Technical Report Summary on the Casa Berardi Mine, Northwestern Québec, Canada S-K 1300 Report

Hecla Mining Company

SLR Project No: 101.00632.00021

February 21, 2022

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1 copy – SLR International Corporation

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1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR International Corporation (SLR) was retained by Hecla Mining Company (Hecla) to prepare an independent Technical Report Summary (TRS) on the Casa Berardi Mine (Casa Berardi or the Property), located in Québec, Canada. The purpose of this TRS is to support the disclosure of the Casa Berardi Mineral Resource and Mineral Reserve estimates as of December 31, 2021. This TRS conforms to the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the Property on August 24 to 25, 2021.

Hecla was established in 1891 and has its headquarters in Coeur d'Alene, Idaho, USA. In June 2013, Hecla acquired Aurizon Mines Ltd. (Aurizon) and renamed the company Hecla Québec Inc. (Hecla Québec). Hecla has an administrative/exploration office in Val-d'Or, Québec and an office in Vancouver, British Columbia. Hecla holds a 100% interest in Casa Berardi through its wholly owned subsidiary Hecla Québec. The Casa Berardi complex has a 33 year history of surface and underground mining operations.

The Property is located in the northwestern Québec, approximately 95 km north of the town of La Sarre, in the James Bay Municipality. The Property extends east-west for more than 37 km and reaches 3.5 km in width. The Property is bounded in the west by the Québec/Ontario border and covers parts of Casa Berardi, Dieppe, Raymond, D'Estrées, and Puiseaux townships. The Casa Berardi gold deposits are located along a five kilometre east-west mineralized corridor associated with the Casa Berardi Fault. They comprise the West Mine, including the Principal area, and the East Mine.

The Casa Berardi gold deposits can be classified as an Archean sedimentary hosted lode gold deposit. The gold mineralization is superimposed on a continuous graphitic mudrock unit corresponding to the Casa Berardi Fault plane. Gold occurs mainly south of the Casa Berardi Fault, and occasionally on both sides of the fault.

The Casa Berardi operation includes several open pits and two underground mines (Figure 1-1). The Mine has produced approximately 2.84 million ounces (Moz) Au (recovered) since commencing production in 1988, including approximately 2.15 Moz Au (recovered) since production recommenced in November 2006.

The Casa Berardi processing facilities consists of a 3,836 tonnes per day (tpd) mill, with the ability to process 4,100 tpd, and a carbon-in-leach (CIL) process to recover gold from the ore.

Production for Casa Berardi over the current life of mine (LOM), 2022 to 2035, will be comprised of 2.4 million tonnes (Mt) from the underground operations from 2022 until 2027 and 16.5 Mt from the open pit operations from 2022 until 2035. Production will be split evenly over the initial four year period, when production from the underground operations reduces and subsequently from 2027 the open pits will provide the full production tonnage at a rate of approximately 4,000 tpd or 1.4 Mt per annum (Mtpa). Gold production over the LOM is forecasted to total 1.49 Moz Au (average of 106,000 oz Au per annum) while recovered silver is forecasted to total 357,000 oz Ag (average of 25,500 oz Ag per annum).

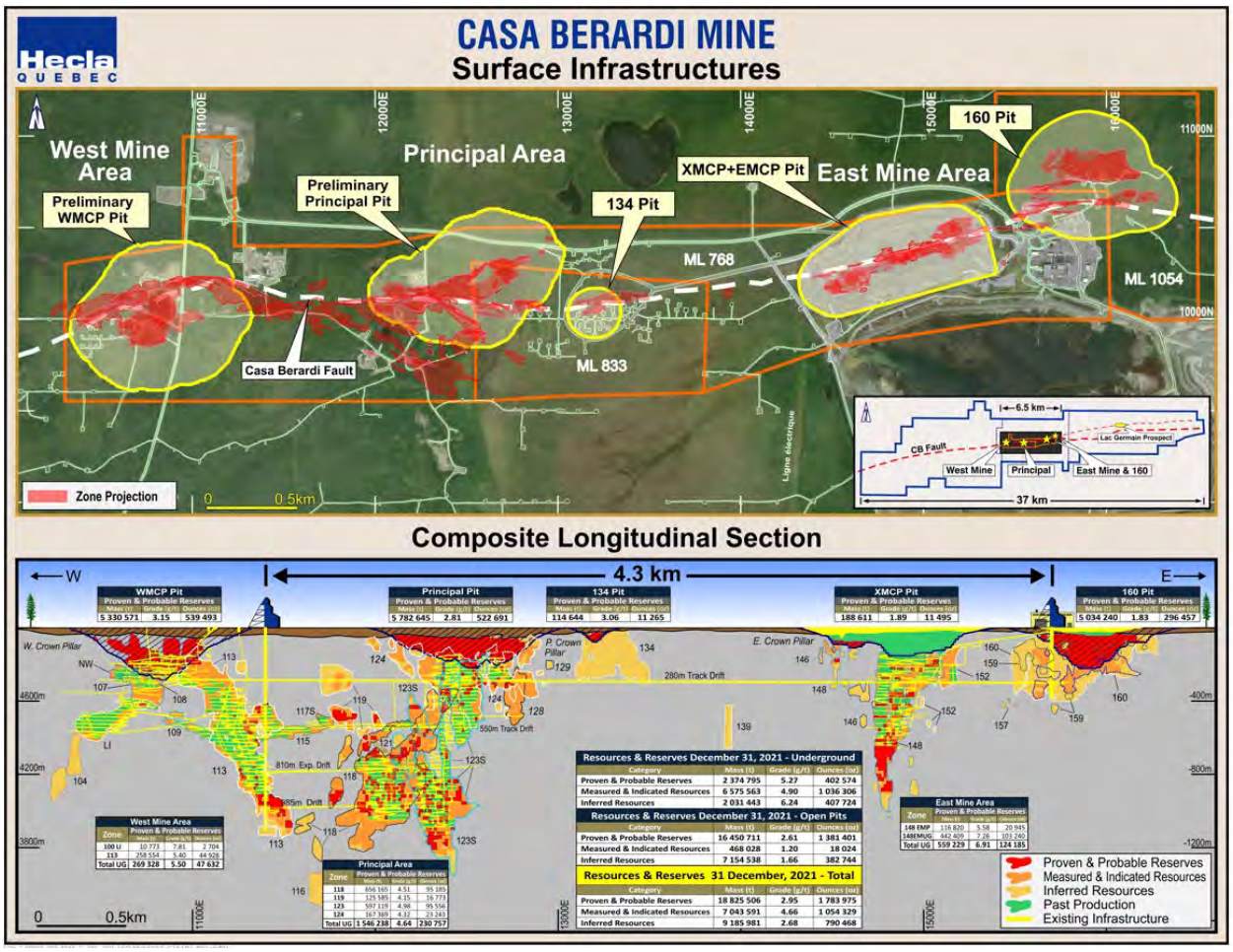

Figure 1-1: Mine Plan View Infrastructure with Composite Longitudinal Section

1.1.1 Conclusions

SLR offers the following conclusions and observations by area:

1.1.1.1 Geology and Mineral Resources

- Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300. Total Measured and Indicated Mineral Resources, exclusive of Mineral Reserves, as of December 31, 2021, are estimated to be 7.04 Mt at 4.66 g/t Au containing 1,05 Moz Au. Inferred Mineral Resources total 9.18 Mt at 2.68 g/t Au for 0.79 Moz Au. The underground portion of Measured and Indicated Mineral Resources represent 98% of the total Measured and Indicated Mineral Resources.
- The Casa Berardi Measured and Indicated Mineral Resources and the underground Inferred Mineral Resources have been prepared to industry best practices and conform to the resource categories defined by the SEC in S-K 1300. The SLR Qualified Person (QP) notes that the open pit Inferred Mineral Resources situated at the 134 and 160 pits are not constrained by a resource pit shell and that the elevation datums used to limit the open pit resources at depth are optimistic and should be replaced with resource shells in the future. Notwithstanding, the SLR QP is of the

opinion that this is not a significant issue because this material represents approximately 9% of the total reserve and resource ounces at Casa Berardi, it is all classified as Inferred, and none of it is included in the Long Term Plan (LTP).

- The Mineral Resources for Casa Berardi conform to the resource categories defined by the SEC in S-K 1300. Resource classification polygons were manually created for reach lens based on drill hole composites with average distances of up to 25 m for Measured and Indicated blocks. Measured blocks have the added requirement of having underground development nearby. Inferred blocks are located outside the 25 m average distance polygons and are based on average distances up to generally a maximum of 35 m and rarely up to 50 m.
- The open pit block models are diluted to whole block models using scripts in Gemcom. For the open pit diluted block models, only the blocks with more than 25% of mineralized material were classified, the remaining blocks with less than 25% of mineralized material are not classified and excluded from the resource estimate.
- From 1974 to 2021, surface and underground diamond drilling, totalling over 3.5 million metres, has been completed at Casa Berardi.
- Over the past few decades, the Casa Berardi geology team has developed an advanced understanding of the complex geology, lithology, structural, and alteration controls present at Casa Berardi.
- The mineralization style and setting are well understood and support the declaration of Mineral Resources and Mineral Reserves.
- The Casa Berardi sample preparation, analyses, quality assurance/quality control (QA/QC) protocols, and security procedures are acceptable, meet industry standard practice, and are adequate for Mineral Resource estimation.
    - Sample collection and handling of core is undertaken in accordance with industry standard practices, with procedures implemented to limit potential sample losses and sampling biases.
    - Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure since 1998. These preparation procedures are consistent with industry standard methods for gold deposits.
    - Core from exploration and infill diamond drilling programs are analyzed by independent and accredited laboratories using industry standard methods for gold and silver analyses. Current run of mine sample analyses are performed by the mine laboratory.
    - While limited information is available regarding the QA/QC procedures for the pre-1998 drill programs, sufficient reanalysis programs and vast amounts of more recent data support the use of pre-1998 data.
- The QA/QC program results indicate that the sample preparation and analytical procedures at the mine laboratory and Swastika Laboratories Ltd. (Swastika) are well aligned to generate reliable and accurate results.
    - Blank sample results imply minimal cross sample contamination.
    - Certified reference material (CRM) results demonstrate that assay values are sufficiently accurate to be used in Mineral Resource estimation and no significant biases are evident at the mine and Swastika laboratories.

  - Sequential insertion of duplicate samples has resulted in a relatively low proportion of duplicate results for mineralized samples.
  - External pulp and reject check assays suggest that the ALS Geochemistry (ALS) gold assays may be biased high relative to the Swastika and Mine laboratory results.

- Sample security is regarded as very good. Samples are always attended or locked in the on site logging or sampling facilities. Chain of custody procedures consist of completing sample submittal forms that are sent to the laboratory with sample shipments and shipment tracking to ensure that all samples are received by the laboratory.
- The data verification programs undertaken on the data collected from the Project comply with industry standards and adequately support the geological interpretations, validate the analytical and database quality, and support the use of the data in Mineral Resource and Mineral Reserve estimation and in mine planning
- The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that would materially affect the Mineral Resource estimate.
- The Property is very large and covers a very favourable geological environment for gold mineralization including a 37 km strike length along the Casa Berardi Fault.
- The SLR QP is of the opinion that excellent exploration potential remains on the Property, both along strike and at depth in the immediate mine area and on the rest of the Property.
- Geophysics and drilling are the key exploration tools needed to make new discoveries under the thick layer of overburden that covers most of the Property.

1.1.1.2 Mining and Mineral Reserves

- Mineral Reserves have been classified in accordance with the definitions for Mineral Reserves in S-K 1300. Mineral Reserves as of December 31, 2021 total 18.82 Mt grading 2.95 g/t Au containing 1.78 Moz Au.
- Measured and Indicated Mineral Resources were converted to Proven and Probable Mineral Reserves, respectively. Inferred Mineral Resources were not converted to Mineral Reserves, however, are typically included in the Casa Berardi LTP and therefore are removed from the LOM cash flows to ensure economic confirmation of the Mineral Reserves.
- The mining methods at Casa Berardi are well established with many years of operating experience, providing the necessary expertise to, safely and economically, extract the Mineral Reserves.
- While both transverse and longitudinal longhole stoping methods are employed effectively challenging ground conditions require the use of various types of backfill to provide the necessary support.
- Underground mining will come predominantly from the West Mine with a minor amount from the East Mine. Mining from various open pits on surface represent the bulk of the Mineral Reserves to be mined, accounting for approximately 77% of the Casa Berardi Mineral Reserves.
- The current LOM period is estimated to be fourteen years ending in 2035. Underground Mineral Reserves totalling 2.4 Mt will be mined during the first six years while open pit Mineral Reserves totalling 16.5 Mt will be mined over the entire LOM period.

1.1.1.3 Mineral Processing

- Metallurgical and production models have been developed from extensive baseline sampling and are further adjusted annually to account for process and metallurgical improvements and changes.
- The test work performed on open pit material was used to estimate gold recovery, while operating data was used for underground material. Recent test work has been performed by an external laboratory on future open pit material (West Mine Crown Pillar (WMCP) and Principal). WMCP test results were used to inform the long term mine plan. An update on data pertaining to the Principal Pit will be made once the test results are available.
- Test work programs, both internal and external, continue to be performed to support current operations and potential improvements.
- The current process facilities are appropriate for the mineralization types provided from the mine. The flowsheet, equipment, and infrastructure are expected to support the current LOM plan.

1.1.1.4 Infrastructure

- Hecla plans to build a new maintenance garage to handle the 150 t trucks.
- Hecla plans to build a new pre-crusher.

1.1.1.5 Environment

- Hecla has sufficiently assessed the environmental impact of the operation, and subsequent closure and remediation requirements such that Mineral Resources and Mineral Reserves can be declared, and the mine plan deemed appropriate and achievable. Closure provisions are appropriately considered and monitoring programs are in place.
- Hecla has developed a community relations plan to identify and ensure an understanding of the needs of the surrounding communities and to determine appropriate programs for addressing those needs. Hecla appropriately monitors socio-economic trends, community perceptions, and mining impacts.
- Permits held by Hecla for the Property are sufficient to ensure that mining activities are conducted within the regulatory framework required by regulations.
- There are currently no known environmental, permitting, or social/community risks that could impact the Mineral Resources or Mineral Reserves.

1.1.2 Recommendations

It is normal that there are not many recommendations for mature operations like Casa Berardi. SLR offers the following recommendations by area.

1.1.2.1 Geology and Mineral Resources

1. Continue drilling to expand the near mine open pit and underground Mineral Resources.
2. Convert open pit and underground Inferred Mineral Resources to Indicated, especially material in the LTP.
3. Continue to drill below the 134 and 160 pits.
4. Create resource open pit shells for 134 and 160.

5. Increase regional exploration activities to make new discoveries on the very large Property.
6. Consider changing QA/QC protocols related to pulp duplicate selection and sending rejects for external check assays.
7. Investigate the potential high gold assay bias at the secondary umpire laboratory.
8. Implement procedures that will help reduce CRM mislabelling or "swaps".

1.1.2.2 Mining and Mineral Reserves

1. Investigate the potential use of contractors, improved equipment performance, revised schedules and other incentives to complete the planned development.
    - While mining operations at Casa Berardi are being carried out in an appropriate fashion annual mine development to access future mining areas has fallen short of planned advance rates. Additional efforts will be required to meet production targets.
2. Continue conducting definition diamond drilling throughout the remainder of the underground mining operation until 2027.
    - Based on positive ongoing results consider increasing the drilling program.
3. Continue to convert Mineral Resources to Mineral Reserves to extend the underground operation past 2027 and extend open pit mining where possible.
4. Investigate adding marginal underground Measured and Indicated Mineral Resources to the Mineral Reserves.

1.1.2.3 Mineral Processing

1. Continue to conduct additional metallurgical testing to better understand the processing of mineralization from the Principal and WMCP pits. This will aid in projecting metallurgical recoveries for these pits and will indicate any variability in gold recovery and grindability of the material. SLR notes that testing was undertaken at an external laboratory in 2021 and some results were not available at the time of preparation of this TRS.

1.2 Economic Analysis

The economic analysis contained in this TRS is based on the Casa Berardi Proven and Probable Mineral Reserves material only, economic assumptions, and capital and operating costs provided by Hecla's technical team in its LOM plan model and reviewed by SLR. All costs in this section are expressed in US dollars. Unless otherwise stated, all costs in this section of the TRS are expressed without allowance for escalation or currency fluctuation. All costs received from Hecla's site technical team in its Casa Berardi LOM 2022 Reserves only model were quoted in Canadian dollars and were converted to US dollars at an exchange rate of US$1 = C$1.275.

A summary of the key project criteria is provided in the subsequent subsections.

1.2.1 Economic Criteria

1.2.1.1 Physicals

- Mine life: 14 year LOM (between years 2022 and 2035)
- Open Pit operations
  - Open pit mine life: 14 years (between years 2022 and 2035)
  - Total ore tonnes mined: 16.45 Mt at 2.61 g/t Au
  - Waste tonnes: 245.64 Mt
  - Maximum mining rate: 72,000 tpd (ore + waste) in year 2028
- Underground operations
  - Underground mine life: 6 years (between years 2022 and 2027)
  - Total ore tonnes mined: 2.37 Mt at 5.27 g/t Au
  - Maximum mining rate: 1,300 tpd
- Processing of Mineral Reserves:
  - Total Ore Feed to Plant: 18.83 Mt
    - Gold grade: 2.95 g/t Au
    - Silver grade: 0.71 g/t Ag
    - Silver/Gold ratio: Ag = 23.99% of Au
  - Maximum milling rate: 4,500 tpd
  - Contained Metal
    - Gold: 1.78 Moz Au
    - Silver: 0.428 Moz Ag
  - Average LOM Plant Recovery 83.5%
  - Recovered Metal
    - Gold: 1.49 Moz Au
    - Silver: 0.358 Moz Ag

1.2.1.2 Revenue

- SLR conducted a preliminary economic analysis using flat Mineral Reserve pricing of US$1,600/oz Au and US$21/oz Ag and confirmed the mine was economic at those prices.
- For the purposes of this economic analysis described in this section, revenue is estimated over the LOM with a flat long term price of US$1,650/oz Au and US$21/oz Ag, respectively. SLR considers this price to be aligned with latest industry consensus long term forecast prices. Transportation, insurance and refining charges are estimated at US$4.31/oz Au over the LOM. Payable metals in the Casa Berardi LOM 2022 plan are estimated at 99.9% for gold and 99% for silver. These rates are based on actual figures for refining losses.

- LOM net revenue is US$2,456 million (after Refining Charges).

1.2.1.3 Capital Costs

- Total sustaining capital costs total US$347.2 million
- Capital costs in years 2024 and 2025, are higher than the LOM average to prepare infrastructure needed to achieve full production in the open pits.
- Salvage value of US$20.9 million.
- Closure costs of US$22.9 million are included in the analysis at the end of the LOM.

1.2.1.4 Operating Costs

- Open Pit mining: US$15.50/t ore mined
- Underground mining: US$53.43/t ore mined
- Processing (includes paste fill plant): US$20.05/t ore milled
- Site Services - Mechanical & Electrical: US$16.42/t ore milled
- Hedging Operating Costs Savings: - US$0.26/t ore milled
- G&A US$12.53/t ore milled
- Total unit operating costs US$69.03/t ore milled
- LOM total operating costs US$1,300 million.
- Excludes financing and corporate overhead costs

1.2.1.5 Taxation and Royalties

- Royalties: The current production zones as well as any in the 2022 LOM are not subject to a net smelter return (NSR) or royalty to a third party / previous landowner.
- Income tax is payable to the Federal Government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income.
- Income tax is payable to the Province of Québec at a tax rate of 11.5% of taxable income.
- No income taxes are payable until 2029 as Hecla uses its current tax pools and net operating loss carry forwards. Beginning in 2029 the effective tax rate used is 26.5% (combined federal and provincial)
- Québec Mining Tax base rate is 16%

1.2.2 Cash Flow Analysis

SLR has reviewed the Hecla's Casa Berardi LOM 2022 Reserves only model and has prepared its own unlevered after-tax LOM cash flow model based on the information contained in this TRS to confirm the physical and economic parameters of the Casa Berardi Mine.

The Casa Berardi economics have been evaluated using the discounted cash flow method by considering annual processed tonnages and grade of ore. The associated process recovery, metal prices, operating costs, refining and transportation charges, and sustaining capital expenditures were also considered.

The indicative economic analysis results, presented in Table 1-1 in US dollars with no allowance for inflation, show a pre-tax and after-tax NPV, using a 5% discount rate, of $514 million and $396 million,

respectively. The SLR QP is of the opinion that a 5% discount/hurdle rate for after-tax cash flow discounting of long lived precious/base metal operations in a politically stable region is reasonable and appropriate and commonly used. For this cash flow analysis, the internal rate of return (IRR) and payback are not applicable as there is no negative initial cash flow (no initial investment to be recovered) since Casa Berardi has been in operation for a number of years.

Table 1-1: Life of Mine Indicative Economic Results
Hecla Mining Company – Casa Berardi Mine

	Units	Total LOM
	Production	
LOM	years	14
OP Production	000 t	16,451
Au Grade	g/t	2.61
Waste	000 t	245,640
UG Production	000 t	2,375
Au Grade	g/t	5.27
Mill Feed	000 t	18,826
Au Grade	g/t	2.95
Ag Grade	g/t	0.71
Ag/Au Conversion Ratio	%	23.999
	Total Contained Production	
Contained Au	000 oz	1,784
Contained Ag	000 oz	428
Average Recovery	%	83.5
	Total Recovered Production	
Recovered Au	000 oz	1,490
Recovered Ag	000 oz	358
	Metal Prices	
Gold Price	US$/oz	1,650
Silver Price	US$/oz	21.00
	Cash Flow	
Gross Revenue	**US$ million**	**2,464**
Treatment & Refining	US$ million	(6)
	Operating Costs	
Mining OP Costs	US$ million	(255)
Mining UG Costs	US$ million	(127)

	Units	Total LOM
Processing Costs (includes paste fill plant)	US$ million	(377)
Site Services - Mechanical & Electrical	US$ million	(309)
Operating Costs Savings due to Hedging	US$ million	5
G&A	US$ million	(236)
Operating Cash Flow	**US$ million**	**1,158**
Sustaining Capital Costs	US$ million	(347)
Salvage Value	US$ million	21
Reclamation & Closure	US$ million	(23)
Pre-Tax Net Cash Flow	**US$ million**	**809**
Québec Mining Tax	US$ million	(116)
Federal & Provincial Income Taxes	US$ million	(72)
After-Tax Cashflow	**US$ million**	**621**
	Project Economics	
Pre-tax NPV at 5%	**US$ million**	**514**
After-Tax NPV at 5%	**US$ million**	**396**
	Operating Metrics	
Maximum Daily OP Mining Rate	t/d mined	87,000
Maximum Daily UG Mining Rate	t/d mined	1,300
Maximum Daily Processing Rate	t/d milled	4,500
OP Mining Cost	US$ / t ore mined	15.50
UG Mining Cost	US$ / t ore mined	53.43
Processing Cost	US$ / t ore	20.05
Site Services (Mech. & Elec.) Costs	US$ / t ore	16.42
Operating Costs Savings due to Hedging	US$ / t ore	(0.26)
Administration Cost	US$ / t ore	12.53
Total Cost	**US$ / t ore**	**69.03**

1.2.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at a 5% discount rate. The Mine is most sensitive to changes in metal prices and US$/C$ exchange rate, then to head grade and metallurgical recoveries, followed by operating costs and capital costs.

1.3 Technical Summary

1.3.1 Property Description

The Property is located in the Province of Québec, approximately 95 km north of the town of La Sarre, in the James Bay Municipality. Mine is located at longitude 79°16'46.4" and latitude 49°33'56.7".

1.3.2 Land Tenure

The Property consists of 391 contiguous designated claims, covering a total area of 19,151.08 ha, and three mining leases, BM 768, BM 833, and BM 1054 covering areas of 397.09 ha, 84.35 ha, and 92.56 ha, respectively. The Property area totals 19,725.08 ha. Other legal titles include non-exclusive leases BNE 25938, tailings lease 70218, and two waste rock facility (WRF) leases 192410 and 819410. Legal titles are under the name of Hecla Québec.

The Casa Berardi claims are in good standing.

1.3.3 History

Prior to 1974, the Casa Berardi area was explored for base metal deposits. In 1974, the first 13 claims were staked by Inco Gold Ltd. (Inco Gold). The discovery hole was drilled in 1981, and 590 additional claims were staked.

In 1982, Inco Gold (60%) and Golden Knight Resources Inc. (Golden Knight) (40%) formed a joint venture (JV) to operate the Mine , with the East Mine commencing production in 1988 and the West Mine in 1990. In 1991, TVX Gold Inc. (TVX) acquired Inco Gold's 60% interest in the Property. In 1994, TVX and Golden Knight purchased the remaining interest in the Domex claim block, a part of the Principal (Main) Zone between the West Mine and East Mine, from Teck Corporation. In January 1997, TVX announced the closure of the East Mine due to ground control issues. Two months later, the West Mine was closed. The total combined production for the period from 1988 to 1997 was 3.5 Mt at an average grade of 7.1 g/t Au. The total gold recovered during the operating years was 688,400 oz Au, with an average mill gold recovery rate of 87%.

In September 1998, Aurizon signed an agreement and completed the acquisition of all Casa Berardi assets and mining rights. Aurizon completed exploration diamond drilling programs, feasibility studies, underground development, shaft sinking, and construction.

In early November 2006, Aurizon completed construction and development at the West Mine area and commenced underground mining and milling operations. From November 2006 to May 31, 2013, Aurizon production totalled approximately 4.31 Mt at an average grade of 7.7 g/t Au for a total of 0.98 Moz Au recovered.

In June 2013, Hecla acquired Aurizon and the company was renamed Hecla Québec, a 100% subsidiary of Hecla. From 2012 to the end of 2016, the Casa Berardi Regional exploration was still under a JV between Lake Shore Gold Inc. (Lake Shore) and Hecla. In February 2016, Tahoe Resources Inc. (Tahoe) purchased Lake Shore, and at the end of 2016, Hecla bought Tahoe's 50% interest in the Property in exchange for C$5 million (US$ 4 million) and 1% NSR on 227 claims. From June 1, 2013 to December 31, 2021, production from Casa Berardi totalled approximately 9.0 Mt at an average grade of 4.88 g/t Au for a total of 1.17 Moz Au recovered.

Since 1988, a total of 16.8 Mt at an average grade of 5.98 g/t Au have been milled at Casa Berardi for a total recovered gold of 2.8 Moz Au and an average gold recovery of 88.1%

1.3.4 Geological Setting, Mineralization, and Deposit

The Property is located in the northern part of the Abitibi Subprovince, a subdivision of the Superior Province, the Archean core of the Canadian Shield. The Casa Berardi area is included in the Harricana-Turgeon Belt, which is part of the North Volcanic Zone.

The regional geology is characterized by a mixed assemblage of mafic volcanic rocks, flysch-type sedimentary iron formations, and graphitic mudrocks that are limited by a large granodioritic to granitic batholith. Structurally, the Property is enclosed in the Casa Berardi Tectonic Zone, a 15 km wide corridor that can be traced over 200 km. A network of predominantly east-west ductile high strain or shear zones mainly follow the lithological contacts.

The Casa Berardi Fault is defined by a stratigraphic contact between a graphite rich sediment sequence at the base of the Taïbi Domain, a northern continuous intermediary fragmental volcanic unit, and a southern polymictic conglomerate unit. On the north side of the Casa Berardi Fault, a thick sequence of very homogeneous wacke belonging to the Taïbi Group is affected by amphibolite grade metamorphism. One kilometre further north is the easterly elongated Recher Batholith, which is part of the northwestern boundary of the Abitibi greenstone belt.

The Casa Berardi Fault strikes east-west and dips 80° to the south. Inside the fault or deformation zone, ductile deformation intensity is heterogeneous. Kinematic indicators observed inside the main foliation, combined with the foliation dip pattern, indicate a possible south verging thrust movement.

Gold mineralization is largely located in quartz veining, either in the form of plurimetric veins, small scale veins, or veinlet networks. Veins are heterogeneous and contain a variable percentage of foliated enclaves exhibiting a laminated appearance. Veins are of different colour, texture, and structure. Gold grades are generally correlated with increasing complexity. Different quartz phases have been recognized in mineralized veins to exhibit the following sequence:

- Phase 1: grey quartz, with abundant sulphides and fluid inclusions, comprising more than 50% of mineralized veins.
- Phase 2: mosaic micro-crystalline quartz occurring in higher grade portions of veins.
- Phase 3: non-mineralized coarsely crystallized white quartz which cuts the two others.

The gold bearing vein filling is rarely massive, but often brecciated, micro-brecciated, or laminated. The fracture planes are rich in graphite and muscovite. Veins contain only minor sulphides (1% to 3%), predominately including arsenopyrite, pyrite, and traces of sphalerite, chalcopyrite, pyrrhotite, tetrahedrite, galena, and gold. Arsenopyrite is the main gold bearing sulphide present in all veins of the Casa Berardi deposit.

In general, gold occurs as free particles up to a few tens of micrometres in size and as grains attached to or locked in sulphides, including pyrite and arsenopyrite in various proportions depending on the mineralized area.

The Casa Berardi gold deposit can be classified as an Archean age, sedimentary-hosted lode gold deposit. Gold predominantly occurs south of the Casa Berardi Fault, and is sometimes observed on both sides of the Casa Berardi Fault.

1.3.5 Exploration

From 1974 to 2021, surface and underground diamond drilling, totalling over 3.5 million metres, has been completed at Casa Berardi. Most of this drilling has successfully expanded resources along a five kilometre segment of the Casa Berardi Fault in the immediate mine area. Some regional exploration work including geophysical surveys and diamond drilling has been carried out on the Property, which is very large and covers a very favourable geological environment for gold mineralization including a 37 km strike length along the Casa Berardi Fault. The SLR QP is of the opinion that excellent exploration potential remains on the Property, both along strike and at depth in the immediate mine area and on the rest of the Property. Geophysics and drilling are the key exploration tools needed to make new discoveries under the thick layer of overburden that covers most of the Property.

1.3.6 Mineral Resource Estimates

Total Measured and Indicated Mineral Resources, exclusive of Mineral Reserves, as of December 31, 2021, are estimated to be 7.04 Mt at 4.66 g/t Au containing 1.05 Moz Au. Inferred Mineral Resources total 9.18 Mt at 2.68 g/t Au for 0.79 Moz Au. The underground portion of Measured and Indicated Mineral Resources represent 98% of the total Measured and Indicated Mineral Resources.

The Casa Berardi Mineral Resources conform to the resource categories defined by the SEC in S-K 1300. Resource classification polygons were manually created for reach lens based on drill hole composites with average distances of up to 25 m for Measured and Indicated blocks. Measured blocks have the added requirement of having underground development nearby. Inferred blocks are located outside the 25 m average distance polygons and are based on average distances up to generally a maximum of 35 m and rarely up to 50 m.

The Casa Berardi Mineral Resource estimate as of December 31, 2021, is presented in Table 1-2.

Table 1-2: Mineral Resource Estimate Summary – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Resource Category	Tonnes	Grade (g/t Au)	Contained Metal (oz Au)
	Underground		
Measured	2,060,934	5.30	351,430
Indicated	4,514,629	4.72	684,875
Measured + Indicated	**6,575,563**	**4.90**	**1,036,306**
Inferred	2,031,443	6.24	407,724
	Open Pit		
Measured	87,427	1.33	3,730
Indicated	380,600	1.17	14,294
Measured + Indicated	**468,028**	**1.20**	**18,024**
Inferred	7,154,538	1.66	382,744

Resource Category	Tonnes	Grade (g/t Au)	Contained Metal (oz Au)
		Total	
Measured + Indicated	**7,043,591**	**4.66**	**1,054,329**
Inferred	9,185,981	2.68	790,468

Notes:

1. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
2. Mineral Resources were estimated by Hecla Québec and reviewed and accepted by SLR
3. Mineral Resources are exclusive of Mineral Reserves and do not have demonstrated economic viability.
4. Mineral Resources are 100% attributable to Hecla.
5. Underground Mineral Resources are estimated at cut-off grades ranging from 3.11 g/t Au to 4.00 g/t Au.
6. Open pit Mineral Resources are estimated at cut-off grades ranging from 0.95 g/t Au to 1.33 g/t Au.
7. Underground and open pit Mineral Resources are estimated using an average long term gold price of US$1,700 /oz Au and a US$/C$ exchange rate of 1.275.
8. A minimum mining width of three metres was used.
9. Totals may not represent the sum of the parts due to rounding.

The SLR QP is of the opinion that with consideration of the recommendations summarized in in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserve Estimates

Mineral Reserves have been classified in accordance with the definitions for Mineral Reserves in S-K 1300. Mineral Reserves as of December 31, 2021 are summarized in Table 1-3.

Measured Mineral Resources were converted to Proven Mineral Reserves, and Indicated Mineral Resources were converted to Probable Mineral Reserves. Inferred Mineral Resources were not converted to Mineral Reserves, however, are typically included in the Casa Berardi LTP and therefore are removed from the LOM cash flows to ensure economic confirmation of the Mineral Reserves.

Table 1-3: Summary of Mineral Reserves – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Reserve Category	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Metallurgical Recovery (%)
		Underground		
Proven	836,930	5.33	143,294	-
Probable	1,537,865	5.24	259,279	-
Proven + Probable	**2,374,795**	**5.27**	**402,574**	**85.6**
		Open Pit		
Proven	4,321,010	3.26	452,992	-
Probable	12,129,701	2.38	928,409	-
Proven + Probable	**16,450,711**	**2.61**	**1,381,401**	**82.9**

Reserve Category	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Metallurgical Recovery (%)
		Total		
Proven + Probable	**18,825,506**	**2.95**	**1,783,975**	**83.5**

Notes:

1. Classification of Mineral Reserves is in accordance with the S-K 1300 classification system.
2. Underground and open pit Mineral Reserves were estimated by Hecla Québec and reviewed and accepted by SLR.
3. Mineral Reserves are 100% attributable to Hecla.
4. Underground Mineral Reserves are estimated at a cut-off grade of 3.27 g/t Au for 100, 113,119 and 124 zones. A cut-off grade of 3.57 g/t Au for the 115, 118, 121, 123 and 128 zones. A cut-off grade of 3.83 g/t Au for the 146 and 148 zones, and a cut-off grade of 3.54 g/t for the 159 and 160 zones.
5. Open pit Mineral Reserves are estimated at a cut-off grade of 1.01 g/t Au for the 160 pits. A cut-off grade of 1.37 g/t Au for the WMCP. A cut-off grade of 1.31 g/t Au for the Principal Pit. A cut-off grade of 1.30 g/t Au for the 134 Pit. A cut-off grade of 1.39 g/t Au for the EMCP and XMCP.
6. Underground and open pit Mineral Reserves are estimated using an average long term gold price of US$1,600/oz Au and a US$/C$ exchange rate of 1.275.
7. A minimum mining width of three metres was used.
8. Totals may not represent the sum of the parts due to rounding.

Production for Casa Berardi over the current life of mine (LOM), 2022 to 2035, will be comprised of 2.4 million tonnes (Mt) from the underground operations from 2022 until 2027 and 16.5 Mt from the open pit operations from 2022 until 2035. Production will be split evenly over the initial four year period, when production from the underground operations reduces and subsequently from 2027 the open pits will provide the full production tonnage at a rate of approximately 4,000 tpd or 1.4 Mtpa. Gold production over the LOM is forecasted to total 1.49 Moz Au (average of 106,000 oz Au per annum) while recovered silver is forecasted to total 358,000 oz Ag (average of 25,600 oz Ag per annum).

The SLR QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.3.8 Mining Methods

The mine design and planning processes reflect the previous mining experience at the West and East mines. Currently the bulk of the production comes from the West Mine which can be accessed by a shaft or a ramp down to the 1,080 m level while the East Mine connects to the West Mine on the 280 m level and does not have an operating hoist in place, however, the East Mine does have a ramp and can be accessed independently from West Mine. The East Mine represents less than 24% of the underground tonnage and presents challenging mining conditions with small stopes following the Casa Berardi fault.

A combination of longitudinal and transverse blasthole stoping is typically used at the Casa Berardi, depending on mineral zone geometry (width and attitude) and development requirements. While timely delivery of backfill plays a crucial role in controlling dilution and maintaining the short stoping cycle, since 2006 this mining approach has been implemented safely and reliably. The zones vary in thickness, ranging from over 50 m to less than three metres (e.g., minimum mining width). In general, the zones are subvertical (e.g., 55° to 85°).

Over the years, Hecla's Casa Berardi mine operators have acquired essential experience in addressing and successfully overcoming the mining challenges presented.

1.3.9 Processing and Recovery Methods

The Casa Berardi processing facility consists of a 3,836 tpd mill, with the ability to process 4,100 tpd, and a CIL process to recover gold from the ore. The key unit operations to produce gold include:

- Crushing
- Grinding
- Gravity Circuit
- CIL Circuit
- Carbon Circuit
- Elution Circuit
- Electrowinning Circuit
- Smelting

Residual pulp from the CIL mixing tank is pumped to the cyanide destruction tank to which sulphur dioxide and compressed air is added to destroy residual cyanide with agitation. After cyanide destruction, the treated pulp is then pumped to the paste backfill plant or the tailings pond. Ferric sulphate is also added to this material in order to reduce arsenic content in the solution. Approximately 5% of the Casa Berardi Mine tailings are used in the mine backfill cycle. Tailings that are not used for mine backfill are disposed of at the tailings storage facility (TSF).

1.3.10 Infrastructure

Existing surface and underground infrastructure at the East Mine includes the following:

- A nominal 3,836 tpd mill, with the ability to process 4,100 tpd.
- TSF with four tailings cells, a polishing pond, a sedimentation pond for settling iron arsenate precipitates, and a process water pond.
- Two story administrative building with offices, warehouse, dry, laboratory, two heavy equipment maintenance garage, millwright shop, and electrical shop.
- Two core shacks.
- Water pumping station.
- Hoistroom, a headframe, and a 380 m deep shaft (with no hoist).
- Mine access decline and a series of ramp-connected levels.
- Three petrol tanks with pump gas and fuel.
- One mineral stockpile.
- One waste and till-clay pile.

Existing surface and underground infrastructure at the West Mine include the following:

- Backfill plant, including a compressor room and a ventilation raise intake.
- Settling ponds.
- Pumping station.
- A 380 m^2 garage.
- Two dry houses with offices.

- Emergency building for mine rescue and infirmary.
- Warehouse.
- Core storage area.
- Gatehouse.
- Mine access decline providing access to the West Mine and Principal area.
- Hoistroom, headframe, and mine shaft to the 1,080 m level.
- A 125 tonnes per hour (tph) paste backfill plant and a cement plant with tailings feed line from the mill and distribution holes to the underground.
- Mine ventilation fans and mine air heater with ventilation raise to the mine workings.
- One WRF and one ore rock pile.

There is no additional surface infrastructure related to the Principal Mine. A five kilometre track drift joins the East and West mines and provides access to the Principal Mine at the 280 m level.

The power supply of the site is provided by a 55 km, 120 kV power line, from the town of Normétal.

1.3.11 Market Studies

Hecla currently has a refining agreement with Asahi Refining Canada (Asahi) whereby the refined gold and silver is refined and credited to Hecla's account at Asahi. The doré bars produced at Casa Berardi are refined at Asahi's facilities in Brampton, Ontario, Canada.

Gold and silver bullion is sold through commercial banks or metal traders via a sale contract at spot prices. Settlement of funds from bullion sales occurs two business days after the contract date.

The terms and conditions of the refining and bullion sales contracts are typical and consistent with standard industry practice and would be similar to contracts for the supply of gold elsewhere in North America.

1.3.12 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups

Hecla has sufficiently assessed the environmental impact of the operation, and subsequent closure and remediation requirements such that Mineral Resources and Mineral Reserves can be declared, and the mine plan deemed appropriate and achievable. Closure provisions are appropriately considered and monitoring programs are in place.

Hecla has developed a community relations plan to identify and ensure an understanding of the needs of the surrounding communities and to determine appropriate programs for addressing those needs. Hecla appropriately monitors socio-economic trends, community perceptions, and mining impacts.

Permits held by Hecla for the Property are sufficient to ensure that mining activities are conducted within the regulatory framework required by regulations.

There are currently no known environmental, permitting, or social/community risks that could impact the Mineral Resources or Mineral Reserves.

1.3.13 Capital and Operating Cost Estimates

The estimated capital costs for Casa Berardi are presented in Table 1-4. The majority of the sustaining capital is to be spent over the initial six year period with the remainder over the following eight years of the mine life.

Table 1-4: LOM Capital Cost Summary
Hecla Mining Company – Casa Berardi Mine

Area	2022-2037 (US$000)	2022-2027 (US$000)	2028-2037 (US$000)
Hedging Gain	(182)	(182)	-
Underground Infrastructure and Development	50,917	50,917	-
Open Pit	41,894	15,872	26,021
Process Plant	37,563	28,495	9,069
Administration	5,888	5,712	176
Site Services (Mechanical & Electrical)	199,430	108,193	91,237
Definition Drilling	11,730	11,730	-
Total Capital	**347,239**	**220,735**	**126,504**

Capital development will include approximately 23.3 km of ramps and drifts up to 2027. The capital costs under Mechanical will include approximately 37% for mine equipment, 42% for stripping, and the remainder to construct roads and waste pads as well as dewatering and miscellaneous items. Definition diamond drilling will be continued throughout the underground mine life.

The capital costs are based on updates from equipment suppliers and verified with engineering companies providing services to Casa Berardi. The capital costs accuracy would be considered equivalent or better than AACE Class 1 with an expected accuracy range of -3% to -10% on the low side and +3% to +15% on the high side.

Mine development costs are based upon operating experience, current development contracts, and the LOM development schedule. Open pit costs include mobilization of the open pit contractor and capitalized stripping costs. In year 2035 there is a salvage value of approximately US$20.9 million for mine and other equipment that can be sold.

The estimated operating costs over the LOM (2022 to 2035) are presented in Table 1-5.

Table 1-5: LOM Operating Cost Summary
Hecla Mining Company – Casa Berardi Mine

Item	Total LOM (US$000)	Total LOM (US$/t milled)
Tonnes Milled (000 t)	18,826	18,826
Hedging Gain	(4,871)	(0.26)

Item	Total LOM (US$000)	Total LOM (US$/t milled)
Mining	381,955	20.29
Processing	377,483	20.05
Admin. Casa Berardi	235,892	12.53
Site Services (Mechanical & Electrical)	309,050	16.41
Total	1,299,509	69.03

While the operating costs have been higher than budget over the last two years the LOM operating costs have been adequately estimated. This is reflected by higher costs during the underground operations and lower costs during open pit mining, as expected.

Hecla-forecasted operating costs estimates are derived from annual budgets and historical actuals over the long life of the current operation. According to the American Association of Cost Engineers (AACE) International, these estimates would be classified as Class 1 with an accuracy range of - 3% to -10% to +3% to +15%.

2.0 INTRODUCTION

SLR International Corporation (SLR) was retained by Hecla Mining Company (Hecla) to prepare an independent Technical Report Summary (TRS) on the Casa Berardi Mine (Casa Berardi or the Property), located in Québec, Canada. The purpose of this TRS is to support the disclosure of the Casa Berardi Mineral Resource and Mineral Reserve estimates as of December 31, 2021. This TRS conforms to the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary.

Hecla was established in 1891 and has its headquarters in Coeur d'Alene, Idaho, USA. In June 2013, Hecla acquired Aurizon Mines Ltd. (Aurizon) and renamed the company Hecla Québec Inc. (Hecla Québec). Hecla has an administrative/exploration office in Val-d'Or, Québec and an office in Vancouver, British Columbia. Hecla owns 100% interest in Casa Berardi through its wholly owned subsidiary Hecla Québec. The Casa Berardi complex has a 33 year history of surface and underground mining operations.

The Property is located in the northwestern Québec, approximately 95 km north of the town of La Sarre, in the James Bay Municipality. The Property extends east-west for more than 37 km and reaches 3.5 km in width. The Property is bounded in the west by the Québec/Ontario border and covers parts of Casa Berardi, Dieppe, Raymond, D'Estrées, and Puiseaux townships. The Casa Berardi gold deposits are located along a five kilometre east-west mineralized corridor associated with the Casa Berardi Fault. They comprise the West Mine, including the Principal area, and the East Mine.

The Casa Berardi gold deposits can be classified as an Archean sedimentary hosted lode gold deposit. The gold mineralization is superimposed on a continuous graphitic mudrock unit corresponding to the Casa Berardi Fault plane. Gold occurs mainly south of the Casa Berardi Fault, and occasionally on both sides of the fault.

The Casa Berardi operation includes several open pits and two underground mines. The Mine has produced approximately 2.84 million ounces (Moz) Au (recovered) since commencing production in 1988, including approximately 2.15 Moz Au (recovered) since production recommenced in November 2006.

The Casa Berardi processing facilities consist of a 3,836 tonnes per day (tpd) mill, with the ability to process 4,100 tpd, and a carbon-in-leach (CIL) process to recover gold from the ore.

Production for Casa Berardi over the current life of mine (LOM), 2022 to 2035, will be comprised of 2.4 million tonnes (Mt) from the underground operations from 2022 until 2027 and 16.5 Mt from the open pit operations from 2022 until 2035. Production will be split evenly over the initial four year period, when production from the underground operations reduces and subsequently from 2027 the open pits will provide the full production tonnage at a rate of approximately 4,000 tpd or 1.4 million tonnes per annum (Mtpa). Gold production over the LOM is forecasted to total 1.49 Moz Au (average of 106,000 oz Au per annum) while recovered silver is forecasted to total 358,000 oz Ag (average of 25,600 oz Ag per annum).

2.1 Site Visit

SLR qualified persons (QPs) visited Casa Berardi on August 24 and 25, 2021. SLR QPs visited the East Mine Crown Pilar (EMCP) western extension (XMCP) Pit, the East Mine underground, the mill, tailings storage facilities (TSF), core logging facilities, and surface infrastructure. Bedrock stripping at the 160 Pit was nearing completion while SLR QPs were at site. SLR QPs held meetings with site personnel and followed up with a number of teleconference meetings after the site visit.

The SLR geology QPs viewed the Casa Berardi Fault, which is well exposed and transects the XMCP pit, and the freshly washed and well-mineralized working face on the 630 m level at the East Mine where the face was marked up and sampled by a very experienced geological technician. An underground diamond drill in the process of drilling a deep hole (CBE-0243) was also visited. The drill bay was safe and clean and the two drillers were well organized. Approximately 100% core recovery was evident in the core boxes at 312 m.

The SLR geology QPs found the core logging facilities to be clean and well organized with good lighting. Overhead hoses provide a convenient source of water to wet the core. An area with a high definition camera on a tall tripod is designated for taking core photographs. The pre-packaged blanks and CRMs are well-organized. The diamond core saw has continuous water flow and is located in a separate, sound insulated, room. The core logging area is separate from the core reception and sample dispatch area, which is large enough for trucks to enter and has a long core layout table and a number of core racks for temporary core storage. A core reference library is available for new geologists to help ensure logging consistency.

The SLR mining QP found the open pit mining operations were well organized with the mining contractor carrying out drilling and mucking operations in a safe and efficient manner. Mining equipment utilized was consistent with current equipment types and appeared to be very well maintained. The contractor has maintenance facilities that appeared to be very functional and well organized. Control drilling of the pit walls was successful in controlling overbreak and muck fragmentation was reasonable given some difficult ground conditions.

The underground mining operations were equally well organized with adequate ground control measures in place, well executed production drilling and blasting in the production areas and development areas. Oversize was observed due to the very difficult conditions created by the Casa Berardi Fault and handling of oversize appeared to be well done as was remote control mucking of the drawpoints. Backfill placed appeared to be of good quality to provide the required ground support to permit safe mining. The diamond drill station observed was well secured and all safety devices appeared to be in place. Good housekeeping and cleanliness of the working areas was observed.

The SLR metallurgical and environmental QPs visited the mill operations, however, some equipment was down for repair and maintenance and access to some plant areas were limited. In general, all equipment in the key unit operations appeared to be in use or were being reliably maintained to achieve the target production. The TSF, waste and ore stockpiles, and water management monitoring systems were also visited. Roscoe Postle Associates Inc (RPA), now a part of SLR is very familiar with Casa Berardi with work dating back to the listing report for Aurizon in 1997 and NI 43-101 Technical Reports in 2005, 2009, 2010, 2011, 2013 for Aurizon and 2014 for Hecla. SLR also audited the year-end Mineral Resource and Mineral Reserve estimates in 2007 and 2008.

2.2 Sources of Information

During the preparation of this TRS, discussions were held with Hecla personnel:

- Mr. Keith Blair, Chief Geologist, Hecla
- Mr. Patrice Simard, Geology Superintendent, Hecla Québec
- Mr. Real Parent, Principal Geologist, Hecla Québec
- Mr. Alain Quenneville, Engineer in Geology, Hecla Québec
- Mr. Azougrou Bozon Koto, Principal Engineer, Hecla Québec

- Mr. Chris McLean, VP & CFO, Hecla Québec
- Mr. Denis Baribeau, Controller, Hecla Québec
- Mr. Guy Pouliot, Senior Technician, Hecla Québec
- Mr. Jean Collard, Engineering Superintendent, Hecla Québec
- Mr. Nicolas Lemieux, Open Pit Operations Superintendent, Hecla Québec
- Mr. Patrick Gibouleau, Mechanical Maintenance Planning Coordinator, Hecla Québec
- Mr. Emmanuel Ferragne-Theoret, Open Pit Senior Planning Engineer, Hecla Québec
- Mr. David Tremblay, Engineer-in-Training, Hecla Québec
- Mr. Sylvain Morissette, General Plant Process Superintendent, Hecla Québec
- Mr. Thiago Tolentino Silva, Senior Metallurgist, Hecla Québec
- Ms. Lucienne Anctil, Environmental Coordinator, Hecla Québec

The documentation reviewed, and other sources of information, are listed at the end of this TRS in Section 24.0 References.

2.3 List of Abbreviations

Units of measurement used in this TRS conform to the metric system. All currency in this TRS is United States dollars (US$) unless otherwise noted. Canadian dollars (C$) have been converted to US$ dollars at an exchange rate of US$1 = C$1.275 unless otherwise noted.

µ	micron
µg	microgram
a	annum
A	ampere
bbl	barrels
Btu	British thermal units
°C	degree Celsius
C$	Canadian dollars
cal	calorie
cfm	cubic feet per minute
cm	centimetre
cm^2	square centimetre
d	day
dia	diameter
dmt	dry metric tonne
dwt	dead-weight ton
°F	degree Fahrenheit
ft	foot
ft^2	square foot
ft^3	cubic foot
ft/s	foot per second
g	gram
G	giga (billion)
Gal	Imperial gallon
g/L	gram per litre
Gpm	Imperial gallons per minute
g/t	gram per tonne
gr/ft^3	grain per cubic foot
gr/m^3	grain per cubic metre
ha	hectare
hp	horsepower
hr	hour
Hz	hertz
in.	inch
in^2	square inch
J	joule
k	kilo (thousand)
kcal	kilocalorie
kg	kilogram
km	kilometre
km^2	square kilometre
km/h	kilometre per hour
kPa	kilopascal
kVA	kilovolt-amperes
kW	kilowatt
kWh	kilowatt-hour
L	litre
lb	pound
L/s	litres per second
m	metre
M	mega (million); molar
m^2	square metre
m^3	cubic metre
MASL	metres above sea level
m^3/h	cubic metres per hour
mi	mile
min	minute
µm	micrometre
mm	millimetre
mph	miles per hour
MVA	megavolt-amperes
MW	megawatt
MWh	megawatt-hour
oz	Troy ounce (31.1035g)
oz/st, opt	ounce per short ton
ppb	part per billion
ppm	part per million
psia	pound per square inch absolute
psig	pound per square inch gauge
RL	relative elevation
s	second
st	short ton
stpa	short ton per year
stpd	short ton per day
t	metric tonne
tpa	metric tonne per year
tpd	metric tonne per day
US$	United States dollar
Usg	United States gallon
Usgpm	US gallon per minute
V	volt
W	watt
wmt	wet metric tonne
wt%	weight percent
yd^3	cubic yard
yr	year

3.0 PROPERTY DESCRIPTION

3.1 Location

The Property is located in the Province of Québec, approximately 95 km north of the town of La Sarre, in the James Bay Municipality (Figure 3-1). The Mine is located at longitude 79° 16’ 46.4” and latitude 49°33’56.7”. The Property is bounded in the west by the Québec/Ontario border and covers parts of Casa Berardi, Dieppe, Raymond, D’Estrées, and Puiseaux townships.

The Property extends east-west for more than 37 km and reaches 3.5 km in width. The immediate mine area comprises three mining leases covering an area of 574.00 ha (Figure 3-2). The gold deposits are located along a five kilometre, east-west trending mineralized corridor and are included within the East and West mine areas (Figure 3-3).

3.2 Land Tenure

The Property consists of 391 contiguous designated claims, covering a total area of 19,151.08 ha, and three mining leases, BM 768, BM 833, and BM 1054 covering areas of 397.09 ha, 84.35 ha, and 92.56 ha, respectively. The Property area totals 19,725.08 ha (Figure 3-4 and Table 27-1 in Appendix 1). Other legal titles include non-exclusive leases BNE 25938, tailings lease 70218, and two waste rock facility (WRF) leases 192410 and 819410. Legal titles are under the name of Hecla Québec.

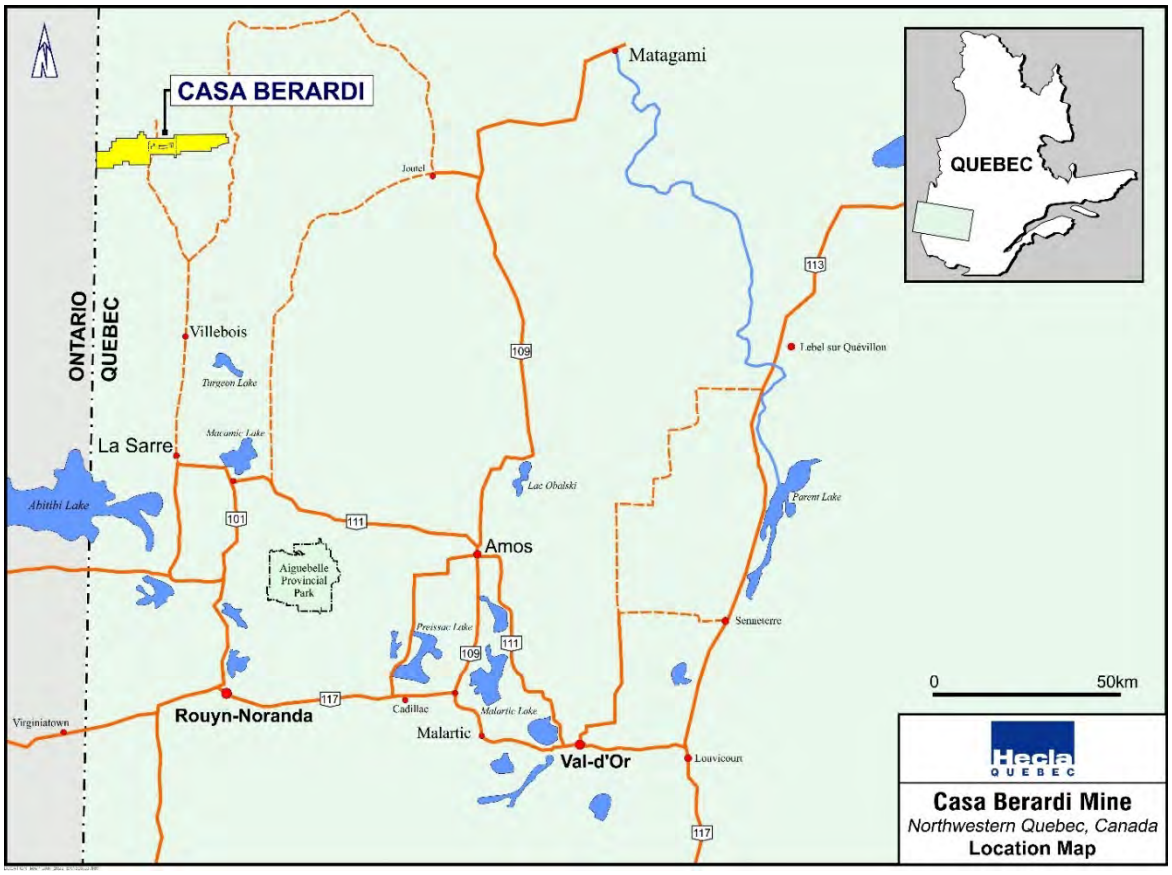

Figure 3-1: Location Map

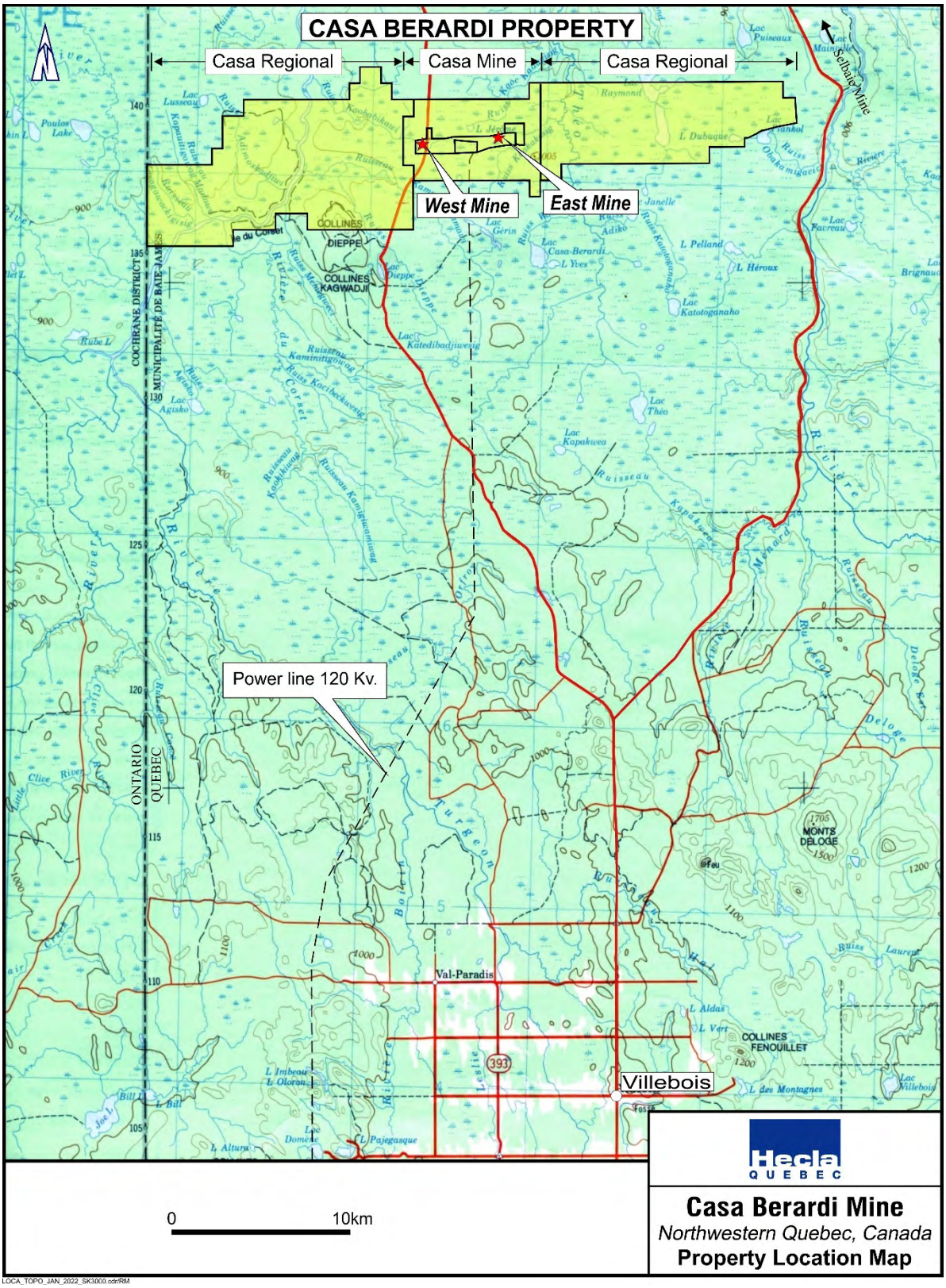

Figure 3-2: Property Location Map

According to the Québec Mining Act, renewal of claims takes place every two years, with costs dependent on area. Mining leases are renewed annually. The Casa Berardi claims and mining leases will be renewed for amounts of C$25,608 (US$20,085) and C$29,896 (US$23,448), respectively, in accordance with the 2022 rates set by the government. The Casa Berardi claims are in good standing. The renewal costs are adjusted to the annual inflation rate.

The Québec Mining Act stipulates that a titleholder is required to conduct statutory work during the validity period of the claim. Each claim or lease shows excess spending amounts for required works. These amounts are put to the credit of the claims and are expected to cover several years in most cases. The Property has excess work credits of approximately C$17,291,526 (US$13,561,981).

The school taxes to the James Bay School Board and the Lac-Abitibi School Board have been paid for 2021.

The municipal taxes to the James Bay, Villebois, Dupuy, and La Sarre municipalities have been paid for 2021.

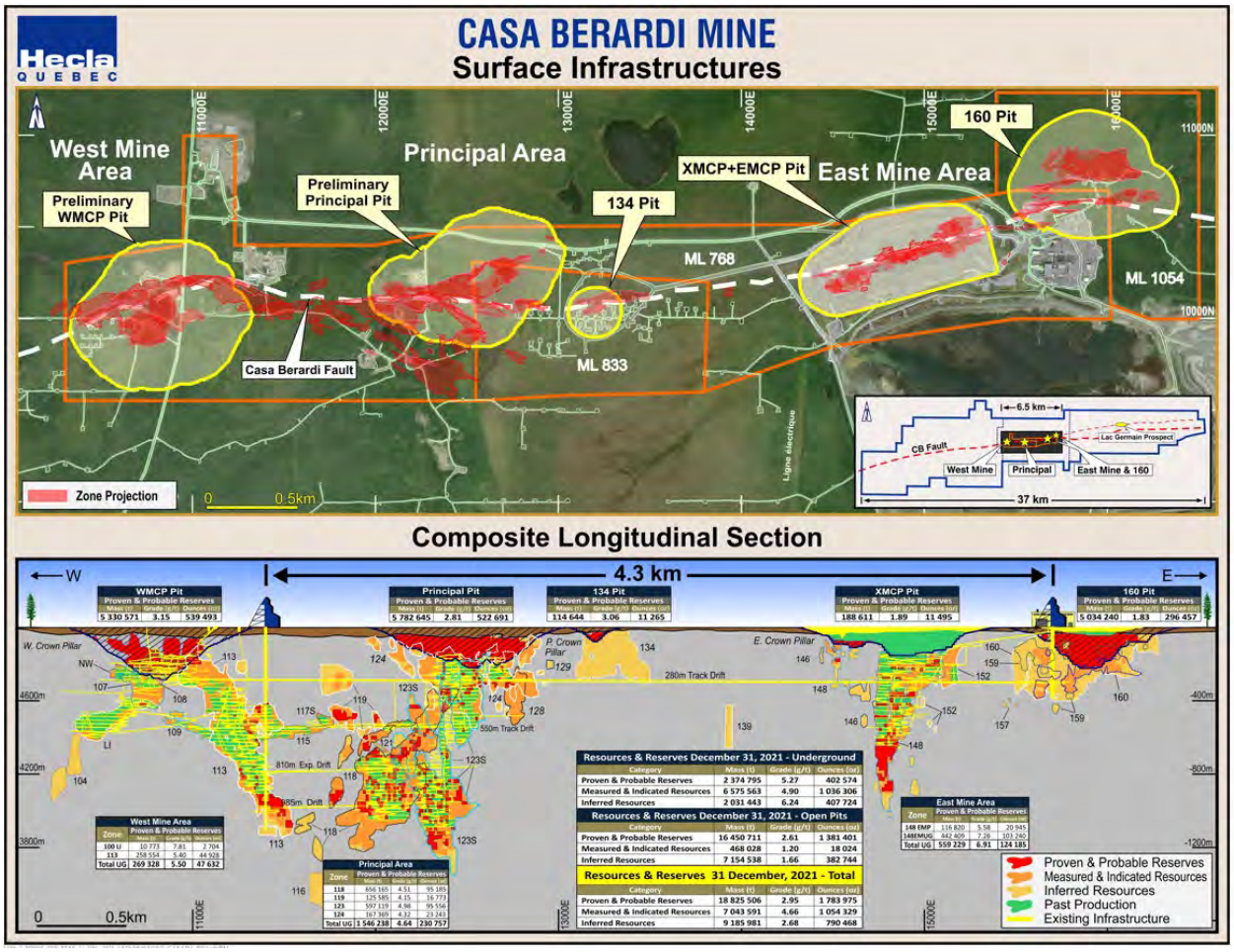

Figure 3-3: Mine Plan View Infrastructure with Composite Longitudinal Section

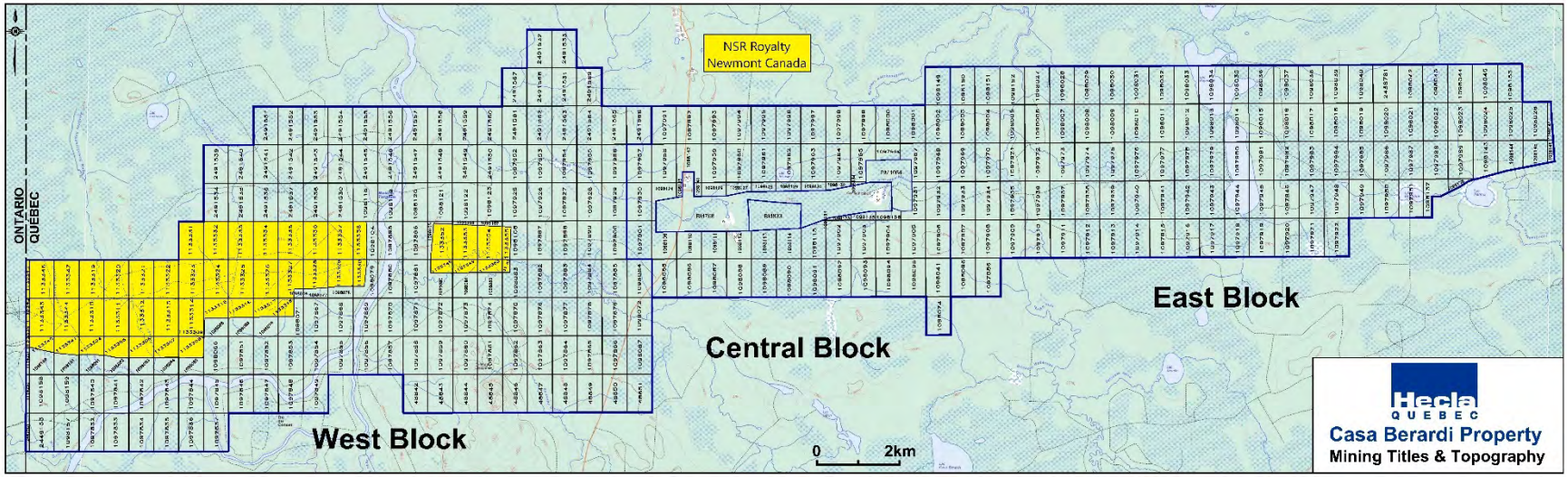

Figure 3-4: Property Claim Map

3.3 Encumbrances

Hecla has all required permits to conduct the mining operations on the Property. There are no significant encumbrances to the Property nor any violations or fines.

3.4 Royalties

The Casa Berardi landholdings within the three mining leases are not subject to any royalty and Hecla, through its wholly owned subsidiary, Hecla Québec, holds a 100% interest in Casa Berardi. Most of the Casa Berardi Mineral Reserves and the processing plant are located inside the mining leases as indicated on Figure 3-3. The Casa Berardi property outside the mining leases is completely owned by Hecla Québec. The property is subject to a 3.0% net smelter return (NSR) to Newmont Canada on 52 claims (Figure 3-4 and Table 27-1 in Appendix 1).

3.5 Other Significant Factors and Risks

- The appropriate environmental permits have been granted for the current operation.
- Hecla does not have permits for facilities labeled as “Preliminary”. The locations, size, and timing of facilities labeled as “Preliminary” have not been finalized and are subject to future long term mine plans.
- As of the effective date of this TRS, environmental liabilities are limited to those that would be expected to be associated with an operating gold mine where production occurs from underground and open pit sources, including roads, site infrastructure, and WRFs.
- Hecla is not aware of any significant environmental, social, or permitting issues that would prevent continued exploitation of the Casa Berardi deposits.
- Hecla is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the Property.
- Information provided by Hecla land tenure experts supports that the mining tenure held is valid and is sufficient to support the declaration of Mineral Resources and Mineral Reserves.
- Hecla holds sufficient surface rights in the Project area to support the mining operations, including access and power line easements.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The Property is located 95 km north of the town of La Sarre, in the James Bay Municipality in the Abitibi region of northwestern Québec. The nearest commercial airport is located at Rouyn-Noranda which is approximately 175 km south of the Property. La Sarre can be reached from Rouyn-Noranda via provincial roads 101 and 111. The 38 km all season gravel road to Casa Berardi diverges from the paved road linking La Sarre and the Selbaie Mine through the village of Villebois. The exit is approximately 21 km north of Villebois. On the Property, a gravel road connects the East and West mines, and a number of exploration roads provide access to the rest of the Property from east and west.

4.2 Climate

The mean annual temperature for the Property area is -0.5°C, with an average high in July of 17°C, and average low in January of -18°C.

The data used in this section is from Hecla (2014) and is based on a weather station near the Property that includes La Sarre, Brouillan, and Matagami. The average annual precipitation in the Property area is 906 mm. Rain precipitation is highest in July and August, averaging 105 mm. While snow precipitation is registered from October to April, it is most abundant in February and March when the monthly average reaches 107 mm (expressed in millimeters of water). Exploration and mine operation take place year-round.

4.3 Local Resources

The Abitibi region has a long history of mining activity, and mining suppliers and contractors are locally available. Both experienced and general labour is readily available from the La Sarre area, a municipality of approximately 7,282 inhabitants (2016 census). Hecla Québec has had success in hiring experienced staff and personnel with good mining expertise. The Mine enjoys the support of local communities.

4.4 Infrastructure

The surface infrastructure at Casa Berardi, which includes both West Mine and East Mine, is presented in Figure 4-1.

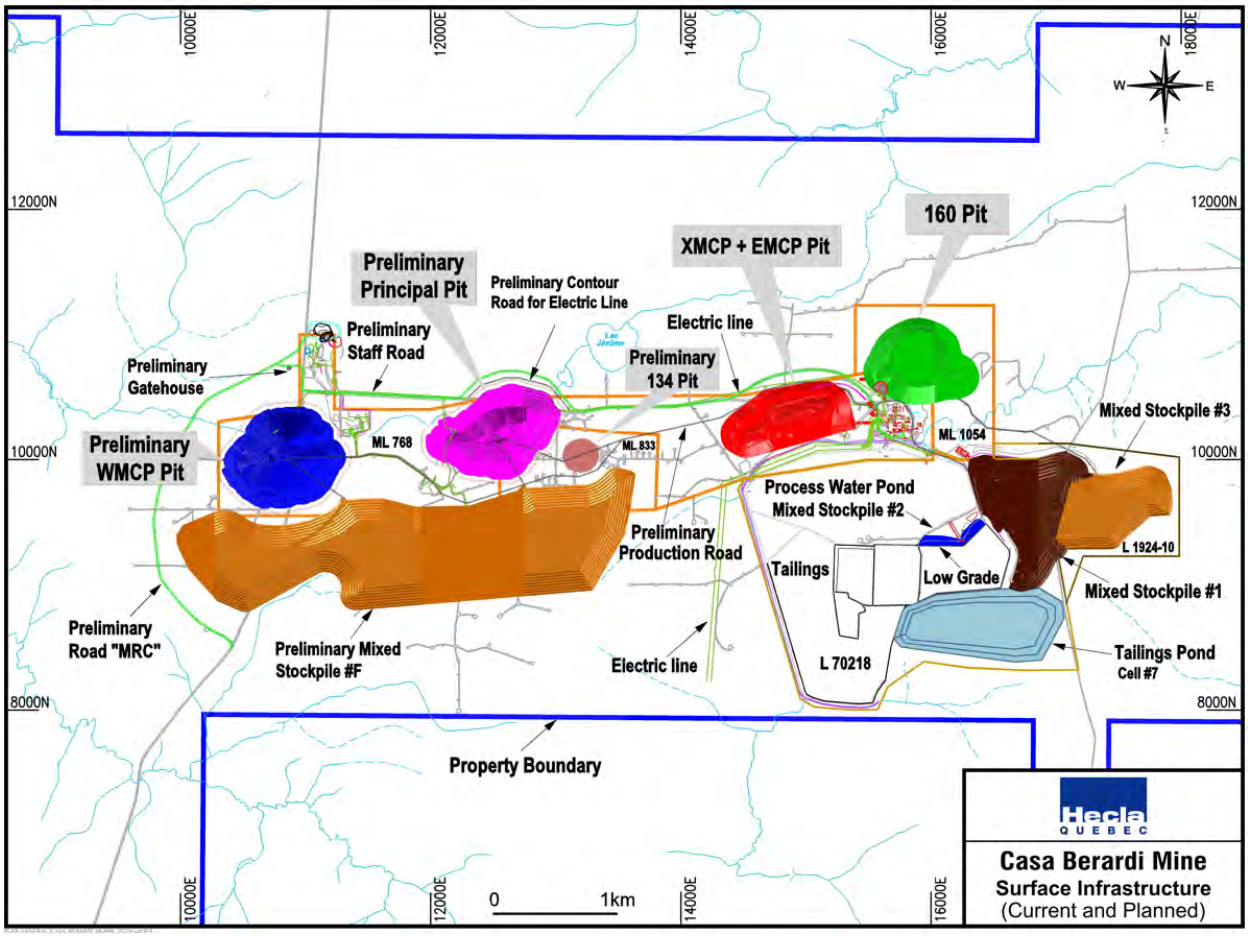

Figure 4-1: Casa Berardi Surface Infrastructure (Current and Preliminary)

Existing surface and underground infrastructure at the East Mine include the following (Figure 4-2):

- A nominal 2,200 tpd mill, with the ability to process at rates over 4,125 tpd.
- TSF with four tailings cells, a polishing pond, a sedimentation pond for settling iron arsenate precipitates, and a process water pond.
- Two story administrative building with offices, warehouse, dry, laboratory, two heavy equipment maintenance garage, millwright shop, and electrical shop.
- Two core shacks.
- Water pumping station.
- Hoistroom, a headframe, and a 380 m deep shaft (with no hoist).
- Mine access decline and a series of ramp-connected levels.
- Three petrol tanks with pump gas and fuel.
- One mineralized rock stockpile.
- One waste and till-clay pile.

