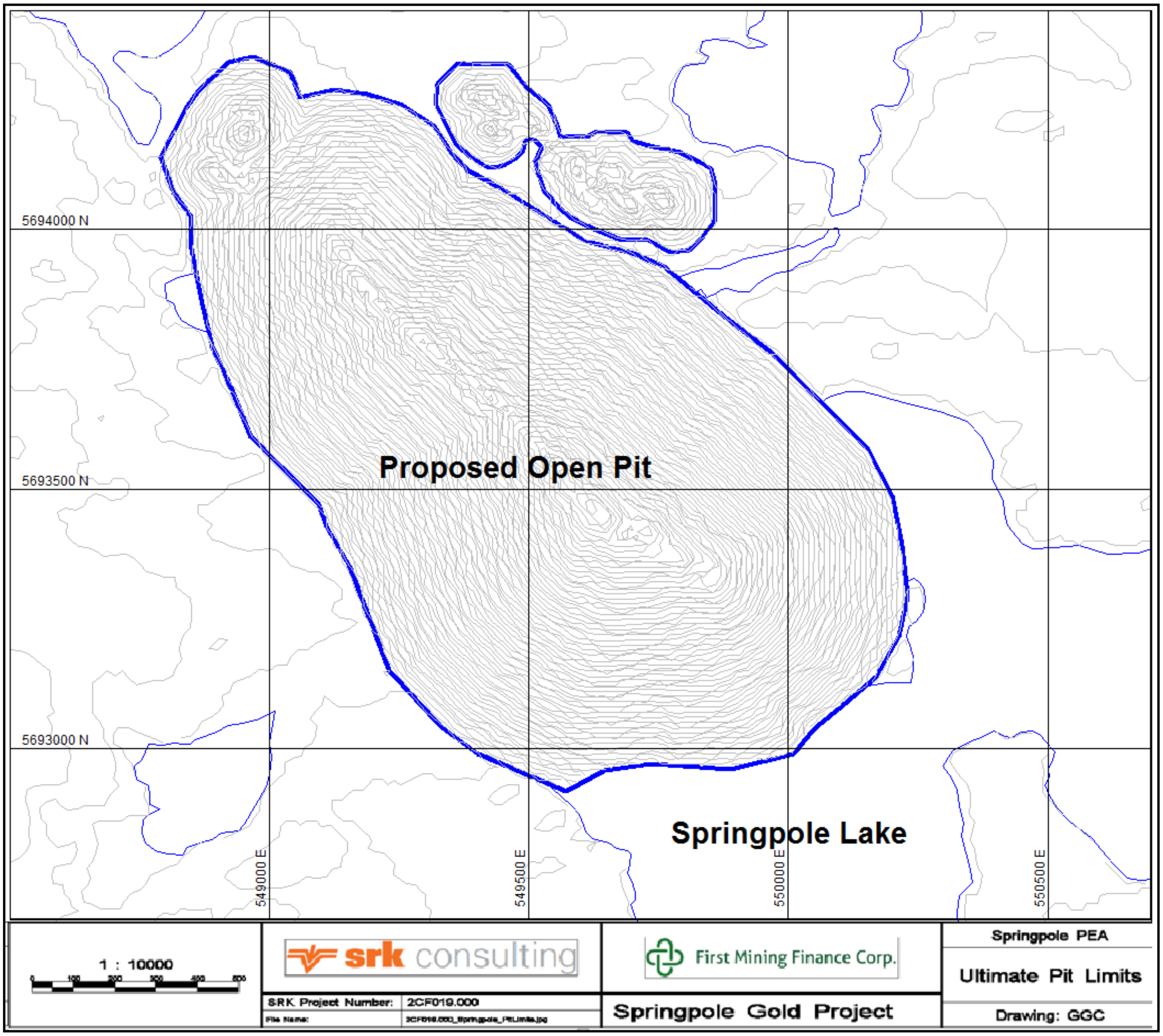


Figure 15.4: Plan View of Springpole Ultimate Pit Limits

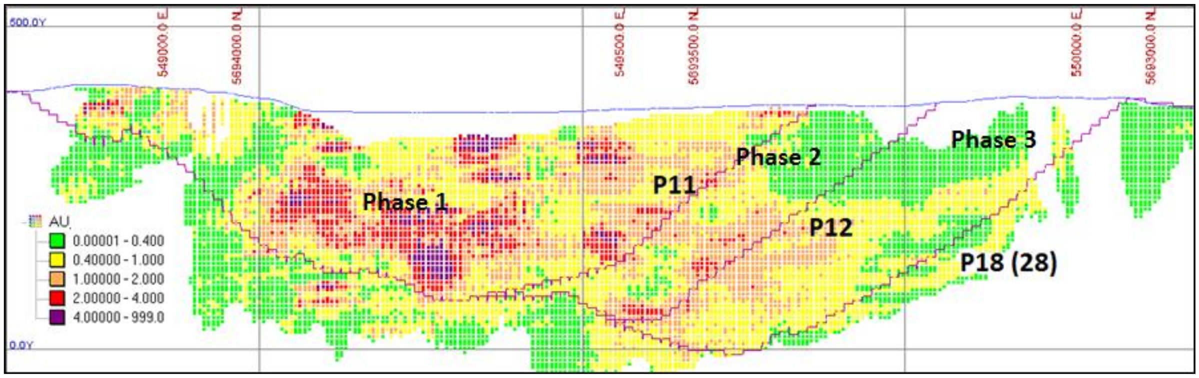


Figure 15.5: Typical Long Section through Springpole Pit Shells

15.3 Mine Sequence/Phasing

The preliminary shells for Springpole were further analyzed and optimizations were conducted to better define the possible stage designs within the ultimate shell limit. The Springpole pit was further divided into three phases for the mine plan development to maximize the grade in the early years, reduce the pre-stripping requirements, and to maintain the process facility at full production capacity.

The phases were based on the optimized shells summarized above. Shells selected provide reasonable pushback widths with mining starting in the higher grade zone and progressing southwards to ultimate limits.

During the active mining and processing of the deposit, the waste would be placed into a waste rock facility adjacent to the final shell limits. All mineralised material would be hauled either to the process facility immediately to the east of the deposit, or to the low-grade stockpile location.

15.4 Waste Storage Facility Design

Material below the cut-off grade is stored in two waste storage facilities (WSFs) located to the northeast and southwest of the open pit. The two WSFs were designed with sufficient capacity to store the 319 Mt of waste material assuming a loose density of 1.8 t/m^3.

The WSFs will be constructed in a series of lifts with 37° face slopes and catch berms on each lift resulting in an overall slope of 26°. The WSFs were contained within the Springpole Lake watershed.

15.5 Open Pit Mine Operation

The open pit mining activities for the Springpole pit were assumed to be primarily undertaken by an owner-operated fleet as the basis for this preliminary economic assessment. The average unit mining costs used in the project economics was $1.56/t of material mined, for pit and dump operations, road maintenance, mine supervision, and technical services. The cost estimate was built from first principles and based on experience of similar sized open pit operations and local conditions. The open pit mining costs take into account variations in haulage profiles and equipment selection.

Labour rates were estimated using local information.

15.5.1 Equipment

Table 15.5 summarizes the assumed, all diesel, major open pit equipment requirements used for the basis of this study and are based on similar sized open pit operations. The proposed processing rate of 13 Mt/yr was used, along with deposit and pit geometry constraints, to estimate the mining equipment fleet needed. The fleet has an estimated maximum capacity of 180,000 t/d total material, which would be sufficient for the LOM plan.

Table 15.5: Major Open Pit Equipment Requirements

Equipment Type	No. of Units
311 mm dia. Rotary, Crawler Drill	4
40 m^3 Front Shovel	5
217 T Haul Truck	15
D10-class 17.3' blade	3
834H-class 15.2' blade	3
16H-class Grader	1
14H-class Grader	3
90 t Water Truck	1

Unit Operations

The 311 mm diameter blast hole drills are planned to perform all of the production drilling in the mine (both mineralised and waste rock), as well as in the mineralised zones to allow for better definition drilling. The main loading and haulage fleet is planned to consist of 217-tonne haul trucks, loaded primarily with the diesel powered 40 m^3 front shovels.

As pit conditions dictate, the fleet of track dozers are planned to rip and push material to the excavators and maintain the waste dumps and stockpiles.

The following additional equipment will be required to support mining operations:

- Explosives storage and delivery equipment
- Field maintenance vehicles
- Light vehicles for personnel transportation
- Light plants
- Portable aggregate plant
- All-terrain crane
- Utility excavator

15.6 Mine Schedule

The production schedule for the Springpole deposit was developed with the aid of Whittle and MineSight software, and incorporated the various pits and stages mentioned above.

The maximum planned total material mining rate during the LOM is approximately 180,000 t/d, while the average total mining rate was planned to be 120,000 t/d.

Indicated and inferred mineral resources were used in the LOM plan, with indicated mineral resources making up 93% of the total LOM tonnage processed. The resources calculated included an estimated external dilution for each zone. Inferred mineral resources are considered too speculative geologically to have the economic considerations applied to them to be categorized as mineral reserves. There is no certainty that the inferred mineral resources will be upgraded to a higher resource category.

Table 15.6 is a summary of total material movement by year for the LOM production schedule.

Table 15.6: Proposed LOM Open Pit Production Schedule

Item	Units	Total	Years											
			1	2	3	4	5	6	7	8	9	10	11	12
Mineralised Material Mined to Mill	kt	119,974	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	8,758	908	0
Mineralised Material Stockpiled	kt	31,435	1,797	3,458	3,566	3,591	3,250	4,069	5,563	3,403	1,844	825	68	0
Total Mineralised Material Mined	kt	151,408	7,796	16,593	16,705	16,721	16,388	16,416	18,703	16,543	14,984	9,583	976	0
Waste Mined	kt	319,002	57,204	48,407	48,295	48,279	43,612	43,584	20,758	6,414	2,090	324	36	0
As-Mined Strip Ratio	w:o	2.1	7.3	2.9	2.9	2.9	2.7	2.7	1.1	0.4	0.1	0.0	0.0	0.0
Total Material Mined	kt	470,411	65,000	65,000	65,000	65,000	60,000	60,000	39,462	22,956	17,074	9,907	1,012	0
Stockpile Reclaim	kt	18,555	0	0	0	0	0	0	0	0	0	4,382	12,232	1,940
Mill Feed	kt	138,528	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	13,140	13,140	1,940
Au Grade	g/t	1.00	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.73	0.42	0.38
Ag Grade	g/t	5.28	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	4.06	2.58	2.40
Contained Au	koz	4,470	231	448	515	517	602	484	348	400	414	309	176	24
Contained Ag	koz	23,509	416	1,917	2,424	2,731	3,130	2,442	2,116	2,730	2,877	1,717	1,092	150

The Springpole deposit is planned to produce a total of 139 Mt of plant process feed and 319 Mt of waste (2.1:1 overall strip ratio) over a twelve-year mine operating life. The current LOM plan focuses on achieving consistent processing feed production rates, mining of higher grade material early in the schedule and balancing grade and strip ratios, while trying to maximize NPV. No blending of stockpiled material was included in this preliminary schedule.

Figure 15.6 summarizes process tonnages, waste tonnages, and strip ratio by period. Figure 15.7 illustrates the feed tonnage by phase and period, as well as overall gold grades. The mine is estimated to produce an average of 360 koz of gold and 2,000 koz of silver annually for years two through nine.

Figure 15.8 represents the proposed overall site layout for the Springpole Gold Project.

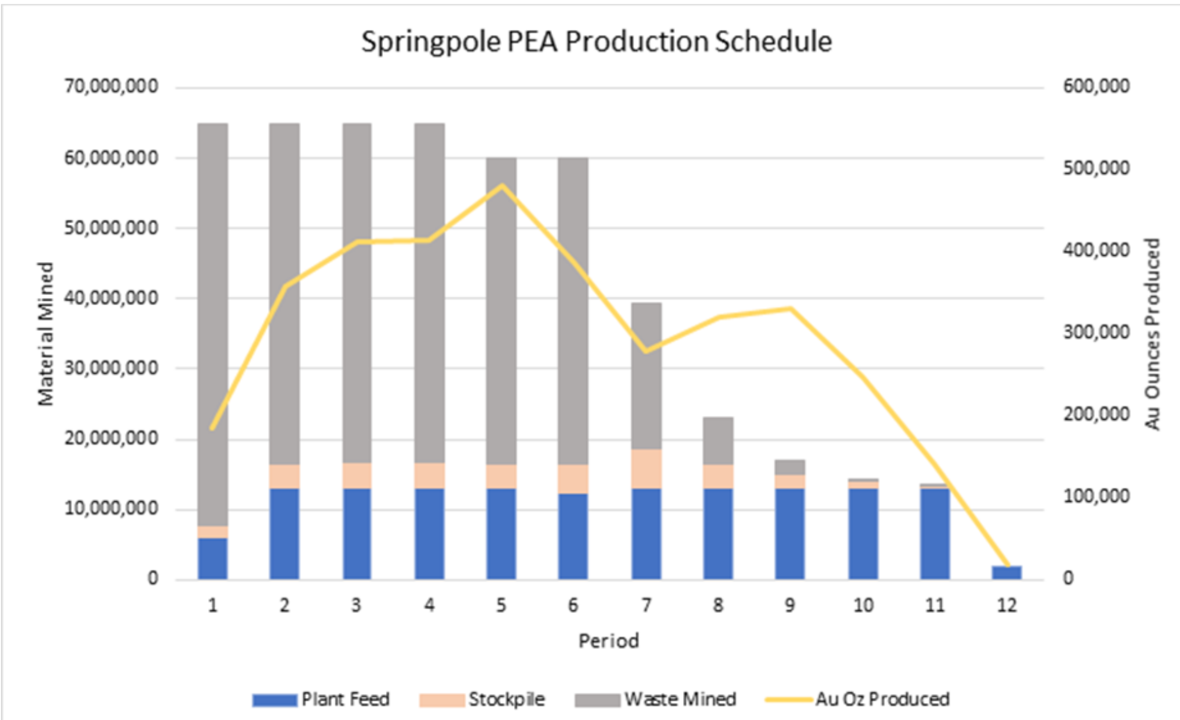


Figure 15.6: Plant Feed and Waste Quantities, and Strip Ratio by Period

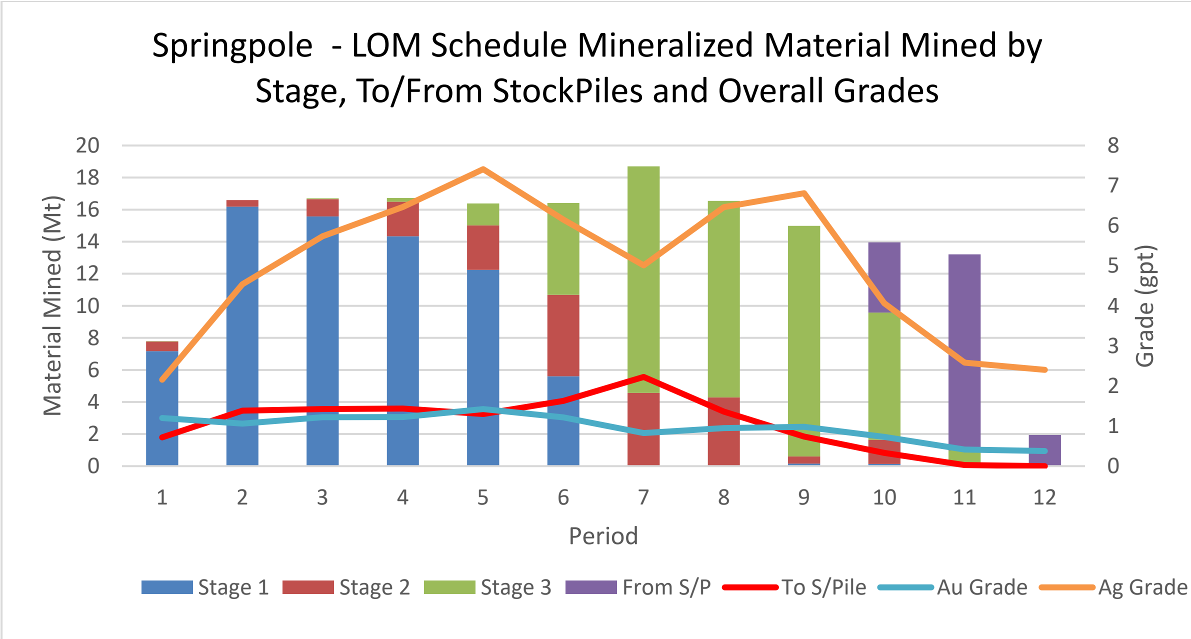


Figure 15.7: Mineralised Material Quantity and Grade by Phase and Period

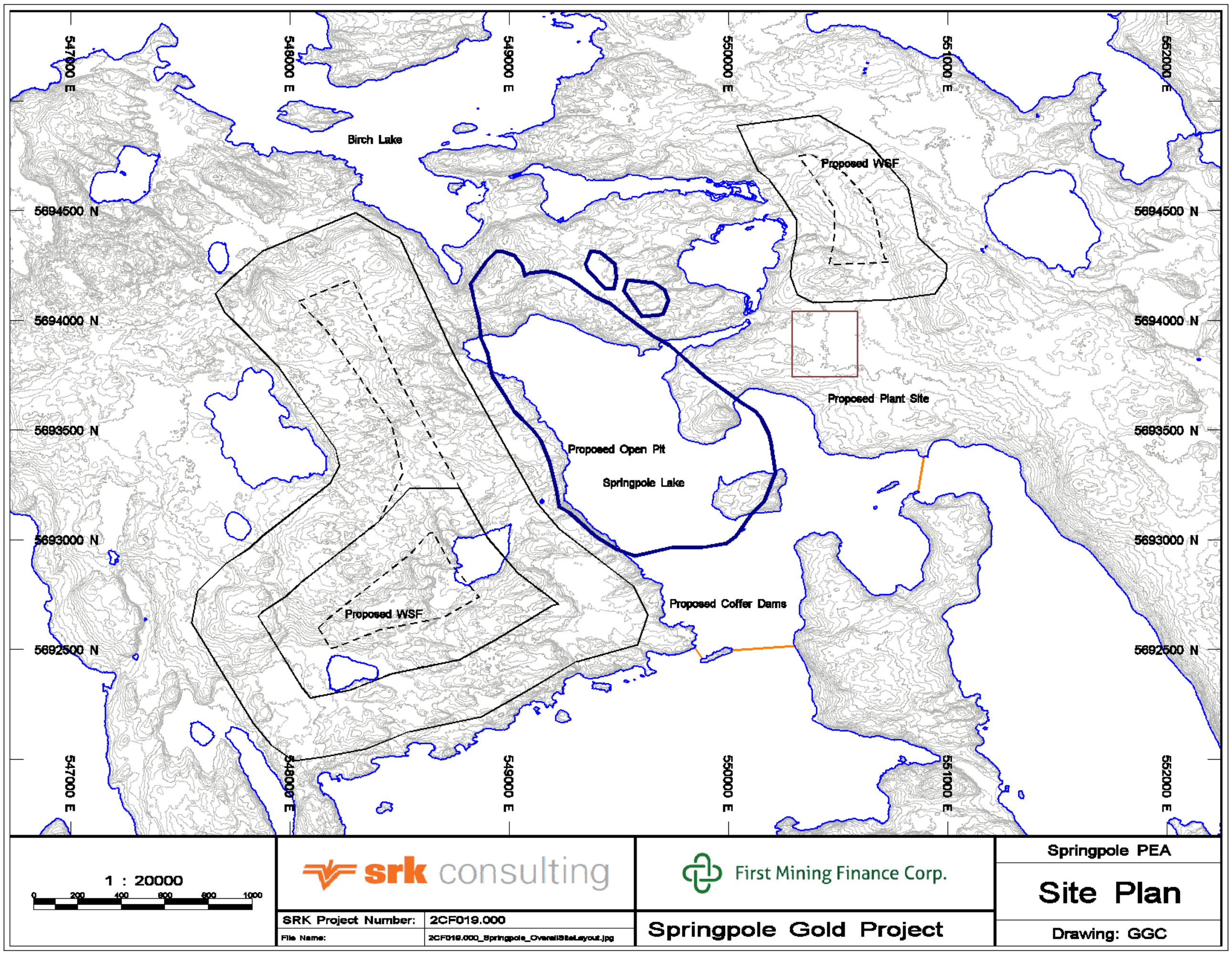


Figure 15.8: Overall Site Plan

To further illustrate the progression of mining of the Springpole deposit, Appendix E provides snapshots of the pit and waste rock facilities at the end of various periods.

The pit is mined out in a series of push-backs to achieve the required process feed, while trying to maximize the NPV of the project.

Mine Development Schedule

Year -2 and year -1: Installation of coffer dams in Springpole Lake and dewatering pit area.

Year 1: Processing plant is commissioned and achieves ~50% of its name plate throughput on an annual basis. A total of 6.0 Mt of mineralised plant feed and 57 Mt of waste are scheduled. The average diluted grade is estimated to be 1.2 g/t gold and 2.1 g/t silver.

Year 2: Process plant feed achieves its annual name plate production target of 13.1 Mtpa with an average grade of 1.01 g/t gold and 4.5 g/t silver. There will be 48 Mt of waste stripping resulting in a strip ratio of 3.7 w:o.

Year 3 to year 7: Mineralised material is mined primarily from Phase 1 and Phase 2. Stripping decreases from 48 Mtpa in year 3 to 20 Mtpa in year 7.

Year 8 to year 11: Waste stripping reduces to less than 10 Mtpa and strip ratios below 1 w:o until waste mining is complete in year 11.

Year 11 and year 12: Stockpile reclaim feeding the mill at an average grade of 0.4 g/t gold and 2.4 g/t silver.

15.7 Mining Geotechnical Information

15.7.1 Slope Design Review

A scoping level review of available geotechnical and structural data for the purposes of open pit slope design was completed. This review was based on all available diamond drill core logs and included an on-site rock-core review. For the 2013 PEA, a core-photo review of ten drill holes was used to estimate the rock quality designation, solid core recovery, intact rock strength (IRS), and the geological strength index (GSI). These estimates were used to guide preliminary domain delineation used for the slope design guidelines. Additional details of the slope design review, and ancillary data, are presented in Appendix F.

Geotechnical data collection is on-going, with a 2013 drill-program designed and implemented to better understand the rock mass characteristics and enable slope design and stability analysis at an appropriate level of study. The 2013 oriented core program included the drilling and logging of 6 HQ-3 diameter holes (SG13-200 to SG13-206) from which intact rock strength laboratory samples were collected for analysis. The laboratory report is included in Appendix F along with the preliminary structural model. Analysis of the laboratory results and rock-log compilation was postponed for completion during the next level of study.

15.7.2 Lithological and Rock Mass Information

A 3-D wireframe geological model was not available for review, and insufficient data was collected for a detailed geotechnical model to be built at this stage. Individual drill logs have been recorded for rock drilling on the property, and they include lithological and alteration descriptions of major lithologies. Total core recovery and rock quality designation has been relatively consistently and correctly recorded for most of the drilling evaluated for the property. Empirical rock strength estimates are recorded for more recent (2011 onward) drill core recovered. Unconfined strength, point load testing, and joint-condition data was acquired for the 2013 oriented-core program and will be analysed during the next level of study.

