



# Keeyask Generation Project Terrestrial Effects Monitoring Plan

## Priority Plants Monitoring Report

TEMP-2024-03



# **KEYYASK GENERATION PROJECT**

## **TERRESTRIAL EFFECTS MONITORING PLAN**

REPORT #TEMP-2024-03

### **PRIORITY PLANT MONITORING YEAR 2 OPERATION 2023**

Prepared for  
Manitoba Hydro

By  
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# SUMMARY

## Background

Construction of the Keeyask Generation Project (the Project) at Gull Rapids began in July 2014. The vast majority of construction activities were completed by fall 2021, and the generating station was fully operational by March of 2022, with all seven units in service.

The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the generating station on the terrestrial environment - The Terrestrial Effects Monitoring Plan (TEMP). Monitoring results from the TEMP will help the KHLP, government regulators, members of local First Nation communities, and the general public understand how construction and operation of the generating station will affect the environment, and whether or not more needs to be done to reduce harmful effects.

This report describes the results of the priority plant monitoring conducted during 2023, the second summer of Operation monitoring for the terrestrial monitoring studies.

## Why is the study being done?

Plants perform important functions in land ecosystems. Among other things, they provide food and shelter for wildlife, contribute to soil development, store carbon and ultimately are the source for most life because they convert solar energy to plant tissue. Some plants, called priority plants in this report, are particularly important for ecological reasons (e.g., rare species) and/or social reasons (e.g., traditional food and cultural importance to the Keeyask partner First Nations).

This report includes both of the TEMP priority plant monitoring studies. The Provincially Very Rare to Rare Plants study is being conducted to determine if any unknown rare plants were present in the construction areas by conducting additional searches for these species. If any rare plants are found, appropriate mitigation (e.g., avoiding those areas or transplanting plants to an area that won't be disturbed) is proposed.

The Priority Plants and Their Habitats study evaluates whether Project effects on plant species that are particularly important for ecological and/or social reasons are consistent with what was predicted in the environmental impact statement (EIS).

## What was done?

Pre-clearing rare plant searches were not conducted in 2023 since new clearing was not anticipated.

Rare plant surveys conducted from 2018 to 2023 found elegant hawksbeard, a very rare plant in Manitoba. Patches of elegant hawksbeard plants were found naturally establishing and spreading at different locations in the Construction Footprint, including at several locations that the plant was transplanted to in 2019.

The Start-up Camp and Main Camp areas each support the largest populations of elegant hawksbeard in the Construction Footprint as of 2023. These areas are being decommissioned and prepared for planting. It was determined that it is unlikely that the elegant hawksbeard plants could be avoided during these activities. In September 2023 a botanist (plant specialist) transplanted a total of 200 plants from the Start-up Camp and Main Camp to five other sites in the Construction Footprint that were at low risk for future disturbance.

Project monitoring of effects on known priority plant locations included documenting new priority plant locations found while conducting other TEMP monitoring.

### **What was found?**

Monitoring determined that elegant hawksbeard is doing well in the Project area. The number of known plants has been increasing annually, and this species was also found at several new locations in 2023.



### **Elegant hawksbeard, a rare plant found in disturbed areas of the Construction Footprint.**

A single priority plant location for rock willow, a provincially vulnerable species, determined to be within 10 metres of the mapped Construction Footprint was confirmed to be still present in 2023, and was abundant in the area.

Other TEMP monitoring studies incidentally identified two new priority plant locations for shrubby willow. Both locations had plants within the Construction Footprint.

### **What does it mean?**

Monitoring has shown that, overall, elegant hawksbeard is doing well in the Project area. However, because ongoing decommissioning and site preparation will remove the largest patches

of plants, it is recommended that disturbance of all the known locations outside of the site preparation areas be avoided or minimized, where possible, and that the 2023 transplants be monitored in order to establish whether the transplanting was successful.

Residual Project effects on priority plants and their habitat were lower than predicted. The additional priority plant locations found within and outside of the Construction Footprint in 2023 increases the certainty that Project effects on these species are lower than was assumed in the EIS.

### **What will be done next?**

Priority plant monitoring in 2024 will include a ground survey to confirm the extent to which the elegant hawksbeard plants transplanted in 2023 have survived.

# ACKNOWLEDGEMENTS

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Chiefs and Councils of Tataskweyak Cree Nation (TCN), War Lake First Nation (WLFN), York Factory First Nation (YFFN) and Fox Lake Cree Nation (FLCN) are gratefully acknowledged for their support of this program.

We would also like to thank North/South Consultants Inc., in particular Ron Bretecher, Claire Hrenchuk, Rochelle Gnanapragasam and Shari Fournier, for their guidance, logistical support and other resources that made these studies possible.

# STUDY TEAM

Dr. James Ehnes was the project manager and study designer.

This report uses data collected by other terrestrial monitoring studies.

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Data analysis and report writing were completed by Brock Epp and Alanna Sutton. James Ehnes reviewed the report. Cartography was completed by Alex Snitowski.

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# 1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt hydroelectric generating station (GS) and the associated facilities. The Project is located at the former Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake, 35 km upstream of the existing Kettle GS.

Project construction began in July 2014. The vast majority of construction activities had been completed by fall 2021. The reservoir was first brought to full supply level in September 2020 and the final generating unit went into service on March 9, 2022. This marked the beginning of the Operation period for the terrestrial monitoring studies.

The *Keeyask Generation Project Response to EIS Guidelines* (the EIS), completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project (KHLP 2012a). Technical supporting information for the terrestrial environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement Terrestrial Supporting Volume* (TE SV; KHLP 2012b).

The *Keeyask Generation Project Terrestrial Effects Monitoring Plan* (TEMP; KHLP 2015) was subsequently developed as part of the licensing process for the Project. Monitoring activities for various components of the terrestrial environment were described, including the focus of this report, priority plants, during the construction and operation phases.

Priority plants are defined as those plants that are particularly important for ecological and/or social reasons. Specifically, priority plants are the native plant species that are highly sensitive to Project impacts, make high contributions to ecosystem function and/or are of particular interest to the partner First Nations. A plant species is considered to be highly sensitive to Project impacts if it is globally, nationally, provincially or regionally rare, near a range limit, has low reproductive capacity, depends on rare environmental conditions and/or depends on the natural disturbance regime (wildlife studies monitor plant species that are critical for the survival and/or reproduction of an animal species). The partner First Nations have noted a variety of plants of traditional importance that are present in the Project area, such as *wihkis* (sweet flag; *Acorus americanus*) and dwarf Labrador tea (tea leaves; *Rhododendron tomentosum*).

