

**List of Commitments from Nunavut Impact Review Board's Technical Meeting for Sabina Gold Silver Corp.'s
Back River Project Proposal (NIRB File No. 12MN036)**

1) Please note that any commitments requiring submission of materials prior to the Final Environmental Impact Statement (FEIS) are also to be included within the FEIS where applicable.				
2) Where it is requested that data be provided, it is expected a related discussion will also be included within the FEIS.				
3) Where no timelines are indicated, Sabina Gold & Silver Corp. (Sabina) is to provide as per requests of the party putting the commitment forth.				
Commitment #	Party	Reference (relevant IR or TRC)	Commitment	Comments
DAY 1				
DEIS Organization, Conclusions and Methodologies				
Alternative Assessment including Geology, Geotechnical Information and Waste Management				
1	AANDC	AANDC TRC 1	Sabina commits to show within the FEIS how alternatives were analyzed and to explain when options are dropped off, identify rationale for the selection, and clarify which alternative options remain a possibility. This should include how environmental and socio-economic factors have been applied to the selection of alternatives.	
2	NRCan	NRCan 7	Sabina commits to provide any additional site specific investigations (e.g. geotechnical, geophysical) of the foundational materials for proposed alignments for dykes and embankments, that are undertaken in the next six months, in the FEIS.	
3	KIA	KIA IR 9, 10, 12	Sabina commits to providing information on ground ice based on results of geotechnical site investigations conducted between the release of its feasibility study and submission of the FEIS.	
4	KIA	IR 15	Sabina commits to presenting the seepage data for the airstrip as soon as practical and to assessing the results in the context of an adaptive management framework within the waste rock management plan to be submitted as a part of the FEIS.	
5	KIA	n/a	Sabina commits to demonstrating consideration of realignment of the winter road north of Tahikafflok Lake (Bathurst Lake) to the marine laydown area in order to address potential impacts to identified riparian zones. This reconsideration may include a site visit conducted in coordination with the KIA, discussion of which shall be included within the FEIS.	
6	NWB	n/a	Sabina commits to providing a discussion of potential tailings slurry density, taking into account other projects in the north, specifically Meadowbank. This information will be included within the FEIS.	
7	NRCan	NRCan 36/37	Sabina commits to further consult and engage with NRCan regarding its response to technical review comments 36 and 37 prior to submission of the FEIS.	
8	GN	IR 12	Sabina commits to removing reference to a hard-surface airstrip in the FEIS.	commitment 24 from GN submission
9	GN	CR 20	For the FEIS, Sabina commits to detailing whether bulk fuel storage will include overwintering of fuel vessels in sea ice.	commitment 25 from GN submission
Atmospheric Environment including Climate, Air Quality, Noise and Vibration				
10	NWB		Sabina commits to demonstrating in the FEIS that it has considered the experience gained at Meadowbank with respect to dust suppression as well as its related effects assessment, and water consumption rates.	
11	KIA	CR 14	Sabina commits to come up with a methodology for modelling climate change and to discuss it with the KIA and other interested parties prior to the submission of the FEIS.	
12	KIA	KIA IR 18	Sabina commits to providing more detail on the operation of the incinerator and management of emissions in the FEIS. Details will include: the make and model of the incinerator including a letter from the manufacturer stating that it is designed to incinerate sewage sludge, adheres to EC's guidance document on batch incineration, and is a dual-chamber incinerator. Details will be provided for adaptive management if elevated metals, dioxans, furans, and/or ammonia are detected through the dustfall monitoring program.	

13	GN	IR 18	At this time the Goose Property Airstrip will not be designed to accommodate aircrafts as large as a Boeing 767. If larger aircraft are selected as a viable option, Sabina commits to updating the air quality and noise models and conduct an effects assessment to address the potential effects of this larger class of aircraft. This would be included in the FEIS.	commitment 48 from GN submission
14	GN	TRC 35	Dustfall sampling locations will be chosen to ensure that all large sources of emissions are monitored. Sabina will consult with the GN on the number and location of sampling sites prior to finalizing the Air Quality Monitoring Plan for the FEIS.	commitment 49 from GN submission
Aquatic Environment including Water Management, Freshwater Environment, Hydrology, Hydrogeology and Mine Rock Characterization				
15	NWB		Sabina commits to include the conceptual design of all water management structures within the water licence application filed as part of the FEIS.	
