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Halfway / BC Landscape Planning Pilot

June 19, 2024

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1.0 Purpose

This Landscape Planning Pilot (LPP) is between Halfway River First Nation (HRFN) as represented by Chief and Council and His Majesty the King in right of the Province of British Columbia (BC), as represented by the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) and the Ministry of Water, Land and Resource Stewardship (WLRS), collectively the "Parties". The purpose of this LPP is to pilot operational implementation of HRFN's Adaptive Management Program and Plan (AMPP) for oil and gas development over discrete areas. This pilot constitutes the initial step toward the eventual implementation of the AMPP as HRFN's vision for a future state of a culturally based, legally enforceable, land-use decision making plan that operates at landscape and operational levels on Crown lands within the entire AMPP administrative area. The AMPP forms Appendix 1 of this LPP.

The AMPP seeks to balance HRFN's exercise of treaty rights and the healing of the environment with a sustainable regional economy. It identifies objectives, indicators and targets based on Dunne Za laws and HRFN values as they relate to the land. The indicators and targets have been developed to measure the current condition of the land base. The indicators represent defined values with associated targets that represent the outcome of a desired future condition. The AMPP is currently under development to conduct spatial analyses that will further define current and desired future conditions, upon which the results will inform management direction to guide land use activities and restoration planning. The LPP focuses on a set of operational measures for oil and gas activities while the finalized AMPP will, in addition to operational measures, focus on strategic management direction for all industrial related activities.

The LPP will pilot the AMPP in the context of oil and gas development by implementing its operational elements to promote and support the ability to meaningfully practice Treaty 8 Rights and facilitate the ongoing evolution of the AMPP for broader implementation including across a larger area and with respect to all industrial activities, in a manner that respects other land use planning initiatives underway with Treaty 8 Nations. It describes the key elements of the AMPP that will be implemented while baseline information continues to be gathered and the supporting programs are more fulsomely developed and implemented.

2.0 Geographic Area

The HRFN AMPP Administrative Area encompasses Indian Reserve #168 and adjoining lands, which constitute a small segment of a much larger area where HRFN members have practiced their way of life since time immemorial. The LPP targets two distinct areas within the AMPP Administrative Area: (1) LPP Area #1, which is the same area that is covered by the Blueberry River First Nations' (BRFN) Gundy Complex HV1 Plan (Gundy Plan) Area; and (2) LPP Area #2 (Figure 1). Until planning is completed for the remainder of the AMPP Administrative Area, oil and gas development will only be considered for LPP Area #1 and Area #2 in accordance with this LPP.

LPP Area #1

Over LPP Area #1, the HRFN AMPP is being implemented alongside the BRFN Gundy Plan. The Gundy Plan covers 52,873 ha situated north of HRFN's IR #168, within the Cameron River and Blueberry River Watershed Management Basins. The provisions of both plans will apply to new oil and gas

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activities within the Gundy Plan Area, which includes the Townsend Creek, Gundy and western Dancing Ground High Value 1 areas.
Previous oil and gas development within LPP Area #1 includes approximately 4,330 ha of development footprint, which is summarized by activity type in Table 1.

Table 1: Total existing disturbed area by oil and gas activity type within the LPP Area #1

PNG Activity Type	Total Existing Disturbed Area (ha)
Wellsite/Facility	715.8 hectares
Pipeline	1,173.3 hectares
Road	583.5 hectares
Geophysical	1,342.0 hectares
Related Activities	515.7 hectares

LPP Area #2 (Tsaa Dunne Za and area southeast of HRFN IR #168)
LPP Area #2 covers approximately 91,208.7 ha adjacent to HRFN's IR #168 within the Farrell Creek, Lower Halfway, Cameron River and Cache Creek Watershed Management Basins. Over this area, the HRFN AMPP replaces the BRFN Implementation Agreement Article 14 Rules to the extent that they are addressed within this pilot.

Previous oil and gas development within LPP Area #2 includes approximately 2,731.3 ha of development footprint, which is summarized by activity type in Table 2.

Table 2: Total Existing Disturbed Area by Oil and Gas Activity Type within LPP Area #2.

PNG Activity Type	Total Existing Disturbed Area (ha)
Wellsite/Facility	319.4 hectares
Pipeline	165. 7 hectares
Road	184 hectares
Geophysical	1,968.6 hectares
Related Activities	93.6 hectares

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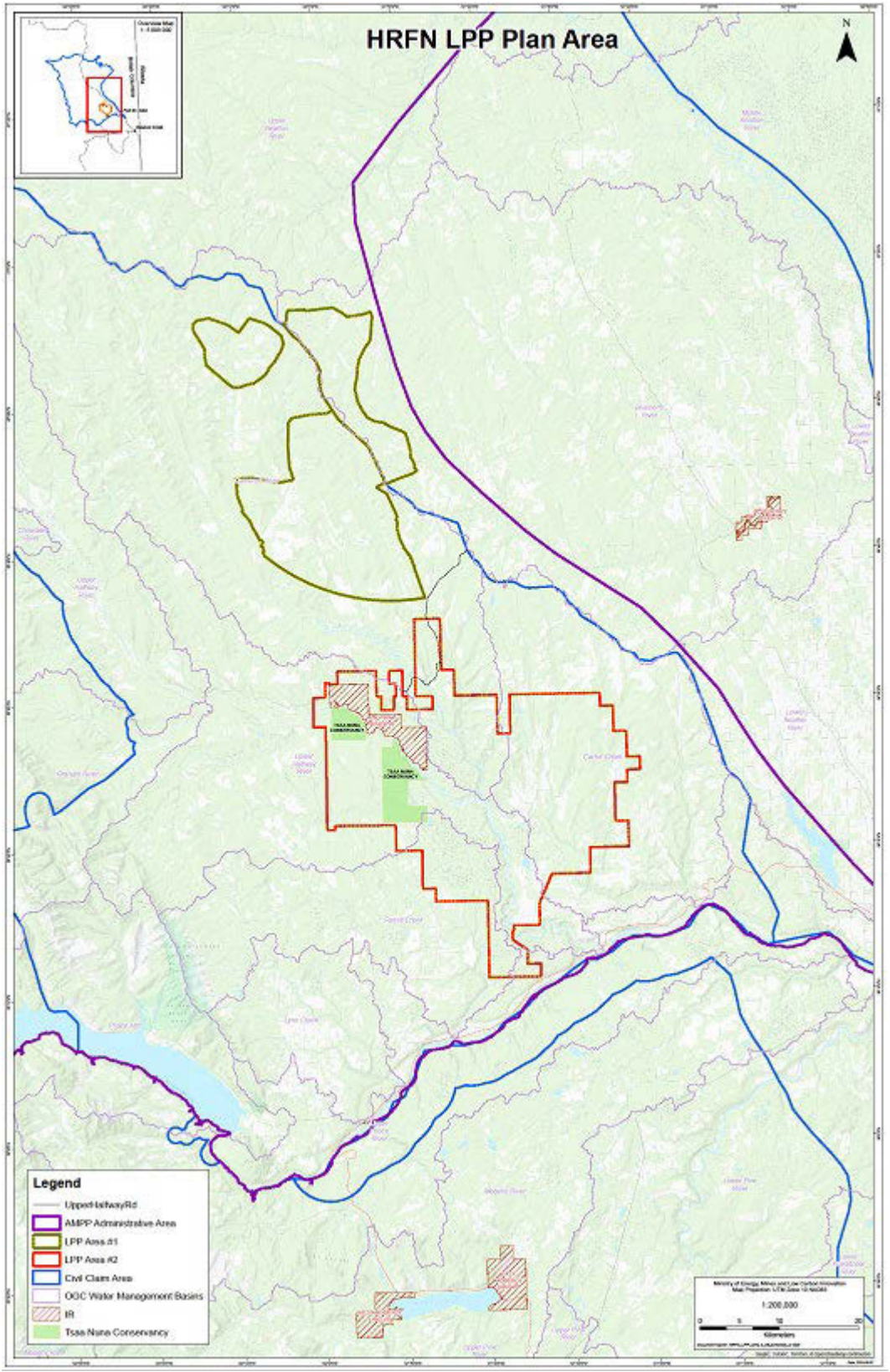

Figure 1: Areas covered by the LPP.

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3.0 Cumulative Effects Goals

The AMPP integrates HRFN's current views for addressing the cumulative effects of industrial development with the values that HRFN identifies as important for the exercise of treaty rights now and for future generations. The LPP approach incorporates protection, restoration and development planning/operational measures that will form the interim cumulative effects framework for oil and gas development while the AMPP continues to evolve and be implemented more broadly across sectors and over the AMPP administrative area. The AMPP describes HRFN's vision and principles for land and cumulative effects management in section 3. Section 6 further describes HRFN's key values that support the traditional way of life and includes primary objectives for each value.

The LPP is focused on initial implementation of the AMPP over narrow spatial areas and a single industrial activity (i.e., oil and gas development), thereby limiting the ability to effectively assess and manage cumulative effects of industrial development overall. However, it contains operational measures that are intended to address the cumulative effects of new oil and gas development in the short term, while contributing to the understanding of potential cumulative effects (e.g., accurate reporting of disturbance footprints) to support cross-sector implementation of the AMPP, including forthcoming management direction and a more holistic cumulative effects management regime in the future. By focusing on early stages of the standard mitigation hierarchy (i.e., avoidance and reduction), the goal is to effectively assess and manage oil and gas development at both the project and landscape level.

4.0 Protections and Limits

4.1 Protection

The BRFN Gundy Plan establishes Protection Zones where new oil and gas development is not allowed. The LPP does not identify additional areas to be protected from New Disturbance within LPP Area #1.

Within LPP Area #2 and shown in Figure 1, is the Tsaa Nuna conservancy. No new oil and gas activities are allowed within this area unless in accordance with the Tsaa Nuna conservancy management plan.

As noted above, the AMPP is currently under development to conduct spatial analyses that will further define current and desired future conditions, upon which the results will inform management direction to guide land use activities and restoration planning. The LPP focuses on a set of operational measures for oil and gas activities while the finalized AMPP will, in addition to operational measures, focus on strategic management direction for all industrial related activities. The Parties' intention is for the LPP to eventually be replaced by the finalized AMPP.

4.2 Disturbance Limits

New Disturbance Caps established under s.14.1 of the BRFN IA do not apply over the areas pertinent to this LPP.

Over LPP Area #1, New Disturbance caps are addressed and replaced through the BRFN Gundy Plan.

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Over LPP Area #2, this LPP replaces the New Disturbance caps through the implementation of the AMPP management regime. The proposed oil and gas activities that were considered in the development of the LPP Area #2 are listed in Appendix 2. This list of applications includes activities that have already received permits, for which the proponent and HRFN have negotiated additional measures. Additional activities, not listed in Appendix 2, may be subject to further consideration in the context of the LPP and may not be supported if found to be inconsistent or incompatible with the LPP/AMPP, including the ongoing development of management direction.

Where one or more additional activities not listed in Appendix 2 are proposed within LPP Area #2 (the "New Activities"), HRFN may, upon written notice to BC, initiate a review of the New Activities to assess if it meets HRFN values as expressed in the LPP and AMPP. Where this review is initiated by HRFN, the New Activities will not be permitted until the review is complete and any concerns are addressed. Where agreement between HRFN and BC on the fate of the New Activities cannot be reached, either Party may initiate the dispute resolution process described below.

4.3 Exemptions

HRFN may convey in writing to the BC Energy Regulator (the "BCER"), their consent for any variance from the protection, restoration and operational requirements established by this LPP and the associated AMPP. The BCER will consider this consent in the relevant statutory decision-making process and will not authorize permits that vary from the protection, restoration and operational requirements established by this LPP without HRFN's consent.

5.0 Operational Measures

5.1 Mitigation

The standard elements of the mitigation hierarchy including avoid, reduce, and mitigate are embedded within the objectives, indicators and targets presented in the AMPP. The Treaty 8 First Nations, including HRFN, and the BCER co-developed the Treaty 8 Planning and Mitigations Measures (the "Treaty 8 Mitigations"), which are the collective interpretation of the AMPP's operational direction for the oil and gas sector in applying the mitigation hierarchy to new development activities. Proposed oil and gas activities within the LPP areas must follow the Treaty 8 Mitigations in Appendix A of the AMPP unless otherwise agreed to by HRFN.

5.2 Key Themes

Key themes of the operational measures include:

- Avoidance of direct (e.g., vegetation clearing) and indirect (e.g., sensory intrusion) effects on Spiritual Places and Spaces, trapping cabins, and cultural camping places. As a general rule, 1km is the distance within which sensory impacts to these features may be experienced by land users.
- Reducing the need for additional linear disturbance to support exploration and development (e.g., by co-locating access or utility routes).
- Routing of linear infrastructure and micro-siting of all infrastructure to avoid sensitive ecosystems (e.g., riparian vegetation) or habitat features (e.g., mineral licks).
- Operational air quality monitoring for fugitive dust and emissions.
- Water use and maintenance of water quality in accordance with regulatory requirements and permit conditions.

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If AMPP expectations cannot be met using commercially reasonable efforts, HRFN will work with the proponent during the pre-engagement process to seek consensus regarding an alternative mitigation measure that addresses HRFN's concerns. The reverse scenario may also be true (i.e., additional mitigation measures may be required for work in areas deemed especially sensitive).
The Treaty 8 Mitigations are supplementary to existing requirements established through the Environmental Protection and Management Regulation, and other relevant statutes. They are not intended to be duplicative and where there are overlapping requirements, the expectation is that these can be satisfied through a single application deliverable that addresses the highest standard. Unless otherwise stated, the Treaty 8 Mitigations replace the provisions outlined in Article 14.4 of the BRFN Implementation Agreement.

6.0 Restoration

For all proposed activities, progressive restoration during active operations is an important component of the development lifecycle. Taking steps early to address the impacts of construction activities on areas that are not required during active operations is an important mechanism to minimize and address the cumulative impacts of oil and gas development activities. The AMPP identifies the need to build out a Restoration Priorities Program that addresses and prioritizes restoration of areas disturbed by a variety of industrial development activities to support conservation and recovery of HRFN's identified values. The Treaty 8 Mitigations include requirements to initiate restoration activities much earlier in the operational lifecycle than has been current practice.

Restoration activities being undertaken by proponents within LPP Area #1 should be prioritized first within HRFN's Enhanced Management Corridors and within the Protection Zones established under the Gundy Plan. The LPP acknowledges that HRFN-directed restoration will be carried out in accordance with HRFN's restoration objectives, and that BRFN-directed restoration will be undertaken in accordance with the Blueberry River Restoration Society planning, priorities and standards. Restoration associated with Gundy Plan offset requirements should be carried out as close to the area impacted as possible. In LPP Area #2, HRFN has taken an alternative approach to offsetting than that required by the BRFN Gundy Plan in LPP Area #1. HRFN's approach for LPP Area #2 seeks to align with Dunne Za stewardship laws including the law of reciprocity, which provides that you take from the land only what you need and, whenever you take, you must make a meaningful gift back to the land. HRFN and proponents in LPP Area #2 have reached agreement regarding appropriate measures for gifting back to the land for the activities in Appendix 2, considered holistically at a landscape level. Additional gifting back measures will be discussed with proponents proposing New Activities in LPP Area #2.

Additional restoration opportunities within the LPP Area #2 will be identified as HRFN's internal analyses supporting the AMPP are conducted. Once these analyses are more fully developed. BC, HFRN and industrial partners will collaborate to identify additional priority areas for restoration.

7.0 Performance Measures

The AMPP identifies a broad range of targets and indicators. For the pilot's purposes, a subset of those indicators will be monitored, measured, and evaluated to support baseline data collection,

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ongoing AMPP development, and potential adjustments to the piloted approach. Any proposed changes resulting from ongoing monitoring and reporting will inform LPP reviews/amendments and future iterations of the AMPP.

The critical evaluation of adherence to this LPP and, by extension, the AMPP requires the submission and verification of key pieces of information, including but not limited to:

- Documentation of the disturbance footprint associated with a permitted activity, including the provision of spatial data to the HRFN (e.g., roads, pads, and utility corridors). This documentation is a key contribution to understanding cumulative effects.
- Written records of the completion of required environmental management activities (e.g., air or water quality monitoring), steps taken to adhere to AMPP expectations (e.g., the use of trenchless wetland crossing methodology where practical), and compliance with provincial and federal statute (e.g., *Wildlife Act*, *Migratory Birds Convention Act*). These must be retained by the permit holder and submitted to HRFN.
- Written record (with accompanying spatial files) indicating which portions of a permitted disturbance footprint has been subject to progressive or interim restoration be submitted to HRFN by the permit holder.
- Workplans required under the Dormancy and Shutdown Regulation must be submitted by the permit holder to HRFN at the same time they are submitted to the BCER.
- Relevant documentation associated with the restoration process, including spatial data, must be submitted to HRFN at the same time it is submitted to the BCER.

8.0 Implementation

8.1 Roles and Responsibilities

To facilitate the implementation of the LPP and the AMPP in the context of oil and gas development, clear roles and responsibilities will be defined for each entity involved. An overview of these roles and responsibilities is outlined in this section. It is expected that revisions will be required, as the LPP is implemented and as the AMPP evolves and is finalized. While there will be specific responsibilities unique to a particular entity, success of the implementation of the LPP will largely rely on a collaborative approach with all the entities (i.e. the BC, HRFN, BCER and the oil and gas industry).

BC, as a Party to the LPP, will be responsible for:

- Giving legal effect to the LPP through regulation and direct the BCER to implement LPP elements in adjudication of statutory decisions.
- Providing support, resources, and expertise, as applicable, to assist in the implementation of the LPP, including following Dispute Resolution procedures identified in section 7.1 and the procedures for consideration of proposed amendments identified in section 7.3.

HRFN, who are piloting their AMPP over a small segment of where their members have practiced, and continue to practice treaty rights and are a Party to the LPP, will be responsible for:

- Assisting in the implementation of the LPP, including following Dispute Resolution procedures identified in section 7.1 and the procedures for consideration of proposed amendments identified in section 7.3.
- Participating in applicable pre-engagement and consultation processes for oil and gas activity applications within the LPP areas.