15.7.3 Structural Information

Faults within the proposed Springpole open pits and immediate vicinity have been modelled. To aid the development of the preliminary 3D structural model (and to gain a preliminary understanding of the possible fault trends and their influence on the proposed pit) the topography and bathymetry in the form of a digital elevation model was interpreted for lineaments and zones of weakness possibly associated with rock mass damage in fault zones. This information assisted with the preliminary domain delineation (as described in Section 15.7.5).

15.7.4 Seismicity Potential

The Springpole property is located within a low seismic hazard zone.

15.7.5 Drill Core Review and Rock Mass Characterization

Ten drill holes were selected to represent the rock mass likely to be encountered in the proposed pit walls. The core-box photographs, in conjunction with all available logs, were viewed and rated for solid screen recovery, GSI, and IRS. The solid screen recovery estimates were compared with the logged rock quality designation, and relatively good agreement was found between the two. The IRS estimates from core-box photographs was compared to the field strength estimates and some inconsistencies were found in the drill hole data acquired on-site. For this reason, the IRS estimates from core-box photographs (with field calibration from the site-visit) were used for rock mass assessment and design guidelines.

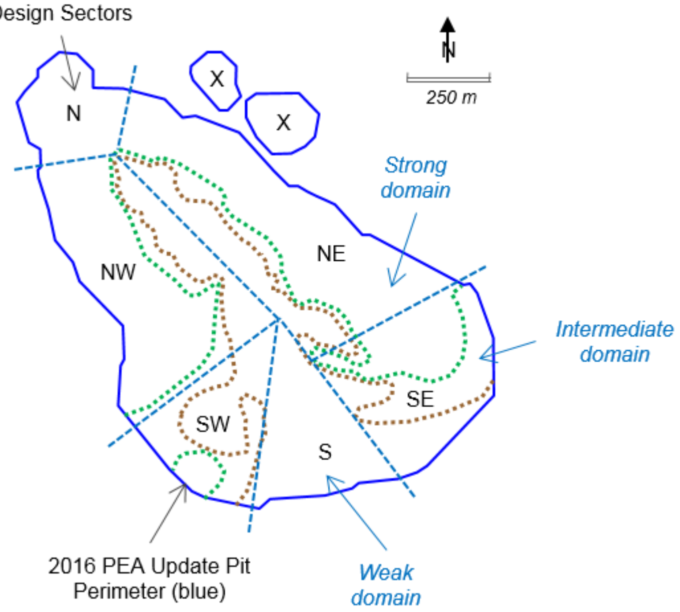
The data was interrogated for preliminary geotechnical domains. Below the lake-floor sediments and glacial overburden, there are at least three distinct rock mass domains within the pit +200 m envelope. A *Strong*-domain, which surrounds Springpole Lake, is considered the host or “country-rock”. There is a relatively narrow transition into the *Intermediate*-domain and *Weak*-domain. The *Intermediate*-domain may be related to regional-scale faulting in some areas, but is also the transition towards the centre of mineralization. The *Weak*-domain appears to be directly associated, spatially, with the mineralization. *Strong* rocks dominate in the north, and on the south-western flank of the pit. The *Weak*-domain appears continuous through the centre of the pit, with the southern-most slopes likely being composed of these rocks. The three domains’ intact rock strengths and geological strength indices are likely to be in the order of:

1. *Strong*-domain, IRS ≈ 150 ±50 MPa, GSI ≈ 60 ±30;
2. *Intermediate*-domain, IRS ≈ 75 ±35 MPa, GSI ≈ 40 ±25, and;
3. *Weak*-domain, IRS ≈ 30 ±20 MPa, GSI ≈ 25 ±20.

Down-hole rock data for the ten selected drill holes are represented in five vertical sections contained within Appendix F. A representative vertical section and the preliminary domain boundaries (in plan view) are presented in Figure 15.9. The overall trend is strong (Archaen-aged basement) rock in the north, strong to intermediate strength rock on the south-west and north-eastern flanks of the proposed pit, and weak mineralised (mafic) rock at depth, along the pit mid-line, and in the south. Alteration fluids introduced during the mineralizing events appear to have weakened the intact rocks in the immediate vicinity of higher-grade zones. The alteration “halo” is approximately 50 m wide.

15.7.6 Preliminary Slope Design and Recommendations

The pit was partitioned into preliminary design sectors, as illustrated in Figure 15.9. On-section rock mass domains were used to determine the slope composition and to estimate an overall rock mass rating (RMR) for each section. These estimated overall-slope RMR values, taking into consideration the weaker rocks in the toe of most of the slopes, were compared to published design charts to estimate achievable overall slope angles for a factor of safety of at least 1.2. The sectors and their maximum recommended overall slope angles are contained in Figure 15.9.



2016 PEA Update, 20160516		
Sector	Max Slope height (m)	OSA (°)
N	240	48
NE	320	46
SE	330	42
S	330	36
SW	380	40
NW	320	44
X	120	56

Figure 15.9: Springpole open pit slope design sectors and overall slope angle (OSA) design guidelines.

The pit design guidelines for these sectors are based on:

- Bench height = 12 m;
- Maximum stack height = 96 m;
- Geotech berms (20 m wide) to separate all stacks;
- Ramp width = 30 m;
- Single-benching, possibly doubles in North (to be investigated during the PFS);
- Keep ramps and infrastructure within the Strong domain if possible;
- Transitioning should occur in the stronger domain at a rate of 1° for each 25 m of pit crest;
- The Weak domain, which runs the length of the pit bottom towards the south, may pose trafficability challenges for large equipment if not drained and dry, and;
- These design guidelines apply to the 2016 PEA pit-shell ±100 m.

There is possibly an up-side opportunity for steeper slope angles used for design if a significant increase in the confidence of the geotechnical data (and model) can be achieved. What may ultimately control achievable slope angles (apart from hydrogeological constraints) is the *Weak* to *Intermediate*-domain spatial arrangement, and anisotropy in the host rock in the *Strong*-domain. To achieve a pre-feasibility level of confidence for the slope design input parameters, the following work is required:

- Process and analyse the 2013 oriented-core data to better characterize the rock mass and acquire intact rock and joint samples.
- Analyse the 2013 IRS data acquired in-field and laboratory.
- Include the preliminary 3D lithostructural interpretation of all major faults, as viewed in drill core and rock outcrop within 200 m of the pit crest, and integrate them with the regional structural interpretation, into an exploration and geotechnical model for the PFS.
- Produce robust 3-D digital wireframe models of lithology, alteration with intensity, and structures.
- Characterize the rock mass as logged and map the geotechnical domains within a 3-D model.

15.8 Hydrogeology

This section presents a review of hydrogeological considerations for the Springpole Gold Project. The objectives of this review were to:

- Provide a general analysis and review of the project's hydrogeological characteristics as they relate to mining and infrastructure.
- Provide preliminary recommendations for water management.

15.8.1 Mine Plan

The proposed general layout for the Springpole mine is presented in Figure 15.10. SRK understands the deposit will be mined using a series of open pits with a maximum depth of approximately 400 m. The outline of these pits overlaps a small portion of Springpole Lake. For the PEA, it is proposed that a series of three coffer dams be constructed at the southern end of the pit area (Figure 15.10) and the lake water pumped out. Details of the lake pumping are provided in Section 15.9.

The mine waste facilities are also presented in Figure 15.10. The waste rock dumps will be located to the southwest and northeast of the pit, entirely within the Springpole Lake watershed. Tailings will be stored in uncemented paste (or thickened) form at the management facility located approximately 3 km to the southeast of the pit.

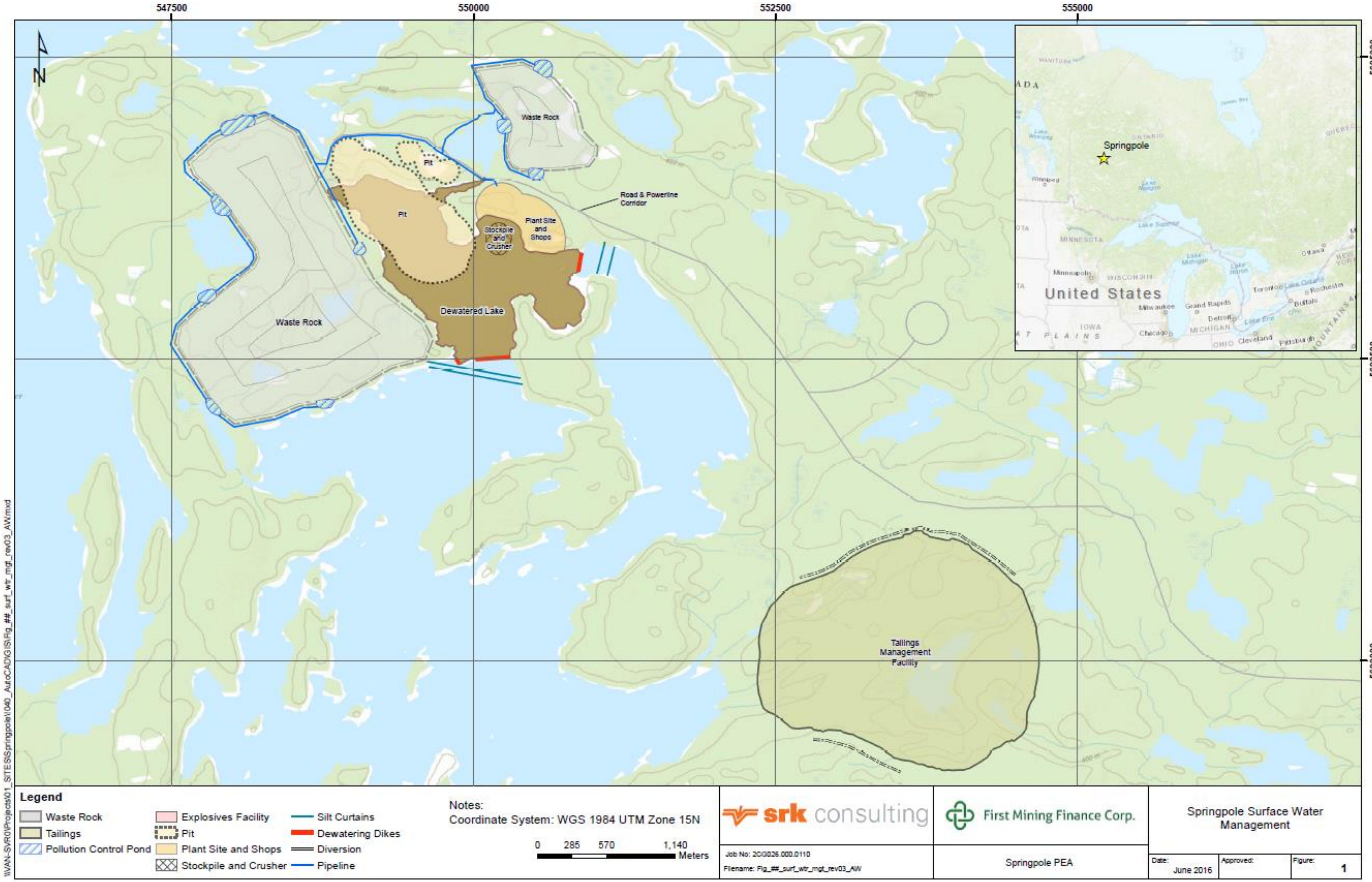


Figure 15.10: Springpole Mine Layout

15.8.2 Available Data

Prior to 2013, there was no collection of hydrogeological data from the Springpole site. In early 2013, SRK initiated a pre-feasibility level geotechnical data collection program for the open pit. This program concluded in March 2013 and included 20 packer tests in 7 geotechnical core holes drilled within the proposed pit footprint. A full interpretation of the data was not available for the PEA reporting; however, hydrogeological observations from site and preliminary testing data were used for this report.

15.8.3 Hydrogeological Conceptual Model

Based on regional observations and experience, a simplified hydrogeological conceptual model can be developed for the site. As there is little site-specific data, this conceptual model can only be used for broad assumptions, but can guide assessment of risk and areas for future data collection. The factors contributing to the conceptual hydrogeology are summarized below.

Topography and Soils

The property is underlain by glaciated terrain characteristics of a large part of the Canadian Shield. Land areas are generally of low relief with less than 30 m of local elevation. Tree cover consists of mature spruce, balsam, birch, and poplar. Black spruce and muskeg swamps occupy low-lying areas. Glacial till is generally less than 1 m in thickness. Outcrops are limited and small and are generally covered by a thick layer of moss or muskeg. Land areas are separated by a series of interconnected shallow ponds and lakes.

Climate

January temperatures range between -40°C and 0°C, and July temperatures range between 20°C and 40°C. Annual rainfall averages 704 mm, with evaporation estimated to be around 545 mm, indicating a net gain. The area receives approximately 200 cm of snow throughout the year.

Geology

<u>Bedrock Lithology</u>

The distribution of the lithological units is not well understood at the Springpole site. There has been extensive drilling over the past 40 years within the Springpole deposit, but this lithological information from drill core was not digitized into a geological model.

Summarized lithological units recorded in drill core within the pit area consist of the following:

- Andesite sequence containing massive and tuffaceous andesite;
- Clastic metasedimentary rocks, banded iron formation, and minor fragmental rocks cut by meter-scale megacrystic feldspar porphyry dykes and lamprophyre dykes; and
- Trachytic volcanic rocks and polymictic breccias cut by numerous meter-scale megacrystic feldspar porphyry dykes.

The gold and silver mineralization at the Springpole deposit occurs in association with the disseminated pyrite-rich argillic and biotite-rich alteration zone (that primarily affect the trachytic volcanic rocks and feldspar porphyry dykes) and stockworks of quartz-pyrite veins and veinlets. The physical degradation of this rock is considerable in places.

Structure

The geological structure on a concession scale is not currently well understood. The appearance of the altered rock, as described in the above section, makes identification of structures in drill core a challenge. In 2011, SRK undertook a preliminary study of the structural controls on the mineralised deposit geometry; however, this study was carried out on a small scale to investigate structural controls on mineralisation and was not projected out sufficiently to interpret larger features that could influence pit scale hydrogeology.

Quaternary Geology (Overburden)

There is no site specific data available for quaternary/overburden geology. From experience in other areas of the Canadian Shield, bedrock is typically scoured with deposits of glacial till varying in thickness from 1 m to up to 10 m in pockets. Soft lake sediments may vary in thickness between 1 m to 10 m.

Groundwater Levels and Groundwater Flow

There is currently no groundwater level data being collected from the project site. Given its proximity to the surrounding lakes, it is assumed that the water levels are similar to that of the lake level.

Experience in this environment suggests that groundwater flow will mostly follow surface water flow directions. It should be noted that there is a surface drainage divide between Birch Lake (to the north) and Springpole Lake (to the south). Groundwater monitoring plans for the project should be designed to verify and acknowledge this catchment divide so that the groundwater flow is adequately characterized.

Groundwater Inflows to the Pit

During operations, inflow rates will be a function of pit-development shape, volume and rate of excavation, as well as hydraulic conductivity of the bedrock and the hydraulic gradient between the mine and surrounding surface water sources (lakes). Estimates of potential inflow rates to the pit were made at an “order of magnitude” accuracy level using analytical methods (Dupuit 1863). Hydraulic conductivity (K) values were derived from preliminary testwork currently being undertaken by SRK in a separate geotechnical data acquisition program for the proposed open pit (reference the pit shells used here). Given the location of the pit relative to the surrounding lakes, and the limited information on geology and structure currently available, a conservative approach was taken in estimating the pit-inflow. Inflow rates were estimated to reach a maximum of approximately 10,500 m^3/d. The potential for geological features to connect to the lakes was flagged as a risk to the project in the form of unanticipated water management and environmental concerns.

Mine Water Supply

Final water requirements will be dictated by the plant design. Given the proximity of nearby surface water bodies, groundwater is unlikely to be required as a primary mine water source. Groundwater inflows collected in the pit will, however, be pumped out and incorporated into the mine site water balance.

Tailings Management Facility and Waste Rock Dumps

Both waste rock and tailings are considered to be potentially acid generating (Morin 2012). Although no site investigation work on the overburden has been undertaken to date, the depth of overburden is expected to be less than 0.5 m on average. Neither the waste rock piles nor the tailings management facility will have an under liner.

15.9 Hydrology

15.9.1 Topography and Watershed Delineation

Topographical information for the Springpole Gold Project site and surrounding area was obtained from Geobase (CTI 1997). The information utilized consisted of:

- Digital Elevation model files with 250 k resolution for areas 052a to 052p (CTI 1997)
- Digital Elevation model files with 50 k resolution for areas 052e13 to 052o12 (CTI 1997)

These digital elevation models were compiled, and the watershed delineation was computed with Esri® ArcMapTM 10.1 utilizing the hydraulics and hydrology analysis tools. The ArcMap software uses a finite element procedure to define watershed boundaries and drainage lines based on topographical elements as well as defined watercourses.

Regional flow watercourses were obtained from the USGS (2012) database HydroSHEDS (Hydrological data and maps based on Shuttle Elevation Derivatives at multiple Scales) including the definition of the most important watercourses, rivers and creek around the site area.

15.9.2 Annual Run-Off and Flow Rates

Historic daily flow rates were obtained from Environment Canada (2010) for five unregulated gauging stations surrounding the project site. The daily flow rates were utilized to determine the annual run-off, monthly flow rates and monthly distribution for each station. The average of the values from the five gauging stations was used for the site specific values. The average annual run-off was estimated to be 306 mm. The monthly run-off distribution can be seen in Table 15.10.

15.9.3 Precipitation

Monthly mean precipitation data were collected for nine stations surrounding the Springpole site, using Canadian Climate Normals 1971-2000 (Environment Canada 2012). Only stations with more than 18 years of complete data and located within 200 km of the project site were utilized. Along with the precipitation data site coordinates and elevation were also obtained.

Mean annual precipitation was calculated for each station, and a graph of mean annual precipitation versus latitude was created. The mean annual precipitation for the Springpole site was determined to be 704 mm. Table 15.7 displays the rainfall distribution.

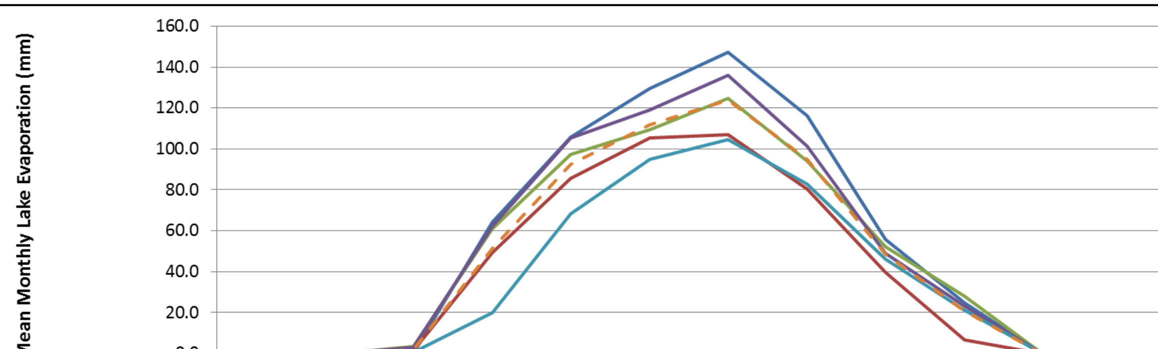
The 1 in 25 years 24-hour storm rainfall was estimated to be 80 mm based on Atlas of Canada extreme rainfall statistics (Hogg and Carr 1985).

Table 15.7: Average Monthly Run-Off and Precipitation Distribution

Month	Run-Off Distribution	Precipitation Distribution
January	4.3%	4.3%
February	3.4%	3.4%
March	3.5%	4.6%
April	8.9%	5.7%
May	15.1%	9.1%
June	14.3%	14.8%
July	12.8%	13.7%
August	9.8%	12.7%
September	8.8%	12.4%
October	7.9%	8.3%
November	6.3%	6.5%
December	4.9%	4.5%

15.9.4 Lake Evaporation

Lake evaporation was calculated using the WREVAP version 1.0 evaporation estimating software. Monthly mean calculated lake evaporation, mean monthly precipitation and daily bright sunshine hours was obtained for five stations surrounding the project site from Canadian Climate Normals 1951 to 1980 (Environment Canada 1982a, 1982c, 1982c). This data was inserted into the WREVAP software to obtain the calculated evaporation in mm and the monthly evaporation distribution for each of the surrounding stations. The average evaporation and evaporation distribution of the five stations will be utilized as the site evaporation. This is displayed in Figure 15.11. The average annual evaporation is 546 mm.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WINNIPEG INT'L A	0.0	0.0	0.3	64.3	105.7	129.6	147.3	116.3	56.0	24.8	0.0	0.0
THOMPSON A	0.0	0.0	1.3	49.5	85.6	105.4	107.1	80.3	39.8	6.8	0.0	0.0
ATIKOKAN	0.0	0.0	3.5	60.9	97.5	109.4	124.7	94.0	52.1	28.0	0.0	0.0
BISSETT	0.0	0.0	2.9	62.2	105.2	119.0	136.0	101.5	48.8	23.1	0.0	0.0
MOOSONEE	0.0	0.0	0.8	20.1	68.5	94.7	104.4	82.7	46.2	21.0	0.0	0.0
AVERAGE	0.0	0.0	1.8	51.4	92.5	111.6	123.9	95.0	48.6	20.7	0.0	0.0

Figure 15.11: Mean Monthly Lake Evaporation for Five Stations Around the Springpole Site

15.9.5 Site Water Balance

Based on the estimated annual precipitation, run-off and lake evaporation the Springpole site has a net negative water balance. However, lake evaporation typically over estimates evaporation; therefore, it is possible that the site may have a net zero water balance. A detailed water balance for site activities was not performed at this time.

15.10 Surface Water Management

15.10.1 Preliminary Design Assumptions

Diversion ditches, sumps, and ponds will be required to manage the surface water at the Springpole site. The following assumptions were used for the preliminary design of the water management plan.

- Lake dewatering is considered a part of the scope of the dewatering dikes and will not be included in the preliminary surface water management plan.
- Water management for project infrastructure such as roads and pads would be included in the infrastructure design.
- Surface water will be separated into contact and non-contact water.
- Non-contact water is assumed to be of discharge quality. Contact water is assumed not to be of discharge quality, based on preliminary geochemical testing. Contact water will be sent to the mill for treatment and reuse. Non-contact water will be diverted or pumped to the closest water body.
- Contact water will be considered all run-off from:
  - Waste rock piles (450 Ha)
  - Mineralised material stockpiles (5 Ha)
  - Pits (100 Ha)
  - Tailings Management Facility (365 Ha)
  - Plant and Shop area (25 Ha)
- Pollution control ponds are not required to contain run-off from the pit or tailings management facility as the management of this water is already accounted for elsewhere.
- Diversion structures, ditches, and ponds for non-contact water are assumed to be unlined.
- Diversion structures, ditches, and ponds for contact water are assumed to be lined.
- Sedimentation and pollution control ponds will be sized to contain the 1:25 year 24 hour storm event.