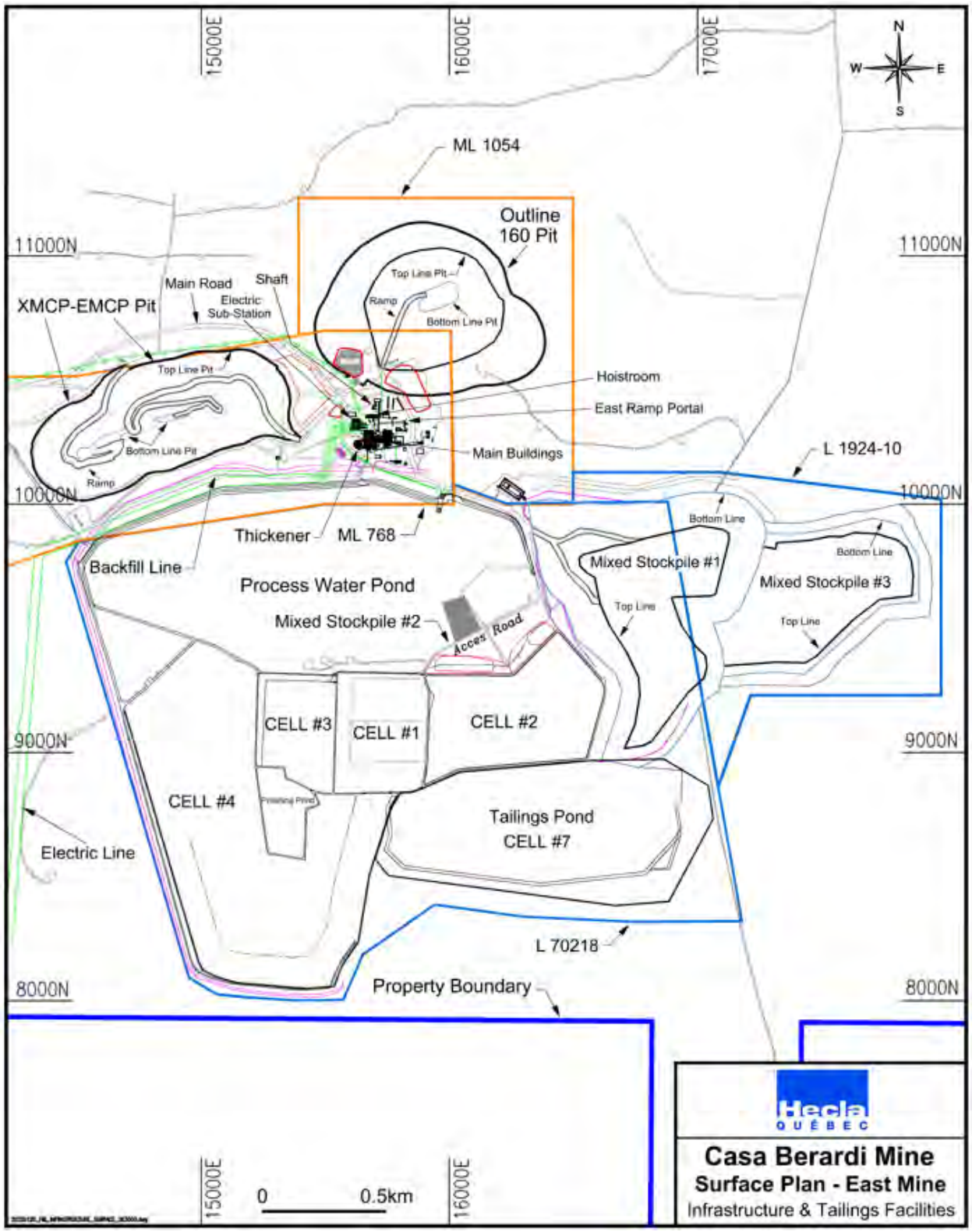

Figure 4-2: East Mine Surface Infrastructure

Existing surface and underground infrastructure at the West Mine include the following (Figure 4-3):

- Backfill plant, including a compressor room and a ventilation raise intake.
- Settling ponds.
- Pumping station.
- A 380 m^2 garage.
- Two dry houses with offices.
- Emergency building for mine rescue and infirmary.
- Warehouse.
- Core storage area.
- Gatehouse.
- Mine access decline providing access to the West Mine and Principal area.
- Hoistroom, headframe, and mine shaft to the 1,080 m level.
- A 125 tph paste backfill plant and a cement plant with tailings feed line from the mill and distribution holes to the underground.
- Mine ventilation fans and mine air heater with ventilation raise to the mine workings.
- One WRF and one ore rock pile.

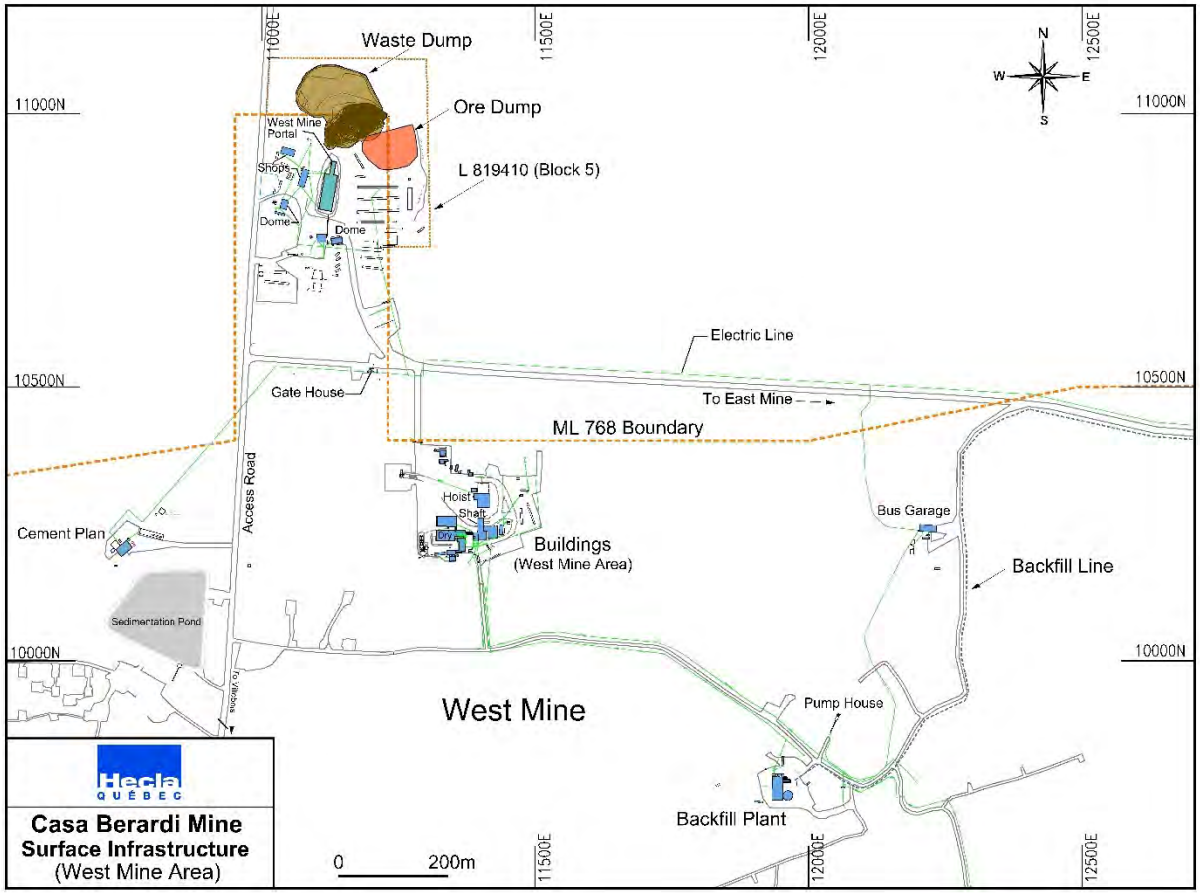

Figure 4-3: West Mine Surface Infrastructure

There is no additional surface infrastructure related to the Principal Mine. A five kilometre track drift joins the East and West Mines and provides access to the Principal Mine at the 280 m level.

The power supply of the site is provided by a 55 km, 120 kV power line, from the town of Normétal.

There is sufficient suitable land available within the mineral tenure held by Hecla for tailings disposal, mine waste disposal, and installations such as the process plant and related mine infrastructure.

A review of the existing power and water sources, personnel availability, and transport options indicate that there are reasonable expectations that sufficient labor and infrastructure will continue to be available to support declaration of Mineral Resources, Mineral Reserves, and the proposed LOM plan.

4.5 Physiography

The topography is generally gentle and is mostly predominately characterized by swamps and thick overburden coverage (up to 60 m locally). Elevation varies between 270 MASL and 360 MASL. According to the map of ecological regions of Québec, the area falls within the boreal zone and the spruce and moss domain. The forested zones are predominately characterized mainly by jack pine and spruce and have generally been logged. The Mine area is characterized by swamps and is therefore classified as a bare to semi-bare wetland. The Turgeon River crosses the Property in its western part, while Raymond Lake is located to the east of the Property.

5.0 HISTORY

5.1 Exploration and Development History

5.1.1 1974 to 1998

Prior to 1974, the Casa Berardi area was explored for base metal deposits. In 1974, the first 13 claims were staked by Inco Gold Ltd. (Inco Gold). The discovery hole was drilled in 1981, and 590 additional claims were staked. In 1983, a joint venture (JV) agreement was reached between Inco Gold (60%) and Golden Knight Resources Inc. (Golden Knight) (40%). The subsequent years were marked by exploration drilling and, eventually, project engineering and construction. Under the Inco Gold-Golden Knight JV commercial production from the East and West mines began in 1988 and 1990, respectively.

In 1991, TVX Gold (TVX) acquired Inco Gold's 60% interest in the Property. In 1994, TVX and Golden Knight purchased the remaining interest in the Domex claim block, a part of the Principal (Main) Zone between the West and the East Mine, from Teck Corporation.

By 1997, 3,769 holes had been drilled on the Property for a total of 463,492 m. Approximately 92% of these holes were located in the area between the West and East mines. Table 5-1 summarizes the historic drilling programs.

Table 5-1: Historical Diamond Drilling
Hecla Mining Company – Casa Berardi Mine

Project	Location	Number of Drill Holes	Metres (m)
Casa Berardi – Exploration	West Block & East Block	3,759	660,441
Casa Berardi – Mine	Mining Lease 768	10,087	1,377,969
	Mining Lease 833	544	126,501
Total		14,390	2,164,911

The first mineral reserve estimate for Casa Berardi was published in 1987. Table 5-2 presents the evolution of the historic mineral reserves at Casa Berardi from 1987 to 1997.

Table 5-2: Historical Mineral Resources and Mineral Reserves 1987 to 1997
Hecla Mining Company – Casa Berardi Mine

Year	Mineral Resources			Mineral Reserves		
	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
1987	-	-	-	11.106	6.8	2.421
1988	-	-	-	12.412	7.4	2.909
1989	-	-	-	9.652	7.3	2.251
1990	-	-	-	8.934	7.1	2.028

Year	Mineral Resources			Mineral Reserves		
	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
1991	-	-	-	6.234	6.3	1.265
1992	-	-	-	6.216	6.4	1.275
1993	-	-	-	4.767	6.2	0.946
1994	-	-	-	4.526	6.1	0.881
1995	-	-	-	3.253	5.9	0.620
1996	-	-	-	6.199	5.5	1.105
1997	3.189	5.8	0.591	-	-	-

The historic mineral resources listed in Table 5-2 pre-date NI 43-101, are relevant as an indication of mineralization on the property however should not be relied upon. They are being shown for historical reference only. A QP has not completed sufficient work to classify the historical estimate as a current Mineral Resource or Mineral Reserve and Hecla is not treating the historical estimates as current Mineral Resources or Mineral Reserves.

Production began at the East Mine in September 1988 and at the West Mine in April 1990. The total combined production for the period from 1988 to 1997 was 3.5 Mt at an average grade of 7.1 g/t Au totalling 688,400 oz Au recovered, with an average mill gold recovery rate of 87%. Although average statistics are not readily available for daily production, it appears that for the period from 1988 to 1997, the average production rate of the mill was less than 1,800 tpd. Historical annual production is presented in Table 5-3.

Table 5-3: Historical Mine Production
Hecla Mining Company – Casa Berardi Mine

Year	Tonnes Milled (t)	Grade (g/t Au)	Mill Recovery (%)	Gold Recovered (oz Au)
1988	124,057	5.9	88.0	19,025
1989	337,130	5.5	86.4	51,096
1990	361,935	8.9	87.4	88,999
1991	487,769	8.7	86.9	119,015
1992	315,938	9.3	87.1	80,319
1993	306,597	10.0	89.3	86,964
1994	550,638	6.5	86.8	97,518
1995	469,542	4.7	85.7	61,179
1996	498,405	5.4	87.2	76,039
1997	51,356	5.8	87.2	8,270
Total	3,503,367	7.1	87.0	688,424

In January 1997, TVX announced the closure of the East Mine due to ground control issues. Two months later, the West Mine was also closed.

5.1.2 Aurizon (1997 to 2013)

Casa Berardi was offered for sale in the fall of 1996, and in January 1997, Aurizon expressed interest in a letter to TVX. In September 1998, Aurizon signed an agreement and completed the acquisition of all Casa Berardi assets and mining rights.

Following the acquisition of Casa Berardi, Aurizon completed an exploration diamond drilling program consisting of more than 76,000 m (50,000 m from surface and 26,000 m from underground). The primary objective of the campaign was to increase the gold mineral inventory of the Property by drilling prospective sectors below the 400 m level in the West Mine area. The program resulted in the discovery of the 113 Zone and other smaller mineralized bodies.

Using the results of this drilling program as a basis for Mineral Resource estimation, Aurizon issued an internal study in March 2000, which provided positive indications of the economic potential of the West Mine area below the 400 m level.

Following two years of limited exploration drilling activities due to depressed gold prices, Aurizon re-embarked on a surface exploration program that led to the discovery of additional zones east of the 113 Zone.

To increase the confidence level of the Mineral Resources and prove the potential of a mining operation, an underground exploration program was planned and initiated in April 2003 to test the continuity of the 113 Zone mineralization. In 2003, the West Mine ramp was also extended 1,074 m from the 450 m level to the 550 m level, to provide access to the 113 Zone for metallurgical test work and to provide drill bases for infill definition drilling. Approximately 44 m of the exploration drift were completed by the year-end, allowing for the completion of 1,400 m of definition drilling. A further 21,000 m of surface exploration drilling was completed in the 118 through 120 zones during 2003.

In 2004, C$27.6 million (US$ 21.6 million) were invested into Casa Berardi for the construction of the surface foundations and shaft collar, a shaft pilot raise from the 550 m level to surface, 878 m of exploration drifts, 53,100 m of exploration and definition drilling, 102 m of ventilation raising, and 1,590 m of ramping down to the 550 m level. Met-Chem Canada Inc. (Met-Chem) was commissioned to prepare a feasibility study. Aurizon proceeded with the implementation and construction of the West Mine infrastructure.

In 2005, C$43.8 million (US$ 34.4 million) were invested in Casa Berardi for:

- Completion of two feasibility studies (the Feasibility Study by Met-Chem in January 2005, based upon Mineral Reserves above the 700 m level, and the Updated Feasibility Study in October 2005, incorporating Mineral Reserves to the 900 m level).
- Construction of a new headframe, hoistroom, and ore and waste bins.
- Shaft sinking 290 m from surface.
- 113 Zone ramp extension 1,200 m down to the 680 m level.
- Access to the Lower Inter Zone down to the 570 m level with the completion of 429 m of ramping and drifting.
- 685 m of drifting and 367 m of ventilation raising.

- Initiation of mill rehabilitation with the refurbishing of the crushing circuits, conveyors, and assay laboratory.
- 33,500 m of definition drilling from 137 holes, 19,000 m of surface exploration drilling from 32 holes, and detailed engineering for the shaft and surface infrastructure.

In 2006, an additional C$75.5 million (US$59.2 million) was invested to fund construction and development. In early November 2006, Aurizon completed construction and development at the West Mine area and commenced underground mining and milling operations.

In 2007, C$16.9 million (US$13.3 million) were invested to fund pre-production up to May 1, 2007, the date of achieving commercial production. From 2008 to 2013, a total of C$297 million (US$232.9 million) was invested in fund development, infrastructure improvements, new equipment, and exploration expenses.

5.1.3 Hecla (2014 to Present)

From 2014 to 2021, C$471.7 (US$370.0 million) was invested by Hecla in fund development, infrastructure improvements, new equipment, and exploration expenses. In 2016 Hecla began production from the first open pit at Casa Berardi with the East Mine Crown Pillar (EMCP) Pit. Hecla also invested in underground development ore and waste passes to feed the automated haulage truck system in the lower West Mine in the 118 and 123 zones. Infrastructure improvements around the tailings and water treatments facilities were also completed. The years 2017 and 2018 were the highest and third highest diamond drilling campaigns since the 2006 in exploration definition and infill drilling program.

5.2 Production

Since 1988, a total of 16.8 Mt at an average grade of 5.98 g/t Au have been milled at Casa Berardi for a total recovered gold of 2.8 Moz Au and an average gold recovery of 88.1% (Table 5-4).

Table 5-4: Casa Berardi Production 1988 to 2021
Hecla Mining Company – Casa Berardi Mine

Company	Year	Tonnes Milled (t)	Grade (g/t Au)	Contained Metal (oz Au)	Gold Recovered (oz Au)	Gold Mill Recovery (%)
Inco Gold – TVX	1988 – 1997	3,503,367	7.10	791,292	688,424	87.0
Aurizon	Nov 2006	68,481	8.58	18,891	17,731	93.9
	2007	545,259	9.78	171,416	159,469	93.0
	2008	654,398	8.16	171,628	158,830	92.5
	2009	688,677	7.77	172,013	159,261	92.6
	2010	722,746	6.76	157,134	141,116	89.8
	2011	698,123	8.00	179,462	163,845	91.3
	2012	693,859	6.77	151,059	136,848	90.6
	May 2013	238,931	6.17	47,394	43,447	91.7

Company	Year	Tonnes Milled (t)	Grade (g/t Au)	Contained Metal (oz Au)	Gold Recovered (oz Au)	Gold Mill Recovery (%)
	June 2013	351,636	6.16	69,652	62,532	89.8
	2014	750,778	5.90	142,443	128,241	90.0
	2015	765,763	5.96	146,733	127,893	87.2
	2016	904,998	5.72	166,499	145,973	87.7
Hecla	2017	1,175,930	4.77	180,373	156,652	86.8
	2018	1,248,039	4.66	186,844	162,742	87.1
	2019	1,250,172	4.10	164,938	134,408	81.5
	2020	1,165,050	4.00	149,934	121,492	81.0
	2021	1,386,417	3.56	158,685	134,511	84.8
Total 2006 – 2021		13,309,257	5.69	2,435,098	2,154,991	88.5
Total 1988 – 2021		**16,812,624**	**5.98**	**3,226,390**	**2,843,415**	**88.1**

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The Property is located in the northern part of the Abitibi Subprovince, a subdivision of the Superior Province, the Archean core of the Canadian Shield. The Casa Berardi area belongs to the Harricana-Turgeon Belt, which is a part of the North Volcanic Zone (Figure 6-1).

The regional geology is characterized by a mixed assemblage of mafic volcanic rocks, flysch-type sedimentary iron formations, and graphitic mudrocks that are limited by a large granodioritic to granitic batholith.

Structurally, the Property is enclosed in the Casa Berardi Tectonic Zone, a 15 km wide corridor that can be traced over 200 km. A network of east-west striking ductile, high strain deformation zones mainly follow the lithological contacts.

Many significant deposits and past producers of different types are present in the region. Base metals have been produced from the Joutel (Selbaie Mine, Estrades Mine) and Matagami camps. Further east, along the Casa Berardi structural trend, is the former Agnico Eagle Mines Limited's (Agnico Eagle) Telbel Mine. Other deposits have also been outlined on the Douay, Vezza, and Desjardins properties.

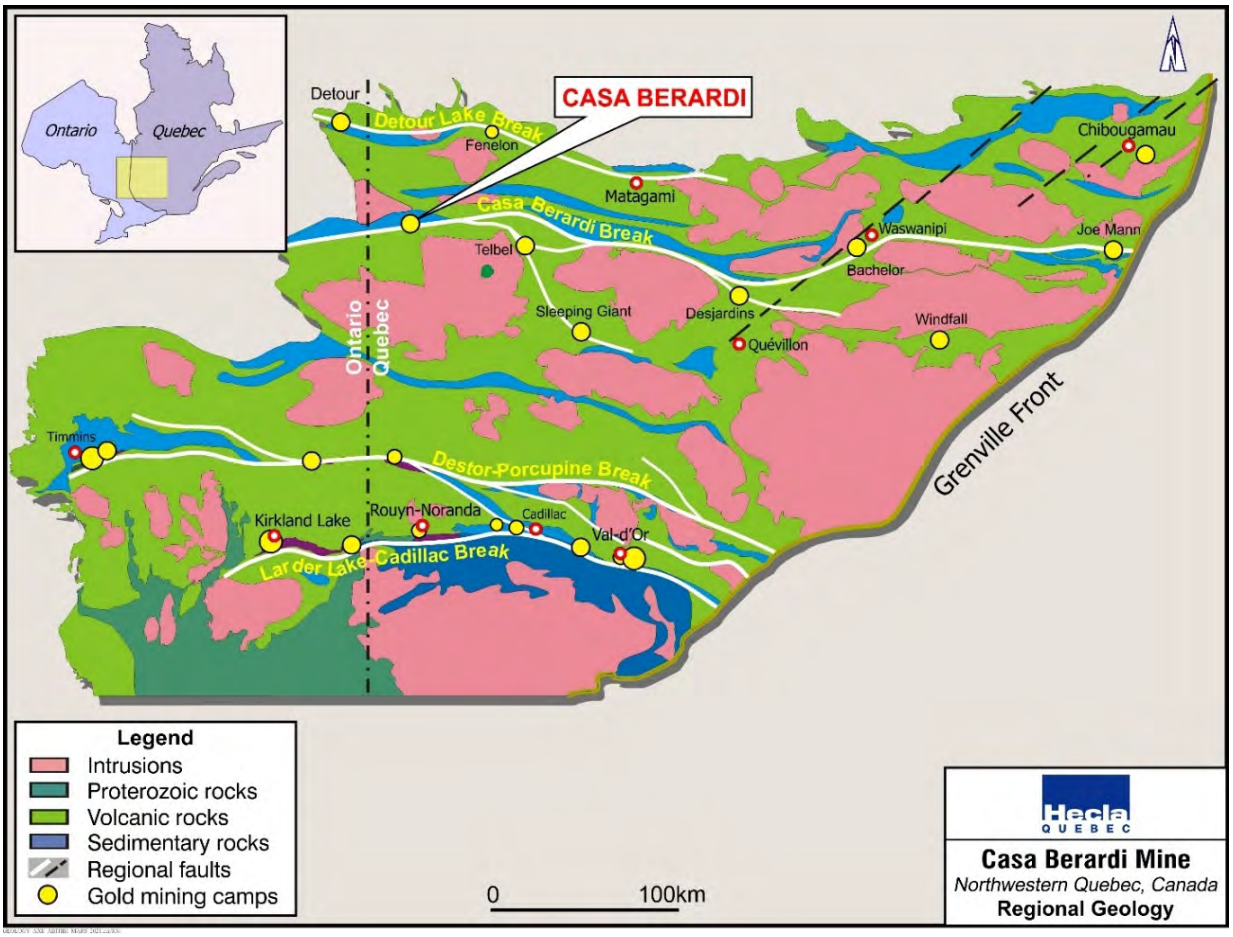

Figure 6-1: Regional Geology of Northwestern Québec, Canada

6.2 Property Geology

6.2.1 Stratigraphic Divisions

The Property's geological environment is centered on the Taïbi volcano-sedimentary domain, which is bounded to the north by the Recher Batholith and to the south by various volcanic domains of tholeiitic to transitional affinity (Figure 6-2). The Dieppe Domain covers half of the southwestern portion of the Property, and the Turgeon Domain lies immediately south of the eastern half of the Property. Intermediate volcanic rocks of the Joutel-Raymond Group are located within the Turgeon Domain. Dieppe volcanism is defined by a thick (up to 100 m) massive flow or volcanic conduit with sub-ophitic textures, which indicate a deep volcanic environment with high rates of magma generation. Discontinuous volcanic units characterized by breccias flows, tuffs, and cherty horizons, lying in contact with graphitic sediments and conglomerate in the gold deposit area and the eastern volcanic domain that covers the eastern half of the Property, can both be correlated with the Harricana Group.

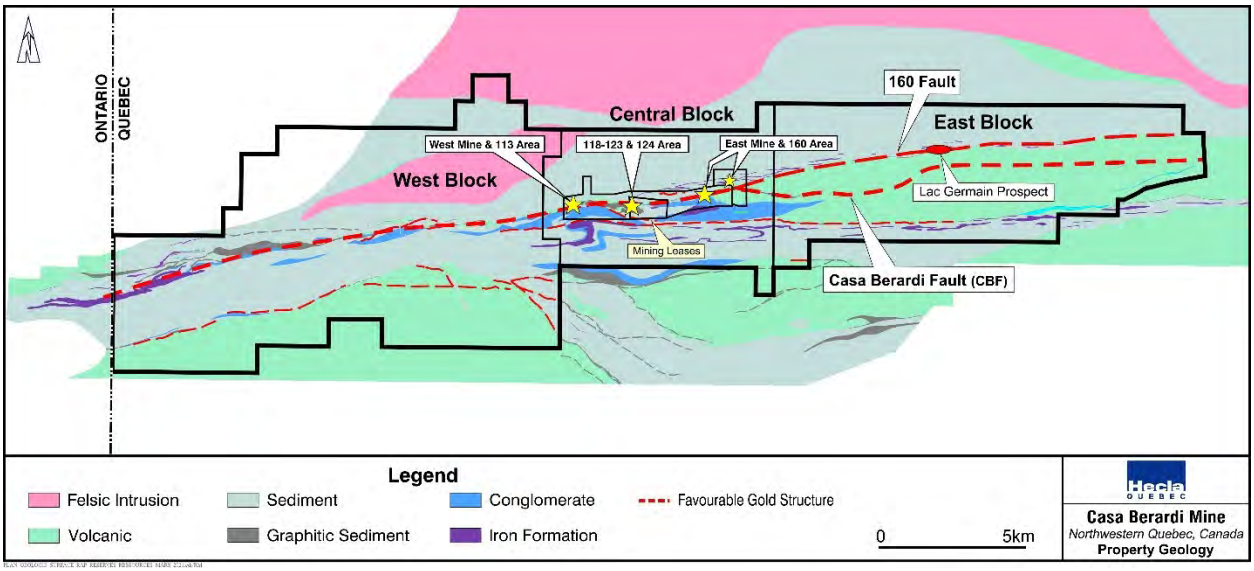

Figure 6-2: Casa Berardi Property Geology

The stratigraphic sequence starts with basal mafic volcanism (2,730 Ma to 2,720 Ma). Pyrite rich graphitic mudrock and the associated chert appear to be synchronous with the volcanism as evidenced by fragmentary hyaloclastic units of different compositions. The main sedimentary event corresponds to a flysch-type sequence deposition. U/Pb dating of the iron formation and conglomerate indicates ages between 2,695 Ma and 2,692 Ma for this event (Figure 6-3).

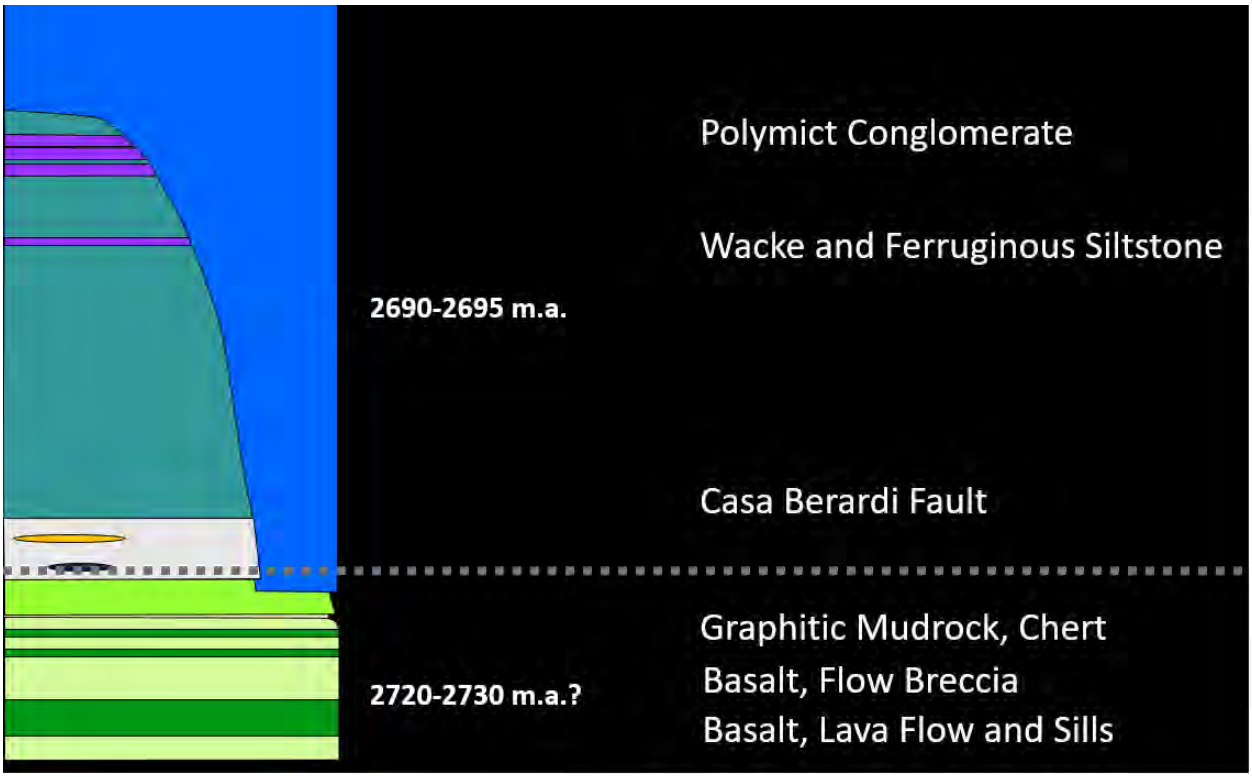

Figure 6-3: Stratigraphic Sequence

Well-defined flysch-type sedimentary units, like magnetite rich wacke and conglomerate, can be traced over tens of kilometres without significant facies variations. Volcanic units extend for five kilometers to 15 km inside the sediments and form lens shape structures. Smaller lenses are a few hundred metres wide and are included in the Casa Berardi Deformation Zone.

Basaltic to andesitic flows, with thickness generally less than 50 m, exhibit normal progression facies from coarse crystalline to massive, amygdaloidal, and vesicular in lapilli tuffs and tuffs. Flow contacts are identified by graphitic mudrock horizons. Gabbroic sills, which are related to the Dieppe Domain, are visible near the flow contacts. The Turgeon volcanism is considered a distal, near surface, more evolved volcanic environment. Graphitic rocks (in the form of pyritic graphitic mudrock), black chert, wacke, and conglomerate form a 500 m wide structural corridor that coincides with the Casa Berardi Fault.

6.2.2 Structures

The mafic volcanic units along the Taïbi Domain represent in plan view a lenticular shape corresponding to structural doming. Polarity inversions are recognized in sediments on both sides of their contacts with these units. Tight isoclinal folding forms an asymmetric dome and basin pattern which is well preserved around volcanic units in the iron formations. The main north-south compression event, which is responsible for an 8:1 elongation ratio, is indicated by a strong penetrative east-west foliation.

Two fabrics are observed:

- A constant main penetrative east-west foliation, dipping 60° south.
- A crenulation cleavage with an undefined oblique orientation related to northeast or northwest fold components. A higher strain rate along main sediment-volcanic contacts has resulted in a

small scale complex dome and basin folding and strong stretching mineral lineation with steep opposite plunges.

The Casa Berardi Fault is defined by a stratigraphic contact between a graphite rich sediment sequence at the base of the Taïbi Domain, a northern continuous highly deformed and brecciated mafic fragmentary volcanic unit, and a southern highly deformed polymictic conglomerate unit (Figure 6-4). On the north side of the Casa Berardi Fault, a thick sequence of very homogeneous wacke belonging to the Taïbi Group is affected by amphibolite grade metamorphism. One kilometre north is the easterly elongated Recher Batholith, which is part of the northwestern boundary of the Abitibi greenstone belt.

The Casa Berardi Fault strikes east-west and dips 80° to the south. The Casa Berardi Deformation Zone corresponds to a braided network of laminated high strain zones following drag folded contacts of less deformed competent rocks such as mafic volcanic and polymictic conglomerate. The thickness of the affected rock package is used to define a 100 m to 500 m wide corridor that hosts all the mineralized zones explored and developed at Casa Berardi.

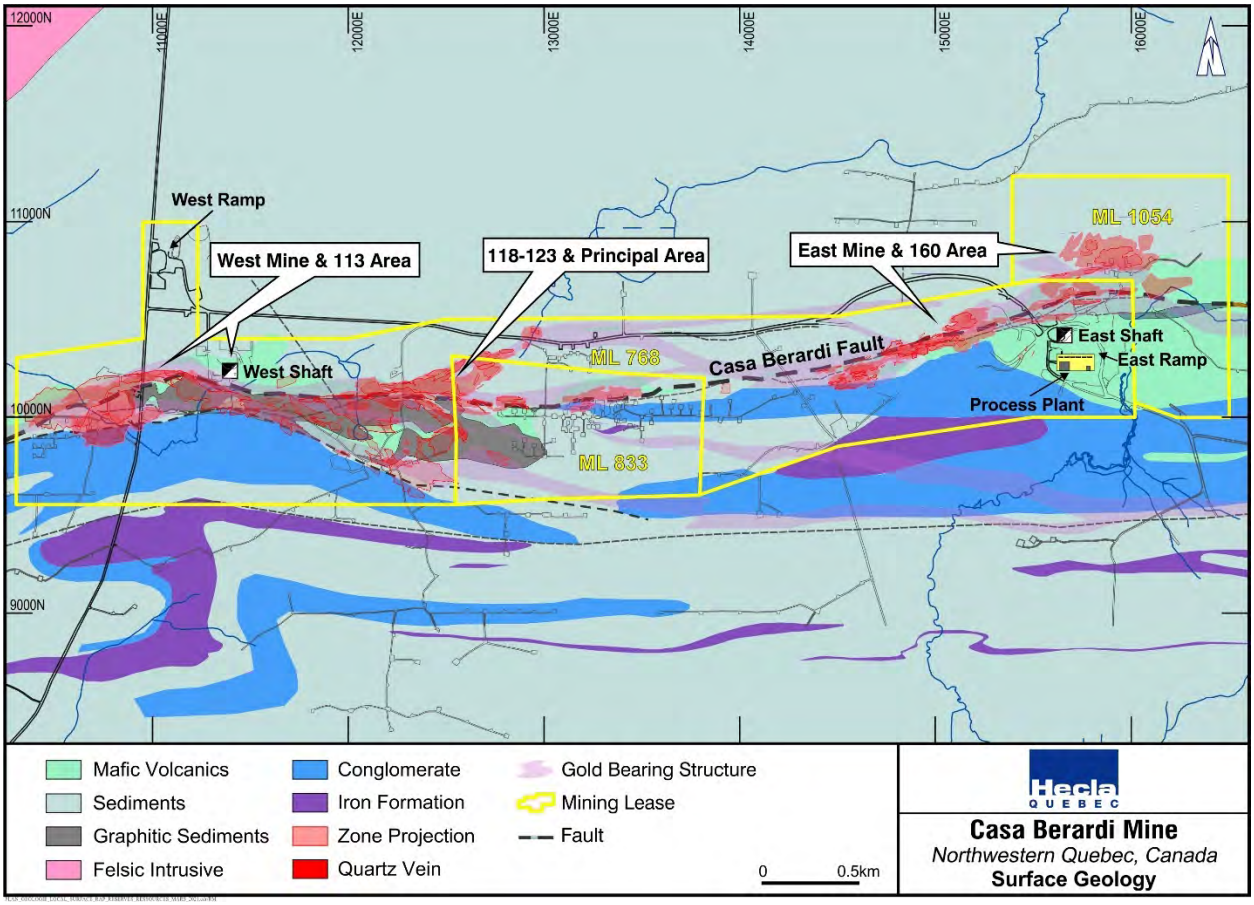

Figure 6-4: Property Surface Geology

The main brittle deformation and fault zones that have been developed correspond to the Casa Berardi Fault, bounding the strongly metamorphosed Taïbi flyschic sediments with interlayered, tuffaceous intermediate units to the north and a package of strongly deformed graphitic sediments, conglomerate, and mafic volcanic flows to the south.

Inside the Casa Berardi Fault zone, ductile deformation intensity is heterogeneous. Foliation is uniform in larger competent rock units, such as mafic volcanics and conglomerates. Kinematic indicators observed inside the main foliation, combined with the foliation dip pattern, indicate a south verging thrust movement.

6.2.3 Alteration and Metamorphism

The regional metamorphism, which is of lower greenschist facies, is locally influenced by a series of syntectonic batholiths with associated thermal aureoles. The Recher thermal aureole limit follows the northern boundary of the Property, approximately two kilometres from the batholith and the Casa Berardi Fault.

Inside the contact metamorphism halo, the sediments are affected by a quartz-plagioclase-biotite assemblage. In the case of iron rich sediments, the sediments are affected by a chlorite-chloritoid assemblage. Garnet is locally visible. Mafic volcanics are affected by a plagioclase-tremolite assemblage. Chloritoid, plagioclase, and garnet are porphyroblastic, with chlorite-biotite pressure shadows indicating the synchronicity of crystallization and regional foliation.

6.3 Mineralization

6.3.1 Deposition Model

Some essential conditions were initially present in the Casa Berardi area during the formation of the Harricana-Turgeon volcano-sedimentary belt, preparing the area for a later gold deposition event.

The Casa Berardi Fault represents an old discontinuity at the top of a mafic volcanic rock in a basement where hydrothermal activity has led to the formation of chert and graphitic mudrock containing large, massive pyrite lenses. The 30 million to 40 million year old unconformity between the mafic volcanics and the flysch-type sequence is exposed in many places along the Casa Berardi Fault. Iron formations and iron rich sediments are present near the base of the sequence and appear on both sides of the Casa Berardi Fault. The presence of sulphur and iron in the environment is a factor which is highly favorable for gold mobilization.

The tectonic mechanism generated many structural features at different scales, creating a favourable context for the formation of gold deposits. The regional north-south main compression events resulted in tight kilometre scale isoclinal folding and in bringing the geological units into a vertical position. The Casa Berardi Fault was generated during this stage by a movement at the contact of a graphitic unit. The proximity of large volcanic units, such as the Dieppe and the Joutel-Raymond domains, has formed competent cores inside antiforms. Those competent cores forced oblique movement and generated a polyphase elongated dome and basin folding pattern. This first tectonic stage corresponds regionally to a 50% shortening and occured under ductile conditions at a depth of six kilometres to 10 km.

High constraint zones, associated with pervasive carbonization, are generally developed where graphitic mudrock horizons are localized at major rock contacts. This combination of factors acted as a ground preparation for the positioning of vein networks and long veins. The orientation of the veins and internal structures are generally concordant with the ambient fabric. The veins are localized within the foliation and contain two types of enclaves: foliated host rocks and graphitic planes exhibiting a stylolithic pattern. Vein contacts are usually sharp, and the lack of fabric development indicates a late emplacement.

6.3.2 Styles of Mineralization

6.4 Veins

Gold mineralization is largely located in quartz veining, either in the form of plurimetric veins, small scale veins, or veinlet networks. Veins are heterogeneous and contain a variable percentage of foliated enclaves exhibiting a laminated appearance. Veins are of different colour, texture, and structure. Gold grades are generally correlated with increasing complexity. Different quartz phases have been recognized in mineralized veins to exhibit the following sequence:

- Phase 1: grey quartz, with abundant sulphides and fluid inclusions, comprising more than 50% of mineralized veins.
- Phase 2: mosaic micro-crystalline quartz occurring in higher grade portions of veins.
- Phase 3: non-mineralized coarsely crystallized white quartz which cuts the two others.

The gold bearing vein filling is rarely massive, but often brecciated, micro-brecciated, or laminated. The fracture planes are rich in graphite and muscovite. Veins contain only minor sulphides (1% to 3%), predominately including arsenopyrite, pyrite, and traces of sphalerite, chalcopyrite, pyrrhotite, tetrahedrite, galena, and gold. Arsenopyrite is the main gold bearing sulphide present in all veins of the Casa Berardi deposit.

The granulometric distribution of gold is similar for all locations. According to petrographic compilations, 50% of the gold particles have an average diameter less than 30 µm, and approximately 3% are greater than 100 µm. The gold distribution inside the mineral assemblage varies slightly according to the location of the mineralized zones. In the 113 Zone of the West Mine area, the vein mineralization, which is spatially close to the Casa Berardi Fault, is mostly free gold in contact with arsenopyrite grains (< 10 µm to 0.5 mm). Arsenopyrite is associated with sphalerite and tetrahedrite in clusters, joints, and in micro-brecciated areas.

In the South West Zone, parts of the Principal area, and some areas of the East Mine mineralization, the gold distribution is variable and depends on the amount of sulphides in quartz veins and host rocks. Fifty percent of gold grains that have been observed are inclusions in pyrite and arsenopyrite crystals.

Alteration halos with gold values of above 100 ppb Au and anomalous values of arsenic and antimony surround most of the mineralized zones along the Casa Berardi Fault. Those halos can be observed up to five kilometres away, on both sides of the Casa Berardi deposit.

6.5 Stockworks

Stockworks are the second style of gold mineralization in the Casa Berardi deposit and represent nearly the same volume as the large quartz veins. While the stockworks are generally non-economic, they are mined with quartz veins when deemed economic. Across the deposit, hanging wall stockworks are present in contact with important mineralized quartz veins. From 10% to 20% of the rock volume is composed of centimetre to decimetre thick quartz veins with gold values ranging from 1 g/t Au to 10 g/t Au. Veins of all textures and composition are concordant with host rocks. Foliated and finely bedded rocks are cut by concordant veins. Less deformed basalts or heavily carbonated iron rich rocks are cut by fracture-controlled vein sets.

At the deposit scale, the Principal area of the West and East mine areas exhibit stockworks surrounding quartz cores. The stockworks are not limited to the main Casa Berardi Fault and can affect the total width of the deformation zone as metre to decametre wide mineralization subzones.

In the Principal area of the West Mine, the stockwork extends laterally for 400 m at a 50° western plunge. In the East Mine, the mineralized system extends laterally for 400 m, reaching a depth of 800 m down dip (Figure 6-5). The system crosses the Casa Berardi Fault at a low angle over 100 m of strike length. Mineralization continues to the west on the south side of the Casa Berardi Fault and to the east on the north side of the fault.

6.6 Banded Iron Formation

The third type of mineralization is the Banded Iron Formation (BIF) hosted mineralization.

This type of mineralization is found in the 124-8, 124-1, and 116 zones of the Principal area, at the western extension of the East Mine pit in the 148-09 Zone, and at the extension of the East Mine area in the 160 Zone. These zones are restricted to the highly sheared, brecciated, and altered ferruginous sediments occurring north of the Casa Berardi Fault. Mineralization occurs within metric to sub-metric quartz veins and stockworks with up to 10% chert-magnetite beds, and exhibits high sulphide content which consists of pyrite, arsenopyrite, traces of pyrrhotite, and little or no visible gold. These sulphides have replaced the oxide rich layers which surround the quartz veins and the veinlet stockworks. Strong carbonate and chlorite alteration halos surround the quartz rich areas.

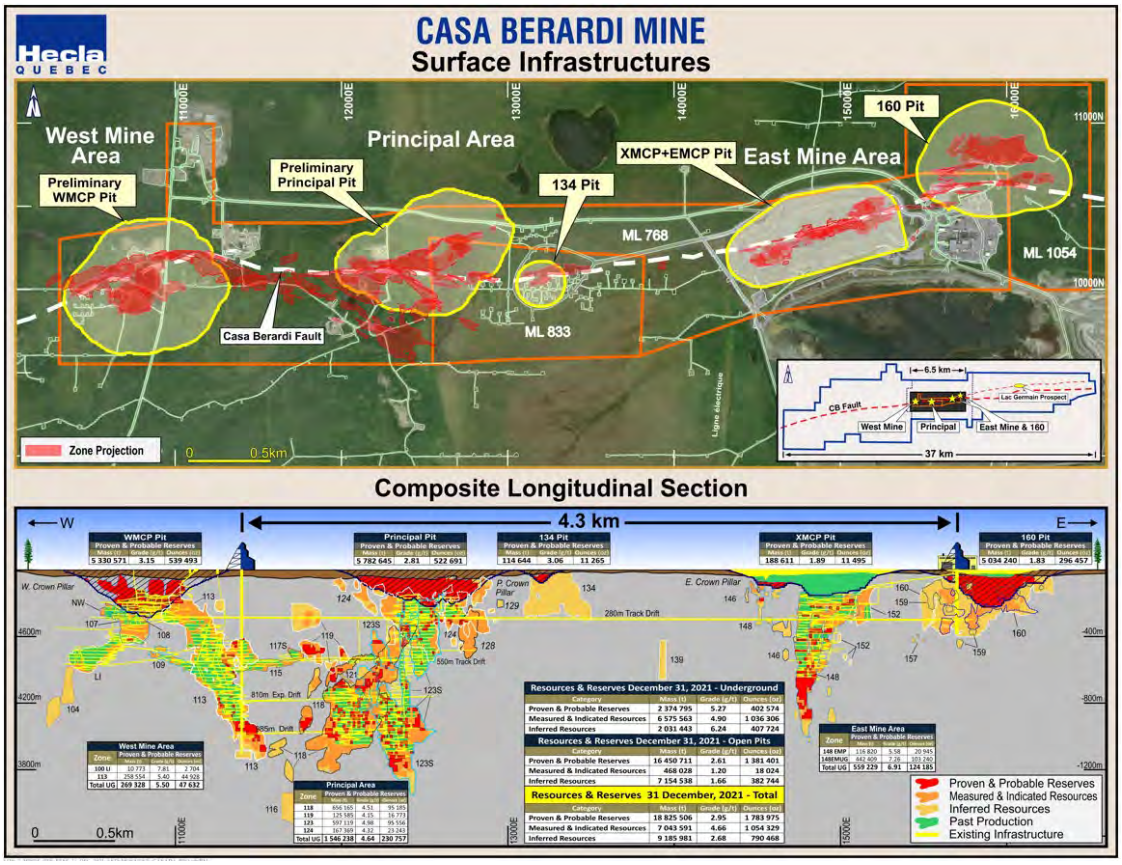

Figure 6-5: Mine Plan View Infrastructure with Composite Longitudinal Section

The mineralized zones in the vicinity of the underground infrastructure of the West Mine are all located between sections 10,350E and 11,250E, which correspond to the western limit of the Lower Inter Zone and the eastern limit of the 111 Zone, respectively (Figure 6-6). Mineralization occurs at the Casa Berardi Fault (in the 109, 111, 113, NW, NE zones), between the Casa Berardi Fault and the South Fault (in the 104, Inter, Lower Inter and 115 zones), and at the South Fault (in the South West zone).

Mineralization at the West Mine is represented by two main types:

- Low sulphide quartz veins: networks of centimetric to plurimetric quartz veins located south of the Casa Berardi Fault in highly deformed volcanic and sedimentary rocks that are predominantly basalt, wacke, conglomerate, chert, and mudrock.
- Sulphide rich stockworks: these represent the same volume as large quartz veins but have lower grades and are largely unexploited. Hanging wall stockworks are present in contact with important mineralized quartz veins across the Casa Berardi deposit.

The modeled mineralization for pit resource evaluation at the West Mine Crown Pillar (WMCP) are designated the 105 to 114 zones and occur west of the West Shaft and from the surface to the 450 m level. They include stacked quartz veins occurring at the Casa Berardi Fault above the 330 m level in the North West, North East, 111 and 113 zones. Between the Casa Berardi Fault and the conglomerate to the south, the South West (107), South East, and Inter (108) zones contain mineralized quartz veins with graphitic and sericitic schists with sulphides inside the South Fault corridor. The orientation of mineralization is mainly east-west with a south dip of 50° to 60°. Visible gold is associated with the veins. There is a low content of sulphides, primarily pyrite with traces of arsenopyrite. The mineralization plunges west at 15° and is open to the west along the South Fault. Further east, mineralization has a plunge of 20° east and is open to the south from the 100 m level to the 450 m level.

The South West (107-02 and 107-03 lenses) area occurs as metre to multi-metre quartz veins stacked along the South Fault and folded near the surface. The strike of the lenses exhibit variable orientations from east-southeast and dipping to the south at 50° to 60°. The Inter Zone (108-01, 02 and 04 lenses) occurs between the Casa Berardi Fault and the South Fault. The mineralized structure is located at the contact between the graphitic sediments and a mafic volcanoclastic unit. The orientation of the mineralized structures is generally east-southeast striking with a shallow dip to the south of 5° to 45°. The zones typically extend 150 m along strike and 75 m along dip. The upper portion of the Inter Zone is connected to the North East Zone and its lower portion connects with the South West Zone. The type of quartz vein and mineralization is quite similar to the veins observed in the Lower Inter Zone.

6.6.1 Mineralization along the Casa Berardi Fault

Mineralized zones such as the North East, North West, and 109 occur at the Casa Berardi Fault in the form of metric to plurimetric quartz veins. Veins occur over one thousand feet along strike and from 250 m to 550 m elevation and have a direction which varies from northeast to nearly east-west with a sub-vertical dip. The 109 Zone has a sub-horizontal dip at its western limit and a steeper dip to the east where it connects to the 113 Zone.

The 113 Zone is a mineralized corridor with a width ranging from 20 m to 70 m. The strike length ranges from 150 m at the 250 m level to over 400 m at the 550 m level. This mineralization strikes east-southeast and dips to the south at 75°. From the 450 m level to 800 m level, the strike varies from east-west to east-southeast, with a sub-vertical dip (Figure 6-6). From the 810 m level to the 1,000 level, mineralization occurs as metric quartz veins with visible gold and traces of fine disseminated pyrite and arsenopyrite.

The zones strike north-northeast and dip to the southeast at 70°. The zones have a steep plunge to the east and the 113 Zone is open along the plunge and at depth.

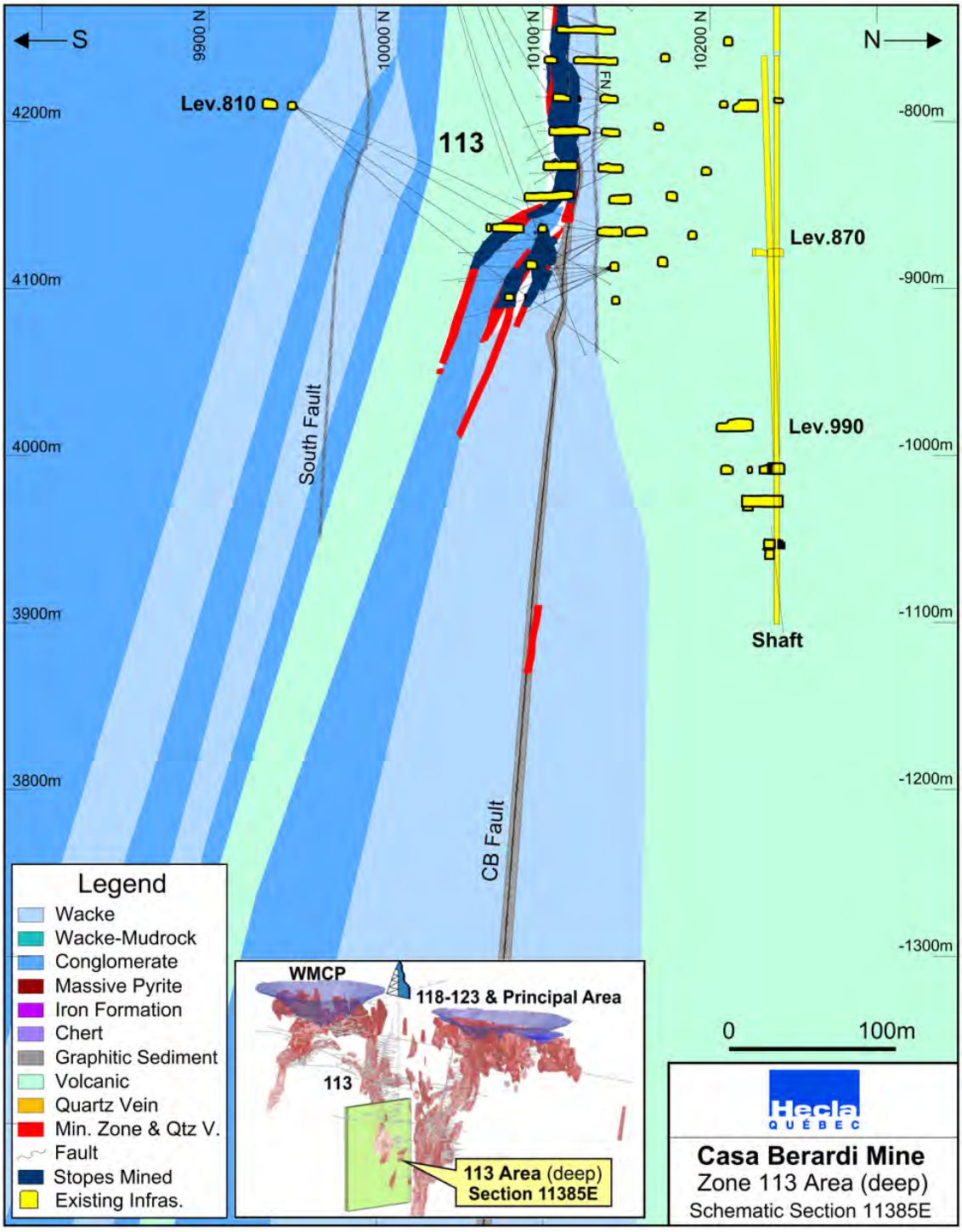

Figure 6-6: Section 11,385E, West Mine including the 113 Zone and Casa Berardi Fault

6.6.2 Mineralization Between the Casa Berardi and South Faults

The Lower Inter, Inter, and 115 zones are relatively flat dipping and plunge at approximately 15° to the west on the flat portions. The zones become steeper and are disrupted by minor thrust faults near the Casa Berardi Fault and near the South and Lower Inter Faults.

The Lower Inter Zone (the 100 Zone) is located between the 375 m level and 600 m level, and from sections 10,525E to 10,360E. The Lower Inter Zone dips at 25° to 45° south and plunges to the west at 15°. The zone is controlled by the Casa Berardi and the Lower Inter faults and lies on top of the folded wacke-basalt contact (Figure 6-7). The thickness of the quartz vein varies from four metres to 50 m, with the maximum thickness observed just beneath the contact of the two faults. The thin sections are observed down-dip, along the Lower Inter Fault, and extend for approximately 200 m. Stacking of quartz veins is observed in a deformation zone that is located at the lithological contact between the footwall mafic volcanic rock and the hanging wall graphitic mudrock.

The Inter Zone is located from sections 10,600E to 10,950E, and from the 150 m level to the 310 m level. The mineralized structure is located at the contact between the graphitic sediments and a mafic volcanoclastic unit. The mineralized structure strikes southeast with a shallow dip to the south (5° to 45°) and extends 150 m laterally and 75 m along dip. Its upper portion is connected to the North East Zone where the quartz vein and mineralization are similar to the Lower Inter Zone.

The 104 Zone corresponds to the Lower Inter Zone that is steeply plunging to the west. The 104 Zone strikes east-northeast, dips to the southeast at 70°, and it is composed of quartz veins with visible gold and low sulphide content.

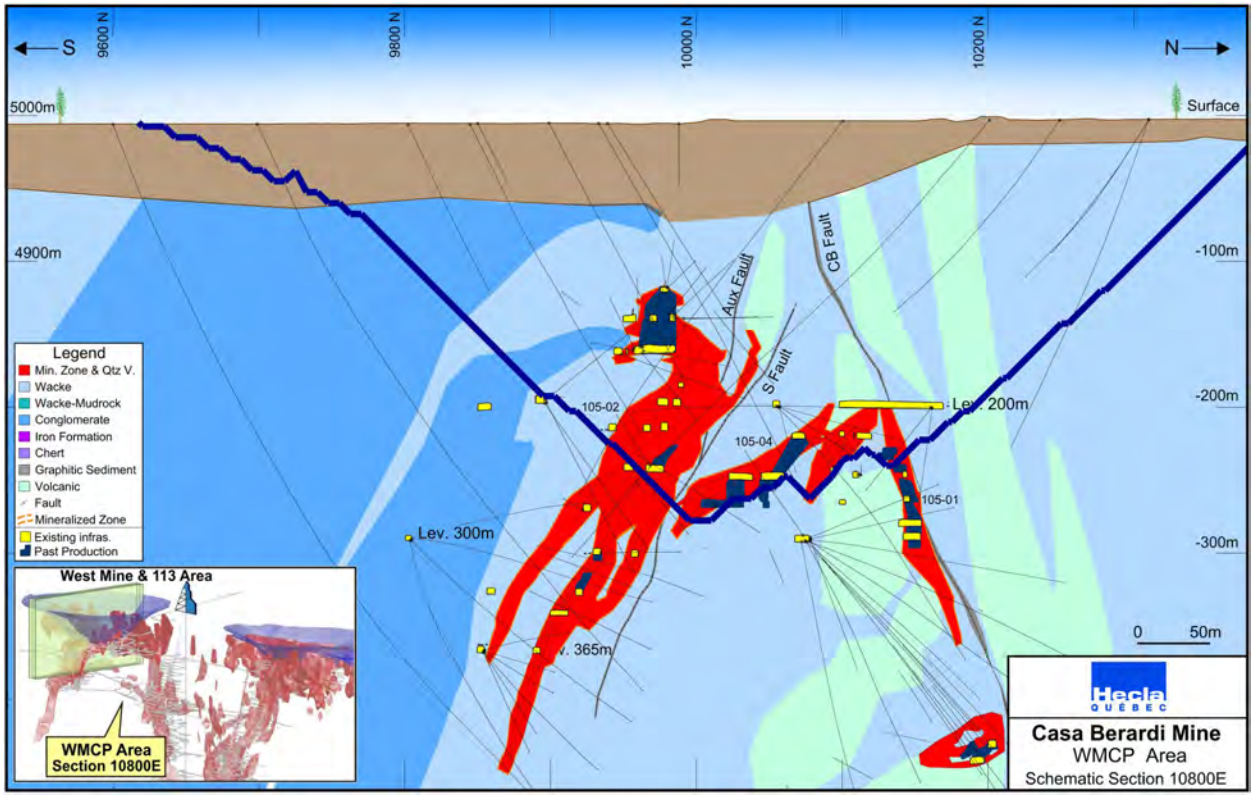

Figure 6-7: Section 10,800E, West Mine Geology and Mining Infrastructure

6.6.3 Mineralization at the South Fault

In plan view, the South West (107) and South East zones can be interpreted as a dome that is cut by the South Fault and by the subsidiary Auxiliary Fault. The mineralized system extends 200 m laterally and 300 m along dip, extending from surface to the 300 m level.

The main quartz vein structures are developed at the contact between a conglomerate and a graphitic mudrock and are associated with a large stockwork of disseminated sulphides. The internal vein structure shows variable orientations and is, in many places, brecciated. The economic mineralization extends down dip and is represented by a system of parallel veins which dip at 60° southwest.

6.6.4 Mineralization at the 118 Zone

The 118 Zone occurs from section 11,600E to 12,400E, between the 400 m and 1,200 m levels (Figures 6-8 and 6-9). The mineralization occurs within a 20 m to 70 m wide mineralized corridor south of the Casa Berardi Fault. The 118-10, 20, 21, 22, 27, 64, 81, 82, and 118-83 zones are stacked metric to sub-metric quartz veins with by sericite-carbonate envelope with high sulphide content, mainly arsenopyrite and pyrite with local visible gold. The zones contain up to 20% of metre to sub-metre quartz veins and veinlets sub-parallel to the schistosity. The zones strike east-southeast and dip to the southwest at 60° to 80° . The high grade zones show a steep plunge to the southwest at 70°. The 118-06 Zone is similar to the 118-27 lens, with the same orientation and dip. The structure is also well mineralized within the conglomerate unit and represents a strongly mineralized quartz stockwork with fine to coarse grained arsenopyrite and pyrite with visible gold. The upper part of the zone from the 330 to 610 level is folded and stacked. The general strike is east-southeast and dips to the southwest at 60° to 80° and follows the west plunge of the conglomerate. At the 330 level, the mineralization connects with the 124-81 and 82 zones. The 118-14, 15, 41, 42, 43, 44, 45, 46, and 47 zones are metre to multi-metre quartz veins sitting on top of the conglomerate unit and along its plunge. The quartz veins are locally faulted with a minor thrust fault and plunge to the west at approximately 15° to 20°. The 118-05, 11, 12, 13, 31, and 34 zones are metre to multi-metre stacked quartz veins and quartz stockwork along the Casa Berardi Fault with an east-west strike and south dip at 60° to 80° . Mineralization consists of fine to medium grained disseminated arsenopyrite, pyrite, sphalerite, and visible gold associated with quartz veins. The 118-16 and 17 zones are characterized by sericite-carbonate schist with high sulfide content, mainly arsenopyrite and pyrite, with local visible gold. They contain up to 20% metre to sub-metre quartz veins oriented east-southeast and dipping southwest at 70°. The mineralization follows the plunge of the 113 Zone along the conglomerate. Thickness of the veins ranges from three to five metres with east-southeast strike and dip southwest at 70° . Mineralization remains open at depth and along the plunge of the conglomerate.

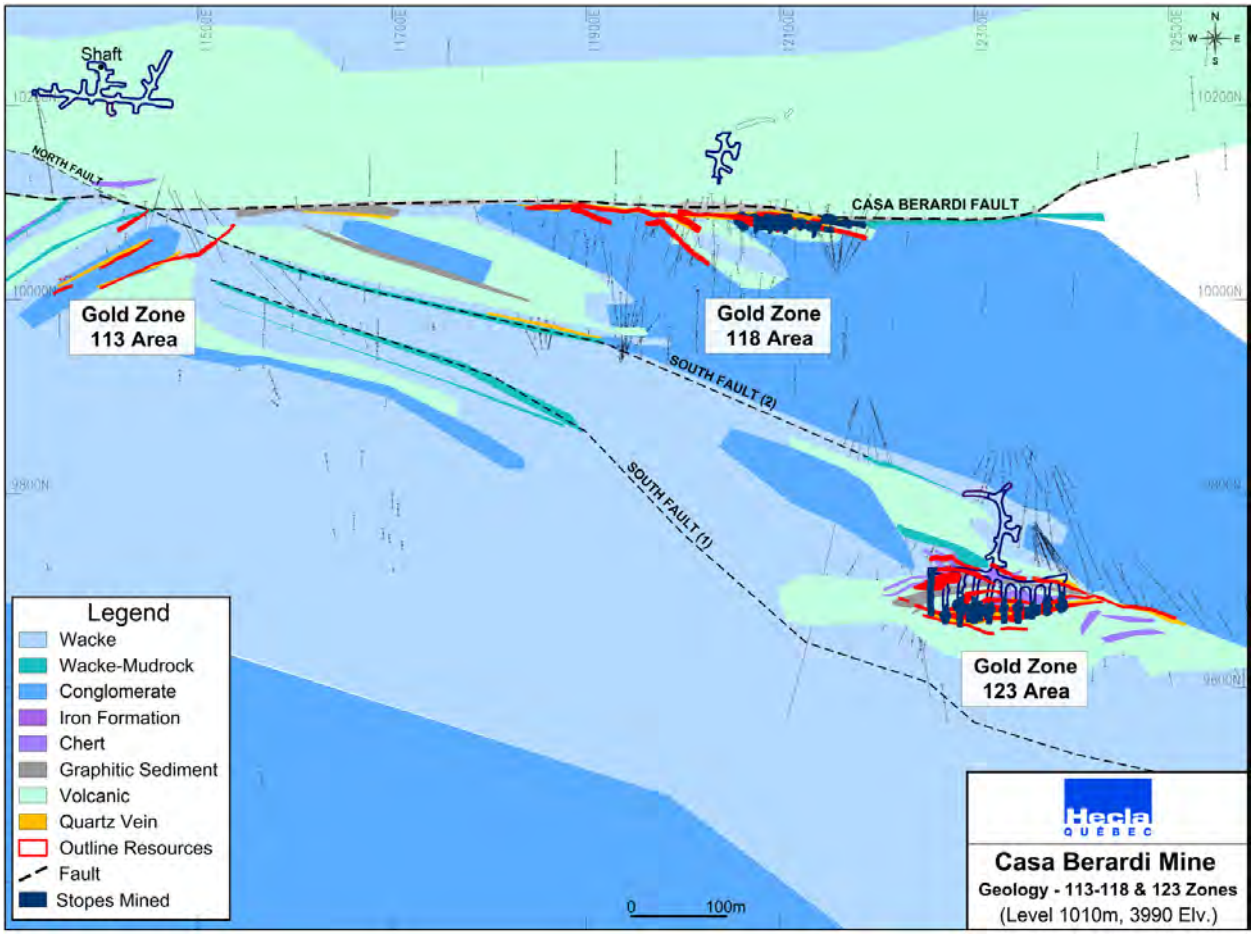

Figure 6-8: Plan View of the 1,010 m Level, Principal Area, Showing the 113, 118, and 123 Zones

6.6.5 Mineralization at the 123 and 128 Zones

The 123 Zone occurs in the South Domain of the Casa Berardi Deformation Zone and consists of stacked quartz veins and stockwork, varying in width from approximately five metres to up to 30 m, within a sequence of highly deformed and altered volcanic rocks and chert, at the sheared contact of volcanics and sediments, and close to the faulted southern contact of the conglomerate that hosts the 118 Zone (Figure 6-8 and Figure 6-9). Mineralization in quartz veins occurs as disseminations and stringers of pyrite, pyrrhotite, and arsenopyrite, with fine visible gold and minor disseminations of sphalerite. The veins near the chert bands strike east-northeast while dipping to the south at 60° to 70 ° and plunging to the east at 80°. The veins near the volcanic and sediments strike west-northwest with subvertical to 70° south dips. Mineralization occurs at the surface in lenses 123-21, 23, and 24 and the mineralization is open at surface and at depth to the west.

The 128 Zone is located on section 12,800 E at the 400 m level and is located at the same stratigraphic level as the 123 Zone within fragmental volcanic rocks. The 128 Zone is composed of quartz veins with visible gold. The mineralization has an east-west strike and a vertical to sub vertical dip to the south. The 128 Zone is open at depth and along strike.

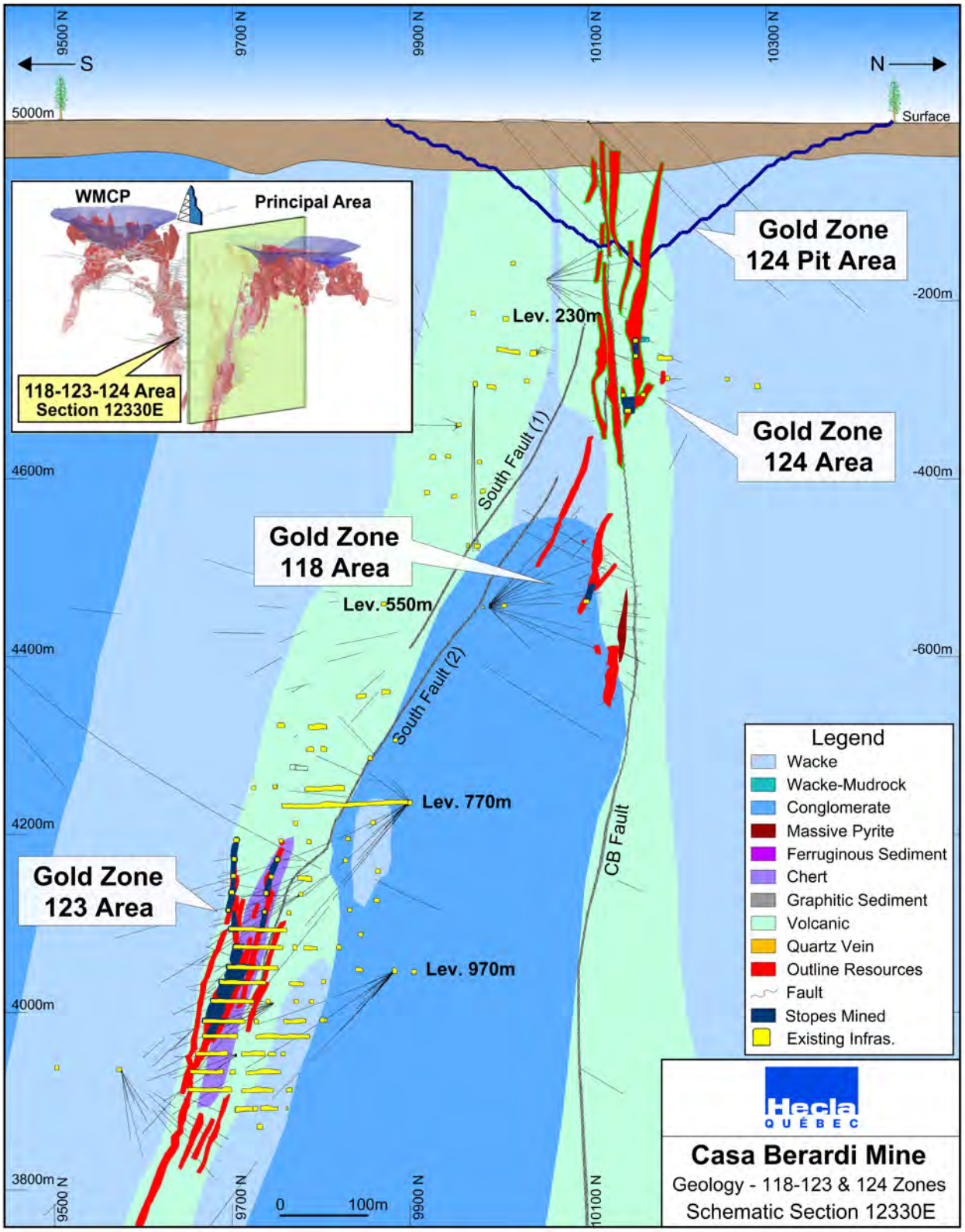

Figure 6-9: Section 12,330E, Principal Area Geology 118, 123, and 124 Zones

6.6.6 Mineralization at the Principal Mine Area

Mineralization within the Principal Zone occurs near the surface to the north and south of the Casa Berardi Fault and extends to depth to the 118 Zone along the Casa Berardi Fault and to the 123 Zone in the South Domain of the Casa Berardi Deformation Zone (Figure 6-10). The zones are located between section 11,900 E and section 13,000 E.

