Kitsault Molybdenum Project
British Columbia, Canada
NI 43-101 Technical Report

Prepared for:
Avanti Mining Inc.

Prepared by:
Scott Fulton, P.Eng. (AMEC)
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Ramon Mendoza Reyes, P.Eng. (AMEC)
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Effective Date: 14 March 2014
Project No. 174302

CERTIFICATE OF QUALIFIED PERSON

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I, Scott Fulton, P.Eng., am employed as a Project Manager with AMEC Americas Limited.

This certificate applies to the technical report entitled “Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report” that has an effective date of 14 March 2014 (the “Technical Report”).

I am a Professional Engineer in the province of British Columbia. I graduated in 1994 from the University of Paisley (UK) with a B. Eng (hons) degree in Mechanical Engineering.

I have practiced my profession continuously since 1994, and have been involved in the management of detailed engineering and financial reviews across a number of industrial sectors in Europe, Australasia and North America. I have spent the last six years in the execution of major infrastructure for industrial minerals projects within Canada and the US.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (“NI 43–101”).

I have visited the Kitsault Project (the “Project”) from 3 July to 4 July 2013.

I am responsible for or co-responsible for Sections 1.1 to 1.4, 1.5.1 to 1.5.3, 1.6, 1.24, 1.25, 1.28, 1.29; Section 2; Section 3; Section 4; Section 5; Sections 18.1 to 18.3, 18.4.2, 18.6 to 18.12; Sections 20.1 to 20.3, 20.6 to 20.9; Sections 21.1.1, 21.1.3 to 21.1.4, 21.2, and 21.3; Section 23; Section 24; Sections 25.2, 25.9, 25.11, 25.13; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Project since May 2013 as the Project Manager for the enterprise optimization and value engineering studies that are incorporated into the Technical Report.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014.

“signed and sealed”

Scott Fulton, P.Eng

CERTIFICATE OF QUALIFIED PERSON

I, David G. Thomas, P.Geo., am employed as a Consulting Geologist, and was formerly a Principal Resource Geologist with AMEC Americas Ltd.

This certificate applies to the technical report entitled “Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report” that has an effective date of 14 March 2014 (the “Technical Report).

I am a Professional Geologist registered in British Columbia (P.Geo NRL # 149114) and a member of the Australasian Institute of Mining and Metallurgy (MAusIMM # 225250). I graduated in 1993 from Durham University, in the United Kingdom with a Bachelor of Science degree and in 1995 from Imperial College, University of London, in the United Kingdom with a Master of Science degree.

I have practiced my profession for over 19 years. In that time I have been directly involved in review of exploration, geological models, exploration data, sampling, sample preparation, quality assurance-quality control, databases, and mineral resource estimates for a variety of mineral deposits, including porphyry copper and molybdenum mineral deposits.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I visited the Kitsault Project from September 23 to September 24, 2011.

I am responsible for Sections 1.7 to 1.12, 1.14 to 1.15, 1.28 to 1.29; Sections 2.2 and 2.3; Section 3; Section 6; Section 7; Section 8; Section 9; Section 10; Section 11; Section 12; Section 14, Sections 25.1. 25.3 to 25.4, that portion of Section 25.6 that pertains to mineral resource estimates, Section 25.13; Section 26.2; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have read NI 43–101 and this report has been prepared in compliance with that Instrument.

I have been involved with the Project since 2011 as the resource estimator for the Kitsault, Bell Moly and Roundy Creek deposits. I co-prepared the following technical report on the Project:

- Christie, G., Thomas, D., Lipiec T., and Mendoza, R., 2013: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Updated Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 4 February 2013

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014.

"signed and sealed"

David Thomas, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

I, Ramon Mendoza Reyes, P.Eng., was formerly employed as a Principal Mining Engineer with AMEC Americas Limited.

This certificate applies to the technical report entitled “Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report” that has an effective date of 14 March 2014 (the “Technical Report”).

I am a Professional Engineer in the province of British Columbia. I graduated in 1989 from the National Autonomous University of Mexico with a bachelor’s degree in Mining Engineering, and in 2003 completed a M.Sc. Degree in Mining & Earth Systems Engineering from the Colorado School of Mines in Golden, Colorado, USA.

I have practiced my profession continuously for 24 years and have previously been involved with mine designs, mine planning, mine project economic evaluations and mine operations for precious metals, base metals, disseminated sulphide and industrial mineral projects in North America and South America.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Kitsault Project.

I am responsible for or co-responsible for Sections 1.16 to 1.17, 1.18.1 to 1.18.5, 1.18.7, 1.25, 1.28 to 1.29; Sections 2.2; Section 3; Section 15; Sections 16.1 to 16.3, 16.5 to 16.7; Sections 18. 3, 18.4.2; Sections 21.1.3, 21.2; that portion of Section 25.6 that pertains to Mineral Reserves, Sections 25.7, 25.11, 25.13; Section 26.1.2; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Kitsault Project from 2012 to March 2014. I previously co-authored the following technical report on the Kitsault Project:

- Christie, G., Thomas, D., Lipiec T., and Mendoza, R., 2013: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Updated Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 4 February 2013

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014.

“signed and sealed”

Ramon Mendoza Reyes, P.Eng

CERTIFICATE OF QUALIFIED PERSON

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I, Ignacy (Tony) Lipiec, P.Eng., am employed as Director, Process Engineering, with AMEC Americas Limited.

This certificate applies to the technical report entitled "Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report" that has an effective date of 14 March 2014 (the "Technical Report").

I am a Professional Engineer in the province of British Columbia. I graduated from the University of British Columbia with a B.A.Sc. degree in Mining & Mineral Process Engineering, in 1985.

I have practiced my profession for 29 years, and have been involved with metallurgical design and process engineering for gold, base metal and disseminated sulphide projects in North America and South America.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Kitsault Project (the "Project").

I am responsible for Sections 1.13, 1.19, 1.28 to 1.29; Section 2.2; Section 3, Section 13; Section 17, Sections 21.1.3, 21.2; Sections 25.5, 25.8, 25.11, 25.13; Section 26.1.1; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Project since 2010. I was previously a co-author on the following technical reports:

- Christie, G., Thomas, D., Lipiec T., and Mendoza, R., 2013: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Updated Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 4 February 2013
- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 15 December, 2010

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014

“signed and sealed”

Ignacy (Tony) Lipiec, P.Eng

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I, Simon Allard, P.Eng., am employed as a Principal consultant with AMEC Americas Limited.

This certificate applies to the technical report entitled "Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report" that has an effective date of 14 March 2014 (the "Technical Report").

I am a registered Professional Engineer in the Province of British Columbia. I graduated from Université Laval in 2004 with a Baccalauréat coopératif en génie des mines et de la minéralurgie Degree.

I have practiced my profession for 10 years. I have been directly involved in cash-flow modelling, risk evaluation, real-options valuation, financial analysis, marketing studies and financial review of mines located in Africa, Mongolia and North and South America.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Kitsault Project (the "Project").

I am responsible for Sections 1.21 to 1.23, 1.26 to 1.28; Section 2.2; Section 3; Section 19; Section 22; Sections 25.10, 25.12 to 25.13, and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Project since 2013, performing financial evaluation studies.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014.

“signed and sealed”

Simon Allard, P.Eng

CERTIFICATE OF QUALIFIED PERSON

Peter Healey, P.Eng,
Suite 2200 1066 West Hastings St, Vancouver, BC Canada
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phealey@srk.com

I, Peter Healey, P.Eng, am employed as a Senior Civil/Geotechnical Engineer with SRK Consulting (Canada) Inc.

This certificate applies to the technical report entitled Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report" (the "Technical Report"), that has an effective date of 14 March 2014.

I am a registered Professional Engineer in the Yukon (#1311) and in Ontario (#100041100) and in British Columbia (#13202). I graduated from the University of Auckland in 1976 with a B.Sc. in Civil Engineering.

I have practiced my profession for 33 years. I have been directly involved in mine decommissioning and reclamation since 1988.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Kitsault property on many occasions from 1996 through to 2012, with the most recent site visit being from June 16 to June 18, 2012.

I am responsible for or co-responsible for Sections 1.5.4, 1.28; Sections 2.2 and 2.3; Section 3; Section 18.4.1, 18.4.3; Sections 20.4 to 20.5; Section 25.13; and Section 27 of the Technical Report.

I am independent of Avanti Kitsault Mine as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Kitsault property since 2008, and have previously co-authored three technical reports on the property, entitled:

- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Ltd., effective date 15 December, 2010
- Grills, F., De Ruijter, M.A., Vicentijevic, M., Volk, J., Levy, M., Healey, P., Day, S., Royle, M., Brouwer, K.J., Schmitt, H.R., and Malhotra, D., 2009: NI 43-101 Pre-Feasibility Study – Avanti Mining Inc. Kitsault Molybdenum Property British Columbia, Canada: unpublished technical report prepared by Wardrop Engineering Ltd for Avanti Mining, Inc., effective date 15 December 2009.

- Volk, J., Healey, P., Levy, M., Steininger, R., Collins, S., Greenaway, G., Dew, H., Schmitt, R., 2008: NI 43-101 Preliminary Economic Assessment Avanti Mining, Inc., Kitsault Molybdenum Property, British Columbia, Canada: unpublished technical report prepared by SRK Consulting Ltd for Avanti Mining, Inc., effective date 3 November 2008.

I have read NI 43–101 and this report has been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report that I prepared contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated: 5 June, 2014

“signed and sealed”

Peter Healey P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Michael Levy, P.E., P.G.
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mlevy@SRK.com

I, Michael Levy, P.E., P.G., am employed as a Senior Geotechnical Engineer with SRK Consulting (U.S.) Inc.

This certificate applies to the technical report entitled Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report" (the "Technical Report"), that has an effective date of 14 March, 2014.

I am a registered Professional Engineer in the states of Colorado (#40268) and California (#70578) and a registered Professional Geologist in the state of Wyoming (#3550). I graduated from the University of Iowa in 1998 with a B.Sc. in Geology and from the University of Colorado in 2004 with a M.Sc. in Civil-Geotechnical Engineering.

I have practiced my profession for 15 years. I have been directly involved in the geotechnical data collection and pit slope analysis and design at Kitsault since 2008.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Kitsault property between 8 and 11 September, 2008.

I am responsible for or co-responsible for Sections 1.18.6, 1.28; Sections 2.2 and 2.3; Section 16.4; Section 25.13; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc., as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Kitsault property since 2008, and have previously co-authored three technical reports on the property, entitled:

- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 15 December, 2010
- Grills, F., De Ruijter, M.A., Vicentijevic, M., Volk, J., Levy, M., Healey, P., Day, S., Royle, M., Brouwer, K.J., Schmitt, H.R., and Malhotra, D., 2009: NI 43-101 Pre-Feasibility Study – Avanti Mining Inc. Kitsault Molybdenum Property British Columbia, Canada: unpublished technical report prepared by Wardrop Engineering Ltd for Avanti Mining, Inc., effective date 15 December 2009.

- Volk, J., Healey, P., Levy, M., Steininger, R., Collins, S., Greenaway, G., Dew, H., Schmitt, R., 2008: NI 43-101 Preliminary Economic Assessment Avanti Mining, Inc., Kitsault Molybdenum Property, British Columbia, Canada: unpublished technical report prepared by SRK Consulting Ltd for Avanti Mining, Inc., effective date 3 November 2008.

I have read NI 43–101 and those sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report that I prepared contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: 5 June, 2014

“signed and sealed”

Michael Levy, P.E., P.G.

Knight Piésold CONSULTING

CERTIFICATE OF QUALIFIED PERSON

I, Bruno Borntraeger, P.Eng. am employed as a Specialist Engineer/Project Manager with Knight Piésold Ltd (Knight Piésold).

This certificate applies to the technical report entitled Avanti Mining Inc., Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report" (the "Technical Report"), that has an effective date of 14 March 2014.

I am a Professional Engineer registered in British Columbia. I graduated with a Bachelor of Applied Science in Geological Engineering from the University of British Columbia in 1990.

I have practiced my profession for 24 years since graduation. My relevant experience includes 24 years of practical experience from feasibility studies through detailed engineering, construction, operations and closure with respect to Geotechnical Engineering, Mine Waste Management Facilities, Tailings Dam Design and Heap Leach Pad Design.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Kitsault Project on 29 April, 2010 and July 26 and 27, 2011 to review site layouts, geotechnical conditions and propose construction borrow materials

I am responsible for or co-responsible for Sections1.20, 1.28; Sections 2.2 and 2.3; Section 18.5; Sections 21.1.2, 21.1.3, 21.2; Sections 25.11, 25.13; and Section 27 of the Technical Report.

I am independent of Avanti Mining Inc. as independence is described by Section 1.5 of NI 43–101.

I have previously been a co-author on the following technical report on the Kitsault Project:

- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011:   Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 15 December, 2010

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

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As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated: 5 June 2014

“signed and sealed”

Bruno Borntraeger, P.Eng.

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IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for Avanti Mining Inc (Avanti) by AMEC Americas Inc (AMEC), SRK Consulting (Canada) Inc. (SRK) and Knight Piésold Ltd (KP), collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in each Report Author's services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Avanti subject to terms and conditions of its respective contract with each of the Report Authors. Except for the purposed legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

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Appendix: A

1.0 SUMMARY

1.1 Introduction

AMEC Americas Limited (AMEC), SRK Consulting (Canada) Inc. (SRK) and Knight Piésold Ltd (KP) were commissioned by Avanti Mining Inc. (Avanti) to prepare an independent Qualified Person's Review and NI 43-101 Technical Report (the Report) for the wholly-owned Kitsault molybdenum project (the Project), located in British Columbia.

A feasibility study was completed on the Project in 2010, and a feasibility study update in 2013. Subsequent to the feasibility study update, Avanti commissioned an enterprise optimization study and a project value engineering study in 2013. An update to the mine plan was undertaken in the first quarter of 2014, to reflect the most recent expected date of start of operations and reflects a higher level of detail with respect to the extraction sequence within the mining phases. This Report provides a summary of the outcomes of the enterprise optimization study, project value engineering study, and the updated mine plan. The Report was prepared in support of Avanti's voluntarily-filed Annual Information Form dated 5 June 2014.

Avanti holds the Kitsault Project through a wholly-owned subsidiary, Avanti Kitsault Mine Ltd. For the purposes of this Report, the name "Avanti" is used for both the parent and subsidiary companies.

Currency is expressed in Canadian dollars unless stated otherwise.

1.2 Location and Access

The Kitsault Project is situated about 140 km north of Prince Rupert, and south of the head of Alice Arm, an inlet of the Pacific Ocean, within British Columbia.

The Project is accessed via a 83 km long gravel road from Nass Camp on the Nisga'a Highway, 120 km north of Terrace, BC. The Project may be accessed by floatplane or boat from Prince Rupert, BC, a distance of about 140 km.

A series of Forest Service roads and a private gravel road connect the proposed mine site to Nass Camp, north of New Aiyansh, Rosswood, and Terrace. The road from Nass Camp is planned to be upgraded for use as the main access road to site and will be regularly maintained.

1.3 Mineral Tenure, Surface Rights, and Royalties

Avanti provided AMEC with a claims table dated 4 February 2014 that indicates Avanti holds a total of 234 tenures, consisting of 35 mining leases and 199 mineral claims, covering an area of 39,211.4 ha. Claims and mining leases are held in the name of the wholly-owned Avanti subsidiary, Avanti Kitsault Mine Ltd. AMEC was provided with information from Avanti and legal opinion that supports that the leases and claims are in good standing.

The majority of the leases and claims are located under Provincial Crown lands. Four claims are located under privately-owned lands at the former Kitsault town site that is situated on the Alice Arm. Surface rights held by Avanti, which overlap the non-Crown portions of the mineral leases and claims, include three land parcels, totalling 14.497 ha, and a statutory right-of-way.

The entire property is subject to a 9.22% net cashflow interest that is owned by Amax Zinc (Newfoundland) Limited. This net cashflow interest is only payable after the recovery of all operating and capital costs associated with construction or sustaining capital. Aluminerie Lauralco, Inc. (ALI) has a 1% net smelter return royalty (NSR) on future production from the mineral properties that were acquired from ALI in 2008. This royalty is referred to as the “NSR Royalty” in the financial analysis.

In addition to these royalties, a royalty is payable by the Climax Molybdenum Company of British Columbia (CMC) to Bell Molybdenum Mines Limited (Bell) on each tonne of ore mined and removed from claims 250340, 250341, 250342, 250343, 250344, 250345, 250346, 250347, 250390, and 250391 (covering the Bell Moly deposit only).

The TA claims are subject to a 1.5% NSR on 100 of the mineral tenements, payable to TA Mineral Resources Ltd. and Quadra Coastal Resources Ltd. Two tenements, 517367 and 517364, are not included in the TA claims NSR. No Mineral Reserves are currently estimated within any of these claims.

A 2% NSR was retained on the two NC claims; however, Avanti may purchase 1% of the net smelter royalty at any time by paying the vendor $1,000,000, thus reducing the royalty burden to 1%.

1.4 Permits

On March 19, 2013, Environment Minister Terry Lake and Energy, Mines and Natural Gas Minister Rich Coleman issued a conditional Environmental Assessment Certificate to Avanti Kitsault Mine Ltd. for the Kitsault open-pit molybdenum mine project. The

Environmental Assessment Certificate includes 34 conditions and a Certified Project Description. Each of the conditions is a legally binding requirement that Avanti Kitsault Mine Ltd. must meet to be in compliance with the certificate. It is also a legal requirement that the project be built and operated in accordance with the Certified Project Description.

Concurrent with the BC Environmental Assessment Act process, Avanti also began the Federal environmental assessment process in 2010 with the submittal of the Project Description. Avanti expects a positive federal decision in 2014. The delay is due to statutory differences in the approval timeframes between the Provincial and Federal Acts.

In July 2013, Avanti submitted the “MEMA 3 – Joint Amended Mines Act and Environmental Management Act Permit (Construction) Application”. The information presented in the document is from several sources and technical documents. The application presents pertinent data to allow Avanti to obtain their amended Mines Act (M-10) Permit and Environmental Management Act (Construction) Permit for the Kitsault Molybdenum Project. (KMP)

Avanti expects both the amendment to the M-10 permit and the Environmental Management Act to be issued during Q2 2014 allowing construction to commence.

1.5 Environment

1.5.1 Past Mining Activity

The Kitsault mine is a permitted site with considerable past mining activity and basic infrastructure in place. Rehabilitation of the 1981–1982 mining program was started under an approved Reclamation Plan in the mid-1990s and completed, except for ongoing required monitoring, in 2006.

1.5.2 Exploration

At Bell Moly the only evidence of past exploration activity are traces of drill pads and access trails. At Roundy Creek, there are two small adits and associated waste rock dumps. Avanti has progressively rehabilitated drill sites associated with the Avanti drilling programs that were conducted between 2008 and 2011.

1.5.3 Baseline Data

Baseline data have been collected at the Kitsault site for more than 20 years. A number of Project-specific baseline studies were completed by Rescan Environmental

Services Ltd (Rescan), SRK Consulting (SRK) , AMEC and Knight Piésold in support of the Environmental Assessment. Since the issuance of the Environmental Assessment Certificate (EAC), Avanti has continued to collect environmental data to further characterize baseline conditions and also to meet the conditions of the EAC. The results of these programs further direct site specific mitigation protocols and monitoring.

Avanti continues to collect data to ensure that monitoring programs in construction and operations have the necessary baseline data for comparison and analysis of potential effects to the environment.

1.5.4 Closure Plan

The Kitsault Project reclamation and closure plan cost estimate was prepared by SRK Consulting (SRK) and consists of direct and indirect costs during the decommissioning and reclamation period (2031–2033), environmental monitoring and management costs, and water treatment system costs. The closure cost estimate is approximately $29.39 million.

1.6 Social Considerations

The four Nisga’a communities on Nisga’a Land are the closest to the proposed mine site. They are the following: Gitlaxt’aamiks (New Aiyansh); Gitwinksihlkw; Laxgalts’ap; and Gingolx and any surrounding populations. The Kitsault mine area falls outside of Nisga’a Lands owned by the Nisga’a Nation, under the terms of the Nisga’a Final Agreement (NFA), which became effective on 11 May 2000. However, it is within the Nass Area and the Nass Wildlife Area (as defined in, and governed by the NFA), and as such it is subject to constitutionally-protected rights of the Nisga’a Nation under the terms of the NFA.

The Kitsault Resort, a community outfitter, and a trapline holder are also within the Project area. In accordance with Condition #33 of the EAC, Avanti and Kitsault Resorts have engaged in discussions and advanced a draft communications memorandum of understanding.

The Nisga’a Nation has filed a Notice of Disagreement with the Province of British Columbia under the Nisga’a Final Agreement concerning the environmental assessment of the Kitsault Project.

On September 17, 2013 Avanti submitted “Nisga’a Economic Social and Cultural Management Plans (September 2013)” to the EAO. These plans include:

- Social and Cultural Management Plan (Section 8.1)
- Recruitment, Training, and Employment Plan (Section 8.2)
- Business Capacity Plan (Section 8.3)
- Economic Closure Plan (Section 8.4)
- Communications Plan (Section 8.5).

This document outlined the further development of the framework plans in the EA Certificate and was submitted to the EAO to comply with Condition #34 of the Environmental Assessment Certificate.

1.7 Geology and Mineralization

Mineralization is hosted within granodiorite to quartz monzonite stocks of the Coast Range Crystalline Complex that have intruded the Intermontaine Tectonic Belt of the Canadian Cordillera along its contact with the complex. Collectively, the stocks are known informally as the Alice Arm intrusions.

Intrusive rocks associated with molybdenum mineralization at Kitsault, Bell Moly, and Roundy Creek are multiphase diorite, quartz monzonite, and younger felsic units of the Lime Creek Intrusive Complex, the Clary Creek stock, and the Roundy Creek intrusive complex. Surrounding the intrusive rocks are hornfels aureoles that grade outwards into regionally- and thermally-metamorphosed interbedded argillite and greywacke of the Bowser Lake Group. Cross-cutting relationships within the intrusive suites indicate that molybdenum mineralization is the result of multiple mineralizing events.

Molybdenum mineralization at the Kitsault deposit forms a hollow, steeply-dipping, annular, cylindrical body that is well-developed on three sides of the margins of the central Lime Creek Intrusive Complex. The body has widths from 100 m to 150 m on the east, west, and north sides, and a less well defined zone to the south, where it is at least 300 m wide and may extend to nearly the southern limits of drilling. Molybdenum mineralization is hosted in a number of generations of stockwork and sheeted molybdenite–quartz veins within the body. Sphalerite, galena, and a variety of Pb–Bi sulphosalt minerals are associated with some vein phases.

The Alice Arm intrusive-hosted molybdenum deposits are part of a suite of porphyry molybdenum deposits in the North American cordillera that are classed as low-fluorine stockwork molybdenite deposits.

1.8 History and Exploration

Open pit mining commenced in 1968 under the Kennco Explorations (Western) Ltd. (KEL) subsidiary company B.C. Molybdenum (BC Moly), and continued to 1972, when low molybdenum prices forced closure. During that period, about 9.3 Mt of ore was produced, with about 22.9 Mlb of molybdenum recovered. Amax of Canada Limited (Amax) subsequently mined the deposit between 1981 and 1982, but closed the mine due to low molybdenum prices. During this second production period, about 4.08 Mt of ore and stockpile material were processed and 8.99 Mlb of saleable molybdenum were recovered.

Work completed by Avanti since Project acquisition in 2008 has comprised evaluation and interpretation of legacy mining and exploration data from the BC Moly and Amax mining phases; core drilling, including geotechnical, hydrological, confirmation and condemnation drill holes; baseline environmental studies and monitoring programs; geotechnical evaluations; metallurgical testwork; Mineral Resource and Mineral Reserve estimation, and engineering and design studies.

A preliminary assessment was undertaken in 2008, and a pre-feasibility study in 2009. Under the assumptions considered in these studies, the Project showed positive economics.

During 2010, a feasibility study was completed that, under the assumptions in the study, returned positive Project economics. The proposed project evaluated in the 2010 Feasibility Study entailed an open pit mine, new mill facilities, and infrastructure designed to treat 40,000 t/d of molybdenite-bearing ore to produce a marketable molybdenum flotation concentrate.

In 2012–2013, certain aspects of the 2010 Feasibility Study were updated (the 2013 Feasibility Study Update). Differences between the 2010 Feasibility Study and the 2013 Feasibility Study Update included an updated resource model for Kitsault that supported a revised mine plan, consequent revisions to the capital and operating costs which used escalation factoring of costs from the 2010 Feasibility Study, and an updated financial model. The only major design change between the design for the 2010 Feasibility Study and the 2013 Feasibility Study Update was the addition of a silver circuit to the process plant. Information that was unchanged from the 2010 Feasibility Study assumptions and plans was summarized into the 2013 Feasibility Study Update.

In 2013, Avanti commissioned an enterprise optimization study and a project value engineering study. The enterprise optimization study resulted in the development of a grind–throughput–recovery model which reflects the response on metallurgical recoveries and mill throughput to a variable grinding approach for the different rock types of the deposit. The study complemented the grind–throughput–recovery model with the simultaneous optimization of pit phase selection, bench mining sequence, cut-off grade and stockpile management to provide an improved net present value for the Project. The value engineering study involved a critical review of the major Project facilities to optimize the designs and approach to construction. The design changes include reducing facility footprints by consolidating the process plant and service functions in logical areas, integrating the use of smaller construction and permanent camps for the entire construction phase, optimizing layouts and lineal routings to reduce earthworks requirements, and reviewing the types of materials used in the architectural components.

1.9 Drilling

A total of 76,118 m was drilled in 490 core drill holes on the Kitsault Project between 1960 and 2011, of which 343 holes (48,373 m) were drilled by pre-Avanti interests, and 147 holes (27,745 m) were completed by Avanti. The Kitsault deposit has 254 drill holes (51,682 m), Bell Moly has 53 holes (10,981 m) and Roundy Creek has 183 holes (13,455 m).

Both vertical and sub-vertical holes were drilled at Kitsault. The drill holes delineating the mineralization were drilled parallel to two main grids, an east–west grid and a north–south grid, with 29 drill holes oblique to both grids. The majority of sub-vertical holes were drilled from the center of the annular shaped mineralized body towards the outer edges of mineralization.

Core was logged for geological and geotechnical parameters, and photographed.

The collar survey methods for the Kitsault deposit varied over time, and there is little information on the methods used for the legacy drilling. The 2008 to 2011 Avanti collar surveys were conducted by McElhanney Consulting Services Ltd using survey quality global positioning system (GPS) instruments.

Several different methods were used in legacy data to determine the deflection of the core drill holes; Avanti drilling used a Reflex EZ Shot instrument for all down-hole surveys. Sixty percent of the total length drilled is supported by down-hole surveys; with the remainder not surveyed, or surveyed by acid-etch methods for dip deflection only.

The Kitsault deposit database includes 133 density determinations performed using a wax seal method on drill core from the 2008 Avanti drilling. A total of 153 density determinations were performed in 2011 on Roundy Creek drill core drilled as part of the 2011 drill program. Density data indicates an average SG of 2.63.

AMEC notes that density data are limited for a project at feasibility level and additional density determinations should be performed.

1.10 Analyses

The average sample length is 3 m, and in AMEC's opinion, this sample length is suitable for the style of mineralization encountered at Kitsault. The thickness of mineralized intercepts ranges between tens of meters to several hundred meters. Sample preparation for Avanti drilling was undertaken at the ALS Chemex facility in Terrace, with pulps sent to ALS Chemex in North Vancouver for analyses.

Several different laboratories were used by the various operators for primary analyses; laboratory accreditations prior to Avanti's involvement in the project are unknown. For the Avanti drill programs, ALS Chemex of Vancouver, BC was the primary analytical laboratory, and Acme Analytical Laboratories Ltd. (Acme), of Vancouver, BC was used as a secondary laboratory for check assays; both laboratories are ISO 9001:2000 certified.

Legacy samples from 1974 were crushed (100% passing 80 mesh) and pulverised (100% passing -100 mesh), then analysed using the Climax Molybdenum assay procedure which is a three-acid digestion of the pulp, titration of the aliquot, with analyses by mass spectrometer. All samples were analysed for Mo and reported as MoS_2. Lead data were only collected after 1978.

For the Avanti drilling, samples were crushed (85% passing 10 mesh) and pulverized (95% passing 150 mesh) then analysed using an ICP atomic emission spectrometry CP61 (four acid) method for a 33-element analysis. In addition, sulphide sulphur was determined using the sodium carbonate dissolution of sulphate, Leco furnace and infrared spectroscopy method. Sulphate sulphur was determined by carbonate leach, and gravimetric analyses. Check samples at Acme were analysed using a four-acid digestion followed by ICP mass spectrometry.

1.11 Quality Assurance and Quality Control

There is no information on the quality assurance/quality control (QA/QC) program used for legacy drill programs. Legacy drilling occurred before comprehensive QA/QC was standard within the industry.

The Avanti quality control on the assay data-set includes blanks, coarse duplicates, pulp duplicates, three Mo certified reference materials (CRMs) and check assays, with an approximate insertion rate of about 3%. Avanti conducted a more comprehensive check assay program in 2010 and included CRMs with the check assays to test the secondary laboratory accuracy for Mo, Ag, and Pb.

No significant issues were identified with the Avanti QA/QC programs that would affect Mineral Resource or Mineral Reserve estimation.

1.12 Data Verification

Two previous independent data checks were performed by SRK Consulting Ltd (SRK) and Wardrop Engineering Inc. (Wardrop), in support of preliminary assessment and pre-feasibility studies respectively, on the Project. No significant issues were noted in these reviews.

AMEC performed an independent verification of the data and database to support Mineral Resources estimated in 2010 for Kitsault and a second review in 2011 on the Bell Moly and Roundy Creek data.

AMEC performed sufficient verification of the data and database to support Mineral Resources and Mineral Reserves being estimated for the 2010 Feasibility Study. Review of the analytical data, including performance of duplicate, blank and CRM samples indicated that the molybdenum analytical data were acceptable for Mineral Resources and Mineral Reserve estimation.

Data verification in support of the Bell Moly and Roundy Creek evaluated relogging and resampling undertaken by Avanti on legacy core and assessing the Avanti results against the original legacy data at both deposits, and reviewed the new data generated from the 2011 Avanti drilling program at Roundy Creek. Data were considered appropriate to support Mineral Resource estimation at both deposits, although the confidence classification was restricted to Inferred at Bell Moly.

1.13 Metallurgical Testwork

Metallurgical testwork has been completed in support of the concentrator process design and mine production estimation. This information showed that the mineralization is amenable to being processed using conventional technologies, and acceptable recoveries were returned.

Testwork completed by Avanti comprised comminution and flotation tests on samples of quartz monzonite, diorite, and hornfels, the three major rock types projected to have life-of-mine (LOM) distribution. These samples originated from the area designated as potential plant feed material indicated in the mine plan to have an ore feed grade of approximately 0.09% Mo.

Past production and current testwork indicate that saleable molybdenum flotation concentrates can be produced by the use of conventional comminution and flotation processes. The plant feed will be crushed and milled, then subjected to flotation. The resulting concentrate will be leached to remove the lead impurity, thereby producing a high-grade saleable molybdenum concentrate that meets smelter specifications. The final concentrate is expected to contain 52% Mo and <0.04% Pb, for an average, overall, life-of-mine molybdenum recovery of 88.5%.

Metallurgical testwork indicates that there is potential for recovery of silver. Testwork continues in the development of this circuit to firm up recoveries and concentrate grades.

1.14 Mineral Resource Estimates

Mineral Resources were estimated for the Kitsault, Bell Moly and Roundy Creek deposits. Estimates are supported by the following:

- Kitsault: 207 core drill holes (49,082 m)
- Bell Moly: 53 core drill holes (10,981 m)
- Roundy Creek: 183 core drill holes (13,455 m)

Avanti prepared lithological interpretations for each deposit. AMEC constructed deterministic grade shell models using 0.05% Mo at Kitsault, and 0.02% Mo for Bell Moly and Roundy Creek. As appropriate, separate geological or grade domains were defined.

Samples were composited to 6 m lengths at Kitsault and Bell Moly, and to 3 m intervals at Roundy Creek. Block sizes were 10 m x 10 m x 10 m at Kitsault, 10 m x 10 m x 6 m at Bell Moly and 3 m x 3 m x 3 m at Roundy Creek. At Kitsault, density values were assigned to blocks based upon the average of drill core density measurements for each lithology. An average Kitsault deposit density was assigned to the Bell Moly blocks, whereas the Roundy Creek blocks were assigned an average density value based on density measurements on Roundy Creek core.

AMEC completed a capping study for each domain at each deposit and Mo grade caps were imposed. Silver and lead caps were also used at Kitsault, but not at Bell Moly or Roundy Creek, as only Mo was estimated for these two deposits.

Interpolation was undertaken using ordinary kriging and multiple estimation passes with incrementally increasing search distances. Restrictions were placed on the minimum and maximum numbers of composites to be used to interpolate the blocks, and the number of composites that could be used from any single drill hole. Validation of the grade estimates showed no significant global or local bias and the smoothing was considered appropriate for the mining selectivity anticipated during mining.

Drill spacing studies support the Mineral Resource classifications at Kitsault and Roundy Creek. All mineralization at Bell Moly is in the Inferred category.

AMEC assessed the classified blocks for reasonable prospects of economic extraction by applying preliminary economics for potential open pit mining methods using a Lerchs-Grossmann (LG) pit shell. The cut-off grade at each deposit for reporting Mineral Resources was calculated based on the Mo price, metallurgical process recoveries and costs, and selling costs. A cut-off grade of 0.018% Mo was used at Kitsault, cut-off grades of 0.020% Mo and 0.022% Mo at Bell Moly and Roundy Creek were calculated with an additional cost allowance for trucking of ore to the Kitsault processing facility.

1.15 Mineral Resource Statement

Mineral Resources at Kitsault have an effective date of 17 April 2012; the effective date for the Bell Moly and Roundy Creek estimates is 1 May 2012. All Mineral Resource estimates are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources were estimated using a long-term molybdenum price of $17.39/lb. Mineral Resources for the Kitsault deposit are reported inclusive of Mineral Reserves and do not include external dilution. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Mineral Resources are summarized by deposit in Table 1-1 to Table 1-3.

Table 1-1: Kitsault Deposit Mineral Resource Estimate; David Thomas P. Geo., Effective Date 17 April 2012

Category	Tonnage (Mt)	Mo (%)	Ag (ppm)	Mo (Contained Mlb)	Ag (Contained Moz)	Pb (ppm)
Measured	142.7	0.087	5.0	272.6	22.8	243
Indicated	179.1	0.059	4.3	233.0	26.7	231
Measured + Indicated	*321.8*	*0.071*	*4.8*	*505.5*	*49.5*	*236*
Inferred	317.6	0.041	4.6	286.3	47.3	237

Notes to Accompany Kitsault Deposit Mineral Resource Table

1. Mineral Resources are inclusive of Mineral Reserves
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
3. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.018% Mo cut-off grade
4. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery 89%, a process cost of $ 5.83/t and selling cost of $1.24 /lb of Mo sold. No revenue was assumed for Ag
5. Tonnages are rounded to the nearest 100,000 tonnes; grades are rounded to three decimal places for Mo and one decimal for Ag
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
7. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds, and contained silver is in troy ounces.
8. There is a reasonable prospect of recovering silver, and the benefit has been included as a deduction in the operating cost. A dedicated silver recovery circuit has been included in the process design based on preliminary testing.

Table 1-2: Bell Moly Mineral Resource Estimate, 0.02% Mo Cut-Off; David Thomas P. Geo., Effective Date 1 May 2012

Category	Tonnage (Mt)	Mo (%)	Mo (Contained Mlb)
Inferred	109.7	0.048	115.8

Notes to Accompany Bell Moly Deposit Mineral Resource Table

1. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.02% Mo cut-off grade
2. An incremental mining cost of $0.6/t of mineralization was used to account for trucking of mineralized material to the proposed Kitsault processing facility that is planned to be located approximately 7 km to the east.
3. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery of 89%, a process cost of $5.83/t and selling cost of $1.24/lb of Mo sold.
4. Tonnages are rounded to the nearest 100,000 tonnes; grades are rounded to three decimal places for Mo
5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
6. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds.

Table 1-3: Roundy Creek Mineral Resource Estimate, 0.022% Mo Cut-Off; David Thomas P. Geo., Effective Date 1 May 2012

Sunshine and Sunlight Area Category	Tonnes (Mt)	Mo (%)	Mo (Contained Mlb)
Indicated	1.94	0.109	4.7
Inferred	0.33	0.079	0.6
Roundy Area Category	**Tonnes (Mt)**	**Mo (%)**	**Mo (Contained Mlb)**
Inferred	4.32	0.073	7.0

Notes to Accompany Roundy Creek Deposit Mineral Resource Table

1. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.022% Mo cut-off grade
2. An incremental mining cost of $1.20/t of mineralization was used to account for trucking of mineralized material to the Kitsault processing facility located approximately 5 km to the west. A contractor mining cost of $2.90 has been assumed.
3. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery of 89%, a process cost of $5.83/t and selling cost of $1.24/lb of Mo sold.
4. Tonnages are rounded to the nearest 1,000 tonnes; grades are rounded to three decimal places for Mo
5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
6. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds.

1.16 Mineral Reserve Estimates

The Mineral Reserves estimates for the Kitsault Project presented in this Report are the result of a further optimization initiative of the mine plans presented in the 2013 Feasibility Study Update. This estimate is based on industry-accepted constraining and optimization techniques derived from the application of the LG method, followed by operational pit designs and a dynamic elevated cut-off grade approach.

Geotechnical domains and pit slope angles were provided by SRK Consulting Ltd (SRK). Overall slopes ranged from 42° to 48°.

Loss and dilution adjustments were made to the entirety of the block model in anticipation of the approach of using elevated cut-offs, implying variations of the cut-offs along the mine planning periods. Dilution and loss have an impact lower than 1% on the total mineralization, and are considered appropriate for a porphyry-type deposit.

Material was considered to be ore if the revenue of the block exceeded the ore-based costs: processing, sustaining capital allowance, tailings management, general and administrative (G&A) and closure allowance. Block revenue was based on net molybdenum price of $12.75 per pound of molybdenum, estimated after deducting transportation and selling costs, refining charges and royalty considerations. Process recovery for material with a marginal grade of 0.028% Mo was considered at 86.3%. Process recovery for re-handled material with a grade of 0.032% Mo was considered at 86.6%. Revenue from silver was not included in the constraining of the Mineral Reserves.

1.17 Mineral Reserve Statement

The mineral reserves for the Kitsault Project are tabulated in Table 1-4 at a cut-off grade of 0.032% Mo. Mineral Reserves have an effective date of 14 March 2014.

Areas of uncertainty that may materially impact the Mineral Reserve estimates include long-term commodity price assumptions, long-term exchange rate assumptions and long-term consumables price assumptions (diesel, explosives).

Other areas that may also impact the Mineral Reserve estimates include changes in the concentrate marketing strategy, changes to the operations start-up date assumptions, changes to the assumptions used to estimate Mineral Resources, changes to the assumptions used in the LG shell constraining the Mineral Reserves, including the metallurgical recovery estimates, changes to the mine design, and changes in the inter-ramp slope angles assumptions due higher than expected groundwater incidence.

1.18 Mining Method

1.18.1 Mine Plan

The mine plan envisages a single open pit, consisting of four phases, based on nested LG shell guidance, molybdenum grade, Patsy Creek diversion requirements, strip ratio, access considerations, and operational constraints.

Under the project master plan, construction and pre-stripping are scheduled over a 15-month period. The primary objective of preproduction mining is to supply material for the South Embankment of the tailings management facility (TMF) and other construction projects. Pre-production mining will also focus on developing mine access roads suitable for large mining equipment.

The plan assumes that the mine will operate 365 d/a, with 10 days allowed for delays due to fog and winter conditions. The plant was scheduled to operate 365 d/a with sufficient materials stockpiled at the crusher and coarse ore stockpile to accommodate mine outages resulting from weather constraints. The mining sequence is constrained by a maximum vertical advance per phase per year targeted to ten 10 m benches. Total pre-stripping is 9.4 Mt.

Table 1-4: Kitsault Mineral Reserves, Effective Date 14 March 2014
Ramon Mendoza Reyes, P. Eng. (cut-off 0.032% Mo)

Classification	Tonnage (Mt)	Mo (%)	Ag (ppm)	Pb (ppm)	Contained Mo (M lb)	Contained Ag (M Oz)
Proven	129.5	0.092	5.2	252	263.6	21.5
Probable	101.6	0.070	5.4	264	156.7	17.7
Total Proven and Probable	**231.1**	**0.082**	**5.3**	**257**	**420.3**	**39.2**

Notes To Accompany Mineral Reserves Table:

1. Mineral Reserves are defined within a mine plan, with pit phase designs guided by Lerchs–Grossmann (LG) pit shells, and reported at a 0.032% Mo cut-off grade, after dilution and mining loss adjustments. The LG shell generation was performed on Measured and Indicated Mineral Resources only, using a molybdenum price of $13.44/lb, an average mining cost of $1.81/t mined, a combined ore-based cost of $6.80/t milled, and a selling cost of $1.18/lb of Mo sold. Metallurgical recovery used was a function of the rock type, head grade and grinding strategy for a weighted average of 86.6%. Revenue from silver was not included in the LG shell generation. Overall pit slopes varied from 42 to 48 degrees.
2. Dilution has been accounted for based on a contact dilution approach assuming a dilution band of one meter around the contact edges. A total of 2.5Mt of Measured and Indicated mineral resources above cut-off was routed as waste. 1.3Mt of Measured and Indicated material below cut-off has been included as dilution material. The grade of the diluting material was the grade of those blocks. An additional 0.3Mt of Inferred dilution material with grades set to zero is included in the mine plan as mill feed.
3. After the implementation of an elevated cut-off strategy, a total 10.6 Mt of Measured and Indicated material above the marginal cut-off of 0.028% Mo and below the elevated cut-off of 0.032% Mo was discarded from the plant feed and routed as waste.
4. The life-of-mine strip ratio is 0.99:1.
5. Tonnages are rounded to the nearest 100,000 tonnes; grades are rounded to three decimal places for Mo and one decimal place for Ag. Cost estimates are in Canadian dollars.
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content.
7. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds and contained silver is in troy ounces.

Peak material movement is 136 kt/d in Year 4 with an average of 125 kt/d for the five years after ramp-up and a LOM average of 101 kt/d during pit operations. The highest rate of vertical advance is in Year 2, when Phase 2 is mined at a rate of 11 benches a year. In the production years, two to three phases are typically active in any period. The maximum mining rate of approximately 49.6 Mt/a is achieved in Year 4. The average mining rate after ramp-up Years 2 to 11 is approximately 40.2 Mt/a.

Short-term stockpiling is required to buffer crusher downtime and production fluctuations from the pit. Low-grade ore mined early in the life will be stored in long-term stockpiles; this will facilitate the preferential processing of higher grade ore and improve the NPV of the project. The material between the elevated cut-off and the marginal cut-off will be placed in a long-term stockpile and be processed through the mill at three different stages of the mine life: year 6, year 10 and at the end of the mine life.

The ultimate pit design includes 17.1 Mt of Inferred Mineral Resources at a grade of 0.047% Mo; this material is treated as waste in the mine plan. This material could potentially be processed if additional drilling supports upgrading to higher-confidence Mineral Resources.

1.18.2 Waste Rock Environmental Considerations

Waste rock in the block model has been characterized as either non acid-generating (Non-PAG) or potentially acid-generating (PAG). The split between Non-PAG and PAG rock was based on a ratio of neutralizing potential to acid potential of 2.0, as recommended by SRK (2011). Most of this rock will be placed in the WRMF located in the Patsy Creek drainage area, buttressing the South Embankment of the TMF.

1.18.3 Waste Rock Facilities

The WRMF will be built in 10 m lifts, starting with a base at the 680 m elevation and reaching a maximum elevation of 900 masl; the overall slope angle will be 26º towards the west, facing the pit, and 30º towards the east, facing the TMF. The planned capacity of the WRMF exceeds the 228 Mt of waste generated under the current mine plan.

Two small in-pit waste rock management facilities with a total capacity of 3.2 Mt will also be utilized.

1.18.4 Mining Equipment

Mining equipment is conventional, consisting of a truck–shovel–loader configuration, and appropriate auxiliary equipment. The strategy for repair and maintenance of the mobile equipment fleets at the Kitsault Project will be an Owner-managed maintenance program.

1.18.5 Blasting

Blasting will be required due to the rock hardness; blast hole patterns will be designed by the drill and blast engineers for optimal “digability”, cost, and fragmentation for ore and waste areas.

1.18.6 Geotechnical Design

Geotechnical design criteria were developed for inter-ramp and overall pit slope scales to satisfy a maximum probability of failure of 10 %. Limited bench-scale failures were considered acceptable for the design.

1.18.7 Pit Water Management

A two-dimensional pit inflow model was developed that incorporates three separate hydraulic zones, and predicts a total groundwater inflow to the pit of 4,800 m^3/d at the end of mining. Water will be managed via ditching, sumps, pipes, pumps, booster pumps and diversions.

1.19 Recovery Method

The mineral processing plant is based on conventional technology and proven equipment. Process design is for a concentrator with a nominal processing capacity of 40,000 t/d of ore from the open pit. Run-of-mine (ROM) ore from the open pit will be crushed and conveyed to the concentrator where the ore will be ground to liberate the mineral values from the host rock and then separated by flotation into a molybdenum concentrate. The concentrate will be filtered and bagged for truck transport to the port facilities, where it will be loaded onto seagoing vessels for delivery for roasting. The roasting step will be performed by Molibdenos y Metales S.A. (Molymet) of Chile in one or more of their facilities. Silver will be recovered from the molybdenum tailings stream and concentrated into a saleable concentrate.

1.20 Tailings Management

The tailings management facility (TMF) was designed to provide environmentally secure storage for disposal of 233 Mt of tailings, and includes provision, if the Project were expanded, to store as much as 300 Mt. Water management components were designed to maximize the diversion of clean water around the Project components, while ensuring the capture of contact water throughout the site.

1.21 Markets

Avanti has a molybdenum concentrate tolling agreement with Molymet for the life-of-mine molybdenum concentrate production. Avanti retains an option to reduce the molybdenum concentrate delivered to Molymet for processing to 80% of the total production in the event one of the company's strategic partners wants to take its 20% share in the form of molybdenum concentrate.

In June 2013 Avanti Mining reported that it entered into an off-take agreement with ThyssenKrupp Metallurgical Products GMBH for 50% of its total molybdenum production from its Kitsault Project for the proposed life of the mine.

Avanti has advised AMEC that discussions with an Asian steel producer are in the final stage of negotiations, and would see the Asian steel producer agree to take approximately 20% of total concentrate produced at Kitsault for a 12-year term.

AMEC notes that molybdenum is typically subject to confidential marketing agreements and that there is no industry norm that contract terms, rates or charges can be benchmarked against.

1.22 Commodity Pricing

An overview of the marketing history and projected demand for molybdenum over the next several years was prepared during the 2010 Feasibility Study by the CPM Group (CPM) as part of its "Molybdenum Market Outlook," June 2010, updated with market developments to November 2010. CPM updated the marketing history and projected demand forecasts for molybdenum in its "Molybdenum Market Outlook," July 2013. CPM advised AMEC that the forecast as still current at the Report effective date.

For the purposes of the technical report, Avanti and AMEC selected the Mo prices recommended by CPM in their July 2013 Molybdenum Market Outlook and presented in Table 1-5, as the base case pricing for the financial analysis. Long-term prices after 2022 are assumed to be stable at US$14.50/lb.

Table 1-5: Molybdenum Price Projections ($US)

Annual	Forecast
2014p	$11.60
2015p	$11.35
2016p	$11.85
2017p	$12.30
2018p	$13.00
2019p	$14.65
2020p	$15.65
2021p	$16.75
2022p	$17.50
Long-term Price	$14–$15
Average (2014p–2018p)	$12.02
Average (2019p–2022p)	$16.14
Average (2014p–2022p)	$13.85

Note: Source: CPM Group (July 2013 Forecast); base: 2013 prices

1.23 Taxation

Taxation considerations include Provincial and Federal corporate income taxes and BC Mineral taxes as determined using a taxation model provided by PricewaterhouseCoopers LLP.

1.24 Capital Cost Estimate

The estimate was developed in accordance with AMEC Feasibility Standards (Class 3), AACE Class 3 international classification, and consists of semi-detailed unit costs and assembly line items. Where design is not sufficiently advanced to prepare material take-offs (MTOs), the estimate is based on factors or allowances. The estimate was prepared by area using the project work breakdown structure (WBS) and AMEC's standard disciplines.

The accuracy of the capital cost estimate, considering the current state of design and procurement, is expected to be within -10/+15% of final project cost. All costs are expressed in third-quarter 2013 Canadian dollars with no allowance for escalation, currency fluctuation, or interest during construction. Items quoted in US dollars were converted to Canadian dollars using an exchange rate of C$1.00 = US$0.88.

The estimated Project capital costs are summarized in Table 1-6.

Table 1-6: Capital Cost Summary by Major Area (C$ M)

Area	Description	Cost
1000	Mining	119.3
2000	Site preparation and roads	26.8
3000	Process facilities	230.0
4000	Tailings management and reclaim systems	81.3
5000	Utilities	36.1
6000	Ancillary buildings and facilities	33.9
	Total Direct Costs	527.4
8000	Owner's costs	32.2
9000	Indirects	150.3
	Total Indirect Costs	182.5
	Total Direct + Indirect Costs	709.9
	Contingency	108.1
	Total Capital Costs	**818.0**

1.25 Operating Cost Estimate

The operating cost estimate for the Kitsault Project was assembled by area and component, based on estimated staffing levels, consumables, and expenditures, according to the mine plan and process design. The costs were prepared in third-quarter 2012 Canadian dollars and were updated in February 2014 to include changes to the exchange rate assumptions. Estimated LOM and operating costs by tonne are summarized in Table 1-7 and Table 1-8.

1.26 Financial Analysis

The results of the economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future metal prices and forward sales contracts, the estimation of Mineral Reserves and Mineral Resources, the realization of Mineral Reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new ore zones, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

Table 1-7: Life-of-Mine Operating Costs (C$000)

Area	Total LOM	$/t Milled	$/lb Mo Contained
Mine Operations	995,617	4.31	2.68
Processing Operations	1,246,224	5.39	3.35
Administration	280,023	1.21	0.75
Total	**2,521,864**	**10.91**	**6.78**

Table 1-8: Annual Operating Costs (C$)

Year	Total ($000)	$/t Milled	$/lb Mo Contained
1	109,458	13.80	7.70
2	177,751	10.62	3.81
3	187,673	11.12	6.92
4	194,420	11.53	6.42
5	197,121	11.73	6.64
6	186,924	11.37	6.95
7	183,192	10.86	5.56
8	193,682	11.51	6.50
9	195,872	11.53	7.34
10	196,543	11.99	8.56
11	196,915	12.29	8.07
12	163,021	9.91	7.09
13	154,869	9.42	6.69
14	124,234	7.67	12.58
15	60,189	8.28	13.58
Total/Average	**2,521,864**	**10.91**	**6.78**

The Project has been evaluated using a discounted cashflow (DCF) analysis. Cash inflows consist of annual revenue projections for the mine. Cash outflows such as capital, including the two years of preproduction costs, operating costs, taxes, and royalties are subtracted from the inflows to arrive at the annual cashflow projections.

To reflect the time value of money, annual net cashflow (NCF) projections are discounted back to the project valuation date using several discount rates. The discount rate appropriate to a specific project depends on many factors, including the type of commodity; and the level of project risks, such as market risk, technical risk and political risk. The discounted, present values of the cashflows are summed to arrive at the project's net present value (NPV).

In addition to NPV, internal rate of return (IRR) and payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. Cashflows are taken to occur at the end of each period. Capital cost estimates have been prepared for initial development and construction of the project, and ongoing operations (sustaining capital).

The resulting net annual cashflows are discounted back to the date of valuation end-of-year 2014 dollars, and totalled to determine NPVs at the selected discount rates. The IRR is calculated as the discount rate that yields a zero NPV. The payback period is calculated as the time needed after the start up of operations to recover the initial capital spent.

The after-tax NPV at an 8% discount rate over the estimated mine life is $472 million. The after-tax IRR is 19.0%. Payback of the initial capital investment is estimated to occur in 3.9 years after the start of production.

A summary of the financial analysis in US$ is presented as Table 1-9. The same data, using Canadian dollars, are shown in Table 1-10.

1.27 Sensitivity Analysis

Sensitivity analysis was performed on the base case net cashflow and examined sensitivity to metal price, operating costs, capital costs and exchange rates. Figure 1-1 summarizes the sensitivities in the after-tax scenario.

Sensitivity analysis shows that the Kitsault Project is most sensitive to changes in molybdenum price and fluctuations in the $US:$CAD exchange rate, as these items directly affect the revenue stream. The Project is also sensitive, but less so, to capital expenditure and operating cost.

Table 1-11 summarizes the sensitivity to Mo price fluctuations.

There is upside opportunity for the Project if the Inferred Mineral Resources that are identified within the LOM production plan can be upgraded to higher confidence Mineral Resource categories.

Table 1-9: Financial Analysis Results Summary (US$)

	US$	Variable
Pre-Tax		
IRR	%	24.0%
CNCF	US$M	1,855
NPV 8%	US$M	718
NPV 10%	US$M	550
Payback	Years	3.8
After Tax		
IRR	%	19.0%
CNCF	US$M	1,200
NPV 6%	US$M	539
NPV 8%	US$M	415
NPV 10%	US$M	297
NPV 12%	US$M	207
Payback	Years	3.9

Table 1-10: Financial Analysis Results Summary (C$)

	C$	Variable
Pre-Tax		
IRR	%	24.0%
CNCF	C$M	2,108
NPV 8%	C$M	816
NPV 10%	C$M	625
Payback	Years	3.8
After Tax		
IRR	%	19.0%
CNCF	C$M	1,364
NPV 6%	C$M	613
NPV 8%	C$M	472
NPV 10%	C$M	337
NPV 12%	C$M	236
Payback	Years	3.9

Figure 1-1: Sensitivity of After-Tax NPV at 8% Discount Rate

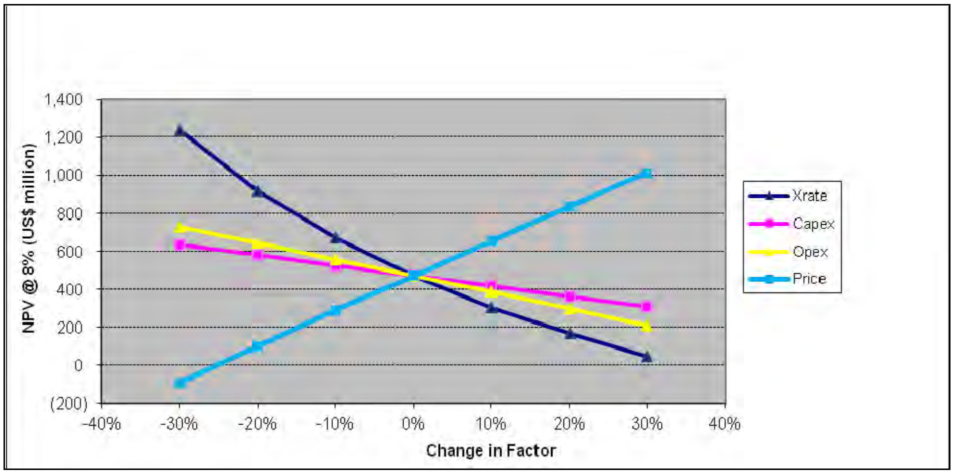


Table 1-11: Sensitivity of the Financial Analysis to Changes in Mo Price (base case is highlighted)

Molybdenum Price (US$/lb)	Cumulative Net Cashflow (C$M)	NPV @ 6% (C$M)	NPV @ 8% (C$M)	NPV @ 10% (C$M)	IRR %	Payback (Years)
9.00	-5	-248	-286	-324	0.0%	14.0
14.50	1,311	592	458	329	19.4%	3.7
15.00	1,426	663	520	383	20.8%	3.4
18.00	2,120	1,085	889	702	28.6%	2.5

1.28 Conclusions and Interpretations

In the opinion of the QPs, the Project that is outlined in this Report has met its objectives in that mineralization has been identified that can support estimation of Mineral Resources and Mineral Reserves; there was sufficient additional scientific and technical information to allow the completion of a more detailed study at feasibility level to support potential mine development and an optimisation approach to be adopted based on that feasibility study.

A decision to proceed with development will require appropriate permits, and approval by both relevant statutory authorities and Avanti's Board.

1.29 Recommendations

AMEC has restricted work recommendations to a two-phase work program that is designed to provide support for detailed engineering for mine construction and permitting activities in the first phase, and additional exploration/infill drill information for the Bell Moly and Roundy Creek deposits in the second work phase. The two phases can be conducted concurrently and results of one phase are not dependent on the outcomes of the other phase. The program estimates total $6.075 million to $6.975 million.

2.0 INTRODUCTION

AMEC Americas Limited (AMEC), SRK Consulting (Canada) Inc. (SRK) and Knight Piésold Ltd (KP) were commissioned by Avanti Mining Inc. (Avanti) to prepare an independent Qualified Person's Review and NI 43-101 Technical Report (the Report) for the wholly-owned Kitsault molybdenum project (the Project), located in British Columbia (Figure 2-1).

A feasibility study was completed on the Project in 2010, and a feasibility study update in 2013. Subsequent to the feasibility study update, Avanti commissioned an enterprise optimization study and a project value engineering study in 2013. An update to the mine plan was undertaken in the first quarter of 2014, to reflect the most recent expected date of start of operations and reflects a higher level of detail with respect to the extraction sequence within the mining phases. This Report provides a summary of the outcomes of the enterprise optimization study, project value engineering study, and the updated mine plan. The Report was prepared in support of Avanti's voluntarily-filed Annual Information Form dated 5 June 2014.

2.1 Terms of Reference

Avanti holds the Kitsault Project through a wholly-owned subsidiary, Avanti Kitsault Mine Ltd. For the purposes of this Report, the name "Avanti" is used for both the parent and subsidiary companies.

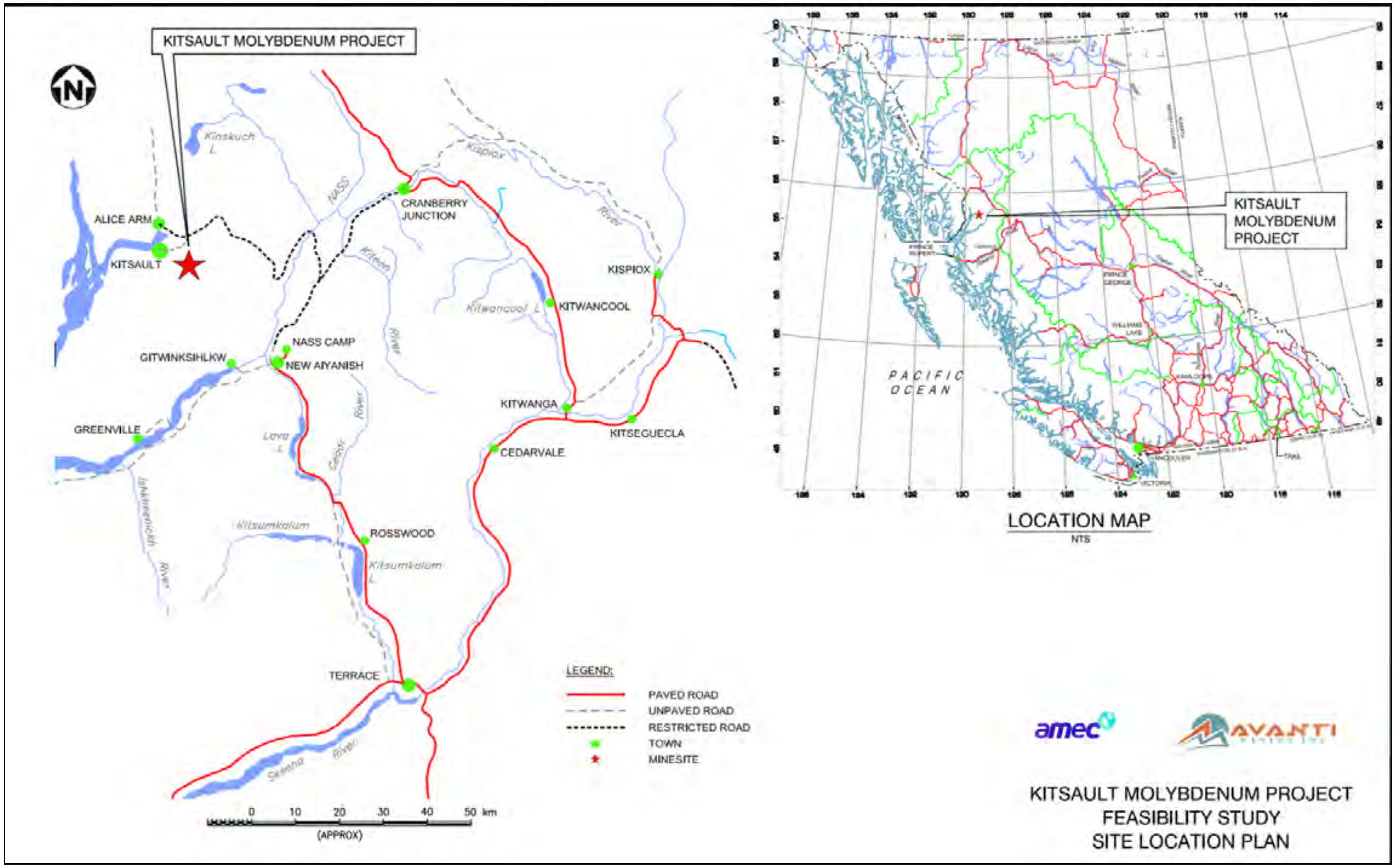
All measurement units used in this Report are metric, and currency is expressed in Canadian dollars unless stated otherwise. The Report uses Canadian English.

In late 2010, a feasibility study (the 2010 Feasibility Study) was completed on the Project, entitled:

- AMEC, 2010: Avanti Kitsault Mine Ltd, Kitsault Molybdenum Project Feasibility Study Report: report prepared by AMEC Americas Inc for Avanti Mining Inc., December 2010.

The proposed project evaluated in the 2010 Feasibility Study entailed an open pit mine, new mill facilities, and infrastructure designed to treat 40,000 t/d of molybdenite-bearing ore to produce a marketable molybdenum flotation concentrate.

Figure 2-1: Project Location Map



Note: Figure prepared by AMEC, 2013

The information in this report was summarized into the technical report entitled:

- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Inc., SRK Consulting (Canada) Inc. and Knight Piésold Ltd, effective date 15 December, 2010

In 2012–2013, certain aspects of the 2010 Feasibility Study were updated (the 2013 Feasibility Study Update), and the updates were captured in the following technical report:

- Christie, G., Thomas, D., Lipiec T., and Mendoza, R., 2013: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Updated Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 4 February 2013

Differences between the 2010 Feasibility Study and the 2013 Feasibility Study Update included an updated resource model for Kitsault that supported a revised mine plan, consequent revisions to the capital and operating costs which used escalation factoring of costs from the 2010 Feasibility Study, and an updated financial model. The only major design change between the design for the 2010 Feasibility Study and the 2013 Feasibility Study Update was the addition of a silver circuit to the process plant. Information that was unchanged from the 2010 Feasibility Study assumptions and plans was summarized into the 2013 Feasibility Study Update.

In 2013, Avanti commissioned an enterprise optimization study and a project value engineering study.

The enterprise optimization study resulted in the development of a grind–throughput–recovery model which reflects the response on metallurgical recoveries and mill throughput to a variable grinding approach for the different rock types of the deposit. The study complemented the grind–throughput–recovery model with the simultaneous optimization of pit phase selection, bench mining sequence, cut-off grade and stockpile management to provide an improved net present value for the project.

The value engineering study involved a critical review of the major project facilities to optimize the designs and approach to construction. The design changes include reducing facility footprints by consolidating the process plant and service functions in logical areas, integrating the use of smaller construction and permanent camps for the entire construction phase, optimizing layouts and lineal routings to reduce earthworks requirements, and reviewing the types of materials used in the architectural components.

The key reference document for this work is:

- AMEC, 2013: Kitsault Project, Summary of Engineering Design Changes and Capex, 2010 to 2013: report prepared by AMEC Americas Inc for Avanti Mining Inc., 27 November 2013

This Report has used information from the 2010 Feasibility Study (reported in the 2011 technical report), the 2013 Feasibility Study Update (reported in the 2013 technical report), the 2013 enterprise optimization study and 2013 value engineering study. Information that was unchanged from the 2010 Feasibility Study and 2013 Feasibility Study Update assumptions and plans was summarized into this Report.

The 2013 enterprise optimization study and the value engineering study were based on an assumed Canadian dollar to US dollar exchange rate of 0.95; this exchange rate supported the financial information disclosed in the Avanti press release dated 14 November, 2013, entitled “Avanti Mining Further Optimizes Kitsault Feasibility Study”.

The mine plan supporting this report was updated in first quarter 2014 to reflect the most recent expected date of start of operations and reflects a higher level of detail with respect to the extraction sequence within the mining phases. The initial capital estimates for mining includes pre-stripping, pit development activities and mining equipment. The implication of this plan update is reflected in the timing of the expenditures only; the cost estimates are consistent with the rest of the estimates as of third quarter of 2013.

For the purposes of this Report, the basis of the financial data remain unchanged from the information in the 14 November, 2013 press release; however, at Avanti’s request the Canadian dollar to US dollar exchange rate exchange rate used for the cost estimates in Section 21 and the financial analysis in Section 22 of this Report was revised to 0.88.

Additional information was provided by Avanti personnel as requested. Other reference sources are as noted in Section 3 and Section 27 of the Report.

2.2 Qualified Persons

The following people served as the Qualified Persons (QPs) as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1:

- Scott Fulton, P.Eng., Project Manager, AMEC Vancouver
- Ignacy (Tony) Lipiec, P.Eng., Director, Process, AMEC Vancouver
- Ramon Mendoza Reyes, P.Eng., Principal Mining Engineer, AMEC Vancouver
- David Thomas, P.Geo., Associate, AMEC Vancouver
- Simon Allard, P.Geo. Financial Analyst, AMEC Vancouver
- Bruno Borntraeger P.Eng., Specialist Engineer/Project Manager, Knight Piésold Ltd, Vancouver
- Peter Healey, P.Eng., Senior Civil/Geotechnical Engineer, SRK Consulting, Vancouver
- Michael Levy, P.Eng., Senior Geotechnical Engineer, SRK Consulting, Denver

2.3 Site Visits and Scope of Personal Inspection

Mr. Scott Fulton visited the site from 3 July to 4 July 2013. Mr. Fulton walked the alignment of the process plant access road whereby he observed the level of vegetation and topography to traverse. He also reviewed the proposed process plant, stockpile and conveyor alignment locations. Mr. Fulton also conducted a helicopter flyby to visually observe the key site features. Mr. Fulton's site visit is still current as there have been no changes to the information on project topography or layout locations since the visit.

Mr David Thomas visited site between 23 and 24 September, 2011. Mr. Thomas observed outcrops of molybdenum mineralization at the Bell Moly and Roundy Creek deposits, conducted a hand-held GPS survey of drill collars, inspected drill core and examined sections and plan views through the Roundy Creek deposit and viewed the Kitsault deposit. AMEC considers that although undertaken in 2011, Mr Thomas's site visit is still current as he visited the site after the completion of the 2011 drill program, which remains the latest drilling program at the Project and no drilling activity or exploration activity has been conducted since.

Mr Peter Healey has visited the Kitsault Project site on many occasions from 1996 through to 2012, with the most recent site visit being from June 16 to June 18, 2012. During this visit, Mr Healey conducted a geotechnical inspection of the existing diversion channels in the pit, the spillway in the sedimentation pond and assisted in collection of the seepage samples.

Mr Michael Levy visited the Project site between 8 and 11 September, 2008. During the visit, Mr Levy reviewed representative sections of core and observed geotechnical conditions of existing pit walls.

Mr Bruno Borntraeger visited the Project site on 29 April, 2010 and again on July 26 and 27, 2011 to review site layouts, geotechnical conditions and propose construction borrow materials.

2.4 Effective Dates

The report has a number of effective dates, as follows:

- Effective date of the supply of the last information on environmental permitting: 18 February 2014.
- Effective date of the mineral claims table in Appendix A: 4 February 2014
- Close-out date for the database used in resource estimation for the Kitsault Mineral Resource estimate: 7 February 2012
- Close-out date for the database used in resource estimation for the Bell Moly and Roundy Creek Mineral Resource estimates: 23 December 2011
- Effective date of the Kitsault Mineral Resource estimate: 17 April 2012
- Effective date of the Bell Moly and Roundy Creek Mineral Resource estimates: 1 May 2012
- Effective date of the Mineral Reserve estimate: 14 March 2014
- Effective date of the updated financial analysis 14 March 2014.

The Report effective date is taken to be 14 March 2014, and is based on the supply of key information pertaining to the updated financial analysis.

2.5 Previous Technical Reports

Avanti has previously filed the following technical reports on the Project:

- Christie, G., Thomas, D., Lipiec T., and Mendoza, R., 2013: Kitsault Molybdenum Project, British Columbia, Canada, NI 43-101 Technical Report on Updated Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 4 February 2013
- Christie, G., Kulla, G., Ulansky, R., Lipiec, T., Healey, P., Levy, M. and Borntraeger, B., 2011: Kitsault Molybdenum Project, British Columbia, Canada, NI

43-101 Technical Report on Feasibility Study: technical report prepared by AMEC Americas Inc., effective date 15 December, 2010

- Grills, F., De Ruijter, M.A., Vicentijevic, M., Volk, J., Levy, M., Healey, P., Day, S., Royle, M., Brouwer, K.J., Schmitt, H.R., and Malhotra, D., 2009: NI 43-101 Pre-Feasibility Study – Avanti Mining Inc. Kitsault Molybdenum Property British Columbia, Canada: technical report prepared by Wardrop Engineering Ltd for Avanti Mining, Inc., effective date 15 December 2009
- Volk, J., Healey, P., Levy, M., Steininger, R., Collins, S., Greenaway, G., Dew, H., Schmitt, R., 2008: NI 43-101 Preliminary Economic Assessment Avanti Mining, Inc., Kitsault Molybdenum Property, British Columbia, Canada: technical report prepared by SRK Consulting Ltd for Avanti Mining, Inc., effective date 3 November 2008
- Volk, J., and Steininger, R., 2008: NI 43-101 Technical Report on Resources, Avanti Mining, Inc., Kitsault Molybdenum Property, British Columbia, Canada: technical report prepared by SRK Consulting Ltd for Avanti Mining, Inc., effective date 16 July 2008.

3.0 RELIANCE ON OTHER EXPERTS

3.1 Mineral Tenure

The QPs have fully relied upon and disclaim information relating to the tenure status for the Project through the following documents:

- Blake, Cassels & Graydon, 2010: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 7 December 2010.
- Nelsen, C., 2011: AMEC Questions re Title Opinion: Information supplied by Craig J. Nelson, President and CEO Avanti Mining Inc., to AMEC Americas Limited, 25 January 2011; email from Craig Nelsen to Gary Christie, AMEC Kitsault Project Manager.
- Blake, Cassels & Graydon, 2013: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 28 February, 2013, specifically Schedule B and Schedule C of the opinion.
- Accurate Mining Services Ltd, 2014: Final List: tenure summary table prepared for Avanti Mining Inc. and AMEC Americas Limited, 4 February 2014
- Blake, Cassels & Graydon, 2014: Avanti Kitsault Report: email from Blake, Cassels & Graydon LLP to Avanti Mining Inc. and AMEC Americas Ltd., 19 March 2014
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

This information is used in Section 4.3.2 of the Report.

The QPs have fully relied upon and disclaim information relating to the surface rights status for the Project through the following documents:

- Blake, Cassels & Graydon, 2010: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 7 December 2010.
- Nelsen, C., 2011: AMEC Questions re Title Opinion: Information supplied by Craig J. Nelson, President and CEO Avanti Mining Inc., to AMEC Americas Limited, 25 January 2011; email from Craig Nelsen to Gary Christie, AMEC Kitsault Project Manager.

- Blake, Cassels & Graydon, 2013: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 28 February 2013.
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March 2014.

This information is used in Section 4.4 of the Report.

3.2 Royalties

The QPs have fully relied upon and disclaim information relating to royalties for the Project through the following documents:

- Blake, Cassels & Graydon, 2010: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for AMEC Americas Limited, 7 December 2010; specifically Schedule I of the opinion, and supporting Appendices C, D, E, F, and G.
- Blake, Cassels & Graydon, 2013: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 28 February, 2013
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

This information is used in Section 4.5 of the Report.

3.3 Agreements and Encumbrances

The QPs have fully relied upon and disclaim information relating to agreements and encumbrances on the mineral tenure for the Project through the following documents:

- Blake, Cassels & Graydon, 2010: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for AMEC Americas Limited, 7 December 2010; specifically Schedule H of the opinion.
- Nelsen, C., 2011: AMEC Questions re Title Opinion: Information supplied by Craig J. Nelson, President and CEO Avanti Mining Inc., to AMEC Americas Limited, 25 January 2011; email from Craig Nelsen to Gary Christie, AMEC Kitsault Project Manager.

- Blake, Cassels & Graydon, 2013: Avanti Kitsault Mine: legal opinion prepared by Blake, Cassels & Graydon LLP for Avanti Mining Inc. and AMEC Americas Limited, 28 February, 2013; specifically Schedule D and Schedule F of the opinion
- Blake, Cassels & Graydon, 2013: Liens text: email from Blake, Cassels & Graydon LLP to Avanti Mining Inc. confirming discharge of liens.
- Blake, Cassels & Graydon, 2014: Avanti Kitsault Report: email from Blake, Cassels & Graydon LLP to Avanti Mining Inc. and AMEC Americas Ltd., 19 March 2014

This information is used in Section 4.6 of the Report.

3.4 Permitting

The QPs have fully relied upon and disclaim information relating to the status of permitting applications for the Project through the following documents:

- Premo, M., and Ali, A.J., 2013: Information Confirmation: information supplied by Avanti Mining to Gary Christie, AMEC, 22 March 2013.
- Greenwood Environmental Inc: Contributions to Avanti Kitsault Report V1: word document provided to AMEC Americas Inc., 18 February 2014.
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

This information is used in Section 20.6 of the Report.

3.5 Environmental

The QPs have fully relied upon and disclaim information relating to the status of environmental permitting applications for the Project through the following documents:

- Premo, M., and Ali, A.J., 2013: Information Confirmation: information supplied by Avanti Mining to Gary Christie, AMEC, 22 March 2013.
- Greenwood Environmental Inc: Contributions to Avanti Kitsault Report V1: word document provided to AMEC Americas Inc., 18 February 2014.
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

This information is used in Section 20.2 of the Report.

3.6 Social and Community Impacts

The QPs have fully relied upon and disclaim information relating to the status of community consultations for the Project through the following documents:

- Premo, M., and Ali, A.J., 2013: Information Confirmation: information supplied by Avanti Mining to Gary Christie, AMEC, 22 March 2013.
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

This information is used in Sections 20.7 and 20.8 of the Report.

3.7 Commodity Pricing

The QPs have fully relied upon and disclaim information relating to the commodity price forecasts for the Project through the following document:

- CPM Group, 2013: Molybdenum Market Outlook: July 2013

Metals price forecasting is an expert business requiring knowledge of supply and demand, economic activity and other factors that are highly specialized and requires an extensive global database that is outside of the purview of a QP.

The QPs consider it reasonable to rely upon the CPM Group as the company provides up-to-date, in-depth insight and analysis into all facets of the specialty metals industry, including metal price forecasts. The CPM Group publishes annual long-term outlook reports on molybdenum, vanadium, manganese, tungsten, and other specialty and minor metals, and a large number of industry participants rely on the CPM Group for their coverage of these metals.

The pricing information is used in support of Mineral Reserve estimates in Section 15, in support of the mine plan in Section 16, in the discussions on applicable metal pricing forecasts in Section 19, and in the financial analysis in Section 22.

3.8 Market Analysis

The QPs have fully relied upon, and disclaim responsibility for, information supplied by Avanti staff and experts retained by Avanti for information related to marketing as applied to the marketing as follows:

- CPM Group, 2013: Molybdenum Market Outlook: July 2013
- Lowe, J., 2014: Information Provided on Kitsault Project for Incorporation into March 2014 Technical Report: letter from Avanti Mining Inc to AMEC Americas Limited, 27 March, 2014.

Metals marketing is also an expert business requiring knowledge of supply and demand, economic activity and other factors that are highly specialized and requires an extensive database that is outside of the purview of a QP.

The QPs consider it reasonable to rely upon the CPM Group, as the company provides up-to-date, in-depth insight and analysis into all facets of the special metals industry, including production supply and costs as well as consumption demand.

The QPs also consider it reasonable to rely upon information from Avanti because the most recent information on concentrate marketing negotiations remains confidential and is being conducted by Avanti in consultation with third-party processors.

The marketing information is used in support of Mineral Reserve estimates in Section 15, in the discussions on marketing forecasts in Section 19, and in the financial analysis in Section 22.

