

# Site C Clean Energy Project Agriculture Monitoring and Follow-up Program 2026 Annual Report

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*Prepared in accordance with the Agricultural Monitoring and Follow-up  
Program (December 22, 2015)  
2026 Annual Report Submission Date: July 21, 2026*

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## 1.0 Background

The Site C Clean Energy Project (the Project) is a hydroelectric dam and generating station under construction in northeast B.C. Construction started in July 2015 and came into service on the 9<sup>th</sup> of August 2025. The Project will help meet future electricity needs by providing 1,100 megawatts of dependable capacity, and producing about 5,100 gigawatt hours of energy each year — enough to power the equivalent of 450,000 homes per year. Once built, the Project will be a source of clean, reliable and cost-effective electricity in B.C. for more than 100 years.

The key components of the Project are:

- Access roads and a temporary construction bridge across the river, at the dam site.
- Worker accommodation at the dam site.
- Upgrades to 240, 269, 271 and Old Fort roads.
- The realignment of six segments of Highway 29.
- Two temporary cofferdams across the river to allow for construction of the earthfill dam.
- Two new 500 kilovolt transmission lines connecting Site C to the Peace Canyon Substation, within an existing right-of-way.
- Shoreline protection at Hudson's Hope, including upgrades to DA Thomas Road.
- An 800-metre roller-compacted-concrete buttress to enhance seismic protection.
- An earthfill dam, approximately 1,050 metres long and 60 metres high above the riverbed.
- A generating station with six 183 MW generating units.
- An 83-kilometre-long reservoir that is, on average, two to three times the width of the current river.

## 2.0 Environmental Assessment Certificate Conditions

Condition 31 of the Environmental Assessment Certificate (EAC) requires the following:

*“The Agriculture Monitoring and Follow-up Program must include at least the following:*

*Monitoring for Project-induced changes in wildlife habitat utilization, and evaluation of associated crop or feed storage damage for, agricultural operations within 5 km of the reservoir, to assess if there is an increase in wildlife-related crop depredation due to Project-related habitat losses. Monitoring must include pre- and post- reservoir filling field surveys, wildlife monitoring, farm operator interviews, and analysis of relevant records related to wildlife-related crop depredation.*

*Monitoring for Project-induced changes to humidity within 3 km of the reservoir, and evaluate associated effects on crop drying within this area. Monitoring must include collection and analysis of climate data, calculation of crop drying indices, and farm operator interviews.*

*Monitoring for Project-induced changes to groundwater elevations within 2 km of the reservoir (the area potentially influenced by groundwater elevation changes), and evaluate associated effects on crop productivity. Monitoring must include field surveys and farm operator interviews.*

*Monitoring for climatic factors to estimate moisture deficits and to estimate irrigation water requirements in the vicinity of the reservoir to provide information for potential future irrigation projects. Data collection will be undertaken before reservoir filling, and in the 5 years after reservoir filling, and data will be reviewed as required for proposed irrigation projects.*

*The Agriculture Monitoring and Follow-up Program reports must be provided annually during the monitoring and follow-up period to affected agricultural land owners and tenure holders, and Ministry of Agriculture.*

*The results of the Agriculture Monitoring and Follow-up Program must inform the Farm Mitigation Plans.*

*Reporting must begin 180 days after the commencement of the monitoring and follow-up program that is to begin 180 days after commencement of construction.*

*The EAC Holder must provide this draft Agriculture Monitoring and Follow-up Program to the Ministry of Agriculture, Peace River Regional District and the District of Hudson's Hope for review within 90 days after the commencement of construction. The EAC Holder must file the final Agriculture Monitoring and Follow-up Program with EAO, Ministry of Agriculture, Peace River Regional District and the District of Hudson's Hope within 150 days of commencement of construction.*

*The EAC Holder must develop, implement and adhere to the final Agriculture Monitoring and Follow-up Program, and any amendments, to the satisfaction of EAO."*

### **3.0 Agriculture Monitoring and Follow-up Program Overview**

BC Hydro described the approach required by the above condition in the Agriculture Monitoring and Follow-up Program ("AMAFP"), submitted as final on December 22, 2015. The AMAFP was developed and has been implemented in accordance with Condition 31 of EAC #14-02, dated 14 October 2014, which was issued in respect of the Project.

Regarding the schedule presented in the AMAFP and those presented in this report (and previous Annual Reports), the discrepancies are due to changes to the reservoir filling schedule that occurred in 2017 and 2023.

The Project's Environmental Assessment assessed how the creation of the reservoir may result in site-specific changes that may affect agricultural operations on individual farm operations, and where Project effects on agricultural operations are not already addressed under agreements with BC Hydro. The monitoring programs, included as described in EAC Condition 31 and the AMAFP, will be used to determine if a Project-induced change has occurred as it relates to the following:

- A. Effects on crops and stored feed as a results of changes in wildlife habitat utilization,
- B. Effects on crop drying due to changes in humidity, and
- C. Effects on crop productivity as a result in changes to groundwater elevations.

Upon completion of the above monitoring programs, the collected data will be evaluated and used to inform Individual Farm Mitigation Plans (where applicable) or on other mitigation measures.

Additional monitoring will occur for climatic factors to:

- D. Estimate moisture deficits and irrigation water requirements.

The resulting estimations will be used in supporting future potential decisions regarding irrigation improvements, including support for projects that may be proposed under the Agricultural Mitigation and Compensation Plan.

The AMAFP states that monitoring, analysis and reporting will be undertaken in accordance with the following schedule:

| Phase Description                                                                                                                                                   | Timeline <sup>1</sup>                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Historical data review, baseline data collection <sup>2</sup> , climate station siting and installation, preparation for field survey, consultation and interviews. | <ul style="list-style-type: none"> <li>January 2016 – December 2018</li> </ul>                                                                                                                              |
| Data collection, field surveys, interviews, consultation, and data analysis.                                                                                        | <ul style="list-style-type: none"> <li>Five Years Prior to Reservoir Filling (December 2018 - December 2023<sup>3</sup>)</li> <li>Five Year Post Reservoir Filling (January 2025 - January 2029)</li> </ul> |
| Annual and Final Reporting                                                                                                                                          | <ul style="list-style-type: none"> <li>July 2016 – July 2029</li> </ul>                                                                                                                                     |

<sup>1</sup> Updated timeline as per 2024 schedule change

<sup>2</sup> Baseline data refers to the continued collection of data from existing climate stations and monitoring sites. As new stations and sites are added, and additional parameters are included at existing stations, this data will be incorporated into reporting as it becomes available.

<sup>3</sup> Site C reservoir commenced filling 25 August 2024.

The AMAFP stated that annual reports on the implementation of the AMAFP will be submitted beginning on July 21, 2016 (360 days after commencement of construction). These reports will include a summary of monitoring plan implementation activities. The annual reports will be posted on BC Hydro's website and notifications sent to affected agricultural land owners and tenure holders, and the Ministry of Agriculture.

## 4.0 Annual Report Time Period and Format

The 2025 AMAFP Annual Report covers the time period from April 1, 2025 to March 31, 2026 and includes separate updates for each of the monitoring programs:

- Program A – Crop Damage Monitoring Program
- Program B – Crop Drying and Humidity Monitoring Program
- Program C – Groundwater and Crop Productivity Monitoring Program
- Program D – Irrigation Water Requirement Program

Program reporting, included in the appendices as a report or a memo, all employ a similar format:

- Introduction,
- Methods (i.e., study area and program activities),
- Results and analysis,
- Next steps, and
- References

## 5.0 Summary of Activities

Each of the programs are in the monitoring phase and a summary of each program for the reporting year is provided below.

### 5.1 Crop Damage Monitoring Program

BC Hydro's Crop Damage Monitoring Program (CDMP) contractor is Blackbird Environmental Ltd. (Blackbird), who developed and implemented activities to monitor for project-induced wildlife habitat utilization, while also evaluating the associated crop and feed storage damage.

During the reporting year, BC Hydro and the project team continued activities associated with the agricultural monitoring program in partnership with participating agricultural producers, which included field activities on their holdings beginning with the 2019 growing season and for the 10-year duration of the monitoring program. In total, 49 producers are participating in the program, representing approximately 9,200 hectares or 88% of the land currently utilized for agriculture production in the project area.

Additional activities during the reporting year would typically include engagement with:

- Ministry of Agriculture (AGRI),
  - o Regional Agrologist
  - o Agriculture Wildlife Program (AWP) Manager
- Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) wildlife biologists, and
- Regional agricultural producer groups.

One of the key tasks from the reporting year was to continue with the camera trapping and seasonal grazing exclusion plans. In total, 57 passive, unbaited camera traps were installed along benchmark

field boundaries and 23 temporary grazing exclusion cages were installed on perennial forage benchmark fields.

During the 2025 growing season 30 benchmark sites were selected from the agriculture fields identified to be subject to higher wildlife pressures both pre- and post-inundation. Of this, 9 were used for annual crop production while 8 sites contained a perennial forage stand.

## **5.2 Crop Drying and Humidity Monitoring Program**

The Crop Drying and Humidity Monitoring Program (CDHMP) scope was assessed and developed in coordination with RWDI; the BC Hydro contractor responsible for climate station operation and management. Program scope was to monitor project-induced changes to humidity and evaluate associated effects within the area.

The climate stations currently available (as of the date of this report) were determined to be appropriate and sufficient for the purposes of the program. These stations monitor climate parameters on an ongoing basis to evaluate if changes occur and how these changes may affect crop drying indices.

## **5.3 Crop Productivity and Groundwater Monitoring Program**

BC Hydro's Crop Productivity and Groundwater Monitoring Program (CPGMP) contractor is Blackbird, who developed and implemented activities to monitor and assess groundwater levels and related change to agricultural crops.

During the reporting year, BC Hydro and the project team oversaw activities associated with the program in order to meet the monitoring requirements as described in Condition 31. It was determined that the groundwater monitoring wells in the existing BC Hydro network could be employed within the CPGMP in place of installing all new wells. Only one (1) new well was installed in October 2019 in Bear Flats; identified to be a data collection gap area.

Blackbird will monitor in-season crop development through remote sensing, supplemented with field visits to assess crop variability in relation to soil moisture factors. Field methodology is being refined based on project experience.

## **5.4 Irrigation Water Requirements Program**

The Irrigation Water Requirements Program (IWRP) was assessed and developed in coordination with RDWI.

The climate stations currently available (as of the date of this report) were determined to be appropriate and sufficient for the purposes of the program. These stations monitor climate parameters on an ongoing basis which will be available, when required, to support future proposed irrigation projects.

## **Appendix A – Crop Damage Monitoring Program Report**

# 2026 Annual Report

## Site C Clean Energy Project

### Crop Damage Monitoring Program



Prepared for:  
**BC Hydro and Power Authority**

July 15, 2026

Technical Report - R0

Project No.: 26018



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| Revision No. | Date          | Reason/Type of Revision |
|--------------|---------------|-------------------------|
| R0           | July 15, 2026 | Original report issued. |

## 1 Introduction

### 1.1 Project Background

The Site C Clean Energy Project (the Project) is a hydroelectric dam and generating station located along the Peace River in northeast British Columbia (BC). Construction of the Project commenced in July 2015. Reservoir filling was completed in 2024 and the Project achieved full operation in 2025 following the commissioning of the sixth and final generating unit (BC Hydro 2025).

### 1.2 Regulatory Context

During the joint federal-provincial environmental assessment process, the Project's Environmental Impact Statement (EIS; BC Hydro 2013) noted a potential for increased wildlife-related crop damage.

Environmental Impact Statement Section 20.7.2.1 (page 20-53, lines 12 to 14) states: *"The loss of wildlife habitat in the reservoir may lead to an increase in wildlife in agricultural areas near the reservoir, which could lead to wildlife damage to crops and stored livestock feed for farm operations."*

The Environmental Assessment Certificate (EAC) for the Project (EAC #E14-02, issued October 14, 2014) contains a condition to develop an Agricultural Monitoring and Follow-Up Plan (AMAFP), which requires BC Hydro and Power Authority (BC Hydro) to monitor and assess wildlife habitat use and related damage to agricultural crops for a 10-year period including five years prior to reservoir filling and the first five years of operation.

Specifically, EAC condition No. 31 states: *"the Agriculture Monitoring and Follow-up Program must include monitoring for Project-induced changes in wildlife habitat utilization, and evaluation of associated crop or feed storage damage for agricultural operations within 5 km of the reservoir, to assess if there is an increase in wildlife-related crop depredation due to Project-related habitat losses. Monitoring must include pre- and post-reservoir filling field surveys, wildlife monitoring, farm operator interviews, and analysis of relevant records related to wildlife-related crop depredation."*

### 1.3 Scope

BC Hydro retained Blackbird Environmental LP (Blackbird) in 2019 to implement the Crop Damage Monitoring Program (CDMP) component of the AMAFP for the Project. Blackbird's scope includes the development and implementation of field methods to monitor for Project-induced changes in wildlife habitat utilization and the evaluation of associated crop and feed storage damage patterns and trends.

As part of BC Hydro's annual reporting requirements, this report summarizes activities completed under the CDMP between **April 1, 2025** and **March 31, 2026**.

Camera data recorded by the camera trap system during the 2025 growing season will be retrieved and analysed in the spring and summer of 2026. Consequently, the camera trap analysis information presented in Section 3.3 of this report is based on imagery acquired by the camera network during the period between January 1 and December 31, 2024, to ensure reliable summary statistics are presented.

As per the requirements of EAC Condition No. 31, the CDMP focuses on parcels with agricultural production within a five-kilometre buffer surrounding the Site C reservoir (project area).

## 2 Methods

### 2.1 Ongoing Stakeholder Consultation & Producer Engagement

Blackbird's team developed and implemented a comprehensive agricultural producer outreach and engagement program for the CDMP. Blackbird continues to engage with landowners within the Project boundary on an ongoing basis throughout the growing season.

For all producers that expressed interest in the CDMP during initial engagement efforts in 2019, an in-person interview was conducted to gather project-relevant background information, including:

- farm/ranch operational and production information,
- historic wildlife damage patterns on temporal and spatial scales, and
- wildlife-related crop damage mitigation measures employed.

Producers participating in the CDMP were updated on program activities affecting their holdings during the spring of 2025 and throughout the growing season. A post-season interview program was implemented to gather information regarding observations and perceptions of wildlife activity and wildlife-related crop damage during the 2025 growing season.

Blackbird's team prepared a pre-recorded CDMP annual update presentation summarizing program activities during the 2025 growing season, assessment outcomes, challenges, and learnings during the spring of 2026. BC Hydro invited representatives from regional producer associations and provincial government representatives, specifically:

- Peace River Forage Association of BC,
- BC Grain Producers Association,
- Peace River Regional Cattlemen's Association,
- BC Breeder and Feeder Association,
- Peace Region Forage Seed Association, and
- BC Ministry of Agriculture and Food.

