Valentine Gold Project: Description of Project Change – Addition of a Communications Tower

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Abbreviations and Acronyms

CWS	Canadian Wildlife Service
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
GHG	Greenhouse Gases
IAAC	Impact Assessment Agency of Canada
IR	Information Requirement
LAA	Local Assessment Area
Marathon	Marathon Gold Corporation
MFN	Miawpukek First Nation
MMT	Mary March Tower
NL	Newfoundland and Labrador
QFN	Qalipu First Nation
The Project	Valentine Gold Project
VC	Valued Component

1.0 INTRODUCTION

The Valentine Gold Project (the Project) is an open pit gold mine located in the central region of the Island of Newfoundland, proposed by Marathon Gold Corporation (Marathon). It was subject to federal environmental assessment (EA) under the *Canadian Environmental Assessment Act*, *2012*. As part of the EA, Marathon submitted an Environmental Impact Statement (EIS) on September 29, 2020, and subsequently responded to a number of Information Requirements (IRs) provided to Marathon by the Impact Assessment Agency of Canada (IAAC). Following review of the EA information provided by Marathon, the Minister of Environment and Climate Change Canada (ECCC) determined on August 24, 2022, that the Project could proceed subject to a number of conditions. As per Condition 2.16, Marathon is required to notify IAAC in advance of carrying out any proposed changes to the Project as defined in Condition 1.8, as well as consult with Indigenous groups on the proposed changes.

During the EA process, Marathon planned that high-speed internet would be provided to the mine site via a fibre optic wired connection and service from Bell Canada originating in Millertown, NL (to be installed on the transmission line being constructed and operated by Newfoundland and Labrador Hydro (NL Hydro) and located adjacent to the main access road). However, during detailed engineering, and in consultation with fibre optic providers, it was determined that this planned connection could not be completed in a timely and economic manner. As a result, alternative options were explored, and the Communications Point-to-Point connection (communications tower) was chosen as the preferred option.

This document provides a description of the proposed change and summarizes the potential implications for the assessment of potential effects presented in the EIS. Note that the proposed communications tower (location shown in Figure 1) will be constructed within the Project Area assessed in the EIS (i.e., within the mine site) and will result in a slight increase (approximately 0.013 km^2 or 0.1%) in the overall mine site Project footprint.

2.0 DESCRIPTION OF THE PROPOSED PROJECT CHANGE

As shown on Figure 1, the proposed location of the communications tower is north of the accommodations camp site. This would provide a direct wireless link from an existing tower, owned by NL Hydro, just outside of Buchans called Mary March Tower (MMT) to the new tower at the mine site. The location (48.359512° lat. and -57.130650° long.) was identified by Bell Canada as the area required to obtain a clear line of sight back to MMT. Several sites (within and outside of the Project Area) were investigated, however only the selected site was a viable location to avoid blast zones and existing infrastructure.