South of the Casa Berardi Fault, Zone 124-3 occurs as stacked, metre-wide, quartz veins near the Casa Berardi Fault, and is the up-dip extension of the 118 Zone occurring on top of the conglomerate. The overall orientation is east-southeast with dips to the southwest at 50° to 80° with a plunge to the southeast of 50°. Mineralization consists of arsenopyrite, pyrite, and visible gold with quartz veins. Zones 124-11 and 124-22 occur along secondary structures south of the Casa Berardi Fault and connect at depth with Zone 123-05. The zones occur in a corridor of metre-wide quartz veins and veinlets with visible gold, fine disseminations of arsenopyrite, and traces of sphalerite. These zones are oriented east-southeast and dip to the southwest at 60°.

Zones north of the Casa Berardi Fault (124-6, 124-8, 124-12, 124-13, 124-14, 124-16, 124-17) appear within highly sheared, brecciated, and altered ferruginous sediments between or near chert bands with minor magnetite. Gold mineralization occurs within metre to sub-metre quartz veins and stockworks containing fine grained to massive pyrite and arsenopyrite, traces of pyrrhotite, and very minor visible gold. Alteration is primarily chloritization and carbonatization (calcite and ankerite), with sericitization along the quartz veins. The strike varies from east-west (124-6) to east-northeast (124-8, 124-12, 124-13, 124-14, 124-16, 124-17) with dips to the south at 70° to near-vertical, and the zones plunge to the east at 50°. Mineralization remains open to depth and to the east of the 124-16 Zone.

The mineralized lenses in the 134 Zone are located between sections 13,100E and 13,500E and between the surface and level 300. Mineralization consists of arsenopyrite, pyrite, and visible gold with metre to multi-metre quartz veins and ankerite, sericite schist occurring within a sequence of highly deformed and altered volcanic rocks and sediments at the Casa Berardi Fault and north of the Casa Berardi Fault along secondary graphitic faults. The overall orientation is east-northeast with dips to the southeast at 75° and a plunge to the southeast of 60°.

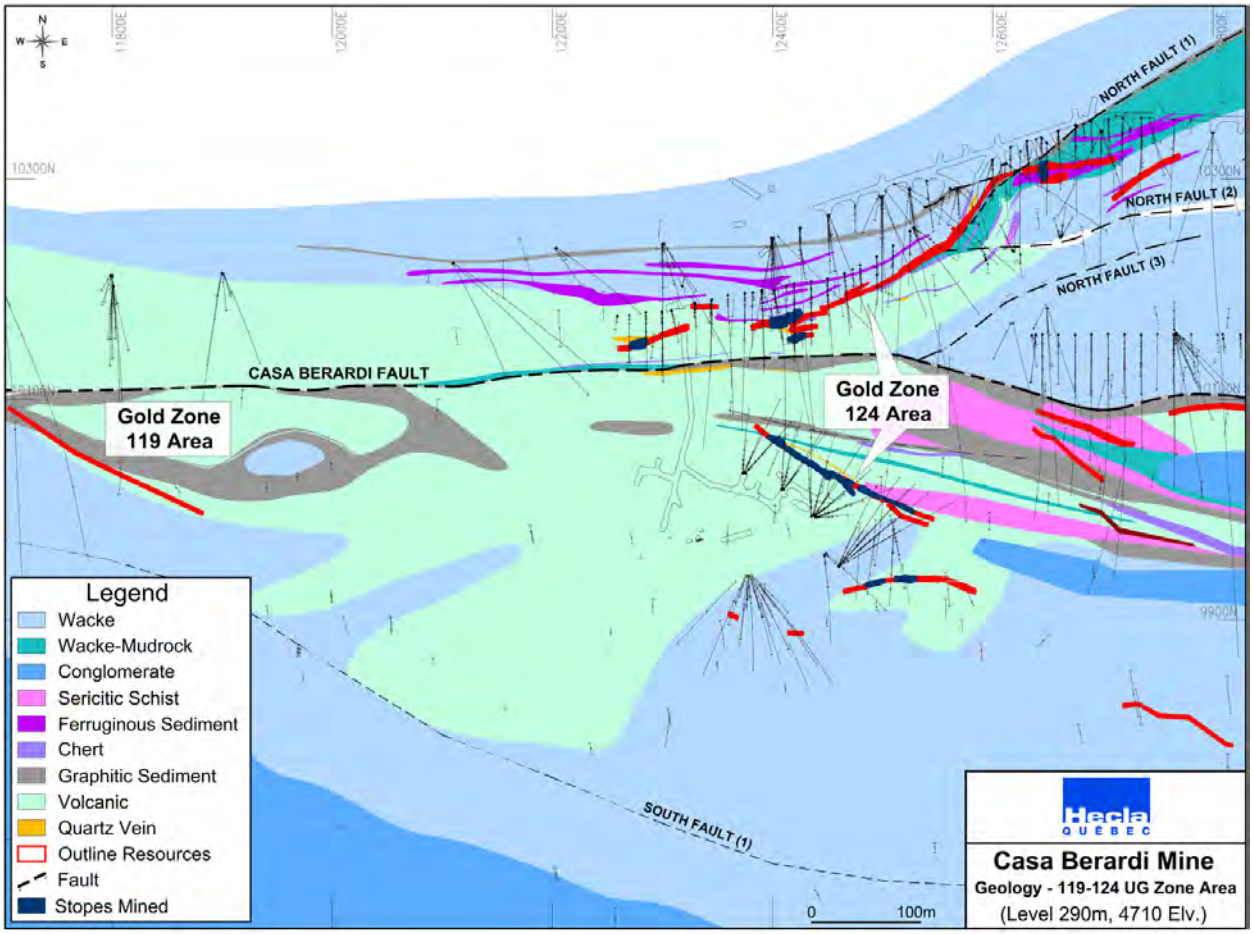

Figure 6-10: Plan View of the 290 m Level, Principal Area including the 124 Zone Lenses

6.6.7 Mineralization at the East Mine Area

The mineralized zones in the East Mine area are located between sections 14,000 E and 15,800 E and from surface to the 900 m level (Figure 6-11). The East Mine has underground and open pit Mineral Resources and Mineral Reserves that include the 146, 148, 152 and 157 zones.

The EMCP Pit includes the 148 Zone at the Casa Berardi Fault, from 14,725E to 15,400E, and the mineralized zones of the XMCP which extend from 14,400 E to 14,725 E and appear up to 100 m south of the Casa Berardi Fault. EMCP is composed of massive quartz veins with fine disseminations of pyrite and pyrrhotite with visible gold while XMCP mineralization is composed of 5% to 10% quartz veins and centimetric veinlets in stockwork with predominantly fine pyrite veinlets and disseminations, within highly sheared, sericitized, and ankeritized wacke and iron formation. These zones have an east-northeast direction and dip to the south at 75°.

The underground Mineral Resources and Mineral Reserves are predominately located between sections 14,725 E and 15,200 E. The zones included are the 148 and 152 zones. Between surface and the 200 m level, the mineralized envelopes are composed of quartz veins and quartz stockwork several metres thick and mineralized with fine disseminated pyrite, arsenopyrite and visible gold. Mineralization appears mainly at the Casa Berardi Fault and the strike of the lenses varies from east-southeast to west-northwest with a steep dip to the north, exhibiting an anastomosing pattern. Between the 200 m and 550 m levels,

the mineralization is restricted to a continuous 10 m wide vertical quartz vein which is parallel to the Casa Berardi Fault. Between the 550 m level and 1,050 m level, the remaining Mineral Resources are in the south dipping area which is represented by a succession of mudrock layers inside the volcanic rock sequence. The quartz veins are metre to multi-metre thick and strike east-northeast with south dips varying from 60° to 85°. Mineralization is still open at depth and along strike.

The 152 Zone lies to the north of the Casa Berardi Fault, with a vertical extent of 200 m, from section 15,050E to section 15,250E, and from the 100 m level to 300 m level, and is laterally continuous over 100 m (Figure 6-11 and Figure 6-12). Stacked quartz veins are concentrated at the sheared mafic volcanic-wacke contact. The dip and thickness of the mineralization are highly variable.

West of section 14,725E, the mineralization appears mainly to the south of the Casa Berardi Fault and at depth below the XMCP Pit. The mineralization occurs predominately near the sheared ferruginous sediments and it is still open at depth.

The 160 and 159 (Cherty) Zones are located between sections 15,400 E and 16,300 E and are 200 m and 30 m north of the Casa Berardi Fault, respectively. Lenses that are parts of the zones have an average lateral extent of 200 m and a vertical extent of 100 m, down to the 350 m level (Figure 6-12). The zones have been defined by drilling on 15 m spaced sections.

Mineralization in the 160 Zone occurs at or near the sheared contact of pyroclastic rocks and fine grained sediments, mainly wacke, graphitic mudrock, and metric to multi-metric thick ferruginous sediments and along secondary graphitic fault. The main orientation of the lenses is generally east-northeast with dips to the south at 65° to 75°. Mineralization is composed of metric to sub-metric quartz veins and stockworks containing fine pyrite and arsenopyrite, traces of pyrrhotite, and visible gold. Alteration is predominately chloritization and carbonatization (calcite and ankerite), with sericitization along the quartz veins. The 160 Zone mineralization exhibits a shallow plunge to the west-southwest at 40°.

Mineralization of the Cherty (159) Zone occurs north of the Casa Berardi Fault and east of the 152 Zone. Mineralization is composed of stacked metric to sub-metric quartz veins and veinlets occurring near a band of chert north of the Casa Berardi Fault and near the contact between the volcanic rocks and the sediments north of the Casa Berardi Fault. General orientation of the quartz veins is east-northeast with dips to the south at 70° to 75°. Mineralization remains open at depth and to the east.

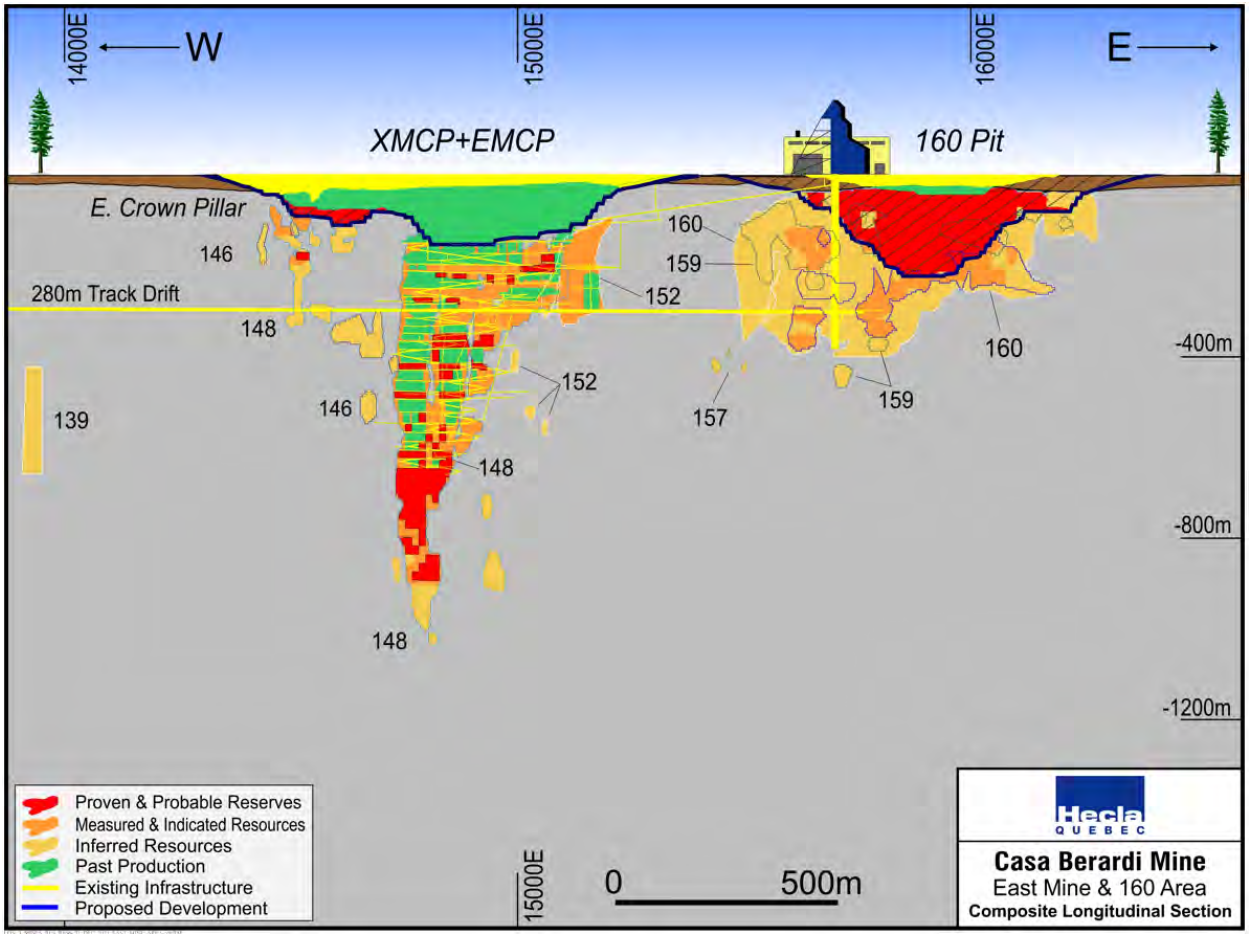

Figure 6-11: East Mine Composite Longitudinal Section

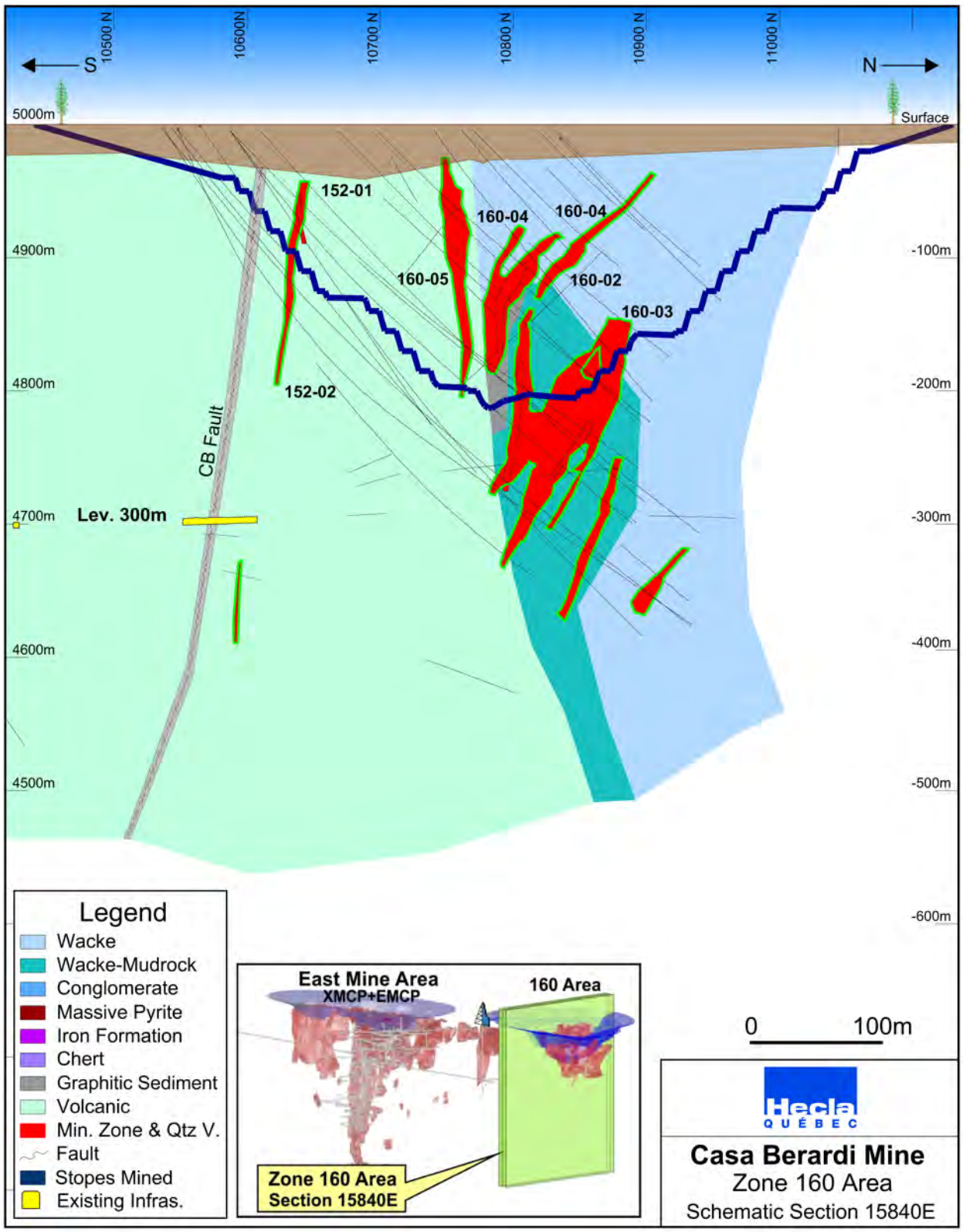

Figure 6-12: Section 15, 840E, East Mine Geology and Infrastructure – 160 Zone

6.7 Deposit Types

The Casa Berardi deposit can be classified as an Archean age, sedimentary hosted lode gold deposit. Gold deposits of the Archean Abitibi greenstone belt predominantly consist of epigenetic disseminated and vein hosted deposits, and syngenetic gold rich massive sulphides (Robert et al., 2005; Monecke et al., 2017). Both types of mineralization could potentially occur within the same deposit in areas where deformation and metamorphism overprint volcanic successions. Deformation and metamorphism can significantly modify the mineralogy and geometry of previously formed mineralization. Nevertheless, superposition of hydrothermal events, metamorphism, and deformation, represent important processes for gold concentration and the formation of world class gold deposits in greenstone belts and sedimentary rocks in general (e.g., Dubé et al. 2007; Large et al., 2007).

The Casa Berardi gold mining camp in the northern Abitibi greenstone belt contains different styles of mineralization within the same deposit including gold rich massive sulphides, auriferous pyritic and carbonaceous phyllite and chert, and pyrite-arsenopyrite-gold-quartz veins. It is therefore considered an ideal setting to study the effects of superimposed hydrothermal systems and to contribute to a better understanding of Casa Berardi and prospective areas along the extensive Casa Berardi Deformation Zone.

7.0 EXPLORATION

From 1974 to 2021, surface and underground diamond drilling, totalling over 3.5 million metres, has been completed at Casa Berardi. Most of this drilling has successfully expanded resources along a five kilometre segment of the Casa Berardi Fault in the immediate mine area. Some regional exploration work including geophysical surveys and diamond drilling has been carried out on the Property, which is very large and covers a very favourable geological environment for gold mineralization including a 37 km strike length along the Casa Berardi Fault. The SLR QP is of the opinion that excellent exploration potential remains on the Property, both along strike and at depth in the immediate mine area and on the rest of the Property. Geophysics and drilling are the key exploration tools needed to make new discoveries under the thick layer of overburden that covers most of the Property.

The SLR QP notes that the exploration and drilling programs comply with industry standards and they have been carried out by experienced geoscientists. SLR's QP is of the opinion that the exploration data are of high quality and are acceptable to support Mineral Resource and Mineral Reserve estimation.

The drilling on the property is shown in Figure 7-1.

7.1 Hecla Exploration 2016 to 2021

Since Hecla's acquisition of Casa Berardi in June 2013 exploration activities have largely consisted of drilling data compilation and integration. During autumn 2017, a helicopter-borne versatile time domain electromagnetic (VTEM) and horizontal magnetic gradiometer geophysical survey, totalling 1,587 line-km, was flown over the entire Property.

7.1.1 2016

From 2012 to the end of 2016, Casa Berardi was still under a JV between Lake Shore and Hecla, however, no exploration work was carried out in the field. In February 2016, Tahoe purchased Lake Shore, and at the end of 2016, Hecla purchased Tahoe's 50% interest in the Property.

In 2016, Hecla resumed data compilation and integration to generate drill targets and staked three new claims to add to the Property.

7.1.2 2017

In 2017, Hecla staked 36 new claims to bringing the total number of claims to 266. In winter 2017, Hecla conducted, a 19 hole (6,620 m) drilling program in the West Block between the West Shaft and the former Agnico Eagle claim block. Hecla's geologists also re-logged and sampled 47 Lakeshore drill holes totalling 20,910 m from Lac Germain and the West Block for lithogeochemistry. During autumn 2017, a helicopter-borne VTEM and horizontal magnetic gradiometer geophysical survey, totalling 1,587 line-km, was flown over the entire Property.

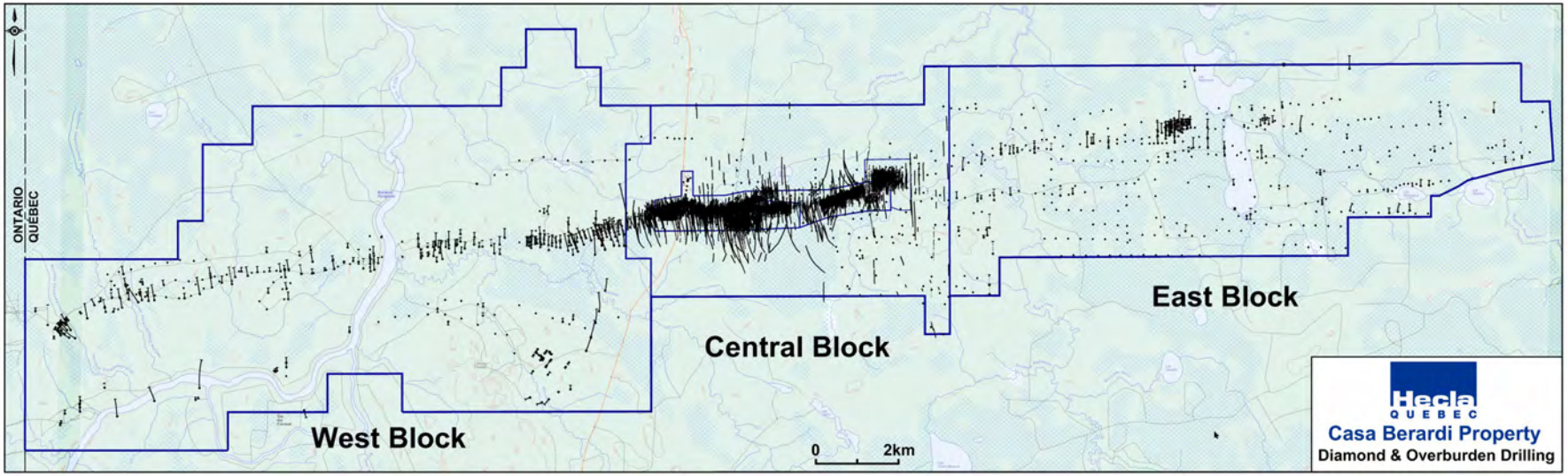

Figure 7-1: Diamond and Overburden Drilling

The 2017 exploration program was successful in defining new mineralization to the west of the Casa Berardi Mining Lease. Drilling on the West Block succeeded in discovering new gold mineralization. In hole CBS-17-783, the best assay result was 1.57 g/t Au over 3.5 m and mineralization is related to the 30% pyrite and trace arsenopyrite in a sericitized and silicified wacke. In hole CBS-17-788, two intervals of quartz veins stockwork with up to 10% pyrite and trace arsenopyrite yielded 4.49 g/t Au over one metre and 4.76 g/t Au over 1.7 m at borehole depths of 135 m and 235 m, respectively. Drilling and relogging succeeded in improving the geological model and furthering Hecla's understanding of the West Block and Lac Germain, by confirming exploration potential and delineating exploration targets for 2018.

7.1.3 2018

In 2018, Hecla purchased four claims from an individual prospector, bringing the total number of claims to 270. During the winter of 2018, Hecla drilled 13 follow-up drill holes (4,610 m) on near surface targets on the West Block and 27 holes (6,656 m) on the Lac Germain prospect. A bridge was built over Theo River to improve access to the Lac Germain area. Relogging of 46 holes from previous drilling on the East and West Blocks was also completed.

On the West Block, the most significant mineralization was in hole CBS-18-959 that intersected 73.1 m of chloritized felsic quartz porphyry volcanic rock with up to 30% pyrite as semi-massive to massive beds and stringer (from 182.1 m to 253.4 m). Assays returned 1.23 g/t Au over 19.1 m including a massive sulphide section that yielded 3.76 g/t Au over 1.8 m.

On the Lac Germain prospect, drilling succeeded in intersecting high grade and wide gold bearing mineralized zones. Mineralization was interpreted as six gold bearing subparallel lenses, LG 1 to LG 6, forming a 100 m wide corridor in a sequence of wacke and BIFs. These lenses strike at approximately 070° and dip between 65° to 75° to the south. In the LG 1 Zone, hole CBS-18-955 returned 11.31 g/t Au over 3.6 m including 25.30 g/t Au over 1.2 m. In the LG 2 Zone, hole CBS-18-940 returned 5.5 g/t Au gold over four metres and hole CBS-18-942 returned an exceptional value of 461.0 g/t Au over 0.6 m. In the LG 3 Zone, holes CBS-18-935 and CBS-18-947 returned 5.61 g/t Au over 3.3 m and 4.08 g/t Au over 2.6 m, respectively. In the LG 4 Zone wide intersections of 5.22 g/t Au over 6.5 m in CBS-18-955, 3.66 g/t Au over 8.4 m in CBS-18-960, and 5.97 g/t Au over 4.5 m in CBS-18-968, were reported. Gold bearing mineralization was interpreted to be related to quartz and quartz carbonate veinlets and veins up to 1.5 m thick. The veins contained minor amounts of pyrite, pyrrhotite, and arsenopyrite and gold grades correlated with the amount of arsenopyrite. Visible gold was related to traces of sphalerite and galena.

7.1.4 2019 and 2020

No drilling was completed for regional exploration in 2019 and 2020.

7.1.5 2021

In 2021, relogging of eight drill holes totalling 3,055 m on the Dieppe East Block confirmed that the geology of the Dieppe East Block is similar to the geology intersected in drill holes from 2017 and 2018 consisting of graphitic mudstone with nodular pyrite, felsic and mafic volcanic rocks, and major graphitic faults (Casa Berardi Deformation Zone). In addition, eight drill holes totalling 3,675 m were re-logged on the Dieppe 1 mineral occurrence. Historical drilling returned values of 26.90 g/t Au over 1.5 m and 2.76 g/t Au over 8.02 m.

This drill hole re-logging confirmed that gold mineralization is related to quartz veins in a brecciated chert horizon at the contact within mafic volcanic rocks. Importantly, the area around the Dieppe 1 mineral

occurrence is characterized by a strong volcanic massive sulphide mineralizing system. The thickness of the sulphide system is up to 150 m and has strong potential for gold bearing volcanic massive sulphide deposits.

In 2021, Hecla drilled 5,879 m in 12 drill holes on the West Block area and returned anomalous values that extended previously identified mineralization at depth within both quartz veining and massive sulphides, although these intercepts were low grade. Drill hole CBS-21-023 intercepted massive sulphides over 15 m in thickness and return anomalous gold values over 20 m down hole. Further west, drill hole CBS-21-017 confirmed mineralization at depth and extended the mineral zone over hundreds of meters down plunge intercepting 6.90 g/t over 3.6 m. The geology and mineralization have strong similarities to the 123 and 124 mining zones within the Central Block at Casa Berardi.

7.2 Drilling

Table 7-1 summarizes exploration and definition diamond drilling programs carried out from 2006 to 2021. The extensive surface and underground drilling programs have been developed to investigate the West Mine and East Mine areas.

Table 7-1: Exploration, Definition, and Infill Drilling Programs from 2006 to 2021 Hecla Mining Company – Casa Berardi Mine

Company	Year	Surface Exploration (m)	Underground Exploration (m)	Infill Definition (m)	Total (m)
Aurizon	2006	28,304	19,779	24,578	72,661
	2007	10,445	-	20,434	30,879
	2008	1,014	7,043	21,928	29,985
	2009	19,303	16,477	38,787	74,567
	2010	27,974	37,834	32,881	98,689
	2011	35,979	5,552	63,317	104,848
	2012	29,928	13,052	57,894	100,874
	2013	12,906	3,916	16,149	32,971
Hecla	2013	7,650	3,152	24,648	35,450
	2014	20,556	7,068	40,797	68,421
	2015	22,058	6,158	63,016	91,232
	2016	21,185	4,827	56,950	82,962
	2017	32,877	17,326	73,418	123,621
	2018	28,447	15,942	60,023	104,412
	2019	18,528	17,014	48,781	84,323
	2020	3,650	11,723	43,598	58,971
	2021	16,320	10,485	43,457	70,262
Total		337,124	197,348	730,656	1,265,128

The main exploration and definition drilling programs are summarized in the following subsections.

7.2.1 2006

Definition drilling was active in the 113 and the Lower Inter zones. Exploration drilling was carried out to follow up on Inferred Mineral Resources in the 118 to120 zones that were identified by wide spaced drilling from surface. The extension of mineralization contained in the EMCP was also tested. Exploration of the 122 Deep Zone continued where underground exploration intersected high grade mineralization along the Casa Berardi Fault, 1,000 m below surface and 800 m from the existing infrastructure.

7.2.2 2007

Definition drilling continued in the 113 Zone. The first phase of definition drilling in the Lower Inter Zone was completed. Underground exploration drilling was focused on the 118 to 120 zones.

Surface exploration drilling targeted the 123 Zone, the most significant discovery of mineralization to date outside the Casa Berardi Fault. The 123 Zone is located 350 m south and 900 m east of the existing West Mine infrastructure.

7.2.3 2008

Surface exploration was conducted at the East Mine to convert Inferred Mineral Resources into Indicated Mineral Resources. Definition and infill drilling programs were conducted in the 113 and Principal area zones.

7.2.4 2009

Surface exploration drilling was mainly concentrated in the Principal area to increase Mineral Resources and to evaluate open pit and underground potential. Underground exploration was carried out in the 118 and 123 zones from the 810 m level exploration drift. Definition and infill drilling were primarily carried out in the 113, 118, 123, and Lower Inter zones.

7.2.5 2010

Surface exploration drilling was predominately concentrated in the Principal area of the West Mine to convert Mineral Resources into Mineral Reserves. Underground exploration was carried out in the 118 and 123 zones from the 810 m level exploration drift. Definition and infill drilling were primarily carried out in the Lower Inter, 109, 113, 115, 118, 123, and 124 zones.

7.2.6 2011

The surface exploration program tested the down-plunge of the Lower Inter Zone, the northeast extension of the 118, 123 and 124 zones, the deep down-plunge of the 123 Zone, the potential at depth of the East Mine, and the open pit potential of the 160 Zone. Underground exploration drilling was carried out to verify continuity and extensions of the Principal Mine, primarily in the 118 Zone. Definition and infill drilling were conducted in the 109, 118, 119, 123, and 146 zones.

7.2.7 2012

The surface exploration program was carried out to test the western extension of the 160 Zone, the eastern extension of the Principal area in the West Mine, and the potential at depth of the Lower Inter,

123 zones, and the East Mine. Underground exploration drilling was conducted to verify continuity and extensions of the Lower Inter, Principal Mine, 118, 140, and 160 zones. 2013

The surface exploration program tested the extensions of the 123 and 134 zones. Underground exploration drilling was primarily carried out in the 140 and 159 zones, while definition and infill drilling were mainly carried out in the 113, 115, 118, 119, 123 zones.

7.2.8 2014

The underground exploration targeted the West Mine with the down plunge extension of the 113 Zone, in the 118, 123 and 124 zones in the Principal area, and a small campaign was conducted on the east extension of the Principal area for the 140 Zone. Surface exploration targeted the Principal area east extension with the 134 and 140 zones. Definition and infill drilling were completely entirely from underground to drill the extension of known Mineral Reserves and Mineral Resources near the West Mine in the 113, 118, 123, and 124 zones.

7.2.9 2015

Exploration drilling targeted the 118, 123, 124 and Lower Inter zones in the West Mine from underground and surface. Drilling continued to target the East Mine potential for the 144 and 157 zones and to test the down plunge of the 148 and 160 zones. Infill and definition drilling were conducted mostly in the Principal area on the 118, 123 and 124 zones.

7.2.10 2016

The surface exploration drilling program continued to target the West Mine with the 109 and 113 zones below the current infrastructure. From underground the extension of the Lower Principal targeted to the 117 Zone. Infill and definition drilling were primarily carried out in the Principal area including the 118, 123, and 124 zones.

7.2.11 2017

The 2017 program was the largest drilling campaign since 2006. Exploration drilling has targeted the 123 and 124 zones from underground and surface. A surface exploration campaign was completed on the 134 Zone to test the open pit potential east of the Principal area. The potential for open pit resources near the West Mine was tested by drilling the North West and South West zones in the crown pillar. Infill and definition drilling from surface targeted the EMCP Pit, 134 Zone, and 160 Zone preliminary pit. Underground infill and definition drilling were completed at the Principal area to extend the Mineral Resources and Mineral Reserves for the 118, 123, and 124 zones.

7.2.12 2018

Exploration covered the West Mine and the East Mine to evaluate both surface and underground targets. Surface exploration targeted the down plunge of the 134 Zone under the preliminary pit. Surface drilling also targeted the east extension for underground potential of the 124 Zone. Exploration drilling from surface tested the west extension of the 146 and 148 zones for underground potential. A combination of definition and exploration drilling targeted the WMCP to better define the pit potential. Underground exploration continued in the Lower Principal area from the 990 m level to test the down plunge mineralization of the 118 and 123 zones. Infill and definition drilling from surface were primarily designed to define an open pit in the EMCP Pit, 134 Pit, 160 Pit, and WMCP Pit areas. Underground infill and

definition drilling were carried out in the Principal area to evaluate the 118, 123, and 124 zones. In 2018 underground definition drilling commenced in the East Mine from the 300 m level under the 160 Zone preliminary pit to test the down plunge mineralization for underground mining potential.

7.2.13 2019

Surface exploration drilling targeted the eastern portion of the Principal Mine within the 128 Zone specifically the high grade plunge of known lenses and aimed to further define the 160 Zone lenses within the Pit Shell. Furthermore, surface drilling targeted the continuation of those lenses under the pit shell. In the North Domain, the surface campaign aimed to investigate the eastern potential of the 160 Zone in the East Mine, and the extension of the 157 Zone to the south of Casa Berardi Fault.

Underground drilling pursued five targets: i) the eastern extensions of the 128 Zone from the 290 m level, ii) the western extension of the 118 Zone from the 990 m level exploration drift, iii) the 113 Zone from the 1,010 m level, iv) the 152 Zone from the 455 m level ramp in the East Mine and v) the 148 Zone below current infrastructures from the 485 m level in the East Mine.

7.2.14 2020

Surface exploration drilling was active to help determine the near surface eastern extent of the 160 Pit (159-05 lens) thus assisting the pit engineers determine where to move the creek.

Underground exploration drilling actively pursued the 123 Zone below current infrastructures from the 1,070 m level, the 128 Zone from the 490 m level in the Principal Mine area, and the 148 Zone below current infrastructures from the 485 m level in the East Mine.

7.2.15 2021

Surface exploration drilling targeted the different lenses located outside of the WMCP Pit shell, the down trend of the 105 Zone in the West Mine, the east and west extension of the 128 Zone, the downward plunge of the 139 lens and the extension of the 159 and 160 lenses within the 160 Pit shell.

Underground exploration drilling aimed to investigate many zones of the Casa Berardi Mine from west to east, targeting: the upper portion of the 113 Zone from the 990 m level, ii) the downward plunge of the lower 123 Zone from the 1,070 m level, iii) the upward plunge of the 123-01 lens, and iv) the downward extension of the 148-01 lens.

7.3 Casa Berardi Regional Drilling

7.3.1 Lake Shore Drilling 2007 to 2012

In September 2007, Aurizon and Lake Shore Gold Inc. (Lake Shore) signed an option agreement by which Lake Shore could acquire a 50% interest in Casa Berardi. Lake Shore earned its 50% interest at the end of 2012.

7.3.1.1 2008

In winter 2008, an initial drilling program comprising 12 holes, totalling 4,470 m, was carried out. Ten holes were drilled approximately 7.5 km east of the East Mine and Mill Complex, in an area now known as the Lac Germain prospect. Two holes, CE-08-06 and CE-08-09, were drilled near Inco Gold's hole

84716-0, two kilometres to the west of this area. In addition, 79 reverse circulation (RC) holes were completed over the East Block.

The winter 2008 diamond drilling program succeeded in the discovery of the "G Zone" at the Lac Germain prospect. The best intersection in hole CE-08-03 yielded 13.03 g/t Au over 6.45 m within a broader interval of 8.58 g/t Au over 10.4 m. This mineralization was located approximately 90 m below a historical value of 11.11 g/t Au over 2.24 m in Inco Gold's hole 84724-0. The G Zone was then subdivided into three sub-zones referred to as the G-S Zone, G-Mid Zone, and G-N Zone. Gold mineralization was associated with quartz-carbonate-sulphide veins within sedimentary rocks, north of a mafic volcanic package. Higher grade mineralization displayed stronger wall rock alteration and a higher sulphide content, with some quartz and sulphide stringers at a shallow angle to the core axis.

The 79 hole RC drill program was designed to test new areas and to follow up on areas of interest identified via the compilation of previous data. A total of 173 bedrock samples were collected during the RC program and assayed for gold. The source of two gold dispersal trains, east of the Theo River, was interpreted near the northern contact between mafic volcanics and sediments. The first dispersal train was located south of Lake Shore's drill holes CE-08-06 and CE-08-09. The second gold dispersal train occured approximately 4.1 km east of Lac Germain and 5.1 km east of the Lac Germain prospect.

7.3.1.2 2009

In 2009, Lake Shore drilled 16 holes totalling 6,896 m on the Property. Ten of the 16 holes, totalling 3,656 m, were drilled on the Lac Germain prospect while the remaining six, totalling 3,240 m, were drilled on the West Block between the West Mine and the former Agnico Eagle claim block. The drilling on the Lac Germain prospect extended the G Zone. Hole CE-09-12, to the east, returned 2.33 g/t Au over 7.3 m, and hole CE-09-18, to the west, returned 3.04 g/t Au over 6.3 m. Drilling on the West Block led to the discovery of a new gold zone in hole CW-09-23 that returned 3.44 g/t Au over 3.9 m in a broader 23.2 m gold anomalous interval. Mineralization consisted of ribboned, quartz-ankerite veins with 5% to 70% pyrite and pyrrhotite and minor arsenopyrite, within a large package of chert-sulphide iron formation in strongly deformed and altered graphitic wacke.

7.3.1.3 2010

In 2010, Lake Shore drilled 11 holes totalling 4,111 m. Eight holes of the 11 holes, totalling 2,814 m, were drilled on the Lac Germain prospect, while the remaining three targeted aeromagnetic anomalies similar to the one at the Lac Germain prospect. New drilling results on the G Zone included 11.54 g/t Au over 3.9 m in CE-10-30 and 4.75 g/t Au over one metre in hole CE-10-32, both located in the west-central portion of the G Zone. On the eastern end of the G Zone, holes CE-10-29 and CE-10-31 returned several anomalous and high grade gold intervals, notably 40.2 g/t Au over 0.4 m and 8.4 g/t Au over 1.4 m in hole CE-10-29, and 14.7 g/t Au over 0.5 m in hole CE-10-31.

Hole CE-10-35, which tested a magnetic anomaly to the east of Lac Germain approximately five kilometres east of the Lac Germain prospect, did not intersect gold mineralization. Holes CE-10-36 and CE-10-37 were drilled to test magnetic anomalies at the west end of the East Block. Only one interval in hole CE-10-36 yielded 1.63 g/t Au over one metre. Hole CE-10-37 intersected a narrow quartz vein with one speck of visible gold that yielded no value, and another quartz vein which returned 2.57 g/t Au over 0.8 m.

7.3.1.4 2012

During the summer of 2012, Lake Shore drilled hole CW-12-38 to test the down-dip extension of the gold mineralization intersected in hole CW-09-23. Hole CW-12-38 intersected some gold bearing mineralization and the best intervals were 3.24 g/t Au over 1.5 m and 1.38 g/t Au over 12.4 m including 2.53 g/t Au over 3.1 m.

7.4 Hecla Drilling Protocols

Casa Berardi exploration drilling can have a wide range of purposes along the extensive property length and is classified into three categories. Surface and underground exploration drilling, which is planned inside the mining leases along the strike of known gold occurrences to build future Inferred Mineral Resources. Regional exploration outside the mining leases which targets favourable geoscientific features along the Casa Berardi Deformation Zone. Additionally, conversion holes classified as definition and infill drilling occur mainly at the Mine site (surface and underground) within the mine areas and are designed to convert and increase the Indicated Mineral Resources for future mining potential. Condemnation drills holes have also been completed to condemn sectors from exploration and locate the infrastructure of the Casa Berardi complex.

Drill holes are planned (azimuth, dip, length) by Hecla geologists on vertical cross-sections and on vertical longitudinal sections. Drill lines are marked underground (front site and back site) by the mine surveyors. Prior to drilling, a technician verifies the drill rig alignment on hole set up. On surface, drill collars are spotted on the field lines with the use of surveying equipment. Typically, two front sites, identified with wood pickets, are used to align the drill rig. Down hole deviations (azimuth and dip) are measured with Reflex instruments approximately every 50 m along the hole. Complementary with the Reflex survey, a North Seeking Gyro is used when drilling is completed near magnetic rock. This type of survey is not impacted by magnetism and can provide accuracy in defining the down hole drill trace. Once a hole is completed, collars are surveyed by Hecla mine surveyors and geology technicians. All drill holes on site are cemented on the total length as far as possible.

Surface diamond drilling is focused during winter to take advantage of the frozen ground (January to April) and minimize the environmental impacts of the drilling. The drill rigs are moved on ice roads using heavy equipment and snowmobiles and are set up on winter drill pads. Surface drilling is reduced during the summer season to minimize the footprint of gravel roads that are built to access the drilling pads. Underground drilling from the West Mine and East Mine are conducted from drill bays, haulage drifts, or other accessible drilling platforms. The underground drills are moved with heavy underground equipment and access to the drill is via service truck or tractor.

Typically, NQ diameter drill core is used for exploration, infill, and definition drill holes. In some surface and underground holes, due to difficulties in drilling, usually ground condition problems, the drill core diameter is reduced from NQ to BQ.

Once retrieved from the core barrel, the core is placed in sequential order in core boxes labelled with the hole number. Each run, usually three metres, is identified by a wood block on which the depth of the hole is marked. Missing (not recovered) core is identified by a wood stick indicating the length of the missing section. At the end of each shift, core boxes are transported by the drillers' foreman to the core shack on site. A Hecla technician then sorts and opens the core box to evaluate the core quality and measure the accumulated core length. Each core box is photographed and linked with the log database. An aluminum tag etched with the hole number, box, and the contained ''from-to'' is fixed to each core box. After this

quality control the Hecla geologist enters a detailed log description of the holes into the Gems logger database.

7.4.1 Comments on Drilling

The SLR QP notes that the quantity and quality of the logging, geotechnical, collar, and down hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource and Mineral Reserve estimation and makes the following comments:

- Core logging performed by Hecla staff meets industry standards for exploration on gold deposits.
- Core logging performed prior to Hecla acquiring 100% ownership met industry standards at the time of logging.
- Collar surveys for Hecla core holes have been performed using industry standard instrumentation.
- Collar surveys for drill holes prior to 2013 were performed using methods that were industry standard for the time.
- Down hole surveys have been performed using industry standard instrumentation.
- Drilling practices, logging, collar surveys, and down hole surveys have been periodically reviewed by independent auditors and confirmed to comply with industry practice.
- Recovery data from core drill programs are acceptable.
- Geotechnical logging of drill core meets industry standards for planned open pit and underground operations.
- No significant factors were identified with the data collection from the drill programs that could affect Mineral Resource or Mineral Reserve estimation.

7.5 Hydrogeology Data

In 2021, seven hydrogeological drill holes were completed in the 105, 124, and 160 zones (Table 7-2). Packer tests to measure hydraulic conductivity and vibrating wire piezometers were installed to measure underground water pressure. The hydraulic conductivities in all three areas ranged from moderate to very low (SRK, 2021a).

Table 7-2: Hydrogeological Drill Holes in 2021
Hecla Mining Company – Casa Berardi Mine

Drill Hole Name	Zone	Core Size	Length (m)
BH-WMCP-05-21	105	NQ	177
BH-WMCP-07-21	105	HQ	177
BH-PR-03-21	124	HQ	201
P3-R3	160	HQ	226
P1	160	HQ	120
P2-BH	160	HQ	174
CBF-105-066	105	NQ	177

7.6 Geotechnical Data

In 2021, eight geotechnical drill holes were drilled to assess the 148 Zone (Table 7-3). The rock quality designation (RQD) indicates a mean RQD of approximately 79.5% which is acceptable considering the drill holes passed through the Casa Berardi Fault. The objective of the 2021 drilling was to verify if there was a void at the Casa Berardi Fault and to ensure that the planned stopes were still safe to mine.

Table 7-3: Geotechnical Drill Holes in 2021
Hecla Mining Company – Casa Berardi Mine

	Drill Hole No.	Zone	RQD (%)	Core Diameter	Length (m)
Underground	CBE-0335-001	148	78.83	NQ	71
	CBE-0335-002	148	78.83	NQ	60
	CBE-0335-003	148	82.7	NQ	69
	CBE-0335-004	148	80.5	NQ	81
	CBE-0335-005	148	76.0	NQ	84
	CBE-0335-006	148	75.92	NQ	81
	CBE-0315-010	148	81.6	NQ	63
	CBE-0315-011	148	81.6	NQ	50.2

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sampling Method and Approach

8.1.1 Drill Core Handling Procedures

Drill core from Hecla exploration and definition and infill programs is handled and sampled by contractor technicians with the supervision of Hecla staff. Core is logged by Hecla geologists at the mine core shack. Access to the core shack is restricted to geology personnel by the use of magnetic cards that open the core shack door. The samples are prepared and stored in the core shack until sufficient samples have been accumulated, at which time they are sent to the laboratory for analysis.

Upon receipt of the core boxes from the contractor, core boxes are placed on tables and opened. Core is washed and verified for length accuracy prior to logging. RQD measurements and core recovery measurements are carried out in all surface and underground holes prior to logging. In general, RQD measurements are carried out over three metre lengths, with shorter lengths used in areas of bad ground. This allows better hole to hole interpretations of areas of good and poor RQD values. For a certain period between 2008 and 2010, RQD measurements were carried out over much longer lengths with some measurements over 20 m. Such measurements over long lengths are not very useful for rock mechanics purposes to identify zones of bad ground conditions and this practice was discontinued. The entire core from underground drilling is photographed and systematic photography of core from surface drilling commenced in 2008.

The core recovery is generally very good, nearly 100%, with the exception of short intervals within fault zones or highly deformed mudrock. Such intervals are generally marked during drilling and later checked by Hecla geology personnel for depth accuracy and missing sections.

Geological and structural data are described by geologists and entered into a digital logging package. Drill hole logs summarize hole parameters, core descriptions, and sampling intervals. Core logging is carried out in French. Drill core is stored on the mine site, mostly in core racks.

8.1.2 Core Sampling

Sample selection for assaying is determined visually by Hecla's geologists based on rock type, alteration, quartz veining, and mineralization. Sample positions are identified, and commercially printed bar-coded sample tags are placed under the core in the core boxes at the end of each sample. The beginning and end of each sample is also marked on the core with individual sample lengths varying from 0.4 m to 1.5 m and most of the samples are one metre in length. The geologist marks a reference line along the core length for the technician, before sending it to the core saw.

In the case of exploration and definition holes, the selected samples are sawn into two halves by the core shack technician using an electrical core saw equipped with a diamond impregnated blade. One half is placed in a plastic bag with the corresponding tag number. The other half core is returned to core boxes, with the corresponding tag placed at the beginning of the sampled core. Sample tags are stapled to core boxes. The core saw and metallic pans are cleaned between samples. In the case of infill drill holes, the core is not sawn, and the entire sample is sent for assaying. Bags are folded and sealed to prevent spillage during transportation to the laboratories. Each batch of three to four samples is placed in a plastic container for transportation to the mine laboratory or in a burlap bag for transportation to an external laboratory.

The samples are then transported by pick-up truck to the sample receiving facilities of the mine laboratory in the case of infill and definition drilling.

Lithogeochemical data is collected with exploration drilling for rock discrimination. The sampling consists of selecting a representative 40 cm core sample systematically every 30 m to 50 m or when a lithological change occurs, until a representative compilation of that unit is collected.

8.1.3 Sampling of Underground Development Headings

At the mine, chip samples are taken to determine the gold value over a given interval of rock in order to align development and exploration activities, estimate the value of mineralized lenses, and to reconcile mining with the mill. Along the walls of draw-points, chip samples are taken perpendicular to the stratigraphic and structural trend of the mineralized body. Prior to chip sampling, the intervals to be sampled are geologically mapped in order to delineate changes in lithology, mineralization, alteration, and structure.

Chip samples are localized by hip-chain from surveyed anchor points in the mine. The intervals are typically one metre in length, though they may range from a minimum of fifty centimetres to a maximum of 1.5 m to respect geological constraints. The beginning and end of the interval are marked at chest-height using yellow spray paint and are then plotted on the geological map.

Plastic sample bags used to collect the chip samples are prepared with a sample tag and placed at each interval. The bags are sealed for transport to prevent contamination. The sample tag is a scannable, water-resistant tag that is taken from a booklet containing the sample number, the date and location of the sample, the sampler's name, and other notes and sketches.

8.2 Sample Preparation and Analysis

On site exploration drilling samples are sent to external, independent laboratories. Exploration drilling samples are sent for preparation and analysis to Swastika Laboratories Ltd. (Swastika) in the town of Swastika, Ontario. Check assay samples are sent to ALS Geochemistry (ALS) laboratories in Val d'Or, Québec.

Over time, core samples from exploration drilling have been assayed at a number of different laboratories:

- 2004, 2005 and part of 2006: SGS Canada Inc. (SGS) in Rouyn-Noranda, Québec.
- 2006: Mine laboratory, SGS, Techni-Lab S G B Abitibi Inc. (Techni-Lab) in Ste Germaine, Québec, and Swastika.
- 2007: Mine laboratory and Techni-Lab.
- 2008: Mine laboratory and Laboratory Expert Inc. (Lab-Expert) laboratory in Rouyn-Noranda, Québec.
- 2009 to 2021: Mine laboratory and Swastika.

All samples for lithogeochemical analysis are sent to ALS. ALS and Swastika have been accredited by the Canadian Association for Laboratory Accreditation Inc. for meeting the requirements of ISO/IEC 17025:2005 for various gold assay protocols.

8.2.1 Mine Laboratory

A laboratory at the mine is used to assay most of the samples generated at the mine including underground production headings, infill, and definition drilling. Preparation and gold analysis is completed on site by Hecla staff. The mine laboratory is not ISO certified.

Upon arrival at the mine laboratory, samples are sorted by number and checked according to the sample shipment list. All samples are dried in the oven for a few hours. When dried, samples are crushed in a jaw crusher and transported by a conveyor belt onto a rotary splitter. All samples are entirely crushed to 80% passing (P_{80}) 6.3 mm. Jaws are cleaned with compressed air and flushed with barren core. Whole core samples weigh approximately 10 kg. Approximately 200 g to 250 g of material is split from crushed materials and pulverized to a 95% minus 150 mesh or 85% minus 200 mesh sample pulp. Approximately 600 g of the remaining crushed sample (coarse reject) is returned into the original plastic bag in order to minimize manipulation and storage, the remaining coarse reject is sent to the mill.

The pulp is laid down on a piece of rubber and mixed for homogenization. A 15 g sub-sample is then collected and weighed for assay. Each 15 g sample is analyzed with an atomic absorption spectrometer (AAS). All results, reported in grams per tonne, are sent electronically to Hecla. No final paper copies of assay results are generated by the mine laboratory.

8.2.2 Swastika

Exploration drilling samples from underground and surface are sent to the external, independent Swastika laboratory.

Sample submissions are divided into work orders that contain the identifier, batch number, sample numbers, date, weight, elements, and analyses required. Each batch is made up of 63 samples, which comprise 52 Hecla samples and 11 laboratory quality control samples. Each batch starts with a blank and a standard, which is followed by 19 Hecla samples. Duplicates are taken every 10 samples and are placed at the end of the batch. A bar coding system is used and sample receipt reconciliation notices are transmitted by email.

Samples are dried in two ovens at 80°C and then are entirely crushed to P_{80} 1.7 mm with a jaw crusher and split with a rotary splitter. Jaws are cleaned with compressed air and flushed with barren limestone. Approximately one kilogram of crushed sample is entirely pulverized to 90% minus 107 µm. All pulverized materials are poured onto a rubber mat and then into Kraft bags for weighing. Pulverizer bowls and rings are cleaned with compressed air and flushed with barren silica sand. A 30 g aliquot of pulverized material is collected and weighed for assay. Each 30 g sample is analyzed with an AAS finish and a second fire assay is completed with a gravimetric finish for samples with gold results above 10 g/t Au.

All of the remaining pulverized material (pulp) is sent back to Casa Berardi for storage and quality control. Approximately 5% of crushed sample material (reject) is sent back to the mine site for quality control and the remaining reject material is discard by Swastika.

8.3 Hecla QA/QC Program

8.3.1 Database

The quality assurance/quality control (QA/QC) database contains certificate numbers, dates, sample numbers, original assays, duplicate assays, standard assays, standard types, and laboratories used for assaying.

8.3.2 QA/QC Protocols

Hecla's QA/QC protocols include the insertion of standards (4%), blanks (5%), and sending pulps (5%) and rejects (5%) to an external laboratory.

A certified reference material (CRM or commercial standard) is inserted systematically at every 25th sample. Several standards, from different suppliers and with different qualities, are used.

Blanks are inserted at approximately every 20th sample by the geologist while logging core. Local blanks consist of exploration core from barren material that has been previously assayed. A new type of commercial blank has been introduced in 2021.

Approximately 4% of the pulps are duplicated at the mine laboratory and at Swastika.

Since early 2009, approximately 5% of the original pulp (Pulp #1) from the mine laboratory or the Swastika laboratory has been sent to ALS for external check assaying. Prior to 2009, approximately 10% of the original pulps were sent for re-assay. Samples with grades greater than 1.0 g/t Au are selected for check analysis. The sample numbers for the reanalysis are the same as for the original assays. Since October 2018, the intervals selected for reanalysis are focused on the mineralized zones of development drilling.

8.3.3 Pulp Duplicates

Between 2009 and 2021, 36,940 duplicate samples were inserted within the regular sample sequence. The relative differences range from 0% to 20% with an average relative difference of 2%, which the SLR QP notes is quite good for gold mineralization.

In 2021, 2,163 duplicate samples were inserted within the regular sample sequence. Only 209, or 10% of the original samples, returned gold grades equal or greater than 0.1 g/t Au.

The SLR QP recommends that Hecla adjust its duplicate selection protocol to ensure that most of the duplicates are from mineralized intervals and consider decreasing the duplicate insertion rate.

8.3.4 Mine Laboratory – Development Drilling Pulp Duplicates

The pulp duplicate assays from development drilling programs are discussed in this subsection as they have a higher proportion of mineralized samples compared to the exploration drilling programs.

Table 8-1 presents the number of duplicate assays carried out over the period from 2009 to 2021, the mean grade of original assays, and the mean grade of duplicate assays. The difference between the mean grade of original assays and the mean grade of duplicate assays is acceptable at less than 2%. The correlation between original assays and duplicate assays is very good for the mine and Swastika laboratories. An example of the mine laboratory pulp duplicates in 2021 is provided in Figure 8-1.

Table 8-1: Pulp Duplicate Summary from 2009 to 2021
Hecla Mining Company – Casa Berardi Mine

Year	Original Laboratory	Number of Duplicates	Mean Grade of Original Assays (g/t Au)	Mean Grade of Duplicates Assays (g/t Au)	Difference (%)
2009	Mine	309	6.29	6.26	(0.5)
	Swastika	958	5.88	5.79	(1.5)
	ALS	32	6.21	6.17	(0.6)
2010	Mine	965	5.22	5.14	(1.5)
	Swastika	631	2.09	2.11	1
2011	Mine	1,162	5.26	5.29	0.6
	Swastika	1,114	2.48	2.46	(0.8)
2012	Mine	1,707	7.47	7.5	0.4
	Swastika	847	0.561	0.563	0.4
2013	Mine	1,588	6.64	6.6	(0.6)
	Swastika	578	0.341	0.349	2.3
2014	Mine	1,382	6.37	6.38	0.2
	Swastika	1,244	0.994	0.993	(0.1)
2015	Mine	2,045	11.25	11.34	0.8
	Swastika	1,816	0.68	0.69	1.5
2016	Mine	1,827	8.18	8.05	(1.6)
	Swastika	462	0.45	0.45	0
2017	Mine	1,994	5.15	5.14	(0.2)
	Swastika	2,731	1.024	1.228	20
2018	Mine	1,744	4.83	4.75	(1.7)
	Swastika	3,023	0.208	0.208	0
2019	Mine	1,425	5.45	5.48	0.55
	Swastika	2,305	0.305	0.299	(1.97)
2020	Mine	823	2.56	2.56	0.05
	Swastika	1250	0.683	0.621	(9.07)
2021	Mine	525	3.05	3.10	1.63
	Swastika	1,638	0.297	0.299	0.67

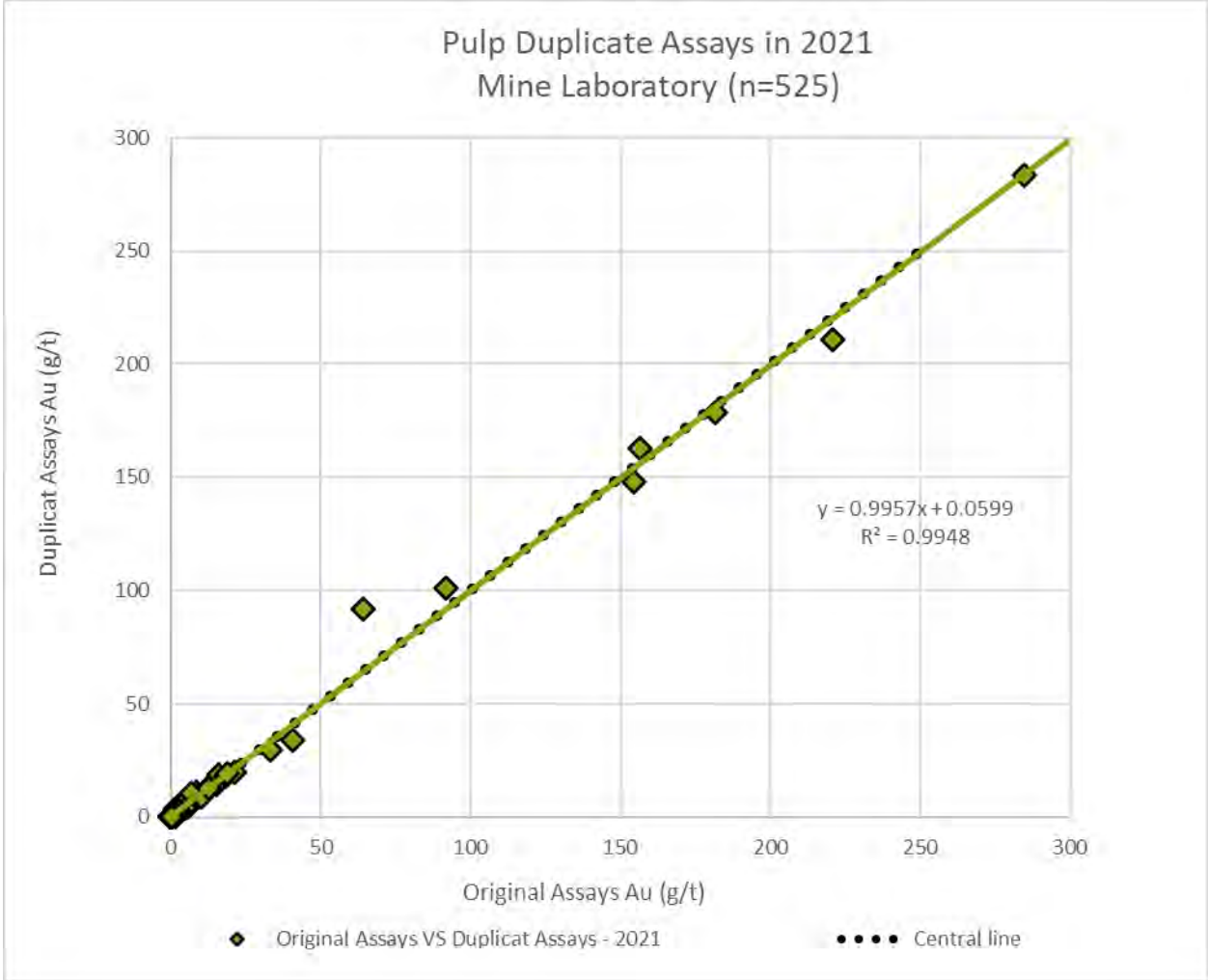

Figure 8-1: Mine Laboratory Pulp Duplicate Assays in 2021

8.3.5 Pulp External Check Assays

Since early 2010, approximately 5% of original pulps (Pulp #1) are sent for re-assay at ALS. Samples with grades above 1.0 g/t Au are generally selected. Sample numbers for re-assays are the same as for original assays. All the laboratories used fire assay with an AAS or gravimetric finish.

A comparison between original assays and check assays of the 2009 to 2018 programs is provided in Table 8-2. The table presents the number of assays from original laboratories and the mean grades of original and check assays.

A comparison of original assays from the mine laboratory with the check assays at ALS demonstrates that the ALS mean grades are generally slightly higher for the period from 2009 to 2018 with higher variances for 2019 to 2021 suggesting that the mine laboratory gold assays may be biased low and slightly conservative relative to ALS. Figure 8-2 presents a scatter plot of the mine laboratory versus ALS check assays on pulps for 2021 and Figure 8-3 presents the results for the 0 g/t Au to 50 g/t Au subset of the pulp external check data for 2021. Overall, the results correlate well with a relatively small number of samples with large differences that are likely related to coarse gold and the nugget effect.

Table 8-2: External Check Assays from 2009 to 2021
Hecla Mining Company – Casa Berardi Mine

Year	Laboratories	Number of Assays	Mean Grade Original (g/t Au)	Mean Grade Check (g/t Au)	Difference (%)
2009	Mine vs. ALS	534	11.98	12.32	2.8
	Swastika vs. ALS	187	5.3	5.23	-1.4
2010	Mine vs. ALS	744	9.77	9.97	2.1
	Swastika vs. ALS	87	4.89	5.05	3.2
2011	Mine vs. ALS	918	7.05	7.18	1.8
	Swastika vs. ALS	87	4.89	5.05	3.2
2012	Mine vs. ALS	1,234	6.31	6.57	4.0
	Swastika vs. ALS	61	2.89	2.76	-4.7
2013	Mine vs. ALS	1,170	6.54	6.6	0.9
	Swastika vs. ALS	50	3.34	3.72	11.4
2014	Mine vs. ALS	1,179	7.63	7.65	0.2
	Swastika vs. ALS	169	2.73	2.86	4.7
2015	Mine vs. ALS	1,471	8.49	8.54	0.6
	Swastika vs. ALS	180	3.49	3.49	0.1
2016	Mine vs. ALS	1,427	7.23	7.33	1.4
	Swastika vs. ALS	68	1.73	1.85	6.9
2017	Mine vs. ALS	1,023	5.31	5.37	1.1
	Swastika vs. ALS	85	1.74	2.02	16.1
2018	Mine vs. ALS	788	5.7	5.8	1.8
	Swastika vs. ALS	653	2.93	3.18	8.5
2019	Mine vs. ALS	943	4.568	4.61	0.9
	Swastika vs. ALS	343	1.73	1.86	7.5
2020	Mine vs. ALS	517	3.79	3.56	6.7
	Swastika vs. ALS	349	3.7	3.76	1.6
2021	Mine vs. ALS	671	7.05	7.18	1.8
	Swastika vs. ALS	40	7.81	7.30	(6.5)

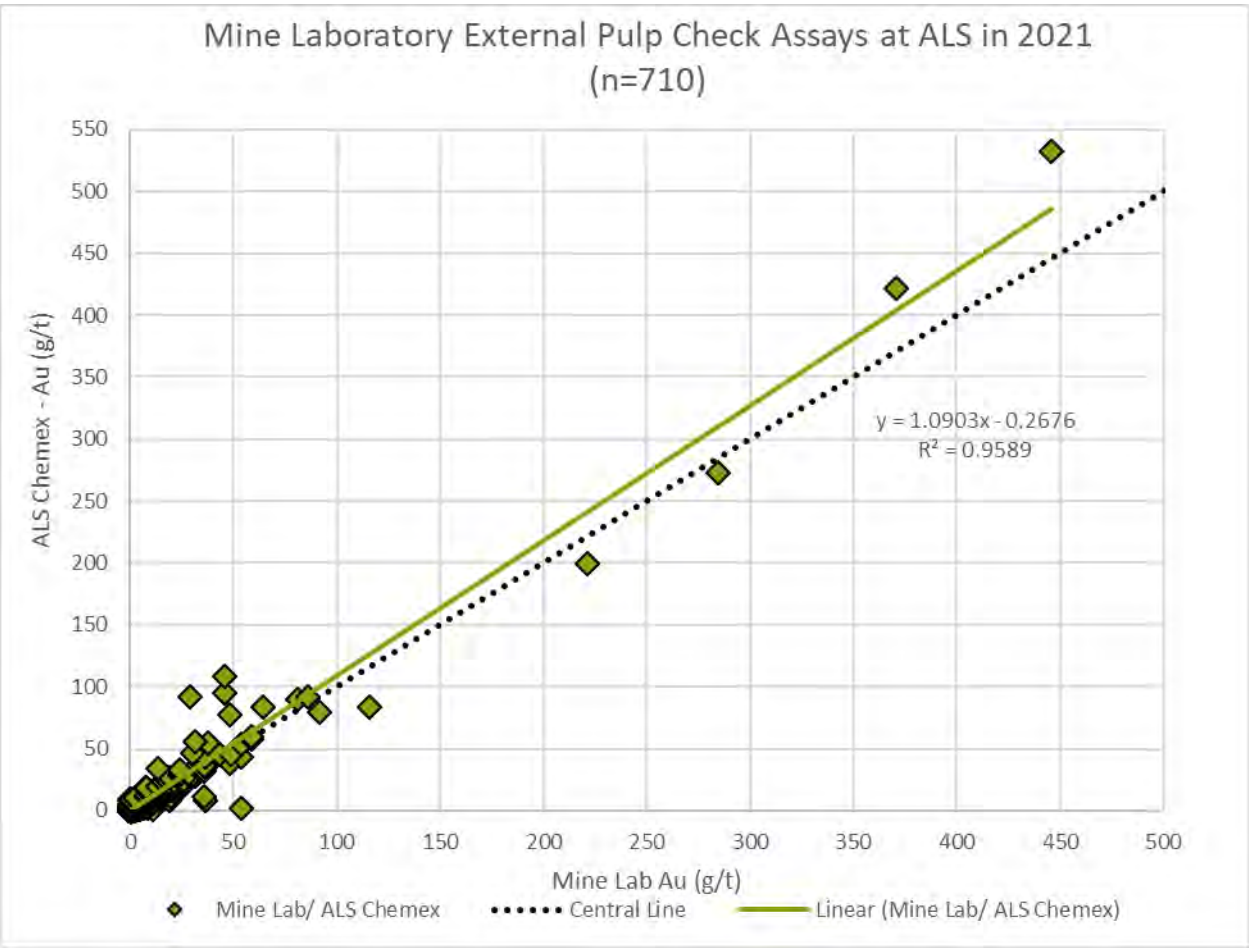

Figure 8-2: Mine Laboratory External Check Assays at ALS in 2021

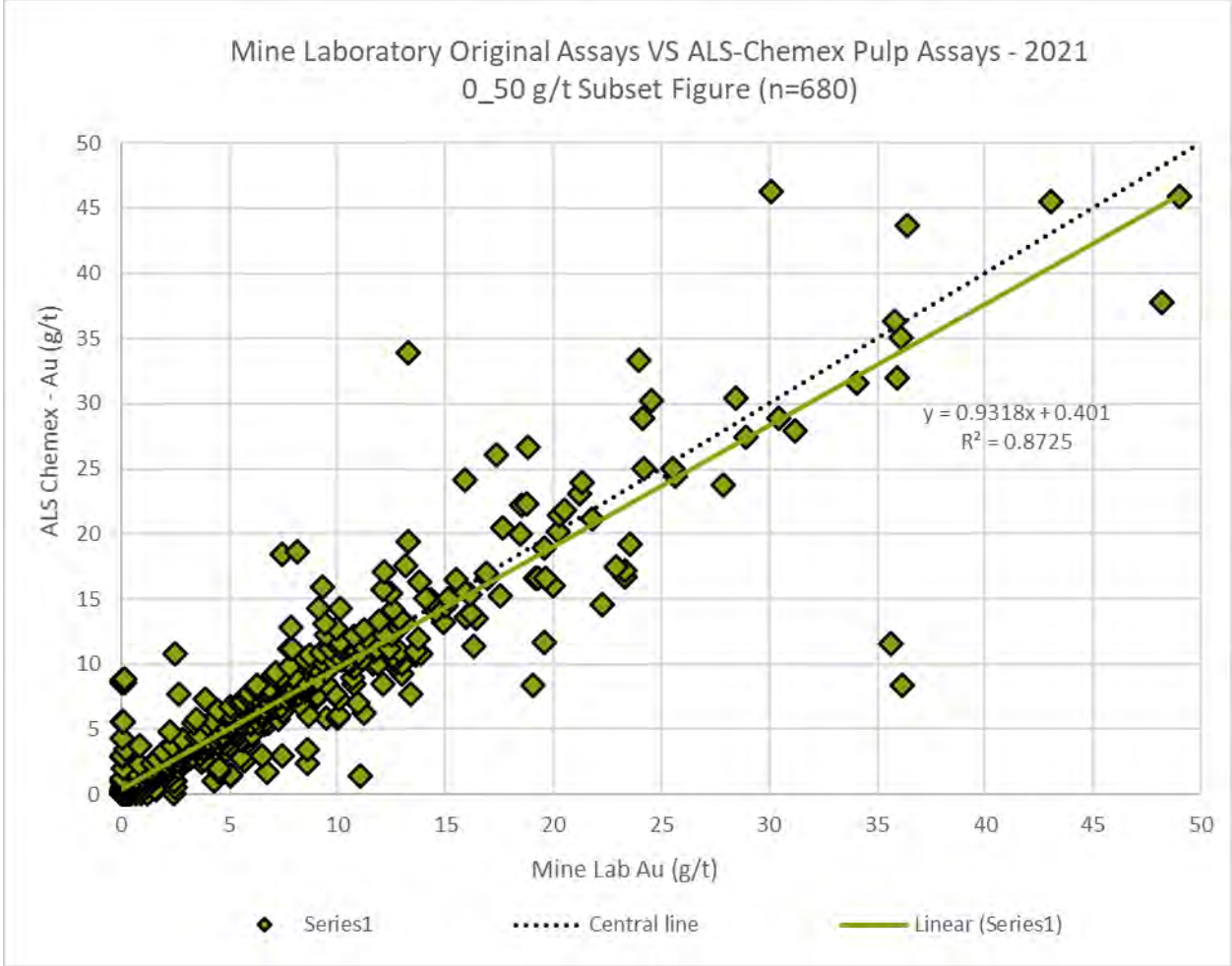

Figure 8-3: Mine Laboratory External Check Assays at ALS in 2021- 0 g/t to 50 g/t Au Subset

The Swastika versus ALS annual mean gold grades demonstrate a wider range of differences that may be due to smaller annual populations that are skewed by small numbers of outliers that should be removed. Nevertheless, Swastika has lower mean grades than ALS for 10 of the 13 years summarized in Table 8-2 and the mine laboratory has lower mean grades than ALS for all 13 years. This suggests that the ALS gold assays may be biased high relative to the mine and Swastika laboratories. The SLR QP is of the opinion that this warrants further investigation, including reviewing the CRM results sent to ALS.

8.3.6 Reject External Check Assays

Approximately 5% of original coarse rejects are sent for re-assay at ALS. Sample numbers for re-assays are the same as for original assays. Samples with a grade above 1.0 g/t Au are generally selected. A second pulp is prepared at the secondary laboratory from original rejects. The ALS annual means are generally higher than the mine and Swastika annual means (Table 8-3), which suggests that ALS gold assays may be biased high relative to the mine and Swastika laboratories. The SLR QP is of the opinion that this warrants further investigation including reviewing the CRM results sent to ALS.