3.9 Taxation

The QPs have fully relied upon and disclaim information relating to the taxation data used in the financial analysis for the Project through the following document:

- PricewaterhouseCoopers, 2014a: Kitsault_DCF_20140306_Quarterly Model (PWC Revised) Final V.2: revised cashflow model supplied to AMEC dated 6 March 2014.
- PricewaterhouseCoopers, 2014b: Review of the income and mineral tax portions of the economic analysis prepared by AMEC Americas Inc in connection with the NI 43-101 Technical Report on Avanti Mining Inc.'s Kitsault Project: letter addressed to Avanti Mining Inc, 28 March 2014.

This information is used in Section 22.1.1 of the Report.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Kitsault Project is situated about 140 km north of Prince Rupert, and south of the head of Alice Arm, an inlet of the Pacific Ocean, within British Columbia (BC). The approximate Project centroids are latitude 55°25'19"N and longitude 129°25'10"E.

The Project contains the closed Kitsault open pit molybdenum mine, and the Roundy Creek and Bell Moly deposits.

4.2 Project Acquisition

On 19 June 2008 Avanti signed a Kitsault Purchase and Sale Agreement with Aluminerie Lauralco, Inc. (ALI), a wholly owned subsidiary of Alcoa, Inc., to purchase the Kitsault Property. The Kitsault Purchase and Sale Agreement required Avanti to pay US$20 million to ALI for a direct 100% interest in the Kitsault Property.

The acquisition of the Kitsault Property was funded through a US$20 million secured convertible bridge loan from Resource Capital Fund IV L.P. (RCF), and termed the “RCF loan” under the terms of the RCF loan agreement. The RCF loan had a maturity date of 15 July 2009 and an interest rate of 15% per annum. Interest was payable at the end of each calendar quarter in cash or in Avanti common shares. As part of the consideration for the RCF loan, Avanti issued 3,000,000 common shares to RCF on the closing date of the RCF loan. As security for the RCF loan, Avanti granted to RCF a security interest in the Kitsault Property and a pledge of securities in a subsidiary and guarantees.

The acquisition was completed on 17 October 2008. On the closing of the Kitsault Property acquisition, a finder’s fee of 2,000,000 common shares was paid to a third party and a success fee of 500,000 common shares was paid to a financial advisor.

ALI was able to elect (within 90 days of Avanti delivering a feasibility study) to receive either:

- (a) US$10,000,000 in cash at commercial production or in common shares of Avanti within 30 days of election; or
- (b) retain a 1% net smelter royalty (NSR) on future production.

ALI retained the NSR royalty.

4.3 Mineral Tenure

4.3.1 Mineral Title in British Columbia

Mineral claims in British Columbia are of two types. Cell mineral claims are established by electronically selecting the desired land on government claim maps, where the available land is displayed as a grid pattern of open cells, each of approximately 450–500 hectares. Payment of the required recording fees is also conducted electronically. This process for claim staking has been in effect since January, 2005, and is now the only way to stake claims in British Columbia. Prior to January, 2005, claims were staked by walking the perimeter of the desired ground and erecting and marking posts at prescribed intervals. Claims staked before January, 2005, remain valid and may be converted into cell claims.

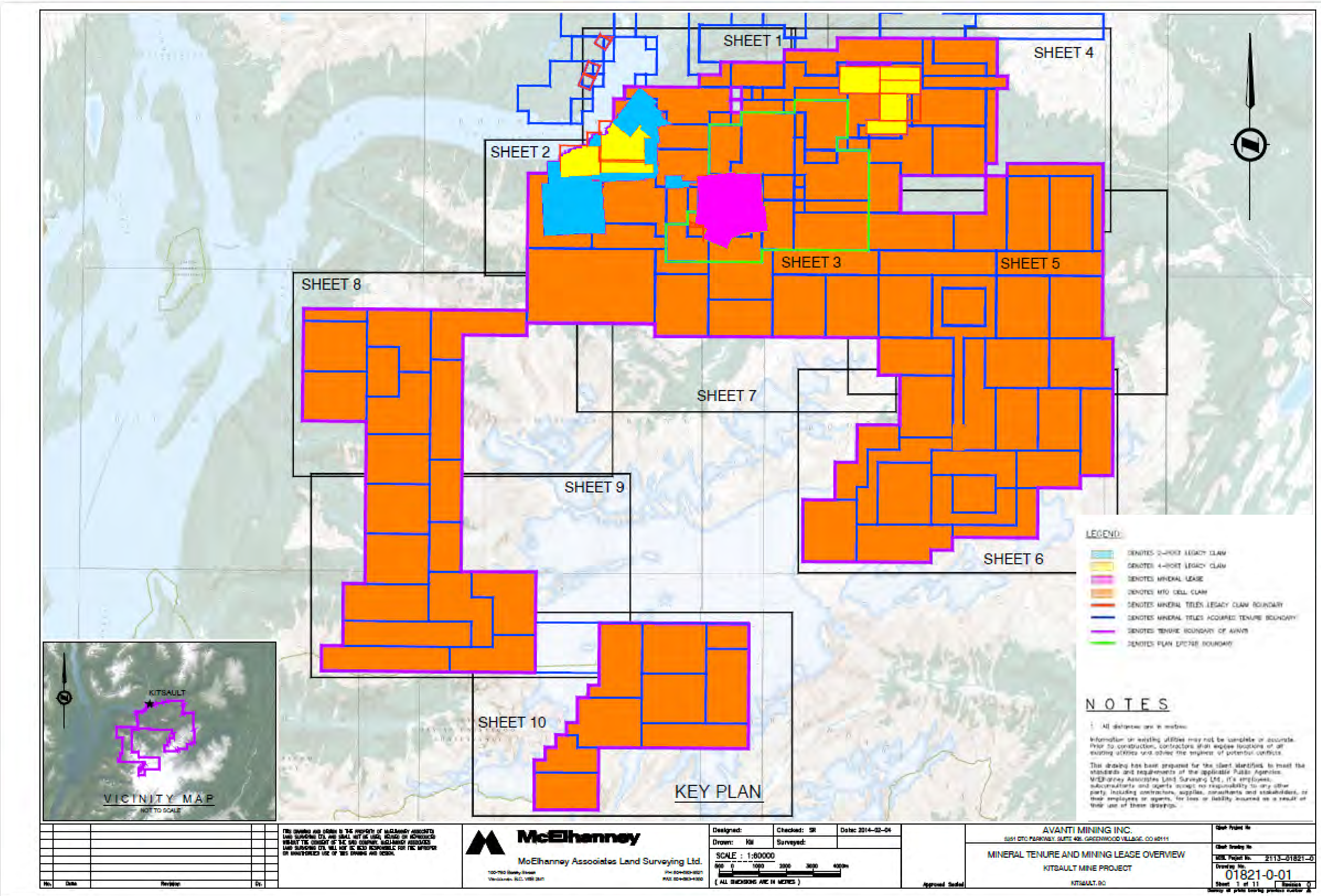
Cell mineral claims may be kept in good standing by incurring assessment work or by paying cash-in-lieu of assessment work in the amount of $4.00 per hectare per year during the first three years following the location of the mineral claims. This amount is increased to $8.00 per hectare in the fourth and succeeding years. Claims staked before January, 2005 may be kept in good standing by incurring assessment work or by paying cash-in-lieu of assessment work in the amount of $100 per mineral claim unit per year during the first three years following the location of the mineral claim. This amount increases to $200 per mineral claim unit in the fourth and succeeding years.

Mineral leases (mining leases) are granted over mineral claims on request, and upon payment of prescribed fees. Survey of the lease boundary may be requested, and if such a request is made, the survey must be undertaken by a British Columbia land surveyor and have the survey approved by the Surveyor General. Mining leases are granted for an initial term of not more than 30 years. If the lease was granted prior to 1 December 1995, it can be renewed for additional 30-year terms.

4.3.2 Project Mineral Tenure

Avanti holds a total of 234 tenures, consisting of 35 mining leases and 199 mineral claims, covering an area of 39,211.4 ha (Figure 4-1). Claim details (as at 4 February 2014) and detailed location plans with the claim numbers labelled are included as Appendix A.

Figure 4-1: Tenure Location Summary Plan



Note: Figure courtesy Avanti, 2014. .

The claims are held in the name of the wholly-owned Avanti subsidiary, Avanti Kitsault Mine Ltd.

Electronically acquired claims (cell claims) are legally defined by the BC mining titles online (MTO) grid. For claims located prior to 12 January 2005 (legacy claims), a new section was enacted in the Mineral Tenure Act under Section 24.1 (5) on 1 January 2008, which confirms the mapped position of legacy claims as being the prevailing position. As such, the mapped locations of legacy claims are confirmed, making MTO maps the authoritative source for defining the ground location of mineral and placer claims. Mineral claims within the Project are defined by the MTO grid. The mining leases were surveyed by a professional surveyor.

Expiry dates are listed in Appendix A, and are variable. Mining lease expiry dates range from 2017 to 2022. The claims and leases that were current as at the Report effective date are as indicated in Appendix A.

4.4 Surface Rights

In British Columbia, surface rights are granted under the mineral leases from the Crown. Mineral claims surface rights are obtained through the process of converting claims to leases.

Information on surface rights in this sub-section is taken from the Avanti 2011 and 2012 Annual Information Forms (AIFs), and is supported by written confirmation provided by Avanti to AMEC.

The majority of the leases and claims are located under Provincial Crown lands. Four claims are located under privately-owned lands at the former Kitsault town site that is situated on the Alice Arm.

Surface rights held by Avanti, which overlap the non-Crown portions of the mineral leases and claims include three land parcels, totalling 14.497 ha, and a statutory right-of-way (Statutory Right of Way No. BX201679) for access through Kitsault town site privately-owned lands:

- Parcel Identifier 015-583-031, District Lot 2656 Cassiar District (2.34 ha)
- Parcel Identifier 015-562-531, Block A District Lot 35 Cassiar District (12.1 ha)
- Parcel Identifier 015-562-611, Block B District Lot 35 Cassiar District (0.057 ha)
- Right of Way over:
  - District Lot 2757 Cassiar District
  - Block B (Plan 9849) District Lot 63 Cassiar District

– Block A District Lot 63 Cassiar District
– Block B District Lot 63 Cassiar District
– Block A District Lot 64 Cassiar District Except Plan 6531
– District Lot 6930 Cassiar District
– District Lot 6931 Cassiar District
– Lot 1 District Lot 64 Cassiar District Plan 6531.

The site power line is owned by BC Hydro, and the power line easement is in the name of BC Hydro.

4.5 Royalties

Information on royalties in this sub-section is taken from the Avanti 2012 Annual Information Form (AIF), and is supported by legal opinion provided to AMEC.

4.5.1 1975–1976 Royalty Agreement

A royalty is payable by the Climax Molybdenum Company of British Columbia (CMC) to Bell Molybdenum Mines Limited (Bell) under an agreement dated 17 February 1976 (the 1975–1976 Royalty Agreement) on each tonne of ore mined and removed from claims 250340, 250341, 250342, 250343, 250344, 250345, 250346, 250347, 250390, and 250391, covering the Bell Moly deposit only. No Mineral Reserves are currently estimated within the Bell Moly claims. The royalty is as follows:

US$0.10/t of ore mined from the above-listed claims and treated thereon or shipped to Climax's molybdenum concentration mill at Kitsault, BC or another place of treatment, provided that for each US$0.25 that the base price per pound, as defined therein, of molybdenum contained in concentrate increases above or decreases below US$2.50, the royalty shall in like manner increase or decrease by US$0.01.

AMEC was supplied with legal opinion that indicates the current ownership of this royalty is in question, as the corporation with the apparent rights has been dissolved.

4.5.2 1984 Royalty Agreement

A royalty purchase agreement, dated 31 December 1984 (the 1984 Royalty Agreement) between Amax of Canada Ltd and Amax Zinc (Newfoundland) Limited (Amax Zinc), gave Amax Zinc a 9.22% net cashflow interest over the entire Kitsault Project, described in the 1984 Royalty Agreement as comprising mining leases numbered M157 to M191 inclusive, corresponding to 35 mining leases (refer to Appendix A).

This royalty is considered in the cashflow analysis in Section 22, where it is termed the "Pre-Tax Cash Royalty". The royalty amounts to about $190 million over the planned life-of-mine with payment starting in the third year after the capital and operating costs on a cumulative basis are exceeded by the cashflow from net revenues.

4.5.3 ALI Agreement

Under a Purchase and Sale Agreement (the ALI Agreement) dated 19 June 2008, ALI has a 1% NSR on future production. Leases subject to the royalty are indicated in Appendix A. The 1% NSR figure was used in the cashflow analysis in Section 22, where it is termed the "NSR Royalty". The royalty amounts to approximately $59 million over the life of the planned mine.

4.5.4 TA Agreement

On January 13 2010, Avanti entered into a purchase and sale agreement with TA Mineral Resources Ltd. (TA) and Quadra Coastal Resources Ltd. (Quadra) to purchase a 100% interest in 102 mineral tenements (the TA claims) adjacent to the ALI tenure package. The acquisition was closed on 28 January 2010. TA and Quadra retain 1.5% net smelter royalty (NSR) on 100 of the mineral tenements.

Two tenements, 517367 and 517364, are not included in the NSR.

No Mineral Reserves are currently estimated within these claims.

4.5.5 NC Agreement

On 21 April 2010, Avanti signed a definitive agreement with Mr. Nicholas Carter to purchase a 100% interest in the two NC claims that are internal to the Project. Consideration for the purchase was $100,000 in cash and issuance of 250,000 Avanti Mining common shares over a four-year period. A 2% net smelter royalty was retained on the claims; however, Avanti may purchase 1% of the net smelter royalty at any time by paying the vendor $1,000,000, thus reducing the royalty burden to 1%.

No Mineral Reserves are currently estimated within these claims.

4.6 Encumbrances

Information on encumbrances in this sub-section is based on legal opinion and information from Avanti that was provided to AMEC.

In a "Wrap Up Agreement" dated 29 September 2005 between CMC and ALI and Alumax Inc., ALI covenanted and agreed with CMC that it would not dispose of any of the leases, claims, or lands required for or associated with the completion of the work program, as defined in the Wrap Up Agreement, until the completion of the pit remediation and reclamation work program. This program was completed in 2006.

There is a trust indenture between Bell and The Canada Trust Company (Canada Trust) dated 1 July 1980. The trust indenture is a charge over the rights of Bell to receive the royalty payable by CMC to Bell on the Bell Moly claims. Legal opinion provided to AMEC indicates that Canada Trust can enforce the charge on Bell by default, and includes corporate dissolution. Additional information would be required to determine whether the charge has expired, been satisfied, or enforced.

The leases and claims in Appendix A are subject to the following encumbrances:

- RCF June 2012 Debenture; July 2013 Debenture and December 2013 Debenture: RCA IV GP LLC, as the general partner of and for the partners of RCF, holds a security interest over 199 claims and 35 leases, including rights, titles, and interests acquired afterwards by Avanti; the 2012 and July 2013 Debentures were not specifically registered against tenure #1021835
- RCF and Avanti Mining Inc. General Security Agreement: RCF holds a security interest in all presently existing, and after-acquired, tangible and intangible personal property and assets of Avanti Mining Inc, including a floating charge on Avanti Mining Inc's real property, and all minerals and mineral rights associated
- RCF and Avanti Kitsault Mine Ltd General Security Agreement: RCF holds a security interest in all presently existing, and after-acquired, tangible and intangible personal property and assets of Avanti Kitsault Mine Ltd, including a floating charge on Avanti Kitsault Mine Ltd's real property, and all minerals and mineral rights associated
- RCF Release: a release and discharge filed in respect of the 2008 Debenture, 2011 Debenture and April 2012 Supplementary Debenture.

4.7 Permits

Mining projects in British Columbia require numerous Provincial and Federal permits, approvals, licenses, and authorizations. Avanti holds some permits, related to previous mining activities, and will need to apply for additional permits prior to any mining recommencement.

Permitting for the Project is discussed in detail in Section 20.

4.8 Environment

The environmental permitting path for the Project is outlined in Section 20.

4.9 Social Issues

Community and social relations with other surface rights holders and First Nations peoples are discussed in Section 20.

4.10 Comment on Section 4

In the opinion of the QPs, the information discussed in this section supports the declaration of Mineral Resources and Mineral Reserves, based on the following:

- Legal opinion provided to AMEC supports that Avanti holds 100% of the Project
- Information from legal experts supports that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources and Mineral Reserves
- Avanti advised AMEC that Avanti holds sufficient surface rights or has applied for such rights in the Project area to support the mining operations
- Three permits were acquired with the Project from ALI, a remediation permit, a forest roads access permit, and a special usage permit. These support reclamation monitoring activities. Reclamation of the 1980s mining operation was completed in 2006
- Avanti will need to apply for additional permits as appropriate under local, Provincial, and Federal laws to allow mining operations
- A conditional Environmental Assessment certificate was granted the Project on 19 March 2013
- At the effective date of this Report, the major environmental liabilities from previous activities consist of monitoring activities related to the completed site remediation of the Kitsault mine
- All Avanti drill sites were reclaimed on completion of the drill hole
- Closure provisions for the planned mining operation are considered in the mine plan and are preliminary in nature
- To the extent known, Avanti advised AMEC that there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Access

A series of Forest Service roads and a private gravel road connect the proposed mine site to Nass Camp, on the Nisga'a Highway, 120 km north of Terrace, BC. This road is approximately 83 km long and parallels the power line from the BC Hydro New Aiyansh substation. Avanti owns Special Use Permit (SUP) 09228 for the private section of this road and has road use permits for the public sections. The feasibility study envisages that the road will be upgraded and maintained regularly for use as the main access road to site.

The Project may be accessed by floatplane or boat from Prince Rupert, BC.

The road access from the Kitsault town site is covered by a statutory right-of-way held by Avanti, which allows the company to use the roads within the town of Kitsault for mine-related activities. Litigation that was launched on 16 September, 2008 by Kitsault Resort Ltd. (KRL), the owner of the town of Kitsault, in relation to the right-of-way was resolved in favour of Avanti on 24 August 2010.

Access to the Bell Moly portion of the property is by all-terrain vehicle over primitive trails. Access to Roundy Creek is by gravel road to within a few hundred metres of the adits and then by foot.

The mine site will also need a network of general vehicle access roads around facilities, service roads to remote structures, and haul roads.

Barge facilities for offloading equipment, aggregate, and other supplies were constructed during previous mining developments. No new barge-loading facilities or use of the existing facilities are currently planned; however, this may represent a future option.

5.2 Climate

The Kitsault Project is in a temperate coastal area. January is the coldest month, with a mean monthly average temperature of -6.1°C, the coldest temperature being -27°C; the warmest month is July with a mean monthly average temperature of 11.3°C, the warmest temperature being 26°C.

Average total rainfall is 890 mm per year, and average total snowfall is about 11,080 cm per year. Converting the snowfall into snow–water equivalent depth, the average total precipitation including rainfall and snowfall is about 2,000 mm per year. The compact snow pack may be in excess of 4 m.

Although exploration activities can be curtailed by snowfall, the former mining operations ran year round. The projected mining operation is also expected to be able to be conducted on a year-round basis with appropriate management and control of high-snowfall events.

5.3 Local Resources and Infrastructure

The closest towns to the Project are the town of Kitsault, the hamlet of Alice Arm, on the opposite side of the inlet from Kitsault, and Prince Rupert. The Project is relatively close to the town of Terrace, which can provide most services. Most of the necessary external infrastructure is already in place.

Part of the workforce will come from surrounding communities and the rest will commute weekly or bi-monthly from outside the immediate area.

The Kitsault mine site includes the Kitsault open pit, reclaimed mill foundations, and several mine dumps. During the most recent production period, CMC maintained the Kitsault town site for its employees. The town site was subsequently sold to a third-party and is not available to Avanti.

Additional information on Project infrastructure is discussed in Section 18.

5.4 Physiography

The Project is situated in hilly, plateau country that is dominated by thick stands of timber interspersed with small lakes, meadows, and swamps. Vegetation at the lower elevations consists of spruce and pine trees along with juniper bushes. At higher elevations, the property is essentially barren of vegetation.

The topography rises rapidly from the ocean at Alice Arm to an elevation of 600 m to 800 m at the plateau. The Kitsault and Bell Moly sites are on the plateau and the Roundy Creek site is midway up the elevation change from oceanfront to the plateau known as Widdzech Mountain, where the new plant site is proposed to be located.

The dominant topographic features are a series of eroded basaltic lava flows that commonly form cliffs up to 100 m high. Bedrock is generally blanketed by a few metres of glacial till and is commonly overlain by a layer of peat bog up to 1 m thick. Outcrop in this area, except for the basalt cliffs, averages less than 1%.

The mine site is drained by Patsy and Lime Creeks. Patsy Creek flows into Lime Creek in the vicinity of the former mill site, then runs steeply down toward the Kitsault townsite, entering the ocean just to the southwest.

Regional hydrology data indicate an annual hydrograph with a maximum monthly discharge in May, caused by snowmelt, declining average flows to August, and a secondary peak in October in response to rainfall.

5.5 Seismicity

The Kitsault Project site is situated in a region of low seismic hazard. To provide seismic ground motion parameters for the project site a probabilistic seismic hazard analysis has been carried out using the database of Natural Resources Canada (NRC). For dam structures it is recommended that the mean peak ground acceleration be used for design (CDA Dam Safety Guidelines, 2007). The mean peak ground acceleration is typically approximately 15% to 20% greater than the median value. For a return period of 475 years (10% probability of exceedance in 50 years), the corresponding peak acceleration is only 0.08 *g*, confirming a low seismic hazard for the site.

5.6 Comment on Section 5

In the opinion of the QPs:

- There is sufficient suitable land available within the mineral tenure held by Avanti for any future tailings disposal, mine waste disposal, and installations such as a process plant and related mine infrastructure.
- A review of the existing and likely power and water sources, manpower availability, and transport options indicate that there are reasonable expectations that sufficient labour and infrastructure is available or under construction to support declaration of Mineral Resources, Mineral Reserves, and the proposed mine plan.

6.0 HISTORY

The first recorded mining or exploration activity in the Project area was in 1911, when exposures of silver-bearing polymetallic veins were staked southeast of the Kitsault molybdenum deposit. The first recognition of molybdenite-bearing exposures in the Project was in 1916, along Lime Creek (Woodcock and Carter, 1976; Turnbull, 1916).

A small quantity of molybdenite was produced from the Alice Arm area during World War I; however these excavations are outside the Project area.

In 1956, Kennco Explorations (Western) Ltd. (KEL) evaluated the Lime Creek molybdenum deposit (now the Kitsault molybdenum deposit), and optioned the property in 1957. Drilling commenced in 1959, and a first-time mineral resource estimate was prepared in 1964. Open pit mining commenced in 1968 under the KEL subsidiary company B.C. Molybdenum (BC Moly), and continued to 1972, when low molybdenum prices forced closure. During that period, about 9.3 Mt of ore was produced, with about 22.9 Mlb of molybdenum recovered (Hodgson, 1995).

Climax Molybdenum Company of British Columbia (CMC) purchased the deposit from KEL in 1973. Additional drilling was completed, and mineral resources updated. In 1979, the property title was transferred to Amax of Canada Limited (Amax). Amax conducted engineering studies, and constructed the town of Kitsault. Production recommenced in April 1981, but due to low metal prices, was suspended in November 1982. During this second production period, about 4.08 Mt of ore and stockpile material were processed and 8.99 Mlb of saleable molybdenum were recovered (Amax, 1982; 1983).

The Bell Moly deposit was discovered in 1965 when Mastodon Highland Bell Mines, Ltd. and Leitch Gold Mines identified anomalous molybdenum values from geochemical sampling. Staking followed, and subsequent exploration funding requirements saw the two companies amalgamate as Bell Molybdenum Mines, Ltd. (Bell). Work completed by the end of 1975 comprised drilling and mineral resource estimation (Carter, 1967; Steininger and Card, 1979). CMC optioned the deposit area in 1975, and conducted drilling programs from 1976 to 1977, which supported an updated mineral resource estimate (Steininger and Card, 1979).

Molybdenite was first identified at Roundy Creek in the early 1900s. The principal exploration program was in the period 1965 to 1971 when Sileurian Chieftain Mining Company Limited (SCMCL) undertook core drilling, underground development, and a mineral resource estimate. CMC subsequently acquired the property in 1975.

The three properties were transferred to the Alumax aluminum division of Amax. In late 1993, Amax merged with Cyprus Minerals, and as part of the merger the Alumax division was spun off to the Amax shareholders. The Kitsault molybdenum deposits were included in the Alumax divestment (Alumax, 1996). Alcoa, Inc. (Alcoa) purchased Alumax in 1998, and transferred the Kitsault molybdenum deposits to its subsidiary, Aluminerie Lauralco, Inc. (ALI).

From closure in 1982 to 1995, Amax, its subsequent successor, Phelps Dodge Corporation (Phelps Dodge) and CMC managed maintenance of the town site and reclamation under a joint management agreement. Mine reclamation commenced in 1996 and was completed in 2006, at which point the project title was transferred 100% to ALI. The Kitsault town site was purchased by a third-party, Kitsault Resort Ltd., in 2006.

Avanti acquired the Project in 2008. Since that date, work has comprised drilling, including confirmation and condemnation drill holes, evaluation and interpretation of legacy data, engineering and metallurgical studies, mineral resource and mineral reserve estimates. A preliminary assessment was completed in 2008; the results indicated that more detailed studies were supported. In 2009, a pre-feasibility study (PFS) that envisaged a conventional open pit mining operation and process route, producing molybdenum concentrates was completed. Under the assumptions reported in the PFS, the project showed positive economics, and a feasibility study was commissioned.

The initial feasibility study (2010 Feasibility Study) was completed in late 2010. The study envisaged a conventional truck and shovel open pit mining operation, with 40,000 t/d of molybdenite-bearing ore treated through a conventional crush-float circuit to produce molybdenum concentrate that would be roasted off-site. The total estimated capital cost of the Project in Q3 2010 Canadian dollars was $837 million. Under the assumptions in the 2010 Feasibility Study, the Project continued to show positive economics.

In 2012, as a result of escalating capital and operating costs for projects globally, an update to the 2010 Feasibility Study was commissioned (2012 Feasibility Study Update) by essentially applying an escalation factor to the 2010 costs. The only major design change was the addition of a silver circuit to the process plant. The total estimated capital cost of the project in Q4 2012 Canadian dollars was $938 million. Under the assumptions in the 2012 Feasibility Study Update, the Project also showed positive economics.

Mineral Resource estimates for the Kitsault, Roundy Creek and Bell Moly deposits were updated in 2012 during the 2012 Feasibility Study Update, and remain current for this Report.

Early in 2013, Avanti engaged a group of engineering and consultancy firms including Whittle Consulting, Ausenco, AMEC, SRK and Knight Piésold to further optimize the Project through an enterprise optimization study and a value engineering study.

The enterprise optimization study resulted in the development of a grind–throughput–recovery model which reflects the response on metallurgical recoveries and mill throughput to a variable grinding approach for the different rock types of the deposit. The study complemented the grind–throughput–recovery model with the simultaneous optimization of pit phase selection, bench mining sequence, cut-off grade and stockpile management to provide an improved net present value for the project.

The value engineering study involved a critical review of the major project facilities to optimize the designs and approach to construction. The design changes include reducing facility footprints by consolidating the process plant and service functions in logical areas, integrating the use of smaller construction and permanent camps for the entire construction phase, optimizing layouts and lineal routings to reduce earthworks requirements, and reviewing the types of materials used in the architectural components.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

Information on the regional geological setting of the Project is primarily based on work by Carter (1981).

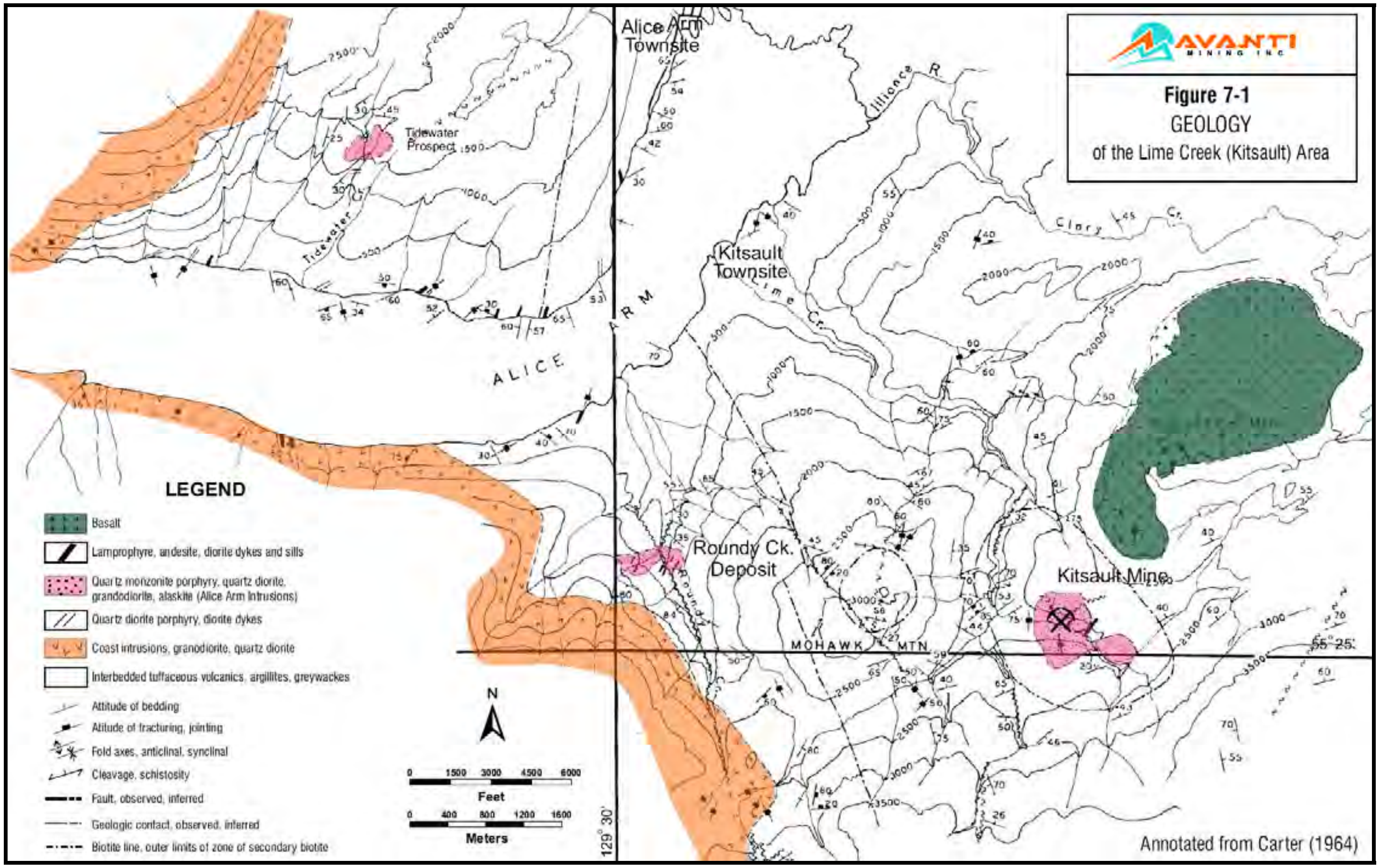
The deposits are hosted within the Intermontane Tectonic Belt of the Canadian Cordillera along its contact with the Coast Range Crystalline Complex. The Intermontane Tectonic Belt is an assemblage of accreted sedimentary and island arc terranes that docked against the North American craton in the Early to Middle Jurassic. The Coast Range Crystalline Complex intrusive rocks range in composition from granodiorite to quartz monzonite and have an age span from Late Jurassic to early Tertiary. Overlying both the Intermontane Tectonic Belt and the Coast Range Crystalline Complex are the eroded remnants of more recent plateau-type lava flows. Figure 7-1 presents an overview of the geology of the general area, adapted from Carter (1964).

In the general Project area, the primary sedimentary lithologies within the Intermontane Tectonic Belt are the Lower to Middle Jurassic Hazelton Formation and Upper Jurassic Bowser Lake Group. The Hazelton Formation consists of volcanic breccias, tuff, conglomerate, volcaniclastic sedimentary rocks, and andesite flows, all metamorphosed to greenschist facies. The Bowser Lake Group consists of interbedded greywacke and argillite with minor conglomerate and limestone metamorphosed to greenschist facies.

The Coast Range Crystalline Complex is represented by 50 Ma to 55 Ma granodiorite to quartz monzonite stocks in the Project area; this suite is informally referred to as the “Alice Arm intrusives”. Many of the Alice Arm intrusive bodies are loci for molybdenum mineralization, including at Kitsault, Roundy Creek, Bell Moly, Tidewater, and Ajax.

Following the emplacement of the Alice Arm intrusive suite and related molybdenum mineralization, a swarm of c. 34–36 Ma, northeast-striking, lamprophyre dikes was intruded into the Bowser Lake Group and Alice Arm Intrusives. The youngest igneous event comprises c. 0.62–1.6 Ma basaltic plateau-type flows and related vesicular basaltic dikes. The entire area was exposed to glaciation, the majority of which occurred after the last igneous event.

Figure 7-1: General Project Geology Plan



Note: Figure courtesy Avanti, 2010.

7.2 Project Geology

The Bowser Lake Group in the Project area consists of regionally- and thermally-metamorphosed interbedded argillite and greywacke. These lithologies were intruded by the Early Tertiary Lime Creek Intrusive Complex, the Clary Creek stock, and the Roundy Creek intrusive complex.

Intrusive rocks associated with molybdenum mineralization at Kitsault, Bell Moly, and Roundy Creek are multiphase diorite, quartz monzonite, and younger felsic units. Surrounding the intrusive rocks are hornfels aureoles. Cross-cutting relationships within the intrusive suites indicate that molybdenum mineralization at all three deposits is the result of multiple mineralizing events.

Away from the Kitsault open pit and the adits at Roundy Creek, surface rock exposures are limited, as the area is covered by soil, swamp, glacial till, and in places basalt flows. The primary source of geological data is drill core.

The regional metamorphism reached greenschist facies. Superimposed on this is the hornfels from the Alice Arm intrusions. Avanti and earlier workers have concluded that the absence of any well-developed skarn in the hornfels indicates that no significant calcareous units were present in the Bowser Lake Group sediments adjacent to the Kitsault deposit.

7.3 Deposits

7.3.1 Kitsault

Lithologies

Originally, the stocks in the Kitsault mine area, from oldest to youngest intrusive phase, had been defined as (Woodcock, 1964; Carter, 1964; Steininger, 1978, 1985):

- East Lobe: the oldest intrusive phase; poorly exposed. Now covered by mine dumps
- Border Stock: medium-grained and equigranular quartz diorite or diorite. Locally displays a distinct foliation defined by the alignment of abundant biotite
- Southern Stock: quartz monzonite. The probable contact of the Central and Southern Stocks, at the surface south of Patsy Creek, is marked by extensive development of secondary K-feldspar alteration

- Central Stock: A variably porphyritic quartz monzonite porphyry that hosts the bulk of the molybdenum mineralization
- Northeast Porphyry: quartz monzonite porphyry
- Intramineral porphyry dikes: possibly related to the Northeast Porphyry intrusion.

The molybdenum mineralization was interpreted to form a hollow, steeply dipping, annular, cylindrical shape that is well-developed on three sides of the margins of the central Lime Creek Intrusive Complex (Figure 7-2).

The exterior of this annulus was localized within, along, and slightly exterior to, the contact with the hornfelsed Bowser Lake Group sediments. Interior to the annular and cylindrical molybdenite mineralization, a barren core was interpreted. The south side of the intrusive complex was in contact with another, largely unmapped, intrusive body, and in this area, the exterior boundary of the annular and hollow cylinder was less well constrained by drilling and may have extended across the intrusive contact.

The interpretations have subsequently been refined, based on the additional drilling completed by Avanti.

Figure 7-3 shows a surface projection of the geological interpretation for the former CMC open pit, based on a combination of a 1970 bench mapping exercise, and drill core from 2008–2011. Figure 7-4 shows the geological interpretation at the 450 m elevation by comparison.

The host units to the intrusions are argillites and greywackes of the Bower Lake Group. In the CMC pit area, the sediments have a general N25°–45°E strike and northwesterly dip angles of 20°–60°. These trends indicate that the Lime Creek Intrusive Complex is largely discordant to bedding in the sediments.

Regional metamorphism comprises chlorite–sericite–epidote–albite greenschist facies metamorphism. Sediments are thermally altered for distances of as much as 750 m from the intrusive contacts, producing hornfels aureoles. The hornfels zones typically display an outer, weakly-developed albite–epidote facies, a central, pale-brown, biotite zone, and an inner, brown, biotite zone (Kamilli, 1977). The biotite hornfels zones locally contain small veinlets of epidote and clots of andradite garnet.

The largest intrusive stock, and the main mineralization host, is the Central Stock, located north of Patsy Creek. It is a variably porphyritic and seriate quartz monzonite, primarily composed of feldspar, quartz, and biotite. It has been divided into three major phases, these are, from oldest to youngest, quartz diorite, QMP-I, and QMP-II.

Figure 7-2: Early Geological Interpretation of the Kitsault Deposit, after Carter (1964)

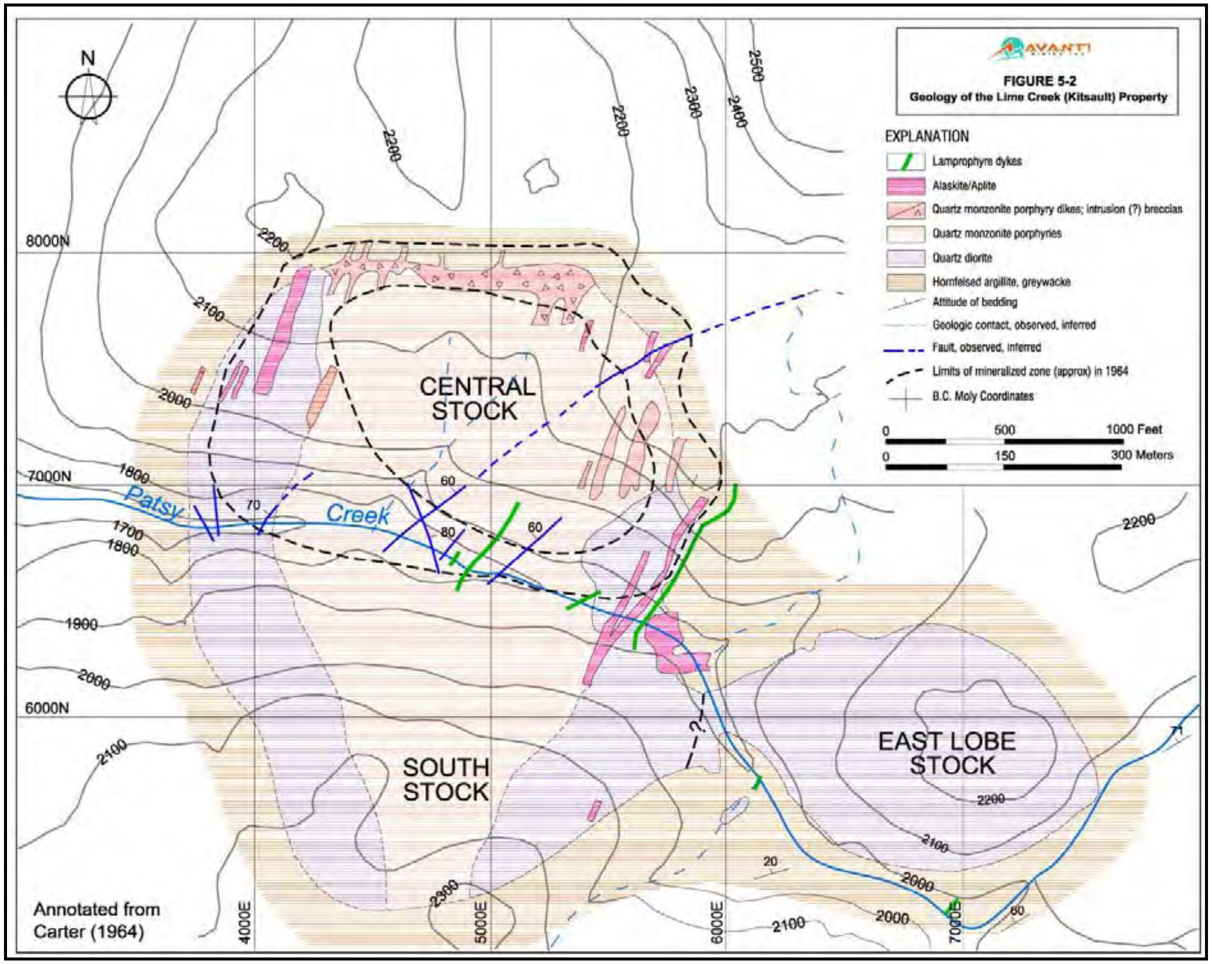


Figure courtesy Avanti, 2013

Figure 7-3: Surface Geological Projection Plan

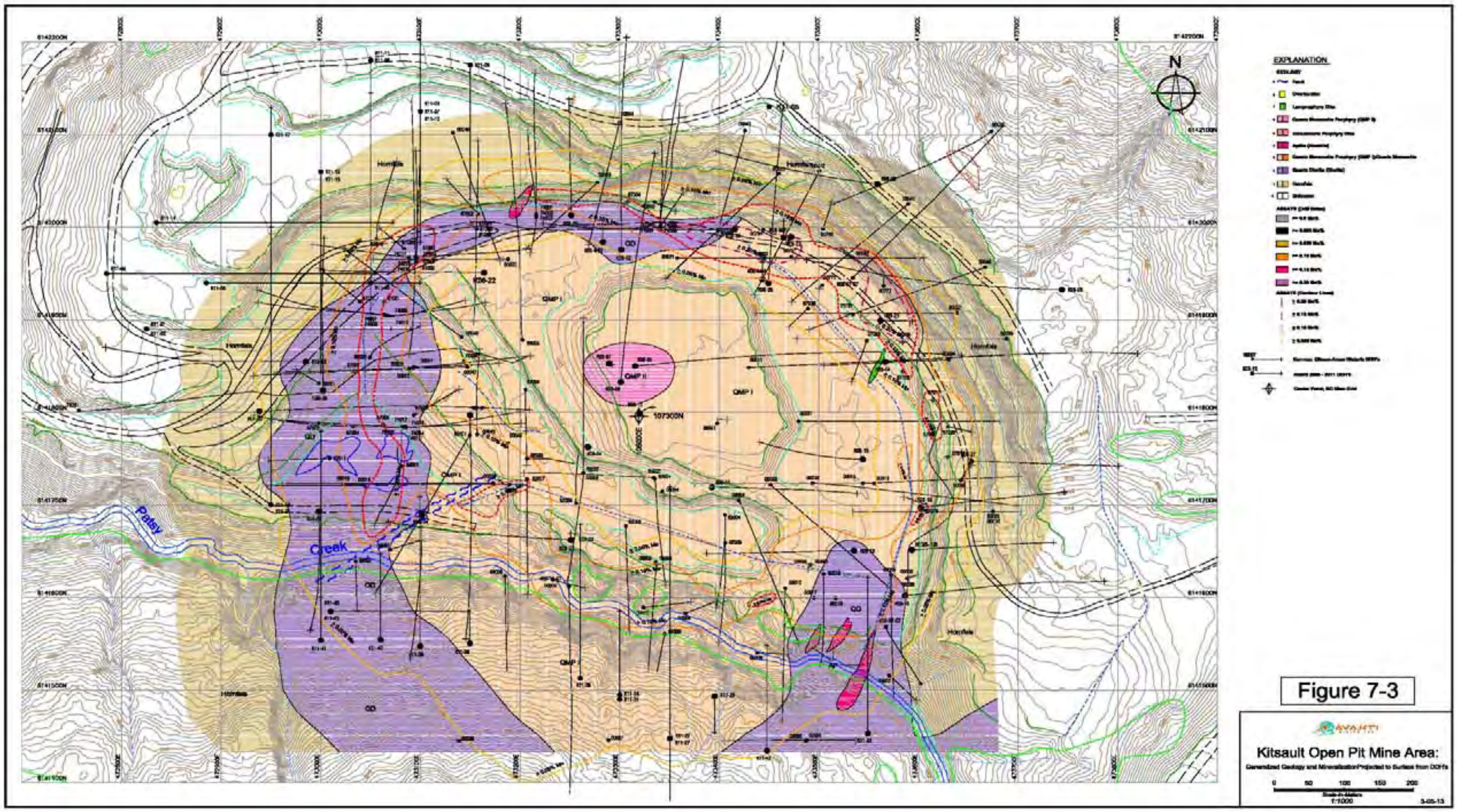


Figure courtesy Avanti, 2013

Figure 7-4: Geological Plan, 450 m Elevation

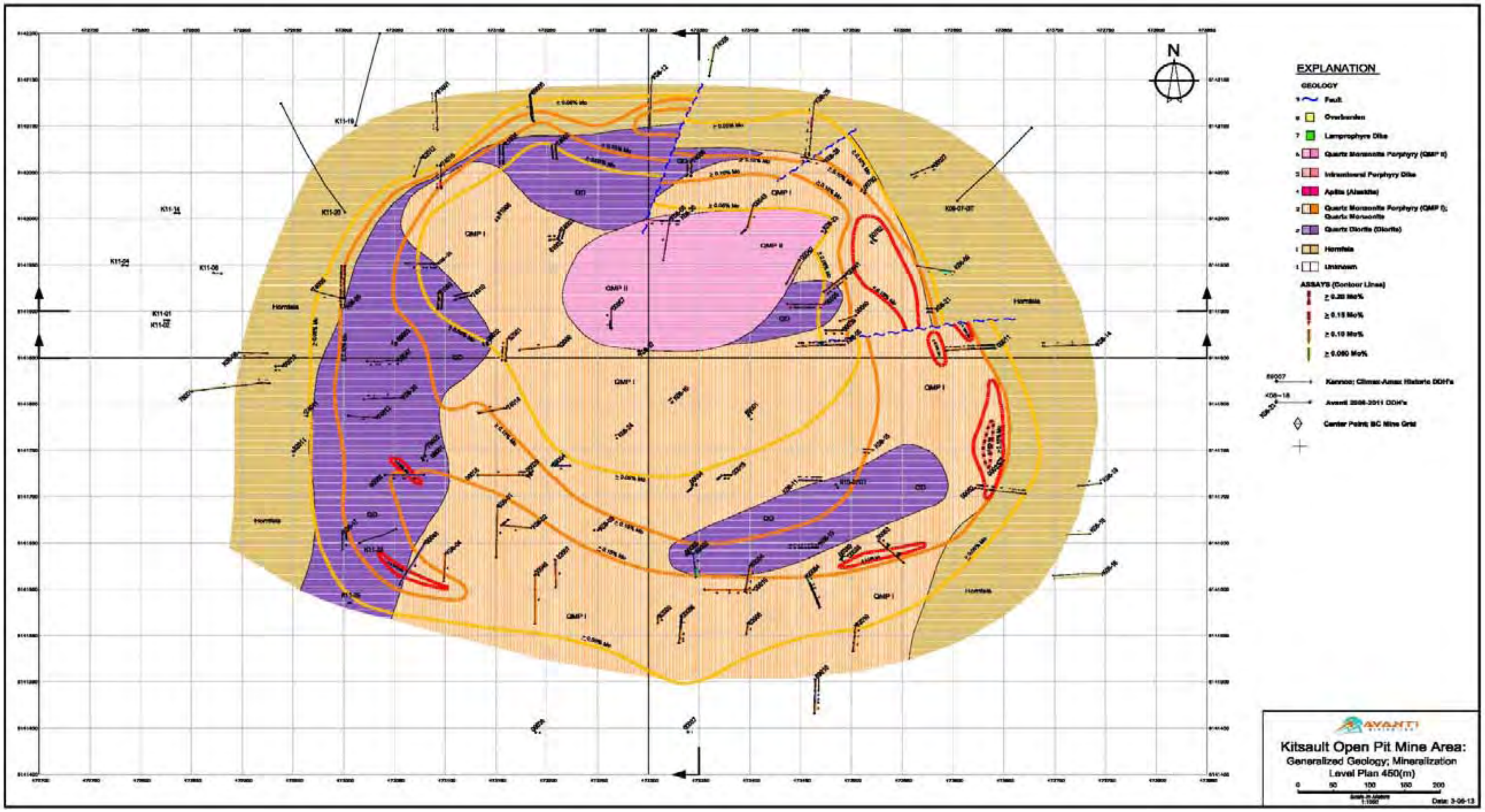


Figure courtesy Avanti, 2013

Quartz diorite is the oldest intrusive unit of the Lime Creek Intrusive Complex, and forms the western intrusive–hornfels contact. Contacts between the QMP-I and quartz diorite are typically obscured by alteration and mineralization, but at core scale, inclusions of quartz diorite were observed by Avanti within QMP-I. It is unclear from the core whether the quartz diorite is an early phase of the QMP-I or a distinctly separate intrusive phase; geological interpretations used for estimation purposes have treated the unit, however, as an earlier intrusive event. In this interpretation, the quartz diorite has been cut by the central QMP-I intrusive leaving screens or major inclusions within, and a rind of quartz diorite around, the main stock of QMP-I.

The QMP-I intrusion is pre- or syn-mineralization in age, and is generally equivalent to the well-mineralized Central Intrusive body identified by KEL and CMC. The stock is approximately 500 m wide at surface and on the 450 m level plan, and displays a plug-like morphology. The stock has steeply outward-dipping contacts with the enclosing, hornfelsed, Bowser Lake Group sediments at near-surface elevations. The flanking quartz diorite rim to the QMP-I skirts the hornfels contact along the west and north sides of the QMP-I stock; Avanti notes that it is more abundant in the subsurface along the eastern and southeastern contact than its surface distribution would suggest. The vertical extent of the QMP-I body is unknown. Historic drilling has generally tested this plug down to the 200 m elevation, and two drill holes have intersected mineralization within QMP-I to the 0 m elevation.

The QMP-II intrusion postdates all economic molybdenum mineralization and in part includes the historic Northeast Porphyry body. Where it carries >75 ppm Mo values, the mineralization is either due to the presence of late quartz–carbonate veins, or to very rare, isolated quartz–molybdenite veinlets. The QMP-II unit has a more obvious porphyritic appearance than QMP-I. QMP-II reaches the surface as a narrow, circular plug within the barren core, and broadens with depth towards the north and northeast.

The contact between QMP-I and QMP-ll is almost always obscured by strong silicification in core specimens. Avanti staff have noted that differentiation between the QMP-I and QMP-ll contacts in drill holes within the central area is more difficult to determine than in drill holes in the northeastern and northern parts of the complex.

Three dike phases are recognized by Avanti in addition to the porphyry phases:

- Aplite dikes: typically display 15–75 m, northerly trending strike lengths, and moderate widths of 3–15 mm, forming sheeted zones of dikes, sometimes with cumulative widths of 10 m or more. Aplite dikes commonly show gradations from a typical sucrosic texture to micro-pegmatitic textures and are generally spatially associated with the margins of the QMP_I stock. They cross-cut all rock types except for QMP-ll and have little spatial continuity. Aplite dikes can contain abundant disseminated molybdenite and pockets of high-grade clots of molybdenite as well as irregular quartz–molybdenite veinlets, which visually appear to originate from within the aplite bodies.

- Intramineral porphyry dikes: cut QMP-I. Radial dikes mapped by KEL on the open pit benches in 1970 may be the wider, high-level equivalents of the narrow intramineral porphyry dikes observed at depth in 2008–2011 drill core.
- Lamprophyre porphyry dikes: typically 1 m to 10 m wide, generally have a northerly or easterly strike direction and steeply dipping. Lamprophyre porphyry dikes are non-mineralized, are considered volumetrically insignificant, and tend to display poor continuity along strike and down dip.

Widespread structural breaks, generally marked by gouge-bearing fault zones from centimetres to less than a metre in width, are commonly observed in many of the 2008 drill holes. However, these fault zones are difficult to correlate between sections. Mapping in 2008 of the exposed pit walls indicated no major fault zones within the pit area.

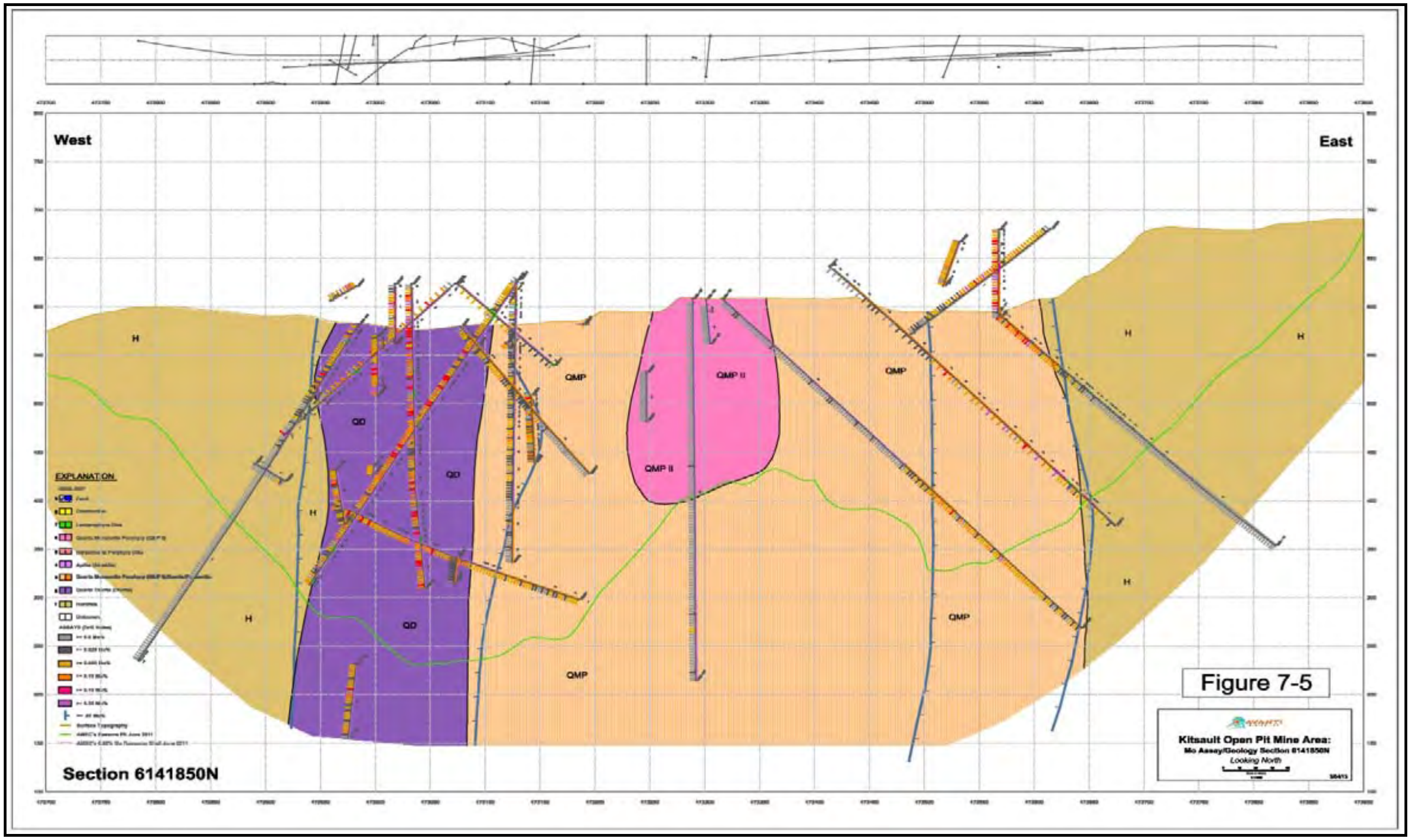
Geological sections through the Kitsault deposit showing examples of the different lithological units are presented in Figure 7-5, Figure 7-6, and Figure 7-7.

Metamorphism and Alteration

Four main alteration phases related to the plutonism and subsequent mineralization were recognized by KEL and Avanti staff. These are:

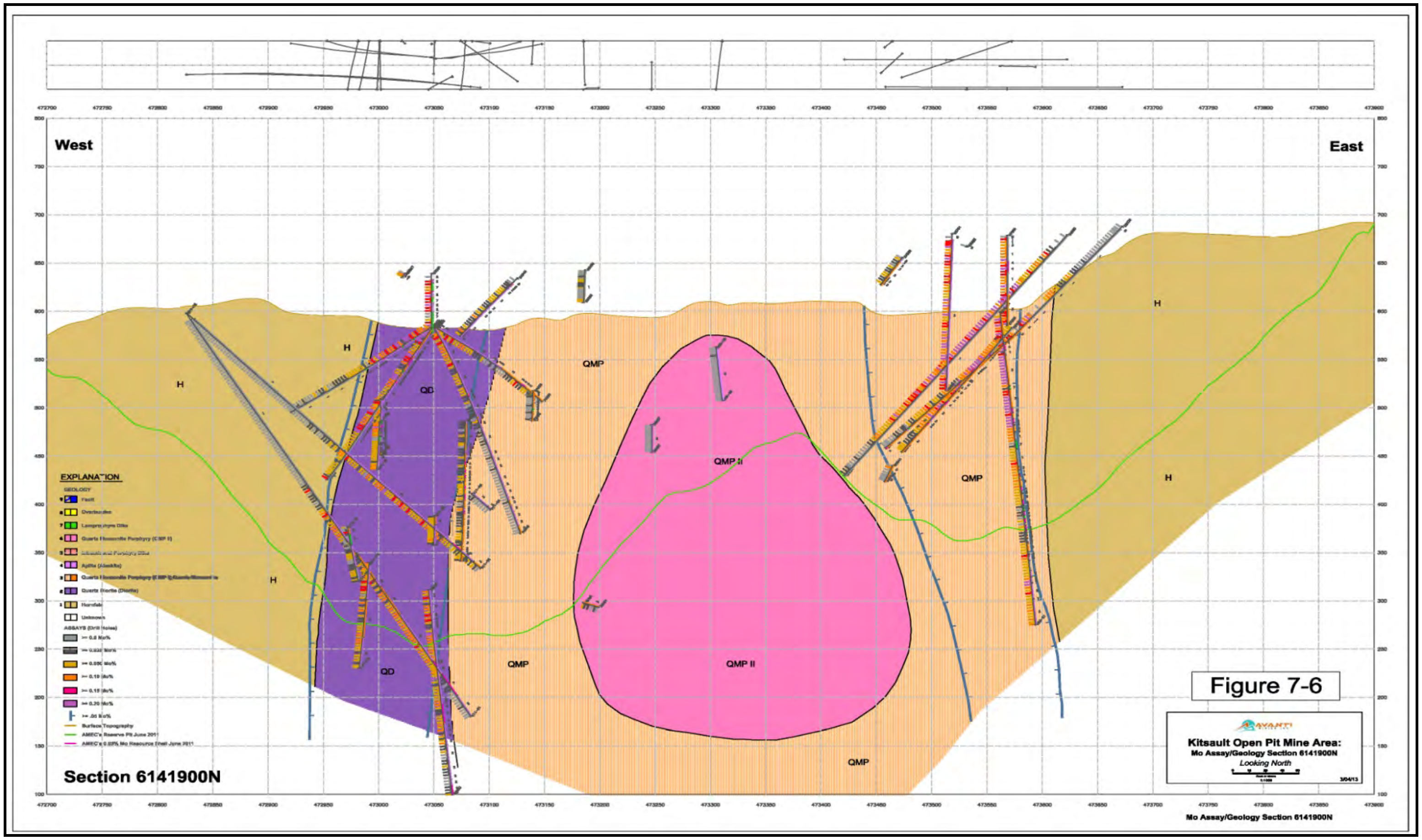
- Silica and potassium feldspar alteration: consists of 1–4 cm wide barren, grey to white quartz stockwork veins and associated pink K-feldspar stockwork veins and disseminations; cross-cut by molybdenite-bearing quartz veins.
- Phyllic alteration: extends outwards as a circular halo of pervasive quartz–sericite–pyrite alteration from the molybdenite stockwork zone to the contacts of QMP-I with the enclosing, hornfelsed, Bowser Lake Group sediments; occasional and poorly-developed envelopes of sericite can surround quartz–molybdenite–pyrite veins and veinlets.
- Pyrite alteration: erratically developed, and at the present land surface is missing from the east and north sides of the intrusive complex, but is moderately well developed within the QMP-I along the south side of the deposit where it is coincident with the inner annulus of the mineralized zone; pyrite alteration is best developed at the surface in the hornfelsed sediments along the west and northwest sides of the molybdenum mineralization where it overlies and is immediately outboard of the intrusive-sedimentary contact

Figure 7-5: Kitsault Geological Section 6141850N (looking north)



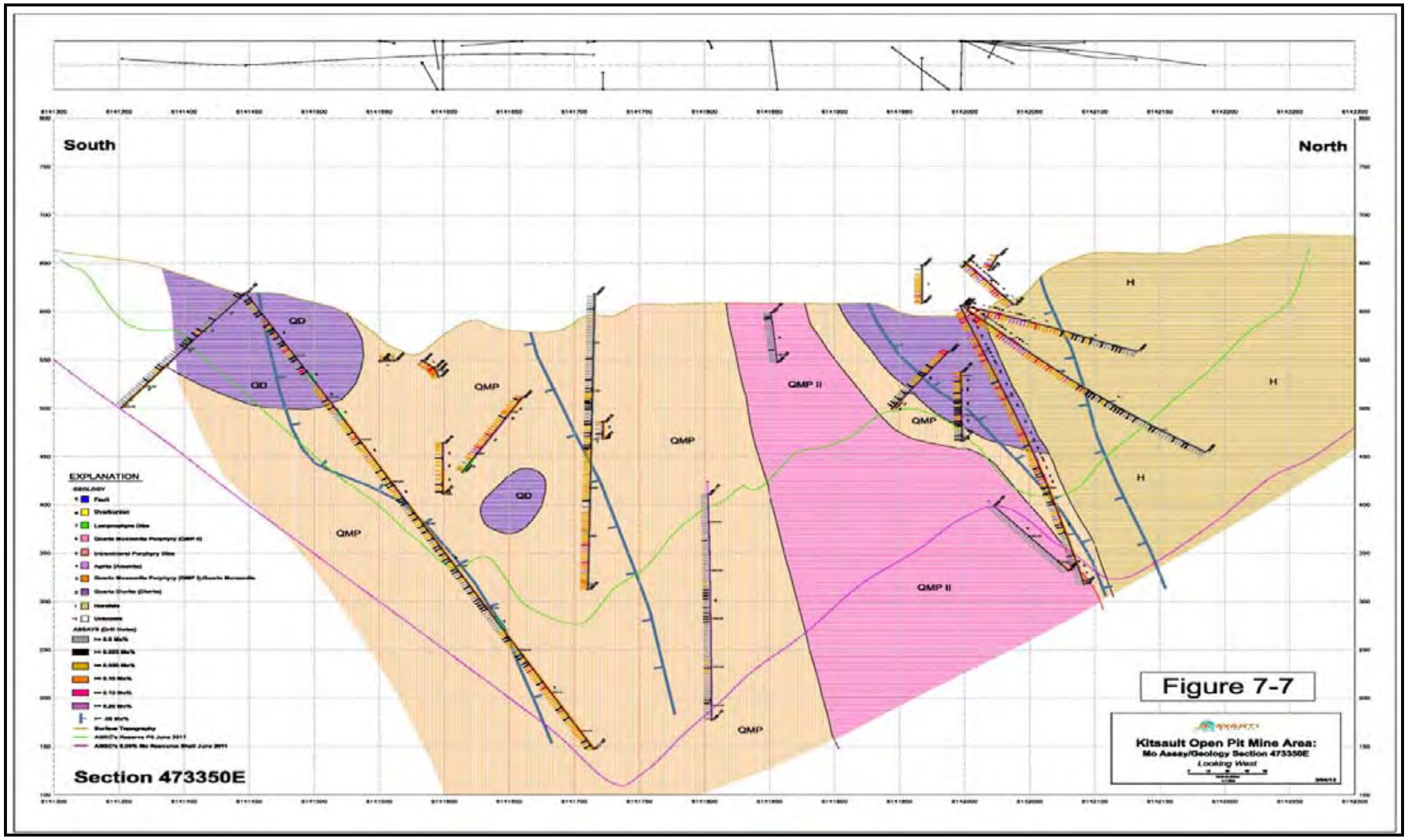
Note: Figure courtesy Avanti, 2013

Figure 7-6: Kitsault Geological Section 6141900N (looking north)



Note: Figure courtesy Avanti, 2013

Figure 7-7: Kitsault Geological Section 473350E (looking west)



Note: Figure courtesy Avanti, 2013

- Argillic alteration: forms a superimposed, roughly circular pattern, extending from the outer boundary of the deposit core to the contact of the QMP-I and/or quartz diorite intrusive rocks with the hornfelsed sediments; where well developed, kaolinite–illite completely replaces the primary plagioclase as well as some of the primary potassium feldspars.
- Calcic alteration: consists of pervasive, finely disseminated calcite and dolomite within the intrusive rocks.

Mineralization

Kitsault is a cylindrical deposit, dipping steeply to the north. Approximate dimensions are 700 m on the x-axis, and 600 m on the y-axis, with the “sides” of the cylinder ranging from 100 – 300 m wide; the z-axis has been defined to depths of 500 m below surface. The deposit remains open at depth. The southern margin and other local arcs such as the north and northwestern areas of the deposit require additional infill drilling.

A number of vein phases have been identified at the Kitsault deposit:

- 0.25 cm to 1.50 cm wide quartz–molybdenite veins and veinlets forming stockworks
- More widely-spaced, sub-parallel, 3–20 cm wide, sheeted, milky quartz veins containing fine-grained molybdenite. Veins have been termed “ribbon banded” quartz–molybdenite veins. These irregularly-developed, sheeted vein zones are best developed in close proximity to the aplite dikes. Where these veins are less than 1.5 cm wide, molybdenite is confined to vein borders. Where the veins are wider, there are multiple epitaxial bands of molybdenite within the quartz vein as well as on its margin.
- 0.50 to 2.0 cm pyrite veins containing subordinate molybdenite and trace amounts of quartz. The molybdenum contribution of this vein type, which is largely confined to the hornfels, is negligible
- Steeply-dipping, 4 cm to 1 m or more in width, quartz–carbonate veins that contain sphalerite, galena, chalcopyrite, a variety of Pb–Bi sulphosalt minerals (akinite, cosalite, and neyite) and occasional trace amounts of molybdenite. Best developed on the south side of the molybdenite zone. The quartz–carbonate veins that contain the Pb–Bi mineralization post-date the QMP-II intrusive. A few very rare and isolated quartz–molybdenite veinlets have been observed in the deeply-buried QMP-II intrusive.
- Rare to minor, violet-coloured, late-stage, anhydrite-bearing veins.

Molybdenum mineralization hosted in the stockwork and sheeted veins defines a hollow, cylindrical, and annular-shaped mineralized body, which follows the approximate contacts of the QMP-I and quartz diorite intrusions with the surrounding hornfelsed sediments. The body has widths from 100 m to 150 m on the east, west, and north sides, and a less well defined zone to the south, where it is at least 300 m wide and may extend to nearly the southern limits of drilling (refer to Figure 7-4).

In cross-section, the mineralized annulus displays variable widths at a 0.05% Mo grade cut-off and extends to at least the 200 m elevation (refer to Figure 7-5, Figure 7-6 and Figure 7-7). The carrot-shaped limbs of the cylindrical mineralization show a more or less vertical inclination in east–west view (refer to Figure 7-5 and Figure 7-6). The width of the eastern limb, at grades above 0.05% Mo, is about 175 m near the surface but thins substantially below the 400 m level. The width of the western limb is about 130 m and it persists at that width at depth.

Annular mineralization along the north side has a -70° northward dip in north–south view, and is confined largely within the intrusive complex (refer to Figure 7-7). In contrast, the southern limb is much wider and dips north at about -40° near the surface, steepening with depth (refer to Figure 7-7). Avanti has suggested that the steeply inclined northward dip of the annular cylinder on the north–south section may reflect the deposit being tilted to the north during post-mineralization deformation.

Disseminated, crystalline, fine-grained molybdenite is sporadically distributed within the groundmass of all pre-mineral rock types, but typically is most abundant in the aplite dikes.

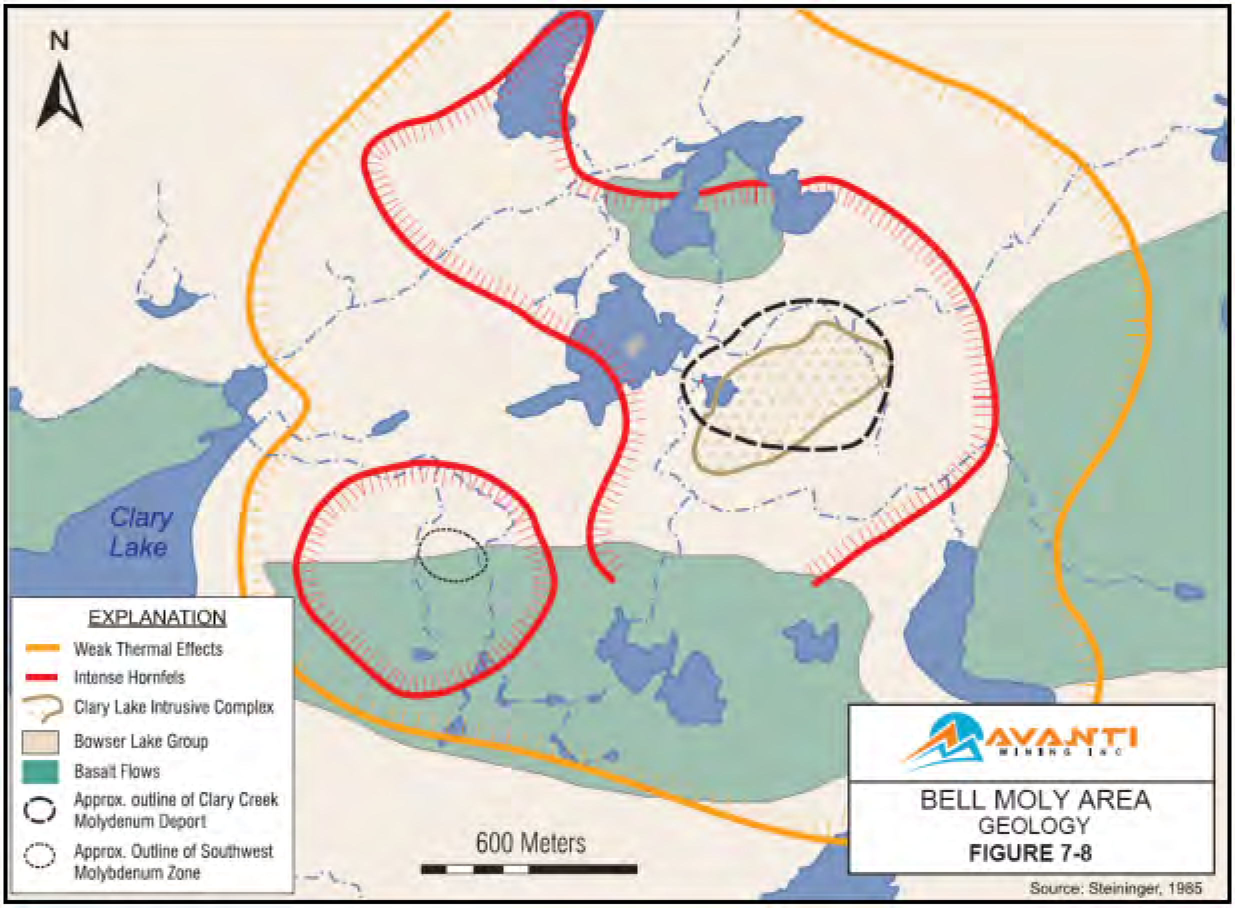
Systematic multi-element analyses show that background copper levels, outside of zones with abundant quartz-carbonate veins, are in the 20 to 50 ppm Cu range. Copper values in drill core, where late quartz-carbonate veining is abundant, are typically in the 50 to 250 ppm Cu range, with very rare instances where values exceed 1,000 ppm Cu.

7.3.2 Bell Moly

Lithologies

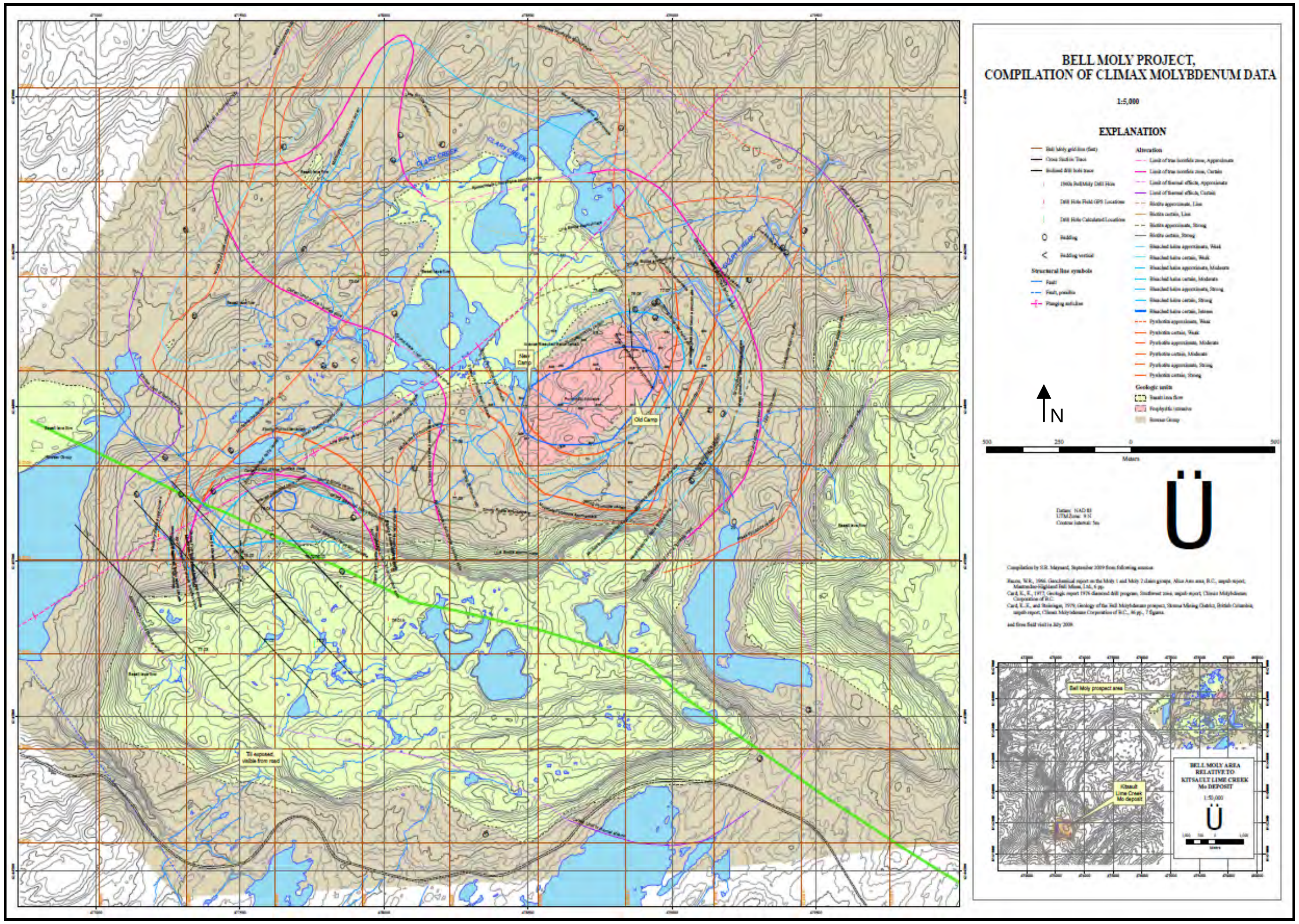
The Bell Moly deposit consists of molybdenum mineralization developed in two intrusive phases, the Southwest Zone intrusive, and the Clary Creek stock. A simplified version of the deposit geology is illustrated in plan view in Figure 7-8, while a detailed geological map created by Maynard (2010) is shown in Figure 7-8a.

Figure 7-8: Simplified Geological Plan, Bell Moly Deposit (after Steininger, 1985)



Note: Figure courtesy Avanti, 2013.

Figure 7-8a: Detailed Geological Plan, Bell Moly Deposit (Maynard, 2010)



Note: Figure from Maynard, 2010

The host unit to the intrusions is a massive to micro-greywacke, interbedded with minor black slate and argillaceous mudstone, which is ascribed to the Bower Lake Group. Intrusive activity produced extensive hornfelsing of the sedimentary rocks. Two separate zones of hornfels are known: one is closely associated with the Southwest Zone intrusion; the second, and larger, zone is associated with the Clary Creek stock. This hornfels extends significantly northwest of the Clary Creek stock, suggesting that additional intrusive rocks may be present at depth to the northwest.

The Clary Creek stock consists of at least five separate intrusive phases of generally quartz monzonitic composition, whereas the Southwest Zone is primarily a dike swarm apparently centered on a small stock, also of quartz monzonitic composition.