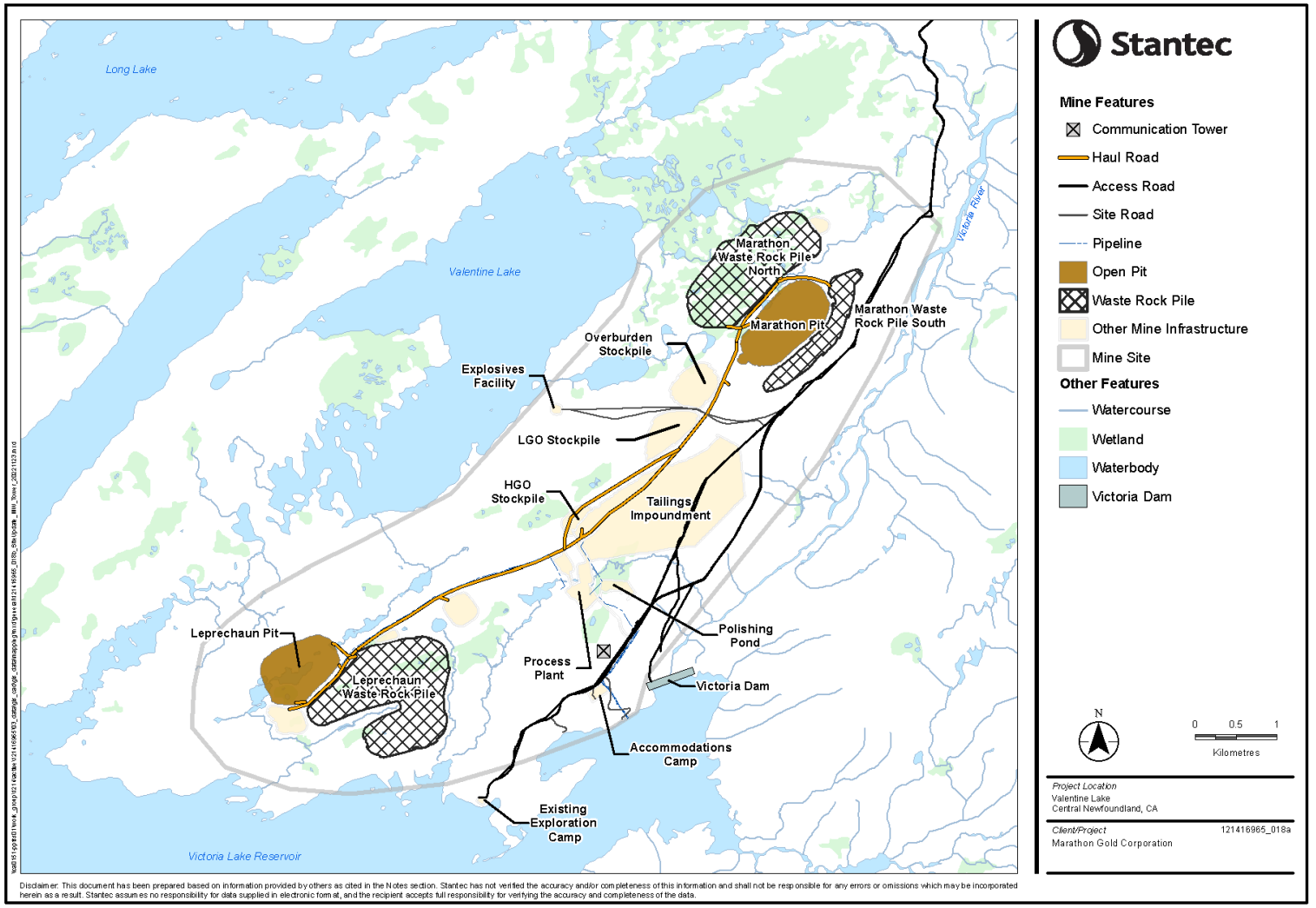

Figure 1 Location of Communications Tower

Figure 2 shows an image of a typical communications tower and Figure 3 provides a profile of Marathon's proposed tower. Marathon will construct access to the tower location for the purposes of tower construction and maintenance. The road to access the tower will stem from the existing access road to the exploration camp (Figure 3), which will reduce the length of new right-of-way required (i.e., it will be approximately 200 m depending on final routing). Figure 4 illustrates the planned footprint of the communications tower. The communications tower will be constructed of steel lattice and consist of one center base anchor and six guyed anchors. Due to mostly fractured rock in the area of the tower, it is anticipated that the anchor locations would require a hydraulic hammer to break up and excavate the anchor points to the required depth and length. Pre-assembled sections of the tower will be trucked to site and installed using a crane for the first 30 m and a certified gin-pole and winch for the remaining portions of the tower.

The tower is approximately 138 m in height. As such, an aeronautical assessment application form will be submitted to Transport Canada. Once reviewed, Transport Canada will advise of the specific lighting / painting that is required on the tower. Lighting requirements would likely be a combination of fixed and flashing red lights.

Figure 2 Example of Typical Communications Tower

The tower will require regular inspections and maintenance. The tower and related services would be dismantled and removed at the end of the mine life, as part of the decommissioning plan, and consistent with decommissioning procedures for other mine infrastructure.