These groups were asked to review the virtual presentation and submit questions or comments, which will be responded to jointly by Blackbird and BC Hydro by the end of June 2026.

### 2.2 Crop Damage Monitoring

Blackbird's team has researched, developed, and implemented scientifically sound and defensible methods to assess and measure wildlife-related crop damage in both annual and perennial crops in the CDMP project area. Throughout the growing season, field methods and techniques included:

- wildlife-related crop loss assessments,
- crop development and health monitoring, and
- remotely piloted aircraft system (RPAS) data acquisition.

In 2019, Blackbird's team, in consultation with participating producers and BC Hydro project management, selected a total of 30 benchmark sites within the project area based on the outcome of initial engagement efforts, the review of available historic information, and a geospatial review of factors related to wildlife occurrence in the project area (i.e., proximity of escape or wintering habitat).

In 2025, we surveyed 17 active benchmark sites: 8 perennials and 9 annuals. Several sites previously classified as perennial have been converted to annual due to increased land-use pressure associated with high commodity prices. A small number of sites were retired from the network entirely following changes in land ownership or access restrictions. Benchmark site classifications and network coverage will continue to be reviewed annually based on observed land-use changes, producer participation, access considerations, and program information requirements.

Assessment procedures include remote sensing techniques (i.e., satellite, RPAS) and on-the-ground evaluations of crop health, yields, and wildlife-related damage patterns. Assessment methods were based on published standards, where available, and included clipping and drying of forage samples, enumerative evaluations of plants, tillers, heads, pods, and seeds, as well as area-based estimates of wildlife impacts and pellet counts.

Yield estimates from both annual and perennial crops were reconciled with yield information provided by the participating producers following harvest, where available.

## **2.3 Wildlife Habitat Utilization Monitoring**

The 2025 growing season marked Blackbird's sixth season maintaining camera traps and collecting passive wildlife distribution and use frequency data on benchmark fields. Similarly, 2025 was the sixth year in which grazing exclusion cages were used to quantify wildlife-caused damage to perennial forage crops during the dormant season.

### **2.3.1 Camera Traps**

A total of 57 passive, unbaited camera traps are maintained along benchmark field perimeters throughout the CDMF focus area to monitor wildlife use patterns and frequencies (McIntyre et al. 2020, Gilbert et al. 2021, Kolowski & McShea 2021).

Camera trap data is retrieved during the growing season, formatted, and saved following provincial metadata standards (BC ECCS & FLNRORD 2019). The data is then analysed using a combination of machine learning technology and manual classification (Greenberg et al. 2019, Schneider et al. 2020, Norouzzadeh et al. 2021, Fennell et al. 2022). Classification results are analysed in R (Niedballa et al. 2016, Hongo et al. 2021).

### **2.3.2 Grazing Exclusion Cages**

In the fall of 2025, Blackbird's team installed a total of 23 temporary grazing exclusion cages on perennial forage benchmark fields within the project area. Exclusion cages allow for an objective evaluation of dormant season impacts on forage stand composition and yields (Richer et al. 2005, Drewry et al. 2008, Medina-Roldán et al. 2012, Corgatelli et al. 2019).

Green-up assessments are completed in the spring and compare a plot within the exclusion cage to a plot adjacent to the cage location; they include pellet counts as well as plot health factors (e.g., species distribution, litter, ground and live plant coverage, plant height, alfalfa crown development, and grazing patterns). Following the assessments, the cages are removed to enable forage use during the growing season.

### **3 Results and Analysis**

#### **3.1 Ongoing Stakeholder Consultation & Producer Engagement**

Blackbird's team has identified approximately 10,400 ha of land within the CDMP project area that is currently supporting agricultural production (not including Crown land under range tenures).

Fifty-four producers within the project area were originally engaged through direct means (i.e., phone or email) to provide information about the CDMP and offer interested producers an opportunity to participate in the program. As a result of this engagement, 49 of the producers expressed a general interest in participating in the CDMP.

These 49 producers operate on approximately 9,200 ha (88 %) of the land currently utilized for agricultural production within the project area. Of those 9,200 ha of agricultural land (partitioned into 203 fields and pastures), approximately 3,300 ha were used to produce annual crops (i.e., grain, oilseed, or pulse) during the 2024 growing season, with the remaining 5,900 ha used for perennial forage production.

Throughout the initial and ongoing producer engagements, producers consistently state that agricultural production within the CDMP project areas is subject to significant wildlife pressures. Primary species causing wildlife-related crop losses are perceived to be elk, mule deer, and black bears. For perennial forage crops, most quantitative and qualitative crop losses are believed to occur during the dormant season, particularly in the spring, with heavier losses associated with weather-induced harvest delays and a lack of available alternative foraging habitat, particularly during drought years.

Producer feedback collected during the 2025 growing season remained generally consistent with observations reported during previous years of monitoring. Participating producers continued to identify elk, mule deer, and black bears as the primary species associated with wildlife-related agricultural impacts. No substantive changes in the species most frequently associated with crop damage were identified through stakeholder engagement conducted during the reporting period.

#### **3.2 Crop Damage Monitoring**

Agricultural enterprises in the CDMP area operate in an environment with historically high ungulate and bear populations, which exert significant pressures on most crop types (Thiessen 2009, Bridger 2016, Bridger 2018, Gagne-Delorme 2018).

Program assessment results indicate that perennial forage crops are subject to slightly lower crop losses during the growing season than annual crops. However, perennial crops in several of the benchmark fields have been observed to experience significant suppression losses during the dormant season. The absolute levels of yield losses in the monitored field crops continue to be a function of, at a minimum:

- the crop type,
- the location of the field or pasture on the landscape,
- ongoing nearby construction activities,
- seasonal wildlife migration patterns,
- annual weather patterns, and
- the time of year when the damage occurred.

Results collected during the 2025 growing season continue to indicate substantial variation in wildlife-related crop impacts among benchmark sites. Consistent with previous years of monitoring, the magnitude of crop losses varied considerably based on crop type, proximity to cover habitat, seasonal wildlife use patterns, and local site conditions. No clear project-wide shift in wildlife-related crop damage patterns was identified during the reporting period; however, several benchmark fields continued to experience localized areas of elevated wildlife use and associated crop loss.

Changes in agricultural production patterns within the project area continue to influence benchmark site status and crop classifications. Despite annual adjustments to the active monitoring network, benchmark site coverage remains broadly distributed across the project area and continues to support the collection of representative wildlife-use and crop-damage information.

### 3.3 Wildlife Habitat Utilization Monitoring

Camera trap maintenance and data retrieval are completed during crop health and wildlife damage assessment work throughout the growing season to minimize private land access requirements.

The camera trap network was active for a total of 14,263 camera trap days in 2024, with a total of 161,424 images collected. Annual image volumes and species detection frequencies have varied throughout the monitoring period as a result of differences in camera deployment duration, environmental conditions, equipment performance, and wildlife activity levels. As such, interpretation is focused primarily on long-term trends and relative detection patterns rather than annual image totals alone.

A preliminary classification indicates that the collected image data comprise:

- 55.8 % false trigger events (i.e., images collected when a camera trap is triggered but no animal, human, or vehicle is traversing its detection area),
- 32.4 % wildlife,
- 4.27 % domestic animals (primarily cows, bison, and horses), and
- 7.56 % humans or vehicles.

The most dominant wildlife species recorded to date is elk, which represents 52.2 % of the trigger events, with mule and white-tailed deer as the second most numerous species group (36.73 %). Other target species for this program include black bear (2.37 % of all images) and moose (0.87 %).

Elk and deer continue to represent the majority of wildlife detections recorded by the camera trap network. This pattern is consistent with both producer observations and previous years of monitoring, supporting the conclusion that ungulates remain the dominant wildlife group utilizing agricultural lands within the project area. Black bears and moose were detected less frequently but remain important species of interest due to their potential contribution to localized crop damage and forage utilization.

Green-up assessments completed in spring 2025 continued to identify evidence of wildlife utilization within several perennial forage benchmark sites. The greatest impacts were generally associated with elk use during the early spring period, consistent with observations documented during previous monitoring years. While the magnitude of impacts varied among sites, dormant-season forage utilization remains an important component of wildlife-related agricultural losses within the project area.

Overall, information collected during the 2025 monitoring season indicates that wildlife-related agricultural impacts continue to occur throughout the project area and remain primarily associated with elk and deer utilization of agricultural lands. Monitoring results collected to date suggest that observed crop damage patterns continue to be influenced by a combination of wildlife abundance, habitat availability, local landscape conditions, agricultural practices, and seasonal weather factors. Ongoing monitoring is required to support future evaluation of post-reservoir trends and potential Project-related changes in wildlife habitat utilization and crop depredation patterns.

## 4 Recommendations

In compliance with EAC Condition No. 31, field surveys, wildlife monitoring, crop damage assessments, and producer engagement efforts will continue during the 2026 growing season. As the program transitions into the post-reservoir operational monitoring period, continued monitoring remains necessary to support evaluation of long-term trends in wildlife habitat utilization and wildlife-related agricultural impacts within the project area.

Similarly, Blackbird's team will continue to work closely with agricultural producers, agricultural associations, producer groups, and government agencies that may have data or local knowledge related to this monitoring plan.

No significant changes to the monitoring plan are planned for the coming 2026 growing season; however, the following refinements will be implemented:

1. Continue to complete RPAS assessments of benchmark sites through the 2026 growing season to document crop development, delineate crop health patterns, estimate forage yields, and objectively record wildlife impacts to field crops.
2. Continue destructive forage sampling at select benchmark sites to support calibration and verification of yield estimation approaches. Continue evaluation and implementation of non-destructive assessment techniques, including RPAS- and vegetation-based estimation methods, where these approaches improve efficiency while maintaining methodological consistency.
3. Utilize exclusion cages on select benchmark fields to allow for an objective evaluation of dormant season impacts on forage stand composition and yield.
4. Continue annual review of benchmark site distribution and classifications to ensure the monitoring network remains representative of agricultural production patterns and wildlife-use gradients within the project area. Where practical, replacement benchmark sites should be considered when existing monitoring locations are retired due to land-use changes, ownership changes, or access limitations.
5. Continue analysis of camera trap data to assess temporal and spatial trends in wildlife utilization of agricultural lands and to support interpretation of observed crop damage patterns and producer-reported wildlife impacts.
6. As additional post-reservoir monitoring data become available, continue development of comparative analyses examining pre- and post-reservoir wildlife utilization patterns and wildlife-related crop damage indicators to support evaluation of potential Project-related effects.

## 5 Closure

Services provided by Blackbird for this technical report were conducted in a manner consistent with the level of skill, care, and competence ordinarily exercised by registered members of the professions of agrology and biology practicing under similar conditions and circumstances within British Columbia.

The conclusions of this report are based in part on information provided by others. Blackbird believes this information to be accurate, but cannot guarantee or warrant its accuracy or completeness.

The information presented in this report was acquired, compiled, and interpreted exclusively for BC Hydro for the purposes described in this report.

Blackbird appreciates the ongoing participation of agricultural producers and stakeholder organizations whose contributions continue to support implementation of the CDMP and evaluation of wildlife-related agricultural impacts within the project area.

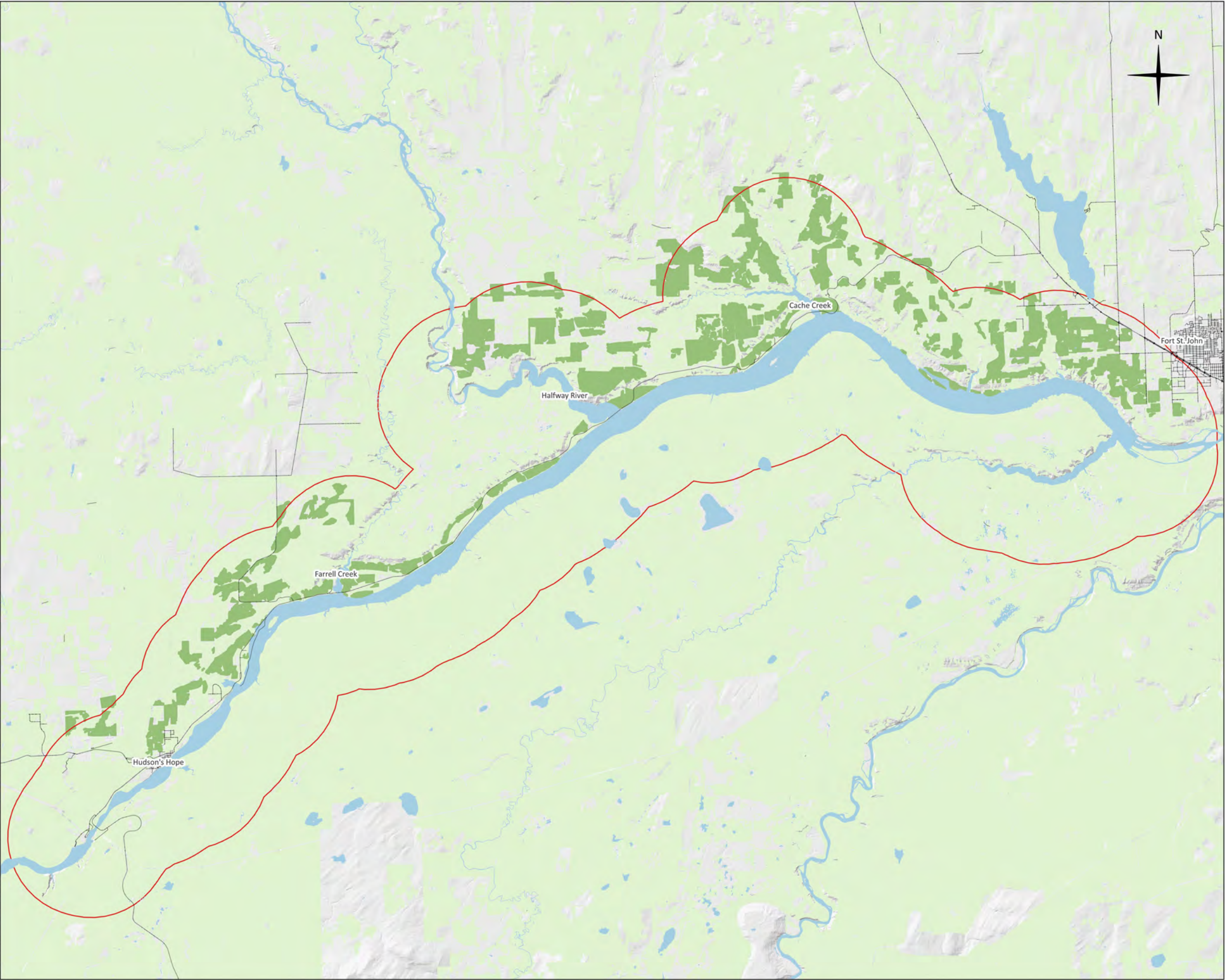
If you have questions regarding this report, feel free to contact Blackbird's team at your convenience by email at [info@blackbird.ca](mailto:info@blackbird.ca).