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The BCER, as the regulator for oil and gas activities in BC, will be responsible for:

- Implementing the operational component of the LPP in a manner consistent with obligations under the LPP and AMPP, BRFN IA and other agreements with First Nations (as applicable), direction from Government, and other processes agreed to by First Nations and BCER.
- Reviewing oil and gas related applications submitted for LPP Area #1 and LPP Area #2, to ensure compliance with the protection, restoration and operational requirements established by this LPP and associated sections of the AMPP, including adherence to the Treaty 8 Mitigations.
- Ensuring key information identified in section 6, that supports a collective understanding of cumulative effects as it relates to the LPP and oil and gas, is shared with HRFN in a timely manner.

Oil and gas industry proponents, operating within LPP Area #1 and LPP Area #2, will be responsible for:

- Ensuring proposed activities are planned and proposed in accordance with the protection, restoration and operational requirements established by this LPP and the associated AMPP, including adherence to the Treaty 8 Mitigations.
- Following HRFN pre-engagement requirements within the LPP Area #1 and LPP Area #2 to meet AMPP expectations.
- Collecting and providing information as requested to support LPP implementation including performance management and monitoring data.

The Entities share the following joint roles and responsibilities:

- Developing tools to support application submission, application review and consultation processes for oil and gas applications within LPP Area #1 and LPP Area #2.
- Monitoring and evaluating the effectiveness of the LPP's implementation. This may include collection and analysis of information to support performance management and monitoring and consideration of amendments.
- Participating in AMPP revisions and finalization as it applies to the AMPP administrative area and other industrial development activities and make necessary amendments to the LPP as a result.
- Identifying additional priority areas for restoration within LPP Area #2 following HRFN's internal analyses being made available.
- Providing support, resources, and expertise, as applicable, to assist in the implementation of the LPP.

8.2 Treaty 8 Nations

The LPP and AMPP fall within the boundary of Treaty No. 8. BC and HRFN are committed to working collaboratively with other Treaty 8 Nations in areas of overlapping interest, including but not limited to the South Peace planning process and Doig River First Nation's enhanced planning areas.

8.3 Term

The LPP will become effective on the date upon which the provincial order to implement it is brought into force, It will remain in effect for five (5) years from the Effective Date unless replaced by fulsome implementation of the AMPP by HRFN and BC, amended or extended upon agreement by HRFN and BC, or terminated in accordance with its terms.

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8.4 Amendments

Either Party can propose an amendment to the LPP. Proposals must be made in writing to the other Party and best efforts will be made to meet within a reasonable time to engage regarding the proposal and appropriate next steps. The Parties' intention is for the LPP to eventually be replaced by the finalized AMPP, including further management direction.

8.5 Dispute Resolution

The Parties recognize that the successful implementation of the LPP and AMPP, in the context of oil and gas development, will depend on their ability and willingness to recognize, explore and resolve differences which may arise between them, and will endeavour to resolve such differences in a manner that fosters an improved, ongoing and respectful government-to-government relationship.
If either Party has concerns regarding the implementation of the LPP or AMPP, in the context of oil and gas development, they should be raised in writing to the other Party. The Parties will use their best efforts to meet at the technical level within ten (10) business days of a written notice being given of the dispute and will attempt to resolve the dispute through collaborative negotiations. If the meeting fails to resolve the dispute, unless otherwise agreed to by the Parties, the Parties will elevate the dispute to HRFN Chief and Council and relevant provincial senior officials with statutory responsibility for the subject matter of the dispute.

If the dispute is not resolved within ten (10) business days of having been elevated to senior officials, either Party may, upon written notice to the other, terminate the LPP with respect to LPP Area #1 and/or LPP Area #2, as the case may be, and the area(s) will default to the BRFN IA regime unless otherwise replaced by an Other Plan. BC will take the steps necessary to initiate the applicable regulatory amendments as soon as reasonably practicable following the termination notice.

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SIGNED on behalf of Halfway River First Nation by:

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Chief Darlene Hunter, Halfway River First Nation

SIGNED on behalf of HIS MAJESTY THE KING IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA as represented by the Minister of Energy, Mines and Low Carbon Innovation and Minister of Water, Lands and Resource Stewardship, by:

Shannon Baskerville, Deputy Minister of Energy, Mines and Low Carbon Innovation

Lori Halls, Deputy Minister of Water, Land and Resource Stewardship

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Appendix 1 – Halfway River First Nation Adaptive Management Program and Plan

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HALFWAY RIVER FIRST NATION

Adaptive Management Program and Plan

Draft as of May 2024

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Appendices

Appendix A. BCER Treaty 8 Planning and Mitigation Measures

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Glossary and Abbreviations

Term	Definition
AMPP	Adaptive Management Program and Plan
AUM	Animal Unit Months
BCER	British Columbia Energy Regulator
BGC	Biogeoclimatic
DFO	Fisheries and Oceans Canada
ECA	Equivalent Clearcut Area
EMLI	The Ministry of Energy, Mines and Low Carbon Innovation
HRFN	Halfway River First Nation
ILOO	Investigative License of Occupation
LOO	License of Occupation
NCD	Non-Classified Drainages
PNG	Petroleum and Natural Gas
SFMP	Sustainable Forest Management Plan
the Province	Province of British Columbia
TUS	Traditional Use Study
WMB	Water Management Basin

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1 Introduction

1.1 Purpose

The purposes of this Adaptive Management Program and Plan (AMPP) are:

- to facilitate the implementation of culturally based, legally enforceable, land-use decision making at landscape and operational levels on Crown lands in a defined administrative area within Treaty 8; and
- to protect Halfway River First Nation's (HRFN) way of life by balancing the ability to practice Treaty 8 rights with industrial development or activities.

The AMPP describes HRFN's expectations regarding proponent and regulatory behaviour within the administrative area and sets the stage for the development of effective and meaningful Government-to-Government shared decision-making management processes for the reduction of direct, indirect, and cumulative impacts on the land as they relate to rights of all Treaty 8 nations (e.g., Blueberry River First Nation's HV1-C Gundy Complex Plan). The AMPP itself is an adaptive, living document that will require frequent updating to maintain contemporary relevance.

It is HRFN's expectation that adherence to the goals and practices established in this AMPP become incorporated as conditions of any land tenure or activity authorizations (e.g., mineral tenures or exploration permits) granted by the Province of British Columbia (the Province) and that proponents of individual projects will likewise incorporate the content of the AMPP into referral or application documents.

Effective implementation of the AMPP will be significantly improved with provincial government support. HRFN's specific expectations for government responsibilities include:

- Giving legal effect to the plan, including plan elements in adjudication of statutory decisions.
- Providing support, resources, and expertise, as applicable, to assist in the implementation of the plan.
- Jointly, with HRFN, monitoring and evaluating the effectiveness of the plan's implementation and considering consequential adjustments as required.

HRFN is committed to finding workable, efficient, and productive solutions as a partner with regulators and industry (Figure 1-1).

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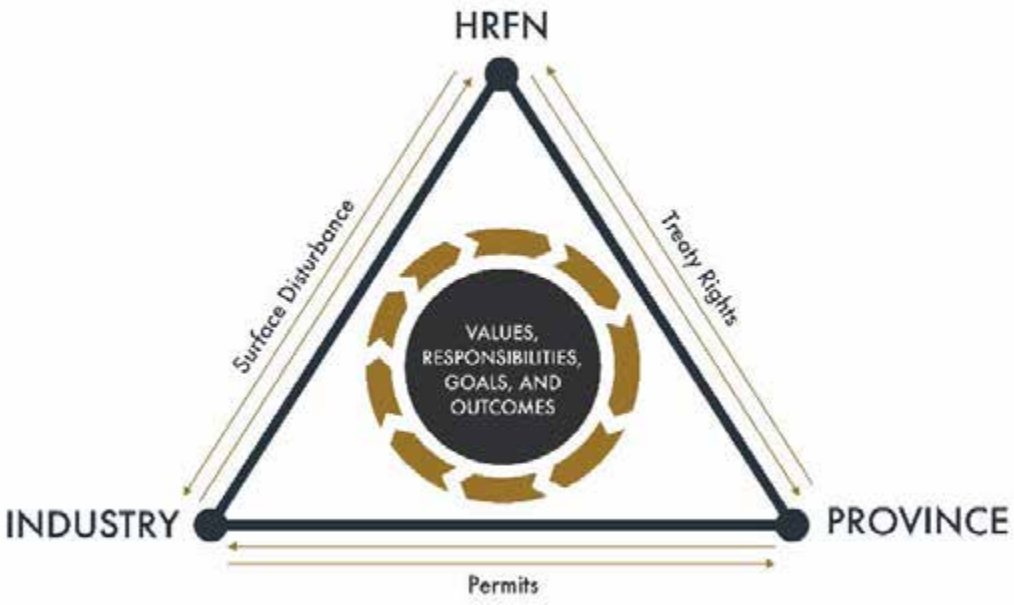

Figure 1-1. Integrated AMPP Decision-Making Framework.

1.2 Context and Scope

The AMPP is based on Dunne Za laws and values, and Treaty 8 rights as they apply to the land. Dunne Za laws are oral. This AMPP contains a written version of these laws which is not meant to be used as all-inclusive or as doctrine; rather, the written version of these laws is meant to provide a foundation for the practice of culturally based land management.

Western science is used as a way of translating Dunne Za laws and values, and Treaty 8 rights into land management practices within the AMPP. For example, the Dunne Za law of "take only what you need" may be translated into a landscape-level threshold whereby industrial activities are constrained by ecosystem-based, land-management principles, such as maintaining a minimum amount of old forest cover within a Water Management Basin (WMB).

Once the Dunne Za laws and values and Treaty 8 rights have been translated into western science principles, the principles may be incorporated into provincial or federal law. Continuing with the example above, maintaining sufficient old forest within a WMB may reasonably adhere to Dunne Za law and is protective of multiple values and Treaty 8 rights. Should the Province make maintaining sufficient old forest within a WMB legally enforceable, the Province would effectively merge its laws with Dunne Za laws.

The act of creating legally enforceable mechanisms to honour Treaty 8 rights is not within the scope of this AMPP. However, it is the intention of this document to make the integration of the two legal systems possible through the translation of Dunne Za laws into carefully articulated objectives, indicators, and targets.

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This AMPP identifies objectives, indicators and targets based on Dunne Za laws and HRFN values as they relate to the land. When land that has been taken up is restored, it is possible that land will again become available for resource extraction. This is the landscape level context by which this AMPP is designed. Landscape level indicators and targets seek to reduce the cumulative impacts on Treaty 8 rights. Operational level indicators and targets provide detailed instructions on how to make the balance between the practice of Treaty 8 rights and continued resource extraction possible.

This AMPP acknowledges that the land and associated ways of using the land are complex. Because of the complexity, this document acknowledges that the systems designed for managing the land may be incomplete or imperfect. The AMPP is designed to use a Traditional Knowledge methodology of "applying and observing" or of "learning as you go", systems that are based on prior knowledge and a knowledge that the world is complex and ever changing. This methodology may also be called adaptive management.

Finally, this AMPP is one of many land use planning initiatives currently underway among the Treaty 8 nations. HRFN's ultimate vision is the development of a single, unified plan that clearly describes expectations for resource and industrial activity to meet the goals of all nations while recognizing regional differences.

1.3 Administrative Area

The objectives, indicators and targets apply within a defined administrative area within a portion of the Treaty 8 lands (Figure 1-2). The HRFN AMPP Administrative Area encompasses Federal Reserve #168 and adjoining lands where HRFN members have practiced their way of life since time immemorial. This area has experienced significant changes to the land because of agriculture and industrial impacts and does not represent the full extent of HRFN territory. This administrative area is shared with other First Nations people as well as the people within the Province and Canada who are all beneficiaries of Treaty 8.

The 3-million-hectare Administrative Area is broken down into WMBs, which are spatial units defined by the British Columbia Energy Regulator (BCER). The BCER uses WMBs to manage requests for water use and water withdrawal, primarily by the petroleum and natural gas (PNG) industry. However, as the WMB boundaries generally follow existing watershed boundaries defined by topography and hydrology, they provide a useful framework for defining regionally relevant objectives, indicators, and targets for the AMPP.

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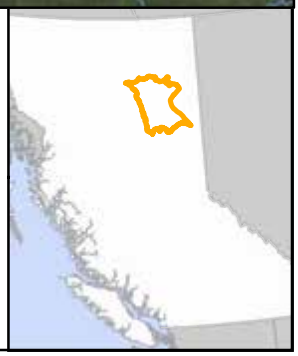
Halfway River First Nation

Administrative Boundary for HRFN's
Adaptive Management Program and Plan
Figure 1-2

Date: 2024-03-28
Map Number: HRFN-001
Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983

0 10 20 30 40
1:1,500,000 km

- Community
- Halfway River First Nation Administrative Boundary
- Halfway River First Nation Reserve
- Water Management Basins
- Highway



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2 Dunne Za Land Stewardship Laws

Dunne Za land stewardship laws guide the HRFN community on how they interact with the land. The laws listed below were summarized from HRFN's internal written records, which in turn provide a glimpse of oral history laws, for the purposes of guiding this AMPP; it is not an exhaustive list.

Natural Law / First Law

All law comes from the Creator through Story.

1. Everything is alive.
2. Everything is connected.
3. Everything is equal.
4. Everything has a gift to give.
5. When you receive a gift, you must give something meaningful in return.
6. You must use each gift with deep respect.
7. Take only what you need; take no more than half.
8. You can burn money to keep you warm, but you cannot eat it.
9. Consider how the decisions you make today will impact future generations.
10. Remember the teachings of your Elders: live with honesty, respect, truth, courage, wisdom, humility, and love for all things.

3 HRFN Vision Statement and Guiding Principles

HRFN has developed a Vision Statement and a set of Guiding Principles based on Dunne Za land stewardship laws.

HRFN's vision statement is:

> To maintain our traditional way of life and our identity as a distinctive Aboriginal people, which depends on the ability to meaningfully exercise our spiritual, religious, cultural, and traditional practices and pass this knowledge on to future generations.

The following guiding principles provide direction for the development of HRFN's land use management strategies:

1. Knowledge, identity, and respect in order to survive as a people
2. Maintain our traditional way of life and connection to the land and culture
3. Ecosystem approach to management
4. Conservation of resources takes precedence to ensure sustainability
5. Shared responsibility for management planning, decisions, and implementation
6. Accountability of management decisions
7. Diversity of approaches and benefits
8. Stewardship
9. Respect and recognition

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4 HRFN Management Structure and Responsibilities

4.1 HRFN Chief and Council

HRFN's Council is the governing elected authority for the Nation. Council is made up of one Chief and six family representative Councillors. The responsibilities of Chief and Council include representing HRFN with external entities and other levels of government, making administration and governance decisions on behalf of HRFN, and informing and consulting members on matters relating to HRFN's affairs.

4.2 Lands Department

HRFN's administration office includes various departments responsible for the daily implementation of the community's affairs. The Lands Department is responsible for operational-level consultation with provincial and other government agencies in matters related to land and natural resources.

HRFN's Lands Department has been delegated the responsibility to develop this AMPP. HRFN's Chief and Council retain final decision-making authority over the approval and implementation of this AMPP. This document may be used by the Lands Department for both strategic and operational consultation purposes.

5 Adaptive Management Background

5.1 Conceptual Introduction

Adaptive management is a management and decision-making process with three deceptively simple steps: identifying objectives and acceptable outcomes (including any assumptions central to outcome establishment), monitoring to determine if assumptions are valid and management actions are meeting outcomes and, adjusting underperforming practices to improve the probability that desired outcomes are met. By its very nature, a well-executed adaptive management program is a continual feedback process (Figure 5-1).

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Figure 5-1. Conceptual Framework for Effective Adaptive Management.

Adaptive management recognizes that knowledge about complex systems is often uncertain and that complex systems may best be managed by a process of observation and adaptation, of testing what works and what does not. It is a process of learning while doing. During the process of learning while doing, adaptive management plans may be used to reduce direct, indirect, and cumulative effects and inform decision making.

5.2 Putting Adaptive Management into Practice

The AMPP is designed to facilitate the asking of the following questions:

1. What are the current conditions?
2. What are our goals?
3. What actions are needed to reach our goals?
4. How do we measure the extent to which our actions have helped us reach our goals?
5. How do we capture and act upon what we've learned?

The AMPP has seven fundamental components that provide the basis for communication clarity and strength of purpose (Figure 5-2).