15.10.2 Design

The water management structures for the waste rock dump and tailings facility consist of 9,000 m of diversion ditches and several pollution control ponds to collect run-off from the waste rock. These can be seen in Figure 15.12. Pollution control ponds have a maximum depth of 2 m. Ponds have a freeboard of 0.5 m, 3 m wide crest and side slopes of 2H:1V on the upstream side and 1.5H:1V on the downstream side.

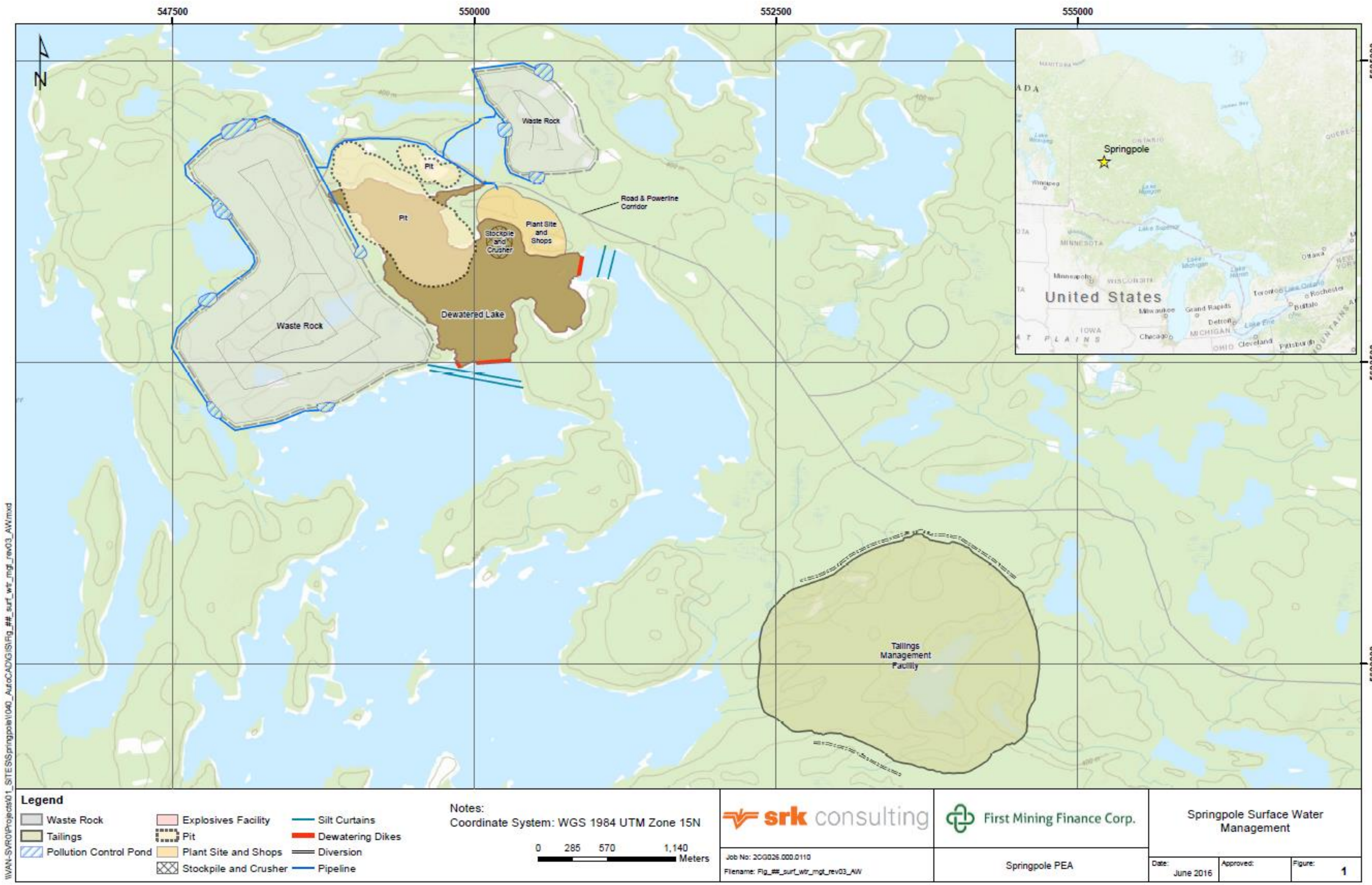


Figure 15.12: Springpole Surface Water Management

16 Recovery Methods

The Springpole PEA envisages a 36,000 t/d process plant treating moderate hardness (BWi of 12 kWh/t to 14 kWh/t) material averaging 1 g/t gold and 6 g/t silver. Testwork has determined that a moderate grind P_{80} size of 70 µm should achieve 80% gold extraction through cyanide leaching for at least 24 hours (design of 36 hours). Gravity recovery is considered optional, as only higher grade feed would benefit from including this circuit.

16.1 Process Flowsheet

The expected process flowsheet for the Springpole Gold Project is shown in Figure 16.1, based on testwork results to date. Recent testing was done without consideration of gravity recovery and accordingly, it is omitted from the flowsheet shown below.

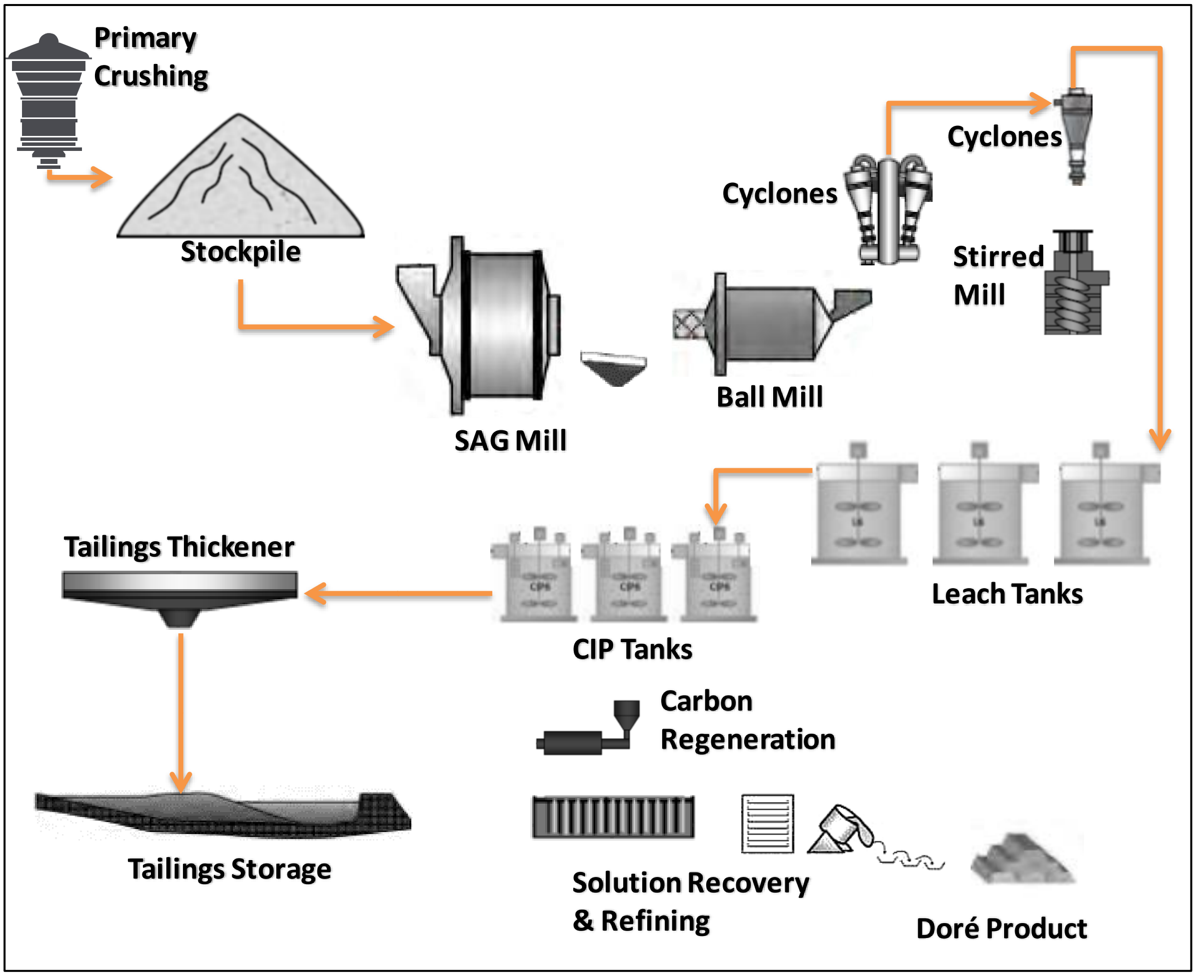


Figure 16.1: Springpole Process Flowsheet

Due to the relative hardness, consistency and poor integrity of the mineralised zones, it is likely that a conventional semi-autogenous grinding (SAG) mill followed by ball mill will be used to an 80% passing size of 70 µm. Multi-stage crushing could be considered, but handling the likely wet and incompetent feed will make slurry processing easier after only one stage of primary crushing.

Grinding cyclone overflow will pass over a trash screen and be thickened prior to cyanide leaching. This circuit will likely comprise of a primary stage of aeration and leaching followed by secondary carbon in pulp (CIP) tanks. The target residence time for cyanidation should be 36 hours. Cyanide consumption will be moderate at around 0.8 kg/t. Leach tailings will report to cyanide destruction prior to tailings impoundment in the storage facility.

Gold loaded carbon will go to stripping and reactivation prior to being returned to the CIP circuit. Pregnant strip solution will report to electrowinning where the gold sludge will be sent to the furnace for recovery as doré bullion.

Reagents to be used in the flowsheet include:

- Sodium cyanide for gold leaching and carbon stripping,
- Lime for pH control of cyanide leaching,
- Hydrochloric acid for carbon stripping,
- Sodium hydroxide for carbon stripping (after acid wash),
- Flocculant for thickening of feed and possibly tailings,
- Sulphur dioxide for cyanide destruction, and
- Copper sulphate for cyanide destruction.

16.2 Expected Plant Performance

The 2017 testwork program focussed on whole feed leaching at grind P_{80} sizes finer than 70µm. For a P_{80} size of 40µm and 24 hours of leaching, the resulting gold and silver leach extraction versus head grade curves are shown in Figure 16.2. The average grade for the deposit is shown by the Master Composite results, with a limited amount of material present associated with higher grades.

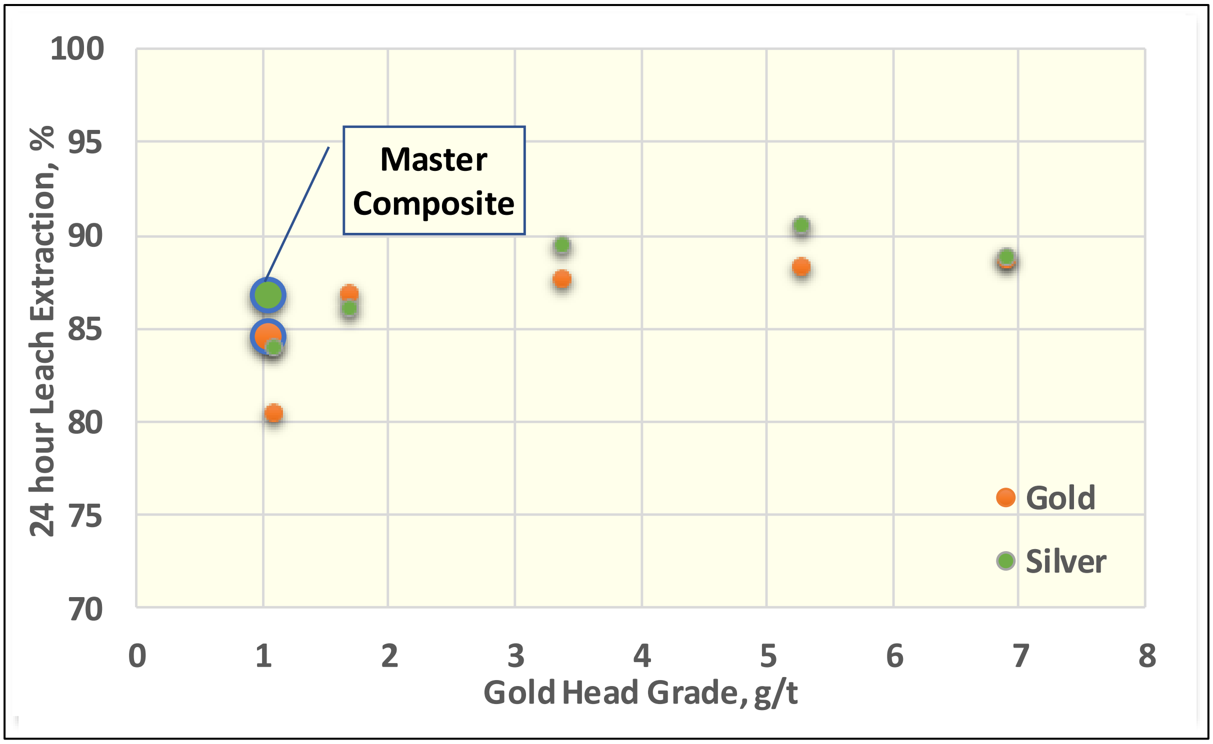


Figure 16.2: 24 Hour Whole Feed Leach Extraction vs. Head Grade (P_{80} Size of 40µm)

However, the economics did not support the finer grind size compared with earlier testwork done at a P_{80} size of 70µm. Higher cyanide consumption costs outweighed the additional gold and silver recovery. Consequently, this updated PEA assumes the earlier leaching conditions of a grind P_{80} size of 70µm, 2 g/L cyanide concentration and 24 hours of lab residence time. Under these conditions, whole feed leaching will achieve 80% gold extraction with silver extraction slightly higher at 85% as shown circled in red (Figure 16.3).

Figure 16.3: Whole Feed Silver Leach Extraction vs. Gold Extraction (2013 Test Results)

Based on the testwork results in 2012/2013 and recently in 2017, the Portage zone material is very consistent in grade and leaching characteristics. There does not appear to be much requirement for metallurgical domaining or characterisation of different areas of the Portage zone. The minor East Extension, Camp and Main zones are different in their gold mineralogy and have been evaluated in the 2012/2013 metallurgical testwork programs.

17 Project Infrastructure

17.1 Waste Rock Facilities

The waste rock facility is planned to be located immediately adjacent to the final pit limits for the Springpole deposit. Given the deposit configuration and extraction sequence, no backfilling into previously mined out areas has been planned for Springpole.

The waste rock facility would be built in a series of lifts in a “bottom-up” approach, and the facility would be constructed by placing material at its natural angle of repose (approximately 1.5H:1V) with safety berms spaced at regular intervals giving an overall operational slope of 2:1. The total design capacity of the waste rock facility is 430 Mt.

17.2 Tailings Management Facility

The following preliminary design assumptions and/or criteria were taken into consideration for the preliminary TMF design presented here:

- Approximately 139 Mt of tailings (36,000 t/d) will be produced throughout the 12 year LOM.
- Tailings characterization testwork has not been carried out, so for volumetric calculations, conservative estimates for tailings density were assumed.
- In addition to tailings, the tailings facility will contain soft lake bed sediments excavated from the dewatering dike foundations and pit area; an estimated 3.1 Mm^3 (assuming 4 m deep sediments in the pit area and 5 m deep sediments under the dikes).
- Minimum design criteria will be in accordance with Canadian Dam Safety Regulations (CDA 2007).
- Initial dam construction will use run of quarry material and subsequent lifts will use run of mine waste rock for construction.
- The Springpole Gold Project is located in the low seismic hazard zone of Canada. Therefore, at this stage, there has been no consideration for specific design elements to address seismicity.
- No geotechnical and/or hydrogeological characterization testwork has been carried out to evaluate foundation conditions. The designs presented are based on engineering judgement considering visual observation of surficial conditions during the site visits by Megan Miller, EIT, and Dr. Ewoud Maritz Rykaart, Ph.D., P.Eng.
- The site has a net negative water balance.
- The site generally has little natural relief offering limited opportunities for natural containment of tailings. The overall topography ranges from about 385 to 415 masl.
- There is competing interest in the available surface area for the placement of mine waste rock. As a rule, open pit project economics are more sensitive to waste rock location than tailings location; therefore, where conflicts occur, waste rock placement gets preference in siting decisions.
- Preliminary geotechnical testing carried out on the tailings suggests that the tailings will be acid generating, and therefore that complete environmental containment will be required for the tailings

management facility. Since the containment dams are expected to be founded on competent bedrock a complete under liner is not included.

17.2.1 Options Analysis for the Tailings Management Facility

Alternate Deposition Methods

Alternate deposition methods considered for the Springpole Gold Project included:

- Conventional low solids content (typically less than 30%) slurry, deposited in an on-land facility;
- Conventional low solids content (typically less than 30%) slurry, deposited in a nearby lake;
- Thickened tailings slurry (solids content typically between 30 and 60%), but still pumpable with centrifugal pumps;
- Cycloned tailings, using the overflow to construct the embankments;
- Uncemented thickened tailings (solids content typically in excess of 60%) requiring positive displacement pumps; and
- Filtered (i.e., dry-stack tailings) tailings.

Due to the low topographical relief and lack of natural containment basins, ring-dams will be required for any on-land tailings deposition strategy. Therefore, tailings deposition methods that result in smaller containment dams are preferred. Conventional low solids content tailings would require the largest containment dams and were therefore not considered further. Thickened tailings slurry offers only a slight advantage in this regard and was therefore also dismissed. Cyclone tailings could be a cost effective method as additional borrow material is not needed to build the dams. However, this deposition strategy is operationally challenging in cold climates and borrow material would be required to construct the starter dams.

Sub-aqueous deposition of conventional low solids content slurry in a nearby lake could be done with little or no dam construction. Permitting of lake disposal would be environmentally and socio/economically challenging, and has, therefore, not been evaluated further.

Filtered tailings would require the smallest containment dams; however, the proposed production rate would require a significant capital investment in filter presses with a correspondingly high operational cost. Therefore, this option was not evaluated further.

Uncemented paste tailings (or more accurately, thickened tailings to the point where there is only a minor amount of bleed water) was, therefore, selected as the preferred tailings deposition strategy as it requires the least amount of containment dams to be constructed, while being more amenable to cold weather operation.

It should be noted that this is a high level evaluation, and considering the level of study, a more comprehensive evaluation of deposition strategies would be warranted during future stages of the Springpole Gold Project.

Alternate Retaining Structures

Hydraulically placed sub-aerial thickened tailings require construction of retaining structures. The alternative retaining structure technologies considered included:

- Earth fill dams,
- Lined rock fill dams, or
- In-pit deposition (mined out open pit).

In-pit disposal into a mined out open pit was considered but dismissed since the proposed mine development sequence does not provide for suitable locations.

The construction of a low permeability core earth fill dam requires the availability of suitable low permeability materials, within tight engineering tolerances. No borrow characterization study was carried out, and, based on the reconnaissance site visit; it is unlikely that large quantities of suitable materials would be readily available. Therefore, at this stage, the preferred dam design is a geosynthetically lined rock fill dam.

Alternate TMF Sites

The closest viable area to the mill that did not require a major stream or lake crossing was selected for the TMF. A high level reconnaissance desktop search for alternate sites was carried out, but ultimately only the currently earmarked location was given any real consideration. Within the confines of this general area, there is some room for minor optimization during future development stages.

Environmental and socio-economic criteria have only been considered in broad terms in this site evaluation, and it is therefore biased towards technical and economic criteria. As the Springpole Gold Project advances and more information becomes available about baseline conditions and potential environmental effects, the analysis should be revisited to confirm that the identified preferred option remains valid.

17.2.2 Tailings Management Facility Design

Roughly 139 Mt of thickened tailings (about 60% solids by mass) will be centrally discharged at a site located about 5 km southeast of the proposed mill site. This results in an estimated 87 Mm^3 of tailings to be stored, based on conservative estimates for a tailings density of 1.6 t/m^3. The centrally discharged tailings will have a positive beach angle of 4% from a central discharge point. This assumed beach angle should be confirmed with testwork during later studies on the project.

Due to the flat topographical relief of the project area, the tailings will be contained by a ring dam which will prevent migration of tailings, lake bed sediments, and any free water. The tailings facility is designed such that the dams will remain at the initial starter dam height of 2 m, except in the areas were a higher dam is required to contain lake bed sediments or prevent the tailings from encroaching on nearby lakes.

To minimize pre-production capital costs, a dam continuously raised over the LOM will be the preferred construction method.

Dam

The tailings ring dam will be approximately 7,355 m in length, with a maximum elevation of 419 m which includes a 2 m freeboard.

The tailings dam is assumed to be a run-of-quarry (Type A material) rock fill dam with a bituminous liner system on the upstream side. The liner system will extend into a trench excavated to bedrock where it will be tied into the bedrock with a concrete pony wall. Foundation preparation will consist of excavating all overburden material (Type C material) to expose bedrock.

The upstream side of the dam will have side slopes of 3H:1V to facilitate liner placement; the downstream slope will have 2H:1V slopes. The crest will be 5 m wide in areas where the dam is less than 3 m high and 10 m wide elsewhere. The dam crest will be utilized as an access road for maintenance. Figure 17.1 demonstrates a typical dam cross section.