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## **Appendix A   Project Area Overview**



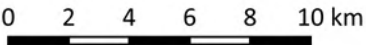
BC Hydro and Power Authority

Crop Damage Monitoring Program  
Project Area Overview



1:40,000,000

Horizontal Scale 1:250,000



Map to scale when plotted on a page 280 mm x 432 mm (Tabloid)

Legend

- CDMP Project Area
- Agricultural Fields and Pastures
- Lakes & Rivers
- Road Network

Disclaimer

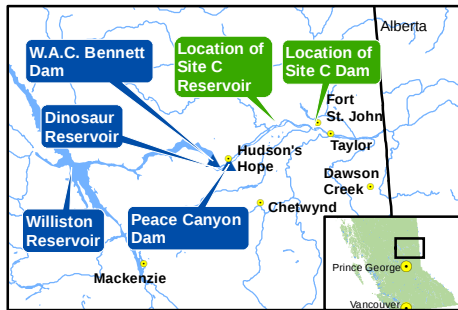
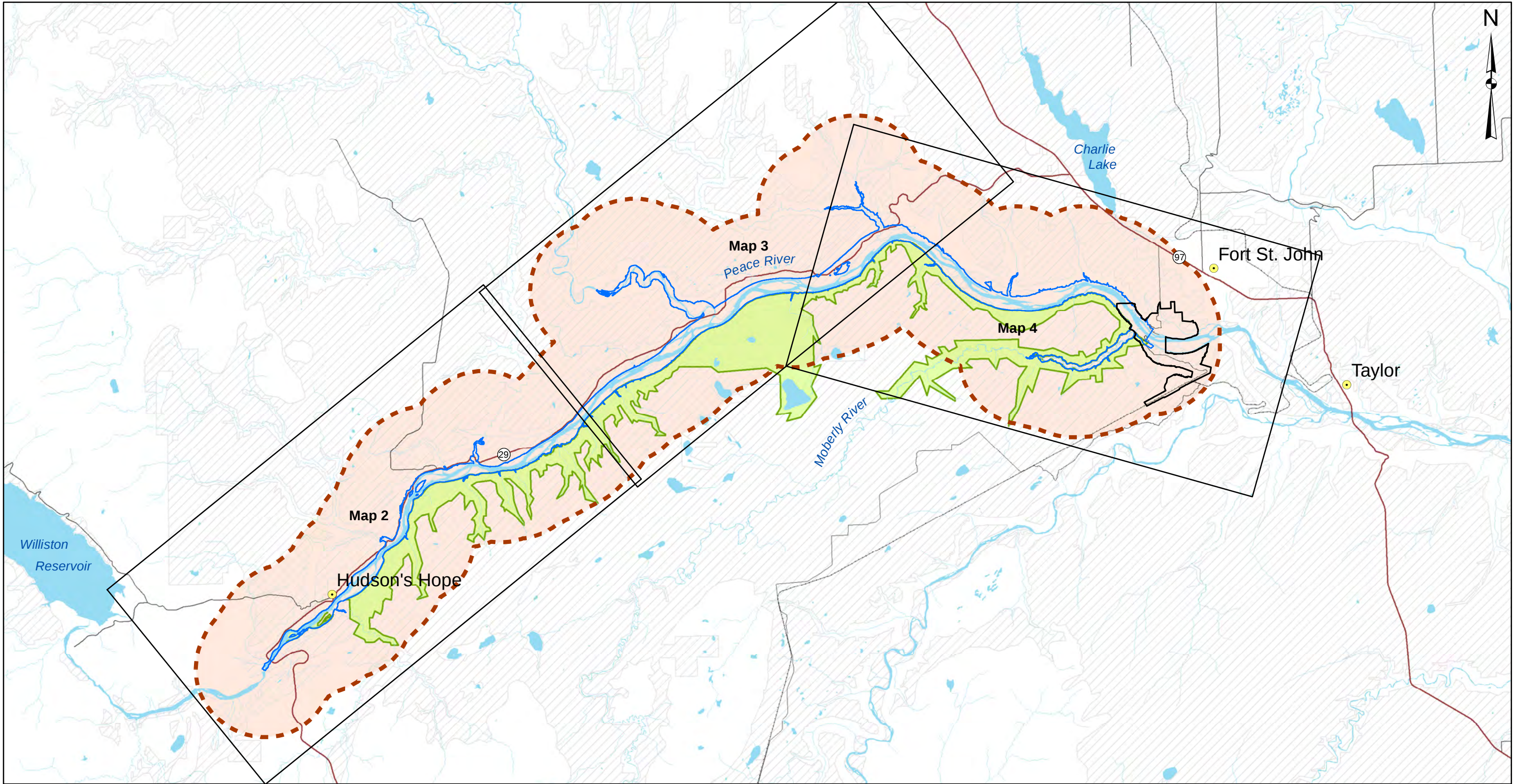
UTM Zone 10, NAD 83  
Date of data acquisition: n/a  
Data Credit: Blackbird Environmental LP, BC Geodata Warehouse  
For representational purposes only, all locations are approximate.

|              |       |           |     |             |              |
|--------------|-------|-----------|-----|-------------|--------------|
| Our File:    | 26018 | Appl. No: | n/a | Revision #: | 0            |
| Client File: | n/a   | GIS:      | KS  | Date:       | July 6, 2026 |



blackbird.ca  
Fort St. John, BC  
250.793.8386

Figure 1



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

**Legend**

- Area to be considered for wildlife habitat utilization monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area
- Town
- Road
- Highway
- Railway

1:280,000 0 5 km

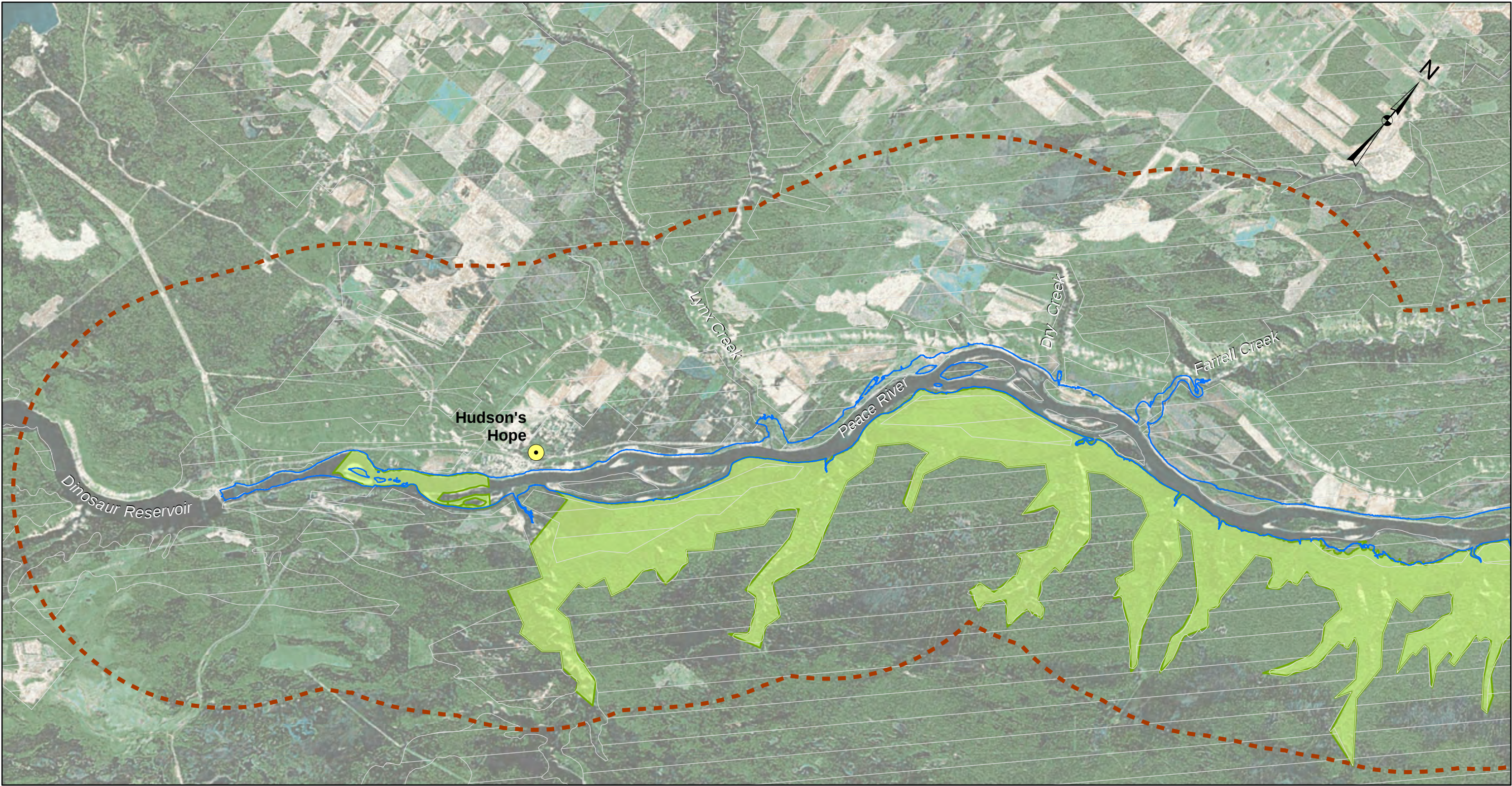


**Wildlife Habitat Utilization  
Monitoring Area Identification -  
Overview  
Map 1 of 4**

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07343-1 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos provided by ESRI  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

### Legend

- Area to be considered for wildlife habitat utilization monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:90,000 0 2 km



### Wildlife Habitat Utilization Monitoring Area Identification - Map 2 of 4

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-2 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos provided by ESRI  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

### Legend

- Area to be considered for wildlife habitat utilization monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:90,000 0 2 km

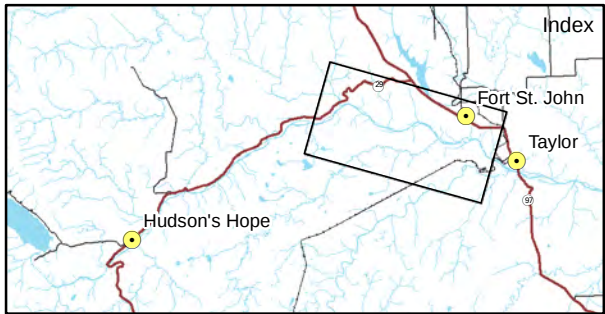
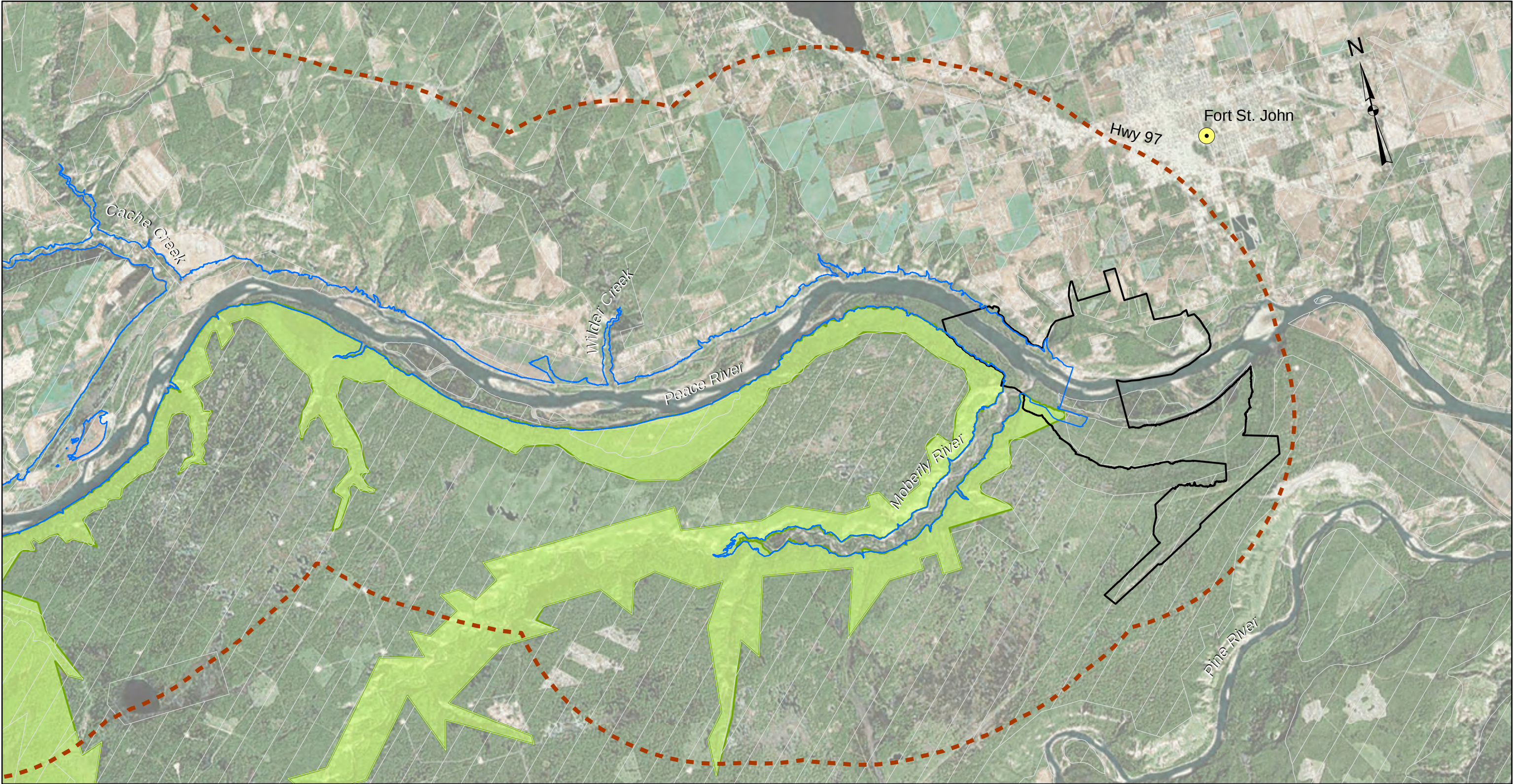


### Wildlife Habitat Utilization Monitoring Area Identification - Map 3 of 4

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-3 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos provided by ESRI  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

Legend

- Area to be considered for wildlife habitat utilization monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:90,000 0 2 km



Wildlife Habitat Utilization  
Monitoring Area Identification -  
Map 4 of 4

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-4 | R 0 |
|------|---------------|--------|------------------|-----|

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## **Appendix B – Crop Drying and Humidity Monitoring Program Report**



Suite 280, 1385 West 8th Avenue  
Vancouver BC Canada  
V6H 3V9

Tel: +1.604.730.5688  
E-mail: [solutions@rwdi.com](mailto:solutions@rwdi.com)

## MEMORANDUM

|              |                                                                                                                                      |                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>DATE:</b> | 2026-07-16                                                                                                                           | <b>RWDI Reference No.:</b> 2410907                                                 |
| <b>TO:</b>   | Dan Gorton, B.Sc., P.Ag., PMP<br>Senior Environmental Coordinator<br>Physical Environment<br>Site C Clean Energy Project<br>BC Hydro | <b>EMAIL:</b> <a href="mailto:Dan.Gorton@bchydro.com">Dan.Gorton@bchydro.com</a>   |
| <b>FROM:</b> | Laura Dailyde, P.Eng., PMP<br>Senior Project Manager / Associate<br>RWDI                                                             | <b>EMAIL:</b> <a href="mailto:Laura.Dailyde@rwdi.com">Laura.Dailyde@rwdi.com</a>   |
|              | Iain Hawthorne, Ph.D.<br>Senior Field Scientist and Data Analysis Specialist<br>RWDI                                                 | <b>EMAIL:</b> <a href="mailto:Iain.Hawthorne@rwdi.com">Iain.Hawthorne@rwdi.com</a> |
| <b>RE:</b>   | <b>Site C Agricultural Climate<br/>2025 Annual Summary<br/>Site C Clean Energy Project<br/>Fort St. John, BC</b>                     |                                                                                    |

The purpose of this memo is to provide an overview summary of 2025 eddy covariance data collection related to the Site C Agricultural Climate monitoring program. Additional meteorological parameters are summarized in the Site C Climate & Air Quality Monitoring annual report.

