Decision: Three Sisters Mountain Village Properties Ltd. Smith Creek Wildlife Corridor Application
February 26, 2020

I. Introduction

This is the decision of Alberta Environment and Parks ("AEP"[1]) regarding the Three Sisters Mountain Village Properties Ltd. ("TSMVPL"[2]) designation proposal, dated January 28, 2020, for a Smith Creek wildlife corridor.

This decision is made pursuant to Condition 14 in Appendix C of the Natural Resources Conservation Board decision referred to below.

a. NRCB Decision

On October 9, 1991, Three Sisters Golf Resorts Inc. filed an application (# 9103) with the Natural Resource Conservation Board (the "NRCB") for approval to develop a recreation and tourism project on the present site in the Bow Valley and adjacent lands within the Wind Valley. In November 1992, the NRCB released its Decision Report[3] on the application in which it approved Three Sisters Resort Golf Resorts Inc.'s tourism and recreation based project to be developed on Three Sister's private lands in the Bow Valley but did not approve development in the Wind Valley.

The NRCB decision was provided subject to several conditions, including Condition 14 in Appendix C, page C-4 which required the following:

"Three Sisters shall incorporate into its detailed design, provision for wildlife movement corridors in as undeveloped a state as possible, and prepare a wildlife aversive conditioning plan, both satisfactory to Alberta Forestry, Lands and Wildlife".

The NRCB's decision was authorized by the Lieutenant Governor through Order in Council 8/93 dated January 6, 1993. This gave AEP the authority to evaluate the design of the wildlife corridor as proposed by TSMVPL to ensure functional wildlife movement. This authority has been delegated to Rick Blackwood under Ministerial Order 10/2020 dated February 25, 2020.

b. History/Background

Since 1992, TSMVPL (and its predecessors in ownership) have developed the overall Three Sisters property and wildlife corridors near to that development in stages. On February 10, 1998, AEP issued a letter in which it approved the multi-species wildlife corridors generally along the south and western boundary of Three Sisters Resorts land (currently referred to as the "1998 Along Valley Corridor"). The approval was informed using basic criteria for the identification of wildlife corridor of a linear nature of sufficient width that was unencumbered as much as possible by development, minimized impassible topographical features, and consisted of adequate vegetation to provide hiding and thermal cover requirements of wildlife. The remaining portion starting approximately 100 m east of the east boundary of Sec 11 Twp 24 Rge 10 W5th and eastward into the Wind Valley and on the west flank of Pigeon Mountain leading to the G8 Legacy wildlife underpass at Dead Man's Flats remained to be approved.

Subsequently, some western portions of the 1998 approved corridors that were proposed to be generally within future golf course lands (such as Mineside) were thought not to function properly due

[1] References to AEP include its predecessor departments previously having responsibility for evaluating wildlife corridor designs proposed by TSMVPL pursuant to the NRCB decision report.
[2] References to TSMVPL include all predecessors
[3] Specifically Approval No. 3 of the Natural Resources Conservation Board granted in 1992 in the matter of an Application by Three Sisters Golf Resorts Inc. to construct a recreational and tourism project in the Town of Canmore (Application #9103) (the "NRCB Decision")

to issues with width, location and being bounded by development on both sides of some along valley corridor elements and discussions were held with the developer to improve corridor function and adjust developable area to be only on one side of a new and widened along valley south of the future Resort Centre lands of Three Sisters. On May 20, 2003, AEP (as it was then) approved a revised corridor alignment on a western portion of the previously approved corridor, resulting in a wider corridor. A 35m-wide buffer around the west and south sides of the Resort Centre lands outside the corridor was mutually agreed to between the developer and the Town of Canmore to provide for fire thinning and a potential public trail around the Resort Centre lands. This 2003 approval now forms the major western portion of the existing approved wildlife corridor, and has been since protected via a Conservation Easement around the 2004 Resort Centre ASP lands.

In the following years after the approval of the realigned and expanded western portion of the corridors, development of the existing Three Sisters Mountain Village continued generally north and east of the existing Stewart Creek Golf Course. A second golf course (Three Sisters Creek Golf Course) received a Development Permit within the 2004 Resort Centre ASP lands, and construction was initiated but not completed due to the global financial crisis that began in 2007/2008 and the receivership of a previous American based owner that occurred as a result.

Work on the eastern portion of the along valley corridor also continued, and in 2002, a report (Wind Valley Wildlife Corridor Study) recommended wildlife corridors for the eastern portion of TSMVP lands, Thunderstone lands and crown lands on the basis of approximately two years of wildlife studies. Ultimately, these corridors were not agreed to by all of the various landowners. One factor in the disagreement was that the 2002 proposal resulted in a significantly disjointed connection with the approved 1998 along valley corridor (historically referred to as "the disconnect"). Subsequent to the 2002 Wind Valley study, the G8 Legacy wildlife underpass was installed east of Dead Man's Flats in 2004, facilitating wildlife movement under the Trans-Canada Highway east of Dead Man's Flats to the habitat patch around the Bow River.