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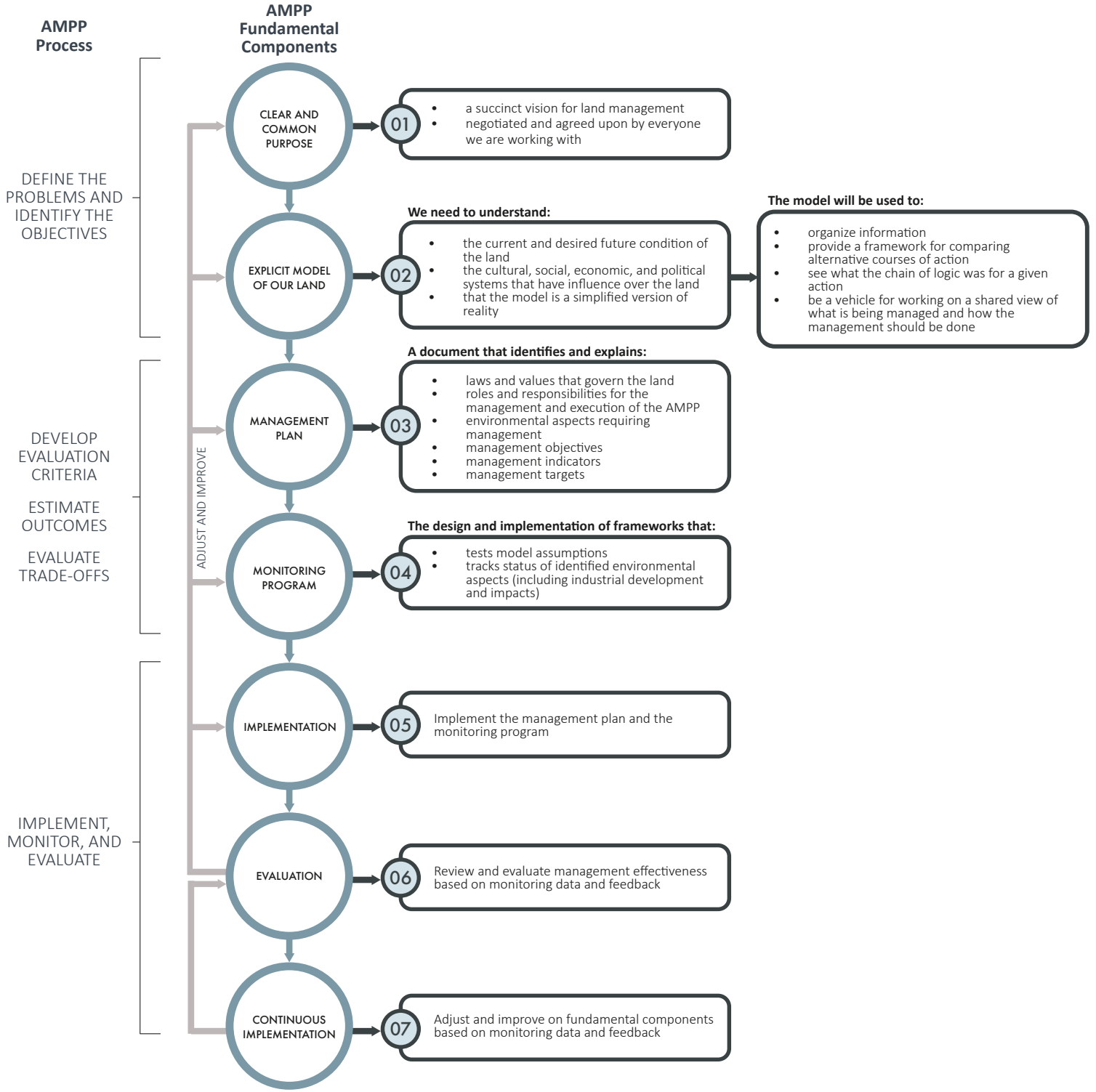

Figure 5-2. Fundamental Components of the HRFN Adaptive Management Program and Plan.

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5.3 Mitigation as an Adaptive Management Tool

The standard mitigation hierarchy of avoid, reduce, and mitigate is embedded within the objectives, indicators and targets presented in the AMPP (Section 6). HRFN's expectation is that, at a minimum, project proponents will adhere to HRFN-endorsed best management and mitigation practices that are relevant to a given industrial activity. For example, all proposed oil and gas activities within the AMPP Administrative Area must follow the BCER Treaty 8 Planning and Mitigation Measures (Appendix A), and not just within Enhanced Mitigation Corridors. HRFN consent is required to vary any Appendix A mitigation measures. If a mitigation measure cannot be implemented using commercially reasonable efforts on a project, HRFN will work with the proponent during the pre-engagement process to seek consensus regarding an alternative mitigation measure that addresses HRFN's concerns.

6 HRFN Values and AMPP Objectives

6.1 Operational Definitions

The AMPP is guided by six key HRFN values (Figure 6-1).

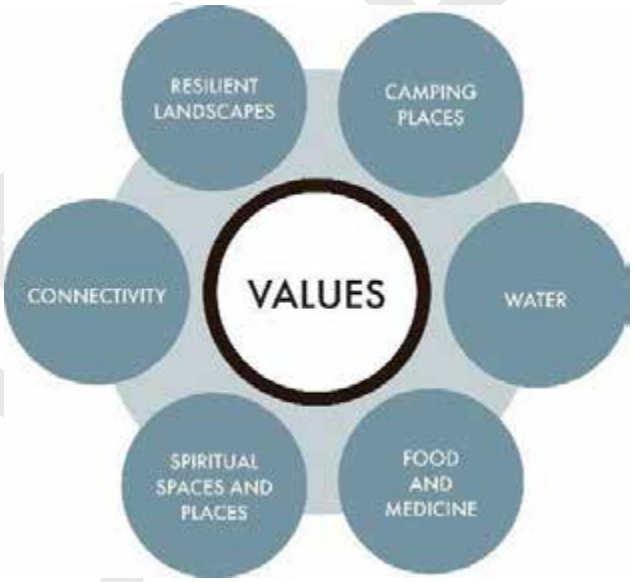

Figure 6-1. HRFN Values Related to Land Use.

These values are then contextualized with a series of inter-related objectives related to the Desired Future Condition of the land, with associated indicators, targets, and rules (Figure 6-2). It is expected that targets may be met in some WMBs but not in others. This is due to the extent to which lands have been "taken up" following the signing of Treaty 8. As lands have been taken up, they have become unavailable for the reasonable practice of Treaty 8 rights. For example, the conversion of Crown land to fee simple land has constrained hunting access throughout the geographic areas covered by this AMPP, despite the common law affirmation that Aboriginal and treaty rights may extend to private lands.

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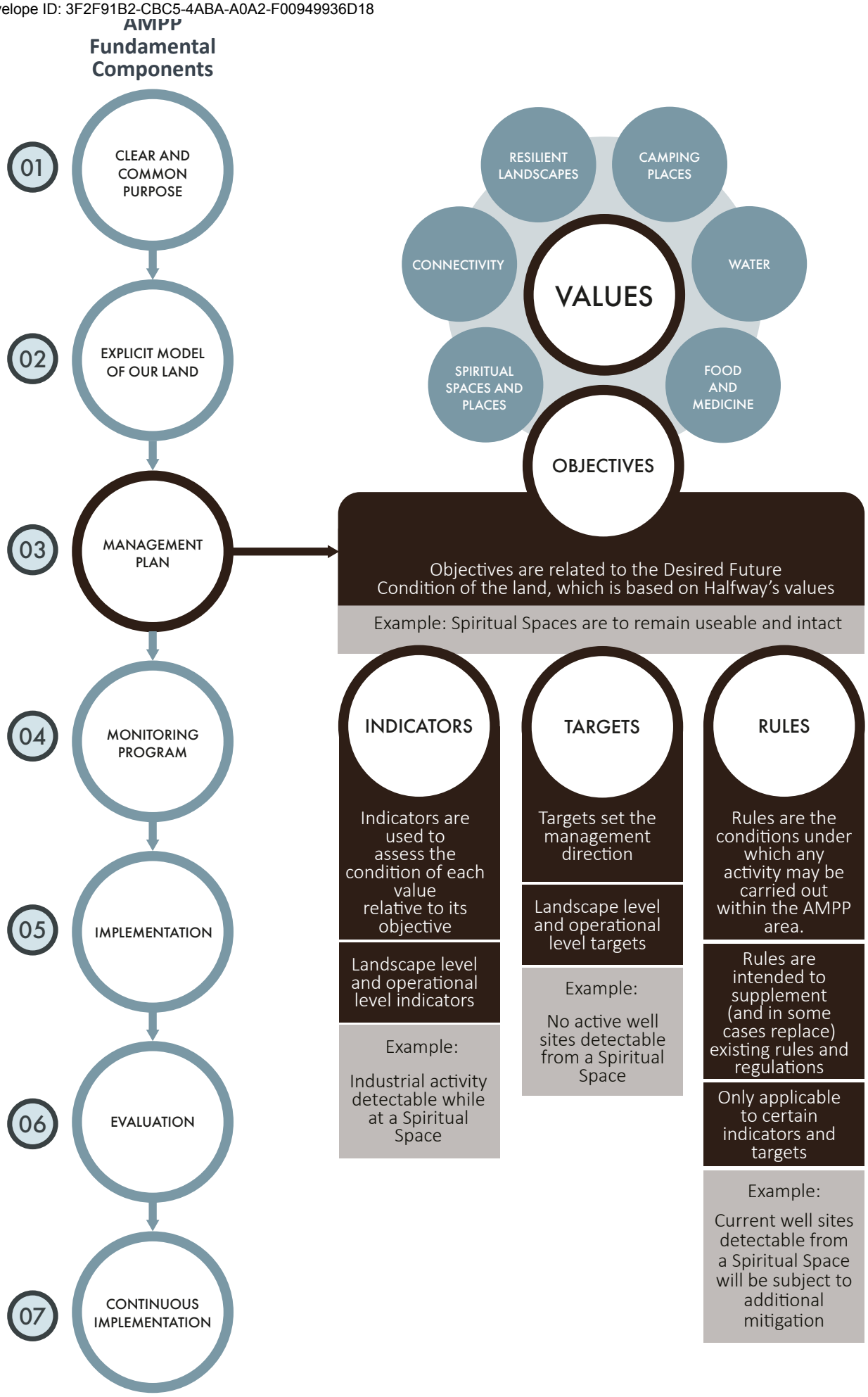

Figure 6-2. Incorporation of HRFN values into the Adaptive Management Program and Plan.

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6.2 Spiritual Spaces and Places

Spiritual spaces and places are found throughout the land base and are connected to everything else. Elders will note when someone is entering a spiritual space; one notes on arrival that there is no defined beginning or end to the space that can be drawn on a map. It is not always possible to draw a boundary around a spiritual space and the connectivity to these spaces is as important as the space itself.

HRFN also identifies spiritual places as spatially defined sites including those where petroglyphs are found, caves used for spiritual quests, places where ancestors were born and buried, ancestral gathering places, ceremonial areas, and teaching places.

Developing quantitative indicators describing the condition of spiritual spaces is difficult for a few key reasons. First, spiritual spaces often cannot be reduced to defined spatial areas circled on a map and connect with the larger landscape. As HRFN's culture has mixed with Western culture since contact, some spiritual spaces may be defined as they are defined in other cultures, such as birth and burial sites, dancing circles, and dreamer sites. Other spaces may have no physical boundaries. They are connected to everything else. You are in these spaces when you are in them. The elders may let you know, or you may simply feel that you are in such a place. There have been attempts to draw boundaries around these spaces, but such boundaries are forced through maps and spatial geographic information systems. Such boundaries are the best attempt at fitting HRFN's beliefs and knowledge into a western system. Second, HRFN's desire to keep specific spiritual areas confidential for fear that they will be destroyed or degraded can limit the ability to describe and physically locate the areas.

These reasons present challenges from both HRFN's perspective (i.e., what information and guidance can we give to effectively manage for this value) and from project proponents who need to know where and how to work effectively on the land.

The primary objective for the Spiritual Spaces and Places value is that they remain usable, connected, and intact (Table 6-1).

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Table 6-1. Landscape-level and operational-level indicators and targets associated with the Spiritual Spaces and Places value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
OBJECTIVE: Spiritual spaces are to remain useable, connected, and intact.			
Landscape level			
Percentage of Spiritual Spaces and Places with associated written records or description	100% To capture the remaining knowledge that has been lost though the implementation of the *Indian Act*.	• Knowledge Keeping Project within Spiritual Spaces Monitoring Program (Section 7.3)	Not applicable
Percent overlap between Crown land tenures and Spiritual Spaces and Places	Information purposes only to better understand existing encroachment on Spiritual Spaces.	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Percent overlap of private land and Spiritual Spaces and Places	Information purposes only to better understand existing encroachment on Spiritual Spaces.	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Percentage of Spiritual Spaces and Places that currently have legislated protection	Information purposes only to identify potential gaps and initiate discussion on protection options.	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3) • Legislative Changes Tracking Sheet (Section 7.2.2)	Not applicable
Operational level			
Number of referrals or applications with overlap of Spiritual Spaces and Places	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1)	Not applicable

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Number of referrals or applications with overlap where deep consultation occurs, and proposed avoidance or mitigation measures are contained in the consultation record	100%	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1)	Consultation records must indicate accommodation measures
Number of Investigative License of Occupations (ILOOs) and License of Occupations (LOOs) for wind-energy projects that overlap with Spiritual Spaces and Places	Zero	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1) • Legislative Changes Tracking Sheet (Section 7.2.2)	Wind tenure ILOOs and LOOs may not overlap Spiritual Spaces or Places
Number of PNG facilities that may be seen or heard from Spiritual Spaces and Places	Zero	• Restoration Priorities Program (Section 7.1.4) • Spiritual Spaces and Places Monitoring Program (Section 7.3)	Permits may be issued for PNG facilities in Spiritual Spaces with conditions requiring visual and audible mitigation measures so that a facility is not seen or heard from a Spiritual Space or Place
Percentage of permits or other authorizations with avoidance or mitigation measures	100%	• Referrals Tracking Program (Section 7.2.1) • Spiritual Spaces and Places Monitoring Program (Section 7.3)	Government-issued permits or authorizations for activities within Spiritual Spaces and Places must have documented agreed-upon avoidance or mitigation measures (e.g., permit conditions)
Number of inspections with satisfactory findings related to permit conditions	100%	• Spiritual Spaces and Place Monitoring Program (Section 7.3)	The company which has been issued a permit to operate within a Spiritual Space or Place must demonstrate compliance with permit conditions

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6.3 Connectivity

Everything is connected to everything else, the animals in each season, the plants in each habitat, to the rivers and mountains, to spiritual places, and to each other. Without connectivity, HRFN's essential way of life is lost. WMBs have been chosen as the unit to evaluate connectivity objectives across the administrative area (Figure 1-2). This allows indicators, targets, and comparisons to be made in a consistent manner at an appropriate scale.

The primary objective for the Connectivity value is for people to be able to use and move through lands for the practice of Treaty 8 rights (Table 6-2).

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Table 6-2. Landscape-level and operational-level indicators and targets associated with the Connectivity value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
OBJECTIVE: for people to be able to use and move through lands for the practice of Treaty 8 rights			
Landscape level			
Spatial area of land that overlaps Fee Simple land	Information purposes to inform restrictions on hunting access	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Spatial area of land that overlaps range tenure	Information purposes to inform restrictions on hunting access	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Spatial area of land that overlaps PNG well sites and facilities	Information purposes to inform restrictions on hunting access	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Spatial area of land that overlaps Section 16 grazing reserves, Crown land leases, parks and protected areas with hunting restrictions, and areas within no shooting zones	Information purposes to inform restrictions on hunting access	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Spatial area of land that contains inaccessible Crown land (e.g., surrounded by private lands)	Information purposes to identify restrictions on hunting access, for example.	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Spatial area of land that has been converted to sod- forming grass vegetation communities	Information purposes to inform restrictions on plant gathering activities	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Spatial area of land that falls within the outfall zone of a dispersion modeling report (e.g., air quality exceedance zone)	Information purposes to inform restrictions on plant gathering activities	• Analysis Program (Section 7.1.1) • Current Conditions Program (Section 7.1.3)	Not applicable
Percentage of land that is currently available for the practice of Treaty 8 rights	Minimum 65% is available	• Land Accounting Program (Section 7.1.2)	Permits may not be issued in WMBs with less than 65% land available for the reasonable practice of treaty rights
	Minimum 65% is resilient and healthy (as defined in Section 6.4)	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Permits may be issued in WMB with equal to or greater than 65% land that is deemed resilient and healthy
Spatial area of land available for restoration	Information purposes only	• Restoration Priorities Program (Section 7.1.4)	Not applicable
Percentage of available land for restoration that has been restored	Information purposes only	• Land Accounting Program (Section 7.1.2) • Restoration Priorities Program (Section 7.1.4)	Not applicable Guided by 65% land threshold rules. Known wildlife movement corridors to be restoration priorities.
Operational level			
Number of referrals and applications with Crown land disturbance or land conversion (fee simple or lease)	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1)	Not applicable
Spatial area of disturbance within the approved application	Less than or equal to 35% disturbance	• Analysis Program (Section 7.1.1) • Land Accounting System (Section 7.1.2) • Referrals Tracking Program (Section 7.2.1)	Guided by 65% land threshold rule

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Total hectares restored, per year, per WMB by disturbance type	Information purposes only	• Analysis Program (Section 7.1.1) • Land Accounting System (Section 7.1.2) • Restoration Priorities Program (Section 7.1.4)	Guided by Restoration Priorities Program (Section 7.1.4) Guided by 65% land threshold rule. Known wildlife movement corridors to be restoration priorities.
Percentage of "Treaty 8 Friendly" grazing tenures	100% of tenures have "Treaty 8 Friendly" signage on gates and at every 500m along fence lines	• Analysis Program (Section 7.1.1) • Land Accounting System (Section 7.1.2) • Restoration Priorities Program (Section 7.1.4) • Range Monitoring Program (Section 7.3)	Range tenure fencing must have signage on gates and at every 500m along fence lines
Percentage of inaccessible Crown land "unlocked" with easements	100%	• Analysis Program (Section 7.1.1) • Land Accounting System (Section 7.1.2) • Restoration Priorities Program (Section 7.1.4)	Crown land parcels must be accessible for the reasonable practice of Treaty rights

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6.4 Resilient Landscapes

Resilient landscapes sustain ecological functions, robust biodiversity, and critical landscape processes over time. These landscapes are healthy enough to persist and adapt. HRFN's way of life is dependent on resilient landscapes. Resilient landscapes provide the foundation of healthy air, water, and land on which to practice Treaty rights. They support a healthy and abundant supply of plant and animal species and populations, which are necessary for the meaningful ability to hunt, fish, and trap, as well as gather plant medicines and foods.