Priority plant monitoring includes two studies: Provincially Very Rare To Rare Plants; and, Priority Plants and Their Habitats.

The Provincially Very Rare To Rare Plants study (see KHLP 2015, Section 3.1.2) conducts additional pre-clearing searches in areas of the Project zone of influence that were not previously surveyed and have the highest potential for supporting provincially very rare to rare plant species. In the unlikely event that a provincially very rare to rare species is discovered within these areas and there are not at least 20 known healthy patches outside of the terrestrial plants zone of influence, mitigation is recommended and relevant follow up monitoring is conducted.

Since TEMP was published, the MBCDC conservation concern terminology has changed from very rare or rare to critically imperiled or imperiled species. The remainder of this report uses the current MBCDC terminology.

The objectives of this study are to:

- Determine if any provincially critically imperiled to imperiled plants occur within the Project zone of influence; and,
- In the unlikely event that a provincially critically imperiled to imperiled plant is discovered:
  - Confirm that any identified locations are well marked for avoidance where avoidance is practicable;
  - Develop a transplanting plan for provincially critically imperiled plant locations where avoidance is not practicable; and,
  - Monitor the survival and vigor of all plants in any identified locations.

Monitoring for this study was conducted annually from 2014 to 2022. Previous ECOSTEM reports (2015; 2016; 2017a; 2018, 2019, 2020, 2021, 2022b, and 2023) provide the monitoring results for the years up to 2022.

The Priority Plants and Their Habitats study (see KHLP 2015, Section 3.1.3) verifies actual Project effects on known priority plant locations and priority plant habitats. This study begins at the end of Project construction, when the actual Construction Footprint is known, and is repeated periodically during operation.

The objectives of this study are to:

- Confirm Project effects on known priority plant locations; and,
- Locate and quantify Project effects on priority plant habitats.

Monitoring for this study was conducted in 2021, 2022 and 2023. A previous report (ECOSTEM 2023) provides the results of monitoring conducted in 2022.

This report presents the results from the monitoring work conducted during 2023 for both Provincially Very Rare To Rare Plants and for Priority Plants and Their Habitats. The 2023 monitoring work included mitigation of Project impacts on priority plants, and confirming Project effects on a known priority plant location.

## 2.0 METHODS

Sections 3.1.2 and 3.1.3 of the TEMP detail the methods for the two priority plant studies. The following summarizes the monitoring activities conducted for the second season of the operation phase, from June to September 2023. Construction phase monitoring activities, which extended from June 2014 to September 2021, are detailed in previous annual reports.

### 2.1 PROVINCIALY CRITICALLY IMPERILED TO IMPERILED PLANTS

#### 2.1.1 APPROACH

This monitoring study conducts pre-clearing rare plant surveys in areas that meet all of the following three criteria:

- Had not been previously surveyed for rare plants;
- Could be directly or indirectly affected by the Project and,
- Had the highest potential for supporting critically imperiled to imperiled species.

Pre-clearing rare plant surveys were not conducted in 2023 since new Project clearing was not anticipated at the time of the surveys. In 2023, mitigation was carried out for patches of elegant hawksbeard (*Crepis elegans* [also called *Askellia elegans*]) growing in portions of the Construction Footprint that will be decommissioned and prepared for tree planting. Plants from these areas were transplanted to other suitable areas that are unlikely to be disturbed.

#### 2.1.2 ELEGANT HAWKSBEARD SURVEYS

Elegant hawksbeard (Photo 2-1) has been growing and spreading in disturbed areas of the Construction Footprint since it was first detected in the Start-up Camp and Borrow Area B-6 in 2018 (Map 2-1). Elegant hawksbeard is ranked as a provincially critically imperiled (S1 species) by the Manitoba Conservation Data Centre (MBCDC 2021).

In September 2019, elegant hawksbeard plants from Borrow Area B-6 and the Start-up Camp were transplanted to other sites because it was unlikely that they could be avoided by construction decommissioning activities (ECOSTEM 2020). Annual monitoring of the transplant sites from 2020 to 2022 confirmed that the transplanting was successful, and new plants were establishing at the transplant sites (ECOSTEM 2023). Plants at the Start-up Camp continued to spread and were still present in 2022 because decommissioning activities had not yet substantively disturbed