## BACKGROUND

BC Hydro's Site C Clean Energy Project (the Project) in British Columbia's Peace region has resulted in a new hydroelectric dam and generating station on the Peace River in the vicinity of the City of Fort St. John. To characterize the microclimate and to provide a baseline to assess future changes caused by the Project, BC Hydro installed a network of climate monitoring stations in the Peace River Valley. This network has been active since 2011, through the preparation and submission of the Project's Environmental Impact Statement, throughout Project construction and start of operations.

We acknowledge this work is being conducted on the traditional territory of Treaty 8 First Nations of Dunne Zaa, Cree, and Tse'khene cultural descent.



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The Site C Clean Energy Environmental Impact Statement (EIS) (BC Hydro, 2013) identified reservoir-induced changes to microclimate on adjacent agricultural operations as a key indicator (EIS Section 10, Table 20.3). Effect on crop drying is one reservoir-induced change that may occur. EIS Section 20.3.6 (page 20-50, lines 27 to 36) states: “Predicting the effect that the reservoir might have on crop drying is made difficult by the complexity of the effect of the reservoir on several climatic parameters that drive both drying and wetting effects. Generally, the RWDI model predicts increases in humidity up to 15% for stations located closely adjacent to the reservoir during the summer and fall months. The model predicts the effect on humidity during the summer and fall not to be statistically significant for locations not directly adjacent to the reservoir. The RWDI report predicts that effects on fog formation from the reservoir are in the order of 0.5% or less over the year. However, due to increased humidity, the reservoir could potentially have a small effect on crop drying during summer and early fall in the Peace River valley in areas adjacent to the reservoir.”

As a result of these general conclusions, a commitment was made to monitor project-induced changes to humidity within 3 km of the reservoir and to evaluate associated effects on the calculated Climate Moisture Deficit (CMD) and Growing Degree Days (GDD) computed with a Crop Drying Model (CDM), within the area. Monitoring includes continued collection and analysis of climate data from the BC Hydro monitoring network, calculation of the Crop Drying Index (CDI) (Dyer and Brown, 1977), and farm operator interviews. A Pre-Reservoir Report was completed in 2025. A Post-Reservoir report will be completed at the conclusion of monitoring through 2029.

## 2025 SUMMARY

During 2024-2026 upgrades were made to both Eddy-Covariance systems to address issues related to aging equipment and computation methods no longer being supported. In June of 2024, Licor In-SmartFlux 2 systems were installed at each monitoring station to facilitate the computation of fully processed flux results in real time.

Issues with the configuration and equipment reboot issues after frequent power interruptions resulted in extensive down time. Further upgrades to the systems were completed recently in June of 2026 with the addition of SmartFlux 3 systems and additional industrial USB for storage backup of high frequency data, used in evapotranspiration flux calculations. Data collected in 2025 was insufficient for the reliable computation of evapotranspiration fluxes in 2025. Therefore, the Priestly-Taylor proportionality constant, shown to have a value close to 1.26 in studies in the Peace River region (Davis & Davies, 1981) and elsewhere is being used as an input for the 2025 climate moisture deficit computations, which in turn is an input for the crop drying model and the estimate of good drying days in 2025.

The year 2025 was warmer and drier than normal throughout most of the year, despite record-breaking snowfall in December. During December three climate stations in the BC Hydro network



recorded on average 94% more precipitation compared to the 30-year climate normal. The remainder and the Fort St. John Airport recoded on average precipitation amounts of 83% more compared to the 30-year climate normal during December. The Fort St. John Airport recorded the largest annual difference with 136.8 mm less than the 30-year climate normal. Within the Site C network, Station 7B recorded the largest annual difference of 87.1 mm less than the 30-year climate normal. Notably, the majority of precipitation in 2025 occurred in December at all stations and did not impact the spring, summer and fall months, during 2025. In comparing the precipitation as snowfall from December 2024 with December 2025, there was, on average, a 145 % increase across the Site C network. The British Columbia Snow Basin Index for the Peace Region was 142% above normal as of January 1, 2026 (BC Ministry of Water, Land and Resource Stewardship, 2026). This will likely impact the soil water balance and its potential control on evapotranspiration during spring in 2026. The maximum mean temperature difference during 2025 was 3.3°C warmer when compared to the 30-year normal. Table 1 illustrates average annual climate conditions for all stations on the monitoring network.

**Table 1: Summary of measured climate parameters during 2025 and comparison with climate normals.**

| Data Record                             | Mean Temp (°C) | Max Temp (°C) | Min Temp (°C) | Total Precipitation (mm) | Mean Wind Speed (m/s) |
|-----------------------------------------|----------------|---------------|---------------|--------------------------|-----------------------|
| Station 1 – Attachie Flat Upper Terrace | 3.4            | 32.4          | -36.2         | 410.7                    | 2.7                   |
| Station 3 – Attachie Plateau            | 3.7            | 32.2          | -36.6         | 521.2                    | 2.6                   |
| Station 4 – Bear Flat                   | -              | -             | -             | 477.5                    | 2.0                   |
| Station 6 – Farrell Creek               | 5.7            | 31.8          | -37.1         | 378.3                    | 1.8                   |
| Station 7B – Site C North Camp          | 4.4            | 33.5          | -33.9         | 376.5                    | 3.0                   |
| Station 9 – 85 <sup>th</sup> Avenue     | -              | -             | -             | -                        | 3.6                   |
| Station 10 – Tea Creek                  | 3.4            | 31.6          | -36.3         | 486.6                    | 2.5                   |
| Station 11 – Taylor                     | 4.1            | 34.3          | -33.1         | 428.0                    | 1.5                   |
| Station 12 – Hudson’s Hope              | 4.5            | 31.6          | -35.0         | -                        | 1.1                   |
| Fort St. John Airport                   | 3.2            | 31.3          | -35.3         | 326.8                    | 3.9                   |
| 30-year climate normals (1991 – 2020)   | 2.4            | 33.5          | -44.6         | 463.6                    | 3.9                   |
| Max difference from normals             | +3.3           | -2.2          | +11.5         | -136.8                   | -2.8                  |

**Note:** - indicates insufficient or no data collected. Station 4 temperature and relative humidity readings were missing for an extended period of time due to the failure of the mechanical fan used to aspirate the sensors. This issue was resolved on June 4<sup>th</sup> which resulted in <75% temperature data available for Station 4 in 2025.



## STATEMENT OF LIMITATIONS

This report was prepared by RWDI AIR Inc. ("RWDI") for BC Hydro ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

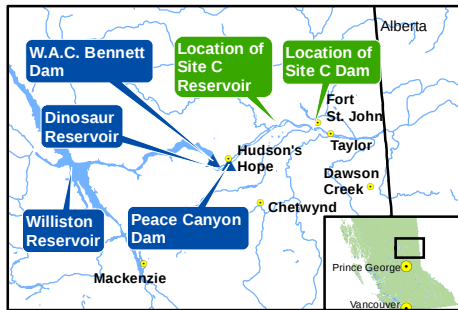
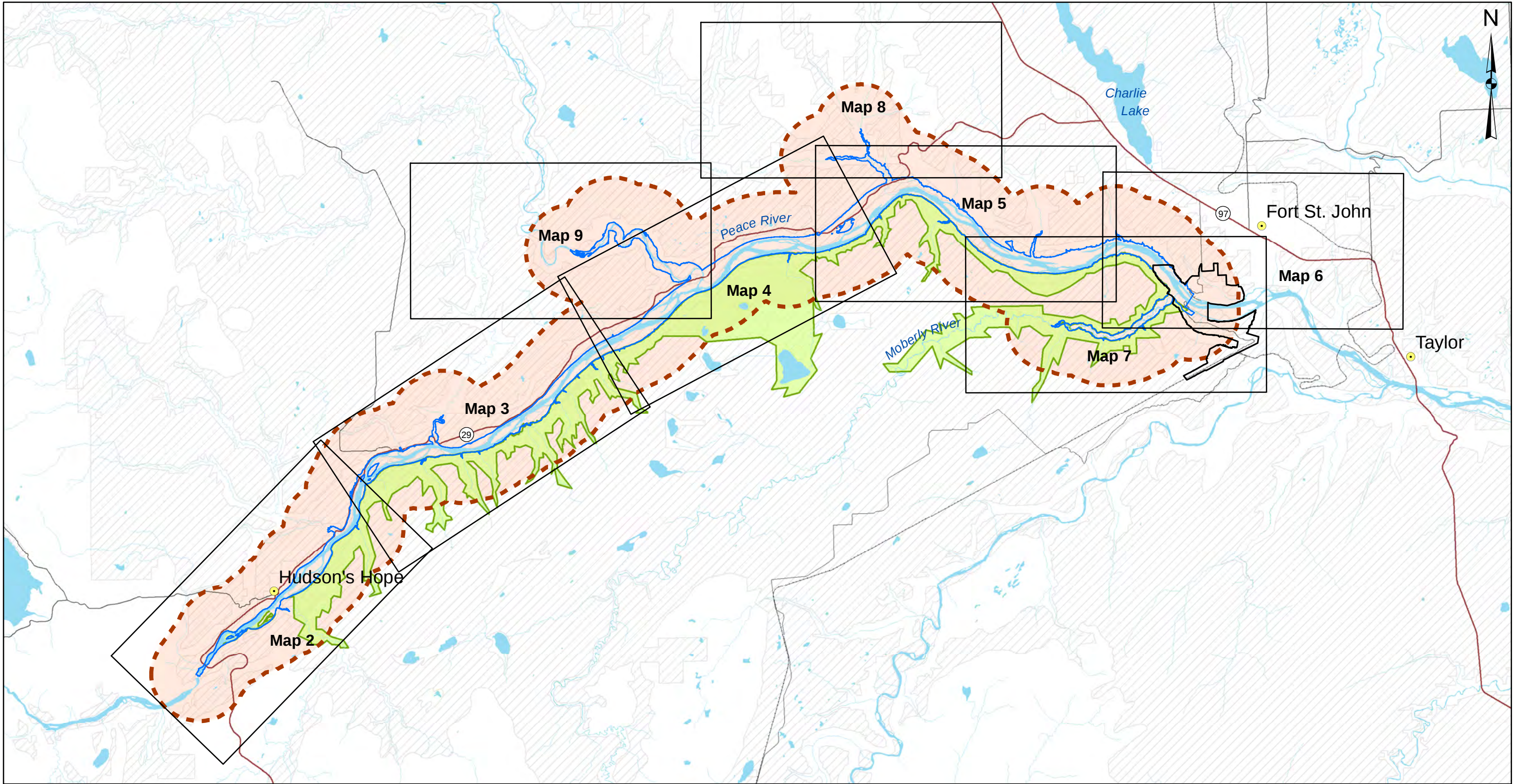
This report was prepared for the exclusive use of BC Hydro. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

## REFERENCES

BC Hydro, 2013. Site C Clean Energy Project Environmental Impact Statement. Dated January 25, 2013; Amended August 2, 2013.

BC Ministry of Water, Land and Resources Stewardship (2026). Snow Survey and Water Supply Bulletin – January 1st, 2026. Retrieved 2026-01-31 from: [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/river-forecast/2026\\_jan1.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/river-forecast/2026_jan1.pdf)

Davis, R. and J. Davies. 1981. Potential evapotranspiration in the Peace River Region of British Columbia. Atmosphere-Ocean 19: 251-260.