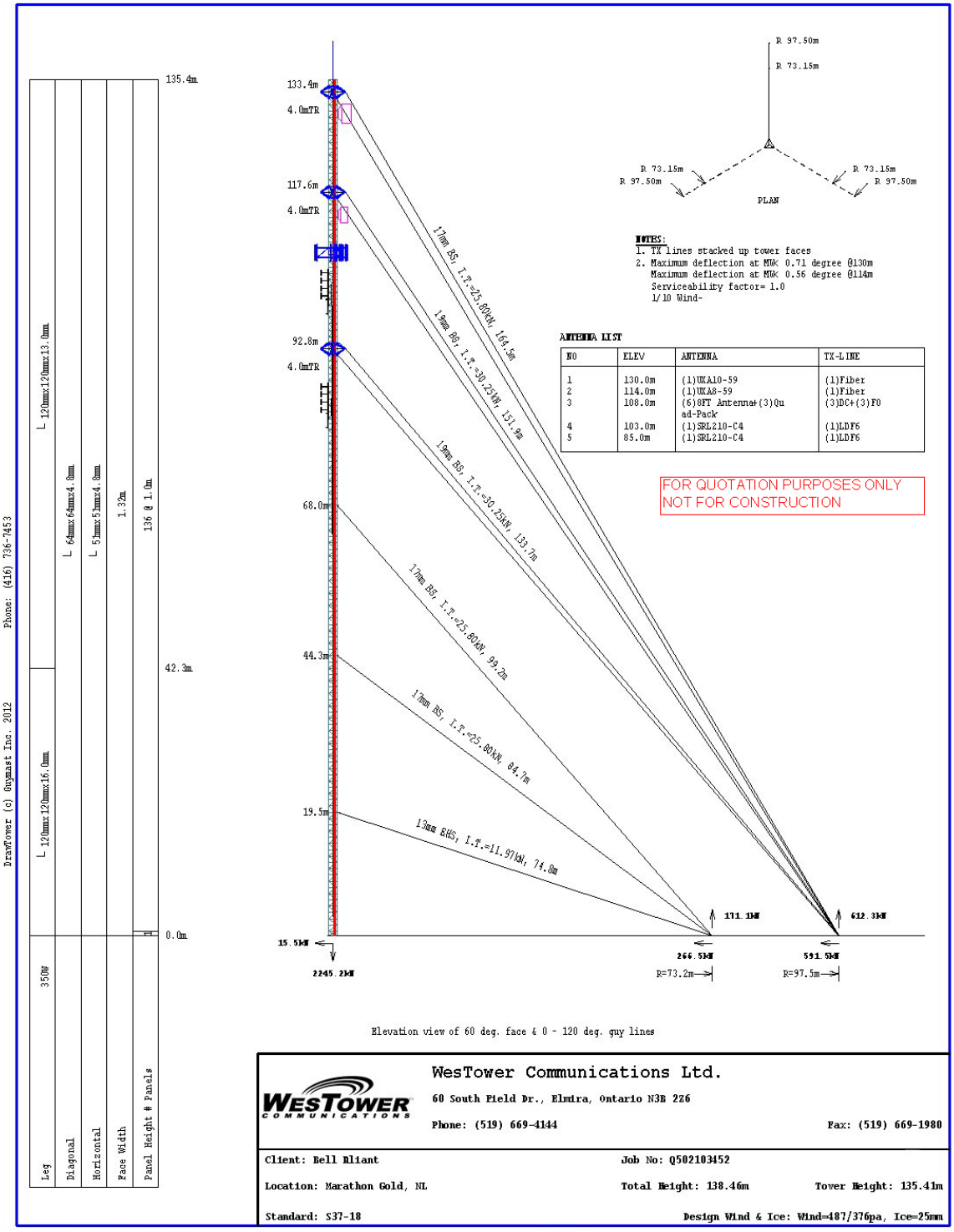

Figure 3 Communications Tower Profile Drawing

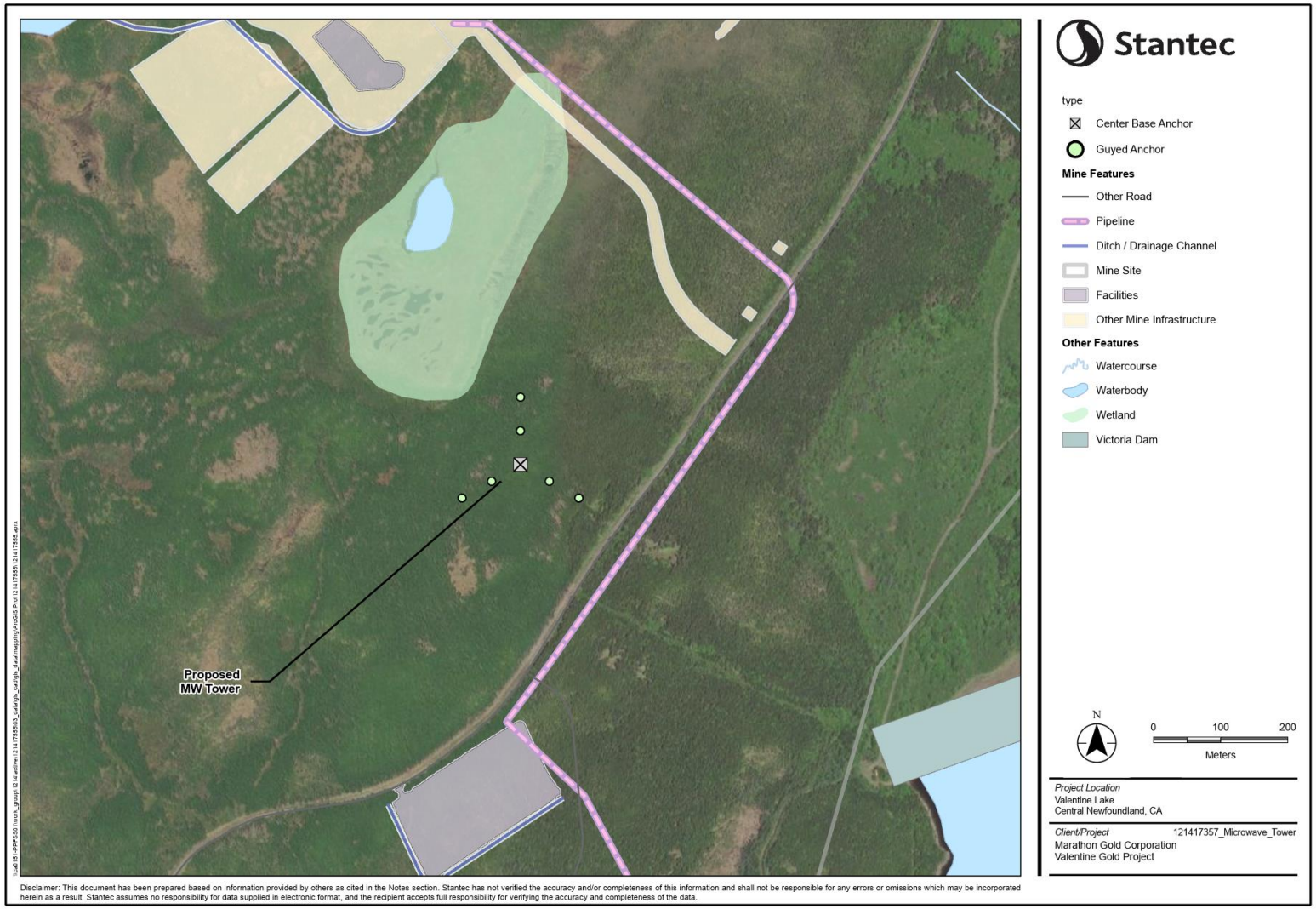

Figure 4 Communications Tower Footprint Layout

3.0 INDIGENOUS ENGAGEMENT

Marathon is committed to on-going engagement and communication with the Miawpukek First Nation (MFN) and Qalipu First Nation (QFN). To support ongoing engagement efforts, Marathon has developed a Current Use of Lands and Resources for Traditional Purposes Indigenous Communications Plan (the Plan). Marathon has also concluded a Socio-Economic Agreement (SEA) with QFN and is currently negotiating an SEA with MFN. The Plan and SEAs provide an agreed-upon forum for the discussion of issues associated with the Project and its potential impacts upon Indigenous land and resource use and other issues.

A draft copy of this report was provided to MFN and QFN on December 2, 2022 for review and feedback. QFN responded on December 7 indicating that they had no serious concerns with the proposed change. On December 19, Marathon received comments from MFN. These comments as well as Marathon's responses are provided in Appendix A. The comments focused on the following topics:

- potential effects on caribou
- enjoyment of the land
- bird and bat collisions
- electromagnetic radiation
- novel breeding habitat

The comments and responses provided in Appendix A have been incorporated into Sections 4 and 5 of this document, as appropriate.

4.0 POTENTIAL ENVIRONMENTAL EFFECTS AS A RESULT OF THE CHANGE

A review of the potential changes to the assessment of valued components (VCs) described in the EIS and subsequent IR responses has been conducted and is provided below. Note that the geographic boundaries (i.e., Project Area, Local Assessment Areas [LAAs] and Regional Assessment Areas) described in the EIS for each VC have not changed as a result of the communications tower. As indicated above, the site for the tower is located within the mine site (i.e., within the assessed Project Area).

The construction, operation and maintenance, and decommissioning of the communications tower are not predicted to result in changes to the characterization of residual adverse effects, proposed mitigations, or overall conclusions described in the EIS for the following VCs:

- Atmospheric Environment – The EIS assessed the effects of the Project on air quality, greenhouse gas (GHG) emissions, sound quality, and light levels. The construction of the tower will result in a very small and temporary increase in dust, GHG and noise emissions; however, the mitigations proposed in the EIS for general construction activities would be applied and no change in the residual effects for construction in the EIS is predicted. During operation of the tower, lighting will likely be required on the tower from an aviation safety perspective (i.e., obstruction lighting). Transport Canada will advise of the specific lighting required and Marathon will follow these lighting requirements.

- Groundwater Resources, Surface Water Resources and Fish and Fish Habitat – The footprint of the tower avoids waterbodies/watercourses and with the application of the mitigation measures identified in the EIS, no interactions with these VCs are anticipated as a result of construction, operation and decommissioning of the communications tower.
