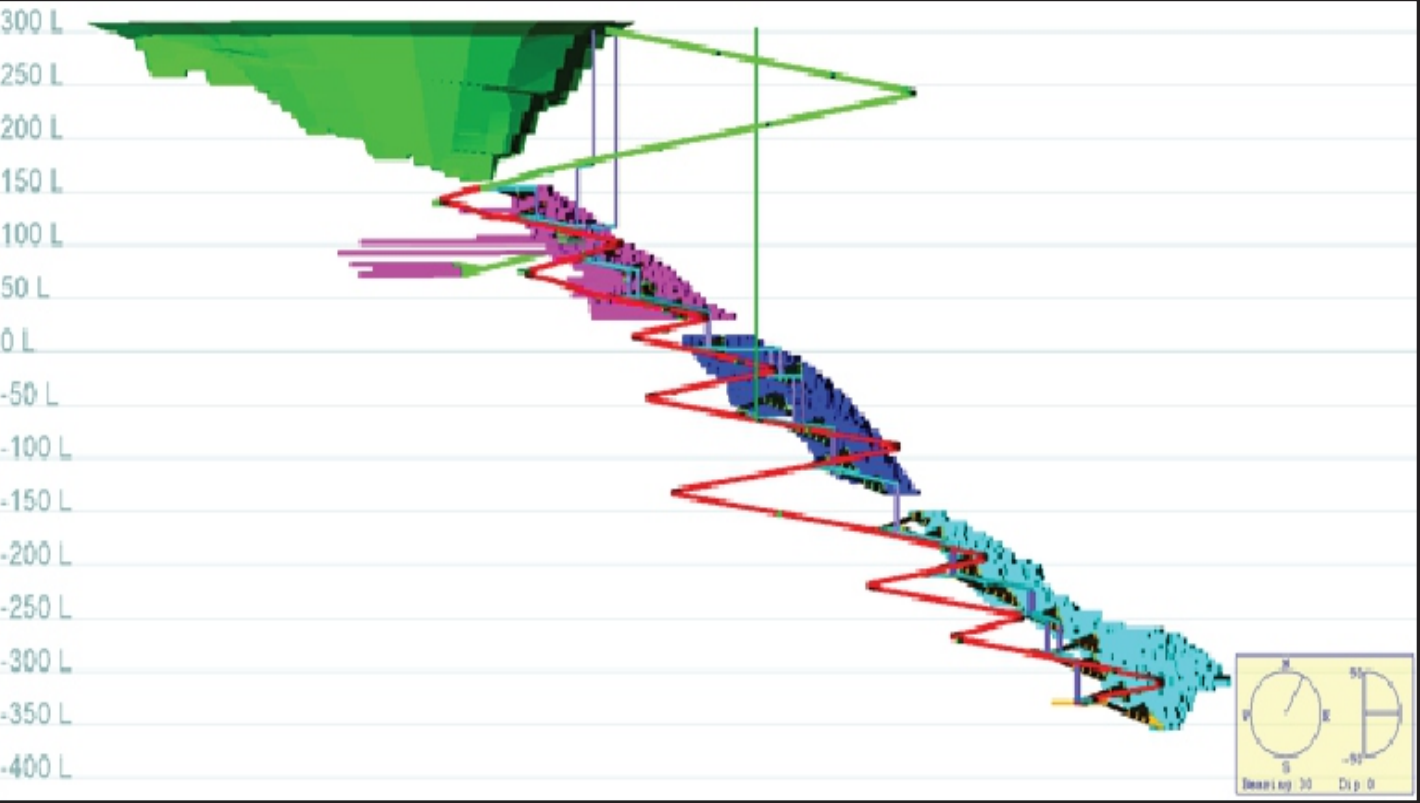
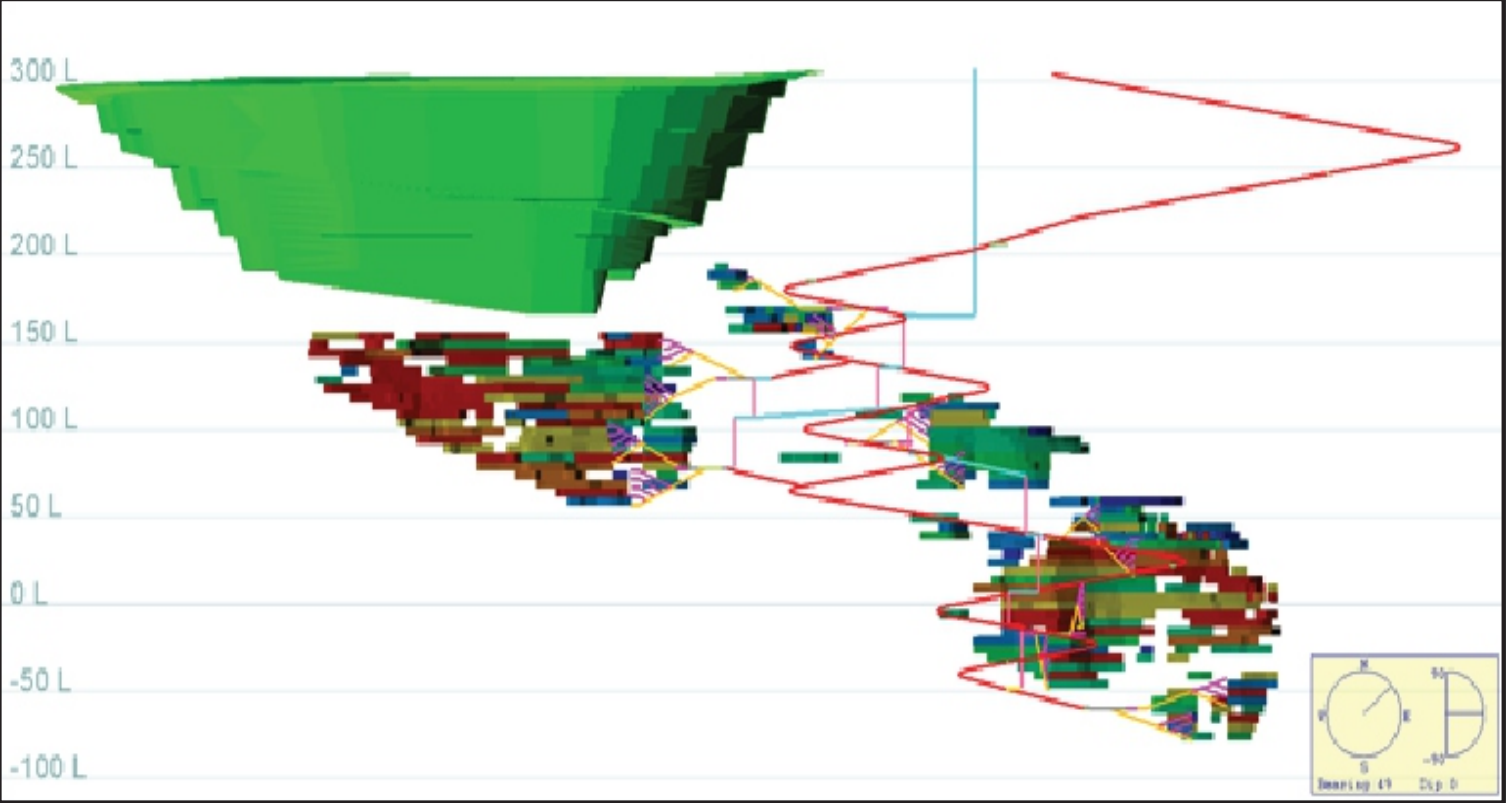