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

**Legend**

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area
- Town
- Road
- Highway
- Railway

1:250,000 0 5 km

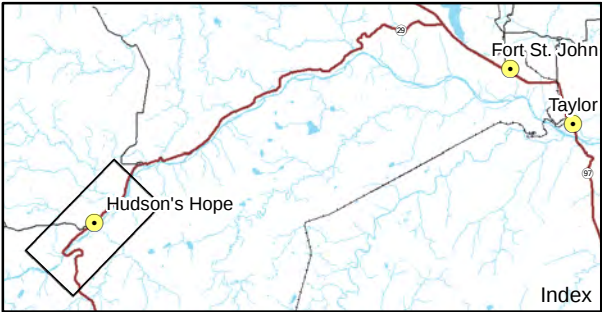
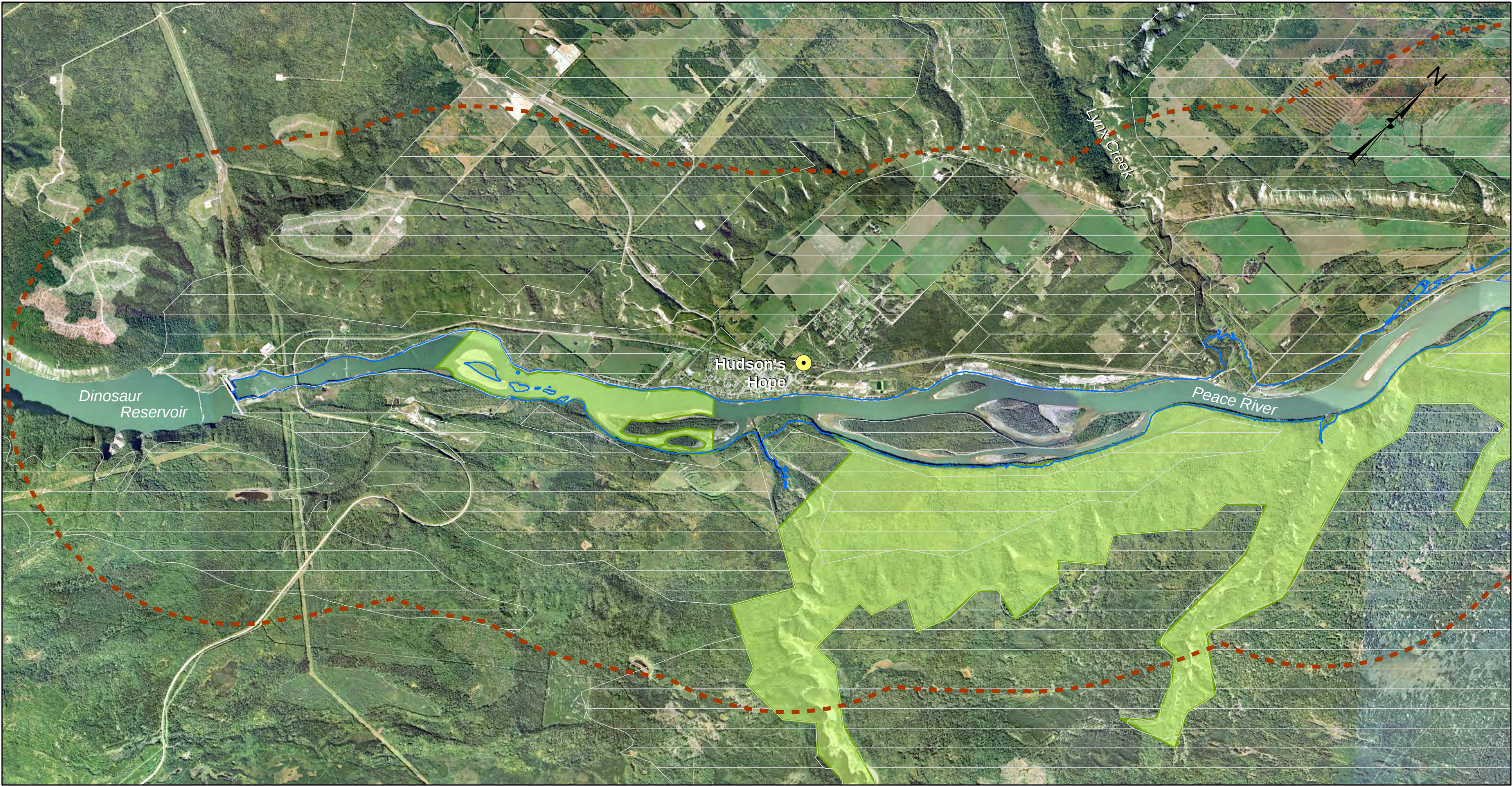


**Crop Drying Monitoring  
Area Identification -  
Overview  
Map 1 of 9**

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-1 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
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2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

Legend

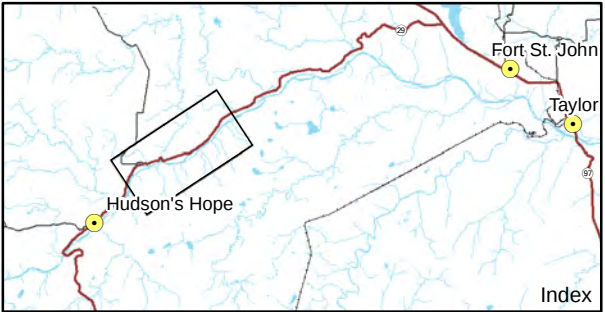
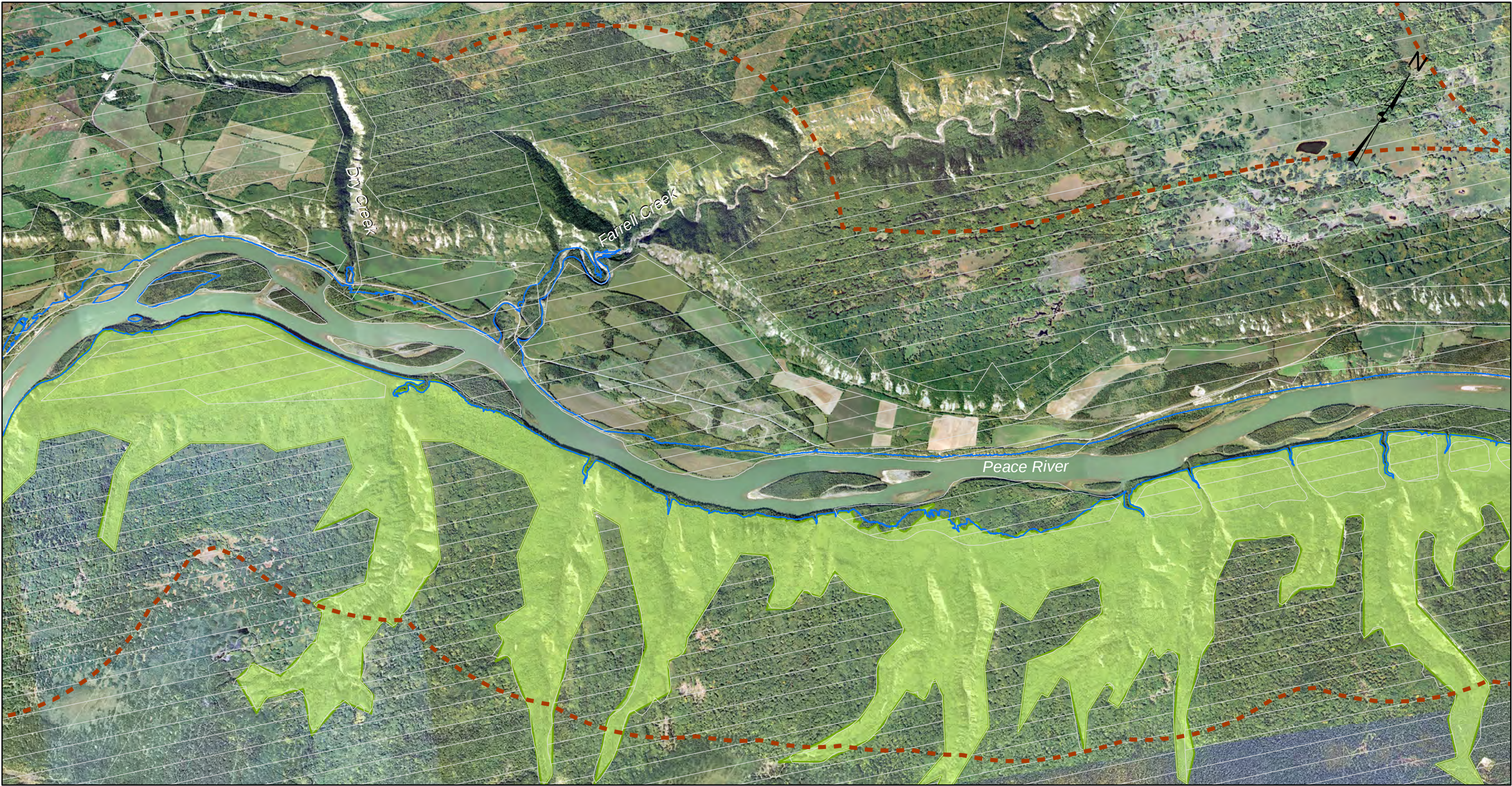
- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

Crop Drying Monitoring -  
Area Identification  
Map 2 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-2 | R 0 |
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4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

**Legend**

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

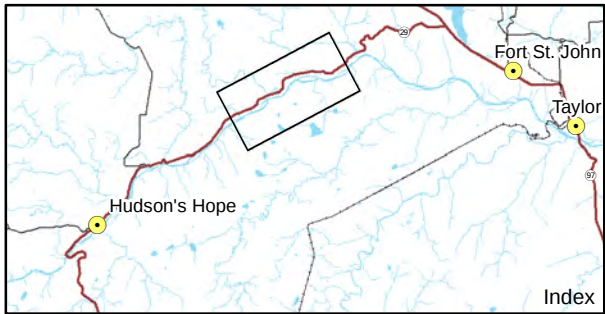
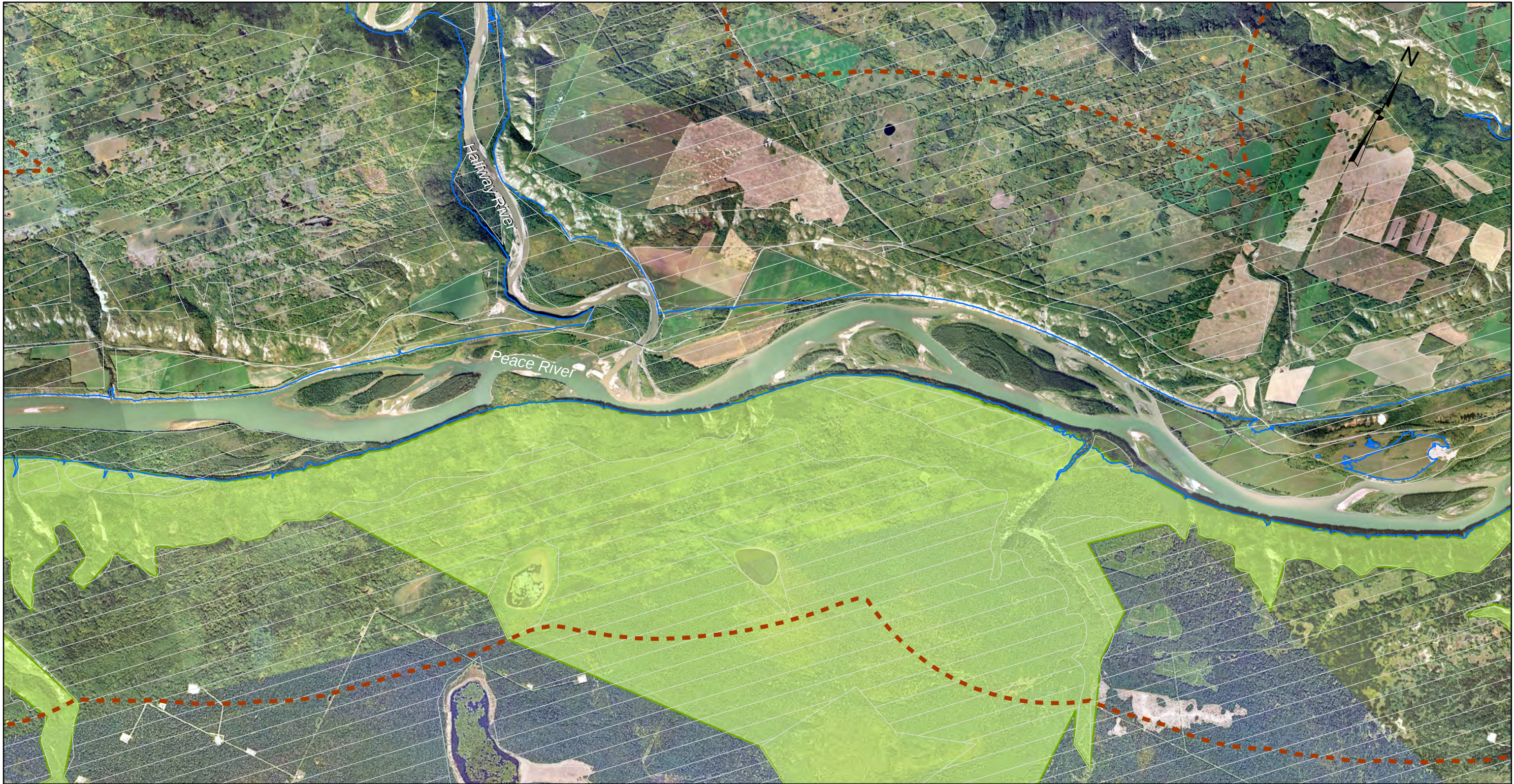


**Crop Drying Monitoring -  
Area Identification  
Map 3 of 9**

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-3 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
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2. Projection: UTM Zone 10N  
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Legend

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

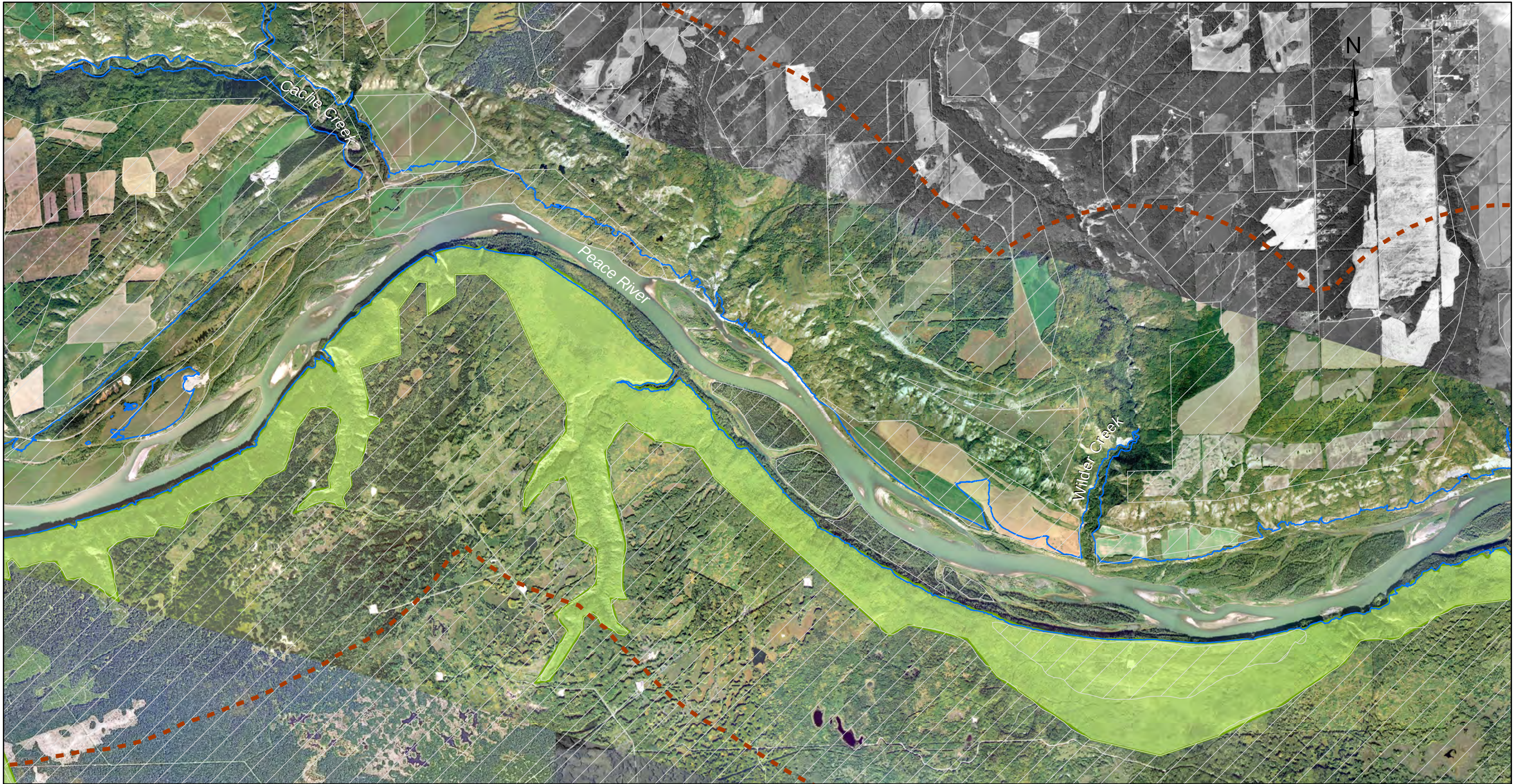


Crop Drying Monitoring -  
Area Identification  
Map 4 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-4 | R 0 |
|------|---------------|--------|------------------|-----|