- Terrestrial VCs (Vegetation, Wetlands, Terrain and Soils; Avifauna; Caribou and Other Wildlife) – The EIS was prepared using a conservative approach, assuming for the VCs that the habitat within the mine site would be altered or lost as a result of Project activities. This conservative approach also allows for refinements to the site layout, as these typically occur through detailed Project design and planning. As a result, the loss/alteration of habitat associated with the construction of the communications tower was already assessed within the EIS. For caribou and given the location of the communications tower proximate to other assessed infrastructure, the residual effects predictions in the EIS related to effects on movement and mortality risk are not predicted to change as a result of the communications tower. Overall, the potential effect of the communications tower on caribou is not expected to result in incremental effects on caribou seasonal movement because the primary source of sensory disturbance will be associated with mining activities and associated infrastructure, which have already been assessed in the EIS (see Section 11.5.2). As such, the installation and operation of the communications tower will not change the characterization of predicted residual effects for caribou discussed in the EIS (Appendix A). For avifauna and bats, the addition of the communications tower may affect mortality risks, and this is further discussed below.
- Socio-Economic (Infrastructure and Services, Community Health, Economy and Employment, and Land and Resource Use) and Indigenous Groups VCs – Given the small scale and temporary nature of the effort and resources required to construct the communications tower, and given that the tower is located within the mine site, no changes are predicted to the residual effects predictions, proposed mitigations, or overall conclusions made in the EIS for these VCs. As indicated in Appendix A, the tower will be visible on the landscape beyond the mine site. The EIS identified that the viewscape can be altered by physical features or works associated with the Project that are visible from outside the Project Area, potentially resulting in an indirect effect to cultural and spiritual sites and areas used for resource and recreational activities. The EIS also indicated that as there are low levels of current land and resource use by Indigenous Groups within the LAA, residual effects are anticipated to be low; however, they will occur over the long-term throughout the life of the Project. This assessment is considered valid with the addition of the communications tower. Marathon will comply with Transport Canada-required lighting and painting schemes on the communications tower to reduce potential conflict with local aviation activities in the area.
- Historic Resources VC - As noted in the EIS, there are no known registered archaeological sites within the Project Area. As well, the location of the communications tower does also not overlap with any identified area of archaeological potential (refer to Section 18.2.3.4 of the EIS). Therefore, the addition of the communications tower does not result in changes to the characterization of residual adverse effects, proposed mitigations, or overall conclusions described in the EIS for this VC.