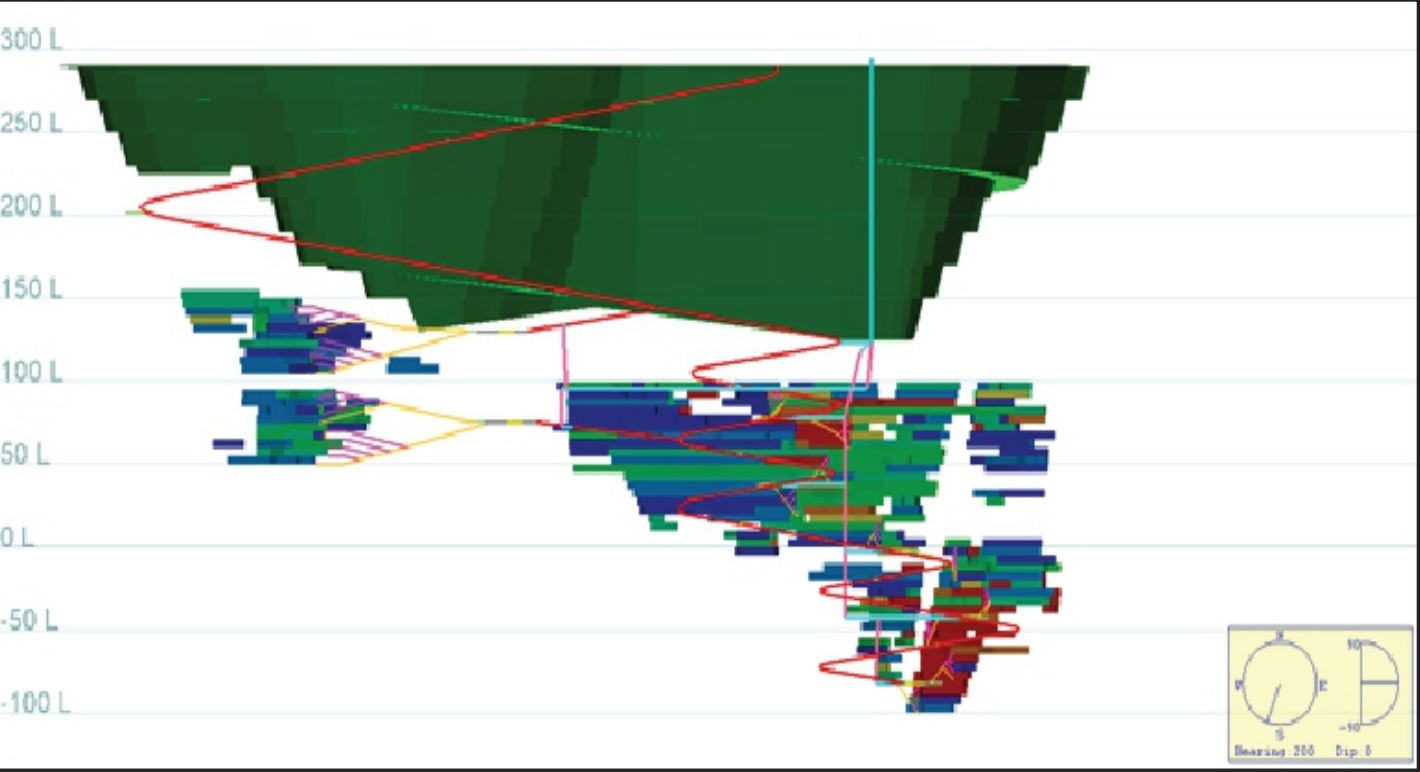
Umwelt Underground Operation Design (Long Section)