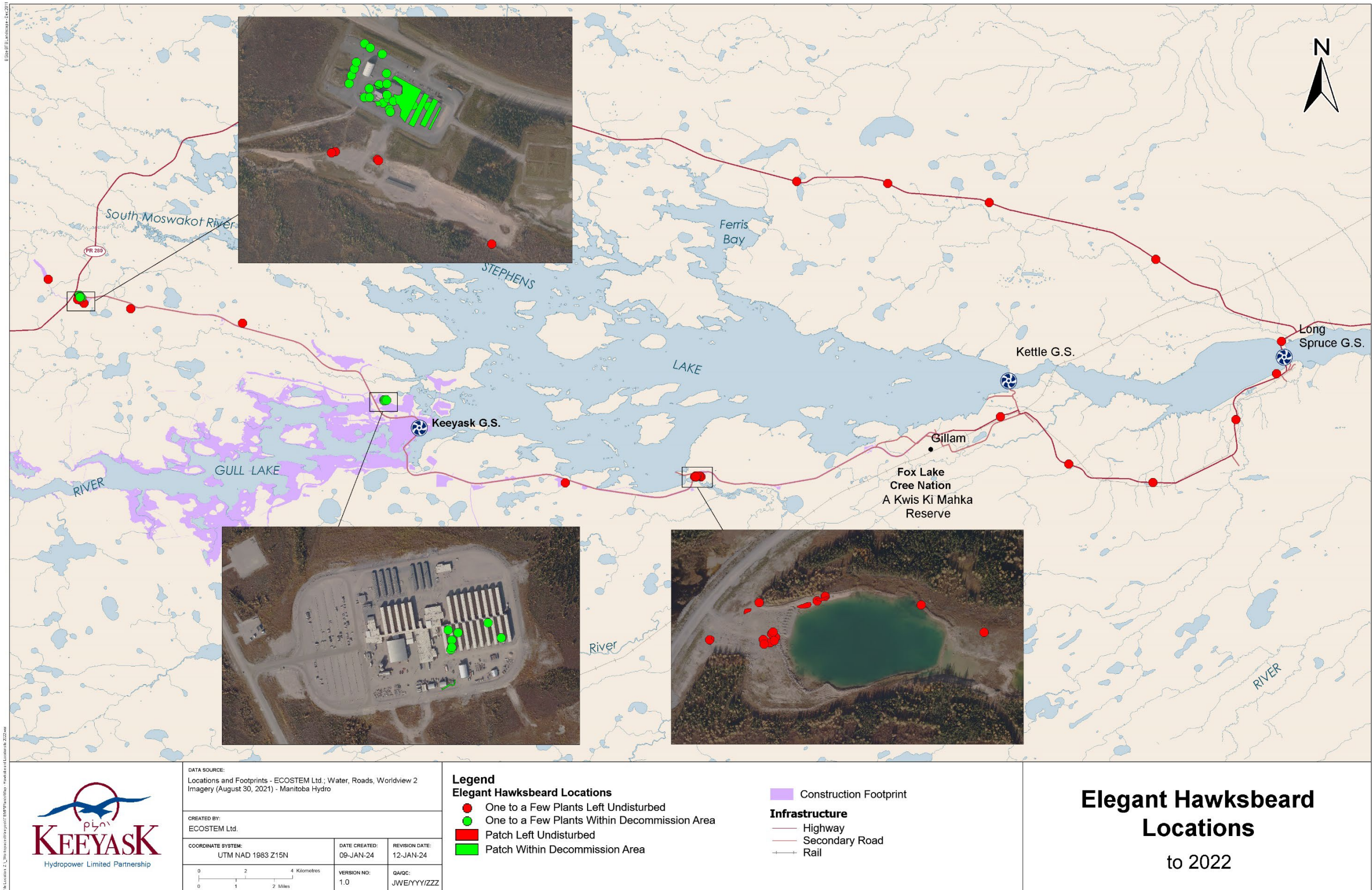
the original patches. Elegant hawksbeard also naturally established at other locations in the Construction Footprint, including a large patch at the Main Camp (ECOSTEM 2023).

The Start-up Camp and Main Camp, which each support the largest populations of elegant hawksbeard in the Construction Footprint (Map 2-1), are being decommissioned and will be prepared for planting. It is unlikely that these activities can avoid the plants.

In late-summer of 2023, approximately 100 individuals from each area were targeted for transplanting to other portions of the Construction Footprint that are unlikely to be disturbed in the future. Transplant sites were selected and plants were transplanted using the same method established in 2019 (see ECOSTEM 2020 for detailed methods).



**Photo 2-1: Elegant hawksbeard growing in the Main Camp, September 2023**



Map 2-1: Known elegant hawksbeard sites identified in the Project area up to 2022

## 2.2 PRIORITY PLANTS AND THEIR HABITATS

### 2.2.1 APPROACH

Actual Project effects on priority plants and their habitat were monitored by ground surveys and by using the mapping produced by other TEMP studies, including Terrestrial Habitat Clearing, Disturbance and Indirect Effects (TEMP, Section 2.1) and Wetland Function (Section 2.5). Ground surveys evaluated the state of known priority plant locations within the Project zone of influence. Mapping was used to evaluate effects on priority plant habitat. Actual effects on priority plants were previously evaluated for the construction phase (ECOSTEM 2022c). This evaluation will be repeated periodically during operation.

The parameters measured for each priority plant species are:

- The number of known locations affected by the Project; and,
- The locations and amounts of their habitat directly and indirectly affected by the Project.

This report provides results for the first parameter. The second parameter was evaluated at the end of the construction phase monitoring for direct Project effects. Indirect effects will be first evaluated in year five of operation as it takes several years for these to be manifested.

### 2.2.2 KNOWN PLANT LOCATIONS

The known priority plant locations include those available at the time that the EIS was completed as well as the locations identified since then. The additional locations were obtained from the pre-clearing rare plant surveys (ECOSTEM 2022c), and from incidental observations recorded during ground surveys for other terrestrial habitat and plant monitoring studies.

Construction phase monitoring for effects on the known priority plants began with a desktop determination of which of the known locations were within the Construction Footprint.

ECOSTEM (2022a) provides the Construction Footprint and the methods used to produce it. In brief, the Construction Footprint includes all areas where there was Project clearing or physical disturbance up to September 2021. The Construction Footprint includes both terrestrial and aquatic areas.