The Clary Creek stock is an east–west-elongated, elliptical mass, with surface dimensions of approximately 700 m x 300 m. There is a prominent hornfels roof pendant in the center of the stock.

Intrusive phases, from oldest to youngest, are:

- Quartz monzonite porphyry: displays a mafic-rich border approaching granodiorite in composition
- Alaskite dikes: intrude the center of the quartz monzonite porphyry
- Quartz-eye porphyry (first generation): primarily found in the southwestern part of the complex; dikes related to the body cross-cut both the alaskite dikes and the quartz monzonite porphyry
- Quartz-eye porphyry (second generation): dikes cut all of the older phases, but no central intrusive body related to these dikes has been identified to date
- Crowded porphyry: found in the southwestern part of the complex, and appears to postdate molybdenum mineralization.

The Southwest Zone is located about 1 km southwest of the Clary Creek stock. All of the intrusive units intersected by drilling are dikes, with the possible exception of a small stock encountered in one drill hole. Although these dikes have similar compositions, the varying age relationships with respect to mineralization suggest a continuum of intrusions throughout development of the molybdenum mineralization. All of the dikes are sufficiently altered to preclude determination of original composition, but appear to be similar to the rhyolitic quartz-eye porphyries of the Clary Creek stock.

Numerous mafic dikes intersected by core drilling are probably related to the regional but very young basaltic intrusive event. Core drilling indicates that lacustrine and glacial deposits lie below many of these basaltic flows, but on top of the Tertiary or Cretaceous bedrock.

Carter (1967) defined two ages of regional folding, the older with a north to northwest axis and the younger with an east–northeast axis. Faults, some hosting mafic dikes, are commonly oriented along the trend of the younger fold direction. In the immediate area of the Clary Creek stock and Southwest Zone, faults with north–northwest trends are widespread.

Metamorphism and Alteration

A biotite hornfels zone has been mapped to a distance of 365–400 m outward of the Clary Creek stock within the surrounding siltstones and greywackes. The hornfels zone can display minor pale green chlorite–sericite alteration marginal to fractures and quartz veinlets in the sediments, producing a bleached appearance in the rock. A poorly-developed zone of propylitic alteration is superimposed on the hornfels surrounding the molybdenum deposit.

There is a silicified zone underlying the molybdenum zone in the Clary Creek stock that grades upward into a zone of secondary potassic feldspar, which is more or less coincident with the molybdenum mineralization. In this area, the primary plagioclase has typically been altered to sericite and carbonate, and much of the secondary feldspar can only be observed at the microscopic scale. The original biotite has commonly been altered to sericite and chlorite.

Argillization is common outward from the molybdenum zone in areas where veining is less dense. It is more common in fault zones, together with chlorite-coated slip surfaces.

Mineralization and alteration associated with intrusive activity in the Southwest Zone are similar to those near the Clary Creek stock but less well understood.

Mineralization

The mineralization at Bell Moly is elongated in a northeast southwest direction and has approximate dimensions of 600 m in an northeast-southwest direction, 450 m in a northwest-southeast direction and 500 m vertically

Two zones of molybdenum mineralization are documented at the Bell Moly property, one closely associated with the Clary Creek stock, and the second associated with the Southwest Zone intrusion (refer to Figure 7-8).

Molybdenum occurs most commonly in quartz veinlets, which are up to 0.5 cm wide, and less commonly as disseminated grains in the intrusive rocks. Within quartz veins, molybdenite occurs in the following, in decreasing order of abundance:

- As selvages along vein borders
- In sub-parallel bands throughout the veins
- As finely divided crystals throughout the veins
- As hairline quartz–molybdenite veinlets
- As fracture coatings.

Wider-spaced, sheeted quartz–molybdenite veinlets are the most prevalent form of mineralization, with stockworks of quartz–molybdenum veinlets being less common. High-grade veins are abundant in the drill core in orientations that are sub-parallel to the core axis. Quartz–molybdenite vein distribution is erratic and results in assay values in drill core to vary from 0.03% Mo to 0.29% Mo in adjoining 3 m assay intervals.

There are at least four stages of quartz–molybdenite veinlets, from oldest to youngest:

- Up to 5 cm wide quartz–molybdenite veinlets, with bands and clots of pyrrhotite, pyrite, chalcopyrite, and minor molybdenite.
- Narrow veinlets with finely divided molybdenite grains. Stockworks and preferred orientations to the veinlets are common, and these veinlets are probably related to the first intrusive phase of the Clary Creek stock.
- Banded veinlets up to 1 cm wide. Older quartz-eye porphyry appears to have been the source for the third stage of quartz–molybdenite veinlets. These veinlets are commonly banded and up to 1 cm wide. The abundance of molybdenite in veinlets decrease with depth, and the veins converge into a silicified zone.
- Narrow quartz–molybdenite veins that cross-cut all of the earlier vein sets

Base metal sulphide-bearing quartz veinlets which cut molybdenum mineralization make up the last stage of mineralization.

Scheelite occurs in quartz veinlets that generally cross-cut molybdenite-bearing veinlets. Pyrrhotite is the most widespread and abundant sulphide in the deposit, occurring most commonly within hornfels surrounding the molybdenum zone. Pyrite is commonly associated with pyrrhotite, but has a reverse relationship, increasing in abundance toward the center of the molybdenum zone, while the pyrrhotite decreases in abundance in the same direction.

Disseminated pyrrhotite appears to have formed during hornfels alteration of the sediments. The oldest hydrothermal mineralization is related to quartz–albite–pyrrhotite veinlets that cross-cut and alter hornfels, but are in turn clearly cut by quartz–molybdenite veinlets.

7.3.3 Roundy Creek

Lithologies

Molybdenum mineralization at the Roundy Creek deposit is associated with a small composite quartz monzonite stock that is disrupted by faulting. The deposit geology as understood pre-Avanti is illustrated in Figure 7-9. Further mapping was undertaken in 2010 and 2011 (Maynard, 2010; 2011) resulting in the geological map shown in Figure 7-10. A detailed higher grade portion of the deposit is included in Figure 7-11 based on the same mapping program.

The host sediments are interpreted to be similar to those hosting the Kitsault deposit. They have been hornfelsed for a distance of about 60 m. The central intrusive phase has been mapped and logged as a leucocratic quartz phenocryst-bearing quartz monzonite porphyry, which is locally brecciated. Three intrusive phases to the porphyry have been recognised:

- A feldspar and biotite rich phase
- A quartz phenocryst rich phase ("crowded" quartz porphyry) with minor feldspar
- Uni-directional solidification (UST) textured (or "banded") phase

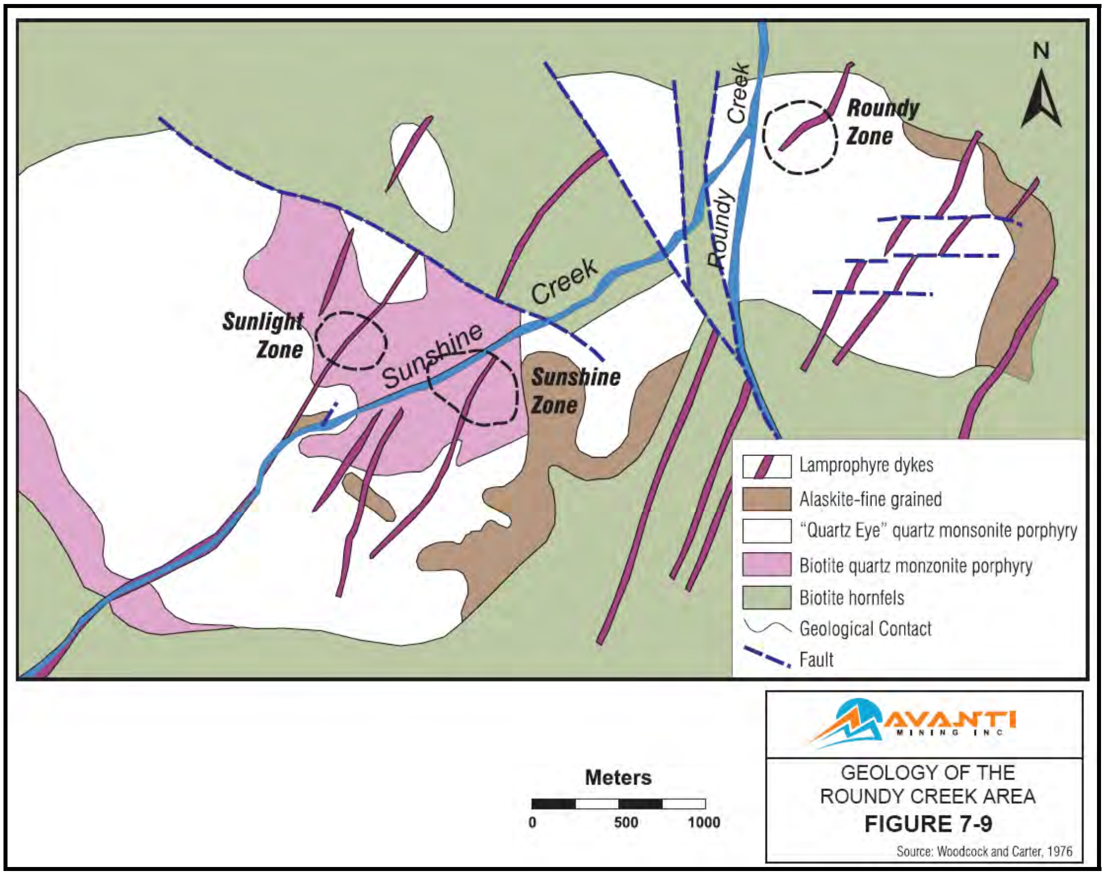
Other units, such as monzonite and diorite, have been reported, but are not known to form large, continuous bodies. Alaskite dikes cut all of the quartz monzonite bodies and in turn are cut by narrow dikes of light gray biotite–quartz monzonite. The last intrusive stage are a series of lamprophyre dikes with a general northeasterly strike, which cross-cut all other intrusive phases.

Metamorphism and Alteration

Sedimentary rocks have been metamorphosed in a zone, about 60 m wide, surrounding the intrusion.

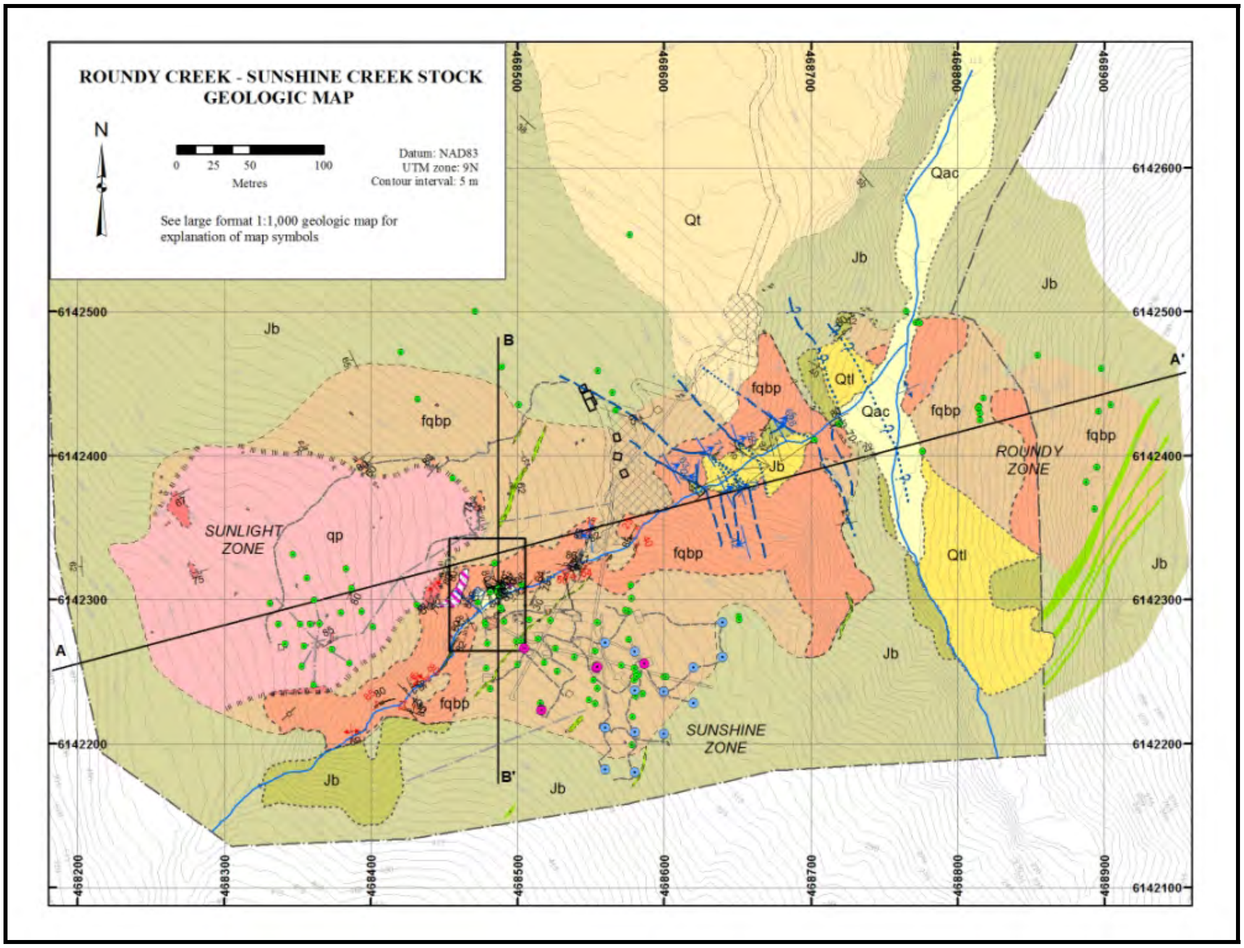
Alteration of the intrusive rocks consists of a potassic zone, best developed within and marginal to the better zones of molybdenum mineralization, and a zone of secondary biotite.

Figure 7-9: Geological Plan, Roundy Creek Deposit (after Woodcock and Carter, 1976)



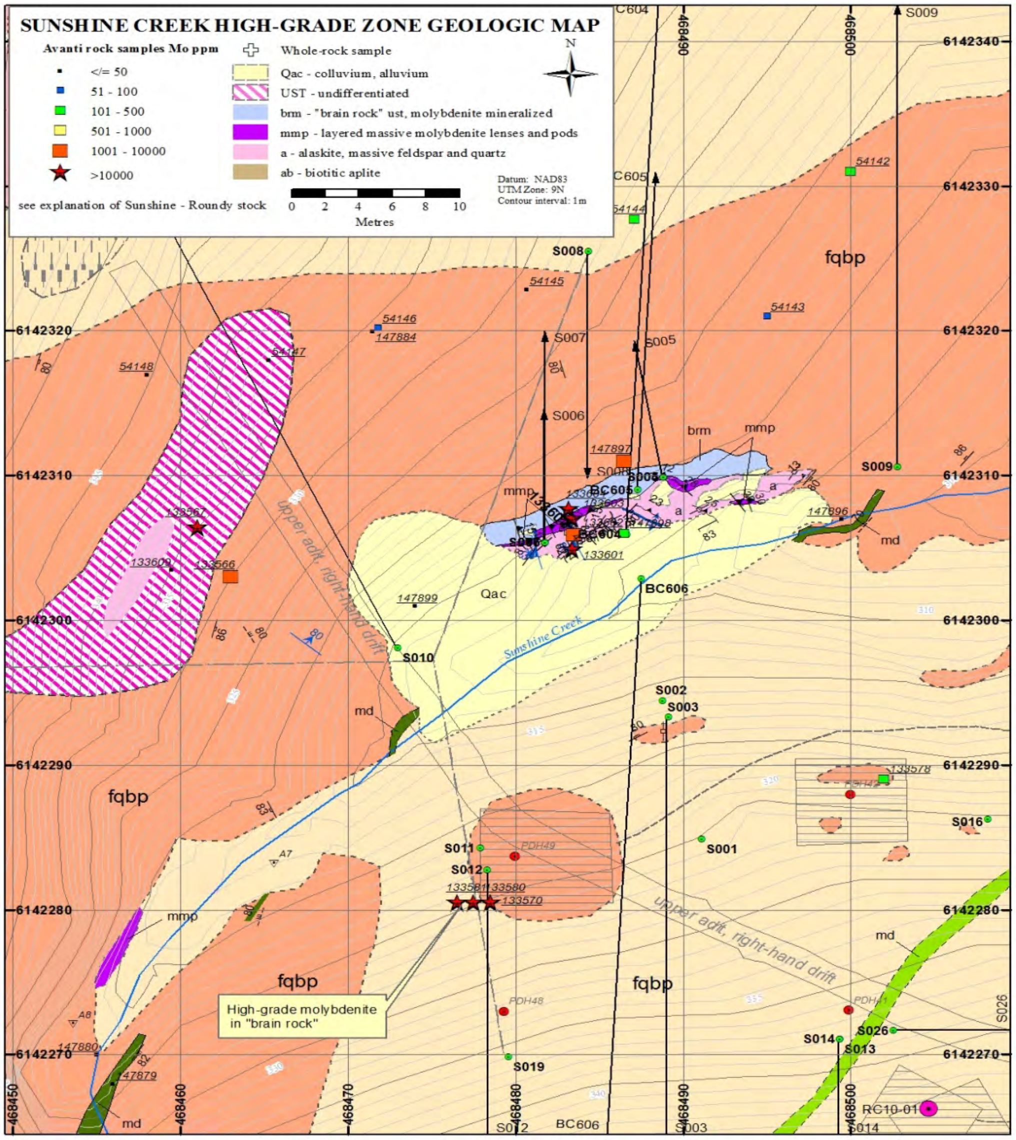
Note: Figure courtesy Avanti, 2013

Figure 7-10: Geological Map, Roundy Creek Deposit



Note: Figure from Maynard, 2011

Figure 7-11: Sunshine Creek, High Grade Zone



Note: Figure from Maynard, 2011

Selvage or pervasive silica alteration is common in zones of intense quartz veining. The potassic alteration occurs as fracture-coated planes, with abundant sericite and lesser biotite. The secondary biotite forms within fractures, and is primarily found peripheral to the main molybdenum-mineralized zones.

Mineralization

Three zones of molybdenum mineralization are observed at Roundy Creek (refer to Figure 7-9), developed in an eastern zone and two higher-grade zones in the western part of the intrusive complex (Carter, 1981). Most of the mineralization in the three zones is closely associated with the introduction of secondary potassium feldspar or biotite alteration.

The eastern, Roundy Zone, approximately 150 m x 150 m in plan, consists of quartz–molybdenite veins that commonly have random orientations and molybdenite paint on fracture surfaces, resulting in a more continuous but lower-grade mineralization than found in the other two zones. The eastern zone is defined by limited drilling and appears to be open at depth.

There are two higher-grade molybdenum zones in the western portion of the complex. The Sunlight Zone is roughly flat-lying and approximately 200 m (x) by 150 m (y). Higher-grade mineralization has been encountered to depths of approximately 100 m. Constraints on the deposit are poor to the north, south, west, and locally at depth. The Sunshine Zone as shown in Figure 7-11, is approximately 80 m (x) by 100 m (y) in plan, with the depth extent not well defined. Molybdenite in these zones occurs in the alaskite phase of the intrusive complex (Woodcock and Carter, 1976).

The eastern Sunshine Zone has been drilled and exposed in two adits at the 260 m and 320 m elevations. The deposit as outlined by the 0.06% Mo grade contour has a podiform shape and a continuous internal zone of 0.12% Mo.

Stockwork quartz–molybdenite mineralization forms the bulk of the Sunshine Zone, but there are two other notable styles of mineralization that result in several local high-grade (>0.5% Mo) zones that can attain widths of several metres within the deposit. Massive molybdenite pods or beds that are several centimetres in width, interspaced with layers of pure feldspar, have been found at surface and intersected in drill core. Unidirectional solidification textures composed of layers of quartz and heavily disseminated molybdenite, alternating with feldspar-rich layers, have been intersected by drill holes and the adit at 320 m elevation.

The western Sunlight Zone is smaller than the eastern Sunshine Zone, and is a lens-shaped zone, as defined by the 0.06% Mo contour. Within this contour are higher-grade intervals that can be as much as 3 m in thickness.

7.4 Comment on Section 7

In the opinion of the QPs, the knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization are sufficient to support Mineral Resource and Mineral Reserve estimation for the Kitsault deposit and can support mine planning.

Knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization are sufficient to support Mineral Resource estimation at the Bell Moly and Roundy Creek deposits.

8.0 DEPOSIT TYPES

The deposit model discussed below is based on research notes prepared by the United States Geological Survey (Ludington et al., 2009) and the BC government Mineral Deposits #L05 Profile for low fluorine porphyry molybdenum deposits (Sinclair, 1995).

The Alice Arm intrusive-hosted molybdenum deposits are part of a suite of porphyry molybdenum deposits in the North American cordillera that are classed as low-fluorine stockwork molybdenite deposits. Such deposits are closely related to porphyry copper deposits, having a similar tectonic setting (continental volcanic arc) and the petrology (calc-alkaline) of associated igneous rock types.

To date, the only confirmed deposit examples are found in western Canada and the northwestern United States. The reason for the limited distribution is currently not well understood: it may be a function of the major exploration efforts to date being concentrated in those localities.

Low-fluorine stockwork molybdenite deposits are defined as containing negligible copper (<100 ppm Cu in ore) and are not related to evolved, high-fluorine granites. Such deposits do not form in the same regions or tectonic environments as Climax-type porphyry molybdenite deposits, but form in the same regions and at the same times as subduction-related porphyry copper deposits.

Most deposits are either of Late Cretaceous (about 100–70 Ma) or early Tertiary (about 60–50 Ma) age, and were emplaced in continental magmatic arcs. Deposits are all post-accretionary and are not conspicuously aligned along upper crustal structures. Source plutons range from granodiorite to granite in composition; quartz monzonite is the most common, and is often porphyritic. Trace-element compositions, where determined, are consistent with plutons derived from typical, subduction-related, calc-alkaline rocks. Deposits commonly develop near the margins of the source plutons.

Although deposits typically do not form clusters, the Alice Arm deposits (Ajax, Tidewater, Bell, Kitsault, and Roundy Creek) are an important exception. Host rocks do not appear to be a primary mineralization control: deposits can develop in volcanic rocks associated with the primary plutonic activity or in much older country rocks.

Ore zones can be elliptical, circular, crescent-shaped, or annular in cross-section, and in vertical section, can be cylindrical, tabular, or irregular. Deposits can extend for several hundred metres in both lateral and vertical extent.

The primary sulphide mineral is molybdenite. Molybdenite-bearing quartz veinlets can contain small amounts of pyrite, and may also contain trace amounts of magnetite, scheelite, wolframite, galena, or sphalerite; chalcopyrite is rare. The veins may also contain K-feldspar ± biotite ± sericite ± clay minerals ± calcite ± anhydrite as gangue minerals. It is typical for such deposits to display contemporaneous formation of all the major ore and gangue minerals.

Peripheral polymetallic Ag–Pb–Zn veins are present at some deposits, but zonation within a single set of veins is not documented at any of the deposits. In addition to stockwork veinlet systems, larger veins, sets of veins, and ore-bearing breccias are sometimes present.

Alteration assemblages are similar to those found in porphyry copper deposits. In a typical deposit, a central zone of potassic (and sometimes silicic) alteration is characterized by quartz ± K-feldspar ± biotite ± anhydrite. Distal to the potassic zone, phyllic alteration can be present. The phyllic mineral assemblage is primarily quartz ± sericite ± carbonate minerals. Surrounding this may be a large propylitic zone of epidote + chlorite, which can extend for hundreds of metres, although this alteration can sometimes be difficult to distinguish from regional metamorphic assemblages. Argillic alteration, consisting of clay minerals such as kaolinite and montmorillonite, whereas not common, may also be present, most typically as an irregularly distributed overprint on earlier alteration zones.

Areas of potassic alteration closely mimic the ore zones, whereas the phyllic alteration zone may be somewhat larger, extending hundreds of metres away from ore. Almost all the known deposits cropped out on surface; as a result very little is known about the upper parts of the alteration systems. The propylitic zone may be much larger, perhaps kilometres in extent. Potassic alteration appears to occur in vein envelopes and becomes pervasive only where veins are closely spaced. Phyllic alteration, whereas still vein-controlled, may be more pervasive, as the alteration envelopes are generally wider.

8.1 Comment on Section 8

In the opinion of the QPs, features that classify the Kitsault, Roundy Creek and Bell Moly deposits as low-fluorine stockwork molybdenite deposits are:

- Location in the western Canadian cordillera
- Early Tertiary age

- Hosted in porphyritic quartz monzonite intrusions that are associated with a continental magmatic arc, and partly hosted in hornfelsed Bowser Basin sediments that are in contact with the intrusions
- Mineralization has a steeply-dipping, annular, cylindrical shape
- Mineralization primarily consists of quartz–molybdenite stockworks and lesser sheeted quartz–molybdenite veins
- Alteration associations typical of porphyry copper deposits, but very low-tenor copper values from drill core analyses
- Late-stage associated polymetallic base metal mineralization.

9.0 EXPLORATION

Exploration activities such as geological mapping and sampling have primarily been performed by predecessor companies to Avanti.

In 2010 and 2011 geological mapping programs were undertaken by S.R. Maynard on behalf of Avanti. The mapping programs included the Roundy Creek deposit, and Sunshine Creek zone at Roundy Creek.

KEL and CMC developed an extensive geological and geochemical database. With the exception of some historical digital assay and drill hole geologic data compiled by CMC in 1973 to 1979 and recovered by Avanti in 2008 from the Mintec consultants in Tucson, AZ, very little of the hard copy data relating to the Kitsault deposit has been recovered. Much of the original Kennecott data may reside in the KEL (now Rio Tinto) archives in Vancouver, BC.

Bell Moly and Roundy Creek data recovery is also limited to the records of SCMCL, Amax and CMC.

As a result, the key data for the Project are from published geological reports, and drill data. Avanti has completed an evaluation of the acquired legacy data, and has performed core drilling to provide additional lithological data and confirmation of historic analytical data. Re-sampling of drill core from Bell Moly that was completed in 2010 has been used to confirm historical data.

9.1 Grids and Surveys

Legacy exploration was undertaken on a mine grid utilising imperial units. All work by Avanti has been using NAD83 UTM Zone 9 metric coordinate system. The calculation for conversion to UTM is outlines in Section 11.7.

9.2 Geological Mapping

In September 2010 and July 2011, geological mapping was undertaken over the Roundy Creek deposit and included the Sunshine Creek zone. Geological maps were produced by Maynard on behalf of Avanti as seen in Figure 7-10 and 7-11. The first geological map of the Roundy Creek exploration area was produced by Hodder on behalf of AMAX in 1960, with further mapping undertaken by Kennecott Exploration in 1971.

9.3 Geochemical Sampling

To complement the 2010-2011 Roundy Creek geological mapping programs, geochemical samples were taken and sent for multi-element ICP analysis. 71 rock samples were taken in 2010, with a further 116 in 2011.

The first geochemical survey of the Roundy Creek exploration area was undertaken by Alrae Engineering on behalf of Sileurian Chieftan in 1966. Sileurian Chieftan conducted their own soil geochemical survey within the area in 1968.

9.4 Geophysics

In 1967 Bethex Exploration undertook an Inverse Polarization (IP) survey at Roundy Creek. There are no additional surveys currently known.

9.5 Pits and Trenches

Minor trenching was undertaken by G. Fiva at Roundy Creek between 1961 and 1964. There are no remaining data on these trenches.

9.6 Petrology, Mineralogy, and Research Studies

Mineralogical studies in support of understanding of deposit mineralogy have been completed at Roundy Creek.

9.7 Geotechnical and Hydrological Studies

Geotechnical information available for the Project is discussed in Sections 16 and 18.

9.8 Metallurgical Studies

Metallurgical studies performed in support of Project development activities are included in Section 13.

9.9 Exploration Potential

9.9.1 Kitsault

The general lateral and vertical extents of the Kitsault deposit were largely but not completely defined by the 2008–2011 drill programs, and the potential exists to expand the deposit. Drill hole coverage remains sparse in parts of the western and northern margins of the deposit, and further drilling is required to determine the full extent of mineralization in these areas.

9.9.2 Patsy Creek

Several primary dispersion geochemical studies were completed at Kitsault; the most significant of these were reported on by Woodcock (1964).

The 1960s studies were based on a large collection of outcrop samples and core samples from the top of the bedrock surface in areas where there was heavy surficial cover. The samples were taken from within and at some distance from the 0.75 km^2 area covered by the Lime Creek Intrusive Complex. Many samples were also taken along traverses up to 1.75 km outward, in orthogonal directions, from the margin of the intrusive complex. Such surface samples, nearly all of which were reported to contain fresh sulphide minerals where mineralization or alteration was present, were analyzed by the Salt Lake City laboratory of Kennecott Exploration Services.

Analyses were done by either emission spectrography, X-ray fluorescence (XRF), or wet chemical methods.

Evaluation of the analytical results showed that molybdenum values outboard to the north, east, and west of the intrusive–hornfels contact generally fell to 150–200 ppm Mo, within 50 m to 75 m of the contact. Strongly anomalous Mo values, however, were noted on the south side of the intrusive–hornfels contact, coinciding with the Patsy Creek drainage. On the south side, the QMP-I intrusion is in contact with the quartz monzonite of the South Stock.

SRK (2008) performed an analysis of the Kennecott multi-element data and concluded:

- Hornfelsed sediments, where present, tightly constrain all hydrothermally-introduced elements of possible interest, particularly Mo, to within 50 to 75 m or less of the Lime Creek Intrusive Complex
- Ag, Ba, and F, in addition to Mo, are well developed at anomalous levels within the Mo deposit
- Anomalous Bi, Pb, and Zn are distributed along and to the south of the contact between the central QMP-I stock and the South intrusive, south of the main molybdenum deposit

- Multi-element Pb, Zn, Bi, Ag, F, Ba anomalies are coincident with scattered high Mo values around and to the south of the southernmost KEL drill holes, south of Patsy Creek.

A total of 14 holes were drilled in 2011 on the Patsy Creek target, which appears to be a steeply north-dipping continuous southern arc of the Kitsault deposit. Drill hole coverage remains limited in the area, and there is significant potential for expanding the extent of known mineralization.

9.9.3 Bell Moly

Hornfels alteration extends well northwest of the Clary Creek stock, suggesting that there may be a buried intrusive at depth, which could be mineralized. An induced polarization ground geophysical survey is recommended to identify potential sulphide zones that could become targets for drill testing.

9.9.4 Roundy Creek

The Sunlight, Sunshine and Roundy Zones have not been fully delineated by drilling and remain open along strike and at depth. Re-evaluation of the geological setting of the deposit is recommended, to determine if the near-surface expression of mineralization is related to a deeper mineralized body of significant size. Opportunities exist to potentially expand and connect high-grade (>0.5% Mo) zones that were intersected in several 2011 and earlier diamond drill holes. Additional drilling may also be able to demonstrate a possible connection between the Sunshine and Sunlight zones.

9.10 Comments on Section 9

In the opinion of the QPs, while the majority of the exploration on the Project was completed prior to Avanti's ownership, the work undertaken was appropriate to the style of the deposits. The exploration activities identified three deposits, and additional exploration of the Project area is warranted.

10.0 DRILLING

A total of 76,118 m was drilled in 490 drill holes on the Kitsault Project between 1960 and 2011 by KEL, BC Moly, CMC, SCMCL, Bell and Avanti (Table 10-1).

For the purpose of this review of the drilling on the Kitsault Project, the drilling is divided into the pre-Avanti drilling, conducted prior to 2008, and the Avanti drilling which encompasses all the drilling since 2008. These divisions relate to the availability of information for these two periods.

10.1 Kitsault

Several core drilling campaigns were undertaken to define the Kitsault deposit, with a cumulative total of 51,682 m drilled. Drilling is summarized in Table 10-2.

Wire line drilling was the preferred method. The pre-Avanti drilling at Kitsault was primarily NX diameter (54.7 mm). A small number of deeper holes were collared with NX diameter and reduced to BX (42mm) when warranted. The pre-Avanti drill core was stored at the Kitsault town site, but was destroyed in 2007.

The drill holes delineating the mineralization were drilled parallel to two main grids, an east–west grid and a north–south grid, with 29 drill holes oblique to both grids (Figure 10-1).

Vertical and sub-vertical holes were drilled. The majority of sub-vertical holes were drilled from the center of the annular shaped mineralized body towards the outer edges of mineralization. The cylindrical annular mineralization is open-ended at depth.

A total of 15,753 individual core samples were collected during exploration and delineation drilling. The average drill hole spacing is 50 m. Sampling is from a combination of vertical and inclined holes occasionally drilled from common collar locations. This results in a drill hole or sample spacing which increases with depth. Samples were collected from an area approximately 1,000 m by 800 m, and from surface to a depth of 769 m.

Table 10-1: Summary of Core Drilling on the Kitsault Project

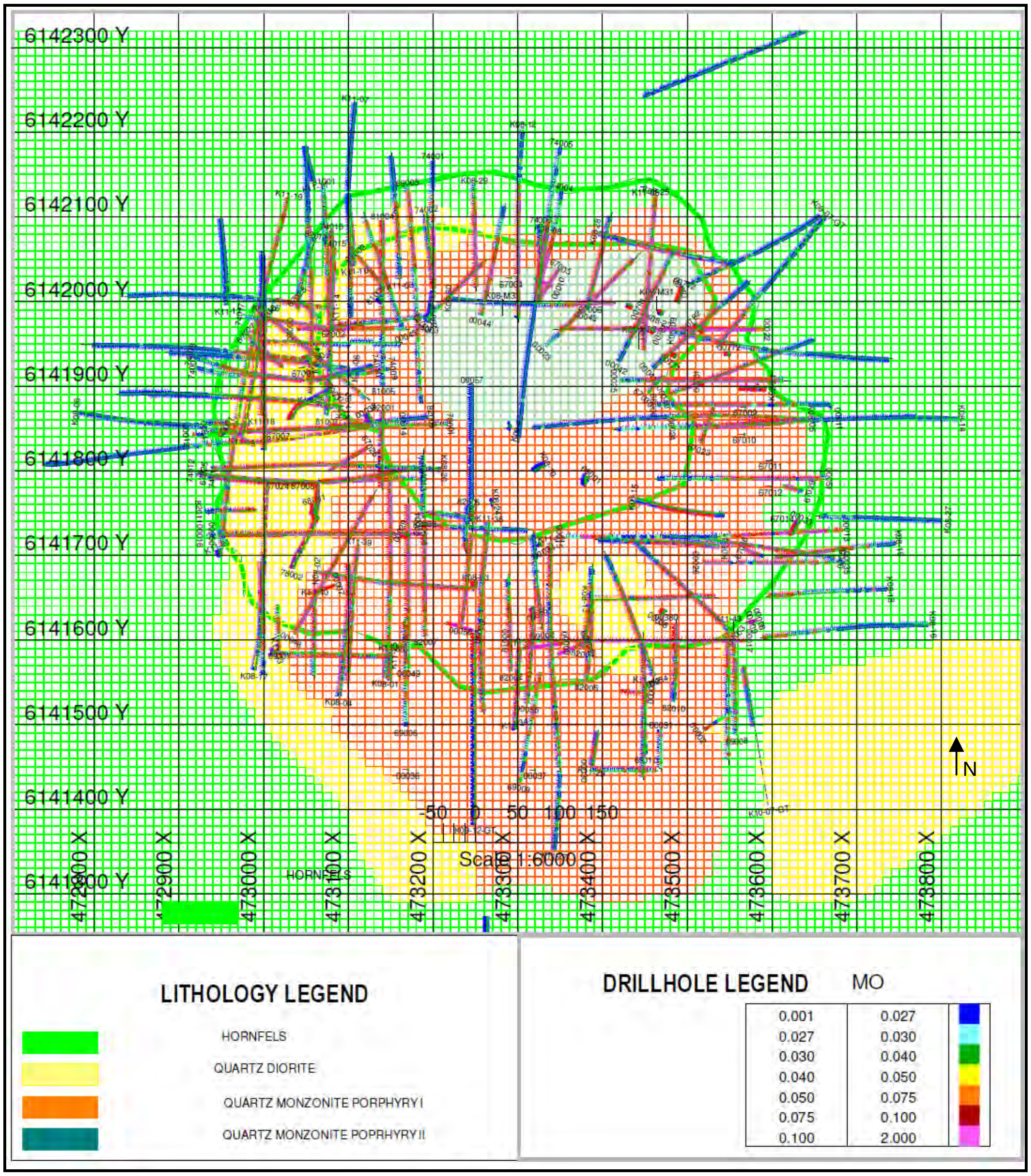
Deposit	Operator	Period	No. of Holes	Metres
Kitsault	KEL & BC Moly	1960–1969	99	18,373
	CMC	1974–1982	40	9,279
	Avanti	2008	33	10,599
	Avanti	2009	22	1,887
	Avanti	2010	28	1,548
	Avanti	2011	32	9,996
Subtotal		**1969–2011**	**254**	**51,682**
Bell Moly	Bell and Predecessor	1966-1967	36	5,462
	CMC	1976–1977	17	5,519
Subtotal		**1975–1977**	**53**	**10,981**
Roundy Creek *	Southwest Potash Corporation	1960	6	767
	SCMCL	1965-1971	145	8,973
	Avanti	2010	6	912
	Avanti	2011	26	2,803
Subtotal		**1960-2011**	**183**	**13,455**
Total		**1960–2011**	**490**	**76,118**
	Pre-Avanti	**Prior to 2008**	**343**	**48,373**
	Avanti	**2008 onward**	**147**	**27,745**

Note: * Roundy Creek drilling was reported to be 9,300 m by Woodstock and Carter in 1976, but data recovered from Mintec indicates 9,556 m drilled.

Table 10-2: Summary of Core Drilling on the Kitsault Deposit

Operator	Drilling Company	Period	No. of Drill Holes	Length	Core Diameter
KEL	Mutch Drilling	1959	10	311.20	XRAY
KEL	Unknown	1960–1967	56	12,841.64	NX, AX BX,NW
BC Moly	Boyles Bros.	1967	22	1,474.91	NX
BC Moly	Connors Drilling	1968	10	2,982.48	Unknown
BC Moly	Connors Drilling	1968	1	762.30	NX
CMC	Tonto	1974–1977	18	4,205.97	BQ
CMC	Coates Drilling	1976	2	708.05	BQ
CMC	Cameron McCutcheon	1978	2	1,073.20	NQ
Kitsault Mine	Connors Drilling	1980–1981	6	1,384.10	NQ
CMC	JT Thomas	1982	12	1,907.20	NQ
Avanti	Driftwood Drilling Co	2008	33	10,599.36	HQ & NQ
Avanti	Driftwood Drilling Co	2009	22	1,887.33	HQ &NQ
Avanti	Geotech Drilling Services Ltd. and Radius Drilling Corp.	2010	28	1,548.30	HQ & NQ?
Avanti	Geotech Drilling Services Ltd. and Full Force Diamond Drilling Ltd.	2011	32	9,995.30	HQ & NQ
		Total	**254**	**51,681.79**	

Figure 10-1: 400 m Elevation Geology Plan with Drill Hole Location Map for the Kitsault Deposit, Illustrating the Relationship between Drilling and Mineralization



Note: Grid scale shown on plan is 100 m x 100 m. QD = quartz diorite, QMPI = QMP-I, QMPII = QMP=II.

Drill hole orientations are such that drilled intercepts are generally longer than the true thickness of the mineralization. The relationship between true thickness and drilled intercepts is shown in Figure 10-2 and Figure 10-3. The composite grades for the intercepts are shown in Table 10-3.

The deepest mineralized sample was collected at 769 m below surface in drill hole DH68001.

The mean length-weighted grades of all KEL (0.058% Mo) and CMC (0.053% Mo) drilling compare well with each other. The Avanti mean length weighted grade (0.091% Mo) is higher relative to KEL and CMC. However, as the Avanti infill drilling concentrated on the area of known mineralization, a higher mean grade would be expected.

10.1.1 Legacy Drilling

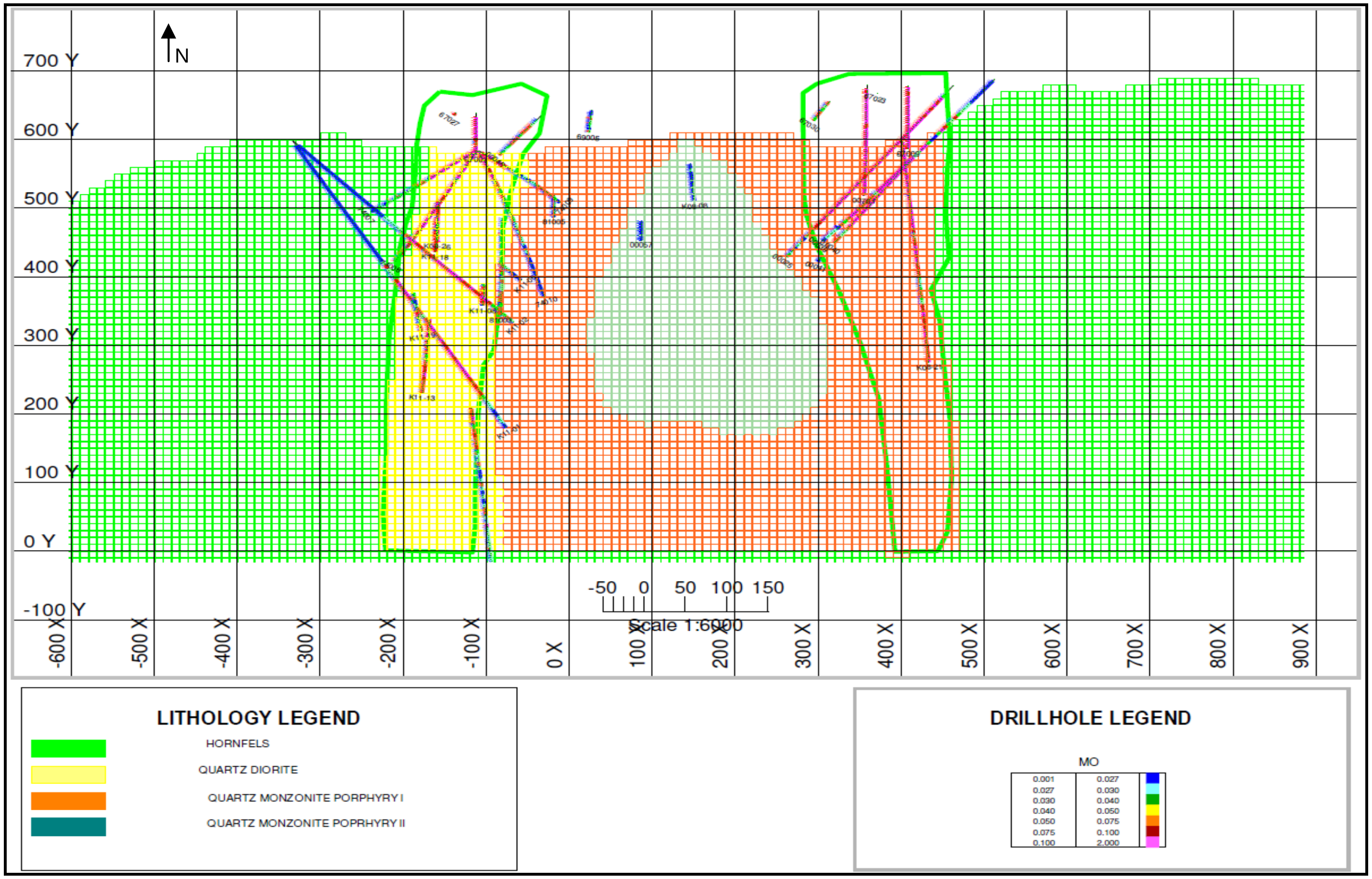
During the KEL exploration, the first 10 core holes were drilled by Mutch Drilling as “Xray” diameter core. The Xray diameter corresponds to either XRT (18.7 mm) or EX (21.5 mm) diameter core. The remaining 89 core holes drilled on behalf of KEL and BC Moly was undertaken at AX (30.1 mm), BX (42 mm) and NW and NX (54.7 mm) diameters.

CMC and Kitsault Mine drilled 40 holes to delineate the near-surface mineralization on the western flank of the deposit. Of these, three holes were drilled in the area of a proposed tunnel outside of the proposed mine site and were not intended to intersect the deposit. CMC drilled BQ (36.4 mm) and NQ (47.6 mm) core diameters. Kitsault Mine drilled NQ size core.

10.1.2 Avanti Drilling

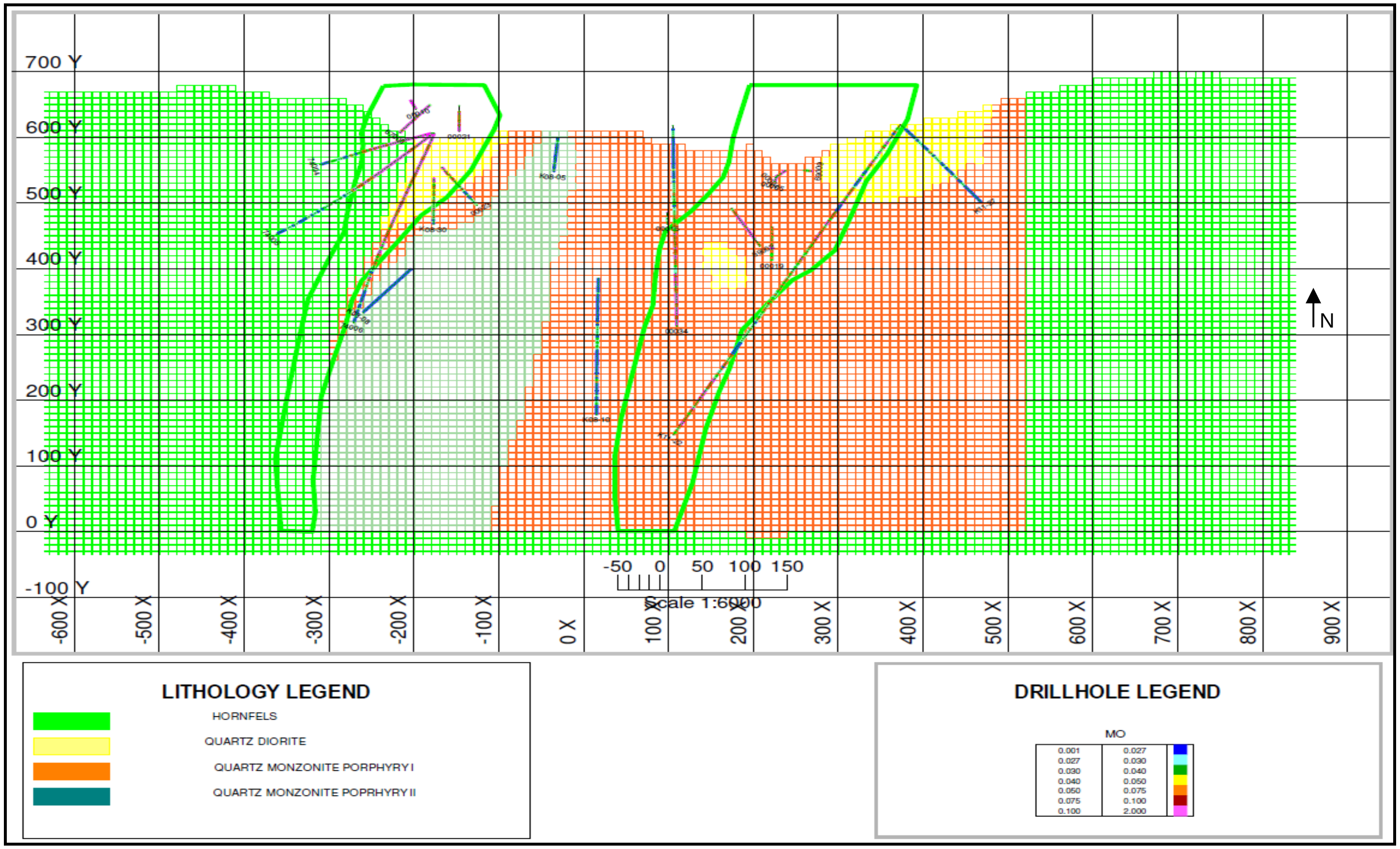
Avanti drilled 33 confirmation holes in 2008, 22 geotechnical drill holes in 2009, 28 geotechnical and hydrological drill holes in 2010, and 32 drill holes in 2011, which included 28 confirmation holes and four exploration holes.

Figure 10-2: Drill Section 1 Illustrates the Relationship between Drilled Thickness and True Thickness of Mineralization for the Kitsault Deposit, Section 6141900N



Note: Grid scale shown on plan is 100 m x 100 m. QD = quartz diorite, QMPI = QMP-I, QMPII = QMP=II.

Figure 10-3: Drill Section 2 shows the Relationship between Drilled Thickness and True Thickness of Mineralization for the Kitsault Deposit Section 473350E, looking N



Note: Grid scale shown on plan is 100 m x 100 m. QD = quartz diorite, QMPI = QMP-I, QMPII = QMP=II.

Table 10-3: Representative Mineralized Intercepts of the Kitsault Deposit

Drill Hole	Operator	Easting	Northing	RL	Azimuth	Dip	Depth From (m)	Depth To (m)	Drilled Length (m)	Mo %	Section
10	KEL	473319	6142027	622	112	-40	0.0	30.78	30.78	0.12	473300 E
19	KEL	473498	6141599	591	270	-46	0.0	295.96	295.96	0.09	473300 E
44	KEL	473285	6142115	671	191	-45	51.21	154.43	103.22	0.09	473300 E
55	KEL	473318	6141639	596	0	-90	2.47	158.8	156.33	0.09	473300 E
56	KEL	473318	6141638	595	180	-60	0.38	209.06	208.68	0.10	473300 E
67004	KEL	473292	6142028	659	0	-90	0.0	61.87	61.87	0.14	473300 E
67005	KEL	473324	6142000	652	32	-45	0.0	63.4	63.4	0.14	473300 E
69002	KEL	473318	6141728	624	174	-55	118.18	222.18	104	0.09	473300 E
69009	KEL	473327	6141561	550	191	-5	0.0	59.84	59.84	0.07	473300 E
82002	CMC	473289	6141678	581	180	-45	18.48	160.39	141.91	0.08	473300 E
K08-12	Avanti	473301	6141976	594	0	-45	11.54	225.11	213.57	0.14	473300 E
K11-31	Avanti	473298	6141495	607	3	-65	0.0	225.55	225.55	0.07	473300 E
K11-34	Avanti	473298	6141495	606	333	-89	0.0-	179.83	179.83	0.06	473300 E
25	KEL	473622	6141906	679	270	-55	24.35	276.98	252.63	0.16	6141900 N
39	KEL	473672	6141877	688	270	-55	65.32	278.93	213.61	0.09	6141900 N
40	KEL	473651	6141955	687	249	-60	93.32	300.72	207.4	0.12	6141900 N
46	KEL	473125	6141883	634	310	-45	3.41	204.81	201.4	0.08	6141900 N
761	KEL	473518	6141905	680	0	-90	0.25	162.14	161.89	0.15	6141900 N
67001	KEL	473047	6141922	639	0	-90	0.0	60.96	60.96	0.13	6141900 N
67030	KEL	473473	6141912	656	224	-45	10.48	39.32	28.84	0.05	6141900 N
74007	CMC	473046	6141908	583	271	-37	0.0	88.4	88.4	0.12	6141900 N
74008	CMC	473048	6141908	583	273	-61	0.0	181.33	181.33	0.12	6141900 N
81003	CMC	473079	6141968	605	180	-70	184.97	203.2	18.23	0.06	6141900 N
81003	CMC	473079	6141968	605	180	-70	243.76	299.29	55.53	0.05	6141900 N
K08-21	Avanti	473561	6141899	599	90	-85	0.0	197.58	197.58	0.18	6141900 N
K08-26	Avanti	473002	6141824	571	0	-50	0.0	249.92	249.92	0.11	6141900 N
K11-01	Avanti	472826	6141890	598	88	-59	0.0	490.72	490.72	0.04	6141900 N
K11-02	Avanti	472826	6141890	598	88	-46	0.0	374.89	374.89	0.05	6141900 N
K11-06	Avanti	472884	6141940	606	93.5	-44	256.37	302.96	46.59	0.03	6141900 N
K11-13	Avanti	473000	6142059	618	180	-65	158.01	512.06	354.05	0.10	6141900 N
K11-18	Avanti	473000	6142059	618	180	-45	112.65	271.26	158.61	0.10	6141900 N
K11-19	Avanti	472950	6141702	562	5	-46	13.40	606.51	593.11	0.08	6141900 N

The purpose of the 2008 drilling was to support a higher-confidence mineral resource classification from Inferred to Indicated, as well as to conduct exploration in previously unexplored areas. The Kitsault 2008 conformation drilling, conducted by Driftwood Diamond Drilling Ltd., was infill drilling along north–south and east–west section lines in all known areas of mineralization of the Kitsault deposit. The 2008 drill program included three 25 m metallurgical test holes which do not support the mineral resource estimate. Three geotechnical drill holes were included for geological interpretation purposes.

The 2011 drill program included 28 holes to support potential conversion of mineralization that was classified as Inferred Mineral Resources to the Indicated category. An additional four exploration holes were drilled to the south of Patsy Creek to test for possible extensions to the Kitsault deposit.

Avanti typically drilled HQ (63.5 mm) core, reducing to NQ size core at depth.

10.1.3 Geological Logging

There is limited information on legacy drill logging procedures. Logs were typically performed using standard paper logging sheets, although some of the legacy drill logging was done in field books.

Geological logging during Avanti drill programs was performed using paper logging sheets that were later transcribed to digital files. Logging recorded lithology, alteration, mineralization, weathering, veining, textures, grain size and content, and structure, using pre-set codes. Drill logs also had provision for comments, and a graphic log.

Geological logs also recorded some structural/geomechanical data, including core recovery, lengths of core sections, rock quality designation (RQD), presence and frequency of fractures, and structures to core axis. Geotechnical logging typically recorded recovery information, rock type, rock mass rating (RMR) data with unconfined compressive strength (UCS), number of joints, joint condition, and water rating by drill run.

Core photographs are taken after sample intervals are marked on the core in red crayon and prior to core cutting.

10.1.4 Collar Surveys

The collar survey methods for the Kitsault deposit varied over time, and there is little information on the methods used. The different methods are summarised in Table 10-4.

Table 10-4: Summary of Collar and Down Hole Survey Methods Used For Drilling at the Kitsault Deposit

Operator	Period	No. of Drill Holes	Collar Surveyor	Collar Survey Method	Down Hole Survey Method
KEL	1959	10	Unknown	Stadia Compass	None
KEL	1960-1967	56	RI McNiell, Mine Personnel	Unknown	Dip test, Pajari
BC Moly	1967	22	Mine Personnel	Unknown	Unknown
BC Moly	1968	11	Mine Personnel	Unknown	Pajari
CMC	1974-1977	18	Unknown	Transit	Eastman
CMC	1976-1978	4	Unknown	Unknown	Unknown
CMC	1978	2	Unknown	Unknown	Unknown
Kitsault Mine	1980-1981	6	Mine Personnel	Geodimeter	Dip Test
CMC	1982	12	Mine Personnel	Geodimeter	Unknown
Avanti	2008-2009	55	McElhanney	GPS	Reflex
Avanti	2010-2011	60	McElhanney	GPS	Reflex
Total		**256**			

The original KEL collar surveys were completed by R.I. McNiell on a local imperial grid. The BC Moly collar surveys were conducted by mine personnel, but the method is unknown. Some of the collar surveys by CMC conducted between 1974 and 1977 were completed using a transit method by unknown surveyors. The surveyor and method used for the remainder of the holes during this period is unknown. The collar surveys for Kitsault Mine and CMC holes drilled in 1981 and 1982 were completed by mine personnel using a Geodimeter total station.

All the survey information prior to the CMC drilling was converted to an AMAX grid, which was used by CMC and the Kitsault Mine.

The collar survey coordinates of the AMAX grid were later converted to NAD83 UTM Zone 9 metric coordinates.

Collar surveys for the Avanti programs completed between 2008 and 2011 were conducted by McElhanney Consulting Services Ltd using Leica 1200(GX1230) dual frequency GPS receivers. Collars were surveyed using the NAD83 UTM Zone 9 metric coordinate system.

10.1.5 Down-hole Surveys

Several different methods were used to determine the deflection of the core drill holes (refer to Table 10-4).

Sixty percent of the total length drilled is supported by down-hole surveys; with the remainder not surveyed, or surveyed by acid-etch methods for dip deflection only.

Legacy drill holes without down-hole surveys have an average length of 123 m and are shallow enough that the possible deflection of these holes is considered minimal. The 36 pre-Avanti drill holes which are partially supported by acid-etch dip tests have an average length of 228 m. Possible deflection in azimuth of these holes is also considered minimal. The down-hole survey readings prior to 1969 were taken at irregular intervals ranging from 15.24 m (50 feet) to 152.4 m (500 feet). Down-hole survey intervals for the period 1974–1982 were conducted at regular 15.24 m (50 feet) intervals.

The Avanti drill holes were surveyed with the Reflex EZ Shot at 50 m intervals.

A Reflex ACT core orientation tool was employed in six of the 22 drill holes selected for geotechnical testing, and was supervised by SRK geotechnical personnel. The remainder were surveyed with a Reflex EZ Shot down-hole instrument.

10.1.6 Core Recovery

Core recovery for KEL drill holes DH038 to DH67030 was reviewed using documentation at the Rio Tinto offices in Vancouver. The average core recovery is reported at 89% for DH038 to DH058, and at 88% for DH67001 to DH67030. The only other pre-Avanti core recovery data available is for the 1981 drilling where RQD and core recovery was measured. For this period, the average measured core recovery was 90%.

For the 2008 drilling, core recovery was measured in all drill holes. The average measured core recovery was 95%. During the 2009 drill program, the recovery was 95%, and in 2011, core recovery averaged 97%.

10.2 Bell Moly

In the period from 1966 to 1967, Bell Molybdenum Mines Ltd. drilled 36 (12 NQ diameter and 24 BQ diameter) core holes on a 400 ft (122 m) spacing in the area of the Clary stock.

In the period from 1976 to 1977, Climax completed 17 BQ diameter core holes; 10 of these holes were located in the Southwest Zone of the property.

Avanti have not completed any drilling at Bell Moly.

There is no record of drill methodology that has been located to date.

Drill hole collar locations are shown in Figure 10-4. The same collars are shown on the plan view of the May 1st 2012 resource block model in Figure 10-5. A section through the same model is shown in Figure 10-6 and the location of the section is also illustrated on the plan. Table 10-5 summarises representative drill hole intercepts as shown in the section.

10.2.1 Geological Logging

All 53 Bell Moly core holes were originally geologically logged by companies prior to Avanti's Project interest. There is limited information on pre-Avanti drill logging procedures. Logs were typically performed using standard paper logging sheets, although some of the drill logging was done in field books.

Legacy Bell Moly core was originally poorly stored at the Tonto campsite, in a building that had fallen into disrepair. In 2010, Avanti recovered over two-thirds of the core which was re-boxed in core trays, moved, and stored in semi-permanent wooden core racks at Kitsault mine. The recovered core was re-logged by Avanti personnel using the same methodology as employed at the Kitsault deposit (refer to Section 10.1.3).

10.2.2 Collar Surveys

Avanti have surveyed collars from Bell Moly using a hand-held GPS unit. In 2010, 36 of the 53 legacy holes were located in this manner as part of a 2010 data verification study.

For future mineral resource estimates, AMEC recommends that Avanti survey all historical drill hole collars that can be located using a more accurate differential GPS unit.

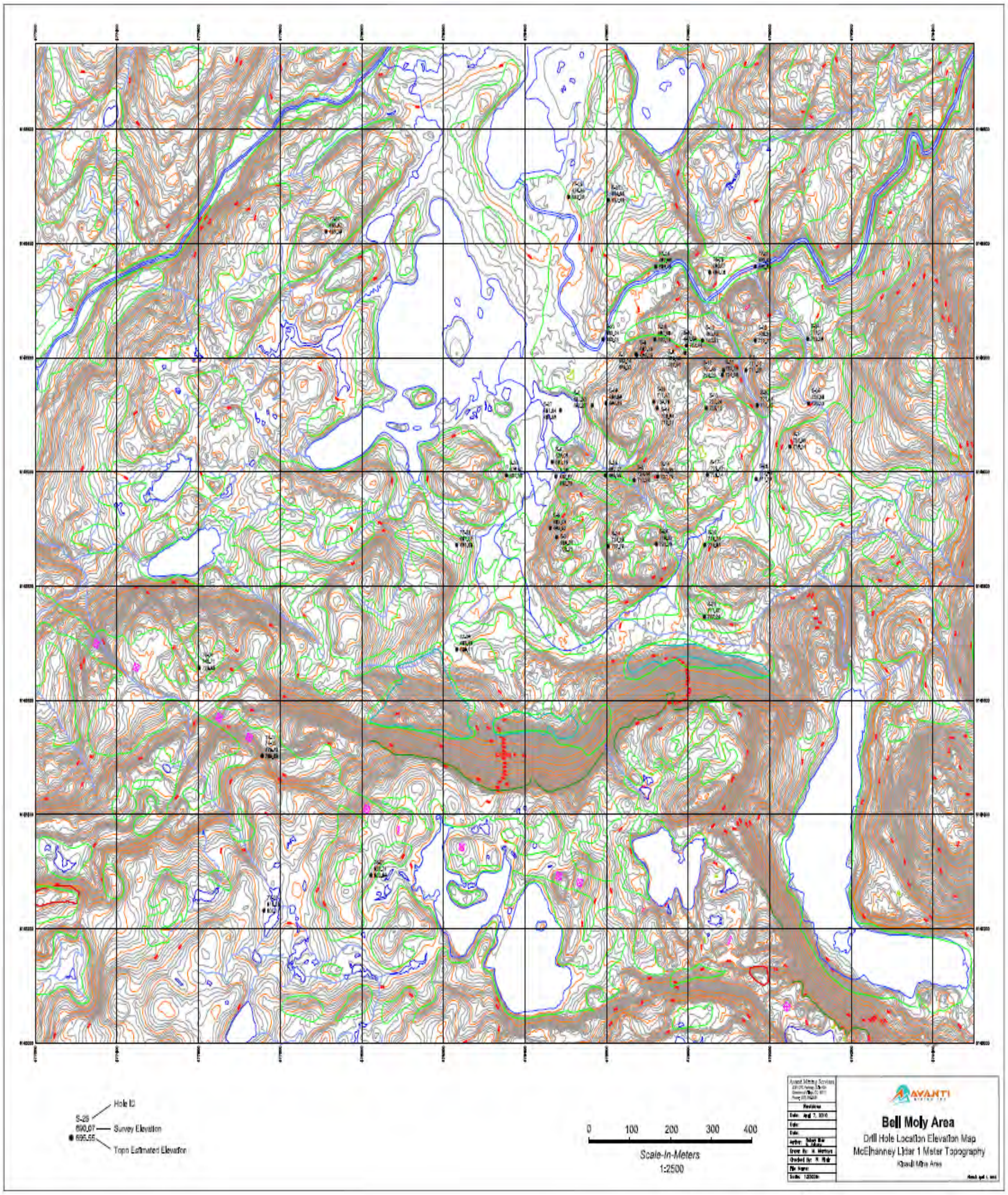
10.2.3 Down-hole Surveys

The 17 holes drilled for CMC between 1976 and 1977 were down-hole surveyed using an Eastman, single-shot camera.

The previous 36 holes drilled between 1966 and 1967 and in 1968 were down-hole surveyed using a combination of Diptest and Pajari downhole survey methods. Recorded information of methodology used for the legacy drilling is not complete.

Generally drill holes at Bell Moly were >250 m total depth and deviation is expected to be minimal.

Figure 10-4: Drill Location Plan, Bell Moly



Note: Figure courtesy Avanti, 2010

Figure 10-5: Drill Hole Plan, at Elevation 602 m, Bell Moly, (blocks illustrated from May 1st 2012 block model)

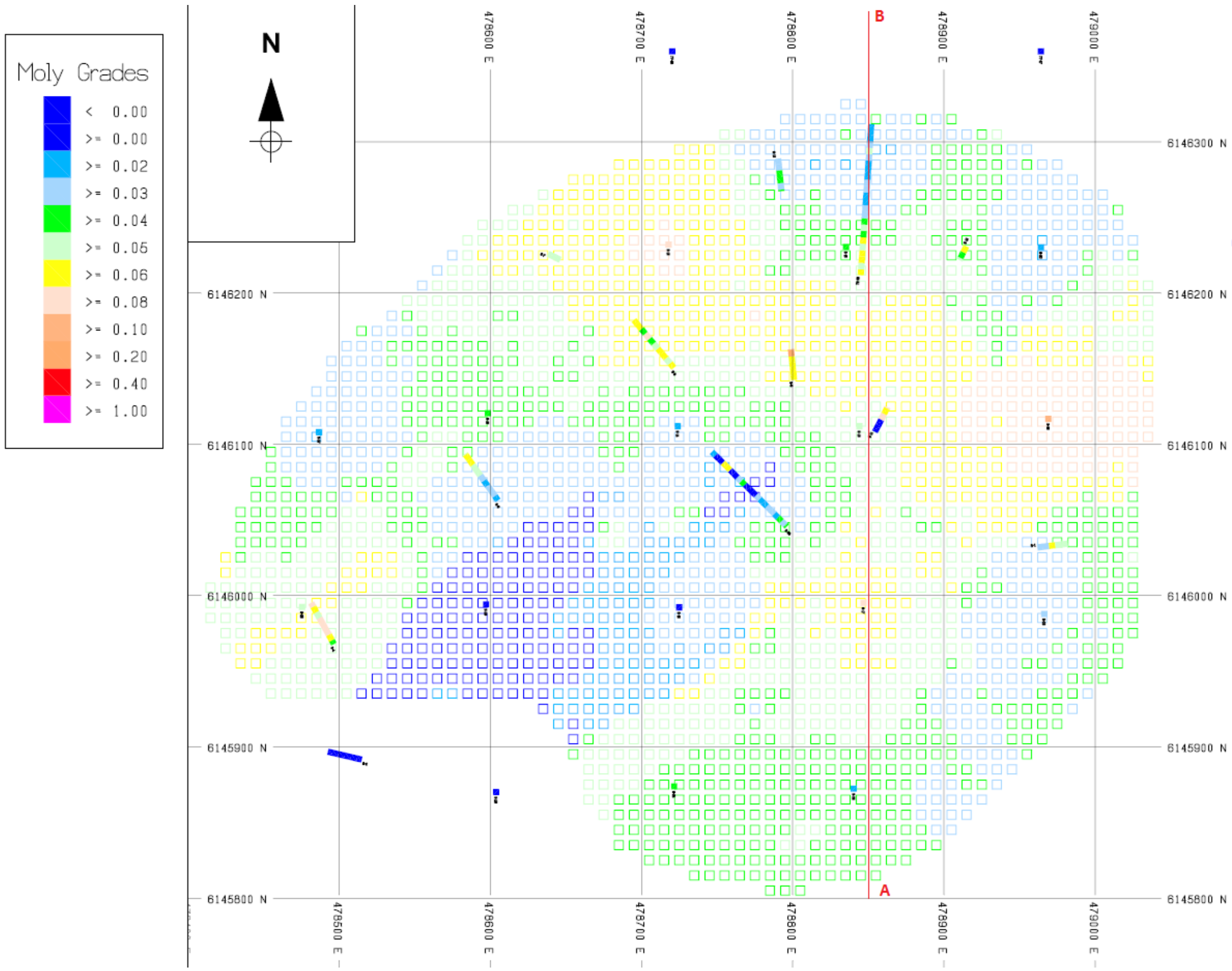


Figure 10-6: Drill Section, Bell Moly 478850 E, Looking West (blocks illustrated from May 1st 2012 block model)

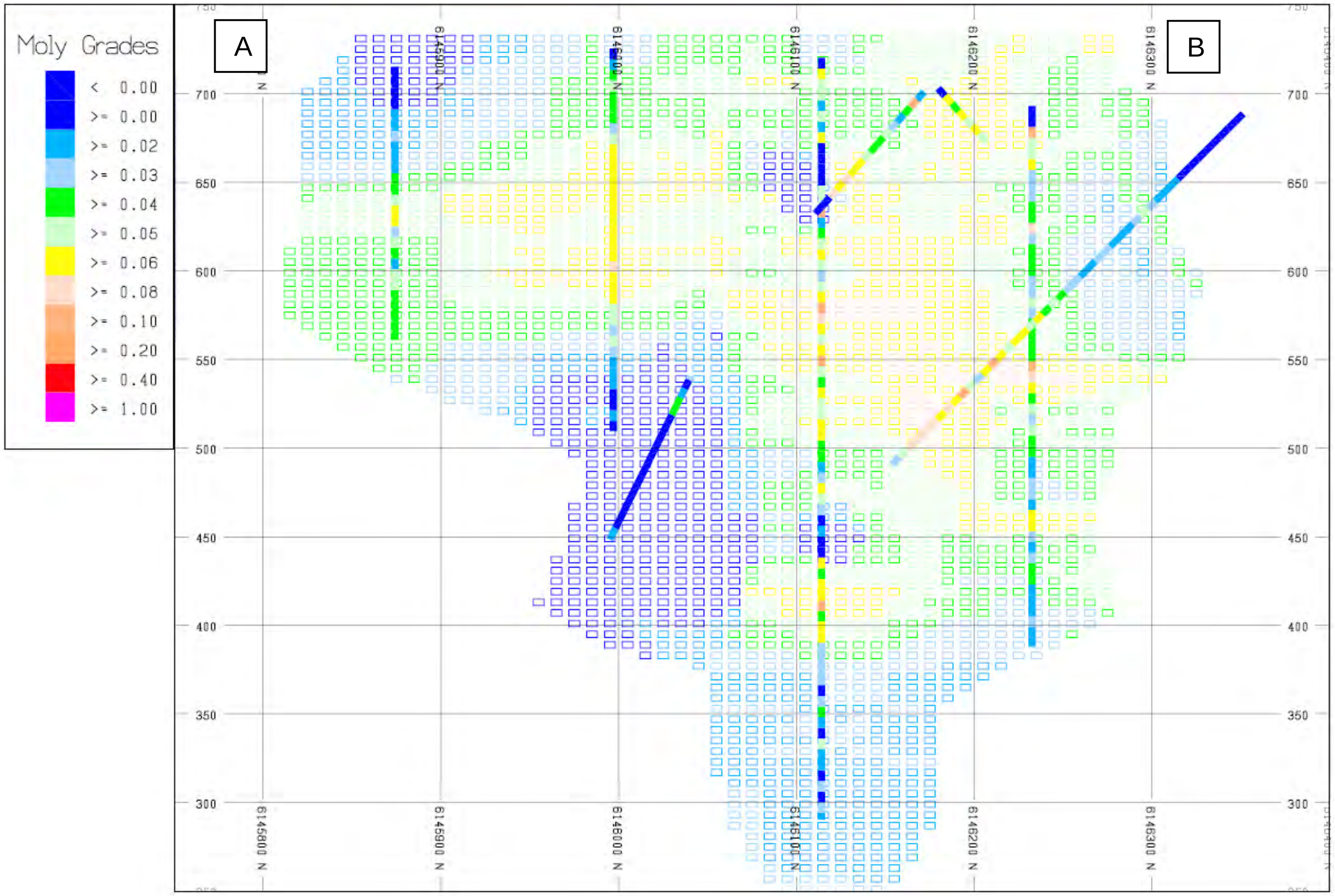


Table 10-5: Representative Mineralized Intercepts of the Bell Moly Deposit

Drill Hole	Easting (x)	Northing (y)	RL (z)	Azimuth	Dip	Depth From (m)	Depth To (m)	Drilled Length (m)	Mo %	Section
76-08	478853	6145872	690	184	-45	51.8	279.8	228.0	0.06	478850 E
S-11	478884	6146170	702	207	-45	0.0	96.9	96.9	0.05	478850 E
S-13	478844	6146112	720	0	-90	0.0	429.8	429.8	0.05	478850 E
S-15	478835	6146231	693	0	-90	0.0	305.1	305.1	0.05	478850 E
S-17	478847	6145995	725	0	-90	0.0	215.8	215.8	0.05	478850 E
S-20	478840	6145872	715	0	-90	0.0	153.6	153.6	0.04	478850 E

10.2.4 Recovery

Recovery percentages at Bell Moly are not known as there is no record of this information in the current dataset.

10.3 Roundy Creek

Several core drilling campaigns were undertaken to define the Roundy Creek deposits, with a cumulative total of 13,455 m drilled in 183 drill holes.

Drilling is summarized in Table 10-2. Hole collar locations are shown in Figure 10-7. Figure 10-8 is a more detailed collar location plan of the Roundy Zone, while Figure 10-9 is a more detailed collar location plan of the Sunshine Zone.

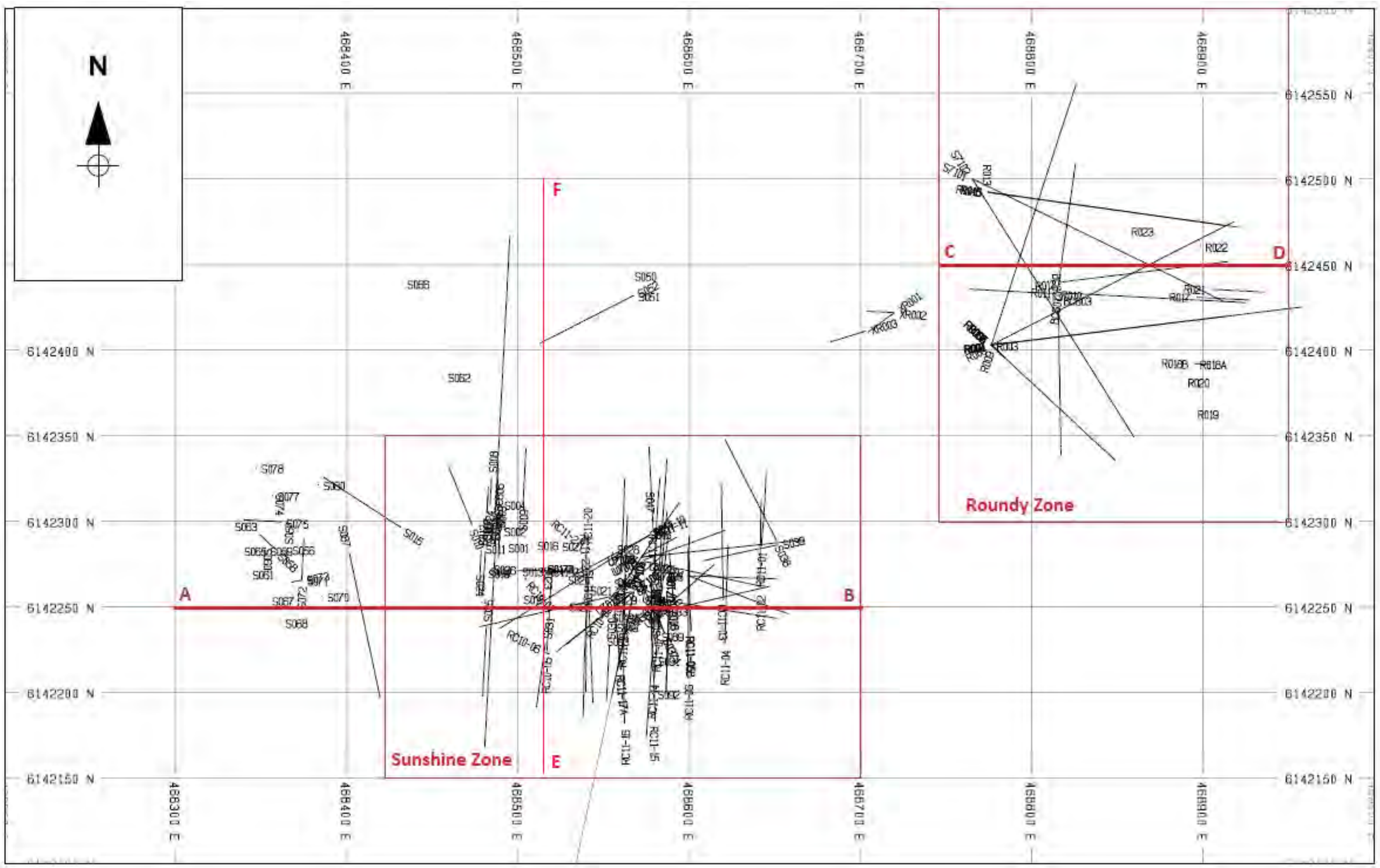
Wire line drilling was the preferred method. The pre-Avanti drilling at Roundy Creek was primarily AX and EX diameter (21.5 mm). The pre-Avanti drill core was stored at the Kitsault town site, but was destroyed in 2007.

The drill holes delineating the mineralization were drilled parallel to north–south section lines spaced 20 m apart, with two drill holes completed oblique to the section lines (refer to Figure 10-7).