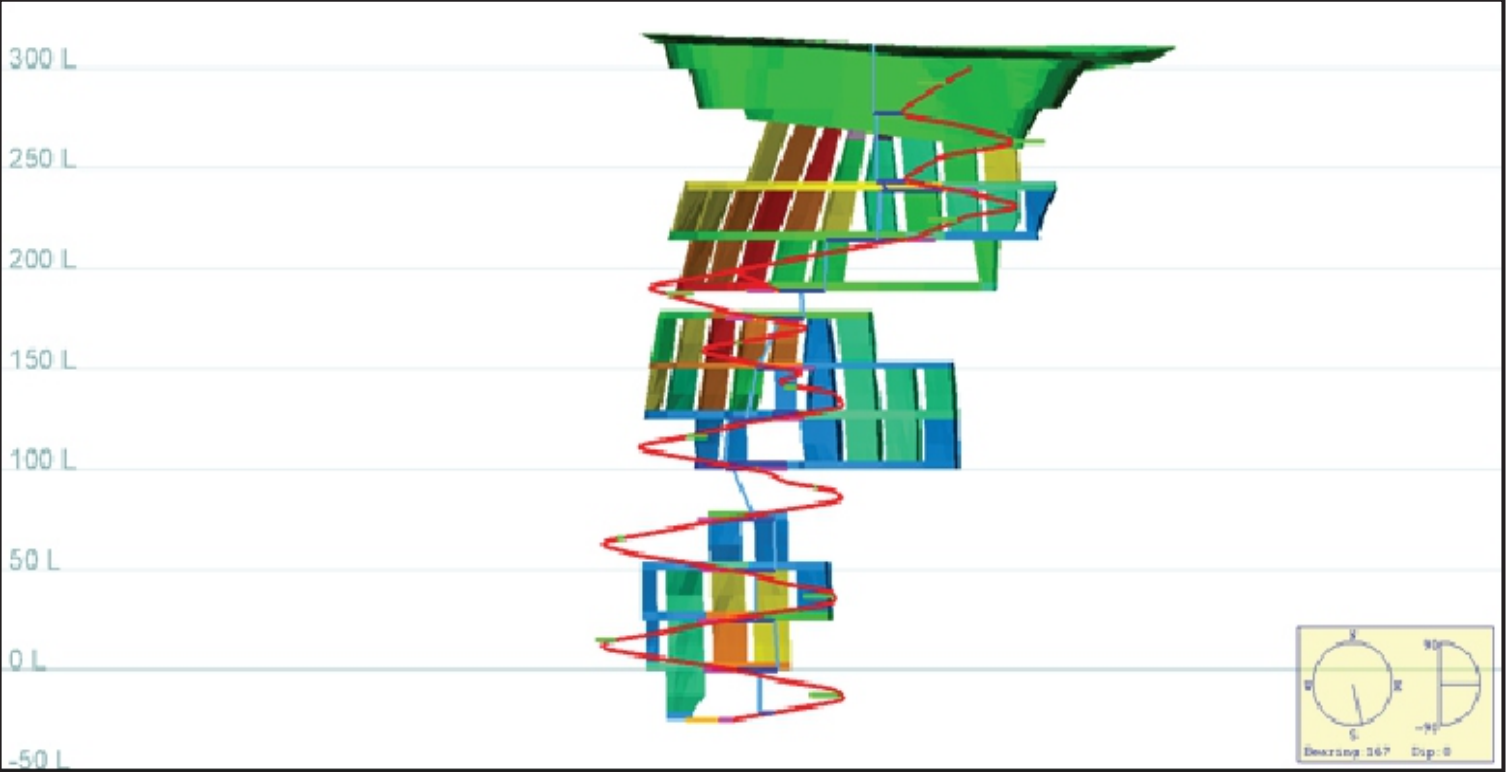
Llama Underground Operation Design (Long Section)