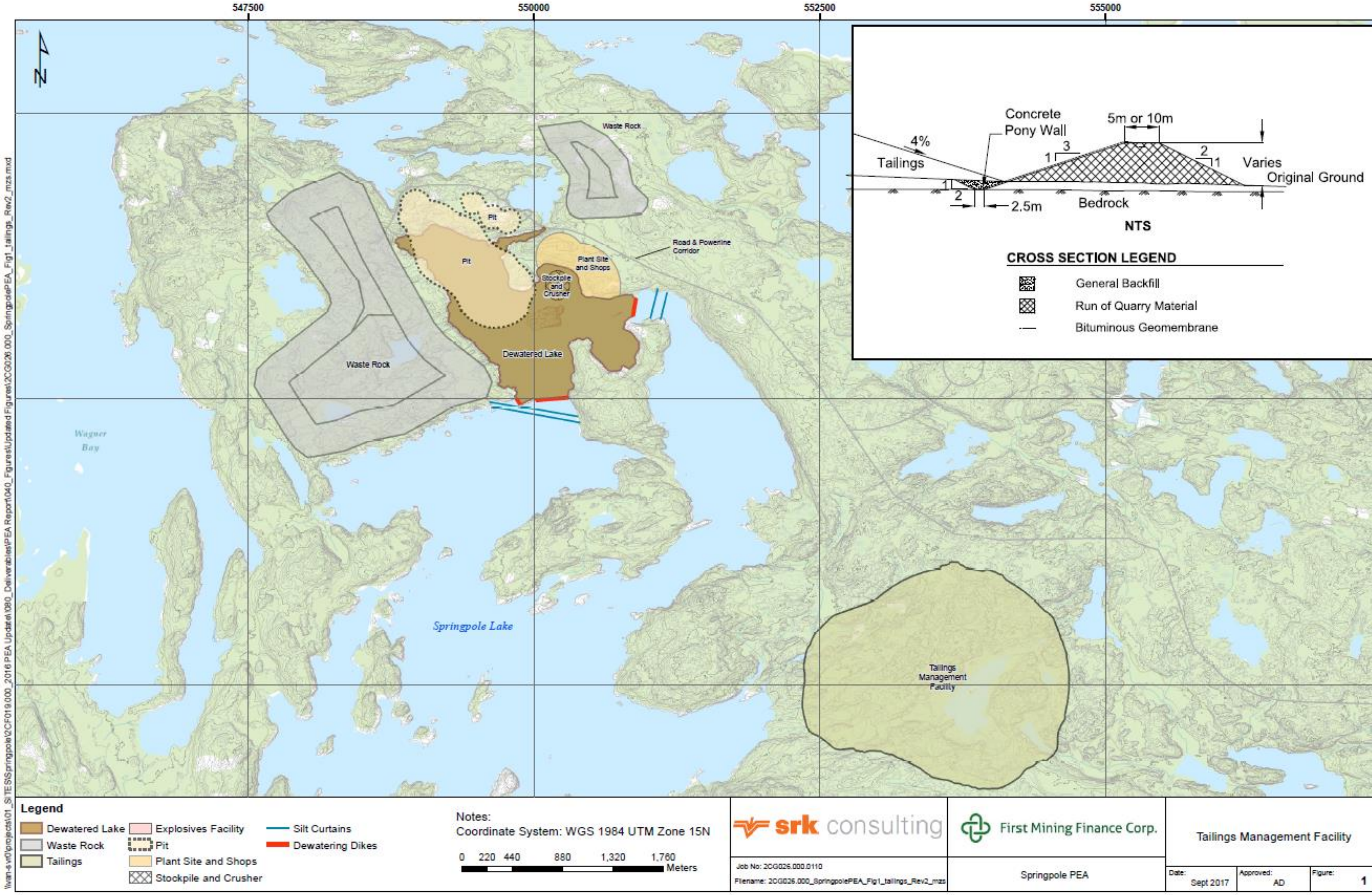


Figure 17.1: Springpole Gold Project Tailings Management Facility

Water Management

During lake dewatering (prior to the placement of tailings), the TMF dam will be used as a settlement pond for water with high total suspended solids and retention of dredged lakebed sediments.

During tailings operations, surface water draining towards the facility will be diverted away from the tailings facility with a diversion ditch. Surface water which collects within the TMF will be collected and pumped back to the mill for reuse/treatment.

Tailings Management

Tailings will be thickened and pumped via two 400 mm diameter heat traced and insulated HDPE pipelines to the tailings management facility, over a distance of 5.6 km. The tailings will be discharged via a single spigot located in a tower at the centre of the facility. This spigot point will continuously be raised and rotated as deposition advances. A 150 mm diameter heat traced and insulated HDPE return water pipeline will lead back to the plant.

Closure and Reclamation

Once mining operations cease, the dams surrounding the tailings facility will be flattened and contoured to allow for natural drainage. Assuming that the tailings composition does not pose an acid rock drainage risk or metal leaching risk, the tailings will be covered with a simple soil cover from a locally available borrow source. The covered tailings surface would be re-vegetated.

17.3 Dewatering Dikes

The following preliminary design assumptions and/or criteria were taken into consideration for the dewatering dike design:

- Minimum design criteria will be in accordance with Canadian Dam Safety Regulations (CDA 2007).
- The Springpole Gold Project is located in the low seismic hazard zone of Canada. Therefore, at this stage, there has been no consideration for specific design elements to address seismicity.
- A series of geotechnical drill holes were completed in 2012 at multiple candidate dike locations. These drill holes managed to measure depth to bedrock; however there was no recovery of any overburden soils or lake bed sediments. The designs presented are based on engineering judgement considering the available data supported by visual observation of surficial conditions during the site visit by Megan Miller, EIT and Dr. Ewoud Maritz Rykaart, Ph.D., P.Eng.
- To allow sufficient time to construct the dikes and dewater the contained lake, the dikes will be constructed two years before mining starts.
- Mine sequencing does not allow mine waste rock to be available for dike construction. A dedicated rock quarry will therefore have to be developed.

Alternate Dike Technology

Alternate construction technologies considered for the dike include:

- Complete dewatering of Springpole Lake followed by conventional dike construction under dry conditions; and
- In-water construction which would not require dewatering of Springpole Lake.

Springpole Lake is a very large lake and dewatering of the entire lake to allow dry construction would not be practical or cost effective. In-water construction is, therefore, proposed. To ensure a watertight seal, sheet pile, slurry wall, and grout curtain construction technologies were considered.

Comparison of rock depths from preliminary drill holes in the general vicinity of the proposed dikes and lake bathymetry at the drill hole locations suggest lake sediment thickness between 0.6 m and 8 m, with an average thickness of 4 m. The lake sediments overly reasonably intact rock, although a transition zone of weathered rock is to be expected. Given the limited amount of data, the viability of sheet piles and a slurry wall to produce a good seal is limited due to constructability concerns. Therefore, at this time, a grout curtain has been assumed to be the preferred method.

Alternate Dike Locations

Several locations were proposed for the dewatering dikes as illustrated in Figure 17.2. The general intent was to find locations that minimized the area of lake dewatering, while ensuring that the dikes would be located outside of possible pit expansion footprints (at least 100 m from the final pit rim). In addition, locations with shallow water are preferred as it would allow for optimized dike construction. Based on these criteria dikes C1, C2, and D were selected as the preferred locations, requiring a total area of 152 Ha to be dewatered, containing about 21.7 Mm^3 of water.

17.3.1 Dike Design

Design Concept

Three dewatering dikes with a total length of approximately 510 m will be constructed in Springpole Lake to allow a small portion of the lake to be dewatered. The dikes will be constructed to an elevation of 391 m above mean sea level, which allows 3 m of freeboard above the lake level.

The dikes will be constructed under wet conditions; therefore, two silt entrapment curtains will be deployed downstream of the dike locations to prevent high suspended solids in the remainder of the lake. Prior to the placement of fill material, the foundation of the dam will be dredged to remove any soft lakebed sediments. The rock fill material will be placed, and then the grout curtain and plastic concrete cut-off wall will be built through the completed dike.

The dikes will be constructed with a 12 m wide crest which will act as an access road during construction in wet conditions and the sides of the dikes will slope at angle of repose. The dike will consist of an upstream rip-rap layer (Type D material) over a layer of run-of-quarry rock (Type A material), an inner layer of bedding material (Type B material), through which the plastic concrete slurry wall will be constructed, and finally a downstream layer of run-of-quarry (Type A material) rock. The typical cross section of the dewatering dikes can be seen in Figure 17.2.

A 1 m thick plastic concrete slurry wall will be constructed through the center of the dike and extend a minimum of 1 m into bedrock to provide a water retaining seal. A three row grout curtain cut-off wall will extend 5 m into the bedrock to prevent seepage.

Prior to dike construction, an assumed 5 m of soft lake bed sediments would be removed from within the footprint of the dewatering dikes. These lake bed sediments would be deposited in the TMF.

Lake bathymetry was available for all three of the dike locations selected. Average dike heights were determined to be 1.2, 2.3 and 5.1 m for dikes C1, C2, and D, respectively. The maximum overall dike height, above the lakebed surface, is 8.2 m for dike D.

Quantities associated with the dewatering dikes were calculated based on average lake depth and assumed geometry.

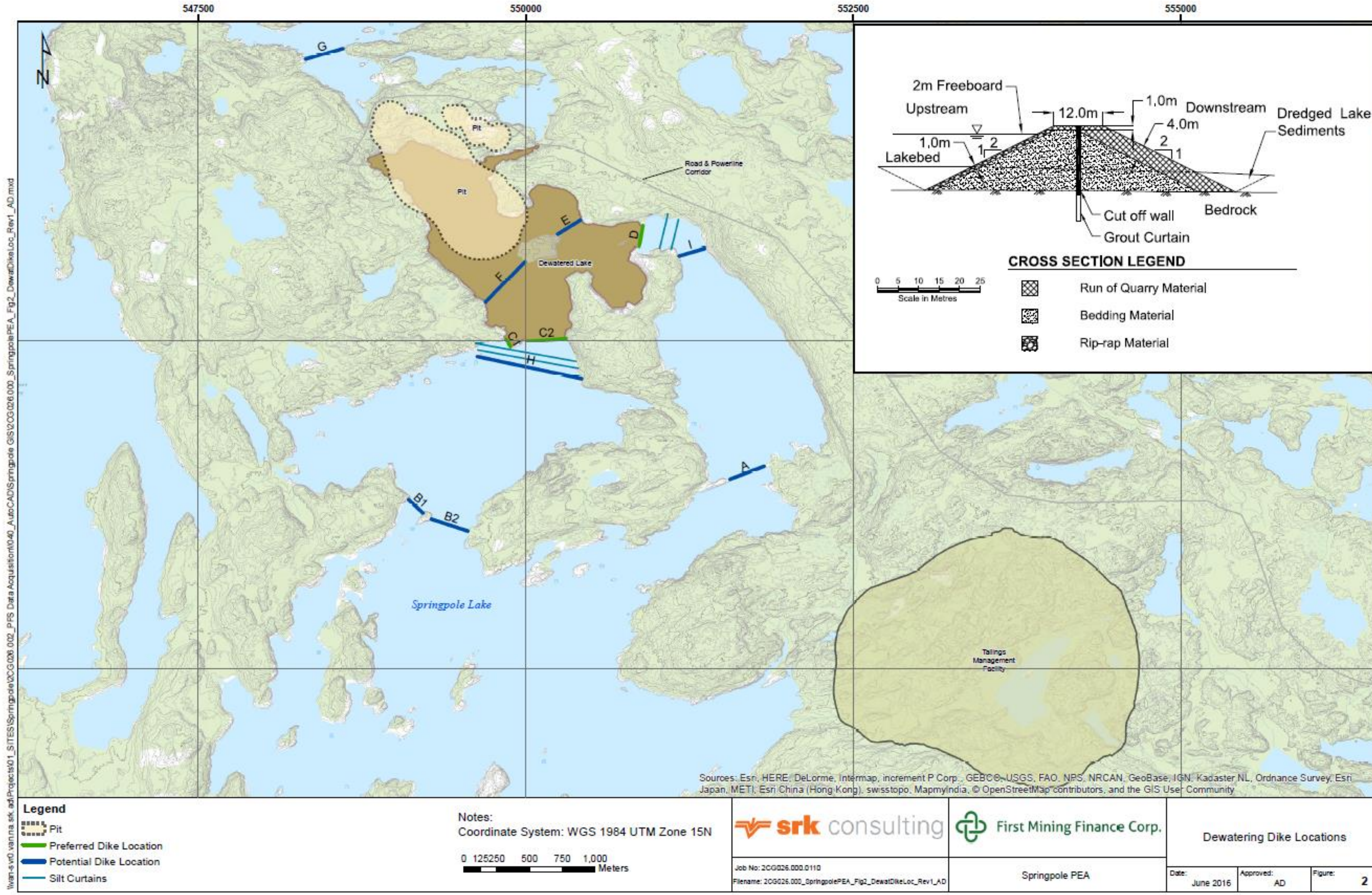


Figure 17.2: Springpole Gold Project Dewatering Dike Locations

Lake Dewatering

The small area of Springpole Lake proposed to be dammed and dewatered totals 152 Ha representing approximately 6.1% of the entire surface area of Springpole Lake. Figure 17.3 below presents the portion of the lake proposed to be dammed and dewatered within the context of the entire area of Springpole Lake.

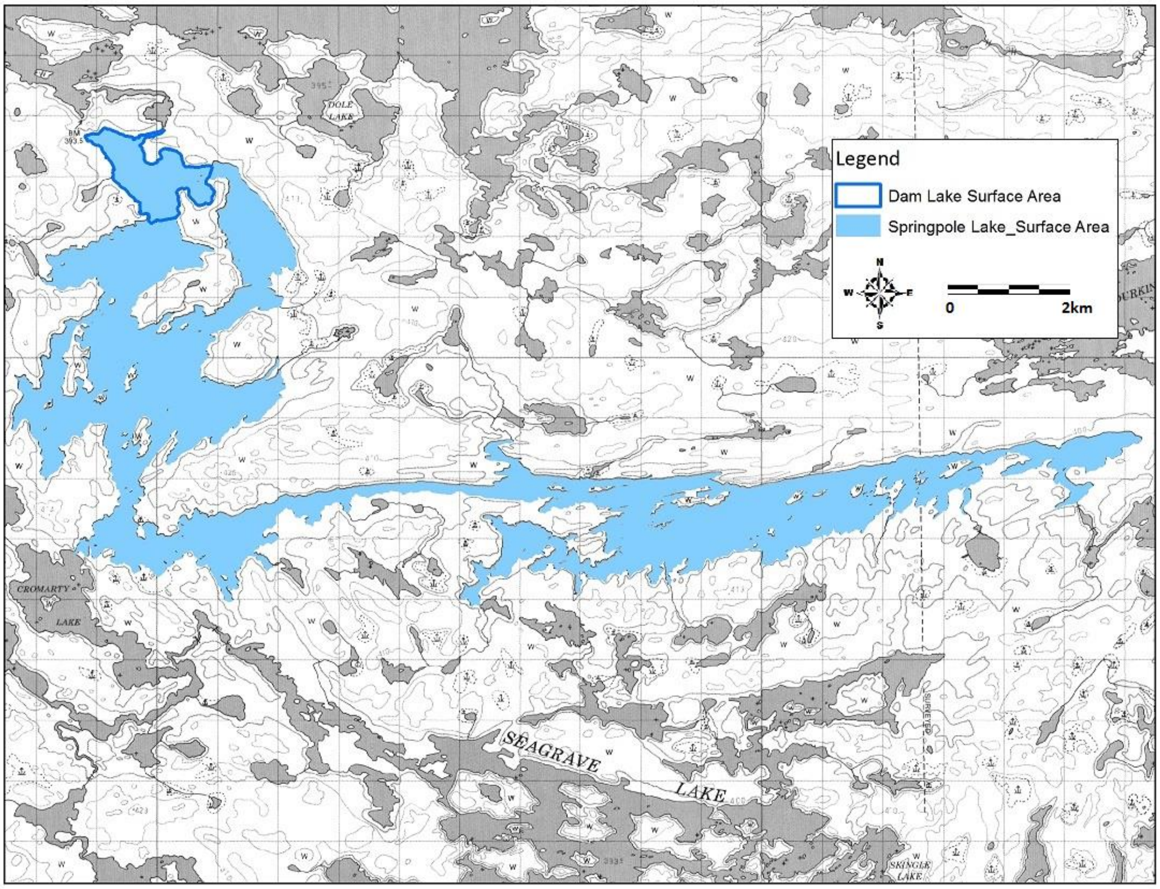


Figure 17.3: Springpole Gold Project Dewatering Area vs Total Area of Springpole Lake. *(Modified from NTDB (National Topographic Data Base) vector sheet 052N08).*

An estimated 21.7 Mm^3 of water will have to be drained from the area of Springpole Lake within the dewatering dikes. Of this, 80% (17.4 Mm^3) is estimated to be clean water which can be discharged directly over the dewatering dikes into Springpole Lake, inside the silt curtain. The remaining 4.3 Mm^3 (20%) is assumed to be 'murky' (i.e., have suspended solids higher than the allowable discharge limits). The murky water will be pumped to the TMF which will act as a sedimentation pond; no tailings will be in the TMF at this time. Clear water from TMF will be pumped to Springpole Lake. Steps will be taken during the dewatering process to reduce the amount of sediments that become suspended in the water, including silt curtains around the water intake area.

Due to project economic considerations, it is preferred that this small portion of Springpole Lake be dewatered within one year of dike completion. In order to dewater this part of the lake in this time period, the dewatering flow rate will be 0.6 m^3/s (assuming dewatering 365 d/y, 24 hr/d). This dewatering rate is within the range of other planned and actual lake dewatering rates (BHP 1995, 1999, and 2001; Diavik 2003; Agnico-Eagle 2010; De Beers 2010). Additionally, literature from other lake dewatering projects indicates that dewatering during the winter months results in less suspended solids. Preliminary hydrological evaluations indicate that the 0.6 m^3/s dewatering rate is possible.

Water Management

During operations, surface water will be diverted from entering the dammed and dewatered portion of Springpole Lake. Management of direct precipitation and seepage into the pit will be included in the mine dewatering activities.

Closure and Reclamation

When mining ceases, pumping will cease and water will be allowed to re-enter the dewatered lake bed and pit. Once the lake has reached the natural lake level the dewatering dikes will be breached and the above water portions removed. Before breaching of the dikes, silt entrapment curtains will be installed. These silt curtains will remain in-place until water sediments reach acceptable quality levels.

17.4 Infrastructure

17.4.1 Roads

Two Lane Access Corridor Road

This 12 m wide, two-lane unpaved, 39 km access corridor road extends from the Springpole deposit along the Birch River before it connects up with the planned Wenasaga Road (Gold Canyon 2012). This will likely be the primary access road for the Springpole Gold Project. The primary normal design vehicles for the road are Super B-Train trucks for hauling of supplies and equipment. Heavy equipment and oversize vehicles will occasionally use the road, especially during the project construction phase.

Road construction will consist of clearing and grubbing of the right of way corridor, prior to placing of an approximately 0.5 m thick compacted sub-base layer sourced from locally developed and approved borrow sources (which have been assumed to be no more than 10 km apart, for a maximum haul distance of 5 km). Based on a cursory review of the alignment using low resolution topographical mapping, it is anticipated that only basic cut/fill techniques will be required to construct the road.

The unpaved road surface will require ongoing maintenance consisting of re-grading and topdressing the running surface to reduce the wear on the haul truck and heavy equipment tires. Topdressing will be sourced from the local borrow sources used during construction. For the purpose of the cost estimate, it has been assumed that, on average, at least 3 cm of new topdressing will be applied annually to the running surface of the road.

Single Lane Access Roads

There are four 7 m wide single lane access roads located throughout the project area:

- A 5 km section from the Mill to the South Dike,
- A 1 km section from the Access Corridor Road to the Explosives Facility,
- A 0.3 km section from the Access Corridor Road to the Landfill, and

- A 0.2 km section from the Access Corridor Road to the Overburden Dump.

The primary design vehicles for these roads are light trucks, although it is expected that heavy equipment will infrequently travel on these roads.

Construction and maintenance of these roads will be similar to the Access Corridor Road.

Stream Crossings

Two major stream crossings are required along the Access Corridor Road. A 5 m wide, 3 m high and 14 m long arched culvert will be constructed at the Deaddog Stream Crossing. The Birch River Crossing will require a 90 m long pre-fabricated bridge. Both crossings will be clear span bridges that are in accordance with the requirements of the Ministry of Natural Resources and the Department of Fisheries and Oceans.

Routine surface water management along all roads will be done through crowning of the roads. In 11 key areas along the Access Corridor Road, surface water will be allowed to cross the road via 0.45 m diameter corrugated steel culverts. No culverts have been identified for the single lane access roads.

17.4.2 Buildings

The buildings discussed below will be of modular design or consist of fully contained prefabricated components. They will be shipped to site either as complete units or will require minimal on-site construction, plumbing, and electrical work.

General Maintenance Shop

This is a pre-engineered, insulated sprung structure with a concrete slab on-grade measuring 30 m in length and 25 m in width. This facility will be used for general facility maintenance and upkeep.

Waste Management Building

This open floor plan structure measuring 13 m by 20 m will be used for sorting and handling all the waste produced from building construction and operation activities. If permitting allows, an incinerator associated with the Waste Management Building would be used to burn unpainted construction material and domestic waste, which would reduce the volume being transported to the landfill. Hazardous and recyclable waste will be transported off-site.

Emergency Response Building

This will be a framed structure measuring 10 m in length by 20 m in width and will house all the equipment and facilities to handle site emergencies.

Mine Maintenance Shop

This is a framed structure measuring 30 m by 25 m and will be used for general service for mine site surface infrastructure, haul trucks and heavy equipment as well as light vehicles. The building will be equipped with overhead cranes, workbenches and equipment, as well as areas allocated to permit maintenance and fabrication activities.

Light Vehicle Maintenance Shop

This pre-engineered sprung structure with a concrete slab on-grade will be used for the maintenance of light vehicles. The shop will measure 30 m in length by 25 m in width. This building will also be equipped with overhead cranes, workbenches and equipment, as well as areas allocated to permit maintenance and fabrication activities.

Assay Laboratory

This building will be a framed structure measuring 20 m by 22 m. It will have areas allocated for sample preparation and analyses. The assay laboratory is a climate controlled, “clean” building.

Warehousing and Storage

This will be another pre-engineered insulated sprung structure with a concrete slab on-grade. It will measure 25 m in length by 30 m in width. This building will handle all inventories on-site and house stock that must be protected from the environment. It will be associated with a lay-down yard for larger pieces of equipment and materials.

Camp

This will be composed of modular structures that will be transported to site then connected together. The camp will accommodate 300 people in single rooms with dormitory style washrooms. This facility will also contain a kitchen, a mess hall, and recreation facilities.

Water Treatment Plant

This will be a packaged reverse osmosis treatment plant. The treatment plant will be self-contained within a couple of SeaCans which, when connected together, measures 13 by 9 m.

Sewage Treatment Plant

This will also be a packaged bio-reactor treatment plant with a sludge filter press. Just like the Water Treatment Plant, it has been assumed the Sewage Treatment Plant will be contained within a couple of SeaCans which, when connected together, measures 13 by 9 m.

Fuel Storage

Substantial storage of fuel will not be required on-site due to the easy access to the nearby highway. Some fuel storage will be required for the mine, haul, and light vehicle fleets, as well as for the heavy equipment and production of ammonium nitrate/fuel oil, a bulk explosive. For the cost estimate, it has been assumed a 5 ML fuel tank farm, within a suitably-sized bund, is to be constructed at the mine site. This structure will be shipped as pre-formed panels and trussed which will require on-site erection and fabrication.

Office Complex

It is estimated the mine site will have an office staff of 200 people. Several administration buildings will be required. For the purposes of the cost estimate, four buildings measuring 20 m by 20 m were assumed. These will be modular buildings with interior furnishings to allow for all the administrative and day-to-day activities needed for the mine to operate.

Mine Truck Shop

This will also be a framed structure measuring 55 m by 30 m used to service the mining fleet for mine specific operations. This building will also be equipped with overhead cranes, workbenches and equipment, as well as areas allocated to permit maintenance and fabrication activities.

Power Lines

A 60 km long by 23 m wide right-of-way will be cleared, grubbed and prepared for the installation of a 115 kV wood pole transmission line using 636,000 mils conductor. The right-of-way will start from Highway 105 near Ear Falls and travel a further 90 km alongside the existing Hydro One corridor overland where it will connect to and follow the access corridor road to the project site.