- Dam Infrastructure VC – Given the location and nature of the activities associated with the addition of the communications tower, no interactions are predicted with the Dam Infrastructure VC. The addition of the communications tower would not result in a change in water quality or water balance in Victoria Lake Reservoir or a change in dam stability for the Victoria Dam. Therefore, there would be no changes to the characterization of residual adverse effects, proposed mitigations, or overall conclusions described in the EIS for this VC.

As mentioned above, there is potential for environmental effects as a result of the proposed communications tower on mortality risk for avifauna and bats. The primary pathways for change in mortality risk are through vegetation clearing and earthworks, vehicular collisions, human-wildlife conflicts, and predation. The addition of the communications tower is not anticipated to result in a measurable change to vegetation clearing and earthworks, vehicular collisions, or predation pathways. A change in mortality risk for avifauna and bats, however, could be expected through risk of colliding with a tall, guyed telecommunications tower (Dickey et al. 2012).

Some studies (e.g., Balmori 2005, Everaert and Bauwens 2007) have also indicated that electromagnetic radiation may affect the abundance and/or breeding success of birds. These effects appeared to be localized (e.g., within 200 m (Balmori 2005), and as such would not be expected to affect birds at a population level (refer to Appendix A). The communications tower is located within the mine site, and in the EIS, it was assumed that all habitat within the mine site would be lost or altered. Therefore, the residual effects predictions in the EIS for both avifauna and bats account for this loss/alteration of habitat.

Bats such as the northern myotis, little brown myotis, and hoary bat are species expected to occur in the Project Area. Large anthropogenic structures such as monopole, latticed, or guyed towers can attract both resident-breeding and migrating bat species (Jameson and Willis 2014). Guy wiring is not easily detected by bats that may be flying near or foraging around the tower, which reduces the ability of bats to safely navigate around the structure (Crawford and Baker 1981, Manville II 2015) and can result in mortality. Bat collisions with stationary structures appear to be low in comparison to bird collisions (Van Gelder 1956; Orbach and Fenton 2010; Longcore et al. 2012). Bat collisions occur more often with lighted structures (Orbach and Fenton 2010). Given the at-risk status of the *myotis* species that occur in the Project Area, the population is more responsive to increases in mortality at the local level (MacGregor and Lemaître 2020).

A change in mortality risk for avifauna could also result from the use of guy wires. Although most bird species found in the Project Area would not interact with a tall tower structure, and many would avoid nesting on, roosting on, or foraging near an open structure like a communications tower, fatal collisions with guy wires are possible, particularly for crepuscular or nocturnal migrants (Gehring at al. 2011, Manville II 2015).

The literature indicates that high towers supported with guy wires can cause avian and bat mortality. This is a particular concern for structures with fixed lighting (American Bird Conservancy n.d.). Lighting for the communications tower will follow guidance from Transport Canada, which has been informed by ECCC-Canadian Wildlife Service (CWS) and would likely be a combination of fixed and flashing red lights. Flashing red lights have been shown to have less risk of mortality to migrating birds (Gehring et al. 2009) and can reduce nighttime bird fatalities by up to 70% (American Bird Conservancy n.d.). The following mitigation measures will be implemented to reduce bird and bat collisions with the communications tower:

- Lighting will be limited to Transport Canada's requirements.
- When possible, flashing lights will be used as opposed to fixed lighting, while adhering to Transport Canada's requirements.
- The minimum number of guy wires necessary will be used (US Fish and Wildlife Service 2021).
- Guy wires will have visual markers or bird diverter devices, to reduce bird mortality (US Fish and Wildlife Service 2021; Manville 2016).
- Post construction mortality searches as identified in the Avifauna Follow-up Monitoring Program will be expanded to include the communications tower.

The communications tower is not located in immediate proximity to large waterbodies or known key productive waterfowl habitat, which should serve to reduce potential interactions with avifauna. With the above additional mitigation measures in place, while individuals may be affected, a measurable change in the abundance of avifauna or bats in the LAA is not anticipated. The residual adverse environmental effects on avifauna and bats are, therefore, predicted to be low in magnitude. As concluded in the EIS, with the implementation of mitigation measures, residual effects on avifauna and other wildlife (e.g., bats) are predicted to be not significant.