16	KIA	IR 22, 23, 25, 26	Sabina commits to develop site specific water quality objectives where relevant for parameters that naturally exceed CCME protection of aquatic life levels. This pertains to each of the project locations including Goose, George and the Marine Laydown Area.	
17	AANDC	AANDC 13	Sabina commits to reviewing table 4.8-1 for the FEIS to ensure clarity with the text that water will not be discharged to the aquatic receiving environment prior to meeting site water quality objectives.	
18	AANDC	AANDC 15	Sabina commits to providing more details in the FEIS on the waste water management strategy including sewage effluent. This will include discharge locations and the characteristics of those locations as well as impacts on the receiving environment, attenuation capacity, end of pipe locations, seasonal considerations, alternatives, and design or engineering contingencies.	
DAY 2				
19	AANDC	AANDC-22	Sabina commits to reviewing the need for contingency measures in relation to all potentially contaminated discharge (of particular concern and interest to AANDC are potential discharges from the waste rock storage areas, tailings impoundment area, and the pit lakes at closure). Where it is deemed that contingency measures would significantly reduce the risk to the environment, those measures will be presented in the FEIS. Where contingency measures are not provided, a rationale will be provided as to why they are not necessary.	
20	EC	EC-26	Sabina commits to including sensitivity analysis for approach of zero-discharge volumes within the detailed site wide water and load balance presented in the FEIS to address higher than predicted water volumes.	
21	EC	EC-28	Sabina will provide detailed effluent quality predictions, an assessment of the receiving environment concentrations, and identification of water quality objectives within the FEIS.	
22	DFO	3.1.1	As part of the Site Preparation Application and in the FEIS, Sabina commits to provide DFO and other parties with supplemental information on how the Rascal stream realignment may affect the following: existing channel stability and erosion potential; the potential for re-suspension of sediments in ponds; and areas with undefined channels.	
23	DFO	3.1.1 (DFO 2)	As part of the Site Preparation Application and in the FEIS, Sabina commits to provide DFO and other parties with supplemental information on whether Arctic grayling spawning and rearing habitat is limiting within the watershed for the population using the stream.	
24	DFO		As part of the Site Preparation Application and in the FEIS, Sabina commits to provide DFO and other parties with supplemental information on how the Rascal stream realignment may result in Arctic grayling spawning and egg stranding in the deactivated reaches of Rascal Stream East.	
25	KIA	IR-29	Sabina commits to provide a discussion of the expected seepage volume from the tailings storage facility in the perimeter ditches and a threshold for a maximum acceptable flow to be included in the FEIS. Sabina also commits to provide further discussion of mitigation within the FEIS and specific adaptive management protocols that would be triggered should the proposed thresholds be breached.	

26	KIA	IR-30	Sabina commits to ensuring that all mine phases are addressed within plans listed in the FEIS (as presented in the DEIS table 13.1), including: the Mine Waste Rock and Tailings Management Plan (addition of construction and closure phases), the Site Water Monitoring and Management Plan (addition of temporary and final closure phases), and the Fish Offsetting Plan (addition of final closure phase).	
27	KIA	n/a	Sabina commits to working with the KIA, EC, and DFO on the components of the final AEMP prior to submission of the FEIS.	
28	KIA	IR-16	Sabina commits to providing the appropriate justification for design criteria adopted for any water management structures at Lytle and Occurrence Lakes and to demonstrate a consideration for whether or not contingency plans are warranted within the FEIS.	
29	AANDC	AANDC-23	Sabina commits to providing within the FEIS, an estimate of water quantity and quality produced throughout the project, parameters to form the basis for design of water management structures, monitoring that will be required at each of the sites and how this monitoring will be effective, and associated treatment options.	
30	AANDC	AANDC-26	Sabina commits to providing in the FEIS an updated preliminary closure plan which includes definitions of temporary closure and care and maintenance including outlining what activities and monitoring may continue at the project subject to the phase within which care and maintenance is implemented.	
31	EC	EC-24, EC-36	Sabina commits to include the marine laydown area within water management plans as presented in the FEIS.	