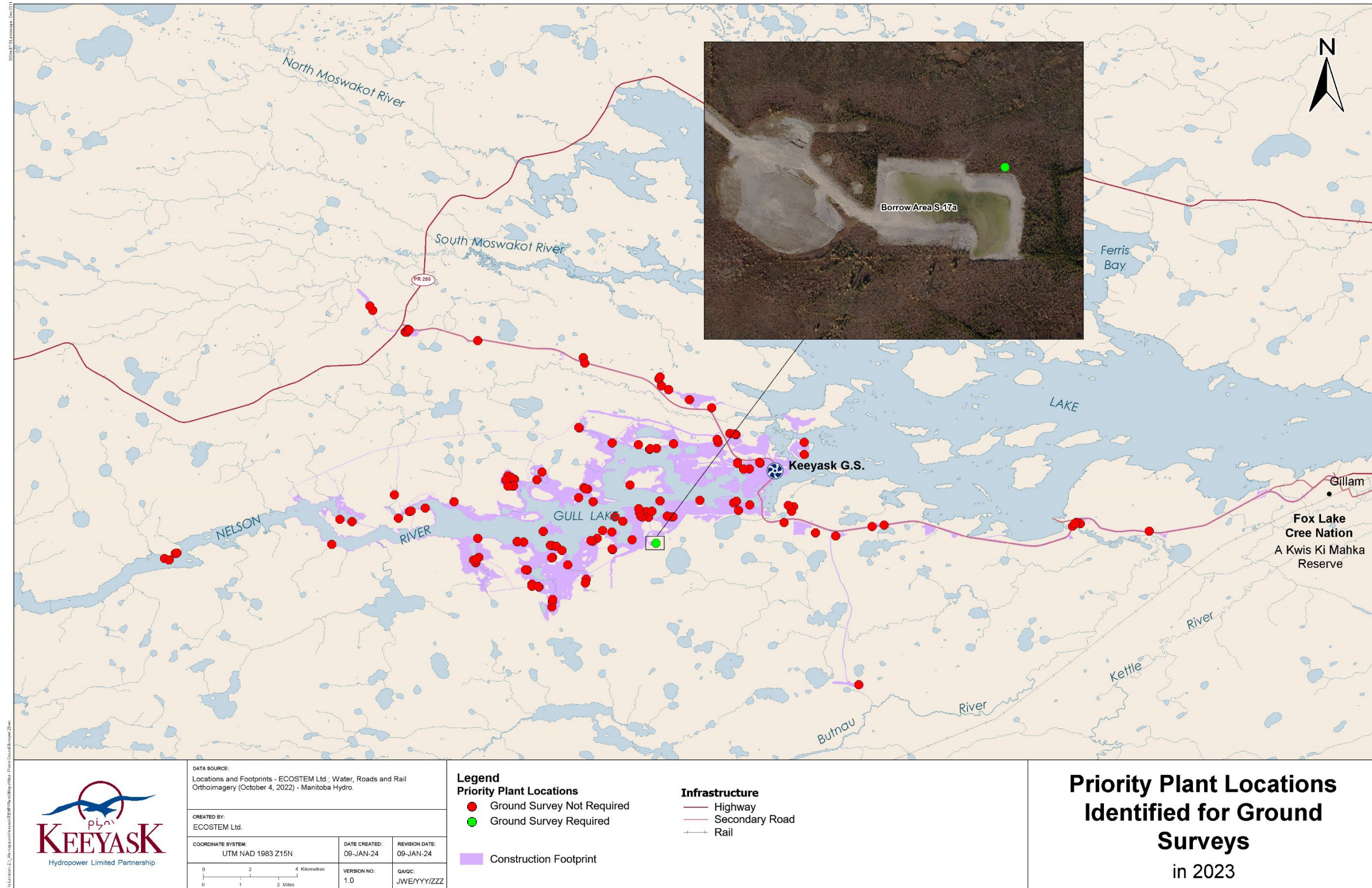
A comparison was then made of the number of EIS-predicted versus actual impacted priority plant locations. For some locations, this comparison was ambiguous due to the spatial precision of the data. The precision of the mapped Construction Footprint is within +/- 5 metres of the actual boundary. Additionally there is typically a ~3-5 metre positional error in GPS waypoints for a plant location. For this reason, ground surveys in 2023 were done to confirm that the locations within a



10m buffer of the mapped Construction Footprint had actually been impacted, and to document the nature of Project effects at each location.

Known priority plant locations selected for ground surveys in 2023 included provincially critically imperilled to vulnerable species that were determined by the desktop study to be within 10 metres of the mapped Construction Footprint. This included a single location for a provincially vulnerable plant (rock willow (*Salix vestita*); Map 2-2). The remaining known priority plant locations were 30 metres or more from the Construction Footprint. The status of these plant locations were discussed in a previous report (ECOSTEM 2022c).

New priority plant locations discovered while conducting fieldwork were recorded as incidental observations. Several priority plant locations were incidentally recorded during surveys in 2022 and reported on previously (ECOSTEM 2023). Incidental locations discovered in 2023 were combined with the 2022 locations for this report to provide a cumulative number of new locations.



Map 2-2: Priority plant locations identified for ground surveys in 2023

## 3.0 RESULTS

### 3.1 PROVINCIALY CRITICALLY IMPERILED TO IMPERILED PLANTS

#### 3.1.1 ELEGANT HAWKSBEARD SURVEYS

##### 3.1.1.1 TRANSPLANTED IN 2023

On September 9 and 10, 2023, 200 elegant hawksbeard plants growing in areas of the Main Camp and Start-up Camp where decommissioning and rehabilitation activities are planned were transplanted to five separate sites elsewhere within the Project area (Map 3-1; Photo 3-1). The plants were growing in similar coarse textured and gravelly substrates at both source sites. Transplant sites with similar substrates that are unlikely to be further disturbed were selected in an area east of the Main Camp, and in portions of Borrow Areas N-21, KM-4, KM-15 and KM-17 (Photo 3-2 to Photo 3-6).

A total of 30 elegant hawksbeard plants were moved to the site selected east of the Main Camp ring road that was cleared but not used during Project construction (Table 3-1; Photo 3-2). Most (24) of the plants transplanted to this site were moved from the Start-up Camp, while the rest came from the Main Camp.

**Table 3-1: Number of elegant hawksbeard plants transplanted in 2023 at transplanted sites**

Transplant site	Moved from Main Camp	Moved from Start-up Camp	Total plants transplanted
Borrow Area KM-15	30	26	56
Borrow Area KM-17	23	22	45
Borrow Area KM-4	20	29	49
Borrow Area N-21	20	0	20
East of Main Camp	6	24	30
Total number of plants	99	101	200

Twenty plants were transplanted to a site at the east end of Borrow Area N-21 (Photo 3-3). All 20 of the plants transplanted to this site came from the Main Camp.

The remaining three transplant sites in borrow areas along the North Access Road (NAR) each received between 45 and 56 plants. Each of these sites received a similar number of plants from both source areas (Table 3-1).

All transplant sites were marked with stakes, blue flagging tape and pin flags.

In addition to the plants that were transplanted, hundreds of plants were left undisturbed in each of the two source areas.