Raptors (e.g., bald eagles and ospreys) build their nests at high points in the landscape, such as very tall trees, rock faces, and anthropogenic structures like buildings. Ospreys are known to frequently build nests on telephone/electricity poles and towers (Ewins 1996, Parks 2019), and have been found to occur in the Project Area during the breeding season. The following mitigation measures will be followed:

- Visual scans of the communications tower will be completed weekly to look for evidence of nesting activity during nest building periods for raptors and corvids (early March through July).
- Should an osprey or other raptor build a nest on the structure, the NL Wildlife Division would be notified, and the nest would be monitored during the nesting season.
- In consultation with Wildlife Division, Marathon would consider possible relocation of the nest once the nesting season is over. This would require the use of qualified professionals to move the nest during the winter to a safer location beyond the mine site.

5.0 ADDITIONAL MITIGATION AND MANAGEMENT MEASURES

Additional mitigation and management measures have been identified in Section 4 to reduce mortality risks for avifauna and bats and to address the potential for raptors to nest in the communications tower. In addition, the mitigation and monitoring proposed in the EIS to reduce residual effects associated with Project activities would continue to be effective and applicable in relation to the construction, operation and decommissioning of the communications tower. This includes measures committed to in the Valentine Gold Project Construction Environmental Protection Plan, Follow-up Monitoring Plans (e.g., for avifauna and other wildlife), and the Caribou Protection and Environmental Effects Monitoring Plan (CPEEMP).

6.0 CONCLUSIONS

Marathon is proposing to construct, operate and maintain, and decommission a communications tower, to be located within the mine site to support the communications requirements of the mine. The construction activities associated with the tower would be conducted in accordance with the mitigation measures and monitoring procedures outlined in the EIS and relevant environmental protection and monitoring plans. As described above, the proposed addition of the communications tower does not constitute a substantive change to the scope of the Project. Given the conservative approach to the effects assessment employed in the EIS, the above noted information demonstrates that no further environmental assessment is required related to this proposed Project change. The Project change does not result in changes to the characterization of residual adverse effects, proposed mitigation, or overall conclusions described in the EIS. Additional mitigation measures (beyond those identified in the EIS and follow-up monitoring programs for avifauna) related to avifauna and bat mortality risk and the potential for nesting raptors (e.g., osprey, eagles) have been identified in Section 4 and follow-up monitoring plans will be updated to reflect these new mitigation measures.

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APPENDIX A

MFN Comments and Marathon Responses

Table A.1 MFN Comments

Topic	Comment	Response
Caribou Deflection and Exacerbation of Significant Impacts	The Project Change EIS addendum (Communication tower) does not adequately address potential exacerbation of effective habitat loss and deflection for caribou. The description of the proposed tower as “at a distance from the primary migration route” does not provide enough detail to fully understand potential effects. Especially since the EIS acknowledges that the primary migration route will already be significantly and negatively disrupted by the proposed project. The Buchans herd is reasonably expected to seek alternate movement corridors to avoid mining activities. As such, adding the communications tower may further reduce migration options or induce additional caribou deflection from the area. At approximately 138m, this tower would become the tallest structure on the landscape. The Project Change EIS addendum should describe the distance at which this tower will be visible. It should present detailed information about how the proposed tower may impact existing, and potential future, migration options for the Buchans herd. Furthermore, the addendum should propose monitoring and adaptive management approaches, which endeavour to minimize caribou deflection and effective habitat loss from this visually significant structure.	