32	EC	EC-27	Sabina commits to incorporate contributions from blasting reagent residues in the water balance and load estimates submitted within the FEIS.	
33	EC	EC-31	Sabina commits to identify appropriate surrogates for total suspended sediment (TSS) assessment and to continue to calibrate this with build data.	
34	TC		Sabina commits to providing sufficient detail in the FEIS that would clarify any alternative to relocate or adjust the spatial location of a tailings impoundment area with respect to any involved or surrounding waterbodies as such relate to navigability.	
35	KIA		Sabina commits to giving consideration to high salinity within its groundwater model and subsequent data presented within the FEIS.	
36	KIA	KIA CR-10	Sabina commits to further sampling and analysis during operations where required to support waste rock management activities. It is anticipated that there will be two components to this work, including collection and analysis to classify waste rock during the mining process, and sampling and analysis to verify the effectiveness of the management plans. Details on these plans will be provided in the waste rock management plan submitted as part of the FEIS.	
37	NRCan	NRCan-23 24	Sabina commits to addressing these considerations and to further investigating the methods for predicting and managing groundwater inflows (such as those suggested in Appendix O of the DEIS) in the site water and monitoring management plan in the FEIS.	
Socio-Economic Environment and Assessment including Heritage Resources				
38	GN	GN-1	The Proponent commits to include project-specific data concerning employee community of residence and number of employees that relocated from the year prior (to and from, for Cambridge Bay, Kugluktuk, Taloyoak, Gjoa Haven, and Kugaaruk) in their Socio-Economic Monitoring Program within the FEIS and subsequent annual reports. The details of this process will be captured in the Terms of Reference for the project-specific Back River Socio-Economic Monitoring Committee.	
39		GN-3	Sabina commits to provide a summary of initiatives it supports through its Donations Policy pertaining to "youth and education" and "community wellness and traditional lifestyle" in the FEIS and to provide details of a potential summer student program directed at post-secondary.	

40		GN-4	Sabina commits to provide full National Occupational Coding in its workforce schedule, and to identify and register with the appropriate GN department, all trades persons and apprentices working within the Project operations. Sabina will consult with the GN's Departemnt of Family Services Career Development Division to identify current apprentice students for training and employment.	
41		GN-17, GN-18	Sabina commits to work with the GN's Territorial Archaeologist to provide the maps and site status reports in a manner and timeline that is agreeable to both parties and to be determined at a later date. Timing wil lbe included within the FEIS.	
42		AANDC-35	Sabina commits to working with the GN, AANDC and other interested parties to develop a draft Terms of Reference for a Back River Socio-Economic Monitoring working group; a summary of the draft Terms of Reference will be provided in the FEIS.	
Public Engagement and Incorporation of Inuit Qaujimajatuqangit				
Terrestrial Environment including Wildlife, Migratory Birds, Species at Risk and Vegetation				
43	KIA	KIA IR-1, 2, 4	Sabina commits to providing within the FEIS, more detail specifying site-specific monitoring plans, specific thresholds and triggers and adaptive management responses with regard to wildlife.	
44	KIA	KIA IR-1, 2, 4	Sabina commits to providing additional clarity on project specific monitoring associated with wildlife VECs in question within the FEIS (noting that these would not be at the population level, and would be focused on project effects).	
45	KIA	KIA CR-1, 2, 3, 4	Sabina commits to provide within the wildlife and cumulative effects assessments, a better explanation or justification for the magnitude rating cut off points including the divisions between nil, low, and moderate. If there is not sufficient data to justify these divisions as suggested above, Sabina commits to remove the restriction from the methodology chapter that the EIA practitioner must conclude that an effect is not significant if they select low.	
46	KIA	KIA CR-1, 2, 3, 4	Within the wildlife and cumulative effects assessments, Sabina commits to include species specific duration categories with justification for each, or if not sufficient data to justify species specific duration categories, as suggested above, Sabina removes restriction that the EIA practitioner must conclude that an effect is not significant if they select short term as their duration value.	
47	EC	EC-10; 6.1.10	Sabina commits to reduce disturbance to known colonies of nesting, feeding, or moulting birds by imposing flight restrictions to maintain a distance of 3000 metres from colonies of birds.	
