Southern Lakes Wire Recovery Project 2016
Final report for the Yukon Fish and Wildlife Enhancement Trust

Prepared for the Carcross Tagish Renewable Resources Council

By: Wesley Barrett, Field Operations, Heritage, Lands & Natural Resources Department, C/TFN; Jennifer Herkes, Lead researcher, Two Crow Consulting

Background

The gold rush of the late 1890s brought thousands of people to the Yukon, and with them, the need for communication. The Yukon Telegraph line was constructed between 1899 and 1901, resulting in 1700 kilometres of telegraph wire strung between Quesnel BC and Dawson City Yukon. Initially the telegraph line connected in Bennett, BC to the White Pass Yukon Railway (WPYR) Telegraph Line. The lines diverged at Caribou Crossing, with the Yukon Telegraph going east to Tagish, and the WPYR following the rail line north to Whitehorse. Later, a line was built to connect the boomtown of Conrad City to the telegraph. The lines operated until 1936 as wireless technologies improved. It is estimated that there was approximately 225 km of wire in the Carcross/Tagish area from the BC border to McCrae (Figure 1).

Figure 1: Map of Estimated Telegraph Wire Locations

Since falling into disuse, the wire has fallen to the ground, grown into trees, and in many cases has created hazards to the wildlife and land users of the area. Over the years there have been documented cases of ungulate mortalities caused by the wire (CTRRC 2016). Over time, as poles continue to deteriorate, more wire will end up on the ground, creating dangerous situations to wildlife.

There have been projects in the past that have focused on the removal of nuisance and dangerous wire including wire fencing and telegraph wire. The Southern Lakes Wire recovery Project in 2015 began to focus more closely on Telegraph wire in the southern Lakes area. The 2016 Southern Lakes Wire Recovery Project, funded by the Yukon Fish and Wildlife Enhancement Trust, built upon past work, and moved forward with wire clean-up.

Goals and Objectives

The C/TFN Final Agreement identifies a responsibility for monitoring, protecting and managing all C/TFN lands, habitats, fish, wildlife and culture for present and future generations. Section 16.1.1.1 states: "to ensure the Conservation and management of all Fish and wildlife resources and their habitats".

The objective of this project was to build upon work completed in 2015. To continue with identification, mapping, and removal of abandoned wire in the Southern Lakes area.

Specific goals included:

- Complete removal of wire at Conrad
- Assess and remove wire at Marsh Lake
- Remove wire along White Pass right of way
- Develop a 5-year plan to complete wire recovery in the Southern Lakes area

Expected benefits of the project are to remove abandoned telegraph wire, removing hazards and mortality risk to moose and caribou and restore the wildlife habitat.

Indirect benefits of the project are increased public education concerning habitat restoration; strengthened relationships between CTFN and the CTRRC as well as White Pass.

Project Activities

- Meetings with CTFN to plan and coordinate the project
- Wire removal coincided with Carcross to Tagish Trail assessment; archaeologists shared location information when possible
- Collaboration with heritage trail project for identification of wire along the south side of Nares and Tagish Lake
- Proposal submitted to Yukon Youth Conservation Corps (Y2C2) for wire retrieval project.
- Contract with Ralph James, a C/TFN citizen with previous experience with wire removal projects. Six weeks of work completed.
- Contracts between C/TFN and Y2C2 for two weeks on participation on the project
- Contract with Cole Coward, forest fire crew member, for two weeks of work on the project
- Assessed, mapped, and removed wire from both sides of Windy Arm and portions of Nares Lake. A total of approximately 26 km of wire was removed.
- Y2C2 removed wired from the southeast portion of Windy Arm and the north part of Windy Arm and Sucker Bay towards Tagish Lake.