The proposed communications tower will be located 3.2 km west of the Buchans caribou herd primary spring and fall migration corridor (see Section 11, Figure 11-12, Figure 11-13 in the EIS). The tower will be located within the mine site (i.e., within the Project Area as assessed in the EIS). As indicated in the EIS, caribou are expected to reduce their use of this migratory corridor or avoid the mine site during construction and operation due to potential sensory disturbance (e.g., noise, lights) associated with mining activities (e.g., blasting, excavation, hauling rock) and Project infrastructure, which will likely result in caribou using alternate migration pathways. Isolating the potential effects of the communications tower on caribou movement from other mining infrastructure is not practical due to potentially confounding sources of disturbance during construction and operation. The dynamic Brownian bridge movement model (dBBMM) identified a network of relatively lower use areas within a larger migration corridor, and the least-cost path (LCP) analysis undertaken for the Project described the energetic costs of using potential alternate seasonal migration routes. Although there is some uncertainty regarding how caribou will respond to mining activities and infrastructure during construction and operation, it is expected that these alternate routes (i.e., migration options) or surrounding areas will receive increased use during spring and fall migrations. Given the location of the communications tower within the mine site, it is unlikely to affect use of these migration options. A visibility assessment to determine the distance at which the communications tower would be visible to a migrating caribou is not practical due to the distance from the tower to the primary migration route (3.2 km) and because it is not known how caribou would use their visual abilities to perceive and/or respond to a communications tower during migration (i.e., see the local environment from their perspective at different distances, with dense vegetation and variable terrain). Furthermore, as mentioned above, the effects of the communications tower would be confounded with the effects of other mining activities because of its location. Marathon has developed a CPEEMP that is designed to monitor caribou seasonal movements relative to mine infrastructure and activities and respond to issues that might arise related to caribou movement within an adaptive management framework. As part of the Project infrastructure, construction and operation of the communications tower would be captured within the CPEEMP. Overall, the potential effect of the communications tower on caribou is not expected to result in incremental effects on caribou seasonal movement because the primary source of sensory disturbance will be associated with mining activities and associated infrastructure, which have already been assessed in the EIS (see Section 11.5.2). As such, the installation and operation of the communications tower will not change the characterization of predicted residual effects on caribou movement discussed in the EIS. No additional mitigation measures are required, beyond those mitigation measures previously identified in the EIS and CPEEMP.
Enjoyment of the Land	As noted above, the tower will be the tallest structure visible on the landscape near the Project. This may alter the enjoyment of MFN community members who hunt, fish, or travel in the area. In particular, the lighting at night will dramatically alter the night sky for members who are staying out on the land overnight. Other potential changes include “whistling” or “singing” guy-wires, which is caused by wind-induced vibrations. MFN requests that Marathon provide additional information on these potential impacts and describe any associated mitigation measures.	The EIS assumed that access to the mine site would be restricted, and this area would not be available for land and resource use other than mining activity. As the communications tower will be located within the boundaries of the mine site, the effect of the tower on land use availability has already been accounted for in the EIS. . With respect to potential sensory disturbance, the communications tower, which is 138 m in height and is located at 406 m above sea level (ASL) will be the tallest structure associated with the Project (the top of the high-grade ore stockpile with a height of 440 m ASL was the tallest component of the Project assessed in the EIS). As such, the tower will be visible on the landscape beyond the mine site. With respect to lighting, the tower will need to comply with Transport Canada’s requirements, but no additional lighting above these requirements is planned. The tower will be dismantled and removed at the end of the mine life, removing the visual disturbance at that time. The EIS identified that the viewscape can be altered by physical features or works associated with the Project that are visible from outside the Project Area, potentially resulting in an indirect effect on cultural and spiritual sites and areas used for resource and recreational activities. The EIS also indicated that as there are low levels of current use by Indigenous Groups identified within the Local Assessment Area, residual effects are anticipated to be low; however, they will occur over the long-term throughout the life of the Project. This assessment is still considered valid. Marathon is committed to on-going engagement and communication with the MFN and QFN. To support ongoing engagement, Marathon has developed a Current Use of Lands and Resources for Traditional Purposes Indigenous Communications Plan (the Plan). Marathon has also concluded a SEA with QFN and is currently negotiating an SEA with MFN. The Plan and SEAs provide an ongoing forum for the discussion of issues associated with the Project and its potential impacts upon Indigenous land and resource use and other issues.