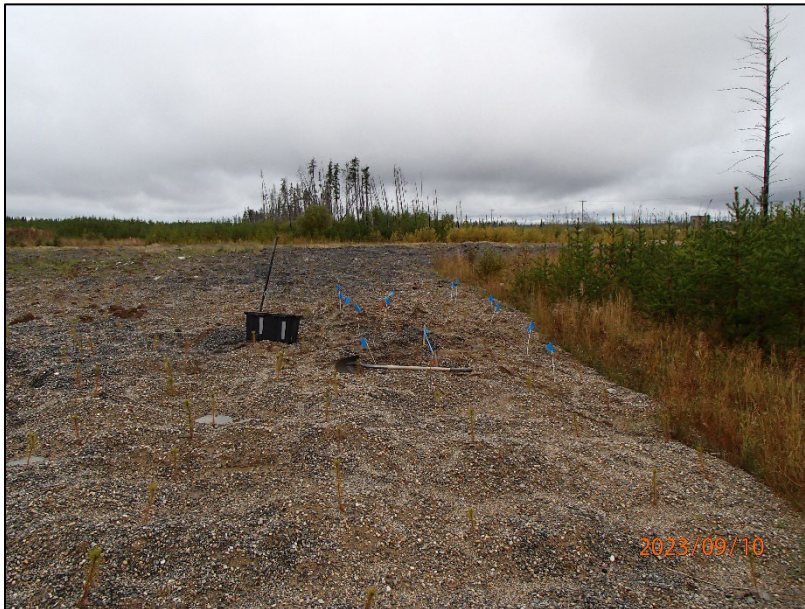
**Photo 3-1: Elegant hawksbeard plants being dug up for transplanting from Start-up Camp in 2023**



**Photo 3-2: Elegant hawksbeard transplant site on the east side of the Main Camp in 2023**



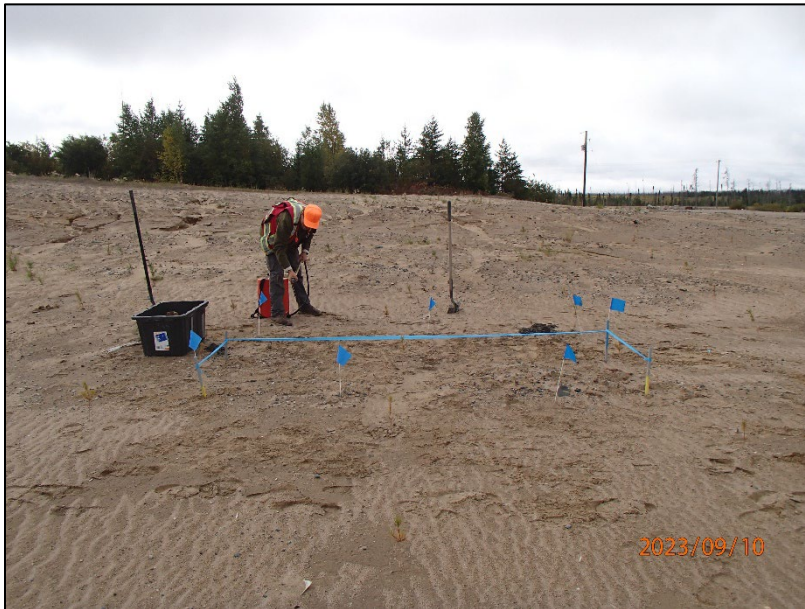
**Photo 3-3: Planting elegant hawkbeard transplants in Borrow Area N-21 in 2023**



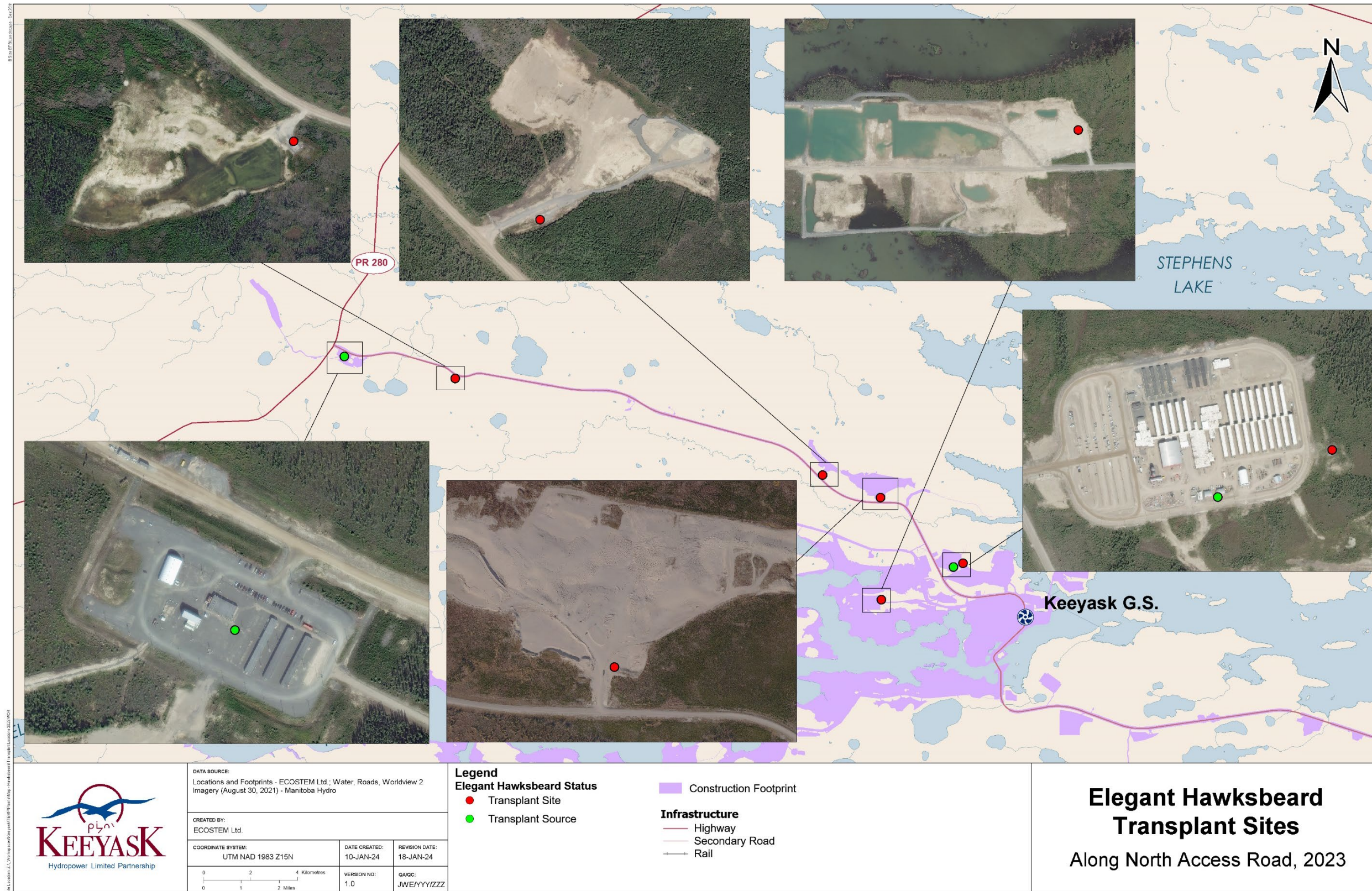
**Photo 3-4: Elegant hawkbeard transplant site in Borrow Area KM-4 in 2023**