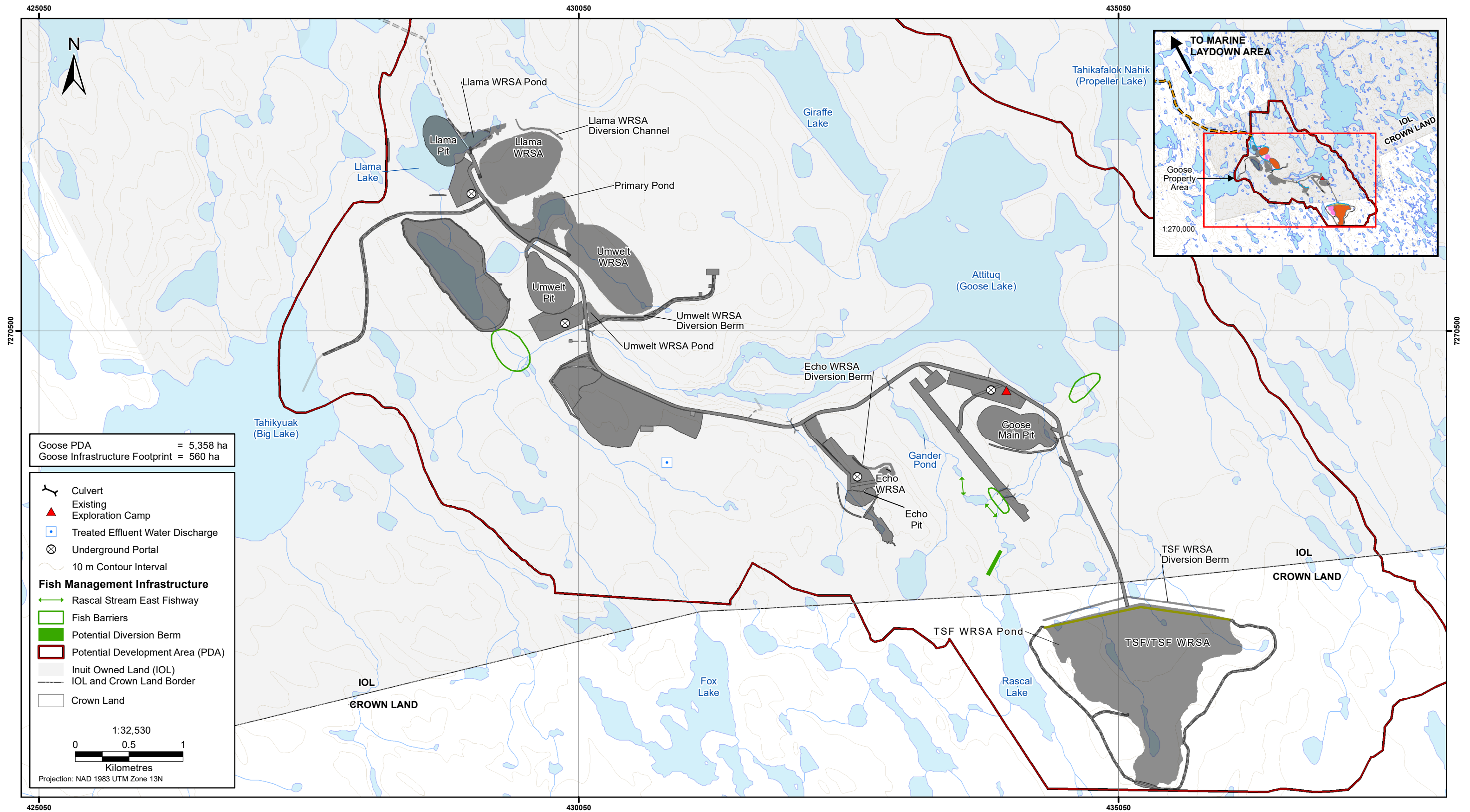
Goose Main Underground Operation Design (Long Section)



Echo Underground Operation Design (Long Section)



Source: JDS 2015



Appendix B. Tables

Table B-01. Primary Applicable Acts, Regulations, and Guidelines Applicable to Closure and Reclamation

| Acts | Regulations | Guidelines |
|--|--|--|
| Federal | | |
| <i>Canadian Environmental Protection Act</i> (1999 c.33) | <i>Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations</i> (SOR/2008-197) <i>Environmental Emergency Regulations</i> (SOR/2003-307) <i>Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations</i> (SOR/2002-301) <i>Release and Environmental Emergency Notification Regulations</i> (SOR/2011-90) | <i>Canadian Council of the Ministers of Environment - Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products</i> Notice with respect to substances in the National Pollutant Release Inventory Canada-Wide Standards for Particulate Matter (PM) and Ozone Canada-Wide Standards for Petroleum Hydrocarbons (PHC) In Soil |
| <i>Canada Wildlife Act</i> (1985 w9) | | |
| <i>Species at Risk Act</i> (2002 c.29) | | Species at Risk Policies |
| <i>Canadian Transportation Accident Investigation and Safety Board Act</i> (S.C. 1989, c. 3) | <i>Transportation Safety Board Regulations</i> (SOR/92-446) | |
| <i>Navigable Waters Protection Act</i> (R.S. 1985 c. N-22) | <i>Navigable Waters Works Regulations</i> (C.R.C., c. 1232) <i>Navigable Waters Bridges Regulations</i> (C.R.C., c. 1231) | |
| <i>Fisheries Act</i> (R.S.C. c. F-14) 35. (1) No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. Projects that have the potential to obstruct fish passage, modify flow or result in the entrainment of fish may also cause serious harm to fish. In these situations, an authorization under Subsection 35(2) is required. Proponents are responsible for avoiding and mitigating serious harm to fish that are part of or support commercial, recreational or Aboriginal fisheries. When proponents are unable to completely avoid or mitigate serious harm to fish, their projects will normally require authorization under Subsection 35(2). | <i>Metal Mining Effluent Regulations</i> (SOR/2002-2222) <i>Marine Mammal Regulations</i> (SOR/93-56) | The Policy for the Management of Fish Habitat The Fisheries Protection Policy Statement, 2013 Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting |
| <i>Canada Labour Code</i> (R.S.C., 1985, c. L-2) | <i>Canada Labour Standards Regulations</i> (C.R.C., c. 986) | |