Significant changes have occurred in the Bow Valley since the NRCB initially rendered Decision No. 9103 regarding the Three Sisters development. These changes include ongoing population growth in the Bow Valley, the formation of the Bow Corridor Ecosystem Advisory Group (BCEAG) (1995), the designation of significant protected areas (i.e. Bow Valley Provincial Park (2002, OC 424/02, Canmore Nordic Center Provincial Park (2002, OC 426/02), and Bow Valley Wildland Provincial Park (2010, OC 268/10), the creation of wildlife underpasses at Stewart Creek (1998) and Dead Man's Flats (2004), and more recently the recommendations for coexistence with wildlife of the Bow Valley Roundtable (2018). In many instances, these changes have resulted in positive outcomes for wildlife. The following actions in particular must be thought of when considering corridors in the Bow Valley:

- Creation of Wildlife Underpasses beneath the TransCanada Highway at Stewart Creek and Dead Man's Flats
- The formation of the Bow Valley Wildland Park creating protected lands to the south and north (across Highway #1) of Three Sisters developments
- The proliferation of recreational pursuits in the Bow Valley (e.g. hiking, biking, dog walking, running)
- The formation of BCEAG and subsequent release of Guidelines for Wildlife corridors for lands outside of NRCB approvals (last updated in 2012). The 2012 BCEAG guidelines are viewed as guidance and information, as they outlined a framework of patches and corridors in the Bow Valley, but they are specifically not applicable and cannot be stipulations to any lands containing *"projects for which approvals have been previously granted by the Natural Resources*

Conservation Board (NRCB) prior to July 1999 (e.g., Three Sisters Mountain Village)" (taken directly from Wildlife Corridor and Habitat Patch Guidelines for the Bow Valley, Updated 2012)

- The creation of the Bow Valley WildSmart program to help educate and inform residents and visitors on ways to mitigate wildlife human conflicts in the Bow Valley
- The Town of Canmore passing *Wildlife Attractant Bylaw* 2017-10 last updated on August 26, 2019 and *Recyclables and Waste Disposal Bylaw* 2016-11 last updated January 1, 2019 which provides for improved wildlife human interface considerations on a town wide basis
- Finally, more recent developments resulting in additional positive impacts for wildlife include:
    - the land exchange north of the Wind Valley underpass completed between the MD of Bighorn and the Province of Alberta,
    - the 2018 report "Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley"
    - The proposed Seebe Wildlife Overpass (now confirmed in Alberta Transportation's Capital Plan with construction planned for 2021)

On January 26, 2017, QuantumPlace Developments Ltd., on behalf of Three Sisters Mountain Village Properties Ltd., submitted an application to AEP seeking its approval of the remaining eastern portion of the wildlife corridor, within the lands known as Smith Creek. The AEP decision on this proposal was denied on June 26, 2018, on the basis of concerns regarding:

- The width of the cross-valley Stewart Creek corridor width
- The width of the wildlife corridor on the eastern edge of the Smith Creek property, given the discontinuous slopes in this area, south of the Thunderstone quarry.

Since that time, TSMVPL and AEP staff have worked on identifying a suitable wildlife movement corridor that would be considered satisfactory to AEP taking into account comments and feedback received from the public during the 2017 application process, additional data and analysis since 2017 regarding wildlife use, newer work like the 2018 report "Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley" and TSMVPL working to address AEP concerns identified in the 2017 application. TSMVPL submitted a formal submission for approval consideration by AEP as a culmination of two years of work on January 28, 2020 that provided a proposal that built on the work of their 2017 application along with an evaluation undertaken by Golder Associates Ltd. also dated January 28, 2020. The January 28, 2020 application is the subject of this document.

II. Wildlife Aversive Conditioning Plan

The NRCB Decision also required TSMVPL to prepare a wildlife aversive conditioning plan to the satisfaction of AEP. However, the *Wildlife Act* generally prohibits threatening or harassing wildlife, which precludes TSMVPL from undertaking wildlife adverse conditioning.

Instead TSMVPL proposed developing a Wildlife Human Interaction Prevention Plan (the "WHIPP") in lieu of an adverse conditioning plan. The WHIPP was approved in February 1999. It was later revised with further approval from AEP on September 14, 2004.

Since that time, many of the initiatives undertaken via 2004 WHIPP are more properly addressed within the work regarding the understanding of co-existence with wildlife in the Bow Valley which culminated in the 2018 report *"Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley"* combined with Town of Canmore Bylaws implemented town-wide such

as the Town's *Wildlife Attractant Bylaw* 2017-10 last updated on August 26, 2019 and *Recyclables and Waste Disposal Bylaw* 2016-11 last updated January 1, 2019.