Table 8-3: Reject External Check Assays
Hecla Mining Company – Casa Berardi Mine

Year	Laboratories	Number of Assays	Mean Grade Original (g/t Au)	Mean Grade Check (g/t Au)	Difference (%)
2009	Mine vs. ALS	473	6.39	6.35	(0.7)
	Swastika vs. ALS	232	4.79	4.84	1
2010	Mine vs. ALS	708	5.24	5.23	(0.3)
	Swastika vs. ALS	76	2.5	2.78	11.3
2011	Mine vs. ALS	788	5.02	5.26	4.5
	Swastika vs. ALS	72	2.18	2.51	13.2
2012	Mine vs. ALS	1,135	4.95	5.14	3.7
	Swastika vs. ALS	82	2.46	2.5	1.6
2013	Mine vs. ALS	1,103	6.05	6.17	2
	Swastika vs. ALS	45	3.78	4.07	7.7
2014	Mine vs. ALS	1,178	7.49	7.37	(1.6)
	Swastika vs. ALS	163	2.29	2.43	6
2015	Mine vs. ALS	1,473	7.48	7.65	2.3
	Swastika vs. ALS	204	3.82	3.65	(4.5)
2016	Mine vs. ALS	1,347	6.54	6.73	3
	Swastika vs. ALS	293	2.33	2.49	7
2017	Mine vs. ALS	1,055	4.93	5.01	1.6
	Swastika vs. ALS	45	1.92	1.67	(13)
2018	Mine vs. ALS	801	6.04	5.79	(4.0)
	Swastika vs. ALS	430	3.35	3.31	(1.2)
2019	Mine vs. ALS	1,033	6.48	6.35	(2.0)
	Swastika vs. ALS	513	1.08	1.18	9.3
2020	Mine vs. ALS	378	6.89	6.47	(6.1)
	Swastika vs. ALS	339	2.82	2.98	5.7
2021	Mine vs. ALS	601	6.83	6.79	(0.6)
	Swastika vs. ALS	281	4.33	4.6	6.2

8.3.7 Certified Reference Materials

Table 8-4 summarizes the number of CRMs sent to various laboratories from 2005 to 2021. The differences between the measured value and the true or expected value of the CRMs. Most of the differences are within plus or minus a few percent, which is an acceptable range. Larger differences are

generally related to small populations. Overall, the CRMs represent approximately 5.6% of the 2005 to 2021 sample database. No significant biases are evident at the mine and Swastika in the CRM results for 2005 to 2021.

Table 8-4: CRM Results
Hecla Mining Company – Casa Berardi Mine

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
6Pa	1.65 ±0.04	SGS	2004	6	1.37	-17.1
6Pb	1.422 ±0.026	SGS	2004	72	1.39	-2.2
			2005	43	1.53	7.8
7Pa	3.00 ±0.06	SGS	2004	95	2.95	-1.5
			2005	32	2.97	-0.9
10Pb	7.15 ±0.11	Mine	2008	74	6.97	-2.5
			2009	217	7.08	-1
			2010	367	7.08	-1
			2011	55	7.06	-1.3
		Swastika	2009	117	7.21	0.8
			2010	173	7.13	-0.3
			2011	25	7.13	-0.3
15H	1.019 ±0.007	Mine	2011	226	0.99	-2.9
			2012	459	1.01	-1
			2013	104	1.02	0.1
		Swastika	2011	51	1	-2
			2012	115	1.01	-1
			2013	18	1	-1.9
		Lab-Expert	2008	16	1.22	19.5
			2007	61	1.05	3.2
15Pa	1.02 ±0.02	Mine	2008	130	1.01	-1.2
			2009	181	1.01	-0.7
			2010	275	1	-2
			2011	95	1.01	-0.9
		Swastika	2009	86	1.01	-1.2
			2010	163	0.99	-2.9
			2011	24	1.01	-0.9

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
15Pb	1.06 ±0.02	Mine	2007	4	0.95	-10.4
			2010	81	1.05	-0.9
		Swastika	2010	48	1.07	1.9
18C	3.52 ±0.05	Mine	2011	269	3.44	-2.3
			2012	619	3.48	-1.1
			2013	502	3.48	-1.1
			2014	249	3.48	1.21
		Swastika	2011	74	3.51	-0.1
			2012	142	3.46	-1.7
			2013	87	3.51	-0.3
			2014	79	3.48	1.21
18Pa	3.36 ±0.05	Mine	2006	116	3.33	-0.8
			2007	33	3.33	-0.8
		SGS	2004	62	3.27	-2.7
			2005	61	3.11	-7.5
			2006	39	3.12	-7.2
		Swastika	2006	27	3.63	7.9
		Techni-Lab	2006	78	3.3	-1.8
18Pb	3.63 ±0.3	Lab-Expert	2008	3	3.79	4.5
50P	0.727 ±0.021	Mine	2007	99	3.56	-2
			2008	28	3.45	-4.8
		SGS	2004	110	0.73	0.5
			2005	72	0.77	6.5
			2006	49	0.79	8.4
		Swastika	2006	7	0.72	-0.6
		Techni-Lab	2006	49	0.77	6.5
51P	0.430 ±0.013	Mine	2006	138	0.48	10.6
			2007	89	0.45	3.9
		Techni-Lab	2006	16	0.52	21.8
52P	0.183 ±0.07	Mine	2007	1	0.44	140.4
		SGS	2005			

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
61D	4.76 ±0.07	Swastika	2006	3	0.22	18.4
			2006	1	0.21	12.9
		Techni-Lab	2006	3	0.2	9.3
		Mine	2008	67	4.64	-2.4
			2009	180	4.74	-0.4
			2010	394	4.73	-0.6
			2011	207	4.67	-1.9
61Pa	4.46 ±0.08	SGS	2004	12	3.72	-16.6
			2005	23	4.25	-4.8
62C	8.79 ±0.10	Mine	2011	407	8.63	-1.8
			2012	482	8.72	-0.8
			2013	63	8.78	-0.1
			2015	216	8.73	0.68
			2017	1	3.02	191.06
		Swastika	2011	125	8.93	1.6
			2012	128	8.79	0.1
			2015	39	8.67	1.35
			2016	66	8.68	1.32
62D	10.50 ±0.33	Mine	2013	341	10.56	0.6
			2014	379	10.54	-0.41
			2015	297	10.55	-0.52
		Swastika	2013	86	10.91	3.9
			2014	151	10.83	-3.01
			2015	225	10.83	-3.08
62E	9.13 ±0.41	Swastika	2017	204	9.04	0.96
			2018	344	9.25	-1.27
			2019	35	8.95	-1.9
62Pa	9.64 ±0.14	Lab-expert	2008	1	9.38	-2.7
		Mine	2006	113	9.25	-4
			2007	106	9.41	-2.4
			2008	12	9.42	-2.3

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
62Pb	11.33 ±0.17	SGS	2004	31	9.31	-3.5
			2005	71	9.45	-2
			2006	44	9.26	-3.9
		Swastika	2006	23	9.46	-16.5
		Techni-Lab	2006	93	9.14	-5.2
		Mine	2007	10	9.46	-16.5
		SGS	2004	86	10.47	-7.6
			2005			
62F	9.71±0.239	Mine	2019	3	9.53	-1.85
			2020	15	9.87	1.65
			2021	32	9.87	1.65
		Swastika	2019	302	9.62	-0.93
			2020	144	9.65	-0.62
			2021	56	9.59	-1.24
204	1.043 ±0.039	Mine	2013	401	1.05	0.7
			2014	361	1.05	-0.26
			2015	535	1.04	0.54
			2016	482	1.05	-0.19
			2017	85	1.15	-9.09
			2018	129	1.04	0.16
		Swastika	2013	77	1.02	-2.2
			2014	140	1.02	2.1
			2015	270	1.02	2.13
			2016	69	1.03	1.63
			2017	55	1	4.45
			2018	43	1.04	-0.07
207	3.472 ±0.13	Mine	2014	121	3.49	-0.58
			2015	460	3.5	-0.73
			2017	2	1.6	117
			2018	1	1.61	116.65
		Swastika	2014	48	3.49	-0.63

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
208	9.248 ±0.0438	Mine	2015	266	3.48	-0.13
			2016	65	3.46	0.33
			2017	196	3.43	1.22
			2018	2	3.47	0.06
			2016	465	9.4	-1.59
			2017	282	9.33	-0.84
			2018	171	9.33	-0.88
			2019	140	9.4	1.64
		Swastika	2017	30	8.95	3.28
			2018	38	9.24	0.04
			2019	4	9.59	3.7
209	1.580 ±0.044	Mine	2016	14	1.58	-0.05
			2018	439	1.59	-0.83
			2019	375	1.57	-0.63
			2020	116	1.55	-1.9
			2021	17	1.55	-1.9
		Swastika	2017	185	1.62	-2.49
			2018	132	1.57	0.37
			2019	6	1.585	0.31
			2020	18	1.57	-0.63
			2021	2	1.545	-2.21
214	3.030 ±0.082	Mine	2016	67	3.04	-0.43
			2017	521	3.01	0.53
			2018	537	3.03	0.14
			2019	315	3.03	0.14
			2020	16	2.975	-1.82
		Swastika	2017	168	2.93	3.44
			2018	176	2.99	1.36
			2019	5	2.97	-1.98
215	3.54 ±0.097	Mine	2016	414	3.54	0.13
			2017	1	2.95	-20

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
221	1.06 ±0.04	Swastika	2018	4	3.51	1
			2019	2	3.625	2.4
		Swastika	2018	352	3.5	1.11
			2019	271	3.52	-0.56
			2017	152	1.11	-4.81
			2018	356	1.07	-1.25
			2019	327	1.06	-0.19
			2020	135	1.06	-0.19
			2021	59	1.09	2.83
		Mine	2018	1	1.16	-8.62
			2019	1	1.07	0.75
			2020	13	1.07	0.75
221	1.06 ±0.04	Mine	2021	26	1.06	-0.19
228	8.73 ±0.28	Mine	2017	334	8.89	-1.8
			2018	340	8.81	-0.93
			2019	198	8.78	0.57
			2020	107	8.75	0.23
			2021	31	8.74	0.11
		Swastika	2017	157	8.4	3.98
			2018	128	8.69	0.48
			2019	3	8.76	0.34
			2020	15	8.75	0.23
			2021	18	8.85	1.37
235	1.59 ±0.04	Mine	2021	23	1.55	-2.52
		Swastika	2021	29	1.56	-1.89
238	3.03±0.08	Mine	2019	32	3.03	-0.11
			2020	97	3.02	-0.33
			2021	27	2.99	-1.32
		Swastika	2020	15	2.978	-1.72
			2021	22	3.08	1.65
239	3.55±0.09	Swastika	2019	74	3.54	-0.28

Standard #	Nominal Value ±95% Confidence Limit	Laboratory	Year	Number of Assays	Average	Difference (%)
SG99	1.04±0.006	Mine	2020	138	3.55	0.16
			2021	53	3.45	-2.82
		Labomine	2020	14	3.49	-1.69
			2021	28	3.51	-1.13
		Swastika	2020	15	1.03	-0.96
			2021	30	1.03	-1.15
SH82	1.33±0.007	Mine	2020	70	1.05	0.96
			2021	56	1.07	2.65
		Swastika	2020	36	1.31	-1.5
			2021	25	1.43	7.52
SK109	4.10±0.03	Mine	2020	8	1.3	-2.25
			2021	19	1.3	-2.25
		Swastika	2020	15	4	-2.44
			2021	29	3.94	-3.9
SN106	8.46±0.05	Mine	2020	54	3.98	-2.93
			2021	53	4.06	-0.98
		Swastika	2020	35	8.54	0.95
			2021	35	8.45	-0.12
			2020	9	8.64	2.13
			2021	23	8.7	2.84

The standard results generally range within ±2% of the certified value, which is considered to be an acceptable range. In general, the mean grade of standard assays is within ±two standard deviations (±2SD) of the certified means, which is acceptable for commercial laboratories for gold analyses.

Standards assayed from 2006 to 2021 were plotted against time to visualize the distribution relative to the nominal values. Figure 8-4 presents the results of the standards used from 2006 to 2021. In general, standard assays are well distributed relative to the nominal values and to ±2SD nominal values. Notwithstanding, the SLR QP recommends implementing procedures that will help reduce CRM mislabelling or swaps.

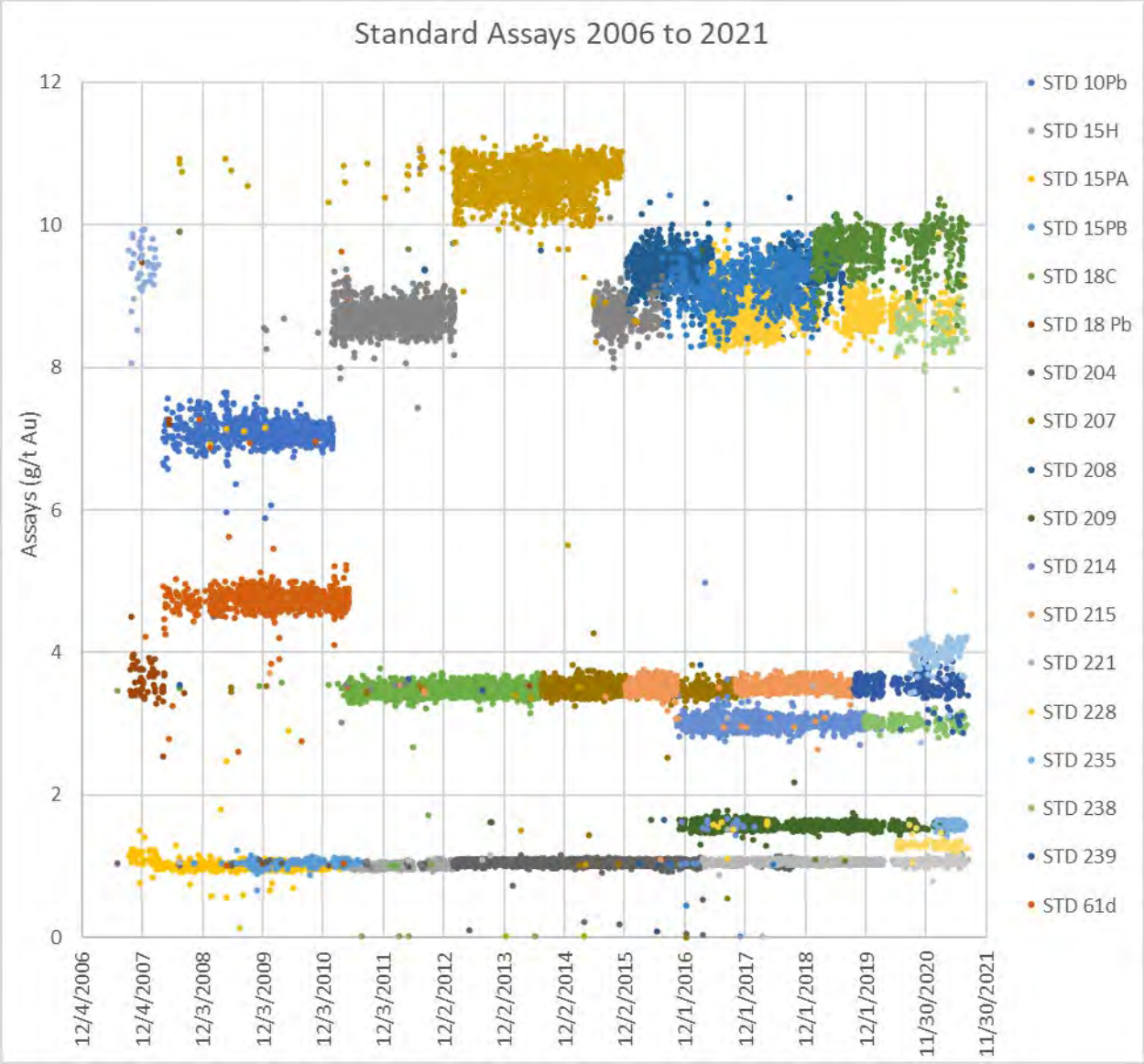

Figure 8-4: Standard Results from 2006 to 2021

8.3.8 Blanks

Out of the 892 local blank and commercial blank samples assayed during the 2021 drilling campaigns , 561 returned values below the detection limit and 324 returned values slightly higher than detection but within acceptable limits. A total of seven samples failed or 0.78% with relatively low background values (Figure 8-5). The local blanks are from core that has been assayed and returned below the detection limit gold grades. A commercial blank is also used.

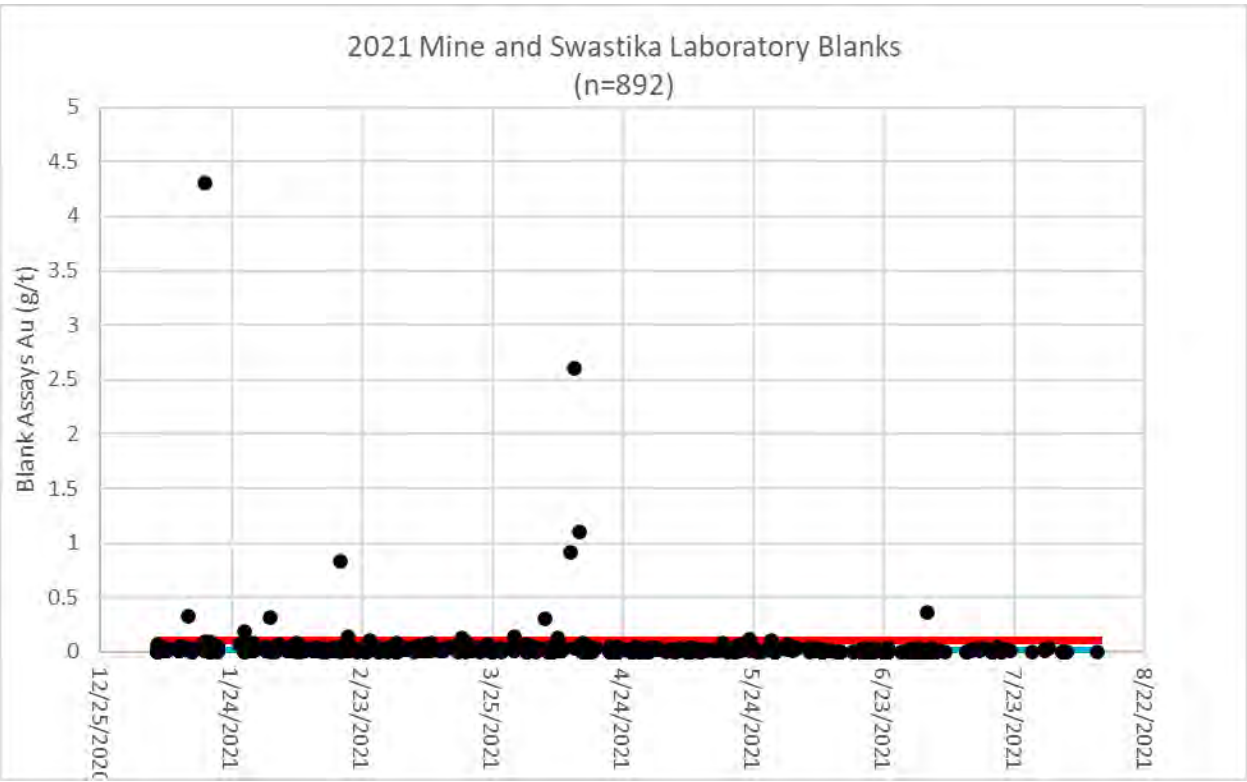

Figure 8-5: Mine and Swastika Blanks – 2021

8.4 Mine Laboratory QA/QC Program

All assays, reported in grams per tonne, are sent electronically to Hecla.

The Mine laboratory has its own QA/QC program including the analysis of one blank sample, one CRM (standard), and one duplicate in every 24 samples. Results of the mine laboratory QA/QC program are provided to the Casa Berardi geology department, which compiles them into graphs. In 2021, the mine laboratory used a total of six standards (Table 8-5).

Table 8-5: Casa Berardi Laboratory Program CRMs
Hecla Mining Company – Casa Berardi Mine

Type	Nominal Value (g/t Au)	Mean Grade (g/t Au)	Difference (%)	Number of Assays
SL76	5.96	5.915	0.76	519
SH82	1.333	1.317	1.18	740
OxK160	3.674	3.656	0.48	663
OxN155	7.762	7.748	(0.18)	559
Sp73	18.17	18.13	0.22	335
OxE150	0.658	0.659	(0.16)	173

8.5 Conclusions

In the SLR QP's opinion, the sample preparation, analyses, QA/QC protocols, and security are acceptable, meet industry standard practice, and are adequate for Mineral Resource estimation. The SLR QP makes the following conclusions:

- Sample collection and handling of core is undertaken in accordance with industry standard practices, with procedures implemented to limit potential sample losses and sampling biases.
- Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure since 1998. These preparation procedures are consistent with industry standard methods for gold deposits.
- Core from exploration and infill diamond drilling programs are analyzed by independent and accredited laboratories using industry standard methods for gold and silver analyses. Current run of mine sample analyses are performed by the mine laboratory.
- While limited information is available regarding the QA/QC procedures for the pre-1998 drill programs, sufficient reanalysis programs and vast amounts of more recent data support the use of pre-1998 data.
- The QA/QC program results indicate that the sample preparation and analytical procedures at the mine and Swastika laboratories are working well aligned to generate reliable and accurate results.
    - Blank sample results imply minimal cross sample contamination.
    - CRM results demonstrate that assay values are sufficiently accurate to be used in Mineral Resource estimation and no significant biases are evident at the mine and Swastika laboratories.
    - Sequential insertion of duplicate samples has resulted in a relatively low proportion of duplicate results for mineralized samples. For instance, only 10% of the original pulp duplicate samples in 2021 had gold grades equal to or greater than 0.1 g/t Au.
    - External pulp and reject check assays suggest that the ALS gold assays may be biased high relative to the Swastika and the mine laboratories.
- Sample security is regarded as very good. Samples are always attended or locked in the on site logging or sampling facilities. Chain of custody procedures consist of completing sample submittal forms that are sent to the laboratory with sample shipments and shipment tracking to ensure that all samples are received by the laboratory.

The SLR QP makes the following recommendations:

- Investigate the potential high gold assay bias at ALS by reviewing CRM results sent to ALS.
- Send only pulps for external check assays in the future.
- Implement procedures that will help reduce CRM mislabelling or "swaps".

9.0 DATA VERIFICATION

The SLR QPs visited the Property from August 24 and 25, 2021. SLR visited the XMCP Pit, East Mine underground, the mill, TSFs, core logging facilities, and surface infrastructure. Bedrock stripping at the 160 Pit was nearing completion while the SLR QPs were on site. The SLR QPs held meetings with site personnel and followed up with a number of teleconference meetings after the site visit.

The SLR geology QPs viewed the Casa Berardi Fault, which is well exposed and transects the XMCP Pit, and the freshly washed and well-mineralized working face on the 630 m level at the East Mine where the face was marked up and sampled by a very experienced geological technician. An underground diamond drill in the process of drilling a deep hole (CBE-0243) was also visited. The drill bay was safe and clean and the two drillers were well organized. Approximately 100% core recovery was evident in the core boxes at 312 m.

The SLR geology QPs found the core logging facilities to be clean and well organized with good lighting. Overhead hoses provide a convenient source of water to wet the core. An area with a high definition camera on a tall tripod is designated for taking core photographs. The pre-packaged blanks and CRMs are well-organized. The diamond core saw has continuous water flow and is located in a separate, sound insulated, room. The core logging area is separate from the core reception and sample dispatch area, which is large enough for trucks to enter and has a long core layout table and a number of core racks for temporary core storage. A core reference library is available for new geologists to help ensure logging consistency.

Drill core descriptions are entered directly into laptop computers using GemLogger Version 5.23, a Microsoft (MS) Access data collection interface developed by Geovia. Drill hole data is stored in separate tables, with drill hole collar data entered in the "HEADER" table and down hole deviation tests entered in the "SURVEY" table. This software performs a first pass validation by flagging data entry errors such as overlapping from-to intervals and non-unique sample numbers. Pick-lists are employed where possible to maintain a consistent nomenclature in geology and mineral zones interpretation.

Roscoe Postle Associates Inc (RPA), now a part of SLR is very familiar with Casa Berardi with work dating back to the listing report for Aurizon in 1997 and NI 43-101 Technical Reports in 2005, 2009, 2010, 2011, 2013 for Aurizon and 2014 for Hecla. SLR also audited the year-end Mineral Resource and Mineral Reserve estimates in 2007 and 2008.

9.1 Drill Hole Database Verification

Geovia GEMS version 6.8 is the software used to perform Mineral Resources estimations, manage drill hole data, and generate 3D wireframe models. Drill hole data is stored on a SQL server, of which regular back-ups are performed as well as an annual backup to a separate MS Access database.

Validation of the lithological logs is completed when the geology is interpreted in section and plan. The logs are further validated by comparison against historical drill data and geochemical samples. The lithogeochemical analyses are used to complement both the initial drill core descriptions and gold analyses. This data is compiled and used to be able to better understand and interpret the lithological units and their associated alteration as an exploration tool to target potential mineralization.

Assay sample results are imported to the SQL database after being validated with the LabLogger software, a purpose-built sample management interface developed by Geovia. When a QA/QC sample fails validation, the importation is halted, and the user notified. The software also notifies the user of non-

unique sample numbers. Once imported, Hecla geologists reconcile the assay results with their logs and adjust if necessary.

Single shot down hole deviation tests are manually transcribed using the GemLogger interface. When available, multi shot results are imported using the Reflex process software. An adjustment for magnetic declination of -12.5° is applied to all azimuth measurements. Gyroscopic down hole surveys are used where local magnetic interference has produced questionable survey results.

When possible, surface drill collar locations, as well azimuth and inclination data, are surveyed. Survey data is manually entered and compared with the planned parameters. The geologist who planned the hole marks it as completed after having integrated and validated new data. Any changes to a hole marked as completed are saved in the "MODIF" table. The data is visually reviewed during modeling. A similar procedure is employed for underground drilling, in which case the azimuth is surveyed before the drilling begins, and the drill collar location is derived mathematically.

Hecla geology personnel also visually confirm in 3D that the drill hole locations, downhole deviations, and assay and lithology data appear reasonable and correct.

The SLR QP ran a number of database validation queries and compared gold grades in the database with assay certificates and identified no errors.

9.2 Comments on Data Verification

The process of data verification for Casa Berardi has been performed by external consulting firms, as well as by Hecla personnel. Since 2014, all data verification has been completed by Hecla staff as the data is collected and imported into the GemLogger database. Regular checks on the GemLogger database and workspaces are carried out and no serious deficiencies have been identified.

The SLR QP considers that a reasonable level of verification is completed on a regular basis, and that no material issues exist with the drill hole database. External reviews of the database have been undertaken in support of acquisitions, support of feasibility level studies, and in support of Mineral Resource and Mineral Reserve estimates, producing independent assessments of the database quality. No significant issues with the database, sampling protocols, analytical flowsheets, check analysis program, or data storage were noted. Drill data is verified prior to Mineral Resource and Mineral Reserve estimation using various automated and manual checks.

The SLR QP is of the opinion that the data verification programs undertaken on the data collected from the Casa Berardi Mine complies with industry standards and adequately support the geological interpretations, validate the analytical and database quality, and support the use of the data in Mineral Resource and Mineral Reserve estimation and in mine planning.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Introduction

The Casa Berardi processing plant originally commenced production in September 1988 and production was suspended in September 1997. During this initial production period, the plant processed 3.5 Mt of ore with an average grade of 7.1 g/t Au and average mill gold recovery of 87%. A total of 688,400 oz Au were recovered.

Production restarted in early November 2006, and commercial production was achieved as of May 1, 2007. Since 2006, a total of 13.3 Mt at an average grade of 5.69 g/t Au have been milled at Casa Berardi for a gold output of 2.15 Moz Au.

The mill received ore from the EMCP and XMCP pits from August 2016 and subsequent years. Ongoing processing plant operations demonstrate the levels of gold recovery to be expected from the underground ores. LOM projected mill recoveries range from 81.3% to 91.5% for the underground Mineral Reserves and from 85% to 90.2% for the open pit Mineral Reserves. Ore from the 160 Pit is expected to be milled in Q4 2022.

Historical metallurgical test work programs and results were previously reported (Hecla, 2019). Test work programs, both internal and external, continue to be performed to support current operations and potential improvements, including:

- Blue Coast Research Ltd. (Blue Coast) (Parksville, B.C.), Project No. PJ5296 (Blue Coast, 2020) – A metallurgical test work program was conducted on material from a mineralized zone in the 160 Pit area, with the objective of evaluating the potential for 160 Pit material to become a valuable ore source for mining in the near future. The test work included chemical and mineralogical characterization, comminution, gravity, and cyanidation. A total of 11 composites and blends were evaluated during this test work program.
- Blue Coast (Parksville, B.C.) – metallurgical investigations were undertaken on the WMCP and Principal Pit material in 2021. The SLR QP notes that some of the results were not available at the time of preparation of this TRS.

Since the mine has been operating steadily since 2006, the metallurgical recoveries are based primarily on historical operating data.

The SLR QP reviewed the following data provided by Casa Berardi:

- Recent metallurgical test work programs
- Historical mill production and recovery data
- Production reports

10.2 Metallurgical Testing

Historical metallurgical test work programs and results were previously reported (Hecla, 2019).

In 2020, a test work program was completed by Blue Coast on mineralization from the 160 Pit. The objective of this test program was to evaluate the potential for 160 Pit material to become a valuable ore source for mining in the near future. For this assessment, chemical and mineralogical characterization,

comminution, gravity, and cyanidation tests were completed on 11 different composite samples (Table 10-1).

Table 10-1: Chemical Assays of Composite Samples
Hecla Mining Company – Casa Berardi Mine

Composite	Au (g/t)	As (%)	Fe (%)	S_{tot} (%)	S^{2-} (%)	C_{tot} (%)	C_{org} (%)
160-01LG	1.36	0.38	5.23	1.46	1.40	2.22	0.26
160-01MG	3.57	0.43	6.63	1.95	1.93	2.11	0.15
160-03LG	0.84	0.22	6.47	0.49	0.47	1.86	0.01
160-03MG	1.21	0.21	5.41	0.46	0.44	1.34	0.02
160-03HG	8.63	2.50	8.27	2.91	2.69	1.70	0.01
160-04LG	0.80	0.21	5.40	1.11	1.02	2.10	0.03
160-04MG	3.27	0.50	5.54	1.58	1.58	1.68	0.02
160-04HG	17.17	1.18	6.34	2.57	2.37	1.95	0.02
160-08MG	2.53	0.38	6.66	1.17	1.09	1.17	0.01
160-10LG Blend	0.97	0.10	5.34	0.60	0.53	1.43	0.01
160-01/03/04LG Blend	1.22	0.23	5.43	1.08	1.04	1.92	0.07

Mineralogical characterization indicates that the 160 Pit material consists of pyrite and arsenopyrite, with the majority of the non-sulphide gangue being comprised of quartz, muscovite, and calcite/ankerite, as shown in Figure 10-1.

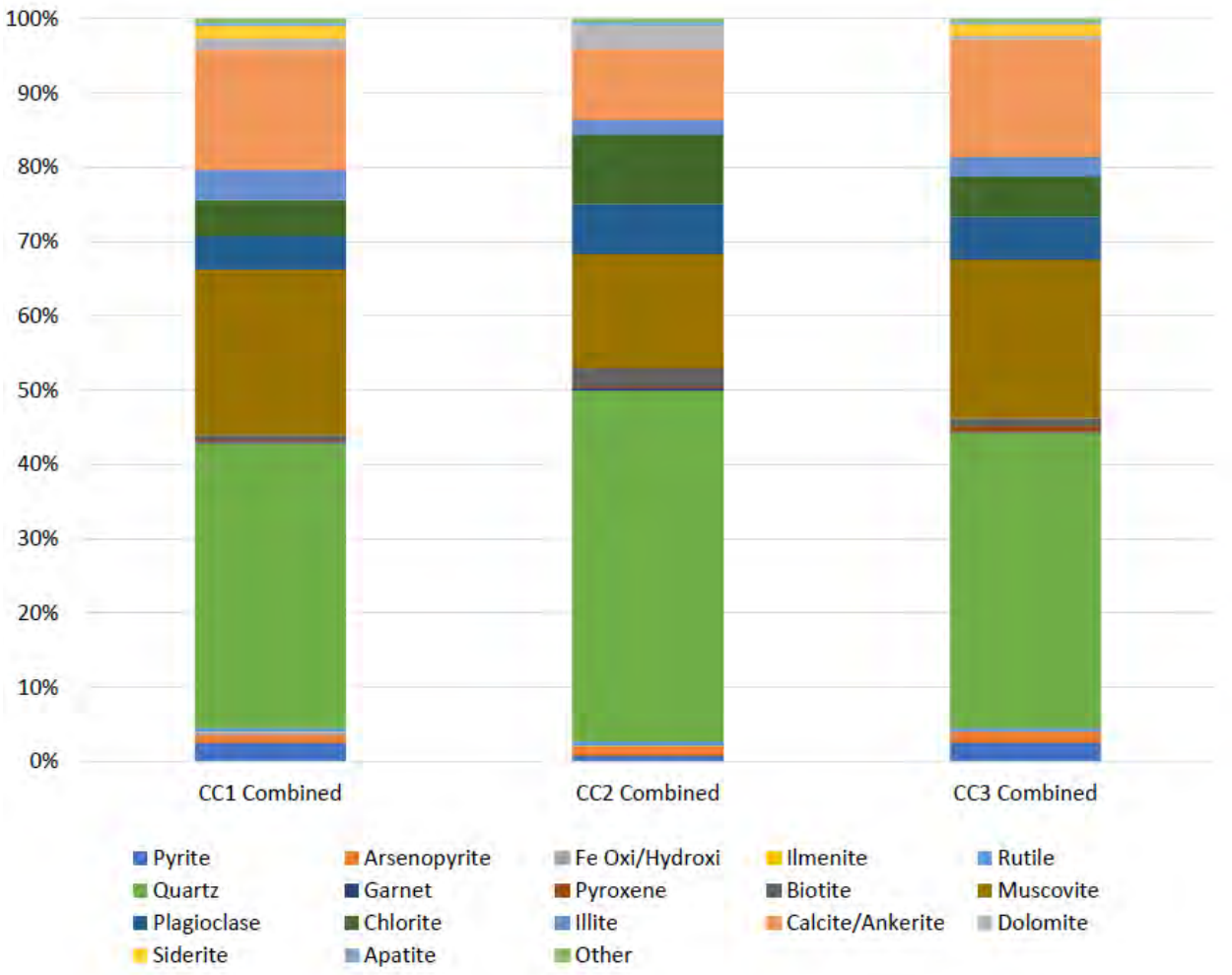

Figure 10-1: Mineralogical Analyses on Composites

The comminution test results on composites are summarized in Table 10-2. Semi-autogenous grinding (SAG) mill comminution (SMC) tests demonstrated that the three comminution composites had Axb values ranging from 56.1 to 59.0, which suggests that the material is in the moderately soft category. SAG Power Index (SPI) test results ranged from 48.5 minutes to 73.3 minutes, correlating to an ore hardness of moderately soft to moderately hard. The Bond Abrasion Index (Ai) test results ranged from 0.12 to 0.29, indicating that the abrasiveness of the material is light to medium. Finally, the Bond Ball Mill Work Index (BWI) test results demonstrated that the 160 Pit material is considered to have medium hardness.

Table 10-2: Comminution Test Results on Composites
Hecla Mining Company – Casa Berardi Mine

Composite	SMC Test					BWI (kWh/t)	Bond Abrasion Index		SPI	
	A	b	Axb	ta	DWI		Ai	POA[1]	SPI (min)	POH[2]
CC1	64.1	0.92	59.0	0.54	4.77	9.6	0.12	24.8	48.5	28.6
CC2	63.7	0.88	56.1	0.51	5.13	13.4	0.29	56.6	93.8	65.2
CC3	62.4	0.94	58.7	0.54	4.82	11.9	0.19	39.2	73.3	50.9
Average	63.4	0.91	57.9	0.53	4.91	11.6	0.20	40.2	71.8	48.2
Maximum	62.4	0.88	56.1	0.51	4.77	13.4	0.29	56.6	93.8	65.2
Minimum	64.1	0.94	59.0	0.54	5.13	9.6	0.12	24.8	48.5	28.6

Notes:

9. Percentile of Abrasivity
10. Percentile of Hardness

Table 10-3 demonstrates that gravity tests indicated that the average gravity recoverable gold (GRG) is 64.6% for the 160 Pit ore.

Table 10-3: GRG Test Results on Composite Sample
Hecla Mining Company – Casa Berardi Mine

Product	Mass		Assay (g/t Au)	Distribution (%)
	(g)	(%)		
Stage 1 Concentrate	88.4	0.45	206.9	23.7
Stage 2 Concentrate	86.0	0.44	194.6	21.6
Stage 3 Concentrate	119.2	0.61	125.0	19.3
Total Concentrate	293.6	1.51	170.1	64.6
Total Tailings	19,178.4	98.5	1.43	35.4
Calculated Head	19,471.9	100.0	3.97	100.00

A total of 48 cyanidation tests were performed on 11 different composite samples at different P_{80} sizes (53 µm, 75 µm, and 106 µm) and % solids (45% and 50%). These test results are presented in Table 10-4.

Table 10-4: Summary of Leaching Test Results
Hecla Mining Company – Casa Berardi Mine

Data Ranges	Gold Recovery (%)	Final Residue Grade (g/t Au)
Average of all 106 µm	88.6	0.54
Average of all 75 µm	91.6	0.30
Average of all 53 µm	93.2	0.20
Average of all 45% solids	91.3	0.32
Average of all 50% solids	91.0	0.39
Average of all 45% solids and 106 µm	88.9	0.51
Average of all 45% solids and 75 µm	91.9	0.26
Average of all 45% solids and 53 µm	93.1	0.18
Average of all 50% solids and 106 µm	88.3	0.57
Average of all 50% solids and 75 µm	91.2	0.36
Average of all 50% solids and 53 µm	93.4	0.23

The test results indicated that high recoveries can be achieved (> 90%) for a P_{80} of 75 µm. Simultaneously, a finer grind (53 µm) indicates a potential increase in recovery for this type of ore.

10.2.1 Principal and WMCP Pits

In 2021, test work was conducted by Blue Coast on a number of samples taken from the Principal and WMCP pits, however, the final results have not yet been reported.

10.3 Operation Data

Annual production from 2006 to 2021 is presented in Table 10-5.

Table 10-5: Casa Berardi Annual Production
Hecla Mining Company – Casa Berardi Mine

Year	Tonnes (t)	Grade (g/t Au)	Recovery (%)	Metal Recovered (oz Au)
2006	68,481	8.58	93.9	17,731
2007	545,259	9.78	93.0	159,469
2008	654,398	8.16	92.5	158,830
2009	688,677	7.77	92.6	159,261
2010	722,746	6.76	89.8	141,116
2011	698,123	8.00	91.3	163,845
2012	693,859	6.77	90.6	136,848
2013	590,567	6.16	90.5	105,978
2014	750,778	5.90	90.0	128,241
2015	765,763	5.96	87.2	127,893
2016	904,998	5.72	87.7	145,973
2017	1,175,930	4.77	86.8	156,652
2018	1,248,039	4.66	87.1	162,742
2019	1,250,172	4.10	81.5	134,408
2020	1,165,050	4.00	81.0	121,492
2021	1,386,417	3.56	84.8	134,511
Total	13,309,252	5.69	88.5	2,154,992

10.3.1 Yearly Review

Historic key operation parameters are presented in Table 10-6. The throughput has increased regularly since 2015 following improvements in the process.

Table 10-6: Detailed Yearly Mill Production
Hecla Mining Company – Casa Berardi Mine

Date	Dry Tonnes Milled (t)	Dry Tonnes /Operating Hour (tph)	% Passing 200 mesh	Head Grade (g/t Au)	Ounces Produced (oz Au)	Gravimetric Recovery (%)	Total Mill Recovery (%)	Cyanide Consumption (kg/t)	Mill Availability (%)
2015	765,763	95.6	86	5.96	127,893	35.3	87.2	0.82	95.2
2016	904,998	112.3	84	5.72	145,973	37.3	87.7	0.77	92.8
2017	1,175,930	153.4	75	4.77	156,652	37.1	86.8	0.67	88.9
2018	1,248,039	161.0	75	4.66	162,742	36.5	87.1	0.57	89.1
2019	1,250,172	161.5	72	4.10	134,408	26.4	81.5	0.54	88.6
2020	1,165,050	167.6	71	4.00	121,492	34.3	81.0	0.48	86.1
2021	1,386,417	177.7	74	3.56	134,511	36.7	84.8	0.54	89.7

10.4 Recovery Models

10.4.1 Underground (Zones 115/118/121/123/148)

The historical recovery model provides a good indication of the expected performance in the mill. With the measurement of arsenic content, it is possible to have a more accurate estimation of gold recovery. Two recovery models were obtained and are defined by the following equations:

- Low As

$$Gold\ recovery\ (\%) = \frac{0.9753 \times Au\ head\ grade - 0.4287}{Au\ head\ grade}$$

- High As

$$Gold\ recovery\ (\%) = \frac{0.9918 \times Au\ head\ grade - 0.7723}{Au\ head\ grade}$$

The decision to fit the appropriate model to each zone is approved and verified by a Hecla geologist. The data used to compute the model is derived from the actual mill performance. As such uncertainty regarding mill feed variability is reduced because the data covers many months of operation. Therefore, the results from previous metallurgical testing are not used to predict the recovery for the underground ore.

10.4.2 Open Pit

For the open pit gold recovery used in the LOM, the data is based on available metallurgical test work results reported by Blue Coast in 2020 and 2021.

10.4.2.1 EMCP/XMCP Pit

The metallurgical test work was completed using representative samples with different grind sizes, head grades, and with dilution to simulate a real situation in the pit. The SLR QP is confident that the information below provides a good estimation of the expected recovery in the LOM plan.

$$Gold\ recovery\ (\%) = \frac{0.942\ \times\ Au\ head\ grade - 0.35}{Au\ head\ grade}$$

10.4.2.2 134/Principal Pit

The same equation for recovery as presented for the EMCP/XCMP Pit material is used for the 134/Principal Pit material, as no results from the work conducted by Blue Coast 2021 were available at the time of writing. The SLR QP is confident that the information below will provide a good estimation of the expected recovery in the LOM plan.

$$Gold\ recovery\ (\%) = \frac{0.942\ \times\ Au\ head\ grade - 0.35}{Au\ head\ grade}$$

10.4.2.3 160 Pit

The metallurgical test work was completed at Blue Coast in 2020 using representative samples with different grind sizes, head grades, and with dilution to simulate near a real situation in the pit. The SLR QP considers that the information below provides a good estimate of the expected recovery in the LOM plan and the confidence is appropriate for the precision required.

$$Gold\ recovery\ (\%) = \frac{0.9411\ \times\ Au\ head\ grade - 0.07995}{Au\ head\ grade}$$

10.4.2.4 WMCP Pit

The metallurgical test work was completed using representative samples with different grind sizes, head grades, and with dilution to simulate a real situation in the WMCP Pit. The SLR QP considers that the equation below provides a good estimate on the expected recovery in the LOM plan and the confidence is appropriate for the precision required.

$$Gold\ recovery\ (\%) = \frac{0.916\ \times\ Au\ head\ grade - 0.35}{Au\ head\ grade}$$

10.5 Expected Recoveries

The expected recoveries from the different open pits are summarized in Table 10-7.

Table 10-7: Expected Recovery LOM for Open Pit
Hecla Mining Company – Casa Berardi Mine

Zone	Expected Recovery (%)	LOM Grade (g/t Au)
EMCP – XMCP	75.70	1.90
134 Pit	82.70	3.06
160 Pit	89.70	1.83
WMCP Pit	80.50	3.15
Principal Pit	81.80	2.81

10.6 Deleterious Elements

There are two deleterious elements that could potentially affect the process:

- Arsenic: Ferric sulphate is added to precipitate arsenic in the tailings pond.
- Carbon: The carbon in the ore could cause preg-robbing and affect the gold recovery.

10.7 Conclusions and Recommendations

The test work performed on open pit material was used to estimate the gold recovery, while operating data was used for the underground material.

The SLR QP recommends that the following metallurgical test work continue:

- Additional metallurgical testing to better understand the processing of mineralization from the Principal and WMCP pits. This will aid in projecting metallurgical recoveries for these pits and will indicate any variability in gold recovery and grindability of the material. SLR notes that testing was undertaken at an external laboratory in 2021 and some results were not available at the time of preparation of this TRS.

Test work programs, both internal and external, continue to be performed to support current operations and potential improvements.

The SLR QP has reviewed the information provided by Hecla, as summarized in Section 10, and has performed a review of the reconciliation data available to verify the information used in the LOM plan. Based on these checks, in the opinion of the SLR QP, the metallurgical test work, reconciliation, and production data support LOM planning:

- Industry standard and appropriate metallurgical testing procedures consistent for the deposit's mineralogy have been consistently used by Hecla staff for optimizing and improving mill process capabilities and performance.
- Numerous external and internal studies have been conducted to the date of this TRS, which have been used to develop and optimize the existing flowsheet.

- The samples used in the test work are considered representative of mill feed types across the Casa Berardi deposit.
- LOM projections are based on production results and informed by metallurgical test data that is updated in the model forecasts annually.
- Mill metallurgical results and forecasts are consistent with the deposit mineralogy and the process circuit used.
- Metallurgical and production models were developed from metallurgical sampling and testing. The methodologies, process, and data used in making recovery projections are unbiased and provide reliable projections.

11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

Mineral Resource estimates for the Casa Berardi Mine as of December 31, 2021, are presented in Table 11-1 and Table 11-2. Total Measured and Indicated Mineral Resources, exclusive of Mineral Reserves, are estimated to be 7.04 Mt at 4.66 g/t Au containing 1.05 Moz Au. Inferred Mineral Resources total 9.18 Mt at 2.68 g/t Au for 0.79 Moz Au. The underground portion of the Measured and Indicated Mineral Resources represent 98% of the total Measured and Indicated Mineral Resources.

Mineral Resources are classified based on the density of drill hole data and the continuity of the auriferous zones. This classification complies with the resource definitions used by the SEC in S-K 1300 (SEC, 2018).

The classification of Casa Berardi Mineral Resources is guided by the quality of drill hole data, the continuity of the auriferous zones, the drill hole spacing (which ranges from 15 m to 50 m), the ranges of variograms (which are between 10 m and 60 m), and production experience. The Casa Berardi Mineral classification also considers the distance of drill hole composites to the block center which is an attribute generated in the Gems software at the time of grade interpolation (Mean Distance of Samples to Block Center or MeanDist).

For each lens, a polygon was created around blocks that were estimated based on drill hole composites with an average mean distance of 25 m. The Mineral Resources were classified as follows:

- **Measured Mineral Resources:** blocks inside the 25 m mean distance polygon with underground development nearby that confirmed the continuity of mineralization.
- **Indicated Mineral Resources:** blocks inside the 25 m mean distance polygon.
- **Inferred Mineral Resources:** blocks outside the 25 m mean distance polygon, generally up to a maximum of 35 m mean distance, and rarely up to 50 m mean distance.

The location of the Mineral Resource zones is presented in Figure 11-1.

Table 11-1: Mineral Resource Estimate by Zone – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Classification and Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
Measured Mineral Resources			
Underground			
100 Lower Inter	105,885	5.35	18,196
101 North West	41,556	6.41	8,564
107	286,130	4.03	37,090
109	14,899	5.25	2,514
113	428,701	6.11	84,213
115	16,592	7.31	3,899
117	5,908	4.30	816

Classification and Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
118	336,660	4.89	52,928
123	322,479	4.66	48,276
124	229,356	4.50	33,171
148	261,408	7.17	60,268
152	11,361	4.09	1,494
Total Underground	2,060,934	5.30	351,430
	Open Pit		
WMCP	83,375	1.34	3,592
Principal	1,041	1.28	43
EMCP	43	1.37	2
160	2,968	0.98	93
Total Open Pit	87,427	1.33	3,730
Total Measured Resources	**2,148,361**	**5.14**	**355,160**
	Indicated Mineral Resources		
	Underground		
100 Lower Inter	77,006	5.02	12,436
107	150,982	3.93	19,086
109	81,928	7.68	20,227
113	516,550	4.51	74,840
115	28,719	5.57	5,148
118	1,341,480	4.64	200,333
119	95,366	4.86	14,899
121	19,538	4.16	2,614
123	690,802	4.46	98,977
124	697,697	4.65	104,259
128	100,561	4.49	14,502
148	194,039	5.59	34,865
152	101,875	4.75	15,552
159	91,583	5.61	16,526
160	326,503	4.82	50,612
Total Underground	4,514,629	4.72	684,875

Classification and Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
	Open Pit		
WMCP	41,105	1.34	1,770
Principal	174,190	1.28	7,177
134	1,014	1.29	42
EMCP	10,515	1.36	459
160	153,776	0.98	4,845
Total Open Pit	380,600	1.17	14,294
Total Indicated Mineral Resources	**4,895,230**	**4.44**	**699,169**
Total Measured and Indicated	**7,043,591**	**4.66**	**1,054,329**
	Inferred Mineral Resources		
	Underground		
100 Lower Inter	5,240	13.78	2,322
104	147,040	4.74	22,397
113	90,727	5.13	14,978
116	215,995	13.18	91,505
118	273,712	4.92	43,297
119	108,000	4.15	14,417
121	571	4.25	78
123	234,942	5.72	43,183
124	182,547	5.39	31,617
129	39,385	6.69	8,467
139	120,677	6.24	24,206
146	69,522	6.44	14,404
148	140,687	6.47	29,251
152	27,300	7.04	6,179
157	9,131	5.49	1,613
159	247,702	5.09	40,571
160	118,267	5.06	19,239
Total Underground	2,031,443	6.24	407,724

Classification and Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
	Open Pit		
WMCP	53,289	2.10	3,591
Principal	482,334	3.03	47,028
134 (in reserve pit shell)	2,684	2.91	251
134 (below reserve pit shell)	938,077	1.86	56,232
160 (in reserve pit design)	197,060	2.05	12,993
160 (below reserve pit design)	5,481,094	1.49	262,649
Total Open Pit	7,154,538	1.66	382,744
Total Inferred Mineral Resources	**9,185,981**	**2.68**	**790,468**

Notes:

1. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
2. Mineral Resources were estimated by Hecla staff and reviewed and accepted by SLR.
3. Mineral Resources are exclusive of Mineral Reserves and do not have demonstrated economic viability.
4. Mineral Resources are 100% attributable to Hecla.
5. Underground Mineral Resources are estimated at cut-off grades ranging from 3.11 g/t Au to 4.00 g/t Au.
6. The 160 underground Indicated and Inferred Mineral Resources are reported at a 4.00 g/t Au cut-off grade.
7. Open pit Mineral Resources are estimated at cut-off grades ranging from 0.95 g/t Au to 1.33 g/t Au.
8. The 134 open pit Inferred Mineral Resources are reported between the reserve pit shell and 4,680 MASL at a 1.25 g/t Au cut-off grade.
9. The 160 open pit Inferred Mineral Resources are reported between the reserve pit design and 4,600 MASL at a 0.95 g/t Au cut-off grade.
10. Underground and open pit Mineral Resources are estimated using an average long term gold price of US$1,700 /oz Au and a US$/C$ exchange rate of 1.275.
11. A minimum mining width of three metres was used.
12. Totals may not represent the sum of the parts due to rounding.

Table 11-2: Mineral Resource Estimate Summary – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Resource Category	Tonnes	Grade (g/t Au)	Contained Metal (oz Au)
	Underground		
Measured	2,060,934	5.30	351,430
Indicated	4,514,629	4.72	684,875
Measured and Indicated	6,575,563	4.90	1,036,306
Inferred	2,031,443	6.24	407,724
	Open Pit		
Measured	87,427	1.33	3,730
Indicated	380,600	1.17	14,294
Measured and Indicated	468,028	1.20	18,024
Inferred	7,154,538	1.66	382,744
	Total		
Measured and Indicated	7,043,591	4.66	1,054,329
Inferred	9,185,981	2.68	790,468

Notes:

1. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
2. Mineral Resources were estimated by Hecla Québec and reviewed and accepted by SLR
3. Mineral Resources are exclusive of Mineral Reserves and do not have demonstrated economic viability.
4. Mineral Resources are 100% attributable to Hecla.
5. Underground Mineral Resources are estimated at cut-off grades ranging from 3.11 g/t Au to 4.00 g/t Au.
6. Open pit Mineral Resources are estimated at cut-off grades ranging from 0.95 g/t Au to 1.33 g/t Au.
7. Underground and open pit Mineral Resources are estimated using an average long term gold price of US$1,700 /oz Au and a US$/C$ exchange rate of 1.275.
8. A minimum mining width of three metres was used.
9. Totals may not represent the sum of the parts due to rounding.

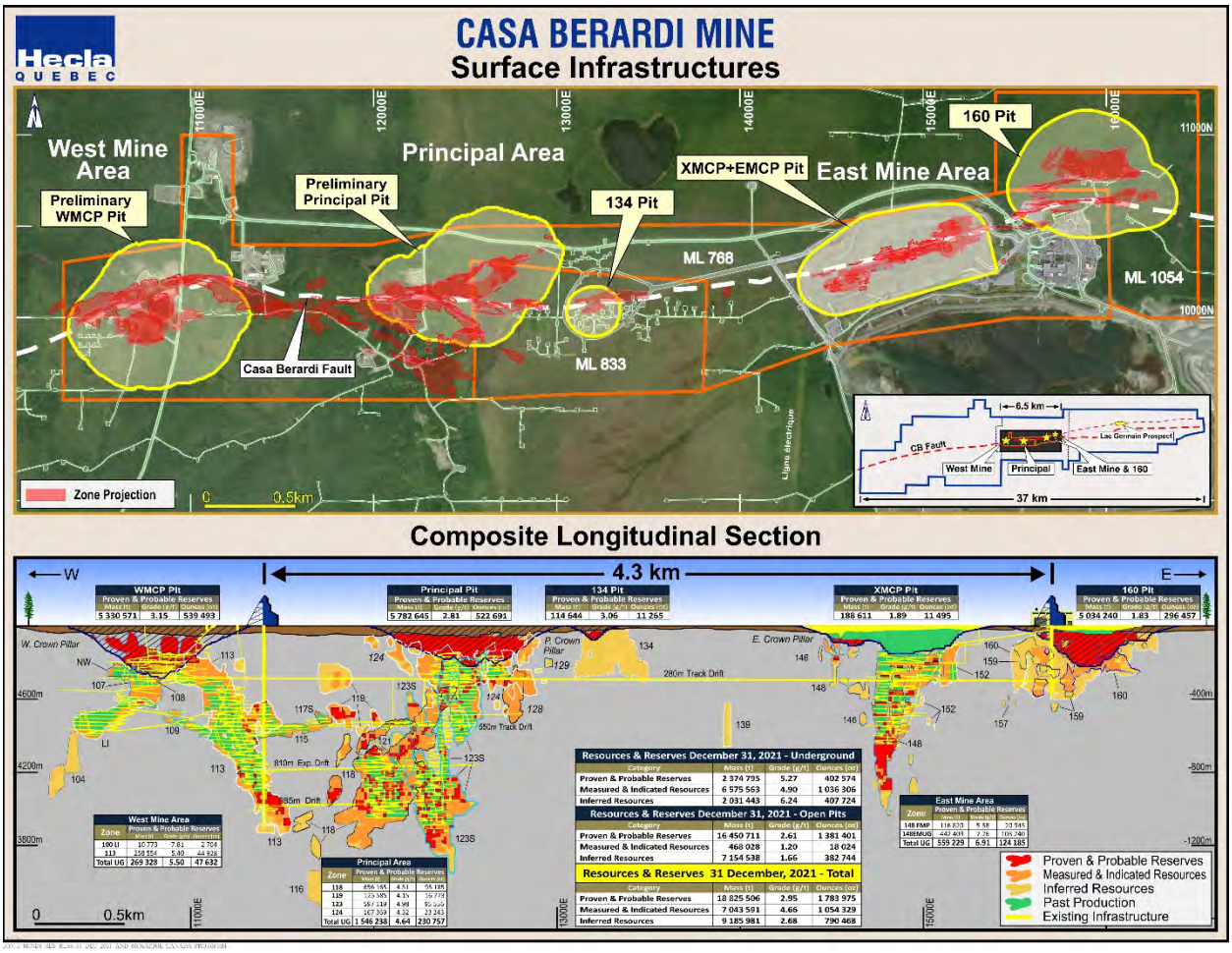

Figure 11-1: Mine Plan View Infrastructure with Composite Longitudinal Section

Casa Berardi Mineral Resources were estimated using block model grade interpolation techniques, effectuated by the mine staff.

Table 11-3 compares the December 31, 2021 and December 31, 2020 Mineral Resource estimates. Gains and losses are a result of:

- Geological reinterpretation of mineralized zones after drilling programs.
- Conversion of Inferred Mineral Resources into Indicated or Indicated into Measured Mineral Resources.
- Conversion of Mineral Resources into Mineral Reserves.
- Mining depletion.
- Subtraction of low grade Mineral Resources (below cut-off grade).

Table 11-3: Comparison of December 31, 2021 versus December 31, 2020 Mineral Resources
Hecla Mining Company – Casa Berardi Mine

Classification and Mine Zone	December 31, 2021			December 31, 2020			Gain (Loss)	
	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Tonnes (t)	Ounces (oz Au)
Measured								
Underground								
100 Lower Inter	105,885	5.35	18,196	98,915	5.35	17,018	6,970	1,178
101 North West	41,556	6.41	8,564	41,556	6.41	8,564	-	-
107	286,130	4.03	37,090	291,750	4.01	37,642	(5,620)	(552)
109	14,899	5.25	2,514	14,339	6.14	2,829	560	(315)
111	-	-	-	13,025	4.21	1,764	(13,025)	(1,764)
113	428,701	6.11	84,213	356,785	6.31	72,360	71,916	11,853
115	16,592	7.31	3,899	13,684	5.35	2,352	2,908	1,547
117	5,908	4.3	816	5,908	4.30	816	-	-
118	336,660	4.89	52,928	267,752	4.65	40,049	68,908	12,879
121	-	-	-	6,498	4.85	1,013	(6,498)	(1,013)
123	322,479	4.66	48,276	399,206	4.45	57,052	(76,727)	(8,776)
124	229,356	4.50	33,171	236,082	4.60	34,937	(6,726)	(1,766)
148	261,408	7.17	60,268	261,953	6.22	52,347	(543)	7,921
152	11,361	4.09	1,494	16,887	3.92	2,127	(5,526)	(633)
Total Underground	2,060,934	5.30	351,430	2,024,339	5.08	330,869	36,595	20,561
Open Pit								
WMCP	83,375	1.34	3,592	710,357	2.92	66,598	(626,982)	(63,006)
Principal	1,041	1.28	43	37,019	3.49	4,151	(35,978)	(4,108)
EMCP	43	1.37	2	-	-	-	43	2
160	2,968	0.98	93	-	-	-	2,968	93
Total Open Pit	87,427	1.33	3,730	747,376	2.94	70,749	(659,949)	(67,019)
Total Measured	2,148,361	5.14	355,160	2,771,715	4.51	401,618	(623,354)	(46,458)

Classification and Mine Zone	December 31, 2021 Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	December 31, 2020 Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Gain (Loss) Tonnes (t)	Ounces (oz Au)
Indicated								
Underground								
100 Lower Inter	77,006	5.02	12,436	76,663	5.09	12,556	343	(120)
107	150,982	3.93	19,086	165,436	3.85	20,493	(14,454)	(1,407)
109	81,928	7.68	20,227	63,530	7.85	16,042	18,398	4,185
111	-	-	-	128,785	4.96	20,541	(128,785)	(20,541)
113	516,550	4.51	74,840	441,288	4.99	70,792	75,262	4,048
115	28,719	5.57	5,148	36,614	5.60	6,596	(7,895)	(1,448)
118	1,341,480	4.64	200,333	1,457,174	4.51	211,422	(115,694)	11,089
119	95,366	4.86	14,899	189,121	4.98	30,273	(93,755)	(15,374)
121	19,538	4.16	2,614	7,860	4.57	1,155	11,678	1,459
123	690,802	4.46	98,977	722,314	4.66	108,333	(31,512)	(9,356)
124	697,697	4.65	104,259	815,520	4.69	123,070	(117,823)	(18,811)
128	100,561	4.49	14,502	107,017	4.41	15,173	(6,456)	(671)
148	194,039	5.59	34,865	267,870	5.34	45,979	(73,831)	(11,114)
152	101,875	4.75	15,552	117,656	4.57	17,289	(15,781)	(1,737)
159	91,583	5.61	16,526	41,800	5.10	6,851	49,783	9,675
160	326,503	4.82	50,612	282,106	4.79	43,431	44,397	7,181
Total Underground	4,514,629	4.72	684,875	4,920,753	4.74	749,996	(406,124)	(65,121)
Open Pit								
WMCP	41,105	1.34	1,770	191,050	2.08	12,763	(149,945)	(10,993)
Principal	174,190	1.28	7,177	1,029,073	2.14	70,755	(881,883)	(63,578)
134	1,014	1.29	42	14,176	2.29	1,044	(13,162)	(1,002)
EMCP	10,515	1.36	459	-	-	-	10,515	459
160	153,776	0.98	4,845	236,610	1.62	12,310	(82,834)	(7,465)
Total Open Pit	380,600	1.17	14,294	1,470,909	2.05	96,872	(1,090,309)	(82,578)
Total Indicated	4,895,230	4.44	699,169	6,391,662	4.12	846,868	(1,496,432)	(147,699)
Total Measured and Indicated	7,043,591	4.66	1,054,329	9,163,378	4.24	1,248,486	(2,119,787)	(194,157)
Inferred								
Underground								

Classification and Mine Zone	December 31, 2021			December 31, 2020			Gain (Loss)	
	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Tonnes (t)	Ounces (oz Au)
100 Lower Inter	5,240	13.78	2,322	4,800	14.77	2,279	440	43
104	147,040	4.74	22,397	115,135	6.62	24,505	31,905	(2,108)
113	90,727	5.13	14,978	138,938	5.42	24,218	(48,211)	(9,240)
116	215,995	13.18	91,505	223,105	12.86	92,218	(7,110)	(713)
118	273,712	4.92	43,297	404,580	4.85	63,097	(130,868)	(19,800)
119	108,000	4.15	14,417	164,123	5.60	29,545	(56,123)	(15,128)
121	571	4.25	78	17,066	3.50	1,923	(16,495)	(1,845)
123	234,942	5.72	43,183	308,710	5.36	53,213	(73,768)	(10,030)
124	182,547	5.39	31,617	214,737	5.33	36,821	(32,190	(5,204)
129	39,385	6.69	8,467	39,385	6.69	8,467	-	-
139	120,677	6.24	24,206	120,677	6.24	24,206	-	-
146	69,522	6.44	14,404	81,876	5.98	15,734	(12,354)	(1,330)
148	140,687	6.47	29,251	157,970	6.16	31,292	(17,283)	(2,041)
152	27,300	7.04	6,179	28,570	6.88	6,319	(1,270)	(140)
157	9,131	5.49	1,613	9,131	5.49	1,613	-	-
159	247,702	5.09	40,571	50,631	4.72	7,685	207,131	32,886
160	118,267	5.06	19,239	140,722	4.79	21,663	(22,455)	(2,424)
Total Underground	2,031,443	6.24	407,724	2,220,156	6.23	444,798	(188,713)	(37,074)
				Open Pit				
WMCP	53,289	2.10	3,591	154,618	2.37	11,774	(101,329)	(8,183)
Principal	482,334	3.03	47,028	509,620	2.98	48,747	(27,286)	(1,719)
134 (in reserve pit shell)	2,684	2.91	251	2,684	2.91	251	-	-
134 (below reserve pit shell)	938,077	1.86	56,232	830,176	1.96	52,193	107,901	4,039
160 (in reserve pit design)	197,060	2.05	12,993	331,523	2.66	28,341	(134,463)	(15,348)
160 (below reserve pit design)	5,481,094	1.49	262,649	6,543,678	1.74	366,540	(1,062,584)	(103,891)
Total Open Pit	7,154,538	1.66	382,744	8,372,299	1.89	507,846	(1,217,761)	(125,102)
Total Inferred Mineral Resources	9,185,981	2.68	790,468	10,592,455	2.80	952,644	(1,406,474)	(162,176)

Notes:

1. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
2. Underground and open pit Mineral Resources were estimated by Hecla Québec and reviewed and accepted by SLR.
3. Underground Mineral Resources are estimated at cut-off grades ranging from 3.11 g/t Au to 4.00 g/t Au.
4. Open pit Mineral Resources are estimated at cut-off grades ranging from 0.86 g/t Au to 1.33 g/t Au.
5. Underground and open pit Mineral Resources are estimated using an average long term gold price of US$1,700 /oz Au and a US$/C$ exchange rate of 1.275.
6. A minimum mining width of three metres was used.
7. Mineral Resources are exclusive of Mineral Reserves and do not have demonstrated economic viability.
8. Totals may not represent the sum of the parts due to rounding.
9. Mineral Resources are 100% attributable to Hecla.

The SLR QP is of the opinion that with consideration of the recommendations summarized in in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

11.2 Database

The current Mineral Resource estimate is based on data available as of October 31, 2021. Gemcom 6.8 was used for the preparation of Mineral Resources. The Mineral Resource solids, dilution envelopes and block models were built by using the diamond drill hole and chip sample workspaces, “Drill Holes” and “RAINURE”, respectively. Both have the same structure, as detailed in Table 11-4. The database was created by merging files from various sources (Hecla Québec /Aurizon, Inco Gold, and TVX).

Table 11-4: Database Structure
Hecla Mining Company – Casa Berardi Mine

Table	Description	Main Fields
Header	Main table	Hole Name, Easting, Northing, Elevation, Azimuth, Dip, Length, Hole Type, Date Started, Date Finished, Logged By
Survey	Deviation tests	Distance, Azimuth, Dip, MAG Azimuth, Type of survey, Mag, Mag dip, gravity
RQD	RQD survey	From, To, Length, RQD%
Litho_0	Geology main table	From, To, Rock_type, Tittle, Rockcode, Description, Level, Veins, Colour, Deformation, Alteration, Mineralization
Litho_1	Geology sub-table	From, To, Rock_type, Tittle, Rockcode, Description, Level, Veins, Colour, Deformation, Alteration, Mineralization
Litho_2	Geology sub-table	From, To, Rock_type, Tittle, Rockcode, Description, Level, Veins, Colour, Deformation, Alteration, Mineralization
Assays	Gold assay results and density	From, To, Sample No, Certificate no, Certificate date, OR_TRA (gold assays), lab duplicates from pulp and rejects, Density, Rock_Code, Block_Code, Solid Name, AU_COUPE (gold capped)
Qc_assay	Quality checks for assays	DISTANCE, Sample No, Certificate no, Certificate date, OR_TRA (gold assays), lab duplicates from pulp and rejects, primary and secondary labs, Density, standard used
XRF	X-ray Fluorescence (XRF) assays	From, To, Sample no, Certificate date, As, Fe, S…

Table	Description	Main Fields
Inters_Grp	Underground intersects for block models	From, To, LOCATION (X,Y,Z), LENGTH, AU,ROCK_CODE,COMP_ID, SOLID_NAME, BLOCK_CODE, LONG_AU, DENSITE,LONG_DENS,AU_NS, LONG_AU_NS,AS,LONG_AS, AU_COUPE, DATE
Inters_Pit	Open Pit intersects for block models	From, To, LOCATION (X,Y,Z), LENGTH, AU,ROCK_CODE,COMP_ID, SOLID_NAME, BLOCK_CODE, LONG_AU, DENSITE,LONG_DENS,AU_NS, LONG_AU_NS,AS,LONG_AS, AU_COUPE, DATE

11.3 Density Determination

11.3.1 Methodology of Density Determinations on Drill Core

From 1991 to 1997, TVX used a density of 2.77 t/m^3 for Mineral Reserve estimation, with the same density factor used for the TVX mill operation. Since 1999, several density testing programs have been carried out. Density determinations were conducted on sections of whole core prior to crushing for assaying using the water immersion method. As rocks at Casa Berardi are non-porous, no wax coating was applied to core samples. Tests were effectuated at different laboratories and determined the densities for mineralized and non-mineralized rock in various lithologies and most of the mineralized lenses. The density database contains approximately 7,914 records, including a total of 3,151 that were taken within the mineralized lenses.

Table 11-5 presents a summary of the density determinations by zone.

Table 11-5: Density Determinations by Zone
Hecla Mining Company – Casa Berardi Mine

Open Pit Zone	Number	Mean (t/m^3)	Minimum (t/m^3)	Maximum (t/m^3)
105	46	2.68	2.57	2.84
123	29	2.78	2.57	3.10
124	472	2.83	2.35	3.73
134	39	2.66	2.19	3.47
146	46	2.68	2.55	2.80
148	200	2.68	2.13	2.99
152	47	2.77	2.55	2.93
159	19	2.77	2.66	2.97
160	333	2.69	2.38	3.03
Total	1,231	2.74	2.13	3.73
Underground Zone	**Number**	**Mean (t/m^3)**	**Minimum (t/m^3)**	**Maximum (t/m^3)**
107	15	2.69	2.58	2.84
109	106	2.72	2.55	3.04
111	17	2.65	2.57	2.8
113	449	2.73	2.37	3.78
115	115	2.67	2.16	2.99
118	429	2.38	2.51	4.15
119	82	3.01	2.59	4.6
121	93	2.86	2.52	4.31
123	226	2.89	2.46	4.17
124	241	2.86	2.35	3.45
148	4	2.61	2.56	2.64
152	5	2.83	2.78	2.87
160	88	2.70	2.45	3.03
100 Lower Inter	50	2.67	2.51	2.92
Total	1,920	2.79	2.16	4.6
Total Open Pit and Underground	3,151	2.77	2.13	4.6

11.4 Geological Interpretation

Hecla carried out the geological interpretation and correlation of lenses on 1:250 scale vertical sections spaced 15 m, 20 m, 25 m, or 50 m, apart and on plan views spaced 10 m and 20 m apart. Drill hole spacing ranges from 10 m to 50 m. In general, the drill hole spacing is sufficiently dense to confidently interpret and correlate the mineralized systems from section to section. Drill holes and chip sample data, along with underground mapping were used to build the solids. Once modeled, the lenses are projected onto various levels to verify their continuity and to check the interpretations. Adjustments on sections and plans are made, as necessary, in order to have a consistent interpretation.

11.4.1 Minimum Width and Cut-off Grade Used for Interpretation

The Mine staff created mineralized envelopes based on a general 4.0 g/t Au cut-off grade for the underground Mineral Resources and 1.0 g/t Au cut-off for the open pit Mineral Resource evaluation, using, in both cases, a minimum true width of three metres. Some lower grade areas were incorporated to preserve continuity, however, most of the assay results from drill holes and chips samples are higher than the cut-off grades. In addition to often being stratigraphically constrained, sharp contacts between economic and non-economic grades are noted. The open pit Mineral Resource envelopes are usually wider and can contain several underground envelopes. The open pit Mineral Resource envelopes are usually modeled from surface to a depth of 350 m (4,650 MASL) while the underground Mineral Resources are modeled from surface with no lower limit. To avoid duplication of tonnage and grade, the pit shell is used to discriminate the open pit from the underground envelopes.

11.4.2 West Mine Underground

West Mine underground Mineral Resources were modeled between sections 11,350E and 11,600E. Zones mined with remaining Mineral Resources are the Lower Inter, Inter, South West (SW), 109, 113, and 115 zones. The 111 Zone was integrated in the 113 Zone.

11.4.2.1 Lower Inter Zone

Mineralization at the Lower Inter (100) Zone occurs between sections 10,350E and 10,825E and between 4,400 MASL and 4,600 MASL and is constrained to south of the Casa Berardi Fault. The Lower Inter Zone is characterized by two envelopes, a high grade core based on a 4.0 g/t Au cut-off grade which is sub-divided into several domains for grade interpolation due to changes in dip and strike and an outer low grade envelope based on a 1.0 g/t Au cut-off grade.

The 104 Zone (two lenses) occurs from 10,200E to 10,400E and from elevation 4,050 MASL to 4,450 MASL, in the plunge of the Lower Inter Zone, and is open up dip and downdip.

11.4.2.2 109, 111, 113, and 115 Zones

Mineralization at the 109, 111, 113, and 115 zones occurs between sections 10,825E and 11,600E and from surface to 3,800 MASL and is constrained to south of the Casa Berardi Fault. Six mineralized lenses were interpreted for the 109 Zone, nine for the 113 Zone (including the 111 Zone), and eight lenses for the 115 Zone.

11.4.2.3 SW Zone

In the SW Zone, mineralization occurs between sections 10,600E and 10,900E and between 4,600 MASL to 4,900 MASL and is associated with the South Fault as well as a secondary graphitic fault south of the Casa Berardi Fault. Five lenses were modeled in the 107 and 108 zones.

11.4.3 West Mine Crown Pillar

Mineralization at the WMCP occurs between sections 10,340E and 11,450E and between 4,650 MASL to the 5,000 MASL. Six lenses were modeled which include parts of the upper levels of the 111, 113, SW, and Inter zones as well as where the northwest and northeast zones meet the Casa Berardi Fault.