Resilient landscapes include:

1. Unique geophysical, biological, and cultural aspects;
2. Physical, biological, and chemical drivers, events, and processes that create and sustain landscapes over time;
3. Linkages between habitats, processes, and populations that enable movement of materials and organisms;
4. Richness in the variety, distribution, and spatial configuration of landscape features that provide a range of options for species, which can further be broken down into:
    a. Landscape-scale diversity of habitat types and connections between different habitat types,
    b. Site or habitat-scale vegetative diversity and physical heterogeneity,
    c. Response diversity and a diversity of life history strategies both within and between species, and
    d. Diversity in genes and traits within species populations;
5. Multiple similar or overlapping elements or functions with a landscape that promote diversity and provide insurance against loss; and
6. Spatial extent and time frames at which landscapes may operate to allow species, processes, and functions to persist. (resilientsv.sfei.org) (see website for additional references)

There are five primary objectives within the Resilient Landscapes value (Table 6-3):

- Forests that provide resilient habitat for people, plants, and wildlife
- Diverse and abundant functioning ecosystems that are resilient to climate change and wildfire risk
- Healthy air for people, plants, and wildlife
- Connectivity (Section 6.3)
- Healthy water (Section 6.6)

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Table 6-3. Landscape-level and operational-level indicators and targets associated with the Resilient Landscapes value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULES
OBJECTIVE: Forests provide resilient habitat for people, plants and wildlife			
Landscape level			
Ecosystem representation	Full range of expected ecosystems within each Biogeoclimatic (BGC) Zone present in at least 65% of a given WMB	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	The full range of ecosystem representation must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights.
Forest age class distribution	x% young seral. mid seral, and old seral. Target percentages to be determined following completion of Analysis Program (Section 7.1.1).	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Age class distribution must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights
Forest patch size distribution	Minimum patch size young seral, mid seral, and old seral. Target patch sizes to be determined following completion of Analysis Program (Section 7.1.1).	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Forest patch size distribution must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights
Intact forest	Minimum area interior forest young seral, mid seral, and old seral. Target areas to be determined following completion of Analysis Program (Section 7.1.1).	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Minimum hectares of interior forest must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights
Linear feature density	At least 60% undisturbed by linear features	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Linear feature density (Low Risk Class) must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights

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INDICATOR	TARGET	MECHANISM/PROCESS	RULES
Unhealthy old forest	Minimize the forested area classified as unhealthy (e.g., insect outbreak damage)	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Identified unhealthy forest may be prioritized for restoration; restoration may include harvesting; forest health concerns may influence *Resilient Landscape* rules
Operational level			
Cutblock adjacency	100% of adjacent cutblocks meet moose height or 2-m	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4) • Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1) • Forestry Monitoring Program (Section 7.3)	Prior to issuing a Cutting Permit, must demonstrate that adjacent cutblock meets moose height or 2 m; except in agreed-upon cases where forest health and wildfire risk is identified
Regeneration contains a diversity of species at a range of stockings	100% where ecologically appropriate	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4) • Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1) • Forestry Monitoring Program (Section 7.3)	Silviculture adheres to *HRFN Forestry Guidelines* (under development); silviculture incorporates diversity of species at a range of stocking densities
OBJECTIVE: Diverse and abundant functioning ecosystems that are resilient to climate change and wildfire risk			
Landscape level			
Calculate wildfire hazard ratings	Maximize area within each WMB classified as Low Wildfire risk	• Analysis Program (Section 7.1.1)	Identified areas of high wildfire hazard ratings may be prioritized for restoration; restoration may include harvesting; wildfire risk

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INDICATOR	TARGET	MECHANISM/PROCESS	RULES
			concerns may influence *Resilient Landscape* rules
Operational level			
Number of cutblocks with "fire-smart" silviculture practices applied	100%. All cutblocks follow HRFN best practices.	• Analysis Program (Section 7.1.1) • Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1) • Forestry Monitoring Program (Section 7.3)	Silviculture adheres to *HRFN Forestry Guidelines* (to be developed)
Regeneration contains a proportion of deciduous and low fire risk species	100% where ecologically appropriate.	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4) • Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1) • Forestry Monitoring Program (Section 7.3)	Silviculture adheres to *HRFN Forestry Guidelines* (to be developed); silviculture incorporates proportion of deciduous and low fire-risk species
OBJECTIVE: Healthy air for people, plants, and wildlife			
Landscape level			
Number of delineated airsheds	Entire study area is delineated into airshed.	• Analysis Program (Section 7.1.1) • Airshed Monitoring Program (Section 7.3)	Not applicable
Number of airsheds with coordinated airshed monitoring	All Province to set up and maintain continuous and passive air monitoring programs at appropriate scales. The Peace	• Legislative Changes Tracking Sheet (Section 7.2.2) • Airshed Monitoring Program (Section 7.3)	Not applicable

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INDICATOR	TARGET	MECHANISM/PROCESS	RULES
	Airshed Zone Association may be a useful model to follow.		
Operational level			
Number of natural gas processing facilities with SO_2 emissions	Referrals with natural gas processing facilities with $S0_2$ emissions are tracked	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1)	Not applicable
Number of natural gas processing facilities with SO_2 emissions with air quality and biophysical monitoring	All	• Referrals Tracking Program (Section 7.2.1) • Referrals Review Checklist (Section 7.2.1)	Facilities that meet SO_2 emissions threshold have Waste Discharge Permits requirements for air quality and biophysical monitoring; monitoring at scale and frequency to address human, animal, water, vegetation health related to practice of Treaty rights within the SO_2 dispersion zone
Number of air quality / biophysical monitoring reports with exceedances	Zero	• Airshed Monitoring Program (Section 7.3.6)	Facilities that meet SO_2 emissions threshold have Waste Discharge Permits requirements for adaptive management to address permit exceedances

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6.5 Camping Places

HRFN people were once nomadic and did not build permanent structures or establish territorial settlements. The people of HRFN travelled across the land through space and time and set up residence along the way. The office, school, church/temple, recreation center, hospital, graveyard, rivers, trees, mountains, the earth itself. One was born, lived, and died along the way.

Elders will point out the best or worst places to camp and they will point out places where family groups would gather, but Elders do not point out historic permanent village sites. Today, the people of HRFN may spatially identify camping places. These are located where cabins have been built or specific places in and around Reserve #168 where people gather, including Tsaa Nuna.

Like spiritual spaces, there are challenges to creating quantitative indicators to camping places. Historic and current camping places are spatially identified in HRFN's Traditional Use Site (TUS) data; however, there will be new places in the future as the climate and HRFN's needs shift. HRFN's methods for camping have evolved over the years from accessing areas by foot and horse to motorized vehicles, and it is expected to continue to change in the future. The objectives for clean water and resilient forests with abundant food and medicine are applicable not just in the camping place itself but also depend on the wider landscape condition.

Trapping is included in this section as it relates to trapping cabins (i.e., camping places), the connecting resilient forests, and the ability to access drinking water from natural sources. Unlike cultural camping places, trapping cabins and associated traplines are permanent and spatially identifiable. Thus, it is easier to create quantitative indicators and measure associated targets.

There are four primary objectives associated with the Camping Places value (Table 6-4):

- Trapping remains a feasible treaty right and way of life, as measured by:
    - Land available for trapping;
    - Resilient forests that provide abundant plant foods, plant medicines, wildlife, and fish remain available (Section 6.4); and
    - Natural drinking water source availability (Section 6.6).
- Trapping cabins are not altered or degraded by industrial development and associated activities.
- Cultural camping places are not altered or physically degraded by industrial development and associated activities.
- Cultural camping places are free from indirect disturbance (e.g., noise) during Cultural Camp season (August) and Trapping season (late October to May).

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Table 6-4. Landscape-level and operational-level indicators and targets associated with the Camping Places value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
OBJECTIVE: Trapping cabins are not altered or degraded by industrial development or activities			
Landscape level			
Spatial area of land available for trapping	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Not applicable
Spatial area of land available for trapping with overlapping tenures (e.g., guide outfitting, traplines not HRFN owned)	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Not applicable
Spatial area of land available for trapping by HRFN-owned trapline	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Not applicable
Operational level			
Number of referrals or applications within 1 km of Trapline Cabins	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Not applicable
Number of approved permits within 1 km of Trapline Cabins with agreed upon mitigations and associated permit conditions	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Permits issued with 1k m of Trapline Cabins must have agreed upon mitigations and associated permit conditions
Number of inspections with satisfactory results for implementation of agreed-upon mitigation measures	100%	• Trapping and Camping Monitoring Program (Section 7.3)	Not applicable
Number of salt blocks within 1km of Trapline Cabins	Zero	• Range Monitoring Program (Section 7.3)	Salt blocks are not permitted within 1 km of a Trapline Cabin

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Number of cattle grazing opportunities within 1 km of a Trapline Cabins	Zero	• Range Monitoring Program (Section 7.3)	Cattle grazing opportunities are not permitted within 1 km of a Trapline Cabin during trapping season
OBJECTIVES: • **Cultural camping places are not altered or physically degraded by industrial development or activities.** • **Cultural camping places are free from indirect disturbance (e.g., noise) during Cultural Camp season (August) and Trapping season (late October to May)** • Note: objectives combined due to extensive overlap of indicators and targets			
Landscape level			
Cultural camping places are spatially defined	100%	• Analysis Program (Section 7.1.1)	Not applicable
Spatial area of current development within 1 km of a Cultural Camping Place	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	Not applicable
Number of industrial operations visible from or within auditory range of Cultural Campling Places during camping season and trapping seasons.	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	Not applicable
Operational level			
Number of referrals or applications within 1 km of Cultural Camping Places	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Not applicable
Number of approved permits within 1 km of Cultural Camping Places with agreed upon	100%	• Referrals Tracking Program (Section 7.2.1)	Permits issued within 1 km of Cultural Camping Places must

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
mitigations and associated permit conditions related to direct and indirect disturbance		• Referral Review Checklist (Section 7.2.1) • Legislative Changes Tracking Sheet (Section 7.2.2)	have agreed upon mitigations and associated permit conditions
Number of inspections with satisfactory results for implementation of agreed-upon mitigation measures	100%	• Trapping and Camping Monitoring Program (Section 7.3)	The company which has been issued a permit to operate within 1 km of a Cultural Camping Place must demonstrate compliance with permit conditions
Number of salt blocks within 1 km of Cultural Camping Places	Zero	• Trapping and Camping Monitoring Program (Section 7.3)	Salt blocks are not permitted within 1 km of Cultural Camping Places
Number of cattle grazing opportunities within Cultural Camping Places during cultural camping season	Zero	• Range Monitoring Program (Section 7.3)	Cattle grazing opportunities are not permitted within 1 km of Cultural Camping Places during cultural camping season

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6.6 Water

Water is essential and a foundational right. Elders will speak of its different forms. First, it forms an essential need. How long will the seedling or the child survive without it? Second, it takes on medicinal and healing forms. Natural springs will contain minerals for medicine and healing. Licks provide necessary minerals for animal life stages, such as birthing and antler development. Lakes, rivers, and wetlands take on food production form: they produce the fish, the muskrat, and the moose. Water, and land adjacent to water, takes the form of connection. People and animals travel in and by it to connect with each other. Water, in and of itself, is a life form, has spirit, and is spiritual. Water is connected to and connects with everything. When water is contaminated and flow is cut off or dammed, there is loss. There is loss when the HRFN Reserve does not have access to clean drinking water. There is loss when the river valley is dammed for electricity production. There is loss when a road cuts through a wetland. There is loss when contaminants are released into the ground and flow through the groundwater into the rivers. When changes occur on the landbase for economic needs and wants, the Elders remind: You cannot eat or drink money. It is essential to protect water.

Water is a value that truly reflects cumulative impacts across space and time. It demonstrates the connectivity between all elements of nature and embodies HRFN's holistic and adaptive view of land management.

There are four primary objectives associated with the Water value (Table 6-5):

- Maintain the quality and quantity of water in watercourses to support drinking water and aquatic life.
- Maintain function and connectivity of riparian habitat along watercourses.
- Maintain healthy wetlands.
- Manage the water objectives into the future considering the impacts of climate change.

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Table 6-5. Landscape-level and operational-level indicators and targets associated with the Water value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Objective: The quality and quantity of water in watercoures is maintained to support drinking water and aquatic life			
Landscape level			
Density of crossings	Maintain a low density of crossings	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	Density of crossings with a Low Risk Class must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights
Number and volume of water withdrawals	Info only	• Water Quantity and Quantity Monitoring Program (Section 7.3)	Not applicable
Number of WMBs with real-time flow monitoring data	As Identified	• Water Quantity and Quantity Monitoring Program (Section 7.3)	Ministry of Environment to establish real-time flow monitoring stations at agreed-upon locations
Number of WMBs with low-flow thresholds	All	• Water Quantity and Quantity Monitoring Program (Section 7.3)	Ministry of Environment to establish low-flow thresholds
Number and volume of water withdrawals during low-flow conditions	Zero	• Water Quantity and Quantity Monitoring Program (Section 7.3)	Government agencies to pause water withdrawals during low-flow conditions
Percent forest cover change in headwaters of WMB	Low (<15% Equivalent Clearcut Area [ECA] change)	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	Percent forest cover change in headwaters (Low Risk Class) must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights
Operational level			
Demonstrate adherence to the Federal *Fisheries Act*	100%	• Referral Tracking Program (Section 7.2.1)	Provide evidence for the Request for Project Review

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
			process and related project authorizations as needed.
Number of Range Use Plans with waterbody access management conditions	100%	• Referral Tracking Program (Section 7.2.1)	Range Use Plans must have agreed upon waterbody access management conditions. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of range inspections with satisfactory water quality results	100%	• Range Monitoring Program (Section 7.3)	The company which has been issued a permit to operate a grazing license must demonstrate compliance with Range Use Plan conditions
Number of PNG inspections with satisfactory water quality results	100%	• PNG Monitoring Program (Section 7.3)	The company which has been issued a permit to operate must demonstrate compliance with applicable legislation related to water quality
Number of Forestry inspections with water quality satisfactory results	100%	• Forestry Monitoring Program (Section 7.3)	The company which has been issued a permit to operate must demonstrate compliance with applicable legislation related to water quality
Number of Camping and Trapping inspections with satisfactory water quality results	100%	• Trapping and Camping Monitoring Program (Section 7.3)	Not applicable
Number of PNG facilities with groundwater sampling programs	100%	• PNG Monitoring Program (Section 7.3)	PNG facilities with potential to impact groundwater must have permit conditions for groundwater monitoring

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Number of PNG facilities with groundwater sampling programs with satisfactory results	100%	• PNG Monitoring Program (Section 7.3)	The company which has been issued a permit to operate must demonstrate compliance with applicable permit conditions
Number of placer and mining inspections (water quality) with satisfactory results	100%	• Mining Monitoring Program (Section 7.3)	The company which has been issued a permit to operate must demonstrate compliance with applicable legislation related to water quality; threshold for water quality at "end of pipe" is aquatic life
Number of permits with conditions to manage low flow conditions	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Permits for water withdrawals must indicate low-flow conditions; water withdrawal to cease with low-flow threshold met
Number of permits with flow measurement requirements	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Permits for water withdrawals must indicate requirement for daily flow measurement, under Qualified Professional (QP) supervision, during periods of withdrawal
Number of water withdrawal inspections per year with satisfactory results	100%	• Water Quantity and Quantity Monitoring Program (Section 7.3)	The company which has been issued a permit to withdraw water must demonstrate compliance with applicable permit conditions
Number of PNG companies fracking at one time	Information purposes only, perhaps as part of BCER pilot program on environmental flow needs	• Water Quantity and Quantity Monitoring Program (Section 7.3)	Not applicable
OBJECTIVE: Maintain function and connectivity of riparian habitat along rivers and streams			

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Landscape level			
Percentage of disturbed riparian habitat	Low (i.e., <12%)	• Analysis Program (Section 7.1.1) • Restoration Priorities Program (Section 7.1.4)	Percentage of disturbed riparian habitat (Low Risk Class) must be demonstrated for 65% or greater of the land available for the reasonable practice of Treaty rights. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of range disturbance through riparian habitat	Low (i.e., <12%)	• Analysis Program (Section 7.1.1)	Data managed by MOF; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of PNG disturbance through riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by BCER; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of forestry disturbance through riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by MOF; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of road (e.g., MOTI) disturbance through riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by MOTI; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
			established by QPs on a case-by-case basis.
Percentage of transmission line (e.g., BC Hydro) through riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by BC Hydro; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of fee simple land management disturbance through riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by WRLS; rolls into overall indicator. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of placer mining through stream and riparian habitat	Does not exceed the cumulative Low percentage of disturbed riparian habitat	• Analysis Program (Section 7.1.1)	Data managed by the Ministry of Energy, Mines and Low Carbon Innovation (EMLI); rolls into overall indicator
Operational level			
Demonstrate adherence to the Federal *Fisheries Act*	100%	• Referral Tracking Program (Section 7.2.1)	Provide evidence for the Request for Project Review process and related project authorizations as needed.
Number of Range Use Plans with waterbody access management conditions	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1	Range Use Plans must have agreed upon waterbody access management conditions. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of range inspections (riparian habitat) with satisfactory results	100%	• Range Monitoring Program (Section 7.3)	The company which has been issued a permit to operate a grazing license must

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
			demonstrate compliance with Range Use Plan conditions
Number of PNG applications with open cut stream crossings	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1	Trenchless stream crossings for fish-bearing waterbodies unless geotechnical report indicates stability concerns.
Number of PNG applications with open cut stream crossings that have a restoration plan written and signed by a QP	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1	Open cut stream crossings have restoration plan written and signed by a QP. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of PNG inspections (riparian) with satisfactory results	100%	• PNG Monitoring Program (Section 7.3)	The company which has been issued a permit for an open cut crossing must demonstrate compliance with submitted restoration plan.
Number of PNG above-ground appurtenances within Riparian Management Areas	Zero	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1 • PNG Monitoring Program (Section 7.3)	Above ground appurtenances are not permitted within Riparian Management Areas
Number of Forestry inspections (riparian) with satisfactory results	100%	• Forestry Monitoring Program (Section 7.3)	Company will demonstrate compliance with existing legislation and HRFN Forestry Guidelines (under development) related to riparian management areas
Riparian Area Regulation updates	Inclusion of the Peace Region for the protection of riparian areas through Fee Simple lands	• Legislation Tracking Sheet (Section 7.2.2)	Legislation update / change to include Peace Region in the Riparian Area Regulation