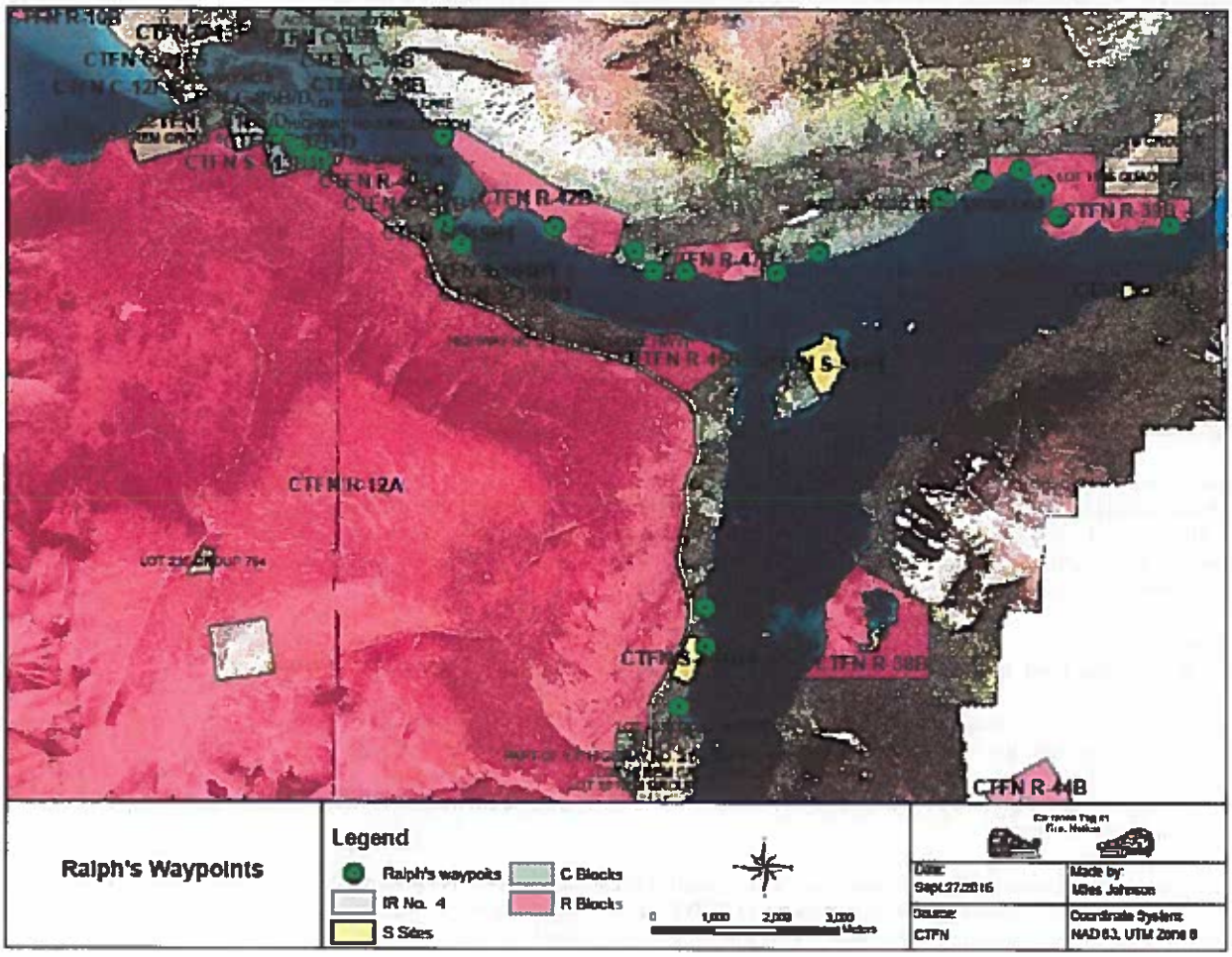

Figure 2: Mapped Waypoints of Work Completed in the 2016 Season

Contribution to goals and objectives
The work completed by Ralph James, Cole Coward, and Y2C2 accomplished the goals of removing the wire at Conrad, as well as identifying and removing large tracts of wire along Marsh and Nares Lake (Figure 2). The wire at the Conrad site was completely removed and a 6km section was removed from Conrad to the north towards Carcross. Another 4.5 km of wire was removed starting from the Bridge and heading east/southeast towards Conrad. A 6 km section is estimated to be remaining between to the two collection areas. On the north side, wire was removed from Bledys Point all the way to Ten Mile (covering 16 km). There was one section where the crew was unable to find the wire despite making efforts to locate it.

Continuation of the project, with active recording and removal of wire for a second consecutive year, has provided information to inform the development of a feasible 5-year plan to complete the removal of the remaining estimated 180 kilometres of telegraph wire.

Variances in goals, objectives, and work plan
Changes within C/TFN Heritage Lands and Natural Resources department, and Government priorities, resulted in a lack of follow-up with the goals associated with the White Pass RoW. As a result, no wire was assessed or recovered along the White Pass RoW. Communications with White Pass were not successful this year. There is room for improvement on this deliverable.