Table A.1 MFN Comments

Topic	Comment	Response
Bird and bat Collisions	Communication towers are known to cause large numbers of casualties for birds and bats (Manville, 2016; Longcore et al., 2008). One guy-wired, 305 m tower in Wisconsin is documented (based on detections and therefore a likely underestimate) to have killed an average of 3,500 birds per year over a 38-year period (Longcore et al., 2008). With its proposed position between two arms of the Victoria Lake Reservoir (~700 m distance) and Valentine Lake (~2,700 m distance), as well as adjacent wetlands and ponds (~250 m), this tower poses a threat to waterfowl, raptors, songbirds, bats and other flying species. It also increases the likelihood of collisions for local resident birds during the breeding season and migrating birds during spring and autumn peak periods. Bats, including endangered *Myotis* spp, using adjacent high suitability wetland, lake and forest habitats, are at risk of collision with this structure. In the context of the massive North American die-off of bats due to White Nose Syndrome, coupled with naturally slow reproductive rates, every incident of bat collision mortality constitutes a significant impact (Manville, 2015). More information about best-practices to reduce bat mortality should be presented in the Project Change EIS addendum. Eighty percent of North American non-sedentary bird species migrate at night (Manville, 2015). Marathon Gold's proposed use of flashing light – which has been shown to reduce mortality compared to fixed (Gehring et al., 2009; Longcore et al., 2008) – is acknowledged as a positive mitigation approach. However, due to the height of the tower, with its associated guy-wire heights and angles, this proposed tower poses a significant threat to migrating birds, especially nocturnal migrants (Gehring et al., 2011, Manville, 2015). State of the art best practices should be employed to minimize this risk. The Project Change EIS addendum should present guy-wire collision mitigation techniques and propose improvements to reduce this significant impact. Flashing lights (in conjunction with diverters; discussed below) are likely necessary along the guy-wires to adequately mitigate nocturnal collisions. Bird diverter devices, installed along guy-wires, have been shown to reduce bird mortality for some species (Manville, 2016). These devices may also reduce impacts to bats by enhancing echolocation detectability of the wires (however research on this topic is limited). Bird diverter devices should be included in the memorandum and added to the proposed communications tower. Furthermore, a detailed, descriptive table of mitigations related to the avoidance of bird and bat collisions with the tower and its guy-wires should be presented. Lastly, as the majority of bird and bat collision mortalities occur at night, and most of the species are small-bodied, this impact is easily over-looked. To ensure the effectiveness of mitigations, and enable adaptive management response, Marathon Gold should implement a bird and bat mortality monitoring program. This collision mortality monitoring program was requested during an earlier round of comments for all project components, and should also encompass the proposed tower.	Bat collisions with stationary structures appear to be low in comparison to bird collisions (Van Gelder 1956; Orbach and Fenton 2010; Longcore et al. 2012). Bat collisions occur more often with lighted structures (Orbach and Fenton 2010). Bird collisions are more well documented and understood (e.g., Longcore et al. 2012) and discussed in Section 4 of this report. Flyways for migrating birds and bats in Newfoundland differ from those in central North America, such as the great "Mississippi Flyway", in terms of overall abundance and species diversity. There are four major migration flyways in North America, and the province of Newfoundland and Labrador is within the "Atlantic Flyway" (USFWS n.d.), with the major migration pathways in the flyway in this area focused along coastlines. Relatively fewer birds and bats would use the Project Area as a migratory pathway compared to coastal areas. As such, large mortality events, such as those documented in Longcore et al. 2008, would not be expected. Regardless, the following mitigation measures will be implemented to reduce the potential for bird and bat collisions with the communications tower for both migrant and resident species: • Lighting will be limited to Transport Canada's requirements. • When possible, flashing lights will be used as opposed to fixed lighting, while adhering to Transport Canada's requirements. • The minimum number of guy wires necessary will be used (US Fish and Wildlife Service 2021). • Guy wires will have visual markers or bird diverter devices, to reduce bird mortality (US Fish and WIldlife Service 2021; Manville 2016). • Post construction mortality searches as identified in the Avifauna Follow-up Monitoring Program will be expanded to include the communications tower.
Electromagnetic Radiation	Neither the EIS, nor the "Addition of a Communications Tower" addendum, identify electromagnetic radiation as an impact to terrestrial fauna. However, electromagnetic radiation from communication towers is known to impact birds and bats (as well as other mammals and amphibians) in several ways: reduced breeding success, site avoidance (effective habitat loss) and reduction of natural defenses (Balmori, 2008, Everaert & Bauwens, 2007). A study in Spain detected significant diminishment of breeding success in storks within 200 m of a telecommunications tower (Balmori, 2008). In the case of the proposed communication tower, this undescribed impact (electromagnetic radiation) has the potential to create a chronic degradation of wildlife habitat in the vicinity of the tower during its entire operating life. The EIS addendum should address this impact, describe the effective habitat loss, and include approaches to mitigate this impact as much as possible.	The effects of electromagnetic radiation from communications towers on wildlife are not well understood, and it is often difficult to separate the effects of electromagnetic radiation from other confounding variables (e.g., light pollution) (Malkemper et al. 2018). However, there is research to indicate that anthropogenic electromagnetic radiation may have adverse effects on wildlife species. Many species of wildlife depend on Earth's electromagnetic fields for biological needs including navigation, circadian rhythms and reproduction (Levitt, Lai and Manville 2022). As such, the introduction of anthropogenic electromagnetic radiation may interfere with these processes. For example, radio frequency may affect magnetic orientation for migratory birds; however, it is not understood if this has real ecological consequences (Malkemper et al. 2018). Some studies (e.g., Balmori 2005, Everaert and Bauwens 2007) have indicated that electromagnetic radiation may affect the abundance and/or breeding success of birds. These effects appeared to be localized (e.g., within a 200 m radius of the source [Balmori 2005]), and as such would not be expected to affect birds at a population level. The communications tower is located within the mine site. In the EIS, it was assumed that all habitat within the mine site would be lost or altered. Therefore, the residual effects predictions in the EIS for both avifauna and other wildlife account for this loss/alteration of habitat. As a result, the installation and operation of the communications tower will not change the characterization of predicted residual effects on avifauna and other wildlife as discussed in the EIS. No additional mitigation measures are required.

Table A.1 MFN Comments

Topic	Comment	Response
Novel Breeding Habitat	Peregrine falcon (*Falco peregrinus*) has been recovering in Canada since the DDT-caused decline of the 1950-1980s. Human-made structures, such as the proposed communications tower, offer novel breeding habitat for this cliff-nesting species in areas where they did not breed in the first half of the 20th century (Holroyd & Bird, 2012). The “Addition of a Communications Tower” addendum makes mention of a proposed mitigation response in the event of nesting from osprey (Pandion haliaetus) or bald eagle (Haliaeetus leucocephalus). Although not likely, peregrine falcon nesting is possible, which could alter local trophic interactions and increase predation of landbirds and waterfowl in the vicinity. All raptor nesting should be monitored, reported and responded to.	Peregrine falcons have only been known to breed on the island of Newfoundland in very small numbers (Sullivan et al. 2009), and nest on high rock crevices, usually near the ocean or open tundra (COSEWIC 2017). Therefore, it is unlikely that a pair would construct a nest in the Project Area . As such, peregrine falcons are not expected to use the communications tower as a nest site. If a peregrine falcon nest did occur, the same mitigation would be followed as was specified for an osprey nest. Should any raptor nest on the tower, the NL Wildlife Division would be notified, and the nest would be monitored throughout the breeding season. In consultation with the NL Wildlife Division, Marathon would consider the possible relocation of the nest once the breeding season is over. This would require the use of qualified professionals to move the nest during the winter to a safer location beyond the mine site.