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
	(including ability for wildlife to move through using riparian corridors)		
BCER Environmental Management and Protection Regulation	Inclusion of Non-Classified Drainages (NCD) as watercourses (with associated Riparian Management Areas)	• Legislation Tracking Sheet (Section 7.2.2)	Legislation update / change to include NCD as watercourses
MOF Forest and Range Practices Act (associated regulations)	Inclusion of NCD as watercourses (with associated Riparian Management Areas)	• Legislation Tracking Sheet (Section 7.2.2)	Legislation update / change to include NCD as watercourses
OBJECTIVE: Maintain healthy wetlands			
Landscape level			
Number and spatial area of wetlands	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Not applicable
Percentage of "properly functioning" wetlands	Information purposes only	• Restoration Priorities Program (Section 7.1.4) • Wetland Monitoring Program (Section 7.3)	Not applicable
Number and spatial area of wetlands within a grazing tenure	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of identified wetlands that have been classified	100%	• Wetland Classification Project (Section 7.3) • Province to work with HRFN to classify wetlands in Administrative Area	Not applicable
Determine wetlands and other waterbodies with no surface connectivity to other water features	Information purposes only	• Analysis Program (Section 7.1.1)	Develop protection program for unconnected watercourses

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
		• Current Condition Report (Section 7.1.3)	
Operational level			
Percentage of individually mapped wetland or wetland complexes disturbed	Low (15% or less disturbance = Properly Functioning)	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Permits must not be issued for activities in wetlands if disturbance is above low threshold. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Percentage of individually mapped wetland or wetland complexes with disturbed riparian areas	Low (15% or less disturbance = Properly Functioning)	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Permits must not be issued for activities in wetland riparian areas. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of PNG applications indicating riser sites or pigging facility in a wetland	Zero	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1	Not applicable
Number of PNG pipeline applications indicating wetland crossings	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Not applicable
Number of PNG pipeline applications with wetland crossings that have trenchless crossing methodology	Information purposes only	• Referral Tracking Program (Section 7.2.1)	Not applicable
Number of PNG pipeline applications with open cut wetland crossings with hydrological integrity plan	All	• Referral Tracking Program (Section 7.2.1)	Open cut wetland crossings have restoration plan written and signed by a QP. Appropriate watercourse and wetland setbacks to be

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
written by a Qualified Professional			established by QPs on a case-by-case basis.
Number of PNG inspections with satisfactory results related to wetland function	100%	• PNG Monitoring Program (Section 7.3)	The company which has been issued a permit for an open cut crossing must demonstrate compliance with submitted restoration plan. Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Number of Range inspections with satisfactory results related to wetland function	100%	• Range Monitoring Program (Section 7.3)	The company which has been issued a range license must demonstrate compliance with submitted restoration plan.
Objective: Manage the water objectives into the future considering the impacts of climate change			
Landscape level			
Number and volume of water withdrawals	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4) • Referrals Tracking Program (Section 7.2.1) • Water Quantity and Quantity Monitoring Program (Section 7.3)	Annual renewals of water withdrawals permits and authorizations adjusted relative to local climatic conditions (e.g., few permits and lower withdrawal amounts in drought years).
Operational level			
Number of permits and applications with water use or withdrawal conditions with climate-related volume calculations.	100%	Water Quantity and Quantity Monitoring Program (Section 7.3)	Permits and authorizations for water use are not granted without climate-related management actions.

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6.7 Food and Medicine

Food is a relationship between plants and animals. People are related and connected to plants and animals, as expressed through the phrase “all my relations”. The Elders teach that before a plant is harvested and after an animal is killed, an offering must be given to express gratitude for the life giving itself up to sustain another. Passed down with the knowledge of how to hunt, gather, and process food is a knowledge that food and people are connected. Before harvesting a plant, thanks is given. After an animal is killed, thanks is given. Thanks is given for one life giving life for another. Through this connection, it is known to take only what is needed. Food is a reciprocal relationship. When food is given by the plant or the animal, there is a duty to take only what is needed when it is needed. The Elders teach a respect for food that is given. This respect is tied to purpose, vocation, relationship. When the relationship is healthy and life is purposeful, there enters a sense of well-being, of happiness, of living a good life.

Prior to the arrival of Europeans and the introduction of agriculture, trading posts, and industrialization, all food was collected and processed in nature. This collection and processing were, and may still be, intrinsically connected to survival and a sense of purpose. Hunting, gathering, and processing food and medicines were, and may still be, considered important jobs, vocations even. An essential job where the food and medicine are harvested to keep the family alive, and a vocation where there is a duty of care to the plants and animals as well.

As a nomadic people before contact with Europeans, the people of HRFN relied solely on the land for food and medicine. HRFN had a non-agricultural culture; they did not cultivate land, nor did they raise animals in captivity. To survive, the people had to intimately understand the land and how everything interacted through space and time. Each had to be a master at their trade: the hunter, the gatherer, those who processed the food, those who administered the medicine. This knowledge was learned over a lifetime and passed down through the generations.

Since contact, HRFN’s relationship with food has changed. Since knowledge learned over lifetimes and passed down through generations has been lost through shifting times, the master tradespeople and their knowledge are waning.

Also shifting is the health of the land. Pollutants are introduced with the advance of commercial forestry, commercial agriculture, and natural resource extraction. Herbicides are applied, grazing cows wander the eroding creeks and rivers, pipelines sometimes burst and more often leak, mines and hydroelectric dams release harmful elements that bioaccumulate into the system. Animals that were once plentiful are now imperiled by this shifting landscape. For example, although HRFN knows there are not enough caribou for harvest, the government still proposes to allow industrial development in critical habitat and commercial and recreational hunting.

It is clear the connection has been broken and things can never be put back to what they once were. The people of HRFN are not attempting to fix what cannot be fixed. They know there is no going back to a nomadic way of life; they also know that their food is inexorably connected to culture. That food is related to vocation, to social connection, to health, to life itself.

The 'food and medicine’ value is substantial and incorporates many elements and considerations. To further explain and measure this value, it is broken into the following interrelated categories:

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- Resilient landscapes (Section 6.4)
- Food and Medicinal Plants
- Fish
- Wildlife

6.7.1 Food and Medicinal Plants

HRFN's law states that everything is connected. It is not possible to harvest the diamond willow fungus without the willow. It is not possible to grow a willow without some soil. Without nutrients provided by the organisms that process decaying plant matter, the soil would be sterile. Without adequate and clean water, the willow could not drink. And without the carbon dioxide from our breath, the willow could not breathe.

Because everything is connected, it is not possible to delineate individual plants or communities of plants and ensure a healthy and abundant supply of plants for food and medicines for future generations. For example, a huckleberry patch, a highly prized and valuable site, will produce the most berries after a disturbance (fire or logging) but will not produce many berries under a dense forest canopy with little light (Keefer et al. 2010). Prized huckleberry patches change over time. This is why, although berry patches may be identified in TUS data, polygon delineation of specific plants and plant communities are not used in this AMPP for the long-term protection of HRFN's Treaty right to gather food and medicinal plants.

The ability to meaningfully practice HRFN's Treaty rights is captured within the objectives, indicators, and targets below.

The primary Food and Medicinal Plant objective within the Food and Medicine value is that:

- The community should have continued access to a healthy and abundant supply of plants for food and medicine (Table 6-6) as measured through:
    - Plants free from contamination;
    - Connectivity (Section 6.3); and
    - Resilient Landscapes (Section 6.4).

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Table 6-6. Landscape-level and operational-level indicators and targets for Food and Medicinal Plants within the Food and Medicine value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Objective: Community to have access to a healthy and abundant supply of plants for food and medicine			
Landscape level			
Percentage of available land base that has potential for the use of broadcast herbicides or pesticides	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	HRFN does not support the use of broadcast herbicide or pesticide applications
Percentage of dormant well sites without Certificate of Restoration (COR)	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	All projects should have current CORs.
Percentage of dormant sites with an out-of-date COR	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Restoration Priorities Program (Section 7.1.4)	All projects should have current CORs.
Percentage of available land base for gathering that does not overlap range tenures	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Not applicable
Operational level			
Sustainable Forest Management Plan (SFMP) (or equivalent) and herbicide use language	Work with Ministry of Forests (MOF) and EMLI to remove broadcast herbicide ability	• Legislative Change Tracking Program (Section 7.2.2)	HRFN does not support the use of broadcast herbicide or pesticide applications
PNG and herbicide use	Work with EMLI to remove broadcast herbicide ability in areas where fire hazard is not a concern	• Legislative Change Tracking Program (Section 7.2.2)	HRFN does not support the use of broadcast herbicide or pesticide applications

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Percentage of biophysical monitoring in areas where air pollutants are of known concern	100%	• Airshed Monitoring Program (Section 7.3)	Not applicable
Number of cows per range tenure	Sustainable Animal Unit Months (AUM) per range tenure	• Range Monitoring Program (Section 7.3)	Not applicable
Level of grazing	Minimum stubble height; cows are removed from Crown range when average stubble height falls below 10 cm	• Range Monitoring Program (Section 7.3)	Not applicable

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6.7.2 Fish

The ability to fish is dependent on healthy fish populations, which in turn need clean waters to spawn, hatch, rear and rest. The water should be clean and free of pollutants, flow freely, and have healthy riparian habitats that provide shade, food, and nutrients. Fish face cumulative anthropogenic challenges including formal and informal human-made dams and draws, fishing pressure, invasive species, decreasing seasonal low flows, poor water quality, and rising temperatures.

HRFN's definition of fish aligns with the Fisheries and Oceans Canada (DFO) definition of fish which "includes finfish, shellfish, crustaceans, and molluscs in any stage of life, including eggs. Also includes any parts of a fish". A species of note in the area is Bull Trout.

The primary Fish objectives within the Food and Medicine value are to:

- Ensure ability to exercise Treaty 8 rights to fish (Table 6-7) by:
    - Maintaining clean aquatic environments (Section 6.6);
    - Maintaining healthy populations within each WMB area that can be consumed in all seasons without fear of contamination or other ill effects on human health; and
    - Ensuring abundant aquatic and riparian habitat which provides for every life stage of fish, especially breeding, resting, spawning, and rearing habitat.

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Table 6-7. Landscape-level and operational-level indicators and targets for Fish within the Food and Medicine value. All indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Objective: Healthy and abundant populations of fish available to harvest annually and safe to consume			
Landscape level			
Determine spatial extent of watercourses (including ephemeral water bodies) with information on presence of fish	100%	• Analysis Program (Section 7.1.1 • Current Condition Report (Section 7.1.3) • Develop protection program for watercourses with DFO. • Combine TUS and DFO fisheries data for comprehensive understanding of fish presence	Not applicable.
Determine presence of formal and informal dams, draws and beaver dams on watercourses	Information purposes only	• Analysis Program (Section 7.1.1 • Current Condition Report (Section 7.1.3) • Identify illegal and informal dams. • Develop program for removal	Not applicable.
Presence and management using umbrella species	Determine suitable umbrella fisheries species for types of fishing species (e.g., bull trout)	• Fish and Wildlife Monitoring Program (Section 7.3)	Under development
Monitoring of bull trout populations and quotas per WMB	Number of bull trout available for HRFN consumption and recreational fishing / harvest	• Fish and Wildlife Monitoring Program (Section 7.3)	Under development
Amount of land available for herbicide / pesticide use (per river system?)	Zero herbicide or pesticide use within identified area	• Fish and Wildlife Monitoring Program (Section 7.3)	Under development

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Operational level			
Demonstrate adherence to the fish protections within the Federal *Fisheries Act*	100%	• Referral Tracking Program (Section 7.2.1)	Provide evidence for the Request for Project Review process and related project authorizations as needed.
Number of target species (e.g., bull trout) surveys per river system. Surveys to include population estimates, and assessments body condition and chemical analysis.	One survey every five years	• Fish and Wildlife Monitoring Program (Section 7.3)	Under development
Objective: Ensuring abundant aquatic breeding, resting, spawning, and rearing habitat			
Landscape level			
Target species (e.g., bull trout) habitat types identified in the HRFN web mapping tool	All	• Fish and Wildlife Monitoring Program (Section 7.3)	Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Current type and amount of disturbance within each habitat type.	Information purposes only	• Fish and Wildlife Monitoring Program (Section 7.3)	Appropriate watercourse and wetland setbacks to be established by QPs on a case-by-case basis.
Operational level			
Demonstrate adherence to the fish habitat protections in the Federal *Fisheries Act*	100%	• Referral Tracking Program (Section 7.2.1)	Provide evidence for the Request for Project Review process and related project authorizations as needed.
Number of referrals or applications across sectors that overlap target species (e.g., bull trout) habitat	Information purposes only	• Fish and Wildlife Monitoring Program (Section 7.3)	Under development

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6.7.3 Wildlife

6.7.3.1 Species at Risk

The AMPP approach outlines how to move forward to heal our fractured landscape into a healthier and more robust ecological state. Federal and provincial recommendations for specific Species at Risk that intersect with the Administrative Area can be amalgamated with this AMPP for additional protection (e.g., updates to the Migratory Birds Regulations protecting nest trees of key species, even if the nests are not currently active).

6.7.3.2 Wildlife

Wildlife is defined as all animal species present in an area including vertebrates and invertebrates. The approach to conservation and management taken by the Province typically focuses on single species that are of conservation (e.g., rare) or management (e.g., hunted) interest. This approach, although occasionally successful in the short term, often leads to unforeseen and unintended consequences. For example, the killing of wolves in the hopes of reducing predation on caribou has resulted in increases in local beaver populations, resulting in additional dams and reductions in flows from tributaries. Wildlife management must prioritize the whole system.

This single-species approach has not been successful in maintaining healthy and functioning ecosystems. This approach has not kept fish stocks high or wildlife numbers thriving. Traditionally, HRFN maintains a different perspective, one in alignment with nomadic ancestry and traditions that prioritize the protection and understanding of what is *seasonally abundant* on the landscape. Traditional Knowledge tells us that that all species will be protected by maintaining and restoring healthy ecosystems, walking more softly on the earth and protecting the species that can be hunted and fished.

The focus of wildlife management within the AMPP is maintaining habitat, especially for ungulates such as moose, elk, white-tailed deer, and caribou. A further critical aspect of habitat management is maintaining the connectivity of wildlife trails and mineral licks. It is critical that wildlife species be able to move across the landscape to complete their life cycles as well as to adapt to changing landscapes, seasonal and weather patterns, and climate change.

The primary objective for Wildlife within the Food and Medicine value (Table 6-8) is to maintain and enhance wildlife habitat and populations to ensure long-term viability and accessibility for the practice of Treaty 8 rights. The overall objective has multiple sub-components, including:

- Maintaining an abundant supply of food from hunting;
- Protecting mineral licks; and
- Ensuring animals are safe to eat in their entirety (e.g., meat, organs, marrow) or safe to use for cultural practice (e.g., processing tick-free hides, use of bear grease).

HRFN's objective around wildlife is direct: it focuses on healthy, abundant, and resilient populations. How this translates into indicators, targets, or management direction is much more complicated. There are links to water, forest condition, habitat availability, connectivity, and all other HRFN values. They are affected by many different pressures such as oil and gas activities, mining, forestry, agriculture, range, contamination, habitat fragmentation, and climate change. Wildlife abundance and health are high-level integrators of cumulative effects.

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This AMPP attempts to simplify these factors, objectives, and pressures into an analysis framework; however, this AMPP represents a first step, and it is expected that it will be updated as new data and ideas become available.

In general, the approach is to choose a manageable number of wildlife species of importance to HRFN and look at existing models that describe their habitat requirements. Moose, caribou, fisher, and bears have been chosen as starting points for this iteration. It should be noted that this approach does not fit well with HRFN's more holistic way of looking at ecosystem health and connectivity but was thought to be necessary to translate wildlife objectives into management direction that industry and regulators can follow. Periodic monitoring in a way that is compatible with HRFN's world view will be implemented as part of this adaptive management plan to see if this more Western way of seeing is working for HRFN in this context.

The habitat models developed as part of the Analysis Program (Section 7.1.1) will be used to assess the current amount and distribution of habitat for all life stages, thereby identifying opportunities for restoration to improve connectivity and habitat quality. Consistent with other sections, summaries will be scaled to the WMB unit.

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Table 6-8. Landscape-level and operational-level indicators and targets for Wildlife within the Food and Medicine value, all indicators and targets calculated at the level of WMB, unless otherwise indicated.

INDICATOR	TARGET	MECHANISM/PROCESS	RULE
OBJECTIVE: Maintain and enhance wildlife habitat and populations to ensure long-term viability and accessibility for the practice of Treaty 8 rights			
Landscape level			
Percentage of range or agricultural fencing that is "wildlife friendly"	100%	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Under development
Spatial area of land available for broadcast herbicide use related to forestry	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	HRFN does not support the use of broadcast herbicide or pesticide applications.
Spatial area of land available for broadcast pesticide use related to agriculture	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Under development
Spatial area of land available for the baiting of ungulates for the purpose of recreational hunting	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	Under development
Moose: The amount and distribution of habitat for all life stages is available	(≥ 75% connected habitat per WMB to support low risk moose populations.	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Fish and Wildlife Monitoring Program (Section 7.3.4)	In the existing RSEA moose model, 75% of core effective habitat remaining is considered no risk. If there is a risk flag (e.g., road density, disturbance buffers, habitat suitability), risk-specific strategies are to be developed within each WMB or other appropriate spatial scale

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Caribou: The amount and distribution of habitat for all life stages is available	65% undisturbed critical habitat (gives a herd 60% chance of self-sustaining population).	• Analysis Program (Section 7.1.1) • Fish and Wildlife Monitoring Program (Section 7.3.4) • Current Condition Report (Section 7.1.3)	Under development
Fisher (as a proxy for Marten): The amount and distribution of habitat for all life stages is available	Based on the BC Fisher habitat working group landscape targets for key habitat components: • Rearing or breeding habitat (36%) • Resting habitat – spruce (16%) and mature (33%) • Foraging habitat – snowshoe hare (8.7%), squirrels (7.2%) • Movement habitat – 75% with total cover >20%	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Fish and Wildlife Monitoring Program (Section 7.3.4)	Under development
Black bear: the amount and distribution of habitat for all life stages is available	60% (low risk)	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3) • Fish and Wildlife Monitoring Program (Section 7.3.4)	Under development
Spatial area of land of forest preventing ungulate movement (e.g., due to blowdown)	Information purposes only	• Analysis Program (Section 7.1.1) • Current Condition Report (Section 7.1.3)	A follow-up survey to confirm or identify problem forest types should be scheduled.
Spatial area of land of regenerating cutblocks with “ungulate friendly” stocking or natural regeneration of typical browse species	Information purposes only	• Forestry Monitoring Program Section 7.3.8)	All stocking standards to be “ungulate friendly” or foster natural regeneration.