The lenses 105_01, 105_06, and 114_01 regroup most of the mineralized zones at the Casa Berardi Fault, 105_04 contains all of the 'Inter' zones within the secondary graphitic faults and 105_02 captures all of the mineralization associated with the South Fault.

11.4.4 Principal Mine Underground

The Principal Mine consists of the 116, 117, 118, 119, 123, and 124 zones.

11.4.4.1 116 Zone

The 116 Zone occurs between section 11,630E and 11,730E from 3,510 MASL to 3,670 MASL, and consists of a single lens north of the Casa Berardi Fault.

11.4.4.2 117 Zone

The 117 Zone occurs between section 11,680E and 11,770E from 4,470 MASL to 4,530 MASL and consists of a single lens associated with the South Fault.

11.4.4.3 118 Zone

The 118 Zone occurs between section 11,565E and 12,465E and from 3,730 MASL to 4,650 MASL, and consists of 31 lenses associated with the Casa Berardi Fault.

11.4.4.4 119 Zone

The 119 Zone occurs between section 11,700E and 12,100E and from 4,390 MASL to 4,810 MASL. The 119 Zone consists of seven lenses associated with a secondary graphitic fault splay south of, and rejoining, the 123 Zone.

11.4.4.5 123 Zone

The 123 Zone (including the 121 and 128 zones) occurs between section 12,000E and 12,800E and from 3,750 MASL to 4,850 MASL. The123 Zone contains 17 lenses located south of the Casa Berardi Fault.

11.4.4.6 124 Zone

The 124 Zone occurs between 11,940E and 12,930E and from the bedrock surface to 4,400 MASL. The 124 Zone contains 29 lenses north and south of the Casa Berardi Fault, associated with a secondary graphitic fault.

11.4.5 Principal Pit

Mineralization in the Principal Pit area occurs between sections 11,950E and 13,000E and 4,650 MASL to the bedrock surface. Thirty-one lenses were modeled in the Principal Pit area and include almost all of the 122 and 124 zones that were remodeled at a 1.0 g/t Au cut-off grade.

11.4.6 134 Pit

Mineralization in the 134 Pit occurs between sections 13,100E and 13,440E and from 4,710 MASL to the bedrock surface. Seven lenses were modeled to the east of the Principal Pit associated with the Casa Berardi Fault.

11.4.7 East Mine Underground

East Mine underground mineralization occurs from section 13,100E to 13,440E between 4,710 MASL to the bedrock surface. Thirty-three lenses were modeled with the 146, 148 and 152 zones (30 lenses) occurring along the Casa Berardi Fault and the 157 Zone (three lenses) occurring south of the Casa Berardi Fault.

11.4.8 EMCP Pit

Mineralization in the EMCP Pit occurs from section 14,400E to 15,440E from 4,710 MASL to the surface bedrock. Twenty-three lenses were modeled to assess the EMCP. This assessment locally included zones from the underground Mineral Resource.

11.4.9 160 Open Pit

Mineralization at the 160 Pit occurs from section 15,480E to 16,320E and from 4,650 MASL to the bedrock surface. Ten lenses were modeled in the 160 Pit area, including the 159 and 160 zones. The 159 Zone is associated with the Casa Berardi Fault, while the 160 Zone is located north of the Casa Berardi Fault.

11.4.10 160 Underground

Mineralization of the 159 and 160 zones occurs from section 15,400E to 16,300E and from 4,500 MASL to the bedrock surface. Eleven lenses were modelled north of the Casa Berardi Fault.

11.5 Cut-Off Grade for Reporting Mineral Resources

11.5.1 Underground Mineral Resources

Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources.

The cut-off grade used by Hecla for underground Mineral Resources are based on the following parameters and presented in Table 11-6:

- Gold Price US$1,700/oz Au
- Exchange Rate US$1.000 = C$1.275
- Mill Recovery Specific by Zone
- Operating Cost C$181.25/t or C$198.48/t (US$142.16/t or 155.67 US$/t)
- The cut-off grade is therefore calculated by the following equations:
  - Gold price: US$1,700/oz Au x C$1.275/US$1.00 = C$2,167.5/oz Au
  - Revenue per unit gold: C$2,167.5/oz Au ÷ 31.1035 g/oz Au = C$69.69/g x Mill recovery
  - Cut-off grade = Operating costs / Revenue per unit gold

Table 11-6: Underground Mineral Resource Cut-Off Grades by Zone
Hecla Mining Company – Casa Berardi Mine

Zone	Mill Recovery (%)	Cut-Off Grade (g/t Au)	Gold Price (US$/oz Au)	Operating Cost (C$)	Operating Cost (US$)
100	83.73%	3.11	1,700	181.25 $	142.16
104	83.73%	3.11	1,700	181.25 $	142.16
107	83.73%	3.11	1,700	181.25 $	142.16
108	83.73%	3.11	1,700	181.25 $	142.16
109	83.73%	3.11	1,700	181.25 $	142.16
111	83.73%	3.11	1,700	181.25 $	142.16
113	83.73%	3.11	1,700	181.25 $	142.16
115	76.48%	3.40	1,700	181.25 $	142.16
117	76.48%	3.40	1,700	181.25 $	142.16
118	76.48%	3.40	1,700	181.25 $	142.16
119	83.73%	3.11	1,700	181.25 $	142.16
121	76.48%	3.40	1,700	181.25 $	142.16
123	76.48%	3.40	1,700	181.25 $	142.16
124	83.73%	3.11	1,700	181.25 $	142.16
128	76.48%	3.40	1,700	181.25 $	142.16
129	78.02%	3.33	1,700	181.25 $	142.16
139	78.02%	3.65	1,700	198.48 $	155.67
148	78.02%	3.65	1,700	198.48 $	155.67
159	84.77%	4.00	1,700	198.48 $	155.67
160	84.77%	4.00	1,700	198.48 $	155.67

Notes:

1. Underground cut-off grades for 159 and 160 rounded up to 4.0 g/t Au.

Cut-Off Grade for Reporting Open Pit Mineral Resources

Cut-off grades ranging from 0.95 g/t Au to 1.33 g/t Au were used to estimate open pit Mineral Resources constrained by an open pit resource shell. Open pit Mineral Resources were estimated using an average long term gold price of US$1,700/oz Au and a US$/C$ exchange rate of 1.275 (Table 11-7).

Table 11-7: Open Pit Mineral Resource Cut-Off Grades by Pit
Hecla Mining Company – Casa Berardi Mine

Pit	Mill Recovery (%)	Cut-Off Grade Mill Recovery (%)	Cut-Off Grade (g/t Au)	Gold Price (US$/oz Au)	Operating Cost (C$)	Operating Cost (US$)
160	89.7	84.3	0.95	1,700	47.97 $	37.62
WMCP	80.5	60.7	1.31	1,700	47.65 $	37.37
Principal	81.8	62.4	1.25	1,700	47.59 $	37.33
134	82.7	62.2	1.25	1,700	47.22 $	37.04
EMCP/XMCP	75.7	62.9	1.33	1,700	48.84 $	38.31

11.6 Block Modeling and Mineral Resource Estimation

Grade capping was carried out to minimize the impact of very high grade assays on the Mineral Resource estimate. Each zone was treated separately and assigned different high grade capping values. Statistical distributions of assays within the mineralized envelopes were tabulated and plotted in the form of histograms. The capping levels were determined by Hecla from histograms and statistics.

Capping levels were applied to raw assays prior to compositing. Table 11-8 presents the open pit (PIT) and underground (UG) capping levels used in the various estimates.

Table 11-8: Capping Levels
Hecla Mining Company – Casa Berardi Mine

Zone	Location	Lens Numbers	Core Capping Levels (g/t Au)	Chip Capping Levels (g/t Au)
104	UG	03, 04	No capping	No capping
107	UG	02, 03	18.5	42
Inter	UG	01, 02, 04	18	18
105	PIT	01	46	46
105	PIT	02	51	51
105	PIT	03	11	11
105	PIT	04	19	19
105	PIT	06	No capping	No capping
114	PIT	01	16	16
Lower Inter	UG	01	120	120
109	UG	01, 02, 03, 04, 05, 06	45	45
113	UG	Main, 05, 07	175	100

Zone	Location	Lens Numbers	Core Capping Levels (g/t Au)	Chip Capping Levels (g/t Au)
113	UG	04	35	35
113	UG	06	50	50
113	UG	12	14	14
113	UG	41, 42, 43, 44	17	17
113	UG	61	No capping	No capping
115	UG	01	100	100
115	UG	02, 03, 04, 05, 06	50	50
116	UG	01	No capping	No capping
117	UG	Main	35	35
118	UG	82,83	14	14
118	UG	09, 34	15	15
118	UG	05	19	19
118	UG	11, 12, 13, 41, 42	24	24
118	UG	47	25	25
118	UG	62, 63, 64	34	34
118	UG	07	40	40
118	UG	10	43	36
118	UG	06	45	45
118	UG	20, 21, 22, 27	50	40
118	UG	31	51	50
118	UG	43, 44, 45	65	65
118	UG	14,15,16,17,18,81	No capping	No capping
119	UG	01	20	20
119	UG	02	No capping	No capping
119	UG	03, 04	14	No capping
119	UG	05	11	11
119	UG	06	13	13
119	UG	07	12	12
121	UG	01, 02	30	30
123	UG	09	12	12
123	UG	10, 14	14	14
123	UG	15, 16	16	16
123	UG	19	22	22

Zone	Location	Lens Numbers	Core Capping Levels (g/t Au)	Chip Capping Levels (g/t Au)
123	UG	12	32	27
123	UG	05	39	40
123	UG	04	42	42
123	UG	03	64	40
123	UG	01	68	68
123	UG	02	70	68
123	UG	17,18	No Capping	No Capping
123	PIT	23	06	06
123	PIT	21	08	08
123	PIT	09	13	13
123	PIT	05	39	39
123	PIT	17, 18, 22, 24,25	No Capping	No Capping
124	UG	52, 61	15	15
124	UG	30	20	20
124	UG	17	30	20
124	UG	86	30	30
124	UG	40, 41, 42 ,43	35	35
124	UG	81, 82, 87	45	45
124	UG	83	45	48
124	UG	84	45	16
124	UG	85	45	20
124	UG	12	64	64
124	UG	13	64	17
124	UG	22	66	66
124	UG	15, 16	75	75
124	UG	11, 18, 19, 32, 33, 35, 36, 37	No Capping	No Capping
124	PIT	32	6	6
124	PIT	31, 36	7	7
124	PIT	33, 37 51, 52	9	9
124	PIT	14, 20 35, 38	10	10
124	PIT	11	11	11
124	PIT	87	12	12

Zone	Location	Lens Numbers	Core Capping Levels (g/t Au)	Chip Capping Levels (g/t Au)
124	PIT	86	17	17
124	PIT	15	18	18
124	PIT	30	20	20
124	PIT	41, 43	33	33
124	PIT	81	46	46
124	PIT	13	66	66
124	PIT	22	67	67
124	PIT	62	No Capping	No Capping
128	UG	01	18	18
129	UG	01	No capping	No capping
134	PIT	02	9	9
134	PIT	01	16	16
134	PIT	05	17	17
134	PIT	4	19	19
134	PIT	08, 09, 10	No Capping	No Capping
139	UG	01	No capping	No capping
146	UG	08	8	8
146	UG	09	14	14
146	UG	01, 03, 05, 06, 07, 10	No Capping	No Capping
146	PIT	01	No Capping	No Capping
146	PIT	03, 04	8	8
148	UG	19, 20	8	8
148	UG	21, 22	9	9
148	UG	24	11	11
148	UG	10	13	13
148	UG	09	14	14
148	UG	05, 25	18	18
148	UG	01	54	-
148	UG	08	20	20
148	UG	01, 02, 03, 04, 05, 07	50	50
148	UG	18	No Capping	No Capping

Zone	Location	Lens Numbers	Core Capping Levels (g/t Au)	Chip Capping Levels (g/t Au)
148	PIT	14, 16	3	3
148	PIT	11	5	5
148	PIT	07, 08	12	12
148	PIT	09	14	14
148	PIT	03	20	20
148	PIT	01, 04	36	36
148	PIT	02, 06, 12, 13	50	50
148	PIT	17	No Capping	No Capping
152	UG	05	8	8
152	UG	01	20	13
152	UG	02, 03	20	20
152	UG	09	No Capping	No Capping
152	UG	06	10	10
152	PIT	08	3.7	3.7
152	PIT	02	5.3	5.3
152	PIT	01, 03, 06	10	10
152	PIT	07	50	50
157	UG	01, 02, 03	12	12
159	UG	03	12	12
159	UG	01	15	15
159	UG	04	No capping	No capping
159	PIT	03, 06	8	8
159	PIT	04, 05	12	12
159	PIT	01	15	15
159	PIT	02	18	18
160	UG	05, 09	12	12
160	UG	01, 03	17	17
160	UG	04	22	22
160	PIT	06	7	7
160	PIT	03	16	16
160	PIT	01	23	23
160	PIT	07	27	27
160	PIT	04	28	28

11.6.1 Mineral Resource Estimation Methodology

The resource block models are built using the 3D open pit and underground mineralization wireframes, the main graphitic Casa Berardi Fault, the overburden, and the mining voids (development and as-built stopes using designs and cavity monitoring surveys (CMS)). Block models used for underground Mineral Resources are undiluted and the block models for pit evaluation are diluted. The procedure used to generate the capping levels and the composites for the open pit and underground block models are the same.

11.7 Underground Extraction Data and Compositing

After validation of the solids from the database, extraction of the intersects is performed to determine the capping and to composite the sample grade. Capping of the grade is performed in the ASSAYS table in the field AU_COUPE. The gold value for the total vein intersect is calculated to be archived in the INTERS_GRP table in a later process, with the rock code, solid name, and block code. At the definition and stope drilling stage, information can be duplicated, and part of the previous drilling is excluded in the on-going Mineral Resource process. The duplicated diamond drill holes are archived in a key index to permit the exclusion of the outdated data during the Mineral Resource process.

11.8 Underground Block Models

All underground block models have the same block dimensions: 2.5 m for column size, 1.25 m for row size and five metres for level size.

11.9 Underground Mineral Resource Methodologies

Initially, all interpreted mineral zone solids are loaded to verify that they are contained within the block model limits. Blocks within the model are tagged with the block code from each solid, the percent of each block within the solid evaluated, and the density associated with the block code of the solid. Evaluation of the grade is completed by the interpolation of the gold composites stored as points in the GEMS point area databases. The block model attributes, MeanDist and number of points used for the estimate 'NB_COMPS' are automatically assigned to the blocks during the interpolation runs and used for resource classification. The interpolation method used for gold grade estimation is inverse distance squared (ID^2) with oriented ellipsoids and spheres. A total of 206 ellipsoids and spheres were used to interpolate the underground Mineral Resources.

11.10 Open Pit Extraction Data and Compositing

After validation of the solids and surfaces used for the open pit model areas, extraction of drill hole intersects is performed for the Mineral Resource and dilution envelopes to determine capping values and to composite the sample grades. The solids and surfaces used to code the model include the 1.0 g/t Au cut-off envelopes for Mineral Resources, the 10 m dilution shells surrounding the mineral lenses, the Casa Berardi Fault, the topographic surface, and till, clay, and bedrock surfaces.

Only drill holes are used for grade estimation in the open pit block models to avoid over estimation with the underground chip samples. Precedence is given to the Mineral Resource envelopes. The rock codes, solid names, and block codes are extracted into the assay table. Grade capping is performed in the assay table and used for sample compositing. Duplicated diamond drill holes are archived in a key index to permit the exclusion of the outdated data during the Mineral Resource estimation process.

11.11 Open Pit Block Models

Diluted open pit block models are used for Mineral Resource estimation, except for the Principal Pit. The WMCP, 134, EMCP and 160 pits have block dimensions of 2.5 m x 2.5 m x 2.5 m, while the Principal Pit block model uses a block size of 2.5 m x 2.5 m x 5.0 m. The diluted block models have three folders: one for the diluted mineralized material (Rock), one for the mining excavation including the previous underground mining voids (Excavation), and one for the overburden materials (Overburden).

11.12 Open Pit Mineral Resource Methodologies

Initially, all the solids and surfaces used to code the open pit model are loaded to verify that they are all contained within the block model limits. For the estimation of the open pit Mineral Resources, a vertical limit for block modeling was established to limit the assessment of an open pit shell to depth. For the WMCP and 134 pits, the lower limit is 4,677 MASL, for the EMCP Pit, the lower limit is 4,702 MASL, and for the 160 Pit, the lower limit is 4,552 MASL. Blocks within the block model are tagged with the block code from solids, the percent of blocks within the solid evaluated, and the density associated with the block code of the solid. Evaluation of the grade is completed by the interpolation of the gold content from the point area composite files, mainly the field 'AU_COUPE ', the results being saved in the field 'AuCut' of the block models. Evaluation of the fields MeanDist and NB_COMPS is also written to the blocks to assist with resource classification. The interpolation method used for grade estimation is ID^2 with oriented ellipsoids and spheres. A total of 64 ellipsoids and spheres were used to interpolate the open pit Mineral Resources. XRF was included in the block models to assess the arsenic content of the different lenses where data was available.

11.13 Principal Pit

The block model for the Principal Pit was built by the mine staff and is updated with the latest information from drilling. A total of 38 mineralized zones were modelled in the Principal area of the West Mine by the mine staff. The mineralized system extends towards the overburden-rock interface and the mineralized zones are close enough to each other to allow for open pit mining. The block size is five metres east-west (X) by five metres north-south (Y) by 7.5 m vertical (Z).

11.14 Cavity Monitoring Surveys of Mined-Out Stopes in GEMS Database

Volumes of mined-out stopes are evaluated from a CMS system by the engineering department. The determination of dilution rates and mining extraction factors on a stope by stope basis is based on the CMS. This work is carried out by the Casa Berardi geology department using Promine software. In order to determine tonnes and grades of underbreak, overbreak, and dilution material in one system, all CMS data is imported into GEMS, adjusted where needed to create valid solids, and used to update the mined-out stope percentages to the block models and for engineering and reconciliation studies.

11.15 Mineral Resource Classification

Definitions for Mineral Resource categories used in this TRS are those defined by the SEC in S-K 1300 and excerpted below. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Mineral Resource is a concentration or occurrence of 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 economic extraction. A Mineral Resource is a reasonable estimate of mineralization, considering relevant factors

such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

Measured Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a Measured Mineral Resource is sufficient to allow a QP to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a Measured Mineral Resource has a higher level of confidence than the level of confidence of either an Indicated Mineral Resource or an Inferred Mineral Resource, a Measured Mineral Resource may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Indicated Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a QP to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a Measured Mineral Resource, an Indicated Mineral Resource may only be converted to a Probable Mineral Reserve.

Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an Inferred Mineral Resource has the lowest level of geological confidence of all Mineral Resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an Inferred Mineral Resource may not be considered when assessing the economic viability of a mining project and may not be converted to a Mineral Reserve.

The classification of each lens in the open pit and underground block models are based on the density and quality of drill hole data, the continuity of the auriferous zones, and production experience. The classification of Casa Berardi Mineral Resources is guided by the drill hole spacing, which ranges from 15 m to 50 m and by the ranges of variograms, which are between 10 m and 60 m. It also considers the distance of drill hole composites to block centers which is an attribute generated in the GEMS software at the time of grade interpolation (MeanDist).

Generally, for each lens, a polygon was manually created around blocks that were estimated based on drill hole composites with an average MeanDist of 25 m. The Mineral Resources were classified as follows:

1. **Measured Mineral Resources**: blocks inside the 25 m MeanDist polygon with nearby underground development that confirmed the continuity of mineralization.
2. **Indicated Mineral Resources**: blocks inside the 25 m MeanDist polygon.
3. **Inferred Mineral Resources**: blocks outside the 25 m MeanDist polygon, up to generally a maximum of 35 m MeanDist, and rarely up to 50 m MeanDist.

The open pit block models are diluted to whole block models using scripts in Gemcom. For the open pit diluted block models, only blocks with more than 25% of mineralized material were classified, the remaining blocks with less than 25% of mineralized material were not classified and excluded from the resource estimate.

The SLR QP has considered the following factors that may affect the uncertainty associated with each class of Mineral Resources:

1. Reliability of sampling data:
    a. Drilling, sampling, sample preparation, and assay procedures follow industry standards and best practices.
    b. Data verification and validation work confirm drill hole and chip sample databases are reliable.
    c. No significant biases observed in QA/QC analysis results.
    d. Sufficient density tests are available to estimate accurate mineralization and waste bulk density values.
2. Confidence in the interpretation and modelling of geological and estimation domains:
    a. Individual mineralization lenses are interpreted manually in cross-sections and cleaned-up in plan views by a highly experienced team of geologists.
    b. Good agreement between the drill holes, underground sampling, and mineralization wireframe shapes, which are snapped to the sample data.
    c. The mineralization wireframe shapes are well defined by sample data in areas classified as Measured and Indicated.
    d. Some surface drill holes are excluded if significant spatial discrepancies with underground drill holes and/or underground sampling occur.
3. Confidence in block grade estimates:
    a. Measured and Indicated block grades correlate well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
    4. Production experience:
    a. Extensive deposit specific experience has been gained over decades of production.
    b. Good production reconciliation performance validates the quality of sample data and block model grade and density estimates in Measured and Indicated areas.

11.16 Mineral Resource Validation

Hecla personnel conduct on-screen visual inspection of block models with diamond drill hole assays and composites on plans and vertical sections after interpolation and classification of the block models. All interpolation reports are saved to validate the interpolation and to verify the blocks not interpolated. To avoid duplication when estimating Mineral Resources, only underground Mineral Resources outside of an open pit design are considered underground Mineral Resources and only open pit Mineral Resources within the open pit design are considered open pit Mineral Resources. The blocks from the underground block models are evaluated to assess the percentage of each block within the open pit design. Where no underground Mineral Resources were evaluated below the open pit, the Mineral Resource below the pit are reported as open pit Mineral Resources.

11.17 Risk Factors That May Affect the Mineral Resource Estimate

The SLR QP is of the opinion that the Casa Berardi Measured and Indicated Mineral Resources and the underground Inferred Mineral Resources have been prepared to industry best practices and conform to the resource categories defined by the SEC in S-K 1300. The SLR QP notes that the open pit Inferred Mineral Resources situated at the 134 and 160 pits are not constrained by a resource pit shell and that the elevation datums used to limit the open pit resources at depth are optimistic and should be replaced with resource shells in the future. Notwithstanding, the SLR QP is of the opinion that this is not a significant issue because this material represents approximately 9% of the total reserve and resource ounces at Casa Berardi, it is all classified as Inferred, and none of it is included in the LTP.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant technical and economic factors that would materially affect the Mineral Resource estimate.

12.0 MINERAL RESERVE ESTIMATES

Underground Mineral Reserves were estimated by Hecla Québec and reviewed by SLR. Estimates were prepared for the Lower Inter and 113 zones of the West Mine, and the 118, 119, 123, and 124 zones of the Principal Mine, the East Mine, and several other smaller zones. A longhole stoping mining method without pillars, using a primary-secondary stoping sequence, is assumed for all of the estimates. All stopes are backfilled after mining using paste fill, cemented rock fill (CRF), or unconsolidated waste rock.

Open Pit Mineral Reserves were estimated by Hecla and reviewed by SLR, for the WMCP, Principal, 134, EMCP, XMCP, and 160 pits.

Measured and Indicated Mineral Resources were converted to Proven and Probable Mineral Reserves, respectively. Inferred Mineral Resources were not converted to Mineral Reserves. Mineral Reserves as of December 31, 2021 are summarized in Table 12-1.

Table 12-1: Summary of Mineral Reserves – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Reserve Category	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)	Metallurgical Recovery (%)
		Underground		
Proven	836,930	5.33	143,294	-
Probable	1,537,865	5.24	259,279	-
Proven + Probable	**2,374,795**	**5.27**	**402,574**	**85.6**
		Open Pit		
Proven	4,321,010	3.26	452,992	-
Probable	12,129,701	2.38	928,409	-
Proven + Probable	**16,450,711**	**2.61**	**1,381,401**	**82.9**
		Total		
Proven + Probable	**18,825,506**	**2.95**	**1,783,975**	**83.5**

Notes:

1. Classification of Mineral Reserves is in accordance with the S-K 1300 classification system.
2. Underground and open pit Mineral Reserves were estimated by Hecla Québec and reviewed and accepted by SLR.
3. Mineral Reserves are 100% attributable to Hecla.
4. Underground Mineral Reserves are estimated at a cut-off grade of 3.27 g/t Au for 100, 113,119 and 124 zones. A cut-off grade of 3.57 g/t Au for the 115, 118, 121, 123 and 128 zones. A cut-off grade of 3.83 g/t Au for the 146 and 148 zones, and a cut-off grade of 3.54 g/t for the 159 and 160 zones.
5. Open pit Mineral Reserves are estimated at a cut-off grade of 1.01 g/t Au for the 160 pits. A cut-off grade of 1.37 g/t Au for the WMCP. A cut-off grade of 1.31 g/t Au for the Principal Pit. A cut-off grade of 1.30 g/t Au for the 134 Pit. A cut-off grade of 1.39 g/t Au for the EMCP and XMCP.
6. Underground and open pit Mineral Reserves are estimated using an average long term gold price of US$1,600/oz Au and a US$/C$ exchange rate of 1.275.
7. A minimum mining width of three metres was used.
8. Totals may not represent the sum of the parts due to rounding.

Underground and open pit Mineral Reserves by zone are presented in Table 12-2.

Table 12-2: Mineral Reserves by Zone – December 31, 2021
Hecla Mining Company – Casa Berardi Mine

Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
Underground – Proven			
Lower Inter	7,065	8.49	1,928
113	94,045	4.45	13,460
118	133,400	4.47	19,185
123	265,587	4.96	42,333
124	77,723	4.26	10,657
East Mine UG	259,110	6.69	55,731
Total Underground – Proven	836,930	5.33	143,294
Underground – Probable			
Lower Inter	3,709	6.50	776
113	164,510	5.95	31,468
118	522,765	4.52	76,000
119	125,585	4.15	16,773
123	331,532	4.99	53,222
124	89,646	4.37	12,586
East Mine UG	300,119	7.09	68,454
Total Underground – Probable	1,537,865	5.24	259,279
Total Underground Proven + Probable	2,374,795	5.27	402,574
Open Pit – Proven			
WMCP	4,034,194	3.31	429,078
EMCP	4,969	2.78	444
Principal	142,400	3.25	14,888
160	139,447	1.91	8,582
Total Open Pit – Proven	4,321,010	3.26	452,992
Open Pit – Probable			
WMCP	1,296,377	2.65	110,415
Extension	183,642	1.87	11,051
Principal	5,640,245	2.80	507,803
134	114,644	3.06	11,265
160	4,894,793	1.83	287,875

Zone	Tonnes (t)	Grade (g/t Au)	Contained Metal (oz Au)
Total Open Pit – Probable	12,129,701	2.38	928,409
Total Open Pit Proven + Probable	16,450,711	2.61	1,381,401
Grand Total			
Proven	5,157,940	3.60	596,287
Probable	13,667,566	2.70	1,187,688
Proven + Probable	18,825,506	2.95	1,783,975

Notes:

1. Classification of Mineral Reserves is in accordance with the S-K 1300 classification system.
2. Underground and open pit Mineral Reserves were estimated by Hecla Québec and reviewed and accepted by SLR.
3. Mineral Reserves are 100% attributable to Hecla.
4. Underground Mineral Reserves are estimated at a cut-off grade of 3.27 g/t Au for 100, 113,119 and 124 zones. A cut-off grade of 3.57 g/t Au for the 115, 118, 121, 123 and 128 zones. A cut-off grade of 3.83 g/t Au for the 146 and 148 zones, and a cut-off grade of 3.54 g/t for the 159 and 160 zones.
5. Open pit Mineral Reserves are estimated at a cut-off grade of 1.01 g/t Au for the 160 pits. A cut-off grade of 1.37 g/t Au for the WMCP. A cut-off grade of 1.31 g/t Au for the Principal Pit. A cut-off grade of 1.30 g/t Au for the 134 Pit. A cut-off grade of 1.39 g/t Au for the EMCP and XMCP.
6. Underground and open pit Mineral Reserves are estimated using an average long term gold price of US$1,600/oz Au and a US$/C$ exchange rate of 1.275.
7. A minimum mining width of three metres was used.
8. Totals may not represent the sum of the parts due to rounding.

The SLR QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.1 Underground Mineral Reserves

Underground Mineral Reserves have increased since the December 31, 2020 Mineral Reserve estimate. The open pit Mineral Reserves increased substantially with the addition of the WMCP Pit and the Principal Pit.

Mineral Reserve estimates are based on the Mineral Resource 3D block models. Stope shapes are created based on individual zone and lens geometries. Stope designs, based on 15 m spaced sections extrapolated along strike, are built to allow a preliminary economic assessment of the areas to be mined. The Mineral Resources within the stope shapes are exported to MS Excel and dilution and extraction factors are applied. Mining engineers then assess the economic prospects for each stope. Based on engineering considerations, lower grade blocks may be included in stope designs if their development is proposed in conjunction with other blocks. While the low grade block alone would not support the required development, it is considered economic if it can be developed with other blocks. Similarly, the evaluation of the extraction method or ground conditions may result in lower grade blocks being included in the Mineral Reserve estimate.

Underground zones containing Mineral Reserves are described below.

The 118 Zone consists of several lenses and mining is in progress in the 27 and 31 lenses using transverse and longitudinal stoping. Current production is situated between the 830 m and 1,050 m levels. From

the 790 m level, the 118 Zone's internal ramp system and mining levels are accessible. The 118_06 and 118_10 lenses are being developed and mined by longitudinal stoping. Paste fill is available in the 118 Zone.

The 123 Zone lies approximately 250 m to the south of the 118 Zone. The 123 Zone is accessed via an internal ramp system and mining levels from the 790 m level. The 123 Zone consists of several sub-parallel lenses. Paste fill is also available in the 123 Zone below the 470 m level. An internal ramp which connects the upper and lower levels of the 123 Zone.

The 124 Zone is in the upper portion of the West Mine, and consists of several sub-parallel lenses, which are currently mined from the underground, below the 150 m level. The upper portion of the 124 Zone, extending from surface to the 185 m level, is planned for open pit mining. Paste fill is not available in the Principal Pit area of the West Mine. Stopes are backfilled with CRF and uncemented rock fill in this area.

The 113 Zone is located to the west of the West Shaft. Currently, there is no active mining in the 113 Zone. Drilling is underway to define the 113 Zone at depth (i.e., below the 950 m level). Ground conditions are poor. Paste fill is available in the 113 Zone below the 570 m level.

For the 113, Lower Inter, 118, 119, 121, 123, and 124 zones, the mineralized envelopes were divided into 20 m high and 15 m long stopes. Hanging wall and footwall stope limits were defined by the mineralized envelope. Tonnage and grade were calculated for each stope, including ore development within the stope outline. Dilution and extraction factors were applied on a stope by stope basis based on a review of stope conditions and planned mining.

After rehabilitation of the access, the East Mine underground mining will begin with the recovery of stopes between the 570 m and 500 m levels. The East Mine underground Mineral Reserves are based on the recovery of the stopes and pillars remaining in the upper 570 m level, as well as stopes below the 570 m level, which is a new mining horizon. Currently mining is in progress from the 500 m to 650 m levels and the ramp to access the lower levels is being excavated.

The mining method used is the longitudinal method. In the future, Hecla proposes using the transverse method in the lower levels of the East Mine to increase mining flexibility in this area. The use of state of the art mine planning and geology software packages allows direct access to the Mineral Resource block models, which makes mine design review and revision processes more efficient.

12.2 Open Pit Mineral Reserves

Since 2013, the number of Casa Berardi open pit projects has grown from two to six, with the addition of the XMCP, 134, 160, and WMCP pits. In addition to these new open pit Mineral Reserves, the Mineral Reserves for the Principal Pit have more than doubled since the original 2011 Mineral Reserve statement.

12.2.1 EMCP/XMCP Pit

The EMCP Pit has been fully mined, and only the XMCP Pit remains in operation. Currently, the bottom of the XMCP Pit is 4,922.5 MASL. Once completed, the final elevation will reach approximately 4,892.5 MASL by approximately Q2 2024. The XMCP Pit has been placed on hold until July 2023 to maximize the 160 Pit. Production is planned to commence again at a rate of 926 tpd.

12.2.2 134 Pit

The 134 Pit is located to the southeast of the Principal Pit. The 134 Pit will not intersect any underground workings and is independent of the Principal Pit. A dewatering program will be required to control water

inflow from runoff and from the rock mass. Overburden removal for the 134 Pit is planned for 2034 and mining will begin in 2035. The overburden and waste rock will be used to backfill the Principal Pit.

12.2.3 160 Pit

The 160 Pit is located northeast of the mill. The 159 and 160 lens (both included in the 160 Pit) are currently the most easterly identified lens on the Property. The 160 Pit is divided in four phases. Currently, Phase 2 is being mined and overburden removal is expected to continue until Q4 2024. The final phase of the 160 Pit will reach 4,777.5 MASL and be completely mined in 2028. The average planned tonnage is 2,450 tpd. The 160 Pit will not intersect any underground workings.

12.2.4 WMCP Pit

The WMCP Pit is the most westerly pit in the Casa Berardi Mineral Reserves. Prior to commencing this project, surface infrastructure (e.g., a cement plant and access roads) will have to be redesigned and/or relocated and environmental considerations will have to be addressed. The WMCP Pit will intersect multiple underground excavations. The development of the WMCP Pit is planned to coincide with the end of underground mining in the West Mine area. If the start date is advanced, underground infrastructure will have to be relocated to mitigate geotechnical risks. Overburden removal is planned to commence in 2028 and will take three years. The WMCP Pit Mineral Reserve will be mined between 2031 and 2035, at a rate of 4,384 tpd. According to the most recent pit shell, the bottom of the WMCP will reach 4,715 MASL.

12.2.5 Principal Pit

Overburden removal in the Principal Pit area is planned to begin in 2025 whereas ore mining is planned to begin in 2028 at an average rate of 4,384 tpd until 2031. Environmental and engineering challenges regarding pumping are being addressed and is still in progress. The Principal Pit will intercept underground workings (in the lower part of the pit). According to the most recent pit shell, the bottom of the Principal Pit will reach 4,780 MASL.

12.3 Cut-Off Grade

The cut-off grade used for reporting Mineral Reserves is based on the following parameters:

- Gold price: US$1,600/oz Au.
- Exchange rate of C$1.275/US$1.00.
- Metallurgical recovery by zone as presented in Table 12-3.
- The underground and open pit cut-off grades are presented in Table 12-3.

Table 12-3: Underground and Open Pit Reserve Cut-Off Grades
Hecla Mining Company – Casa Berardi Mine

Area	Metallurgical Recovery (%)	Cut-Off Grade Mill Recovery (%)	Cut-Off Grade (g/t Au)
Underground Zones			
113 Inf	84.4		3.27
118	77.5		3.57
123	77.5		3.57
100 (Lower Inter)	84.4		3.27
121	77.5		3.57
124	84.4		3.27
160	85.4		3.54
148 (East UG)	79.0		3.83
128	77.5		3.57
119	84.4		3.27
Open Pits			
Principal	81.8	63.6	1.15
EMCP/XMCP	75.7	64.2	1.17
134	82.7	63.5	1.14
160	89.7	84.9	0.86
WMCP	80.5	61.9	1.18

When the grade of the Mineral Reserves is close to the cut-off grade, a more detailed review is completed considering the anticipated costs and revenues.

Individual stopes were evaluated using the cut-off grade for the applicable zone, after dilution and extraction factors had been applied.

Hecla reviewed supply and demand projections for gold, as well as consensus long term (ten year) metal price forecasts. SLR verified that Hecla's selected gold price for estimating Mineral Reserves is consistent with independent forecasts from banks and other lenders.

12.4 Dilution and Extraction

12.4.1 Underground Mining

For underground mining, internal dilution is defined as material below the cut-off grade included within a mining block. Internal dilution represents areas included within the Mineral Resource envelopes for continuity and areas outside of the Mineral Resource envelope required to optimize the mining geometry.

Internal dilution is intended to be mined with the ore and is included in the Mineral Reserve estimate of a stope.

External dilution is defined as unplanned and uneconomic material coming from the periphery of a mining block. It includes material from the hanging wall or footwall and from exposure of backfill in adjacent stopes. The estimation of underground external dilution is based on the 12 years of underground operating experience at the mine and is expressed as a percentage, calculated as:

Dilution % = (waste tonnes / ore tonnes) x 100.

The average total dilution from internal and external sources for the underground Mineral Reserves is 35% (Table 12-4).

Extraction is the proportion of the diluted Mineral Reserve which is expected to be extracted by mining. The extraction by zone is presented in Table 12-4.

Average extraction is estimated to be 94.5%. Timely placement of backfill and other measures to control stope deterioration are key to achieving high extraction rates in this pillarless mining scenario.

Dilution has been estimated on a stope by stope basis considering the planned mining and conditions in the given areas. The dilution estimates reflect the expected conditions in the mature mining areas. For new zones, the estimates are based on historical data from similar mining conditions. The East Mine dilution estimate is based on historical mining in the East Mine from 2020 to 2021.

A review of drill hole and block model grades immediately outside stope outlines indicates that mineral boundaries are generally gradational, ranging from 0.5 g/t Au to 1.0 g/t Au at stope boundaries, instead of being sharply cut. A grade of 0.5 g/t Au has been applied to hanging wall/footwall dilution in all zones.

For the East Mine, extraction factors of 92.5% are applied for longhole stopes.

Table 12-4: Dilution and Extractions Estimates – Underground
Hecla Mining Company – Casa Berardi Mine

Zone	Dilution (%)		Extraction (%)	
	Longitudinal	Transverse	Longitudinal	Transverse
113	30.7	49.6	100	75.6
Lower Inter	30.7	49.6	100	75.6
148	40	40	94.4	92.9
118	27.3	32.9	94.4	92.9
119	27.3	32.9	94.4	92.9
123	28	15.1	94.4	92.9
124	40.3	18.7	94.4	92.9

12.4.2 Open Pit Mining

For open pit mining, internal dilution is defined as material below the cut-off grade within the Mineral Resource envelope. Internal dilution can also be partially estimated by comparing the envelope geometry

to bench geometry, as benches are square vertical blocks and the mineral zones dip at angles of between 45° and 70°.

External dilution in open pit mining is defined as material below the cut-off grade that is mixed with ore during the blasting process or picked up by the excavators at the contact between the mineralized package and the waste matrix.

The EMCP/XMCP Pit has been operating since January of 2016. The dilution estimates for the XMCP Pit are based upon this recent mining experience. For subsequent pits, dilution estimates will reflect the historical values and experience from the EMCP Pit.

Extraction by zone is presented in Table 12-5.

For open pit mining, an extraction factor between 93% and 95% is used. These factors are supported by reconciliation numbers.

Table 12-5: Dilution and Extractions Estimates – Open Pit
Hecla Mining Company – Casa Berardi Mine

Pit	Dilution (%)	Extraction (%)
WMCP	22	94
XMCP	27	95
Principal	20	95
134	20	93
160	27	93

12.5 Estimation Methodology – Open Pit Projects

For each of the open pit projects described in the following subsections, optimized pit shells based on the block models prepared by Hecla Québec's geology department were used. Surpac scripts were used to code materials and surfaces within the block model (i.e., overburden material types and bedrock contact). The pit shells were generated using Whittle. Implicit average diluted cut-off grades ranging from 0.86 g/t Au to 1.18 g/t Au were used. Slope angles and other design criteria are discussed in Section 13 (Mining Methods) of this TRS. The open pit cut-off grade mill recoveries below are solely used to calculate the cut-off. They represent the estimated metallurgical recoveries in the vicinity of the open pit gold cut-off grades and are significantly lower than the metallurgical recoveries related to the average mill fee gold grades.

12.5.1 EMCP Pit

The EMCP Pit is completely mined and as such has no mineral value, however, it has emerged as a backfilling solution. Early studies and feasibility plans revealed an economic value in backfilling the EMCP with waste rock and overburden from the 160 and XMCP pits. Operational, geotechnical, and permitting issues are being addressed in order to move forward with the backfilling plan.

12.5.2 Principal Pit

In 2021, the Principal Pit Mineral Reserves were recalculated using updated economic parameters, based on a block model developed by Hecla Québec (geology) department. A pit optimization was run by Hecla.

Mineral Reserves were estimated for this pit shell based on an implicit average diluted cut-off grade of 1.15 g/t Au, and the following inputs:

- Operating costs of C$47.59/t ore (US$37.33/t).
- Cut-off grade mill recovery of 63.6%.
- Gold price of US$1,600/oz Au.
- Dilution of 20%.

12.5.3 XMCP Pit

In Q4 2021 Hecla estimated what remains of the XMCP Pit Mineral Reserves, using updated economic parameters and an updated block model developed by the Hecla Québec mine geology department.

Mineral Reserves were estimated for this pit design based on an implicit diluted cut-off grade of 1.17 g/t Au, and the following inputs:

- Operating costs of C$48.84/t ore (US$37.33/t).
- Cut-off grade mill recovery of 64.2%.
- Gold price of US$1,600/oz Au.
- Dilution of 27%.

12.5.4 134 Pit

In Q4 2021, Hecla updated the 134 Pit Mineral Reserves, using updated economic parameters, and an updated block model developed by the Hecla Québec mine geology department. A pit shell optimization was also run by Hecla.

Mineral Reserves were estimated for this pit shell based on an implicit diluted cut-off grade of 1.14 g/t Au, and the following inputs:

- Operating costs of C$47.22/t ore (US$37.04/t).
- Cut-off grade mill recovery of 63.5%.
- Gold price of US$1,600/oz Au.
- Dilution of 20%.

12.5.5 160 Pit

In Q4 2021, Hecla estimated the 160 Pit Mineral Reserves, using updated economic parameters and an updated block model developed by the Hecla Québec mine geology department. A new pit design has been created around this optimized pit shell.

Mineral Reserves were estimated for this pit design based on an implicit diluted cut-off grade of 0.86 g/t Au, and the following inputs:

- Operating costs of C$47.97/t ore (US$37.62/t).

- Cut-off grade mill recovery of 84.9%.
- Gold price of US$1,600/oz Au.
- Dilution of 27%.

12.5.6 WMCP Pit

In Q4 2021, Hecla estimated the WMCP Pit Mineral Reserves, using updated economic parameters and an updated block model developed by the Hecla Québec mine geology department. A pit shell optimization was also run by Hecla.

Mineral Reserves were estimated for the WMCP Pit shell based on an implicit diluted cut-off grade of 1.18 g/t Au, and the following inputs:

- Operating costs of C$47.65/t ore (US$37.37/t).
- Cut-off grade mill recovery of 61.9%.
- Gold price of US$1,600/oz Au.
- Dilution of 22%.

12.6 Comparison to Previous Estimates

The December 31, 2021 Mineral Reserve estimate represents an overall increase of 3,611,459 t and 242,022 oz Au as compared to the December 31, 2020 Mineral Reserve estimate.

A summary of gains and losses is presented in Table 12-6.

From 2020 to 2021, Mineral Reserves underground decreased due to mining in the Lower Inter, 118, and 124 zones. Underground Mineral Reserves were expanded in the 113, 119 and 123 zones. Over the same period, Mineral Reserves increased in all of the open pits, except the XMCP Pit.

Table 12-6: Change in Mineral Reserves 2020 to 2021
Hecla Mining Company – Casa Berardi Mine

Zone	December 31, 2021			December 31, 2020			Change	
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonne (000 t)	Contained Metal (000 oz Au)
				Proven				
Lower Inter	7	8.5	1.9	14	6.9	3.1	(7)	(1.2)
107(SW)				19	4.4	2.6	(19)	(2.6)
113	94	4.5	13.5	8	5.0	1.3	86	12.2
118	133	4.5	19.2	192	4.7	29.0	(59)	(9.8)
119	-	-	-	-	-	-	-	-
121	-	-	-	-	-	-	-	-
123	266	5.0	42.3	375	4.9	58.9	(109)	(16.6)
124	78	4.3	10.7	75	4.5	10.8	3	(0.1)

Zone	December 31, 2021			December 31, 2020			Change	
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonne (000 t)	Contained Metal (000 oz Au)
East Mine U/G (148)	259	6.7	55.7	258	6.3	52.1	1	3.6
WMCP Pit	4,034	3.3	429.1	3,721	3.2	379.9	313	49.2
EMCP + Ext. Pit	5	2.8	0.4	92	2.6	7.7	(85)	(7.3)
Principal Pit	142	3.3	14.9	213	3.2	21.9	(71)	(7.6)
134 Pit	-	-	-	-	-	-	-	-
160 Pit	139	1.9	8.6	-	-	-	139	8.6
Total Proven Mineral Reserves	5,158	3.6	596.3	4,967	3.6	567.4	191	28.9
Probable								
Lower Inter	4	6.5	0.8	4	5.0	0.7	0	0.1
107(SW)	-	-	-	-	-	-	-	-
113	165	6.0	31.5	-	-	-	165	31.5
118	523	4.5	76.0	609	4.8	93.5	(86)	(17.5)
119	126	4.2	16.8	-	-	-	126	16.8
121	-	-	-	19	4.4	2.7	(19)	(2.7)
123	332	5.0	53.2	215	4.7	32.5	117	20.7
124	90	4.4	12.6	170	4.4	23.9	(80)	(11.3)
East Mine U/G (148)	300	7.1	68.5	360	6.6	75.9	(60)	(7.4)
WMCP Pit	1,296	2.7	110.4	1,027	2.6	84.1	269	26.3
EMCP + Ext. Pit	184	1.9	11.1	388	1.9	24.2	(204)	(13.1)
Principal Pit	5,640	2.8	507.8	5,041	2.9	468.4	599	39.4
134 Pit	115	3.1	11.3	86	3.4	9.4	29	1.9
160 Pit	4,895	1.8	287.9	2,314	2.1	157.5	2,581	130.4
Total Probable Mineral Reserves	12,130	2.4	928.4	10,247	3.0	974.6	1,883	(46.2)
Proven and Probable								
Total Proven and Probable Mineral Reserves	18,826	3.0	1,784.0	15,214	3.2	1,542.0	3,612	242.0

12.7 Reconciliation

Tonnage and grade reconciliations between Mineral Reserves, mine plans, and mill production are carried out by Hecla on an individual stope by stope basis and reported on a monthly and annual basis. The annual results for 2006 to 2021, and the comparisons between the mill production and Mineral Reserves

and mill production and planned mining are presented in Table 12-7 and Table 12-8. The same information on a monthly basis for 2021 is shown in Table 12-9 and Table 12-10.

Tonnes, gold grades, and gold ounces for the block model estimates and the final design plans are compared to mill production.

On an annual basis, the reconciliation between the mill production, Mineral Reserves, and mine plans with respect to tonnage, grade, and contained gold is very consistent, with 78 of the 132 data points within ±5%.

Table 12-7: Mine-Mill Reconciliation – 2006 to 2021
Hecla Mining Company – Casa Berardi Mine

Year	Mineral Reserves			Planned Reserves			Mill		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
2021 PIT	643.3	1.8	36.7	753.2	1.9	46.9	748.5	1.9	46.7
2021 U/G	639.0	5.0	102.0	618.5	5.3	104.7	637.9	5.5	111.8
2020 PIT	560.3	2.1	37.3	563.4	2.2	39.9	578.3	2.1	38.5
2020 U/G	655.1	5.6	116.8	588.4	5.7	107.8	586.8	5.9	111.5
2019 PIT	540.0	1.9	35.6	540.6	2.0	36.7	558.1	1.9	36.3
2019 U/G	661.6	5.7	122.1	652.9	5.8	121.0	692.1	5.8	128.6
2018 PIT	475.4	2.2	31.1	498.8	2.0	29.5	547.7	2.0	32.1
2018 U/G	738.6	6.7	158.1	689.9	6.4	142.8	700.3	6.9	154.8
2017 PIT	342.9	2.8	29.9	440.8	2.8	38.7	445.2	2.9	41.0
2017 U/G	649.8	6.4	133.1	702.8	6.0	134.4	730.7	5.9	139.4
2016 PIT	83.5	2.5	5.3	121.8	2.6	8.9	121.7	2.3	7.4
2016 U/G	686.9	6.0	132.3	728.6	6.1	141.9	783.3	6.3	159.1
2015 U/G	701.6	6.0	136.1	736.7	5.9	139.1	765.8	6.0	146.7
2014 U/G	653.9	6.6	138.6	725.2	5.9	138.2	750.8	5.9	142.4
2013 U/G	571.2	6.3	115.0	583.0	5.8	108.7	590.6	6.2	117.0
2012 U/G	632.2	7.8	157.5	685.5	6.7	148.2	693.9	6.8	151.1
2011 U/G	735.1	8.0	188.2	726.9	7.5	175.3	698.1	8.0	179.5
2010 U/G	683.4	6.8	150.0	670.4	6.7	144.2	722.7	6.8	157.1
2009 U/G	719.6	7.5	173.7	684.6	7.1	155.4	688.7	7.8	172.0
2008 U/G	662.1	8.5	181.7	706.7	8.1	183.0	654.4	8.2	171.6
2007 U/G	548.1	10.4	183.4	579.5	10.2	190.2	545.3	9.8	171.4
2006 U/G	64.0	9.2	18.9	66.6	8.9	19.0	68.5	8.6	18.9
Total	**12,647.8**	**5.9**	**2,383.7**	**13,064.9**	**5.6**	**2,354.3**	**13,309.3**	**5.7**	**2,434.9**

Table 12-8: Mine-Mill Reconciliation – 2006 to 2021
Hecla Mining Company – Casa Berardi Mine

Year	Mill versus Planned Reserve (%)			Mill versus Mineral Reserve (%)		
	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
2021 PIT	116%	110%	128%	99%	100%	100%
2021 U/G	100%	110%	110%	103%	104%	107%
2020 PIT	104%	100%	104%	103%	93%	96%
2020 U/G	90%	107%	95%	100%	104%	103%
2019 PIT	104%	99%	102%	103%	96%	99%
2019 U/G	105%	101%	105%	106%	100%	106%
2018 PIT	115%	90%	103%	109%	98%	107%
2018 U/G	95%	103%	98%	102%	107%	108%
2017 PIT	128%	104%	133%	101%	104%	105%
2017 U/G	112%	93%	105%	104%	100%	104%
2016 PIT	140%	90%	127%	100%	87%	87%
2016 U/G	114%	105%	120%	108%	104%	112%
2015 U/G	109%	99%	108%	104%	102%	106%
2014 U/G	115%	90%	103%	104%	100%	103%
2013 U/G	103%	98%	102%	101%	106%	108%
2012 U/G	110%	87%	96%	101%	101%	102%
2011 U/G	95%	100%	95%	96%	107%	102%
2010 U/G	106%	99%	105%	108%	101%	109%
2009 U/G	96%	103%	99%	101%	110%	111%
2008 U/G	99%	96%	94%	93%	101%	94%
2007 U/G	99%	94%	93%	94%	96%	90%
2006 U/G	107%	94%	100%	103%	96%	99%
Total	**105%**	**97%**	**102%**	**102%**	**102%**	**103%**

Table 12-9: Mine-Mill Reconciliation – 2021
Hecla Mining Company – Casa Berardi Mine

Month	Mineral Reserves			Planned Reserves			Mill		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
Jan Pit	34.2	2.9	3.2	55.0	2.5	4.4	62.6	2.6	5.1
Jan U/G	50.0	4.6	7.3	53.6	4.9	8.5	54.1	4.9	8.5
Feb Pit	25.3	1.6	1.3	56.3	2.0	3.6	61.1	2.0	3.9
Feb U/G	57.2	4.8	8.9	55.0	5.1	9.0	63.0	5.9	12.0
Mar Pit	32.9	2.1	2.3	51.2	2.1	3.4	44.4	2.1	3.0
Mar U/G	63.2	5.4	11.0	59.2	5.7	10.9	63.4	6.3	12.9
Apr Pit	40.3	2.4	3.1	66.4	2.0	4.3	59.7	2.0	3.9
Apr U/G	63.9	4.9	10.1	60.1	5.4	10.4	64.9	5.4	11.2
May Pit	40.0	1.7	2.1	60.2	2.0	3.9	60.4	2.2	4.3
May U/G	48.4	4.6	7.1	41.0	4.8	6.4	42.3	5.0	6.4
June Pit	95.9	1.4	4.3	60.9	1.5	3.0	64.1	1.5	3.1
June U/G	43.9	3.9	5.5	40.5	4.5	5.9	44.4	4.8	6.8
July Pit	43.3	1.5	2.1	76.9	1.2	3.0	71.4	1.2	2.8
July U/G	44.8	5.2	7.5	44.3	4.9	7.0	51.1	4.6	7.5
Aug Pit	77.9	1.4	3.6	61.9	1.4	2.8	62.7	1.3	2.7
Aug U/G	58.1	5.0	9.4	50.4	5.9	9.6	51.1	6.0	9.8
Sept Pit	70.8	1.4	3.1	74.2	1.3	3.2	74.1	1.3	3.1
Sept U/G	49.2	4.9	7.7	54.9	5.2	9.1	53.0	5.2	8.8
Oct Pit	68.8	1.8	4.0	62.9	2.1	4.2	62.0	2.1	4.1
Oct U/G	49.1	5.3	8.4	51.4	5.8	9.5	50.3	6.6	10.7
Nov Pit	55.7	2.1	3.7	69.4	2.9	6.4	67.5	2.8	6.0
Nov U/G	51.4	4.8	7.9	48.0	5.3	8.1	43.2	4.8	6.7
Dec Pit	58.3	2.1	4.0	57.8	2.4	4.7	58.5	2.5	4.8
Dec U/G	59.9	5.9	11.4	60.1	5.3	10.3	57.0	5.4	9.9
Total	**1,282.3**	**3.4**	**138.7**	**1,371.7**	**3.4**	**151.6**	**1,386.4**	**3.6**	**158.6**

Table 12-10: Mine-Mill Reconciliation – 2021
Hecla Mining Company – Casa Berardi Mine

Month	Mill vs. Planned Reserve			Mill vs. Mineral Reserve		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
Jan Pit	183%	88%	161%	114%	103%	117%
Jan U/G	108%	108%	116%	101%	100%	101%
Feb Pit	242%	124%	299%	108%	100%	108%
Feb U/G	110%	123%	136%	114%	117%	133%
Mar Pit	135%	100%	135%	187%	103%	89%
Mar U/G	100%	117%	118%	107%	110%	118%
Apr Pit	148%	184%	125%	90%	101%	91%
Apr U/G	102%	110%	111%	108%	101%	108%
May Pit	151%	133%	200%	100%	109%	109%
May U/G	87%	110%	96%	103%	104%	107%
June Pit	67%	108%	72%	105%	98%	103%
June U/G	102%	124%	135%	110%	106%	116%
July Pit	165%	82%	135%	93%	100%	93%
July U/G	114%	88%	101%	115%	93%	107%
Aug Pit	80%	93%	75%	101%	93%	94%
Aug U/G	88%	119%	105%	101%	101%	102%
Sept Pit	105%	95%	99%	100%	97%	97%
Sept U/G	108%	106%	114%	97%	100%	96%
Oct Pit	90%	114%	103%	98%	100%	98%
Oct U/G	102%	125%	128%	98%	115%	112%
Nov Pit	121%	132%	160%	97%	96%	94%
Nov U/G	84%	101%	85%	90%	92%	82%
Dec Pit	100%	123%	123%	101%	101%	102%
Dec U/G	95%	91%	87%	95%	101%	96%
Total	**108%**	**106%**	**114%**	**101%**	**104%**	**105%**

The annual and monthly reconciliation charts for tonnage, grade, and contained ounces are provided in Figure 12-1 to Figure 12-3, respectively. The monthly variance between the mill production, Mineral Reserves, and mine plan has a larger range than the annual average, as demonstrated in Table 12-10 and in Figure 12-1 to Figure 12-3.

The SLR QP is of the opinion that there is good reconciliation between the Mineral Reserves, mine planning, and the actual production. The annual and monthly reconciliation reports allow the reconciliation over time on a stope by stope basis and/or on a zone by zone basis to be examined. Based upon the reconciliation results, Hecla is of the opinion that the Mineral Reserve estimation and mine planning are reliable.

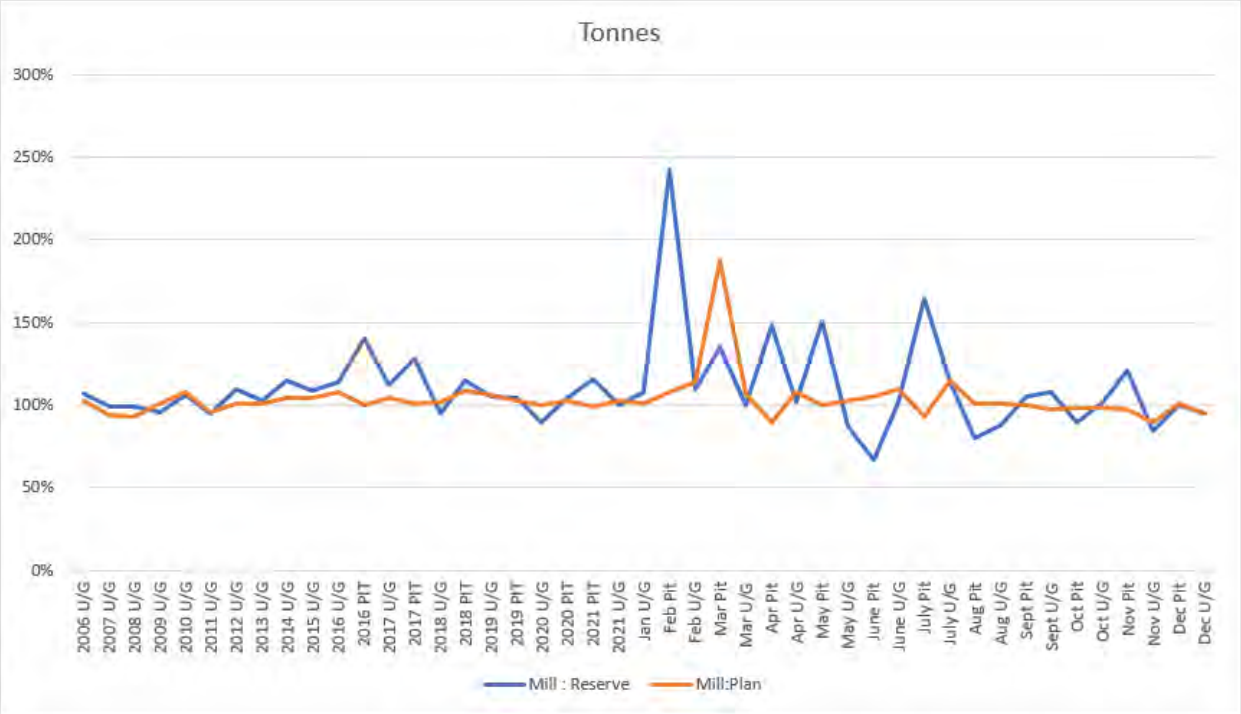

Figure 12-1: Tonnage Reconciliation 2006 to 2021 Annual and 2021 by Month

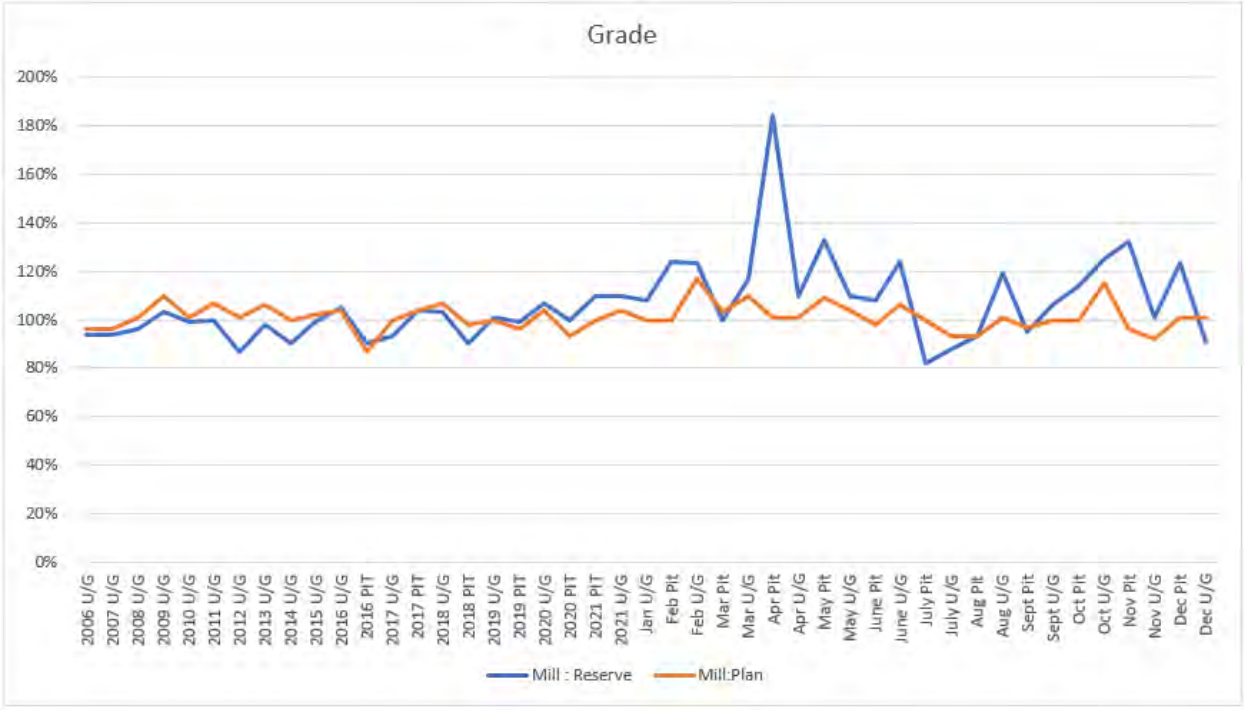

Figure 12-2: Grade Reconciliation 2006 to 2021 Annual and 2021 by Month

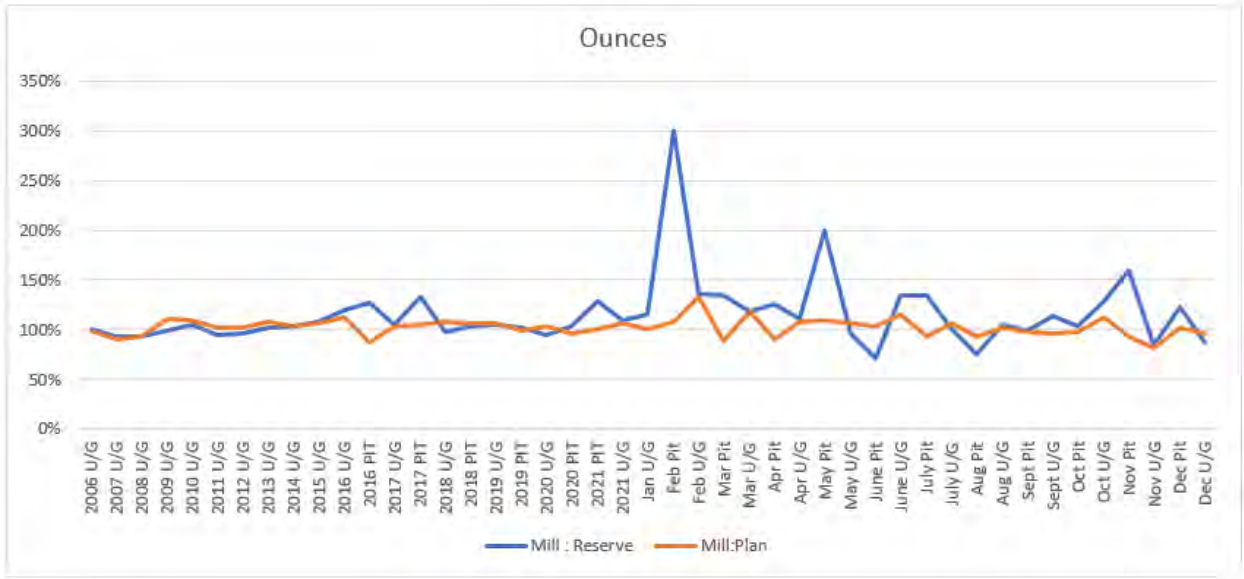

Figure 12-3: Contained Gold Reconciliation 2006 to 2021 Annual and 2021 by Month

In the opinion of the SLR QP, Casa Berardi Mineral Reserves have been estimated using industry best practices, and in accordance with the S-K 1300 classification system. The SLR QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

13.0 MINING METHODS

13.1 Mining Operations – Underground

Inco Gold operated the East Mine from 1988 to 1991. From 1991 to 1997, TVX operated the East and West underground mines. In 2006, Aurizon, now known as Hecla Québec, restarted underground operations at the West Mine, and in late 2017 Hecla began the rehabilitation of the East Mine.

Initially, both mines were developed as trackless operations, with all material transported to surface via ramps. In 1995, a track drift and the East Shaft were completed to connect the East and West Mines.

In 2006, the 5.5 m diameter West Shaft was sunk to the 795 m level, and ramp and level development were completed to access mining zones. In 2013, the West Shaft was deepened to the 1,080 m level.

As of December 2021, the majority of future underground mining will come from the 118, 123, 124 and 148 zones, which will account for 39%, 16%, 15%, and 14% of underground production, respectively. These four zones also represent the bulk of the underground Mineral Reserves.

13.1.1 Mine Design

The mine design and planning processes reflect the past mining experience at the West and East Mines. The following design criteria are used by Hecla Québec:

- 2021 cut-off grade varies by zone from 3.27 g/t Au to 3.83 g/t Au.
- Production rate: target approximately 1,900 tpd of ore.
- Production and development crews work two ten-hour shifts, seven days per week, 365 days per year. The crew rotation is seven days on, seven days off.
- The mill operates two 12-hour shifts, seven days per week, 365 days per year.
- Crews work 7 days in and 7 days off on rotation.
- Ramp and shaft access to the mining areas.
- Ramp dimensions: 4.5 m wide x 4.5 m high.
- Sublevel spacing: 20 m.
- Standard stope dimensions: 20 m high, 15 m strike-length, up to 20 m thick.
- Minimum mining width of three meters.
- Haulage drift dimensions: 4.5 m wide x 4.5 m high.
- 2.7 m diameter ore and waste passes.
- 2.4m and 3.3 m diameter ventilation raises.

13.1.2 West Mine and Principal Area

The current Mineral Reserves at Casa Berardi comprise seven zones in the West Mine including the Principal area. These zones are spread out over a distance of 200 m perpendicular to strike, 1,500 m to 2,000 m along strike and from surface to 1,090 m below surface. The 118, 123, 124, and 148 zones comprise the majority of the Mineral Reserve tonnage.

The zones vary in thickness, ranging from over 50 m to less than three metres (e.g., minimum mining width). In general, the zones are subvertical (e.g., 55° to 85°).

A combination of longitudinal and transverse blasthole stoping is used at Casa Berardi, depending on mineral zone geometry (width and attitude) and development requirements. While timely delivery of backfill plays a crucial role in controlling dilution and maintaining the short stoping cycle, since 2006 this mining approach since 2006 has been implemented safely and reliably.

13.1.3 Transverse Method

The transverse mining method is used in areas with wide mineralization, 10 m wide or more, and good access from nearby development such as haulage drift and multiple draw points. In wide areas, greater than 20 m, stopes are subdivided into smaller panels and mined in sequence from the hanging wall to the footwall.

Stopes are nominally 15 m long by 20 m high, floor to floor, oriented in a transverse manner to the strike of the ore, and are mined using an alternating primary and secondary sequence (Figure 13-1). Overcut and undercut draw points provide access to the top and bottom of the stope. Secondary support in the form of Super Swellex and 0-gauge mine straps is installed in the back and sidewalls of the overcut. Support patterns vary based on sequence and adjacent mining (e.g., primary versus secondary stopes). Ring drilling is carried out using a production 75 mm top hammer longhole drill. A Machines Roger V-30 boring head is used to drill 30 in. bore holes as slot raises in the stopes. The long hole drill pattern is designed to contour the stope geometry by using smooth blasting techniques to control wall sloughing and dilution.

After blasting, broken ore is removed from the stope through the undercut drift using a remote controlled load-haul-dump (LHD) unit and loaded into a truck or trammed to an ore pass. When mining is completed, the stope is backfilled with paste fill or CRF for primary stopes and unconsolidated waste rock for secondary stopes. Stope sequencing varies depending on zone.

The transverse method allows a variety of mining activities to occur in a series of closely grouped primary and secondary stopes simultaneously. The stopes are in different stages of the cycle, from production drilling, blasting, and mucking through to the final backfill placement.

Full utilization of the transverse method requires at least three to four production sublevels to be fully developed and operational to avoid production bottlenecks. To allow for the CRF and paste backfill to adequately cure, the primary stopes are mined at least two lifts ahead of the secondary stopes.

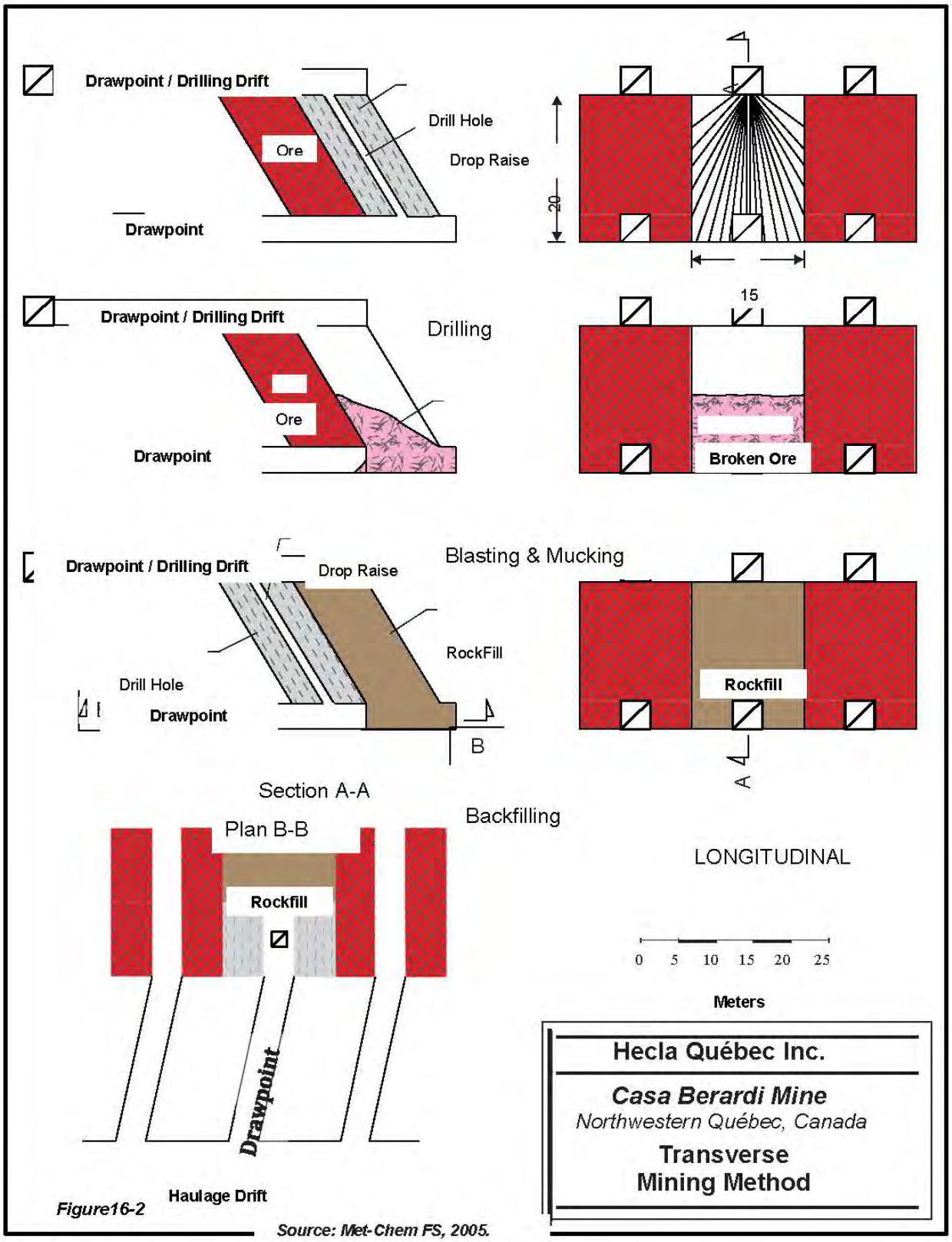

Figure 13-1: Transverse Mining Method

13.1.4 Longitudinal Method

The blasthole longitudinal mining method is used in areas with narrow mineralization or minimal development infrastructure, such as sill development. Oriented along strike, longitudinal stoping is mined in retreat back towards the access point. Once a stope is mined, it is backfilled with paste fill or a combination of CRF and unconsolidated waste. For stopes mined using the AVOCA method, unconsolidated waste or rock fill is used as backfill.