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1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
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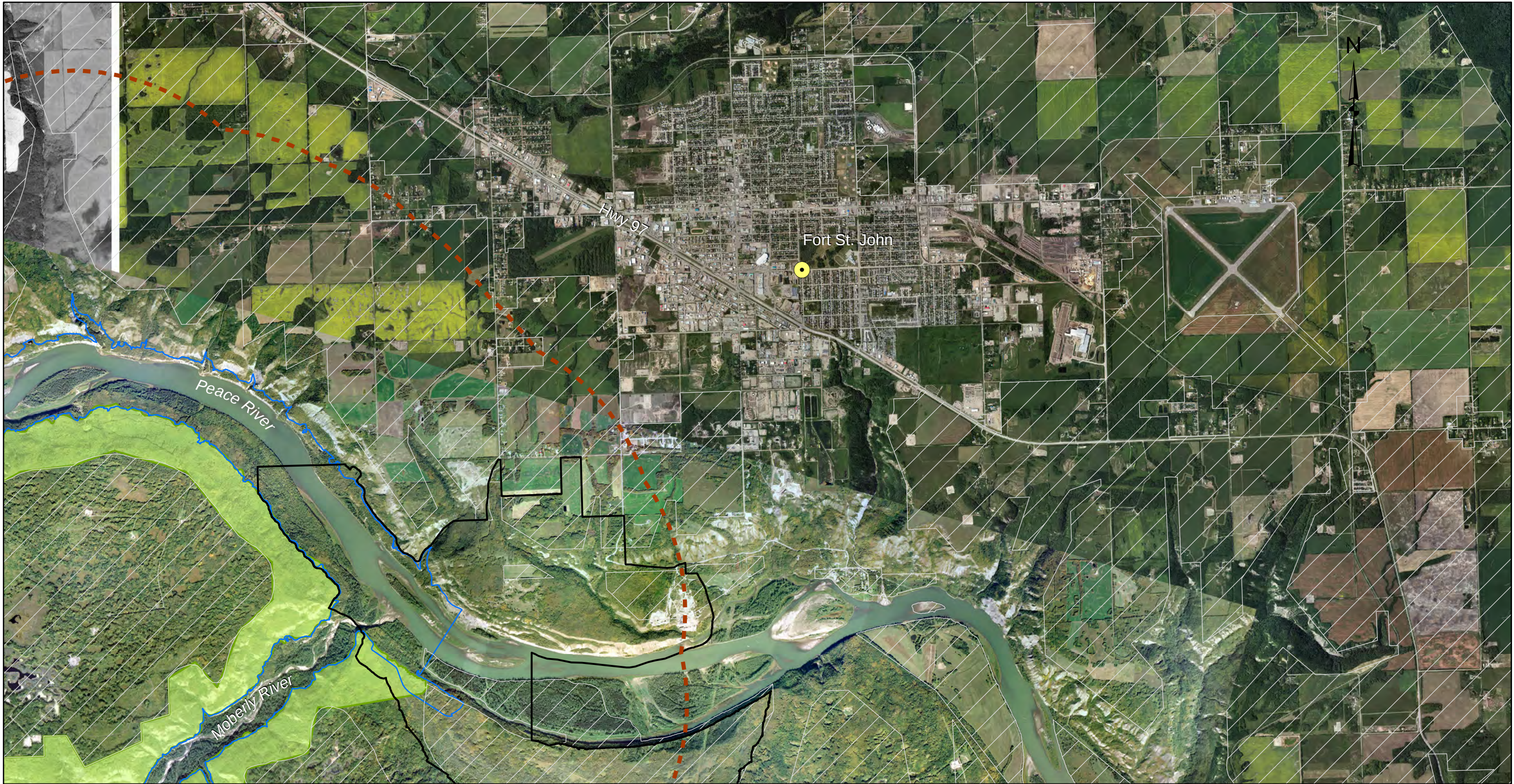
Legend

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

Crop Drying Monitoring -  
Area Identification  
Map 5 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-5 | R 0 |
|------|---------------|--------|------------------|-----|



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
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### Legend

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

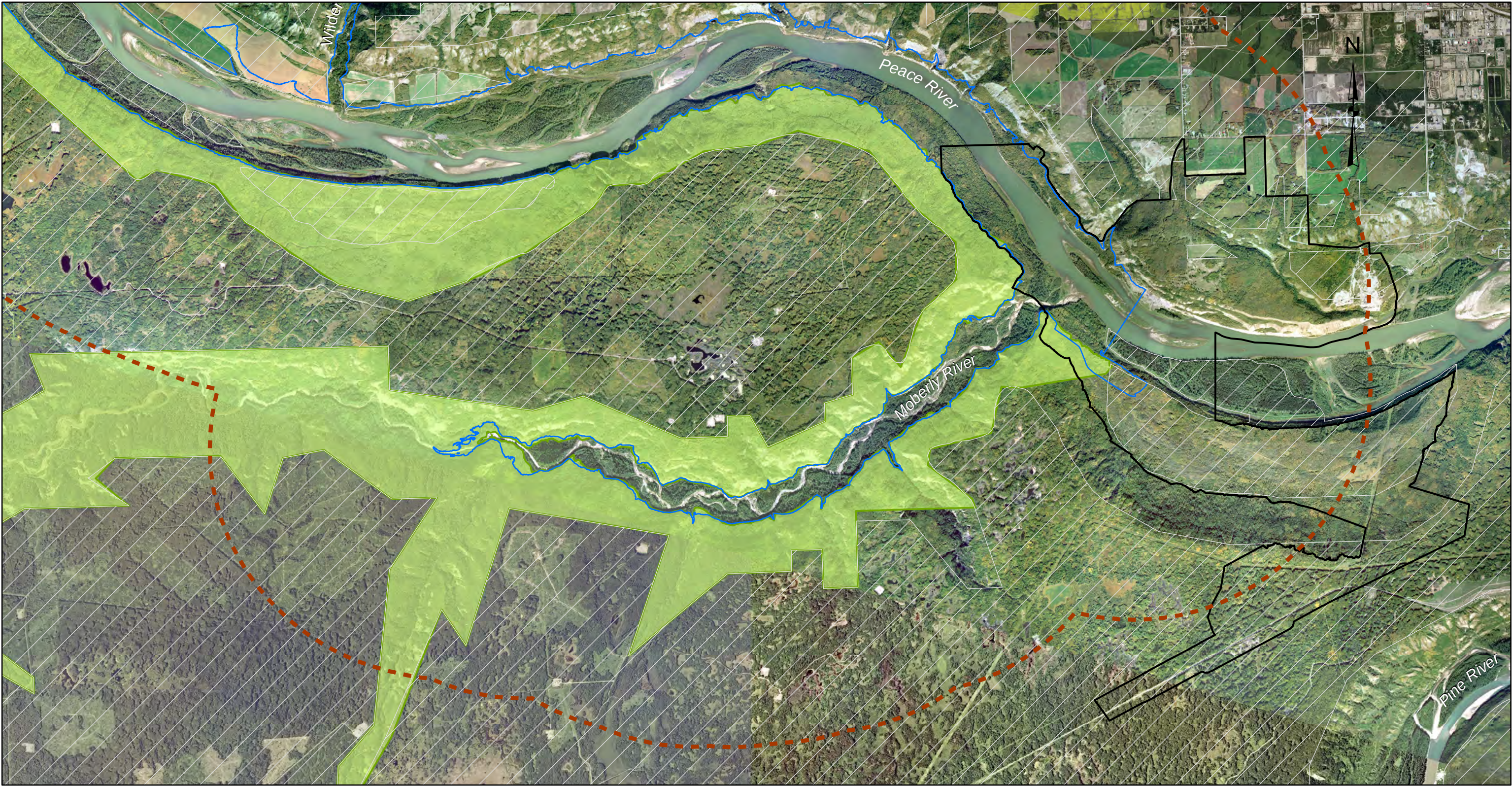


### Crop Drying Monitoring - Area Identification Map 6 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
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Map Notes:  
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3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

Legend

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km

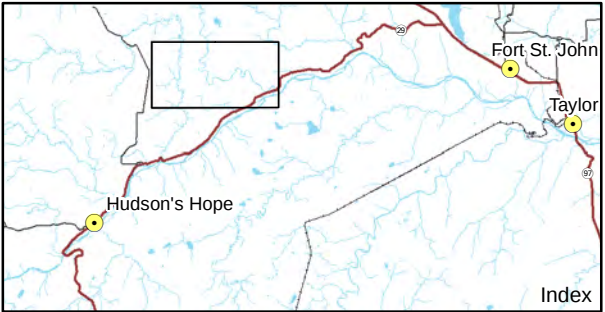
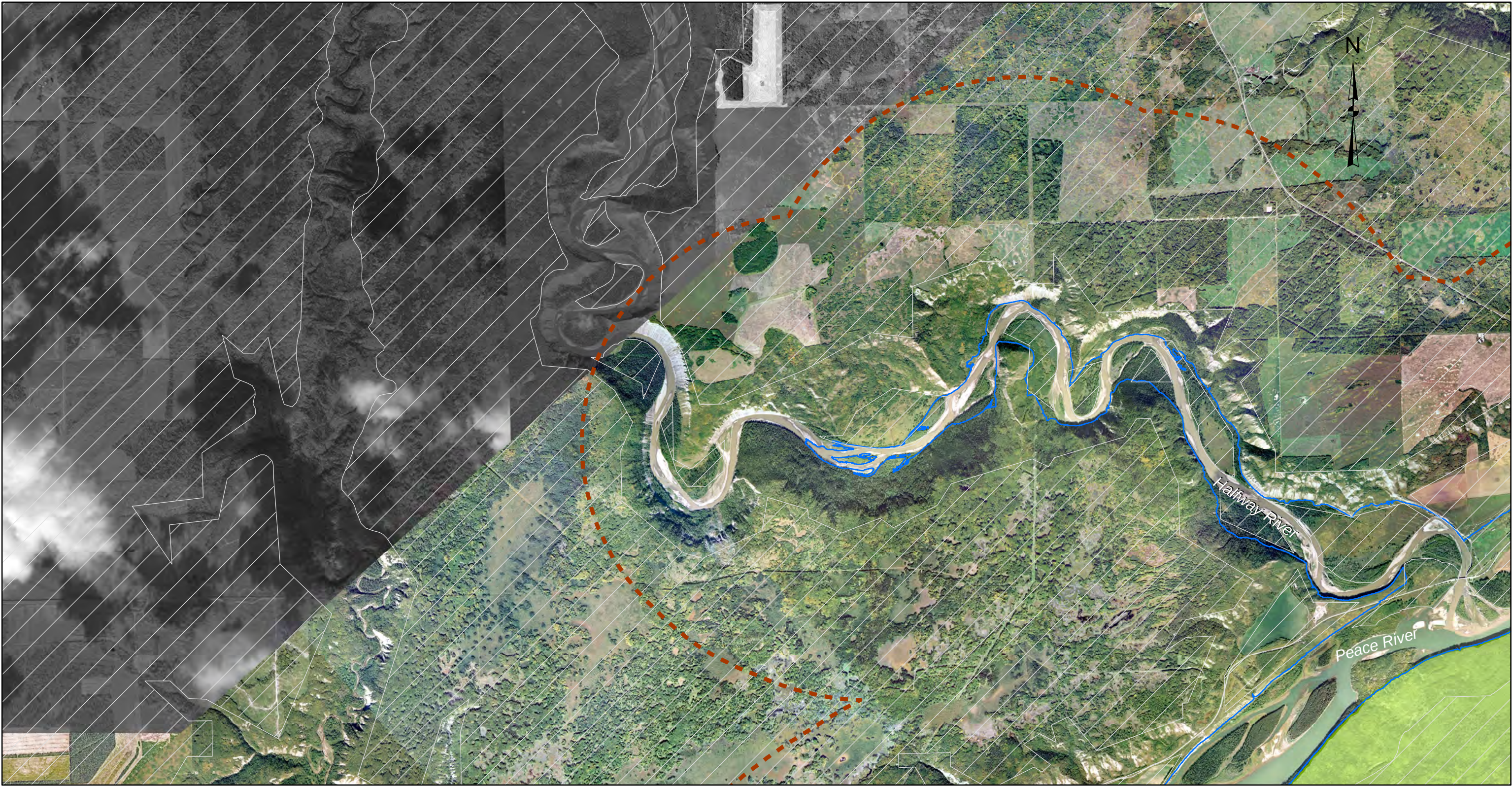


Crop Drying Monitoring -  
Area Identification  
Map 7 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-7 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

Path: X:\AcGIS\Projects\Environment\Agriculture\Ag\_3kmReservoirBoundary\_1016\_C14\_07342-2-9.mxd



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

- Legend**
- Area to be considered for crop drying monitoring
  - Agricultural Land Reserve
  - Proposed Reservoir
  - Proposed Peace Boudreau Protected Area
  - Dam Site Area