Within the Sunlight Zone of the Roundy Creek deposits, a total of 1,205 individual core samples were collected during exploration and delineation drilling. Average sample spacing is 25 m. Sampling is from a combination of vertical and inclined holes occasionally drilled from common collar locations. This results in a drill hole or sample spacing which increases with depth.

Samples were collected from an area approximately 100 m by 100 m, and from surface to a depth of 215 m.

Figure 10-7: Drill Location Plan, Roundy Creek Deposit



Note: Figure prepared by AMEC, 2013.

Figure 10-8: Drill Plan at 150 m Elevation, Roundy Zone (blocks illustrated are from May 1st, 2012 block model)

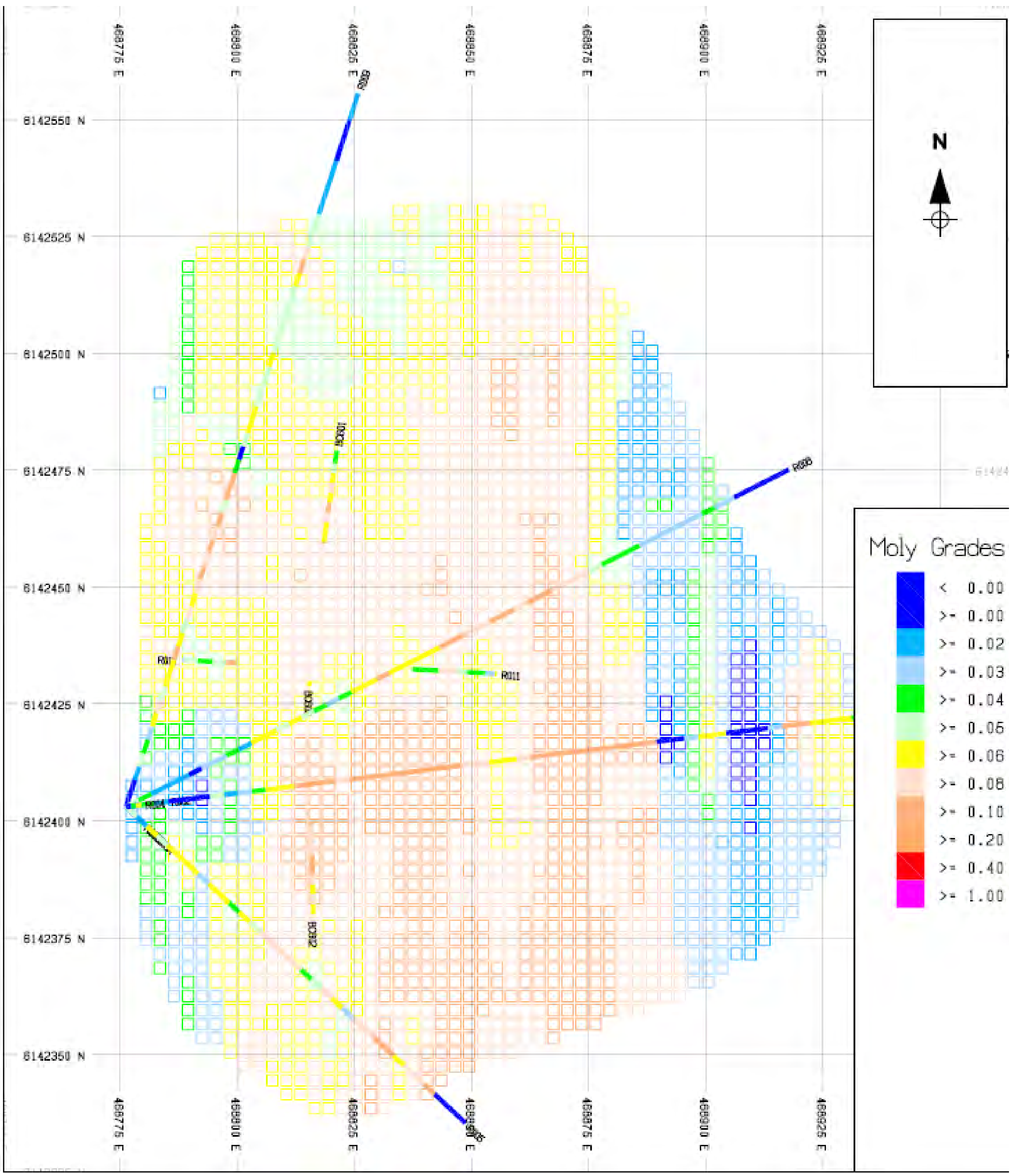
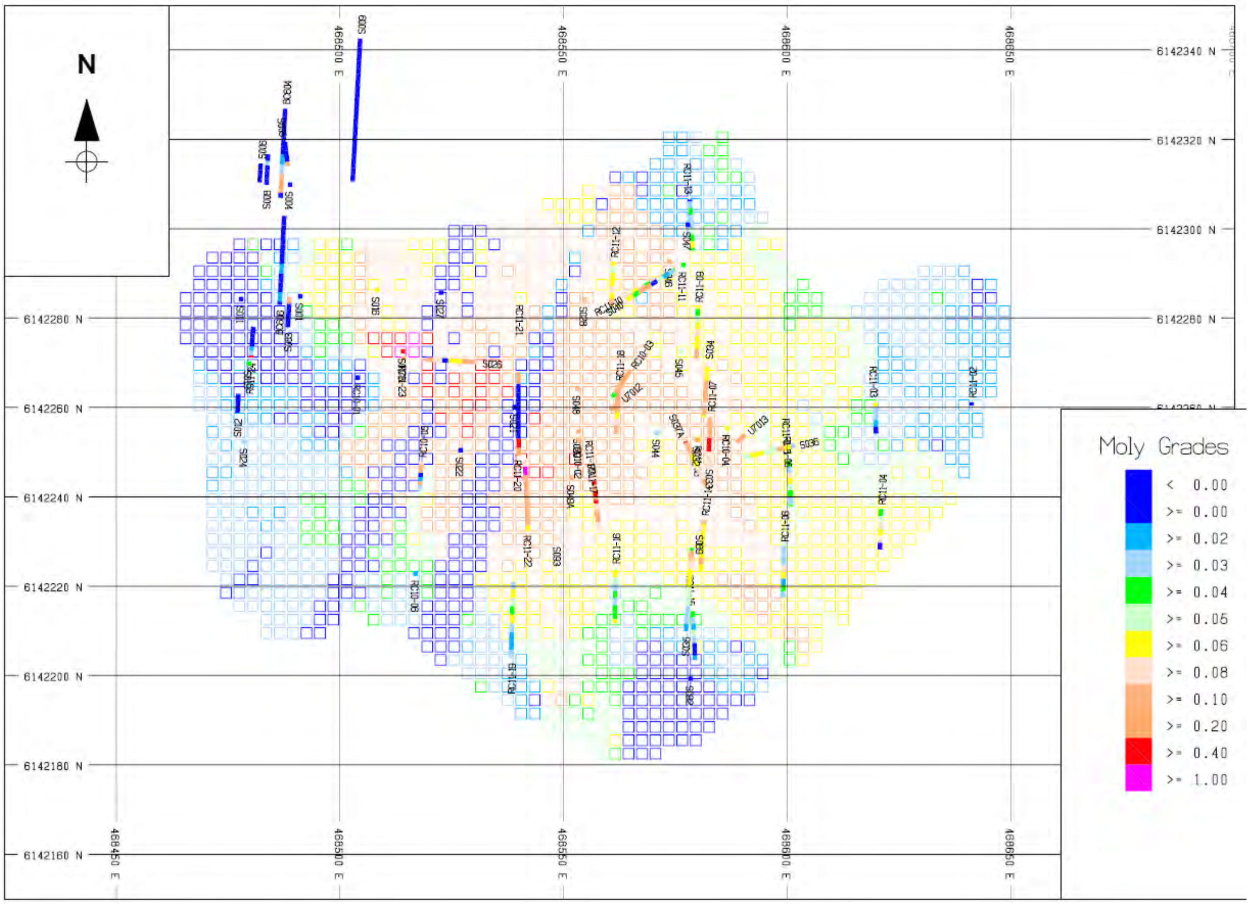


Figure 10-9: Drill Plan at 300 m Elevation, Sunshine Zone, (blocks illustrated from May 1st, 2012 block model)



Drill hole orientations are such that drilled intercepts are generally longer than the true thickness of the mineralization. The relationship between true thickness and drilled intercepts is shown in Figure 10-10 through to Figure 10-12. The composite grades for the intercepts are shown in Table 10-6.

10.3.1 Legacy Drilling

In 1960, Southwest Potash Corporation drilled three AX core holes to test the Roundy Zone. Three holes AX core holes tested the Sunlight Zone (BC601 to BC606). The core diameter was AX. Hole depths varied from 23 m to 228 m.

In the period from 1965 to 1971, SCMCL drilled 145 core holes. A total of 23 of the holes were completed in the Roundy Zone and 122 of the holes were completed in the Sunlight and Sunshine Zones. Core diameters were EX, AX, and BQ. Hole depths ranged from 4 m to 194 m.

10.3.2 Avanti Drilling

In 2010, Avanti drilled 6 holes in the Sunlight Zone to confirm the presence of mineralization. A further 26 holes were completed in the Sunlight Zone in 2011 to more fully delineate the Sunlight zone and to support a mineral resource estimate. The drilling contractor was Midpoint Drilling Ltd.

Avanti typically drilled HQ (63.5 mm) core, reducing to NQ size core at depth

10.3.3 Geological Logging

There is limited information on pre-Avanti drill logging procedures. Logs were typically performed using standard paper logging sheets, although some of the drill logging was done in field books

The Avanti logging procedure for the drilling completed by Avanti at Roundy Creek used the methodology outlined in Section 10.1.3 for Kitsault. The written procedure for the Roundy Creek holes required that core was cut post geotechnical logging but prior to geological logging to reveal a higher level of detail for the logger; however, this was not done in practice.

Figure 10-10: Drill Section 6142250N, Sunlight–Sunshine Zone, (illustrated blocks from resource May 1st, 2012 block model)

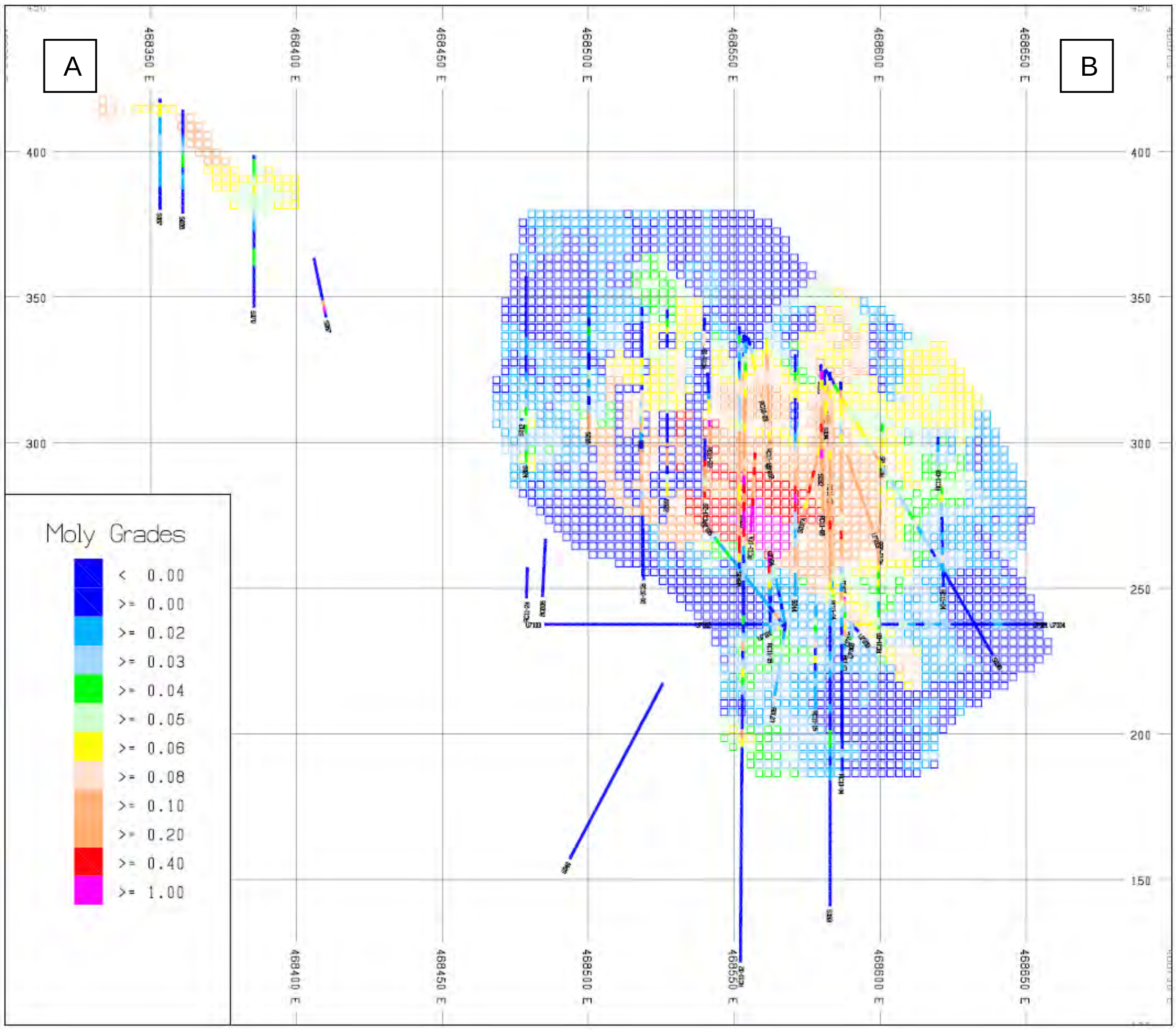


Figure is Section A–B on Figure 10-7

Figure 10-11:Drill Section 6142451N, Roundy Zone (blocks illustrated from May 1st, 2012 block model)

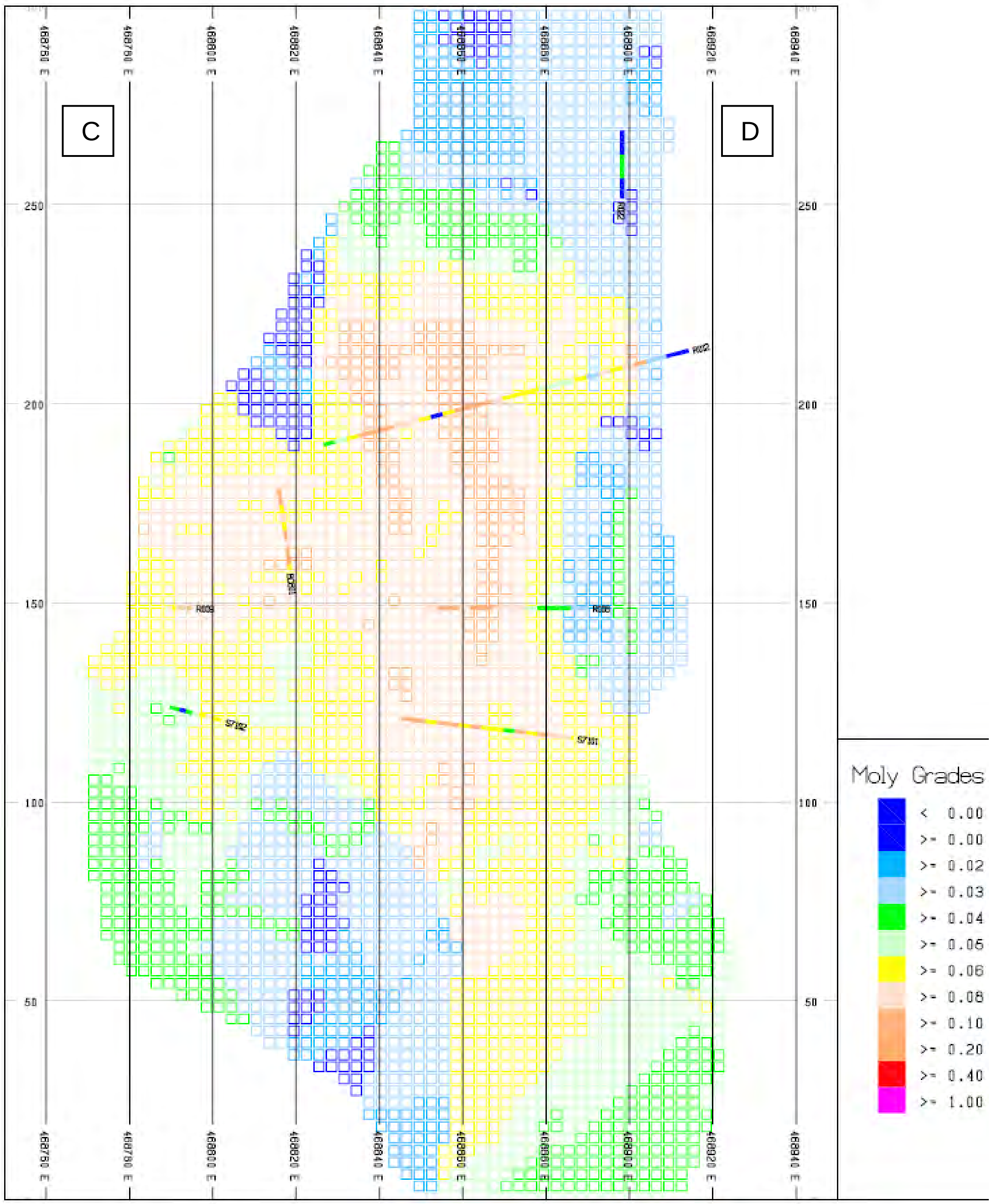


Figure is Section C–D on Figure 10-7

Figure 10-12: Drill Section, Roundy Creek Deposit, 468520E (looking W)

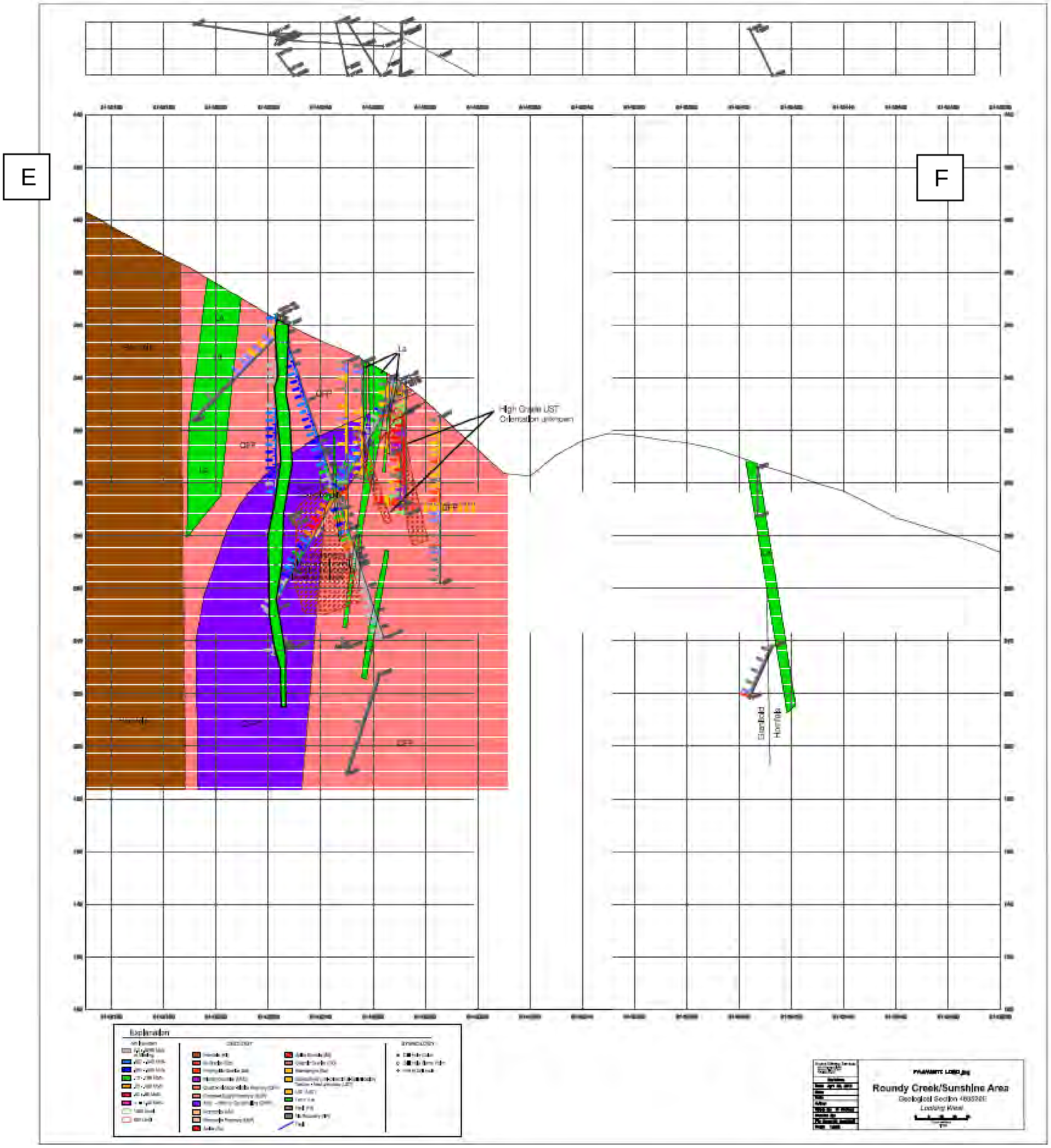


Figure is Section E–F on Figure 10-7

Table 10-6: Representative Mineralized Intercepts of the Roundy Creek Deposit

Drill Hole	Easting (x)	Northing (y)	RL (z)	Azimuth	Dip	Depth From (m)	Depth To (m)	Drilled Length (m)	Mo %	Section
S020	468526	6142266	338	0	-90	0.0	27.1	27.1	0.11	478520 E
S026	468503	6142272	339	93	-60	0.0	67.1	67.1	0.28	478520 E
S017B	468514	6142273	338	0	-90	0.0	50.3	50.3	0.97	478520 E
RC10-05	468517	6142224	364	4	-72	0.0	111.0	111.0	0.07	478520 E
RC10-06	468516	6142223	364	142	-89	0.0	129.4	129.4	0.04	478520 E
RC11-23	468514	6142271	338	180	-60	0.0	72.0	72.0	0.20	478520 E
S056	468365	6142283	412	185	-90	0.0	12.2	12.2	0.33	6142250 N
S059	468352	6142283	419	0	-90	0.0	21.3	21.3	0.10	6142250 N
S065	468337	6142283	426	0	-90	0.0	24.4	24.4	0.07	6142250 N
R008	468776	6142403	153	63	0	0.0	145.7	145.7	0.06	6142450 N
R011	468815	6142434	184	93	-48	0.0	164.3	164.3	0.05	6142450 N
R022	468898	6142461	266	0	-90	0.0	17.1	17.1	0.02	6142450 N
S7101	468765	6142500	137	116	-6	0.0	163.4	163.4	0.07	6142450 N

10.3.4 Collar Surveys

All drill hole collars from the 2011 Roundy Creek drill campaign were field surveyed by McElhanney Consulting Services Ltd using Leica 1200(GX1230) dual frequency GPS receivers. Collars were surveyed using the NAD83 UTM Zone 9 metric coordinate system.

A total of 39 of the legacy drill hole collars found at Roundy Creek were resurveyed utilising the same company and methodology. This represented approximately 30% of the legacy holes.

10.3.5 Down Hole Surveys

Legacy drill holes were down-hole surveyed utilising a combination of Diptest and Pajari methodologies. Recorded information of methodology used for the legacy drilling is not complete.

Avanti drill holes were down-hole surveyed using a Reflex EZ-shot at 50 m intervals, including a collar shot.

10.3.6 Recovery

Core recovery for the 2010 drill programs at the Roundy Creek deposit was 95%. The 2011 drill program core recovery percentage was 93%.

10.4 Comments on Section 10

10.4.1 Kitsault

In the opinion of the QP, the quantity and quality of the lithological, 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 at the Kitsault deposit as follows:

- Core logging meets industry standards for molybdenum exploration
- Collar surveys have been performed using industry-standard instrumentation
- Down-hole surveys were performed using industry-standard instrumentation
- Recovery data from core drill programs are acceptable
- Geotechnical logging of drill core meets industry standards for planned open pit operations
- Drill hole spacing is appropriate for porphyry-hosted molybdenum mineralization.
- Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths
- Drill orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area
- Figures 7-5 to 7-7 display typical drill hole orientations for the Kitsault deposit, show summary assay values using colour ranges for assay intervals that include areas of non-mineralized and very low grade mineralization, and outline areas where higher-grade intercepts can be identified within lower-grade sections. The sections confirm that sampling is representative of the molybdenum grades in the deposits, reflecting areas of higher and lower grades
- Drill hole intercepts as summarized in Table 10-3 and shown schematically on Figure 10-2 to Figure 10-3 appropriately reflect the nature of the molybdenum mineralization
- The drill core diameter that was used is suitable for the style of mineralization with the exception of the first 10 X-ray diameter drill holes. The X-ray diameter is considered too small to allow for representative sampling. AMEC recommended that the analyses of these holes be excluded for resource estimation process and the drill holes do not support the estimates in Section 14 of this Report.

10.4.2 Bell Moly

In the opinion of the QP, the quantity and quality of the lithological, geotechnical, collar and down-hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation at the Inferred confidence category at the Bell Moly deposit as follows:

- Core logging meets industry standards for molybdenum exploration
- Collar surveys have been performed using to an acceptable standard for an Inferred Mineral Resource estimate. AMEC notes the survey data available for the drill collars that could be located are based on a hand-held GPS unit, and recommends that Avanti survey all known historical drill hole collars using a more accurate differential GPS unit
- Down-hole surveys were performed using an acceptable standard for an Inferred Mineral Resource estimate
- As recovery data are unavailable for the Bell Moly core drill programs, recovery is considered likely to have been acceptable for an Inferred Mineral Resource estimate, because there has been no significant core loss encountered on the Roundy Creek and Kitsault deposits, which are analogous and part of the same mineralizing event
- Drill hole spacing is appropriate for porphyry-hosted molybdenum mineralization.
- Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths
- Drill orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area
- Figures 10-5 to 10-6 display typical drill hole orientations for the Bell Moly deposit, show summary assay values using colour ranges for assay intervals that include areas of non-mineralized and very low grade mineralization, and outline areas where higher-grade intercepts can be identified within lower-grade sections. The sections confirm that sampling is representative of the molybdenum grades in the deposits, reflecting areas of higher and lower grades
- Drill hole intercepts as summarized in Table 10-5 and shown schematically on Figures 10-5 to 10-6 appropriately reflect the nature of the molybdenum mineralization

10.4.3 Roundy Creek

In the opinion of the QP, the quantity and quality of the lithological, geotechnical, collar and down-hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation at the Roundy Creek deposit as follows:

- Core logging meets industry standards for molybdenum exploration
- Collar surveys have been performed using industry-standard instrumentation
- Down-hole surveys were performed using industry-standard instrumentation
- Recovery data from Avanti's core drill programs are acceptable
- There are sufficient Avanti drill holes to provide a meaningful comparison with the logging and survey information from legacy data
- Geotechnical logging of drill core meets industry standards for planned open pit operations
- Drill hole spacing is appropriate for porphyry-hosted molybdenum mineralization.
- Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths
- Drill orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area
- Figures 10-10 to 10-12 display typical drill hole orientations for the Roundy Creek deposit, show summary assay values using colour ranges for assay intervals that include areas of non-mineralized and very low grade mineralization, and outline areas where higher-grade intercepts can be identified within lower-grade sections. The sections confirm that sampling is representative of the molybdenum grades in the deposits, reflecting areas of higher and lower grades
- Drill hole intercepts as summarized in Table 10-6 and shown schematically on Figures 10-10 to 10-12 appropriately reflect the nature of the molybdenum mineralization

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Since Avanti acquired the Project in 2008, Project staff employed by Avanti were responsible for the following:

- Sample collection
- Core splitting
- Preparation of samples for submission to the analytical laboratory
- Sample storage
- Sample security.

There is limited remaining information on staff involvement of the operator at the time for the KEL, BC Moly, and CMC legacy drill program sample collection, sample preparation and analysis, and sample security. Discussion and conclusions presented in this section are based on a review of available pre-Avanti drill logs, the drill-hole database, and interviews with former employees of past-producer CMC conducted in 2010 by Greg Kulla, P.Geo., Principal Geologist with AMEC.

11.1 Sampling Methods

11.1.1 Kitsault

Legacy

There is no remaining information available on the sampling method and approach for legacy exploration-stage sampling such as geochemical, trench and adit sampling.

Kitsault Core Sampling

The sampling procedure comprises:

- All the sampling is from core drilling
- The entire length of the drill hole below alluvium is sampled
- After logging, samples are marked in 10 ft or 3 m lengths
- The geological contacts are generally ignored
- Where molybdenite paint occurs on fracture surfaces, care is taken to mark and split the core to include an equal distribution of the molybdenite paint in both portions

- Sample intervals are assigned a unique sample number
- The entire core is split on site. Pre-Avanti core was split with a core splitter. Avanti core was sawn.
- Half the split core is bagged and sent for analyses. Sample tags with sample ID, hole number and interval are stapled to the core box at the end of every interval. Duplicate sample tags remain in a sample book for reference.
- Half of Avanti core is stored in trays in semi-permanent wooden core racks at Kitsault mine. The pre-Avanti core archive for the Kitsault deposit was destroyed in 2007.

11.1.2 Bell Moly

All sampling at Bell Moly is legacy, pre-Avanti, and there is no remaining information available on the sampling method and approach.

11.1.3 Roundy Creek

As with Kitsault and Bell Moly, there is no remaining information available on the sampling method and approach taken for the legacy drilling.

A similar procedure was used at Roundy Creek as documented in Section 11.1.1 for Kitsault for sampling, with samples taken as 3 m half-core sawn lengths, irrespective of geological contacts.

11.2 Density Determinations

11.2.1 Kitsault

The Kitsault deposit database includes 133 density determinations performed using a wax seal method on drill core from the 2008 Avanti drilling.

Table 11-1 shows the average specific gravity (SG) values calculated by Wardrop in 2009.

Table 11-1: SG Determinations, Kitsault

Rock Type	Number of Determinations	Average SG
Quartz Diorite	26	2.66
Hornfels	39	2.70
Quartz Monzonite Porphyries	68	2.63

Density values were assigned to blocks based upon the lithological codes.

There are limited density data for a project at feasibility level and additional density measurements are strongly recommended during the initial mining phase to provide support for the density estimates. AMEC notes, however, that most of the rock is unweathered, and only small variations in SG should occur due to weathering or depth.

11.2.2 Bell Moly

Based on the lack of measured density information, a global density of 2.63 g/cm^3 was assigned to all blocks in the model. This density is the same as the density of quartz monzonitic rocks as measured at Kitsault. Quartz monzonite is the primary lithology of the mineralised zones at Bell Moly.

The weighted average of all SG determinations at Roundy Creek undertaken in 2010-2011 was 2.63, as discussed in Section 11.3.3, which supports the use of the Kitsault average value.

11.2.3 Roundy Creek

A total of 153 density determinations were completed at the Sunshine zone within the Roundy Creek deposit. SG measurements were performed using the wax seal method on drill core taken from Avanti 2010-2011 drilling. AMEC subdivided the SG measurements by lithology, with only the (volumetrically minor) feldspar porphyry displaying a significant difference (7.5%) compared to the average SG. The average SG values are shown in Table 11-2.

11.3 Analytical and Test Laboratories

Several different laboratories were used by the various operators for primary analyses and are listed in Table 11-3. The laboratory accreditations and independence of the laboratories prior to Avanti's involvement in the project are unknown.

Table 11-2: SG Determinations, Roundy Creek

Rock Type	Number of Measurements	Average SG (g/cm^3)
Aplite	14	2.58
Aplite/QFBP	1	2.63
Biotite Granite	4	2.63
Feldspar Porphyry	8	2.43
Hornfels	29	2.68
Lamprophyre	4	2.65
Quartz Feldspar Biotite Porphyry	92	2.63
QFBP/Aplite	1	2.55
All (weighted average)	153	2.63

Table 11-3: Primary Laboratories used for Kitsault Samples

Period	Operator	Laboratory
1959 to 1963	KEL and BC Moly	Elderidge and Co.
1967	KEL and BC Moly	Kennco Explorations Ltd- Vancouver
1968 to 1969	KEL and BC Moly	BC Molybdenum Ltd.
1974	CMC	Skyline-Colorado and FLOOX SPEC Lab- Colorado
1976	CMC	Skyline- Colorado
1977	CMC	Unknown
1978	CMC	Skyline, Colorado
1980 to 1982	CMC	Rosebacker Lab- Burnaby
2008 to 2011	Avanti	ALS Chemex- Vancouver

For the Avanti drill programs at the Kitsault and Roundy Creek deposits from 2008–2011, ALS Chemex of Vancouver, BC was the primary analytical laboratory. Acme Analytical Laboratories Ltd. (Acme), of Vancouver, BC was used as a secondary laboratory for check assays. Both ALS Chemex and Acme are ISO 9001:2000 certified. ALS Chemex Vancouver received ISO/IEC 17025:2005 accreditations in May 2005, while Acme received this accreditation in October 2011. The laboratories are independent of Avanti.

11.4 Sample Preparation and Analysis

11.4.1 Kitsault

KEL and BC Moly (1959–1969)

There is no information available about sampling preparation, analytical methods, and any quality assurance and quality control (QA/QC) procedures used by KEL and BC Moly for the Kitsault deposit. The KEL Mo values were reported as MoS_2.

CMC (1974–1982)

Sampling procedures involved core splitting and sampling, with one half of the core retained and the other placed in a canvas bag and shipped to a sampling preparation facility in Smithers, BC.

At the Smithers sample preparation facility, the following process was followed:

- Samples were crushed to 100% passing 80 mesh
- The crushed material was split in half using a Jones splitter to produce a sample weighing 2 kg
- The 2 kg sample was split twice using a Jones splitter to reduce it to a 500 g sample
- The 500 g sample was pulverized to 100% passing a -100 mesh, rolled on a mat and 100 g was split
- A series of standards and duplicates were inserted with the sample submission
- The pulps were placed in sealed sample envelopes and sent to the laboratory
- The reject material was stored for future reference.

All samples were analysed for Mo and reported as $MoS_{2.}$

Lead was included in the analysis only after 1978. Skyline used the Climax Molybdenum assay procedure which is a three-acid digestion of the pulp, titration of the aliquot, with analyses by mass spectrometer. Lead analytical procedures used are unknown.

There is no information available for the Rossbacker laboratory procedures or QA/QC.

Avanti Drilling Sample Preparation and Analysis

Sample Preparation

During the 2008 drilling program, all the work on the core was conducted by geologists supplied by APEX Geoscience Ltd. of Edmonton, Alberta (Apex). In subsequent programs, work was done by Apex and contract geologists hired by Avanti. All work was conducted under the direct supervision of an Avanti project geologist.

At the sample preparation facility, the following process was followed:

- After sample intervals were marked, the core was transported to the core cutting facility along with bags containing standards

- Core was cut randomly, except where molybdenum occurred as molybdenite paint on fracture and joint surfaces
- A core inventory system was maintained
- Samples were split and unique laboratory-generated tags were inserted
- QA/QC samples and blanks were inserted by sampling staff
- Samples were shipped at the end of each working day
- Samples bags were tied to make them tamper-proof
- The chain of custody form was passed on to the laboratory.

Samples were received at the ALS Chemex facilities in Terrace, BC. The ALS sample preparation procedure (Prep-33) is as follows:

- Core samples in their canvas bags were dried at 60˚C
- Samples were crushed to 85% passing 10 mesh (2 mm)
- Crushed material was split in a Jones splitter to obtain a 500 g split
- Coarse rejects were kept for future reference
- The 500 g split was pulverized in a ring-and-puck pulveriser to 95% passing 150 mesh (65 µm).

The ALS sample preparation procedure (Prep-33) has remained the same for all Avanti drilling.

Sample Analyses

Pulps prepared at the ALS Chemex sample preparation facility in Terrace are sent to ALS Chemex in North Vancouver for analyses. An ICP atomic emission spectrometry ICP61 (four acid) method is used for a 33-element analysis. In addition, sulphide sulphur was determined using the sodium carbonate dissolution of sulphate, Leco furnace and infrared spectroscopy (SIR07) method. Sulphate sulphur was determined by carbonate leach, and gravimetric analyses (S-GRA06).

For 2011 drill program assaying, sulphide sulphur was determined using the sodium carbonate dissolution of sulphate, Leco furnace and infrared spectroscopy (SIR08) method. Inorganic carbon was analyzed by C-GAS05 method.

The check samples at Acme were analysed using a four-acid digestion followed by ICP mass spectrometry.

11.4.2 Bell Moly

There is no information available about sampling preparation, analytical methods, and any quality assurance and quality control (QA/QC) procedures used by Bell and predecessor companies for the Bell Moly deposit.

When the Project was owned by CMC it is expected that the sample preparation and analyses were Project-wide. AMEC assumes that the sample preparation and analyses procedures outlined in Section 11.5.1 as practiced by CMC at the Kitsault deposit are valid for Bell Moly.

For the 2010 core re-sampling data verification program the Avanti sample preparation and analyses methodology was used.

11.4.3 Roundy Creek

There is no information available about sampling preparation, analytical methods, and any quality assurance and quality control (QA/QC) procedures used by Southwest Potash Corporation and SCMCL at the Roundy Creek deposit.

For the 2010 and 2011 drilling campaigns, the Avanti sample preparation and analyses methodology was used as outlined above for Kitsault in Section 11.5.1.

11.5 Quality Assurance and Quality Control

11.5.1 Legacy Drill Programs

There is no information available as to any quality assurance or quality control (QA/QC) methods used in the legacy drill programs. Typically QA/QC programs were not routinely used until the 1990s.

11.5.2 Avanti Drill Programs

The Avanti quality control on the assay data-set includes blanks, coarse duplicates, pulp duplicates, three Mo certified reference materials and check assays. The actual insertion rates of the different QA/QC samples for the 2008–2009 and 2011 programs are shown in Table 11-4 and Table 11-5 respectively.

Table 11-4: Insertion Rates of QA/QC Samples for the 2008–2009 Avanti Drilling Program

Standard	No of Samples	No of QA/QC Samples	Insertion Rate (%)
Blanks	3,324	97	3
Coarse Reject Duplicates	3,324	92	3
Pulp Duplicate	3,324	93	3
CRM AV-1	3,324	60	2
CRM AV-2	3,324	65	2
CRM AV-3	3,324	50	2
Check Assays	3,324	36	1
Check Assays 2010	3,234	321	10
Cumulative Insertion Rate			26

Table 11-5: Insertion Rates of QA/QC Samples for the 2011 Avanti Drilling Program

Standard	No of Samples	No of QA/QC Samples	Insertion Rate (%)
Blanks	3,945	91	2.3%
Coarse Reject Duplicates	3,945	154	3.9%
Pulp Duplicate	3,945	150	3.8%
CRM AV-1	3,945	69	1.7%
CRM AV-2	3,945	65	1.6%
CRM AV-3	3,945	44	1.1%
CRM VHMo	3,945	6	0.2%

The procedure used on site (Kitsault Mine: 2011 Core Handling and Logging Procedures), outlines the QA/QC sample insertion methodology. A molybdenum standard and a silver standard is inserted approximately every 25 samples. A blank is inserted approximately every 50 samples. Core and standard material for insertion grades are matched as much as possible. There are low, medium and high grade standards for both molybdenum and silver. Roundy Creek sample submissions included a very high grade molybdenum standard to grade-match the core being sampled.

Standards and blanks are given a sample number that is in sequence with the sample numbers for the drill hole. Duplicate samples are also taken, with a coarse duplicate split and a pulp re-assay taken approximately every 30 samples.

11.6 Databases

Avanti uses Excel spreadsheets to store data in the field and office. Field information is generally transcribed into Excel by the individual who recorded it. Geological logs and collar survey data are directly transcribed. All Avanti holes have a standard paper logging sheet, with information archived on site.

Where down-hole surveys were conducted with Reflex tools, survey information was downloaded from the instrument in a delimited text format and copied and pasted into Excel.

Assay information is copied and pasted from .csv files received from the assay laboratory, ALS. Errors or inconsistencies are spotted and fixed by those utilising the data.

Avanti received historical data as exports of previous databases. The legacy drilling database originates from an older database that was recovered from the taped archives located at Mintec offices in Tucson, Arizona. Scanned historical drill hole logs have been used on occasion to locate missing information and transcribe directly into Excel. Avanti personnel converted the legacy data in the following ways:

- Data was in imperial units and converted to metric
- MoS2 assay results were converted to a Mo% value using the formula MoS2/1.668= Mo%.
- Co-ordinates were in a mine grid that used imperial units and were converted to metric UTM NAD83 Zone 9 using the formulae:
  - X UTM = 478,015-((10,000- X GRID) x 0.3048)
  - Y UTM = 6,145,310-((10,000- Y GRID) x 0.3048)
  - Z UTM = NA1

11.7 Sample Security

11.7.1 Kitsault

Details of sample security are unknown for legacy work. As noted earlier, core that was drilled prior to 2007 was stored at the former Kitsault town site, but was destroyed in 2007.

Sample security at the Kitsault Project during the Avanti drilling programs relied upon the remote nature of the site, and the fact that the samples were always attended or locked at the sample dispatch facility. Sample collection and transportation have always been undertaken by company or laboratory personnel using company vehicles.

For the Avanti drilling programs, core was collected by the drilling company and dispatched to the core logging and sample preparation facility in Terrace, BC. After logging, core was marked for cutting, sampled, bagged in tamper-proof bags and transported by Avanti personnel in company trucks to the sampling preparation facility in Terrace BC, with accompanying sample submission sheets.

Chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to make certain that all samples were received by the laboratory. ALS Chemex checked the samples received against sample submission forms, and checked for any evidence of tampering.

After sampling, the remaining Avanti core was returned to the original core boxes and stored in semi-permanent core racks at the Kitsault campsite.

Sample pulps are retained by ALS Chemex preparation laboratory in Terrace, BC. Pulp rejects are initially stored at the ALS Chemex preparation laboratory, and later moved back and stored by Avanti in their Terrace sample preparation facility.

11.7.2 Bell Moly

Details of sample security are largely unknown for Bell Moly. Core was stored at the former Bell Moly camp and survived core disposals that occurred in 2007 at Kitsault townsite. Storage of the core was poor and the former camp had fallen into disrepair by the time Avanti took ownership of the project. In 2010 a significant volume was recovered, re-boxed, and moved to the Kitsault campsite for storage in semi-permanent core racks.

11.7.3 Roundy Creek

Legacy core for Roundy Creek was stored with the Kitsault drill core, and was destroyed together with the Kitsault legacy core in 2007.

The Avanti drill core from the 2011 drill program is stored with the Avanti Kitsault core in the manner described in Section 11.7.3. Similar procedures for pulp storage are maintained for Roundy Creek samples as for Kitsault.

11.8 Comments on Section 11

In the opinion of the QPs, the sampling methods are acceptable, meet industry-standard practice, and are adequate for Mineral Resource estimation purposes to declare Mineral Resources for Mo and Ag. Based on the fact that only legacy core and legacy data are available, AMEC has restricted the Mineral Resource classification at Bell Moly to Inferred. Sampling data are sufficient to support Indicated and Inferred classifications at Kitsault and Roundy Creek.

12.0 DATA VERIFICATION

Two previous independent data checks were performed by SRK Consulting Ltd (SRK) and Wardrop Engineering Inc. (Wardrop), in support of preliminary assessment and pre-feasibility studies respectively, on the Project. No significant issues were noted in these reviews.

AMEC performed an independent verification of the data and database to support Mineral Resources estimated in 2010 for Kitsault and additional reviews in 2011 and in 2012 on the Bell Moly and Roundy Creek data.

12.1 AMEC, 2010 (Kitsault)

AMEC performed quality control checks and data verification procedures on the database that consists of legacy and Avanti drilling. The legacy drilling database originates from an older database that was recovered from the taped archives located at Mintec offices in Tucson, Arizona. The legacy data-set was used for previous reserve statements, submitted to the US Securities and Exchange Commission (SEC) by Amax Inc. for the period 1980 through 1985. The Avanti drilling dataset was generated to capture the data from the 2008–2010 drilling campaigns and is available in CSV format.

AMEC normally completes a 5% data entry error check as a means of assessing the reliability of a mineral resource database. During the data entry verification check, the data values in the source documentation are checked against the corresponding records in the resource database. AMEC also checks the reasonableness and for extremes of the recorded database values.

In addition to these typical verification procedures, AMEC also collected testimonials from former employees of CMC to help support the confidence in the reliability of the legacy drill hole results.

12.1.1 Pre-Avanti (Legacy) Drilling

Most of the original source documentation of the legacy drilling was destroyed when the mine was rehabilitated in 2007. AMEC was granted access by Rio Tinto, the owner of the Kennco Exploration Company records, which covered activities by Kennco during the period 1959 to 1967. The records were inspected by AMEC staff at the Rio Tinto offices in Vancouver in June 2010. For holes drilled after 1967, source documentation consisted of hand-written copies of collar information and down-hole survey information, with the exception of the drill collar surveys for holes drilled in 1976 and 1978. These data were accompanied by an Amax memo, with the same data set tabulated for input into MineSight®. AMEC also located copies of drill core log sheets with annotated MoS_2 values for the 1980 to 1982 drilling.

Collar Coordinate Check

AMEC checked the collar in the database against available source documentation for 125 drill holes. All the legacy drill collar coordinates had been converted from a local mine grid to the NAD 83 Zone 9 coordinate system. AMEC found an error in the conversion factor and the collar coordinates were correctly converted to the NAD 83 Zone 9 coordinate system using the correct factor.

Drill hole collars plots prepared by AMEC using the archived database records compared well with original sections and plans.

After a correction, the collar coordinate database was deemed to be sufficiently error free to support mineral resource estimation.

Drill Hole Collar Elevation Check

Drill hole collar elevations reported in the database were compared to the elevation at the drill hole collar location on a current topography surface. The topographic surface is based on a LiDAR survey that was completed in May 2009. The large majority of the legacy drill hole collar elevations did not match the topography due to excavation and earth moving activities that post-date the drilling activity, so no meaningful conclusion could be made.

Down Hole Orientation Checks

The down-hole survey data for legacy drill holes was retrieved from the archived MineSight® project. Comparison of this data with available original records showed inconsistencies. AMEC re-entered the available original recorded results and visually compared resulting drill hole trajectories with drill hole trajectories using archived database records. No significant differences were noted. The final down-hole database is a combination of the archived MineSight® records and records re-entered from original records.

AMEC checked the magnetic declinations that were applied to the down hole surveys that relied on a magnetic measurement down-hole survey instrument and found them to be acceptable for the legacy drilling campaigns.

AMEC checked the drill hole trajectories for excessive deviation using an AMEC software program that calculates deviation between consecutive down-hole survey measurements and compares to an allowable tolerance set by the QP. Three holes with large deviation were found. These results are not considered material to the resource estimate due to the style of a large, disseminated porphyry mineralized system. The down-hole survey records are considered suitable to support mineral resource estimation.

Assay Data Checks

AMEC checked the assay values in the database against the graphical logs, printed log sheets and composited values on log sheets for the KEL drill holes between 1959 and 1969. Two assay data entry errors were found. Two entries were switched, and five composite values had differences within 0.003% Mo; the frequency of errors is not considered material to the estimate.

AMEC used data entry checks on 5% of the available original assay values records for the 1981 and 1982 drilling. The measured error rate of 0.74% is considered acceptable for supporting resource estimation.

12.1.2 Avanti Drilling

Collar Co-ordinate Checks

All of the collar coordinates of the database were checked against the original collar survey certificates. No errors were noted and the data is considered suitably error free.

Drill Hole Collar Elevation Checks

AMEC compared the position of the 2008 drill-hole collars (33 drill holes) to the LiDAR topographic survey. Four drill holes (K08-09, K08-28, K0819 and K08-15) have elevation differences of more than 5 m (half the current bench height) with K08-09 indicating the largest difference of 6.51 m. The average of the deviation is 2.41 m, which is considered acceptable for resource estimation for this style of deposit.

Down Hole Orientation Checks

AMEC performed a data entry check on 15 randomly selected down-hole survey records, representing 6% of all the down-hole survey records, and found them to be error free. The magnetic declination used by Avanti for all of their down-hole surveys was checked against the Geological Survey of Canada's magnetic declination for the area and was found to be correct. AMEC checked for excessive down-hole deviation and found all the drill hole deviations to be reasonable.

Assay Data Checks

AMEC performed a data entry check on 168 of the assay intervals, representing 5% of the values, inclusive of the re-assays for Mo, Ag, and Pb. A single error was detected for Mo values resulting in an error rate of 0.6% for Mo, which is acceptable for resource estimation. The Pb and Ag assay values checked are error free and considered suitable to be used for resource estimation.

Blanks

AMEC reviewed the 2008–2009 data for Mo, Pb and Ag. The 3% insertion rate of blanks is slightly low, but acceptable. Avanti conducted a more comprehensive check assay program in 2010 and included CRMs with the check assays to test the secondary laboratory accuracy for Mo, Ag, and Pb.

There is evidence of minor contamination when comparing the grades of blank assay with preceding sample values; however, the 1% contamination rate is within acceptable limit of 5%.

Coarse Duplicates

AMEC compared the performance of coarse duplicates of Mo, Pb, and Ag for 92 data pairs. None of the Mo sample pairs exceed an error limit of 10%. Only 2.2% of the Pb sample pairs and 1.1% of the Ag sample pairs exceeded the error limit. The performance of the coarse duplicate assays indicate that the sub-sampling processes at the preparation facility is under control and do not introduce any bias to assay results.

Pulp Duplicates

The database contains 93 pairs of pulp duplicates that were prepared by making a second split of the pulverized material. Only 3.2% of the Mo and Pb duplicate pairs exceed the error limit imposed of 10%. The error limit for Ag is exceeded by only 2.2% of the duplicate pairs. The performance of the pulp duplicate assays indicates that the precision of the analytical methods at ALS is under control and do not introduce any significant error or bias to the assay results.

Certified Reference Materials

CRMs certified by Smee & Associates Consulting Ltd were routinely inserted into each batch submitted to ALS Chemex. Of the 174 samples, one CRM had a value that was significantly different from the expected values and was likely a sample mix up. A bias between the expected value and the assayed value of a CRM that is less than ±5% indicates reasonable accuracy; all of the relative biases returned from the examination were less than ±2.3%. The performance of the CRMs indicates that the accuracy of the analytical methods at ALS is under control.

Check Assays at Acme

Avanti selected as single batch of 36 samples that had a failure of one of the Mo CRMs, and submitted them as check samples to Acme. The Acme check assays were submitted with the three Mo CRMs, but did not include independent Pb and Ag CRMs. A check assay that is conducted on the results of a single batch is not considered representative of the assay campaign.

AMEC considers a bias less than 5% to show acceptable accuracy. A bias between 5% and 10% is considered to show questionable accuracy. A bias higher than 10% is considered to show unacceptable accuracy. The check assay results indicate that there are questionable biases for Mo (7%) and Pb (-5%). There is an unacceptable 22.8% bias for Ag.

Based on these check assay results, Avanti re-submitted the pulps at ALS Chemex with the three Mo CRMs which this time returned acceptable results. This second set of ALS Chemex assay results was then included in the final database.

Check Assays at ALS Chemex

To assess ALS Chemex laboratory accuracy, particularly for Pb and Ag, Avanti resubmitted a second set of pulp samples to ALS Chemex for check assays. Even though the check assays are submitted to the primary laboratory, these are considered check assays because different analytical procedures were used than for the original analyses.

For the Mo check assays at ALS Chemex, a four-acid, near total digestion method was used followed by the AA61 analytical technique. For the Ag check assays, the ME-MS61 method used a four acid “near total” digestion, with both ICP-MS and ICP-AES analysis. For the Pb check assays, an aqua regia digestion method was used followed by an AA45 analytical technique.

To ensure blind analyses, the original pulps were re-packaged and re-numbered at Acme before submission to ALS Chemex. The samples included the three Mo CRMs as well as three additional CRMs to test for accuracy for Pb and Ag at low, medium, and high grades. Blanks and duplicates were also included.

The results of the Ag CRMs show the ALS Chemex silver assays to be under control.

Mo assays have a bias of less than 5% which is not considered to be significant as it is within the analytical precision of the assay methods used. Ag has a similar trend.

AMEC noted a bias with the Pb results. This bias is not considered to be significant enough to warrant an adjustment for Pb, but care should be taken in future drill assay programs, to include CRM material suitable to measure the accuracy and precision for Pb. The Pb grade is not considered an economic contributor to the resource estimate, but may be important to mineral processing.

12.2 AMEC, 2011

During the 2011 site visit, AMEC reviewed new drill core from the Kitsault and Roundy Creek deposits. Based upon AMEC's examination of the drill core, AMEC concluded that:

- Core recoveries during the 2011 drill campaign were high.
- Avanti's logging of drill core has been conducted in a manner appropriate to the style of mineralization present on the Project.
- Sufficient drill hole data has been collected at Roundy Creek to support mineral resource estimation.
- The western portion of the mineral resource at Roundy Creek will rely heavily on legacy drill hole information and hence have a lower confidence. Therefore, limitations may be put on the resource classification in this portion of the deposit.
- No new drilling has been completed at Bell Moly. The mineral resource classification will be restricted to the Inferred category until Avanti collects sufficient data to support a higher resource classification category

12.3 BD Resource Consulting Incorporated, 2011

In November 2011, BD Resource Consulting Incorporated (BD) reviewed the QC data from all holes drilled during the 2011 campaign at Kitsault and Roundy Creek. Conclusions were that:

"Results from SRM that indicate potential errors are being checked. Blank results show that there is no significant contamination in the preparation or assay process. The coarse reject duplicate assay work shows the sample preparation process is well controlled.

The 2011 Patsy and Roundy Creek sampling and assaying program produced sample assay information that meets industry standards for molybdenum and silver accuracy and reliability. The assay results are sufficiently accurate and precise for use in resource estimation and the release of drill hole results on a hole by hole basis."

12.4 AMEC 2012

During the estimation of Mineral Resources at Bell Moly and Roundy Creek, review of legacy versus Avanti assays was undertaken.

At Roundy Creek, a comparison of twinned Avanti and historical assays falling within 5 ms of each other shows that there is a -5.7% bias in the mean of the legacy assays when data above 0.3% Mo are removed.

At Bell Moly, a comparison of Avanti assays (with supporting QAQC data) from re-sampling of drill core intervals with historical assays shows that there is a -5.3% bias in the mean of the legacy assays when data above 0.16% Mo are removed.

AMEC has accepted the use of legacy assays but has restricted their support such that legacy assays can only support Inferred Mineral Resources.

AMEC also reviewed the QA/QC data from the 2011 Avanti drill program. AMEC's results were similar to those presented by BD Consulting. AMEC concluded that the assay results are suitable to support Mineral Resource estimation.

12.5 Comments on Section 12

In the opinion of the QPs:

- The data verification performed on the Avanti and legacy drilling at the Kitsault deposit supports the use of the drill and sampling data in Mineral Resource estimation without confidence class restrictions.
- The data verification performed on the Bell Moly data was restricted to evaluation of relogging and resampling undertaken by Avanti on legacy core and assessing the Avanti results against the original legacy data. AMEC has restricted the confidence category of the Bell Moly estimate to the Inferred category.

- The data verification performed on the Avanti and legacy drilling at the Roundy Creek deposit supports the use of the drill and sampling data in Mineral Resource estimation in the Inferred and Indicated categories.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical Testwork

Over the Project history, a number of metallurgical testwork campaigns have been undertaken. These are summarized in Table 13-1.

In its two operating periods from 1967 to 1972 and 1981 to 1982, the Kitsault concentrator processed approximately 13.4 Mt of mineable ore for the production of approximately 32 million pounds of Mo. After closure in 1982, the Kitsault concentrator was completely disassembled, salvaged, and sold.

13.1.1 Testwork Samples

Sample selection for the 2008–2013 testwork was based on the three major rock types:

- Quartz monzonite (55%)
- Diorite (25%)
- Hornfels (20%).

The grade of an individual sample used for preparing the rock type in the composite had to meet or exceed a 0.036% Mo cut-off grade.

Composites were created for the flotation testwork in 2008-09, 2010, 2012 and 2013. In each case, a composite was created for each of the major ore types—quartz monzonite, hornfels, diorite—and also for a master composite (55% quartz monzonite, 25% diorite, 20% hornfels). The proportion of rock types within the master composite follow the relative proportions within the resource. The specifics of sample source are identified within the description of each annual metallurgical program.

Table 13-1: Metallurgical Testwork Summary Table

Year	Laboratory	Testwork Performed
1962 to 1963	Lakefield Research, Canada	Mineralogy, flotation and grindability tests
1963 to 1964	Canadian Department of Mines and Technical Surveys	Mineralogy
1964	Britton Engineers, Vancouver, BC,	Open cycle rougher flotation recovery and grindability tests, cleaning tests, specific gravity determinations, reagent and flocculant testing
1964	Western Mining Division Research Department of Kennecott Copper Corporation	Independent amenability tests
1967 to 1974	BC Molybdenum	Plant operation
1978	Allis-Chalmers	Grindability tests
1978 to 1982	Amax Metallurgical Laboratory, Golden, Colorado	Metallurgical testwork: Optimization of reagent consumptions, recovery of silver, tungsten, lead and heavy metals as by-products, removal of lead from the molybdenum concentrate, and removal of soluble lead, zinc, cadmium and heavy metals from the concentrator tailings. Addition of a hot acid lead leach circuit was recommended and implemented in late 1981.
1981 to 1982	AMAX	Plant operation. Studies indicated the possibility of by-product recovery of tungsten, lead, and silver, but due to space constraints in the mill building, this was not undertaken
1983	SGS Lakefield, Canada	Pilot plant operation to develop a flowsheet and reagent scheme what would produce an acceptable molybdenite concentrate grade and recovery.
2008 to 2010	SGS Vancouver, Canada	Flotation process optimization tests
2008 to 2010	Hazen Research Inc., Colorado, USA	Grindability evaluation testwork
2008 to 2010	Resource Development Inc (RDi), Colorado, USA	Flowsheet development testwork
2009 to 2010	Contract Support Services Inc., Red Bluff, California	Project data review
2010	SGS Lakefield	Spatial comminution tests
2011	RDi, Colorado, USA	Locked cycle testwork
2011	RDi, Colorado, USA	Lead leaching from molybdenite concentrate
2011	RDi, Colorado, USA	Silver recovery from molybdenite tailings
2012	Hazen Research Inc., Colorado, USA	Preparation of flotation concentrates for Silver Recovery work
2012	RDi, Colorado, USA	Silver recovery work on prepared concentrates (from Hazen).
2013	ALS Metallurgy Kamloops	Preparation of material for silver testwork and for environmental testing
2013	RDi, Colorado, USA	Silver recovery work on prepared concentrates (from ALS).
2013	Hazen Research Inc., Colorado, USA	Comminution testwork on spatial and domain samples.
2014	RDi, Colorado, USA	Silver flotation, and molybdenum flotation kinetic work, settling work, comminution testwork

13.1.2 Testwork Procedures

All testwork was performed on identified process samples which were either composited to create samples for process definition or were point composites created to generate spatial information on metallurgical response within the deposit.

Grinding testwork was performed according to industry standard procedures (drop weight tests, SMC tests, Bond Rod and Ball Mill Work Index testing) to support the models used for sizing. Abrasion testwork was using the Bond Abrasion Index testing. Flotation testwork was carried out in either Denver or Agitair laboratory flotation cells. Size fraction analysis was generally carried out utilizing screen sieve analysis on grinding and flotation products with a couple of fine tests being done by laser diffraction. Settling and filtration testwork was preliminary, primarily due to the small size of intermediate and final product samples produced. This has been compensated for by using conservative benchmarking in the design of the settling, filtration and acid leaching facilities in the design.

The assay procedures utilized for the testwork were appropriate for the products being assayed and were performed by recognized creditable laboratories. These laboratories included SGS Vancouver supporting the SGS work and both Hazen Research and Florin Analytical supporting the RDi testwork.

The metallurgical testing laboratories used were visited during the running of the programs by AMEC staff responsible for the interpretation of the metallurgy.

13.1.3 2009 Metallurgical Program

The 2009 testwork program was designed to further the understanding of the treatment characteristics of the Kitsault ore, to confirm a process flowsheet that would produce a marketable grade molybdenite concentrate, and to develop design criteria for the pre-feasibility study. The work was undertaken on samples from the 2008 drilling program, based on three major rock types expected to be encountered over the life of the mine: quartz monzonite (55%), diorite (25%), and hornfels (20%). The following testwork was performed:

- Grindability studies at the Hazen laboratory in Colorado, USA
- Flowsheet development studies by SGS Vancouver in B.C., Canada.
- Flowsheet development studies by Resource Development Inc (RDi) in Colorado, USA

The grindability work performed in 2009 showed that the diorite and the quartz monzonite were moderately hard while the hornfels could be considered very hard. Modelling of this work showed that while a semi-autogenous grind (SAG) mill would work in this application, a pebble crusher would be necessary to handle the critical-size material generated from the ore.

The flotation work by SGS demonstrated that good rougher recoveries could be obtained using a diesel fuel collector for the molybdenite while employing sodium dithiophosphate (Nokes' reagent) to suppress the flotation of other sulfides away from the final concentrate.

A wide variety of batch tests were performed, including grind/recovery, kinetics testwork for the roughers, 1st cleaners and cleaner scavengers. Open circuit cleaner and regrind work was performed to generate flotation criteria for the locked cycle testwork and a standard recipe for the variability tests.

The resulting two locked-cycle tests in the 2009 testwork did not yield a combination of good recovery and high concentrate grade due to procedural difficulties. Analysis of this work, the open cleaner and regrind testwork all emphasized the requirement to tightly control mass pulls and regrind sizes in the cleaning circuit to achieve the target concentrate grades and recovery levels. Work was subsequently performed in the 2010 program to address these issues.

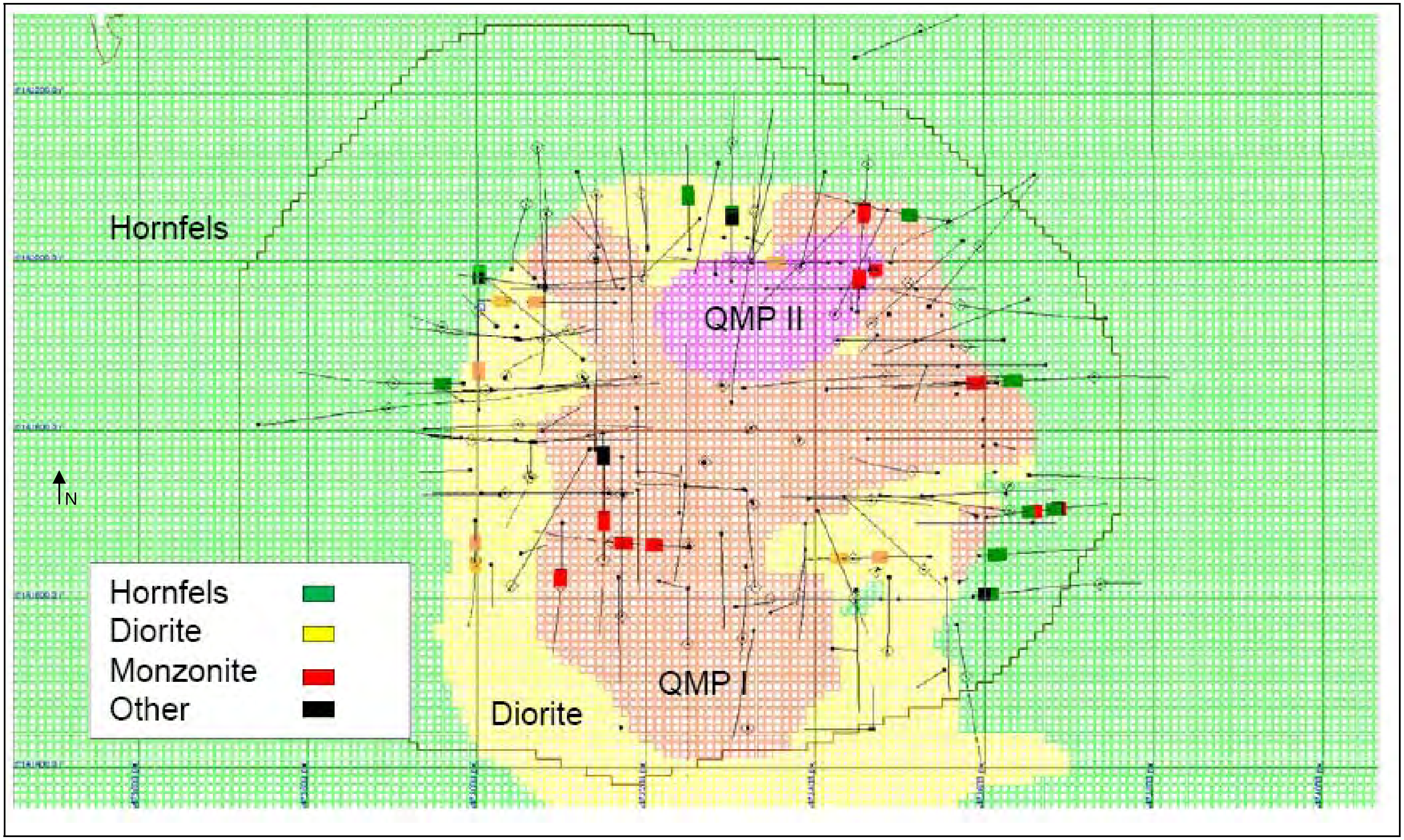
For the variability work, rougher flotation tests, using a standard test protocol, were performed on a number of discrete samples selected from a variety of locations in the deposit. The results of this variability work showed good rougher recovery response throughout the deposit. At a feed grade of approximately 0.11% Mo and an average primary grind of 80% passing size (P_{80}) of 266 µm, a rougher recovery of 93.3% could be achieved. It should be noted that because a constant grinding time was employed, a wide range of sizes was produced and it was shown that although, as expected, the grind size affected the results, the recovery was quite good over the entire range.

Figure 13-1 indicates the locations of the 2009 variability samples within the pit shell developed in the 2010 feasibility study. The selection of the samples took into account that the deposit is annular and the need for the samples to represent a wide distribution within the deposit.

13.2 2010 Metallurgical Program

The primary objectives of the 2010 testwork were to confirm the process flowsheet developed in 2009, to optimize conditions for the production of a marketable-grade molybdenite concentrate, and to develop design criteria for the 2010 Feasibility Study.

Figure 13-1: Distribution of Samples Used for 2009 Variability Work



Note: Figure courtesy Avanti, 2010. Geology and pit outline illustrated on this plan is at the 435 m elevation.

For this work, samples were obtained from specified intervals of drill holes and shipped to SGS Vancouver testing laboratory in sealed drums. There the material was inventoried and checked against the shipping documents. The material was then composited into samples under the direction of consultants and geologists working for Avanti Mining. Portions of the samples were then prepared to the quantities required for the relevant testwork. Upon the completion of testwork at SGS Vancouver, the sample was re-inventoried and shipped to RDi located in Wheat Ridge, Colorado. There the material was composited to form new composites of the required samples.

The following testwork was performed:

- Grindability studies at SGS-Lakefield
- Flowsheet development by RDi in Colorado, USA
- Flowsheet development studies by SGS Vancouver in B.C., Canada.

For this 2010 work, comminution testing was undertaken on distinct samples from each of the three major rock types. Selection of the samples within the deposit was chosen to reflect the weighting of the ore types, and a wide distribution across the deposit which was biased to emphasize early year production, which is an important factor. In total, a further 15 SMC SAG-mill grindability tests, seven Bond rod mill work index (RWi), and 30 Bond ball mill work index (BWi) tests were performed and added to the database. This work is discussed in conjunction with the 2013 comminution work later in the report.

The SGS Vancouver flowsheet development studies conducted in 2010 included a variety of work including locked-cycle testwork on the three ore types. Six tests, two for each of the main rock types, were conducted (all at approximately a P_{80} of 200 µm), all of which had difficulty achieving the expected combination of high recovery and high concentrate grade. The results are shown in Table 13-2.

Problems in achieving the performance desired were determined by subsequent analysis and review, to be related to problems in controlling regrind size, reagent addition, and reagent control. These problems led to lower selectivity and unstable circulating loads at the laboratory scale. The shortfall in results was similar in nature to the issues encountered in the 2009 testwork.

Table 13-2: Results of Locked-Cycle Testwork on Composites

		Mo			Concentrate	
Test	Ore Type	% Rec	% Bulk Tails	% Clnr-Scav Tails	% Mo	% Pb
LCT-1	Diorite	92.3	5.8	1.9	41.6	0.15
LCT-4	Diorite	85.2	10.8	4.0	56.1	0.11
LCT-2	Hornfels	90.5	7.2	2.3	32.4	0.12
LCT-5	Hornfels	87.9	8.4	3.7	41.5	0.11
LCT-3	Quartz–Monzonite	93.6	4.7	1.7	35.3	0.12
LCT-6	Quartz–-Monzonite	88.3	8.4	3.3	48.5	0.14

However although LCT-4 did not give the expected results, it was performed to the correct procedures and regrind levels. When the analysis of the test streams was performed these showed that if cleaning was done only to the fourth stage, both recovery and concentrate molybdenum grade would be achieved. In operations, performing this diversion of material to final product would be simple to accomplish. Rather than a recovery of 85.2% Mo and a concentrate grade at 56.1% Mo, a recovery of 92.6% would have occurred while still maintaining a concentrate grade over 54.9%.

Difficulties with these locked cycle tests in 2010 indicated there was the potential for performance risk in achieving the recovery and final concentrate grade targets. While good rougher recovery is typically seen in all the rock composites, care is required to achieve acceptable concentrate grade and overall recovery to the final product.

Although the results were not optimal in confirming circuit performance, there was no indication of serious problems in the metallurgical characteristics of the material. In a commercial plant, proper control should be possible with the use of particle size and on-stream analyzers in the cleaning circuit and would alleviate the risk in achieving concentrate grade. The past operational history of the Project, successful batch testwork and understanding the problems encountered in the locked cycle testwork does support the proposition that a commercial concentrate with good molybdenite recovery and grade can be produced. However it was decided that more testwork was required. This follow-up testwork was done subsequent to the issue of the original feasibility study and took place in 2011.

One particular benefit of the 2010 locked cycle testwork was the success in controlling the deportment of lead to the molybdenum concentrate. The lead level of the concentrate from the 2010 work was 0.15% or less due to the use of Nokes as a lead depressant in the rougher and scavenger stages. The lead level, however, was still greater than 0.10% Pb in all cases indicating the need to have a leaching circuit to bring these levels down to non-penalty levels. Table 13-3 summarizes the most important assays within the concentrate.

Table 13-3: Concentrate Quality – Locked-Cycle Testwork

Test	Ore Type	% Mo	% Pb	ppm Ag	% Bi
LCT-1	Diorite	41.6	0.15	26.4	0.010
LCT-4	Diorite	56.1	0.11	18.1	0.006
LCT-2	Hornfels	32.4	0.12	33.6	0.006
LCT-5	Hornfels	41.5	0.11	48.7	0.007
LCT-3	Quartz-Monzonite	35.3	0.12	24.3	0.010
LCT-6	Quartz-Monzonite	48.5	0.14	26.8	0.012

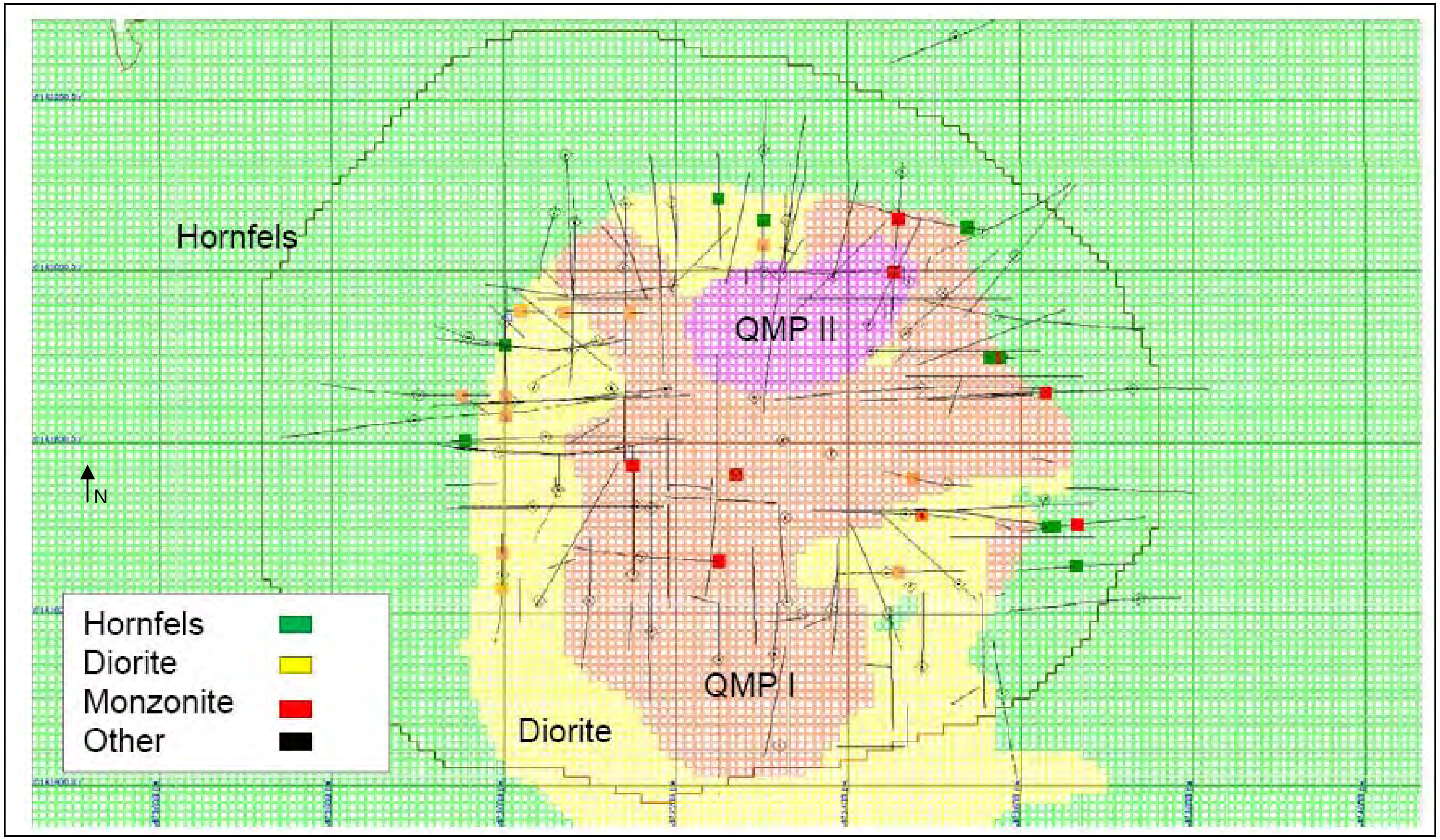
The execution problems with the locked-cycle testwork limited the ability to perform leaching tests due to the quantity and quality of leach feed available. Three simple tests were performed, all with hydrochloric acid, none of which met target. Due to the limitations with this testwork and their preliminary nature, it was decided to rely on the extensive work done during the history of plant operations as a guide to designing the leach circuit. In addition, it was recommended that further work be conducted to allow for the proper optimization of that part of the design and to confirm performance. This work was subsequently performed in 2011.

As in 2009, more variability tests were run in 2010. These tests used a standard reagent formula of 180 g/t of diesel oil, 80 g/t of Nokes' reagent, and MIBC with grinds averaging a 200 µm grind size. The data produced from these tests suggest that the variability in response was due more to fineness of grind than to the varying feed grades. Where the grind was approximately 200 µm or coarser, better flotation characteristics and results were indicated in comparison to the finer grind. Good recoveries were achieved at a 4% to 6% mass pull for the coarser material. Taken together with the 2009 testwork, which was done at a still coarser size, a P80 of 230 µm is considered to be a good target for the flotation feed. Figure 13-2 indicates the distribution of the 2009 samples used for the 2010 work within the 2010 pit shell. The samples were selected to reflect the earlier years of production while still maintaining a good spatial distribution.

13.3 2011 Metallurgical Program

Additional sample material for the 2011 program was derived from sample remaining from the 2010 metallurgical program. Three rock type composites were created in addition to a master composite. The hornfels material was derived from samples across the proposed pit area and with over 60% of the material from the first five years and 36% from Years 5 to 9. Quartz monzonite was derived in a similar manner with 47% from the first five years and 26% from the next four years. Diorite material was well distributed from within the deposit and reflected 66% from the first five years and 29% from the following four years.

Figure 13-2: Distribution of Samples Used for 2010 Variability Work



Note: Figure courtesy Avanti, 2010. Geology and pit outline illustrated on this plan is at the 435 m elevation.

The master composite was also composed from across the deposit with a similar emphasis on obtaining the sample from the initial payback period of the mine life. For the composite, 54% is from the first five years and 29% is from Years 5 to 9.