Waste development requirements for the longitudinal method are lower than those for the transverse method, as accesses are within the ore on each level, and serve as overcuts and end-muck draw points for subsequent stopes. When compared to the transverse method productivity per level, as measured by sequence and access flexibility, is much lower since only one (i.e., abutment access) or two (i.e., central access) stopes can be mined simultaneous.

13.1.5 Stope Size

In general, stope dimensions reflect standard development practices such as draw points on 15 m centres and 20 m sublevel spacing. When necessary, stope dimensions at Casa Berardi have been reduced in response to local ground conditions, as has been implemented in the 113 Zone, to mitigate sequencing/operational issues and to avoid exposing unconsolidated rock fill.

The average stope size for the various zones is presented in Table 13-1. With an average stope size of 4,039 t, a large number of workplaces, approximately 12 stopes per month, are required to sustain the 2,000 tpd production rate. Mine planning for these stopes must consider the full stoping cycle, including providing time for backfill curing. The underground mining operations rely on production from multiple levels and stopes in several zones at any given time.

Table 13-1: Tonnage per Stope
Hecla Mining Company – Casa Berardi Mine

Zone	Tonnes (t)	Number of Stope Blocks	Tonnes per Stope (t/stope)
Lower Inter	10,800	3	3,600
113	258,600	72	3,592
118	656,200	148	4,434
119	125,600	30	4,187
123	597,100	152	3,928
124	167,400	41	4,083
East Mine UG	442,400	113	3,915
Total	2,258,000	559	4,039

The typical stoping cycle for Casa Berardi is summarized in Table 13-2.

Table 13-2: Typical Stope Delays and Activity Duration
Hecla Mining Company – Casa Berardi Mine

Description	Delay/Duration
Stope Preparation	8 to 10 days
Stope Drilling	2 x 300 m (drill) / 3 to 5 days
Stope Blasting & Mucking	3 to 5 days
Stope Filling	7 to 10 days
Stope Curing	14 days (minimum)

13.1.6 East Mine Mining Method

The East Mine is accessed by a decline from surface to the 650 m level. At the 300 m level, a track drift connects the East and West mines. The East Shaft is used for a portion of underground services, the hoist has been removed and access via the manway is not currently possible.

In 1997, a partial failure of the Dynatec Plug at the 275 m level occurred and resulted in a chimney failure of the Casa Berardi Fault to surface. Following the failure, a ruling from the Commission de la Santé et de la Sécurité au Travail (CSST) suspended underground mining activities at the East Mine. In 2017, based on a technical report and mining plan presented to the CSST, mining activities restarted. Activities included the rehabilitation of the ramp from surface to the 550 m level, development of two exploration drifts at the 300 m and 485 m levels, diamond drilling of the 148 and 160 zones, ramp development below the 550 m level, and stope preparation between the 500 m and 550 m levels.

In 1992, chimney failures along the Casa Berardi Fault resulted in the creation of two craters on surface. Underground, in the 148 Zone mining beneath these craters was isolated by a series of hydrostatic barricades installed between the 90 m and 300 m levels. Historically, the containment of overburden and surface water from the area surrounding the craters was the primary challenge preventing resumption of underground production from the East Mine.

Mining of the overlying EMCP Pit has eliminated the risk of overburden inflow and of the accumulation of surface water in the craters. The SLR QP notes, however, that the overburden stripping and exposure of sand and rock filled stopes has significantly decreased the delay required for the transmission of surface water (e.g., intense rainfall events and spring thaw) to the underground East Mine. Surface and ground water infiltrating into the East Mine drains primarily via the unconsolidated sand and rock fill of the mined stopes. Since 2017, measures have been implemented to control the drainage and pump the water to maintain a dewatered condition. There are a total of 23 barricades in the East Mine and six in the West Mine. Water valves and pressure gauges are installed on the hydrostatic barricades and monthly inspections are carried out to check for water ingress.

13.2 Ground Stability

A history of ground instability and incidents related to mining in proximity to the Casa Berardi Fault at the East and West mines has highlighted the importance of addressing rock mechanics issues for mining at Casa Berardi. Further details regarding specific incidents are described in previous technical reports (Table 13-8).

13.2.1 Ground Conditions

Ground instability is primarily related to the Casa Berardi Fault system. Lithologies south of the Casa Berardi Fault are composed of relatively weak sediments with a frequent occurrence of schistose and graphitic rocks exhibiting weak contacts. Generally, the rock types vary from massive to fractured and heavily deformed in areas where the mineralization occurs along or near the main structural discontinuities.

13.2.2 Ground Testing and Analysis

RQD estimation is systematically carried out on all core from diamond drilling and development faces in mineralized material are mapped by the Casa Berardi geology department. The design and approval process for all development headings and stopes includes the analysis of these data on a individual basis.

In situ stress measurements, measured at level 360 and level 430 and carried out in 1999 by Canada Centre for Mineral and Energy Technology, fall within the lower range of the regional trends measured in other hard rock mines of the Abitibi district. Given the relatively weak nature of the rock units at Casa Berardi (i.e., uniaxial compressive strengths of less than 100 MPa) there is little evidence of high stress related failures. At depth and in specific zones, such as the 118-06 Zone, however, there is evidence of convergence or squeezing ground deformation. In general, ground stability issues are related to poor ground conditions near faults and gravity-driven wedge failures.

13.2.3 Operating Practices

Hecla has responded to concerns pertaining to safety and stability of mine openings with the following actions:

- Minimizing the open stope time, with mucking followed immediately by backfilling. Prioritizing critical stopes for rapid mucking out to minimize exposure of the Casa Berardi Fault. The cement slurry and paste fill plants operate year-round to supply CRF to the mine.
- Limiting development in the Casa Berardi Fault, particularly the graphite and graphic sediments, by developing perpendicular rather than parallel to the fault.
- Using pre-support, such as spilling, and support, such as, fibre-reinforced shotcrete arches with mine straps, Super Swellex, and Super Split Set, with shortened development specifically adapted to fault conditions.
- Installing recessed cable bolts for hanging wall support, if required, due to ground conditions or development stope geometry.
- Implementing proactive bolting of walls and intersections using long Super Swellex bolts or cable bolts with mesh straps where required by poor ground conditions or large spans.
- Controlling of development length (transverse stoping) and heading size (longitudinal stoping) to minimize the creation of overhangs relative to mineral zone geometry in stope top cuts and undercuts.
- Modifying production drilling for narrow (less than five metre widths) using 2.5 in. diameter drill holes with a 1.5 m x 1.5 m drill pattern.
- Changing the drift back profile to an arch configuration to improve the stability of the back.
- Using standard stope dimensions (average of 15 m strike length, 20 m high, and up to 20 m thick) and based on past experience and industry best practices.

- Applying of tight fill. The stope sequence is from the bottom towards the top of each mining horizon / zone, leaving no voids.
- Locating permanent infrastructure in more stable ground, such as in massive volcanic rocks located to north of the Casa Berardi Fault.

The Casa Berardi ground support measures to maintain drift stability are in accordance with commonly accepted practices. The selected typical stope size and sublevel spacing are conservative, reflect historical best practices, and help maintain stability and minimize dilution. Secondary support is evaluated on a stope by stope basis to mitigate unravelling and exposing faults and weaker lithologies or dilution problems. Different types of instruments are installed to monitor the stability of the excavations. These include five metres, 10 m, and 15 m extensometers (MBPX), SMART cables to monitor the amplitude and depth of rock movement and Sloughmeters, which detect the crack locations following rock displacement.

13.3 Underground Development

Development openings have been sized to meet safety and regulation standards, accommodate selected mining equipment, and meet the ventilation network requirements.

- Ramp dimensions: 4.5 m wide x 4.5 m high.
- Haulage drift dimensions: 4.5 m wide x 4.5 m high.

13.3.1 Ground Support

Ground control measures are applied systematically to ensure safe workplaces, limit dilution and overbreak, and stabilize weak rock masses, particularly in the vicinity of the main fault zones.

The following ground control measures are applied:

- Cable bolting or connectable Super Swellex bolts are used in intersections and large spans to provide long term ground stability.
- Intersections are limited to three way intersections and the creation of four way intersections is avoided.
- Development parallel to major structures or faults (i.e., silling out along the fault) is minimized by developing perpendicular to major structure wherever possible.
- Test holes are used to confirm the position and width of the Casa Berardi Fault. Based on these test holes zones requiring the installation of spiling and shortened development round support with fibre-reinforced shotcrete are identified. This support is applied an additional two metres before and beyond the Casa Berardi Fault.
- Test holes, shotcrete, spiling and other specialized ground support requirements are integrated in the weekly mine planning to ensure that potentially unstable conditions are supported in a rapid and timely manner.

Casa Berardi mine personnel identify potentially unstable joints and abnormal conditions as they are exposed. These situations are evaluated on an individual basis and where required the ground support is modified to stabilize the potential instability. Information regarding ground conditions is communicated daily through the ground control logbook.

13.3.2 Development Performance

Mine development performance has fallen short of the plan in recent years. In the 2018 LTP, the failure to meet development targets was identified as a significant issue. While development has remained at 2018 levels for the past two years it has been sufficient to sustain underground production levels. The SLR QP is of the opinion that while this could impact the final years of the underground operations by prolonging undergrounding mining past the current planned end date of 2027, this should not have a material impact.

The 2011 to 2021 Mine development performance is presented in Table 13-3.

Table 13-3: 2011 to 2021 Development Performance
Hecla Mining Company – Casa Berardi Mine

Year	Plan (m)	Actual (m)
2011	11,881	8,330
2012	11,727	8,681
2013	12,542	11,182
2014	14,374	11,417
2015	13,292	11,764
2016	12,959	11,812
2017	11,382	11,556
2018	10,070	8,851
2019	9,374	8,836
2020	10,240	8,454
2021	11,647	8,692

13.4 Backfill

Backfill is required to maximize mineral extraction and maintain stope stability. Three types of backfill are used at Casa Berardi: i) unconsolidated waste (rock fill), ii) CRF, and iii) paste fill. Rock fill is used in secondary stopes and for AVOCA longitudinal mining. CRF and paste fill are used primarily in stopes for initial mining horizons which will be eventually redeveloped through the paste fill.

Development waste material is used for rock fill and CRF. Transport of the rock fill to the stopes is by LHDs or trucks. In addition to the stability provided by the rock fill, the use of waste material allows for optimization of the hoisted waste tonnage and equipment utilization by coordinating backfilling in proximity to development areas.

CRF is available throughout the West Mine, including areas above the 470 m level where paste fill is not available. A surface plant produces the cement slurry in batches, which is transferred underground via a series of boreholes and lateral piping to either a portable cement mixer or directly to the mix pit location.

There is no paste fill in the East Zone, backfilling of the East Mine stopes is therefore only completed with CRF or rock fill.

The CRF is mixed and placed using special mobile equipment. This equipment prepares the cement pulp necessary for the designed CRF mixture.

A continuous, gravity-driven paste fill plant was constructed in 2013. The paste fill network can supply paste to the 113 (lower), 118, and 123 zones, below the 470 m level.

The advantages of paste fill include:

- Reducing the use of mobile equipment for fill transportation.
- Allowing better development performance through backfill.
- Providing better flexibility in the mining sequence.
- Allowing recovery and subsequent filling of caved stopes.

13.5 Mine Equipment

There is an extensive underground fleet of production, development, and support equipment and fixed plant equipment used at Casa Berardi.

The major equipment is summarized in Table 13-4.

Table 13-4: Underground Mine Equipment List
Hecla Mining Company – Casa Berardi Mine

Unit	2022	2023	2024	2025	2026	2027
MT426 haul truck	1	1	1	1	1	-
Sandvik TH540	2	2	2	2	2	2
AD30 Caterpillar haul truck	12	12	12	12	12	8
LHD R1600	13	13	13	13	11	9
Sandvik 6vg3	1	1	1	1	1	1
LHD R1300 3.5 yd3	2	2	2	2	2	2
LHD EJC 210	1	1	1	1	1	1
Jumbo 2 boom	5	5	5	5	5	2
Jumbo single boom	2	2	2	2	2	1
Long hole drills	5	5	5	5	5	3
Cement/service/utility	21	21	21	20	18	13
Lift deck units	11	11	11	10	10	3
Tractors and land cruisers	44	47	47	45	40	26
Locomotives	0	0	0	0	0	0
Grader	2	2	2	2	2	2

13.6 Mine Infrastructure

Mine infrastructure is located in two main areas, the West and East mines. The production and ventilation shafts, shops, WRFs and ore stockpiles, cement plant, paste fill plant, and ramp portal are located at the West Mine. The mill and administration building, crusher, East Shaft (not currently in use), warehouse, and shops are located at the East Mine. Figure 13-2 and Figure 13-3 illustrate each location.

13.6.1 West Mine Shaft

Prior to restarting operations in 2006, the shaft at the West Mine was developed. The West Shaft is positioned outside the faults and beyond the zone of stress influence due to mining. The West Shaft design was deepened to the 1,080 m level in 2013 and has been operational since 2015.

The West Shaft is a circular 5.5 m diameter shaft with a 42 m deep concrete shaft collar anchored in bedrock. Shaft stations are located at the 280 m, 550 m, 690 m, 795 m, 880 m, 1,010 m, and 1,030 levels. There are three skip loading stations at the 720 m, 835 m, and 1,055 m levels, a loading pocket at the 880 m level and a spill pocket at 1,080 m level.

The West Shaft is concrete-lined and equipped with a steel structure that divides the shaft into four compartments. Two compartments are allocated for the 12 t skips, each with a cage at the top. The third compartment intended for a service cage for personnel and material is not currently in use. The fourth compartment consists of a manway and a service area for pipes and electrical cables. The headframe is of conventional steel construction, 57 m high, incorporating a skip dump arrangement with ore and waste storage bins. The ore bin capacity is 1,200 t and the waste bin capacity is 370 t.

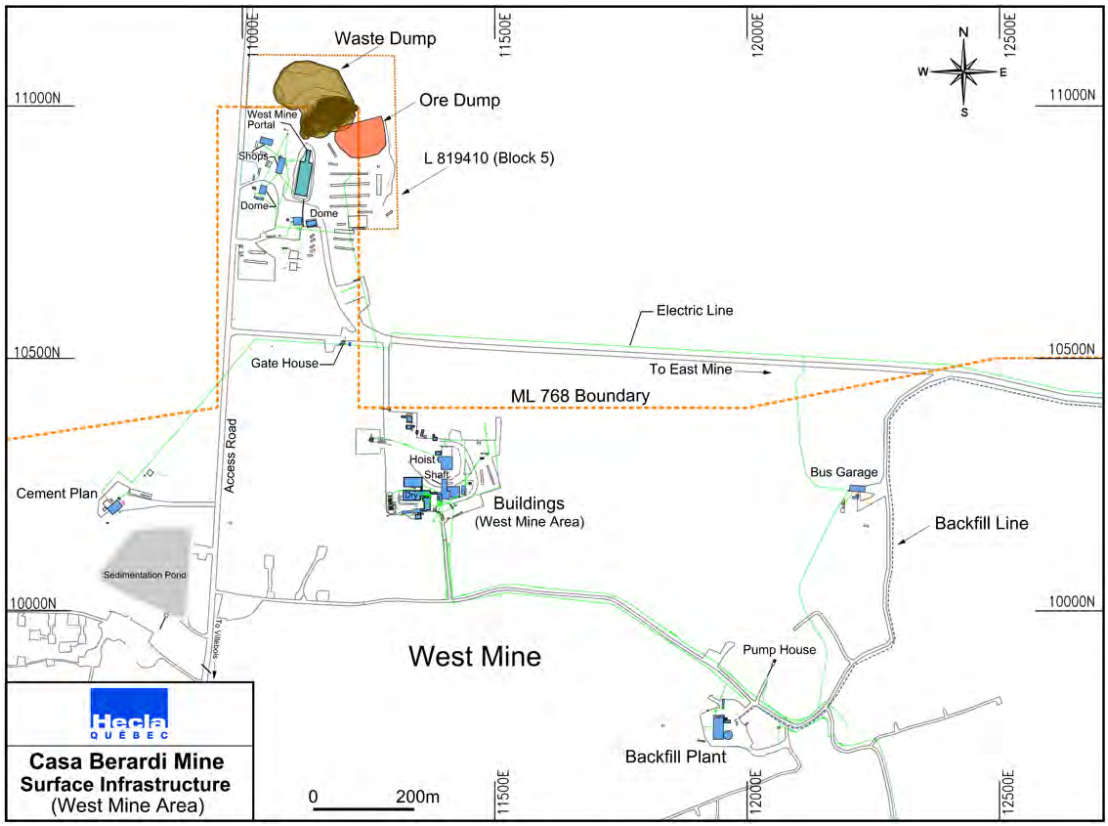

Figure 13-2: West Mine Surface Infrastructure

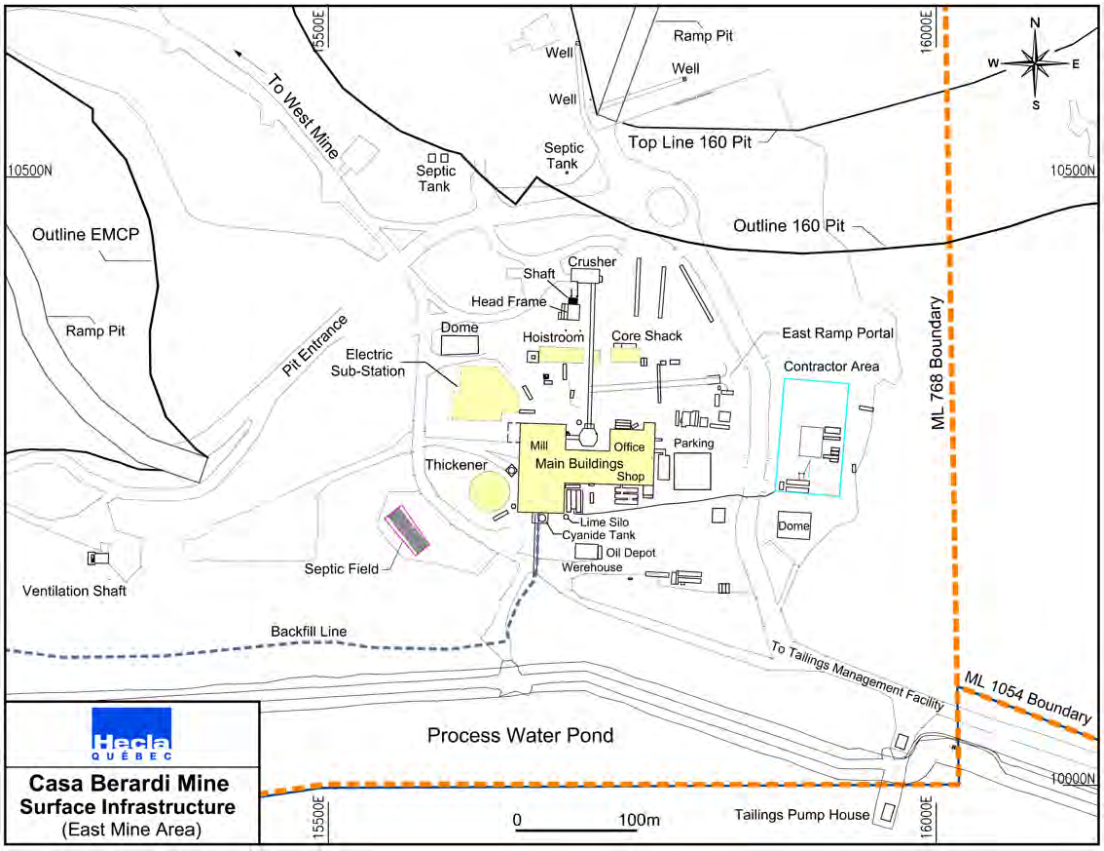

Figure 13-3: East Mine Surface Infrastructure

13.6.2 Ore and Waste Pass Systems

The ore and waste pass systems were sized and located according to the production requirements of the 113 and Lower Inter zones. Ore and waste passes are 2.4 m in diameter. The Lower Inter Zone ore and waste pass system terminates on the 570 m level, where ore and waste are transferred by truck to the 113 Zone ore and waste handling system. The ore and waste pass systems in the 113 Zone terminate at a chute on the 690 m level, where material is transferred by truck to a rock breaker grizzly. Grizzly discharge passes through a surge bin into the 720 m level loading pocket of the West Shaft and is hoisted to surface. A rock breaker grizzly for ore and waste is in operation on the 795 m level and feeds a loading pocket on the 835 m level. For the 124 Zone, all the material is brought to the surface by trucks. Ore and waste are transported to their respective dumps by LHD. Oversize material is handled by a rock breaker or moved to a suitable location for secondary blasting.

For the 118 and 123 zones, ore and waste passes terminate on the 985 m level automated drift. The ore pass connection in the 123 Zone (550 m to 985 m levels) was completed in 2019. Two automated trucks transport material from the automated chutes to automated rock breaker on 985 m level which is controlled from surface. The ore and waste pass systems on the 985 m level terminate at the 1,055 m level loading pocket. From the 1,055 m level loading pocket, ore and waste are skipped to surface.

13.6.3 Ventilation

The ventilation network design was based on physical mine configurations and accounts for the production rate, installed horsepower on diesel equipment, number of personnel, and simultaneous activities underground. The East Mine is ventilated from the West Mine via the track drift that connects the mines on the 280 m level.

The main ventilation raises for mine air distribution system are 3.35 m in diameter, excavated by a raise climber (Alimak) from the lower levels of each zone and connected with main airways. Raise ventilation access drifts (up to 10 m long) are excavated on each level/sublevel during raise development and connected to the main haulage drifts when accessed later. A ventilation schematic circuit is presented in Figure 13-4 and Figure 13-5.

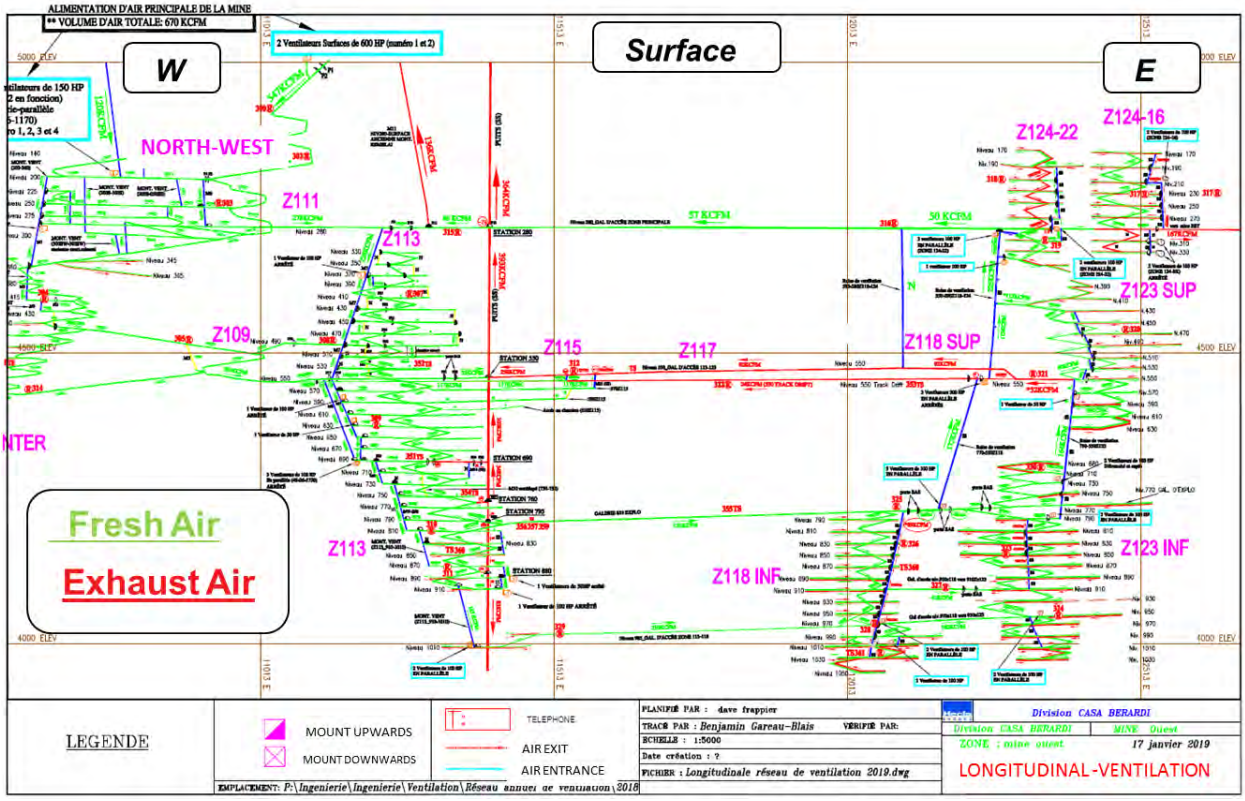

Figure 13-4: West Mine - Ventilation Schematic Circuit

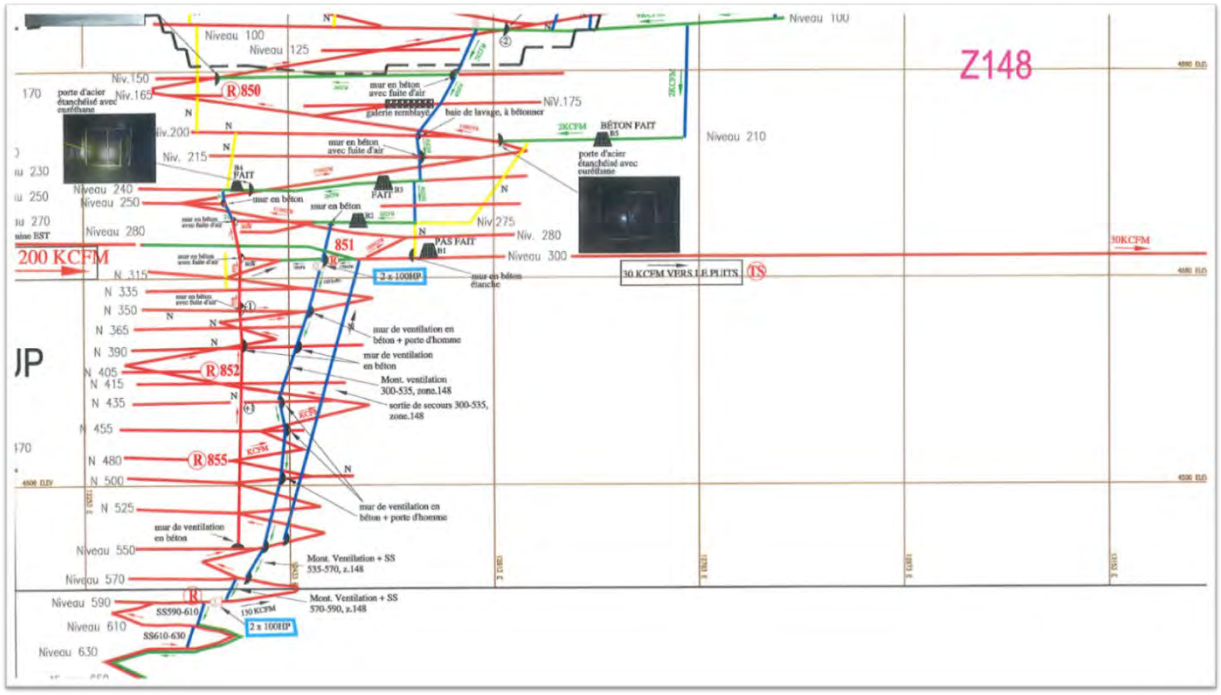

Figure 13-5: East Mine - Ventilation Schematic Circuit

The Mine requires 220 m^3/s of air (465,000 cfm) at full production capacity. The ventilation network installations at the mine consist of:

- The fresh air intake system, which is comprised of two fans in parallel installed at the West Mine portal. These fans deliver 600,000 cfm of fresh air through the West Mine principal ramp with an air lock system. The operating static pressure is 6.5 in of water.
- The West Mine exhaust air points are the shaft, an old backfill raise, and the East Mine.
- Part of the air exhausted from the West Mine is reused for the ventilation of the East Mine activities and exhausted by the East Mine ramp.
- Numerous installed airflow regulators, booster fans, and ventilation raises.
- Due to broken fans the second fresh air intake system was downgraded, however, it remains an option to increase flexibility and the capacity of ventilation if needed. The second fresh air system had the potential of four 150 hp fans, and could provide 260,000 cfm airflow at an operating static pressure of 8.5 in of water.
- Study are in progress to improve the ventilation of the East Mine with a supply of fresh air.

13.6.4 Maintenance Facilities

The main fixed equipment, both on surface or underground, such as the hoist, compressors, ventilators, GEHO pumps, and cement plant, are covered by an integrated preventive maintenance program. Daily maintenance and parts replacement is completed on site. Major equipment overhauls are conducted off site in specialized maintenance shops.

The maintenance of mobile equipment, used on surface and underground, is conducted in a building located near the mill at the East Mine. This building includes a maintenance shop, warehouse, offices, a change room, and a communications system. The existing surface shop is well equipped (compressed air, lifting equipment, cranes, and welding facilities) and large enough to accommodate equipment employed at the site.

The warehouse is located nearby and facilitates the delivery of parts and materials for maintenance and repairs. Spare tires are stored on a nearby pad. The change room and sanitation facilities are located on the second floor of the building.

To improve the maintenance time and displacement of equipment, Hecla Québec installed an underground garage on the 550 Level, in 2010.

Another underground garage was completed in 2014 on the 810 Level, close to the 118 and 123 zones.

In 2022, another underground garage in the East Mine will be built to facilitate maintenance.

In 2024, a surface garage is planned to be built for the open pit equipment.

13.6.5 Power

Electrical power is supplied to site by Hydro-Québec through a 120 kV line from the town of Normetal (55 km to the southwest). Two main transformers are installed in the main substation, located at the East Mine site. The East Mine site is supplied by a 120 kV/4.16 kV – 16 MVA transformer (T1) and the West Mine site is supplied by a 120 kV/25 kV – 20 MVA transformer (T2) as presented on the electrical single-line diagram (Figure 13-6).

The East Mine site distribution network supplies the mill, East Mine, EMCP Pit and the East Mine facilities and garage.

The West Mine site employs a 25kV line network supplies the West Mine portal main ventilation fan, the headframe, hoist, shaft collar, and compressor buildings, West Mine facilities, and a 5 kV transformer to supply 1,000 kVA to underground substations in the mining areas. A 25 kV underground station supplies 1,000 kVA to substations in the 118 and 123 zones.

Underground power distribution is via cables installed in the West shaft or in the ramp. Power supply in Québec is very reliable. Hecla provides backup power for the West Mine headframe (135 kW), the surface garage (350 kW), the mill (525 kW), and the West Mine backfill plant (200 kW).

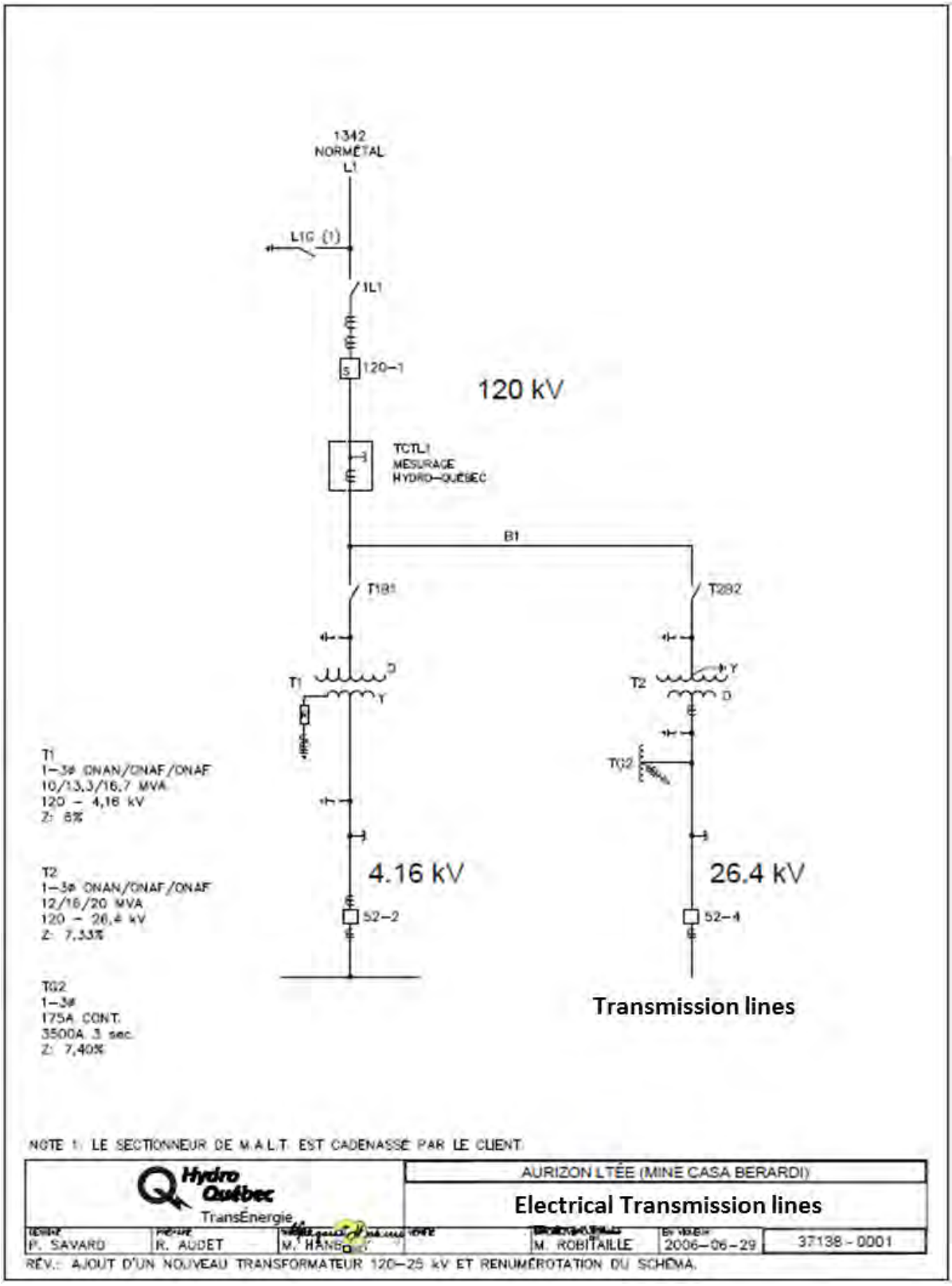

Figure 13-6: Casa Berardi Main Station 120 kV Flowsheet

13.6.6 Personnel

The Casa Berardi workforce consists of company personnel and contractors. The Hecla personnel and contractor lists for mining operations at Casa Berardi are presented in Table 13-5.

The number of Hecla employees required for the Casa Berardi mining operation is not expected to change significantly in the foreseeable future. The number of contractors varies month to month depending on labour requirements at the mine.

Underground production and lateral development is carried out by Hecla personnel, while contractors conduct vertical raise development. Open pit mining, currently operated by a contractor is planned to be converted to Owner operator status in 2024. Some contractor personnel are utilized in the processing plant. Operators and technical staff work a schedule consisting of seven days of dayshift, seven days of nightshift, and seven days off. General staff work on a four day on, three day off shift cycle.

Table 13-5: Mine Personnel List
Hecla Mining Company – Casa Berardi Mine

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
West Mine UG	253	248	248	248	166	89	0	0	0	0	0	0	0	0
East Mine UG	72	72	72	72	32	14	0	0	0	0	0	0	0	0
Mechanical	130	130	153	175	178	138	80	82	83	82	83	84	77	28
Electrical	48	48	48	48	45	32	5	5	5	5	5	5	5	5
Plant	96	99	99	99	97	97	95	92	91	91	91	88	87	41
Open Pits	15	154	150	131	131	131	139	151	156	139	139	139	131	82
Admin. Casa	4	4	4	4	4	4	4	4	4	4	4	4	4	0
Purchasing	12	12	12	12	12	12	10	10	10	10	10	10	10	4
IT- Computing	2	2	2	2	2	2	2	2	2	1	1	1	1	1
H.R.	7	7	7	7	7	6	5	4	3	3	3	3	3	1
Health & Safety	15	15	15	15	14	10	7	6	6	6	6	6	6	3
Engineering	32	32	32	32	31	25	18	16	16	16	16	16	13	6
Environment	6	6	5	5	5	4	3	3	3	3	3	3	3	3
Geology-Expl.	32	32	32	31	18	10	9	9	9	7	6	5	5	4
Admin. Val d'Or	15	15	15	15	15	11	11	11	11	11	11	11	11	6
Total	877	875	893	894	755	583	387	394	398	377	377	374	355	183

13.7 Open Pit Mining Operations

Open pit operations at Casa Berardi began in January 2016, in the EMCP Pit. In addition to the EMCP Pit, this TRS considers the planned Principal, 160 Zone, 134 Zone, XCMP, and WMCP pits. These open pits involve both the recovery of crown pillars above underground mining (i.e., EMCP, WMCP, and Principal pits) and mining of zones that have not been exploited underground (i.e., 134, 160, and XCMP pits).

13.7.1 Mining Method

The current mining method used in the XCMP and 160 Zone pits is described in the following paragraphs. This method will be used for the mining of subsequent open pits. Mining method and design considerations that are specific to the other planned pits are discussed later. Material is mined using conventional open pit mining methods, based on a truck/shovel operation. The rock is drilled, blasted, and loaded by hydraulic shovels into trucks, which deliver the material to a stockpile located near the primary crusher. Distances from the top of the ramp to the ore stockpile range from 300 m (160 Zone) to 5000 m (WMCP).

Waste materials generated by mining include overburden (i.e. peat, clay, till and sand), waste rock (i.e. clean and low-grade mineralized) and backfill from stopes intercepted during mining (i.e. unconsolidated sand and rock fill). The overburden material is removed and hauled to the Mixed WRF, while peat is stored separately for restoration-revegetation. Higher quality clay has been used for tailings dams, isolation levees and reclamation projects (e.g. cover of tailings in preparation for revegetation). Clean waste rock is used for surface infrastructure work such as roads, levees, tailings dams and foundations for civil engineering constructions. A portion of the clean waste rock is crushed and screened to provide aggregates for roadway construction and maintenance, and for use as abrasives in icy weather conditions. Low-grade material (below cut-off grade) is stockpiled in a different location than the ore. Stope backfill is hauled to the Mixed WRF.

13.7.2 Open Pit Design

Pit designs employ 7.5 m high mining benches, with a catch berm positioned every two benches (i.e., 15 m). This allows greater flexibility in regards to blast tonnage and control on pre-shear blasting and excavation of final pit walls. The option of using 10 m high mining benches is being studied to achieve even greater results on production and stability. The 160 Zone pit is planned in phases, with additional overburden stripping and pushbacks.

13.7.3 Slope Parameters – Overburden

Overburden slope parameters are based on recommendations from previous geotechnical and mining studies (Golder, 2009) and (BBA, 2011). A new study regarding slope parameters has begun in 2021 specifically for the 160 Zone; these parameters will be used in the final phase of the pit. The overburden slope parameters vary as function of material type:

- Slopes in clay: 4H:1V (14.1°) – 3H:1V (18.4°).
- Slopes in till: 2H:1V (26.6°).

In 2018, Hecla re-evaluated the 4H:1V slope angle in the clay material based on in situ observations and data from previous geotechnical characterizations using Rocscience's Slide 7.0 software (Hecla, 2018). Based on this analysis, the use of 4H:1V slopes in clay were demonstrated to be conservative and 3H:1V slopes were proved to be stable. As a result, the east and south overburden slopes of the EMCP Pit were

excavated according to Golder Associates Inc.'s (Golder) (2009) recommendation of 4H:1V in clay. The north and west slopes, however, were excavated using a 3H:1V slope in clay. Inclinometers and prisms installed in the overburden confirm the stability of 3H:1V slope in the clay material. A part of the slopes in the EMCP Pit are covered with one metre of waste rock to prevent erosion.

Experience gained from the excavation of overburden in the EMCP Pit has demonstrated that information related to the bedrock-overburden contact was limited to drill hole locations. Although, the surface topography is relatively flat, the bedrock contact varies significantly across the site and particularly above the Casa Berardi Fault. At this location the bedrock forms a valley which varies from approximately 40 m below surface at the west end of the mine site to 50 m below surface at the east end. On either side of the Casa Berardi Fault, the bedrock elevation is higher, rising to 20 m below surface on the south side. The variation in the expected contact position (i.e., overburden thickness and topographic bench elevation) has required the Casa Berardi engineering personnel to modify the design in order to compensate for higher or lower pit wall positions.

The overburden slope parameters, for the XMCP Pit are identical to those used in the EMCP Pit, including the 3H:1V (18.4°) slope in clay, expect that the clay slopes were not covered with any waste rock but the till has been covered. For the 134, 160, WMCP, and Principal projects, the designs are based on a 3H:1V (14.1°) to 3.5H:1V (15.9°) slope in the clay and sand, and a 2H:1V (26.6°) in the till.

13.7.4 Slope Parameters - Rock

The slope parameters for the final pit wall in the rock are:

- An Inter Ramp Angle (IRA) of 52.5°.
- A Bench Face Angle (BFA) of 75°, over a 15 m height or two 7.5 m high benches.
- A 7.5 m wide catch berm every 15 m in elevation.

The rock slope parameters, used in the EMCP Pit, are identical to those of the other pits.

13.7.5 Ramp Design

Ramps for the EMCP and XMCP pits were designed with a nominal 10% centerline gradient. Switchbacks were designed with a centerline gradient of 8% to prevent the inside curvature gradient from becoming excessive. Ramp widths assume the use of rigid-body haul trucks with a width of 5.6 m, although articulated trucks are planned to be used for overburden and may be used in other areas as needed. A 22.0 m width was used for ramps with two-way traffic. This provides for a running width of three times the truck operating width and includes a 1.1 m high safety berm. In the lower portions of the pit designs, where the stripping ratio is minimal, ramps were narrowed to 17.0 m for one-lane traffic use.

Same parameters apply for the 160 Zone, Principal, WMCP, except for the width. The ramps have 26.5m width because they are designed for 150t rigid-body with a operating width of 7.0 m and includes a 1.45 m high safety berm.

The 134 Zone pit is also designed with these parameters, but with a one-lane ramp with a width of 17.0 m.

13.7.6 Underground Workings

The EMCP Pit has intercepted underground openings in the pit floor. These openings include unfilled drifts and raises, as well as backfilled stopes. Stope backfill is unconsolidated sand and rock fill. These excavations are largely isolated from the accessible areas of the underground East Mine by a series of hydrostatic barricades. The same types of openings will be encountered in the Principal and WMCP pits.

Procedures are in place for the definition of safety perimeters for specific mining activities, such as drilling, loading, and excavating, and for the movement of vehicles and personnel in proximity to these excavations or their remaining crown pillars. The use of C-ALS surveys and production drilling data (e.g., breakthrough locations) are used confirm the survey data and 3D models of the underground excavation. To date, no issues have been encountered related to the underground excavations. An incremental ore mining cost has been planned to cover the cost of excavating the backfill.

The XMCP, 134 and 160 pit projects will not intersect any underground excavations. These open pits are considered to have no impact on simultaneous underground operations and do not require any special precautions to be taken.

The WMCP Pit project will intercept underground infrastructure such as drifts, ramp, raises, and backfilled stopes. The West Mine underground decline will be intercepted. The SLR QP notes that special precautions will have to be taken as the openings might create rock mechanics issues. There will also be underground openings daylighting near the bottom of the WMCP Pit (infrastructures and stopes), which will create a need to manage geotechnical perimeters. The SLR QP notes, however, that Hecla personnel are already mitigating these types of challenges in the EMCP Pit. Underground operations will be completed prior to open pit operations disrupting underground infrastructures.

The Principal Pit project will intersect underground excavations in the bottom of the pit.

13.7.7 Open Pit Mining Equipment

Mining equipment is currently operated and maintained by a contractor until 2024. The current equipment fleet is summarized in Table 13-6. The projected Owner equipment fleet is summarized in Table 13-7.

Table 13-6: Mine Equipment List Open Pit
Hecla Mining Company – Casa Berardi Mine

Unit	Number
Cat 740 Articulated Trucks	10
Cat 773 Rigid-body Trucks	10
Komatsu 1250 Excavator	1
Komatsu 800 Excavator	2
Cat 365 Excavator	1
Cat 349 Excavator (Rock Breaker)	2
Cat 336 Excavator	2
Cat D8 Bulldozer	1
Cat D6 Bulldozer	1

Unit	Number
Cat 14H Grader	1
DX 800 Drill	3
DX 1500 Drill	1
Cat 980 Loader	1
Cat 966 Loader	1
Manitou Telescopic Handler	1
Water Truck	1
Fuel Truck	1
Blasting Cube Truck	1
Light Tower	5

Table 13-7: Project Owner Equipment Fleet
Hecla Mining Company – Casa Berardi Mine

Unit	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Excavator CAT 6020	1	1	1	1	1	2	2	2	2	1	1	-
Excavator CAT 6015	2	2	2	2	3	3	2	1	1	2	-	-
Truck CAT 785	-	-	-	-	-	-	3	8	15	16	10	-
Truck CAT 775	4	11	9	9	9	11	12	6	-	3	-	2
Truck CAT 745	3	5	7	11	11	10	7	1	-	-	-	-
Drill DX800	3	3	3	3	3	3	3	6	6	6	3	3
Loader CAT980	-	-	1	1	1	1	1	1	1	1	1	1
Bull CAT D8	3	3	3	3	4	4	4	4	4	3	2	1
Bull CAT D6	1	1	1	1	1	1	1	1	1	1	1	1
Grader CAT 16M	1	1	1	1	2	2	2	2	2	2	2	2
Water Truck CAT 775	0	1	1	1	1	1	1	1	1	1	1	1
Loader CAT 914	0	1	1	1	1	1	1	1	1	1	1	1
Manitou 2350	0	1	1	1	1	1	1	1	1	1	1	1
Pickup F250	6	6	6	6	6	6	6	6	6	6	6	6
School Bus	-	1	1	1	1	1	1	1	1	1	1	1
Fuel/Lube CAT 775	1	1	1	1	1	1	1	1	1	1	1	1
Service Truck F550	2	2	2	2	2	2	2	2	2	2	2	2
Tower Lights	5	8	8	8	8	12	12	12	12	12	12	12
Flagro Trailer (Heater)	1	1	1	1	1	1	1	1	1	1	1	1
Lifting Platform JLG600SJ	1	1	1	1	1	1	1	1	1	1	1	1

Unit	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Manitou 2150	1	1	1	1	1	1	1	1	1	1	1	1
Main Lift CAT 2C5000	1	1	1	1	1	1	1	1	1	1	1	1
Lifting Platform JLG1930es	1	1	1	1	1	1	1	1	1	1	1	1
Tools Trailer Truck	1	1	1	1	1	1	1	1	1	1	1	1
Lunch Room Trailer	-	-	-	1	1	1	1	1	1	1	1	1
Washroom Trailer	-	1	1	1	1	1	1	1	1	1	1	1
Scaling Excavator CAT349 Long Boom	1	1	1	1	1	1	1	1	1	1	1	1
Casting Excavator CAT349	-	2	2	2	2	2	2	2	2	2	2	2
Cleaning Excavator CAT349	-	1	1	1	1	1	1	1	1	1	1	1
Loader CAT 980	-	1	1	1	1	1	1	1	1	1	1	1
Excavator CAT 336	-	1	2	2	2	2	2	2	2	2	2	2

13.7.8 Geotechnical/Hydrogeological Considerations

Of the planned pit projects, the Principal Pit requires the analysis of additional considerations. The Principal Pit is located in the vicinity of an esker surrounded by wetlands. Hecla retained the services of Golder (2010) to perform a geotechnical investigation to provide a slope stability analysis of the overburden in the Principal Pit sector.

The general soil stratigraphy encountered in the boreholes varies from east to west, grading from an esker, composed predominately of granular material, to a stratified cohesive deposit over glacial till. The esker has been identified over more than 75 km, with a north-south orientation. The geotechnical study (Golder, 2010) confirmed the occurrence of the esker within the vicinity of the preliminary Principal Pit, where the thickness may reach more than 50 m. Golder (2010) did not, however, allow for the identification of the esker limits, nor the variations of the lithologies and hydraulic properties within the esker.

The presence of the esker in the vicinity of the preliminary Principal Pit may result in large inflows and potential groundwater contamination of the esker during project operations. The primary source of potential contamination being the leaching of metals into groundwater, primarily arsenic, from the waste rock pile.

During 2021, SRK Consulting (Canada) Inc. (SRK), carried out a program of numerical groundwater modelling of the Principal Pit for passive inflow predictions and made recommendations to manage expected inflow rates during mining. One of the key recommendations proposed was to commence pumping approximately 18 months prior to the start of mining to reduce the ongoing pumping rate during the mining operations. Stripping of the Principal Pit is schedule to commence in 2024. The final eight years of mine production will come from the Principal Pit followed by the WMCP Pit and it will be essential to maintain efficient dewatering during this period.

The fieldwork program to address these groundwater control options includes:

- Seismic-refraction survey.
- Monitoring well installation and pumping tests.

- Hydrogeology characterization.
- Conceptual and numerical hydrological model.
- Estimate passive inflow rates into the Principal Pit.
- Dewatering requirements

Planning for mining of the remaining open pits is ongoing.

The list of studies carried out for the Casa Berardi underground mines to address geotechnical, geomechanical, hydrological, and hydrogeological conditions are indicated in Table 13-8. Similar studies carried out for the surface open pit mines are summarized in Table 13-9.

Table 13-8: Geotechnical, Geomechanical, Hydrological and Hydrogeological Studies (Underground Mines)
Hecla Mining Company – Casa Berardi Mine

Study	Year	By	Type	Objective	Results Summary	Report Reference Name
				West Mine		
1	1999	CANMET	Geomechanics	In situ stress measurements	Stress measurements were taken at two locations in the West Mine, providing the regional stress tensor.	Canmet (1999)
2	2017	Hydro-Resources	Hydrogeology	Crown Pillar	Determined hydrological properties in the WMCP situated above the underground principal zone, and identified prominent water bearing faults.	Hydro-Resources Inc. (2017)
3	2019	Hecla	Geomechanics	Ground Control Management Plan (GCMP)	Establishes common procedures developed for identifying, evaluating, communication and monitoring geotechnical risks (developed by Hecla).	Hecla Québec (2019)
4	2019	Hecla	Geomechanics	Backfill	Demonstrated the backfilling requirements for plug and mass strengths.	Alcott et al. (2019)
				East Mine		
1	2015	Hecla	Geomechanics	Reopening East Mine Operations	Demonstrated the impact of mining the lower East Mine on the surface.	Hecla Québec (2015)
2	2019	Hecla	Geomechanics	GCMP	Establishes common procedures developed for identifying, evaluating, communication and monitoring geotechnical risks (developed by Hecla).	Hecla Québec (2019)

Table 13-9: Geotechnical, Geomechanical, Hydrological and Hydrogeological Studies (Open Pit Mines)
Hecla Mining Company – Casa Berardi Mine

Study	Year	By	Type	Objective	Results Summary	Report Reference Name
				EMCP Pit		
1	2020	Itasca	Geomechanics	Slope Angle In Rock	Determined the optimal slope angles in rock, based on oriented core drilling/logging and additional rock laboratory tests.	Itasca (2020)
2	2017	Hydro-Resources	Hydrogeology	Water Table	Established the water state in/near the EMCP, demonstrating the draining capability of the East Mine (under draining the clay overburdens).	Hydro-Resources Inc. (2017)
3	2018	Hecla	Soil	Slope Angles in Overburden	Confirmed slope angles in overburden based on operational observations, recalibrated to numerical modeling response.	Hecla Québec (2018)
4	2019	Hecla	Geotechnical	GCMP	Establishes common procedures developed for identifying, evaluating, communication and monitoring geotechnical risks (developed by Hecla).	Hecla Québec (2019)
				160 Pit		
1	2013	Golder	Geomechanics	Slope Angle in Rock	Determined the preliminary slope angles in rock, based on oriented core drilling/logging and numerical modeling.	Golder (2013)
2	2019	Hecla	Geotechnical	GCMP	Establishes common procedures developed for identifying, evaluating, communication, and monitoring geotechnical risks (developed by Hecla).	Hecla Québec (2019)
3	2021	ConeTec	Soil	Determining Soil Strength Properties	Factual report establishing soil strength properties thru seismic piezocone penetration testing (SCPTU).	ConeTec (2021)
4	2020	Itasca	Soil	Slope Angles in Overburden	Numerical analysis of slope angle in clay, for saturated overburden conditions.	Itasca (2020)

Study	Year	By	Type	Objective	Results Summary	Report Reference Name
5	2020	Hydro-Resources	Hydrogeology	Water Table	Preliminary assessment of the water table near the 160 Pit, with a crude assessment of well locations to depressurize the till overburden layer.	Hydro-Resources Inc. (2020)
6	2021	SRK	Hydrogeology	Gap Analysis for Hydrology and Hydrogeology	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021a)
7	2021	SRK	Soil	Gap Analysis for Geotechnical Soil and Stratigraphy	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021e)
8	2021	SRK	Rock	Gap Analysis for Geomechanical Rock Stability	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021g)
9	2021	SRK	Hydrogeology	Hydrogeology in Rock	Determined the permeability of the rockmass.	SRK (2021f)
				Principal Pit		
1	2011	Golder	Soil	Slope Angles in Overburden	Initial numerical analysis of slope angle in clay, for saturated overburden conditions.	Golder (2011)
2	2020	Geophysiq he Sigma	Soil	Overburden Thickness and Stratigraphy	Established, thru geophysics, overburden thickness/stratigraphy in the Principal zone.	Geophysiqhe Sigma (2020)
3	2021	ConeTec	Soil	Determining Soil Strength Properties	Factual report establishing soil strength properties thru SCPTU.	ConeTec (2021)
4	2021	SRK	Hydrogeology	Evaluate the Passive Ground Water Inflow into the Principal Pit	Established the esker's hydrological characteristic (drawdown and zone of influence) thru long term pump tests and evaluated the preliminary pumpability performance. Related the observation to numerical modeling to forecast passive inflows of groundwater into the Principal Pit, per extraction phase.	SRK (2021a)

Study	Year	By	Type	Objective	Results Summary	Report Reference Name
5	2021	SRK	Hydrogeology	Gap Analysis for Hydrology and Hydrogeology	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021b)
6	2021	SRK	Soil	Gap Analysis for Geotechnical Soil and Stratigraphy	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021e)
7	2021	SRK	Rock	Gap Analysis for Geomechanical Rock Stability	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021g)
8	2021	SRK	Hydrogeology	Hydrogeology in Rock	Determined the permeability of the rockmass.	SRK (2021d)
				WMCP Pit		
1	2020	ConeTec	Soil	Determining Soil Strength Properties	Factual report establishing soil strength properties thru SCPTU.	ConeTec (2021)
2	2021	SRK	Hydrogeology	Gap Analysis for Hydrology and Hydrogeology	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021a)
3	2021	SRK	Soil	Gap Analysis for Geotechnical Soil and Stratigraphy	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021h)
4	2021	SRK	Rock	Gap Analysis for Geomechanical Rock Stability	Performed a gap analysis, reviewing all relevant past studies, to establish future requirements to meet permitting and/or feasibility level designs.	SRK (2021g)
5	2021	SRK	Hydrogeology	Hydrogeology in Rock	Determined the permeability of the rockmass.	SRK (2021d)

13.7.9 Material Management

Over the LOM, open pit operations will generate over 262 Mt of material. This material will be comprised of overburden, ore, low grade material, clean waste and back fill, will be extracted from up to three different open pits at any one time at different stages of development. Some pits will be in the stripping phase, while others will be extracting ore and rock waste. Mature pit projects will see clean waste rock production diminish as the strip ratios decrease towards the bottom of the pits.

Owing to the complexity associated with handling different types of material with different properties, a robust production plan needs to be supported with a robust waste management program. Casa Berardi's LTP has been built to manage the infrastructure material quantities. Shortage in any type of material could have negative effects on the mine plan if critical infrastructure cannot be put into place in a timely manner. Correcting these shortages, will also result in increased costs which would be difficult to control. Accordingly, the construction of WRF infrastructure has been scheduled to start when building materials are available, as opposed when a need for storage arises. At this time, different scenarios are being studied regarding the waste rock disposal. Multiple sequences and westward WRFs (WRF #F) are being investigated. Some scenarios explore the possibility of backfilling either the Principal or WMCP pits to reduce environmental impacts and costs related to waste management.

13.7.10 Waste Rock Characterization

Maxxam Analytical Laboratory performed the following tests on waste rock samples:

- Acid generation potential.
- Metal content (partial digestion).
- Leaching according to EPA-1311 test method (acetic acid).
- Leaching according to EPA-1312 test method (nitric and sulphuric acid – acid rain).
- Leaching according to CTEU-9 test method (water).

Based on these analyses, the waste rock has been identified as non-acid generating but has been classified as leachable according to the Québec Directive 019 criteria. The SLR QP notes, however, that the contents measured are below the criteria for the classification as a high-level risk mining waste.

The waste rock has been classified in two distinct categories, clean and low grade mineralized. Clean waste rock can be used for construction, however, low grade mineralized material cannot. Low grade mineralized material is defined as the 10 m envelope of material surrounding mineralization. This material must be buried with either clay or clean waste rock, at the Mixed WRF, to prevent it from being in contact with the air.

13.7.11 Waste Rock Facility Locations and Construction

The following criteria have been used for the selection of potential waste rock and overburden storage sites:

- Avoid material storage over the esker area.
- Avoid material storage over wetlands (loading capacity).
- Avoid material storage in streams and surface water bodies.
- Limit transport distance within the mining pit.

The Mixed WRFs #1, #2, and #3 have been designed as an engineered waste disposal complex capable of containing low cohesive materiel such as clay materials. The Mixed WRF uses a crown shape infrastructure, that acts as recipient for the clays. Low grade mineralized waste rock and till are used to build containment cells within the crown. Each cell is accessed by a series of temporary roadways and dumping fronts, constructed using waste rock. These temporary infrastructures are ultimately buried in clay or covered by clean waste rock, as the WRF is finally caped, in the last step before full reclamation. The construction of the Mixed WRF is strictly controlled to allow for uniform deposition of waste materials in one metre lifts over its entire footprint.

In addition to the existing Mixed WRFs #1,#2, and #3, located to the southeast of the EMCP Pit, preliminary Mixed WRF facilities are planned, in the vicinity of the preliminary WMCP and Principal pits. Final locations, capacity, and configurations have not been finalized and will depend on future long term mine plans.

Figure 13-7 presents a general plan of the Casa Berardi site and indicates the location of the actual WRF complex (i.e., Mixed WRFs #1, #2, and #3) and the preliminary WRF sites (i.e., Mixed WRF #F). Whenever possible, waste will be used to backfill the open pits that have been exhausted. The plan is to fill the EMCP Pit starting in 2022 and the Principal Pit by 2032. Approximately 53 Mt of material extracted from the WMCP Pit will be used to backfill the Principal Pit. Backfilling of the open pits will depend on the timing of their completion and on the haulage distances between the WRF site and the active pit. Table 13-10 describes the dumping sequence as a function of material type for each open pit projects.

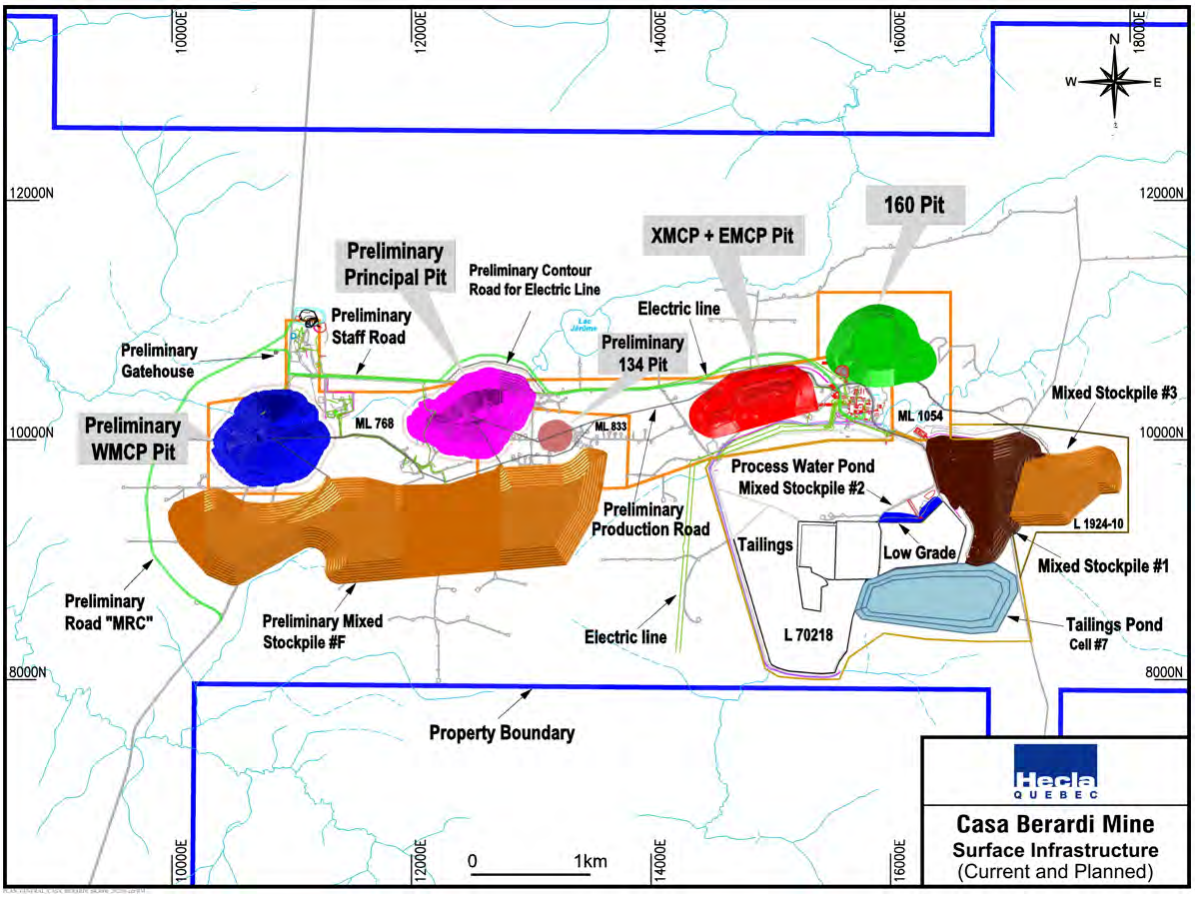

Figure 13-7: Open Pit and Waste Rock Locations

Table 13-10: Dumping Sequencing
Hecla Mining Company – Casa Berardi Mine

Area	Material	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
EMCP-EXP	Overburden														
	Rock Waste		MH3/EMCP fill	EMCP fill											
F134	Overburden														
	Rock Waste														
F160	Overburden	MH3/EMCP fill	MH3/EMCP fill	EMCP fill											
	Rock Waste	MH3/EMCP fill	MH3/EMCP fill	EMCP fill	MHF/EMCP fill	MHF/EMCP fill	MHF	MHF							
WMCP	Overburden							MHF	MHF	MHF	MHF				
	Rock Waste							MHF	MHF	MHF	MHF	PRIN fill	PRIN fill	PRIN fill	PRIN fill
PRINCIPAL	Overburden				MHF	MHF	MHF	MHF							
	Rock Waste					MHF	MHF	MHF	MHF	MHF	MHF				

The design criteria for the WRFs are to:

- Maximize capacity based on the bearing capacity of the ground, to reduce the environmental impact of the WRF footprints to the site.
- Whenever possible, backfill completed open pits. It must be noted that hauling distances have a major impact on the economic viability of the open pit projects. Some open pits will be left unfilled, owing to uneconomical hauling distances.
- Optimize pit scheduling to allow waste materials generated by mining to be used for the dump site infrastructure (e.g., access roads).
- When backfilling open pits that intersect underground excavations, where possible use only free-draining materials. If overburden is used for backfill, ensure a free-draining area (drain) from the top to the bottom of the pit.

13.7.12 Overview of Pit Projects

13.7.12.1 XMCP Pit

The XMCP Pit project design is based on:

- Slopes in clay: 3H:1V (18.4°).
- Slopes in till: 2H:1V (26.6°).
- Slopes in rock: IRA of 52.5°.
- No underground excavations will be intercepted.
- Geotechnical considerations: Casa Berardi Fault will intersect the final North Wall.
- Mining to be carried out in two phases.
- The EMCP ramp will be used to reduce travelling length and enable greater depth in the XMCP Pit.

An isometric view of the ultimate EMCP (right) and XMCP (left) pits is presented in Figure 13-8.

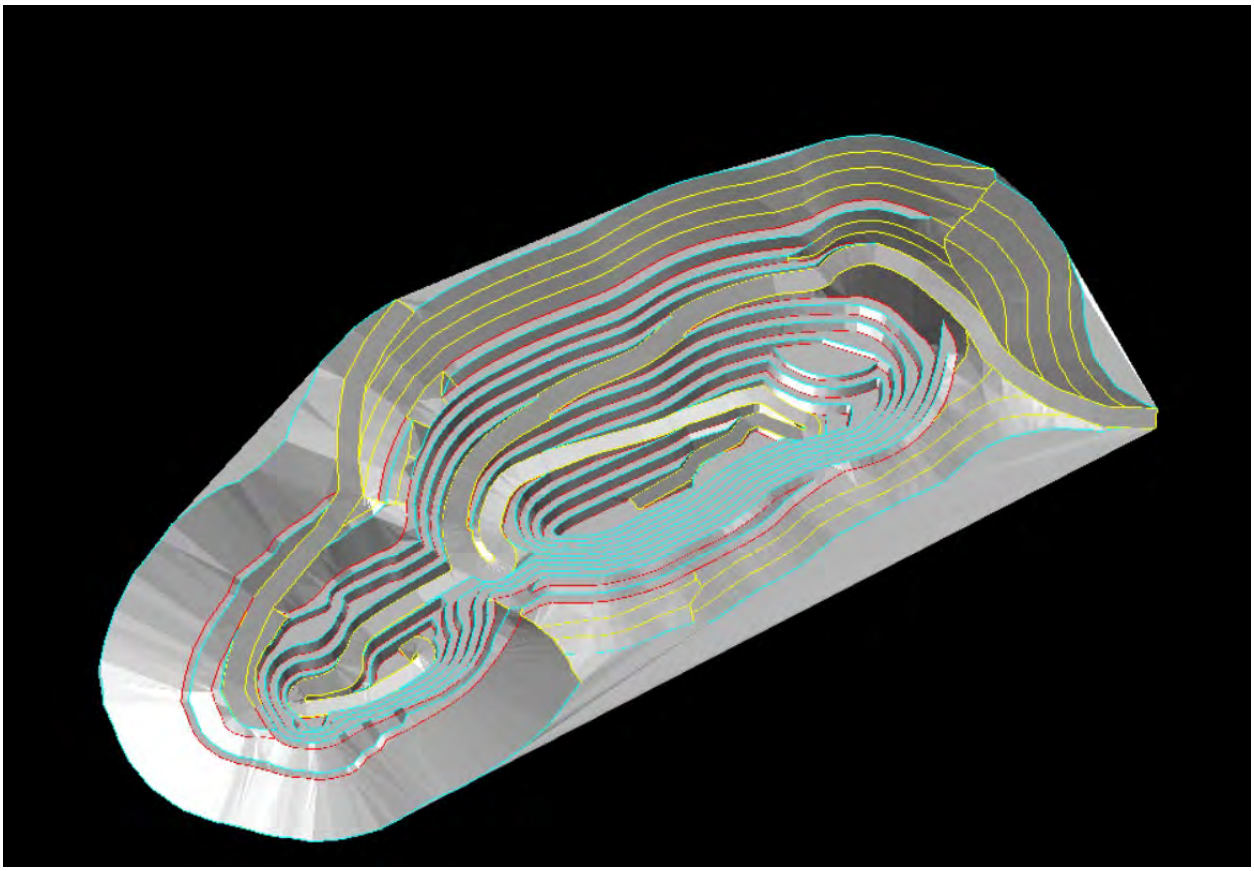

Figure 13-8: Isometric View of the EMCP Pit and XMCP Pit Project (Ultimate Pit Shell)

The remainder of the XMCP Pit will be mined from 2023 to 2024, this represents approximately 188,611 t.

13.7.12.2 160 Pit

The 160 Pit project design is based on:

- Slopes in clay: 3H:1V (18.4°) to 3.5H:1V (15.9°).
- Slopes in till: 2H:1V (26.6°).
- Slopes in rock: Inter Ramp Angle (IRA) of 52.5°.
- No underground excavations will be intercepted.
- Mining to be carried out in a four phases (Mining 3rd phase as of Q1 2022).

An isometric view of the ultimate 160 Pit is presented in Figure 13-9.

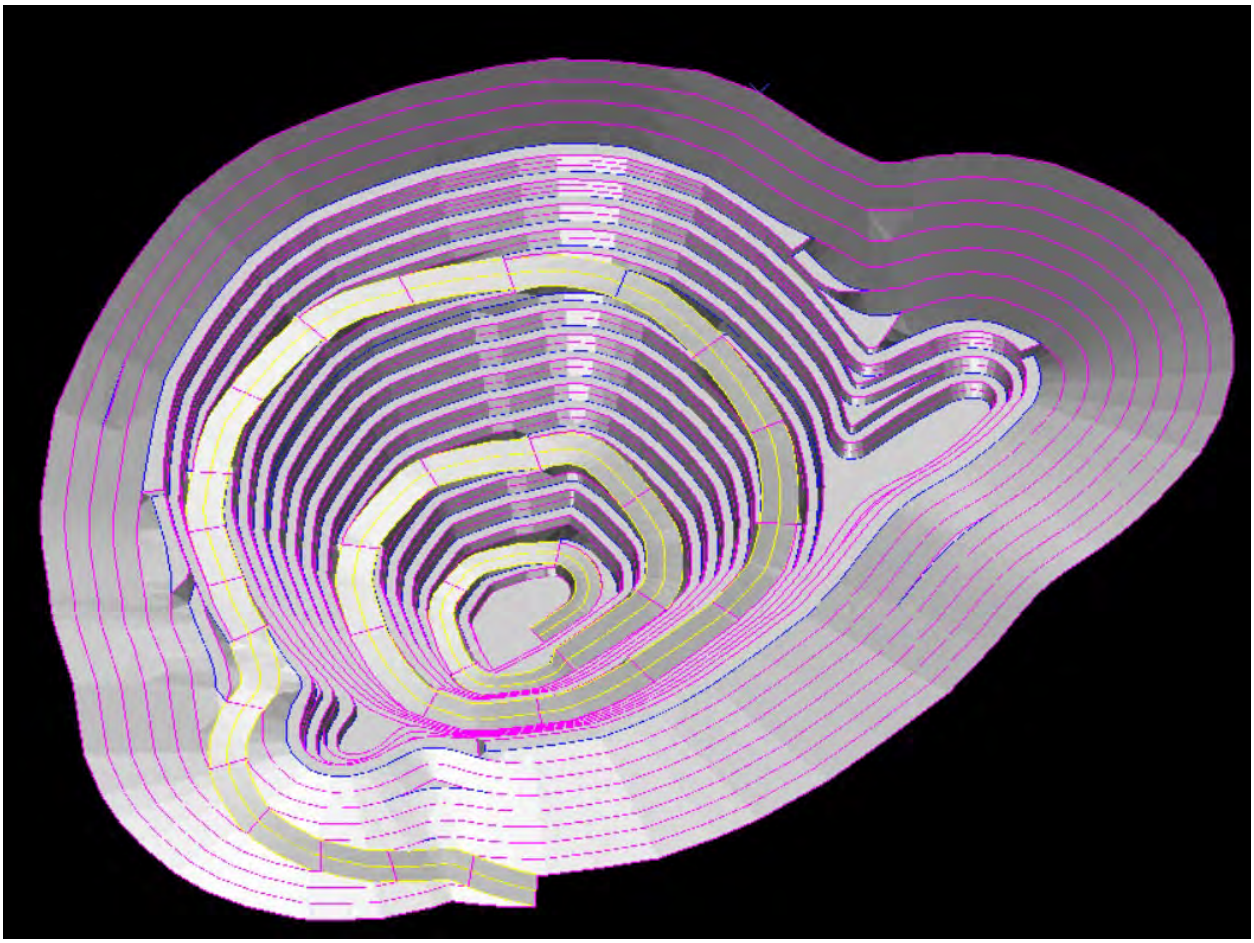

Figure 13-9: Plan View of the 160 Pit Project

The 160 Pit is planned for mining over the period from 2022 to 2028 and includes a total estimated 5.03 Mt of ore during which the underground mine will be producing at an average rate of 719,000 tpa ore.

13.7.12.3 134 Pit

The 134 Pit project design is based on:

- Slopes in clay: 3H:1V (18.4°).
- Slopes in till: 2H:1V (26.6°).
- Slopes in rock: IRA of 52.5°.
- No underground excavations will be intercepted.
- Mining to be carried out in a single phase.

An isometric view of the ultimate 134 Pit is presented in Figure 13-10.