**Photo 3-5: Watering elegant hawkbeard transplants in Borrow KM-15 in 2023**



**Photo 3-6: Elegant hawkbeard transplant site in Borrow Area KM-17 in 2023**



**Map 3-1: Elegant hawksbeard transplant sites for transplants done in September 2023**

### 3.1.1.2 OTHER ELEGANT HAWKSBEARD LOCATIONS

Map 3-2 shows the distribution of new elegant hawksbeard plant patches incidentally recorded during the 2023 surveys for other Project studies (Photo 3-7, Photo 3-8), as well as known locations from previous years.

Elegant hawksbeard was observed in eight different Footprint Components in 2023 (Table 3-2). New locations for the plant were found in Borrow Area KM-17, and at two locations along the South Access Road (SAR). A patch of plants in Borrow Area Q-9 that was found in 2022 had expanded to cover an area of approximately 1,916 m<sup>2</sup>. Single plants were observed at Work Areas B and C. The single plant found in KM-4 was at the 2019 transplant site.

**Table 3-2: Number of elegant hawksbeard locations<sup>1</sup> incidentally observed in 2023 by study**

<b>Footprint Component</b>	<b>Invasive Plant Surveys</b>	<b>Transplanting</b>	<b>Habitat Rehabilitation Surveys</b>	<b>Total Observed</b>
Borrow Area KM-4	0	1	0	1
Borrow Area KM-17	6	0	1	7
Borrow Area Q-9	1	0	0	1
Main Camp	35	0	0	35
Start-up Camp	0	3	0	3
South Access Road	1	0	1	2
Work Area B	1	0	0	1
Work Area C	1	0	0	1
<b>Total number of locations</b>	<b>45</b>	<b>4</b>	<b>2</b>	<b>51</b>

Notes: <sup>1</sup> A "location" may include a patch with multiple plants, or a single plant.

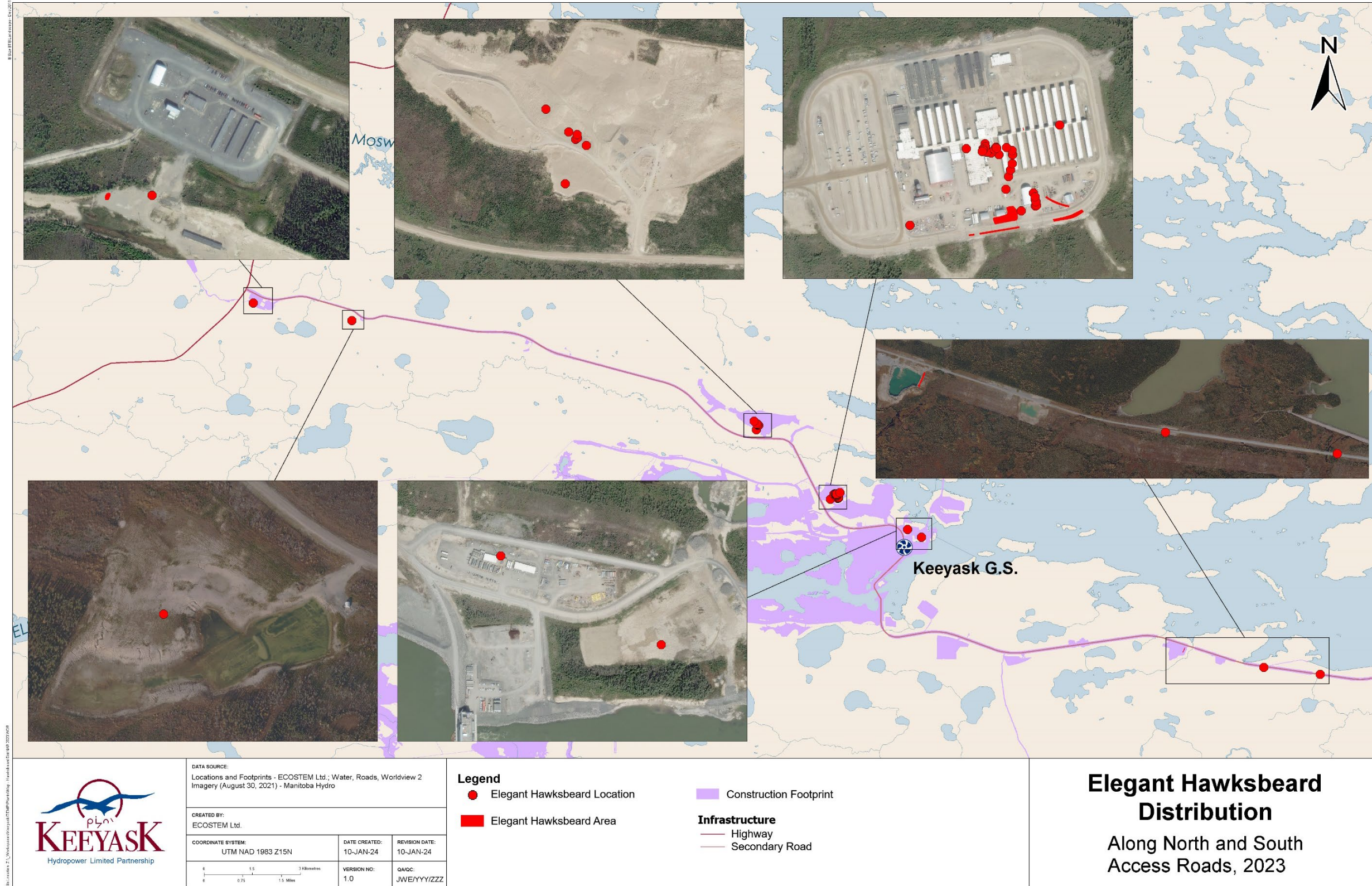




**Photo 3-7: Incidentally observed elegant hawkbeard plants in Work Area B, September 2023**



**Photo 3-8: Incidentally observed elegant hawkbeard in Borrow Area KM-17, September 2023**



**Map 3-2: Distribution of elegant hawksbeard plants incidentally recorded during late summer 2023 surveys, in the Construction Footprint**

## 3.2 PRIORITY PLANTS AND THEIR HABITATS

### 3.2.1 ROCK WILLOW

One location of rock willow (Photo 3-9), a provincially vulnerable (S3) species, was identified for ground survey in 2023 (Map 3-3). Rock willow was found to be abundant at this location and was a large component of the low shrub cover in the area (Photo 3-10).