On review of the WHIPP, it is acknowledged that many of its initiatives overlap with Bylaw 2017-10 and 2016-11 and other initiatives in the region for managing human-wildlife interaction. AEP encourages TSMVPL to be involved in these initiatives, including actively participating in the ongoing discussions related to the *"Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley"* as a roundtable member and incorporating recommendations applicable to private property owners into future designs and plans.

Accordingly, AEP is satisfied that TSMVPL has complied with Condition 14 regarding a wildlife aversive conditioning plan. Therefore, my decision will consider the remaining requirement with respect to developing a detailed design for wildlife movement corridors.

III. Wildlife Corridor Background

One of the reasons people live, recreate, and invest and create businesses in the Bow Valley is because of the nature and wildlife viewing experiences this area offers. With the increase in human activities there have also been adverse effects to the wildlife and their habitat. Increasing residential, commercial and industrial development plus tourism and recreational activity in the Bow Valley has led to degradation and fragmentation of wildlife habitat, as well as the displacement of wildlife from habitat in the Bow Valley. The designation and ongoing management of wildlife corridors is an attempt to reduce these adverse effects, largely by providing natural spaces for wildlife to live and travel in a manner that includes minimal disruption by humans or their pets.

Wildlife corridors will ideally enable movement amongst individuals and subpopulations by providing movement opportunities for breeding adults, and dispersing juveniles seeking territories, and wandering individuals during daily movements and seasonal migrations. Corridors function at scales ranging from large regional corridors, to small local corridors that link patches of local habitat. The TSMVPL Smith Creek wildlife corridor and other adjacent corridors (existing and proposed) are localised corridors that form part of the larger network of wildlife corridors in the Bow Valley that link habitat areas.

The proposed TSMVPL Smith Creek corridor connects the existing approved 1998 wildlife corridor with the existing Wind Valley Habitat Patch, and provides linkage to the G8 Legacy Wildlife underpass. The primary purpose of the wildlife corridor as identified in the NRCB Decision report is to ensure that the TSMVPL development would be built in a way that ensures wildlife movement is enabled along the valley as a primary goal (east to west) and across the valley as a secondary goal (north to south).

In my view, having regard to the NRCB decision and relevant scientific literature, a wildlife corridor will generally be considered satisfactory if it can fulfill the following purposes in the Bow Valley:

- Allow wildlife to access important seasonal habitats in order to meet year round life requirements within the Bow Valley;
- Reduce the potential for negative wildlife/human conflicts by providing safe movement options around developed portions of the valley, thereby minimizing wildlife movement through human development within the Bow Valley.
- Delineate boundaries of Bow Valley's wildlife corridors.
- Allow for dispersal of young from their natal areas to other areas in order to establish new home ranges

IV. Summary of the Three Sisters Mountain Village Properties Ltd. Smith Creek Wildlife Corridor Application dated January 28, 2020

Three Sisters Mountain Village Properties Ltd. has proposed the Smith Creek Wildlife Corridor with the following attributes:

- The Smith Creek "Along Valley Corridor" encompasses lands that lie east to west approximately 2.5 km through TSMVPL's Smith Creek lands. This includes approximately 258 acres (104 ha) on the south side of lands known as Site 9, and another 127 acres (51 ha) and 27 acres (11 ha) within lands known as Site 7 and 8, respectively, for a total of approximately 412 acres (166 ha) of private land (including lands belonging to Thunderstone Quarry outside of Site 9 that TSMVPL was able to obtain permission to include in their January 28, 2020 proposal, noting that Thunderstone Quarries is not subject to NRCB Decision No. 9103 nor required to provide wildlife corridors from their land holdings) proposed to be dedicated as wildlife corridor[4]. The proposed corridor connects the existing 1998 wildlife corridor east of Smith Creek with the existing Wind Valley Habitat Patch in the west and the existing Bow Flats Habitat Patch through the G8 Legacy wildlife underpass at Dead Man's Flats.
- The additional land on Sites 7/8 in this proposed corridor also addresses a portion of land on Site 7 that was considered a potential disconnect in previous wildlife corridor planning documents (i.e. 1998 Approved Along Valley Corridor and unapproved 2002 Wind Valley corridor). The northern border of the corridor now consists of a single smooth edge without any disconnects. The border was also adjusted to encompass a large fen wetland complex on the TSMVPL lands.
- The application also proposes to realign the Stewart Creek "Across Valley Corridor" approximately 300 m to the east, to a drainage which is a natural movement corridor for wildlife and centering the corridor on the location of a proposed new wildlife underpass across the TransCanada Highway. The Stewart Creek "Across Valley Corridor" realignment is proposed as an option, subject to Alberta Transportation and other appropriate regulators approving a new wildlife underpass beneath the TransCanada Highway. If approved, the existing location of the Stewart Creek "Across Valley Corridor" with the exception of the existing crossing structure and generally adjacent Province of Alberta owned lands, would revert to developable lands not needed for wildlife purposes. The existing Stewart Creek crossing structure and connection would remain as a secondary crossing.