The metallurgical work was completed by RDi during 2011 as per the recommendations in the 2010 Feasibility Study. Five locked cycle tests were performed to confirm the combination of recovery and concentrate quality targets used in the 2010 Feasibility Study. The results support the projection of an overall recovery of 90% of Mo and a 52% minimum Mo grade in concentrate. In addition, lead recoveries to concentrate are at low levels, and after hot acid leaching, the lead content in all the concentrates was reduced to less than 0.04% Pb which is the typical penalty level threshold for molybdenum concentrates. The level of lead reduction is similar to the efficiencies achieved by the previous operators of the mine.

A summary table of the locked cycle test flotation results is presented in Table 13-4.

In 2011, RDi also completed de-sulphidization testing of the composites (Master, Diorite, Hornfels & Quartz Monzonite) confirming that de-sulphidization could be accomplished. Further testwork determined how the silver would report to the sulfide concentrates (C1 and C2) generated from each composite. In this testwork, the majority of the silver which was present in the Mo rougher scavenger tailings was recovered in the first sulfide concentrate (20 to 40%) with an additional (12 to 26%) recovered to a second sulfide concentrate. Cleaner development work was then performed providing an indication of the parameters to be used for upgrading. A three-stage silver cleaner flotation process was developed which recovered 76.6% of the silver from C1 to a concentrate grading 2,050 g/t Ag and 11.7% Pb. From C2, although it was possible to achieve a 73.6% recovery the concentrate quality was poor at 117 g/t Ag and 0.56% Pb. At this point, it was estimated that it might be possible to achieve 30 to 40% recovery of the silver at a concentrate grade of 2,000 g/t Ag. Although this work was performed on representative composites, there was no variability work performed in 2011 for silver across the deposit. Further work was advised in the next level of testwork.

13.4 2012 Metallurgical Program for Silver

Additional test work examining silver recovery was undertaken in 2012 under the supervision of Avanti. This work took place at the facilities of both Hazen and RDi. The sample for the 2012 program was derived from sample remaining from the 2010 and 2011 metallurgical programs. Hazen received 1.4 t of material which was formed into a composite to produce material for pilot plant operation.

Table 13-4: 2011 Locked Cycle Testwork on Composites

Product Concentrates	Assay % Mo	%Pb	g/t Ag	Distribution % Mo	% Pb	% Ag
LCT-1 - Diorite Comp	52.0	0.18	124.0	92.4	1.6	6.0
LCT-2 - Hornfels Comp	49.8	0.18	160.0	90.3	1.4	7.9
LCT-3 - Master Comp	56.2	0.10	53.0	88.0	0.5	1.8
LCT-4 - Quartz Monzonite Comp	54.7	0.12	43.0	87.8	0.6	1.2
LCT-5 - Master Comp	57.9	0.09	39.0	90.7	0.6	2.4

Note: Testwork results are presented prior to any hot acid leach step

The purpose of this pilot plant was to produce sulfide concentrates which would undergo process development work by RDi to confirm a flowsheet to produce a saleable silver concentrate.

At Hazen, three pilot plant runs were performed which produced a molybdenum rougher concentrates and two sulfide concentrates (S1/2 and S3/4) which were equivalent to the C1 and C2 concentrates produced in 2011. There was difficulty in achieving the correct Nokes control and the deportment of the silver was not optimum, with most of the silver either remaining with the molybdenum concentrate or with the final tails. RDi subsequently took the S1/2 and S3/4 concentrates produced, combined them and attempted cleaning tests. Acceptable results were not produced and it was decided that more work would be necessary, which was to be carried out in 2013.

13.5 2013 Metallurgical Programs for Silver and Comminution

In 2013, testwork was scheduled to produce samples for environmental work. The opportunity was taken to produce four composites (Master, Quartz Monzonite, Diorite, and Hornfels) for testing from approximately 1.7 t of material produced from drill core at the Avanti site.

Rougher tests on all the composites and one locked cycle on the Master Composite were performed at ALS Metallurgy in Kamloops, Canada. The rougher tests all showed expected molybdenum recoveries above 90%. The locked cycle test achieved 87.6% and produced a concentrate grade of 44.6% Mo. All tests were performed at lower Nokes levels than typically performed on the ore. In both the rougher and the locked cycle testwork, a different pattern was seen with the silver deportment with a higher recovery of silver reporting to the C2 (final sulfide concentrate).

Apart from a sub-sample sent to an external laboratory for environmental work, the remainder of the sample was sent to RDi for further silver recovery testwork. At RDi, the work concentrated on the Master Composite material. Testwork was run to determine impact of time on oxidation and Nokes dissipation, different collectors for silver recovery, and the deportment of silver. It was found that Nokes dissipation was rapid and should not hinder silver recovery in a plant setting. It was also found that the silver and lead recovery dropped if oxidation was encountered.

With reagents, it was found that either the 3477/PAX combination or PAX by itself would give the best results. In addition to finding the deportment of the silver occurring to the last (C2) sulfide concentrate, screen analysis and assaying also indicated that the silver was recovered predominantly to the -100 mesh fraction. This is in agreement with some minor mineralogical work previously undertaken, which indicated that the silver occurs with fine silver lead sulphosalts.

As a result of these findings, it was decided to run a locked cycle test to predict molybdenum concentrate and sulfide concentrates. This test produced a molybdenum concentrate at 54.2% Mo and 72.3% overall recovery. The molybdenum losses were possibly due to oxidation of the sample which was indicated by the presence of 21% of the total sulfur as sulfate. For the silver, the C1 concentrate recovered 15.5% of the Ag while the C2 (or final sulfide) concentrate recovered 82% of the silver.

Cleaning tests were begun on the sulfide concentrates. The grade produced on the C1 material was approximately 200 g/t while for the C2 material it was possible to achieve 640 g/t with a 84% cleaner recovery. Further work was explored to take advantage of the occurrence of the silver within the -100 mesh material. It was found that regrinding this fine material, and performing two stages of open circuit cleaning produced a silver recovery from original feed material of 41.5% producing a concentrate which graded 3,000 g/t Ag. The addition of a third stage would reduce the recovery to 27% but would increase the concentrate grade to 5,400 g/t Ag. Gravity testwork was also performed on sulfide concentrate samples but proved ineffective.

In addition to silver flotation testwork, further comminution work was performed in 2013 by Hazen on new sample obtained from drill core stored on site. The original comminution database contained three drop weight tests and 15 SMC tests. From more recent drilling performed in 2011, it was possible to obtain more samples. An additional three drop weight tests and 32 SMC tests were added to the comminution database. The addition of the new information increased the hardness profile of the ore, changing the mean value of the Axb for the overall ore from 46.1 to 39.5. In addition, a check of the 75th percentile value indicated a change in the Axb value from 40.5 down to 32.9.

The decision was made to incorporate a change in the SAG mill size to a 36’ (10.97 m) diameter unit to maintain confidence in throughput capability of the plant design.

13.6 2014 Metallurgical Programs for Silver and Comminution

In 2014, further testwork is currently underway examining molybdenum flotation kinetics, settling testwork, silver flotation and additional ball mill grinding data. This work is not expected to be finished until the second quarter of 2014.

13.7 Recovery Models

Flotation recovery models were revisited and updated to a higher precision from the 2010 feasibility study.

The recovery model takes head grade, P80 grind and ore type into account. The recovery model uses the following methodology:

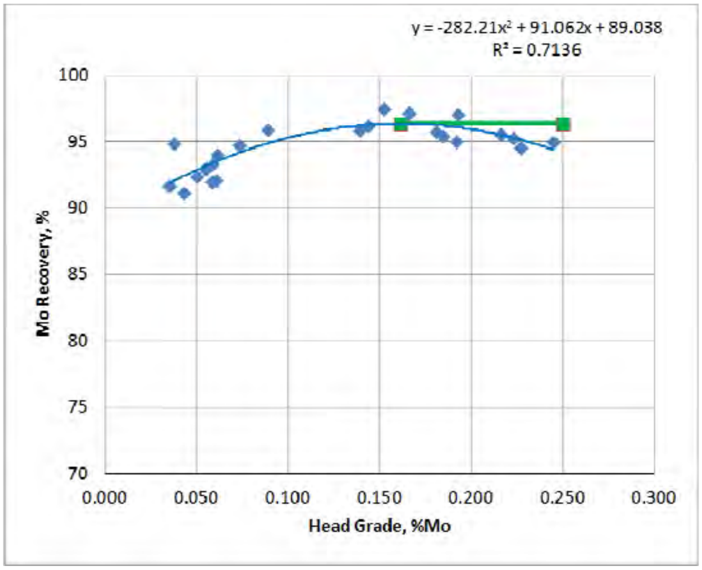
1. Calculate rougher Mo recovery as a function of head grade
2. Adjust the rougher recovery for the grinding P_{80} value being different than the base case value of 230 microns - there is a model for each ore type
3. Multiply by the cleaner circuit recovery.

The relationship of the rougher molybdenum recovery to the head grade is shown in Figure 13-1. It is a quadratic equation with a maximum reached at 0.161% Mo in the feed. The assumption is that for head grades higher than 0.161% Mo, the recovery is constant at 96.4%.

Equations are:

- For head grade between 0.04% Mo to 0.161% Mo
  - Mo Rougher Recovery = $-282.21*(Hd\ Gr)^2 + 91.062*(Hd\ Gr) + 89.038$
- For head grade > 0.161% Mo
  - Mo Recovery = Mo Rougher Recovery = 96.4%

Figure 13-3: **Molybdenum Rougher Recovery as a Function of Molybdenum Head Grade**



Rougher flotation molybdenum recovery models were developed for each ore type for the recovery versus P80. Excel's regression function was utilized for this. Trial and error method of finding the regression equation with the highest R2 value was utilized with the constraint that the equation needs to make logical sense. The base case P80 value is 230 microns. The effect of P80 on the rougher recovery is determined by subtraction of the modeled recovery at the new P80 from the base case recovery. The rougher grind recovery models for each ore type are:

- Diorite Mo Rougher:
  - Recovery = -0.0000074563(P80)3 + 0.0043907516(P80)2 - 0.8639856398(P80) + 152.6356420961
- Hornfels Mo Rougher:
  - Recovery = -0.02047(P_{80}) + 98.17693
- Monzonite Mo Rougher:
  - Recovery = -0.0179(P80) + 98.915

Figure 13-4, Figure 13-5 and Figure 13-6 illustrate the molybdenum rougher flotation recovery models.

Figure 13-4: Diorite Rougher Mo Recovery Model

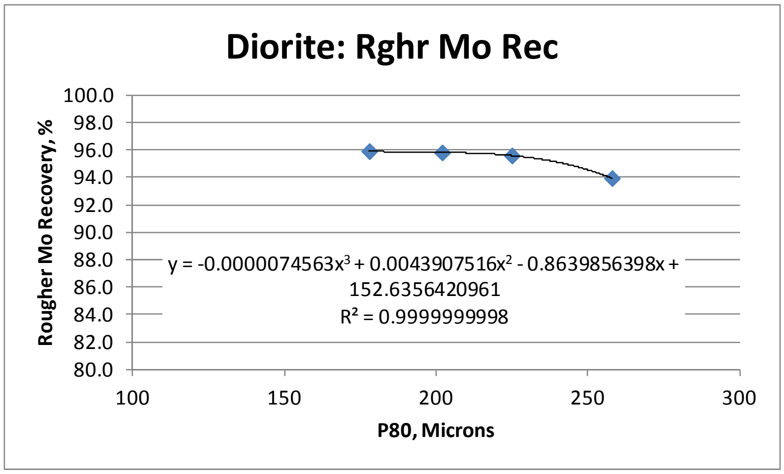


Figure 13-5: Hornfels Rougher Mo Recovery Model

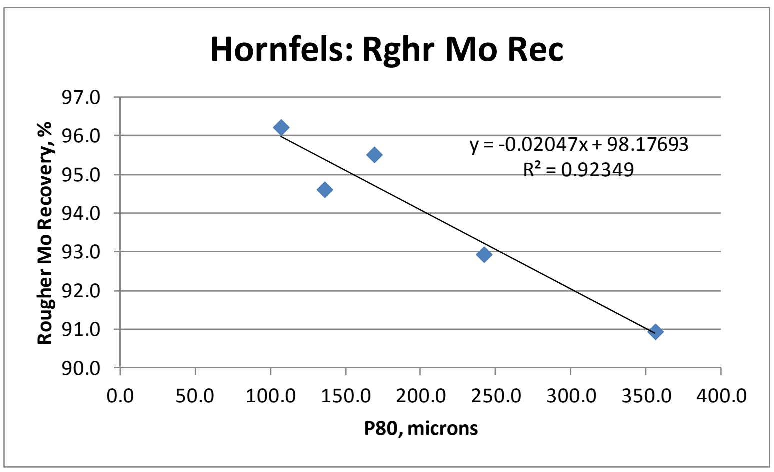
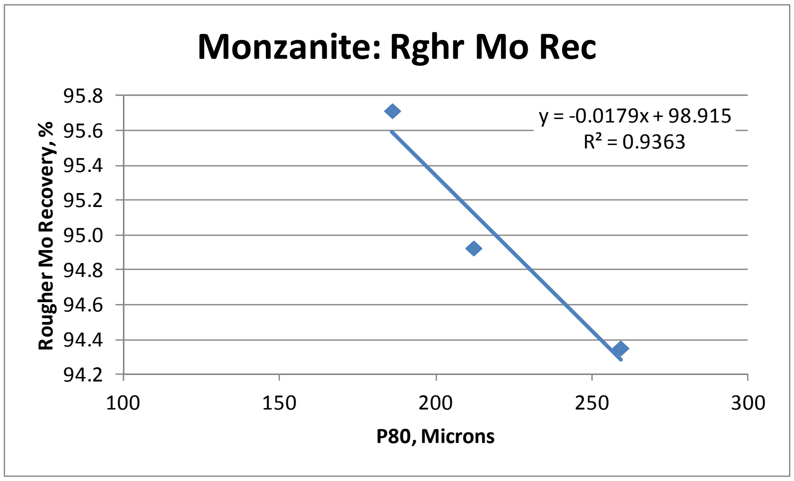


Figure 13-6: Monzonite Rougher Mo Recovery Model



For cleaner flotation recovery, the average value from lock cycle testing was used. The average value is 95.2% and the standard deviation is 0.7% (refer to Table 13-5).

13.8 Comment on Section 13

In the opinion of the QPs, the metallurgical test work conducted to date supports the declaration of Mineral Resources and Mineral Reserves based on the following:

- The metallurgical testwork completed on the Project has been appropriate to establish a process route that is applicable to the mineralization types, and the process route proposed uses conventional technology
- Tests were performed on samples that were representative of the mineralization for the purposes of establishing an optimal conceptual process flowsheet
- The testwork performed from in 2011 to 2013 has generally supported the work completed in 2010. The level of comminution testwork and the selection of a power target (the 75th percentile of all sample hardness) consistent with the level of the work push the design of the comminution circuit to an appropriate level of confidence. Although grind/recovery work and rougher kinetics showed consistently good performance for bulk molybdenum flotation in all metallurgical programs, the material is sensitive to the appropriate use of Nokes reagent and frothers as can be seen from difficulties that were encountered in the performance of the locked-cycle tests. This emphasizes the importance of an adequate flotation control system for the concentrator when it is built.

Table 13-5: Cleaner Recovery

Test	Ore Type	Feed Grade, %Mo	Final Concentrate Grade, %Mo	Cleaner Mo Recovery, %
LCT-1	Diorite	0.10	52	95.7
LCT-2	Hornfels	0.08	49.8	95.9
LCT-3	Master Comp	0.07	56.2	94.5
LCT-4	Quartzite	0.07	54.7	94.4
LCT-5	Master Comp 2	0.09	57.9	95.4
	Average	**0.08**	**54.1**	**95.2**

- Lead is present in the deposit and is a penalty element in the concentrate. Because it is not possible to guarantee that the Nokes will depress all the lead, it is necessary to clean the concentrate using a hot acid leach circuit. This circuit is a necessity within the process plant.
- Silver testwork has been performed which provides initial information for the design of the silver recovery circuit. Recovery of the silver present lead sulphosalts and sulfides from the rougher flotation circuit into a rougher sulfide concentrate will require careful control of reagents and flotation conditions. After the recovery into sulfide concentrates, sizing will be performed with the fine fraction reground and then cleaned in multiple stages to produce a saleable concentrate.
- The design of the Kitsault process plant is based on plant data obtained from previous operating periods as well as more recent testwork campaigns on samples of quartz monzonite, diorite, and hornfels. These samples originate from the area designated as potential plant feed material indicated in the mine plan to have an ore feed grade of approximately 0.09% Mo
- Past production and current testwork results have shown that saleable molybdenum flotation concentrates can be produced by the use of conventional comminution and flotation processes. The plant feed will be crushed and milled, then subjected to flotation. The resulting concentrate will be leached to remove the lead impurity, thereby producing a high-grade saleable molybdenum concentrate that meets smelter specifications. The final concentrate is expected to contain 52% Mo and <0.04% lead, for an overall molybdenum recovery of 88.5% for the 40,000 tpd plant design.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

14.1.1 Kitsault

There are a total of 207 drill holes for a total of approximately 49,082 m of drilling within the Kitsault project area. During 2011, Avanti completed 32 drill holes totalling 9,996 m. The first 10 holes drilled in the property were not used, as these were small diameter drill holes, and there was too much uncertainty related to their collar location due to the use of compass and stadia survey methods.

AMEC used a topographic surface file produced from the LiDAR survey conducted during the 2008 field season. AMEC compared collars from the Avanti drilling campaigns and the DTM (Digital Terrain Model) created from the LiDAR 5 m spaced contour lines and found good agreement between them. The topography is large enough to cover the block model extents and represent the post-mining and actual surface.

The block model consists of regular blocks of 10 m x 10 m x 10 m and no rotation was used.

14.1.2 Bell Moly

There are a total of 53 drill holes for a total of approximately 10,981 m of drilling within the Bell Moly project area.

The block model consists of regular blocks of 10 m x 10 m x 6 m size, and no rotation was used. AMEC used a topographic surface file produced from the LiDAR survey conducted during the 2008 field season. AMEC compared collars from the Avanti drilling campaigns and the digital terrain model (DTM) created from the LiDAR 5 m spaced contour lines and found good agreement between them. The topography is large enough to cover the block model extents.

14.1.3 Roundy Creek

There are a total of 183 drill holes for a total of approximately 13,455 m of drilling within the Roundy Creek project area. There are 151 historical drill holes with a total of 9,740 m. During 2010 and 2011, Avanti completed 32 drill holes totalling 3,715 m.

The block model consists of regular blocks of 3 m x 3 m x 3 m size with no rotation. AMEC used a topographic surface file produced from the LiDAR survey conducted during the 2008 field season. AMEC compared collars from the Avanti drilling campaigns and the DTM created from the LiDAR 5 m spaced contour lines and found good agreement between them. The topography is large enough to cover the block model extents.

14.2 Geological Models

14.2.1 Kitsault

Avanti provided vertical interpretations of lithological units by sections oriented north–south and east–west. AMEC produced bench plans at 20 m intervals from these, and reconciled them to vertical polygons.

A grade-shell was produced based on a molybdenum threshold at a 0.05% indicator (low-grade shell). Within this shell, an inner (barren core) and an outer (high-grade) annulus solid were constructed. The primary reasons for this approach were the apparent annular geometry of the Mo mineralization and the strong geostatistical trends within the deposit from a barren core, to a high-grade zone, to a low-grade zone.

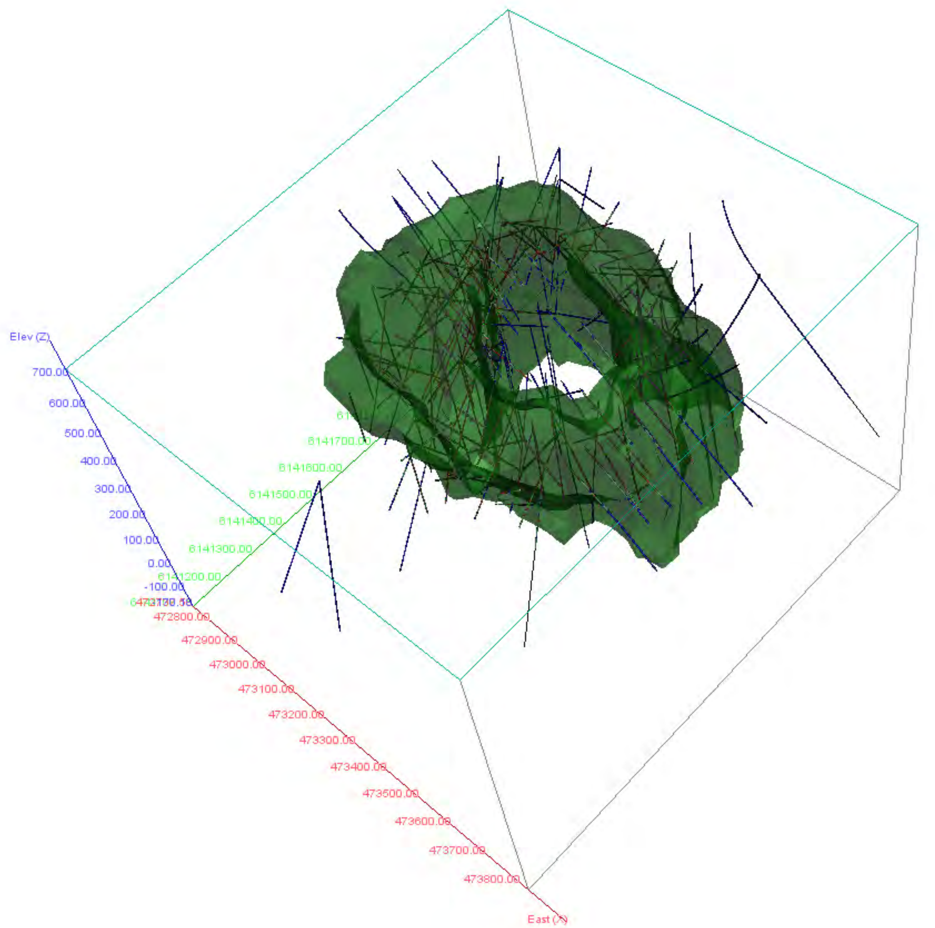
AMEC reviewed the interpretations and created a wireframe grade shell. The grade shell was inspected in section and plan. The grade shell adequately restricts the potential for over-projection of grades into low grade or high grade areas. The grade shell was further validated using nearest-neighbour (NN) models of the grade indicators and by comparison with the previous grade shell used to constrain the 2010 mineral resource estimate.

Figure 14-1 is a snapshot of the model.

14.2.2 Bell Moly

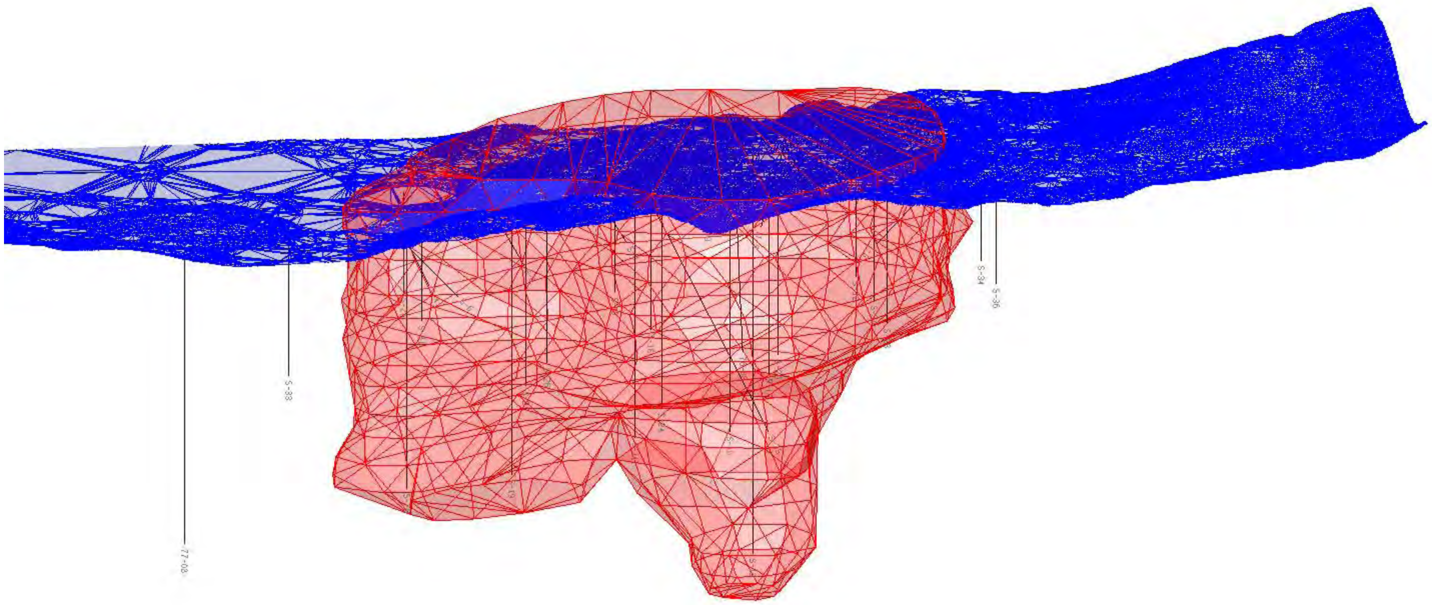
For the Bell Moly zone, AMEC constructed a deterministic outer mineralized grade shell using a nominal threshold of 0.02% Mo and constructed a grade shell based on a probability model using an indicator above a 0.02% Mo threshold to remove an included central low-grade zone. The probability grade shell was validated by comparison with a NN model of the grade indicator. The mineralization is elongated in a northeast southwest direction and has approximate dimensions of 600 m in a northeast–southwest direction, 450 m in a northwest–southeast direction and 500 m vertically. Figure 14-2 is a snapshot of the model showing the grade shell and topographic surface.

Figure 14-1: Kitsault Geological Model Showing 0.05% Mo Grade Shell



Note: Figure prepared by AMEC 2014

Figure 14-2: Bell Moly EDA Envelopes and Topography



Note: Figure prepared by AMEC 2014

14.2.3 Roundy Creek

For the Sunshine zone, Avanti provided AMEC with vertical sections showing geological interpretations of lithology. AMEC reviewed the interpretations. Mineralization is observed crossing major lithological boundaries. The mineralization is cross-cut by post-mineral dykes which are oriented at an oblique angle to the section lines along which interpretation was performed. AMEC decided to construct a NN model of the post-mineral dykes with a high anisotropy ratio of 8:1 oriented with a strike of N023˚E and vertical dip. AMEC constructed a deterministic grade shell using a nominal threshold of 0.02% Mo and constructed a grade shell based on a probability model using an indicator above a 0.04% Mo threshold. The probability grade shell was validated by comparison with a NN model of the grade indicator.

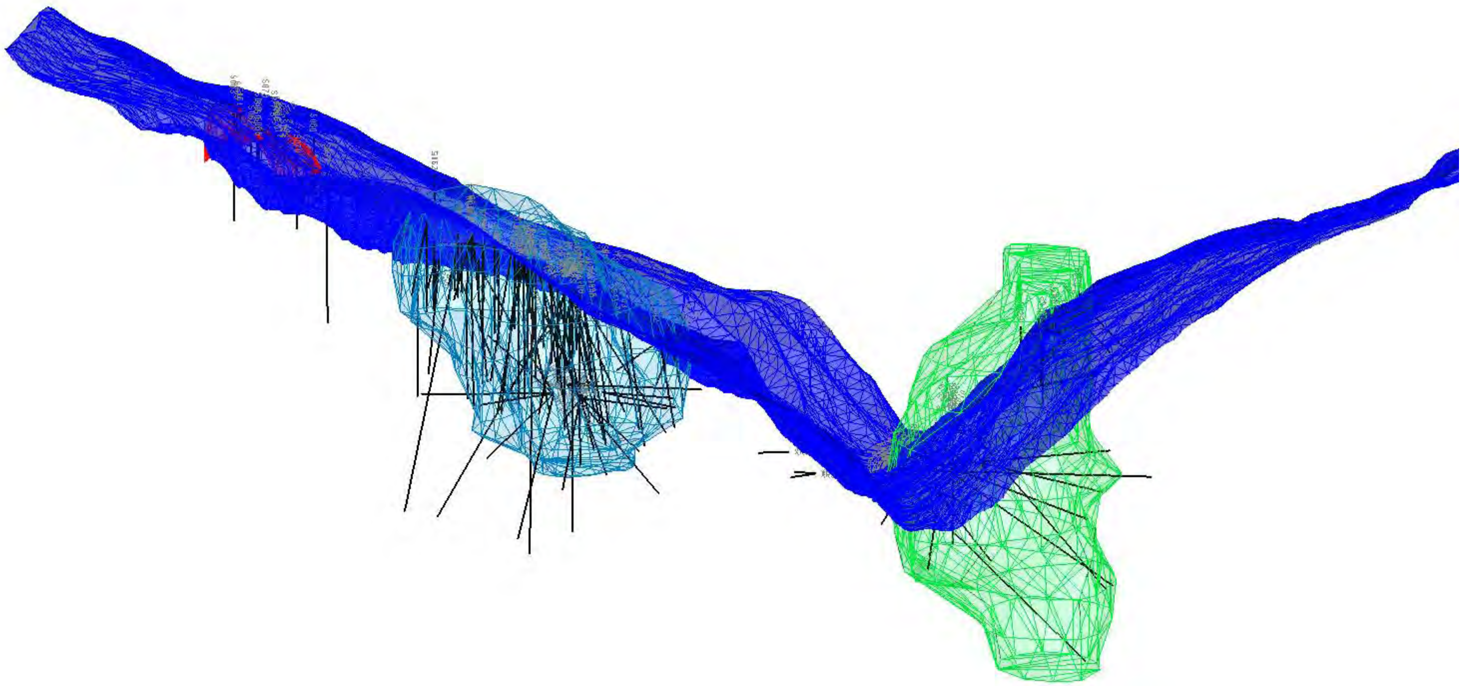
Higher molybdenum grades (>0.4% Mo) are found along the contact between quartz–feldspar–biotite porphyry and quartz-eye porphyry which plunges 30˚ to the east. The higher grades form a spatially-cohesive zone which required separate domaining. AMEC therefore constructed an additional high-grade shell using an indicator above a 0.4% Mo threshold. The high-grade shell was also validated using a NN model of the 0.4% Mo indicator. Isolated blocks were manually removed from the high-grade shell. Mineralization has approximate dimensions of 200 m in an east–west direction, 175 m in a north–south direction and 200 m vertically.

At the Roundy zone, AMEC constructed a deterministic grade shell to represent mineralization using a 0.02% Mo threshold. AMEC constructed a 0.04% Mo grade shell based on a probability model using an indicator above a 0.04% Mo threshold. The probability grade shell was validated by comparison with a NN model of the grade indicator. Mineralization has approximate dimensions of 150 m in an east–west direction, 200 m in a north–south direction and 300 m vertically.

AMEC deterministically constructed a single grade shell at the Sunlight zone using a nominal 0.04% Mo cut-off grade. The mineralization is located in a sub-horizontal tabular zone with approximate dimensions of 100 m in an east–west direction, 50 m in a north–south direction and an average thickness of 12 m.

Figure 14-3 is a snapshot of the model showing the grade shell and topographic surface.

Figure 14-3: Roundy Creek EDA Envelopes and Topography, Looking North



Note: Figure prepared by AMEC 2014

14.3 Exploratory Data Analysis

14.3.1 Kitsault

Summary statistics for non-declustered composites showed low variability of Mo values, but indicated medium to high variability for Ag and Pb assays.

Contact profiles were generated for all elements to analyze the grade behaviour at domain boundaries. Firm boundaries were determined for the grade shell and annulus domains.

14.4 Composites

14.4.1 Kitsault

AMEC regularized the nominal 3 m drill hole intervals into 6 m composites, starting from the drill hole collar and down the hole, with no break by lithological or estimation domains. The 6 m size was selected to avoid splitting of original samples and to accommodate two composites per block, as the likely selective mining unit is 10 m high, and the majority of drill holes are inclined. Composites were coded using the domain and geometric zone solids.

Limited composite sharing was permitted across the grade shell boundaries via a coding of the composites and blocks falling within 20 m of the boundaries of the grade shell. These domains were coded using the codes in Table 14-1, and flagged to blocks and back-flagged to composites and were used as the basis for matching samples and blocks during the estimation process. The composite and block sharing scheme is also provided in Table 14-1.

14.4.2 Bell Moly

AMEC composited the assays into 6 m intervals for grade interpolation and subsequent exploratory data analysis. At Bell Moly, limited composite sharing during grade interpolation was permitted across the grade shell boundaries via a coding of the composites and blocks falling in proximity to the contacts of the 0.02% Mo shell boundary. Blocks were selected using a probability threshold such that there was ±20% change in the number of blocks within the grade shell. The codes assigned are shown in Table 14-2. These domains were used as the basis for matching samples and blocks during the grade estimation process. The composite and block sharing schemes are also indicated in Table 14-2.

Table 14-1 Composite and Block Sharing, Kitsault

Description	Block Codes	Composite Codes		
0.05% Grade Shell	100	100		
Inner Halo	200	200		
Outer Halo	300	300		
< 20 m Inside Grade Shell (Inner)	150	100	150	185
< 20 m Outside Grade Shell (Inner)	185	150	185	200
< 20 m Inside Grade Shell (Outer)	250	100	250	285
< 20 m Outside Grade Shell (Outer)	285	285	300	250

Table 14-2: Composite and Block Sharing, Bell Moly

Description	Block Codes	Composite Codes		
0.02% Grade Shell	30	30	20	
Inner Halo (Inside Shell)	20	30	20	15
Outer Halo (Outside Shell)	15	20	15	10
Outside Grade Shell	10	10	15	

14.4.3 Roundy Creek

AMEC composited the assays into 3 m intervals for grade interpolation and subsequent exploratory data analysis. At Sunshine, limited composite sharing during grade interpolation was permitted across the grade shell boundaries via a coding of the composites and blocks falling in proximity to the contacts of the 0.04% Mo shell boundary. Blocks were selected using a probability threshold such that there was ±20% change in the number of blocks within the grade shell. The resulting codes were back-tagged to the composites.

At the Roundy zone, limited composite sharing during grade interpolation was permitted across the grade shell boundary by coding composites within 3 m of the contact. The codes assigned are shown in Table 14-3 and Table 14-4 for the Sunshine and Roundy models, respectively. These domains were used as the basis for matching samples and blocks during the grade estimation process. The composite and block sharing schemes for are also shown in Table 14-3 and Table 14-4.

At Sunlight, composites falling within the 0.04% Mo grade shell were used to estimate blocks falling within the same grade shell.

Table 14-3: Composite and Block Sharing, Sunshine Zone

Description	Block Codes	Composite Codes		
0.04% Grade Shell	30	30	20	15
Inner Halo (Inside Shell)	20	30	20	15
Outer Halo (Outside Shell)	15	20	15	10
Outside Grade Shell	10	10	15	20
High Grade Shell (0.4% Threshold)	2	2		
Post-Mineral Dykes	1	1		

Table 14-4: Composite and Block Sharing, Roundy Zone

Description	Block Domain Block CodesCodes		Composite Codes	Composite Domain Codes			Very Low Grade Subdomain Composite Codes
0.04% Grade Shell	2	N/A	2	2	3	4	N/A
Outside Grade Shell	1	2	1	1	2	3	2
Non-mineralized	1	1	1	1	2	3	1

14.5 Density Assignment

14.5.1 Kitsault

AMEC used the same average SG values as were used in the 2010 Mineral Resource estimate (refer to Section 11.3.1). Density values were assigned to blocks based upon the lithological codes.

14.5.2 Bell Moly

AMEC used a single average SG value of 2.63 to estimate tonnages in the Mineral Resource estimate (refer to Section 11.3.2). .

14.5.3 Roundy Creek

AMEC used a single average SG value to estimate tonnages in the mineral resource estimate of 2.63 for the estimate, based on the testwork results discussed in Section 11.3.3.

14.6 Grade Capping/Outlier Restrictions

14.6.1 Kitsault

AMEC completed a capping study for each domain:

- The capping study showed that a minimal amount of capping (<0.2%) is necessary for the grade shell and outer halo domains, therefore no capping or outlier restriction was applied to those domains.
- For the inner halo domain, a capping grade threshold of 0.15% Mo was chosen. There are a total of nine assays above this grade threshold and the estimated amount of metal to remove by capping or outlier restriction is 1.8%.
- For the post mineral intrusive QMP II, a capping threshold of 0.025% Mo was chosen. There are a total of 12 assays above this threshold. The estimated amount of metal to remove by capping or outlier restriction is 21.2%.
- For silver and lead grade capping thresholds of 80 ppm and 4,000 ppm were chosen respectively. For silver there are 40 assays and for lead there are 57 assays above the respective capping threshold. The amounts of metal to remove by capping or outlier restriction are 5.0% and 8.8% respectively.

The amount of metal to be removed by capping is calculated by the following formula:

$$\% \text{ Metal} = \frac{\text{(Mean Uncapped – Mean Capped)}}{\text{Mean Uncapped}}$$

AMEC evaluated the impact of capping by estimating uncapped and capped grade models. Generally the amounts of metal removed by capping in the models are consistent with the amounts calculated during the grade capping study on the assays. Globally, 0.2% of the molybdenum metal and 8.2% of the silver metal were removed from the estimated blocks.

14.6.2 Bell Moly

AMEC completed a capping study on assays for each domain. The capping study showed that a minor amount of capping (representing 2.3% of the metal) is necessary for the domains at Bell Moly. A threshold of 0.16% Mo was selected which resulted in capping 24 assays. The 0.16% capping threshold corresponds to the outlier threshold considered for comparison of historical assays with assays from Avanti's core re-sampling program.

The amount of metal to be removed by capping is calculated by the following formula:

$$\% \text{ Metal} = \frac{(\text{Mean Uncapped} - \text{Mean Capped})}{\text{Mean Uncapped}}$$

AMEC evaluated the impact of capping by estimating uncapped and capped grade models. Generally the amounts of metal removed by capping in the models are consistent with the amounts calculated during the grade capping study on the assays. Globally, 2.4% of the molybdenum metal was removed by capping from the estimated blocks.

14.6.3 Roundy Creek

AMEC completed a capping study for each domain.

The capping study showed that a moderate amount of capping (4–5%) is necessary for the mineralized domains at the Sunshine Zone. The numbers of assays capped in each domain of Sunshine zone are shown in Table 14-5. For the post mineral dykes, a capping threshold of 0.07% Mo was chosen. There are a total of two assays above this threshold. The estimated amount of metal to remove from the post-mineral dykes is 11.6%.

At the Roundy zone, AMEC found it was only necessary to cap the grades within the 0.04% grade shell. A threshold of 0.18% Mo was selected which resulted in capping 16 assays and removing 2.2% of the metal. The results of the capping study at Roundy Zone are shown in Table 14-6.

The amount of metal to be removed by capping is calculated by the following formula:

$$\% \text{ Metal} = \frac{(\text{Mean Uncapped} - \text{Mean Capped})}{\text{Mean Uncapped}}$$

AMEC evaluated the impact of capping by estimating uncapped and capped (outlier restricted model at Roundy) grade models. Generally the amounts of metal removed by capping in the models are consistent with the amounts of metal calculated during the grade capping study on the assays. At Sunshine zone, 6.8% of the molybdenum metal was removed by capping from the estimated blocks. At Roundy, 3.6% of the metal was removed by imposing outlier restriction.

Table 14-5: Capping Thresholds and Metal to Remove, Sunshine Zone

Description	Capping Threshold (Mo%)	Number of Assays Capped	Metal Removed (%)
0.04% Grade Shell	0.4	8	4.6
Outside Grade Shell	0.2	4	4.1
High Grade Shell (0.4% Threshold)	2.5	4	4.7
Post-Mineral Dykes	0.07	2	11.6

Table 14-6: Capping Thresholds and Metal to Remove, Roundy Zone

Description	Capping Threshold (Mo%)	Number of Assays Capped	Metal Removed (%)
0.04% Grade Shell	0.18	16	2.2
Outside Grade Shell	None	None	None
Non-mineralized	None	None	None

14.7 Variography

14.7.1 Kitsault

AMEC used the commercially available Sage2001 software to construct down-the-hole and directional correlograms for Mo, Ag and Pb. Independent correlograms were created for each of the geometric zones inside the high-grade shell. Two nested spherical models were used to fit the experimental correlograms.

The nugget effect for molybdenum, modelled from the down-the-hole correlograms, is reasonably low for composites inside the high-grade shell. The nugget effect of the down-the-hole correlogram for composites outside the high grade shell is higher, reflecting a larger amount of short-scale variability.

Variographic analysis of the silver and lead grades showed a northeast striking trend of the major axis which is consistent with the orientation of the late quartz–carbonate veining (hosting the lead–silver mineralization) mapped within the historical Kitsault open pit. The nugget effect is somewhat higher than the nugget effect for molybdenum.

14.7.2 Bell Moly

Two spherical models were used to fit the experimental correlograms.

AMEC used the commercially available Sage2001 software to construct a down-the-hole and an isotropic correlograms for Mo. Two nested spherical models were used to fit the experimental correlograms.

14.7.3 Roundy Creek

AMEC used the commercially available Sage2001 software to construct down-the-hole and directional correlograms for Mo. Independent correlograms were created for each of the Sunshine and Roundy Zones. Two nested spherical models were used to fit the experimental correlograms. The major axis of the Sunshine correlogram strikes northwest-southeast and is consistent with the general trend of the mineralisation observed in plan. The major axis of the Roundy corrrelogram is north–south-trending.

14.8 Estimation/Interpolation Methods

AMEC estimated molybdenum, lead and silver grades using ordinary kriging into blocks using multiple estimation passes with incrementally increasing search distances. For molybdenum, search ellipses and variograms were re-oriented to account for the concentric distribution of the mineralization. The search ellipses for lead and silver grade interpolation were oriented with a northeast-striking major axis which is consistent with the orientation of the late quartz-carbonate veining hosting lead and silver mineralization.

AMEC estimated molybdenum, silver and lead by estimation domains using ordinary kriging (OK) interpolation. The grade estimation was completed in three passes. Estimation Passes 1 and 2 used the same ellipse radii.

Pass 1 for molybdenum estimation required a minimum of six composites, and maximum of 16 to estimate a block, with a maximum of three composites permitted from any one drill hole. Pass 2 required a minimum of four composites, and maximum of 16, with a maximum of 3 composites permitted from any one drill hole. In Pass 3 a minimum of two composites was permitted, with a maximum of 16, and a maximum of 3 composites permitted from any one drill hole.

The estimation parameters for silver and lead required a minimum of six, and maximum 24 composites for Pass 1, a minimum of four composites, and maximum of 24 for Pass 2, and for Pass 3, the minimum was two composites, and maximum of 24.

In Passes 1, 2, and 3, a maximum of four composites were permitted from any one drill hole.

Composite sharing for block estimates is shown in Table 14-1.

The search ellipse orientations, dimensions and other estimation parameters are shown in Table 14-7, Table 14-8 and Table 14-9.

14.8.1 Bell Moly

AMEC estimated molybdenum grades using ordinary kriging into blocks with dimensions of 10 m x 10 m x 6 m using multiple estimation passes with incrementally increasing search distances. A minimum of four and maximum of 12 composites with a maximum of three composites per drill hole were required to interpolate blocks in passes one and two. In the third pass, a minimum of two and maximum of 12 with a maximum of four composites per drill hole were required to interpolate blocks. The search ellipse rotations and dimensions are shown in Table 14-10.

14.8.2 Roundy Creek

AMEC estimated molybdenum grades using ordinary kriging (at Roundy and Sunshine) and Inverse Distance Weighting (IDW) into blocks with dimensions of 3 m (x-axis) x 3 m (y-axis) x 3 m (vertical) using multiple estimation passes with incrementally increasing search distances. The block size was chosen to coincide with a possible selective mining unit (SMU) size for selective open pit mining.

At Sunshine, a minimum of four and maximum of nine composites with a maximum of three composites per drill hole were required to interpolate blocks in passes one and two. In the third pass, a minimum of one and maximum of 12 with a maximum of three composites per drill hole were required to interpolate blocks.

A quadrant search strategy was used with a minimum of two quadrants with data, a maximum of two empty quadrants and a maximum of three composites in each quadrant. An octant search strategy is necessary to adequately decluster composites from underground drill holes. The search ellipse rotations and dimensions used at Sunshine are shown in Table 14-11.

At Roundy, a minimum of three and maximum of 12 composites with a maximum of two composites per drill hole were required to interpolate blocks in passes one and two. In the third pass, a minimum of two and maximum of 12 with a maximum of four composites per drill hole were required to interpolate blocks. The search ellipse rotations and dimensions used at Roundy model are shown in Table 14-12.

Table 14-7: Search Ellipse Orientation and Dimensions for Molybdenum, Kitsault

Domain	Pass	Search Ellipse Rotation* (°)			Ranges(m)			Min. No. Comp	Max. No. Comps	Max. Comp./Hole
		Z	X	Z	X	Y	Z			
	1				150	35	200	6	16	3
HG – 10,100	2	-10	10	0	150	35	200	4	16	3
	3				200	50	400	2	16	3
	1				120	50	200	6	16	3
HG – 20,100	2	-50	15	0	120	50	200	4	16	3
	3				160	75	400	2	16	3
	1				95	70	200	6	16	3
HG – 30,100	2	-120	-20	0	95	70	200	4	16	3
	3				120	90	400	2	16	3
	1				270	75	200	6	16	3
HG – 40,100	2	-5	20	0	270	75	200	4	16	3
	3				270	75	400	2	16	3
	1				120	80	200	6	16	3
HG – 50,100	2	-70	0	0	120	80	200	4	16	3
	3				140	100	400	2	16	3
	1				105	25	200	6	16	3
HG – 60,100	2	45	0	0	105	25	200	4	16	3
	3				125	80	400	2	16	3
200 – Inner	1	-10	10	0	300	300	300	6	16	3
	2				300	300	300	4	16	3
	3				300	300	300	1	16	3
300 – Outer	1	-10	10	0	60	60	150	6	16	3
	2				180	180	350	4	16	3
	3				180	180	350	1	16	3

* Using Gems® rotation conventions

Table 14-8: Search Ellipse Orientation and Dimensions for Silver, Kitsault

Domain	Pass	Search Ellipse Rotation (°)*			Ranges(m)			Min. No. Comp	Max. No. Comp	Max. Comp. /Hole
		Z	Y	Z	X	Y	Z			
	1				225	300	190	6	24	4
All	2	-60	-70	0	225	300	190	4	24	4
	3				225	300	190	2	24	4

* Using Gems® rotation conventions

Table 14-9: Search Ellipse Orientation and Dimensions for Lead, Kitsault

Domain	Pass	Search Ellipse Rotation (°)*			Search Ellipse Ranges(m)			Min. No. Comp	Max. No. Comp	Max. Comp. /Hole
		Z	Y	Z	X	Y	Z			
	1				200	300	100	6	24	4
All	2	-60	-70	0	200	300	100	4	24	4
	3				200	300	100	2	24	4

* Using Gems® rotation conventions

Table 14-10: Search Ellipse Orientation and Dimensions, Bell Moly

Description	Rotations (ZXY)*			Search Ellipse Pass 1 Radius (m)			Search Ellipse Pass 2 Radius (m)			Search Ellipse Pass 3 Radius (m)		
				Y	X	Z	Y	X	Z	Y	X	Z
Domain 10 (Inside Grade Shell)	50	0	0	75	50	75	100	75	100	150	100	150
Domain 30 (Outside Grade Shell)	50	0	0	75	50	75	100	75	100	150	100	150

* Using MineSight® MS-GSLIB Left, Right, Left Convention

Table 14-11: Search Ellipse Parameters, Sunshine Zone

Description	Rotations (ZXY)*			Search Ellipse Pass 1 Radius (m)			Search Ellipse Pass 2 Radius (m)			Search Ellipse Pass 3 Radius (m)		
				Y	X	Z	Y	X	Z	Y	X	Z
Domains 10,15, 20, 30	-35	0	-60	20	15	10	30	20	15	100	60	50
High Grade Shell (Domain 2)	-70	30	0	20	15	10	30	20	15	100	60	50
Post-Mineral Dykes (Domain 1)	23	0	0	25	10	25	50	20	50	100	20	100

* Using MineSight® MS-GSLIB Left, Right, Left Convention

Table 14-12: Search Ellipse Parameters, Roundy Zone

Description	Rotations (ZXY)*			Search Ellipse Pass 1 Radius (m)			Search Ellipse Pass 2 Radius (m)			Search Ellipse Pass 3 Radius (m)		
				Y	X	Z	Y	X	Z	Y	X	Z
All Domains	0	0	-30	50	25	25	100	50	50	200	100	100

* Using MineSight® MS-GSLIB Left, Right, Left Convention

A maximum search distance of 12 m was applied to composites with grades above 0.18% Mo in order to restrict their influence on the grade estimates.

At Sunlight, a minimum of four and maximum of 12 composites with a maximum of three composites per drill hole were required to interpolate blocks in passes one and two. In the third pass, a minimum of one and maximum of 12 with a maximum of three composites per drill hole were required to interpolate blocks. The search ellipse rotations and dimensions used at Sunlight are shown in Table 14-13.

14.9 Block Model Validation

14.9.1 Kitsault

AMEC completed comparisons of kriged (OK) and nearest neighbour (NN) Mo, Ag, and Pb model global statistics and found no significant global bias in the mean grades of the OK model.

AMEC performed a check for local bias by plotting the Mo, Ag and Pb grades of NN and OK models in swaths oriented along the model northings, eastings and elevations.

AMEC reviewed the swath plots and found no significant discrepancies between the NN and OK model grades.

A change-of-support check for grade smoothing showed that the model selectivity (internal dilution) is appropriate for the mining selectivity anticipated during mining.

14.9.2 Bell Moly

AMEC completed comparisons of kriged (OK) and nearest neighbour (NN) Mo model global statistics and found no significant bias in the mean grades of the OK model.

AMEC performed a check for local bias by plotting the Mo grades of NN and OK models in swaths oriented along the model northings, eastings and elevations.

AMEC reviewed the swath plots and found no significant discrepancies between the NN and OK model grades.

Table 14-13: Search Ellipse Parameters, Sunlight Zone

Description	Rotations (ZXY)*			Search Ellipse Pass 1 Radius (m)			Search Ellipse Pass 2 Radius (m)			Search Ellipse Pass 3 Radius (m)		
				Y	X	Z	Y	X	Z	Y	X	Z
All Domains	0	0	0	25	25	10	50	50	25	100	100	50

* Using MineSight® MS-GSLIB Left, Right, Left Convention

14.9.3 Roundy Creek

AMEC completed comparisons of kriged (OK) and nearest neighbour (NN) Mo model global statistics and found no significant bias in the mean grades of the OK model.

AMEC performed a check for local bias by plotting the Mo grades of NN and OK models in swaths oriented along the model northings, eastings and elevations.

AMEC reviewed the swath plots and found no significant discrepancies between the NN and OK model grades.

At the Sunshine zone, where Indicated Mineral Resources are reported, a change-of-support check for grade smoothing showed that the model selectivity (internal dilution) is appropriate for the mining selectivity anticipated during mining.

14.10 Classification of Mineral Resources

14.10.1 Kitsault

AMEC calculated drill hole spacings for classifying blocks into Measured and Indicated categories based on confidence limits of kriging. AMEC considered confidence limits on molybdenum grades with a production panel representing 12.5 Mt/year:

- AMEC considered blocks to be in the Measured category of mineral resources if a minimum of three drill holes fell within a radius of 150 m and with an average distance of less than 45 m from the block
- Indicated blocks were considered if at least two drill holes fell within a radius of 150 m and with an average distance of less than 45 m or if at least three holes fell within a radius of 150 m with an average distance of less than 90 m
- Extrapolation of Inferred resource blocks is restricted to a maximum distance of 150 m.

Isotropic distances from block centroids without domain boundaries were used for Mineral Resource classification.

Figure 14-4 is a cross-section example of the classification at Kitsault.

14.10.2 Bell Moly

All 53 of the drill holes used for Mineral Resource estimation are historical and have no supporting QA/QC data to classify Mineral Resources in the higher confidence categories of Measured and Indicated. Core re-sampling by Avanti (with supporting QA/QC data) are sufficient to confirm the general grade of the mineralization. All blocks falling within the 0.02% molybdenum grade shell were classified as being in the Inferred category.

Figure 14-5 is a cross-section example of the classification at Bell Moly.

14.10.3 Roundy Creek

AMEC calculated drill hole spacings for classifying blocks into the Indicated category based on confidence limits of kriging. AMEC considered confidence limits on molybdenum grades (using grade variograms) and estimated mineralized material tonnage (using indicator variograms) with a production panel representing 1.8 Mt/year.

AMEC considered blocks to be in the Indicated category of mineral resources if at least two Avanti drill holes fell within a radius of 31 m. These distances correspond to a drill hole spacing of 40 m. Blocks falling along the contact of the 0.02% molybdenum grade shell were downgraded to the Inferred category.

Extrapolation of Inferred resource blocks is restricted to the extents of the 0.02% molybdenum grade shell. Isotropic distances from block centroids without domain boundaries were used for mineral resource classification.

Figure 14-6 is a cross-section example of the classification at Roundy Creek.

Figure 14-4: Resource Classification, Vertical Section 473350E

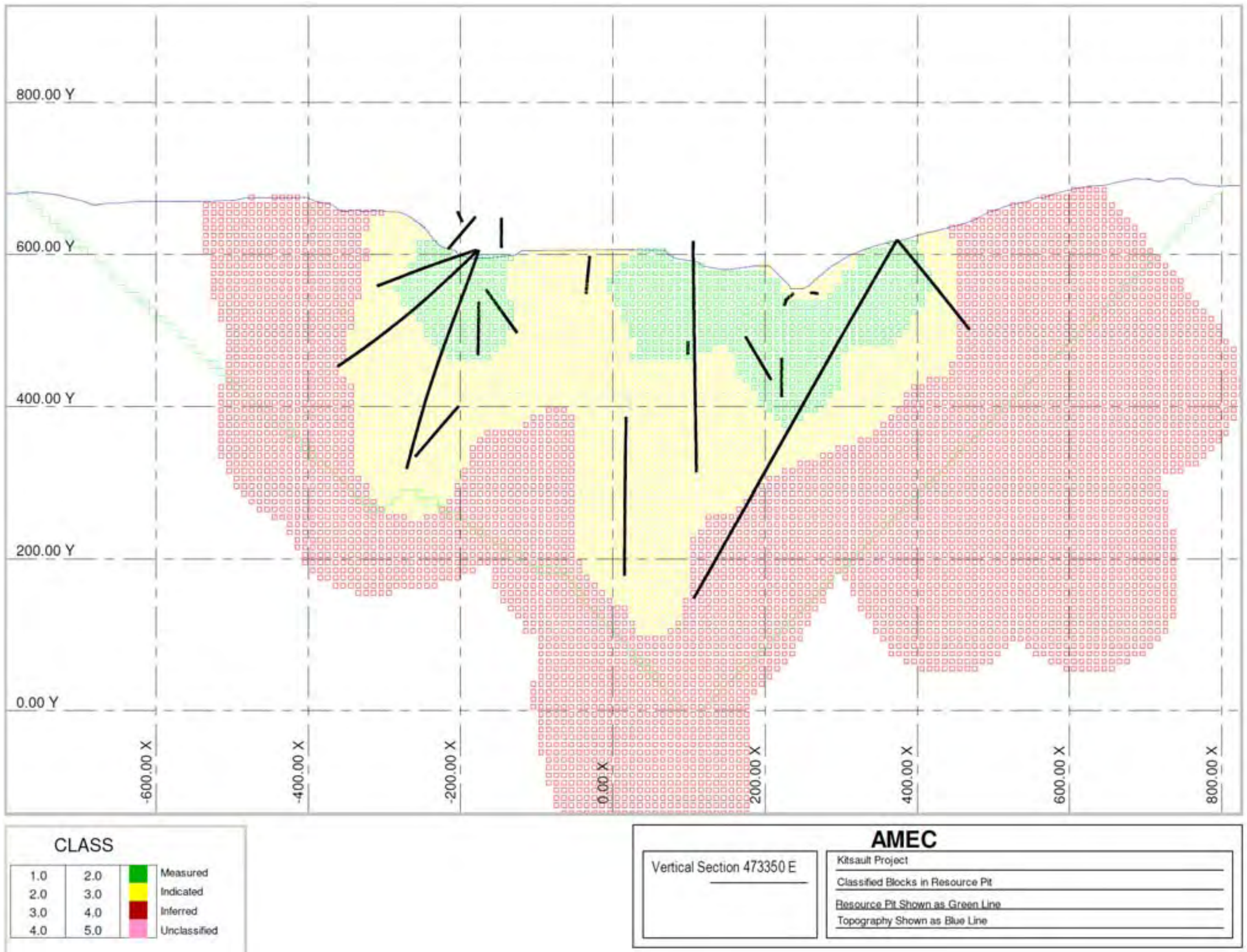


Figure 14-5: Resource Classification, Vertical Section 478800E

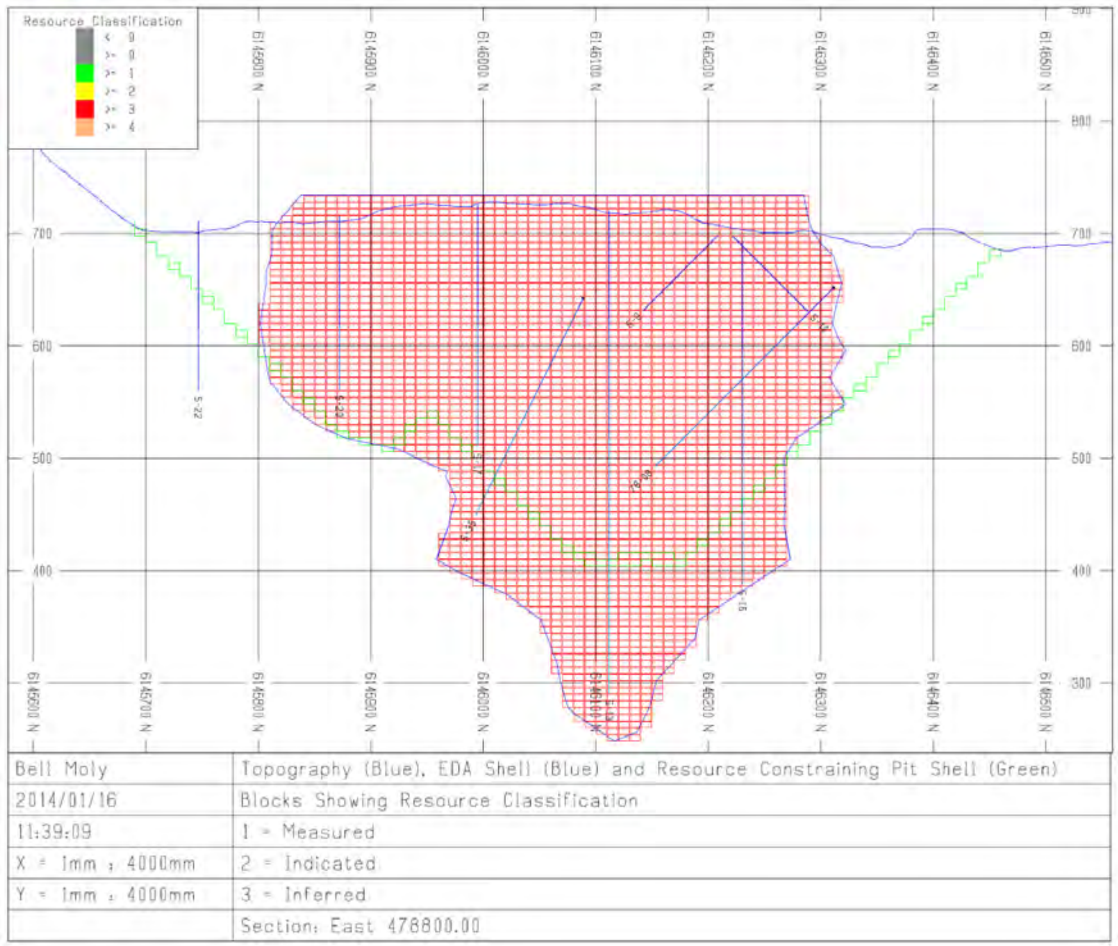
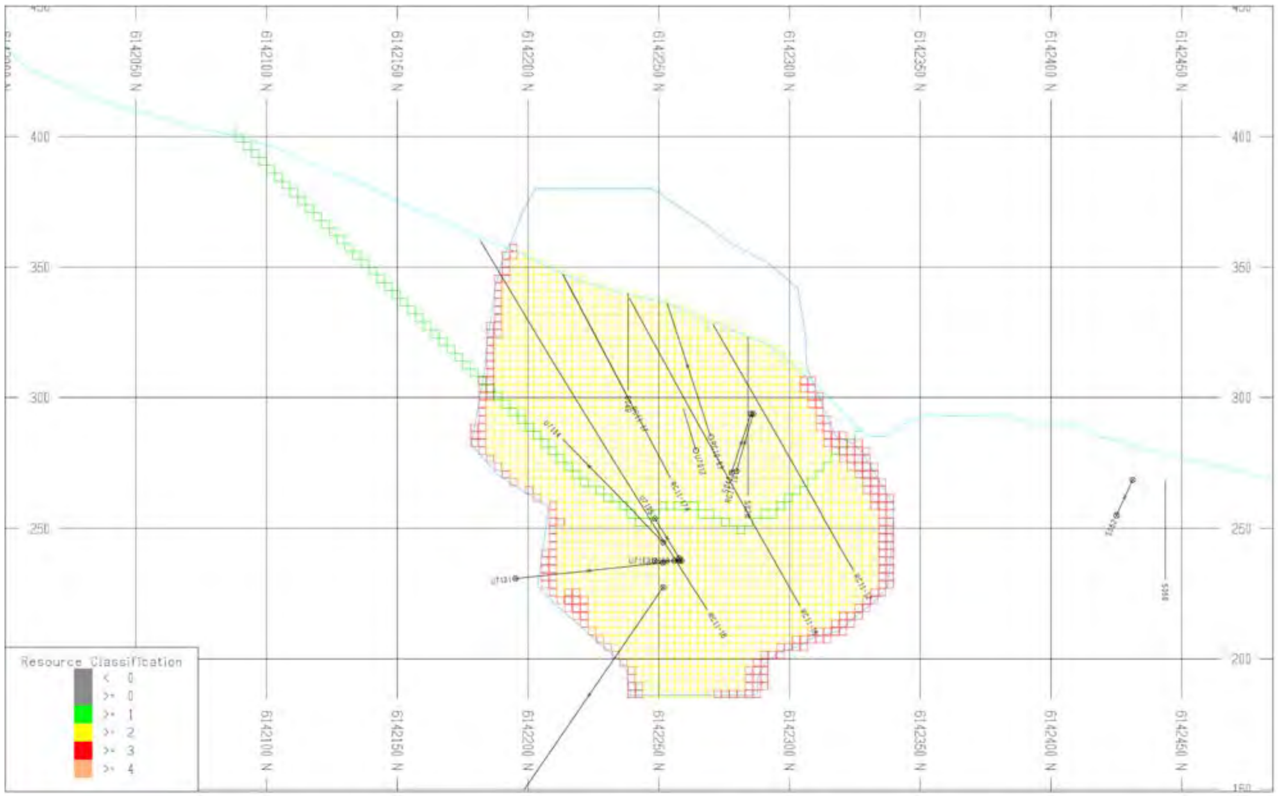


Figure 14-6: Resource Classification, Vertical Section 468560E



Roundy Creek (Sunshine Zone)	Topography (Light Blue), EDA Shell (Blue) and Resource Constraining Pit Shell (Green)
2014/01/16	Blocks Showing Resource Classification
13:53:13	1 = Measured
X = 1mm : 1750mm	2 = Indicated
Y = 1mm : 1750mm	3 = Inferred
	Section: East 468560.00

14.11 Reasonable Prospects of Economic Extraction

14.11.1 Kitsault

AMEC assessed the classified blocks for reasonable prospects of economic extraction by applying preliminary economics for potential open pit mining methods. Mining and process costs, as well as process recoveries used in the Lerchs–Grossmann (LG) pit shell were defined by AMEC. Pit input parameters are summarized in Table 14-14. Only Mo was considered as source of revenue for the open-pit scenario.

The cut-off for reporting mineral resources was calculated based on the Mo price, metallurgical process recoveries and costs, and selling costs. Table 14-15 shows a summary of the input parameters and the final derived Mo cut-off grade for Mineral Resource reporting.

The 2010 Feasibility Study variable slope angles were used to constrain the pit shell. For that study, geotechnical domains and pit slope angles were provided by SRK Consulting (SRK). SRK recommended dividing the future Kitsault pit area into seven slope domains, or sectors. AMEC coded the domains into the resource model, as required for the LG pit optimization and pit phase design. The inter-ramp angles were then flattened to overall slopes, allowing for the haulage ramps that would be included in the pit designs. Slope angle reductions were based on AMEC's ramp configuration, ramp width, the number of times a haulage ramp passes through a domain, the height of the wall, and the inter-ramp slope assigned for the domain. Overall slopes used in pit optimization ranged from 42° to 48°. Inter-ramp slopes used for pit phase design ranged from 48° to 56°.

14.11.2 Bell Moly

For constraining the blocks to be reported as Mineral Resources AMEC defined an economic resource pit shell based on the parameters listed in Table 14-16, which are based on costs estimated for Kitsault.

AMEC used a long term molybdenum metal price of $17.39/lb for Mineral Resources. A constant slope angle of 45˚ was used to constrain the pit shell.

AMEC defined a cut-off grade of 0.020% Mo for reporting Mineral Resources based on the total of the mineralization-based mining, processing and sales costs evaluated. The mining cost assumption of $2.09 for mineralized material includes an incremental transport cost of $0.60/t for trucking of mineralization to the Kitsault processing plant and a mining cost of $1.49/t for mineralized material (assuming owner-operated mining).

Table 14-14: Optimization Parameters for Open Pit Resource Shell, Kitsault

Parameter	Value
Mining Cost (C$/t)	1.49
Incremental Mining Cost (C$/bench)	Not used
Process Cost (C$/t)	5.84
Process Recovery	89%
Mo price (C$/lb)	17.39
Selling cost (C$/lb)	1.24

Table 14-15: Marginal Cut-off Grade Input Parameters and Results for Mineral Resources, Kitsault

Parameters		Value
Processing Cost	C$/t	5.84
Recovery	%	89
Price	C$/lb	17.39
Mining Cost	C$/t	1.49
Selling Cost	C$/lb	1.24
Cut-off Mo	**%**	**0.018**

Table 14-16: Optimization Parameters for Resource Pit Shell, Bell Moly

Mining and Processing Costs	Unit	Value
Mining cost	C$/t mineralization	2.09
Process cost	C$/t mineralization	5.84
Total mineralized-material based costs	C$/t milled	7.93
Selling cost	C$/lb Mo	1.24
Average metallurgical recovery	%	89
Pit slope	Degrees	45

14.11.3 Roundy Creek

For constraining the blocks to be reported as mineral resources AMEC defined an economic resource pit shell based on the parameters listed in Table 14-17. AMEC used a long-term molybdenum metal price of C$17.39/lb for Mineral Resources. A constant slope angle of 45˚ was used to constrain the pit shell.

AMEC defined a cut-off grade of 0.022% Mo for reporting mineral resources based on the total of the mineralized-material-based mining, processing and sales costs evaluated. The mineralized-material-based mining cost of $4.10 includes an incremental transport cost of $1.20 per tonne for trucking of mineralized material to the Kitsault processing plant and a mineralized-material-based mining cost of $2.90 (assuming contractor mining).

Table 14-17: Optimization Parameters for Resource Pit Shell, Roundy Creek

Mining and Processing Costs	Unit	Value
Mining cost (mineralization	C$/t mineralization	4.10
Process cost	C$/t mineralization	5.84
Total mineralized-material based costs	C$/t milled	9.94
Selling cost	C$/lb Mo	1.24
Average metallurgical recovery	%	89
Pit slope	Degrees	45

14.12 Mineral Resource Statement

14.12.1 Kitsault

Mineral Resources have an effective date of 17 April 2012 and are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources were estimated using a long-term molybdenum price of $17.39/lb. Mineral Resources for the Kitsault deposit are reported inclusive of Mineral Reserves and do not include dilution. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

The sensitivity of the estimate to changes in cut-off grade is summarized in Table 14-18, with the base case highlighted. Mineral Resources at the base case of 0.018% Mo are tabulated in Table 14-19.

14.12.2 Bell Moly

Mineral Resources have an effective date of 1 May 2012 and are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources were estimated using a long-term molybdenum price of $17.39/lb. The sensitivity of the estimate to changes in cut-off grade is summarized in Table 14-20, with the base case highlighted. Mineral Resources at the base case of 0.020% Mo are tabulated in Table 14-21.

Table 14-18: Kitsault Deposit Mineral Resource Sensitivity to Cut-Off Grade; David Thomas P. Geo., Effective Date 17 April 2012 (base case is highlighted)

Cut-Off Grade (Mo%)	Tonnage (Mt)	Mo (%)	Ag (ppm)	Mo (Contained Mlb)	Ag (Contained Moz)	Pb (ppm)
Measured						
0.015	146.8	0.085	5.0	274.0	23.5	242
0.018	142.7	0.087	5.0	272.6	22.8	243
0.025	134.9	0.090	5.0	268.9	21.7	247
0.030	130.6	0.092	5.0	266.2	21.1	249
0.035	125.7	0.095	5.0	262.7	20.4	250
0.04	121.0	0.097	5.1	258.8	19.6	251
Indicated						
Cut-Off Grade (Mo%)	**Tonnage (Mt)**	**Mo %**	**Ag (ppm)**	**Mo (Contained Mlb)**	**Ag (Contained Moz)**	**Pb (ppm)**
0.015	192.2	0.056	4.6	237.8	28.4	229
0.018	179.1	0.059	4.6	233.0	26.7	231
0.025	149.1	0.067	4.8	218.8	23.1	241
0.030	133.3	0.071	4.9	209.2	21.1	246
0.035	117.1	0.077	4.9	197.7	18.6	250
0.04	102.5	0.082	4.9	185.6	16.2	251
Measured and Indicated						
Cut-Off Grade (Mo%)	**Tonnage (Mt)**	**Mo %**	**Ag (ppm)**	**Mo (Contained Mlb)**	**Ag (Contained Moz)**	**Pb (ppm)**
0.015	339.1	0.068	4.8	511.8	51.9	235
0.018	321.8	0.071	4.8	505.5	49.5	236
0.025	284.1	0.078	4.9	487.7	44.8	243
0.030	263.9	0.082	5.0	475.5	42.2	248
0.035	242.8	0.086	5.0	460.4	39.0	250
0.04	223.4	0.090	5.0	444.4	35.9	251
Inferred						
Cut-Off Grade (Mo%)	**Tonnage (Mt)**	**Mo %**	**Ag (ppm)**	**Mo (Contained Mlb)**	**Ag (Contained Moz)**	**Pb (ppm)**
0.015	352.9	0.038	4.4	299.1	50.5	230
0.018	317.6	0.041	4.6	286.3	47.3	237
0.025	244.8	0.047	4.9	252.1	38.8	242
0.030	200.5	0.051	4.8	225.2	31.1	231
0.035	145.6	0.058	4.6	185.8	21.6	218
0.04	100.4	0.067	4.4	148.7	14.4	209

Table 14-19: Kitsault Deposit Mineral Resource Estimate; David Thomas P. Geo., Effective Date 17 April 2012

Category	Tonnage (Mt)	Mo (%)	Ag (ppm)	Mo (Contained Mlb)	Ag (Contained Moz)	Pb (ppm)
Measured	142.7	0.087	5.0	272.6	22.8	243
Indicated	179.1	0.059	4.3	233.0	26.7	231
Measured + Indicated	*321.8*	*0.071*	*4.8*	*505.5*	*49.5*	*236*
Inferred	317.6	0.041	4.6	286.3	47.3	237

Notes to Accompany Kitsault Deposit Mineral Resource Tables

1. Mineral Resources are inclusive of Mineral Reserves
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
3. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.018% Mo cut-off grade
4. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery 89%, a process cost of $5.84/t and selling cost of $1.24/lb of Mo sold. No revenue was assumed for Ag
5. Tonnages are rounded to the nearest 100,000 tonnes; grades are rounded to three decimal places for Mo and one decimal for Ag
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
7. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds; silver is in troy ounces
8. There is a reasonable prospect of recovering silver, and the benefit has been included as a deduction in the operating cost. A dedicated silver recovery circuit has been included in the process design based on preliminary testing.

Table 14-20: Bell Moly Mineral Resource Sensitivity to Cut-Off Grade; David Thomas P. Geo., Effective Date 1 May 2012 (base case is highlighted)

Category	Cut-Off Grade (Mo%)	Tonnes (Mt)	Mo (%)	Mo Content (Contained Mlb)
Inferred	0.010	120.5	0.045	119.5
	0.020	109.7	0.048	115.8
	0.030	99.2	0.050	110.0
	0.040	78.2	0.054	93.6

Table 14-21: Bell Moly Mineral Resource Estimate, 0.02% Mo Cut-Off; David Thomas P. Geo., Effective Date 1 May 2012

Category	Tonnage (Mt)	Mo (%)	Mo Content (Contained Mlb)
Inferred	109.7	0.048	115.8

Notes to Accompany Bell Moly Deposit Mineral Resource Tables

1. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.02% Mo cut-off grade
2. An incremental mining cost of $0.6/t of mineralization was used to account for trucking of mineralized material to the proposed Kitsault processing facility that is planned to be located approximately 7 km to the east.
3. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery of 89%, a process cost of $5.84/t and selling cost of $1.24/lb of Mo sold.
4. Tonnages are rounded to the nearest 100,000 tonnes; grades are rounded to three decimal places for Mo
5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
6. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds; silver is in troy ounces.

14.12.3 Roundy Creek

Mineral Resources have an effective date of 1 May 2012 and are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources were estimated using a long-term molybdenum price of $17.39/lb. The sensitivity of the estimate to changes in cut-off grade is summarized in Table 14-22 for the Sunshine zone and in Table 14-20 for Roundy, with the base case highlighted. Mineral Resources at the base case of 0.022% Mo are tabulated in Table 14-23.

The Sunshine and Sunlight deposits contain components of high grade mineralization in semi-massive to massive molybdenite which form spatially coherent zones and which could potentially be mined separately. The 0.1% Mo cut-off in the Mineral Resource sensitivity table is shown to highlight this higher grade material.

Table 14-22: Sunshine and Sunlight Mineral Resource Sensitivity to Cut-Off Grade; David Thomas P. Geo., Effective Date 1 May 2012 (base case is highlighted)

Category	Cut-Off Mo Grade (%)	Tonnes (Mt)	Mo Grade Mo (%)	Mo Content (Contained M lbs)
Indicated	0.010	2.17	0.099	4.8
	0.022	1.94	0.109	4.7
	0.030	1.74	0.119	4.6
	0.040	1.56	0.129	4.4
	0.050	1.42	0.137	4.3
	0.100	0.52	0.250	2.9
Inferred				
	0.010	0.38	0.071	0.6
	0.022	0.33	0.079	0.6
	0.030	0.24	0.097	0.5
	0.040	0.19	0.117	0.5
	0.050	0.17	0.122	0.5
	0.100	0.06	0.227	0.3

Table 14-23: Roundy Mineral Resource Sensitivity to Cut-Off Grade; David Thomas P. Geo., Effective Date 1 May 2012 (base case is highlighted)

Category	Cut-Off Mo Grade (%)	Tonnes (Mt)	Mo Grade Mo (%)	Mo Content (Contained M lbs)
Inferred				
	0.010	4.40	0.072	7.0
	0.022	4.32	0.073	7.0
	0.030	4.20	0.075	6.9
	0.040	3.68	0.080	6.5

Table 14-24: Roundy Creek Mineral Resource Estimate, 0.022% Mo Cut-Off; David Thomas P. Geo., Effective Date 1 May 2012

Sunshine and Sunlight Area Category	Tonnes (Mt)	Mo Grade Mo (%)	Mo Content (Contained M lbs)
Indicated	1.94	0.109	4.7
Inferred	0.33	0.079	0.6
Roundy Area Category	**Tonnes (Mt)**	**Mo Grade Mo (%)**	**Mo Content (Contained M lbs)**
Inferred	4.32	0.073	7.0

Notes to Accompany Roundy Creek Deposit Mineral Resource Tables

1. Mineral Resources are defined with a Lerchs–Grossmann pit shell, and reported at a 0.022% Mo cut-off grade
2. An incremental mining cost of $1.20/t of mineralization was used to account for trucking of mineralized material to the Kitsault processing facility located approximately 5 km to the west. A contractor mining cost of $2.90 has been assumed.
3. Mineral Resources are reported using a commodity price of $17.39/lb Mo, an average process recovery of 89%, a process cost of $5.84/t and selling cost of $1.24/lb of Mo sold.
4. Tonnages are rounded to the nearest 1,000 tonnes; grades are rounded to three decimal places for Mo
5. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
6. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds; silver is in troy ounces.