18 Market Studies, Pricing, and Contracts

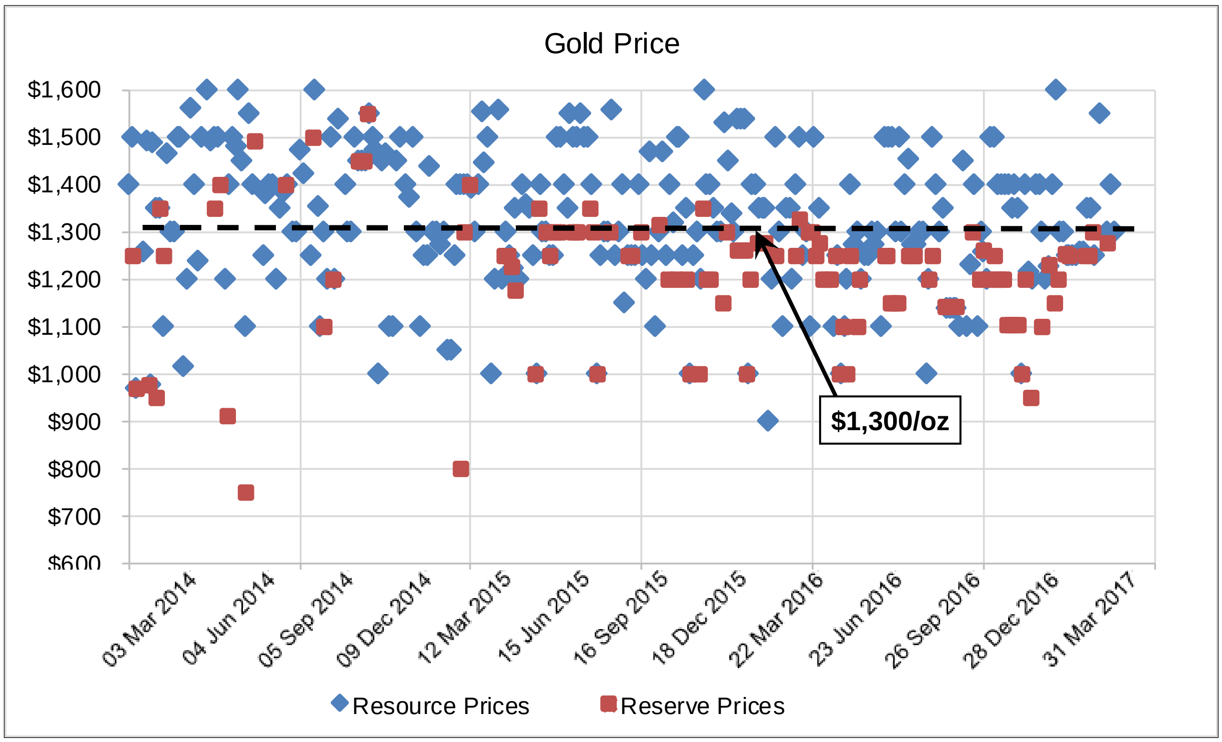
18.1 Market Studies

No project-specific marketing studies were undertaken for the PEA. The planned CIP processing will produce gold doré bullion that is a fungible commodity for which an efficient global market exists. It is of high value density meaning that the realised price of the contained gold is insensitive to the ultimate location of the customer and refinery as freight costs are negligible in comparison to contained value.

Refinery terms of 99.5% payable gold in doré bullion and a refining charge of $5/oz that were used are typical of current terms being offered for CIP produced gold doré bullion.

18.2 Pricing

Based on SRK's review, long-term gold pricing forecasts used for the design of the mining project at $1,300/oz is consistent with gold prices being used in similar publicly released studies (Figure 18.1).



Source : SRK, 2017

Figure 18.1: Resource and Reserve Prices from NI 43-101 Reports, 2014-2017

18.3 Contracts

No contracts for the sale of the production have been entered into.

19 Environmental Studies, Permitting and Social Setting

19.1 General

The Springpole Gold Project is located in an area of northwest Ontario which has hosted mineral exploration and mining projects for most of the previous century. The Springpole property has a history of gold exploration being carried out during two main periods, one during the 1920s to 1940s, and a second period from 1985 to the present. Previous exploration activities on the property have comprised surface drilling, geophysical surveys, geological mapping, and exploration trail development. The exploration activities have resulted in a network of exploration trails and minor disturbances to the environment due to line cutting, trenching, and surface stripping.

19.2 Environmental Regulatory Setting

The environmental assessment (EA) and permitting framework for metal mining in Canada is well established. The federal and provincial EA processes provide a mechanism for reviewing major projects to assess potential impacts. Following a successful EA, the operation undergoes a licensing and permitting phase to allow operations to proceed. The project is then regulated through all phases (construction, operation, closure, and post-closure) by both federal and provincial departments and agencies.

19.2.1 Federal Environmental Assessment Process

In the spring of 2012, the 1992 Canadian Environmental Assessment Act was amended and replaced (CEAA 2012). Two significant results of the updated act were the redefinition of what “triggers” a federal EA and the introduction of legislated time periods within a federal EA, if it is required.

Under CEAA 2012, an EA focuses on potential adverse environmental effects that are within federal jurisdiction including:

- Fish and fish habitat,
- Other aquatic species,
- Migratory birds,
- Federal lands,
- Effects that cross provincial or international boundaries,
- Effects that impact on Aboriginal peoples such as their use of lands and resources for traditional purposes, and
- Environmental changes that are directly linked or necessarily incidental to any federal decisions about a project.

With respect to the Springpole Gold Project, there are two main methods in which a federal EA could be required under CEAA 2012:

1. A proposed project will require an EA if the project is described in the Regulations Designating Physical Activities (CEAA 2012).

2. Section 14(2) of CEAA 2012 allows the Minister of Environment to (by order) designate a physical activity that is not prescribed by regulation if, in the Minister's opinion, either the carrying out of that physical activity may cause adverse environmental effects or public concerns related to those effects may warrant the designation.

With respect to item one above, Section 15 of the Regulations Designating Physical Activities (2012) states:

15. The construction, operation, decommissioning and abandonment of

> *(a) a metal mine, other than a gold mine, with an ore production capacity of 3000 t/d or more;*
>
> *(b) a metal mine with ore input capacity of 4,000 t/d or more;*
>
> *(c) a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more.*

If the proposed project is captured under Section 15 of the Regulations Designating Physical Activities (2012), which is the case for the Springpole Gold Project, the proponent is required to submit a project description to the Canadian Environmental Assessment Agency for screening. The agency will then screen the project to determine if a federal EA is required. If a federal assessment is required, the minister then determines what type of EA the project will require. There are two types of EAs conducted under CEAA 2012: an environmental assessment by "responsible authority" (standard EA) and an environmental assessment by a review panel. Both types of assessments can be conducted by the federal government alone or in conjunction with another jurisdiction. The responsible authority in the case of base and precious metal mining is the CEAA.

Under CEAA 2012, the federal government may also delegate any part of an environmental assessment to the province. At the province's request, the agency may also substitute the provincial process for a federal EA if the provincial EA process meets the requirements of CEAA 2012. Both processes have the potential to streamline the EA process.

In addition to the federally legislated requirements defining the need for an environmental assessment, the federal government introduced the Major Projects Management Office (MPMO) in 2007. The MPMO role is to provide a management and coordinating role for major resource development projects in Canada. The authority and mandate of the office is provided through a committee comprised of deputy ministers from federal departments typically identified as "responsible authorities" in the conduct of a federal environmental assessment. The MPMO has no legislative authority. The MPMO would self-determine their level of involvement in the assessment as part of the original screening process.

19.2.2 Provincial Environmental Assessment Process

In the Province of Ontario, the Environmental Assessment Act (EAA) is administered by the Ministry of Environment and Climate Change (MOECC). The EAA promotes responsible environmental decision making and ensures that interested persons have an opportunity to comment on projects that may affect them. Under the EAA, the environment is broadly defined and includes the natural, social, cultural, and economic environment.

Mining projects in Ontario are not usually subject to the EAA because the act does not apply to private companies unless designated by regulation or the proponent has volunteered to be subject to the requirements of the EAA. However, some of the activities associated with the development of a mining project may be subject to the requirements of the EAA through existing class EAs (Class EA) or regulations. Such activities include:

- Granting permits on Crown land, disposition of Crown resources;
- Constructing power generation or transmission facilities;
- Constructing infrastructure related to provincial transportation facilities; and
- Establishing a waste management facility.

19.3 Environmental Assessment Project Requirements

The proposed project will need to be screened under CEAA 2012. The requirement of a federal EA will become clearer once consultations with CEAA administrators for the development of a project description are completed; however, it is expected that a federal assessment of the proposed project will be required given the project's potential impacts on fish, fish habitat, and other aquatic species.

At the provincial level, it is anticipated the project will require multiple Class EAs or individual EAs to develop the mining project. First Mining may decide to enter into a Voluntary Agreement with the MOECC to subject the Springpole Gold Project to one EA instead of multiple Class EAs.

The Springpole Gold Project is likely to require a federal and/or provincial EA before it can proceed. Completion of an individual EA, following its initiation, would require approximately 12 to 24 months. Based on current CEAA 2012 guidance documents and the act's new legislated timelines, completion of a standard EA would require 12 to 24 months from the commencement of the federal EA process. In the event the final design of the project dictates an amendment to Schedule II of the Metal Mining Effluent Regulations, the time necessary to complete the EA and subsequent licensing phase would be increased.

Ontario and Canada honour an EA cooperation agreement that harmonizes the two assessment processes to run concurrently under a single administrative process. This process is typically administered jointly by Ontario's Assessment Branch and the CEAA regional office located in Toronto, Ontario. Combining the assessment requirements of both jurisdictions under this cooperation agreement would make it possible to streamline the EA process for the Springpole Gold Project.

19.4 Environmental Licensing Process

Following a successful EA, the project will be required to obtain a number of provincial and federal licences/permits. This process can generally be initiated, in part, during the final stages of the EA if one is required. The following sections contain lists of both federal and provincial licences and permits the Springpole Gold Project will require.

19.4.1 Federal Licences and Approvals

The following federal licences/permits/authorizations are typically required of mining projects of this nature (Table 19.1).

Table 19.1: Required Federal Approvals

Statute	Authorization	Agency	Purpose
Explosives Act	Licence No. 682 – the main Magazine storage of explosives and detonators No. 1168 – Magazine storage for avalanche explosives and detonators	Natural Resources Canada	Authority to manufacture and store explosives
Species at Risk Act	Authorization	Environment and Climate Change Canada	Protect species at risk or near risk
Fisheries Act	Authorization of work affecting fish habitat	Fisheries and Oceans	Any work that has the potential to impact waters defined as fish habitat
Fisheries Act	Fish Habitat Compensation Agreement	Fisheries and Oceans	Habitat compensation agreement to offset fish habitat altered or destroyed as a result of project activities
Fisheries Act	Authorization to discharge deleterious substances (Metal Mining Effluent Regulations)	Environment and Climate Change Canada	Any effluent discharges that have the potential to affect fish and fish habitat
Fisheries Act	Amendment to Schedule 2 of MMER	Environment and Climate Change Canada	Amendment for any water bodies designated as Tailings Impoundment Areas
Navigable Waters Protection Act	Authorization of work affecting navigable waters.	Transport Canada	Authorization for bridge and power lines crossing over navigable waters
Nuclear Safety Control Act	Radioisotope Licence 09-12586-99	Canadian Nuclear Safety Commission	Authorization for Nuclear Density Gauges / X-ray analyzer

19.4.2 Provincial Licences and Approvals

The following provincial licences/permits/authorizations are typically required (Table 19.2).

Table 19.2: Required Provincial Approvals

Statute	Authorization	Agency	Purpose
Environmental Protection Act	Environmental Compliance Approval	MOECC	Approval to discharge air emissions and noise
Ontario Water Resources Act	Environmental Compliance Approval	MOECC	Approval to treat and discharge effluent
Environmental Protection Act	Environmental Compliance Approval	MOECC	Operate a landfill or waste transfer site
Ontario Water Resources Act	Permit to take water	MOECC	Use of surface or groundwater over 50,000 lpd
Public Lands Act/ Lakes and Rivers Improvement Act	Work Permit	MNRF	Work Permit on crown land
Public Lands Act	Land Use Permit	MNRF	Construction of permanent facilities on crown land
Aggregate Resource Act	Aggregate Permits	MNRF	Approval to develop and operate aggregate pits
Crown Forest Sustainability Act	Forest Resource Licence	MNRF	To harvest crown timber
Endangered Species Act	Overall Benefit Permits	MNRF	Required to provide Overall Benefit to any listed species that may be affected by project activities
Mining Act	Closure Plan	MNDM	To allow construction and production
Lakes and Rivers Improvement Act	Approval	MNRF	Construction of dams and dykes

19.5 Social Setting

First Mining's Springpole Gold Project is located in northwestern Ontario, approximately 110 km northeast of Red Lake. The project is located in an unorganized township, Red Lake Mining District, Casummit Lake Area within the Trout Lake Forest Management Plan. The Red Lake area has been a historic mining camp since the gold rush of the 1920s, and it currently has five active mines and numerous decommissioned or abandoned mines situated within the Municipality of Red Lake. Mineral exploration, mining, mining spin-offs and wilderness tourism (hunting, fishing) comprise the majority of economic activity in the area.

Groups that may be impacted by the project are the Aboriginal communities in the area including Cat Lake, Slate Falls, Lac Seul, and Wabauskang First Nations; the Métis Nation of Ontario (MNO); remote tourism outfitters and local land owners.

19.5.1 Aboriginal Consultation

The previous project owners and more recently First Mining have made it a priority to work with local Aboriginal communities to identify and protect the Aboriginal values and sensitive sites, and First Mining is committed to carrying out meaningful and good faith consultation with the aboriginal communities that may be affected by the project. They have maintained an open-door policy and have provided regular notices and updates regarding their activities on the project. During the archaeological and biological assessment work that was completed in 2012 and more recently in 2017, the project owners hired technicians from the Cat Lake, Slate Falls, and Lac Seul First Nations to help complete the assessment work and to be liaisons to their communities and participate in the open-house information sessions.

In the spring of 2012, the Chiefs from the First Nation communities of Cat Lake, Slate Falls, and Lac Seul signed an internal protocol agreement to work together for the purpose of negotiations with the previous owner (Gold Canyon). While the property was under the ownership of Gold Canyon their representatives engaged in regular meetings with a working group that is comprised of members from each of the partnership First Nations.

Gold Canyon completed introductory meetings with the Wabauskang First Nation. In 2014 Gold Canyon co-funded a “Traditional Knowledge and Land Use Study” in the area of the Springpole Gold Access Corridor Project. First Mining is also committed to providing update meetings on the project as the various parts of the project develop and progress.

Gold Canyon had an introductory meeting with the MNO to provide information about the Springpole Gold Project and has provided notification of the project to the Lands and Resources Branch of the MNO. First Mining is also committed to providing update meetings on the project as the various parts of the project develop and progress.

19.5.2 Public Consultation

First Mining has identified many relevant stakeholders in the region including Domtar, the Red Lake Local Citizen’s Committee, the Township of Ear Falls, local tourist operators, outfitters, commercial bait fisherman, bear licence holders and private landowners. Introductory presentations and updates about the project have been delivered by previous project owners. First Mining is committed to advancing the consultation process with the affected stakeholders in the region to seek feedback and to help identify concerns so that the appropriate mitigation measures may be developed.

19.6 Preliminary Reclamation Plan

The final closure plan for the proposed project will be developed for the entire project as part of the assessment and licensing process in accordance with Ontario legislation, a financial bond will also be required in accordance with the Ontario Mining Act.

Conceptually, the closure of the proposed project will consist of the following main components:

- decontamination,
- asset removal,
- demolition and disposal, and
- reclamation of all impacted areas.

All project components will be decontaminated as necessary. Surplus chemicals and other hazardous materials will be removed and stored in designated temporary storage facilities within the facility footprint until such time that they can be resold or permanently stored in a licenced facility.

All salvageable or recyclable components will be dismantled and stored in a designated lay down area to allow for secondary decontamination and eventual shipment off-site. All infrastructure that cannot be salvaged and re-used will be demolished and disposed of in an approved facility.

Following any required re-grading, an appropriate cover for the tailings management facility, as well as any remaining waste rock storage piles, will be developed and constructed.

The open pit will be allowed to flood and, once the water quality is acceptable, the coffer dams will be breached and the pit area will again form part of Springpole Lake.

The impacted areas including the tailings and waste rock covers will be vegetated with an appropriate seed mixture designed to enhance natural re-vegetation of the site.

20 Capital and Operating Costs

20.1 Capital Costs

20.1.1 Mine Capital Cost

The capital cost estimate for the open pit operation is based on the scheduled plant throughput rates, as well as comparing to similar sized open pit gold operations (throughput of 13 Mtpa process plant feed). The open pit mining activities for the Springpole pit were assumed to be undertaken by an owner-operated fleet as the basis for this preliminary study with the fleet having an estimated maximum capacity of 180,000 t/d total material, which would be sufficient for the proposed LOM plan.

The open pit equipment capital cost (including sustaining and replacement costs) required to achieve the target processing rate is summarized in Table 20.1 below. Mining cost service information, as well as factors based on experience, was taken into consideration in determining the open pit capital cost estimate. No equipment was considered as lease.

The ancillary equipment includes light trucks and service vehicles, backhoes, and fuel trucks, along with a number of other required open pit mining support equipment.

Table 20.1: Open Pit Equipment Capital Cost Summary

Item	Unit Cost ($M)	Initial Units	Replace Units	Total Units	Total Cost ($M)
Crawler-Mounted, Rotary Tri-Cone, 12.25-in Dia.	4	3	1	4	17
Diesel, 40-cu-yd Front Shovel	14	4	1	5	72
240-ton class Haul Truck	4	14	1	15	59
D10-class 17.3' blade	1	3		3	4
834H-class 15.2' blade	1	3		3	3
16H-class 16' blade	1	1		1	1
14H-class 14' blade	1	3		3	2
100 ton class (20,00 gal.)	2	1		1	2
Subtotal Primary					**159**
Subtotal Ancillary					**6**
Subtotal Miscellaneous					**2**
Total Equipment & Misc.					**167**
Spares Inventory @ 5%					8
Contingency @ 10%					**18**
TOTAL MINE CAPITAL					**193**

20.1.2 Process Capital Costs

SRK prepared an estimate of capital costs for a 36,000 t/d process plant to treat Springpole material based on testwork results to date. As part of this PEA, such estimates should be considered accurate to ± 40%.

The process flowsheet includes crushing, grinding, CIP leaching as well as gold recovery via activated carbon to produce doré bullion.

Table 20.2 summarizes the process plant capital cost estimate of $252M ± 40%. It is based largely on comparative methods with similar leach plants and adjusted for local conditions and material hardness. Note that no specific sustaining capex has been assumed. All ongoing expenditure is assumed to be covered by operating costs.

Table 20.2: Springpole Processing Plant Capital Cost Estimate

Item	$M
Comminution	84
Leaching	42
Thicken/Filter	17
General & Admin	18
EPCM @ 24% of direct costs	38
Working Capital	24
Contingency @ 13.5% of above	30
Total	**252**

Notes: cost estimates are considered accurate to ± 40% for this PEA
EPCM = Engineering, Procurement, Construction & Management

This estimate includes working capital of $24M (or 10% of the pre-contingency total) and a 13.5% contingency. It does NOT include a tailings management facility.

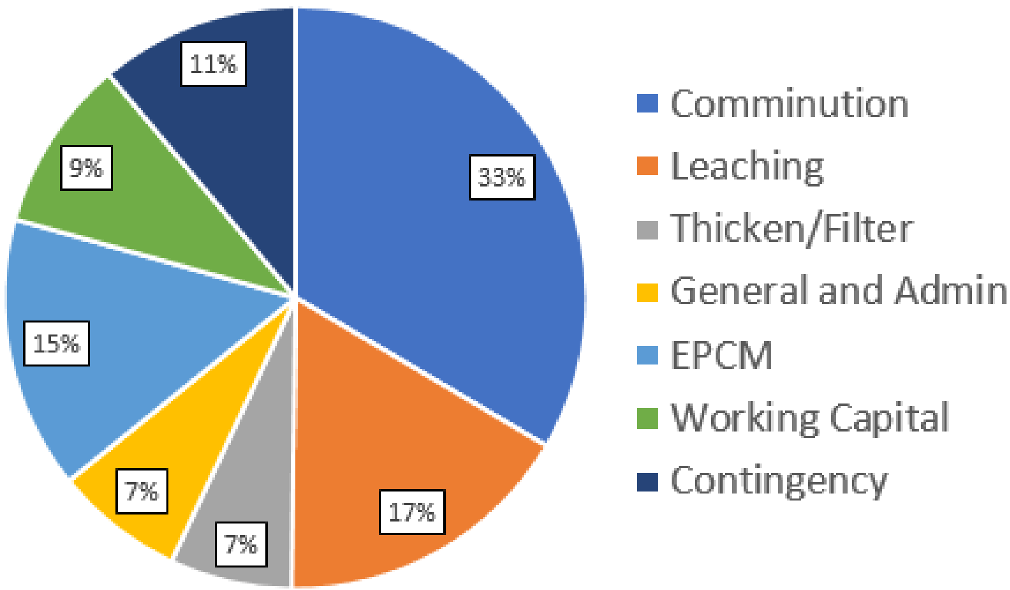


Figure 20.1: Breakdown of Major Process Capital Costs

20.1.3 Infrastructure Costs

A PEA level cost estimate (accurate to ± 40%) has been developed for the infrastructure. Material take-off for earthworks (e.g., roads) is based on first principles calculations using averaged sections. Building costs are based on typical building sizes for similar operations using an in-house SRK database and engineering judgement. Site specific vendor quotes have not been obtained. Project indirect costs are assumed to be 30% and a contingency of 40% applies to the direct costs.

A summary of these costs is presented in Table 20.3. An additional $7.8 M is estimated to be spent as sustaining capital over the life of the project.

Table 20.3: Summary of Infrastructure Capital Cost and Sustaining Capital

Item	Initial Capital ($M)
Two Lane Access Road (including Stream Crossings)	$9.68
Single Lane Access Roads	$1.01
Maintenance (All Roads)	$0.72
General Maintenance Shop[1]	$1.71
Waste Management Facility[1]	$1.36
Emergency Response Building[1]	$0.38
Mine Maintenance Shop[1]	$1.07
Light Vehicle Maintenance Shop[1]	$1.71
Assay Laboratory[1]	$2.55
Warehouse – Storage[1]	$1.24
300 – Person Camp[1]	$20.14
Water Treatment Plant[1]	$0.64
Sewage Treatment Plant[1]	$0.80
Fuel Storage[1]	$1.16
Office Complex[1]	$1.83
Mine Truck Shop[1]	$8.79
Power Line[1]	$10.83
Sub-Total DIRECTS	$66.16
Indirects (30%)	$19.85
Contingency (40%)	$26.47
TOTAL	**$112.48**

Notes: 1. These costs were split equally between Year -2 and Year -1 in the economic model.

20.1.4 Tailings Management, Lake Dewatering and Dike Costs

A PEA level cost estimate (accurate to ± 40%) has been developed for the TMF and dewatering dikes. Primary material take-offs based on the designs presented in Section 17.1 and 17.2 were calculated using Global Mapper. Total quantities for each structure are presented in Table 20.4 and Table 20.5.