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
HRFN's mineral lick locations and associated wildlife trails are captured spatially	Information purposes only	• Analysis Program (Section 7.1.1)	Not applicable
Provincial mineral lick spatial locations copied spatially	Information purposes only	• Analysis Program (Section 7.1.1)	Not applicable
Operational level			
Number of range applications	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Under development
Number of Range Use Plans that indicate requirement for wildlife-friendly fencing	All	• Range Monitoring Program (Section 7.3.7)	Under development
Number of range inspections with satisfactory results related to wildlife-friendly fencing	All	• Range Monitoring Program (Section 7.3.7)	Under development
Number of PNG pipeline applications with intersecting linear corridors	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1) • PNG Monitoring Program (Section 7.3.9)	Under development
Number of PNG pipeline applications with intersecting linear corridors with associated line of sight mitigation measures	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1) • PNG Monitoring Program (Section 7.3.9)	Under development
Number of inspections with satisfactory results related to line of sight	100%	• PNG Monitoring Program (Section 7.3.9)	Under development

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Number of PNG pipeline applications with intersecting wildlife trails	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1) • PNG Monitoring Program (Section 7.3.9)	Under development
Number of PNG pipeline applications with intersection wildlife trails with associated mitigation plans written by a QEP	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1) • PNG Monitoring Program (Section 7.3.9)	Under development
Number of inspections with satisfactory results related to wildlife trails	100%	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1) • PNG Monitoring Program (Section 7.3.9)	Under development
Ministry of Environment and Climate Change regulations updates re: herbicide use	MOE to eliminate broadcast herbicide use. Spot (manual) application of herbicides can be acceptable under an approved plan.	• Legislative Change Tracking Program (7.2.2)	Under development
Number of referrals and applications reviewed by Lands staff with overlapping mineral licks	Information purposes only	• Referrals Tracking Program (Section 7.2.1) • Referral Review Checklist (Section 7.2.1)	Not applicable
Number of permits with avoidance of mineral licks	100%	• Referral Tracking Program (Section 7.2.1)	Permits must not be issued for activities that overlap / disturb an identified mineral lick. Appropriate setbacks to be established by QEPs on a case-by-case basis.

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INDICATOR	TARGET	MECHANISM/PROCESS	RULE
Number of inspections with satisfactory results related to avoidance of mineral licks and associated wildlife trails	100%	• PNG Monitoring Program (Section 7.3.9) • Forestry Monitoring Program (Section 7.3.8) • Range Monitoring Program (Section 7.3.7) • Mining Monitoring Program (Section 7.3.10)	The company which has been issued a permit for activities must demonstrate compliance on condition that mineral licks must be avoided. Appropriate setbacks to be established by QEPs on a case-by-case basis.

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7 Supporting Programs

Realizing the full potential of the framework provided in Sections 2 to 6 of the AMPP requires the creation of integrated, supporting programs. These programs have been organized into three categories (Figure 7-1):

- Assessment Programs – programs designed to assess current conditions within the Administrative Boundary and to provide a quantitative assessment of land cover, habitat availability, industrial activity, historical and current disturbance, and HRFN values.
- Tracking Programs – programs designed to evaluate the progress of referrals, to assess the achievement of protection and restoration objectives, and to monitor compliance, adjustments and amendments to legislation, regulations, by-laws, and regulatory guidance.
- Monitoring Programs – programs designed to monitor activity within the Administrative Boundary, evaluate adherence to stated indicators and targets, and identify areas that require adaptive management attention.

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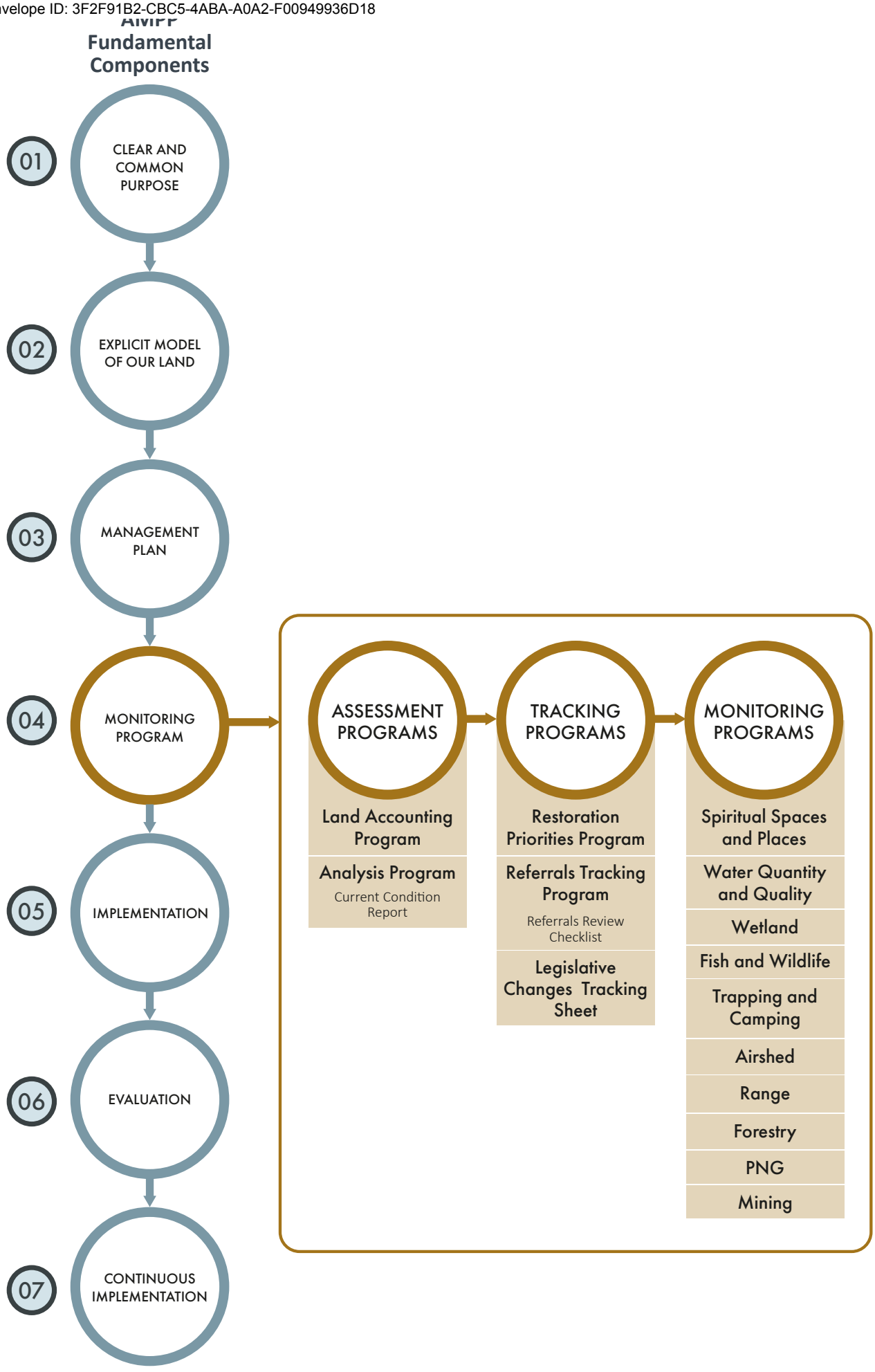

Figure 7-1. Supporting Programs for the HRFN Adaptive Management Program and Plan.

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7.1 Assessment Programs

7.1.1 Analysis Program

Purpose

The purpose of the Analysis Program is to analyze the current condition of the land base using GIS-based land cover mapping, disturbance mapping (e.g., well sites, linear features), wildlife habitat modelling, connectivity assessment, and airshed and viewshed assessments.

Product

A primary result of the Analysis Program will be the creation of a "living" map of the Administrative Area that can be updated as information is gathered. The Analysis Program provides the foundation for all other supporting programs and feeds directly into the Land Accounting Program (Section 7.1.2) and Current Conditions Report (Section 7.1.3).

Data Sources

The first step of the Analysis Program will be to generate land cover and ecosystem mapping data for the Administrative Area. This will involve compiling all available existing datasets to first determine how much of the Administrative Area has been mapped, and second, to consider developing a model data set to fill in data gaps as appropriate. A variety of land cover products are available from the BC Data Catalog each pertaining to a different sector and/or purposes (e.g. forestry, PNG, environmental assessment, and agriculture).

Predictive Ecosystem Mapping (PEM) is available for 2.6 million hectares (87%) of the 3-million-hectare Administrative Area. PEM is designed to delineate ecosystems for vast tracts of land using available spatial data, knowledge of ecological-landscape relationships, and computer automation. Other mapping and inventory products available for the Administrative Area that will be used to address identified gaps include the provincial Vegetation Resources Inventory (VRI) and recent (2020) Land Cover of Canada mapping.

Past and existing disturbance layers will be compiled through disturbance datasets available from the BC Data Catalogue. This includes forestry, roads, oil and gas, transmission lines, mining and exploration, urban development and agriculture and grazing. Relevant datasets will be processed and compiled to create a regularly updated account of disturbance on the land.

Analytical Approach

The Analysis Program will be based upon current conditions of the land base by WMB. Given the size of the Administrative Area and range of data sources, it is expected that there will be areas of the landscape that lack complete data coverage (e.g., absence of ecosystem mapping data in the southwestern WMBs). Where such gaps in existing datasets occur, modelling will be used to make predictions about the environmental and ecological conditions within the gaps. The predictive modelling program will make use of ongoing advancements in machine learning, remote sensing, and high-performance computing to generate detailed maps of different spatial characteristics, including ecosystems, disturbance regimes (e.g., cutblocks, forest fires), and soil properties (e.g., moisture, nutrients).

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From the existing and modelled land cover data, we will explore generating wildlife habitat models. The development of a habitat model would involve gathering background information on focal wildlife species and summarizing this information into species accounts and developing assumptions and wildlife habitat ratings based on this background information and available field data.

The model would be continually refined with the addition of field-based data, which would also be used to both complement existing training data and fact-check spatial predictions generated through modelling. All maps produced through the modelling process would be incorporated into the living map of the Administrative Area to help visualize spatial gaps and predicted land base characteristics.

7.1.2 Land Accounting Program

Purpose

To track the amount of land, by WMB, available for the meaningful practice of treaty rights. Available land will decrease as land is disturbed and will increase as land is restored.

Data Sources

- Analysis Program (Section 7.1.1)
- The results of each of the industry-focused monitoring programs

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Percentage of land that is currently available for the practice of Treaty 8 rights
- Spatial area of land that overlaps Section 16 grazing reserves, Crown land leases, parks and protected areas with hunting restrictions, and areas within no shooting zones
- Spatial area of land that overlaps Fee Simple land
- Spatial area of land that contains inaccessible Crown land (e.g., surrounded by private lands)
- Percentage of inaccessible Crown land "unlocked" with easements
- Spatial area of land that has been converted to sod-forming grass vegetation communities
- Number of referrals and applications with Crown land disturbance or land conversion (fee simple or lease)
- Spatial area of disturbance within approved applications
- Percentage of disturbed riparian habitat
- Linear feature density by ecosystem type (e.g., riparian)
- Percentage of area classified as Low Wildfire Risk
- Percentage of available land base that has potential for the use of broadcast herbicides or pesticides

7.1.3 Current Condition Report

One important output of the Analysis Program (Section 7.1.1) is the Current Condition Report. This report will set the benchmarks against which adoption of and adherence to the AMPP is measured for each HRFN value.

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7.1.4 Restoration Priorities Program

Purpose

Within the context of this AMPP, restoration priorities are based on the ability to meaningfully practice treaty rights, a goal which is embedded in each of the Value-based objectives and associated indicators, targets, and rules. The Restoration Priorities Program will identify areas currently not meeting AMPP targets and will provide target-specific recommendations to move towards success.

Data Sources

- Analysis Program (Section 7.1.1)
- Land Accounting Program (Section 7.1.2)
- Current Condition Report (Section 7.1.3)

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Spatial area of land available for restoration
- Percentage of available land for restoration that has been restored
- Spatial area of land restored (per year) by disturbance type
- Ecosystem representation within BGSs
- Forest age class and patch size distribution within BGSs
- Total hectares of interior forest across seral classes

7.2 Tracking Programs

7.2.1 Referrals Tracking Program

The HRFN Lands Department has a delegated responsibility to work with industry and government agencies in the review of referrals (also known as applications). Referrals may be for industrial activities such as forestry, petroleum and natural gas, and mining. Referrals may also be required for land designation changes such as Crown land leases, licenses of occupation, and land transfers from Crown to Fee Simple. Other referrals may be for commercial agricultural purposes, such as range.

Many referrals have the potential to negatively impact treaty rights. The Lands Department interacts with government agencies through consultation. Government agencies have a duty to consult. The Lands Department also interacts directly with application (referral) proponents whose activities may cause surface disturbances related to water, air, and / or land. This engagement is done to better understand disturbance impacts and to provide mitigation recommendations where applicable.

The Lands Department will review referrals and make comments and / or recommendations on impacts to treaty rights. The government, through its duty to consult, has an obligation to consider these impacts.

The Referrals Tracking Program is designed to track all referrals (applications) that the Lands Department processes. The program is designed to track whether and how mitigation recommendations are

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considered by government agencies. This program will also inform the Analysis Program (Section 7.1.1) and Land Accounting Program (Section 7.1.2).

To support the Referrals Tracking Program in the context of the AMPP, a Referrals Review Checklist will be developed to quickly assess whether an application meets the requirements of the AMPP and, if not, identify potential areas of conflict that may require additional attention. Demonstration of adherence to environmental regulations is an expectation of the AMPP process, including alignment with the federal *Fisheries Act* regarding the protection and management of water and fish.

The long-term vision for the Referrals Tracking Project is the development of an on-line portal that is linked with both the Analysis Program (Section 7.1.1), the Current Conditions Report (Section 7.1.3) and this AMPP that would allow proponents to immediately see where their project fits into the landscape of other disturbances and whether or not the project is consistent with the values and expectations of the HRFN.

7.2.2 Legislative Changes Tracking Sheet

The Legislative Changes Tracking Sheet will identify regulatory changes that would better support AMPP objectives and will provide an additional administrative record of HRFN interactions with provincial and federal regulators.

7.3 Monitoring Programs

All AMPP monitoring programs will utilize the results of the Analysis Program (Section 7.1.1) and content of the Current Conditions Report (Section 7.1.3) as the benchmarks against which to evaluate adherence to stated indicators and targets, and to identify areas that require adaptive management attention. The monitoring programs integrate objectives, indicators, and targets across values thereby encouraging a more expansive understanding of how current and proposed land use might affect HRFN values and cultural practice.

7.3.1 Spiritual Spaces and Places Monitoring Program

Purpose

Identifying spiritual spaces and places, and assessing, preserving, and repairing the ability of members to visit, use, and travel between different locations.

Supporting Projects

- The Spiritual Spaces and Places Monitoring Program will be supported by a Knowledge Keeping Project.
- The Knowledge Keeping Project will be initiated in parallel with the Analysis Program (Section 7.1.1) and will be conducted in two phases:
    - Collation of existing documentation of Spiritual Spaces and Places and development, to the extent practical, of a spatial representation of the known location.
    - Nation-led conversations with Elder and knowledge holders:
        - To verify or otherwise confirm the existing knowledge and mapping; and

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- To identify additional spaces and places that are currently or were historically used for spiritual practice.

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Percentage of spiritual spaces and places with associated written records or descriptions
- Percent overlap between Spiritual Spaces and Places with Crown Land tenures and with private land
- Percentage of Spiritual Spaces and Places that have legislated protection
- Number of referrals or applications with overlap with Spiritual Spaces and Places
- Number of referrals or applications with overlap with Spiritual Spaces and Places with appropriate levels of consultation and engagement
- Number of permits or authorizations with appropriate avoidance or mitigation measures, as supported by inspection results
- Number of PNG facilities that can be seen or heard from Spiritual Spaces and Places
- Number of ILOOs and LOOs for wind-energy developments that overlap Spiritual Spaces and Places

7.3.2 Water Quantity and Quality Program

Purpose

Tracking water withdrawal activities, alterations to watercourse hydrology (e.g., flow rates), and the maintenance of fish habitat.

Supporting Projects

- Analysis Program (Section 7.1.1)

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Density of watercourse crossings
- Number and volume of water withdrawals
- Number of permits and applications with water use or withdrawal conditions with climate-related volume calculations.
- Number of WMBs with real-time flow monitoring data
- Number of WMBs with low-flow thresholds
- Number and volume of water withdrawals during low-flow conditions
- Percent forest cover change in headwaters
- Number of Range Use Plans with waterbody access management conditions
- Number of inspections with satisfactory water quality results for range, PNG, forestry, and mining.
- Number of Camping and Trapping inspections with satisfactory water quality results
- Number of PNG facilities with groundwater sampling programs

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- Number of PNG facilities with groundwater sampling programs with satisfactory results
- Number of permits with conditions to manage low flow conditions
- Number of permits with flow measurement requirements
- Number of water withdrawal inspections with satisfactory results
- Number of permits with low flow conditions
- Percentage of disturbed riparian habitat
- Percentage of disturbance through riparian habitat within and across sectors
- Percentage of individually mapped wetlands and wetland complexes with disturbed riparian area

7.3.3 Wetland Monitoring Program

Purpose

Monitoring the extent, quality, and functionality of wetlands within the Administrative Area. The Wetland Monitoring Program will also track the health of riparian ecosystems within the Administrative Boundary.

Supporting Projects

- For this program to be successful, it will be necessary to have a complete and accurate inventory of wetlands within each WMB.
- A preliminary Wetland Classification Project will be completed as part of the Analysis Program (Section 7.1.1).
- Field verification and follow-up monitoring is the purview of the Wetland Monitoring Program.