14.13 Factors That May Affect the Mineral Resource Estimate

Factors which may affect the geological models, the estimation method, Mineral Resource classification confidence categories, and the conceptual pit shells, and therefore the Mineral Resource estimates include:

- Metal price assumptions;
- Changes in interpretations of lithological domains;
- Changes in interpretations of structural boundaries;
- Changes in modelling assumptions to allow for independent modelling of elements
- Changes to the search orientations, search ellipse ranges, and numbers of octants used for grade estimation;
- Pit slope angles and geotechnical assumptions supporting the pit shells;
- Changes to the assumptions used to generate the Mo cut-off grades for resource declaration;
- Use of additional costs in pit shell constraints, such as inclusion of incremental mining costs
- Review of the classification criteria used for each deposit
- Additional drilling that may support removal of confidence category limits at Bell Moly and Roundy Creek that were imposed on legacy data.

14.14 Comments on Section 14

The QPs are of the opinion that the Mineral Resources for the Project, which have been estimated using core data, have been performed to industry best practices, and conform to the requirements of CIM (2010).

15.0 MINERAL RESERVE ESTIMATES

15.1 Introduction

The Mineral Reserves estimates for the Kitsault Project presented in this report are the result of a further optimization initiative of the mine plans presented in the 2013 Feasibility Study Update. This estimate is based on industry-accepted constraining and optimization techniques derived from the application of Lerchs–Grossmann method, followed by operational pit designs and a dynamic elevated cut-off grade approach.

The variable cut-off grade and mining sequence adopted in the mine plan that supports the Mineral Reserves, follows the guidance provided by the results of an Enterprise Optimization methodology (EO) developed for Avanti by Whittle Consulting (WCL) with the use of their ‘Prober C’ optimizer tool, as well as a recently adopted grinding strategy based on the different rock characteristics and recovery/throughput relationships developed by WCL and AMEC, which are referred to as the grind–throughput–recovery (GTR) model.

15.2 Resource Model Capture

The main construction parameters of the mineral reserve block model remain unchanged from the resource model: origin, orientation and block size with dimensions 10 x 10 x 10 m.

AMEC constructed a topographic surface based on the LiDAR survey conducted during 2009, and used it to code the model with the fraction of the block that lay below topography. This fraction was used to estimate the in-situ tonnage per block.

15.3 Pit Slopes

Geotechnical domains and pit slope angles were provided by SRK Consulting (SRK). SRK recommended dividing the future Kitsault pit area into seven slope domains, or sectors. AMEC coded the domains into the resource model, as required for the LG pit optimization and pit phase design. The inter-ramp angles were then flattened to overall slopes, allowing for the haulage ramps that would be included in the pit designs. Slope angle reductions were based on AMEC’s ramp configuration, ramp width, the number of times a haulage ramp passes through a domain, the height of the wall, and the inter-ramp slope assigned for the domain. Overall slopes used in pit optimization ranged from 42° to 48°. Inter-ramp slopes used for pit phase design ranged from 48° to 56° as recommended by SRK.

15.4 Dilution and Mining Losses

The effect of the expected internal dilution was analyzed and accounted for during the estimation of the grade components of the Resource Block Model.

To estimate the extents of external dilution, AMEC visually inspected the block model to assess the continuity of the ore zones and how much external dilution and losses could be realized when mining the deposit according to the mining method and the selected equipment sizes. In plan, the deposit consists of a higher-grade ring of mineralization that gradually decreases in grade. The mineralization above the economic cut-off tends to be continuous over distances of more than 100 m. The mineralization is not constrained by sharp structural boundaries, but rather the grade of a waste block next to an ore block tends to be just slightly below the economic cut-off.

Since the production schedule envisaged for Kitsault incorporates the use of stockpiles and the fluctuation of the cut-off grade along scheduling years, estimating dilution for each case becomes a moving target and a time consuming process, therefore AMEC implemented a fully diluted model approach. The in-situ grades from the resource model along with the resource classification were used for two-dimensional dilution estimation.

Diluted grades for a fully diluted model were calculated based on neighbour blocks located in the same level, thus each analyzed block has four neighbour blocks to be analyzed: the North neighbour, the South neighbour, the East neighbour and the West neighbour. If a neighbour block is classified as Measured or Indicated, then the analyzed block is diluted using the grade found in the neighbour block. If a neighbour block was classified other than Measured or Indicated, then the analyzed block is diluted using grades set to zero. A one meter wide corridor on each side of the economic boundary represented the dilution factor for each of the neighbour blocks, equivalent to 6.25%. The formula applied can be represented as:

*Diluted Grade = (In-situ Grade Analyzed Block * 75%) + ∑ (Dilution Factor * Grade of Neighbour Block)*

The net dilution effect of this approach is driven by the continuity or variability of the mineralization and how clustered the Measured or Indicated Resources are. Since Kitsault deposit shows good continuity, the net effect of the external dilution is reflected mainly along the contact of material classes and it was found within reasonable order. Measured and Indicated Resources within the final pit limits above a cut-off grade of 0.026% Mo have an average in-situ grade of 0.0814% Mo; after running the dilution script, the average diluted grade is 0.0810% Cu, representing a decrease of 0.4% in metal content.

Another aspect which is always present in mining operations is known as mining loss, which accounts for losses originated by operational and human errors such as: over-blasting creating excessive mixing of waste and ore, mineralized material left behind in loading areas due to cleaning in corners and ramps, ore along the crest blasted and lost over the highwall, misrouting of truck loads and material sent to the improper destination, spills along the route to process, among others.

AMEC considered 0.5% of the overall ore tonnage as mining loss and this material has been deducted from the ROM tonnage and routed to the waste dumps for costing purposes.

Dilution and loss have a very small impact on the total mineralization, and are considered appropriate for a porphyry-type deposit.

15.5 Conversion Factors from Mineral Resources to Mineral Reserves

The marginal cut-off is the point where the revenue from processing a block of ore within the constraining pit shell is equal to the total ore-based costs to process the ore. As the haul to the crusher is shorter than the haul to the waste dump, the total ore-based costs include a credit for the difference between the ore and waste haulage costs. The equations used were:

Total ore-based costs = ore-based costs + ore mining cost – waste mining costs

Total ore-based costs = 6.95 + 1.82 – 1.97 = $6.80/t

The resulting marginal cut-off is 0.028% Mo.

Material was considered to be ore if the revenue of the block exceeded the ore-based costs: processing, sustaining capital allowance, tailings management, G&A and closure allowance. Block revenue was based on net molybdenum price of $12.75 per pound of molybdenum, estimated after deducting transportation and selling costs, refining charges and a 4% royalty. This estimated royalty was used for the block revenue calculation in this section only, and is based on adding the 1% ALI NSR royalty plus an allowance of 3% (derived as royalty/revenue in the 2013 cashflow model of the mine plan update) to account for the effect of the 9.22% net cashflow royalty over the life-of-mine (refer to Section 4.5).

Process recovery for material with marginal cut-off grade of 0.028% Mo was considered at 86.3%. Revenue from silver was not included in the constraining of the Mineral Reserves.

Considering re-handling costs of $0.73/t, the marginal cut-off for low-grade material sent to the stockpile and loaded and hauled back to the crusher is 0.032% Mo. Process recovery for re-handled material with a grade of 0.032% Mo was considered at 86.6%. Stockpile ore degradation was not accounted for in the cut-off calculation.

15.6 Mineral Reserves Statement

The mineral reserves for the Kitsault Project are tabulated in Table 15-1 at a cut-off grade of 0.032% Mo. Mineral Reserves have an effective date of 14 March 2014.

15.7 Factors That May Affect the Mineral Reserve Estimate

Areas of uncertainty that may materially impact the Mineral Reserve estimates include:

- Long-term commodity price assumptions
- Long-term exchange rate assumptions
- Long-term consumables price assumptions (diesel, explosives)

Other areas that may also impact the Mineral Reserve estimates include:

- Changes in the concentrate marketing strategy
- Changes to the operations start-up date assumptions
- Changes to the assumptions used to estimate Mineral Resources
- Changes to the assumptions used in the LG shell constraining the Mineral Reserves, including the metallurgical recovery estimates
- Changes to the mine design
- Changes in the inter-ramp slope angles assumptions due higher than expected groundwater incidence

15.8 Comments on Section 15

The QPs are of the opinion that the Mineral Reserves for the Project have been performed to industry best practices, and conform to the requirements of CIM Definition Standards (2010).

**Table 15-1: Kitsault Mineral Reserves, Effective Date 14 March 2014
Ramon Mendoza Reyes, P. Eng. (cut-off 0.032% Mo)**

Classification	Tonnage (Mt)	Mo (%)	Ag (ppm)	Pb (ppm)	Contained Mo (M lb)	Contained Ag (M Oz)
Proven	129.5	0.092	5.2	252	263.6	21.5
Probable	101.6	0.070	5.4	264	156.7	17.7
Total Proven and Probable	**231.1**	**0.082**	**5.3**	**257**	**420.3**	**39.2**

Notes to Accompany Mineral Reserve Table

1. Mineral Reserves are defined within a mine plan, with pit phase designs guided by Lerchs–Grossmann (LG) pit shells, and reported at a 0.032% Mo cut-off grade, after dilution and mining loss adjustments. The LG shell generation was performed on Measured and Indicated mineral resources only, using a molybdenum price of $13.44/lb, an average mining cost of $1.81/t mined, a combined ore based cost of $6.80/t milled, and a selling cost of $1.18/lb of Mo sold. Metallurgical recovery used was a function of the rock type, head grade and grinding strategy for a weighted average of 86.6%. Revenue from silver was not included in the LG shell generation. Overall pit slopes varied from 42 to 48 degrees.
2. Dilution has been accounted for based on a contact dilution approach assuming a dilution band of one meter around the contact edges. A total of 2.5 Mt of Measured and Indicated Mineral Resources above cut-off was routed as waste. 1.3 Mt of Measured and Indicated material below cut-off has been included as dilution material. The grade of the diluting material was the grade of those blocks. An additional 0.3 Mt of Inferred dilution material with grades set to zero is included in the mine plan as mill feed.
3. After the implementation of an elevated cut-off strategy, a total 10.6 Mt of Measured and Indicated material above the marginal cut-off of 0.028% Mo and below the elevated cut-off of 0.032% Mo was discarded from the plant feed and routed as waste.
4. The life-of-mine strip ratio is 0.99:1
5. Tonnages are rounded to the nearest 100,000 t; grades are rounded to three decimal places for Mo, one decimal place for Ag, and the nearest whole number for Pb. Cost estimates are in Canadian dollars.
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content.
7. Tonnage and grade measurements are in metric units; contained molybdenum is in imperial pounds and contained silver is in troy ounces.

16.0 MINING METHODS

16.1 Pit Design

16.1.1 Pit Optimization

The mining cost used in the pit optimization was based on the results of the 2013 Feasibility Study Update and included direct operating and maintenance costs for drilling, blasting, loading, and hauling (Table 16-1). Other costs included are general mine support for road, bench, waste rock management facility (WRMF), dewatering, and ore control.

The implementation of a haulage module of the mine design software Vulcan™ facilitated the modeling of an incremental mining cost to account for the increased cost of hauling material from deeper in the pit to the different destinations. Results of this model indicate that the incremental cost was $0.023/t for every 10 m bench below the reference level at the 680 m elevation. An additional cost of $0.34/t for waste haulage accounts for the waste disposal destination located higher and further away than the ore crusher pad destination. The reference mining cost for ore is $1.24/t at the 680 m reference level and averages $1.81/t within the selected ultimate pit shell. The reference mining cost for waste is $1.58/t at the 680 m reference level and averages $1.95/t within the selected ultimate pit shell.

Ore-based costs used in pit optimization were based on the results of the 2013 Feasibility Study Update estimates and are shown in Table 16-2.

Molybdenum recovery is based on a formula developed by AMEC which takes into consideration the grinding strategy and the effect on the recovery for each of the main domain types and was capped to a maximum of 92%. In each case, the assumption is that (Mo%) is the molybdenum head grade and (P80) is the grinding target in µm:

<u>Monzonite:</u>

For molybdenum head grade greater than 0.161%:

*95.2% * (96.4 * ((-0.008492*(P80) + 95.60) - 93.65))*

For molybdenum head grade lower or equal than 0.161%:

*95.2% * (-282.21*(Mo%)2 + 91.06*(Mo%) + 89.04 + ((-0.008492*(P80) + 95.60) - (93.65)))*

Table 16-1: Mining Cost

Item	Cost (C$/t)
Reference mining cost (ore)	1.24
Incremental surface haulage cost for waste material	0.34
Reference mining cost (waste)	1.58
Average incremental mining cost for each 10 m bench for material below reference level: elevation 680 m	0.023
Total Average Mining Cost (Ore)	**1.81**
Total Average Mining Cost (Waste)	**1.95**

Table 16-2: Ore-based Costs

Area	Cost (C$/t)
Sustaining Capital, Process Operation and Tailings Management	5.50
G&A	1.16
Environmental	0.14
Total Unit Ore-Based Cost	**6.80**

Diorite:

For molybdenum head grade greater than 0.161%:

*95.2% * (96.4 * ((-0.0000074563*(P80)3 + 0.004391*(P80)2 + 0.864*(P80) + 152.636) - 95.47))*

For molybdenum head grade lower or equal than 0.161%:

*95.2% * (-282.21*(Mo%)2 + 91.06*(Mo%) + 89.04 + ((-0.0000074563*(P80)3 + 0.004391*(P80)2 - 0.864*(P80) + 152.636) - 95.47)))*

Hornfels:

For molybdenum head grade greater than 0.161%:

*95.2% * (96.4 * ((-0.02047*(P80) + 98.18) - 93.45))*

For molybdenum head grade lower or equal than 0.161%:

*95.2% * (-282.21*(Mo%)^2 + 91.06*(Mo%) + 89.04 + ((-0.02047*(P80) + 98.18) - 93.45))*

<u>All other rock types:</u>

Recovery = 7.5808 x Ln (Mo%) + 108.63

Figure 16-1 shows the recovery curves by rock type for different grinding sizes.

A metal price of $13.44/lb (US$12.50/lb) of molybdenum was used. The total selling cost of $1.18/lb includes molybdenum roasting charges, smelting and refining charges, ocean transport, insurance, and of royalties.

Based on the results of an Enterprise Optimization methodology (EO) developed for Avanti by Whittle Consulting (WCL), open pit optimization was completed using the LG algorithm as implemented in the Whittle™ software package using a 'net value' model prepared by WCL's Prober C optimizer tool. AMEC performed cursory reviews of the results of the pit optimization and accompanying sensitivity work comparing the Prober runs results against a traditional NSR model prepared by AMEC, no material differences were found in the shape or the material inventory within each ultimate pit shell.

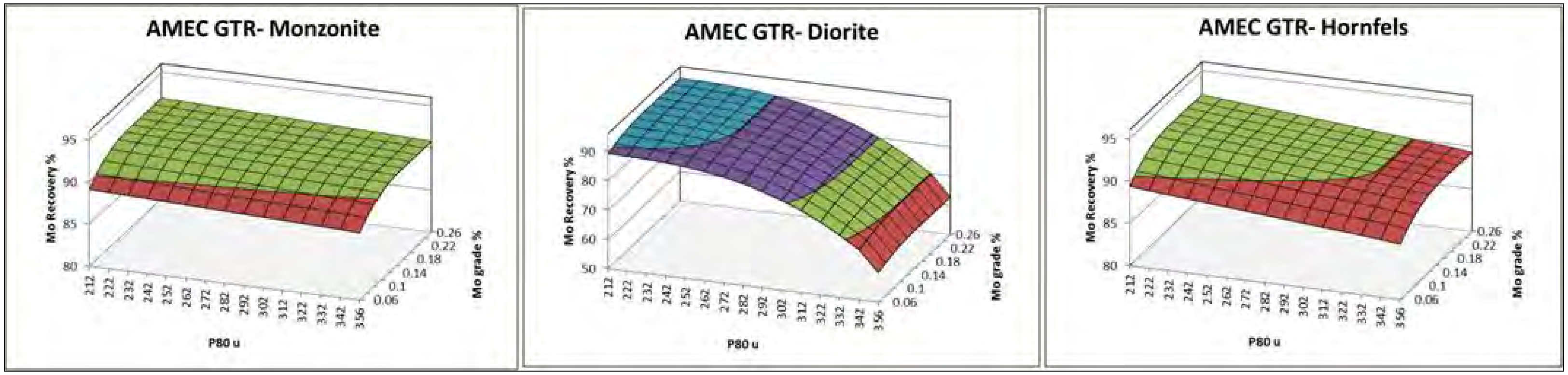
Based on the Prober run, a set of nested pit shell surfaces were generated to guide the design of operational pit phases. The nested pit shells were generated by varying the revenue factor (RF), developing a schedule of material movement for the RF 1.0 pit shell, and running a sensitivity analysis on the input parameters.

A discount factor of 8% was used for the estimation of the project discounted cashflows. After performing a skin analysis for the final pit selection (Hanson et al., 2001), the RF 0.84 pit shell was selected to guide the ultimate pit design since it maximized plant feed material and discounted cashflow.

The ultimate pit operational design, although slightly larger than the selected pit shell, fits reasonably well with a 6% increase in total material mined, 2% increase in stripping ratio, same molybdenum grade, and 2.9% increase in contained metal. Figure 16-2 is a section showing the selected pit shell and the final pit design.

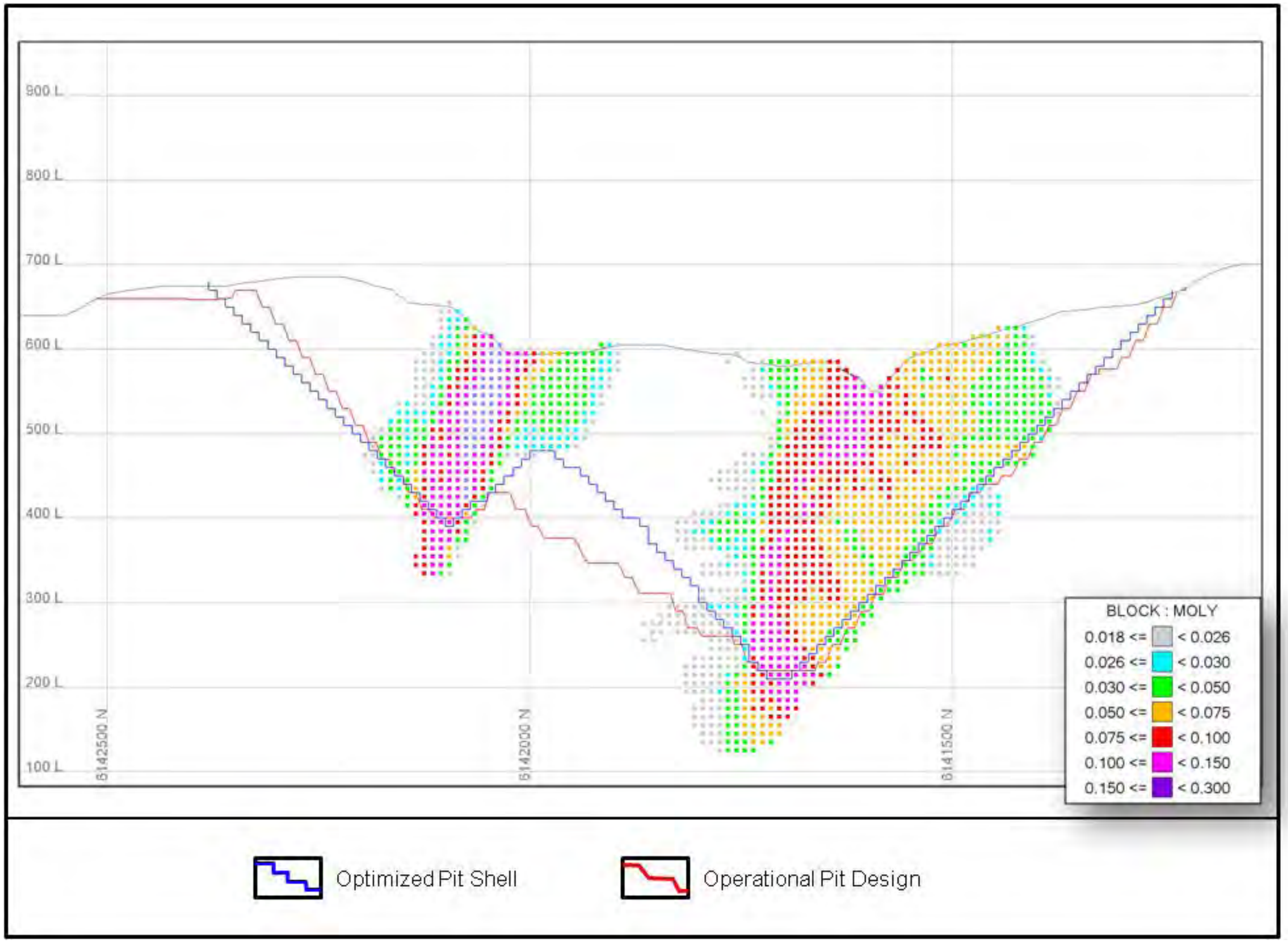
Sensitivity analysis on the optimization found that the Project is more sensitive to changes in molybdenum price and less sensitive to changes in mining cost; for example, a 20% reduction in molybdenum price would result in a reduction of 14% in molybdenum content; a 20% increase in molybdenum price would result in an increase of 6% in molybdenum content. A 20% increase in the mining cost generates a reduction of 4% of the contained molybdenum; a 20% reduction in the mining cost generates an increase of 3% of the contained molybdenum.

Figure 16-1: Recovery Curves By Rock Type for Different Grinding Sizes



Note: Figure prepared by AUSENCO, 2014.

Figure 16-2: Kitsault Pit Design and LG Pit Shell (Section E 473,315 looking East)



Note: Figure prepared by AMEC, 2014.

The contained molybdenum is less sensitive to ±5° pit slope changes. Flattening the pit walls by 5° results in a reduction of 4% in contained molybdenum; steepening them by 5° results in a 2% increase in contained molybdenum. The wall slope has a much larger impact on the amount of waste contained in the pit. Flattening the walls by 5° results in a 13% increase in waste, whereas steepening the walls results in a 15% reduction in waste.

The pit is sensitive to changes in process recovery. When the modelled recovery was multiplied by a factor of 0.9 the contained molybdenum decreased by 7%. When modelled recovery was multiplied by a factor of 1.1 the contained molybdenum increased by 4%.

16.1.2 Pit Phase Design

The Kitsault ultimate pit was divided into four phases which are shown in Figure 16-3. They are based on nested LG shell guidance, molybdenum grade, the Patsy Creek diversion requirement, strip ratio, access considerations, and operational constraints.

Ramps in the final walls have a design width of 35 m and a maximum gradient of 10%. The minimum mining width is 60 m. The crest elevation of the pit is 800 masl and the pit bottom elevation is 220 masl

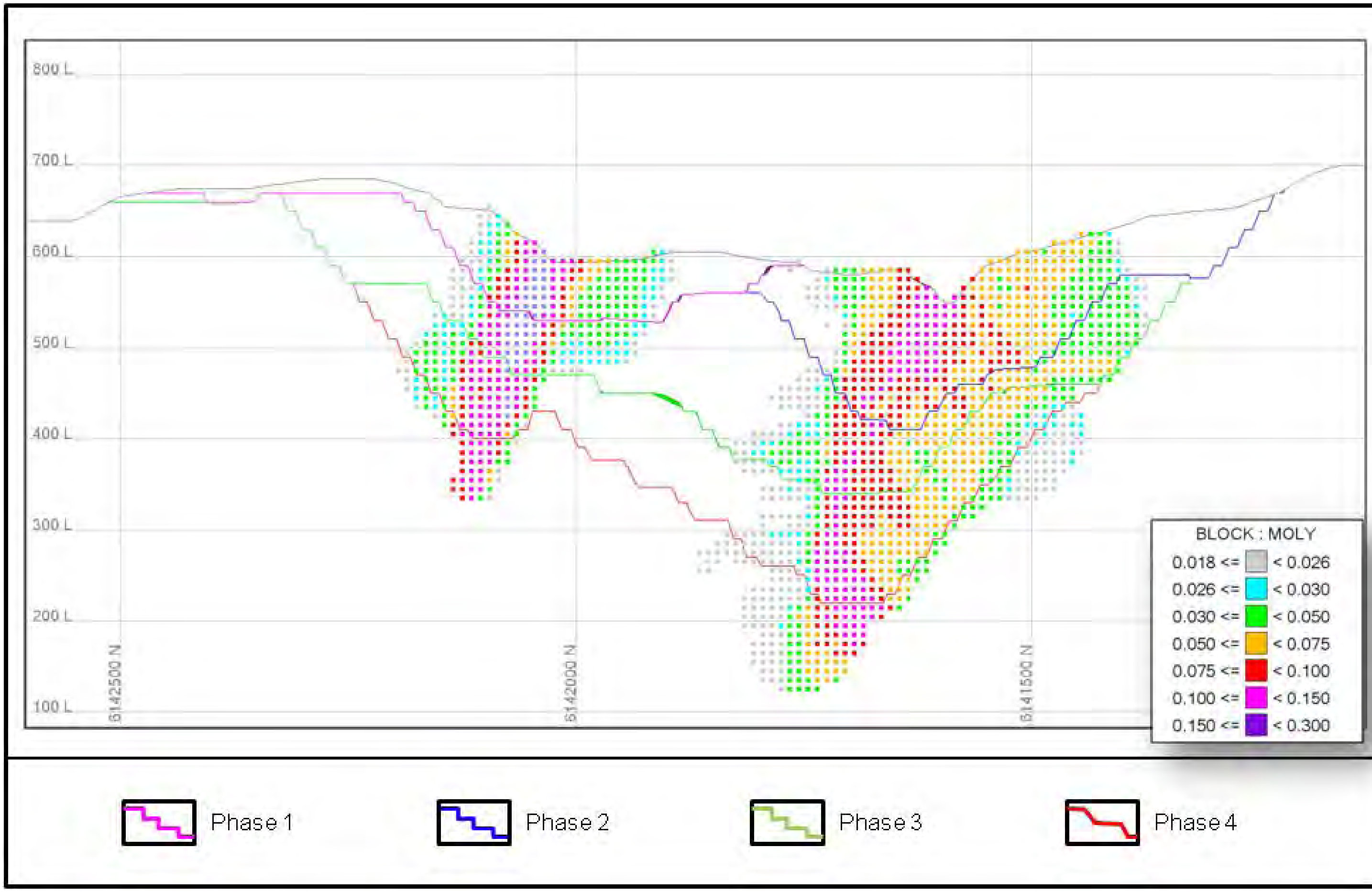
The ultimate pit design includes 17.1 Mt of Inferred Mineral Resources at a grade of 0.047% Mo; this material is treated as waste in the mine plan. This material could potentially be mined if additional drilling supports upgrading to higher-confidence Mineral Resources and eventually to Mineral Reserves.

16.2 Production Plan

The mine material movement schedule was developed with the following objectives:

- Gain early access to the higher-grade ore to facilitate capital recovery earlier in the mine life
- Schedule the mining sequence giving preference to processing “softer” material (monzonite) following a coarse grind approach to maximize metal output without compromising metallurgical recovery
- Meet volume requirements for construction materials for roads, platforms, and the South Embankment of the tailings management facility (TMF), during the pre-production period

Figure 16-3: Kitsault Operational Pit Phases, Section E-473,315 looking East



Note: Figure prepared by AMEC, 2014.

- Minimize waste stripping by carefully positioning the haul roads and by maintaining a smooth waste to ore ratio
- Integrate the diversion of Patsy Creek along the south wall of the pit.

Under the project development plan, pre-stripping is scheduled over a 15-month period. The primary objective of preproduction mining is to supply material for the South Embankment of the TMF and other construction projects. Pre-production mining will also focus on developing mine access roads suitable for large mining equipment and “facing-up” the initial pit phases into productive set-ups for the start of production.

The production plan was developed on a quarterly basis for the life-of-mine; a yearly summary of this plan is presented in Table 16-3. For this purpose, each bench of the four mining phases was broken down into several mining blocks, and these blocks were sequenced to reflect their relative position of the ramps to the bench point of access, and the preferred priority of mining based on the block average grade and value.

The plan assumes that the mine will operate 365 d/a, with 10 days allowed for delays due to fog and winter conditions. The plant was scheduled to operate 365 d/a with sufficient materials stockpiled at the crusher and coarse ore stockpile to accommodate mine outages resulting from weather constraints.

The plan was driven by the objective of maximizing the metal output, particularly early in the mine life. The feed strategy is summarized as follows and shown in Table 16-4.

- Feeding high-grade material early in the mine life
- Targeting monzonite and delaying the processing of hornfels material
- Maximizing the plant feed following AMEC’s GTR model and scheduling the different feed rates for each rock type:
  - Monzonite processed at 356 µm: 2,145 tph
  - Diorite processed at 258 µm: 2,035 tph
  - Diorite processed at 212 µm: 1,875 tph
  - Hornfels processed at 291 µm: 1,950 tph
  - Hornfels processed at 212 µm: 1,740 tph
  - All other rock types assumed at: 1,812 tph

Table 16-3: Mined Material Routing and Grinding Strategy by Rock Type

Hornfels		NSR	Yr-2	Yr-1	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13
Grinding Code	Grinding Size	-	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST
O1A	212	7.07	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	O1C	O1A
O1B	258	7.67	WST	WST	WST	ST3	WST	WST	WST	WST	WST	ST3	ST3	ST3	ST3	O1C	O1A
O1C	291	10.00	ST3	ST3	ST3	ST3	WST	O1C	O1C	ST3	ST3	O1C	ST3	ST3	ST3	O1C	O1A
Stockpiles Bins		12.80	ST1	ST1	O1C	ST1	ST2	O1C	O1C	O1C	ST2	O1C	O1C	O1C	O1C	O1C	O1A
ST1		17.00	ST1	ST1	O1C	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A
ST2		22.00	ST1	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A	O1A
ST3		27.00	ST1	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A	O1A	O1A
Discarded		32.00	ST1	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A	O1A	O1A
WST		37.00	ST1	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A	O1A	O1A	O1A
		42.00	ST1	ST1	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1C	O1A	O1A	O1A	O1A	O1A
		47.00	ST1	ST1	O1C	O1C	O1C	O1C	O1A	O1C	O1C	O1A	O1A	O1A	O1A	O1A	O1A

Diorite		NSR	Yr-2	Yr-1	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13
Grinding Code	Grinding Size	-	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST
O2A	212	6.95	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	O2B	O2A
O2B	258	7.55	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	O2B	ST3	O2B	O2A
O2C	291	10.00	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	O2B	ST3	O2B	O2A
Stockpiles Bins		11.00	ST2	ST2	ST2	ST2	ST2	O2B	O2B	ST3	ST2	O2B	ST2	O2B	O2B	O2B	O2A
ST1		12.80	ST1	ST1	ST1	ST1	O2B	O2B	O2B	O2B	ST2	O2B	O2B	O2B	O2B	O2A	O2A
ST2		17.00	ST1	ST1	O2B	ST1	O2B	O2B	O2B	O2B	O2B	O2B	O2B	O2A	O2A	O2A	O2A
ST3		22.00	ST1	ST1	O2B	O2B	O2B	O2B	O2B	O2B	O2B	O2B	O2A	O2A	O2A	O2A	O2A
Discarded		27.00	ST1	ST1	O2B	O2B	O2B	O2B	O2B	O2B	O2B	O2A	O2A	O2A	O2A	O2A	O2A
WST		32.00	ST1	ST1	O2B	O2B	O2B	O2B	O2A	O2B	O2B	O2A	O2A	O2A	O2A	O2A	O2A
		37.00	ST1	ST1	O2A	O2B	O2B	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A
		42.00	ST1	ST1	O2A	O2B	O2B	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A
		47.00	ST1	ST1	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A	O2A

Monzonite		NSR	Yr-2	Yr-1	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13
Grinding Code	Grinding Size	-	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST
O3A	258	6.80	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	O3C	O3C	O3C	O3C	O3C
O3B	291	7.40	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	ST3	O3C	O3C	O3C	O3C	O3C
O3C	356	10.00	ST3	ST3	ST3	ST3	ST3	O3C	ST3	ST3	ST3	ST3	O3C	O3C	O3C	O3C	O3C
Stockpiles Bins		10.97	ST2	ST2	ST2	ST2	ST2	O3C	ST1	ST3	ST2	O3C	O3C	O3C	O3C	O3C	O3C
ST1		12.80	ST1	ST1	ST1	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C
ST2		15.00	ST1	ST1	O3C	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C
ST3		17.00	ST1	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C
Discarded		22.00	ST1	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C
WST		27.00	ST1	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C
		32.00	ST1	ST1	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C	O3C

Other		NSR	Yr-2	Yr-1	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13
Grinding Code	Grinding Size	-	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST
O9A	258	7.35	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	WST	O9A	WST	O9A	O9A
O9B	291	7.95	WST	WST	ST3	ST3	ST3	WST	WST	ST3	ST3	ST3	ST3	O9A	ST3	O9A	O9A
O9C	356	10.00	ST3	ST3	ST3	ST3	ST3	O9A	O9A	ST3	ST3	O9A	O9A	O9A	ST3	O9A	O9A
Stockpiles Bins		11.00	ST2	ST2	ST2	ST2	ST2	O9A	O9A	ST3	ST2	O9A	O9A	O9A	O9A	O9A	O9A
ST1		12.80	ST1	ST1	ST1	ST1	O9A	O9A	O9A	O9A	ST2	O9A	O9A	O9A	O9A	O9A	O9A
ST2		17.00	ST1	ST1	O9A	ST1	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A
ST3		22.00	ST1	ST1	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A
Discarded		27.00	ST1	ST1	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A
WST		32.00	ST1	ST1	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A	O9A

Table 16-4: Summary of Mill Feed by Period

Period	Mill Feed From Pit (kt)	From Stockpile (kt)	Total (kt)	Mo %	Mo Recovery %
Y1	7,932	-	7,932	0.094	86.5%
Y2	16,736	-	16,736	0.140	90.3%
Y3	16,872	-	16,872	0.082	89.0%
Y4	16,913	-	16,913	0.091	89.4%
Y5	16,753	-	16,753	0.090	89.4%
Y6	12,114	4,325	16,439	0.084	88.7%
Y7	16,867	-	16,867	0.099	89.6%
Y8	16,862	-	16,862	0.090	89.5%
Y9	16,954	-	16,954	0.080	89.4%
Y10	11,933	4,455	16,388	0.072	88.9%
Y11	16,028	-	16,028	0.077	89.7%
Y12	16,491	-	16,491	0.071	89.4%
Y13	13,194	3,198	16,392	0.075	85.3%
Y14	-	16,200	16,200	0.036	77.5%
Y15	-	7,266	7,266	0.036	77.5%
Total	**195,650**	**35,445**	**231,094**	**0.082**	**88.5%**

Note: Includes 300 kt of Inferred dilution material with grades set to zero.

The mining sequence is constrained by a maximum vertical advance per phase per year targeted to ten 10 m benches. Total pre-stripping is 9.4 Mt. Peak material movement is 136 kt/d in Year 4 with an average of 125 kt/d for the five years after ramp-up and a LOM average of 101 kt/d during pit operations. The highest rate of vertical advance is in Year 2, when Phase 2 is mined at a rate of 11 benches a year. In the production years, two to three phases are typically active in any period. The maximum mining rate of approximately 49.6 Mt/a is achieved in Year 4. The average mining rate after ramp-up Years 2 to 11 is approximately 40.2 Mt/a.

The Kitsault deposit has very little overburden, most of which is too thin to recover. When a recoverable thickness is encountered it will be pre-stripped from the mining area before production mining begins. The initial stripped materials will be stockpiled for construction and reclamation purposes. Materials stripped during the mine production period will continue to be stockpiled.

16.3 Equipment

16.3.1 Equipment Selection

Mining equipment selection was based on a high-level comparative analysis of budgetary quotes received from major brand vendors. One 34 m^3 electric hydraulic shovel and one 22 m^3 electric hydraulic shovel were selected as primary loading tools based on requirements for the 10 m bench height and productivity levels. An 18 m^3 front end loader has been included as a support / backup unit with a second unit assigned to the crusher pad for feeding ore to the crusher. A peak of seventeen 218 tonne haul trucks was estimated to handle the haulage requirements. Sizes and numbers of support and auxiliary equipment were based on the nature of the tasks the equipment is expected to perform and general fit with the main mine production fleet. The complete life-of-mine equipment fleet, including replacement and retirement units, from preproduction to the end of the mine life, is shown by year in Table 16-5.

Auxiliary equipment will include various utility trucks, equipment handling implements, and personnel vehicles. Track dozers, a wheel dozer, graders, hydraulic excavators, and a water truck will be used for stockpile and waste dump maintenance, cleaning waste from the ore contacts and drill pattern cleanup, general drainage maintenance tasks, and dust suppression.

Mine modelling software will be used to incorporate data from exploration and production drilling to develop a bench plan to delineate the ore and waste mining zones. Both zones will be drilled in a single 10 m pass with 270 mm (10⅝") diameter holes. A wall control program will be used along all final walls, but not normally for intermediate pit phases except when the walls are planned to be exposed and left standing for more than one full year. Horizontal pit wall drain holes at 121 mm will be required in selected areas to depressurize the wall rock. The 121 mm (4¾") holes will be drilled with a hammer drill and the 270 mm ($10^5/_8$") holes with an electric rotary drill.

A 70% emulsion / 30% ANFO blend blasting and water-resistant agent, will be used for all blasting. Blast hole patterns will be designed by the drill and blast engineers for optimal “digability”, cost, and fragmentation for ore and waste areas. Every production hole near a boundary between ore and waste zones will be sampled. Inside a known ore zone, one of three drill holes will be sampled, representing approximately 5,000 t. In known waste zones, one of every 12 holes, equivalent to 20,000 t of waste rock, will be selected for waste characterization. The blast hole sampling will generate an average of 15 samples a day.

Equipment productivities were calculated based on estimated annual operating hours and mechanical availability based on recent information provided by the equipment manufacturers and AMEC’s operational criteria. Annual operating hours varied by fleet due to associated availabilities. To allow for inefficiencies, a 50-minute operating hour was applied to all equipment. In addition, 90% truck availability was applied to the 34 m^3 electric hydraulic shovel, 85% truck availability was applied to the 22 m^3 electric hydraulic shovel and 75% to the loader. During the ramp-up period, additional considerations were taken to lower the productivity to reflect inefficiencies observed during pioneering, bench setup and operators training.

Table 16-5: Mine Equipment Fleet Requirements

Equipment Unit	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
Major Equipment																	
CAT MD 6540 Rotary Drill	-	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	-
CAT MD 5075 Percussion Drill	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	-
CAT 6060 FS Hydraulic Shovel	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 6040 FS Hydraulic Shovel	-	-	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
CAT 994 SHL Front-End Loader	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1
CAT 793F Haul Truck	2	4	8	12	12	15	17	16	14	16	17	17	17	13	15	6	3
Support Equipment																	
CAT D10T Track Dozer	1	2	3	4	4	4	4	4	4	4	4	3	3	3	3	3	2
CAT D6 Track Dozer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 16M Grader	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CAT 777G Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 834H Tire Dozer	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 349L Hydraulic Excavator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 329L Hydraulic Excavator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 740 Haul Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Auxiliary Equipment																	
55 Tonne Class Crane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15 Tonne Forklift	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fuel/Lube Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mechanics Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
CAT 988 Tire Handler	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Light Plant	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	2	2
Light Vehicle	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3
Crew Bus	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Truck with 10 t Arm-Crane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Low Bed Tractor Trailer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ambulance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAT 988 Cable Reeler	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

16.3.2 Equipment Maintenance

The strategy for repair and maintenance of the mobile equipment fleets at the Kitsault project will be an Owner-managed maintenance program. During equipment assembly and commissioning, manufacturing representatives will be present on site to train both the operators and maintenance personnel. The ratio of maintenance personnel to equipment operators will be 0.32 to 0.57.

The mine truckshop will be a pre-engineered building housing two heavy-vehicle repair bays, a light-vehicle repair bay, and other bays for tire change-out, welding, and equipment washing. It will also have areas for offices, a warehouse, and emergency vehicles.

16.4 Geotechnical

A geotechnical pit slope design evaluation was carried out by SRK (2010) in which geotechnical core logging, discontinuity orientation and laboratory strength testing served as the basis for analysis.

The rock mass model was divided into two geotechnical domains, hornfels and intrusive rocks, which are similar in terms of discontinuity orientations, but distinctly different with regard to rock mass properties. Based primarily on geologic structure, pit wall orientation and operational considerations, the final pit was further divided into 10 sectors for analysis.

Bench configurations as well as inter-ramp and overall slope angles were assessed separately for each sector and domain. Bench design was evaluated using stochastic simulations of discontinuity properties (such as orientation, spacing, persistence, and shear strength) to analyze the likelihood for plane shear and/or wedge type failures to occur in a given bench configuration and orientation.

Inter-ramp and overall slope stability analyses were conducted using probabilistic limit equilibrium methods. A design probability of failure of up to 30% for slopes with low failure consequences and approximately 10% for high failure consequences were used for inter-ramp and overall slopes; however, in most cases, slope recommendations were controlled by bench design rather than inter-ramp slope angles.

Analysis results were combined to produce a coherent and complete set of design criteria for a rational final slope profile with allowances for dewatering requirements, safety berms, and access. Design recommendations were developed for bench configuration as well as inter-ramp and overall pit slope angles. Recommendations are summarized in Table 16-6.

Table 16-6: Pit Slope Design Recommendations

Sector	Max. Slope Height (m)	Inter-ramp Slope Angle (°)	Average Bench Face Angle (°)	Bench Height (m)	Average Berm Width (m)
1	520	48	79	20	14.1
2	425	48	70	20	10.7
3	370	52	83	20	13.1
4	430	50	68	20	8.7
5	425	54	73	20	8.4
6	345	54	73	20	8.4
7	370	54	73	20	8.4
8	350	52	70	20	8.4
9	195	56	79	20	9.6
10	210	54	73	20	8.4

16.5 Drainage and Dewatering

The water management strategy for the Project is discussed in detail in Section 18.

A two-dimensional pit inflow model was prepared across the pit extending from Patsy Creek on the south end to its diversion north of the pit. The model incorporates three separate hydraulic zones, and predicts a total groundwater inflow to the pit of 4,800 m^3/d at the end of mining, but this prediction is sensitive to the assumed bulk hydraulic conductivity assigned to the rock mass, particularly for the lower quartz monzonite and the hornfels. Actual inflow volumes will vary in accordance with the bulk hydraulic conductivity rates.

Water will be managed via ditching on benches and through sumps in the pit floor, assuming an arrangement of 50 m long horizontal drains at 50 m spacing along benches and 100 m long on ramps. The actual drain requirements will be assessed during operations based on the performance of the dewatering system; requirements are likely to vary with mine depth.

A diversion will be constructed along the south wall of the open pit early in operations to convey the diverted Patsy Creek catchment toward Lime Creek. This will be maintained until closure, when the diverted flows will be allowed to flow directly into the open pit until it fills, at which time it will discharge to Lime Creek. The Patsy Creek diversion may be maintained upon the cessation of mining activities until the pit fills without the input of Patsy Creek flows, should this be deemed necessary to mitigate flow reductions in Lime Creek.

Surface water captured in the mine area will be pumped to the TMF or, if of suitable quality, be discharged to Lime Creek to be mixed with the diverted flows from Patsy Creek.

Precipitation, seepage from walls, and horizontal drains will introduce water into the pit. Some of this water will be absorbed by the broken rock and be hauled out with the rock or removed as snow.

As the mine deepens a collection system of ditches, pipes, sumps, pumps, and booster pumps will be required to contain the water. The pit dewatering system will be designed to handle a two-year return period rain storm. Rain events in excess of this will flood the lower areas of the pit. During these rare events, mining will be focused on the upper mining phases until the water is pumped out of the pit bottom.

Ditches will route water that collects in the pit bottom to small, temporary sumps created as part of the normal mining operation. Open pit dewatering will continue throughout the mine life, with dewatering flows being either pumped to the TMF or discharged directly to Lime Creek.

16.6 Emission Controls

All equipment will be maintained in good working order to minimize CO_2 emissions. All main equipment is designed to meet OSHA and MSHA occupational noise criteria. Routine water spraying by the water truck will suppress dust generated on roads, benches, and dump areas. Used oil will be collected at the truck shop and temporarily stored on site. Some of the waste oil will be used as a constituent of the fuel component in the ANFO mix; the surplus oil will be sent off site for recycling.

16.7 Comments on Section 16

In the opinion of the QPs:

- The mining methods used are appropriate to the deposit style and employ conventional mining tools and mechanization;
- The LOM open pit mine plan has been appropriately developed to maximize mining efficiencies, based on the current knowledge of geotechnical, hydrological, mining and processing information on the Project;
- The use of the ‘net value’ model generated by WCL’s Prober was particularly helpful in guiding the mining sequence, grinding strategy and cut-off grade

strategy. The result of this approach shows enhanced economics by increasing the discounted value of the Project;

- The equipment and infrastructure requirements required for life-of-mine operations are well understood. Conventional mining equipment will be used. The LOM fleet requirements are appropriate to the planned production rate and methods;
- The predicted mine life of 15 years is achievable based on the projected annual production rate and the Mineral Reserves estimated.

17.0 RECOVERY METHODS

17.1 Process Flow Sheet

The process design is for a concentrator with a nominal processing capacity of 40,000 t/d of ore from an open pit, based on the 75th percentile and therefore what the plant can deliver on, or better than, 75% of the ore.

The samples used to develop the metallurgy were obtained from two drilling campaigns, one in 2008 and the other in 2011. Theses sample were used for testwork (as described in Section 13). The testwork results were used for the basis of the process design criteria for the facilities.

Where data was not available at the time of flowsheet development, AMEC developed criteria for the sizing and selection of equipment from reasonable assumptions, benchmarking, and the use of modern modelling and simulation techniques.

Key design criteria for the Kitsault process plant are listed in Table 17-1.

17.1.1 Process Description

The mineral processing plant is based on conventional technology and proven equipment. The circuit selected for Mo recovery is gyratory crushing followed by a SABC (semi-autogenous mill, ball mill, crushing circuit) with rougher flotation followed by regrinding and cleaner flotation. By-product silver recovery occurs within the de-pyritizing circuit. Figure 17-1 is a simplified diagram showing the major processing steps.

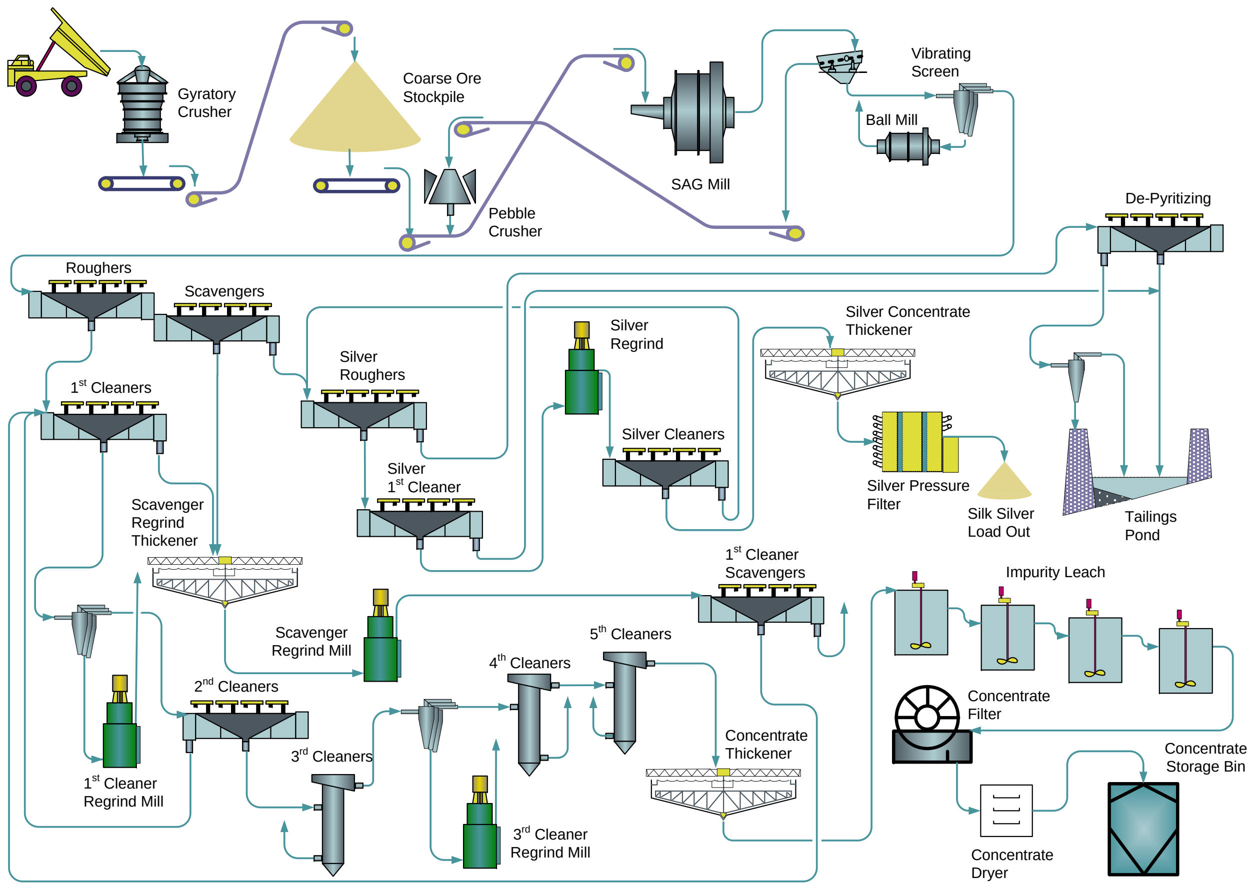
Run-of-mine (ROM) ore from the open pit will be crushed and conveyed to a stockpile. Ore will be withdrawn from the stockpile to feed a semi-autogenous grind (SAG) mill (14 MW). Discharge from the SAG mill will pass over a vibrating screen, which will separate out the coarse fraction for recycle to a pebble crusher for size reduction before being re-introduced into the SAG mill.

Table 17-1: Key Process Design Criteria

Description	Unit	Value
Annual Throughput	t/a	14,600,000
Daily Throughput	t/d	40,000
Operating Days per year	d/a	365
Overall Concentrator Availability	%	92
Nominal Design Feed Grade Mo	%Mo	0.11
Plant Recovery		
Nominal Plant Mo Recovery	%	90
Mo Concentrate Target Grade	%	52
Lead level in Mo Concentrate	% Pb	<0.04
Primary Crushing	-	Gyratory
Crushing Work Index	kWh/t	14
Coarse Ore Live Storage	t	41,000
Grinding Circuit Configuration	-	SABC
SAG Mill Power	MW	14.00
SAG Mill - Ball Mill T_{80}	mm	3.85
Pebble Crushing Type	-	Cone
Ball Mill Power	MW	14.00
Ball Mill Circulating Load	%	240
Bond Ball Mill Work Index, 75th Percentile	kWh/t	14.1
Discharge Particle Size, P_{80}	µm	230
Flotation Feed	% solids	35.4
Rougher-Scavenger Flotation Residence Time	min	24
3 Stage Mo Regrinding		
Regrind Work Index	kWh/t	14.5
Scavenger Regrind Circuit Product Size, P_{80}	µm	55
Cleaner 1 Circuit Product Size, P_{80}	µm	45
Cleaner 3 Circuit Product Size, P_{80}	µm	24
5 Stage Mo Cleaning		
1st Cleaner Flotation Residence Time	min	9
1st Cleaner Scavenger Flotation Residence Time	min	21
2nd Cleaner Stage Flotation Residence Time	min	6
3rd Cleaner Flotation Residence Time	min	4.5
4th Cleaner Flotation Residence Time	min	3
5th Cleaner Flotation Residence Time	min	3
Cleaner Circuit Density Ranges	% solids	10–20%
Final Mo Concentrate Processing		
Concentrate Thickener Underflow Density	%wt solids	60
Impurity Leach Residence Time	hours	4
Concentrate Filter Cake Moisture	% moisture	12
Dried Concentrate Moisture	% moisture	5
Silver Circuit		
Nominal Silver Recovery	%	40
Nominal Silver Concentrate Grade	g/t	2,000
Combined Silver Sulfide Residence Time	min	8
Silver Regrind Circuit Product Size, P_{80}	µm	45

Description	Unit	Value
1st Ag Cleaner Flotation Residence Time	min	15
2nd Ag Cleaner Flotation Residence Time	min	9
3rd Ag Cleaner Flotation Residence Time	min	3
Reagents		
AF56	g/t ore feed	6
MIBC	g/t ore feed	6
Nokes Reagent	g/t ore feed	85
Diesel	g/t ore feed	186
Lime	g/t ore feed	300
Xanthate	g/t ore feed	100

Figure 17-1: Process Overview



Note: Figure prepared by AMEC, 2013

Undersize from the discharge screen will be pumped to a cyclone pack where coarse material will report to a ball mill (14 MW) for grinding to near liberation size. Cyclone overflow will report to the rougher–scavenger bulk flotation circuit (six 300 m^3 tank cells).

Molybdenite and some pyrite, along with significant entrained and locked non-sulphide gangue, will be recovered in rougher and scavenger flotation. The rougher concentrate will be sent to the 1st cleaners. The concentrate from that unit operation will be reground, while the 1st cleaner tails will join the scavenger concentrate at the scavenger regrind thickener.

The reground 1st cleaner concentrate is subsequently upgraded in one more mechanical and three column flotation steps, for a total of five cleaning steps, including a regrind of the 3rd cleaner concentrate, to produce a final concentrate.

Material thickened in the scavenger regrind thickener will be reground and then passed through the 1st cleaner scavenger cells, which send a concentrate to the feed of the 1st cleaners and the tailings product to the final sulphide tailings disposal box.

The tailings from the scavenger flotation will report to the flotation cells which are used for primary silver recovery and for desulfurization. The silver rougher concentrate product recovered here will be sent to the silver cleaner recovery circuit. There the silver material will be upgraded by regrinding and cleaning to produce a saleable silver concentrate. As noted previously the tailings from this circuit will be sent to the final sulphide tailings disposal box. The sulphide material recovered from desulphurization which is not sent to the silver cleaner recovery circuit will be sent directly to the final sulphide tailings disposal box. The final sulphide material will be sent to the TMF, and will be disposed of sub-aqueously.

The tailings from the roughing stage of the de-pyritization flotation, now sulphide-depleted, will be sent to the tailings cyclones. The coarse sand generated by the cyclones will be used for dam construction, while the slimes will be disposed of within the main impoundment area. When not building dams, all tailings will be discharged into the tailings pond.

The final concentrate from the molybdenum cleaning circuit will be sent to the molybdenum thickener. After thickening, the material will be sent to the lead leaching circuit, where it will be treated with hydrochloric acid to ensure that the material meets customer specifications before being prepared for shipment. After leaching, the concentrate will be filtered, washed, re-filtered and then dried before being bagged for shipment.

The final concentrate from the silver circuit will be sent to the silver thickener. After thickening, the concentrate will be filtered and then stored in a concentrate shed prior to being shipped to customers.

The general arrangement of the concentrator equipment is shown in Figure 17-2.

Crushing and grinding equipment sizing is performed to allow the plant to meet or exceed the daily nominal tonnage requirement >75% of the orebody material.

17.2 Energy, Water, and Process Materials Requirements

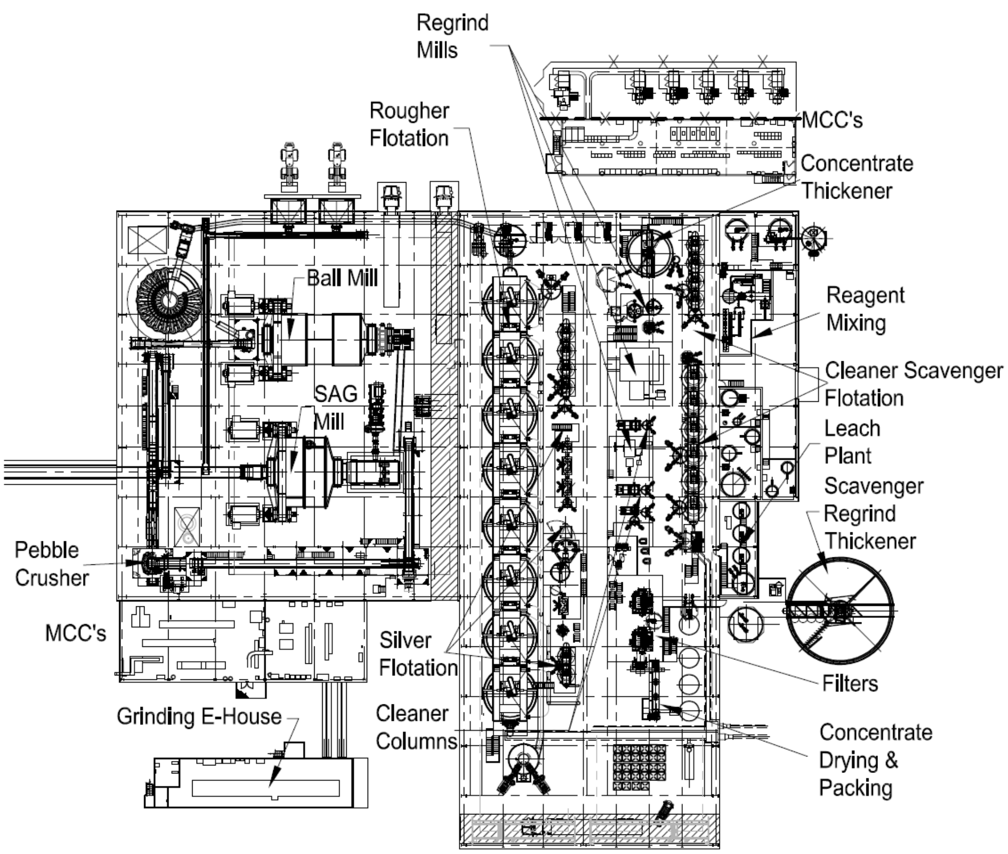
17.2.1 Process Material Requirements

All flotation and leaching reagents used in the process are commonly available and are considered to be bulk commodities and not dependent on a sole producer. Reagents will generally be delivered in tote bags (for solids, e.g. PAX) or ISO containers (for liquids, e.g. AF65, Nokes' reagent). Enough space will be allocated for four weeks' storage of unmixed reagents.

The reagent fuel oil will be stored outside the mill in its own tank, which will be periodically refilled by tanker from the main diesel tanks on site. MIBC will also be primarily stored outside the mill in its own tank, which will be periodically refilled by tanker from the reagent supplier in Edmonton. Special precautions will be taken for fire prevention in the concentrator facility with use of these reagents.

Lime required for pH control will be shipped in trucks as pebble quicklime from Southern British Columbia. The quicklime will be slaked and mixed on site.

Figure 17-2: Concentrator General Arrangement



Note: Figure prepared by AMEC, 2013

The steel grinding media and the large mill liners are available from a variety of sources and pose no risk in supply. The regrind media and regrind mill components are more specialized and may be single source. There are alternative technologies now available for fine regrinding and these will be examined in detailed engineering to ensure that the project is not vulnerable to these parts.

All other maintenance parts utilized within the process plants are commonly available in Canada.

17.2.2 Water

Process water will be obtained from two sources:

- Water reclaimed from the TMF
- Internal plant recycle (thickener overflow).

The water will be stored in a process water tank sized for two hours' requirement. Most process water will be used in grinding and flotation, with lesser amounts used for washing, flushing, and general cleanup.

Fresh water will be supplied from Clary Lake and pumped to a fresh/firewater tank at the mill site. Water for potable use will be pumped through a chlorination process, stored in a potable tank at the mill site, and distributed to potable water users in the mill site area and in the camp.

Fresh water will be used for clean water requirements at the plant including:

- Spray water in the flotation columns
- Cooling water for the mill drives and lubrication systems
- Cooling water for plant air compressors
- Reagent mixing
- Gland seal water.

Storage will be provided for four hours' supply of clean service water at normal consumption rates. If the freshwater system is interrupted for a significant period, the needs listed above would be met from the process water system.

17.2.3 Energy

Energy requirements are discussed in Section 21.

17.3 Comments on Section 17

In the QP's opinion, four principal risks were identified in the testwork. These are:

- Grinding hardness and the delivery schedule of the ore: there is a period early in the mine life, one quarter in particular, where the ability to meet throughput target is right at the limit. The alleviating measure is to ensure tight ore control coming from the pit so as to not aggravate the situation any further
- Confirming the target Mo recovery and final Mo concentrate grade by locked cycle testwork. Initial tests did not work out, primarily due to problems with the testing. However both subsequent testwork performed in 2011 and the successful industrial level production of molybdenum concentrates at a high recovery prior to 1982 support the flowsheet and the proposed recovery levels in the mine model. It is believed that the plant can control these issues by good control practice in both the regrind and cleaner flotation areas
- Confirming that premium concentrate quality can be achieved by proper flotation conditions followed by impurity leaching. This was confirmed by testwork completed in 2011. This issue is now considered to be a minor risk which can be alleviated by being conservative in the leach circuit design
- Recovery of silver is expected to be variable. Good control of Nokes addition, regrinding and mass pull are critical in achieving silver recovery. Preliminary testwork indicates that it should be possible to produce saleable silver concentrate. However, the same issues that existed in the cleaning of the molybdenum concentrate are duplicated with the recovery of silver to a concentrate. It should also be noted that as a by-product recovered material, no variability work has been performed to determine response across the ore body. Further testwork in this area is recommended to develop robust design criteria

It is further recommended that for engineering purposes, provision is made to determine settling and filtration data for design.

18.0 PROJECT INFRASTRUCTURE

18.1 Infrastructure Layout

Considering the rugged topography in the area, buildings and facilities will be constructed on pads at different elevations utilizing the limited available flat sections of land. The Project infrastructure will consist of:

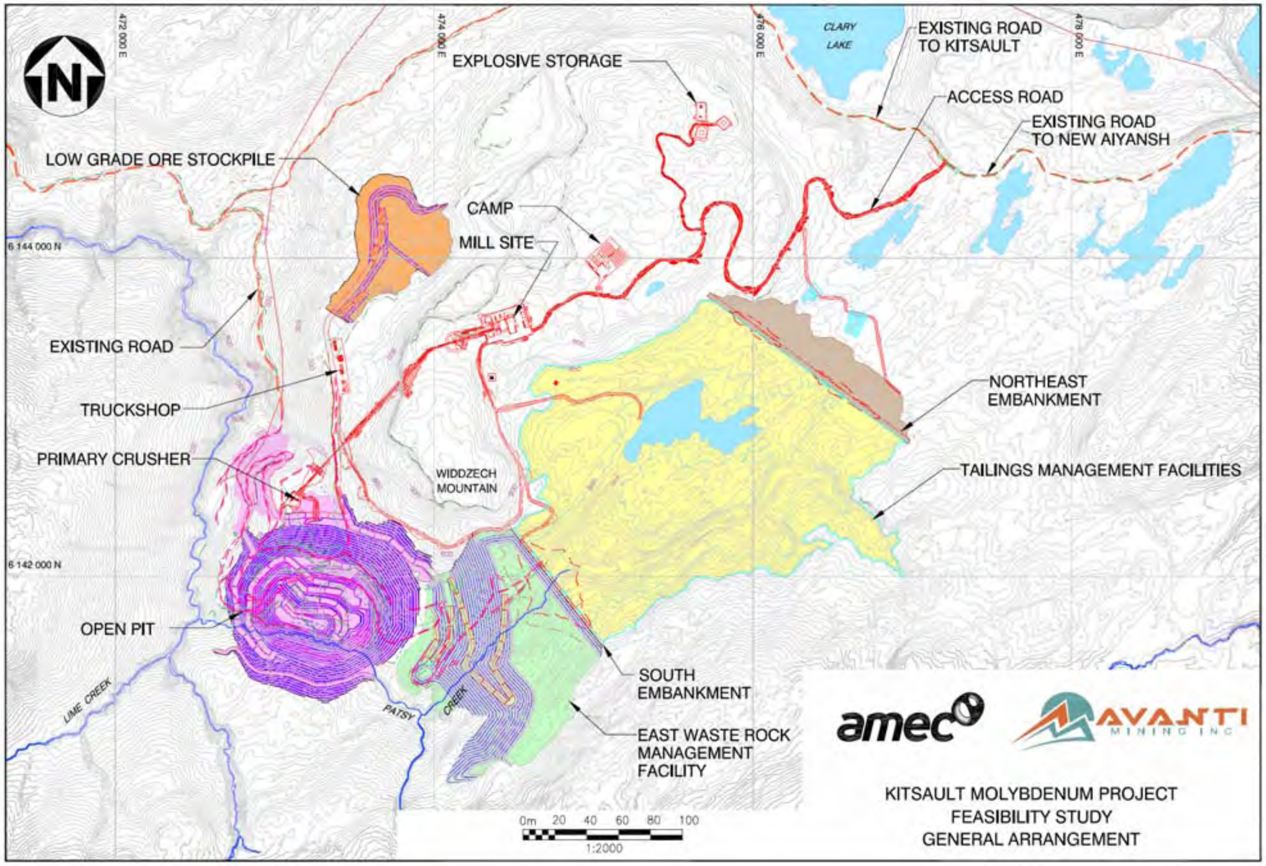
- An open pit
- A waste rock management facility (WRMF)
- A low-grade ore stockpile (LGOS)
- A camp/accommodation complex
- A processing plant
- Maintenance and administration facilities
- A tailings management facility (TMF)
- Various ancillary buildings
- Diversion ditches
- Pipelines for water and tailing
- A revised transmission line alignment to the proposed process plant location.

A layout plan is included as Figure 18-1.

The locations of the process plant and several ancillary facilities incorporate slight changes from locations presented in the 2013 Feasibility Study Update:

- The mill has been sited on the eastern flank of an existing knoll. Platform grading of the process circuit layout will allow for gravity flow through the process plant and then to the TMF to the southeast.
- The truckshop/warehouse and fuel storage compound is approximately 1.3 km north of the open pit. Site selection considered topography, suitability of ground conditions, and convenience for the mining trucks to pull in for service or refuelling. It will also keep most of the noise below and away from the camps and mill site.
- The explosives plant will be located up a side road from the mine access road, about 500 m to the northeast of the TMF.
- The primary crusher will be installed as close as possible to the rim of the open pit. The crushed ore will be conveyed to the coarse ore stockpile west of the plant site. The planned overland conveyor will be 1,280 m long at a 14º inclination, and the stacker will be 161 m long, and also inclined at 14º.

Figure 18-1: Plan Layout of Open Pit, Waste Dump, and Plant Site



Note: Figure prepared by AMEC, 2010; updated 2013.

The facility layout considers a 500 m flyrock clearance limit beyond the ultimate pit limit, in accordance with Mines Department recommendations. With the exception of the primary crusher, the plant site, including the truckshop and fuel storage compound, falls outside this limit.

18.2 Road and Logistics

18.2.1 Haul Roads

Haul roads are required between the pit operational areas and the ore crusher, WRMF, TMF South Embankment, overburden and low-grade stockpiles, construction areas, and the truckshop. Durable non-PAG waste rock will be used for road bases and capping material. During the initial construction period the mine will be responsible for building the roads from the mining faces to the crusher ore pad and the WRMF. All other roads will be constructed by contractors as part of the overall construction stage and are not included in the mining costs.

18.2.2 Snow Removal

The Kitsault site may receive up to 10 m of fresh, usually wet, snow annually. Some of this snow will accumulate in active working areas and will need to be trucked from the pit to a dedicated snow dump on the western edge of the WRMF. The dump is sized to hold 300,000 m^3 of placed snow, which is assumed to melt each summer so the same dump area can be used the following winter. Run-off from the snow dump will be contained by the pit perimeter ditches and will report to the contact water sump, from where it will be pumped to the TMF for containment.

18.3 Stockpiles

Short-term stockpiling is required to buffer crusher downtime and production fluctuations from the pit. Low-grade ore mined early in the life will be stored in long-term stockpiles; this will facilitate the preferential processing of higher grade ore and improve the NPV of the Project. The material between the elevated cut-off and the marginal cut-off will be placed in a long-term stockpile and be processed through the mill at three different stages of the mine life: year 6, year 10 and at the end of the mine life.

18.4 Waste Storage Facilities

18.4.1 Waste Rock Characterization

Waste rock in the block model has been characterized as either non acid-generating (Non-PAG) or potentially acid-generating (PAG). The split between Non-PAG and PAG rock was based on a ratio of neutralizing potential to acid potential of 2.0, as recommended by SRK (2011). Most of this rock will be placed in the WRMF located in the Patsy Creek drainage area, buttressing the South Embankment of the TMF.

18.4.2 Waste Rock Management Facility

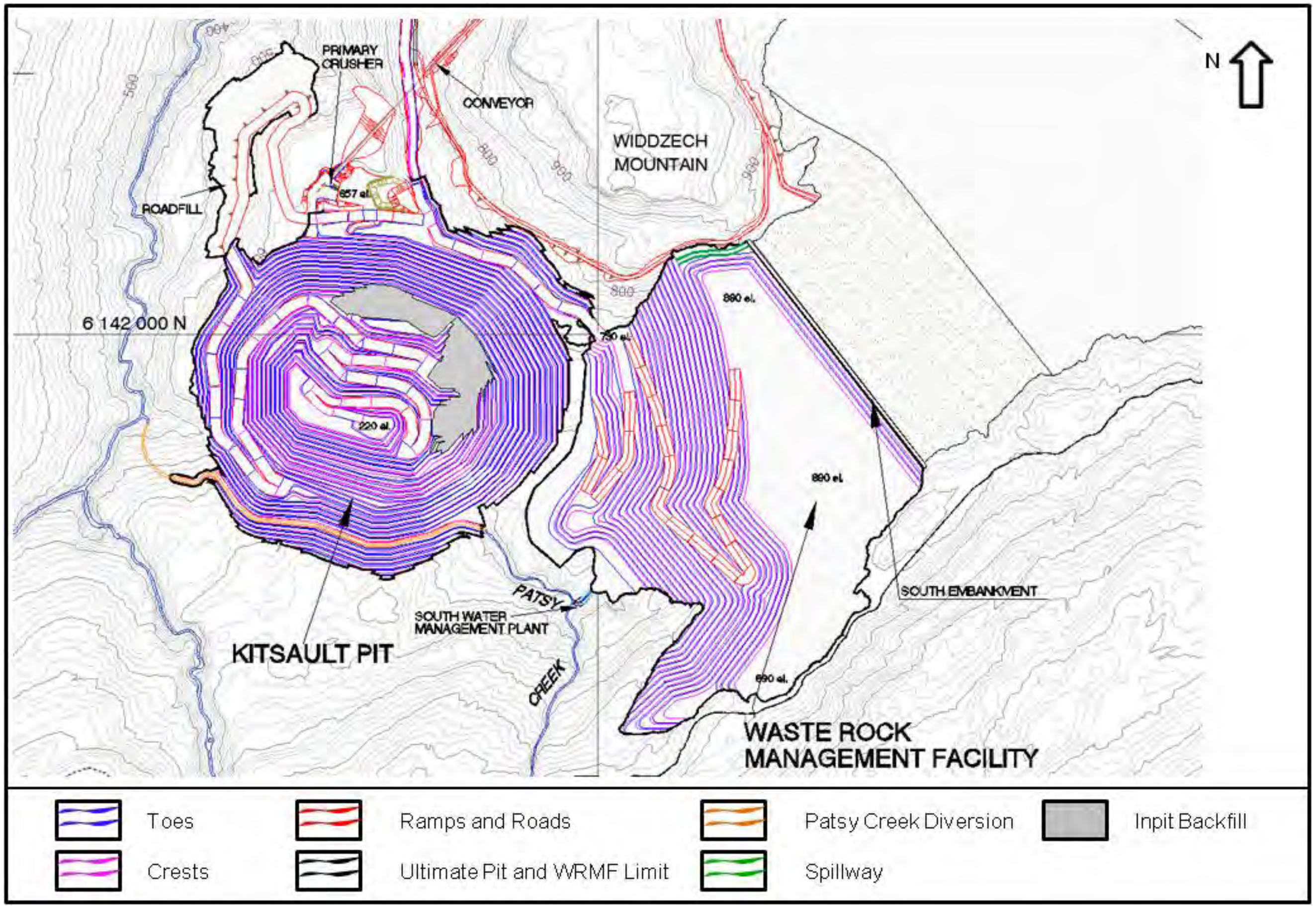
The WRMF will be built in 10 m lifts, starting with a base at the 680 m elevation and reaching a maximum elevation of 900 masl; the overall slope angle will be 26º towards the west, facing the pit, and 30º towards the east, facing the tailings management facility (TMF; Figure 18-2). The planned capacity of the WRMF exceeds the 228 Mt of waste that is projected to be generated under the current mine plan.

Two small in-pit waste rock management facilities with a total capacity of 3.2 Mt will also be utilized (refer to Figure 18-2).

18.4.3 Closure Considerations

On decommissioning of the mine, the downstream slope of the WRMF will be re-sloped to 2:1 (H:V). It is anticipated that the re-sloped WRMF will provide an acceptable medium for growth of vegetation. However, in the event that the re-sloped WRMF cannot sustain vegetation, a provision has been allowed for in the closure cost estimate to place a 0.45 m thick growth layer over the re-sloped waste rock, plus an additional 0.3 m thick layer of topsoil. The cover, or the re-sloped waste rock, would then be vegetated by seeding and planting.

Figure 18-2: Kitsault WRMF Facilities



Note: Figure prepared AMEC, 2013.

18.5 Tailings Management Facilities

The TMF was designed to provide environmentally-secure storage for disposal of 233 Mt of tailings. Overall site capacity could reach 300 Mt with additional engineering and cost data should future expansion warrant.

The TMF will include the following:

- South Embankment
- Northeast Embankment
- Seepage collection ditches and ponds
- Bulk tailings distribution system
- Bulk tailings beaches
- Bulk tailings feeder lines to on-crest cyclones
- Cleaner tailings distribution
- Reclaim water system
- Surplus water system
- Supernatant water pond.

The layout of the TMF is included as Figure 18-3.

The South Embankment will be constructed as an asphalt core rock-fill dam (ACRD) water-retaining starter embankment and raised as a zoned compacted cyclone sand rockfill dam. The Northeast Embankment will be constructed across the top of the Patsy Creek watershed as a geomembrane-faced rock-fill dam (GFRD) and raised as a compacted cyclone sand embankment. The embankments will be developed in stages throughout the life of the Project using the centreline construction technique.

A hazard classification was completed to determine design earthquakes and storm events for the TMF South and Northeast embankments. Selection of appropriate design criteria is based on those provided by the Canadian Dam Association (CDA) Dam Safety Guidelines (2007).

Figure 18-3: General Layout of Tailings Management Facility

Figure courtesy Knight Piésold and Avanti 2014.

Two tailings streams will be generated in the process plant and transported to the TMF. Scavenger (bulk) tailings will be transported to both the Northeast and South Embankments by either the cyclone feed lines or the bulk tailings distribution lines. Cleaner (pyrite) tailings will be transported to a separate location within the TMF near to the reclaim barge so that this tailings stream will remain in a subaqueous state perpetually. The cyclones are expected to operate during the summer and fall months in order to generate the required volume of sand for embankment construction. The balance of the bulk tailings discharge during the summer and fall months not required for cycloning, as well as the full bulk tailings stream during the winter and spring months will be discharged from both embankment crests using spigots to build tailings beaches.

Multiple levels for seepage control have been included in the design to minimize seepage losses, including the development of extensive tailings beaches (thereby isolating the supernatant pond from the embankments), toe drains to reduce seepage gradients, and contingency measures for groundwater recovery and recycling.

Seepage will largely be controlled by the low permeability core zone of the starter South Embankment and the geomembrane face of the starter Northeast Embankment constructed prior to development of the tailings beach, the tailings deposit, and the low permeability foundation materials. Seepage at the South Embankment and Northeast Embankment will follow the natural topography and report either to the South Seepage Collection Pond (wet well) or to the two Northeast Seepage Collection and Recycle Ponds, developed at topographic low points. The seepage recovery system for the tailings embankments will comprise a system of seepage collection trenches, seepage collection ponds, and a seepage pumpback assembly, with a system of groundwater monitoring recovery wells available as contingency measures.

18.6 Water Management

The TMF and the open pit are located in the middle and lower reaches of the Patsy Lake catchment and hence have the ability to collect all runoff from areas affected by the mining operation, which can then be recycled for reuse or discharged to Lime Creek. The Project is located within an area where a significant overall surplus of water is unavoidable and hence runoff from upstream areas not affected by the mining operation will be diverted to the maximum practicable extent.