V. Decision Making Process

An extensive process has been undertaken to review the TSMVPL application, in regards to ensuring the proposal satisfies the requirements set out in the NRCB 1992 Decision, including significant work in the last two years to discuss potential improvements to the 2017 application.

My review has been informed in part by the following recommendation set out in the NRCB Decision with respect to wildlife corridors:

> Appendix D, page D-5 Recommendations to Alberta Forestry, Lands and Wildlife: *It is recommended to Alberta Forestry, Lands and Wildlife that locations for wildlife corridors be legally designated and that in determining their locations and widths, primary corridors should not be narrower than 350 m except in unusual circumstances, that widths and locations be reviewed with the full range of species that may make*

[4] Reference should be made to my comments regarding a potential land exchange (as referred to in TSMVPL's submission) following the Conclusion section of this decision. However, consideration of potential land exchanges did not form part of my evaluation of their corridor design.

use of them in mind, that corridors be located to allow movement across adjacent properties, that measures such as bundling road, utility line and pathway crossings be adopted, and that corridors correspond with known movement routes of the animals.

The intent of the review of the TSMVPL Smith Creek wildlife corridor is to ensure that the proposed corridor will delineate a wildlife corridor in Smith Creek that specifically identifies the corridor location satisfying the 1992 NRCB Decision. The corridor will be designed to facilitate the safe passage of wildlife in order to enable ecological processes, such as movement, foraging, etc., at levels reflecting persistent over generations and sustainable human-wildlife interactions. Finally, the intent is that additional management approaches are not needed outside of the delineated corridors including additional buffers, setbacks or layering of uses, and that the proposed corridor stands on its own for land requirements.

My evaluation of the application is grounded on ensuring that the above mentioned purposes of wildlife corridors will be achieved over the very long term (decades and even centuries). The development will be a permanent part of the landscape and therefore the wildlife corridors must be able to support the full range of natural wildlife movement for decades to come.

Three Sisters Mountain Village Properties Ltd. has provided the following documents as part of its proposal:

- Three Sisters Mountain Village Smith Creek Wildlife Corridor Submission — January 28, 2020
- Evaluation of the Smith Creek Wildlife Corridor – Golder — January 28, 2020
- Smith Creek Wildlife Corridor shapefile — January 28, 2020

In making my decision I reviewed all materials provided by TSMVPL, and a multitude of publicly available scientific (peer-reviewed) and technical (non-peer reviewed) reports regarding wildlife corridors and wildlife habitat use, particularly those directly related to the Rocky Mountain ecosystem. I also referred to materials provided by residents and interested parties through letters, emails, public input sessions and meetings attended by AEP, and public open houses organized by Three Sisters Mountain Village Properties Ltd. in 2017 and 2018 as a part of their Area Structure Planning process or through other means.

VI. Evaluation Process

Despite their intuitive appeal and widespread implementation, scientific understanding of how to optimize corridor design and quantify their functionality is not a black and white issue. One of the most contentious variables in corridor design relates to width (Beier et al 2008). Following my review of the published literature, it was determined that to identify satisfactory wildlife corridors general corridor principles and criteria needed to be identified. These principles form the fundamental rules that represent what is desirable and were used to generate criteria for rendering a decision on wildlife corridors. Principles were identified developed from scientific literature, guiding documents, and expert opinion. It is noted, given the variable landscape, that deficiencies may exist relative to the corridor principles and criteria. Where deficiencies exist, functionality will be maintained through other management approaches (e.g. human use management, habitat enhancements). It must be noted that these principles are specific to the Bow Valley and may not be applicable to other corridor development. It is important to note that even with the establishment of corridors, wildlife may continue to move throughout the urban community (i.e. urban green spaces) as is currently seen in the Town of Canmore. Important green spaces will continue to provide opportunities for both people and wildlife.

Wildlife Corridor Principles and Criteria Developed by AEP for the evaluation of TSMVPL's submission:

- Corridors are designed to provide movement for wildlife, while enabling human development to proceed which is in keeping with the 1992 NRCB decision. This principle has been followed and demonstrated by the approval and development of existing phases of Three Sisters since the NRCB decision was rendered.
    - The boundaries of Three Sister wildlife corridors will be delineated to provide consistent direction for and allow for future land-use development applications, recreational planning and other activities.
- Corridors are designed to maintain the most direct, unimpeded route, while avoiding human disturbance.
    - Corridors will be delineated to provide as straight a path as possible, and to the extent possible not contain significant human impediments or presence, and/or present mitigation strategies to manage human use.
    - As the intent of corridors is to provide security for wildlife, nodes of public use (e.g. campgrounds, facilities, trail heads, etc.) within corridors are generally not aligned with this purpose. Crossings of corridors are recognized as sometimes needed for utilities, transportation, communications, trails, access, etc. and such crossings should ideally be bundled together where reasonably possible.
- Corridors that are shorter are more effective than longer corridors as wildlife are able to more efficiently from one habitat patch to the next. Longer corridors should generally be wider to provide more efficacy for wildlife movement. Topographic constraints: Corridors and patches should not include topographical barriers that would block movement. Corridors should be designed for year round function and not be hindered by adverse environmental condition (e.g. deep snow, impermeable vegetation, larger waterways).
    - Topography can impact the effectiveness of wildlife movement through corridors. Flatter areas are preferred by most wildlife species and corridors will be delineated to include flatter areas (below 25° slope) for all portions of corridor. Species exhibit a range of slope preferences, and the 25° slope target was chosen based on local technical studies and literature. Due to the varying topographical nature of the Bow Valley, no specific limits will be identified. However a principle to include as much flatter or gently sloped terrain as reasonably possible was identified, along with respecting the NRCB's recommendation that corridors correspond with known routes of animals.
- Where possible, corridors should include existing natural habitat features, such as wetlands, licks, or other known wildlife sites.
- Corridor Width: The optimal corridor width is a function of how animals respond to the boundary of the corridor. The NRCB recommended a 350m minimum width for primary corridors. Wider corridors should be better than narrower corridors but how much wider has not been clearly demonstrated by science. Optimal corridor width is a function of how animals respond to the boundary of the corridor. Wolf behavioural response to disturbance can be used to guide corridor width that should accommodate other species.
    - Wolf behavior responded to human activity at 400m (Rogala et al. 2011). Therefore, achieving an average corridor width of 600m (400m plus 200m) should ensure functioning corridor effectiveness of at least 50%. This also indicates that corridors less than 400m wide may not function effectively for wildlife movement for all species, and 400m was a desired minimum width for corridors.

- In some cases, due to logistic or other constraints, it may not be possible to achieve the average widths referenced above. Where deficiencies exist, functionality will be maintained through other management approaches (e.g. human use management, habitat enhancements).
    - Management strategies (e.g. human use within corridors, vegetation management) will be required to be outlined to improve movement through mitigation where it is not possible to achieve the desired corridor structure. Considerations should be given to management actions that will improve corridor function, in areas where topography is steeper, or where corridor width is constrained.
    - Vegetation modification, through the thinning and delimbing of trees, can also influence wildlife behavior, by altering vegetative habitat, in the area closest to occupied structures. This could create a filtering effect of certain species using the corridor, and increasing wildlife conflict in other species. The Town of Canmore has a long history of incorporating wildlife corridors with FireSmart to achieve a combination of desired outcomes (i.e. Peaks of Grassi).

VII. Decision

I have determined that the January 28, 2020 TSMV Wildlife Corridor proposal is Satisfactory to AEP, as required by Condition 14 in Appendix C of the 1992 NRCB decision No. 9103.

While I have determined the proposal to be satisfactory I have also made a number of additional recommendations to TSMVPL with respect to certain actions that I feel would serve to even further support and enhance the functionality of the proposed corridor and address potential issues with respect to human-wildlife interaction in the Bow Valley. I am pleased that TSMVPL has confirmed that they accept these recommendations and that they have committed in writing to implementing each of these recommendations within the next 24 months. AEP and TSMVPL recognize that if completion of these recommendations cannot be successfully completed within this timeframe, both agree to continue to work collaboratively to bring them to completion as quickly as possible. The recommendations that TSMVPL has made a commitment to satisfy are:

- The creation of habitat enhancements within the Smith Creek wildlife corridor as agreed to by TSMVPL and AEP that provide for wildlife and/or FireSmart considerations for the community;
- TSMVPL to support the implementation of initiatives as applicable to private property owners outlined within the 2018 "Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley" report, and participate as a roundtable member to develop and support the groups initiatives regarding wildlife conflict and co-existence education for residents and visitors to TSMVPL properties, and ongoing participation in local WildSmart initiatives to the satisfaction of AEP.
- Ongoing coordination of FireSmart planning with the Town of Canmore, Alberta Agriculture and Forestry, and AEP as may be proposed within wildlife corridors adjacent to ongoing and future Area Structure Plans on lands owned by TSMVPL.
- A detailed plan outlining the development of crossing structures and fencing to the satisfaction of AEP, which should consider the recommendations of Clevenger and Huijser 2011 or suitable alternatives to the satisfaction of AEP for both Highway 1, and Secondary Highway 742 (Three Sisters Parkway)

The current satisfactory approval with the TSMVPL Smith Creek Corridor proposal is predicated upon the Stewart Creek "Across Valley Corridor" realignment, subject to Alberta Transportation and other appropriate regulators approving a new wildlife underpass beneath the TransCanada Highway. If approved, the existing location of the Stewart Creek "Across Valley Corridor" with the exception of the

existing crossing structure and generally adjacent Province of Alberta owned lands, would revert to developable lands not needed for wildlife purposes. If the Stewart Creek "Across Valley Corridor" is not agreed to by the appropriate regulators, the existing cross-valley corridor would be maintained in perpetuity, and the along valley corridor would connect to the existing 1998 approved corridor, subject to further discussions with TSMVPL and other regulators.