Table 20.4: Summary of Key TMF Construction Quantities

Element	Unit	Year -2	LOM Total
Type A fill material (ROQ)	m^3	82,800	3,866,588
Type B fill material (bedding)	m^3	47,325	72,405
Footprint of Dam	m^2	185,500	663,180
Excavated Material (Type C material)	m^3	119,250	119,250
Crush Rock for Bedding	m^3	47,325	72,765
Bituminous Geomembrane	m^2	89,350	172,950
Concrete	m^3	398	398
Tailings Pipeline (2-400mm HDPE)	m	11,200	11,200
Water Reclaim Pipeline (1-150mm HDPE)	m	5,600	5,600
Heat Trace (pipelines)	m	16,700	16,700

Table 20.5: Summary of Key Dike and Lake Dewatering Construction Quantities

Element	Unit	Year -2	Year -1
Type A fill material (ROQ)	m^3	52,000	0
Type B fill material (Bedding)	m^3	129,800	0
Type D fill material (Rip-Rap)	m^3	12,600	0
Lake bed sediments	m^3	130,700	0
Silt Curtain (Primary and Secondary)	m^2	28,000	0
Slurry Wall (Plastic Concrete)	m^2	4,800	0
Grout Curtain	m	260	0
Water (to dewater)	m^3	0	21,684,000

Assumptions have been made about haul distances, road grades, material properties, productivity, labour rates, fleet type and equipment and materials rates. These assumptions were based on engineering judgement, past project experience and supplemented with conventional costing databases. Key assumptions are summarized as follows:

- Construction will be done by a dedicated specialist contractor using their own fleet of equipment.
- A fleet of five 40 t (19.85 m^3) CAT 740 haul trucks will be used.
- A CAT 980 loader and a CAT 345 excavator will be used to load the haul trucks at the rock quarry (borrow source).
- Due to mine sequencing, waste rock will not be available for construction of the dewatering dikes or TMF dams. Local rock quarries will be developed and are assumed to be within 5 km of their

intended use. Costs include quarry development, drilling, blasting, crushing and screening as appropriate.

- The overburden thickness is unknown, but expected to be limited. Local till within the confines of the TMF is therefore assumed to not be a viable construction source.
- Barges already located at the project site will be utilized for dredging activities.
- In the absence of geotechnical investigations for the dikes, it has been assumed that a grout curtain will be installed to create a suitable seal.
- Costs do not include construction of access roads from the mill or haul roads from potential quarries (these costs are included in the infrastructure cost estimate).
- Costs for the tailings thickeners and both tailings and reclaim water pumps are excluded here. Those costs are included in the processing capital cost.
- Lake dewatering costs are considered to be capital cost.
- Closure and reclamation costs are not included in this cost estimate. A closure estimate of $20M for the site has been assumed for the purposes of the economic analysis.
- Indirect costs have been assumed to be 30% of the direct costs.
- A contingency of 40% of direct costs was applied.

The dewatering dikes must be constructed at least two years before mine production starts to provide enough time for lake dewatering. Since the TMF will be used as the settling basin during this time, it will be constructed at the same time. Table 20.6 and Table 20.7 summarize these costs.

Table 20.6: Summary of TMF Cost Estimate

Item	Initial ($M)	Sustaining (LOM) ($M)
Direct Costs	16	35
Indirect Costs (30%)	5	11
Contingency (40%)	6	14
Total Costs	**27**	**60**

Table 20.7: Summary of Dike and Lake Dewatering capital cost and Sustaining Capital

Item	$M
Direct Costs	
Dewatering Dike	19
Earthworks	12
Liner Deployment	2
Other	4
Dewatering	2
Indirect costs @ 40% of Direct Costs	6
Contingency @ 30%	8
Total Dewatering Capital Cost	**32**

20.1.5 Surface Water Control

Costs were built up based on the proposed waste rock facility design configurations and existing topography. Water diversion and catchment requirements were estimated.

PEA level capital costs were estimated for the preliminary design and presented in Table 20.8.

The following assumptions were utilized in the cost estimate.

- The construction fleet will consist of five CAT 740 haul trucks, a CAT 345 excavator, and a CAT 980 loader.
- No blasting is required to excavate channels for diversion ditches.
- Sedimentation and pollution control ponds will be lined with bituminous geomembrane liner.
- Construction material (quarried rock, bedding material and rip-rap) is assumed to be available within 5 km.
- Indirect costs at 30% of direct costs.
- Contingency at 40% of direct costs.

Table 20.8: Preliminary Cost Estimate for Surface Water Management

Item	$M
Direct Costs	**7.40**
Excavation	0.05
Pond Berms	1.60
Liner Deployment	5.30
Pumping	0.50
Indirect Costs	**5.20**
Indirect costs @ 40% of Direct Costs	3.00
Contingency @ 30%	2.20
Total Surface Water Management Capital Cost	**12.60**

20.2 Operating Costs

20.2.1 Mining Operating Costs

The open pit mining activities for the Springpole deposit were assumed to be primarily undertaken by the owner as the basis for the PEA. The cost estimate was built from first principles, input from First Mining, as well as SRK experience of similar sized open pit operations. Equipment efficiency was estimated based on on-site conditions (e.g., estimated haul routes for each phase). Local labour rates (for operating, maintenance, and supervision/technical personnel) and estimates on diesel fuel pricing ($0.78/L) were used for the mining cost estimate.

The open pit mining costs were calculated as an average between mineralised material and waste rock. The unit cost estimate for this project as shown in Table 20.9 is $1.67/t mined.

Table 20.9: Springpole Mine Operating Unit Costs

Open Pit Mine Operating Unit Cost	LOM Cost ($M)	Unit Cost ($/tore)	Unit Cost ($/tmm)
Drilling	47	0.34	0.11
Blasting	95	0.68	0.22
Loading	187	1.35	0.43
Hauling	234	1.69	0.53
Roads/Dumps/Support Equipment	92	0.66	0.21
General Mine/Mtce	32	0.23	0.07
Supervision & Technical	47	0.34	0.11
Total Open Pit Operating Cost	**733**	**5.29**	**1.67**

The mining cost estimates encompass open pit and dump operations, road maintenance, mine supervision and technical services.

20.2.2 Process Operating Costs

A comparative estimate was made by SRK for the process operating cost of $8.95/t ± 40% (excluding tailings and general and administrative (G&A) costs). Table 20.10 summarizes the breakdown of operating expenses by area.

Table 20.10: Springpole Process Plant Operating Cost Estimate (36,000 t/d)

Expense Item	$/t of Process Feed
Labour	1.13
Supplies	4.91

Equipment Operation	1.45
Tailings	1.46
Total	**8.95**

An electrical power unit cost of $0.08/kWh was assumed for this project which was factored in with the material hardness and relatively fine primary grind requirements.

Grinding media and liner wear were considered typical and the labour cost is for 77 process employees (staff + hourly) with a 42% burden applied.

20.2.3 Tailings, Dewatering Dike and Surface Water Management Operating Costs

Operating costs for the TMF consist of operating the secondary thickener, and subsequently pumping tailings from the secondary thickener to the central TMF discharge point. This discharge point has to be raised over the LOM. This cost equates to $1.46/t of mill feed. The cost of pumping tailings slurry to the secondary thickener, and subsequently pumping recycled water back to the mill, is included in the mill operating costs.

No operating costs were included for the dewatering dikes. It is assumed that any water seeping through the dikes will be included in the mining water management costs. Yearly operating costs for surface water management are estimated to be $142,000, assuming pumps are operating 50% of the time.

21 Preliminary Economic Analysis

21.1 Important Notice

The economic analysis that forms part of this PEA report is intended to provide an initial review of the Springpole Gold Project's potential and is preliminary in nature. The economic analysis included in this PEA includes consideration of inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA based on these mineral resources will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

21.2 Introduction

A PEA level technical economic model was developed for the Springpole Gold Project.

The PEA contemplates mining and processing material at 36,000 t/d at an average head grade of 1.00 g/t gold and 5.28 g/t silver. Summary parameters and economic results are presented in Table 21.1.

Table 21.1: Summary of Economic Parameters and Results

Parameter	Units	12 LOM years
Total Process Feed	kt	138,528
Payable Au Produced	koz	3,558
Payable Ag Produced	koz	19,583
Au Price	$/oz	1,300
Ag Price	$/oz	20
Gross Revenue	$M	5,017
Treatment and Refining Costs	$M	18
Royalty	$M	150
Operating Costs	$M	2,221
Operating Surplus	$M	2,628
Capital Costs	$M	723
Economic Results		
Pre-tax $NPV_{5\%}$	**$M**	**1,159**
Pre-tax IRR	**%**	**32.3%**
After-tax $NPV_{5\%}$	**$M**	**792**
After-tax IRR	**%**	**26.2%**
Non-discounted Payback from Production Date	**months**	**38**

21.3 Key Assumptions

The following production related assumptions have been applied to the technical economic model:

- Production rate at maximum of 36,000 t/d over 365 d/yr.
- Pre-production period of five years.

In addition, the following general assumptions have been applied for mine design and economic evaluation:

- A base case discount factor of 5% has been applied for NPV calculations. SRK considers this to be typical for gold projects of this type and in this location.
- An average LOM sales price of $1,300/oz gold.
- An average LOM sales price of $20/oz silver.
- Net smelter returns royalty of 3% on revenue.
- Working capital days have been assumed at 7 days for creditors and 30 days for debtors.

21.3.1 Modelling Practice

The project was evaluated using an Excel® based discounted cash flow model. The periods used were annual. The model used real, un-escalated Q3 2017 USD.

The asset-level model assumes a simple, all-equity project ownership and financing. No consideration of equipment leasing, project financing, bonding, metal strips, royalty sales (except for existing government and private royalties) forward sales, hedging, or any other financial arrangements was undertaken. No consideration was given to the structure of the ownership company.

The valuation was undertaken on an after-tax basis, using a simplified depreciation schedule. The model is not a true tax-accounting model in that operating expenses are deducted as incurred, and not matched to revenue generation.

21.3.2 Construction Schedule

For the purposes of economic evaluation, three years of pre-production project construction were assumed.

Delays to commencement of construction do not materially alter the economic potential of the underlying project, but it must be recognised that costs associated with permitting, studies and management activities will accrue during the pre-construction phase. These have been considered as sunk costs for the purposes of the evaluation. It should be noted that the impact of costs associated with a potential delayed construction schedule on the economics of the overall project have not been considered in modelled scenarios.

21.3.3 Production Schedule

The mining production schedule evaluated was generated by SRK as described in Section 15.6 and is reproduced in Table 21.2.

Table 21.2: Production Schedule

Item	Units	Total	Years											
			1	2	3	4	5	6	7	8	9	10	11	12
Mineralised Material Mined Direct to Mill	kt	119,974	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	8,758	908	0
Mineralised Material Stockpiled	kt	31,435	1,797	3,458	3,566	3,591	3,250	4,069	5,563	3,403	1,844	825	68	0
Total Mineralised Material Mined	kt	151,408	7,796	16,593	16,705	16,721	16,388	16,416	18,703	16,543	14,984	9,583	976	0
Waste Mined	kt	319,002	57,204	48,407	48,295	48,279	43,612	43,584	20,758	6,414	2,090	324	36	0
As-Mined Strip Ratio	w:o	2.1	7.3	2.9	2.9	2.9	2.7	2.7	1.1	0.4	0.1	0.0	0.0	0.0
Total Material Mined	kt	470,411	65,000	65,000	65,000	65,000	60,000	60,000	39,462	22,956	17,074	9,907	1,012	0
Stockpile Reclaim	kt	18,555	0	0	0	0	0	0	0	0	0	4,382	12,232	1,940
Mill Feed	kt	138,528	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	13,140	13,140	1,940
Au Grade	g/t	1.00	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.73	0.42	0.38
Ag Grade	g/t	5.28	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	3.94	2.22	2.02
Contained Au	koz	4,470	231	448	515	517	602	484	348	400	414	309	176	24
Contained Ag	koz	23,509	416	1,917	2,424	2,730	3,130	2,442	2,116	2,729	2,876	1,663	940	126

Note: Table shows diluted mineralised material and grades.

21.3.4 Mine Life

The LOM is 12 years, waste stripping ends in Year 9 while mineralised material ends in Year 11. Processing continues from stockpiled mineralised material for one more year.

21.3.5 Commodity Pricing

The base case economic evaluation uses long-term commodity prices of $1,300/oz for gold and $20/oz for silver. Sales prices have been applied to all LOM production without escalation or hedging.

SRK considers the use of these prices for design and evaluation to be reasonable and to lie within the range of published price assumptions recently used for studies of this type.

21.3.6 Revenue Calculations

Revenue is determined by applying selected metal prices to the annual payable metal contained in doré, minus refining and royalty payments. Detailed calculation of revenue is presented in Table 21.3.

Table 21.3: Base Case Revenue Calculation

Parameter	Units	12 years LOM
Milled Feed	**kt**	**138,528**
Contained Au	koz Au	3,558
Contained Ag	koz Ag	19,583
Metallurgical Recovery		
Au	%	80
Ag	%	85
Recovered Metals		
Au	koz	3,576
Ag	koz	19,983
Refinery Payables		
Au	%	99.5
Ag	%	98.0
Payable Metals in Doré		
Au	koz	3,558
Ag	koz	19,583
Revenues		
Commodity Sales Prices		
Au	$/oz	1,300
Ag	$/oz	20
Value of Metal in Doré Before Deductions		
Au	$M	4,648
Ag	$M	400
Gross Revenue from Doré Before Deductions	**$M**	**5,048**
Revenue from Doré after Payable Deductions		
Au	$M	4,625
Ag	$M	392
Revenue from Doré after Payable Deductions	**$M**	**5,017**
Treatment and Refining Costs		
Au	koz	3,558
Treatment Charge		
Au Refining Costs	$/oz Au	5
Treatment and Refining Costs	$M	18
Net Smelter Return	**$M**	**4,999**
NSR based Royalty		
Rate	%	3
NSR Royalty	$M	150
Net Revenue from Doré after Deductions	**$M**	**4,849**

21.4 Mining

21.4.1 Capital Costs

Mining capital costs were estimated by SRK on the basis of a detailed equipment schedule matched to the mining production schedule. Total mining equipment capital was estimated at $143M for the life of the project inclusive of 10% contingency and 5% spares allowance.

An amount of $20M is estimated for mine closure.

21.4.2 Operating Costs

Mine operating costs were estimated by SRK based on the mine design, production schedule, equipment rates and other input costs.

Table 21.4 shows a high-level summary of the LOM costs expressed per tonne of material moved and per unit of processed material. No contingency has been allowed for mine operating costs.

Table 21.4: Mine Operating Unit Costs (USD)

Open Pit Mine Operating Unit Cost	LOM Cost ($M)	Unit Cost ($/tore)	Unit Cost ($/tmm)
Drilling	47	0.34	0.11
Blasting	95	0.68	0.22
Loading	187	1.35	0.43
Hauling	234	1.69	0.53
Roads/Dumps/Support Equipment	92	0.66	0.21
General Mine/Mtce	32	0.23	0.07
Supervision & Technical	47	0.34	0.11
Total Open Pit Operating Cost	**733**	**5.29**	**1.67**

21.5 Processing

21.5.1 Capital Costs

Processing capital costs for the 36 ktpd processing facility were estimated by SRK to be $252M inclusive of a $30M contingency. No major plant rebuilt or expansion is considered in the evaluated production scenario. No specific allowance for sustaining capital has been made and it is assumed that the ongoing operating maintenance cost is sufficient to maintain the equipment in operating condition. No allowance for salvage value was made.

21.5.2 Operating Costs

Operating costs (including tailings handling) were estimated by SRK to be $8.95/t of processed material based on 36,000 t/d plant capacity. The base case assumes a power cost of 0.08 $/kWh. No additional contingency has been assumed for processing operating costs as the base estimate is considered to be central.

21.6 Overall Capital Costs

Overall capital costs are summarized in Table 21.5 and detailed capital costs for the LOM are presented in Table 21.6.

Table 21.5: Capital Cost Summary

Capital costs by timing	$M
Total Preconstruction Owners Costs	7
Initial Capital	579
Sustaining Capital	117
Closure	20
***Total Capital Costs**	**723**

**Including 20% and 30% contingency on mine/mill and TMF/infrastructure respectively.*

Table 21.6: Capital Cost Breakdown

Item	$M
Pre-production capital costs	7
Open Pit Mining	143
Processing	252
Infrastructure	112
Water Management	13
Dike and Lake Dewatering	32
Tailings Management Facility	27
Total Initial Capital	**586**
Sustaining Capital	
Open Pit Mining	50
Processing	0
Infrastructure	8
Tailings Management Facility	60
Closure Costs	20
Total Sustaining Capital	**137**

Note that EPCM costs for project construction are contained within the underlying estimates and are not visible here.

21.7 Overall Operating Costs

Operating costs for LOM and operating unit costs are presented in Table 21.7.

Table 21.7: Operating Costs

Activity	LOM ($M)	Per Tonne of Mill Feed ($)	Per Ounce of AuEq* ($)
Mining	733	5.29	190.00
Processing	1,038	7.49	268.87
Water Management	2	0.01	0.44
Tailings Handling	202	1.47	52.41
G&A	247	1.78	63.90
Total Operating Cost	**2,221**	**16.04**	**575.62**
Treatment and Refining Charges	18	N/A	4.61
Royalty Per Ounce @ 3%	150	N/A	38.86
Total Cash Costs including Royalty and TCRC	**2,389**	N/A	**619.09**

Note: AuEq = total revenue from payable metal divided by gold price

21.8 Taxes and Royalties

For project evaluation purposes in the PEA, an average royalty of 3% was applied to the net smelter return based on the Mineral Resource Update in Section 13 of this report. Total royalty payment over the LOM is estimated at $158M.

The project was evaluated on an after-tax basis using a simple tax model appropriate for a PEA-level evaluation and estimating taxes owed in the Province of Ontario. Tax depreciation schedules were simplified for the purposes of analysis and do not precisely reflect the expected detailed tax depreciation for the project. Total tax payments are estimated to be $556M over the LOM.

21.9 Working Capital

A high level estimation of working capital has been incorporated into the cash flow based on Accounts Receivable (AR), Accounts Payable (AP) and Stores Stock estimates.

21.10 Base Case Valuations

The primary economic evaluation measures used were total LOM cash flow, NPV of this cash flow at a 5% discount rate, the internal rate of return of the project cash flows, and the payback period on a non-discounted basis. Table 21.8 summarizes the high level economic outputs from the modelling. Note that payback is quoted from the commencement of production.

Table 21.8: Summary of Key Parameters

Parameter	Units	Base Case
Mill Feed (LOM)	Mt	139
Average ROM Au Grade	g/t Au	1.00
Average ROM Ag Grade	g/t Ag	5.28
Au Process Recovery	%	80%
Ag Process Recovery	%	85%
Payable Au Produced	koz	3,558
Payable Ag Produced	koz	19,583
Unit Operating Cost per Tonne Mill Feed	$/t	16.04
Unit Operating Cost per Ounce	$/oz AuEq	576
Pre-Production Capital Cost	$M	586
LOM Capital Cost	$M	723
After-Tax $NPV_{0\%}$	$M	1,336
After-Tax $NPV_{5\%}$	$M	792
After-Tax IRR	%	26.2%
After-Tax Payback Period	Months from start prod.	38

Note: At $1,300/oz gold and $20/oz silver

A summary of annual cash flows produced from the technical economic model at a gold price of $1,300/oz and a silver price of $20/oz are presented in Table 21.9.

Table 21.9: Annual Cash Flow Summary

Production Year			-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item	**Units**	**Total/ Average**	Construction	Construction	Construction	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Closed	Closed	Closed
Commodity Prices																				
Gold	$/oz	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300	$1,300
Silver	$/oz	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00
MINING																				
Waste	kt	319,002	-	-	-	57,204	48,407	48,295	48,279	43,612	43,584	20,758	6,414	2,090	324	36	-	-	-	-
Mill Feed	kt	119,974	-	-	-	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	8,758	908	-	-	-	-
Au Grade	gpt	1.10	-	-	-	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.91	0.94	-	-	-	-
Ag Grade	gpt	5.78	-	-	-	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	4.90	5.01	-	-	-	-
Total Au Mined	koz	4,243	-	-	-	231	448	515	517	601	484	348	400	414	256	27	-	-	-	-
Total Ag Mined	koz	22,306	-	-	-	416	1,917	2,424	2,730	3,130	2,442	2,116	2,730	2,877	1,379	146	-	-	-	-
PROCESSING																				
Mill Feed	kt	138,528	-	-	-	5,999	13,135	13,139	13,130	13,138	12,347	13,140	13,140	13,140	13,140	13,140	1,940	-	-	-
Au Grade	gpt	1.00	-	-	-	1.20	1.06	1.22	1.22	1.42	1.22	0.82	0.95	0.98	0.73	0.42	0.38	-	-	-
Ag Grade	gpt	5.28	-	-	-	2.16	4.54	5.74	6.47	7.41	6.15	5.01	6.46	6.81	3.94	2.22	2.02	-	-	-
Metal Recovered																				
Au Recovered	koz	3,576	-	-	-	185	358	412	413	481	387	278	320	332	247	142	19	-	-	-
Ag Recovered	koz	19,983	-	-	-	353	1,630	2,060	2,321	2,660	2,076	1,799	2,320	2,445	1,413	799	107	-	-	-
SALES																				
Payable Metal Produced																				
Gold	koz	3,558	-	-	-	184	357	410	411	479	385	277	319	330	246	141	19	-	-	-
Silver	koz	19,583	-	-	-	346	1,597	2,019	2,274	2,607	2,034	1,763	2,274	2,396	1,385	783	105	-	-	-
Revenue from Payable Metal	**$M**	**5,017**	**-**	**-**	**-**	**246.4**	**495.6**	**573.7**	**580.2**	**674.6**	**541.0**	**395.5**	**459.9**	**476.8**	**347.7**	**198.9**	**26.7**	**-**	**-**	**-**
Gold	$M	4,625	-	-	-	239.5	463.6	533.3	534.7	622.4	500.3	360.2	414.4	428.9	320.0	183.2	24.6	-	-	-
Silver	$M	392	-	-	-	6.9	31.9	40.4	45.5	52.1	40.7	35.3	45.5	47.9	27.7	15.7	2.1	-	-	-
TCRC and Freight	$M	18	-	-	-	0.9	1.8	2.1	2.1	2.4	1.9	1.4	1.6	1.6	1.2	0.7	0.1	-	-	-
Net Smelter Return - Dore	**$M**	**4,999**	**-**	**-**	**-**	**245.5**	**493.8**	**571.6**	**578.1**	**672.2**	**539.1**	**394.1**	**458.3**	**475.1**	**346.5**	**198.1**	**26.6**	**-**	**-**	**-**
Royalty																				
Third-party NSR Royalty	$M	150	-	-	-	7.4	14.8	17.1	17.3	20.2	16.2	11.8	13.7	14.3	10.4	5.9	0.8	-	-	-
Net Revenue	**$M**	**4,849**	**-**	**-**	**-**	**238.1**	**479.0**	**554.5**	**560.8**	**652.0**	**522.9**	**382.3**	**444.6**	**460.9**	**336.1**	**192.2**	**25.8**	**-**	**-**	**-**
OPERATING COSTS																				
Open pit	$M	733	-	-	-	80.6	89.5	91.8	94.1	90.3	92.8	71.1	50.2	43.0	25.3	2.6	1.9	-	-	-
Concentrator	$M	1,240	-	-	-	53.7	117.6	117.6	117.5	117.6	110.5	117.6	117.6	117.6	117.6	117.6	17.4	-	-	-
Water Management Cost	$M	2	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-
On-site G&A	$M	247	-	-	-	10.7	23.4	23.4	23.4	23.4	22.0	23.4	23.4	23.4	23.4	23.4	3.5	-	-	-
Total Operating Costs	**$M**	**2,221**	-	-	-	145.1	230.6	232.9	235.1	231.4	225.5	212.2	191.3	184.2	166.5	143.7	22.9	-	-	-
Cash Flow Before Taxes	**$M**	**2,628**	-	-	-	93.0	248.4	321.6	325.6	420.6	297.4	170.1	253.2	276.7	169.7	48.5	2.9	-	-	-
CAPITAL COSTS																				
Initial Capital	$M	586	**18.8**	**245.1**	**321.8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Sustaining Capital (incl. closure)	$M	137	-	-	-	15.5	5.2	5.2	0.6	14.7	27.1	0.6	16.1	0.6	23.6	7.3	0.6	6.7	6.7	6.7
Total Capital Costs	**$M**	**723**	**18.8**	**245.1**	**321.8**	**15.5**	**5.2**	**5.2**	**0.6**	**14.7**	**27.1**	**0.6**	**16.1**	**0.6**	**23.6**	**7.3**	**0.6**	**6.7**	**6.7**	**6.7**
Working Capital	$M	12	-	-	-	(6.4)	2.6	5.2	1.4	7.0	(5.1)	(4.8)	7.5	3.0	(3.6)	(4.1)	7.8	1.8	-	-
PRE-TAX CASHFLOW	**$M**	**1,893**	**(18.8)**	**(245.1)**	**(321.8)**	**84.0**	**240.6**	**311.2**	**323.6**	**398.9**	**275.4**	**174.3**	**229.6**	**273.1**	**149.6**	**45.3**	**(5.6)**	**(8.5)**	**(6.7)**	**(6.7)**
Tax																				
Corporate Tax	**$M**	453	-	-	-	3.4	27.0	44.8	52.2	76.5	55.7	33.8	52.4	62.9	34.6	9.7	0.5	-	-	-
Provincial Mining Tax	**$M**	103	-	-	-	1.0	6.4	10.3	11.9	17.1	12.6	7.7	11.7	14.0	7.8	2.3	0.1	-	-	-
Total Tax	**$M**	**556**	-	-	-	4.3	33.4	55.1	64.1	93.6	68.3	41.5	64.2	76.8	42.4	12.1	0.7	-	-	-
AFTER-TAX NET CASH FLOW	**$M**	**1,336**	**(18.8)**	**(245.1)**	**(321.8)**	**79.7**	**207.2**	**256.0**	**259.5**	**305.3**	**207.1**	**132.8**	**165.5**	**196.3**	**107.2**	**33.3**	**(6.3)**	**(8.5)**	**(6.7)**	**(6.7)**