Contribution to protection, enhancement, and/or restoration of wildlife habitat
The project has resulted in the removal of an additional 26 km of wire from Conrad, Windy Arm, and Tagish Lake. It has also provided information to location of remaining wire, and development of a 5-year plan for complete removal. The benefit to removal is the reduced hazard to wildlife populations, particularly ungulates. Furthermore, removal allows for restoration of the environment.

Lessons Learned
This season's progress was good, however, there is room for improvement and to build on successes.

The crews spent a lot of time searching for the location of the wire in some places. To date, most of the information about wire locations has been through informal references and recording. It would be more productive to have a smaller (2 person) crew sourcing and recording the location of the wire, then have a larger crew (3 person) doing actual wire removal. It will allow for faster removal, in some areas, it may allow for removal of wire through the winter.

Communicating and working with White Pass has proven to be a challenge over the years. It is also a part of a political relationship between Carcross/Tagish First Nation and WPYR. If the project intends to work to clear the wire along the WPYR route, communication should start early and be maintained in order to increase opportunities for success.

The amount of wire removed was restricted only by time. It is recommended to keep key personnel employed longer to take advantage of the knowledge for the project. Hire a full-time student/helper to ensure the work continues without disruption between crews (Y2C2 and Wildfire). Working with the Y2C2 was great this season. This is a success that the project should build on.

To date there has not been any recorded communication with the Heritage Branch. Building a relationship here will allow sharing of the location and any possible related structures (poles, cabins, etc) with the Heritage Branch, and the Heritage Branch could provide more information about the location of the wire.

The crew used GPS units to track where the telegraph line was located and recovered. The quality and accuracy of the software meant that the GPS often recorded their efforts as being in the middle of the lake, rather than inland. This is a challenge when using the GPS to try to locate any wire remnants. It is recommended to invest in better, more accurate, background maps on the GPS units.

This season, the wire removal started in mid-summer. At this point, the water is getting to be high in the lakes and adds challenges to locating the wire, especially if it has fallen into the lake. It is recommended to start removal in early spring when the water is lower.

Communication

- Briefings at HLNR, LMB, and CTRRC meetings
- Advertising and communication via C/TFN website
- Information sharing with Y2C2 about the project
- Final Report for addition to Yukon Fish and Wildlife Enhancement Trust sites
- Community Meetings held by C/TFN HLNR for project updates