**Photo 3-9: Rock willow, September 2023**



**Photo 3-10: Rock willow growing adjacent to Borrow Area S-17a, September 2023**

### **3.2.2 INCIDENTAL OBSERVATIONS**

New locations for one provincially critically imperiled to vulnerable species were incidentally recorded in or near the Construction Footprint during 2023 monitoring surveys. These included two locations for shrubby willow (*Salix arbusculoides*; Rank S2S3); Photo 3-11).

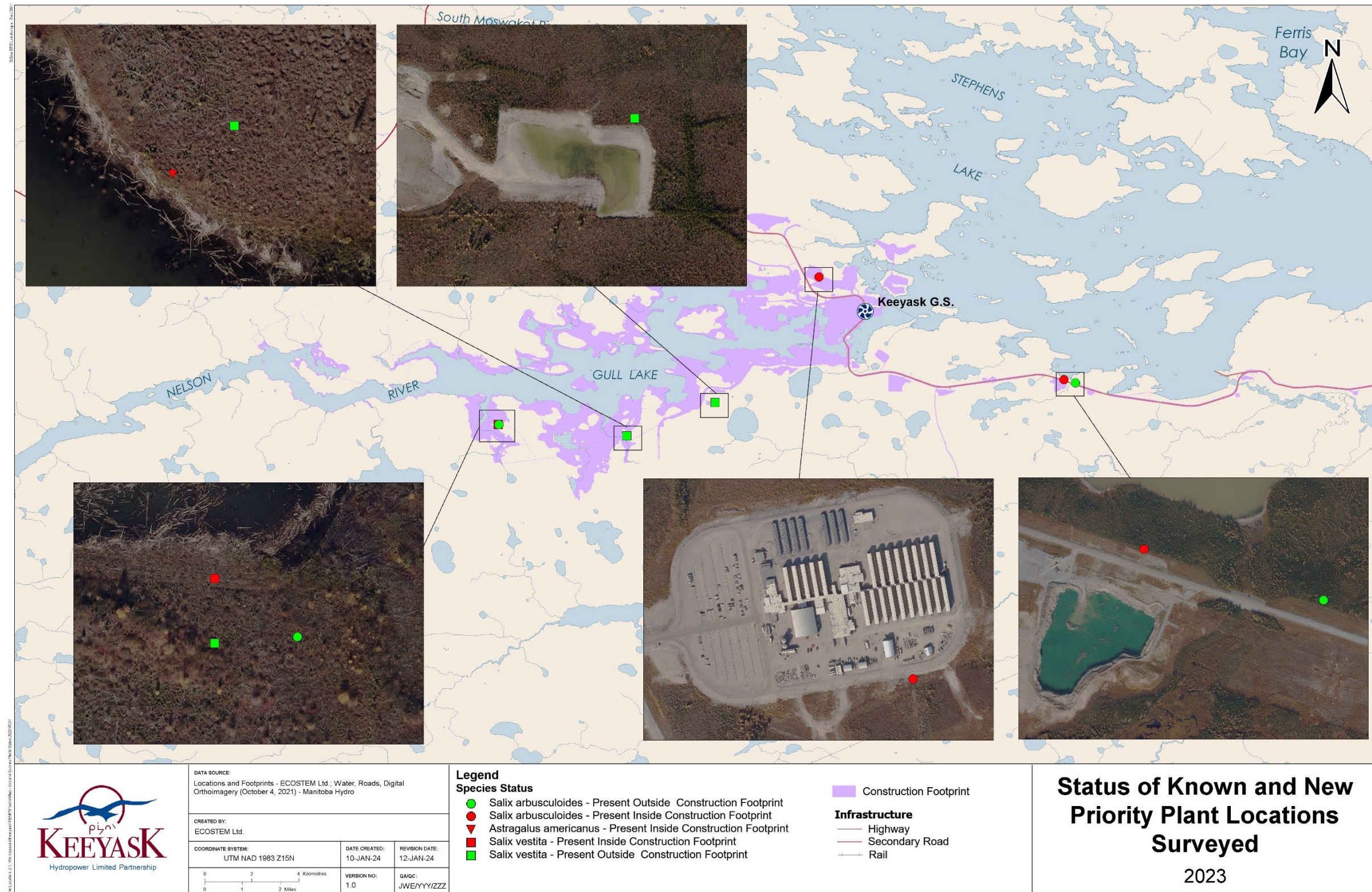
All the plants were living, and at one of the locations plants were growing both within the SAR ROW, and in the undisturbed adjacent forest (Table 3-3; Map 3-3). The other location was in a naturally regenerating area near the Main Camp.



**Photo 3-11: Shrubby willow growing near the reservoir shoreline in 2022**

**Table 3-3. Known priority plant locations for species with new locations in 2022 and 2023**

Species	Common Name	Reason(s) for Inclusion <sup>1</sup>	Number of Known Locations				
			Within the Licensed Project Footprint			Within Construction Footprint (i.e., locations actually impacted by Project)	Difference Between Actually Impacted and Predicted At Time of EIS
			At Time of EIS	Found After EIS	Total		
<i>Salix arbusculoides</i>	shrubby willow	CI-V; RL	9	4	13	6	-3
<i>Salix vestita</i>	rock willow	CI-V; RL	7	4	11	3	-4
All			16	8	24	9	-7



Map 3-3: Status of known priority plant locations ground surveyed, and new locations identified in 2022 and 2023

## 4.0 DISCUSSION

### 4.1 PROVINCIALY CRITICALLY IMPERILED TO IMPERILED PLANTS

Surveys at the beginning of the Operation period mapped the spread of elegant hawksbeard, a critically imperiled species, within the Construction Footprint. Surveys from 2018 to 2022 found that the number of individuals was increasing annually and the plant was becoming well established in certain areas and had spread to other parts of the Construction Footprint without intervention. By 2023, elegant hawksbeard had continued to naturally spread to additional areas.