Note: The discount rate used is 5%, all numbers are in real USD

21.11 Sensitivities

SRK has performed a sensitivity analysis on the base case settings by applying sensitivity to changes in commodity prices, operating costs, and capital costs. The results of this analysis are presented in Table 21.10, Table 21.11, and Table 21.13.

An optimized mining and processing plan was not developed for each case.

Table 21.10: Effect of Variation in Revenue and Operating Costs on after-tax NPV$_{5\%}$

Net Present Value			LOM Operating Costs ($M)						
			1,222	1,555	1,888	2,221	2,555	2,888	3,221
			-45%	-30%	-15%	0%	15%	30%	45%
LOM Revenue ($M)	2,667	-45%	220	56	-114	-316	-531	-746	-961
	3,394	-30%	573	411	249	83	-86	-277	-492
	4,122	-15%	925	763	601	439	275	109	-59
	4,849	0%	1,277	1,115	953	**792**	630	467	302
	5,576	15%	1,628	1,467	1,305	1,143	982	820	658
	6,304	30%	1,980	1,819	1,657	1,495	1,334	1,172	1,010
	7,031	45%	2,332	2,170	2,009	1,847	1,686	1,524	1,362

Table 21.11: Effect of Variation in Revenue and Capital Costs on after-tax NPV$_{5\%}$

Net Present Value			LOM Capital Costs ($M)						
			398	506	614	723	831	940	1,048
			-45%	-30%	-15%	0%	15%	30%	45%
LOM Revenue ($M)	2,667	-45%	-38	-131	-223	-316	-409	-501	-594
	3,394	-30%	360	268	175	83	-10	-103	-195
	4,122	-15%	717	625	532	439	347	254	161
	4,849	0%	1,069	977	884	**792**	699	606	514
	5,576	15%	1,421	1,329	1,236	1,143	1,051	958	866
	6,304	30%	1,773	1,681	1,588	1,495	1,403	1,310	1,217
	7,031	45%	2,125	2,032	1,940	1,847	1,755	1,662	1,569

Table 21.12: Effect of Variation in Revenue, Operating and Capital Costs on after-tax NPV$_{5\%}$

Net Present Value			Total Project Operating and Capital Costs ($M)						
			1,619	2,061	2,503	2,944	3,386	3,828	4,269
			-45%	-30%	-15%	0%	15%	30%	45%
LOM Revenue ($M)	2,667	-45%	498	241	-22	-316	-624	-931	-1,239
	3,394	-30%	851	596	341	83	-179	-462	-770
	4,122	-15%	1,203	948	694	439	183	-76	-337
	4,849	0%	1,554	1,300	1,046	**792**	537	282	24
	5,576	15%	1,906	1,652	1,398	1,143	889	635	380
	6,304	30%	2,258	2,004	1,750	1,495	1,241	987	732
	7,031	45%	2,610	2,356	2,101	1,847	1,593	1,339	1,084

A graphical illustration of sensitivity analysis is presented in Figure 21.1.

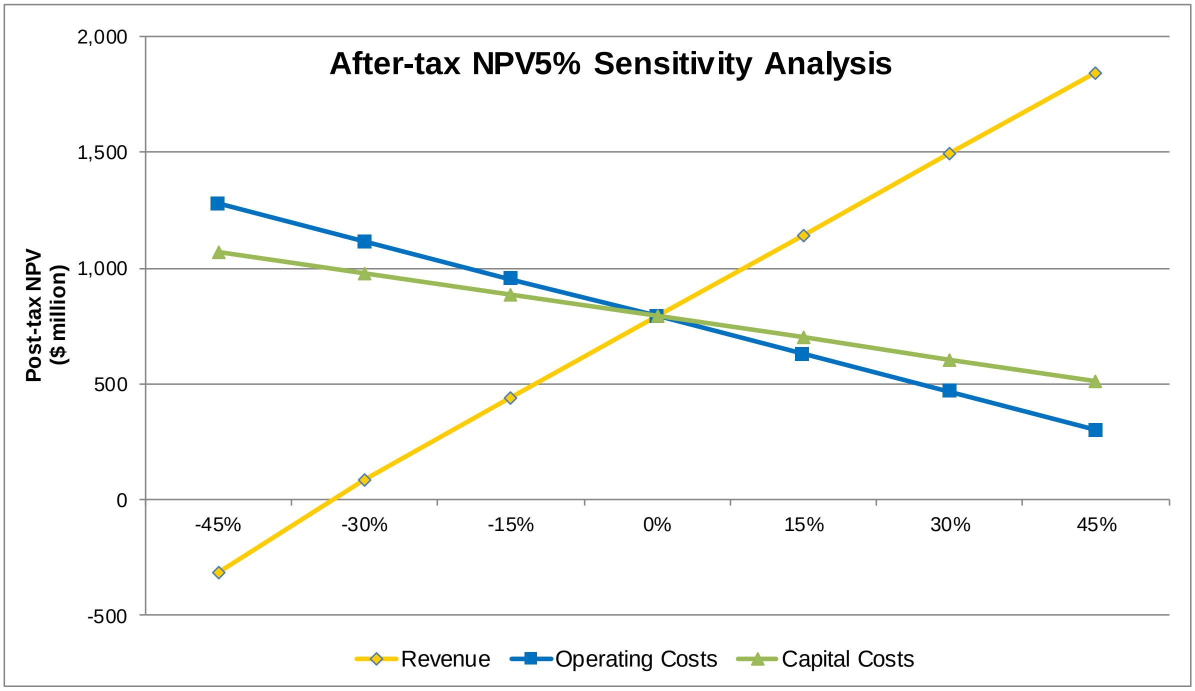


Figure 21.1: Sensitivity Analysis

Sensitivity analysis indicates that to achieve a breakeven NPV the price of gold and silver would have to drop by approximately 33% to $866/oz gold and $13/oz silver.

21.12 Conclusions and Recommendations

The economic analysis of the PEA demonstrates that a conventional open-pit mining and milling operation is economic with a base case after-tax $NPV_{5\%}$ of $792M and an IRR of 26.2% on an initial investment of $586M.

The need for dewatering a small portion of Springpole Lake is an uncertain cost to the project and exposure to this cost means the project is subject to a higher level of uncertainty in terms of cost and schedule. The tailings facility is also relatively expensive and has significant uncertainty due to high exposure to latent ground conditions. Nevertheless, sensitivity analysis demonstrates that, at base case metal price assumptions, the project can absorb a 45% escalation in capital and operating costs and remain an economic proposition.

22 Adjacent Properties

SRK has not done the necessary work to verify the information presented in this section of the report. The information presented in this section of the report is not necessarily indicative of the mineralization on the Springpole property.

There are several properties adjacent to the Springpole property. These claims are held by exploration companies as well as individuals including: Pelangio Exploration Inc., Aurcrest Resources Inc. and Perry English.

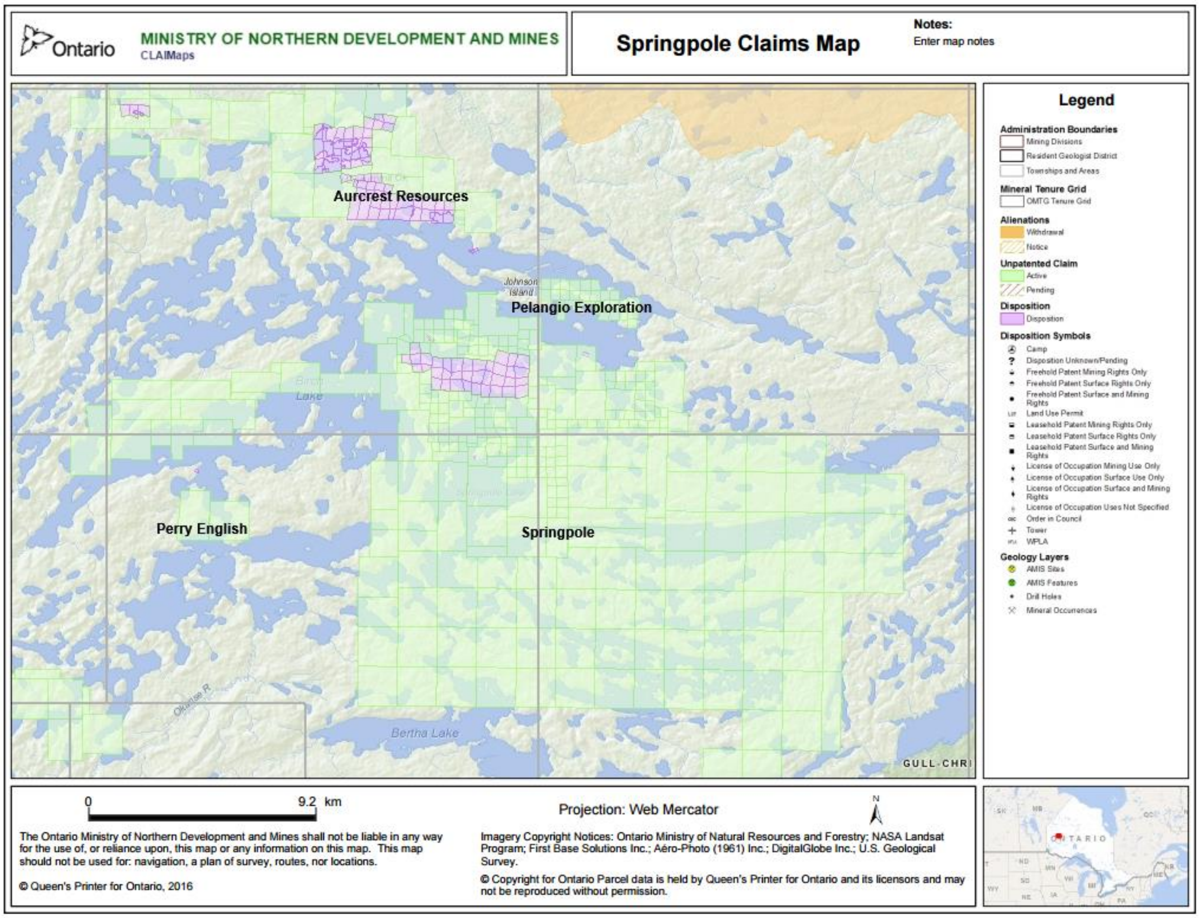


Figure 22.1: Adjacent Properties Map

23 Other Relevant Data and Information

There is no other relevant information nor data available about the Springpole Gold Project that has not been included or discussed in this report.

24 Interpretation and Conclusions

The general validity of prior Mineral Resource estimates was confirmed. An update was undertaken using industry standard practices, incorporating any relevant new data. The Mineral Resource for the Springpole Gold Project is considered suitable for the undertaking of the associated PEA.

Industry standard mining, process design, construction methods, and economic evaluation practices were used to assess the Springpole Gold Project at the PEA level. Based on current knowledge and assumptions, the results of this study demonstrate that the project has the potential for positive economics within the context of the preliminary parameters of the PEA. The Springpole Gold Project should be advanced to the next level of study - either a preliminary feasibility study (PFS) or a feasibility study (FS).

The PEA is preliminary in nature; it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

While a significant amount of information is still required in order to undertake a complete assessment, at this point no “fatal flaws” have been identified with respect to the Springpole Gold Project. The PEA has achieved its original objective of providing a preliminary review of the potential economic viability of the Springpole Gold Project.

24.1 Geology

The quality assurance/quality control program instituted by Gold Canyon and conducted by SGS is of a standard generally consistent with current industry practice. SRK acknowledges that the QA/QC procedures have evolved rather recently and much of what is presented above is “catch up” work. Included in this “catch up” work was an extensive resample program completed in 2013 of pre-2003 core to address the lack of QA/QC documentation for that drilling. In that respect, Gold Canyon did well to bring the database, at least from 2007 onward up to an acceptable industry standard. The principal exceptions lie with:

- Blank analyses suggest intermittent contamination introduced at some stage of material storage or processing; and
- The lack of standard reference materials for silver.

The analysis for gold and silver confirms an acceptable degree of reproducibility of samples for gold and a very good degree of reproducibility of samples for silver.

There is no evidence of bias in either gold or silver as a function of grade but First Mining needs to implement written QA/QC procedures for deciding which assay batches are acceptable or not and which samples need to be re-assayed because of failed QA/QC.

The drill hole database from 2003 through 2016 is of a standard acceptable for public reporting of mineral resources according to NI 43-101 guidelines.

24.2 Mineral Processing and Metallurgy

The metallurgical investigations to date on Springpole mineralised material have allowed the following conclusions to be reached:

- The Portage zone represents the majority of the deposit and testing on a number of samples have shown this material to be quite consistent;
- The Portage material is relatively soft from impact, grindability and abrasivity perspectives;
- Gold occurs generally as fine particles (<10µm) which limits the potential for gravity recovery; in addition, it is associated with telluride minerals (mainly petzite), which affects cyanide leach kinetics;
- Whole feed leach testwork has shown a strong correlation between gold leach extraction and grind size fineness. The assumed process conditions for this PEA update are a trade-off between gold extraction and operating costs for grinding power and cyanide consumption;
- Attempts to recover a sulphide concentrate via flotation prior to leaching of this concentrate have not improved gold recovery. In addition, flotation tests have shown high mass recovery to rougher concentrate which reduces the benefit of the flotation + concentrate leaching flowsheet option.

This PEA update is based on a design plant capacity of 36,000 t/d with a recommended flowsheet of whole feed leaching after grinding to a P_{80} size of 70µm. Cyanide leach extractions of 80% for gold and 85% for silver are expected at this grind size. Product from the process plant will be doré bullion.

24.2.1 Risks

While considerable metallurgical testwork has been completed to date, additional testwork is warranted to better define the plant design criteria and more confidently predict expected performance; in particular, the effects of fine grinding all of the plant feed.

Additional testwork needs to be done to confirm whether cyanide detoxification can be completed successfully and within normal reagent cost levels. Due to the fine grind size of all leach tailings, thickening and filtering characteristics should be confirmed so that unexpected dewatering costs are not incurred. For whole feed leaching, the plant tailings will likely be acid generating and the associated costs with treatment/handling of this material need to be estimated.

24.2.2 Opportunities

The testwork conducted to date has identified a number of options that should be considered in trade-off studies; namely the effect of primary grind size on whole feed leach extraction. With a finer grind, it appears that gold recoveries up to 90% are achievable, but at the expense of higher cyanide consumption and grinding power; in particular, the use of stirred mill equipment for target grind P_{80} sizes below 40 µm.

The option of reducing cyanide costs through cyanide recovery should be investigated. A number of processes are available that may prove to be economic for cyanide consumptions above 1 kg/t; they include: Cyanisorb (AVR – Acidification, Volatilisation and Reneutralisation) as well as SART –

Sulphidisation, Acidification, Recycling and Thickening. Cyanide recovery may allow for an even finer grind, whole feed leaching option to be economic.

24.3 Mineral Resource Estimate

Review of the pre-2003 data lead to some drill hole data for the Portage zone, East Extension, and Camp zones being excluded from the mineral resource estimate. A systematic re-sampling of the available drill core stored on-site at the Springpole Gold Project enabled the reclassification of a portion of the East Extension zone into the indicated mineral resource category without the need to carry out an additional, extensive drilling campaign. This re-sampling exercise was a systematic program that included certified blanks and certified gold and silver standards.

The current mineral resource estimate for the Springpole Gold Project prepared by SRK considers 644 core boreholes drilled by previous owners of the property during the period of 2003 to 2012 and four holes drilled by First Mining in 2016. The resource estimation work was completed by Dr. Gilles Arseneau, Ph.D., P.Geo. (APEGBC #23474), an independent Qualified Person as this term is defined in NI 43-101. The effective date of the resource statement is March 17, 2017.

In the opinion of SRK, the resource evaluation reported herein is a reasonable representation of the global gold and silver resources found in the Springpole Gold Project at the current level of sampling. The mineral resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices guidelines and are reported in accordance with the Canadian Securities Administrators' NI 43-101 and, at a 0.4 g/t gold cut-off, include 139.1 Mt grading 1.04 g/t gold classified as indicated mineral resource and 11.4 Mt grading 0.63 g/t gold classified as inferred mineral resource.

The current mineral resource estimate for the Springpole Gold Project (March 17, 2017) was based on a gold price of $1,400/oz and a silver price of $15/oz. These are considered reasonable economic assumptions by SRK. To establish a reasonable prospect of economic extraction in an open pit context, the resources were defined within an optimized pit shell with pit walls set at 45°. Assumed processing recoveries of 80% for gold and 60% for silver were used. Mining costs were estimated at $2/t of total material, processing costs estimated at $12/t and G&A costs estimated at $2/t. A COG of 0.4 g/t gold was calculated and is considered to be an economically reasonable value corresponding with breakeven mining costs. Approximately 90% of the revenue for the proposed project is derived from gold and 10% from silver.

Note: *For the mine development (Whittle optimization) and economic analysis in this PEA, updated input parameters were used.*

Industry standard mining, process design, construction methods and economic evaluation practices were used to assess the Springpole Gold Project. In SRK's opinion, there is adequate geological and other pertinent data available to generate a PEA.

Based on current knowledge and assumptions, the results of this study show that the Springpole Gold Project has positive economics (within the very preliminary parameters of a PEA) and should be advanced to the next level of study; a preliminary feasibility study.

As with almost all mining ventures, there are a large number of risks and opportunities that can influence the outcome of the Springpole Gold Project. Most of these risks and opportunities are based on a lack of scientific information (test results, drill results, etc.) or the lack of control over external drivers (metal prices, exchange rates, etc.). The following section identifies the most significant potential risks and opportunities currently identified for the project, almost all of which are common to mining projects at this early stage of project development.

Subsequent higher-level engineering studies would need to further refine these risks and opportunities, identify new ones, and define mitigation or opportunity implementation plans.

While a significant amount of information is still required to do a complete assessment, at this point there do not appear to be any fatal flaws for the project.

The study achieved its original objective of providing a preliminary review of the potential economic viability of the Springpole Gold Project.

24.4 Mining

It is proposed that the Springpole deposit is amenable to be developed as an open pit mine. Mining of the deposit is planned to produce a total of 139 Mt of processing plant feed and 319 Mt of waste (2.1:1 overall strip ratio) over a twelve-year mine production life.

24.4.1 Risks

The current understanding of the Springpole Gold Project is based upon limited and time sensitive information. Changes in the understanding of the project, the ability to convert mineral resources to mineral reserves and market conditions could affect the project's economic viability.

Mining productivity and costs may be impacted by the uncertain hydrogeological and geotechnical conditions characterised in this report.

The available mining windows may be negatively affected by weather conditions, particularly during the winter months.

24.4.2 Opportunities

With additional data, the project should be subjected to a series of strategic option reviews aimed at determining the most valuable strategy for exploiting the mineral resources including the LOM schedule. Planning and executing the project at the correct scale, with the optimum mine design and processing systems will result in the maximum possible value to shareholders and other economic stakeholders.

24.5 Geotechnical

There is possibly an up-side improvement in slope design-angles if a significant increase in the confidence of the geotechnical data (and model) can be achieved. What may ultimately control achievable slope angles (apart from hydrogeological constraints) is the *Weak* to *Intermediate*-domain spatial arrangement, and anisotropy in the host rock in the *Strong*-domain. To achieve a pre-feasibility level of confidence for the slope design input parameters, the following work will need to be conducted:

- Process and analyse the oriented-core data and laboratory-test results acquired in 2013 to determine the rock mass character.
- Integrate the preliminary litho-structural model into the geotechnical domain determination process, and produce robust 3-D digital wireframe models of alteration with intensity.
- Determine the material properties of the weak-domain, which relate to trafficability and handling, during the next level of study.