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| Acts | Regulations | Guidelines |
|---|---|---|
| | <i>Canada Occupational Health and Safety Regulations</i> (SOR/86 304) | |
| <i>Territorial Lands Act</i> (R.S. 1985, c. T-7) | <i>Northwest Territories and Nunavut Mining Regulations</i> (C.R.C., c. 1516) <i>Territorial Land Use Regulations</i> (C.R.C. 1524) <i>Territorial Quarrying Regulations</i> (C.R.C. c. 1527) | |
| <i>Nunavut Waters and Nunavut Surface Rights Tribunal Act</i> (2002, c. 10) | <i>Northwest Territories Waters Regulations</i> (SOR/93/303) | |
| <i>Nunavut Act</i> (1993 c.28) | <i>Nunavut Archaeological and Paleontological Sites Regulations</i> (SOR/2001-220) | |
| <i>Nunavut Agreement Act</i> (1993, c. 29) | | |
| Territorial - Nunavut | | |
| <i>Environmental Protection Act</i> (RSNWT (Nu) 1988, c E-7) | <i>Spill Contingency Planning and Reporting Regulations</i> (NWT Reg (Nu) 068-93) | Guideline on Dust Suppression Guideline for the General Management of Hazardous Waste in Nunavut Environmental Guideline for Waste Asbestos Guideline for Industrial Waste Discharges in Nunavut Guideline for Industrial Projects on Commissioner's Land |
| <i>Historical Resources Act</i> (RSNWT (Nu) 1988, c H-3) | | |
| <i>Territorial Parks Act</i> (RSNWT (Nu) 1988, c T-4) | <i>Territorial Parks Regulations</i> (RRNWT (Nu) 1990 c T-13) | |
| <i>Wildlife Act</i> (RSNWT (Nu) 1988, c W-4) | <i>Wildlife General Regulations</i> (NWT Reg (Nu) 026-92) <i>Wildlife Licenses and Permits Regulations</i> (NWT Reg (Nu) 027-92) <i>Wildlife Management Barren-Ground Caribou Areas Regulations</i> (NWT Reg (Nu) 099-98) <i>Wildlife Management Zones Regulations</i> (RRNWT (Nu) 1990 c W-17) <i>Wildlife Regions Regulations</i> (NWT Reg (Nu) 108-98) | |
| <i>Commissioner's Land Act</i> (RSNWT 1988, c C-11) | <i>Commissioner's Land Regulations</i> (RRNWT 1990, c C-13) | |
| <i>Mine Health and Safety Act</i> (SNWT (Nu) 1994, c 25) | <i>Mine Health and Safety Regulations</i> (NWT Reg (Nu) 125-95) | |

Table B-02. Summary of Land and Water Access Permits/Licenses for the Project (as of July 2017)

| Permit | Expiry (year-mo-day) | Agency | Description |
|-------------|-------------------------|--------|---|
| KTL204C012 | 2017-12-12 | KIA | Boulder: Staking/prospecting, exploration (ground/air geophysics), geophysical survey, gridding and drilling. |
| KTL204C020 | 2017-12-12 | KIA | Boot: Exploration (air/ground geophysics), staking, prospecting, fly/survival camp and drilling. |
| KTL304C017 | 2017-12-12 | KIA | Goose: Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road, all-weather airstrip and connecting road. |
| KTL304C018 | 2017-12-12 | KIA | George: Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road, all-weather airstrip. |
| KTL312C004 | 2017-12-12 | KIA | Wishbone/Malley: Exploration (air/ground geophysics), staking, prospecting, fly/survival camp and drilling |
| KTL304F049 | 2017-12-12 | KIA | Winter road connecting Bathurst Inlet - Goose and George. |
| KTP11Q001 | 2017-12-12 | KIA | Goose rock quarry. |
| KTP12Q001 | 2017-12-12 | KIA | Goose Airstrip borrow area. |
| KTP12Q002 | 2017-12-12 | KIA | George borrow quarry. |
| N2011F0029 | 2018-12-13 | INAC | Winter Road connecting George-Goose. |
| N2017F0016 | 2022-07-20 | INAC | Winter Road connecting Bathurst Inlet - Back River Project. |
| N2012C0003 | 2019-02-06 | INAC | Wishbone-Malley Mineral Exploration activities on Crown Land |
| N2016C0011 | 2021-10-26 | INAC | Back River Exploration activities. |
| 2BE-GOO1520 | 2020-02-18 | NWB | Goose water licence. |
| 2BE-GEO1520 | 2020-05-29 | NWB | George water licence. |
| 2BE-MLL1722 | 2022-06-29 | NWB | Wishbone-Malley water licence. |