The TSMVPL proposal aligns with the Wildlife Corridor Principles and Criteria identified above and contains several positive aspects to maintain wildlife movement. TSMVPL has also indicated their commitment to carry out the recommendations identified above to further support and enhance the ongoing functionality of the corridor. It is noted that no development is planned to the south of the corridor, as that area has been designated as Bow Valley Wildland Park (which was not present in the initial NRCB decision #9103). Further, I find that the TSMVPL proposal has addressed the two deficiencies identified in the AEP June 26, 2018 decision letter in the following manner:

1) The proposed cross valley corridor (New Stewart Creek) averaged 610m with measurements taken at the southern edge, the middle and northern edge of the corridor, and the narrowest point being 401m. This addresses a noted deficiency in the AEP's Three Sisters decision letter (June 26, 2018), whereby it recommended that "A corridor that is approximately 400m wide on average, and no less than 350m at its narrowest point, would be better able to achieve the purposes of this corridor." It should also be noted that this cross-valley corridor will be extended to the west, along the Powerline ROW, to include the currently existing wildlife underpass. This will add some width to this corridor and additional ability for wildlife to cross Highway 1.
    a. In a letter provided leading up to the 2018 decision (Clevenger and Ford, pers comm. 2016) indicated that wildlife species will most likely adapt and use the new crossing, provided that it is designed appropriately. The proposed crossing should be similar to the current Stewart Creek underpass beneath the TransCanada and designed as a large mammal species underpass generally as described in Clevenger and Huijser 2011.
2) The eastern end of Smith Creek property is an important area for wildlife movement. The previous Three Sisters decision letter (June 26, 2018) identified this area as a deficiency in the proposal, due to the discontinuous steep slopes potentially limiting wildlife movement through the area. The decision further recommended that the width be increased by another 50 to 100m (to an average of 400m to 450m below slopes). This extension would require corridor being placed on lands outside of Three Sisters property, which is outside the scope of the NRCB decision. Further, it is noted that slopes greater than 25 degrees occur throughout the Bow Valley. The width of the 2017 proposal near this series of discontinuous slopes, averaged 740m. The corridor proposed by TSMVPL in their January 20, 2020 submission increased by 25-39m from the 2017 submission. Importantly, the demonstration of wildlife use of the area by data in the newest Golder report, indicate that wildlife are able to navigate the slopes, and do not represent a total barrier to wildlife movement. This corridor proposal combined with TSMVPL commitment to habitat enhancements, human use management, and education, provide a satisfactory resolution to achieve wildlife movement through this area and addresses the deficiency of the previous decision. Further:
    b. Scientific and technical literature indicates that terrain below a 25 degree slope is preferred by most species. However there is no minimum width for corridors beyond a lower slope. Data on wildlife movement in the immediate area show utilization of areas and slopes exceeding 25 degrees in the area of discontinuous slopes south of the Thunderstone Quarry. The proposed corridor largely consists of flatter areas, with only 11% of the corridor occurring on slopes greater than 25 degrees. The wildlife use of the area is most likely a function of discontinuous slopes, numerous trails and old roads, and the presence of a power line right-of-way; that enable use and movement through area, despite the presence of slopes.

c. The eastern end of Smith Creek property is an important area for wildlife movement. It connects the Bow Valley and the Wind Valley, and enables safe passage through the G8 Wildlife Underpass. Wildlife movement is additionally impacted in this area by the Thunderstone Quarry operations, Banff Gate resort, the Kananaskis Gun and Archery club and several recreational trails. Ongoing initiatives have occurred to improve wildlife movement potential including management of the Kananaskis Gun and Archery range, the land exchange with the MD of Bighorn to preserve habitat on the north side of the G8 Legacy underpass, and increased management of recreational use within wildlife corridors.