18.6.1 Management Plan

The objective of the water management plan is to manage water in order to provide sufficient water to support the mill water requirements, while mitigating environmental impacts to downstream receiving waters, namely Lime Creek and Lake 901. Water will be controlled in a manner that minimizes erosion in areas disturbed by construction activities and prevents the release of sediment laden water to the receiving environment. This includes the collection and diversion of surface water runoff, sediment control ponds, and pump back systems. The key facilities for the water management plan are:

- Open pit
- Mill
- Tailings management facility (TMF) – South and Northeast Embankments
- Water box
- Waste rock management facility (WRMF)
- Low grade ore (LGO) stockpile
- Diversion and water management structures
- Sediment and erosion control measures for the facilities

The aim of the water management plan is to utilize water within the project area to the maximum practicable extent. The water management plan involves collecting and managing site runoff from disturbed areas and maximizing the recycle of process water. Surplus water will be stored on site within the TMF and used for the milling process, with the excess water being released to Lime Creek. The water supply sources for the project are as follows:

- Precipitation runoff from the mine site facilities
- Water recycled from the TMF supernatant pond
- Freshwater from Clary Lake for potable, fire, and mill processing
- Groundwater from open pit dewatering and depressurization wells
- Treated septic and grey water, in small quantities, from the camp.

Water management during construction of the TMF, open pit, and associated facilities will entail establishing water management and sediment control structures including cofferdams, pumping systems, and diversion ditches, as follows:

- The South diversion channel will be constructed along the southern part of the Patsy Creek catchment to diverted clean water from the upslope catchment areas around the TMF and open pit construction areas.
- A series of upstream cofferdams and pumping systems will be required to dewater the South Embankment footprint during construction.

- All runoff from the open pit will be collected in a sediment pond located within the ultimate pit down gradient of the pre-stripping area. The runoff from this pond will then be discharged to Patsy Creek during the construction period.
- The south water management wet-well will be constructed to collect runoff from the South Embankment construction. This in-stream pond will be located within the ultimate toe of the EWRMF.

18.6.2 Water Diversion

Diversion of runoff to the maximum practicable extent possible has been achieved by diverting the upper catchment areas of the Patsy Creek watershed and making provision for the diversion of Patsy Creek around the open pit on a bench along the south wall of the pit.

Water accumulating in the TMF surface pond will be recycled for reuse in the process plant as required. Surplus water will be discharged into the Lime Creek watershed where it will mix with runoff from upstream areas not affected by the mining operation.

The crest elevations of the TMF embankment raises have been designed to provide sufficient freeboard to contain the runoff from a probable maximum precipitation (PMP) storm assuming all the diversion systems fail. Notwithstanding this, each stage of the TMF will include an emergency spillway so that the safety of the embankments can never be compromised. The final crest will contain a spillway capable of handling the runoff from a probable maximum flood (PMF) event over the entire upstream catchment.

A diversion will be constructed along the south wall of the open pit early in operations to convey the diverted Patsy Creek catchment toward Lime Creek. This will be maintained until closure, when the diverted flows will be allowed to flow directly into the open pit until it fills, at which time it will discharge to Lime Creek. The Patsy Creek diversion may be maintained upon the cessation of mining activities until the pit fills without the input of Patsy Creek flows, should this be deemed necessary to mitigate flow reductions in Lime Creek.

Surface water captured in the mine area will be pumped to the TMF or, if of suitable quality, be discharged to Lime Creek to be mixed with the diverted flows from Patsy Creek.

18.6.3 Open Pit

A two-dimensional pit inflow model was prepared across the proposed open pit extending from Patsy Creek on the south end to its diversion north of the pit. The model incorporates three separate hydraulic zones, and predicts a total groundwater inflow to the pit of 4,800 m^3/d at end of mining, but this prediction is sensitive to the assumed bulk hydraulic conductivity assigned to the rock mass, particularly for the lower quartz monzonite and the hornfels. Actual inflow volumes will vary in accordance with the bulk hydraulic conductivity rates.

Water will be managed via ditching on benches and through sumps in the pit floor, assuming an arrangement of 50 m long horizontal drains at 50 m spacing along benches and 100 m long on ramps. The actual drain requirements will be assessed during operations based on the performance of the dewatering system; requirements are likely to vary with mine depth.

Precipitation, seepage from walls, and horizontal drains will introduce water into the pit. Some of this water will be absorbed by the broken rock and be hauled out with the rock or removed as snow.

As the mine deepens a collection system of ditches, pipes, sumps, pumps, and booster pumps will be required to contain the water. The pit dewatering system will be designed to handle a 2-year return period rain storm. Rain events in excess of this will flood the lower areas of the pit. During these rare events, mining will be focused on the upper mining phases until the water is pumped out of the pit bottom.

Ditches will route water that collects in the pit bottom to small, temporary sumps created as part of the normal mining operation. Open pit dewatering will continue throughout the mine life, with dewatering flows being either pumped to the TMF or discharged directly to Lime Creek.

18.6.4 Water Balance

A stochastic analysis was carried out on the base case monthly operational mine site water balance using the GoldSim© software package. The intent of the modelling was to estimate the magnitude and extent of any water surplus and/or deficit conditions in the TMF based on a range of possible climatic conditions. The water balance indicates that the mine site is in surplus conditions during all years of operations. Surplus water to be discharged to the environment from the TMF is in the order of 9 Mm^3/a, for the median scenario.

18.7 Accommodation

Minor modifications were made to the accommodation and construction camp assumptions used in the 2010 Feasibility Study and the 2013 Feasibility Study Update.

The permanent camp is currently envisaged as a purchased, modular, three-storey, 228-person capacity camp, and will contain the operation's change rooms and administration single-storey facilities (previously, in 2010, these had been included as a two-storey building). Stacking the module to three-storey dormitories instead of a single-storey (as assumed in 2010) results in smaller site footprint, reduced foundations and snow roofs, and allows for consolidation of services.

It is planned to use the permanent camp dormitories and core services modules during the construction phase which has allowed the construction camp capacity to be downsized from the 700 person capacity envisaged in the 2010 Feasibility Study. The construction camp is currently estimated as a leased, modular, three-storey, 396-person capacity facility. Leasing skidded modules for construction avoids the need for timber foundations, thus reducing the projected installation time.

For cost estimation purposes, it was assumed that employees will work 12-hour shifts on a three-weeks-in/three-weeks-out rotation.

18.8 Power

Power supply for the Kitsault site will be 138 kV from an existing power transmission line from the BC Hydro New Aiyanish substation approximately 70 km (42 miles) from the site. The BC Hydro line was originally built to 138 kV standards but is currently energized at 25 kV.

A substation consisting of interrupting breaker, isolation switches, and protective relaying will be required at the tap point on the existing line to feed the Kitsault mine site. The new transmission line from the tap point to the site will meet utility standards.

The incoming transmission line will terminate at a new main site substation. The substation will have an incoming circuit breaker, disconnect switches, power transformers, switchgear, and protective equipment for the transformation of power from the transmission voltage level of 138 kV to the site distribution/utilization level of 13.8 kV.

The anticipated electrical load for the Kitsault site is as follows:

- Connected load: 74.9 MW
- Average load: 52.3 MW
- Power factor: 95%

The main substation will be adjacent to the mill, where the largest loads are located, to minimize cabling costs and losses. The transformer secondaries will be connected to a primary distribution centre (PDC) to distribute power to the site. Feeders from the substation will be run in cable tray or on power lines to the area loads. The process plant distribution voltage will be 13.8 kV, obtained from the 13.8 kV PDC switchgear in the main substation.

The primary power supply to the open pit will be two 13.8 kV feeds from the PDC at the main substation.

The mine facilities will be supplied with power through radial feeders originating at the main substation and routed on site using cable tray on pipe racks, installed on overhead power lines, direct buried, or in duct banks.

To minimize installation costs, the electrical rooms will be distributed around the site and installed as close as possible to the major electrical loads. All process electrical rooms will be modular units assembled off site.

A nominal 2.0 MW modular standby power plant will be provided, rated for the maximum power required in the event of a Utility power failure. The plant will consist of a minimum of two gensets. Uninterruptible power supplies will be used to provide backup power to critical control systems. Emergency battery power packs will be available for backup power to the fire alarm system and emergency egress lighting fixtures.

18.9 Water

Process water will be a combination of reclaim water from the TMF and fresh water from a storage tank. The minimum freshwater requirements for the process plant were estimated to peak at 120 m^3/h.

Fresh water for the Project will be obtained from Clary Lake for firefighting, potable water, reagent mixing, and gland water. Water from the lake will be pumped to a 1,475 m^3 combined freshwater/firewater storage tank at the mill. Water will be distributed from the tank to the various use areas.

18.10 Communications

Site communications will be designed to meet the needs of the ongoing operation and will consist of an optic fibre network, and voice, data, fax, Internet, and video (1000Base T devices) capabilities, using voice-over-Internet protocols (VOIP).

18.11 Fuel

The maximum diesel fuel storage capacity at the truckshop for the mine fleet is estimated to be 644,000 L, providing upward of 10 day storage capacity. In addition, 126,000 L of storage will be available at the mill site. This will provide a seven- day supply of fuel for the site mobile equipment based upon a daily consumption of 18,000 L/d.

At the truckshop area, the diesel fuel will be stored in two tanks, each having a capacity of 322,000 L, within an HDPE-lined and bermed containment tank farm. At the mill site, diesel fuel will be stored in one tank with a capacity of 126,000 L within an HDPE-lined and bunded tank farm.

Liquid propane will be supplied to the plant site for the cooking appliances in the camps. The propane will be stored in mobile tanks. A fixed pump/vaporizer assembly will be provided to ensure sufficient vapour flow regardless of outside temperature.

18.12 Comments on Section 18

In the opinion of the QPs, the planned infrastructure is appropriate to support the estimated life-of-mine plan.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

An overview of the marketing history and projected demand for molybdenum over the next several years was prepared during the 2010 Feasibility Study by the CPM Group (CPM) as part of its "Molybdenum Market Outlook," June 2010, updated with market developments to November 2010.

CPM updated the marketing history and projected demand forecasts for molybdenum in its "Molybdenum Market Outlook," July 2013.

Key findings of the July 2013 forecast included:

- 2013–2021 molybdenum prices are expected to average US$13.09/lb
- The market may continue to see robust supply growth over the next couple of years, solely due to growth in molybdenum from copper byproduct mines
- Temporary cost reductions seen in China in 2012 are unlikely to extend in the forecast period as they are based on unsustainable mining practices. Higher mine production costs in China are expected to raise the floor price for molybdenum in China as well as the rest of the world

The molybdenum market is characterized by two distinct types of sources of mine supply, which in the long run respond to different market fundamentals. The majority of the world's molybdenum supply comes from copper/molybdenum deposits located in the United States, Chile, and Peru, where molybdenum is produced as a by-product of copper production. Primary molybdenum deposits, typically found in China, the United States, and Canada, account for the largest portion of the remaining output.

Molybdenum can also be recycled from both steel and spent catalysts, but using molybdenum scrap versus "new" molybdenum is not always cost advantageous. Historically, scrap has not been consistently cheap enough or abundant enough relative to mined molybdenum to spur a significant shift away from primary material.

Molybdenum is commonly added to specialty and stainless steels because of its effectiveness as a hardening agent and also for its strength, toughness, and corrosion resistance. In inhospitable environments such as extreme temperatures, deep water, and other locations exposed to corrosive elements, molybdenum-bearing products are employed to optimize performance. Molybdenum's applications range from oil and gas pipelines and offshore infrastructure to industrial plants and automotive, ship, and aircraft components.

Molybdenum demand is heavily dependent on global steel consumption, with roughly 70% of molybdenum used in steel alloying. Other metallurgical uses such as superalloys and cast irons account for an additional 16% of total molybdenum demand. Non-metallurgical applications account for the remaining share. These specialty chemical end-users include catalysts for petroleum refining, lubricants, and pigments.

19.2 Commodity Price Projections

In February 2010, the London Metals Exchange (LME) launched the first futures contract for roasted molybdenum concentrate. With very thin trading volume, however, this contract has yet to serve as benchmark for prices. Prices are still typically determined by negotiation between producers, trading houses, and end users, with supply and demand fundamentals in the background. Molybdenum is traded in various forms, including raw molybdenum concentrates, molybdenum oxide, ferromolybdenum, ammonium molybdate, and molybdenum powders.

For the purposes of the technical report, Avanti and AMEC selected the molybdenum prices presented in Table 19-1 as the base case for the financial analysis; in this scenario, the long-term prices after 2022 are assumed to be stable at US$14.50/lbs. Sensitivity cases using higher and lower Mo prices were evaluated, and results are included in Section 22.3.

The forecasted prices in the CPM “Molybdenum Market Outlook” July 2013 are as summarized in Table 19-1.

19.3 Contracts

Avanti has entered into a Molybdenum Concentrate Tolling Agreement (MCTA) with Molibdenos y Metales S.A. (Molymet) of Chile for the life-of-mine molybdenum concentrate production at the company's Kitsault project.

Within this agreement Avanti has the option to reduce the molybdenum concentrate delivered to Molymet for processing to 80% of the total production in the event one of the company’s strategic partners wants to take its 20% share in the form of molybdenum concentrate. The MCTA allows for the conversion of Kitsault molybdenum concentrates to technical-grade molybdenum oxide, which will meet the specifications of the London Metals Exchange (LME), and ferro-molybdenum.

Table 19-1: Molybdenum Price Projections (US$)

Annual	Forecast
2014p	$11.60
2015p	$11.35
2016p	$11.85
2017p	$12.30
2018p	$13.00
2019p	$14.65
2020p	$15.65
2021p	$16.75
2022p	$17.50
Long-term Price	$14–$15
Average (2014p–2018p)	$12.02
Average (2019p–2022p)	$16.14
Average (2014p–2022p)	$13.85

Note: Source: CPM Group (July 2013 Forecast); base: 2013 prices

Molymet is a publicly-owned Chilean corporation listed on the Santiago Stock Exchange and has been processing molybdenum concentrates since 1975. Molymet has production facilities in Chile, Mexico, Belgium, Germany and China and treats approximately 180 Mlb/a of molybdenum in concentrates at its various facilities, representing approximately 35% of world molybdenum consumption.

Avanti has determined that the best strategy for selling the processed molybdenum concentrate produced from the planned Kitsault mine is to enter into off-take agreements with several selected end-users of the product. Terms of these off-take agreements would vary depending on project financing conditions.

In June 2013, Avanti Mining reported that it had entered into an off-take agreement with ThyssenKrupp Metallurgical Products GMBH for 50% of its total molybdenum production from its Kitsault Project for the life of the mine.

Avanti advised AMEC that discussions with an Asian steel producer are in the final stage of negotiations, and would see the Asian steel producer agree to take approximately 20% of total concentrate produced at Kitsault for a 12-year term.

AMEC notes that molybdenum is typically subject to confidential marketing agreements and that there is no industry norm that contract terms, rates or charges can be benchmarked against.

19.4 Comments on Section 19

In the opinion of the QPs:

- Avanti has appropriately considered marketing of product from the Project
- The financial analysis uses Mo prices projections provided by CPM group in their July 2013 Molybdenum Market Outlook. CPM indicated that this forecast was still current at the effective date of the Report
- Sensitivity cases using higher and lower Mo prices were evaluated and are included in the financial analysis in Section 22.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

On March 19, 2013, Environment Minister Terry Lake and Energy, Mines and Natural Gas Minister Rich Coleman issued a conditional Environmental Assessment Certificate to Avanti Kitsault Mine Ltd. for the Kitsault open-pit molybdenum mine project. The Environmental Assessment Certificate includes 34 conditions and a Certified Project Description. Each of the conditions is a legally binding requirement that Avanti Kitsault Mine Ltd. must meet to be in compliance with the certificate. It is also a legal requirement that the project be built and operated in accordance with the Certified Project Description.

Concurrent with the BC Environmental Assessment Act process, Avanti also began the Federal environmental assessment process in 2010 with the submittal of the Project Description. Avanti expects a positive federal decision in 2014. The delay is due to statutory differences in the approval timeframes between the Provincial and Federal Acts.

20.1 Baseline Studies

Historical mining in the Kitsault area has resulted in the development of baseline data for more than 20 years. A number of Project-specific baseline studies were completed by Rescan Environmental Services Ltd (Rescan), SRK Consulting (SRK) , AMEC and Knight Piésold in support of the Feasibility Study and the Environmental Assessment.

20.2 Environmental Programs

Since the issuance of the Environmental Assessment Certificate (EAC) Avanti has continued to collect environmental data to further characterize baseline conditions and also to meet the conditions of the EAC. The results of these programs further direct site specific mitigation protocols and monitoring.

During 2013, Avanti continued with the development of three programs: the groundwater monitoring and mitigation plan, the marine environment monitoring program (MEMP) and the aquatic effects monitoring program (AEMP). These programs have approved scopes for baseline data collection and the programs continue to collect data. As of Q1 2014, both marine and freshwater environment monitoring plans for the operations phase of the Project are in development, in conjunction with the Ministry of Environment, the Nisga'a Lisims Government and the Metlakatla First Nation.

Avanti continues to collect data to ensure that monitoring programs in construction and operations have the necessary baseline data for comparison and analysis of potential effects to the environment.

20.3 Bonds

Section 10 of the Provincial Mines Act stipulates that the Chief Inspector of Mines may, as a condition of issuing a permit, require that the mine owner provide monetary security. Security will remain in effect until such time as the Chief Inspector of Mines determines that all reclamation obligations have been met and the Company can be indemnified. Avanti has posted a $100,000 bond, which is required under the current M-10 permit.

Avanti currently has an approved Notice of Work permit to conduct its exploration and feasibility work programs on the Project and has posted an additional $219,900 bond as required under this permission.

20.4 Decommissioning and Reclamation

The Kitsault Project reclamation and closure plan cost estimate was prepared by SRK Consulting (Canada) Inc. (SRK) and consists of direct and indirect costs during the decommissioning and reclamation period (2031–2033), environmental monitoring and management costs, and water treatment system costs. A summary of the total net present value (NPV) closure costs discounted to 2014 dollars is provided in Table 20-1.

NPV costs were calculated with three different discounting rates: 1.5% for next five years, 2% until 2047, and then 3% thereafter. Costs were assumed to run from 2031 to perpetuity, modelled as 100 years after decommissioning and reclamation.

Decommissioning and reclamation costs are the direct and indirect costs of dismantling/ demolishing buildings, pipelines and equipment; and reclaiming and re-vegetating stockpiles, waste areas and infrastructure footprints. Environmental monitoring and management costs are applied during closure and reclamation and during the post closure period. These costs consist of water quality, air and vegetation monitoring to confirm that closure objectives are being met, annual geotechnical inspections and environmental management costs.

Table 20-1: Summary of Net Present Value Closure Costs (2014; C$)

Area	Cost (NPV 2014)
Decommissioning and Reclamation Costs	
Building Demolition and Reclamation	$6,763,000
Dismantle Equipment	$573,000
Roads	$138,000
Pipelines	$1,011,000
Ditches, Channels and Collection Ponds	$241,000
Spillways	$57,000
Stockpile Areas	$542,000
Tailings and Waste Rock	$7,142,000
Miscellaneous	$353,000
Subtotal	$16,819,000
Environmental, Monitoring and Inspection Costs	
Meteorology (Operation and maintenance)	$14,000
Air Quality (analysis only)	$21,000
Surface Water Quality (analysis only)	$858,000
Groundwater Quality (analysis only)	$30,000
Vegetation and Metal Uptake (analysis only)	$83,000
Annual Inspections, Maintenance and Reporting (Labour only)	$618,000
Water Treatment System Construction	$1,882,000
Water Treatment System Operation	$7,727,000
Environmental Management	$1,118,000
Water Management/Pumping	$223,000
Subtotal	$12,574,000
Total Costs	**$29,392,000**

Note: Source: J:\01_SITES\Kitsault\1150_1CA020.012_Kitsault MAPA\Task01_MAPA_Closure and Reclamation Plan\Cost Estimate\[KitsaultClosureCostEstimate_8_Year15(PlannedClosure)_20130201_Rev01_MMM.xlsx]NPV

The water treatment system operations costs assume that site specific water quality standards have been defined for the site and that ongoing water treatment is not required until acidic rock conditions start (2080). Water treatment costs include:

- Two years of in-mill treatment once operations cease (2031 and 2032)
- Two years of in-pit treatment prior to the pit spilling (2044 and 2045)
- Operation of a high-density sludge water treatment plant (WTP) from 2080 in perpetuity
- Construction of a high-density sludge WTP in 2079.

The NPV costs have been calculated assuming that site specific water quality objectives have been defined for the site and that ongoing water treatment is not required until acidic conditions develop (predicted to be approximately 2080). However, if site specific water quality objectives are not utilized then freshwater aquatic life guidelines will have to be met and water quality predictions indicate that ongoing water treatment will be required to meet these objectives.

SRK identified the following risks and opportunities in relation to closure cost estimates:

- The closure cost estimate involves the following risks:
  - Site specific water quality objectives might not be obtained, or might not eliminate the requirement for ongoing water treatment prior to the onset of acidic conditions. Operation of the WTP prior to acidic conditions will significantly increase the total NPV closure costs.
- The closure cost estimate involves the following opportunities:
  - Water quality testing after operations cease may indicate that in-mill treatment is not required or the duration of treatment could be reduced. This would reduce the total NPV closure costs.
  - Water quality testing prior to pit spilling could indicate that in-pit treatment would not be required or the duration of treatment could be reduced. This would reduce the total NPV closure costs.

20.5 Existing Environmental Liabilities

20.5.1 Tailings

During historic operational phases, tailings from the Kitsault mine were deposited into Alice Arm. This was permitted under the “Alice Arm Tailings Deposit Regulations”, under the Federal Fisheries Act, which explicitly allowed for the deposit of mill process effluent from the Kitsault mine into the waters of Alice Arm, BC. Avanti advised AMEC that based on due diligence conducted during Project acquisition in 2008, there is no known risk of environmental statutory liability under the Fisheries Act associated with the Alice Arm tailings deposit.

20.5.2 Reclamation

Reclamation commenced in 1996 and was completed in 2006. Monitoring of the area, in relation to environmental commitments, is ongoing. The Kitsault mine closure and reclamation is regulated by the Kitsault Mine Reclamation Workplan (SRK, 1997) and is administered by SRK. SRK conducts yearly assessments of the property to monitor reclamation progress. The on-site investigations completed as part of the annual reclamation reporting requirement have concluded that water quality of discharge from the Kitsault mine site continues to meet all applicable water quality guidelines.

Specifically:

- None of the waste rock or low-grade ore is currently discharging net acidic drainage
- Seeps emerging from Clary Dump, Patsy Dump, and the Mill Area are similar in chemical composition
- Seeps emerging from below the original low-grade ore stockpile have higher molybdenum and sulphate concentrations than seeps from other areas, likely due to the greater mineralization present in the low-grade ore.

Data collected at the mouth of Lime Creek suggest that:

- Concentrations of total molybdenum and total cadmium do not consistently meet all applicable water quality criteria

With regards to re-vegetation of the site, ongoing inspections have concluded that:

- The planted trees/shrubs are continuing to increase in size and are growing well at all of the reclamation sites
- A considerable amount of natural establishment is occurring at the sites
- The sites are becoming productive and are sustaining tree/shrub growth
- Sampling results for foliar metal concentrations indicate that the majority of elements are within the "normal/adequate" range of dietary tolerances for beef cattle.

A due diligence environmental audit completed on the property by SRK in 2008 concluded that all the physical works associated with reclamation had been completed and ongoing monitoring, site maintenance and the preparation of an annual reclamation report were the only outstanding financial liabilities. The audit concluded that there were three areas of the site that should be monitored for water quality changes in the future. These areas are the Patsy and Clary Dumps and the pit. Both dumps have been weathering in place for over 25 years with no significant change in seep quality. SRK considered it to be unlikely that a sudden change in seep quality will occur in the near future.

The pit, and more specifically the Orange Pond, is the only area where there has been known acidic drainage. Measures to remediate the acid drainage were carried out in 2006 by admixing limestone with the weathered intrusive rocks on the west side of the central core and the placement of a low permeability cap. These remedial works are being monitored to verify the continued efficacy.

20.5.3 Exploration

At Bell Moly the only evidence of past exploration activity are traces of drill pads and access trails. At Roundy Creek, there are two small adits and associated waste rock dumps.

Avanti has progressively rehabilitated drill sites associated with the Avanti drilling programs between 2008 and 2011.

20.6 Permitting

20.6.1 Permits Acquired as Part of July 2008 Acquisition

Permit number M-10, an Amended Permit Approving Reclamation Program issued by the BC Ministry of Energy, Mines, and Petroleum Resources (MEMPR), supports reclamation activities associated with the Kitsault mine. Since 1996, reclamation has included building demolition, rock dump re-sloping, revegetation, remediation of the pit area and the Orange Pond. Remediation was concluded in 2006.

In 2008, an amendment to the conditions of the permit was approved by MEMPR; the approval included a number of conditions, including:

- Submission of a reclamation/closure update by 2011
- Continued monitoring of site drainage chemistry and vegetation
- Continued monitoring of all ditches, culverts, and the settling pond
- Submission of an annual reclamation report each year by 31 March
- Development of a contingency plan should the 2006 pit remediation work fail
- Collection and treatment of mine discharge if water quality monitoring indicates that water quality has been affected at water monitoring point W-01.

A road access permit, No. 08-7876-01, issued by the BC Ministry of Forests and Range (MFR), was acquired from Aluminerie Lauralco Inc., (ALI). The permit allows for industrial use of a forest service road.

ALI also transferred Special Use Permit 9228, issued by the MFR. A special use permit gives non-exclusive authority to a company or an individual to occupy and use an area of Crown Land, within a designated Provincial Forest, when they have demonstrated to the District Manager that the intended use is in accordance with the Provincial Forest Use Regulation.

20.6.2 Permits Required to Support Development

In July 2013, Avanti submitted the "MEMA 3 – Joint Amended *Mines Act* and *Environmental Management Act* Permit (Construction) Application". The information presented in the document is from several sources and technical documents. The application presents pertinent data to allow Avanti to obtain their amended Mines Act (M-10) Permit and Environmental Management Act (Construction) Permit for the Kitsault Molybdenum Project.

The application focuses on the following: receiving (baseline) environment, surface mining, processing waste characterization (ML/ARD), reclamation plan, water management, environmental management plans, discharge and treatment of construction effluents, watercourse and water quality protection, and water quality monitoring.

Avanti submitted a Joint Amended Mines Act and Environmental Management Act (Construction) Permit Application, with the understanding that the EMA Permit would be amended in the future for operations.

Table 20-2 is a list of the BC Provincial authorizations, licences, and permits that Avanti will be required to obtain. Table 20-3 is a list of the required and potential Federal authorizations, licences, and permits Avanti may need to obtain to operate the Project.

The primary BC authorization for the development of the Kitsault Project is a permit under the BC Mines Act. Kitsault already has a valid M-10 permit; however, Avanti will have to obtain an amendment to the M-10 permit, as this M-10 currently only permits reclamation activities.

The BC Mines Act permit process includes an environmental assessment (EA) as described in Part 10 of the Health, Safety, and Reclamation Code for Mines in British Columbia. In any situation where the BC Environmental Assessment Act (BCEAA) does not apply, this Act constitutes the primary Provincial review process.

Avanti and its consultants continued throughout 2013 and early 2014 to produce technical memos and work with the members of the Mine Development Review Committee in support of the permitting process. Table 20-4 lists the key documents.

Avanti anticipates both the amendment to the M-10 permit and the Environmental Management Act authorization will be issued in late Q1 2014 or the beginning of Q2 2014, allowing construction to commence.

Table 20-2: BC Authorizations, Licences, and Permits Required for Kitsault Mine Project

Statute	Authorization or Requirement
Amendment to Permit Approving Work System & Reclamation Program (Mine Site – Initial Development)	Mines Act
Amendment to Permit Approving Work System and Reclamation Program (Pre-production)	Mines Act
Amendment to Permit Approving Work System and Reclamation Program (Bonding)	Mines Act
Amendment to Permit Approving Work System and Reclamation Program (Mine Plan – Production)	Mines Act
Permit Approving Work System and Reclamation Program (Gravel Pit/Wash Plant/Rock Borrow Pit)	Mines Act
Mining Lease amendment (if required)	Mineral Tenure Act
Water Licence – Notice of Intention (Application)	Water Act
Water Licence – Storage and Diversion	Water Act
Water Licence – Use	Water Act
Water Licence – Construction of fences, screens and fish or game guards across streams to conserve fish or wildlife	Water Act
Water Licence – Alteration of Stream or Channel	Water Act
Authority to Make a Change In and About a Stream – Notification	Water Act / Water Regulation
Authority to Make a Change In and About a Stream – Approval to Make a Change	Water Act / Water Regulation
Authority to Make a Change In and About a Stream – Terms and Conditions of Habitat Officer	Water Act / Water Regulation
Occupant Licence to Cut – Access Road	Forest Act
Occupant Licence to Cut –Mine Site/Tailings Impoundment	Forest Act
Occupant Licence to Cut – Gravel Pits	Forest Act
Occupant Licence to Cut – Borrow Areas	Forest Act
Road Use Permit (existing Forest Service Road)	Forest Act
Special Use Permit – Access Road	Forest Practices Code of British Columbia Act
Licence of Occupation – Staging Areas	Land Act
Licence of Occupation – Pump House/Water Discharge Line	Land Act
Licence of Occupation – Borrow/Gravel Pits	Land Act
Surface Lease – Minesite Facilities	Land Act
Waste Management Permit – Effluent (Sediment, Tailings and Sewage)	Environmental Management Act
Waste Management Permit – Air (Crushers, Ventilation, Dust)	Environmental Management Act
Waste Management Permit – Refuse	Environmental Management Act
Special Waste Generator Permit (Waste Oil)	Environmental Management Act (Special Waste Regulations)
Sewage Registration	Environmental Management Act
Camp Operation Permits (Drinking Water, Sewage Disposal, Sanitation and Food Handling)	Health Act / Environmental Management Act
Waterworks Permit	Drinking Water Protection Act
Fuel Storage Approval	Fire Services Act
Food Service Permits	Health Act
Highway Access Permit	Highway Act

Table 20-3: Federal Authorizations, Licences, and Permits Required for Kitsault Mine Project

Statute	Authorization or Requirement
CEAA Approval	Canadian Environmental Assessment Act
Metal Mining Effluent Regulations (MMER)	Fisheries Act / Environment Canada
Fish Habitat Compensation Agreement	Fisheries Act
Section 35(2) Authorization for harmful alteration, disruption or destruction of fish habitat	Fisheries Act
Explosives Factory Licence	Explosives Act
Explosives Magazine Licence	Explosives Act
Ammonium Nitrate Storage Facilities	Canada Transportation Act
Radio Licences	Radio Communications Act

Note: A Fish Habitat Compensation Agreement and Section 35(2) Authorization is required if a Fisheries Act HADD (harmful alteration deterioration or destruction of fish habitat) occurs. The Project will be subject to the Metal Mining Effluent Regulations (MMER) enabled by the Fisheries Act. The regulations require that Avanti achieve the specified effluent discharge standards, to implement a comprehensive Environmental Effects Monitoring program, and to provide compensation for the harmful alteration of fish habitat should this occur.

Table 20-4: Key Avanti Documents Supporting the Permitting Process

Title	Author
Avanti Kitsault Mines Letter (Dec 2013) LC2 at Kitsault Mine Site	Avanti
Technical Memo: Construction WQ Predictions for Lime Creek Assuming Proposed Effluent Limits	Knight Piésold
Technical Memo: Implications of Updated Water Quality Predictions (Nov 2013)	Azimuth
Technical Memo: Additional CABIN Results (Nov 2013)	Azimuth
Technical Memo: Lime Creek Effects Assessment for Construction and Current Conditions	Azimuth
Technical Memo: Conceptual Effectiveness Monitoring Plan (Nov 2013)	Knight Piésold
Technical Memo: Water Management All Phases (Nov 2013)	Knight Piésold
Technical Memo: Work Plan for Sensitivity Analysis of Water Quality Model (Nov 2013)	Knight Piésold
Technical Memo: Single Point of Discharge Location (Nov 2013)	Knight Piésold
Technical Memo: Contingency Plan for Treatment of Mine Water (Oct 2013)	SRK
Kitsault Project Construction Water Treatment Design for Tender (Sept 2013)	SRK
Technical Report: Kitsault Mine Cadmium Removal	Bioteq
Technical Memo: Kitsault Project Water Treatment Implementation Plan	SRK
Updated ML/ARD Monitoring and Handling Plan, Kitsault Project	SRK
Aquatic Effects Monitoring Program Design Draft (July 2013)	Azimuth
Kitsault Mine Marine Environmental Monitoring Program Status	AMEC
Kitsault MEMP Baseline Summary (Nov 2013)	AMEC
Marine Environmental Monitoring Program Clam Collections	AMEC
Technical Memo: Proposed Marine Monitoring Program (March 2013)	AMEC
Kitsault 2013 AEMP Sampling Overview	Azimuth
Draft Marine Environment Monitoring Program Plan	AMEC
Technical Memo: List of Changes to AEMP Design (Nov 2013)	Azimuth

20.7 Considerations of Social and Community Impacts

20.7.1 Other Surface Ownership Interests

Kitsault Resort

The former Kitsault mine townsite, now known as the "Kitsault Resort" is owned by Krishnan Suthanthiran. The former townsite is located about 5 km north of the proposed mine, and was purchased under a "as-is, where-is" condition, reflecting the location of the townsite next to a mine.

According to the draft report prepared by the Environmental Assessment Office in 2013:

"The townsite and the surrounding 80 ha was purchased from the then owner Aluminerie Lauralco Inc., in 2005 with the objective to redevelop the town site and develop an "eco-village" with a health and wellness emphasis and promote ecotourism. Over the past five years, the current owners report that approximately $1 million annually has been invested in the Kitsault Resort, with expenditures expected to increase in 2013.

In January 2013, the owner announced a plan to develop the property into an LNG/oil refining and export facility".

In accordance with Condition #33 of the EAC, Avanti and KRL have engaged in discussions and advanced a draft communications memorandum of understanding.

Outfitters

Coast Mountain Outfitters, a guide outfitter, has tenure that overlaps with the mine area. Approximately 0.03% (701 ha of the total 2,680,823 ha) of the tenure would be lost due to the planned mining activities.

Traplines

One registered trapline tenure (TR614T008) overlaps with proposed Project footprint. A small portion, 3.3% (or 701 ha of the total 21,327 ha) of the trapline tenure would be lost due to the development of the proposed Project.

20.7.2 Project Socio-Economic Effects

The four Nisga'a communities on Nisga'a Land are the closest to the proposed mine site. They are the following: Gitlaxt'aamiks (New Aiyansh); Gitwinksihlkw; Laxgalts'ap; and Gingolx.

The communities of Prince Rupert, Smithers, and Terrace would have a reasonable likelihood of providing labour, goods, and services to the Project. Kitimat is farther away and has an economic base tied to manufacturing (aluminium and wood products) rather than construction or mineral development.

Other nearby communities and rural populations that could interact with Project activities include Kitimat Stikine Regional District Electoral Area A (RDEA A) and the District Municipality of Stewart, the communities and rural populations in Kitimat Stikine RDEA B (Hazelton, New Hazelton, and 10 Indian reserves), the communities and rural populations in Kitimat Stikine RDEA C1 (around Terrace) and Kitimat Stikine RDEA E, and the communities and rural populations in Bulkley Nechako RDEA A (the area around Smithers).

20.8 Consultation with First Nations and the Nisga'a Nation

As part of the environmental assessment process, the Environmental Assessment Office (the "EAO") consulted the Kitselas First Nation, Kitsumkalum First Nation, Gitxsan Nation and Gitanyow Nation, and it also engaged with the Nisga'a Nation in respect of the rights of the Nisga'a as set out in Chapter 10 of the Nisga'a Final Agreement (the "NFA"). This consultation and engagement included certain consultation duties assigned to Avanti to undertake on behalf of or in support of the Crown. These steps are detailed in the EAO Assessment Report.[1]

In issuing the environmental assessment certificate, ministers issued reasons for their decision[2] (the "Reasons") which, among other things, addressed the Crown's obligations to each of the above noted groups.

With respect to all of the above noted First Nations other than the Nisga'a, the ministers' Reasons stated:

"EAO consulted with all of these First Nations and concluded that the impact of the proposed Project on the asserted aboriginal rights or title of these First Nations would be adequately minimized or avoided by measures identified during the EA process and

1 See http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_356_35433.html
2http://a100.gov.bc.ca/appsdata/epic/documents/p356/1363711281932_7c876941869666defadd997b1ce0dcd1c23904a896502da1c1edf906fc060816.pdf

that would become binding as part of the EA Certificate conditions. EAO is satisfied that the Crown's duty to consult and accommodate these First Nations has been fulfilled in relation to the issuance of an EA certificate for the proposed Project."

The Reasons go on to state that, after considering the EAOs First Nations consultation report, and the other documents from First Nations, the ministers:

"conclude that due to the nature of the potential impacts of the proposed Project, the Crown has met its duty to consult and appropriately accommodate the potential impacts to First Nations' asserted aboriginal rights and title."

With respect to the Nisga'a Lisims Government and the Nisga'a Nation, the ministers Reasons state:

"We have reviewed the EAO's report on the assessment of paragraph 8(e) and 8 (f), Chapter 10 of the NFA provided in section D of the Assessment Report and the submission addressed to EAO from Nisga'a Lisims Government dated February 20, 2013, and conclude that the Province has met its obligations of the NFA."

While ministers acknowledged that the Nisga'a do not agree with all findings of the EAO and have initiated dispute resolution proceedings as they are entitled to do under the NFA, ministers also:

"determined that the concerns that Nisga'a have recently raised with regards to the disagreement, are concerns that Nisga'a have previously raised and are already captured in the referral materials provided by EAO".

Ministers went on to state that they:

"are satisfied that the Province can engage, in good faith, in the dispute resolution stages, and meaningfully address any outstanding issues through the subsequent process required for permitting and in accordance with conditions of an EA Certificate."

20.9 Comments on Section 20

In the opinion of the QPs:

- An Environmental Assessment Certificate that includes 34 conditions and a Certified Project Description was granted to the Project on 19 March 2013. AMEC notes that each of the conditions is a legally binding requirement that Avanti Kitsault Mine Ltd. must meet to be in compliance with the certificate. It is also a legal requirement that the project is built and operated in accordance with the Certified Project Description.

- Avanti has begun the Federal environmental assessment process with the submittal of the Project Description. A Federal decision is expected during 2014; the later date is because of statutory differences in the approval timeframes between the two Acts
- Avanti has undertaken community consultation activities
- Avanti has established the key and secondary permits that will be required to support future mining operations
- Closure costs are estimated at $29.32 million.

There are no currently known risks to estimation of Mineral Resource or Mineral Reserves that are not discussed in this Report.

AMEC notes that the Nisga'a Nation has filed a Notice of Disagreement with British Columbia under the Nisga'a Final Agreement concerning the environmental assessment of the Project.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimates

21.1.1 Basis of Estimate

The cost estimate in this Report was developed in accordance with AMEC Feasibility Standards (Class 3), AACE Class 3 international classification, and consists of semi-detailed unit costs and assembly line items. Where design is not sufficiently advanced to prepare material take-offs (MTOs), the estimate is based on factors or allowances.

The estimate was prepared by area using the Project work breakdown structure (WBS) and AMEC's standard disciplines. The estimate covers:

- Direct field costs of executing the project, including the construction and installation of all structures, utilities, materials, and equipment
- Indirect costs associated with the design, construction, and commissioning of the facilities
- Owner's costs, including EPCM office costs, Project expenses, Terrace office expense, mine site ramp-up costs, and training.

The accuracy of the capital cost estimate, considering the current state of design and procurement, is expected to be within -10%/+15% of final Project cost.

All costs are expressed in third-quarter 2013 Canadian dollars. Exclusions from the capital cost estimate, unless identified in the Owner's costs are:

- Cost of financing and interest during construction
- Cost due to currency fluctuations
- Sustaining and operating costs (separate estimate)
- Mine closure cost
- Sunk costs
- Working capital
- Changes to design criteria
- Scope changes or accelerated schedule
- Modifications after handover
- Changes in Canadian law

- Deferred capital
- Duties
- Reclamation and replanting
- Any provision for force majeure events
- Wrap-up insurance
- BC Hydro costs for transmission line
- Cost recovery of construction buildings, camps, or equipment
- Schedule delays such as those caused by:
  - scope changes
  - delay in notice to proceed
  - labour disputes
  - unavailability of sufficient or experienced craft labour
  - undefined geotechnical or environmental conditions
  - unidentified or adverse subsurface soil conditions
  - other external influences
  - receipt of information beyond the control of EPCM contractors.

Items quoted in US dollars were converted to Canadian dollars using an exchange rate of C$1.00 = US$0.88.

Sustaining capital cost was based on mining equipment replacement and ongoing construction of tailings management facilities, as provided by Knight Piésold. These costs are not part of the capital cost estimate.

AMEC performed an initial contingency analysis using a risk analysis program (@RISK) to generate a range of probable costs. The contingency cost also includes some design development allowance for the processing plant.

Contingency for tailings management was provided by Knight Piésold.

Contingency for construction management was provided by Merit and includes input from all other parties. No contingency was allowed for the Owner's Costs.

The overall contingency has decreased from 15% of direct plus indirect costs to 14.2%.

21.1.2 Tailings Dam

Knight Piésold was commissioned in 2013 to update the cost estimate that was completed during the 2013 Feasibility Study Update. The updated cost estimate accounts for improvements in design, current labour and equipment rates, and cost increases due to commitments made during the Mines Act and Construction Environmental Management Act permitting application process.

The capital cost estimate of the TMF and water management systems was broken down into the following elements:

- General Site Preparation
- Roads
- Tailings Management Facility
  - South Embankment
  - Bulk Tailings Distribution System
- Water Management
  - Reclaim Water System
  - Diversion Channels
  - Seepage Collection and Sediment Control Ponds
    - South Water Management Pond
    - South Sediment Settling Pond
  - Fresh Water Supply System
  - Kitsault Pit Sediment Settling Pond and Water Treatment Plant

In general, the methodology for the development of unit rates was unchanged from the 2010 Feasibility Study and 2013 Feasibility Study Update for this cost estimate update.

A scope of work was developed for each major element of the work breakdown structure (WBS) and a number of work activities were identified to achieve the scope. Where sufficient detail existed, the previously estimated quantities were used and the unit costs were developed for the work activity, and multiplied to arrive at the estimated cost. Where insufficient detail existed for development of quantities and unit costs, lump-sum allowances based on historical experience were used.

The cost estimate was prepared at a feasibility level with a target level of accuracy of ±20%. The estimate is calculated in 2013 Canadian dollars with no allowance for escalation beyond that time.

The total capital expenditure for the TMF and associated water management facilities was estimated to be approximately $114 million, and includes all direct, indirect, and contingency costs.

21.1.3 Changes in Capital Cost Estimates

Table 21-1 summarizes the changes in the capital cost estimates from the 2010 Feasibility Study to the 2013 estimate.

Subsequent to the completion of the changes documented in Table 21-1, the mine plan supporting this Technical Report was updated to reflect the most recent expected date of start of operations. The mine plan now also reflects a higher level of detail with respect to the extraction sequence within the mining phases. The initial capital estimates for mining includes pre-stripping, pit development activities and mining equipment. The implication of this plan update is reflected in the timing of the expenditures only; the costs estimates are consistent with the rest of the estimates as of third quarter of 2013.

21.1.4 Final Capital Cost Estimate

Table 21-2 summarizes the final capital cost estimate used in the financial model in Section 22.

Table 21-1: Summary Capital Cost Estimate Changes, 2010 to 2014 ($C)

Area	2010	2012	2014
Mining	91,055,000	111,269,000	119,273,000
Site Preparation and Roads	38,636,000	44,318,000	26,857,000
Process Facilities	212,069,000	238,665,000	229,981,000
Tailings Management	97,614,000	120,936,000	81,329,000
Utilities	43,131,000	37,521,000	36,060,000
Ancillary Buildings and Facilities	41,733,000	49,896,000	33,888,000
Owner's Costs	22,858,000	22,069,000	32,159,000
Indirects	176,071,000	173,951,000	150,294,000
Contingency	113,834,000	139,597,000	108,110,593
Total	*837,000,000*	*938,221,000*	*817,950,593*

Table 21-2: Capital Cost Summary by Major Area (CM)

Area	Description	Cost
1000	Mining	119.3
2000	Site preparation and roads	26.8
3000	Process facilities	230.0
4000	Tailings management and reclaim systems	81.3
5000	Utilities	36.1
6000	Ancillary buildings and facilities	33.9
	Total Direct Costs	527.4
8000	Owner's costs	32.2
9000	Indirects	150.3
	Total Indirect Costs	182.5
	Total Direct + Indirect Costs	709.9
	Contingency	108.1
	Total Capital Costs	**818.0**

21.2 Operating Cost Estimates

The operating cost estimate for the Kitsault Project was assembled by area and component, based on estimated staffing levels, consumables, and expenditures, according to the mine plan and process design. The costs were prepared in third-quarter 2012 Canadian dollars and were updated in February 2014 to include changes to the exchange rate assumptions.

Electrical costs for the Project were calculated on a blended rate, with mining equipment being estimated using a price of $0.0486/kWh and the mill building process costs being estimated using $0.05462/kWh.

The electrical cost for the mining equipment was based on BC Hydro's schedule 1823 transmission service rates for the fiscal 2012 year, and the concentrator process costs were based on 2017-level projected levels. The estimates include transmission and demand charges.

The mine operating cost estimate incorporates costs for operating and maintenance labour, staff, and operating and maintenance supplies for each year. Operating and maintenance supplies are based on North American supply and include an allowance for freight and delivery to the mine site. Taxes are not included. Consumables (fuel, explosives, supplies) were calculated from expected use, unit consumptions, and allowances for minor items.

Processing costs include the costs for operating and maintaining the processing facilities, from the primary crusher through to concentrate loadout, as well as process and reclaim water pumping and tailings management. The processing costs account for the expenses associated with purchasing consumables, equipment maintenance, personnel, and power consumption.

Consumables costs include items such as crusher liners, mill liners, grinding media, all chemical reagents, and an allocated cost for office / laboratory supplies. The reagent costs are inclusive of freight for shipping the items to site.

Avanti provided the employee organization chart, salary levels, and hourly costs. Avanti's figures were benchmarked on two current mining operations, one in BC and the second in the Yukon.

Equipment maintenance supplies and materials are estimated as a percentage of the capital cost of equipment. Power consumption was derived from the estimated load of individual pieces of equipment on the equipment list.

The general and administrative (G&A) operating costs are the expenses for cost centres that are not directly linked to the mining and process disciplines, and include labour and overhead costs. G&A for each cost centre was estimated either from first principles or based on input from Avanti, and benchmarked by Avanti from other operations.

Maintenance costs have been calculated property-wide, and a portion of these costs have been assigned to G&A to cover maintenance costs not specific to either the process plant or mine.

Operating costs are presented in Table 21-3 for the life-of-mine, and in Table 21-4 a breakdown of the operating costs by year is outlined. Table 21-4 also includes the annual projection of the cost per tonne milled and the average annual operating cost per pound of contained molybdenum.

21.3 Comments on Section 21

Estimated capital costs total $818 million. The cost estimate is based on semi-detailed unit costs and assembly line items. Where design is not sufficiently advanced to prepare material take-offs (MTOs), the estimate is based on factors or allowances.

Operating costs are estimated at $2,522 million over the LOM, and average $10.91/t milled and $6.78/lb Mo payable.

Table 21-3: LOM Operating Costs (C$000)

Area	Total LOM	$/t Milled	$/lb Mo Contained
Mine Operations	995,617	4.31	2.68
Processing Operations	1,246,224	5.39	3.35
Administration	280,023	1.21	0.75
Total	**2,521,864**	**10.91**	**6.78**

Table 21-4: Annual Operating Costs (C$)

Year	Total ($000)	$/t Milled	$/lb Mo Contained
1	109,458	13.80	7.70
2	177,751	10.62	3.81
3	187,673	11.12	6.92
4	194,420	11.53	6.42
5	197,121	11.73	6.64
6	186,924	11.37	6.95
7	183,192	10.86	5.56
8	193,682	11.51	6.50
9	195,872	11.53	7.34
10	196,543	11.99	8.55
11	196,915	12.29	8.07
12	163,021	9.91	7.09
13	154,869	9.42	6.69
14	124,234	7.67	12.58
15	60,189	8.28	13.58
Total/Average	**2,521,864**	**10.91**	**6.78**

22.0 ECONOMIC ANALYSIS

The results of the economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future metal prices and forward sales contracts, the estimation of Mineral Reserves and Mineral Resources, the realization of Mineral Reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new ore zones, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

The Project has been evaluated using a discounted cashflow (DCF) analysis. Cash inflows consist of annual revenue projections for the mine. Cash outflows such as capital, including the two years of preproduction costs, operating costs, taxes, and royalties are subtracted from the inflows to arrive at the annual cashflow projections.

To reflect the time value of money, annual net cashflow (NCF) projections are discounted back to the project valuation date using several discount rates. The discount rate appropriate to a specific project depends on many factors, including the type of commodity; and the level of project risks, such as market risk, technical risk and political risk. The discounted, present values of the cashflows are summed to arrive at the Project's net present value (NPV).

In addition to NPV, internal rate of return (IRR) and payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. Cashflows are taken to occur at the end of each period. Capital cost estimates have been prepared for initial development and construction of the Project, and ongoing operations (sustaining capital).

The resulting net annual cashflows are discounted back to the date of valuation end-of-year 2014 dollars, and totalled to determine NPVs at the selected discount rates. The IRR is calculated as the discount rate that yields a zero NPV. The payback period is calculated as the time needed after the start up of operations to recover the initial capital spent.

22.1 Basis of Analysis

The basis for the inputs to the economic analysis are the components of the 2010 feasibility study, the 2013 feasibility study update, the 2013 optimization study, the 2013 value engineering study and the 2014 mine plan update, information which support the estimates of initial and sustaining capital costs, construction, commissioning, and production schedule, operating costs, and mine closure costs.

The Canadian to US dollar exchange rate used in the financial model is 0.88 US$/C$.

For the purposes of the financial analysis, a scenario was adopted where prices are projected to rise from around $US11.60/lb in 2014 to $US17.50/lb in 2022, returning to a long-term average of $US14.50/lb for the rest of the mine life (refer to Table 19-1).

Table 22-1 summarizes the assumptions that were made in relation to the molybdenum concentrate that would be marketed; Table 22-2 summarizes the silver concentrate marketing assumptions.

Table 22-3 summarizes the royalties considered in the financial analysis.

Table 22-1: Molybdenum Concentrate Assumptions

Mo Concentrate	Unit	Amount
Concentrate Grade (measured in % Mo metal)	%	52.0%
Pay factor	%	99.0%
Concentrate Moisture	%	7.0%
Roasting Charge	US$/lb	0.535
Concentrate Losses	%	0.10%

Table 22-2: Silver Concentrate Assumptions

Ag Concentrate	Unit	Amount
Concentrate Grade	g/t	2,500
Pay factor	%	95.0%
Concentrate Moisture	%	8.0%
Treatment Charge	$/lb	0 [#]
Minimum Silver Deduction	g/t of conc	50

Note: # At the Report effective date, Avanti was assuming that the lead content of the concentrate would pay for the treatment charges

Table 22-3: Royalty Assumptions

Royalty	Amount
NSR Royalty	1.0%
Pre-Tax Cash Royalty	9.22%

22.1.1 Taxation

Taxation considerations included in the financial model comprise Provincial and Federal corporate income taxes and BC Mineral taxes as determined using a taxation model provided by PricewaterhouseCoopers LLP (PwC).

The following discussion outlines the main Federal and Provincial taxation considerations used in the Kitsault financial model as provided by PwC:

- On a non-discounted basis, the model provides for $452,706,000 of federal and British Columbia income taxes, and $291,409,000 of British Columbia Mineral Tax
- The Federal government imposes income tax on mining income at the same rate that applies to other types of income. The federal income rate applicable to resource profits is 15%. British Columbia's taxation of the resource sector is generally harmonized to the Federal system. The Provincial corporate income tax rate applicable to mining income with effect from April 1, 2013 is 11%. A combined rate of 26% is used in the model to compute the Federal and Provincial income tax liability in respect of the Kitsault Project
- The Federal and Provincial tax legislation provide a number of deductions, allowances and credits that are specifically available to taxpayers engaged in qualifying mining activities. The most notable of these deductions are Canadian Exploration Expenditures, Canadian Development Expenses and capital cost eligible for Class 41 of the capital cost allowance system. As these deductions and allowances are only available when incurred, a high level assumption was made with regards to the allocation of expenditures between the three categories in the life of mine model
- Under the *British Columbia Mineral Tax Act* mining taxes are imposed on a mine by mine basis in two stages, namely
  - A 2% tax on net current proceeds
  - A 13% tax on net revenue
- The initial 2% tax is a form of minimum tax, which is deductible in full against the 13% tax. Both the net current proceeds tax and the net revenue tax have been factored in the Kitsault Project life of mine model.

22.2 Financial Results

The after-tax NPV at an 8% discount rate over the estimated mine life is $472 million. The after-tax IRR is 19.0%. Payback of the initial capital investment is estimated to occur in 3.9 years after the start of production.

A summary of the financial analysis in US$ is presented as Table 22-4. The same data, using Canadian dollars, are shown in Table 22-5.

Results of the financial analysis are provided on an annual basis in Table 22-6. Years shown in Table 22-6 are for illustrative purposes only, as statutory permits are required to be granted prior to mine commencement.

Table 22-4: Financial Analysis Results Summary (US$)

	US$	Variable
Pre-Tax		
IRR	%	24.0%
CNCF	US$M	1,855
NPV 8%	US$M	718
NPV 10%	US$M	550
Payback	Years	3.8
After Tax		
IRR	%	19.0%
CNCF	US$M	1,200
NPV 6%	US$M	539
NPV 8%	US$M	415
NPV 10%	US$M	297
NPV 12%	US$M	207
Payback	Years	3.9

Table 22-5: Financial Analysis Results Summary (C$)

	C$	Variable
Pre-Tax		
IRR	%	24.0%
CNCF	C$M	2,108
NPV 8%	C$M	816
NPV 10%	C$M	625
Payback	Years	3.8
After Tax		
IRR	%	19.0%
CNCF	C$M	1,364
NPV 6%	C$M	613
NPV 8%	C$M	472
NPV 10%	C$M	337
NPV 12%	C$M	236
Payback	Years	3.9

Table 22-6: Cashflow Analysis

	Units	NPV at 8%	Total	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
				-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Capital																					
Development Capital	C$000	(698,844)	(817,951)	(15,349)	(136,927)	(445,263)	(220,412)														
Sustaining Capital	C$000	(95,987)	(149,724)				(42,122)	(32,417)	(3,328)	(17,212)	(12,261)	(2,323)	(5,873)	(16,965)	(3,818)	(5,240)	(1,996)	(2,183)	(1,993)	(1,992)	
Environmental Bond	C$000	(29,392)	(29,392)	(29,392)																	
Total Capital	C$000	(824,224)	(997,067)	(44,742)	(136,927)	(445,263)	(262,534)	(32,417)	(3,328)	(17,212)	(12,261)	(2,323)	(5,873)	(16,965)	(3,818)	(5,240)	(1,996)	(2,183)	(1,993)	(1,992)	
Prices																					
Mo Price	C$/lb		16.74	13.18	12.90	13.47	13.98	14.77	16.65	17.78	19.03	19.89	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48
Mo Price	US$/lb		14.73	11.60	11.35	11.85	12.30	13.00	14.65	15.65	16.75	17.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
Mining Production																					
Waste mined	kt		228,305			4,968	17,182	20,745	23,782	31,277	25,388	18,144	10,303	18,474	16,691	17,849	16,657	4,475	2,371		
Snow Mined	kt		1,939			100	101	148	182	161	148	146	140	140	136	133	129	127	85	43	21
Ore to Crusher	kt		195,650				7,932	16,736	16,872	16,866	16,800	12,114	16,867	16,821	16,995	11,933	16,028	16,448	13,237		
Ore to Stockpile	kt		35,445				1,236	8,106	5,424	1,203	3,757	5,427	4,814	1,231	421	1,495	2,331				
Stockpile to Crusher	kt		35,445									4,325				4,455			3,198	16,200	7,266
Total Material Moved	kt		496,782			5,068	26,450	45,735	46,260	49,507	46,093	40,156	32,123	36,666	34,243	35,865	35,146	21,050	18,891	16,243	7,287
Mo Grade	%		0.082%				0.09%	0.14%	0.08%	0.09%	0.09%	0.08%	0.10%	0.09%	0.08%	0.07%	0.08%	0.07%	0.07%	0.04%	0.04%
Mo Recovery	%		88.54%				86.48%	90.28%	89.04%	89.37%	89.35%	88.68%	89.57%	89.51%	89.40%	88.86%	89.74%	89.44%	85.29%	77.54%	77.54%
Ag Grade	g/t		5.28				2.49	3.19	6.37	6.26	6.46	5.62	5.46	6.32	6.43	5.35	4.98	4.45	4.55	4.66	4.66
Ag Recovery	%		39.31%				28.54%	39.38%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	37.99%	36.00%	36.00%
Transportation																					
Freight & handling	C$000	(92,839)	(182,473)				(4,940)	(17,629)	(14,422)	(15,347)	(15,325)	(13,462)	(15,418)	(15,238)	(14,380)	(11,910)	(11,921)	(11,080)	(11,000)	(7,180)	(3,220)
Mill Feed																					
Ore from Pit	kt		195,650				7,932	16,736	16,872	16,866	16,800	12,114	16,867	16,821	16,995	11,933	16,028	16,448	13,237		
Ore from Stockpile	kt		35,445									4,325				4,455			3,198	16,200	7,266
Total Mill Feed	kt		231,094				7,932	16,736	16,872	16,866	16,800	16,439	16,867	16,821	16,995	16,388	16,028	16,448	16,435	16,200	7,266
Returned Mo																					
Contained Mo	Klbs		372,134				14,207	46,715	27,111	30,281	29,701	26,884	32,920	29,817	26,683	22,969	24,400	22,992	23,146	9,878	4,431
Transportation losses	Klbs		(372)				(14)	(47)	(27)	(30)	(30)	(27)	(33)	(30)	(27)	(23)	(24)	(23)	(23)	(10)	(4)
Delivered to customer	Klbs		61,200				3,600	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800		
Delivered to roaster	Klbs		310,561				10,593	41,868	22,284	25,451	24,871	22,057	28,087	24,987	21,857	18,146	19,576	18,169	18,323	9,868	4,426
Metal value																					
Delivered Mo	C$000	3,163,866	6,094,077				192,237	680,909	441,293	527,743	553,803	522,627	532,394	481,323	429,740	367,403	390,966	367,789	370,319	162,600	72,931
Metal deduction	C$000	(27,013)	(51,952)				(1,481)	(6,185)	(3,710)	(4,526)	(4,734)	(4,386)	(4,628)	(4,117)	(3,601)	(2,990)	(3,226)	(2,994)	(3,019)	(1,626)	(729)
Roasting charge	C$000	(97,658)	(186,919)				(6,375)	(25,199)	(13,412)	(15,318)	(14,969)	(13,275)	(16,905)	(15,039)	(13,155)	(10,921)	(11,782)	(10,935)	(11,028)	(5,939)	(2,664)
Freight & handling	C$000	(92,839)	(182,473)				(4,940)	(17,629)	(14,422)	(15,347)	(15,325)	(13,462)	(15,418)	(15,238)	(14,380)	(11,910)	(11,921)	(11,080)	(11,000)	(7,180)	(3,220)
Marketing fee	C$000	(80,230)	(154,297)				(4,397)	(18,370)	(11,018)	(13,443)	(14,060)	(13,027)	(13,745)	(12,228)	(10,696)	(8,880)	(9,580)	(8,891)	(8,967)	(4,829)	(2,166)
Ag revenue	C$000	174,455	357,688				4,205	15,713	32,096	31,527	32,388	27,557	27,476	31,748	32,599	26,154	23,816	21,860	21,195	20,265	9,090
Ag treatment charges	C$000																				
Net revenue	C$000	3,040,580	5,876,122				179,249	629,238	430,827	510,636	537,102	506,033	509,174	466,449	420,506	358,856	378,273	355,749	357,500	163,291	73,241
Operating costs																					

	Units	NPV at 8%	Total	2014 -3 1	2015 -2 1	2016 -1 1	2017 1 1	2018 2 1	2019 3 1	2020 4 1	2021 5 1	2022 6 1	2023 7 1	2024 8 1	2025 9 1	2026 10 1	2027 11 1	2028 12 1	2029 13 1	2030 14 1	2031 15 1
Mining Cost	C$000	(507,751)	(995,617)				(37,134)	(69,664)	(79,329)	(86,088)	(88,912)	(79,398)	(74,856)	(85,435)	(87,295)	(89,115)	(90,168)	(55,480)	(47,352)	(17,161)	(8,230)
Milling Cost	C$000	(611,065)	(1,246,224)				(57,586)	(88,436)	(88,694)	(88,682)	(88,558)	(87,875)	(88,685)	(88,596)	(88,927)	(87,777)	(87,096)	(87,891)	(87,866)	(87,422)	(42,133)
G & A Cost	C$000	(137,649)	(280,023)				(14,738)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(19,651)	(9,825)
Total Cost	C$000	(1,256,464)	(2,521,864)				(109,458)	(177,751)	(187,673)	(194,420)	(197,121)	(186,924)	(183,192)	(193,682)	(195,872)	(196,543)	(196,915)	(163,021)	(154,869)	(124,234)	(60,189)
Net Revenue before Tax, Royalties	C$000	1,784,116	3,354,258				69,791	451,487	243,154	316,215	339,981	319,109	325,982	272,767	224,634	162,313	181,358	192,727	202,632	39,057	13,052
Royalty Payments																					
NSR Royalty	C$000	(30,406)	(58,761)				(1,792)	(6,292)	(4,308)	(5,106)	(5,371)	(5,060)	(5,092)	(4,664)	(4,205)	(3,589)	(3,783)	(3,557)	(3,575)	(1,633)	(732)
Pre-Tax Cash Royalty	C$000	(88,514)	(190,465)							(10,752)	(28,009)	(25,411)	(25,677)	(20,519)	(17,713)	(12,599)	(14,387)	(15,284)	(16,094)	(2,973)	(1,047)
Net Revenue before Tax	C$000	1,665,196	3,105,032				67,999	445,194	238,846	300,357	306,601	288,638	295,213	247,583	202,716	146,125	163,188	173,886	182,963	34,451	11,273
Income Tax (Calculated - from other sheet)																					
Corporate Tax	C$000	(209,378)	(452,706)							(12,689)	(71,528)	(61,603)	(63,625)	(53,255)	(42,718)	(30,498)	(34,494)	(37,231)	(39,499)	(5,566)	
Provincial Resources Tax	C$000	(134,990)	(291,409)				(1,396)	(9,030)	(4,863)	(6,324)	(23,934)	(41,182)	(41,614)	(33,254)	(28,706)	(20,419)	(23,317)	(24,771)	(26,083)	(4,818)	(1,697)
Mining License Fee	C$000																				
Municipal Tax	C$000																				
Total Tax	C$000	(344,368)	(744,115)				(1,396)	(9,030)	(4,863)	(19,014)	(95,462)	(102,785)	(105,239)	(86,509)	(71,424)	(50,917)	(57,811)	(62,001)	(65,582)	(10,385)	(1,697)
Revenue after Tax & Royalties	C$000	1,320,875	2,360,917				66,603	436,165	233,982	281,344	211,139	185,853	189,974	161,074	131,292	95,208	105,377	111,884	117,380	24,066	(9,576)
Capital expenditure																					
Construction	C$000	(698,844)	(817,951)	(15,349)	(136,927)	(445,263)	(220,412)														
Sustaining, Bonding	C$000	(125,380)	(179,116)	(29,392)			(42,122)	(32,417)	(3,328)	(17,212)	(12,261)	(2,323)	(5,873)	(16,965)	(3,818)	(5,240)	(1,996)	(2,183)	(1,993)	(1,992)	
Working capital	C$000	(24,779)	0	(2,520)	(6,280)	(6,000)	(13,969)	(15,669)	(2,480)	(1,687)	(675)	2,549	933	(2,623)	(548)	(168)	(93)	8,474	2,038	7,659	31,058
Total	C$000	(849,004)	(997,067)	(47,262)	(143,207)	(451,263)	(276,502)	(48,086)	(5,808)	(18,899)	(12,936)	226	(4,940)	(19,588)	(4,366)	(5,408)	(2,090)	6,290	45	5,667	31,058
After-Tax Net Cashflow	C$000	471,824	1,363,850	(47,262)	(143,207)	(451,263)	(209,899)	388,079	228,174	262,444	198,203	186,079	185,034	141,486	126,927	89,800	103,288	118,174	117,425	29,733	40,634
Pre-Tax Net Cashflow	C$000	816,192	2,107,965	(47,262)	(143,207)	(451,263)	(208,503)	397,108	233,037	281,458	293,665	288,864	290,273	227,996	198,350	140,717	161,098	180,176	183,007	40,118	42,331

22.3 Sensitivity Analysis

Sensitivity analysis was performed on the base case net cashflow and examined sensitivity to metal price, operating costs, capital costs and exchange rates.

Sensitivities are shown in Figure 22-1 for the after-tax IRR scenario. Figure 22-2 summarizes the sensitivities in the after-tax NPV scenario.

Table 22-7 illustrates the sensitivity of the financial analysis to changes in Mo price.

22.4 Comments on Section 22

Under the assumptions presented in this Report, the Project demonstrates positive economics. The after-tax NPV at an 8% discount rate over the estimated mine life is $472 million. The after-tax IRR is 19.0%. Payback of the initial capital investment is estimated to occur in 3.9 years after the start of production.

Sensitivity analysis shows that the Kitsault Project is most sensitive to changes in molybdenum price and the exchange rate, as these items directly affect the revenue stream. The Project is also sensitive, but less so, to capital expenditure and operating cost.

Figure 22-1: Sensitivity of After-Tax IRR @ 8%

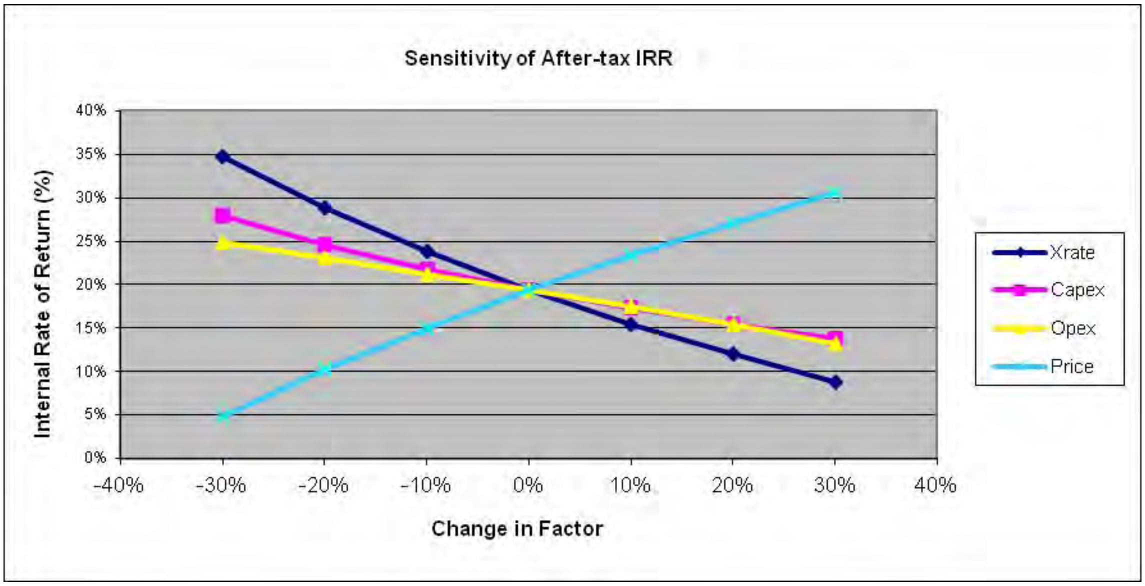


Figure 22-2: Sensitivity of After-Tax NPV @ 8%

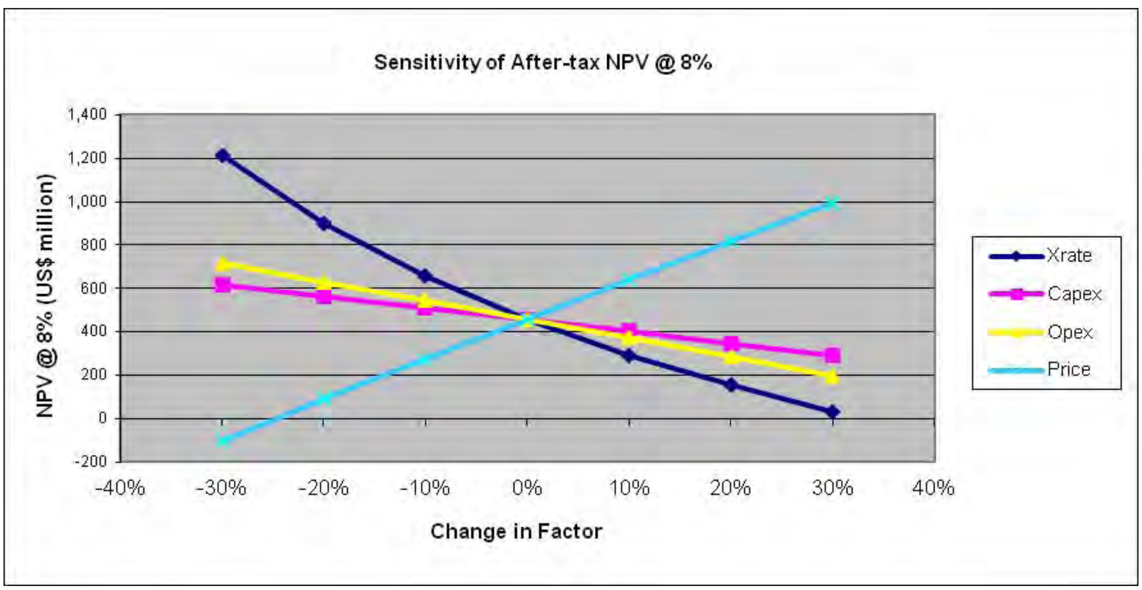


Table 22-7: Sensitivity of the Financial Analysis to Changes in Mo Price (base case is highlighted)

Molybdenum Price (US$/lb)	Cumulative Cashflow (C$M)	NPV @ 6% (C$M)	NPV @ 8% (C$M)	NPV @ 10% (C$M)	IRR %	Payback (Years)
9.00	-5	-248	-286	-324	0.0%	14.0
14.50	1,311	592	458	329	19.4%	3.7
15.00	1,426	663	520	383	20.8%	3.4
18.00	2,120	1,085	889	702	28.6%	2.5

23.0 ADJACENT PROPERTIES

There are no adjacent properties relevant to the Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

An updated project execution plan is in preparation.

On 1 February 2014, Avanti authorized the commencement of detailed engineering studies, which will serve as the basis for the detailed estimates that can support construction activities. These studies are ongoing.

25.0 INTERPRETATION AND CONCLUSIONS

The QPs, as authors of this Report, have reviewed the data for the Project and have made the following conclusions and interpretations.

25.1 History and Exploration

- Work completed on the Project included two phases of open pit mining, and rehabilitation, geochemical sampling, minor underground development, mineral resource estimation, core drilling including geotechnical, hydrological, confirmation and condemnation drill holes, evaluation and interpretation of legacy data, baseline environmental studies, metallurgical testwork, and engineering and design studies
- While the majority of the exploration on the Project was completed prior to Avanti's ownership, the work undertaken was appropriate to the style of the deposits. The exploration activities identified three deposits, and additional exploration of the Project area is warranted.

25.2 Mineral Tenure, Surface Rights, Royalties, Environment, Social and Permits

- Legal opinion provided to AMEC indicates that the mining tenure held by Avanti in the Project area is valid, and sufficient to support declaration of Mineral Resources and Mineral Reserves.
- Avanti has advised AMEC that Avanti holds, or has applied for, sufficient surface rights in the Project area to support the mining operations
- Three permits were acquired with the Project from ALI, a remediation permit, a forest roads access permit, and a special usage permit. These support reclamation monitoring activities and Project access. Reclamation of the 1980s mining operation was completed in 2006; ongoing monitoring is still being performed
- Two royalties are payable. The first is 1% of the net smelter return payable under the ALI Agreement, and the second a 9.22% royalty known as the "1984 Royalty Agreement" payable on positive pre-tax cashflow after the recovery of capital expenditures
- Avanti will need to apply for additional permits as appropriate under local, Provincial, and Federal laws to allow mining operations. The primary BC authorization for the development of the Kitsault mine project is a permit under the Provincial Mines Act

- A conditional Environmental Assessment certificate was granted the Project on 19 March 2013. The Certificate includes 34 conditions and a Certified Project Description has been granted to the Project. AMEC notes that each of the conditions is a legally binding requirement that Avanti Kitsault Mine Ltd. must meet to be in compliance with the certificate. It is also a legal requirement that the project is built and operated in accordance with the Certified Project Description.
- The Nisga'a Nation has filed a Notice of Disagreement with British Columbia under the Nisga'a Final Agreement concerning the environmental assessment of the Project.
- Concurrent with the BC Environmental Assessment Act process, Avanti also began the Federal environmental assessment process in 2010 with the submittal of the Project Description. The delay is due to statutory differences in the approval timeframes between the Provincial and Federal Acts.
- Closure provisions for the planned mining operation are considered in the mine plan and are preliminary in nature. Closure costs are estimated at $29.39 million
- At the effective date of this Report, the major environmental liabilities from previous activities consist of monitoring activities related to the completed site remediation of the Kitsault mine. All Avanti drill sites were reclaimed on completion of the drill hole
- Community consultation has been undertaken with First Nations and the Nisga'a Nation, as well as with holders of special surface rights usages in the Project area.
- The existing and planned infrastructure, availability of staff, the existing power, water, and communications facilities, the methods whereby goods are transported to the mine, and any planned modifications or supporting studies are well-established, or the requirements to establish such, are well understood by Avanti, and can support the declaration of Mineral Resources and Mineral Reserves
- To the extent known, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.
- Mining activity will be possible year-round.

25.3 Geology and Mineralization

- The geologic understanding of the deposit settings, lithologies, and structural and alteration controls on mineralization is sufficient to support estimation of Mineral Resources and Mineral Reserves at the Kitsault deposit

- The mineralization style and setting is well understood and can support declaration of Mineral Resources for the Bell Moly and Roundy Creek deposits. Classification restrictions due to legacy data are imposed on the Bell Moly deposit

25.4 Exploration, Drilling, Analysis and Data Verification

- The quantity and quality of the lithological, 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 at the Kitsault deposit
- The quantity and quality of the lithological, geotechnical, collar and down-hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation at the Inferred confidence category at the Bell Moly deposit
- The quantity and quality of the lithological, geotechnical, collar and down-hole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation at the Roundy Creek deposit
- The sampling methods are acceptable, meet industry-standard practice, and are adequate for Mineral Resource estimation purposes to declare Mineral Resources for Mo and Ag. Based on the fact that only legacy core and legacy data are available, AMEC has restricted the Mineral Resource classification at Bell Moly to Inferred. Sampling data are sufficient to support Indicated and Inferred classifications at Kitsault and Roundy Creek.
- The data verification performed on the Avanti and legacy drilling at the Kitsault deposit supports the use of the drill and sampling data in Mineral Resource estimation without confidence class restrictions.
- The data verification performed on the Bell Moly data was restricted to evaluation of relogging and resampling undertaken by Avanti on legacy core and assessing the Avanti results against the original legacy data. AMEC has restricted the confidence category of the Bell Moly estimate to the Inferred category.
- The data verification performed on the Avanti and legacy drilling at the Roundy Creek deposit supports the use of the drill and sampling data in Mineral Resource estimation in the Inferred and Indicated categories.

25.5 Metallurgical Testwork

- The metallurgical testwork completed on the Project has been appropriate to establish a process route that is applicable to the mineralization types, and the process route proposed uses conventional technology

- Tests were performed on samples that were representative of the mineralization for the purposes of establishing an optimal conceptual process flowsheet
- The testwork performed from 2011 to 2014 generally supported the work completed in 2009 and 2010. The level of comminution testwork and the selection of a power target (the 75th percentile of all sample hardness) consistent with the level of the work push the design of the comminution circuit to an appropriate level of confidence. Although grind/recovery work and rougher kinetics showed consistently good performance for bulk flotation, difficulties were encountered in the performance of the locked-cycle and concentrate leaching tests. These concerns were addressed in the 2011 locked cycle work which increased confidence in the circuit performance with respect to recovery and concentrate grade. Additional work on lead leaching in 2011 also gave confidence in the ability of that circuit is reduce the lead to acceptable levels. Testwork for silver recovery is on-going from 2011 and is still underway
- The design of the Kitsault process plant is based on plant data obtained from previous operating periods as well as more recent testwork campaigns on samples of quartz monzonite, diorite, and hornfels. These samples originate from the area designated as potential plant feed material indicated in the mine plan to have an ore feed grade of approximately 0.09% Mo
- Past production and current testwork results have shown that saleable molybdenum flotation concentrates can be produced by the use of conventional comminution and flotation processes. The plant feed will be crushed and milled, then subjected to flotation. The resulting concentrate will be leached to remove the lead impurity, thereby producing a high-grade saleable molybdenum concentrate that meets smelter specifications. The final concentrate is expected to contain 52% Mo and <0.04% lead, for an overall molybdenum recovery of 88.5%.