Table B-03. Primary Project Approval Requirements

| Responsible Authority | Legislation | Authorization | Project Activity | Permitting Strategy/Timeline |
|--|---|---|---|---|
| Nunavut Impact Review Board | Nunavut Agreement Article 12 Nunavut Planning and Project Assessment Act (S.C. 2013, c. 14, s. 2) | Project Certificate | Required to obtain requisite permits and approvals to proceed with Project | Sabina aims to obtain a Project Certificate from NIRB by Q2/Q3-2016 |
| Kitikmeot Inuit Association | Nunavut Agreement Article 26 | Inuit Impact and Benefits Agreement | Required to proceed with Project | Sabina aims to conclude successful negotiation of an IIBA after receiving a Project Certificate. |
| | Nunavut Agreement Article 20 | Inuit Water Rights Compensation Agreement | May be required | Compensation agreements may form part of the IIBA. |
| | Nunavut Agreement Article 6 | Wildlife Compensation Agreement | | |
| | Nunavut Agreement | Inuit Owned Lands - Commercial Land Use Lease | Access surface IOL to develop mine | Sabina intends to submit its commercial land use and quarry concession permit applications to the KIA once NIRB has issued a positive final hearing report to the Minister. |
| | | Inuit Owned Lands - Quarry Concession Licenses | Extract aggregate on IOL | |
| | | | Submission timing: mid-2016 | |
| Nunavut Water Board | Nunavut Agreement Article 13 <i>Nunavut Waters and Nunavut Surface Rights Tribunal Act</i> Nunavut Waters Regulations | Type A and B Water Licenses | Required for water use and waste disposal | Sabina intends to submit its Type A Water Licence in Q2/Q3 of 2016. Sabina plans to utilize its existing Type B Water Licenses or new licenses with already screened activities for initial construction activities, if necessary. |
| Indigenous and Northern Affairs Canada | <i>Territorial Lands Act</i> Canadian Mining Regulations | Prospector License Mineral leases | To obtain and hold subsurface mineral rights | Sabina intends to submit its land use and quarry permit applications to INAC once NIRB has issued a positive final hearing report to the Minister. |
| | Territorial Land Use Regulations | Crown Land - Class A and Class B Land Use Permits | Access surface Crown lands for initial Project development, prior to obtaining leases | Sabina plans to utilize its existing land use permits and/or will apply for new interim land use permits to support initial construction, to address delays in receipt of leases, if necessary. |
| | | Crown Land - Land lease and Waterlot lease | Access surface Crown lands for the Project life | |
| | Territorial Quarrying Regulations | Crown Land - Quarry Lease/Permit | Extract aggregate on Crown Land | |

Table B-03: Primary Project Approval Requirements (continued)

| Responsible Authority | Legislation | Authorization | Project Activity | Permitting Strategy/Timeline |
|-----------------------------|---|---|--|---|
| Transport Canada | <i>Navigation Protection Act</i> | Approval and/or Exemption | Construction of works in navigable water to protect navigation channels | Sabina will seek feedback from Transport Canada on potential impacts to navigation during review of the FEIS, and will submit formal applications under the <i>Navigation Protection Act</i> for relevant in-water works once detailed engineering has been completed. Submission timing: 2016 |
| | <i>Canada Shipping Act Response Organizations and Oil Handling Facilities Regulations</i> | | Approved Oil Pollution Emergency Plan (OPEP) | Conceptual OPEP included with this FEIS for Transport Canada comment. Formal submission of the OPEP to Transport Canada for approval will follow detailed engineering. |
| | <i>Canada Shipping Act Response Organizations and Oil Handling Facilities Regulations</i> | | Approved Ship Oil Pollution Emergency Plan (SOPEP) | Formal submission of the SOPEP to Transport Canada for approval prior to shipping |
| Fisheries and Oceans Canada | <i>Fisheries Act</i> (Section 35(2)) | Authorization under Paragraph 35(2)(b) of the <i>Fisheries Act</i> ; required if serious harm to fish cannot be avoided. In instances in which serious harm to fish can be avoided, DFO may provide a letter of authorization in addition to compliance with Measures to Avoid Causing Harm to Fish and Fish Habitat. | Project activities directly removing or altering fish habitat: full lake dewatering, culvert installations, dam construction in watercourses, stream flow reductions and potential water and sediment quality changes. | Sabina's application for an Authorization under the <i>Fisheries Act</i> presented as Appendix V12-1D of the DEIS will be finalized after receiving a Project Certificate. |
| Environment Canada | <i>Fisheries Act</i> (Section 36) Metal Mining Effluent Regulations | Schedule 2 Amendment | Deposit of tailings in fish-bearing waters | Should Sabina require a Schedule 2 Amendment Sabina intends to submit its request in the first half of 2016. |

(continued)

Table B-03: Primary Project Approval Requirements (continued)

| Responsible Authority | Legislation | Authorization | Project Activity | Permitting Strategy/Timeline |
|-------------------------------|--|--|---|---|
| Natural Resources Canada | <i>Explosives Act</i> and Regulations Blasting Permits Explosive Magazine Permits Radio Licensing | Licence for a Factory and Magazine | Required for construction of explosives factories and magazines and storage of explosives | Sabina's explosives contractor (once contracted) will obtain the requisite licence(s). |
| GN Culture and Heritage | Nunavut Archaeological and Palaeontological Sites Regulations (Nunavut) <i>Nunavut Historical Resources Act</i> | Archaeology Permit | Required to conduct archaeology surveys and to mitigate cultural/heritage resources | Archaeological permit applications will be submitted to the GN-CH by March 31 by Sabina's consulting archaeologist for survey or mitigation field work planned for the upcoming summer. |
| Nunavut Research Institute | <i>Scientist Act</i> (Nunavut) | Scientific Licenses: Land and Water Social and Traditional Knowledge | Undertake non-biological and non-cultural heritage baseline and monitoring studies | Sabina or its consultants will obtain the requisite scientific licenses as required prior to and during the life of the Project. |
| GN Environment | <i>Environmental Protection Act</i> (Nunavut) Spill Contingency Planning and Reporting Regulations (Nunavut) | Approval of Spill Contingency Plan | | Sabina will submit its Spill Contingency Plan for approval as part of the Type A Water Licence Application. Submission timing: mid-2016 |
| | <i>Environmental Protection Act</i> (Nunavut) | Hazardous Waste Generator | | Sabina is currently registered as a hazardous waste generator |
| | <i>Wildlife Act</i> (Nunavut) | | | Sabina or its consultants will obtain the requisite wildlife research permits as required prior to and during the life of the Project. |
| GN Health and Social Services | <i>Public Health Act</i> (Nunavut) Camp Sanitation Regulations (Nunavut) | Approval of camp facilities | Construction and operation of camp, medical facilities, buildings and propane storage | Prior to construction and occupancy |
| | <i>Emergency Medical Aid Act</i> (Nunavut) | Medical facilities approval | | |