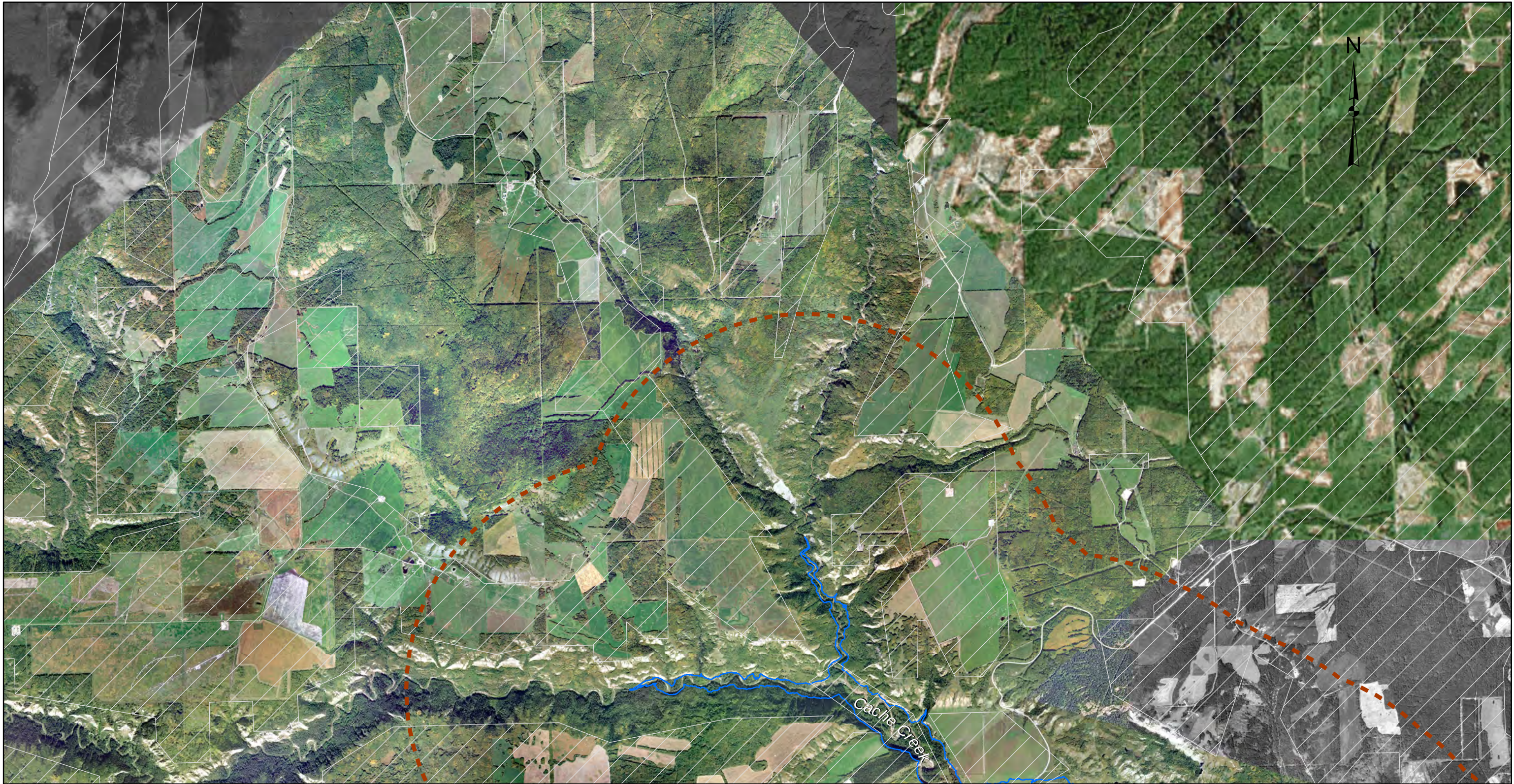
1:50,000 0 2 km

BC Hydro

Crop Drying Monitoring -  
Area Identification  
Map 8 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-8 | R 0 |
|------|---------------|--------|------------------|-----|

Path: X:\AcGIS\Projects\Environment\Agriculture\Ag\_3kmReservoirBoundary\_1016\_C14\_07342-2-9.mxd



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

Legend

- Area to be considered for crop drying monitoring
- Agricultural Land Reserve
- Proposed Reservoir
- Proposed Peace Boudreau Protected Area
- Dam Site Area

1:50,000 0 2 km



Crop Drying Monitoring -  
Area Identification  
Map 9 of 9

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07342-9 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

## **Appendix C – Crop Productivity and Groundwater Monitoring Program Report**



Blackbird File: 26018  
July 15, 2026

**RE: Crop Productivity and Groundwater Monitoring Program  
Site C Clean Energy Project  
2026 Annual Report**

**1 Project Background and Scope**

The Site C Clean Energy Project (the Project) is a hydroelectric dam and generating station under construction along the Peace River in northeast British Columbia (BC). Construction started in July 2015 and came into full service in August 2025 (BC Hydro 2025).

During the joint federal-provincial environmental assessment process, the Project's Environmental Impact Statement (EIS; BC Hydro 2013) noted a potential for the elevation of groundwater to rise in the vicinity of the reservoir and identified changes to local hydrology and groundwater as a key indicator (Table 20.3).

EIS Section 20.3.2.2 (page 20-34, lines 7 to 9) states: *"The reservoir would result in rises in the groundwater elevation in areas near the reservoir and may affect agricultural land where the water table is anticipated to rise within 1 m of surface. Yields or the range of suitable crops may be affected on agricultural properties located on low terraces and banks near the proposed reservoir. However, since the majority of the cultivated lands within the local assessment area are located topographically above the proposed reservoir levels by greater than 1 meter and in most cases by greater than 10 m, only limited effects related to water table rise are anticipated."*

As a result, the Environmental Assessment Certificate for the Project (EAC # E14-02, issued Oct. 14, 2014) contains a condition to develop an Agricultural Monitoring and Follow-Up Plan (AMAFP), which requires BC Hydro to monitor and assess groundwater level and any related effects on agricultural crops for a 10-year period which includes the five years prior to reservoir filling and the first five years of operation.

Specifically, EAC Condition No. 31 states: *"The Agriculture Monitoring and Follow-up Program must include monitoring for Project-induced changes to groundwater elevations within 2 km of the reservoir (the area potentially influenced by groundwater elevation changes) and evaluate associated effects on crop productivity. Monitoring must include field surveys and farm operator interviews."*

BC Hydro and Power Authority (BC Hydro) has retained Blackbird Environmental Ltd. (Blackbird) to implement the Crop Productivity and Groundwater Monitoring Program (CPGMP) component of the AMAFP. Blackbird's scope includes the development and implementation of a desktop and field program to monitor for project-related changes in groundwater and soil moisture levels, specifically focused on areas used for agricultural production within a two-kilometre buffer around the Project reservoir.

As part of BC Hydro's annual reporting requirements, this report outlines Project activities completed in relation to the CPGMP component of the AMAFP between **April 1, 2025, and March 31, 2026.**



## 2 Project Activities

Groundwater monitoring under this program is being conducted using a variety of methods and technologies, including a network of soil moisture sensors, crop health and development monitoring, and coordination with BC Hydro's hydrology specialists and contractor to access data from the existing well network in the Project area.

The AMAFP identifies several sites for groundwater monitoring and potential crop impacts within two kilometres of the reservoir, which defines the focus of the CPGMP. At these locations, Blackbird has deployed soil probes at depths of 10, 30, and 100 cm to log moisture, temperature, and electrical conductivity data at one-hour intervals throughout the year. Soil moisture monitoring benchmarks are located on land currently owned by BC Hydro near Bear Flats, Halfway, Farrell Creek, and Lynx Creek, in landscape positions and field locations selected to reduce the potential for impacts on agricultural operations. The combined runtime of the four sensor stations during the monitoring period was 1,459 station-days. One station experienced a one-day recording outage during the 2025-2026 season.

The 2025 growing season marked the sixth full year of data collection in the valley and the first year of post-inundation monitoring following reservoir filling in late 2024. Compilation and assessment of the 2020 to 2024 pre-inundation groundwater dataset is ongoing and will be used to establish baseline conditions for comparison with future post-inundation monitoring results.

BC Hydro's existing groundwater monitoring network within the Peace River valley is used to monitor actual groundwater levels near the identified monitoring sites. In early 2019, Blackbird's team reviewed the groundwater monitoring network in relation to the previously identified focus areas and determined that additional shallow groundwater monitoring infrastructure was required. One additional shallow groundwater monitoring well was installed in the Bear Flat area in late 2019.

Blackbird's team monitored crop development during the 2025 growing season using remote-sensing techniques to minimize disturbance from field inspections whenever feasible. Field inspections were completed at the monitoring locations in early spring and in mid-to-late July to assess crop variability in relation to soil moisture factors.

## 3 Recommendations

In accordance with EAC Condition No. 31, field surveys and producer interviews will continue to support monitoring through the first five years of Project operation following reservoir filling. Similarly, Blackbird's team will continue to work closely with agricultural producers, agricultural associations, producer groups, and government agencies that may have data or local knowledge related to this monitoring plan.

To date, no significant trends or effects on crop productivity or groundwater elevation have been observed. The five-year pre-inundation monitoring phase has been completed, and post-inundation monitoring is now underway following reservoir filling between August and November 2024.

No changes to the monitoring plan are proposed for the 2026 growing season. Monitoring activities will continue to focus on crop development using remote sensing and field surveys.



#### **4 Closure**

Services provided by Blackbird for this memorandum have been conducted in a manner consistent with the level of skill, care, and competence ordinarily exercised by registered members of the profession of agrology and biology currently practicing under similar conditions and circumstances in the same jurisdiction in which the services were provided.

The conclusions of this memorandum are based in part on information provided by others. Blackbird believes this information to be accurate but does not guarantee or warrant its accuracy or completeness.

The information presented in this memorandum was acquired, compiled, and interpreted exclusively for BC Hydro for the purposes described in this report.

Please feel free to contact Blackbird's team at your convenience by email at [bchydro@blackbird.ca](mailto:bchydro@blackbird.ca) for any questions regarding this memorandum.



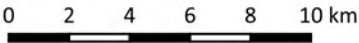
BC Hydro and Power Authority

Crop Productivity and Groundwater  
Monitoring Program  
Project Area Overview



1:40,000,000

Horizontal Scale 1:250,000



Map to scale when plotted on a page 280 mm x 432 mm (Tabloid)

Legend

- CPGMP Project Area
- Lakes & Rivers
- Crop Productivity and Groundwater Monitoring Areas
- Road Network

Disclaimer

UTM Zone 10, NAD 83  
Date of data acquisition: n/a  
Data Credit: Blackbird Environmental LP, BC Geodata Warehouse  
For representational purposes only, all locations are approximate.

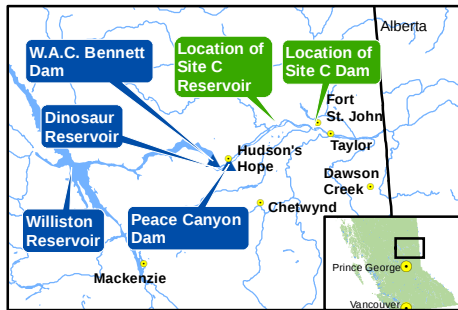
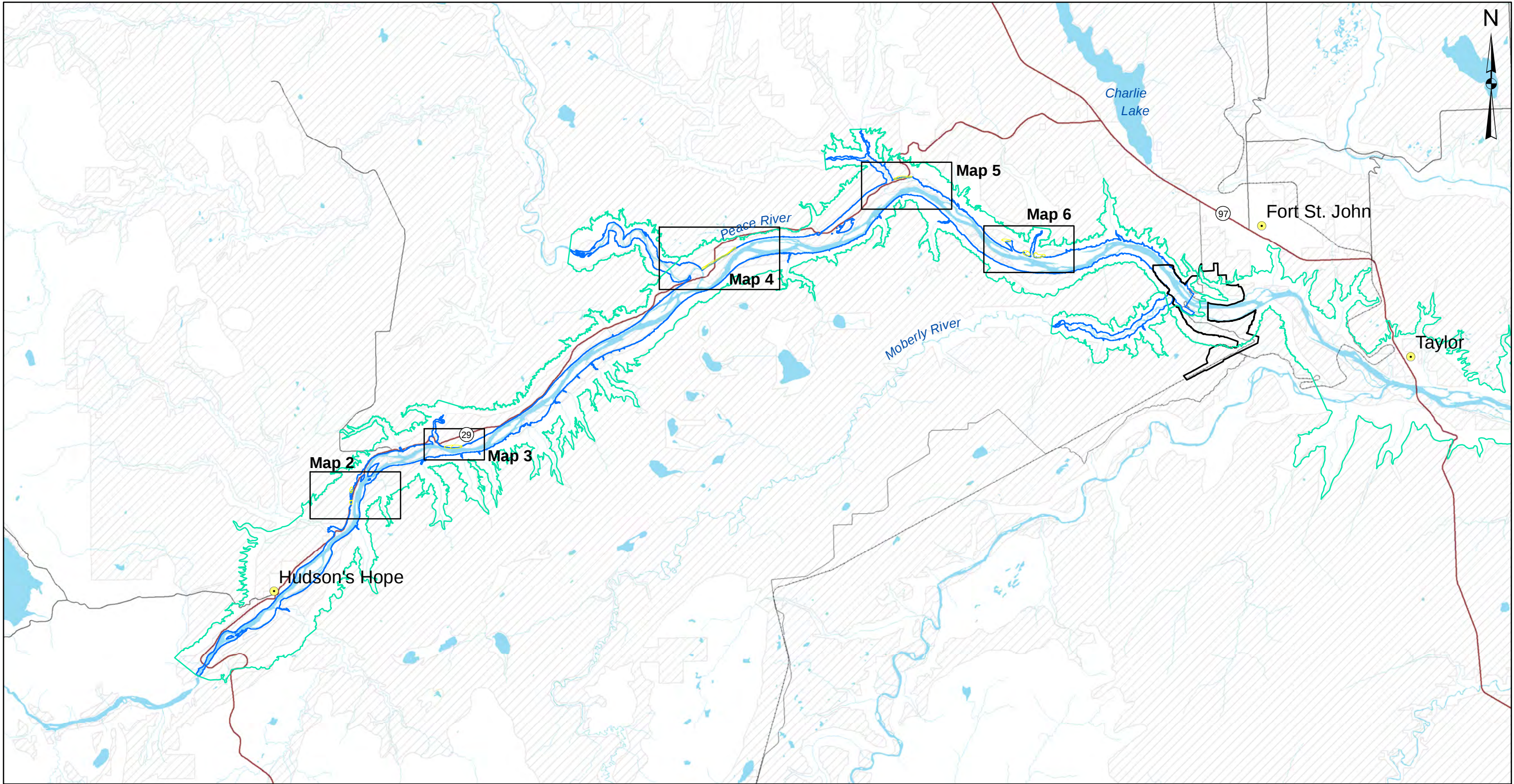
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|--------------|-------|--------------|-----|-------------|--------------|
| Our File:    | 26018 | Gov. File #: | n/a | Revision #: | 1            |
| Client File: | n/a   | GIS:         | KS  | Date:       | July 6, 2026 |



blackbird.ca  
Fort St. John, BC  
250.793.8386

Figure 1

Path: X:\AcGIS\Projects\Environment\Physical\_Environment\Ground\_Water\Groundwater\_Monitoring\_Overview\_1016\_C14\_07345-1.mxd



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

### Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve
- Town
- Road
- Highway
- Railway

1:250,000 0 5 km



### Groundwater Monitoring Areas Overview Map 1 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-1 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

Path: X:\AcGIS\Projects\Environment\Physical\_Environment\Ground\_Water\Groundwater\_Monitoring\_1016\_C14\_07345-2-6.mxd



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

### Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve

1:15,000 0 0.5 km



### Groundwater Monitoring Areas Map 2 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-2 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

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Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August, 2006.

Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve

1:10,000 0 0.5 km

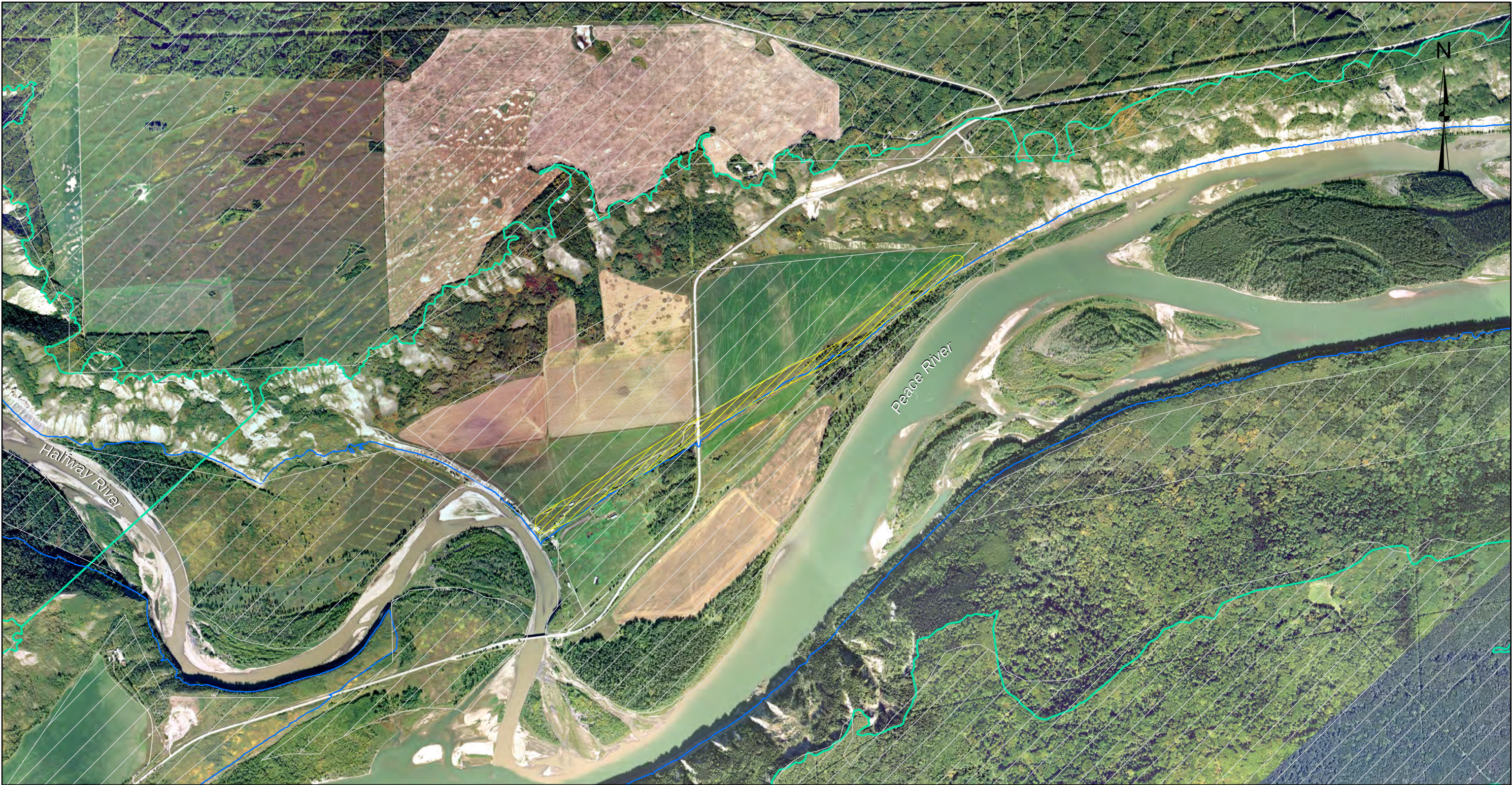


Groundwater Monitoring Areas  
Map 3 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-3 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

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Map Notes:  
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2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve

1:20,000 0 0.5 km



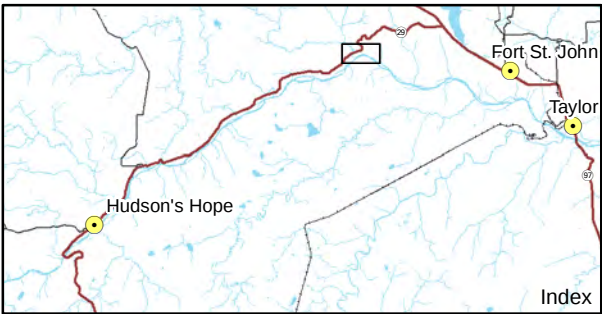
Groundwater Monitoring Areas  
Map 4 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-4 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

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Path: X:\AcGIS\Projects\Environment\Physical\_Environment\Ground\_Water\Groundwater\_Monitoring\_1016\_C14\_07345-2-6.mxd



Map Notes:  
1. Datum: NAD83  
2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

### Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve

1:15,000 0 0.5 km



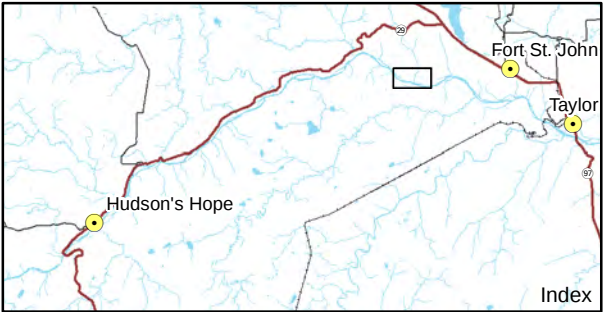
### Groundwater Monitoring Areas Map 5 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-5 | R 0 |
|------|---------------|--------|------------------|-----|

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Map Notes:  
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2. Projection: UTM Zone 10N  
3. Base Data: Province of B.C.  
4. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007, TRIM.  
5. Proposed reservoir area (461.8m maximum normal elevation) from Digital Elevation Models (DEM) generated from LIDAR data acquired July/August, 2006.

### Legend

- Groundwater Monitoring Area
- Peace River and Tributary
- Valleys Definition
- Proposed Reservoir
- Dam Site Area
- Agricultural Land Reserve

1:15,000 0 0.5 km



### Groundwater Monitoring Areas Map 6 of 6

|      |               |        |                  |     |
|------|---------------|--------|------------------|-----|
| Date | July 14, 2016 | DWG NO | 1016-C14-07345-6 | R 0 |
|------|---------------|--------|------------------|-----|

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

# **Appendix D – Irrigation Water Requirements Program Report**

## **Introduction**

The Site C Clean Energy Project's Environmental Impact Statement (BC Hydro. 2013) ("EIS") Section 20.3.4.1.2 identifies irrigation improvements as a potential mitigation measure for the permanent loss of agricultural land. Lines 25 to 27, page 20-42, of this section state: "Irrigation research, demonstration projects, and funding assistance for irrigation water supply infrastructure will be considered within the proposed agricultural compensation fund."

EAC Condition 31 states: "The Agriculture Monitoring and Follow-up Program must include monitoring for climatic factors to estimate moisture deficits and to estimate irrigation water requirements in the vicinity of the reservoir to provide information for potential future irrigation projects. Data collection will be undertaken before reservoir filling, and in the 5 years after reservoir filling, and data will be reviewed as required for proposed irrigation projects."

In accordance with EAC Condition 31, this study will monitor climate data and estimate irrigation water requirements. The objective of this monitoring program is to collect and analyze climate data to generate estimates of irrigation water requirements.

## **Methods**

Study Location: The study areas are agricultural operations within 3 km of the reservoir. The plan relies on climate station installation, maintenance, and data collection tasks carried out in the Appendix B: Monitoring Potential Effects on Crop Drying Plan.

Activities: Activities have included coordination of data needs with Appendix B: Monitoring Potential Effects on Crop Drying Plan, mapping, baseline data collection, climate station siting, and consideration of consultation input.

Maps supporting this program are included in Appendix B: Monitoring Potential Effects on Crop Drying Plan.

To ensure that all parameters required for the successful completion of this program, coordination with the Crop Drying and Humidity Monitoring Program is required for future climate station siting and any necessary network upgrades.

Irrigation was discussed during the consultation process and included numerous submissions by regional agricultural producers and associations for the Framework of the Agricultural Mitigation and Compensation Plan. Content relevant to irrigation was considered and will be retained for future use in this program.

## **Results and Analysis**

During the program establishment phase there are limited results or analysis required. The climate stations are collecting information that will provide baseline information to support future analysis.

## **Next Steps**

In the five years post-reservoir filling, a complete summary of the collected data from the BC Hydro climate stations will be analyzed annually to estimate irrigation water demand (as required). It should be noted that:

- The existing climate station network was upgraded and expanded between January 2016 and December 2017 and that data collected will be the baseline for any future irrigation project.
- Efforts will be made to collaborate with associations, producer groups and government agencies that may have data or local knowledge related to this monitoring program. Examples may include the BC Grain Producers Association which has funded the following study; *Evaluation of Irrigation Potential in the BC Peace Region*.

## **References**

BC Grain Producers Association (2015) "Peace – Evaluation of Irrigation Potential in the BC Peace Region" Available at: [http://www.bcgrain.com/Current\\_Projects.html](http://www.bcgrain.com/Current_Projects.html). Accessed: December 2015.

FAO. (1998). Crop Evapotranspiration – Guidelines for Computing Crop Water Requirements. Rome: Food and Agriculture Organization of the United Nations – Paper 56.

BC Hydro. 2013. Site C Clean Energy Project Environmental Impact Statement. Dated January 25, 2013; Amended August 2, 2013.

## Appendix E – Climate Stations Information

The following tables show information specific to the BC Hydro's existing climate station network.

**Table 1 - Periods of Operation for Climate Stations Supporting the AMAFP**

| Monitoring Station                       | Period of Operation |
|------------------------------------------|---------------------|
| Attachie Flat Upper Terrace              | 2011 - Present      |
| Attachie Flat Lower Terrace <sup>1</sup> | 2010 - 2017         |
| Attachie Plateau                         | 2010 - Present      |
| Bear Flat                                | 2010 - Present      |
| Farrell Creek                            | 2009 - Present      |
| Site C Dam <sup>2</sup>                  | 2010 - 2016         |
| Site C North Camp <sup>3</sup>           | 2016 - Present      |
| Old Fort                                 | 2011 - Present      |
| 85 <sup>th</sup> Avenue                  | 2013 - Present      |
| Tea Creek                                | 2017 – Present      |
| Taylor                                   | 2017 – Present      |
| Fort St. John Airport <sup>4</sup>       | 1942 – Present      |

<sup>1</sup> Attachie Flat Lower Terrace was closed in 2017 due to the location being inside the Site C reservoir

<sup>2</sup> Site C Dam Station was relocated in 2016 to an area adjacent to the camp and offices. It is now the Site C North Camp Station

<sup>3</sup> Site C North Camp Climate Station has instruments in two areas located near the Site C offices

<sup>4</sup> Fort St. John Airport is operated by Environment Canada

**Table 2 - Locations & Elevations of Current Climate Stations Supporting the AMAFP**

| <b>Monitoring Station</b>      | <b>UTM NAD 83 (m)</b>  | <b>Latitude and Longitude<br/>(decimal degrees)</b> | <b>Elevation (m)</b> |
|--------------------------------|------------------------|-----------------------------------------------------|----------------------|
| Attachie Flat Upper Terrace    | 597983 E, 6232938 N    | 56.23N, -121.41W                                    | 479                  |
| Attachie Plateau               | 595065 E, 6233032 N    | 56.23N, -121.46W                                    | 645                  |
| Bear Flat                      | 610669 E, 6238135 N    | 56.27N, -121.21W                                    | 474                  |
| Farrell Creek                  | 580779 E, 6220238 N    | 56.12N, -121.70W                                    | 471                  |
| Site C North Camp <sup>1</sup> | 630127 E, 6230625 N    | 56.20N, -120.90W                                    | 581                  |
| Old Fort                       | 634,890 E, 6,230,532 N | 56.20N, -120.83W                                    | 421                  |
| 85th Avenue                    | 633,033 E, 6,233,949 N | 56.23N, -120.85W                                    | 686                  |
| Tea Creek                      | 626812 E, 6234340 N    | 56.24N, -120.95W                                    | 653                  |
| Taylor                         | 639212 E, 6226929 N    | 56.17N, -120.76W                                    | 411                  |
| Fort St. John Airport          | 640053 E, 6234872 N    | 56.24N, -120.74W                                    | 695                  |

<sup>1</sup> The “Site C Dam” meteorological station was decommissioned from its original location on April 13, 2016 due to excavation at that location. It was relocated to a new location, “Site C North Camp”, on July 7, 2016.

Full reports including tabular summaries of the agricultural monitoring parameters are included in the 2014 through to 2025 *Site Climate and Air Quality Monitoring Annual Reports*. These parameters include:

- air temperature,
- humidity,
- precipitation,
- solar radiation,
- wind speed,
- wind direction,
- barometric pressure,
- net radiation,
- soil temperature,
- soil heat flux,
- soil water content, and
- relative humidity.

**References:**

RWDI Inc. (2015), Site C Climate & Air Quality Monitoring Annual Report 2014, Final. August 26, 2015.

RWDI Inc. (2016), Site C Climate & Air Quality Monitoring Annual Report 2015, Final. June 9, 2016.

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RWDI Inc. (2019), Site C Climate & Air Quality Monitoring Annual Report 2018, Final. February 22, 2019.

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RWDI Inc. (2022), Site C Climate & Air Quality Monitoring Annual Report 2021, Final. March 8, 2022.

RWDI Inc. (2023), Site C Climate & Air Quality Monitoring Annual Report 2022, Final. March 22, 2023.

RWDI Inc. (2024), Site C Climate & Air Quality Monitoring Annual Report 2023, Final. March 19, 2024.

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RWDI Inc. (2026), Site C Climate & Air Quality Monitoring Annual Report 2025, Final. March 26, 2026.