24.6 Hydrogeology

Hydrogeological data is limited for the Springpole site. Based on experience from other northern mining operations in Canada, the following conclusions have been developed for the Springpole Gold Project:

- Management of groundwater within the pit may be required through conventional methods such as dewatering wells and sumps to reduce mine trafficability issues, although this should be within reasonable mining costs.
- Elevated pore pressures may develop during excavation of the pit in both overburden and bedrock. Without adequate hydrogeological data collection, the assumption for the PEA is that water and potential excess pressures can be managed and will not impact the slope design.
- Groundwater quality is unknown. Groundwater will likely be used in the mine water supply and excess is typically sent to the mill pond if its quality is below groundwater discharge guideline limits.

Recommendations for pre-feasibility level studies are provided in the following section.

24.6.1 Risks

In general, hydrogeological uncertainties for the Springpole property include:

- The mine will be located within the existing (dewatered) lake footprint. The hydrogeology of the project area has not been fully characterised with respect to groundwater flow directions, transmissive features, and the potential for hydraulic connection to the surrounding lake. Seepage may be anticipated through and beneath the coffer dams.
- Limited understanding of the geological and structural models will result in low confidence of the distribution of hydraulic conductivity within—and in the vicinity of—the proposed pit, resulting in uncertainty relating to the magnitude of possible groundwater inflows to the pit.
- No information on baseline groundwater quality.

These uncertainties correspond to the following potential risks:

- **Higher than anticipated groundwater flow.** Resulting from highly transmissive features such as structures or highly permeable horizons, or weathered/altered zones, there is a risk of higher than anticipated inflows to the pit, resulting in high pumping requirements/management costs. Geological and structural models need to be developed further to increase confidence in the conceptual hydrogeological model. Seepage through coffer dams has not been assessed and may result in unanticipated seepage rates leading to high water management/treatment costs.

- **Elevated pore pressures.** In low hydraulic conductivity bedrock, drainage of groundwater may not be able to keep up with the excavation of the pit, resulting in a buildup of pore pressures in the pit walls that may lead to geotechnical instability if not accounted for or mitigated. Hydrogeological investigations of the lithological units will identify areas within the vicinity of the proposed pits that may require management, with respect to depressurisation.

- **High inflow rates and groundwater compartmentalization.** Uncertainty in the structural model may result in potentially high hydraulic conductivity zones (faults) in connection with lakes that may result in significantly high pit inflows. If not anticipated, such features can cause instability in lower slopes or lead to problematic inflows that require management. Low permeability structural features (relative to the surrounding bedrock) can result in compartmentalization of remnant pressures (in overburden and bedrock) within the excavated slopes that may also create unstable conditions. Structures on a concession scale require study to understand the degree of groundwater flow anisotropy.

- **Trafficability issues.** The mineralised zone consists of highly altered rock that may require focussed water management in high seepage areas to avoid poor working conditions.

- **Groundwater may have to be treated prior to discharge.** Quality of groundwater into the open pit may not be suitable for discharge without treatment. Water treatment may be required.

24.7 Hydrology

Stream flows, annual average precipitation and evaporation were estimated for the Springpole site based on nearby gauging and weather stations. This information was used in the preliminary design of the surface water management.

24.7.1 Risks

No borrow source investigations have been performed therefore it is recommended that an investigation be performed to confirm the availability of suitable construction materials within the assumed haul distances. If borrow material is not available that could increase the capital costs associated with surface water management.

24.7.2 Opportunities

Additional geochemical testing of waste rock may indicate that lined pollution control ponds are not required; this could reduce the water management infrastructure costs.

24.8 Tailings Management Facility

The TMF is designed to contain centrally discharged paste tailings, and soft lakebed sediments from lake dewatering. The paste tailings will slope from the centre at 4% and be contained by a ring dam. Due to the requirement to store soft lake bed sediments the starter dam will be constructed before the start of mining.

24.8.1 Risks

The following should be considered as potential risks to the project outcome given the current state of understanding:

- It has not been confirmed whether lining of the TMF would be required given subsurface conditions, tailings geochemistry or environmental regulations. Should lining be required, it would result in an increase in both initial and sustaining capital.
- No geotechnical or hydrogeological investigations have been carried out at the TMF; therefore, it cannot be confirmed whether the allowances for foundation seepage control are adequate. Complex foundation conditions would result in increased capital costs.
- No borrow source investigations have been carried out to confirm availability of suitable construction materials within the assumed haul distances. Should the assumptions prove to not be valid, capital costs and sustaining capital will increase.
- No physical characterization of the tailings has been done to confirm whether the material would be amenable to thickened tailings as proposed, specifically attaining of a 4% beach angle. Should this not be possible, the TMF design concept would not be viable and the costs as presented would increase due to increased containment requirements.
- Several small ponds exist within the tailings footprint. These may result in permitting challenges.

24.8.2 Opportunities

Potential opportunities that have been identified at this time include:

- Borrow source investigations may reveal that sufficient quantities of low permeability material for core construction may be available on-site. This would result in a reduced capital cost.
- Geotechnical investigations may indicate that bedrock is located at a shallower depth than assumed in the cost estimate. This would result in a reduced capital cost.
- Alternative sediment storage options outside the TMF should be evaluated to conserve capacity and to make the sediment available for rehabilitation at closure.

24.9 Dewatering Dikes

Three dewatering dikes will be required to allow for the dewatering of a small portion of Springpole Lake to allow for open pit mining. These dikes will be constructed under wet conditions with a rockfill shell and concrete slurry cut-off wall. Dewatering of this small portion of the lake is projected to take 1 year assuming continuous pumping at a rate of 0.6 m^3/s.

24.9.1 Risks

Potential risks associated with the preliminary dewatering dike designs include:

- Limited geotechnical and no hydrogeological investigations have been carried out at the dewatering dike foundation; therefore, it cannot be confirmed whether the allowances for foundation seepage control are adequate. Complex foundation conditions would result in increased capital costs.
- The assessment of the downstream effect of discharging 0.6 m^3/s of water during the dewatering activities into Springpole Lake was a very high level assessment. A more detailed assessment

may indicate that a lower discharge rate, and consequently a longer discharge period, may be required to dewater this small portion of the lake.

24.9.2 Opportunities

Potential opportunities that have been identified at this time include:

- Lake dewatering could occur at a faster rate if the water was discharged into several different lakes. Faster dewatering could improve the overall project economics.
- A sheet pile cut-off wall through the dewatering dike may reduce capital costs; however, it could result in additional pumping costs. This should be assessed in more detail in future work.
- Geotechnical investigations may indicate that bedrock is located at a shallower depth than assumed in the preliminary design and cost estimate. This would result in a reduced capital cost.

24.10 Project Infrastructure

The two lane access corridor road and all single lane access roads will be constructed using conventional cut and fill techniques prior to the placing of an approximately 0.5 m thick compacted sub-base layer sourced from locally developed and approved borrow sources. Routine surface water management along all roads will be achieved by ensuring the roads are graded with a crown. Eleven locations along the access corridor road will have corrugate steel culverts installed to allow surface water to pass while no culverts have been identified for the single lane access roads.

Two major stream crossings will be required along the access corridor road. An arched culvert will be constructed at the Deaddog Stream Crossing while a pre-fabricated bridge will be constructed at the Birch River Crossing.

Surface infrastructure earthworks will also use conventional cut and fill techniques to provide suitably graded areas to place the buildings and allow for surface drainage. The buildings will be of modular design or consist of fully contained prefabricated components. These structures will require minimal on-site construction, plumbing, and electrical work.

The Fuel Tank Farm should be located on a blasted bedrock foundation. Compacted engineered backfill will be used to bring the foundation up to the appropriate grades and provide suitable bedding material for the lined containment facility, as well as be used for pedestal supports for the fuel tanks.

24.10.1 Risks

The following should be considered as potential risks to the project outcome given the current state of understanding:

- No geotechnical or hydrogeological investigations have been carried out along the road alignments or within the surface infrastructure footprint; therefore, it cannot be confirmed whether complex foundation conditions are required which would result in increased capital costs.
- No borrow source investigations have been carried out to confirm availability of suitable construction materials within the assumed haul distances. Should the assumptions prove to not be valid, capital costs will be higher than estimated.

- The surface infrastructure component sizes have not been finalized. Increasing building sizes or the number of buildings will increase capital costs.

24.10.2 Opportunities

Potential opportunities that have been identified at this time include:

- Given the location and climate, it is possible that road maintenance may be less than currently allowed for in the cost estimate.

24.11 Environmental Studies and Permitting

The potential impacts the project may have on Springpole and/or Birch Lake are considered to be the more environmentally and socially sensitive components of the project. First Mining is cognizant of these sensitivities and has taken steps to design the project with these sensitivities in mind. To that end, the project is designed to avoid direct interaction with the Birch Lake watershed, and all baseline studies carried out to date are structured to identify areas of risk so they can be protected to minimize impact during the development and operation of the project or totally avoided. In addition, Alternatives Assessment is an integral part of the EA process and thus will dictate the mine design to minimize effects to the surrounding environment and reduce cumulative effects.

The development of the open pit in a small part of Springpole Lake will require the isolation of that small portion of the lake throughout the 12 year mine life of the project and for a number of years following depletion of all mineralised material before the coffer dams can be breached or removed. As a result, fish habitat compensation will be required. However, following decommissioning and closure of the mine the coffer dams would be breached and the pit would be reunited with the bulk of the lake. The potential exists for First Mining to incorporate significant aquatic habitat enhancement to Springpole Lake through the re-introduction of the pit area to the lake proper making available large areas of cold water refuges for lake trout and other cold water fish species.

The management of the mine waste (tailings and waste rock) also represents a longer term environmental concern. The TMF and waste rock repository will likely assimilate fish bearing ponds and doing so will likely involve additional fish habitat compensation as well as an amendment to Schedule II of the Metal Mining Effluent Regulations. The next phase of engineering for the project will further evaluate alternative mine waste management areas to avoid impacting water bodies and, therefore, the need for a Schedule II amendment. Tailings and waste rock management are covered in more detail under separate sections of this study. The environmental risks associated with these facilities following operations will be addressed as part of the project's detailed closure plan.

All potential environmental impacts associated with the Project can be mitigated through the implementation of accepted engineering practices currently employed throughout Canada's mining industry. A detailed monitoring plan will also be developed to ensure environmental compliance of all components of the mine throughout its construction, operation, closure, and post-closure activities.

24.12 Economic Analysis

The economic analysis that forms part of this PEA report is intended to provide an initial review of the Springpole Gold Project's potential and is preliminary in nature. The economic analysis included in this

PEA includes consideration of inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA based on these mineral resources will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The base case economic analysis results indicate an after-tax NPV of $792M at a 5% discount rate with an IRR of 26.2%. Payback will be early in year four of production of a projected 12 year mine life. The economics are based on a base case of $1,300/oz long-term gold price, $20/oz long-term silver price, and a production rate of 36,000 t/d over 365 d/yr. Direct operating costs are estimated at $576/oz of AuEq. Total LOM capital costs are estimated at $723M, consisting of initial capital costs of $586M, ongoing sustaining capital of $117M and $20M estimated for mine closure.

The need for dewatering a small portion of Springpole Lake is a significant and uncertain cost to the project and exposure to this cost means the project is subject to a higher level of uncertainty in terms of cost and schedule. The tailings facility is also relatively expensive and has significant uncertainty due to high exposure to latent ground conditions. Nevertheless, sensitivity analysis demonstrates that, at base case metal price assumptions, the project can absorb a 30% escalation in capital and operating costs and remain an economic proposition.

24.13 Summary of Risks and Opportunities

24.13.1 Project Risks

As with almost all mining ventures, there are a large number of risks and opportunities that can affect the outcome of the Springpole Gold Project. Most of these risks and opportunities are based on uncertainty, such as lack of scientific information (test results, drill results, etc.) or the lack of control over external factors (metal prices, exchange rates, etc.).

Subsequent higher-level engineering studies would be required to further refine these risks and opportunities, identify new risks and opportunities, and define strategies for risk mitigation or opportunity implementation.

The principal risks identified for the Springpole Gold Project are summarized as follows:

- Geological interpretation and mineral resource classification (10% of the resources used in the mine plan are inferred);
- Larger variations in mineralogy and metal recovery may exist than have been observed to date;
- Geotechnical and hydrogeological considerations;
- No information on baseline groundwater quality;
- No physical characterization of the tailings material has been done;
- No waste rock characterization has been done;
- Construction management and cost containment during development of the project;

- The permitting period associated with the project could be significantly longer than assumed in this study;
- Increased operating cost and/or capital cost; and
- Reduced metal prices.

24.13.2 Project Opportunities

The following opportunities may improve the project economics:

- Pit optimization work with the Whittle software identified a number of larger potential pit shells (or phases) and the selected pit shell provides higher grades, lower strip ratio, and reduced capital and operating expense;
- Better hydrogeological and geotechnical understanding may increase pit slope angles over those used in this PEA;
- There are other geophysical targets around the current resource, particularly to the southwest of the current resource. Additional drilling has the potential to add resources;
- Investigations may reveal that sufficient quantities of low permeability material for core construction may be available on-site and bedrock may be located at a shallower depth than assumed in the cost estimate;
- Dewatering the small portion of the lake could occur at a faster rate if the water was discharged into several different lakes;
- The potential to upgrade the mineral resource classification of the deposit;
- Improved metal prices.

25 Recommendations

SRK's recommendations are largely unchanged from the previous preliminary economic assessment. SRK recommends the following next phase work programs to advance the Springpole Gold Project towards a pre-feasibility study (PFS).

25.1 Quality Assurance and Quality Control Program

SRK recommends that a silver standard be introduced as a regular routine with all new assay batches sent to the laboratory for analysis. SRK recommends that First Mining consider re-assaying some of the available pulps with a silver standard to assure the robustness of the silver data in the Springpole database.

SRK recommends that First Mining implements a written protocol for QA/QC data review so that quick action can be taken if sample batches fall outside of the acceptable QA/QC acceptance guidelines.

25.2 Mineral Resource

SRK recommends that First Mining carry out a dedicated program of bulk density measurement on core sufficient to establish volumetrically representative values for density.

25.3 Resource Development Program

SRK recommends that the existing resource is sufficiently defined to advance the Springpole Gold Project to a pre-feasibility study and no further resource definition drilling is required within the resource volume.

25.4 Metallurgical Testwork Program

Additional testwork needs to be done to confirm whether cyanide detoxification can be completed successfully and within normal reagent cost levels. Thickening and filtering characteristics should be confirmed so that unexpected dewatering costs are not incurred. For whole feed leaching, the plant tailings will likely be acid generating and the associated costs with treatment/handling of this material need to be estimated.

A well-defined metallurgical testwork program can address these items and determine if there are any issues that may impact the overall economics. It is expected that such a program will cost between $100,000 and $250,000, depending on the number of samples included.

Additional testwork for improved flotation concentration should be considered.

25.5 Mining Engineering

SRK recommends that pit optimization, pit design, production scheduling, fleet productivities, capital costs and operating costs be advanced to a pre-feasibility study level. The PFS level mine engineering investigation will cost between $100,000 and $200,000.

25.6 Hydrogeological Characterization

The following site investigation recommendations are standard scope items for a PFS:

- Hydraulic testing is recommended in the area between the lakes and the proposed pit, with the main objective to identify and focus testwork on larger scale geological features with the potential to act as hydraulically transmissive conduits for groundwater inflows. This work should be done in conjunction with a concession scale structural assessment and any geophysical surveys that are available.
- Secondary objectives would be to characterise the hydrogeological properties of the bedrock, which will be used to constrain estimates of groundwater inflow. This work should continue the PFS data collection for the geotechnical program, which consisted of packer testing within the pit area. Drill holes for testing should be located during site investigation programs for the TMF and waste rock dumps. The testing program should consider:
  - Short-duration tests within all geotechnical drill holes (e.g., packer testing).
  - Short-duration tests within at least two hydrogeological drill holes targeting areas outside of the open pit area.
  - A contingency should be included for longer-term testing (e.g., airlift testing) with observation wells if preliminary analyses indicate that there are areas with relatively high permeability.

A final design of this program will not be possible until the structural review is completed.

SRK estimates the cost of this hydrogeological characterization program to be $60,000 assuming that a drilling rig is on site and a five hole program will take six weeks to complete. This cost does not include long-term test pumping.

- **Groundwater monitoring.** Groundwater monitoring wells to be sited and installed with well screens to isolate key aquifer horizons. The construction of the wells should take into consideration any overburden and geology that is encountered. Multi-depth wells should be considered in key areas to monitor water levels in significant overburden and bedrock lithology. Locations of the wells should be up-gradient and down-gradient of any mine infrastructure. Wells should be constructed to best practise guidelines to ensure that sampling, hydraulic testing and groundwater measurements are representative of the zone they are in. A water level monitoring database should be established with regular measurements taken on a weekly basis. This can either be done manually with a water level meter, or automatically by installing pressure transducers with integrated dataloggers into selected boreholes. A combination of these methods is recommended to ensure calibration against logger readings.
- **Groundwater quality** Groundwater quality should be characterized to establish baseline conditions using the monitoring wells described in the preceding paragraph, and should consider shallow (within overburden) and deep (base of pit) groundwater regimes. This work is typically undertaken as part of the environmental baseline study. Water quality data will be used in the load balance, and in cost estimates for potential treatment options. This work should be initiated as soon as possible to ensure seasonal groundwater data are captured.

A site water balance is recommended to be developed at an early stage so that all aspects of groundwater, surface water and process water around the project site are quantified.

25.7 Hydrological Monitoring

It is recommended that the following be installed at the Springpole site to obtain a better understanding of the site hydrology and to help define the specific site water management requirements in the future phases of the project:

- Gauging stations at the outflows from Springpole Lake
- Meteorological station

This monitoring will also be required for baseline studies to support the environmental assessment. SRK's estimate for the cost of these two automated level sensors is approximately $100,000.

25.8 Tailings Management Facility

It is recommended that the following studies be undertaken to confirm the tailings management plan design:

- Complete a detailed geotechnical/geohydrological investigation of the tailings management facility including boreholes and test pits. Packer testing, and *in situ* characterization is required, as well as sampling and submitting of samples to geotechnical testing laboratories for engineering property classification. It is estimated that the cost of this program is likely to be $200,000 to $300,000.
- Carry out detailed physical and rheological testing on representative tailings samples to confirm the thickening characteristics of the tailings and the ultimate beach angle. The cost of this program is estimated to be $30,000 to $60,000.
- Carry out a preliminary borrow source characterization study to identify candidate construction materials (including for the dewatering dike and main access road route). This should include an initial air photo interpretation, followed up by preliminary ground reconnaissance. This study is estimated to cost between $50,000 and $100,000.

25.9 Dewatering Dike

A comprehensive geotechnical investigation must be carried out at the proposed dike locations to confirm foundation conditions. The investigation method must be capable of determining the *in situ* geotechnical properties of the lake bed sediments and other overburden. Samples must be retrieved for laboratory testing. The cost of this program is estimated between $180,000 and $280,000.

25.10 Infrastructure

A reconnaissance survey of the road and power line routes needs to be carried out to confirm the general ground conditions at these sites. The cost of this is estimated to be $10,000 to $25,000 depending on how much helicopter support would be required. In addition, a geotechnical investigation needs to be carried out at the two major river crossing sites to confirm foundation conditions. The cost of this investigation is estimated to be $75,000 to $150,000.

25.11 Environmental Studies

In support of the exploration activities and to support future EA processes and permits, the Springpole Gold Project will require a variety of environmental studies to collect environmental data to characterize both the physical and biological environments. The studies include the following areas: meteorology, air quality, noise, hydrology, hydrogeology, geochemistry, terrestrial resources, fisheries resources, socio-economic, archaeology, and sediment, benthos and surface water quality. These studies were on-going throughout 2017 and will continue in 2018 when a complete and robust environmental baseline data set will be available to support both the EA process and project permitting. First Mining is committed to characterizing and understanding the natural biophysical environment that it is operating in, and to protecting those natural values throughout the life of the project, from planning to closure.

25.12 Engineering

SRK recommends that the results of all of the recommended investigations and testwork be incorporated into the pre-feasibility level engineering study. The more advanced data set will guide a redesign of the open pit, waste storage facilities, process flow-sheet, dewatering dikes, tailings management facility, surface water management infrastructure and general mine infrastructure. All of the associated cost estimates should be revised to a pre-feasibility level and the technical economic model updated.

The pre-feasibility level engineering study will cost between $300,000 and $350,000.

25.13 Estimated Total Cost of Recommendations

The total cost for budgeting purposes of all SRK recommendations is shown in Table 25.1. Upper limit estimates have been used.

Table 25.1: Estimated Cost for Recommended Work

Recommendation	Estimated Cost (Upper Limit, $M)
Metallurgical Testwork	0.25
Hydrological Characterization	0.06
Hydrological Monitoring	0.10
Tailings Geotechnical Investigation	0.30
Tailings Physical Testing	0.06
Tailings Borrow Source Characterization	0.10
Dewatering Dike Geotechnical Investigation	0.28
Infrastructure Reconnaissance Survey	0.03
Infrastructure River Crossing Geotechnical	0.15
Engineering	0.35
Total Budget	**1.68**

25.14 Closure

It is recommended that First Mining develop PFS-level closure concepts and plans, including cost estimates.

25.15 General

SRK believes that the Springpole Gold Project should be taken to the next level of engineering study and economic assessment, typically a pre-feasibility study. It is estimated that a pre-feasibility study, along with all of the accompanying engineering work, would cost approximately $1.68M. Some of the activities involved to advance the project include:

- Additional metallurgical testwork;
- Advance hydrogeological and geotechnical characterisation;
- Initiate project permitting;
- Continue baseline environmental studies;
- Consummate agreements with relevant First Nations groups;

26 Acronyms and Abbreviations

Acronyms	
AP	Acid potential
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
COG	cut-off grade
IP	induced polarization
LOM	life of mine
Mag	magnetic
NI 43-101	National Instrument 43-101
NSR	net smelter return
NP	neutralization potential
NPV	net present value
SRK	SRK Consulting (Canada) Inc.
VLF	very low frequency
Conversion Factors	
1 troy ounce	31.1035 g
1 tonne	2,204.62 lb
Distance	
µm	micron (micrometre)
cm	centimetre
Ha	hectare
km	kilometre
m	metre
mm	millimetre
Elements and Compounds	
Au	gold
Ag	silver
CN	cyanide
Cu	copper
Fe	iron
NaCN	sodium cyanide
S	sulphur
Mass	
g	gram
kg	kilogram
lb	pound
Mt	million tonnes
oz	troy ounce
t	tonne (metric ton)
kt	kilotonne
koz	thousand ounces
Pressure	
MPa	mega pascal
Volume	
ft^3	cubic foot
L	litre
m^2	square metre
m^3	cubic metre

Other	
ºC	degree Celsius
AuEq	total revenue divided by gold price
G&A	general and administrative
hr	hour
kWh	kilowatt hour
M	million
masl	m above sea level
ppm	parts per million
s	second
Mtpa	million tonnes per annum
s.g.	specific gravity
t/d	tonnes per day

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Appendix B	Typical Drill Hole Geology Sections
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Appendix D	Base Statistics and/ or Variograms
Appendix E	Mining Sequence Pit and Waste Rock Facilities
Appendix F	Additional Geotechnical Details, Photo Evaluations of Core Box Photos and Seismic Hazards

29 Date and Signature Page

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All data used as source material plus the text, tables, figures, and attachments of this technical report have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.