(continued)

Table B-03: Primary Project Approval Requirements (completed)

| Responsible Authority | Legislation | Authorization | Project Activity | Permitting Strategy/Timeline |
|---|---|---|---|---|
| GN Community and Government Services | Building Codes (Nunavut) | Building Permits | Construction and operation of camp, medical facilities, buildings and propane storage | Prior to construction and occupancy |
| | <i>Fire Prevention Act</i> (Nunavut) Fire Prevention Regulations (Nunavut) Propane Cylinder Storage Regulations | Approval of camp facilities and propane storage | | |
| Worker's Safety and Compensation Commission of Nunavut - Mine Health and Safety | <i>Explosives Use Act</i> (Nunavut) Explosive Use Regulations (Nunavut) | Authorization to store and use explosives | Required to store detonators in a magazine | Sabina's explosives contractor (once contracted) will obtain the requisite authorization(s). |
| | <i>Mine Health and Safety Act</i> (Nunavut) Mine Health and Safety Regulations (Nunavut) | Authorization to store and use explosives | Required to store detonators in a magazine | |
| | <i>Worker's Compensation Act</i> (Nunavut) Workers Compensation Regulations (Nunavut) | Authorization for Activities | Required to proceed with Project activities | Sabina is currently authorized to conduct business in Nunavut. Confirmation will be sought from WSCC if changes to this authorization are required for mine development. Sabina's contractors will be required to seek approval to work in Nunavut. |

Notes:

IOL = Inuit Owned Land

Table B-04. Historical Ownership Milestones

| Dates | Milestones |
|--------------|---|
| 1982 | BRJV formed. |
| 1985 | F.W. Hill (Hill) and Esso Minerals Canada (Esso) was investor and operator. |
| 1985 to 1986 | Kerr-McGee Corp. acquired interest in BRJV and was operator in 1986. |
| 1987 to 1996 | Homestake Mineral starts to earn into BRJV and becomes operator in 1991. |
| 1997 to 1998 | Arauco (later changed name to Kit Resources) acquires BRJV. |
| 1999 to 2002 | Kinross starts to earn into BRJV and becomes operator. |
| 2003 to 2004 | Miramar starts to earn into BRJV and becomes operator. |
| 2005 to 2008 | Dundee Precious Metals (DPM) starts to earn into BRJV and becomes operator. |

Source: Summary by AMC Mining Consultants (Canada) Ltd. based on table provided by Sabina Gold & Silver Corp. 2015

Table B-05. Historical Exploration Summary

| Operator | Period | Exploration Completed | Drill Holes Completed | Reports or Studies Completed |
|--------------------------|-----------|---|-----------------------|--|
| TWOCL on behalf of BRJV | 1982 | Reconnaissance exploration | - | - |
| Back River Joint Venture | 1983-1985 | Gridding, geological mapping, sampling, exploration drilling, and aeromagnetic surveys | 36 | - |
| Hill and Esso | 1985 | Airborne magnetics and electromagnetic surveys | - | - |
| Bow Valley | 1986 | Soil sampling at Del prospect, trenching, exploration drilling | 11 | - |
| Kerr-McGee Corp. | 1986 | Exploration drilling | 31 | - |
| Homestake Mineral | 1987-1996 | Geological mapping, panel and till sampling, exploration and infill drilling, geochemical study, geophysics, legal surveying | 656 | Prefeasibility and Feasibility Study (George) |
| Kit Resources | 1997-1998 | Geological mapping, sampling, exploration and infill drilling | 184 | Resource Estimate (George) |
| Kinross | 1999-2002 | Spectral induced polarization (IP)/resistivity survey, till sampling, geological mapping, channel sampling, soil sampling, exploration and infill drilling | 126 | Resource Estimate and Conceptual Study (Goose) |
| Miramar | 2003-2004 | Exploration and infill drilling | 41 | NI 43-101 Report |
| Dundee Precious Metals | 2005-2008 | Trench sampling, geological mapping, exploration and infill drilling, structural analysis, airborne magnetic, electromagnetic, and radiometric surveys, geochemistry and rock samples | 186 | NI 43-101 Report |

Note: Trigg, Woollett, Olsen Consulting Limited (TWOCL) was the founder of the BRJV.