48	EC	EC-9; 6.1.9	Sabina commits to demonstrating consideration for inclusion of EC's recommended setback distances within the FEIS.	
DAY 3				
Terrestrial Environment including Wildlife, Migratory Birds, Species at Risk and Vegetation - <i>continued</i>				
49	GN	IR 14	Sabina commits to updating Table 5.6-2 (Cumulative Habitat Loss in the Bathurst Caribou CEA Boundary) in the FEIS. For closed or past developments it was assumed that dust no longer contributes as habitat alteration and wildlife are anticipated to reinhabit these areas, thus blank cells should read NA.	commitment 94 from GN submission
50	GN	CR 15	For the FEIS, Sabina commits that updates will be provided to include the most recent 2012 data in Volume 5, Table 5.1-2 (Bathurst Caribou Herd Population Numbers and Breeding Females from 1986 to 2009).	commitment 95 from GN submission
51	GN	IR 19	Sabina commits to include the Nunavut Wildlife Act in the List of Permits, Licenses, and Authorizations Required for the Project in the FEIS.	commitment 96 from GN submission
52	GN	GN-20	Sabina commits to including text in the FEIS referencing Project-related effects in the context of Nunavut wildlife management populations.	commitment 97 from GN submission
53	GN	TRC 20	Sabina has assessed areas where wildlife may be disturbed by noise as indirect habitat loss. Sabina commits to providing additional information (which may include literature) within the FEIS to describe potential effects to wildlife that may continue to use this area, including energy expenditure, stress and population health.	

54	GN	TRC 21	Sabina commits to include in the WMMP as part of the FEIS, a plan to collaborate with the GN and other co-management partners in future population level monitoring of grizzly bear, wolverine, musox, and caribou, if and when such monitoring is undertaken.	
55	GN	TRC 21	Sabina commits to demonstrate in the FEIS how the remote camera study (if this is the program used) design will meet species-specific monitoring objectives taking into account the differences in sampling requirements amongst program objectives as well as differences in the expected densities and distribution amongst the species being monitored. Clarify how remote cameras will be effective at detecting change in low density species.	commitment 344 from GN submission
56	GN	TRC 21	Sabina has made the commitment to participate in regional monitoring plans, lead by government, for several wildlife VECs, including caribou, muskox, grizzly bear and wolverine if and when they exist. At that time, these regional, government-led programs will replace the proposed regional monitoring plans in the DEIS WMMP. An update on this commitment is to be provided within the FEIS.	
57	GN	TRC 21	Sabina commits to verifying model results that determined areas of indirect habitat loss for wildlife using actual field noise monitoring results and to present this information within the FEIS.	
58	GN	TRC 21	Sabina commits to include in the WMMP as presented in the FEIS, additional details on the design of focal species monitoring programs including the metrics being measured, sampling design and intensity, threshold values for acceptable impacts and expected sample size and ability to detect when thresholds have been exceeded.	
59	GN	TRC 22	Sabina commits to include within the FEIS, additional details for mitigation measures and the associated implementation protocols, specifically: (a) Human-wildlife conflict management, including the establishment of i) Project-related wildlife mortality thresholds above which mitigation measures would be revised and adapted ii) communication protocols with regulatory agencies and co-management organizations on the use of deterrents, translocations or destruction of wildlife especially bears and furbearers. (b) Nest management plans (c) Den site management plans.	
60	GN	TRC 22	Sabina commits to update within the FEIS, mitigation measures and associated implementation protocols to include detailed staged reduction in Project activities in response to approaching wildlife, including the different stages of work reduction and how they would be triggered.	
61	GN	TRC 22	Sabina commits to, within the FEIS, clarifying inconsistencies regarding proposed mitigation measures relating to staged reduction in Project activities in response to approaching wildlife, including considerations of wildlife group size and composition, season, sensitive periods, and distance to Project.	
62	GN	TRC 22	Sabina commits to the development of a mitigation response decision tree for approaching caribou. This would consider multiple variables such as species, group size and composition, season, sensitive periods, and distance to Project in determining the appropriate mitigation response. This will be included within the FEIS.	