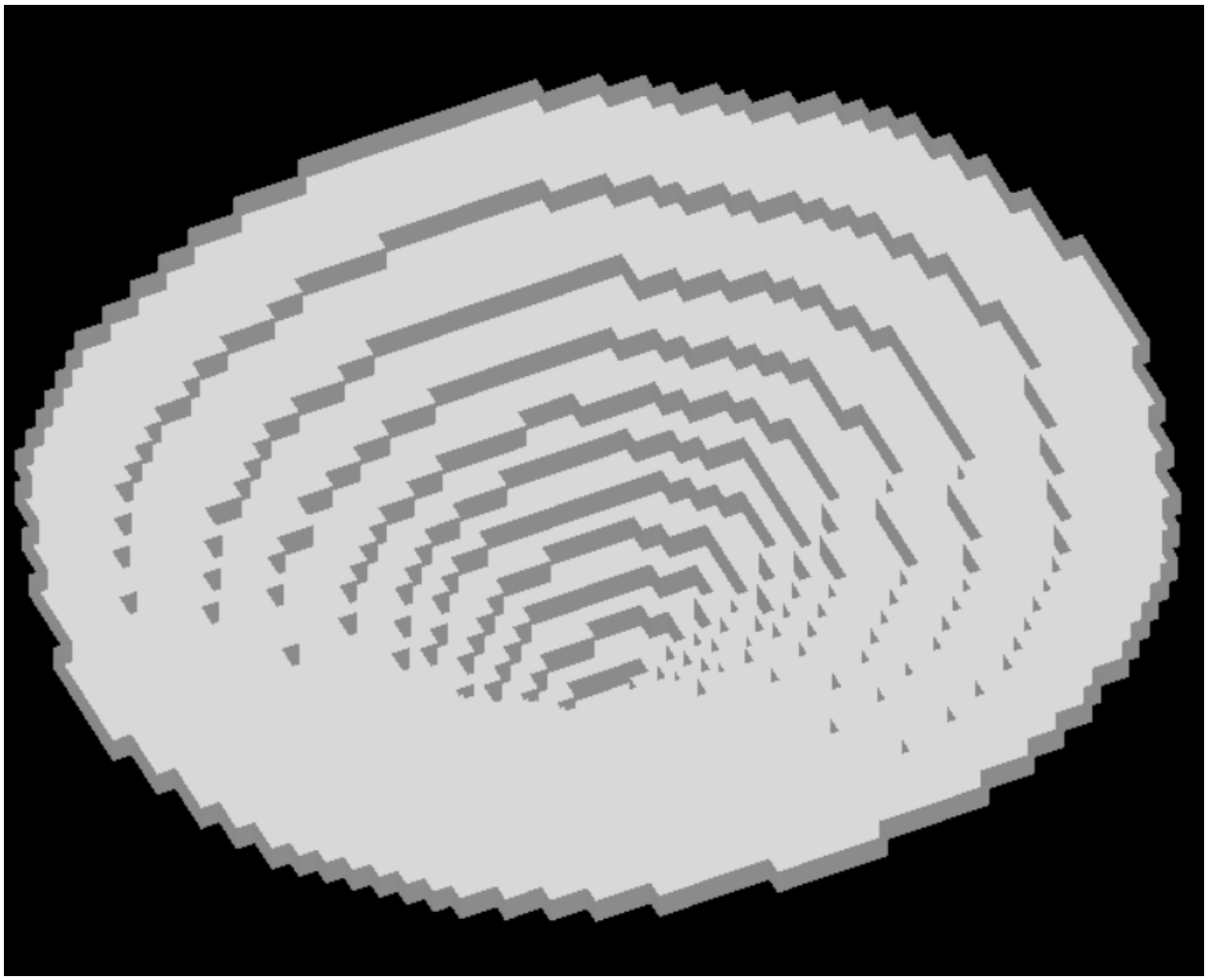

Figure 13-10: Isometric View of the 134 Pit Project (Ultimate Pit Shell)

The 134 Pit is planned to be mined from 2034 to 2035, and contained approximately 115,000 t of ore.

13.7.12.4 WMCP Pit

The WMCP Pit project design is based on:

- Slopes in clay: 3H:1V (18.4°).
- Slopes in till: 2H:1V (26.6°).
- Slopes in rock: IRA of 52.5°.
- Underground excavations, including the main ramp, will be intercepted in the east and north walls.
- Geotechnical considerations: Casa Berardi and Auxiliary Faults will intersect the final west and north-east wall.
- Stripping of this pit is to occur following the completion of underground mining (2028).

The isometric view of the optimized WMCP Pit is presented in Figure 13-11.

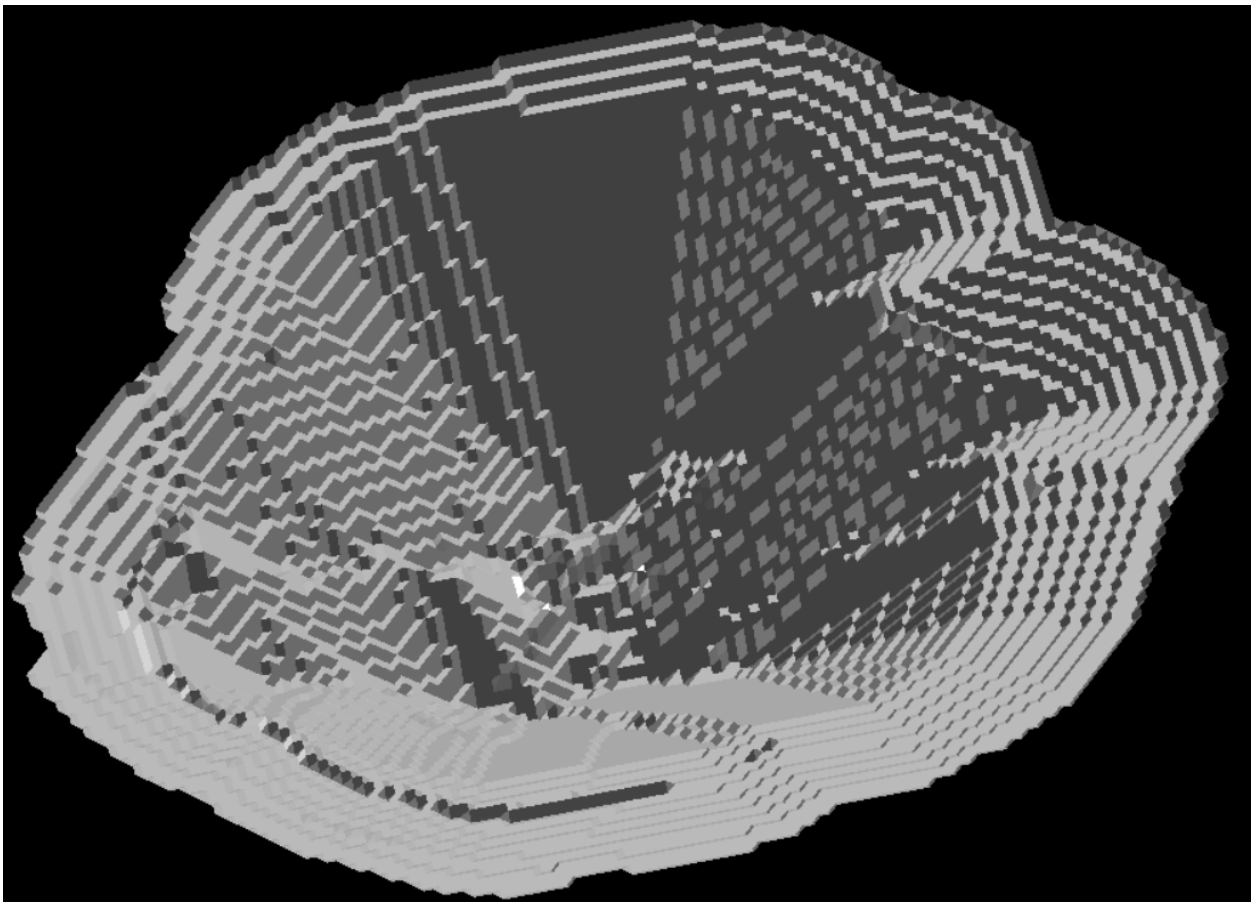

Figure 13-11: Isometric View of the WMCP Pit Project (Ultimate Pit Shell)

The WMCP Pit is planned to be mined in the final LOM years. Overburden stripping will commence in 2028 whereas ore mining will occur from 2032 until 2035 for a total of 5.33 Mt ore. The design has not yet been updated with the new pit shell.

13.7.12.5 Principal Pit

The Principal Pit project design is based on:

- Slopes in clay and sand: 3H:1V (18.4°).
- Slopes in till: 2H:1V (26.6°).
- Slopes in rock: IRA of 52.5°.
- Underground excavations will be intercepted in the pit bottom.
- Geotechnical considerations: excavation in proximity to an esker; inflow and contamination controls.

The isometric view of the optimized Principal Pit is presented in Figure 13-12.

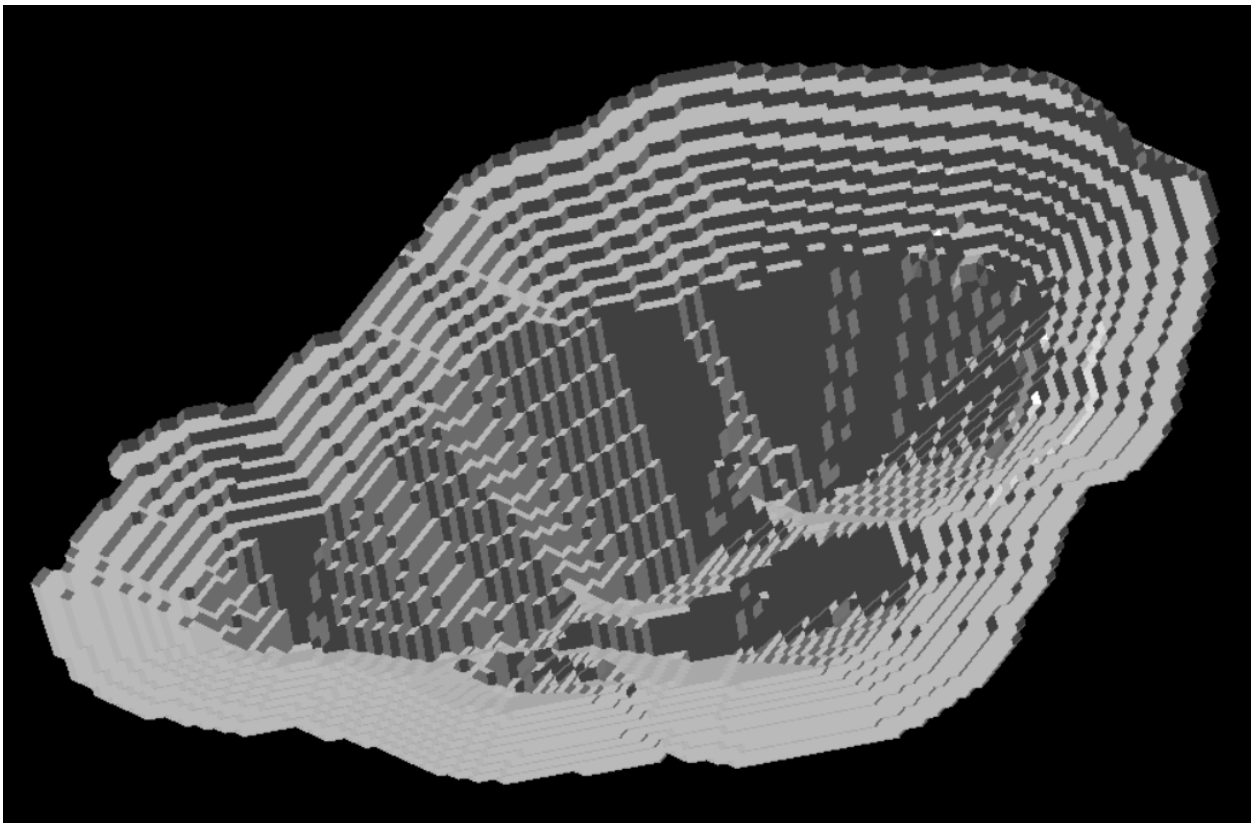

Figure 13-12: Isometric View of the Principal Pit Project (Ultimate Pit Shell)

The Principal Pit is planned to be mined over the period from 2028 to 2031 for a total of 5.78 Mt. During this period the Principal Pit will be the only producing area of the mine operation. The design has not yet been updated with the new pit shell.

13.8 Long Term Plan

Hecla's planning practice includes the development of an LTP. The LTP is based upon the Mineral Reserves plus a portion of the Mineral Resources. It is an internal Hecla document and is used a guide for management's long term production planning and expectations. The LTP includes operating cost requirements for the additional tonnes mined (i.e., Mineral Resources), as well as capital provisions for development, mine infrastructure and equipment for exploitation of the Mineral Reserve, and for conversion of the Mineral Resources that were included within the LTP. If mine production does not extend beyond the known Mineral Reserves, these costs would be less than the amount included in the LTP. The LTP is updated every year with the new information available.

13.9 Life of Mine Plan

The LOM plan for Casa Berardi is the LTP with the Inferred Mineral Resources removed to ensure that only Mineral Reserves have been included for the economic analysis. The LOM plan includes 2.4 Mt grading 5.27 g/t Au from underground and 16.5 Mt grading 2.61 g/t Au from open pits, that will result in total recovered gold of 1.49 Moz Au over the LOM.

Underground production is forecasted to average approximately 1,100 tpd for the six year period from 2022 to 2027 while the open pits will average approximately 3,250 tpd over a fourteen year period from 2022 to 2035 under the present operating plan (Table 13-11). A production increase for the open pit is planned in 2028 which will level out at 1.6 Mtpa in 2029 until the end of the mine life. Production will be provided from the open pits only starting in 2028 until 2035.

The processing plant will average a throughput of 3,700 tpd over the LOM period based on 360 days per year.

Silver production is estimated as 24% of the gold production based upon operating records and the silver revenue is included in the LOM plan financial analysis.

Table 13-11: LOM Production Forecast
Hecla Mining Company – Casa Berardi Mine

Description	Units	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Days	Day	4,860	360	360	360	360	360	360	360	360	360	360	360	360	360	360
UG Production	000 t	2,375	469	469	423	419	355	240	-	-	--	-	-	-	-	-
OP Production	000 t	16,451	607	579	706	860	945	1,081	1,518	1,562	1,562	1,563	1,627	1,627	1,627	585
OP Waste & OB	000 t	245,641	6,197	9,443	14,488	17,639	19,055	18,918	20,981	24,687	24,687	24,687	24,623	24,623	13,383	2,223
Processing	000 t	18,826	1,076	1,048	1,129	1,280	1,300	1,321	1,518	1,562	1,562	1,563	1,627	1,627	1,627	585
Grade UG	g/t Au	5.27	5.60	5.59	5.03	5.01	5.15	5.07	-	-	-	-	-	-	-	-
Grade OP	g/t Au	2.61	1.64	1.54	2.20	1.75	1.91	1.79	2.78	3.23	2.80	2.24	3.40	3.02	3.10	2.80
Grade UG + OP	g/t Au	2.95	3.36	3.35	3.26	2.82	2.80	2.39	2.78	3.23	2.80	2.24	3.40	3.02	3.10	2.80
Gold Contained	000 oz Au	1,784	116	113	118	116	117	102	136	162	140	113	178	158	162	53
Mill Recovery	%	84%	87%	87%	87%	87%	87%	88%	84%	83%	82%	79%	81%	80%	80%	80%
Gold Production	000 oz Au	1,490	101	98	103	101	102	89	114	135	115	88	145	126	130	42

The LOM underground development schedule is shown in Table 13-12.

Table 13-12: LOM Development Schedule
Hecla Mining Company – Casa Berardi Mine#

Description	Units	Total	2022	2023	2024	2025	2026	2027
Days		2,190	365	365	365	365	365	365
Operating Development Ore								
Principal Zone	m	6,247	1,072	795	1,271	1,487	1,198	424
Satellite Zones	m	327	-	-	110	129	44	44
Sub-Total	m	6,574	1,072	795	1,381	1,617	1,241	467
Operating Development Waste								
Principal Zone	m	8,533	2,132	1,525	1,476	1,667	1,431	301
Satellite Zones	m	-	-	158	148	61	61	-
Sub-Total	m	8,961	2,132	1,683	1,624	1,728	1,492	301
Capital Development(No Ramp)								
Principal Zone	m	9,597	1,948	1,724	1,822	1,960	1,725	418
Satellite Zones	m	-	-	-	-	-	-	-
Sub-Total	m	9,597	1,948	1,724	1,822	1,960	1,725	418
Ramp Development								
Principal Zone	m	6,165	1,201	1,852	1,458	1,179	474	-
Satellite Zones	m	-	-	-	-	-	-	-
Sub-Total	m	6,165	1,201	1,852	1,458	1,179	474	-
Capex Horiz. Dev. Total	m	23,382	4,671	5,305	4,866	4,657	3,262	621
Exploration Dev.	m	2,123	690	607	586	101	140	-
Total Horiz. Dev.	m	31,297	6,354	5,897	6,294	6,572	4,932	1,248
Total Horiz. Dev.+ Expl.	m	33,420	7,043	6,504	6,880	6,672	5,072	1,248
Horiz. Dev. Total	mpd	14	17	16	17	18	14	3
Horiz. + Expl. Dev.	mpd	15	19	18	19	18	14	3

14.0 PROCESSING AND RECOVERY METHODS

14.1 Introduction

Gold extraction from the mill feed will be performed in the current operating mill. Historical operation and performance data for the mill is summarized in Section 10 of this TRS. This information in combination with metallurgical test results is used to predict mill recovery performances. These performances are based on the current plant as of December 31, 2021. A description of the overall process plant is presented in the following subsections.

14.2 Process Description

The Casa Berardi processing facility consists of a 3,836 tpd mill, with the ability to process 4,100 tpd, and a CIL process to recover gold from the ore. This process has been chosen because some mill feed contains graphitic carbon that has a preg-robbing effect. To lower the effect of preg-robbing, gold leaching is completed in the presence of activated carbon, as is the case for a CIL circuit. Figure 14-1 below presents the flowsheet of the mill and gold operation.

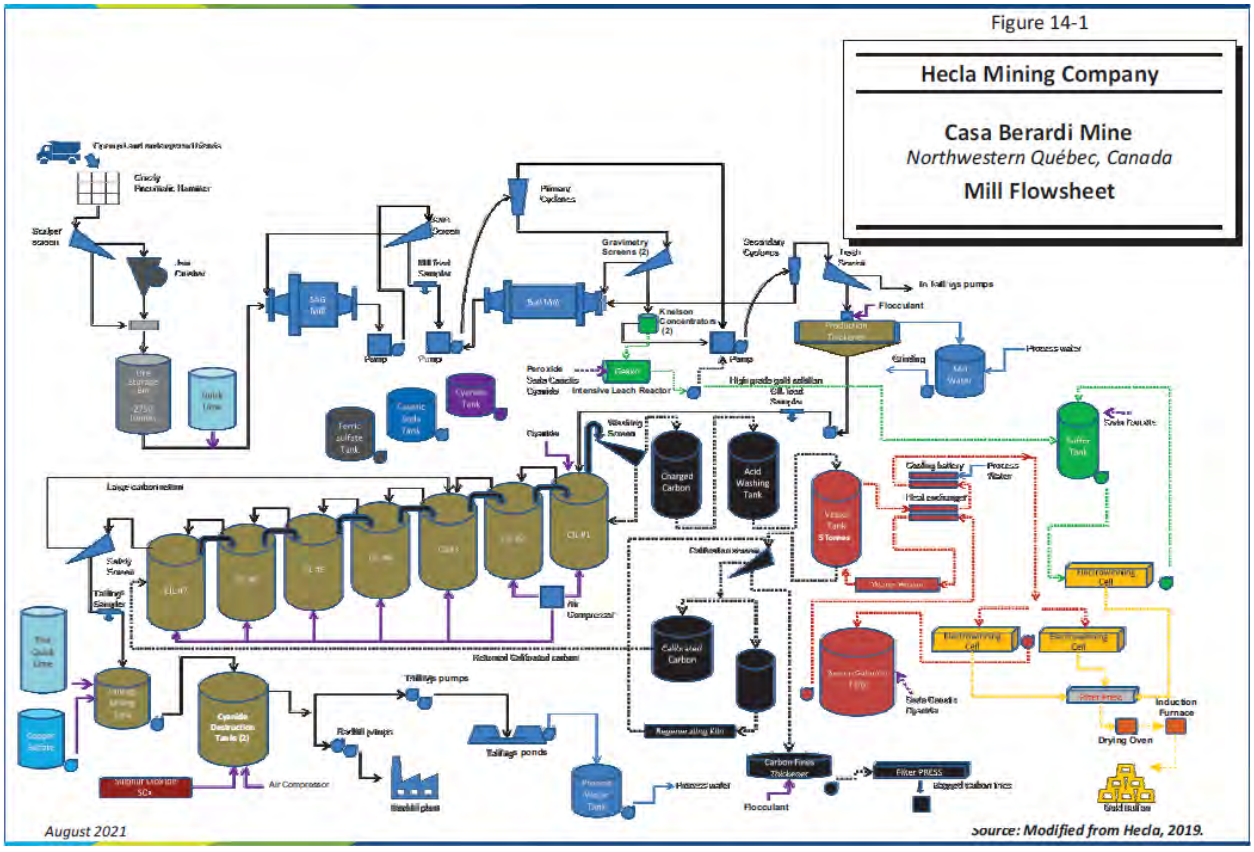

Figure 14-1: Mill Flowsheet

14.2.1 Crushing

Ore is hauled by truck from the West Mine headframe complex to the crusher dump pocket, which is equipped with a static grizzly and a pneumatic hammer to break any oversize material. Ore passing the grizzly is screened again on the scalping screen. Oversize ore is fed to a jaw crusher and its discharge rejoins the scalping screen undersize. Ore coming from the open pit is pre-crushed by a mobile crusher. Casa Berardi plans to build it's own pre-crusher in 2022. The crushed ore is stored in the ore storage bin.

14.2.2 Grinding

Ore is conveyed from the storage bin to the SAG mill. The SAG mill feed conveyor is equipped with a scale to monitor and control the ore supply to the SAG mill. Dry quick lime is added from a bin onto the SAG mill feed conveyor for downstream pulp pH control, and mill water is added to the mill feed to pulp the ore. The SAG mill operates in closed circuit with the SAG screen, discharging into the SAG screen pump box and pumping onto the SAG screen. SAG screen oversize material is returned to the SAG mill for further reduction and screen undersize flows to the primary cyclone pump box. The mill feed is sampled on the SAG screen undersize stream.

The ball mill operates in closed circuit with the primary and secondary cyclones. The ball mill discharges in the primary cyclones pump box, and the primary cyclone pump box pulp is pumped to the primary cyclone for a first size separation. The totality of the primary cyclone underflow feeds the gravity circuit. The primary cyclone overflow discharges into the secondary cyclone pump box with the gravity concentrator tailings. The secondary cyclones pump box pulp is pumped to the secondary cyclones for the final size separation. The secondary cyclones overflow reports to the trash screen to remove debris and the underflow is directed back to the ball mill. Trash screen oversize is sent to the tailings pump and the undersize feeds the production thickener.

14.2.3 Gravity Circuit

The gravity circuit feed, which is fed from the primary cyclone underflow, is split to feed two parallel gravity circuits. Each circuit consists of a vibrating screen and a gravity concentrator. The screen oversize from each circuit reports back to the ball mill and the screen undersize feeds a gravity concentrator. The concentrator's tailings are pumped to the secondary cyclones pump box. The gravity concentrate flows to an intensive leach reactor (ILR) for leaching. To promote gold leaching and control the pH, oxygen peroxide, cyanide, and caustic soda are added to the ILR unit from their respective tanks using dosing pumps. The high grade pregnant gold solution from the ILR unit is pumped to the electrowinning buffer tank and the tailings report to the secondary cyclones pump box.

14.2.4 CIL Circuit

The production thickener is fed the milled ore pulp from the trash screen. Mill water from the thickener overflows in the mill water tank, and process water from the tailings pond is added to the mill water tank depending on the demand. The thickener underflow is pumped to the first CIL tank. CIL feed is sampled on the production thickener underflow stream. A CIL circuit is used to recover gold instead of a carbon-in-pulp circuit to hinder preg-robbing due to graphite in the ore and to maximize gold recovery by placing the gold in solution in contact with activated carbon immediately. The circuit comprises seven CIL tanks in series. The pulp overflows from the #1 CIL tank to the #7 CIL tank.

To promote gold leaching, a cyanide solution is added to the #1 CIL tank and compressed air is added to each CIL tank. Gold is leached from the ore and adsorbed onto activated carbon. Carbon is added in the

#7 CIL tank and is pumped periodically in counter-current fashion from the #7 CIL tank to the #1 CIL tank. Screens at the discharge of each CIL tank prevent carbon from overflowing from tank to tank with the pulp. The #7 CIL tank overflows onto a safety screen to recover any fugitive carbon. The safety screen undersize is sampled and reports to the mixing tank. Fine quicklime and copper sulphate are added to the mixing tank to prepare for cyanide destruction. Residual pulp from the CIL mixing tank is pumped to the cyanide destruction tank to which sulphur dioxide and compressed air is added to destroy residual cyanide with agitation. After cyanide destruction, the treated pulp is pumped to the paste backfill plant or the tailings pond. Ferric sulphate is also added to this material in order to reduce arsenic content in the solution.

14.2.5 Carbon Circuit

The carbon, elution, and electrowinning circuits operate in batches unlike the CIL continuous process. Loaded carbon is pumped periodically from the #1 CIL tank onto a washing screen. Loaded carbon from the washing screen falls into the loaded carbon tank while the pulp and residual cyanide solution return to the #1 CIL tank or #2 CIL tank. When carbon collection is completed, loaded carbon is transferred to the acid washing tank. Hydrochloric acid is added in the acid washing tank and carbon is soaked for two hours to remove inorganic contaminants. When the acid wash is completed, the loaded carbon is rinsed with process water to return to a neutral pH before being transferred to the elution vessel. After elution, eluted carbon is screened and sent either to the calibrated carbon tank or the regenerating kiln. Calibration screen undersize is sent to the carbon fines thickener where flocculant is added. Carbon fines are recovered at the underflow, filtered using a filter press, and bagged. At the regenerating kiln, the carbon is heated to burn organic contaminants. The kiln discharges in a quench tank and carbon is pumped back onto the calibration screen. Calibrated carbon is pumped back into the #7 CIL tank from the calibrated carbon tank. Fresh activated carbon is also added to the CIL circuit using the calibration screen after being processed via an attrition tank. Carbon moves in the circuit using a water eductor system.

14.2.6 Elution and Electrowinning Circuits

The elution circuit uses the Zadra process, where by caustic soda and cyanide are added to process water in the barren solution tank to prepare for elution. The barren solution is pumped through a heat exchanger and a water heater before arriving at the bottom of the elution vessel. Under the correct pressure and temperature conditions in the elution vessel, gold desorbs from the loaded carbon and dissolves in the elution solution. The pregnant solution flows from the top of the elution vessel through the heat exchanger and cooling battery toward the electrowinning cells. The heat exchanger recovers heat from the pregnant solution to warm up the barren solution. The cooling battery completes the pregnant solution cooling to a safe temperature and pressure for electrowinning using process water at an ambient temperature.

Two electrowinning cells recover dissolved gold from the pregnant solution by deposition on its cathodes plates to form a gold sludge. Barren elution solution is pumped from the electrowinning cells to the barren solution tank. During an elution cycle, elution solution flows continuously through the circuit. A third electrowinning cell, in loop with the ILR buffer tank, is dedicated to the ILR gold solution. When an elution cycle is over, gold sludge is recovered from the electrowinning cells, filtered, and dried before being smelted in the induction furnace and poured into gold doré at the gold room.

14.2.7 Major Equipment List

Table 14-1 presents a list of major equipment and the characteristics of each equipment.

Table 14-1: Major Equipment List
Hecla Mining Company – Casa Berardi Mine

Equipment	Characteristics
Crushing	
Grizzly Screen	Static, 5 m x 4.2 m with 500 mm x 500 mm opening
Rock Breaker	Hydraulic hammer
Scalping Screen	Vibrating, 1.5 m x 2 m with 89 mm opening and 11.2 kW motor
Jaw Crusher	762 mm x 1400 mm opening with 150 hp motor
Ore Storage Bin	14 m diameter, 19 m high with 3,000 t capacity
Grinding	
SAG Mill	5.5 m diameter x 2.7 m EGL with 1,130 kW motor
SAG Screen	Vibrating, 1.8 m x 2.9 m with 5 mm x 16 mm opening and 2 x 3.7 kW motors
Ball Mill	4.0 m diameter x 5.3 m length with 1,325 kW motor
Primary cyclone	660 mm diameter Tega/Krebs, one operating, one standby unit
Secondary cyclones	250 mm diameter Tega, five operating, three standby units
Trash Screen	Vibrating, 1.2 m x 2.4 m with 20 mesh opening and 3.7 kW motor
Gravity Circuit	
Gravity screens	Vibrating, 1.2 m x 3.66 m with 1.5 mm x 8.8 mm opening and 2 x 3 kW motors
Gravity Concentrators	Two 762 mm diameter Knelson concentrators
Intensive Leach Reactor	2.27 m larger X 4.4 m length Gekko Leach unit with tanks
Gravity Electrowinning cell	3.26 m^3 cells with eight cathodes
CIL	
Production Thickener	34 m diameter with high rate type feedwell
CIL Tanks	Seven 700 m^3 capacity tanks
CIL Agitators	One 3.45 m diameter double impeller with 37 kW motor for each tank
CIL Screens	Two Westech 4 m^2 and three Westech 3.8 m^2 screens

Equipment	Characteristics
Safety Screen	Vibrating, 1.2 m X 2.4 m with 20 mesh opening and 3.7 kW motor
Tailings Mixing Tank	One 27m³ capacity tank with 30 kW agitator
Cyanide Destruction Tank	One 322 m³ capacity tank with 149 kW agitator
Carbon Circuit	
Loaded Carbon Washing Screen	Vibrating, 1.2 m X 2.4 m with 20 mesh opening and 3.7 kW motor
Loaded Carbon Tank	One 5.5 t of carbon capacity
Acid Washing Tank	One 5.5 t of carbon capacity
Carbon Calibration Screen	Vibrating, 1.2 m X 2.4 m with 16 mesh opening and 3.7 kW motor
Carbon Calibrated Carbon Tank	One 15.8 m^3 capacity tank
Regenerating Kiln	0 76 m diameter, 7 3 m length with 350 kW of heating capacity
Carbon Fines Thickener	One 5 m diameter with high rate type feedwell
Carbon Fines Filter Press	One 23.5 m of filtration with 20 chambers
Elution	
Elution Vessel	One 1.68 m diameter tank 5.5 t carbon capacity
Water Heater	870 kW capacity water heater
Barren Solution Tank	One 153 m³ capacity tank
Electrowinning Cells	Two 4.53 m^3 cells with 12 cathodes each
Refinery	
Filter Press	One 24.8 m^2 of filtration with 21 chambers
Induction Furnace	One 750 lbs capacity with 125 kW

14.3 Energy, Water, and Process Materials Requirements

Power requirements for the processing facilities are not anticipated to change significantly in the foreseeable future from the current power requirements (approximately 7 MW).

Make-up water is supplied from the process water pond. Water consumption is not expected to change significantly from the recent historical annual water usage (2.3 million m^3) and no supply concerns have been noted.

Key reagents used in the process include quick lime, cyanide, caustic soda, ferric sulphate, fine quick lime, copper sulphate, hydrochloric acid, and sulphur dioxide. Reagent consumption is presented in Table 14-2.

Table 14-2: Reagent Consumption 2021
Hecla Mining Company – Casa Berardi Mine

Reagent	kg/t
Hydrochloric acid	0.068
Caustic soda	0.248
Copper sulfate	0.223
Iron sulfate	1.651
Sulfide dioxide	0.947
Lead nitrate	0.200
Carbon	0.031
Sodium cyanide	0.582
Fine Limestone	0.593
Coarse Limestone	0.956
Hydrogen peroxide	0.042
Flocculent	0.004

14.4 Personnel

The total processing plant personnel number is 96 (29 salaried employees and 67 hourly employees).

15.0 INFRASTRUCTURE

Casa Berardi is in operation and has developed infrastructure to support the operations. There are well maintained gravel and paved roads that access the site and there is a network of roads on the site to service the mine areas and various facilities. The Mine has developed water sources for the operation and power is supplied from the grid. The current surface and underground infrastructure at Casa Berardi, including both the West and East mines, is presented and discussed in Section 5.

15.1 Roads and Logistics

The 38 km all season gravel road to Casa Berardi branches off from the paved road linking La Sarre and the Selbaie Mine approximately 21 km north of the village of Villebois, passing through the village.

On the Property, a gravel road links the East and West mines, and several exploration roads provide access to the rest of the Property to the east and west. A production road and a staff road are in use as discussed in Section 5. The staff road is proposed to be relocated to the south side of the future WMCP Pit in 2023 (as presented in Figure 15-1).

15.2 Mine Layout

The current and preliminary major infrastructure areas are presented in Figure 15-1.

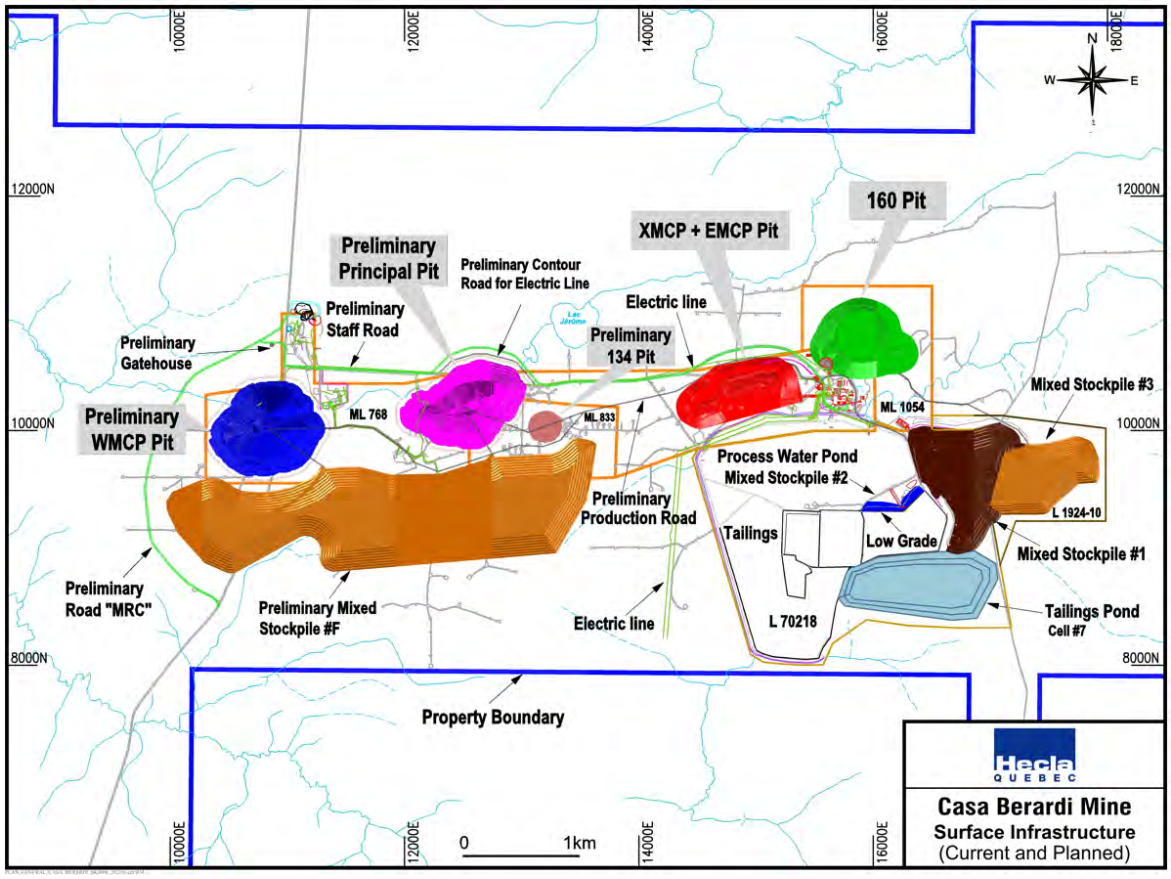

Figure 15-1: Surface Infrastructure (Current and Preliminary)

15.2.1 Tailings Management and Facilities

The site includes an existing TSF with four tailings cells, a polishing pond, a sedimentation pond for settling iron arsenate precipitates, and a process water pond (Figure 15-2).

Figure 15-2: Surface Plan Tailings and Waste Rock Facilities

Approximately 5% of the mine tailings are used in the mine backfill cycle. Tailings that are not used for mine backfill are placed on the surface at the TSF. Permits are in place for mine water management and operation of the TSF. The monitoring system associated with the TSF includes surface and groundwater monitoring, water level monitoring, geochemical and geotechnical monitoring, and inspections. An operation, maintenance, and surveillance (OMS) manual has been developed for the TSF.

Tailings deposition is currently ongoing in Cell #7. Cells #1, #2, and #3 are no longer used for deposition, being at their design capacity and currently in the process of progressive reclamation.

In 2010, Cell #4 was built through the construction of a dike. Dike enhancements were required as part of the previous LOM plans and the first enhancement of Cell #4 was made in 2012. Since that time, many enhancements and raises were completed for Cell #4, with the last lift completed in 2020. At the moment, a stability analysis is in progress to establish the final capacity of Cell #4. Since June 2021, the tailings produced have been stored in Cell #7.

To accommodate LOM tailings and water management, a new Cell #7 was constructed in 2019. To accommodate the current LOM, a raise of Cell #7 was completed in 2021. Another raise for the Cell #7 is planned in 2022.

After the revision of the tailing's deposition and fill plan for the cells in the existing TSF (including Cell #7) by Wood Canada Limited (Wood) in 2019 based on the LOM, it has been concluded that an additional cell

may be required in 2028 for tailings management. Filling the 160 Pit at the end of the operation is currently being studied. Given the permitting history at Casa Berardi and the high standards of practice followed by Hecla, the company believes that obtaining necessary permits for expanding the required TSFs will not present any issues.

15.2.2 Waste Rock Management and Stockpiles

Waste rock is stored on surface, and its ongoing characterization since 2008 has indicated that it is not acid generating. The Mine has a certificate of authorization for the storage of waste rock on surface. Based upon the large demand for rock fill at the site, a large portion of underground waste rock is disposed of underground for use as backfill material for mining operations, with limited amounts brought to surface and used for construction of drilling accesses in swampy terrains or in construction projects such as dams and roads.

Although, waste rock produced from open pit operations is, and will continue to be, stored on surface, waste rock and overburden (till, clay, and organics) from EMCP Pit are stored on surface at two locations, in Mixed Stockpiles #1 and #2 stockpiles (Figure 15-1 and Figure 15-2). These will not likely have sufficient capacity to store the volume of waste rock produced by all of the open pits in the current LOM. Mixed Stockpile #3 has been built to accommodate additional waste material (Figure 15-2). Potential waste rock and overburden stockpile locations are indicated in Figure 15-1 and Figure 15-2 for possible future mining of the WMCP and/or Principal pits. Additional locations may be required for the current LOM. One other possible mixed stockpile #F is presented in Figure 15-1.

Given the mine permitting history at Casa Berardi and the high standards of practice followed by Hecla, the company believes that obtaining permits to expand waste rock as may be required for the LOM will not present any material issues. Hecla is considering the use of open pits for waste rock management to reduce surface storage requirements, should potential future open pits require additional waste rock storage.

15.2.3 Other Wastes

All other wastes (hazardous materials) produced at the site are disposed of in accordance with regulatory requirements and legislation. No addition or modification will be necessary for future operations.

15.2.4 Water Supply

Water management (mine, surface, and tailings) and effluent treatment are presented in Section 17.

Fresh water supply is from groundwater production wells and groundwater collected in a series of underground seep collection areas.

15.2.5 Water Use

Groundwater is utilized for underground operations at the East and West mines, in the paste backfill plant, and the cement plant. It is also used as potable water at the plant site facilities.

The primary source of water for plant operations is the reclaim water from the process water pond (recycled water). Fresh water has limited use at the plant.

15.2.6 Power and Electrical

Electrical power is supplied to the site by a 55 km, 120 kV power line from the town of Normétal. The electrical line will be relocated south of the future WMCP Pit in 2023.

15.2.7 Fuel

Three fuel tanks are located near the EMCP Pit as discussed in Section 5. They will be moved closer to the eventual WMCP and Principal pits in 2023 to optimize operational functionality and cost.

16.0 MARKET STUDIES

Casa Berardi is in operation and has been operating steadily since 2006 producing gold and silver in doré bars.

16.1 Markets

16.1.1 Overview

Gold supply is approximately 165 million ounces, with mine production contributing 75% of gold supply and recycling accounting for the remaining 25%. In terms of gold demand, jewelry fabrication accounts for approximately 55% of total demand while Investment in physical bars, coins and Exchange Traded Funds is at 25% of overall demand. Gold's use in technology applications was around 11 million ounces, or 8% of total demand in 2021, according to the World Gold Council. Accommodative fiscal and monetary policies globally due to COVID-19 lent support to investment demand for gold in 2020 as gold prices reached record levels in 2020.

Silver demand is primarily composed of Industrial demand, which accounts for 50% of total silver demand of 1 billion ounces. Investment demand (physical and exchange traded products) and jewelry and silverware account for 25% share each respectively. Silver has the highest electrical conductivity of all metals and this property positions silver as a unique metal for multitude of uses in electronic circuitry in automotive and electronics. Silver's use in photovoltaic cells has also seen a rapid expansion in the past five years and is expected to be one of the key growth areas in green energy.

16.1.2 Commodity Price Projections

Metal prices used in the estimation of Mineral Resources and Mineral Reserves is determined by Hecla's corporate office in Coeur d'Alene, Idaho, USA. Casa Berardi Mineral Reserves are estimated using a price of US$1,600/oz Au, while gold Mineral Resources are estimated using a price of US$1,700/oz Au. The difference in prices is the result of a longer historical period used as the basis for the Mineral Resource estimation.

Table 16-1 shows the realized metal prices Hecla has received for sales of its products.

Table 16-1: Hecla Historical Average Realized Metal Prices
Hecla Mining Company – Casa Berardi Mine

Metal Prices	2019	2020	2021	3 Year Avg.
Silver ($/oz)	16.65	21.15	25.24	21.01
Gold ($/oz)	1.413	1,757	1,796	1,655

The economic analysis performed in the LOM plan assumes a constant gold price of US$1,650/oz Au and US$21.00/oz Ag based upon analysis of consensus metal price forecasts by financial institutions. Based on macroeconomic trends, the SLR QP is of the opinion that Hecla's realized metal pricing will remain at least at the current three -year trailing average or above for the next five years.

16.2 Contracts

16.2.1 Refining

Hecla currently has a refining agreement with Asahi Refining Canada (Asahi) whereby the refined gold and silver is refined and credited to Hecla's account at Asahi. The doré bars produced at Casa Berardi are refined at Asahi's facilities in Brampton, Ontario, Canada.

Gold and silver bullion is sold through commercial banks or metal traders via a sale contract at spot prices. Settlement of funds from bullion sales occurs two business days after the contract date.

The terms and conditions of the refining and bullion sales contracts are typical and consistent with standard industry practice and would be similar to contracts for the supply of gold elsewhere in North America.

16.2.2 Other Contracts

Casa Berardi is in operation and has been operating steadily since 2006. There are numerous contracts in place for items including the operation of the 160 Pit, service contracts related to the operation, underground mine development contracts, and contracts for supplies. These are usual contracts for an operating mine.

17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

17.1 Environmental Considerations

Casa Berardi is an operating mine and was previously the subject of environmental baseline studies and reviews prior to the start of operations. Additional studies for the 160 Pit include a hydrogeology study in 2019, a bird and amphibian study in 2017, and a fish habitat water quality and sediment study in 2017. The primary mine waste products produced by the Casa Berardi Mine are tailings and waste rock. Tailings and waste rock disposal are discussed in Section 18 of this TRS.

Hecla is committed to operating in compliance with all regulations and standards of good practice for environmental, health, and safety. To uphold this commitment Hecla has developed and approved corporate policies for environmental and health and safety practices and has prepared a detailed management plan to facilitate the continuous improvement of its environment and health and safety performance. An Environmental Management System (EMS) is currently in place and audited annually.

Hecla participates in the Towards Sustainable Mining (TSM) initiative of the Mining Association of Canada and Québec Mining Association. In 2016, the Québec Mining Association evaluated the sustainable mining development initiative at the Property. An action plan has been put in place for the six protocols of the initiative, including tailings management, Aboriginal and community outreach, biodiversity conservation management, energy use and greenhouse gas (GHG) emissions management, health and safety, and crisis management planning. Since 2016, Hecla has continued to work on the implementation and improvement of management systems. SLR understands that an external audit is planned for the end of 2023, with the objective of improving performance while ensuring that primary mining risks are managed responsibly at the mine facilities.

The mine design meets current standards and the implementation of the proposed environmental and health and safety practices ensures that the Casa Berardi Mine is prepared to meet future challenges. The preliminary design is flexible and allows for modifications to improve performance when and where necessary.

In addition to the EMCP Pit, the current LOM plan includes additional preliminary pits.

17.2 Water Management and Effluent Treatment

17.2.1 Water Management

Casa Berardi has a positive water balance and discharges surplus water as effluent into Kaakakosig Creek. Site water is managed and handled in the TSF and then released to the environment via the PWP.

Figure 17-1 presents a simplified illustration of the mine site water management system.

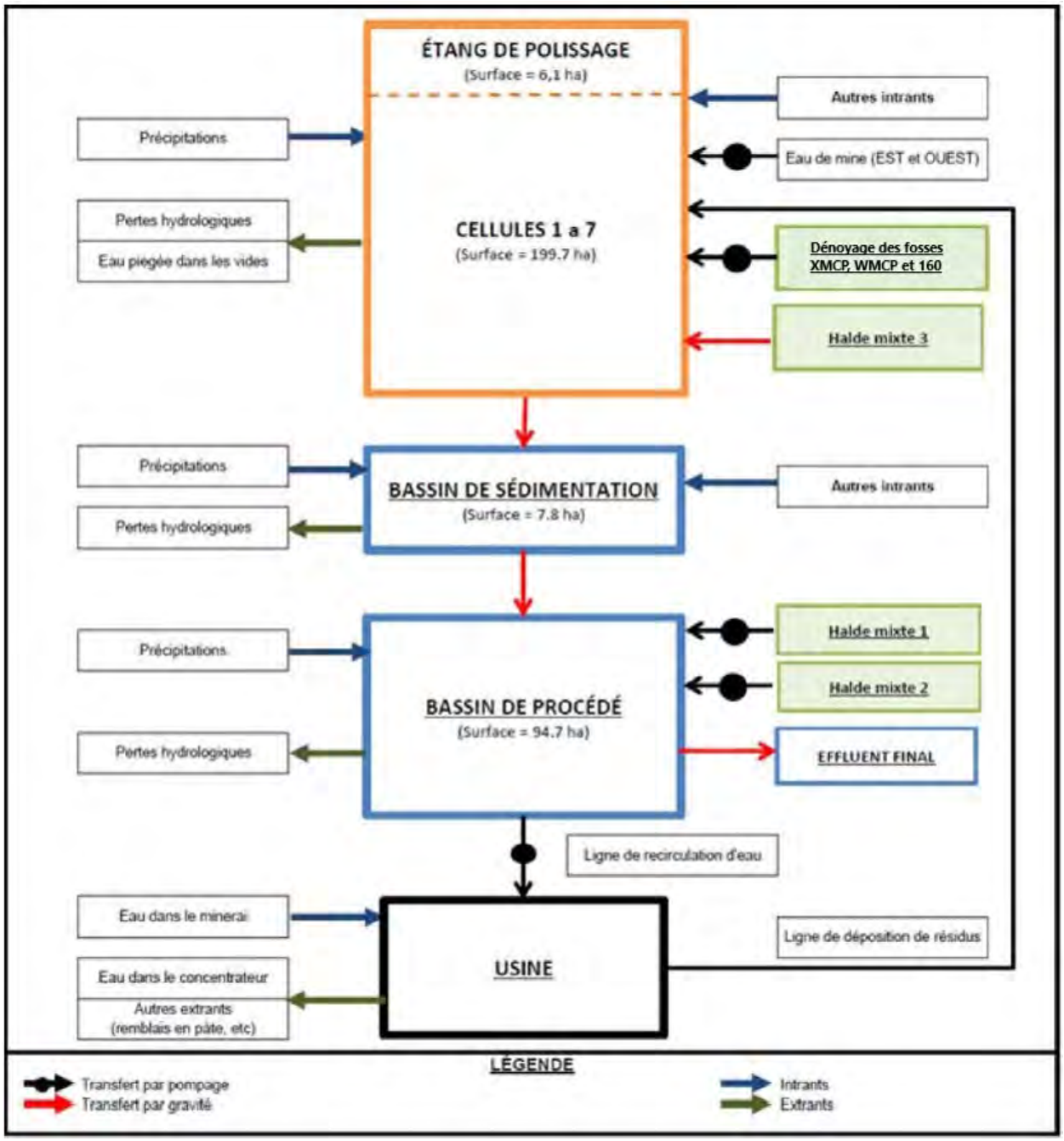

Figure 17-1: Water Management

17.2.2 Mine Water Management

Mine water from the east and west underground mine dewatering systems is pumped to the surface and treated with ferric sulphate to precipitate arsenic prior to being discharged into the TSF cells.

The EMCP Pit currently drains to the east underground mine where it is pumped to the surface.

The mixed stockpile contact water is collected and pumped to the TSF.

Where practical, the non-contact water is diverted from the site by ditches.

17.2.3 TSF Water Management

Tailings slurry may contain elevated levels of cyanide, cyanide metal complexes, cyanide degradation products (cyanate (CNO), thiocyanate (CNS), and ammonia (NH_3)), and arsenic. The primary concern with discharge is elevated levels of these constituents, which could exceed effluent standards and/or cause effluent toxicity.

Casa Berardi uses the SO_2/air process for cyanide destruction in the slurry discharge prior to release to the TSF. Ferric sulphate is added in the slurry at the exit of the SO_2/air process, effectively eliminating soluble arsenic, cyanide, and cyanide metal complexes from the discharge. While the SO_2/air process does, produce elevated levels of CNO, this compound is not likely to be present in toxic amounts, because as the compound naturally degrades in the tailings pond, ammonia is formed. Storage of the water in the tailing ponds, polishing pond, and PWP assists in nitrification of the water to reduce ammonia levels.

Hecla is permitted to discharge treated water year-round with no volume limitations. Actual treated water discharge is typically limited to the spring and late fall due to freezing conditions in winter and the demand for process water in summer. Approximately two to three million cubic metres of process pond water that is not recycled at the mill is discharged annually into Kaakakosig Creek.

The final Mine effluent meets Canada Metal and Diamond Mining Effluent Regulations (MDMER) and the limits outlined in Québec Directive 019 for mining industry discharge. A monitoring program is in place for surface and underground water. Regular monthly monitoring of acute toxicity during periods of discharge of final effluent is carried out as required by applicable regulations.

17.2.4 Environmental Effects of Treated Effluent

As required by MDMER, Environment Effect Monitoring (EEM) studies are conducted on a regular basis. Monitoring studies began in 2007 and are still in progress. Studies are conducted every three years until the end of mine life.

17.3 Regulatory Change and Environmental Permits

17.3.1 Regulatory Change

As of August 2018, the Québec territory north of the 49th Parallel is no longer subject to the regulation regarding compensation for adverse effects on wetlands and bodies of water under the Environmental Quality Act (R.S.Q., c. Q-2) (the EQA).

17.3.2 Environmental Permits

All necessary regulatory permits required for the operation of the Casa Berardi Mine since its construction, that have been transferred or issued to Hecla, are listed in Table 17-1.

A depollution attestation was issued by the MELCC in November 2011, which is updated and renewed every five years.

Table 17-1: Existing Environmental Permits
Hecla Mining Company – Casa Berardi Mine

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
20-HQUE-00110 - 2021-020	Fisheries Act authorization	Fisheries Act/Sections 34.4(2)b) and 35(2)b)	Divert a section of Kaackakosig creek (1400 m) to operate 160open pit	Hecla Québec	2021-07-26	160 Pit
7470-10-01-00006-00	Construction of access road in a humid area	EQA / Section 22	Construction of access and pads for drilling in humid area	Aurizon Mines Ltd	2010-01-14	West Mine
7470-10-01-00006-03	Construction of access road in a humid area	EQA / Section 22	Construction of access and pads for drilling in humid area	Aurizon Mines Ltd	2012-02-24	West Mine
7470-10-01-00006-04	Construction of access road in a humid area	EQA / Section 22	Construction of access and pads for drilling in humid area	Hecla Québec	2013-06-28	West Mine
7610-10-01-70016-00	Clay borrow pit	EQA / Section 22	Clay borrow pit exploitation	Les Mines Casa Berardi	1995-09-18	Casa Berardi Site
7610-10-01-70016-09	Storage for dangerous waste	EQA / Section 22	Storage for dangerous waste transferred to TVX gold and Golden Knight Resources on June 19 1992	TVX Gold and Golden Knight Resources	1992-06-19	Casa Berardi Site
7610-10-01-70016-21	Diversion of Kaackakosig creek	EQA / Section 22	Diversion of Kaackakosig creek Casa Berardi East, transferred to Aurizon mines on September 14 1998, transferred to Hecla on February 5 2014	Aurizon Mines Ltd	1998-09-14	Casa Berardi Site
7610-10-01-70016-21	Diversion of Kaackakosig creek	EQA / Section 22	Diversion of Kaackakosig creek Casa Berardi East	Inco Gold	1990-02-19	Casa Berardi Site
7610-10-01-70016-22	Storage for dangerous waste	EQA / Section 22	Storage for dangerous waste	Les Mines Casa Berardi	1991-01-18	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 30	Cell#7 increasing dyke (Modification)	Hecla Québec	2021-08-20	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 30	Adding a tank and a compressor at the cyanide destruction	Hecla Québec	2019-09-11	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 30	Increase tonnage at the mill (Modification)	Hecla Québec	2019-04-04	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Increase tonnage at the mill (Modification)	Hecla Québec	2017-08-25	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Increase tonnage at the mill (Modification)	Hecla Québec	2016-10-17	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Increase tonnage at the mill (Modification)	Hecla Québec	2016-08-03	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Tailing pond filing plan cell# 1, 2 and 3	Aurizon Mines Ltd	2007-12-19	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Increase process water pond dyke	Aurizon Mines Ltd	2006-09-14	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 122.2	Increase tonnage at the mill (Modification)	Aurizon Mines Ltd	2001-09-10	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 24	Ore extraction and processing ore transferred to Aurizon mines ltd	Aurizon Mines Ltd	1998-09-14	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 22	Ore extraction and processing ore (Modification)	TVX Gold and Golden Knight Resources	1998-02-19	Casa Berardi Site
7610-10-01-70016-23	Ore extraction and processing ore	EQA / Section 22	Ore extraction and processing ore	TVX Gold and Golden Knight Resources	1992-12-23	Casa Berardi Site
7610-10-01-70016-24	Clay borrow pit	EQA / Section 24	Clay borrow pit exploitation (transferred)	Aurizon Mines Ltd	1998-09-14	Casa Berardi Site
7610-10-01-70016-24	Clay borrow pit	EQA / Section 22	Clay borrow pit exploitation	TVX Gold	1995-08-07	Casa Berardi Site
7610-10-01-70016-25	Quarry	EQA / Section 22	Quarry exploitation	Aurizon Mines Ltd	2013-05-10	Casa Berardi Site
7610-10-01-70016-25	Quarry	EQA / Section 24	Quarry exploitation (transferred)	Aurizon Mines Ltd	1998-09-14	Casa Berardi Site
7610-10-01-70016-25	Quarry	EQA / Section 22	Quarry exploitation (transferred)	TVX Gold	1995-08-07	Casa Berardi Site
7610-10-01-70016-26	Clay borrow pit	EQA/Section 24	Clay borrow pit exploitation (transferred)	Aurizon Mines Ltd	1998-09-14	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70016-26	Clay borrow pit	EQA/Section 22	Clay borrow pit exploitation	TVX Gold	1995-09-18	Casa Berardi Site
7610-10-01-70016-28	Operation of a concrete plant	EQA/Section 122.2	Operation of a concrete plant (transferred)	Hecla Québec	2014-02-05	Casa Berardi Site
7610-10-01-70016-30	Pipe installation in Koababikawi creek	EQA/Section 32	Installation of 2 pipes in Koababikawi creek for fire station and industrial water modified on February 5 2014	Aurizon Mines Ltd	2004-11-10	Mine Est
7610-10-01-70016-31	Installation of a fire station	EQA/Section 32	Installation of a fire station in «Lac Sans Nom» (modified)	Aurizon Mines Ltd	2005-09-22	Casa Berardi Site
7610-10-01-70016-31	Installation of a fire station	EQA/Section 32	Installation of a fire station in «Lac Sans Nom» modified on February 5 2014	Aurizon Mines Ltd	2005-07-04	Casa Berardi Site
7610-10-01-70016-32	Installation of a humid dust collector and a dust collector	EQA/Section 48	Installation of a humid dust collector and a dust collector modified on February 5 2014	Aurizon Mines Ltd	2008-04-07	Casa Berardi Site
7610-10-01-70016-33	Oil and water separator	EQA/Section 22	Installation of a oil and water separator in mechanical shop at East mine (modification)	Aurizon Mines Ltd	2009-12-18	Casa Berardi Site
7610-10-01-70016-33	Oil and water separator	EQA/Section 22	Installation of a oil and water separator in mechanical shop at East mine modified on 05-02-2014	Aurizon Mines Ltd	2008-06-26	Casa Berardi Site
7610-10-01-70016-36	Treatment for domestic waste water	EQA/Section 32	Treatment for domestic waste water Bionest est modified on February 5 2014	Aurizon Mines Ltd	2009-11-03	Casa Berardi Site
7610-10-01-70016-37	Ore extraction and processing ore	EQA/Section 22	Tailing pond cell#4 construction (modification)	Aurizon Mines Ltd	2011-11-21	Casa Berardi Site
7610-10-01-70016-37	Ore extraction and processing ore	EQA/Section 22	Tailing pond cell#4 construction modified on February 5 2014	Aurizon Mines Ltd	2010-07-29	Casa Berardi Site
7610-10-01-70016-38	Underground water collection	Règlement sur le captage des eaux	Underground water collection at East mine	Aurizon Mines Ltd	2012-04-02	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
		souterraines/Section 31.75				
7610-10-01-70016-39	Oil and water separator	EQA/Section 122.2	Treatment of oily water transferred to Hecla	Hecla Québec	2014-02-05	Casa Berardi Site
7610-10-01-70016-39	Oil and water separator	EQA/Section 22	Treatment of oily water modification	Aurizon Mines Ltd	2013-06-07	Casa Berardi Site
7610-10-01-70016-39	Oil and water separator	EQA/Section 22	Treatment of oily water	Aurizon Mines Ltd	2011-08-26	Casa Berardi Site
7610-10-01-70016-39	Bekosplit	EQA/Section 22	Operation of a Bekosplit unit	Aurizon Mines Ltd	2011-06-17	Casa Berardi Site
7610-10-01-70016-40	Bekosplit	EQA/Section 32	Installation of a Bekosplit unit	Aurizon Mines Ltd	2011-06-17	Casa Berardi Site
7610-10-01-70016-41	Tailing pond	EQA/Section 122.2	Raise north dyke of cell#4 and water process pond pumping station redevelopment (modification)	Hecla Québec	2015-10-21	Casa Berardi Site
7610-10-01-70016-41	Tailing pond	EQA/Section 122.2	Raise internal dyke in southern part of cell#4 (Modification)	Hecla Québec	2015-08-12	Casa Berardi Site
7610-10-01-70016-41	Tailing pond	EQA/Section 22	Raise and extension of cell# 4 dyke modified on February 5 2014	Aurizon Mines Ltd	2012-05-09	Casa Berardi Site
7610-10-01-70016-42	Dewatering and backfill a pond	EQA/Section 22	Dewatering and backfill a man-made pond	Hecla Québec	2014-01-14	Casa Berardi Site
7610-10-01-70016-43	Increase water collection	EQA/Section 31.75	Increase underground water collection a East mine	Hecla Québec	2014-11-28	Casa Berardi Site
7610-10-01-70016-44	Construction of access road in a humid area	EQA/Section 22	Construction of access road in a humid area	Aurizon Mines Ltd	2013-03-14	Casa Berardi Site
7610-10-01-70016-45	Construction access and pads for drilling in humid area	EQA/Section 22	Construction access and pads for drilling in humid area	Hecla Québec	2013-12-19	Casa Berardi Site
7610-10-01-70016-46	Construction of 8 pads for drilling in humid area	EQA/Section 22	Construction of 8 pads for drilling in humid area	Hecla Québec	2014-12-15	Casa Berardi Site
7610-10-01-70016-47	Dewatering EMCP	Règlement sur le captage des eaux	Dewatering EMCP and installation of the pumping station	Hecla Québec	2016-01-12	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
		souterraines/Section 31.75 and 31.95				
7610-10-01-70016-48	Raise of the water process pond dyke	EQA/Section 30	Raise of the water process pond dyke (Modified)	Hecla Québec	2020-09-04	Casa Berardi Site
7610-10-01-70016-48	Raise of the water process pond dyke	EQA/Section 22	Raise of the water process pond dyke	Hecla Québec	2016-06-23	Casa Berardi Site
7610-10-01-70016-49	Crushing and screening of waste rock	EQA/Section 22	Crushing and screening of waste rock	Hecla Québec	2016-02-25	Casa Berardi Site
7610-10-01-70016-50	Use of leachable waste rock for construction in stockpile #1 and in tailing pond	EQA/Section 22	Use of leachable waste rock for construction in stockpile #1 and in tailing pond	Hecla Québec	2017-01-13	Casa Berardi Site
7610-10-01-70016-51	Raise of internal dyke cell#4	EQA/Section 30	Raise internal dyke in cell#4 third step (Modified)	Hecla Québec	2020-03-27	Casa Berardi Site
7610-10-01-70016-51	Raise of internal dyke cell#4	EQA/Section 30	Construction of filter dams in cell#1 (Modified)	Hecla Québec	2020-03-11	Casa Berardi Site
7610-10-01-70016-51	Raise of internal dyke cell#4	EQA/Section 30	Raise internal dyke in cell#4 works 2018-2019 (Modified)	Hecla Québec	2018-12-19	Casa Berardi Site
7610-10-01-70016-51	Raise of internal dyke cell#4	EQA/Section 22	Raise internal dyke in cell#4	Hecla Québec	2017-04-05	Casa Berardi Site
7610-10-01-70016-53	Closure of cell#2	EQA/Section 22	Construction of a clay cover on cell#2	Hecla Québec	2017-12-19	Casa Berardi Site
7610-10-01-70016-54	Expansion of tailing pond cell#7	EQA/Section 22	Construction of cell#7	Hecla Québec	2019-02-27	Casa Berardi Site
7610-10-01-70016-55	Extension of EMCP	EQA/Section 22	XMCP open pit	Hecla Québec	2019-05-15	Casa Berardi Site
7610-10-01-70016-56	Ore crushing	EQA/Section 30	Ore crushing on Casa Berardi site (Modified)	Hecla Québec	2020-07-14	Casa Berardi Site
7610-10-01-70016-56	Ore crushing	EQA/Section 30	Ore crushing on Casa Berardi site (Modified)	Hecla Québec	2019-10-16	Casa Berardi Site
7610-10-01-70016-56	Ore crushing	EQA/Section 22	Ore crushing on Casa Berardi site	Hecla Québec	2019-06-25	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70016-57	Dewatering open pit 160	EQA/Section 30	Installation of 12 dewatering wells at the perimeter of 160 pit (Modified)	Hecla Québec	2021-02-24	Casa Berardi Site
7610-10-01-70016-61	Open pit 160	EQA/Section 22	Construction of 160 open pit in Humid area	Hecla Québec	2020-09-16	Casa Berardi Site
7610-10-01-70016-57	Dewatering of open pit 134	EQA/Section 22	Dewatering 134	Hecla Québec	2020-05-27	Casa Berardi Site
7610-10-01-70016-58	Construction and operation of open pit 134 in humid area	EQA/Section 22	Construction and operation of open pit 134 and stockpile #3 in humid area	Hecla Québec	2020-05-27	Casa Berardi Site
7610-10-01-70017-00	Casa Berardi west mine exploitation	EQA/Section 22	Casa Berardi mine west mine exploitation transferred to Hecla Québec on February 5 2014	Hecla Québec	1992-07-02	Casa Berardi Site
7610-10-01-70017-07	Attestation d'assainissement en milieu industriel (permit of operation)		Attestation d'assainissement en milieu industriel	Aurizon Mines Ltd	2011-11-11	Casa Berardi Site
7610-10-01-70017-07	Attestation d'assainissement en milieu industriel (permit of operation)		Attestation d'assainissement en milieu industriel (modified)	Hecla Québec	2015-01-12	Casa Berardi Site
7610-10-01-70017-07	Attestation d'assainissement en milieu industriel (permit of operation)		Attestation d'assainissement en milieu industriel (modified)	Hecla Québec	2020-01-09	Casa Berardi Site
7610-10-01-70017-21	Treatment for domestic waste water at Golden Pond West	EQA/Section 32	Treatment for domestic waste water at Golden Pond West	TVX Gold and Golden Knight Resources	1987-07-26	Casa Berardi Site
7610-10-01-70017-22	Treatment for domestic waste water (projet C)	EQA/Section 32	Treatment for domestic waste water (projet C)	TVX Gold and Golden Knight Resources	1987-09-10	Casa Berardi Site
7610-10-01-70017-25	Casa Berardi west mine exploitation	EQA/Section 122.2	Casa Berardi west mine exploitation (Modification)	Aurizon Mines Ltd	2001-02-21	Casa Berardi Site
7610-10-01-70017-25	Casa Berardi west mine exploitation	EQA/Section 122.2	Casa Berardi west mine exploitation (Modification)	Aurizon Mines Ltd	2000-10-27	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70017-25	Casa Berardi west mine exploitation	EQA/Section 24	Casa Berardi west mine exploitation (transferred)	Aurizon Mines Ltd	1998-09-14	Mine Ouest
7610-10-01-70017-26	Installation of a power line of 25 kV	EQA/Section 22	Installation of a power line 25kV in a humid area modified on February 5 2014	Aurizon Mines Ltd	2006-01-26	Mine Ouest
7610-10-01-70017-27	Treatment for domestic waste water	EQA/Section 122.2 and 122.3	Treatment for domestic waste (Modification)	Aurizon Mines Ltd	2008-05-29	Casa Berardi Site
7610-10-01-70017-27	Treatment for domestic waste water	EQA/Section 32	Treatment for domestic waste	Aurizon Mines Ltd	2006-08-15	Casa Berardi Site
7610-10-01-70017-28	Oil and water separator	EQA/Section 122.2	Oil and water separator (transferred to Hecla Québec)	Hecla Québec	2014-02-05	Casa Berardi Site
7610-10-01-70017-28	Oil and water separator	EQA/Section 22	Oil and water separator west mine	Aurizon Mines Ltd	2007-10-17	Casa Berardi Site
7610-10-01-70017-29	Construction of access road in a humid area	EQA/Section 22	Construction of access road in a humid area	Aurizon Mines Ltd	2007-07-20	Casa Berardi Site
7610-10-01-70017-30	Construction of access road in a humid area	EQA/Section 22	Construction of access road in a humid area	Aurizon Mines Ltd	2008-04-09	Casa Berardi Site
7610-10-01-70017-31	Oil and water separator West mine	EQA/Section 22	Operation of an oil and water separator West mine Garage Gabriel Aubé	Aurizon Mines Ltd	2009-01-13	Casa Berardi Site
7610-10-01-70017-32	Oil and water separator West mine	EQA/Section 32	Installation of an oil and water separator West mine Garage Gabriel Aubé	Aurizon Mines Ltd	2009-01-13	Casa Berardi Site
7610-10-01-70017-33	Construction of access road in a humid area	EQA/Section 22	Construction of access road in a humid area	Aurizon Mines Ltd	2009-07-17	Casa Berardi Site
7610-10-01-70017-34	Expansion of the ore stock pile at west mine	EQA/Section 122.2	Expansion of the ore stockpile at west mine (Modification)	Hecla Québec	2016-12-20	Casa Berardi Site
7610-10-01-70017-34	Ore stockpile at west mine	EQA/Section 22	Ore stockpile at west mine	Aurizon Mines Ltd	2010-06-30	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70017-35	Construction of access road and pad for drilling in a humid area	EQA/Section 22	Construction of access road and pad for drilling in a humid area	Aurizon Mines Ltd	2010-12-17	Casa Berardi Site
7610-10-01-70017-36	Operation of a Bekosplit unit	EQA/Section 122.2	Operation of a Bekosplit unit (Modification)	Hecla Québec	2013-11-21	Casa Berardi Site
7610-10-01-70017-38	Treatment for domestic waste water	EQA/Section 32	Treatment for domestic waste water (Bionest west mine)	Aurizon Mines Ltd	2011-09-21	Casa Berardi Site
7610-10-01-70017-39	Underground water collection at west mine	Règlement sur le captage des eaux souterraines/Section 31	Underground water collection at west mine	Aurizon Mines Ltd	2012-04-02	Casa Berardi Site
7610-10-01-70017-40	Operation of a paste backfill plant	EQA/Section 122.2	Construction and operation of a paste backfill plant (Modification)	Aurizon Mines Ltd	2013-03-07	Mine Ouest
7610-10-01-70017-40	Operation of a paste backfill plant	EQA/Section 22	Construction and operation of a paste backfill plant transferred on 05-02-2014	Aurizon Mines Ltd	2012-10-29	Casa Berardi Site
7610-10-01-70017-41	Operation of cement plant	EQA/Section 122.2	Operation of a cement plant transferred to Hecla Québec	Hecla Québec	2014-02-05	Casa Berardi Site
7610-10-01-70017-41	Operation of cement plant	EQA/Section 22	Operation of a cement plant	Aurizon Mines Ltd	2012-09-26	Casa Berardi Site
7610-10-01-70017-43	Open pit 160 (construction and operation)	EQA/Section 30	Open pit 160 (construction and operation)	Hecla Québec	2020-09-15	Casa Berardi Site
7610-10-01-70017-43	Open pit 134	EQA/Section 30	Open pit 134 (construction and operation) and stockpile #3	Hecla Québec	2020-05-27	Casa Berardi Site
7610-10-01-70017-43	Open pit EMCP	EQA/Section 30	Ore stockpile #2	Hecla Québec	2019-09-13	Casa Berardi Site
7610-10-01-70017-43	Open pit EMCP	EQA/Section 22	Open pit EMCP (construction and operation)	Hecla Québec	2015-10-29	Casa Berardi Site
7610-10-01-70017-44	Underground water collection at west mine	EQA/Section 31.75	Increasing the capacity of the water collection	Hecla Québec	2014-12-18	Casa Berardi Site
7610-10-01-70017-45	Drinking water distribution	EQA/Section 32	Drinking water distribution	Hecla Québec	2014-12-18	Casa Berardi Site

Permit #	Permit Title	Pursuant	Description	Issued To	Issuance (YYYY-MM-DD)	Zone
7610-10-01-70017-46	Underground water collection at west mine	EQA/Section 31.75	Installation of a new well and water collection at west mine	Hecla Québec	2014-12-18	Casa Berardi Site
7610-10-01-86019-00	Operation of cement plant	EQA/Section 22	Operation of a cement plant transferred to Aurizon Mines Ltd on September 14, 1998 (761010-01-70016-28)	TVX Gold	1995-11-06	Casa Berardi Site
7610-70049-00	Exploitation and operation of Casa Berardi west	EQA/Section 22	Exploitation and operation of Casa Berardi west	Inco Gold	1990-06-29	Casa Berardi Site

17.4 Mine Reclamation and Closure

The last restauration and closure plan was submitted on October 2019 and accepted on September 2020. This restoration plan cover the global restoration of the mine site, including the restoration of the XMCP, 134 and 160 Pit. It also includes the restoration of the Mixed Stockpiles #3, so the last authorized infrastructure on the Casa Berardi property. The next review of the restoration and closure plan is planned to be submitted in November 2024. SLR understands Hecla will be submitting a review of the Casa Berardi restoration and closure plan before the end of 2024.

The Casa Berardi reclamation and closure plan includes:

- Decommissioning of the surface infrastructure.
- Dismantling of all surface structures, with sales/recycling of assets and disposal of wastes.
- Grading and revegetation of all disturbed areas.
- Capping/sealing of all mine access points in accordance with regulatory standards.
- Grading of the tailing dikes followed by direct vegetation of the tailings dams.
- Description of the financial guarantee, the amount of which corresponds to the anticipated costs of the restoration work.
- The closure period, which will include five years of monitoring activities.