Table B-06. Characteristics of the Infrastructure Constructed at the Goose Property

| | |
|--|---|
| Potential Development Area | PDA is 5358 ha with ~15% of area being waterbodies Footprint of facilities is 560 ha |
| Site Roads | All-weather roads (service road widths of 4.5 m or 8 m; haul road widths of 20 m) will be constructed with run-of-quarry rock placed directly onto the tundra to preserve the permafrost. Construction materials are from locally developed, geochemically suitable rock quarries. Roads will be private and not for public use. |
| Quarry Sites and Borrow Areas | Estimated aggregate extracted: 5 Mt Number of rock quarries: two Number of borrow areas: none |
| Water Management | Water supply sources: Big Lake (domestic) and Goose Lake (industrial) Umwelt Lake used as Saline Water Pond (footprint 50 ha) Saline Water pumped back underground to flood Umwelt, Llama and Goose Main U/G workings, and bottom of mined-out Llama Pit Water management ponds (excluding TSF) at Llama (1), Umwelt (2), Echo (2) and Process Plant (1) |
| Fuel Storage | On-site fuel tank farm consists of 3 steel tanks at 15 ML capacity. Seacans at each underground mine portal, AN facility, incinerator, boilers, and power plant. |
| Power Generation | Combined heat and power plant consisting of five (N + 1) diesel fired reciprocating engine generator sets. Three generators will be rated for continuous duty 6.6 MW and two generators will be rated for continuous duty 5.1 MW. Seasonal open pit dewatering will be handled by diesel pumps. |
| Process Plant | Ore production: 19.8 million tonnes of mill feed over 10 years. Standard gravity separation and cyanide leaching circuit. |
| Explosives | Ammonium nitrate/fuel oil (ANFO) facility Bulk storage area for ammonium nitrate (AN): with capacity for up to 3,900 tonnes of inert AN in seacans Explosive magazines with capacity for 32 tonnes of packaged explosives and 600 cases of detonators within 40-ft and 20-ft magazines, respectively. Bulk ANFO mixing truck. During Closure, unused explosives will be consumed on-site or removed and shipped off-site. |
| Laydown and Storage Area | General laydown area for material and supplies. Secure seacans for hazardous materials, e.g., mill reagents. Cold storage building. |
| Waste Management (other than waste rock and tailings) | Waste sorting facility - adjacent to the Process Plant. Landfill(s) - for disposal of non-hazardous, non-leaching, inorganic garbage, located in one or more Waste Rock Storage Areas. Landfarm - for treatment of hydrocarbon contaminated soils or snow. Incinerator - at camp for incineration of camp combustible waste including sewage treatment plant sludge /pacto waste (3.0 kg/person/day). Hazardous waste: temporary storage area at site. Dispose off-site in an approved facility. Used tires and machinery: Remove hazardous waste from equipment not being salvaged, clean and dispose of in active landfill or mine workings. |

(continued)

Table B-06. Characteristics of the Infrastructure Constructed at the Goose Property (completed)

| | |
|--|---|
| Airstrip | <p>An all-weather airstrip and aprons capable of servicing passenger and large cargo aircraft will be constructed at the Goose Property Area. Ice airstrips will continue to be used as required.</p> <p>Dimensions: up to 1,524 m long, 45 m wide.</p> <p>Expected number of flights:</p> <p>Construction: 3-4 per week</p> <p>Operations: 2-3 per week</p> <p>Closure: 2-3 per week</p> <p>Post-closure: 1 per month (summer season)</p> <p>An operations center and automated weather observation station (AWOS) will be located at the airstrip. An emergency back-up diesel generator will be located at the operations center.</p> |
| Wastewater Treatment | <p>Sewage Treatment Plant provided for 465-person camp. Membrane bioreactor plant housed in 20 ft. container with a separate sludge drying system housed in a 40-ft container. Treated effluent discharged to active tailings facility during Operations. If effluent discharge from the STP meets discharge criteria, effluent will be discharged to land.</p> <p>Oily water treatment plant.</p> <p>For light vehicle and mine maintenance shops - water treated and recycled within shop.</p> <p>Oil to be collected and either burned in an approved waste-heat generator or drummed and removed from site as hazardous waste.</p> |
| Buildings | <p>Process Plant and crusher buildings; Assay laboratory; explosives magazines; Detonator magazines; AN facility; Reagent storage; Core logging facility; Warehousing facility; Emergency facilities (fire and ambulance station); General maintenance building (site services); Mine maintenance and dry building; Waste management building; Light vehicle maintenance workshop; Heavy equipment maintenance workshop; Wash bay; 465-person camp complete with kitchen, Recreational facilities; Administration complex; Modular potable water treatment system; Modular sewage treatment system; Diesel power plant; Power utility building.</p> |
| Tailings Management | <p>Tailings Storage Facility (TSF) (footprint 119.1 ha, excluding pond)</p> <p>TSF WRSA Pond (footprint 55 ha)</p> <p>Tailings storage in Umwelt and Goose Main open pits (TFs)</p> |
| Overburden, Waste Rock Areas and Ore stockpiles | <p>Waste rock storage areas (WRSA) for Umwelt (39.5 ha), Llama (37.5 ha), and Echo (1.4 ha). WRSA for Goose Main included in TSF.</p> <p>Overburden from quarry and mining areas to be placed in the WRSAs</p> <p>Ore stockpile at the Goose Plant Site. Small temporary stockpiles located at each U/G laydown.</p> |
| Water Crossings | <p>Up to five water crossings (culverts) with diameters ranging from 1.0 to 2.5 m.</p> |