63	GN	TRC 22	Sabina commits to enhance monitoring mechanisms for detecting wildlife approaching the Project as triggers for mitigation actions such as blasting management, traffic management and staged work reductions. These should take into consideration the required time for implementation of mitigation measures following detection of approaching wildlife. This detection capacity can be enhanced by giving consideration to measures such as the use of dedicated wildlife monitors stationed at key points around the site and at distances up to 4km from the site during sensitive caribou periods, use of spotting scopes for distant scanning, height of land surveys and potentially the use of elevated observation platforms around the project site.	
64	GN	TRC 28	Sabina commits to including potential effects on hunting allocations due to potential Project related direct mortalities of grizzly bears within the FEIS.	
65	GN	TRC 27	Sabina commits to update the FEIS to include the final results of the grizzly DNA study conducted in 2012 and 2013 including additional details on methodology and analytical approach as requested by the GN.	

66	GN	TRC 27	Sabina commits to develop adaptive management measures to mitigate potential impacts to grizzly bears from defense kills should set thresholds be exceeded and to include this information within the FEIS. Adaptive management measures include undertaking DNA mark-recapture studies for grizzly bears similar to those conducted in baseline studies to assess the significance of potential impacts.	
67	GN	TRC 24	Sabina will include more detail on the definition of “population and subpopulation health” and “acceptable risk thresholds” in definition of Significance Ratings in the FEIS.	commitment 98 from GN submission
68	GN	TRC 24	Sabina commits to develop adaptive management measures to mitigate impacts to caribou should any of the 4 herds were to dramatically shift ranges into the Project area or migration routes during the life of the Project and to include this within the FEIS.	
69	GN	TRC 29	Sabina commits to develop a stand-alone Bear Safety and Response Plan that pulls together relevant information provided in the DEIS and to include thresholds for acceptable impacts associated with human-bear conflicts (e.g. number of problem bear encounters per year, number of translocations required, number of direct mortalities resulting) and proposed actions to be taken if these thresholds are exceeded. This plan should also include information on coordinating with government agencies and co-management partners and will be included within the FEIS.	
70	GN	TRC 30	Sabina commits to revise the FEIS to validate the Habitat Suitability Index (HSI) that was used in the impact assessment for muskox.	
71	GN	TRC 31	Sabina will update and expand the management and monitoring sections of the WMMP that deal with attraction of predators (including wolverine) to camps and managing problem wildlife (including wolverine). This information will appear in the FEIS.	commitment 349 from GN submission
72	GN	TRC 31	A discussion surrounding wolf, wolverine, and grizzly bear predation of ungulates will be added to the ungulate sections of the FEIS.	commitment 102 from GN submission
73	GN	TRC 32	Additional information on the proposed raptor monitoring protocols will be added to the wildlife mitigation and management plan (WMMP) for the FEIS following guidance on measuring and analyzing a zone of influence (ZOI) on nest success by the Canadian Wildlife Service. This information will appear in the FEIS.	commitment 350 from GN submission
74	GN	TRC 32	Sabina commits to update the WMMP to include an example of a nest specific management plan for a nest located with the PDA to illustrate the range of mitigation and monitoring actions that would be undertaken.	
75	GN	TRC 32	Sabina commits to include in the WMMP for the FEIS, a protocol for working with the GN and other co-management partners to mitigate impacts on nests located within the PDA, including the requirement for seeking regulatory approval prior to any action that could potentially damage/destroy or disturb these nests.	
76	GN	TRC 32	Sabina commits to provide additional detail to the raptor chapter of the FEIS (Volume 5, Chapter 10) to provide relevant citations to support mitigation activities.	commitment 103 from GN submission
77	GN	TRC 36	Sabina acknowledges the requirements of the Scientists Act and commits to ensuring that legislated reporting requirement under the Scientists Act are reflected in the FEIS.	commitment 104 from GN submission
78	GN	TRC 37	Sabina commits to update the table on Permits and Approvals for Mine Development in the FEIS to include all relevant authorizations required for the life of the Project.	commitment 105 from GN submission
Marine Environment and Marine Transportation				
79	EC	EC 2 / 6.1.2	Sabina commits to recommending that shippers adhere to the 30 km setback from Prince Leopold Island as proposed by EC and assuming ship safety. This information will be included within the FEIS.	