Since August 2013, mining regulations require that financial guarantees cover all the restoration costs including dismantling of the headframes and buildings and sealing of all openings. The amount of this guarantee, which is in the form of a surety bond, corresponds to the total estimated costs for the restoration of the entire actual mine site. The guarantee must be provided in three instalments within two years of the date of reclamation plan approval.

The estimated costs for reclamation and closure costs for Casa Berardi are C$29,107,940 (US$22,829,757). The current amount of the bond is $25,758,032 (US$20,202,378), requiring a final instalment of $3,349,908 (US$2,627,379) due September 21, 2022.

This cost estimate covers the existing operations and current infrastructures but does not include future open pits rehabilitation/closure costs.

17.5 Community and Social Aspects

The Abitibi region is a well established and mature mining region, with the mining industry being a key component of the regional economic development. The region has a wealth of trained miners, and redevelopment of the mine is viewed by most residents as a positive activity providing employment and tax revenue for the region. For instance, Hecla contributed over C$450,000 (US$350,000) in donations and sponsorships in 2021 to various organizations in the region (Table 17-2).

Hecla has developed community engagement and integrated social responsibility policies and has a good relationship with stakeholders. Since January 2019, Hecla has established a liaison committee composed of stakeholders from a variety of areas, including municipal, Aboriginal, economic, environmental, and educational communities.

Table 17-2: Total Contributions from 2018 to 2021
Hecla Mining Company – Casa Berardi Mine

Year	Total Contributed (C$)	Total Contributed (US$)
2021	463,892	363,837
2020	449,899	352,862
2019	518,131	406,377
2018	598,102	469,100

There are no significant First Nations issues related to the Casa Berardi operation or regional exploration activities. The Casa Berardi property is situated on the territory of the Abitibiwinni First Nation, more precisely the community of Pikogan. In November 2018, Hecla and the Council of the Abitibiwinni First Nation signed a memorandum of understanding (MOU) regarding Hecla's exploration and mining activities in the Casa Berardi area. Pursuant to the MOU, the parties have started and concluded a negotiation process for a collaboration on December the 9th 2020. The agreement impact various topics, such as employment, training, and business opportunities for members of the Abitibiwinni First Nation.

17.6 Comments on Environmental Studies, Permitting, and Community Impact

The SLR QP is of the opinion that the environmental, permitting, and social aspects of the Property are being appropriately managed and planned to support the current LOM plan to 2035.

In the opinion of the SLR QP:

- Hecla has sufficiently addressed the environmental impact of the operation, and subsequent closure and remediation requirements such that Mineral Resources and Mineral Reserves can be declared, and the mine plan be deemed appropriate and achievable. Closure provisions are appropriately considered and monitoring programs are in place.
- Hecla has developed a communities' relations plan to identify and ensure an understanding of the needs of the surrounding communities and to determine appropriate programs for addressing those needs. Hecla appropriately monitors socio-economic trends, community perceptions, and mining impacts.
- Permits held by Hecla for the Property are sufficient to ensure that mining activities are conducted within the regulatory framework required by regulations.
- There are currently no known environmental, permitting, or social/community risks that could impact the Mineral Resources or Mineral Reserves.

18.0 CAPITAL AND OPERATING COSTS

18.1 Capital Costs

Unless otherwise noted, all dollar amounts are presented in United States dollars based on a US$/C$ exchange rate of 1.275, and all other measurements are metric values.

Casa Berardi uses the LOM plan as the planning guide for the Casa Berardi operation. The LOM capital costs total US$347.2 million and include mine development (contractor and Owner), mine infrastructure, open pit costs, equipment costs, plant expansion, and tailings management (Table 18-1). The SLR QP is of the opinion that the estimated capital costs for Casa Berardi are reasonable.

Table 18-1: LOM Capital Costs
Hecla Mining Company – Casa Berardi Mine

Area	Total	2022-27	2028	2029	2030	2031	2032	2033	2034	2035-37
					Mine Capital US$(000)					
Underground Infrastructure and Development	50,917	50,917	-	-	-	-	-	-	-	-
Open Pit	41,894	15,872	2,918	7,743	8,496	5,859	0	0	1,005	-
Process Plant	37,563	28,495	6,563	1,191	390	402	413	37	37	37
Administration Casa	5,888	5,712	-	-	-	176	-	-	-	-
Hedging Gain	(182)	(182)								
Site Services (Mechanical & Electrical)	199,430	108,193	14,862	33,573	24,033	24,172	13,183	0	2,312	-20,897
Definition Drilling	11,730	11,730	-	-	-	-	-	-	-	-
Mine Capital Total	**347,239**	**220,735**	**24,344**	**42,506**	**32,919**	**30,608**	**13,595**	**37**	**3,355**	**(20,860)**

Capital development will include approximately 23.3 km of ramps and drifts up to 2027. The capital costs under Mechanical will include approximately 37% for mine equipment, 42% for stripping, and the remainder to construct roads and waste pads as well as dewatering and miscellaneous items. Definition diamond drilling will be continued throughout the underground mine life.

The capital costs are based on updates from equipment suppliers and verified with engineering companies providing services to Casa Berardi. The capital costs accuracy would be considered equivalent or better than AACE Class 1 with an expected accuracy range of -3% to -10% on the low side and +3% to +15% on the high side.

Mine development costs are based upon operating experience, current development contracts, and the LOM development schedule. Open pit costs include mobilization of the open pit contractor and capitalized stripping costs. In year 2035 there is a salvage value of approximately US$20.9 million for mine and other equipment that can be sold.

Working capital costs, composed of accounts receivable, accounts payable, and product and supplies inventories, are included in the Casa Berardi Mine cash flow and net to zero over the LOM. Accounts receivable balances fluctuate based upon period-end sale amounts and the average duration of time

between shipments and receipt of payment. Accounts payable vary over time based upon the average portion of a period's expenditures that are typically unpaid at the end of the period. Inventory values fluctuate based upon the estimated quantities of product produced and the average duration of time between production and sale of products. Depending on the assumptions in the LOM, the working capital variation at the end of the mine life can be positive or negative. In the case of the Casa Berardi Mine, Hecla expects the end-of-life sums received from sales of inventories to be greater than the other working capital items, such that an estimated $9.6 million cash inflow is expected, which will result in working capital to draw down to zero.

18.2 Operating Costs

The operating costs for the Casa Berardi Mine for 2020 and 2021 are presented in Table 18-2. Production in 2020 was lower than budgeted while in 2021 it was higher than budget. The SLR QP notes that the 2020 operating costs were negatively impacted due to the COVID-19 pandemic. The SLR QP is of the opinion that the actual operating costs support the LOM operating costs.

Table 18-2: 2020 and 2021 Operating Cost Data
Hecla Mining Company – Casa Berardi Mine

Item	Operating Cost UUS$/t milled)_	
	2020	**2021**
Tonnes Processed	1,165,050	1,386,416
Gold Produced (oz.)	121,492	134,511
UG Mine (West)	26.73	25.99
UG Mine (East)	3.50	4.71
Site Services (Mech & Elect.)	21.14	21.98
G&A Casa Berardi and Val-d'Or		
Administration	10.59	11.26
Environment	2.23	1.68
Geology	1.67	1.4
Engineering	1.77	1.77
Underground Services		
Health and Safety	3.38	1.75
Sub-Total	71.00	70.58
Open Pit - EMCP	16.83	7.69
Open Pit - 160	-	4.88
Mill	25.96	27.44
Backfill Paste Plant	0.91	0.95
Total Operating Costs	**114.67**	**111.53**

18.2.1 LOM Operating Costs

The LOM operating costs and unit operating costs are presented in Table 18-3 and Table 18-4, respectively. The mining cost decreases substantially after 2027 when only open pit mining will be conducted for the balance of the LOM period ending in 2035. The LOM operating costs compare well with the recent and current operating costs. While the summary column indicates the average for 2022 to 2027, the LOM cash flow presents the annual costs in detail.

Table 18-3: LOM Operating Costs
Hecla Mining Company – Casa Berardi Mine

Item	Units	Total	Total (2022-2027)	2028	2029	2030	2031	2032	2033	2034	2035
Tonnes Milled	000 t	18,826	7,154	1,518	1,562	1,562	1,563	1,627	1,627	1,627	585
Hedging Gain	US$000	(4,871)	(4,871)	-	-	-	-	-	-	-	-
Mining	US$000	381,955	275,355	12,309	7,772	9,861	12,745	20,520	20,537	14,626	8,232
Processing	US$000	377,483	145,723	30,146	31,022	31,022	31,037	32,306	32,306	32,306	11,613
Administration	US$000	235,892	89,642	19,024	19,576	19,576	19,586	20,386	20,386	20,386	7,328
Site Services	US$000	309,050	125,933	23,819	24,511	24,511	24,523	25,526	25,526	25,526	8,416
Total	**US$000**	**1,299,509**	**631,782**	**85,298**	**82,881**	**84,970**	**87,890**	**98,739**	**98,756**	**92,845**	**36,349**

Table 18-4: LOM Unit Operating Costs
Hecla Mining Company – Casa Berardi Mine

Item	Units	Total	Annual Avg. (2022-2027)	2028	2029	2030	2031	2032	2033	2034	2035
Hedging Gain	US$/t	(0.26)	(0.68)	-	-	-	-	-	-	-	-
Mining	US$/t	20.29	38.49	8.11	4.97	6.31	8.15	12.61	12.62	8.99	14.07
Processing	US$/t	20.05	20.37	19.86	19.86	19.86	19.86	19.86	19.86	19.86	19.86
Administration	US$/t	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53
Site Services	US$/t	16.41	17.61	15.69	15.69	15.69	15.69	15.69	15.69	15.69	15.69
Total	**US$/t**	**69.03**	**88.31**	**56.18**	**53.05**	**54.39**	**56.23**	**60.69**	**60.70**	**57.07**	**62.15**

19.0 ECONOMIC ANALYSIS

The economic analysis contained in this TRS is based on the Casa Berardi Proven and Probable Mineral Reserves material only, economic assumptions, and capital and operating costs provided by Hecla's technical team in its LOM plan model and reviewed by SLR. All costs in this section are expressed in US dollars and all measurements are in metric values. Unless otherwise stated, all costs in this section of the TRS are expressed without allowance for escalation or currency fluctuation. All costs received from Hecla's site technical team in its Casa Berardi LOM 2022 Reserves only model were quoted in Canadian dollars and were converted to US dollars at an exchange rate of US$1 = C$1.275.

A summary of the key project criteria is provided in the subsequent subsections.

19.1 Economic Criteria

19.1.1 Physicals

- Mine life: 14 year LOM (between years 2022 and 2035)
- Open Pit operations
  - Open pit mine life: 14 years (between years 2022 and 2035)
  - Total ore tonnes mined: 16.45 Mt at 2.61 g/t Au
  - Waste tonnes: 245.64 Mt
  - Maximum mining rate: 72,000 tpd (ore + waste) in year 2029
- Underground operations
  - Underground mine life: 6 years (between years 2022 and 2027)
  - Total ore tonnes mined: 2.37 Mt at 5.27 g/t Au
  - Maximum mining rate: 1,300 tpd
- Processing of Mineral Reserves:
  - Total Ore Feed to Plant: 18.83 Mt
    - Gold grade: 2.95 g/t Au
    - Silver grade: 0.71 g/t Ag
    - Silver/Gold ratio: Ag = 23.99% of Au
  - Maximum milling rate: 4,500 tpd
  - Contained Metal
    - Gold: 1.78 Moz Au
    - Silver: 0.428 Moz Ag
  - Average LOM Plant Recovery 83.5%
  - Recovered Metal
    - Gold: 1.49 Moz Au

- Silver: 0.358 Moz Ag

19.1.2 Revenue

- SLR conduct a preliminary economic analysis using flat Mineral Reserve pricing of US$1,600/oz Au and US$21/oz Ag and confirmed the mine was economic at those prices.
- For the purposes of this economic analysis described in this section, revenue is estimated over the LOM with a flat long term price of US$1,650/oz Au and US$21/oz Ag, respectively. SLR considers this price to be aligned with latest industry consensus long term forecast prices. Transportation, insurance and refining charges are estimates at US$4.31/oz Au over the LOM. Payable metals in the Casa Berardi LOM 2022 plan are estimated at 99.9% for gold and 99.0% for silver. These rates are based on actual figures for refining losses.
- LOM net revenue is US$2,456 million (after Refining Charges).

19.1.3 Capital Costs

- Total sustaining capital costs total US$347.2 million
- Capital costs in years 2024 and 2025, are higher than the LOM average to prepare infrastructure needed to achieve full production in the open pits.
- Salvage value of $22.8 million credit in last year of operation.
- Closure costs of US$22.9 million are included in the analysis at the end of the LOM.

19.1.4 Operating Costs

- Open Pit mining: US$15.50/t ore mined
- Underground mining: US$53.43/t ore mined
- Processing (includes paste fill plant): US$20.05/t ore milled
- Site Services - Mechanical & Electrical: US$16.42/t ore milled
- Hedging Operating Costs Savings: (US$0.26/t ore milled)
- G&A US$12.53/t ore milled
- Total unit operating costs US$69.03/t ore milled
- LOM total operating costs US$1,300 million
- Excludes financing and corporate overhead costs

19.1.5 Taxation and Royalties

- Royalties: The current production zones as well as any in the 2022 LOM are not subject to an NSR or royalty to a third party / previous landowner.
- Income tax is payable to the Federal Government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income.
- Income tax is payable to the Province of Québec at a tax rate of 11.5% of taxable income.
- No income taxes are payable until 2029 as Hecla uses their current tax pools and net operating loss carry forwards. Beginning in 2029 the effective tax rate used is 26.5% (combined federal and provincial)

- Québec Mining Tax base rate is 16%

19.2 Cash Flow Analysis

SLR has reviewed the Hecla's "Casa Berardi LOM 2022 Reserves only model" and has prepared its own unlevered after-tax LOM cash flow model based on the information contained in this TRS to confirm the physical and economic parameters of the Casa Berardi Mine.

The Casa Berardi economics have been evaluated using the discounted cash flow method by considering annual processed tonnages and grade of ore. The associated process recovery, metal prices, operating costs, refining and transportation charges, and sustaining capital expenditures were also considered.

The full annual cash flow model is presented in Table 19-1 in US dollars with no allowance for inflation, show a pre-tax and after-tax NPV, using a 5% discount rate, of $514 million and $396 million, respectively. The SLR QP is of the opinion that a 5% discount/hurdle rate for after-tax cash flow discounting of long lived precious/base metal operations in a politically stable region is reasonable and appropriate and commonly used. For this cash flow analysis, the internal rate of return (IRR) and payback are not applicable as there is no negative initial cash flow (no initial investment to be recovered) since Casa Berardi has been in operation for a number of years.

Table 19-1: Annual Cash Flow Model
Hecla Mining Company – Casa Berardi Mine

Commercial Production Timeline in Years		US$ & Metric Units	LRP Avg / Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Market Prices																			
Gold		US$/oz	**$1,650**	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650
Silver		US$/oz	**$21.00**	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
Physicals																			
Total OP Ore Mined		000 t	16,451	607	579	706	860	945	1,081	1,518	1,562	1,562	1,563	1,627	1,627	1,627	585	-	-
Total OP Waste Mined		000 t	245,633	6,197	9,443	14,488	17,639	19,055	18,918	20,981	24,687	24,687	24,686	24,623	24,623	13,383	2,223	-	-
Total OP Material Mined		000 t	262,084	6,804	10,022	15,194	18,499	20,000	19,999	22,499	26,249	26,249	26,249	26,250	26,250	15,010	2,808	-	-
Waste:Ore Ratio		W:O	14.93	10.21	16.30	20.52	20.50	20.17	17.49	13.82	15.80	15.80	15.79	15.13	15.13	8.23	3.80	-	-
Total UG Ore Mined		000 t	2,375	469	469	423	419	355	240	-	-	-	-	-	-	-	-	-	-
Total UG Material Mined		000 t	2,375	469	469	423	419	355	240	-	-	-	-	-	-	-	-	-	-
Total Ore Processed		000 t	18,826	1,076	1,048	1,129	1,280	1,300	1,321	1,518	1,562	1,562	1,563	1,627	1,627	1,627	585	-	-
Gold Grade, Processed		g/t	2.95	3.36	3.35	3.26	2.82	2.80	2.39	2.78	3.23	2.80	2.24	3.40	3.02	3.10	2.80	-	-
Silver Grade, Processed		g/t	0.71	0.81	0.80	0.78	0.68	0.67	0.57	0.67	0.78	0.67	0.54	0.82	0.72	0.74	0.67	-	-
Contained Gold, Processed		oz	1,783,975	116,337	113,007	118,480	115,832	116,849	101,501	135,805	162,354	140,464	112,548	177,977	157,859	162,269	52,690	-	-
Contained Silver, Processed		oz	428,136	27,920	27,121	28,434	27,798	28,043	24,359	32,592	38,963	33,710	27,010	42,713	37,885	38,943	12,645	-	-
Average Recovery, Gold		%	83.5%	87.1%	86.6%	86.9%	87.1%	87.4%	87.6%	84.2%	83.4%	81.7%	78.5%	81.3%	80.0%	80.3%	79.7%	-	-
Average Recovery, Silver		%	83.5%	87.1%	86.6%	86.9%	87.1%	87.4%	87.6%	84.2%	83.4%	81.7%	78.5%	81.3%	80.0%	80.3%	79.7%	-	-
Recovered Gold		oz	1,490,180	101,278	97,902	103,000	100,848	102,102	88,878	114,327	135,358	114,737	88,392	144,719	126,291	130,330	42,017	-	-
Recovered Silver		oz	357,628	24,306	23,496	24,719	24,203	24,504	21,330	27,437	32,484	27,536	21,213	34,731	30,309	31,278	10,084	-	-
Payable Gold	99.90%	oz	1,488,689	101,176	97,804	102,897	100,747	102,000	88,789	114,213	135,222	114,623	88,303	144,574	126,165	130,200	41,975	-	-
Payable Silver	99.00%	oz	354,052	24,063	23,261	24,472	23,961	24,258	21,117	27,163	32,160	27,260	21,001	34,384	30,006	30,965	9,983	-	-
Cash Flow																			
Gold Gross Revenue	99.7%	US$'000s	2,456,337	166,941	161,377	169,779	166,233	168,300	146,502	188,451	223,117	189,127	145,701	238,547	208,172	214,830	69,259	-	-
Silver Gross Revenue	0.3%	US$'000s	7,435	505	488	514	503	509	443	570	675	572	441	722	630	650	210	-	-
Gross Revenue Before By-Product Credits	**100.0%**	**US$'000s**	**2,463,773**	**167,446**	**161,865**	**170,293**	**166,736**	**168,810**	**146,946**	**189,022**	**223,792**	**189,700**	**146,142**	**239,269**	**208,802**	**215,481**	**69,469**	-	-
Gold Gross Revenue		US$'000s	2,456,337	166,941	161,377	169,779	166,233	168,300	146,502	188,451	223,117	189,127	145,701	238,547	208,172	214,830	69,259	-	-
Silver Gross Revenue		US$'000s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Revenue After By-Product Credits		**US$'000s**	**2,456,337**	**166,941**	**161,377**	**169,779**	**166,233**	**168,300**	**146,502**	**188,451**	**223,117**	**189,127**	**145,701**	**238,547**	**208,172**	**214,830**	**69,259**	-	-
OP Mining Cost		US$'000s	(255,060)	(30,790)	(39,898)	(45,447)	(15,235)	(10,255)	(6,835)	(12,309)	(7,772)	(9,861)	(12,745)	(20,520)	(20,537)	(14,626)	(8,232)	-	-
UG Mining Cost		US$'000s	(126,895)	(25,201)	(25,231)	(22,640)	(22,387)	(18,974)	(12,461)	-	-	-	-	-	-	-	-	-	-
Process Cost		US$'000s	(377,483)	(22,059)	(21,515)	(23,068)	(26,059)	(26,360)	(26,662)	(30,146)	(31,022)	(31,022)	(31,037)	(32,306)	(32,306)	(32,306)	(11,613)	-	-
Mechanical & Electrical Costs		US$'000s	(309,050)	(16,311)	(16,129)	(22,004)	(24,329)	(23,996)	(23,164)	(23,819)	(24,511)	(24,511)	(24,523)	(25,526)	(25,526)	(25,526)	(9,176)	-	-
Operating Costs Savings due to Hedging		US$'000s	4,871	2,226	1,788	817	40	-	-	-	-	-	-	-	-	-	-	-	-
G&A Cost		US$'000s	(235,893)	(13,479)	(13,137)	(14,148)	(16,084)	(16,288)	(16,557)	(19,024)	(19,576)	(19,576)	(19,586)	(20,387)	(20,387)	(20,387)	(7,328)	-	-
Offsite Freight & Refining Cost		US$'000s	(6,428)	(437)	(422)	(444)	(435)	(440)	(383)	(493)	(584)	(495)	(381)	(624)	(545)	(562)	(181)	-	-
Subtotal Cash Costs Before By-Product Credits		US$'000s	(1,305,938)	(106,051)	(114,544)	(126,934)	(104,439)	(96,314)	(86,062)	(85,791)	(83,464)	(85,465)	(88,272)	(99,363)	(99,300)	(93,408)	(36,530)	-	-
By-Product Credits		US$'000s	7,435	505	488	514	503	509	443	570	675	572	441	722	630	650	210	-	-
Total Cash Costs After By-Product Credits		**US$'000s**	**(1,298,502)**	**(105,546)**	**(114,056)**	**(126,421)**	**(103,936)**	**(95,804)**	**(85,619)**	**(85,221)**	**(82,789)**	**(84,892)**	**(87,830)**	**(98,641)**	**(98,670)**	**(92,757)**	**(36,320)**	-	-
Operating Margin	47%	US$'000s	**1,157,835**	**61,395**	**47,321**	**43,359**	**62,297**	**72,496**	**60,883**	**103,231**	**140,328**	**104,235**	**57,870**	**139,906**	**109,502**	**122,073**	**32,938**	-	-

Commercial Production Timeline in Years	US$ & Metric Units	LRP Avg / Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
EBITDA	US$'000s	**1,157,835**	**61,395**	**47,321**	**43,359**	**62,297**	**72,496**	**60,883**	**103,231**	**140,328**	**104,235**	**57,870**	**139,906**	**109,502**	**122,073**	**32,938**	-	-
Depreciation/Amortization Allowance	US$'000s	(738,081)	(45,007)	(46,713)	(55,184)	(64,077)	(68,820)	(61,495)	(51,754)	(57,382)	(53,912)	(49,339)	(67,972)	(59,475)	(54,900)	(2,051)	-	-
Earnings Before Taxes	US$'000s	**419,754**	**16,389**	**608**	**(11,825)**	**(1,779)**	**3,676**	**(612)**	**51,476**	**82,945**	**50,323**	**8,531**	**71,934**	**50,027**	**67,173**	**30,887**	-	-
Provincial Mining Tax	US$'000s	(115,995)	(3,692)	(3,558)	(3,821)	(3,581)	(3,791)	(2,748)	(10,491)	(17,670)	(10,464)	(2,783)	(17,897)	(13,782)	(17,852)	(4,065)	-	-
Income Tax Payable	US$'000s	(71,673)	-	-	-	-	-	-	-	(10,919)	(6,421)	-	(19,259)	(14,536)	(18,078)	(2,461)	-	-
Net Income	US$'000s	**232,086**	**12,696**	**(2,950)**	**(15,646)**	**(5,361)**	**(115)**	**(3,360)**	**40,985**	**54,356**	**33,439**	**5,748**	**34,979**	**21,709**	**31,244**	**24,362**	-	-
Non-Cash Add Back - Depreciation/Amortization	US$'000s	738,081	45,007	46,713	55,184	64,077	68,820	61,495	51,754	57,382	53,912	49,339	67,972	59,475	54,900	2,051	-	-
Working Capital	US$'000s	-	(1,124)	301	(688)	(3,177)	(1,414)	(509)	(1,458)	(2,895)	578	1,103	(2,385)	308	(859)	2,578	9,643	-
Operating Cash Flow	US$'000s	**970,167**	**56,579**	**44,064**	**38,850**	**55,539**	**67,291**	**57,625**	**91,282**	**108,843**	**87,929**	**56,190**	**100,566**	**81,492**	**85,284**	**28,991**	**9,643**	-
Capital (includes costs savings due to hedging)	US$'000s	(347,239)	(29,585)	(20,800)	(52,429)	(49,840)	(31,391)	(36,690)	(24,344)	(42,506)	(32,919)	(30,608)	(13,595)	(37)	(3,355)	20,860	-	-
Salvage Value	US$'000s	20,897	-	-	-	-	-	-	-	-	-	-	-	-	-	20,897	-	-
Closure/Reclamation Capital	US$'000s	(22,830)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(11,415)	(11,415)
Total Capital	US$'000s	**(349,171)**	**(29,585)**	**(20,800)**	**(52,429)**	**(49,840)**	**(31,391)**	**(36,690)**	**(24,344)**	**(42,506)**	**(32,919)**	**(30,608)**	**(13,595)**	**(37)**	**(3,355)**	**41,757**	**(11,415)**	**(11,415)**
LRP Metrics																		
Economic Metrics																		
a) Pre-Tax																		
Free Cash Flow	US$'000s	**808,664**	30,687	26,822	(9,758)	9,280	39,691	23,684	77,429	94,926	71,894	28,365	123,926	109,772	117,859	77,274	(1,772)	(11,415)
Cumulative Free Cash Flow	US$'000s		30,687	57,509	47,751	57,031	96,722	120,406	197,835	292,761	364,655	393,020	516,946	626,718	744,577	821,851	820,079	808,664
NPV @ 5%	US$'000s	**513,598**																
NPV @ 7%	US$'000s	434,276																
b) After-Tax																		
Free Cash Flow	US$'000s	**620,996**	26,994	23,264	(13,579)	5,699	35,900	20,936	66,938	66,337	55,010	25,581	86,971	81,455	81,929	70,748	(1,772)	(11,415)
Cumulative Free Cash Flow	US$'000s		26,994	50,258	36,679	42,378	78,278	99,213	166,151	232,488	287,498	313,080	400,050	481,505	563,434	634,183	632,410	620,996
NPV @ 5%	US$'000s	**396,462**																
NPV @ 7%	US$'000s	335,990																
Operating Metrics																		
Mine Life	Years	**14**																
Maximum Daily OP Mining Rate	tpd mined	**73,000**	18,900	27,840	41,514	51,387	55,555	55,554	61,473	72,915	72,915	72,914	71,721	72,917	41,694	21,698	-	-
Maximum Daily UG Mining Rate	tpd mined	**1,300**	1,302	1,303	1,175	1,165	986	667	-	-	-	-	-	-	-	-	-	-
Maximum Daily Processing Rate	tpd milled	**4,500**	2,988	2,912	3,085	3,554	3,611	3,670	4,148	4,340	4,340	4,342	4,445	4,519	4,519	4,519	-	-
OP Mining Cost	US$ / t ore mined	$15.50	50.72	68.86	64.36	17.71	10.85	6.32	8.11	4.97	6.31	8.15	12.61	12.62	8.99	14.07	-	-
UG Mining Cost	US$ / t ore mined	$53.43	53.78	53.81	53.53	53.39	53.43	51.93	-	-	-	-	-	-	-	-	-	-
Processing Cost	US$ / t ore milled	$20.05	20.51	20.52	20.43	20.37	20.28	20.18	19.86	19.86	19.86	19.86	19.86	19.86	19.86	19.86	-	-
Mechanical & Electrical Costs	US$ / t ore milled	$16.42	15.16	15.38	19.49	19.01	18.46	17.53	15.69	15.69	15.69	15.69	15.69	15.69	15.69	15.69	-	-
Operating Costs Savings due to Hedging	US$ / t ore milled	($0.26)	($2.07)	($1.71)	($0.72)	($0.03)	-	-	-	-	-	-	-	-	-	-	-	-
G&A Cost	US$ / t ore milled	$12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	12.53	-	-
Total Site Operating Costs	US$ / t ore milled	**$69.03**	**98.18**	**108.86**	**112.03**	**81.28**	**73.76**	**64.84**	**56.18**	**53.05**	**54.39**	**56.23**	**60.69**	**60.70**	**57.07**	**62.15**	-	-

SLR's economic analysis confirmed that the Casa Berardi Mineral Reserves are economically viable at the assumed metal price forecast. The undiscounted pre-tax cash flow is US$809 million, and the undiscounted after-tax cash flow is US$621 million. The pre-tax NPV at an 5% base discount rate is US$514 million and the after-tax NPV at an 5% base discount is US$396 million.

19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at a 5% discount rate. The following parameters were examined:

- Gold head grade
- Gold metallurgical recovery
- Gold metal price
- US$/C$ Exchange Rate
- Operating costs
- Capital costs (Sustaining, salvage, and closure)

For the case that includes mine equipment capital leases, after-tax sensitivities have been calculated for -20% to +20% variations for gold grade, and gold price, -10% to +10% variations for gold recovery, and -10% to +15% for operating costs and capital costs to determine the most sensitive parameter of the Casa Berardi Mine. The sensitivities are presented in Table 19-2.

Table 19-2: Sensitivity Analysis Summary
Hecla Mining Company – Casa Berardi Mine

Variance From Base Case	Head Grade (g/t Au)	NPV at 5% (US$ M)
-20%	2.36	129
-10%	2.65	277
0%	**2.95**	**396**
10%	3.24	509
20%	3.54	614
Variance From Base Case	**Recovery (% Au)**	**NPV at 5% (US$ M)**
-10%	75.1	277
-5%	79.3	338
0%	**83.5**	**396**
5%	87.7	454
10%	91.8	509
Variance From Base Case	**Metal Prices (US$/oz Au)**	**NPV at 5% (US$ M)**
-20%	1,320	128
-10%	1,485	276
0%	**1,650**	**396**
10%	1,815	509
20%	1,980	615
Variance From Base Case	**Exchange Rate US$/C$**	**NPV at 5% (US$ M)**
-20%	1.02	128
-10%	1.15	276
0%	**1.28**	**396**
10%	1.40	509
20%	1.53	615
Variance From Base Case	**Operating Costs (US$/t)**	**NPV at 5% (US$ M)**
-10%	62.13	491
-5%	65.58	444
0%	**69.03**	**396**
7.5%	74.21	326
15%	79.38	255

Variance From Base Case	Capital Costs (US$ 000)	NPV at 5% (US$ M)
-10%	314	424
-5%	332	410
0%	**349**	**396**
7.5%	375	376
15%	402	355

A comparison of results for the various sensitivity cases using after-tax NPV at a 5% discount rate are presented in Figure 19-1.

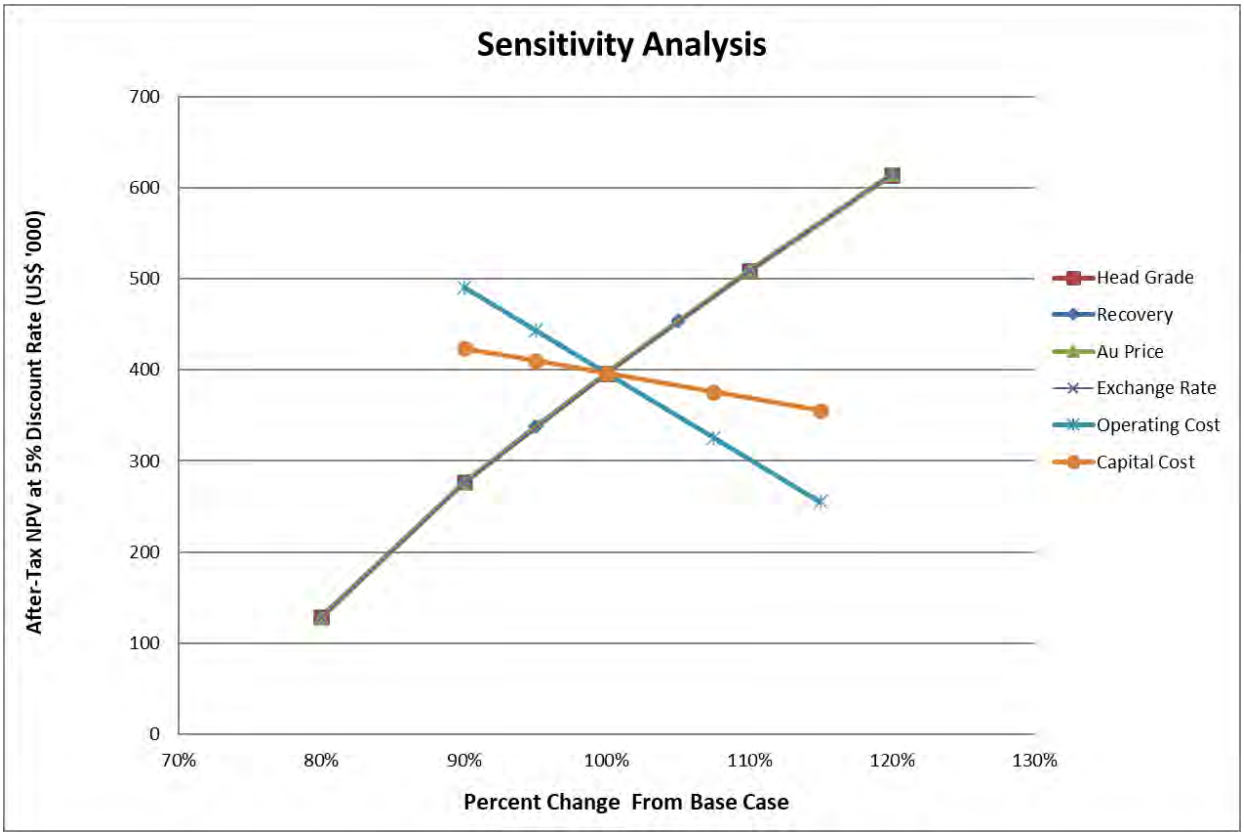

Figure 19-1: After-tax NPV at 5% Sensitivity Analysis

The Mine is most sensitive to changes in metal prices and US$/C$ exchange rate, then to head grade and metallurgical recoveries, followed by operating costs and capital costs.

20.0 ADJACENT PROPERTIES

Hecla controls a 37 km strike length of favorable geology for gold mineralization along the Casa Berardi Fault. There are no significant gold deposits located immediately adjacent to the Property's boundaries.

21.0 OTHER RELEVANT DATA AND INFORMATION

Cautionary Note: *This Section 21 of the Casa Berardi TRS contains information that is different than the Economic Analysis provided in Section 19 of the Casa Berardi TRS. Section 19 was prepared in accordance with specific SEC rules which require that only Proven and Probable Mineral Reserves (LOM plan) be used and disallow the inclusion of Inferred Mineral Resources in demonstrating the economic viability in support of a disclosure of a mineral reserve. See Item 1302(e)(6) of SEC Regulation S-K.*

The supplemental information in this Section 21 is not designed to replace the Economic Analysis disclosed in Section 19, but rather to provide additional, supplemental disclosure. This Section 21 supplements the disclosure contained in Section 19's Economic Analysis by inclusion of Inferred Mineral Resources as described below. You are cautioned not to rely on the economic analysis in this Section 21 instead of Section 19, as this supplemental information includes Inferred Mineral Resources that are not Mineral Reserves and do not have demonstrated economic viability. You should not assume that all or any part of Inferred Mineral Resources will ever be converted into Mineral Reserves. Further, Inferred Mineral Resources have a great amount of uncertainty as to their existence and as to whether they can be mined legally or economically, and are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves. Inferred Mineral Resources may not be considered when assessing the economic viability of a mining project, and may not be converted to a Mineral Reserve. The percentage of the mineral resources used in the LTP cash flow analysis that was classified as Inferred Mineral Resources is approximately 7.5%. The LTP also includes approximately 3.5% of marginal Measured and Indicated Mineral Resources that might be eligible for inclusion with the Mineral Reserves in the future.

Supplemental Information: The Company develops LTPs to support the strategic direction of its mines. The LTPs are updated annually by the technical teams using the most current geologic information, mine designs, processing parameters, cost and price inputs, regulatory considerations, and financial analyses. The plans include some Inferred resources when those resources, in the judgement of the technical team and based on historical performance, have a reasonable probability of contributing positively to the economic performance of the mines. As such, the valuation of the mines as determined by the Company in its Long-Range Planning exceeds the valuation determined when only Reserves are analyzed. Experience has shown that the LTPs include in the order of 5% to 10% Inferred Mineral Resources.

An after-tax Cash Flow Projection has been generated from the LTP production schedule and capital and operating cost estimates, and is summarized in Table 21-1 along with the corresponding LOM plan (Mineral Reserves only presented in Section 19) metrics and the variances between the two plans.

Table 21-1: LTP versus LOM Plan
Hecla Mining Company – Casa Berardi Mine

Casa Berardi LTP	2022-2024	2025-2029	2030-2035	Total LTP
Operations				
Tonnes of Ore Milled (000 t)	4,300	8,000	8,600	20,900
Gold oz produced (000 oz)	400	675	650	1,725
Silver oz produced (000 oz)	100	150	150	400
Financial (in millions)				
Revenue	700	1,100	1,100	2,900
Cost of Goods Sold	600	800	800	2,200
Gross Profit	100	300	300	700
Less: Income Tax	20	50	80	150
Net Income	80	250	220	550
Cash Flow (in millions)				
Net Income	80	250	220	550
Depreciation, Depletion, and Amortization (DDA)	100	300	300	700
Working Capital and other non-cash changes	(10)	50	60	100
Cash Flow from Operations	170	600	580	1,350
Less: Capital Expenditures	100	200	100	400
Net Cash Flow	70	400	480	950
NPV (0%)				950
NPV (5%)				600
Casa Berardi LOM Cashflow	**2022-2024**	**2025-2029**	**2030-2035**	**Total Reserve**
Tonnes of Ore Milled (000 t)	3,300	7,000	8,600	18,900
Gold oz produced (000 oz)	300	540	650	1,490
Silver oz produced (000 oz)	70	130	160	360
Net Income US$ M	(6)	87	151	232
Cash Flow from Operations US$M	139	381	450	970
Net Cash Flow US$M	37	196	368	600
NPV (0%) US$ M				600
NPV (5%) US$ M				400

Variances	2022-2024	2025-2029	2030-2035	2022-2035
Tonnes Variance (000 t)	1,000	1,000	-	2,000
Gold oz produced Variance (000 oz)	100	135	-	235
Silver oz produced Variance (000 oz)	30	20	(10)	40
Tonnes % Variance	30%	14%	0%	11%
Gold Produced % Variance	33%	25%	0%	16%
Silver Produced % Variance	43%	15%	-6%	11%
Net Income % Variance	-1456%	189%	45%	137%
Cash Flow from Operations % Variance	22%	58%	29%	39%
Net Cash Flow % Variance	91%	104%	31%	58%
NPV (0%) Variance				58%
NPV (5%) Variance				50%

In the first six years, the increases in the LTP cash flows are essentially driven by the volume of gold extracted, which is inclusive of Mineral Resources. In the post-underground years, the main driver causing a significant difference between the variance in gold production (16%) and net income, operating cash flow, and net cash flow (137%, 39%, 53% respectively) is primarily driven by the significantly better margin on the open pit material in the LTP. This variance stems from the fact that the costs to extract the ounces in both plans are virtually the same because the same amount of rock must be handled whether Hecla includes resources or not. Essentially, in the LOM plan, the Mineral Resources are still extracted but are expensed as waste.

For non-cash costs and taxes, there are no significant differences in assumptions as globally the DDA expense variance is less than 5%, however, the timing of unit of production DDA is such that the depletion expense is more front-loaded in the LOM plan (by approximately $50 million). This variance is due to the lower depreciation base resulting from less underground Mineral Reserves being mined. Hence, the denominator being smaller but with a similar asset base, the depletion is “accelerated” in the first three years of the LOM plan.

22.0 INTERPRETATION AND CONCLUSIONS

SLR offers the following conclusions and observations by area:

22.1 Geology and Mineral Resources

- Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300. Total Measured and Indicated Mineral Resources, exclusive of Mineral Reserves, as of December 31, 2021, are estimated to be 7.04 Mt at 4.66 g/t Au containing 1,05 Moz Au. Inferred Mineral Resources total 9.18 Mt at 2.68 g/t Au for 0.79 Moz Au. The underground portion of Measured and Indicated Mineral Resources represent 98% of the total Measured and Indicated Mineral Resources.
- The Casa Berardi Measured and Indicated Mineral Resources and the underground Inferred Mineral Resources have been prepared to industry best practices and conform to the resource categories defined by the SEC in S-K 1300. The SLR QP notes that the open pit Inferred Mineral Resources situated at the 134 and 160 pits are not constrained by a resource pit shell and that the elevation datums used to limit the open pit resources at depth are optimistic and should be replaced with resource shells in the future. Notwithstanding, the SLR QP is of the opinion that this is not a significant issue because this material represents approximately 9% of the total reserve and resource ounces at Casa Berardi, it is all classified as Inferred, and none of it is included in the LTP.
- The Mineral Resources for Casa Berardi conform to the resource categories defined by the SEC in S-K 1300. Resource classification polygons were manually created for reach lens based on drill hole composites with average distances of up to 25 m for Measured and Indicated blocks. Measured blocks have the added requirement of having underground development nearby. Inferred blocks are located outside the 25 m average distance polygons and are based on average distances up to generally a maximum of 35 m and rarely up to 50 m.
- The open pit block models are diluted to whole block models using scripts in Gemcom. For the open pit diluted block models, only the blocks with more than 25% of mineralized material were classified, the remaining blocks with less than 25% of mineralized material are not classified and excluded from the resource estimate.
- From 1974 to 2021, surface and underground diamond drilling, totalling over 3.5 million metres, has been completed at Casa Berardi.
- Over the past few decades, the Casa Berardi geology team has developed an advanced understanding of the complex geology, lithology, structural, and alteration controls present at Casa Berardi.
- The mineralization style and setting are well understood and support the declaration of Mineral Resources and Mineral Reserves.
- The Casa Berardi sample preparation, analyses, QA/QC protocols, and security procedures are acceptable, meet industry standard practice, and are adequate for Mineral Resource estimation.
    - Sample collection and handling of core is undertaken in accordance with industry standard practices, with procedures implemented to limit potential sample losses and sampling biases.

  - Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure since 1998. These preparation procedures are consistent with industry standard methods for gold deposits.
  - Core from exploration and infill diamond drilling programs are analyzed by independent and accredited laboratories using industry standard methods for gold and silver analyses. Current run of mine sample analyses are performed by the mine laboratory.
  - While limited information is available regarding the QA/QC procedures for the pre-1998 drill programs, sufficient reanalysis programs and vast amounts of more recent data support the use of pre-1998 data.
- The QA/QC program results indicate that the sample preparation and analytical procedures at the mine laboratory and Swastika are well aligned to generate reliable and accurate results.
  - Blank sample results imply minimal cross sample contamination.
  - Certified reference material (CRM) results demonstrate that assay values are sufficiently accurate to be used in Mineral Resource estimation and no significant biases are evident at the mine and Swastika laboratories.
  - Sequential insertion of duplicate samples has resulted in a relatively low proportion of duplicate results for mineralized samples.
  - External pulp and reject check assays suggest that the ALS gold assays may be biased high relative to the Swastika and Mine laboratory results.
- Sample security is regarded as very good. Samples are always attended or locked in the on site logging or sampling facilities. Chain of custody procedures consist of completing sample submittal forms that are sent to the laboratory with sample shipments and shipment tracking to ensure that all samples are received by the laboratory.
- The data verification programs undertaken on the data collected from the Project comply with industry standards and adequately support the geological interpretations, validate the analytical and database quality, and support the use of the data in Mineral Resource and Mineral Reserve estimation and in mine planning
- The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that would materially affect the Mineral Resource estimate.
- The Property is very large and covers a very favourable geological environment for gold mineralization including a 37 km strike length along the Casa Berardi Fault.
- The SLR QP is of the opinion that excellent exploration potential remains on the Property, both along strike and at depth in the immediate mine area and on the rest of the Property.
- Geophysics and drilling are the key exploration tools needed to make new discoveries under the thick layer of overburden that covers most of the Property.

22.2 Mining and Mineral Reserves

- Mineral Reserves have been classified in accordance with the definitions for Mineral Reserves in S-K 1300. Mineral Reserves as of December 31, 2021 total 18.82 Mt grading 2.95 g/t Au containing 1.78 Moz Au.

- Measured and Indicated Mineral Resources were converted to Proven and Probable Mineral Reserves, respectively. Inferred Mineral Resources were not converted to Mineral Reserves, however, are typically included in the Casa Berardi LTP and therefore are removed from the LOM cash flows to ensure economic confirmation of the Mineral Reserves.
- The mining methods at Casa Berardi are well established with many years of operating experience, providing the necessary expertise to, safely and economically, extract the Mineral Reserves.
- While both transverse and longitudinal longhole stoping methods are employed effectively challenging ground conditions require the use of various types of backfill to provide the necessary support.
- Underground mining will come predominantly from the West Mine with a minor amount from the East Mine. Mining from various open pits on surface represent the bulk of the Mineral Reserves to be mined, accounting for approximately 77% of the Casa Berardi Mineral Reserves.
- The current LOM period is estimated to be fourteen years ending in 2035. Underground Mineral Reserves totalling 2.4 Mt will be mined during the first six years while open pit Mineral Reserves totalling 16.5 Mt will be mined over the entire LOM period.

22.3 Mineral Processing

- Metallurgical and production models have been developed from extensive baseline sampling and are further adjusted annually to account for process and metallurgical improvements and changes.
- The test work performed on open pit material was used to estimate gold recovery, while operating data was used for underground material. Recent test work has been performed by an external laboratory on future open pit material (WMCP and Principal). WMCP test results were used to inform the long term mine plan. An update on data pertaining to the Principal Pit will be made once the test results are available.
- Test work programs, both internal and external, continue to be performed to support current operations and potential improvements.
- The current process facilities are appropriate for the mineralization types provided from the mine. The flowsheet, equipment, and infrastructure are expected to support the current LOM plan.

22.4 Infrastructure

- Hecla plans to build a new maintenance garage to handle the 150 t trucks.
- Hecla plans to build a new pre-crusher.

22.5 Environment

- Hecla has sufficiently assessed the environmental impact of the operation, and subsequent closure and remediation requirements such that Mineral Resources and Mineral Reserves can be declared, and the mine plan deemed appropriate and achievable. Closure provisions are appropriately considered and monitoring programs are in place.
- Hecla has developed a community relations plan to identify and ensure an understanding of the needs of the surrounding communities and to determine appropriate programs for addressing

those needs. Hecla appropriately monitors socio-economic trends, community perceptions, and mining impacts.

- Permits held by Hecla for the Property are sufficient to ensure that mining activities are conducted within the regulatory framework required by regulations.
- There are currently no known environmental, permitting, or social/community risks that could impact the Mineral Resources or Mineral Reserves.

23.0 RECOMMENDATIONS

It is normal that there are not many recommendations for mature operations like Casa Berardi. SLR offers the following recommendations by area.

23.1 Geology and Mineral Resources

1. Continue drilling to expand the near mine open pit and underground Mineral Resources.
2. Convert open pit and underground Inferred Mineral Resources to Indicated, especially material in the LTP.
3. Continue to drill below the 134 and 160 pits.
4. Create resource open pit shells for 134 and 160.
5. Increase regional exploration activities to make new discoveries on the very large Property.
6. Consider changing QA/QC protocols related to pulp duplicate selection and sending rejects for external check assays.
7. Investigate the potential high gold assay bias at the secondary umpire laboratory.
8. Implement procedures that will help reduce CRM mislabelling or "swaps".

23.2 Mining and Mineral Reserves

1. Investigate the potential use of contractors, improved equipment performance, revised schedules and other incentives to complete the planned development.
    - While mining operations at Casa Berardi are being carried out in an appropriate fashion annual mine development to access future mining areas has fallen short of planned advance rates. Additional efforts will be required to meet production targets.
2. Continue conducting definition diamond drilling throughout the remainder of the underground mining operation until 2027.
    - Based on positive ongoing results consider increasing the drilling program.
3. Continue to convert Mineral Resources to Mineral Reserves to extend the underground operation past 2027 and extend open pit mining where possible.
4. Investigate adding marginal underground Measured and Indicated Mineral Resources to the Mineral Reserves.

23.3 Mineral Processing

1. Continue to conduct additional metallurgical testing to better understand the processing of mineralization from the Principal and WMCP pits. This will aid in projecting metallurgical recoveries for these pits and will indicate any variability in gold recovery and grindability of the material. SLR notes that testing was undertaken at an external laboratory in 2021 and some results were not available at the time of preparation of this TRS.

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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This TRS has been prepared by SLR for Hecla. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this TRS,
- Assumptions, conditions, and qualifications as set forth in this TRS, and
- Data, reports, and other information supplied by Hecla and other third party sources.

SLR has not researched property title or mineral rights for Casa Berardi as we consider it reasonable to rely on Hecla's legal counsel who is responsible for maintaining this information.

SLR has relied on Hecla for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Property in the Executive Summary and Section 19. As the Property has been in operation for over 30 years, Hecla has considerable experience in this area.

The SLR QPs have taken all appropriate steps, in their professional opinion, to ensure that the above information from Hecla is sound.

Except for the purposes legislated under provincial securities laws, any use of this TRS by any third party is at that party's sole risk.

26.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report Summary on the Casa Berardi Mine, Northwestern Québec, Canada” with an effective date of December 31, 2021 was prepared and signed by:

Signed *SLR International Corporation*

Dated at Bothell, WA
February 21, 2022

SLR International Corporation

27.0 APPENDIX 1

27.1 Claim Table

Table 27-1: Claim Table
Hecla Mining Company – Casa Berardi Mine

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	BM	768	-	20220428	397.09	19880429	$20,963.35	$0.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	BM	833	-	20221217	84.35	19951218	$4,259.68	$0.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	BM	1054	-	20221005	92.56	20201006	$4,673.27	$0.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097901	-	20220509	55.85	20020911	$68.75	$2,500.00	$246,734.72
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097902	-	20220509	55.85	20020911	$68.75	$2,500.00	$165,603.11
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097903	-	20220509	55.85	20020911	$68.75	$2,500.00	$6,319.94
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097904	-	20220509	55.85	20020911	$68.75	$2,500.00	$13,519.94
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097905	-	20220509	55.85	20020911	$68.75	$2,500.00	$12,613.46
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097906	-	20220509	55.85	20020911	$68.75	$2,500.00	$13,519.94
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097930	-	20220509	55.84	20020911	$68.75	$2,500.00	$102,729.87
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097931	-	20220729	37.02	20020911	$68.75	$2,500.00	$9,914.09

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097932	-	20220509	55.85	20020911	$68.75	$2,500.00	$13,519.94
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097957	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.42
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097958	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097959	-	20220509	55.83	20020911	$68.75	$2,500.00	$12,008.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097960	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097961	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097962	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097963	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097964	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097965	-	20220729	43.25	20020911	$68.75	$2,500.00	$13,490.71
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097966	-	20220729	23.90	20020911	$35.25	$1,000.00	$632,965.95
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097967	-	20220729	41.75	20020911	$68.75	$2,500.00	$13,514.09

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097968	-	20220509	55.84	20020911	$68.75	$2,500.00	$13,514.09
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097991	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097992	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097993	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097994	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097995	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097996	-	20220509	55.82	20020911	$68.75	$2,500.00	$13,502.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097997	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097998	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1097999	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098000	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098001	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098002	-	20220509	55.83	20020911	$68.75	$2,500.00	$13,508.25
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098041	-	20220509	55.86	20020911	$68.75	$2,500.00	$26,197.41
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098074	-	20220509	55.87	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098085	-	20220509	55.86	20020911	$68.75	$2,500.00	$439.31
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098086	-	20220509	55.86	20020911	$68.75	$2,500.00	$2,929.32
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098087	-	20220509	55.86	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098088	-	20220509	55.86	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098089	-	20220509	55.86	20020911	$68.75	$2,500.00	$350.90
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098090	-	20220509	55.86	20020911	$68.75	$2,500.00	$257.38
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098091	-	20220509	55.86	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098092	-	20220509	55.86	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098093	-	20220509	55.86	20020911	$68.75	$2,500.00	$0.00

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098094	-	20220509	55.86	20020911	$68.75	$2,500.00	$7,110.36
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098095	-	20220509	55.86	20020911	$68.75	$2,500.00	$11,992.29
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098109	-	20220509	42.75	20020911	$68.75	$2,500.00	$338,834.84
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098110	-	20220509	40.23	20020911	$68.75	$2,500.00	$2,895.73
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098111	-	20220509	40.48	20020911	$68.75	$2,500.00	$42,215.90
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098112	-	20220509	40.74	20020911	$68.75	$2,500.00	$617,564.86
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098113	-	20220509	42.26	20020911	$68.75	$2,500.00	$5,605.66
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098114	-	20220509	43.76	20020911	$68.75	$2,500.00	$529.18
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098115	-	20220509	51.18	20020911	$68.75	$2,500.00	$239,975.98
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098124	-	20220509	29.58	20020911	$68.75	$2,500.00	$523,848.24
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098125	-	20220509	4.98	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098126	-	20220509	20.03	20020911	$35.25	$1,000.00	$4,075.29

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098127	-	20220509	16.16	20020911	$35.25	$1,000.00	$1,801.54
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098128	-	20220509	13.40	20020911	$35.25	$1,000.00	$127,827.42
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098129	-	20220509	12.86	20020911	$35.25	$1,000.00	$39,892.15
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098130	-	20220509	12.32	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098131	-	20220509	0.16	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098132	-	20220509	9.35	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098133	-	20220509	5.78	20020911	$35.25	$1,000.00	$58,451.47
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098134	-	20220729	2.32	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098135	-	20220509	11.42	20020911	$35.25	$1,000.00	$60,185.51
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098136	-	20220729	14.22	20020911	$35.25	$1,000.00	$167,591.79
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098141	-	20220509	6.06	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098142	-	20220509	48.61	20020911	$68.75	$2,500.00	$9,282.24

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Mine	Hecla Québec Inc.	CDC	1098149	-	20220509	55.82	20020911	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097832	-	20220509	55.89	20020911	$68.75	$2,500.00	$13,429.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097833	-	20220509	55.90	20020911	$68.75	$2,500.00	$12,890.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097834	-	20220509	55.90	20020911	$68.75	$2,500.00	$9,715.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097835	-	20220509	55.90	20020911	$68.75	$2,500.00	$9,715.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097836	-	20220509	55.90	20020911	$68.75	$2,500.00	$13,521.09
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097837	-	20220509	55.90	20020911	$68.75	$2,500.00	$11,715.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097840	-	20220509	55.89	20020911	$68.75	$2,500.00	$12,520.35
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097841	-	20220509	55.89	20020911	$68.75	$2,500.00	$11,209.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097842	-	20220509	55.89	20020911	$68.75	$2,500.00	$11,284.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097843	-	20220509	55.89	20020911	$68.75	$2,500.00	$9,709.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097844	-	20220509	55.89	20020911	$68.75	$2,500.00	$12,209.20

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097845	-	20220509	55.89	20020911	$68.75	$2,500.00	$12,657.33
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097846	-	20220509	55.89	20020911	$68.75	$2,500.00	$12,134.38
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097847	-	20220509	55.89	20020911	$68.75	$2,500.00	$7,807.12
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097848	-	20220509	55.89	20020911	$68.75	$2,500.00	$11,709.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097849	-	20220509	55.89	20020911	$68.75	$2,500.00	$11,709.20
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097851	-	20220509	55.88	20020911	$68.75	$2,500.00	$13,003.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097852	-	20220509	55.88	20020911	$68.75	$2,500.00	$11,703.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097853	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097854	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097855	-	20220509	55.88	20020911	$68.75	$2,500.00	$11,703.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097856	-	20220509	55.88	20020911	$68.75	$2,500.00	$9,800.55
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097857	-	20220509	55.88	20020911	$68.75	$2,500.00	$11,703.23

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097858	-	20220509	55.88	20020911	$68.75	$2,500.00	$11,760.18
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097859	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097860	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097861	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097862	-	20220509	55.88	20020911	$68.75	$2,500.00	$14,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097863	-	20220509	55.88	20020911	$68.75	$2,500.00	$46,131.60
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097864	-	20220509	55.88	20020911	$68.75	$2,500.00	$25,078.52
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097865	-	20220509	55.88	20020911	$68.75	$2,500.00	$62,653.79
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097866	-	20220509	55.88	20020911	$68.75	$2,500.00	$8,203.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097867	-	20220509	55.87	20020911	$68.75	$2,500.00	$12,997.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097868	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097869	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097870	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097871	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097872	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097873	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097874	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097875	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097876	-	20220509	55.87	20020911	$68.75	$2,500.00	$2,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097877	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097878	-	20220509	55.87	20020911	$68.75	$2,500.00	$76,611.83
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097879	-	20220509	55.87	20020911	$68.75	$2,500.00	$14,197.27
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097880	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097881	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097882	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097883	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097884	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097885	-	20220509	55.86	20020911	$68.75	$2,500.00	$46,927.36
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097886	-	20220509	55.86	20020911	$68.75	$2,500.00	$12,991.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097895	-	20220509	55.85	20020911	$68.75	$2,500.00	$11,785.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097896	-	20220509	55.85	20020911	$68.75	$2,500.00	$132,761.45
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097897	-	20220509	55.85	20020911	$68.75	$2,500.00	$618,164.67
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097898	-	20220509	55.85	20020911	$68.75	$2,500.00	$795,318.87
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097899	-	20220509	55.85	20020911	$68.75	$2,500.00	$1,171,947.26
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097900	-	20220509	55.85	20020911	$68.75	$2,500.00	$1,486,933.54
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097907	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097908	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097909	-	20220509	55.86	20020911	$68.75	$2,500.00	$14,191.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097910	-	20220509	55.86	20020911	$68.75	$2,500.00	$19,353.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097911	-	20220509	55.86	20020911	$68.75	$2,500.00	$31,443.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097912	-	20220509	55.86	20020911	$68.75	$2,500.00	$34,509.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097913	-	20220509	55.86	20020911	$68.75	$2,500.00	$37,461.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097914	-	20220509	55.86	20020911	$68.75	$2,500.00	$27,594.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097915	-	20220509	55.86	20020911	$68.75	$2,500.00	$29,748.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097916	-	20220509	55.86	20020911	$68.75	$2,500.00	$27,315.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097917	-	20220509	55.86	20020911	$68.75	$2,500.00	$22,638.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097918	-	20220509	55.86	20020911	$68.75	$2,500.00	$30,115.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097919	-	20220509	55.86	20020911	$68.75	$2,500.00	$30,740.31

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097920	-	20220509	55.86	20020911	$68.75	$2,500.00	$32,216.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097921	-	20220509	55.86	20020911	$68.75	$2,500.00	$36,125.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097922	-	20220509	55.86	20020911	$68.75	$2,500.00	$35,301.31
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097925	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097926	-	20220509	55.84	20020911	$68.75	$2,500.00	$47,160.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097927	-	20220509	55.84	20020911	$68.75	$2,500.00	$28,575.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097928	-	20220509	55.84	20020911	$68.75	$2,500.00	$65,710.79
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097929	-	20220509	55.84	20020911	$68.75	$2,500.00	$56,338.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097933	-	20220509	55.85	20020911	$68.75	$2,500.00	$16,685.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097934	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097935	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097936	-	20220509	55.85	20020911	$68.75	$2,500.00	$28,185.34

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097937	-	20220509	55.85	20020911	$68.75	$2,500.00	$28,012.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097938	-	20220509	55.85	20020911	$68.75	$2,500.00	$27,061.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097939	-	20220509	55.85	20020911	$68.75	$2,500.00	$19,187.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097940	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097941	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097942	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097943	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097944	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097945	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097946	-	20220509	55.85	20020911	$68.75	$2,500.00	$14,185.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097947	-	20220509	55.85	20020911	$68.75	$2,500.00	$25,486.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097948	-	20220509	55.85	20020911	$68.75	$2,500.00	$26,577.34

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097949	-	20220509	55.85	20020911	$68.75	$2,500.00	$24,082.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097950	-	20220509	55.85	20020911	$68.75	$2,500.00	$17,336.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097951	-	20220509	55.85	20020911	$68.75	$2,500.00	$18,605.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097952	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097953	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097954	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097955	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097956	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097969	-	20220509	55.84	20020911	$68.75	$2,500.00	$127,487.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097970	-	20220509	55.84	20020911	$68.75	$2,500.00	$120,317.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097971	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097972	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1097973	-	20220509	55.84	20020911	$68.75	$2,500.00	$30,142.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097974	-	20220509	55.84	20020911	$68.75	$2,500.00	$83,651.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097975	-	20220509	55.84	20020911	$68.75	$2,500.00	$29,930.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097976	-	20220509	55.84	20020911	$68.75	$2,500.00	$26,565.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097977	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097978	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097979	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097980	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097981	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097982	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097983	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097984	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097985	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097986	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097987	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097988	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1097989	-	20220509	55.84	20020911	$68.75	$2,500.00	$14,179.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098003	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098004	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098005	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098006	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098007	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098008	-	20220509	55.83	20020911	$68.75	$2,500.00	$154,575.24
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098009	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098010	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098011	-	20220509	55.83	20020911	$68.75	$2,500.00	$1,184,423.18
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098012	-	20220509	55.83	20020911	$68.75	$2,500.00	$2,216,269.23
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098013	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098014	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098015	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098016	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098017	-	20220509	55.83	20020911	$68.75	$2,500.00	$135,827.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098018	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098019	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098020	-	20220509	55.83	20020911	$68.75	$2,500.00	$23,193.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098021	-	20220509	55.83	20020911	$68.75	$2,500.00	$24,199.35

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098022	-	20220509	55.83	20020911	$68.75	$2,500.00	$23,379.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098023	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098024	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098025	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098026	-	20220509	55.83	20020911	$68.75	$2,500.00	$14,173.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098027	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098028	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098029	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098030	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098031	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098032	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098033	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098034	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098035	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098036	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098037	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098038	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098039	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098040	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098042	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098043	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098044	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098045	-	20220509	55.82	20020911	$68.75	$2,500.00	$14,167.46
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098061	-	20220509	29.17	20020911	$68.75	$2,500.00	$347.53

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098062	-	20220509	25.83	20020911	$68.75	$2,500.00	$307.74
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098063	-	20220509	25.11	20020911	$68.75	$2,500.00	$299.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098064	-	20220509	25.33	20020911	$68.75	$2,500.00	$301.78
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098065	-	20220509	25.36	20020911	$68.75	$2,500.00	$302.14
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098066	-	20220509	55.77	20020911	$68.75	$2,500.00	$14,137.63
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098067	-	20220509	55.88	20020911	$68.75	$2,500.00	$665.76
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098068	-	20220509	25.81	20020911	$68.75	$2,500.00	$307.50
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098069	-	20220509	27.82	20020911	$68.75	$2,500.00	$331.45
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098070	-	20220509	28.54	20020911	$68.75	$2,500.00	$340.03
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098071	-	20220509	38.86	20020911	$68.75	$2,500.00	$4,052.08
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098072	-	20220509	55.87	20020911	$68.75	$2,500.00	$3,757.90
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098076	-	20220509	4.89	20020911	$35.25	$1,000.00	$58.26

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098077	-	20220509	14.30	20020911	$35.25	$1,000.00	$878.87
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098078	-	20220509	16.88	20020911	$35.25	$1,000.00	$2,417.65
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098079	-	20220509	36.16	20020911	$68.75	$2,500.00	$2,441.73
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098080	-	20220509	38.65	20020911	$68.75	$2,500.00	$3,926.83
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098081	-	20220509	36.52	20020911	$68.75	$2,500.00	$2,656.44
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098082	-	20220509	36.82	20020911	$68.75	$2,500.00	$2,835.37
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098083	-	20220509	50.28	20020911	$68.75	$2,500.00	$10,863.25
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098084	-	20220509	55.86	20020911	$68.75	$2,500.00	$6,919.99
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098096	-	20220509	55.86	20020911	$68.75	$2,500.00	$665.52
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098104	-	20220509	25.51	20020911	$68.75	$2,500.00	$303.93
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098105	-	20220509	13.04	20020911	$35.25	$1,000.00	$70,240.52
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098106	-	20220509	5.21	20020911	$35.25	$1,000.00	$62.07

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098107	-	20220509	6.93	20020911	$35.25	$1,000.00	$82.56
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098108	-	20220509	40.38	20020911	$68.75	$2,500.00	$4,958.64
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098118	-	20220509	55.84	20020911	$68.75	$2,500.00	$130.44
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098119	-	20220509	55.84	20020911	$68.75	$2,500.00	$2,888.96
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098120	-	20220509	55.84	20020911	$68.75	$2,500.00	$5,218.82
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098121	-	20220509	55.84	20020911	$68.75	$2,500.00	$5,592.91
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098122	-	20220509	55.84	20020911	$68.75	$2,500.00	$12,034.22
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098123	-	20220509	55.84	20020911	$68.75	$2,500.00	$13,150.64
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098137	-	20220509	34.60	20020911	$68.75	$2,500.00	$2,475.22
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098138	-	20220509	9.95	20020911	$35.25	$1,000.00	$118.55
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098143	-	20220509	52.13	20020911	$68.75	$2,500.00	$10,666.63
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098144	-	20220509	43.22	20020911	$68.75	$2,500.00	$6,652.49

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098145	-	20220509	36.24	20020911	$68.75	$2,500.00	$2,489.44
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098146	-	20220509	7.95	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098147	-	20220509	9.91	20020911	$35.25	$1,000.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098150	-	20220509	55.82	20020911	$68.75	$2,500.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098151	-	20220509	55.82	20020911	$68.75	$2,500.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098152	-	20220509	55.82	20020911	$68.75	$2,500.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098153	-	20220509	55.82	20020911	$68.75	$2,500.00	$1,442.65
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098157	-	20220509	55.89	20020911	$68.75	$2,500.00	$665.88
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098158	-	20220509	55.89	20020911	$68.75	$2,500.00	$665.88
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098159	-	20220509	55.89	20020911	$68.75	$2,500.00	$1,297.35
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098160	-	20220509	36.25	20020911	$68.75	$2,500.00	$5,827.12
Casa Berardi Regional	Hecla Québec Inc.	CDC	1098161	-	20220509	30.31	20020911	$68.75	$2,500.00	$361.12

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133304	3%	20240111	26.71	20050902	$68.75	$2,500.00	$1,687.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133305	3%	20240111	30.05	20050902	$68.75	$2,500.00	$3,867.50
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133306	3%	20240111	30.76	20050902	$68.75	$2,500.00	$4,331.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133307	3%	20240111	30.55	20050902	$68.75	$2,500.00	$4,193.91
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133308	3%	20240111	30.52	20050902	$68.75	$2,500.00	$3,239.61
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133309	3%	20240111	0.10	20050902	$35.25	$1,000.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133310	3%	20240111	55.87	20050902	$68.75	$2,500.00	$51,425.74
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133311	3%	20240111	55.87	20050902	$68.75	$2,500.00	$20,723.53
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133312	3%	20240111	55.87	20050902	$68.75	$2,500.00	$86,865.34
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133313	3%	20240111	55.87	20050902	$68.75	$2,500.00	$17,074.89
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133314	3%	20240111	55.87	20050902	$68.75	$2,500.00	$47,406.41
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133315	3%	20240111	30.06	20050902	$68.75	$2,500.00	$3,874.03

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133316	3%	20240111	28.05	20050902	$68.75	$2,500.00	$2,561.84
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133317	3%	20240111	27.33	20050902	$68.75	$2,500.00	$2,091.80
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133318	3%	20240111	17.00	20050902	$35.25	$1,000.00	$4,798.08
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133319	3%	20240111	55.86	20050902	$68.75	$2,500.00	$20,717.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133320	3%	20240111	55.86	20050902	$68.75	$2,500.00	$49,623.47
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133321	3%	20240111	55.86	20050902	$68.75	$2,500.00	$44,620.43
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133322	3%	20240111	55.86	20050902	$68.75	$2,500.00	$20,717.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133323	3%	20240111	55.86	20050902	$68.75	$2,500.00	$20,717.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133324	3%	20240111	55.86	20050902	$68.75	$2,500.00	$54,254.45
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133325	3%	20240111	55.86	20050902	$68.75	$2,500.00	$40,729.17
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133326	3%	20240111	55.86	20050902	$68.75	$2,500.00	$66,578.22
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133327	3%	20240111	50.96	20050902	$68.75	$2,500.00	$17,518.14

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133328	3%	20240111	41.56	20050902	$68.75	$2,500.00	$47,931.54
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133329	3%	20240111	38.98	20050902	$68.75	$2,500.00	$17,618.74
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133330	3%	20240111	19.70	20050902	$35.25	$1,000.00	$24,627.26
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133331	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133332	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133333	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133334	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133335	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133336	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133337	3%	20240111	55.85	20050902	$68.75	$2,500.00	$20,710.48
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133338	3%	20240111	30.34	20050902	$68.75	$2,500.00	$4,056.82
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133339	3%	20240111	2.07	20050902	$35.25	$1,000.00	$0.00

Project	Titleholder	Type of Title	Title No	NSR	Expiry Date (YYYYMMDD)	Area (ha)	Registration Date (YYYYMMDD)	Required Fees (C$)	Required Work (C$)	Excess Work (C$)
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133340	3%	20240111	19.63	20050902	$35.25	$1,000.00	$6,515.03
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133341	3%	20240111	25.56	20050902	$68.75	$2,500.00	$215,928.07
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133342	3%	20240111	7.94	20050902	$35.25	$1,000.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133343	3%	20240111	55.87	20050902	$68.75	$2,500.00	$20,723.53
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133344	3%	20240111	55.87	20050902	$68.75	$2,500.00	$364,051.81
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133345	3%	20240111	7.93	20050902	$35.25	$1,000.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133346	3%	20240111	55.86	20050902	$68.75	$2,500.00	$20,717.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133347	3%	20240111	55.86	20050902	$68.75	$2,500.00	$20,717.01
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133348	3%	20240202	17.21	20050902	$35.25	$1,000.00	$118,933.76
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133349	3%	20240202	19.34	20050902	$35.25	$1,000.00	$28,391.61
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133350	3%	20240202	19.04	20050902	$35.25	$1,000.00	$27,853.47
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133351	3%	20240202	5.58	20050902	$35.25	$1,000.00	$3,709.27

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Casa Berardi Regional	Hecla Québec Inc.	CDC	1133352	3%	20240202	42.81	20050902	$68.75	$2,500.00	$141,785.02
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133353	3%	20240202	50.64	20050902	$68.75	$2,500.00	$246,914.38
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133354	3%	20240202	48.92	20050902	$68.75	$2,500.00	$143,711.71
Casa Berardi Regional	Hecla Québec Inc.	CDC	1133355	3%	20240202	15.49	20050902	$35.25	$1,000.00	$21,485.58
Casa Berardi Regional	Hecla Québec Inc.	CDC	1134230	-	20220509	7.97	20051104	$35.25	$1,000.00	$94.96
Casa Berardi Regional	Hecla Québec Inc.	CDC	1134231	-	20220509	5.78	20051104	$35.25	$1,000.00	$68.86
Casa Berardi Regional	Hecla Québec Inc.	CDC	2438781	-	20230329	55.82	20160330	$68.75	$1,200.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	2443561	-	20230426	7.99	20160427	$35.25	$500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	2449153	-	20230614	55.89	20160615	$68.75	$1,200.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491530	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491531	-	20220503	55.81	20170504	$68.75	$1,200.00	$664.93
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491532	-	20220503	55.80	20170504	$68.75	$1,200.00	$664.81

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Casa Berardi Regional	Hecla Québec Inc.	CDC	2491533	-	20220503	55.80	20170504	$68.75	$1,200.00	$664.81
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491534	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491535	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491536	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491537	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491538	-	20220503	55.84	20170504	$68.75	$1,200.00	$665.28
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491539	-	20220503	55.83	20170504	$68.75	$1,200.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491540	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491541	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491542	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491543	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491544	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16

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Casa Berardi Regional	Hecla Québec Inc.	CDC	2491545	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491546	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491547	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491548	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491549	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491550	-	20220503	55.83	20170504	$68.75	$1,200.00	$665.16
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491551	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491552	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491553	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491554	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491555	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491556	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05

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Casa Berardi Regional	Hecla Québec Inc.	CDC	2491557	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.05
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491558	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491559	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491560	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491561	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491562	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491563	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491564	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491565	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491566	-	20220503	55.82	20170504	$68.75	$1,200.00	$665.06
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491567	-	20220503	55.81	20170504	$68.75	$1,200.00	$664.94
Casa Berardi Regional	Hecla Québec Inc.	CDC	2491568	-	20220503	55.81	20170504	$68.75	$1,200.00	$664.94

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Casa Berardi Regional	Hecla Québec Inc.	CDC	2491569	-	20220503	55.81	20170504	$68.75	$1,200.00	$664.94
Casa Berardi Regional	Hecla Québec Inc.	CDC	48842	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48843	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48844	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48845	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48846	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48847	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48848	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48849	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48850	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Casa Berardi Regional	Hecla Québec Inc.	CDC	48851	-	20231215	55.89	20041216	$68.75	$2,500.00	$0.00
Totals		394				19,725.08		$55,504.55	$865,400.00	$17,291,526.46