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Number and area of classified wetlands
- Percentage of “properly functioning” wetlands
- Number and areas of wetlands and waterbodies with no surface connectivity to other water features
- Number and area (hectares) of wetlands within a grazing tenure
- Number of identified wetlands that have been classified
- Percentage of individually mapped wetland or wetland complexes disturbed
- Percentage of individually mapped wetland or wetland complexes with riparian area disturbed
- Percentage of disturbed riparian habitat
- Percentage of disturbance through riparian habitat within and across sectors
- Number of PNG applications indicating riser sites or pigging facility in a wetland
- Number of PNG pipeline applications indicating wetland crossings
- Number of PNG pipeline applications with wetland crossings that have trenchless crossing methodology
- Number of PNG pipeline applications with open cut wetland crossings with hydrological integrity plan written by a Qualified Professional
- Number of inspections with satisfactory wetland function results within and across sectors

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7.3.4 Fish and Wildlife Monitoring Program

Purpose

Integrating the fish and wildlife-focused aspects of the Analysis Program (e.g., habitat models, mapping of fish-bearing waterbodies) with the Connectivity and Resilient Landscape objectives.

Supporting Projects

- Analysis Program (Section 7.1.1)
- Landscape-level metrics will be integrated with hunting, trapping, and fishing data, along with a formal field-verification program of the habitat models.

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Percentage of disturbed riparian habitat
- Extent of watercourses (including ephemeral water bodies) with information on presence of fish
- Presence of formal and informal dams, draws and beaver dams on watercourses
- Bull trout population levels
- Number of referrals or applications across sectors that overlap target species (e.g., bull trout) habitat
- Existing and proposed disturbance to fish habitat
- Percentage of range or agricultural fencing that is “wildlife friendly”
- Number of hectares available for the baiting of ungulates for the purpose of recreational hunting
- Moose: The amount and distribution of habitat for all life stages is available
- Caribou: The amount and distribution of habitat for all life stages is available
- Fisher (as a proxy for Marten): The amount and distribution of habitat for all life stages is available
- Black bear: the amount and distribution of habitat for all life stages is available
- Number of hectares of forest preventing ungulate movement (e.g., due to blowdown)
- Number of hectares of regenerating cutblocks with “ungulate friendly” stocking or natural regeneration of typical browse species
- Locations of mineral licks
- Number of referrals or applications overlapping mineral licks
- Number of permits with avoidance of mineral licks as a permit condition
- Number of inspections with satisfactory results related to avoidance of mineral licks

7.3.5 Trapping and Camping Monitoring Program

Purpose

This program will be directly focused on the Camping Places value and will track and monitor the ability of HRFN members to access, use, and enjoy traditional trapping and camping locations.

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Supporting Projects

- Analysis Program (e.g., identification of cultural camping places; Section 7.1.1).

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Total spatial area available for trapping
- Total spatial area available for trapping with overlapping tenures (e.g., guide outfitting, traplines not HRFN owned)
- Total spatial area available for trapping by HRFN-owned trapline
- Number of referrals or applications within 1 km of Trapline Cabins and Cultural Camping Places
- Number of approved permits within 1 km of Trapline Cabins and Cultural Campling Places with agreed upon mitigations and associated permit conditions
- Number of inspections with satisfactory results for implementation of agreed-upon mitigation measures
- Number of salt blocks within 1km of Trapline Cabins and Cultural Camping Places
- Number of cattle grazing opportunities within 1 km of Trapline Cabins or Cultural Camping Places (during camping season)
- Amount of current development within 1 km of a Cultural Camping Place
- Number of Camping and Trapping inspections (water quality) with satisfactory results

7.3.6 Airshed Monitoring Program

Purpose

Developing and integrating air quality monitoring activities, especially for SO_2 emissions associated with natural gas processing. Additional areas of monitoring focus could include fugitive dust monitoring along resource roads to better understand effects on vegetation health and indirect effects on ungulate browse quality.

Supporting Projects

- Analysis Program (Section 7.1.1)

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Total spatial area of land that falls within the outfall zone of a dispersion modeling report (e.g., air quality exceedance zone)
- Proportion of airshed with consistent air quality monitoring
- Number of natural gas processing facilities with SO_2 emissions
- Number of natural gas processing facilities with SO_2 emissions with air quality and biophysical monitoring
- Number of air quality or biophysical monitoring reports with exceedances

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7.3.7 Range Monitoring Program

Purpose

Identifying and quantifying the interactions between livestock grazing activity and HRFN values (e.g., fencing structures and wildlife movement, water quality and wetland health, disturbance of mineral licks, and health of range ecosystems).

Supporting Projects

- Analysis Program (Section 7.1.1)

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Total spatial area of land that overlaps range tenure
- Percentage of "Treaty 8 Friendly" grazing tenures
- Number of cattle grazing opportunities within 1km of Trapline Cabins and Cultural Camping Places
- Number of Range Use Plans with waterbody access management conditions
- Number of range inspections with satisfactory water quality results
- Percentage of range disturbance through riparian habitat (per WMB)
- Number and spatial area of wetlands within a grazing tenure
- Percentage of available land base for gathering that does not overlap range tenures
- Sustainable Animal Unit Months (AUM) per range tenure
- Minimum stubble height
- Percentage of range fencing that is "wildlife friendly"
- Number of range applications
- Number of Range Use Plans that indicate requirement for wildlife friendly fencing
- Number or range inspections with satisfactory results related to wildlife-friendly fencing
- Number of inspections with satisfactory results related to the avoidance of mineral licks

7.3.8 Forestry Monitoring Program

Purpose

Identifying and quantifying the interactions between forestry activities and HRFN values (e.g., wildlife habitat, water quality and quantity).

Supporting Projects

- Analysis Program (Section 7.1.1)
- Work with Ministry of Forests (MOF) and EMLI to remove broadcast herbicide ability

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

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- Percent forest cover change in headwaters
- Number of Forestry inspections with satisfactory water quality results
- Percentage of forestry disturbance through riparian habitat
- Cutblock adjacency with respect to moose habitat
- Percentage of forested landscapes categorized as unhealthy (e.g., insect outbreak damage)
- Species and stocking densities associated with silviculture activities
- Proportion of replanting comprised of deciduous and low fire risk species
- Percentage of area classified as Low Wildfire Risk
- Number of cutblocks with “fire-smart” silviculture practices applied
- Spatial area of regenerating cutblocks with “ungulate friendly” stocking or natural regeneration of typical browse species
- Number of inspections with satisfactory results related to mineral lick avoidance

7.3.9 PNG Monitoring Program

Purpose

Identifying and quantifying the interactions between PNG activities and HRFN values (e.g., air quality, water quality and quantity, disturbance to sacred spaces).

Supporting Projects

- Analysis Program (Section 7.1.1)
- Work with EMLI to remove broadcast herbicide ability in areas where fire hazard is not a concern

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Number of PNG inspections with satisfactory water quality results
- Number of PNG facilities with groundwater sampling programs
- Number of PNG facilities with groundwater sampling programs with satisfactory results
- Percentage of PNG disturbance through riparian habitat
- Number of natural gas processing facilities with $S0_2$ emissions
- Number of natural gas processing facilities with $S0_2$ emissions with air quality and biophysical monitoring
- Number of air quality / biophysical monitoring reports with exceedances
- Number of PNG applications indicating riser sites or pigging facility in a wetland
- Number of PNG pipeline applications indicating wetland crossings
- Number of PNG pipeline applications with wetland crossings that have trenchless crossing methodology
- Number of PNG pipeline applications with open cut wetland crossings with hydrological integrity plan written by a Qualified Professional
- Percentage of dormant well sites without Certificate of Restoration
- Percentage of dormant sites with an out-of-date Certificate of Restoration
- Number of PNG pipeline applications with intersecting linear corridors

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- Number of PNG pipeline applications with intersecting linear corridors with associated line of sight mitigation measures
- Number of inspections with satisfactory results related to line of sight
- Number of PNG pipeline applications with intersecting wildlife trails
- Number of PNG pipeline applications with intersection wildlife trails with associated mitigation plans written by a Qualified Professional
- Number of inspections with satisfactory results related to wildlife trails
- Number of inspections with satisfactory results related to avoidance of mineral licks

7.3.10 Mining Monitoring Program

Purpose

Identifying and quantifying the interactions between mining activities and HRFN values (e.g., wildlife habitat, water quality and quantity).

Supporting Projects

- Analysis Program (Section 7.1.1)

Key Metrics

Unless otherwise indicated, all metrics will be quantified at the level of WMB.

- Number of placer, coal and large-scale metal mining inspections with satisfactory water quality results
- Number of inspections with satisfactory results related to avoidance of mineral licks
- Number of active placer mines
- Number of historic placer mines and current restoration status
- Number of coal and metal mining tenures
- Number of coal and metal mines in construction
- Number of coal and metal mines in operation
- Number of coal and metal mines in care and maintenance
- Number of coal and metal mines in development
- Number of NOW applications with intersection wildlife trails with associated mitigation plans written by a Qualified Environmental Professional
- Number of inspections with satisfactory results related to avoidance of mineral licks
- Status of water quality and ground water testing per mine
- Number of air quality / biophysical monitoring reports with exceedances
- Number of inspections with satisfactory results related to wildlife trails
- Number of inspections with satisfactory results related to avoidance of mineral licks

8 Evaluation and Continuous Improvement

Central to the success of an adaptive management planning process is the frequency of evaluation and reporting for continuous improvement. Each of the assessment, tracking and monitoring programs will

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have independent evaluation methods and reporting frequencies, which will be established as implementation of the AMPP progresses. The results from these programs will inform the nature and frequency of internal updates to the AMPP.

A process for providing external updates will be further developed to ensure timely communication of relevant AMPP changes. At this stage, we anticipate the following reporting frequency:

- Annual reporting of the AMPP
- Annual current conditions reporting (contingent on source data availability)
- Real time updates of the analysis toolkit and webtool, available for external use as requested

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Appendix A. BCER Treaty 8 Planning and Mitigation Measures

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BRITISH COLUMBIA ENERGY REGULATOR

Treaty 8 Planning and Mitigation Measures

VERSION 1.0: January 2024

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About the Regulator

The British Columbia Energy Regulator (Regulator) oversees the full life cycle of energy resource activities in B.C., from site planning to restoration. The Regulator ensures activities are undertaken in a manner that protects public safety and the environment, supports reconciliation with Indigenous peoples, conserves energy resources and fosters a sound economy and social well-being. We work collaboratively across government and industry sharing policy and technical expertise in support of B.C.'s transition to low-carbon energy and helping meet future global energy needs.

Vision, Mission and Values

Vision

A resilient energy future where B.C.'s energy resource activities are safe, environmentally leading and socially responsible.

Mission

We regulate the life cycle of energy resource activities in B.C., from site planning to restoration, ensuring activities are undertaken in a manner that:

- Protects public safety and the environment
- Supports reconciliation with Indigenous peoples and the transition to low-carbon energy
- Conserves energy resources
- Fosters a sound economy and social well-being

Values

Respect is our commitment to listen, accept and value diverse perspectives.

Integrity is our commitment to the principles of fairness, trust and accountability.

Transparency is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation is our commitment to learn, adapt, act and grow.

Responsiveness is our commitment to listening and timely and meaningful action.

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Preface

Proponents play a vital role in successful engagement with Indigenous communities. The BC Energy Regulator (the Regulator) requires proponents to meet and engage in dialogue with affected Indigenous communities when planning oil and gas activities. This is part of the Regulator's requirement to implement the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) within Regulator processes.

About the Document

In March 2023, the Province of BC and Treaty 8 Nations signed Letters of Agreement endorsing the Consensus Documents that set out various initiatives to enhance natural resource management in Treaty 8 Territory to achieve sustainability for future generations, meet the Crown's obligations to uphold constitutionally protected Treaty Rights, and support responsible resource development and economic activity.

As a step to honour this commitment and align with the Declaration on the Rights of Indigenous Peoples Act, the Regulator now requires operators to employ the following Treaty 8 Planning and Mitigation Measures (the Measures) for all applications within the Treaty 8 Area.

The Measures are important new natural resource conservation initiatives and a starting point for collaborative co-management. The Measures were-drafted with input from Treaty 8 Nations before publication, drawing from extensive discussions on longstanding issues and insights gained during energy development consultations. Furthermore, the Measures are informed by industry feedback and built upon innovative practices utilized by oil and gas operators. They are tangible, practical actions aimed at conserving the environment, safeguarding the practice of Treaty Rights, and enabling sustainable resource development.

The Measures are not intended to be exhaustive or final, and will be adapted collaboratively, as necessary, to meet future needs. Additional measures may be co-developed with specific First Nations.

As of March 7, 2023, the Regulator requires proponents to engage affected First Nations prior to application submission (pre-engagement) when planning energy resource activities. The Regulator encourages applicants to use the pre-engagement process to ensure their projects align with the Measures before submitting applications.

The Regulator's Oil and Gas Activity Application Manual will be updated to include the new measures that applicants must implement during the planning stage. Applications must align with the Measures before an application moves to the consultation and decision-making phases. Authorizations will include specific conditions and advisory guidance to ensure compliance with the Measures during construction, operation, and upon completion of activities. This document aims to assist users in understanding the procedures and recommended practices involved in the process.

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Additional Guidance

As with all Regulator documents, this does not take the place of applicable legislation. Readers are encouraged to become familiar with the acts and regulations and seek direction from Regulator staff for clarification. Some activities may require additional requirements and approvals from other regulators or create obligations under other statutes. It is the applicant and permit holder's responsibility to know and uphold all legal obligations and responsibilities.

Throughout the manual there are references to guides, forms, tables and definitions to assist in creating and submitting all required information. Additional resources include:

- Glossary and acronym listing on the Regulator website.
- Documentation and guidelines on the Regulator website.
- Frequently asked questions on the Regulator website.
- Advisories, bulletins, reports and directives on the Regulator website.
- Regulations and Acts listed on the Regulator website.

The Regulator honours Indigenous rights, title and values as foundational in our decision-making and applies this in all facets of our work with First Nations and Indigenous communities, as partners in building B.C.'s energy resource future.

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Document Revisions

The Regulator is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the Energy Professionals section of the Regulator's website.

Version Number	Posted Date	Effective Date	Chapter Section	Summary of Revision(s)
1.0	January 15, 2024	April 15, 2024	All	This is a new document; users are encouraged to review in full. Updates to the Oil and Gas Activity Application Manual to Support Consultation with First Nations will be published on the Regulator's website soon. For more information, please refer to Information Update IU2024-01.

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1.0 Baseline Planning and Mitigation Measures

1.1 Seismic

The following are the minimum required documentation and plans that must be included with the application at time of submission to the Regulator.

STREAM, WETLAND, AND LAKE CROSSINGS

- Documentation identifying all stream, wetlands, and lake crossings must include:
  a. maps and construction plans identifying each stream, wetland, and lake that will be crossed by seismic activities,
  b. a table indicating each class of stream, wetland, and lake that will be crossed by seismic activities,
  c. within the table, the gross area of impacted Riparian Management Area for each stream, wetland, and lake crossing, and
  d. within the table, the type of crossing that will be used.
- Documentation indicating that motorized vehicle crossing methodology for fish-bearing streams is via clear-span bridge, open-bottomed culvert, or snow-fill.
- For Riparian Management Areas that will be impacted by seismic activities, a restoration plan written and signed by a qualified professional must be submitted. This plan must include, at a minimum:
  a. how the restoration will follow ecological succession for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance,
  b. the timing of ecological succession, up to and including the time at which vegetation is expected to reach “moose height” or 2 metres or an alternative threshold suitable to the surrounding area, as determined by a qualified professional,
  c. whether restoration will include natural revegetation, the planting of woody vegetation, the use of seed mix in accordance with the Ecologically Suitable Species Guideline, or combination,
  d. if using sod-forming seed mixtures to address erosion concerns, it must be confirmed when the sod-forming species are to be replaced with a suitable non-sod-forming species mix for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance, and
  e. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

MINERAL LICKS AND WALLOWS

- All mineral licks and wallows and their associated trail networks that may be impacted by the seismic activity must be identified on maps and construction plans.
- For mineral licks and wallows and their associated trail networks that may be impacted by the seismic activity, a mitigation plan written and signed by a qualified professional must be submitted. This plan must include, at a minimum:

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a. how the mineral licks and wallows will be avoided to maintain functionality of the mineral licks and wallows, including:

   i. setback distances from seismic activity,

   ii. how associated trail systems that connect with the mineral licks and wallows will be maintained, and

   iii. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

LINE OF SIGHT

- Where a seismic line intersects a linear corridor, documentation, including maps and construction plans, will indicate where line-of-sight mitigation measures will occur. At a minimum, line-of-sight mitigation measures will be used at:
  a. the intersection points of seismic lines and roads,
  b. the intersection points of seismic lines and pipelines,
  c. the intersection points of seismic lines and transmission lines, and
  d. at regular intervals along the seismic lines.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

- Follow existing industry best management practices, including low-impact seismic practices.
- End source and receiver lines at the edge of the Riparian Management Area of fish-bearing streams to reduce the number of stream crossings.
- Maintain isolation from access routes. End source and receiver lines prior to intersecting with roads, except where access into the seismic program is necessary.
- Cut seismic lines by hand wherever possible.
- Hand-cut source and receiver lines within the Riparian Management Area of S1 or S2 watercourse.
- Do not cut trees greater than 20 centimetres in diameter.
- Monitor seismic lines after program completion and note areas of potential impact including where vegetation is not regenerating and where predator access may be of concern.
- Mulch should not exceed 4 centimetres in depth.
- When operating in a wetland, activities must be carried out in frozen ground conditions.
- Restoration of impacted Riparian Management Area should begin within one growing season of final activities, as per the approved qualified professional restoration plan.

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1.2 Roads

The following are the minimum required documentation and plans that must be included with the application at time of submission to the Regulator.