80	EC	EC 5 / 6.1.5	Sabina commits to identifying and considering known colonies of migratory birds along the shipping route and to ensure that informatino is considered for project shipping. This information will be included within the FEIS.	

81	EC	EC 25	Sabina commits to characterization of the brine effluent and review of alternative discharge strategies and to a further review in the FEIS of monitoring requirements of discharged brine for compliance with subsection 36(3) of the Fisheries Act prior to release to the marine environment.	
82	KIA	n/a	Sabina commits to update within its FEIS, a discussion on community level capacity in spill planning and response.	
83	NIRB	n/a	Sabina commits to including additional information within the FEIS as related to the potential for cumulative impacts from shipping activities associated with other proposed and approved development projects within the Kitikmeot Region, including Doris North, Phase 2 Hope Bay Belt, Hackett River, and Izok Corridor.	
84	GN	GN-25	Sabina will review the references related to occurrence of polar bears in the marine environment in particular known summer time concentrations along the shipping route and update the information within FEIS as needed.	commitment 99 from GN submission
85	GN	GN-26	Sabina commits to working within the existing regulatory framework defined by Transport Canada. An approved SOPEP will be in place by the shipping provider prior to the commencement of any shipment.	commitment 100 from GN submission
86	GN	GN-26	Sabina will work with the GN and other agencies to acquire appropriate data related to polar bears distribution and density to assess worst case and best case scenarios should a fuel release or spill event occur in the marine environment along the shipping route. Using the available data where applicable, Sabina will for the FEIS: 1) highlight rough densities of polar bears along the shipping routes; 2) provide further rationale on the risk of potential major spills and provide rationale around the parameters of magnitude (i.e., location of spill, volume of spill, area of dispersion, type of spill, response time); 3) identify worst case scenario (i.e., highest density of polar bears, high volume, worst type of liquid) and best case scenario (i.e., lowest density of polar bears, low volume, lightest type of liquid); and 4) where appropriate, update the impact assessment within the FEIS.	commitment 101 from GN submission
87	GN	GN-26	Sabina commits to participate in relevant research and management initiatives and increasing understanding and mitigation of potential cumulative effects associated with the Project's shipping activities.	
88	GN	n/a	Sabina will commit to limit their shipping period to the open water season from August 25 to October 15. For safety reasons and under unforeseen and exceptional events icebreakers may be used.	
Human Health and Risk Assessment				
89	KIA	n/a	Sabina commits to review table 6.4.4 (volume 8, ch 6) against figure 6.4-8 and to ensure all pathways identified in figure 6.4-8 are included in tables of the FEIS. Sabina shall also ensure that all inputs (including incinerator) are included in the risk assessment model as per figure 6.4-8.	
90	KIA	IR 3	Sabina commits to update the human health risk assessment and terrestrial and aquatic wildlife risk assessments with more realistic forage and consumption numbers.	
Cumulative Effects Assessment				
91	KIA	KIA CR 3	Sabina commits to, within the wildlife total effects section, and within the effects assessment and cumulative effects assessment, include additional references from applicable studies with high statistical power on total effects and for other studies report a lack of power analysis or low power if applicable and revise discussion accordingly within the FEIS.	
Accidents and Malfunctions				
92	AANDC	AANDC 16	Sabina commits to include in the FEIS, plans or design contingencies where appropriate, that are in place to prevent and manage reasonably foreseeable worst case scenarios as they relate to accidents and malfunctions.	
93	AANDC	AANDC 16	Sabina commits to extending the accidents and malfunctions assessment into the closure and post closure periods, within the FEIS.	
94	NRCan	n/a	Sabina commits to update and clarify to the extent possible, Project components and activities related to explosives manufacture and storage within the FEIS.	

95	NRCan	n/a	Sabina commits to provide an updated Explosives Management Plan within the FEIS and to ensure that the plan accurately describes explosives manufacturing and storage and which clarifies whether Sabina anticipates storing explosives components at the marine laydown area.	
96	NRCan	n/a	Sabina commits to carrying forward updated project components and activities associated with explosives manufacturing and storage in its assessment of accidents and malfunctions (including the marine laydown area if applicable) within the FEIS.	