25.6 Mineral Resource and Mineral Reserve Estimates

- Mineral Resources and Mineral Reserves for the Project, which have been estimated using core drill data, have been performed to industry best practices, and conform to the requirements of CIM (2010).
- Factors which may affect the geological models, the estimation method, Mineral Resource classification confidence categories, and the conceptual pit shells, and therefore the Mineral Resource estimates include:
  - Metal price assumptions;
  - Changes in interpretations of lithological domains;
  - Changes in interpretations of grade shell boundaries;

- Changes in modelling assumptions to allow for independent modelling of secondary metals
- Changes to the search orientations, search ellipse ranges, and numbers of octants used for grade estimation;
- Pit slope angles and geotechnical assumptions supporting the pit shells;
- Changes to the assumptions used to generate the Mo cut-off grades for resource declaration;
- Use of additional costs in pit shell constraints, such as inclusion of incremental mining costs
- Review of the classification criteria used for each deposit
- Additional drilling that may support removal of confidence category limits at Bell Moly and Roundy Creek that were imposed on legacy data.

- The Mineral Reserves are acceptable to support mine planning;
- Reviews of the environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors and constraints for the Project support the declaration of Mineral Reserves using the set of assumptions outlined;
- Areas of uncertainty that may materially impact the Mineral Reserve estimates include:
  - Long-term commodity price assumptions
  - Long-term exchange rate assumptions
  - Long-term consumables price assumptions (diesel, explosives)
  - Variations to the metallurgical recovery estimates
  - Changes to the assumptions used to estimate Mineral Resources
  - Changes to the assumptions used in the LG shell constraining the Mineral Reserves
  - Changes to the mine design
  - Changes in the inter-ramp slope angles assumptions due higher than expected groundwater incidence.

25.7 Life-of-Mine Plan

- The mining methods used are appropriate to the deposit style and employ conventional mining tools and mechanization
- The LOM open pit mine plan has been appropriately developed to maximize mining efficiencies, based on the current knowledge of geotechnical, hydrological, mining and processing information on the Project

- The mine plan has been developed after an optimization initiative to maximize discounted value by processing higher grade and maximizing throughput at the start of the Project
- The equipment and infrastructure requirements required for life-of-mine operations are well understood. Conventional mining equipment will be used. The LOM fleet requirements are appropriate to the planned production rate and methods
- The predicted mine life of 15 years is achievable based on the projected annual production rate and the Mineral Reserves estimated
- There is some upside for the Project if the Inferred Mineral Resources that are identified within the LOM production plan can be upgraded to higher confidence Mineral Resource categories

25.8 Recovery Plan

- The proposed process facility designs are appropriate to the mineralization styles in the planned open pit and will support the projected life-of-mine plan.

In the QP's opinion, four principal risks were identified in the testwork. These are:

- Grinding hardness and the delivery schedule of the ore: there is a period early in the mine life, one quarter in particular, where the ability to meet throughput target is right at the limit. The alleviating measure is to ensure tight ore control coming from the pit so as to not aggravate the situation any further
- Confirming the target Mo recovery and final Mo concentrate grade by locked cycle testwork. Initial tests did not work out, primarily due to problems with the testing. However both subsequent testwork performed in 2011 and the successful industrial level production of molybdenum concentrates at a high recovery prior to 1982 support the flowsheet and the proposed recovery levels in the mine model. It is believed that the plant can control these issues by good control practice in both the regrind and cleaner flotation areas
- Confirming that premium concentrate quality can be achieved by proper flotation conditions followed by impurity leaching. This was confirmed by testwork completed in 2011. This issue is now considered to be a minor risk which can be alleviated by being conservative in the leach circuit design
- Recovery of silver is expected to be variable. Good control of Nokes addition, regrinding and mass pull are critical in achieving silver recovery. Preliminary testwork indicates that it should be possible to produce saleable silver concentrate. However, the same issues that existed in the cleaning of the molybdenum concentrate are duplicated with the recovery of silver to a concentrate. It should also be noted that as a by-product recovered material, no variability work has been

performed to determine response across the orebody. Further testwork in this area is recommended to develop robust design criteria

Although a minor component, there is little information on settling and filtering characteristics. It is recommended that for engineering purposes, provision is made to determine settling and filtration data for design or alternatively a more conservative design approach used for those process sections. A more conservative design approach would have very little impact on the capital cost of the plant.

25.9 Infrastructure

- Infrastructure design required to support mining activities is sufficient for the proposed LOM.

25.10 Markets

- Avanti has a MCTA with Molymet of Chile for the life-of-mine molybdenum concentrate production. Avanti retains an option to reduce the molybdenum concentrate delivered to Molymet for processing to 80% of the total production if required
- An off-take agreement was concluded with ThyssenKrupp Metallurgical Products GMBH for 50% of the total molybdenum production from its Kitsault for the life of the mine

25.11 Capital and Operating Costs

- Capital cost and operating cost estimates are appropriate for the economic circumstances existing at the time they were supplied.

25.12 Financial Analysis

- Taxation considerations include provincial and federal corporate income taxes and BC Mineral taxes as determined using a taxation model provided by PricewaterhouseCoopers LLP
- The economic analysis shows that overall NPV is positive for the sets of assumptions considered
- Sensitivity analysis shows that the Kitsault Project is most sensitive to changes in molybdenum price and the exchange rate, as these items directly affect the revenue stream. The Project is also sensitive, but less so, to capital expenditure and operating cost.

25.13 Conclusions

In the opinion of the QPs, the Project that is outlined in this Report has met its objectives in that mineralization has been identified that can support estimation of Mineral Resources and Mineral Reserves; there was sufficient additional scientific and technical information to allow the completion of a more detailed study at feasibility level to support potential mine development and an optimisation approach to be adopted based on the feasibility study.

A decision to proceed with development will require appropriate permits, and approval by both relevant statutory authorities and Avanti's board.

26.0 RECOMMENDATIONS

This report documents the findings of the optimisation and value engineering study. The decision to proceed with mine development is an Avanti Board decision.

AMEC has restricted work recommendations to a two-phase work program that is designed to provide support for detailed engineering for mine construction and permitting activities in phase 1; phase 2 is related to additional exploration drilling at Bell Moly and Roundy Creek. The two phases can be conducted concurrently and results of one phase are not dependent on the outcomes of the other phase. The program estimates total $6.075 million to $6.975 million.

26.1 Phase 1

The first phase work program is designed to support detailed engineering for mine construction and permitting activities. The program estimate is $575,000.

Work contemplated includes the following areas.

26.1.1 Metallurgical Tests

Further work should be performed to optimize molybdenum circuit design and silver flotation circuit performance. Preliminary testwork indicates that it should be possible to produce saleable silver concentrate. Controlling reagents, mass pull, regrinding and pH will all be important in attaining recovery and producing a saleable silver concentrate.

- Testwork will be needed to confirm that silver target recovery and final concentrate grades that can be attained. Avanti should budget for approximately $150,000 to perform confirmatory testwork
- Kinetic flotation testwork at different particle size ranges should be performed to allow for the optimization of the Mo rougher-scavenger flotation circuit. Avanti should budget for approximately $100,000 to perform confirmatory testwork
- Settling testwork of intermediate and final products should allow the optimization of the design and could lead to the reduction of costs associated with settling requirements in the plant. Avanti should budget $25,000 for this work, which will be done on the locked-cycle products.

The costs of the metallurgical testwork proposed total $275,000.

26.1.2 Blasting and Fragmentation Studies

Mined material will be blasted to produce a suitable particle size distribution for loading and transportation in haul trucks to their destination: crushing station, stockpiles or WRMF. In addition, mineralized material will be blasted to comply with fragmentation requirements and a specified particle distribution that optimizes the performance of the primary crusher. Avanti should budget for approximately $300,000 to investigate rock mass characteristics with respect to fragmentation performance for both ore and waste materials. This investigation will facilitate the detailed design of drilling and blasting specifications and the optimization of consumables and costs.

The total estimated cost of this work is $300,000.

26.2 Phase 2

The second work program is allocated to exploration activities that could potentially support confidence category upgrades for the mineralization currently classified as Inferred Mineral Resources and provide information that could potentially incorporate mineralization at Patsy Creek into the Kitsault Mineral Resource estimate.

This work phase contemplates infill drilling at Bell Moly and Roundy Creek, and an exploration program at Patsy Creek as follows:

- Roundy Creek: 50 core holes; 10,000 m; drill holes average 200 m in depth
- Bell Moly: 20 core holes; 6,000 m; drill holes average 200 m in depth
- Patsy Creek: 20 core holes; 6,000 m; drill holes average 200 m in depth.

Total drill costs could range from $250/m to $300/m depending on whether helicopter support is required for the drill programs. Programs could range from

- Roundy Creek: $2.5 to $3 million
- Bell Moly: $1.5 to 1.8 million
- Patsy Creek: $1.5 to 1.8 million

The total program is estimated at approximately $5.5 million to $6.4 million.

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Appendix A

Tenure No.	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map No.	Issue Date	Good To Date	Area (ha)	Title Type	Legacy Conversions	New Lease Application	1976 Royalty	1984 Royalty	ALI Agreement	TA Agreement	NC Agreement
250340	R #1	217853 (100%)	Mineral	Claim	103P044	1975/jul/24	2022/mar/10	150.00	4-post legacy claim			A		C		
250341	R #2	217853 (100%)	Mineral	Claim	103P044	1975/jul/24	2022/mar/10	100.00	4-post legacy claim			A		C		
250342	R #3	217853 (100%)	Mineral	Claim	103P044	1975/jul/24	2022/mar/10	100.00	4-post legacy claim			A		C		
250347	FUBAR 2	217853 (100%)	Mineral	Claim	103P044	1975/aug/08	2022/mar/10	225.00	4-post legacy claim			A		C		
250390	FUBAR 3	217853 (100%)	Mineral	Claim	103P044	1975/oct/22	2022/mar/10	75.00	4-post legacy claim			A		C		
250458	ALICE	217853 (100%)	Mineral	Claim	103P043	1977/nov/10	2022/mar/10	300.00	4-post legacy claim					C		
250512	BLUE 5	217853 (100%)	Mineral	Claim	103P043	1978/jul/06	2022/mar/10	100.00	4-post legacy claim					C		
250513	BLUE 4	217853 (100%)	Mineral	Claim	103P043	1978/jul/06	2022/mar/10	225.00	4-post legacy claim					C		
250514	BLUE 3	217853 (100%)	Mineral	Claim	103P043	1978/jul/06	2022/mar/10	25.00	2-post legacy claim					C		
250578	BLUE 2 FR.	217853 (100%)	Mineral	Claim	103P043	1978/jul/21	2022/mar/10	25.00	2-post legacy claim					C		
250579	BLUE 3 FR.	217853 (100%)	Mineral	Claim	103P043	1978/jul/06	2022/mar/10	25.00	2-post legacy claim					C		
254543		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	12.29	Mineral lease				B	C		
254544		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	12.29	Mineral lease				B	C		
254545		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	11.71	Mineral lease				B	C		
254546		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.00	Mineral lease				B	C		
254547		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	9.19	Mineral lease				B	C		
254548		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	12.80	Mineral lease				B	C		
254549		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	15.55	Mineral lease				B	C		
254550		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	13.76	Mineral lease				B	C		
254551		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.23	Mineral lease				B	C		
254552		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.84	Mineral lease				B	C		
254553		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	20.75	Mineral lease				B	C		
254554		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	15.72	Mineral lease				B	C		
254555		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	18.07	Mineral lease				B	C		
254556		217853 (100%)	Mineral	Lease	103P043	1967/feb/25	2017/feb/23	17.98	Mineral lease				B	C		
254557		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	20.90	Mineral lease				B	C		
254558		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	18.00	Mineral lease				B	C		
254559		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.21	Mineral lease				B	C		
254560		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	6.24	Mineral lease				B	C		

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254561		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	8.85	Mineral lease				B	C		
254562		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.71	Mineral lease				B	C		
254563		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	17.98	Mineral lease				B	C		
254564		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	3.28	Mineral lease				B	C		
254565		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.28	Mineral lease				B	C		
254566		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.87	Mineral lease				B	C		
254567		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	5.58	Mineral lease				B	C		
254568		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.98	Mineral lease				B	C		
254569		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.96	Mineral lease				B	C		
254570		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.93	Mineral lease				B	C		
254571		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	20.40	Mineral lease				B	C		
254572		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.85	Mineral lease				B	C		
254573		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	20.90	Mineral lease				B	C		
254574		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	16.73	Mineral lease				B	C		
254575		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	8.34	Mineral lease				B	C		
254576		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.81	Mineral lease				B	C		
254577		217853 (100%)	Mineral	Lease	103P043	1967/feb/23	2017/feb/23	19.24	Mineral lease				B	C		
254670	ROUNDY	217853 (100%)	Mineral	Claim	103P043	1956/sep/18	2022/mar/10	25.00	2-post legacy claim					C		
254671	ROUNDY NO.1	217853 (100%)	Mineral	Claim	103P043	1956/sep/18	2022/mar/10	25.00	2-post legacy claim					C		
254672	ROUNDY NO.2	217853 (100%)	Mineral	Claim	103P043	1956/sep/18	2022/mar/10	25.00	2-post legacy claim					C		
254673	ROUNDY NO.3	217853 (100%)	Mineral	Claim	103P043	1956/sep/18	2022/mar/10	25.00	2-post legacy claim					C		
254715	LEE NO. 2	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254724	LEE NO. 31	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254725	LEE NO. 32	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254726	LEE NO. 33	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254727	LEE NO. 34	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254728	LEE NO. 35	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254729	LEE NO. 36	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254730	LEE NO. 37	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		

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254731	LEE NO. 38	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254732	LEE NO. 39	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254733	LEE NO. 40	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254734	LEE NO. 41	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254735	LEE NO. 42	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254736	LEE NO. 43	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254737	LEE NO. 44	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254738	LEE NO. 45	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254739	LEE NO. 46	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254748	CANYON FR.	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254749	CREEK FR.	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254750	LEE NO. 1	217853 (100%)	Mineral	Claim	103P043	1959/oct/16	2022/mar/10	25.00	2-post legacy claim					C		
254764	ACCESS #1 FR.	217853 (100%)	Mineral	Claim	103P043	1960/jul/06	2021/mar/10	25.00	2-post legacy claim					C		
254962	KENNCO ACCESS NO.26	217853 (100%)	Mineral	Claim	103P043	1963/sep/16	2022/mar/10	25.00	2-post legacy claim				B	C		
254963	KENNCO ACCESS NO.27	217853 (100%)	Mineral	Claim	103P043	1963/sep/16	2022/mar/10	25.00	2-post legacy claim					C		
255024	ACCESS NO.28	217853 (100%)	Mineral	Claim	103P043	1965/mar/05	2022/mar/10	25.00	2-post legacy claim					C		
255025	ACCESS NO.29	217853 (100%)	Mineral	Claim	103P043	1965/mar/05	2022/mar/10	25.00	2-post legacy claim					C		
255026	ACCESS NO.30	217853 (100%)	Mineral	Claim	103P043	1965/mar/05	2022/mar/10	25.00	2-post legacy claim					C		
255027	ACCESS NO.31	217853 (100%)	Mineral	Claim	103P043	1965/mar/05	2022/mar/10	25.00	2-post legacy claim					C		
255083	JOY #1	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255084	JOY #2	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255085	JOY #3	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255086	JOY #4	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255087	JOY #5	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255088	JOY #6	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255089	JOY #8	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255090	JOY #9	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255091	JOY #7	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		
255092	JOY #10	217853 (100%)	Mineral	Claim	103P043	1966/apr/01	2022/mar/10	25.00	2-post legacy claim				B	C		

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255158	CJ #1 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255159	CJ #2 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255160	CJ #3 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255161	CJ #4 FR	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255162	CJ #5 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255163	CJ #6 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255164	CJ #7 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jun/15	2022/mar/10	25.00	2-post legacy claim					C		
255165	AT FR.	217853 (100%)	Mineral	Claim	103P043	1967/jul/27	2021/mar/10	25.00	2-post legacy claim					C		
255166	DM #1 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jul/27	2021/mar/10	25.00	2-post legacy claim					C		
255167	DM #2 FR.	217853 (100%)	Mineral	Claim	103P043	1967/jul/27	2021/mar/10	25.00	2-post legacy claim					C		
255169	ROUNDY FR.	217853 (100%)	Mineral	Claim	103P043	1967/jul/06	2022/mar/10	25.00	2-post legacy claim					C		
255170	D.M. NO. 3 FR.	217853 (100%)	Mineral	Claim	103P043	1967/aug/31	2022/mar/10	25.00	2-post legacy claim					C		
255365	FAST 13	217853 (100%)	Mineral	Claim	103P043	1974/jul/05	2021/mar/10	25.00	2-post legacy claim					C		
255366	FAST 14	217853 (100%)	Mineral	Claim	103P043	1974/jul/05	2021/mar/10	25.00	2-post legacy claim					C		
509804		217853 (100%)	Mineral	Claim	103P	2005/mar/30	2022/mar/10	220.3470	MTO cell claim		Yes				D	
510205		217853 (100%)	Mineral	Claim	103P	2005/apr/05	2022/mar/10	1322.7590	MTO cell claim						D	
510225		217853 (100%)	Mineral	Claim	103P	2005/apr/05	2022/mar/10	367.2350	MTO cell claim						D	
510226		217853 (100%)	Mineral	Claim	103P	2005/apr/05	2022/mar/10	238.7340	MTO cell claim						D	
517362	WOLF GAP	217853 (100%)	Mineral	Claim	103P	2005/jul/12	2022/mar/10	110.2110	MTO cell claim						D	
517364	LIME CREEK FRAC	217853 (100%)	Mineral	Claim	103P	2005/jul/12	2022/mar/10	55.0880	MTO cell claim		Yes				D	
517367	ROUNDY CREEK FRAC	217853 (100%)	Mineral	Claim	103P	2005/jul/12	2022/mar/10	18.3560	MTO cell claim						D	
517371	BELLE FRAC	217853 (100%)	Mineral	Claim	103P	2005/jul/12	2022/mar/10	36.6940	MTO cell claim		Yes				D	
527089	KITSAULT SOUTH	217853 (100%)	Mineral	Claim	103P	2006/feb/06	2022/mar/10	459.3610	MTO cell claim						D	
530006	KITSAULT NORTH 1	217853 (100%)	Mineral	Claim	103P	2006/mar/14	2022/mar/10	440.0710	MTO cell claim						D	
530007	KITSAULT NORTH 2	217853 (100%)	Mineral	Claim	103P	2006/mar/14	2022/mar/10	73.3600	MTO cell claim						D	
530008	KITSAULT NORTH FRACTION	217853 (100%)	Mineral	Claim	103P	2006/mar/14	2022/mar/10	220.0860	MTO cell claim						D	
530009	KITSAULT NORTH FRAC 2	217853 (100%)	Mineral	Claim	103P	2006/mar/14	2022/mar/10	55.0160	MTO cell claim						D	
530826	KITSAULT NORTH 5	217853 (100%)	Mineral	Claim	103P	2006/mar/29	2022/mar/10	385.2170	MTO cell claim						D	
530827	KITSAULT NORTH 6	217853 (100%)	Mineral	Claim	103P	2006/mar/29	2022/mar/10	183.3950	MTO cell claim						D	

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530884	KITSAULT FRAC 1	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	36.6920	MTO cell claim						D	
530885	KITSAULT FRAC 2	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	18.3460	MTO cell claim						D	
530886	KITSAULT FRAC 3	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	18.3440	MTO cell claim						D	
530887	KITSAULT FRAC 4	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	55.0340	MTO cell claim						D	
530888	KITSAULT EAST 2	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	385.6270	MTO cell claim		Yes				D	
530889	KITSAULT EAST 3	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	110.1570	MTO cell claim		Yes				D	
530890	KITSAULT EAST 1	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	440.5140	MTO cell claim		Yes				D	
530891	EAST FRAC 1	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	36.7000	MTO cell claim						D	
530892	EAST FRAC 2	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	55.0560	MTO cell claim		Yes				D	
530893	WIDDZECH 1	217853 (100%)	Mineral	Claim	103P	2006/mar/30	2022/mar/10	220.2800	MTO cell claim						D	
530912	EAST FRAC 3	217853 (100%)	Mineral	Claim	103P	2006/mar/31	2022/mar/10	18.3560	MTO cell claim		Yes				D	
530913	EAST FRAC 4	217853 (100%)	Mineral	Claim	103P	2006/mar/31	2022/mar/10	18.3600	MTO cell claim		Yes				D	
530914	EAST FRAC 5	217853 (100%)	Mineral	Claim	103P	2006/mar/31	2022/mar/10	18.3500	MTO cell claim						D	
555363	HOAN NORTH	217853 (100%)	Mineral	Claim	103P	2007/mar/29	2022/mar/10	220.4875	MTO cell claim							E
555366	HOAN SOUTH	217853 (100%)	Mineral	Claim	103P	2007/mar/29	2022/mar/10	220.8053	MTO cell claim							E
564915	GWIN 1	217853 (100%)	Mineral	Claim	103P	2007/aug/22	2022/mar/10	440.5837	MTO cell claim						D	
564916	GWIN 2	217853 (100%)	Mineral	Claim	103P	2007/aug/22	2022/mar/10	440.7171	MTO cell claim						D	
564917	GWIN 3	217853 (100%)	Mineral	Claim	103P	2007/aug/22	2022/mar/10	385.5937	MTO cell claim						D	
566438	HB1	217853 (100%)	Mineral	Claim	103P	2007/sep/21	2022/mar/10	459.4243	MTO cell claim						D	
566439	HB2	217853 (100%)	Mineral	Claim	103P	2007/sep/21	2022/mar/10	36.7857	MTO cell claim						D	
566480	MONSTER1	217853 (100%)	Mineral	Claim	103P	2007/sep/21	2022/mar/10	460.0167	MTO cell claim						D	
566483	MONSTER2	217853 (100%)	Mineral	Claim	103P	2007/sep/21	2022/mar/10	460.1915	MTO cell claim						D	
566486	MONSTER3	217853 (100%)	Mineral	Claim	103P	2007/sep/21	2022/mar/10	349.5576	MTO cell claim						D	
568513	HOANEAST1	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	331.1440	MTO cell claim						D	
568514	HOANEAST2	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	386.2257	MTO cell claim						D	
568515	HOANEAST3	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	441.1656	MTO cell claim						D	
568516	HOANEAST4	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	441.1678	MTO cell claim						D	
568517	HOANEAST5	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	422.9085	MTO cell claim						D	
568518	HOANEAST6	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.3480	MTO cell claim						D	

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568519	HOANEAST7	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.3470	MTO cell claim						D	
568520	HOANWEST1	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	404.0887	MTO cell claim						D	
568521	HOANEAST8	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	367.3531	MTO cell claim						D	
568522	HOANWEST2	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.3495	MTO cell claim						D	
568523	HOANWEST3	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	386.0052	MTO cell claim						D	
568524	HOANWEST4	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.7091	MTO cell claim						D	
568525	HOANEAST9	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	257.6565	MTO cell claim						D	
568526	KWIN1	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	367.3555	MTO cell claim						D	
568527	KWIN2	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	349.0378	MTO cell claim						D	
568530	HOANSOUTH1	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	460.1730	MTO cell claim						D	
568534	HOANWEST5	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	312.7391	MTO cell claim						D	
568537	KWIN3	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	330.7714	MTO cell claim						D	
568538	KWIN4	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.3562	MTO cell claim						D	
568539	KWIN5	217853 (100%)	Mineral	Claim	103P	2007/oct/23	2022/mar/10	459.3554	MTO cell claim						D	
598581	BLUE FRACTION	217853 (100%)	Mineral	Claim	103P	2009/feb/02	2022/mar/10	18.3613	MTO cell claim		Yes					
602567	BONANZA 10	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.1518	MTO cell claim						D	
602570	BONANZA 11	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.1108	MTO cell claim						D	
602571	BONANZA 12	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.3357	MTO cell claim						D	
602572	BONANZA 13	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.3751	MTO cell claim						D	
602574	BONANZA 14	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.5655	MTO cell claim						D	
602576	BONANZA 15	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.7512	MTO cell claim						D	
602577	BONANZA 16	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	441.9348	MTO cell claim						D	
602580	STAGOO 4	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	442.2367	MTO cell claim						D	
602583	STAGOO 5	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	442.2125	MTO cell claim						D	
602584	STAGOO 7	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	442.3887	MTO cell claim						D	
602586	STAGOO 6	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	442.3270	MTO cell claim						D	
602587	STAGOO 8	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	368.7621	MTO cell claim						D	
602593	BONANZA 2	217853 (100%)	Mineral	Claim	103P	2009/apr/14	2022/mar/10	110.2592	MTO cell claim						D	
603005	VERY STEEP	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	220.6216	MTO cell claim						D	

Tenure No.	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map No.	Issue Date	Good To Date	Area (ha)	Title Type	Legacy Conversions	New Lease Application	1976 Royalty	1984 Royalty	ALI Agreement	TA Agreement	NC Agreement
603006	STAGOO 9	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	442.3007	MTO cell claim						D	
603007	STAGOO 10	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	368.5619	MTO cell claim						D	
603009	STAGOO 11	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	442.0723	MTO cell claim						D	
603011	STAGOO 13	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	332.0690	MTO cell claim						D	
603012	STAGOO 14	217853 (100%)	Mineral	Claim	103P	2009/apr/20	2022/mar/10	147.3843	MTO cell claim						D	
603533	BONANZA 9	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	442.0954	MTO cell claim						D	
603534	BONANZA 10	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	442.2074	MTO cell claim						D	
603535	BONANZA 11	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	442.0944	MTO cell claim						D	
603536	STAGOO 3	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	460.6900	MTO cell claim						D	
603537	STAGOO1	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	460.9246	MTO cell claim						D	
603538	STAGOO 2	217853 (100%)	Mineral	Claim	103P	2009/apr/28	2022/mar/10	239.7621	MTO cell claim						D	
606521	JANICE	217853 (100%)	Mineral	Claim	103P	2009/jun/23	2022/mar/10	55.0330	MTO cell claim						D	
606522	NANCY	217853 (100%)	Mineral	Claim	103P	2009/jun/23	2022/mar/10	55.0444	MTO cell claim						D	
606523	MICKEY	217853 (100%)	Mineral	Claim	103P	2009/jun/23	2022/mar/10	367.8009	MTO cell claim						D	
606524	ELBEE	217853 (100%)	Mineral	Claim	103P	2009/jun/23	2022/mar/10	367.7988	MTO cell claim						D	
606963	NANCY 2	217853 (100%)	Mineral	Claim	103P	2009/jul/03	2022/mar/10	330.3178	MTO cell claim						D	
606964	NANCY 3	217853 (100%)	Mineral	Claim	103P	2009/jul/03	2022/mar/10	18.3404	MTO cell claim						D	
617304	HM 1	217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	440.6511	MTO cell claim						D	
617306	HM 2	217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	440.6510	MTO cell claim						D	
617323	HM 3	217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	275.3474	MTO cell claim						D	
617344		217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	367.0197	MTO cell claim						D	
617345		217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	146.7239	MTO cell claim						D	
617346		217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	385.2304	MTO cell claim						D	
617363		217853 (100%)	Mineral	Claim	103P	2009/aug/11	2022/mar/10	110.0829	MTO cell claim						D	
620565	SB FRACTION	217853 (100%)	Mineral	Claim	103P	2009/aug/17	2022/mar/10	18.3576	MTO cell claim		Yes				D	
620583	HM FRACTION	217853 (100%)	Mineral	Claim	103P	2009/aug/17	2022/mar/10	18.3482	MTO cell claim						D	
649604	HOAN SOUTH 2	217853 (100%)	Mineral	Claim	103P	2009/oct/09	2022/mar/10	331.1404	MTO cell claim						D	
649605	HOAN SOUTH 3	217853 (100%)	Mineral	Claim	103P	2009/oct/09	2022/mar/10	331.2398	MTO cell claim						D	
683484	CONNECTOR 4	217853 (100%)	Mineral	Claim	103P	2009/dec/10	2022/mar/10	220.9425	MTO cell claim						D	

Tenure No.	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map No.	Issue Date	Good To Date	Area (ha)	Title Type	Legacy Conversions	New Lease Application	1976 Royalty	1984 Royalty	ALI Agreement	TA Agreement	NC Agreement
683503	CONNECTOR 3	217853 (100%)	Mineral	Claim	103P	2009/dec/10	2022/mar/10	276.0496	MTO cell claim						D	
683523	CONNECTOR 2	217853 (100%)	Mineral	Claim	103P	2009/dec/10	2022/mar/10	441.3794	MTO cell claim						D	
683543	CONNECTOR 1	217853 (100%)	Mineral	Claim	103P	2009/dec/10	2022/mar/10	441.0809	MTO cell claim						D	
707024		217853 (100%)	Mineral	Claim	103P	2010/feb/24	2022/mar/10	238.3672	MTO cell claim							
719548	AVTFR1	217853 (100%)	Mineral	Claim	103P	2010/mar/10	2022/mar/10	18.3461	MTO cell claim							
839492	BM AREA	217853 (100%)	Mineral	Claim	103P	2010/dec/02	2022/mar/10	146.7029	MTO cell claim							
844688		217853 (100%)	Mineral	Claim	103P	2011/jan/27	2022/mar/10	18.3424	MTO cell claim							
862828	KIT FRAC	217853 (100%)	Mineral	Claim	103P	2011/jul/05	2022/mar/10	18.3424	MTO cell claim							
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895736		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	293.5488	MTO cell claim	Converted	Yes	A		C		
895737		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	91.7120	MTO cell claim	Converted		A		C		
895738		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	18.3443	MTO cell claim	Converted		A		C		
895739		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	18.3557	MTO cell claim	Converted	Yes					
895740		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2020/mar/10	183.6541	MTO cell claim	Converted	Yes					
895741		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2020/mar/10	202.0226	MTO cell claim	Converted	Yes					
895742		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	73.3771	MTO cell claim	Converted						
895743		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2020/mar/10	110.1399	MTO cell claim	Converted	Yes					
895744		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2020/mar/10	18.3595	MTO cell claim	Converted	Yes					
895745		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2020/mar/10	18.3614	MTO cell claim	Converted	Yes					
895746		217853 (100%)	Mineral	Claim	103P	2011/aug/31	2021/mar/10	36.7263	MTO cell claim	Converted	Yes					
895833		217853 (100%)	Mineral	Claim	103P	2011/sep/01	2022/mar/10	183.4469	MTO cell claim	Converted		A		C		
895835		217853 (100%)	Mineral	Claim	103P	2011/sep/01	2022/mar/10	183.4895	MTO cell claim	Converted				C		
895837		217853 (100%)	Mineral	Claim	103P	2011/sep/01	2022/mar/10	275.3056	MTO cell claim	Converted			B	C		
901609	ACC NO16 FR	217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	18.3556	MTO cell claim		Yes					
901629		217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	36.7170	MTO cell claim	Converted						
901649	I.W. FR	217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	36.7170	MTO cell claim							
901669		217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	110.1565	MTO cell claim	Converted						
901689	JAN FR	217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	36.7134	MTO cell claim		Yes					

Tenure No.	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map No.	Issue Date	Good To Date	Area (ha)	Title Type	Legacy Conversions	New Lease Application	1976 Royalty	1984 Royalty	ALI Agreement	TA Agreement	NC Agreement
901749		217853 (100%)	Mineral	Claim	103P	2011/sep/27	2022/mar/10	458.9677	MTO cell claim	Converted						
1021835	MORRIS	217853 (100%)	Mineral	Claim	103P	2013/aug/23	2014/aug/23	73.3544	MTO cell claim							

Note: the Owner ID “217853” is the client number in the Mineral Titles Online database for Avanti.

The following tenure figures are based on the location plan sheet numbering and contain the tenure information for the Avanti Kitsault Claim Block.

Each figure uses the legend below.

LEGEND:

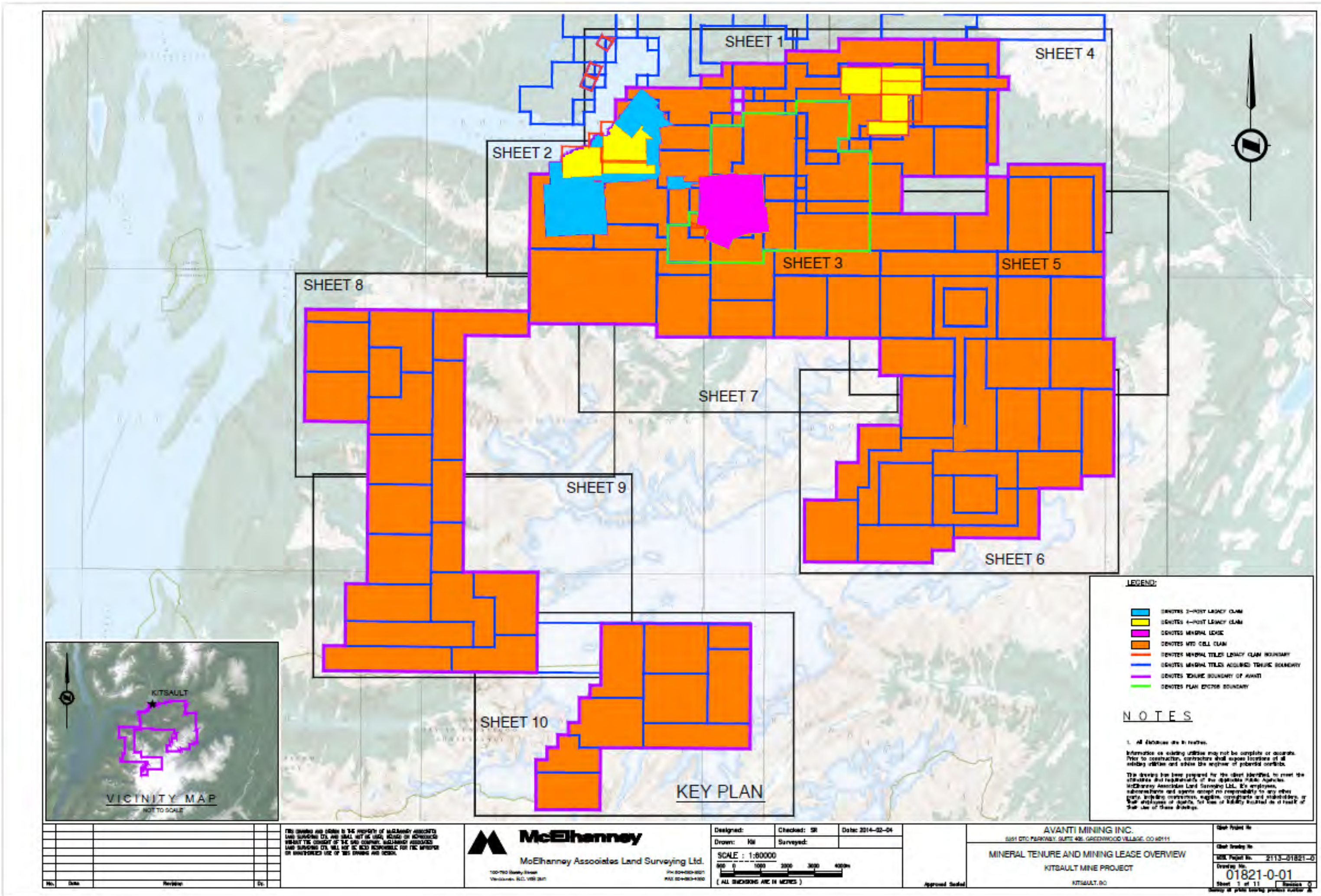
- DENOTES 2–POST LEGACY CLAIM
- DENOTES 4–POST LEGACY CLAIM
- DENOTES MINERAL LEASE
- DENOTES MTO CELL CLAIM
- DENOTES MINERAL TITLES LEGACY CLAIM BOUNDARY
- DENOTES MINERAL TITLES ACQUIRED TENURE BOUNDARY
- DENOTES TENURE BOUNDARY OF AVANTI
- DENOTES PLAN EPC798 BOUNDARY

N O T E S

1. All distances are in metres.

Information on existing utilities may not be complete or accurate. Prior to construction, contractors shall expose locations of all existing utilities and advise the engineer of potential conflicts.

This drawing has been prepared for the client identified, to meet the standards and requirements of the applicable Public Agencies. McElhanney Associates Land Surveying Ltd., it's employees, subconsultants and agents accept no responsibility to any other party, including contractors, supplies, consultants and stakeholders, or their employees or agents, for loss or liability incurred as a result of their use of these drawings.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SHEET 2
SHEET 3
SHEET 4
SHEET 5
SHEET 6
SHEET 7
SHEET 8
SHEET 9
SHEET 10
KEY PLAN
LEGEND:
NOTES
KITSAULT
VICINITY MAP
McElhanney
McElhanney Associates Land Surveying Ltd.
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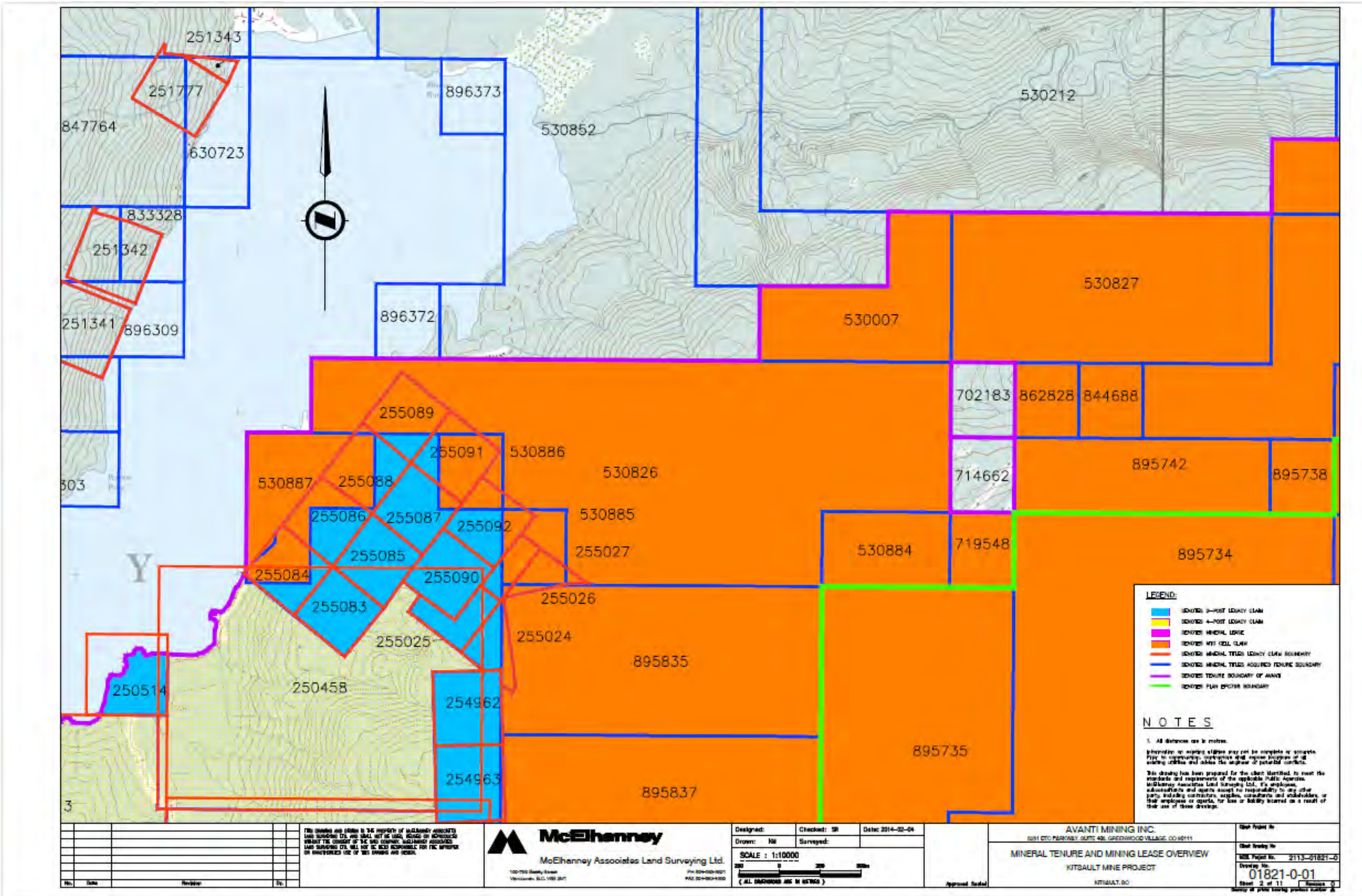
AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
01821-0-01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McElhanney Associates Land Surveying Ltd.
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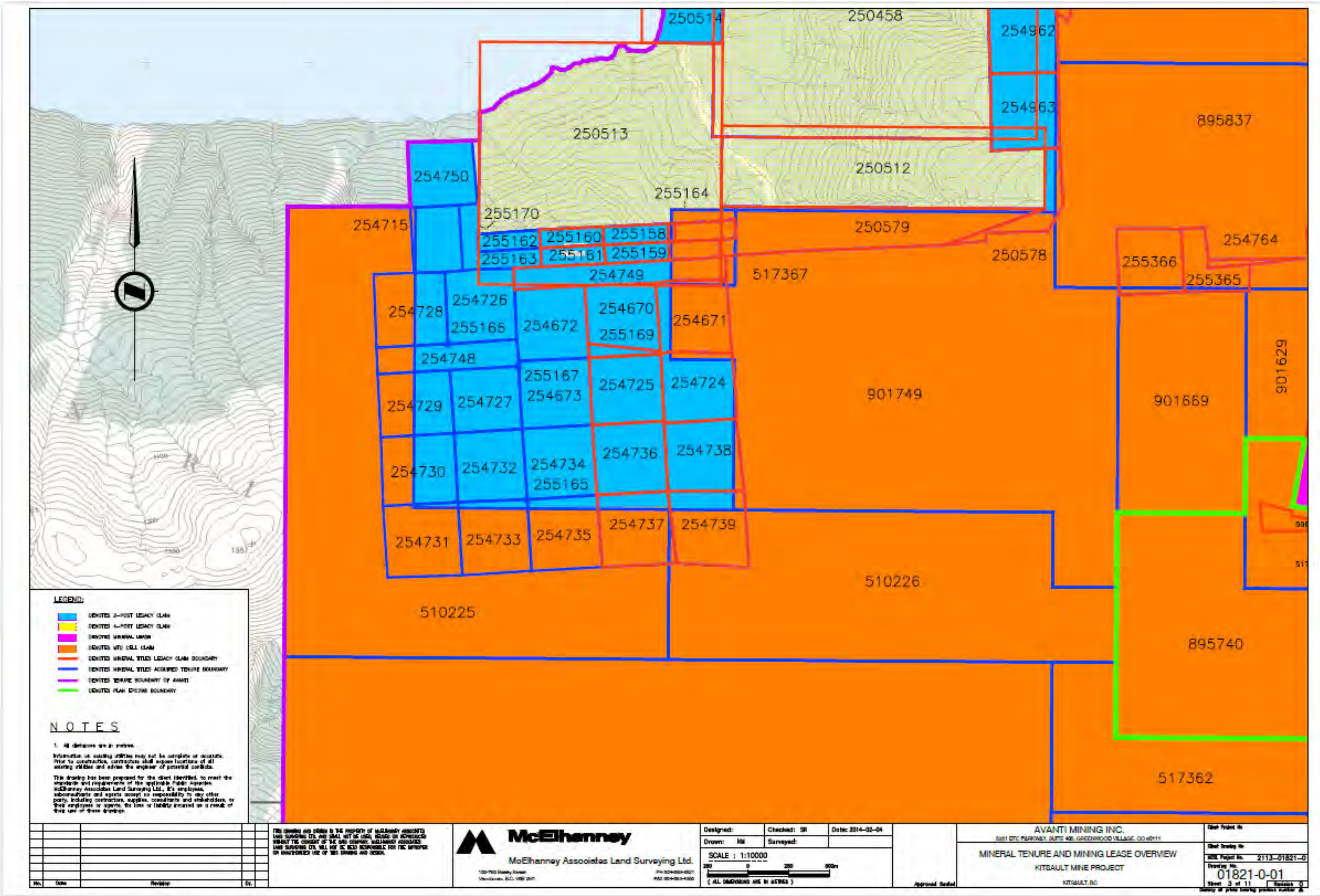
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
01821-0-01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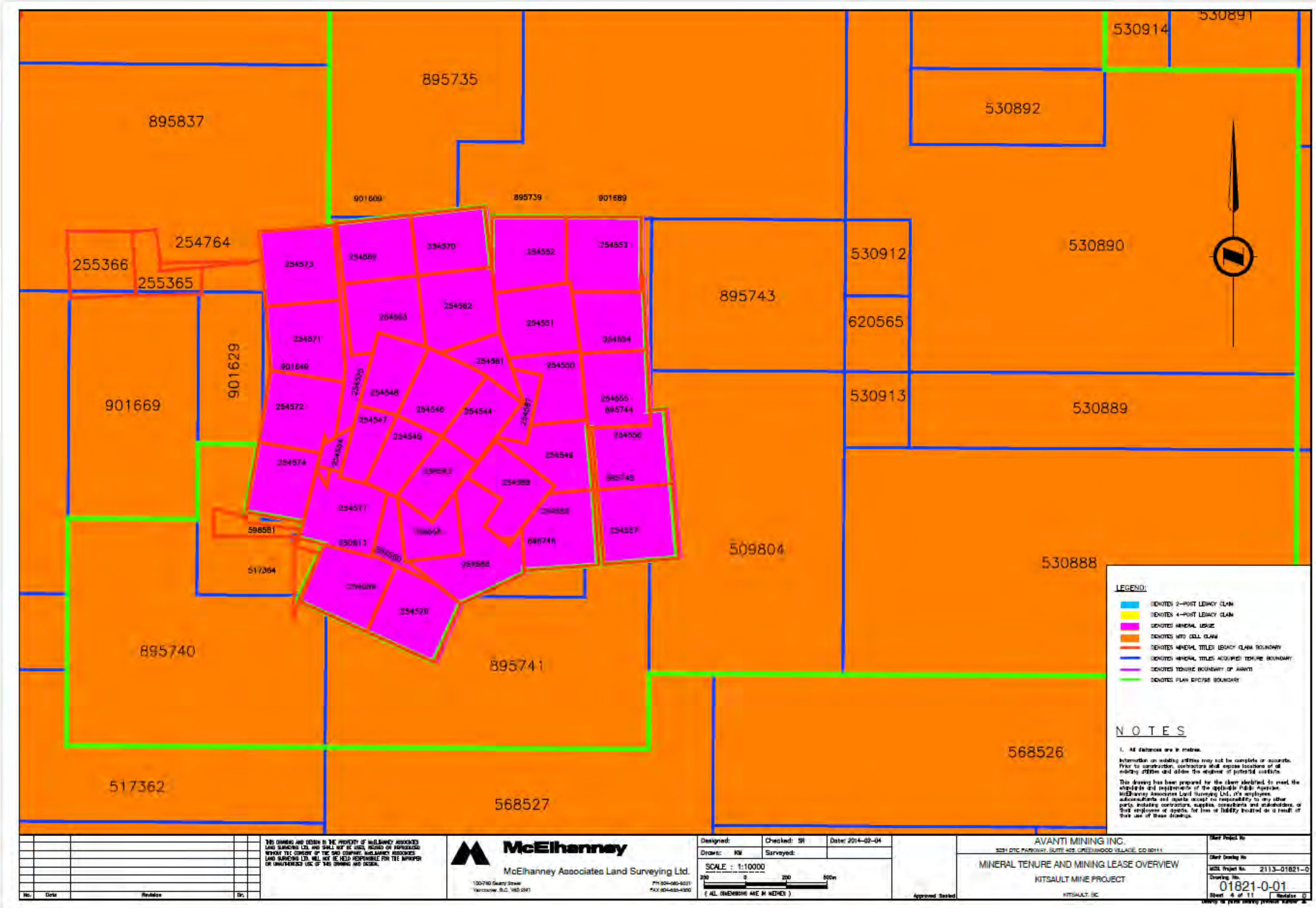
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
01821-0-01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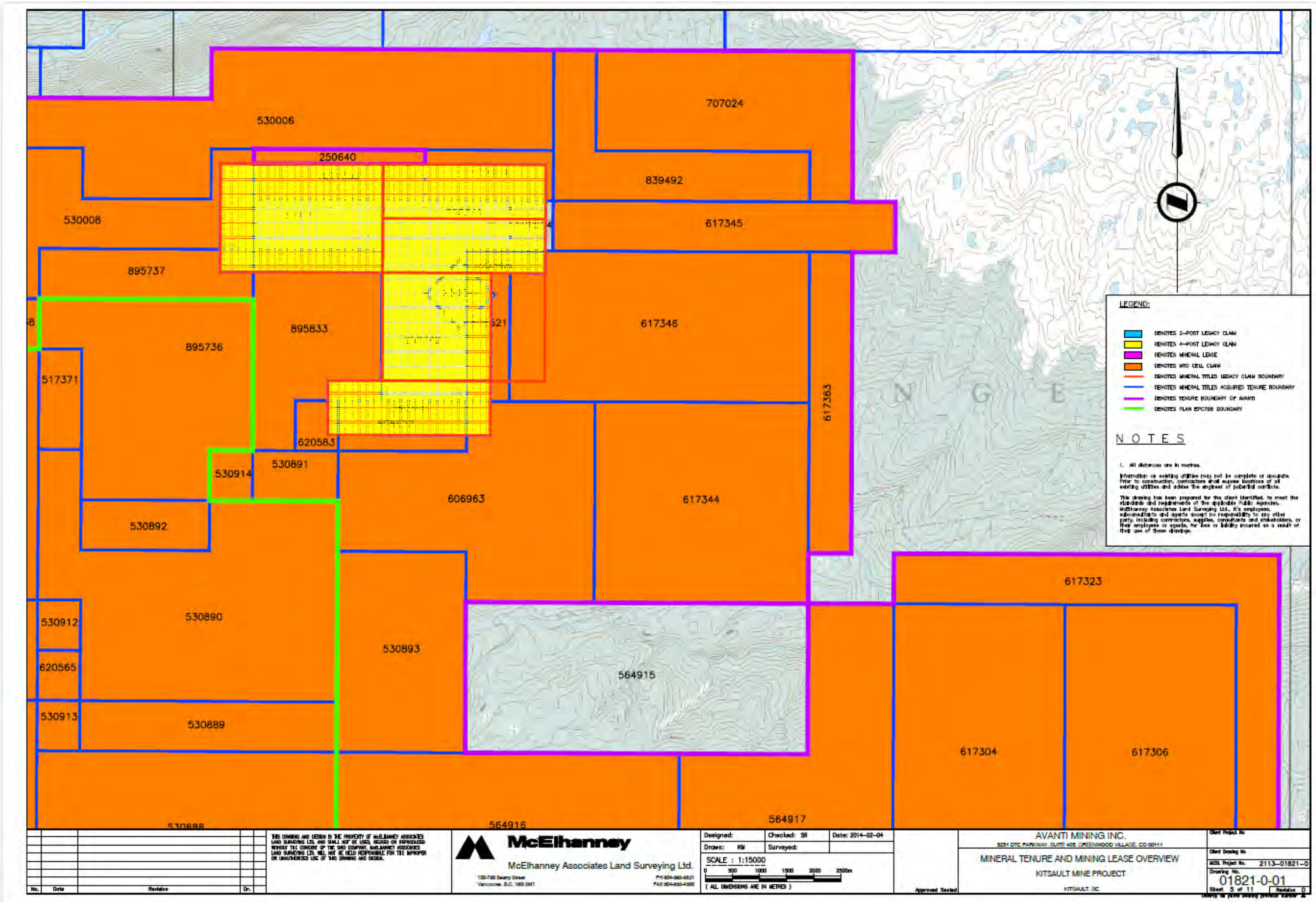
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
01821-0-01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DENOTES 4-POST LEGACY CLAIM
DENOTES MINERAL LEASE
DENOTES MTO CELL CLAIM
DENOTES MINERAL TITLES LEGACY CLAIM BOUNDARY
DENOTES MINERAL TITLES ACQUIRED TENURE BOUNDARY
DENOTES TENURE BOUNDARY OF AVANTI
DENOTES PLAN EPC798 BOUNDARY
NOTES
1. All distances are in metres.
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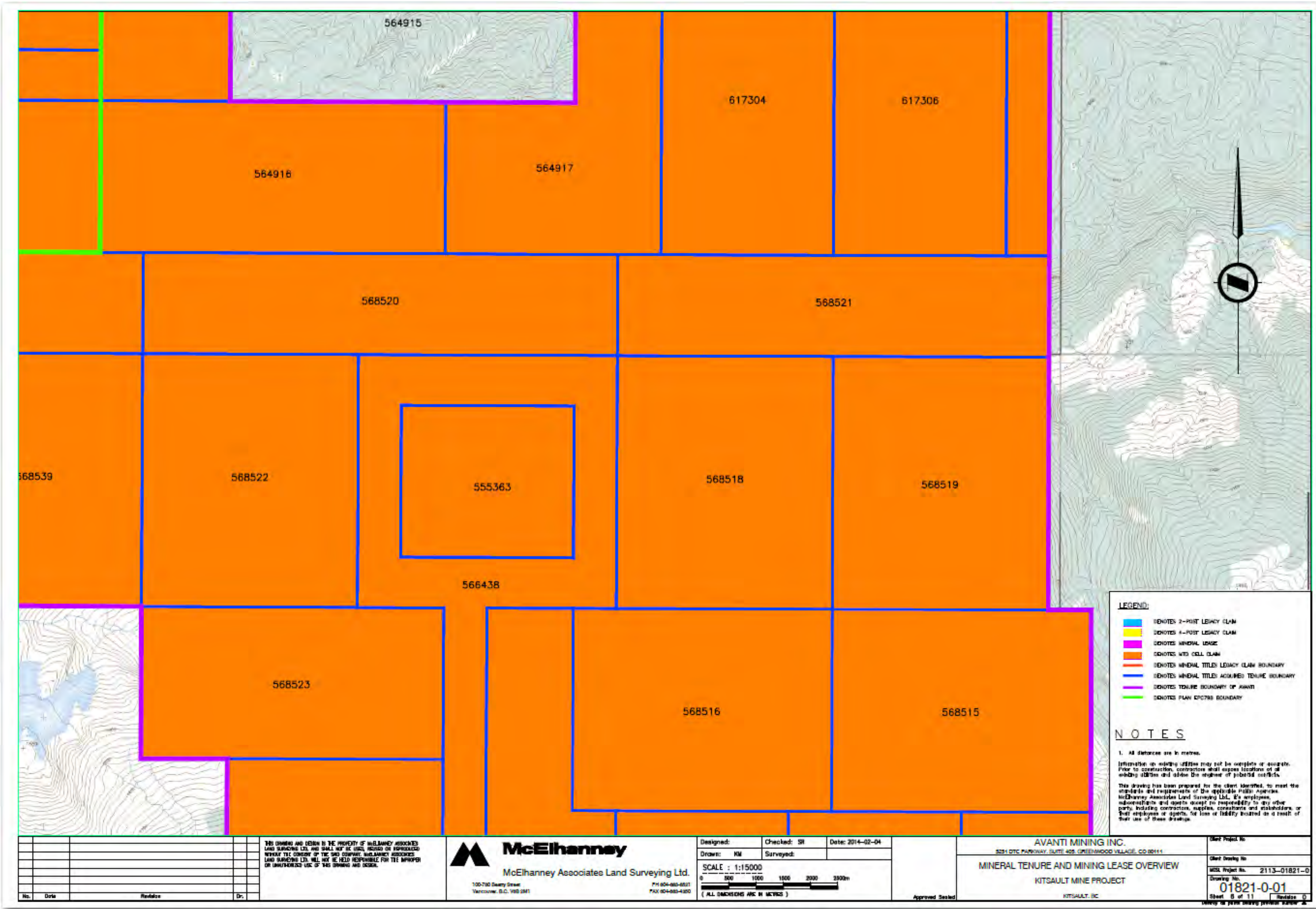
Approved Sealed
AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
MSL Project No. 2113-01821-0
Drawing No.
01821-0-01
Sheet 5 of 11
Revision 0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DENOTES 4-POST LEGACY CLAIM
DENOTES MINERAL LEASE
DENOTES MTO CELL CLAIM
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DENOTES TENURE BOUNDARY OF AVANTI
DENOTES PLAN EPC798 BOUNDARY
NOTES
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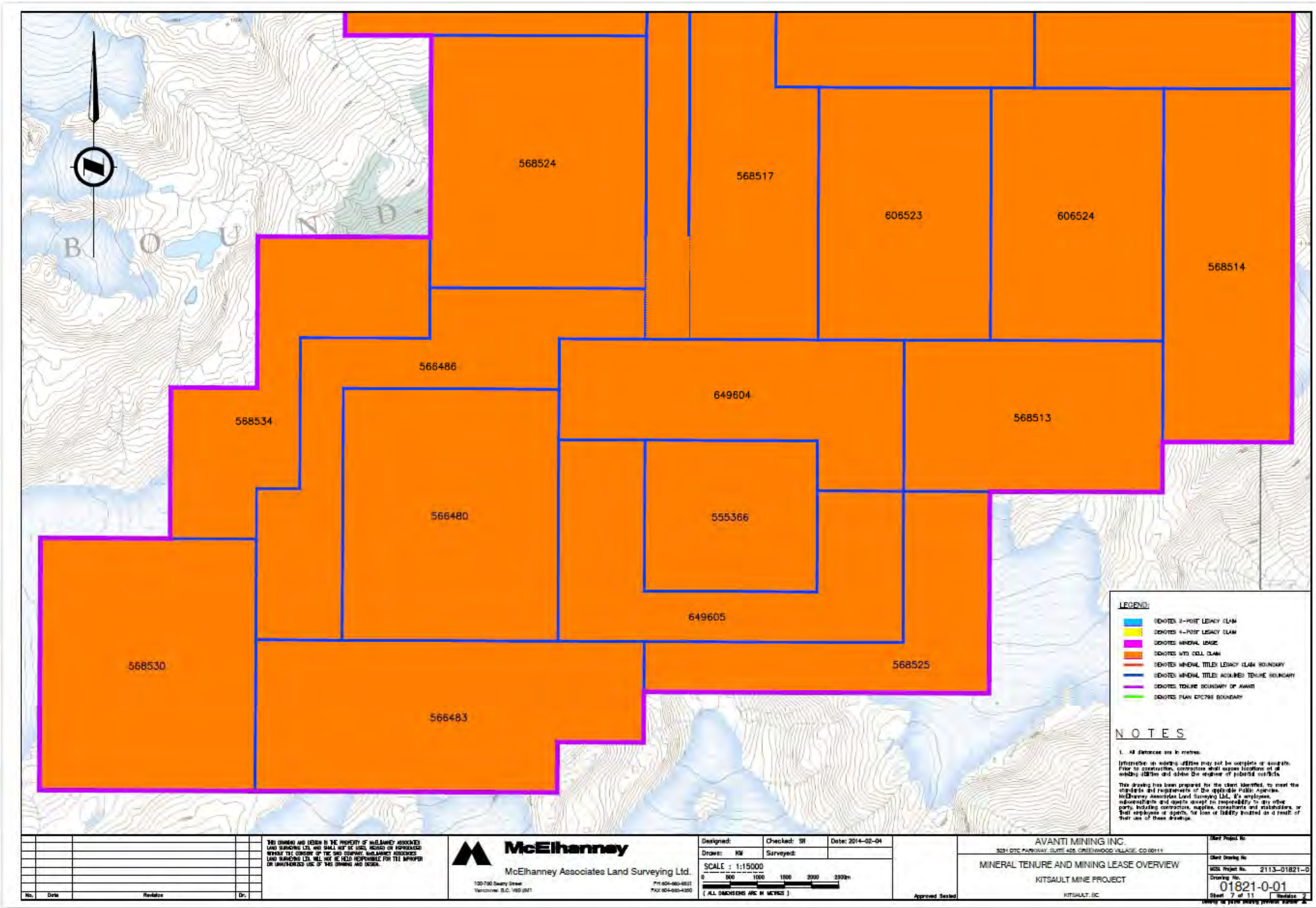
Approved Sealed
AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
Client Project No
Client Drawing No
MESL Project No. 2113-01821-0
Drawing No.
01821-0-01
Sheet 8 of 11
Revision 0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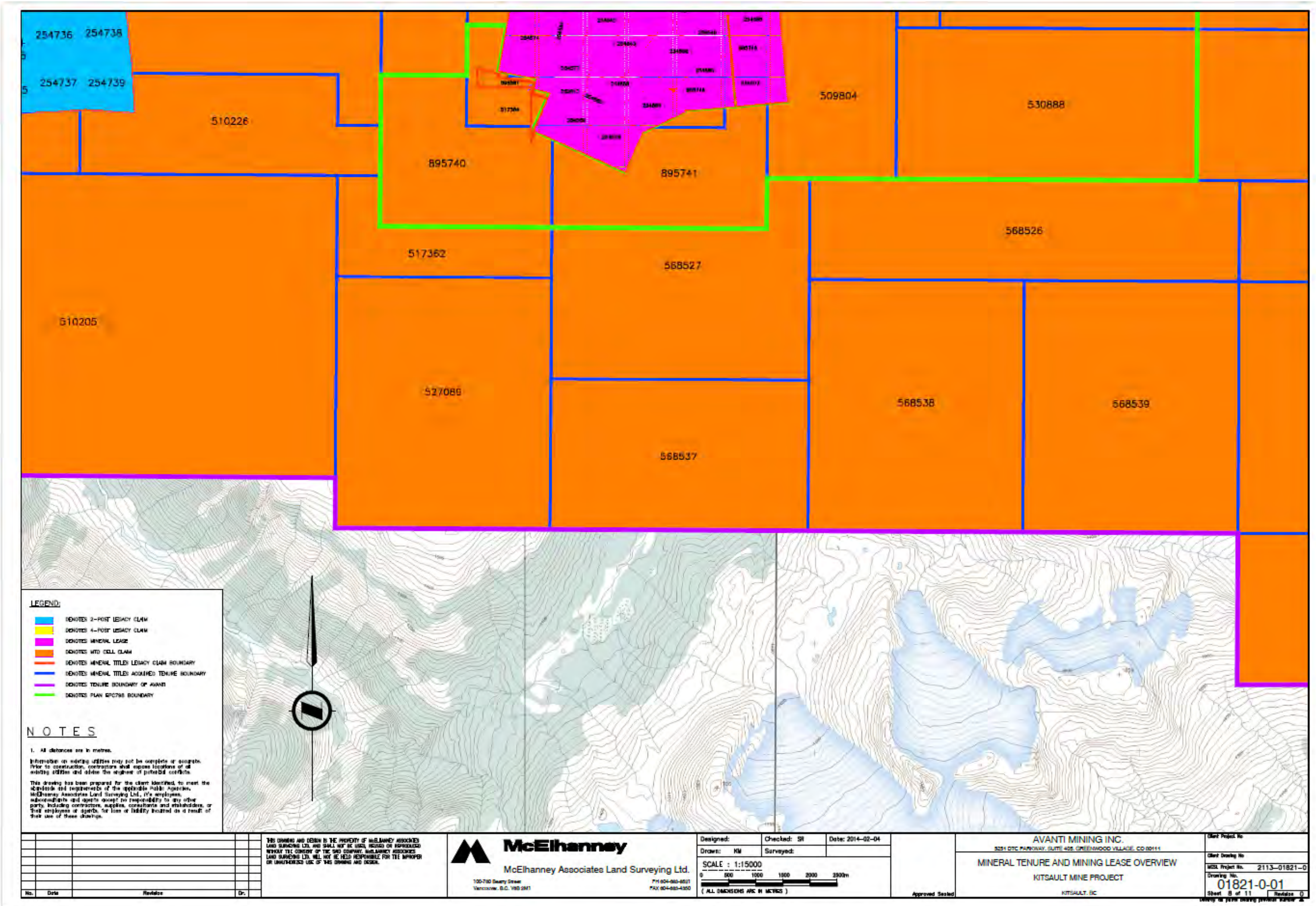
AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
2113-01821-0
01821-0-01
Sheet 7 of 11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NOTES
1. All distances are in metres.
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Approved Sealed
AVANTI MINING INC.
5251 DTC PARKWAY, SUITE 405, GREENWOOD VILLAGE, CO 80111
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
Client Project No
Client Drawing No
MSL Project No. 2113-01821-0
Drawing No.
01821-0-01
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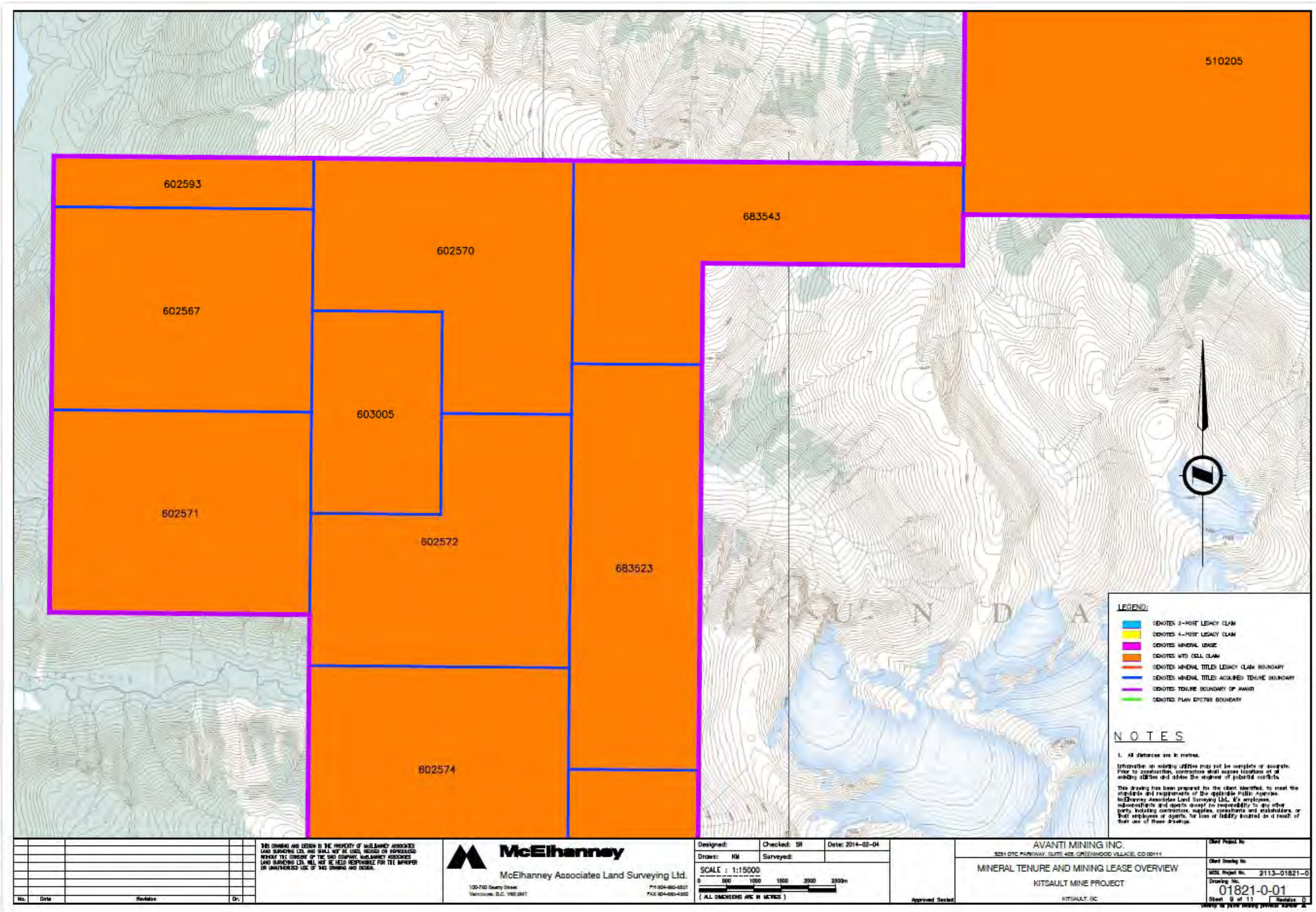
Revision 0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DENOTES TENURE BOUNDARY OF AVANTI
DENOTES PLAN EPC798 BOUNDARY
NOTES
1. All distances are in metres.
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AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
MSL Project No. 2113-01821-0
Drawing No.
01821-0-01
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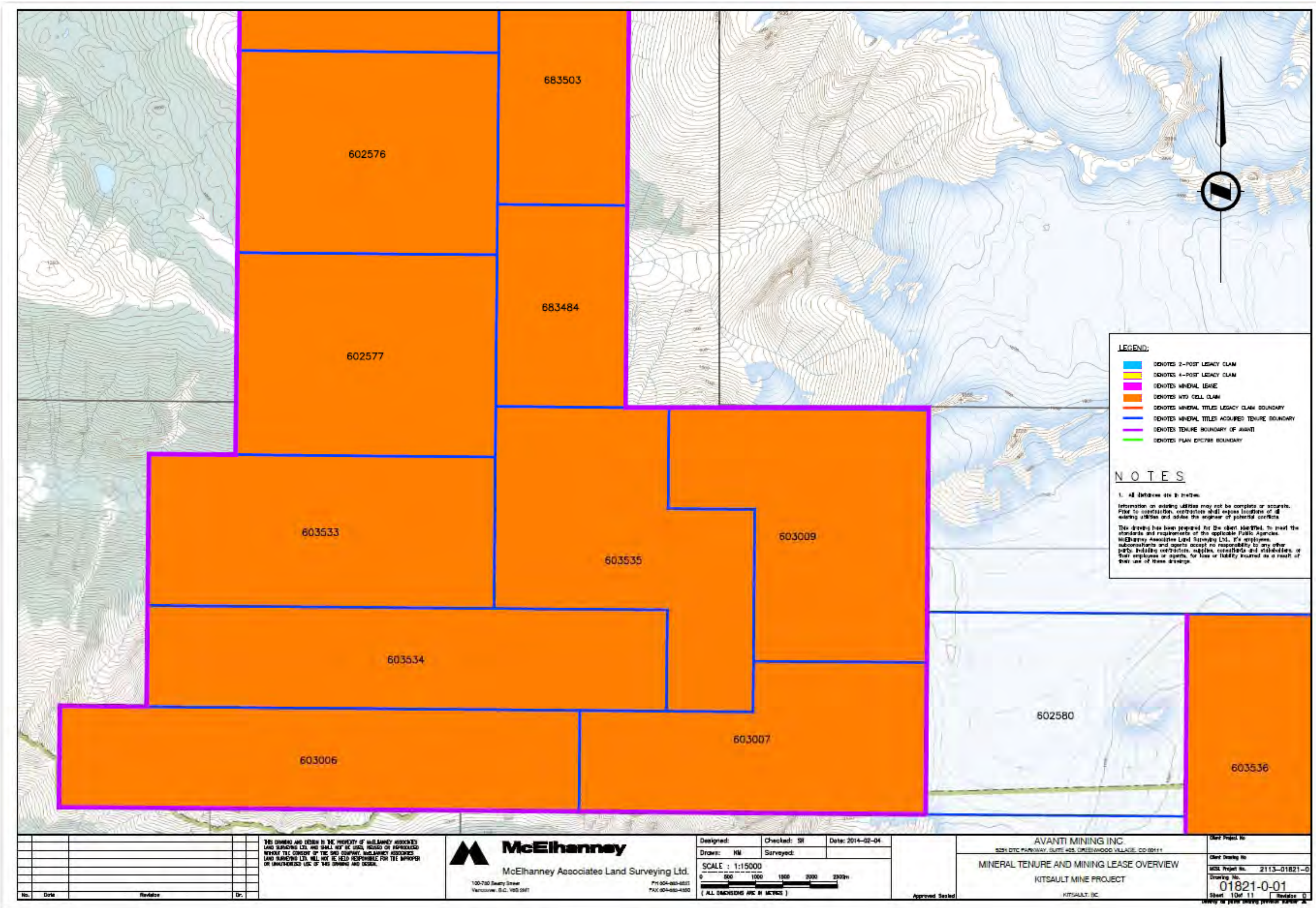
Revision 0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AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
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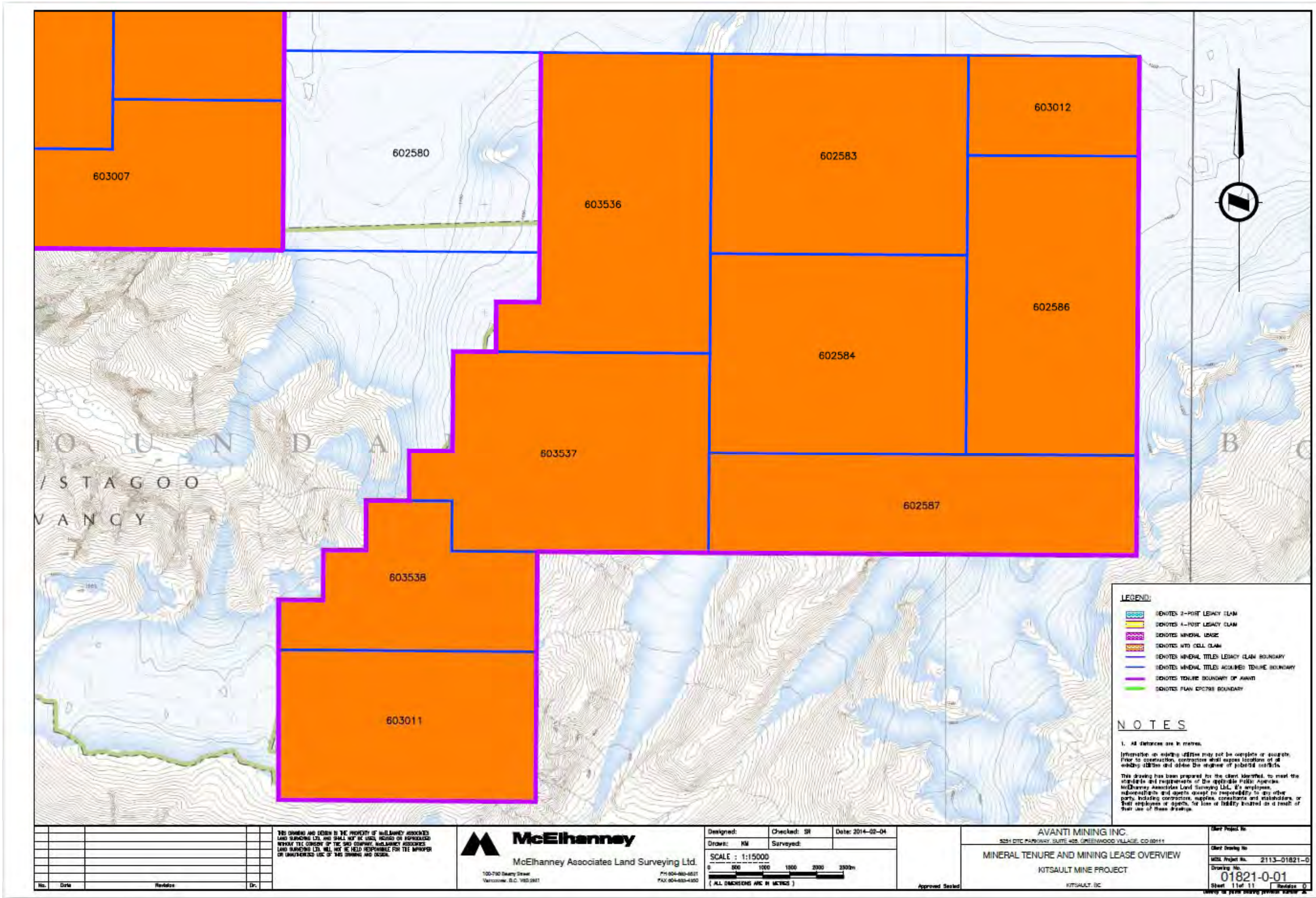
2113-01821-0
Drawing No.
01821-0-01


603007
602580
603536
602583
603012
602586
602584
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602587
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603011
LEGEND:
DENOTES 2-POST LEGACY CLAIM
DENOTES 4-POST LEGACY CLAIM
DENOTES MINERAL LEASE
DENOTES MTO CELL CLAIM
DENOTES MINERAL TITLES LEGACY CLAIM BOUNDARY
DENOTES MINERAL TITLES ACQUIRED TENURE BOUNDARY
DENOTES TENURE BOUNDARY OF AVANTI
DENOTES PLAN EPC798 BOUNDARY
NOTES
1. All distances are in metres.
McElhanney
McElhanney Associates Land Surveying Ltd.
Designed:
Checked: SR
Date: 2014-02-04
Drawn: KM
Surveyed:
SCALE : 1:15000
(ALL DIMENSIONS ARE IN METRES)
Approved Sealed
AVANTI MINING INC.
MINERAL TENURE AND MINING LEASE OVERVIEW
KITSAULT MINE PROJECT
KITSAULT, BC
Client Project No
Client Drawing No
MCSL Project No. 2113-01821-0
Drawing No. 01821-0-01
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