My decision also evaluates the entire proposal alignment with the above mentioned principles and evaluates the functional nature of the proposed wildlife corridor. The proposal describes fencing as a key strategy in the management of the corridor. AEP's evaluation will focus on corridor delineation outside of fencing mitigation such that the corridor delineation is considered sufficient without the use of fencing. A wildlife fence has been proposed as a mitigation solution to reduce both human wildlife conflict and minimize human use and disturbance within the corridor. AEP agrees that management of human activity is a key item to ensure wildlife corridor functionality. There is no one solution to preventing human-wildlife conflict and minimising human effects in the corridors. A fence alone will not prevent all wildlife issues, but it is acknowledged that fencing has been an effective tool in other areas of the Bow Valley and in North America. There needs to be an inclusion of attractant management, as well as education and enforcement by many parties. Fencing can be effective at limiting conflict with wildlife, but the social impacts of fencing could lead to some challenges to implementation within the community and education and enforcement by many parties will be key. Both wildlife and humans will cross the fence at some point and understanding what to do in these cases will be necessary. As discussed above, TSMVPL has committed to align with the 2018 report "Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley" as applicable to private land owners and I further recommend that TSMVPL become an active member with Bow Valley WildSmart in helping to improve coexistence with wildlife.

Width:

- The average width of the entire along valley Smith Creek corridor is 789m, and at minimum is 635m, which aligns with the recommendation of the above Wildlife Corridor Principles.
- The minimum width of the Pigeon corridor leading to the G8 Legacy underpass was found to be 352m in between the Thunderstone Quarry and the Banff Gate Resort. While this portion occurs on lands outside of TSMVPL ownership, it is noted here as it part of the system of corridors that connect to enable wildlife movement. Consideration will be given to opportunity to placing further restrictions on any future human development within or adjacent to this portion of the corridor on the east side of George Biggy Sr. Road (i.e. trails, trail nodes, leases, etc.), and management efforts will focus on existing disturbances, like those that have been achieved with the Kananaskis Gun and Archery Club.

Slope:

- Generally speaking, slope by itself is not considered to be an impermeable barrier to wildlife movement, however, lower topography is preferred for wildlife corridors (based on energetics of movement). Assuming all variables being equal (e.g. forage availability, refuge, water), wildlife (with exception of sheep) tend to prefer to travel on flatter topography
- The along valley portion of the corridor averages 405m below a perceived slope line of 25 degrees (as determined by AEP). This should provide wildlife with enough areas of lower topography to traverse the corridor in addition to the well documented use of by wildlife of the discontinuous sloped area.
- Overall, 89% of the TSMV proposed corridor occurs on slopes below 25 degrees

- There are areas of greater topography, both above the across valley corridor, as well as to the south of the Thunderstone Quarry. Wildlife movement data show significant use of these areas despite topography, providing evidence of suitability for movement.
- Further these areas have been identified as areas for habitat enhancements, as well as limits on recreation development, to mitigate the risks for wildlife.

Wildlife features:

- The inclusion of known fen wetlands including one large fen is an important contribution to the wildlife corridor. Water features are of known value to wildlife, and could be of importance on their own (i.e. Birds, long-toed salamander, western toad). In my opinion, retaining the corridor to include all three known wetlands, including the large fen that makes the along valley corridor 'bump', is of significant value to wildlife.
- In an evaluation of available wildlife data, there is a high degree of wildlife use and features within the proposed corridor. Observations of bear, wolves, cougar, elk and mule deer all occur in proposed corridor, with greater frequency than the surrounding proposed developable area.

Comparison to previous corridors:

- The proposed corridor adds both width and lower topography than previously approved corridor (1998) within the area known as Site 7. The proposed corridor adds an average of 287.5m from the previously approved corridor with the majority of this addition occurring on shallower slopes.
- In comparison to the 2002 proposed Wind Valley corridor, the proposed corridor follows the general pathway, but the proposed Smith Creek corridor is an approximately 50-75m further south and as such is wider than what was considered in 2002.

Directness of corridor:

- The corridor is largely straight with few bends or turns, thus largely in alignment with the Wildlife Corridor Principles.
- There is a large bump-out to incorporate a large fen wetland, and this is supported as wildlife are most likely drawn to the fen

Human infrastructure:

- Ideally, wildlife corridors are designed for wildlife, and will have limited human development within. It is recognized that the public will also want to experience the corridor through recreational trails. Human use and infrastructure must be carefully managed so as to minimize impacts on wildlife. The human use management of the corridor may be more important than the delineation of the corridor itself, and so the proposed fence along with education and enforcement by many parties will be important going forward.
- Numerous designated and undesignated recreational trails currently occur within the corridor. To ensure the success and functionality of the corridor for wildlife these trails should not be maintained and special consideration must be given to which trails will remain and which will be removed. The final delineation of the wildlife corridor in this area will help in any future trail planning process to work to ensure that any future trail identification and/or development helps to support the key intent of the wildlife corridor as the first priority.
- Human use must be managed into the corridor. Recreational trails should be designated after planning considerations and access to the corridor should be managed to limit designated access to identified entry/exit locations to prevent the construction or use of undesignated trails like has occurred south and west of the Peaks of Grassi.
- The Three Sisters Parkway will eventually be built through this area, cutting across the Stewart Creek Across Valley corridor. Fencing alongside this road and a crossing structure for wildlife will need to be built to ensure appropriate wildlife movement along the Stewart Creek cross valley corridor, to the satisfaction of AEP with consideration for the recommendations within Clevenger and Huijser 2011, or similar.