These plants had naturally established on Project-disturbed substrates. All of these plants were found on coarse mineral substrates in highly disturbed sites in Project borrow, work, and camp areas.

Finding elegant hawksbeard in Project areas was not surprising. Under natural conditions, this species is typically found growing on recently disturbed, coarse substrates such as stream banks, gravelly flats, sandbars and roadsides (FNA 2023). Additionally, it is known that this species can establish in human-disturbed sites as it was previously found on disturbed bare gravel and mineral sites in the Project region and in the Wuskwatim Generation Project footprint (ECOSTEM 2017b). All of the elegant hawksbeard sites found in the Project region prior to Project construction were along Highways 280 and 290, which are continually disturbed environments. In the Wuskwatim Generation Project footprint, elegant hawksbeard was found on disturbed bare gravel and mineral sites, and was becoming widespread in some areas.

The goal of the transplanting program is to conserve the local populations by providing an additional seed source for the nearby seedbank and by facilitating seed dispersal into other areas. A previous transplanting program for this Project found that plants transplanted in 2019 to other areas from the Start-up Camp and Borrow Area B-6 had a high initial survival rate (ECOSTEM 2021). While none of the transplanted plants had survived more than 2 years after transplanting, several new vegetative seedlings were growing at some of the transplant sites by 2022 (ECOSTEM 2023). This was consistent with findings by Legge (1971). It was also noted that the environmental conditions at some of the sites had changed, potentially creating unsuitable conditions for survival.

The findings from this monitoring and those from the Wuskwatim Generation Project monitoring provide evidence to indicate that elegant hawksbeard can continue to colonize exposed, coarse mineral substrates that are no longer being used by the Project. The continued natural spread of elegant hawksbeard into new areas, in combination with the success of the first transplanting program, suggests that the plant is relatively secure within the Construction Footprint.



As elegant hawksbeard is an S1 species and it remains uncertain if new plants will continue to thrive at the transplant sites, it is recommended that disturbance of all the known locations outside the site preparation areas be avoided or minimized, where possible. It is recommended that the 2023 transplants be monitored in order to establish whether the transplanting was successful. Wherever feasible, it is recommended some elegant hawksbeard plants be avoided or protected in the Main Camp and Start-up Camp to act as a seed source after site preparation is complete.

## 4.2 PRIORITY PLANT LOCATIONS

The abundance of rock willow at the known location visited in 2023, along with additional locations found for another possibly imperiled species, shrubby willow, in 2022 (ECOSTEM 2023) and 2023, suggested that those species are not as scarce in the Project area as suggested by their provincial conservation concern ranking. The new locations for shrubby willow found in areas cleared for the Project suggested that this species is capable of re-colonizing naturally regenerating portions of the Construction Footprint.

## 5.0 SUMMARY AND CONCLUSIONS

### 5.1 PROVINCIALY CRITICALLY IMPERILED TO IMPERILED PLANTS

Elegant hawksbeard is a critically imperiled plant in Manitoba. Rare plant surveys identified the plant in the Construction footprint in 2018, and annual surveys to 2022 found that elegant hawksbeard plants have been establishing and spreading at different disturbed areas in the Construction Footprint. A successful transplanting program was carried out in 2019 to move elegant hawksbeard plants from the Start-up Camp and Borrow Area B-6 where decommissioning and further construction activities were planned, to other areas that were at low risk for disturbance. At several of the transplant sites, new plants began to establish by seed from transplanted plants by 2022. The Start-up Camp and Main Camp, which each support the largest populations of elegant hawksbeard in the Construction Footprint as of 2023 are being decommissioned and prepared for planting, and it is unlikely the elegant hawksbeard plants could be avoided.

Priority plant monitoring surveys in 2023 focused on transplanting elegant hawksbeard plants from the Start-up Camp and the Main Camp to new areas that are unlikely to be disturbed.

A total of 200 plants were transplanted from the Start-up Camp and Main Camp to five different sites in the Construction Footprint that were already rehabilitated, or naturally regenerating and unlikely to be further disturbed. The transplant sites were marked by GPS and with stakes, blue flagging tape and blue pin flags.

Elegant hawksbeard was incidentally recorded at several new locations during surveys in 2023. New locations were found in Borrow Area KM-17 and along the SAR. Plants were also observed to be spreading at other previously known locations in the Construction Footprint.

Overall, elegant hawksbeard is doing well in the Project area. The number of known plants has been increasing annually and this species was found at several new locations in 2023.

It is recommended that disturbance of the known elegant hawksbeard locations be avoided or minimized, where possible. Preserving these plants helps maintain local populations of a species that is critically imperiled in Manitoba by providing a seed source for the local seedbank and for dispersal to other areas. It is recommended that plants transplanted from the Start-up Camp and Main Camp continue to be monitored. Elegant hawksbeard will continue to be incidentally recorded during other monitoring surveys, and the status of the plant will continue to be monitored to determine if any further mitigation is needed in the future.

## 5.2 PRIORITY PLANTS AND THEIR HABITATS

A previous annual report determined that Project effects on priority plants were lower than assumed in the EIS (ECOSTEM 2022a). This report also found that impacts on a single priority plant location for rock willow, a provincially vulnerable species, was ambiguous as this location fell within the spatial uncertainty of the data (i.e., +/- 10 metres). This location was identified for a ground survey to determine its status. A ground survey in 2023 confirmed that the plant was still present, and was abundant in the area.

Monitoring for other TEMP studies incidentally identified two new priority plant locations for shrubby willow, a possibly imperiled species. Plants were found within the Construction Footprint at both locations. Additional known locations within and outside of the Construction Footprint increases the confidence that Project effects on these species were lower than assumed in the EIS.

The next monitoring for priority plants other than elegant hawksbeard will occur in 2026.

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