STREAM, WETLAND, AND LAKE CROSSINGS

- Documentation identifying all stream, wetlands, and lake crossings must include:
  a. maps and construction plans identifying each stream, wetland, and lake that will be crossed by a road,
  b. a table indicating each class of stream, wetland, and lake that will be crossed by a road, and within the table, the type of crossing that will be used.
- For fish-bearing streams, documentation must indicate that crossings will be via clear-span, open bottom culvert, or snow-fill.
- When roads cross through a wetland, a wetland hydrological integrity plan written and signed by a qualified professional must be submitted. This plan must include, at a minimum, how the natural flow of the wetland will be maintained.
- Documents, including maps and construction plans, will indicate that roads are a minimum of 100 metres from the top of bank of S1 or S2 watercourse unless to facilitate a crossing.

MINERAL LICKS AND WALLOWS

- All mineral licks and wallows and their associated trail networks that may be impacted by a road must be identified on maps and construction plans.
- For mineral licks and wallows and their associated trail networks that may be impacted by a road, a mitigation plan written and signed by a qualified professional must be submitted. This plan will include, at a minimum:
  a. how the mineral licks and wallows will be avoided to maintain functionality of the mineral licks and wallows, including:
    i. setback distances from roads,
    ii. how associated trail systems that connect with the mineral licks and wallows will be maintained, and
    iii. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

LINE OF SIGHT

- Where a road intersects a linear corridor, documentation, including maps and construction plans, must indicate where line-of-sight mitigation measures will occur. At a minimum, line-of-sight mitigation measures should be used at:
  a. the intersection points of roads and seismic lines,

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b. the intersection points of roads and pipelines, except, through consultation with the pipeline owner, to facilitate pipeline maintenance access, and

c. the intersection points of roads and transmission lines, except, through consultation with the transmission line owner, to facilitate transmission line access.

RESTORATION

- A restoration plan for all workspaces and roads, written and signed by a qualified professional, must be submitted. This plan must include, at a minimum:

  a. how the restoration will follow ecological succession for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance.

  b. the timing of ecological succession, up to and including the time at which vegetation is expected to reach “moose height” or 2 metres, or an alternative threshold suitable to the surrounding area, as determined by a qualified professional.

  c. whether restoration will include natural revegetation, the planting of woody vegetation, the use of seed mix in accordance with the Ecologically Suitable Species Guideline, or combination.

  d. if using sod-forming seed mixtures to address erosion concerns, it must be confirmed when the sod-forming species are to be replaced with a suitable non-sod-forming species mix for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance, and

  e. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

- Use existing roads wherever possible to decrease cumulative impacts on the land base.
- Except to facilitate a crossing, a road must be a minimum of 100 metres from the top of bank of an S1 or S2 watercourse.
- The restoration of temporary workspaces must begin within one growing season of final temporary workspace activities, as per the approved qualified professional restoration plan.
- The restoration of the road will begin within one growing season of deactivation, as per the approved qualified professional restoration plan.
- Soil stockpiles must be revegetated and established with an ecologically suitable species. Soil stockpiles should be limited in height (1 metres maximum preferably). Piles must not exceed a 3H:1V slope (horizontal: vertical).

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1.3 Aggregate and Borrow Pits

The following are the minimum required documentation and plans must be included with the application at time of submission to the Regulator.

WILDLIFE

- All mineral licks and wallows and their associated trail networks that may be impacted by an aggregate or borrow pit must be identified on maps and construction plans.
- For mineral licks and wallows and their associated trail networks that may be impacted by an aggregate or borrow pit, a mitigation plan written and signed by a qualified professional must be submitted. This plan must include, at a minimum:
  a. how the mineral licks and wallows will be avoided to maintain functionality of the mineral licks and wallows,
  b. setback distances from the aggregate or borrow pits,
  c. how associated trail systems that connect with the mineral licks and wallows will be maintained, and
  d. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.
- Documentation, including construction plans, must indicate that aggregate and borrow pits will be graded to a resting angle that:
  a. facilitates reasonable egress by wildlife, and
  b. does not exceed a grade of 3:1.
- Documentation, including construction plans, will indicate that a visual vegetation buffer of no less than "moose height" or 2 metres is maintained or created between a road and an aggregate or borrow pit.

WATER

- Documentation, including maps and construction plans, must indicate that aggregate and borrow pits are a minimum of 100 metres from the top of bank of Class A watercourses.
- If water is planned to be captured from surface runoff and ground water infiltration into the aggregate or borrow pit, documentation, including construction plans, must indicate the maximum volume of water to be held.
- If an aggregate or borrow pit is expected to capture water and hold surface runoff and ground water, a plan, written and signed by a qualified professional, indicating whether the pit may be hydrologically connected via surface and/or groundwater flow, must be submitted.

RESTORATION

- A restoration plan, written and signed by a qualified professional, must be submitted. This plan must include, at a minimum:
  a. the area to be restored,

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b. how the restoration will follow ecological succession for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance,

c. the timing of ecological succession, up to and including the time at which vegetation is expected to reach “moose height” or 2 metres, or an alternative threshold suitable to the surrounding area, as determined by a qualified professional,

d. whether restoration will include natural revegetation, the planting of woody vegetation, the use of seed mix in accordance with the Ecologically Suitable Species Guideline, or combination,

e. where sod-forming seed mixtures are being used to address erosion concerns, the plan must confirm when the sod-forming species are to be replaced with a suitable non-sod-forming species mix for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance, and

f. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

- Aggregate and borrow pits that hold water may be deemed “ecological traps” that draw wildlife to these unnatural water features. The construction of pits that do not hold water is encouraged.
- Aggregate and borrow pits must be recontoured once the pit is no longer required to support operations.
- Refilling of borrow pits after final use is encouraged.
- Pits should be used to their full capacity rather than creating multiple pits in an operating area.
- The applicant must hold the long-term tenure over the aggregate and borrow pit and the aggregate and borrow pit may revert to the Crown once final restoration obligations have been met.
- Restoration activities must begin within one growing season of final oil and gas activities, as per the approved qualified professional restoration plan.
- Soil stockpiles must be revegetated and established with an ecologically suitable species. Soil stockpiles should be limited in height (1 metres maximum preferably). Piles must not exceed a 3H:1V slope (horizontal: vertical).

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1.4 Pipelines

The following are the minimum required documentation and plans must be included with the application at time of submission to the Regulator.

STREAM, WETLAND, AND LAKE CROSSINGS

- Documentation identifying all stream, wetlands, and lake crossings must include:
  a. maps and construction plans identifying each stream, wetland, and lake that will be crossed by pipeline activities,
  b. a table indicating each class of stream, wetland, and lake that will be crossed by pipeline activities:
    i. within the table, the gross area of impacted Riparian Management Area for each stream, wetland, and lake crossing, and
    ii. within the table, the type of crossing that will be used.
- Documentation indicating that motorized vehicle crossing methodology for fish-bearing streams is via clear-span bridge, open-bottomed culvert, or snow-fill.
- Where pipelines are required to cross through a wetland, the preferred crossing method is Horizontal Directional Drill (HDD), where feasible.
- When pipelines cross through a wetland and an HDD crossing method is not feasible, a hydrological integrity plan, written and signed by a qualified professional must be submitted. This plan will include, at a minimum, how the natural flow of the wetland will be maintained.
- Restoration activities within impacted Riparian Management Areas must begin in the next growing season following construction.
- Documents, including maps and construction plans, will indicate that pipelines are a minimum of 100 metres from the top of bank of an S1 or S2 watercourse unless to facilitate a crossing.

MINERAL LICKS AND WALLOWS

- All mineral licks and wallows and their associated trail networks that may be impacted by the pipeline activity must be identified on maps and construction plans.
- For mineral licks and wallows and their associated trail networks that may be impacted by the pipeline activity, a mitigation plan, written and signed by a qualified professional must be submitted. This plan will include, at a minimum:
  a. how the mineral licks and wallows will be avoided to maintain functionality of the mineral licks and wallows, including:
    i. setback distances from pipelines,
    ii. how associated trail systems that connect with the mineral licks and wallows will be maintained, and
    iii. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

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LINE OF SIGHT

- Where a pipeline intersects a linear corridor, documentation, including maps and construction plans, will indicate where line-of-sight mitigation measures will occur. At a minimum, line-of-sight mitigation measures must be used at:
  a. the intersection points of pipelines and seismic lines,
  b. the intersection points of pipelines and roads, except where necessary to facilitate pipeline maintenance access, and
  c. the intersection points of pipelines and transmission lines, except, through consultation with the transmission line owner, to facilitate transmission line access.

WILDLIFE TRAILS

- All wildlife trails that may be impacted by the pipeline activity must be identified on maps and construction plans.
- For wildlife trails that may be impacted by the pipeline activity, a mitigation plan, written and signed by a qualified professional, must be submitted. This plan will include, at a minimum:
  a. how wildlife trails will be maintained through construction and operational phases of the pipeline, and
  b. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

ASSOCIATED ABOVE-GROUND APPURTENANCES

- Associated above-ground appurtenances must be identified on documentation, including construction plans. At a minimum, documentation must indicate that appurtenances are:
  c. at least 100 metres from the top of bank of an S1 or S2 watercourse, and
  b. not located within Riparian Management Areas.
- Riser sites and pigging facilities must not be in wetlands.

PIPELINE RIGHT-OF-WAY

- Documentation, including construction plans, must indicate the extent of pipeline right-of-way needed for ongoing operational activities according to CSA Z662 standards.
- A rationale must be provided to justify the requested right-of-way width.

TEMPORARY WORKSPACES

- Documentation, including construction plans, must indicate temporary workspaces.
- Restoration of temporary workspaces must begin immediately after activities have been completed.

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RESTORATION

- For areas requiring restoration, including Riparian Management Areas and temporary workspaces, a restoration plan, written and signed by a qualified professional, must be submitted. This plan must include, at a minimum:
  a. how the restoration will follow ecological succession for the Bio geoclimatic Ecosystem Classification system site series present at the site prior to any disturbance,
  b. the timing of ecological succession, up to and including the time at which vegetation is expected to reach “moose height” or 2 metres, or an alternative threshold suitable to the surrounding area, as determined by a qualified professional,
  c. whether restoration will include natural revegetation, the planting of woody vegetation, the use of seed mix in accordance with the Ecologically Suitable Species Guideline, or combination,
  d. if using sod-forming seed mixtures to address erosion concerns, it must be confirmed when the sod-forming species are to be replaced with a suitable non-sod-forming species mix for the Biogeoclimatic Ecosystem Classification system site series present at the site prior to any disturbance, and
  e. Indigenous Knowledge, values and interests provided during the pre-engagement process, when applicable.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

- Pipelines may follow existing corridors to reduce forest fragmentation. However, consider methodology for reducing overall impact by reducing corridor widths, maximizing Riparian Management Area restoration areas, and installing sight line barriers at regular intervals along the pipeline. Working with adjacent pipeline tenure holders is encouraged.
- The restoration of temporary workspaces must begin within one growing season of final temporary workspace activities, as per the approved qualified professional restoration plan.

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1.5 Facilities including: Wellsites, Compressor Sites, Disposal Wells, Water Storage Facilities, and Processing Facilities

The following are the minimum required documentation and plans that must be included with the application at time of submission to the Regulator.

STREAMS, WETLANDS AND LAKES

- Streams, wetlands, and lakes will be indicated on documentation, including maps and construction plans. Documentation must indicate that facilities:
  a. will avoid streams and lakes and their associated Riparian Management Areas, and
  b. are a minimum of 100 metres from the top of bank of an S1 or S2 watercourse.
- If a facility is built within a wetland, a hydrological integrity plan, written and signed by a qualified professional, must be submitted. This plan will include, at a minimum, how the natural flow of the wetland will be maintained.

MINERAL LICKS AND WALLOWS

- All mineral licks and wallows and their associated trail networks that may be impacted by the facility must be identified on maps and construction plans.
- For mineral licks and wallows and their associated trail networks that may be impacted by the facility, a mitigation plan, written and signed by a qualified professional, must be submitted. This plan will include, at a minimum:
  a. how the mineral licks and wallows will be avoided to maintain functionality of the mineral licks and wallows, including:
     i. setback distances,
     ii. how associated trail systems that connect with the mineral licks and wallows will be maintained, and
     iii. Indigenous Knowledge, values, and interests provided during the pre-engagement process, when applicable.

AIR QUALITY

- Documentation must indicate the types and amounts of Criteria Air Contaminants that may be emitted to atmosphere during construction and operational phases. This documentation must indicate:
  a. how the proponent will use air and deposition monitoring to identify the potential impacts that air emissions may have on people, wildlife and/or vegetation, and
  b. how frequently the reporting of monitoring results will be provided.

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INTERIM RESTORATION

- Construction plans must indicate:
    a. the area needed for ongoing activities once final construction has been completed, and
    b. the area available for interim restoration.
- The area available for interim restoration may be used for the propagation of shrub and tree species available for use at the time of final restoration.

WILDLIFE MONITORING

- Documentation must indicate the type and frequency of wildlife monitoring and reporting that will occur at the facility. Documentation must include:
    a. adaptive management measures to be taken if monitoring indicates negative impacts to wildlife because of oil and gas activities, and
    b. Indigenous Knowledge, values, and interests provided during the pre-engagement process, when applicable.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

- Facilities, pipelines, roads, and other disturbances may impact the ecological and hydrologic functioning of a wetland. If there is existing disturbance in a wetland, consider evaluating cumulative impacts prior to application of additional disturbance.
- Interim restoration may have the following benefits during the life of the wellsite: less wellsite area to actively maintain, available shrub and tree species for use on-site at time of final restoration, reduction of surface disturbance, and early return to available wildlife habitat.
- The facility should be designed in a manner to reduce the need of air and noise emitting equipment.
- The facility, where applicable, should be designed to centralize the storage of chemicals and produced fluids, in order to reduce the number of temporary storage units.

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1.6 Water

- Documentation associated with water withdrawals must indicate whether the water withdrawal location is hydrologically connected to surface water; confirmed by a qualified professional.
- If a water withdrawal is hydrologically connected to surface water, documentation must indicate:
  a. that flow measurements will be taken at least once per day at or upstream of the point of diversion, if not, a rationale written by a qualified professional must be provided.
  b. the low-flow rate, and
  c. a statement that withdrawal will cease when monitoring indicates the low-flow rate has been met or exceeded.

ADDITIONAL PROJECT PLANNING CONSIDERATIONS

Hydrologically connected aggregate and borrow pits used for water withdrawal purposes must demonstrate that environmental flow needs required for the proper functioning of the aquatic ecosystem of the stream are met.

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Appendix 2 – Developments Considered in the HRFN Landscape Planning Pilot

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MS Number	Ownership	Application Type	BCER Application Status
100107526	Private	Camp	Approved
100107026	Crown & Private	Pipeline	Approved
100109367	Crown & Private	Pipeline	Approved
100113573	Crown & Private	Pipeline	Approved
100108925 (PL) 100114034 (Amendment)	Crown	Pipeline	Approved
100115641	Private	Road	Approved - not built
100109568	Crown & Private	Pipeline	Approved
100110684	Crown	Pipeline	Approved
100114926	Crown	Facility	Approved
100115100	Crown	Powerline	Approved - not built
100108618	Crown	Borrow	Approved - not built
100113620	Crown	Powerline	Approved - not built
100114536	Crown	Wellsite	Approved
100113765	Private	Road	Approved - not built
100115014	Crown	Wellsite	Approved - built
100114540	Crown	Wellsite	Approved - built
100114109	Private	Wellsite, Borrow	Approved
100114700	Private	Pipeline	Approved
100113287	Crown	Pipeline	Approved - not built
100113284	Crown	Powerline	Approved - not built
100113915	Crown	Road	Approved - not built

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MS Number	Ownership	Application Type	BCER Application Status
100114027	Crown	Wellsite, Road, Borrow	Approved - not built
100113822	Crown	Pipeline	Approved - not built
100113487	Crown	Powerline	Approved - not built
100115297	Private	Road	Approved
100114043	Crown	Wellsite	Approved
100116111	Private	Powerline	Approved - under construction
100115428 (Rd Permit)	Private	Road	Approved - not built
100116819	Crown	Road	Approved - not built
100113920	Crown	Wellsite	Approved - Existing Lease constructed
100109569	Crown & Private	Pipeline	Approved
100113305	Crown	Powerline	Submitted
100112147	Crown & Private	Road	Submitted
100113653	Crown & Private	Powerline	Submitted
100113666	Crown & Private	Powerline	Submitted
100113276	Crown	Pipeline	Submitted
100116620	Crown	Road	Submitted
100116334	Crown	Borrow	Submitted
100114106	Crown	Wellsite, Road, Borrow	Submitted
100114226	Crown	Borrow	Submitted
100114224	Crown	Pipeline	Submitted
100114252	Crown	Pipeline	Submitted
100114107	Crown	Wellsite, Road, Borrow	Submitted

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MS Number	Ownership	Application Type	BCER Application Status
100113187	Crown	Wellsite, Road, Borrow	Submitted
100113665	Crown	Powerline	Submitted
100113595	Crown	Powerline	Submitted
100114060	Crown	Wellsite, Road, Borrow	Submitted
100113988	Crown	Pipeline	Submitted
100113955	Crown	Powerline	Submitted
100114059	Crown	Wellsite, Road, Borrow	Submitted
100114289	Crown	Pipeline	Submitted
100117545	Crown	Powerline	Submitted
100115978	Private	Facility	Submitted
100114095	Crown	Wellsite, Road, Borrow	Revised
100114253	Crown	Wellsite, Road, Borrow	Submitted
100114112	Crown	Pipeline	Submitted
100114554	Crown	Powerline	Submitted
100116850	Private/Crown	Pipeline	Submitted
100116191	Private	Wellsite, Road	Submitted
100115984	Private	Wellsite	Submitted
100116421	Crown & Private	Wellsite, Road	Submitted
100116108	Crown & Private	Wellsite, Road	Submitted
100116004	Private	Other	Submitted
100115782	Crown	Borrow	Submitted
100109866	Crown	Wellsite, Road, Borrow	Submitted
100116419	Crown	Wellsite, Road, Borrow	Submitted