VIII. Conclusion

TSMVPL's application has several positive aspects and we appreciate the extensive work that has been done to date that built on the high quality of work that AEP identified in the 2017 submission. When considering the improvements that have occurred within the Bow Valley over the last 25 years on the basis of wildlife and habitat protection, there is reason to be optimistic for wildlife now and in the future. The recent land exchange to improve wildlife movement through the G8 Legacy wildlife underpass, the proposed highway fencing and overpass by Seebe, and the release of the 2018 report *"Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence"*, newer Town of Canmore Bylaws implemented town-wide such as the Town's *Wildlife Attractant Bylaw* 2017-10 last updated on August 26, 2019 and *Recyclables and Waste Disposal Bylaw* 2016-11 last updated January 1, 2019 in the Bow Valley are all acting cumulatively to improve the ability of wildlife to navigate the Bow Valley. This proposal is satisfactory from my perspective and will formally complete the system of wildlife corridors related to Three Sisters and add to habitat patches in the Bow Valley. My reasons for this decision and suggestions for improvement are outlined in Section VI. Based on this review, AEP is satisfied with the corridors proposed by TSMVPL and formally submitted on January 28, 2020. Future work can now focus on the management of the corridor by many parties for the benefit of wildlife (e.g. Habitat enhancements, trail closures) and AEP will engage with the Town of Canmore, recreational planners, fire protection and TSMVPL representatives to ensure appropriate mitigation and planning to enable effective corridor design and management. While this decision represents an end to the formal process of delineating wildlife corridors related to Three Sisters as per the NRCB, it also is a beginning to the collaborative and cooperative process to manage these corridors. Finally, the approval of this corridor proposal provides a path forward for TSMVPL to develop their land base, and maintain a wildlife corridor. Further to this decision TSMVPL has committed to carrying out the following recommendations within 24 months of this decision. As referenced earlier, AEP and TSMVPL recognize that if completion of these recommendations cannot be successfully completed within this time frame, both agree to continue to work collaboratively to bring them to completion as quickly as possible

- The creation of habitat enhancements within the Smith Creek wildlife corridor as agreed to by TSMVPL and AEP;
- A detailed plan outlining the development of crossing structures and fencing to the satisfaction of AEP, which should consider the recommendations of Clevenger and Huijser 2011 or suitable alternatives to the satisfaction of AEP for both Highway 1, and Three Sisters Parkway.
- TSMVPL to support the implementation of initiatives as applicable to private property owners outlined within the 2018 "Human-Wildlife Coexistence: Recommendations for Improving Human-Wildlife Coexistence in the Bow Valley" report, and participate as a roundtable member to develop and support the groups initiatives regarding wildlife conflict and co-existence education for residents and visitors to TSMVPL properties, and ongoing participation in local WildSmart or similar initiatives to the satisfaction of AEP.
- Ongoing coordination of FireSmart planning with the Town of Canmore and AEP as may be proposed within wildlife corridors adjacent to ongoing and future Area Structure Plans or subdivisions on lands owned by TSMVPL.

IX. Post-script with respect to Potential Land Exchanges with TSMVPL

My decision has been made solely on my consideration of the merits of the submitted design, independent of any consideration of the potential ability on the part of AEP to acquire lands currently owned by TSMVPL or other parties. Having said that, I do wish to comment on the fact that in their submission TSMVPL has expressed an interest in acquiring Crown lands identified as Parcel K (27.93

ha/69.01 acres), Parcel C1 (4.87 ha/12.05 acres), a portion of Parcel U2 (area to be determined), and DLO 021340 current under assignment to TSMVPL. In my view this is not an unreasonable position on the part of TSMVPL, particularly given that some of the lands that they have included in their submission are outside of TSMVPL's own lands (see for example the discussion above with respect to the Thunderstone Quarries). I understand as well that TSMVPL is also proposing having the Province potentially acquire TSMVPL private property already within existing approved and proposed corridors.

I note that the concept of providing some form of "remedial action" for lands lost to development through land exchange or purchase was supported within the NRCB Decision. I recognize as well that the Province may be well positioned to ensure the ongoing functionality of portions of the corridor if they were to be transferred to and managed by the Crown and that a transfer to the Crown might help to carry out the recommendation of the NCRB that corridors be legally designated. With this in mind, AEP is receptive to exploring the possibility of a land exchange with TSMVPL. A land exchange would be based on fair assessment and valuation of both Crown Lands and TSMVPL lands being proposed for exchange and would follow the Government of Alberta's normal land exchange process, including any requirements for First Nations Consultation.

Sincerely,

Rick Blackwood
Alberta Environment and Parks

February 26, 2020