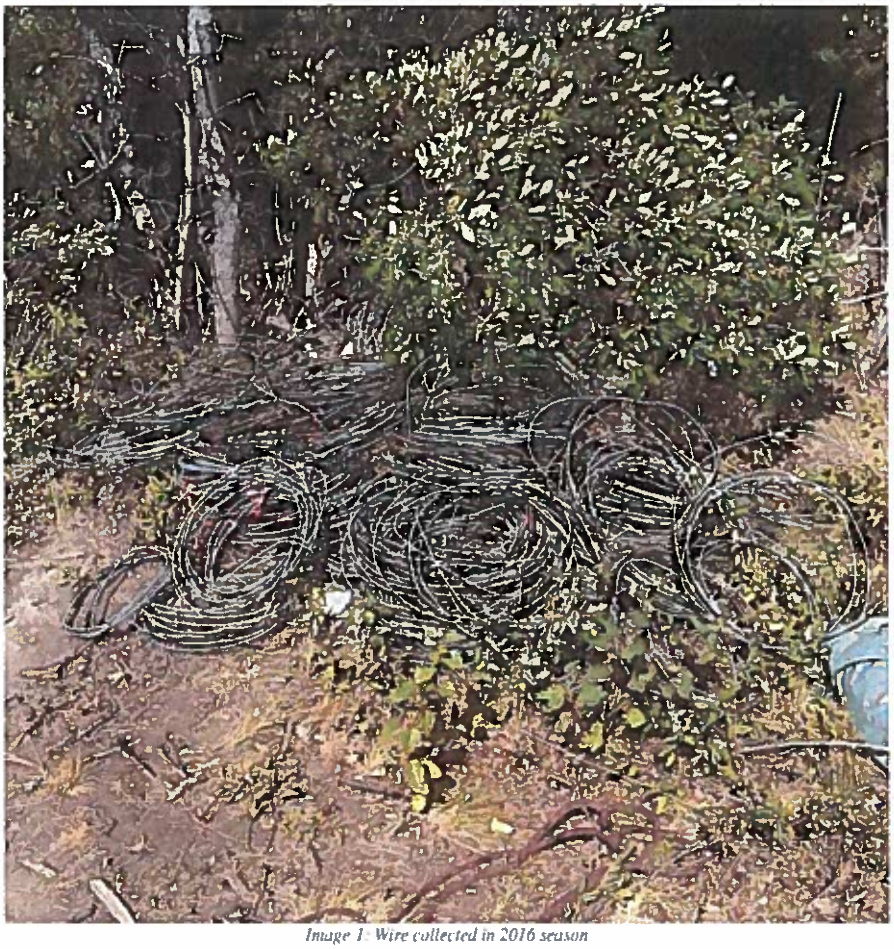

Image 1: Wire collected in 2016 season

Image 2: Wire collected in 2016 season

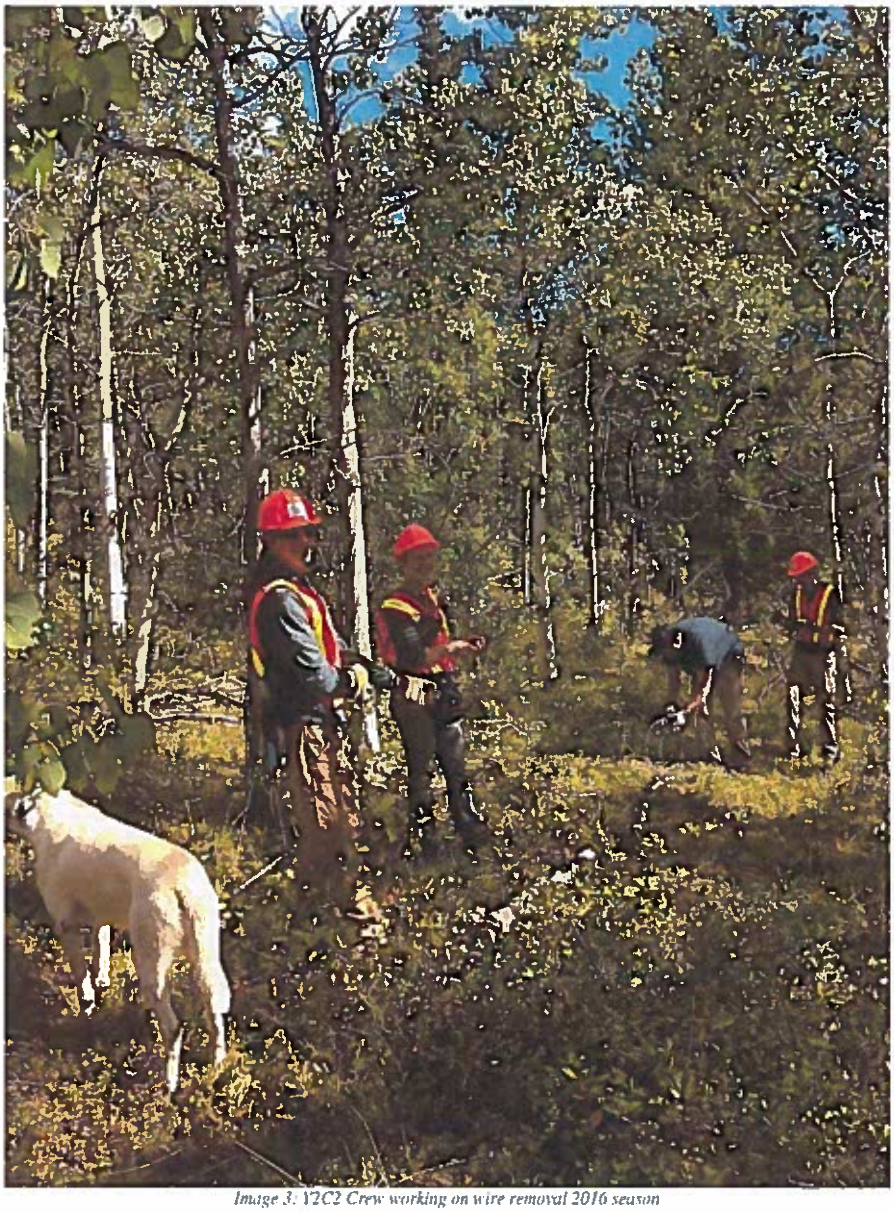

Image 3: V2C2 Crew working on wire removal 2016 season

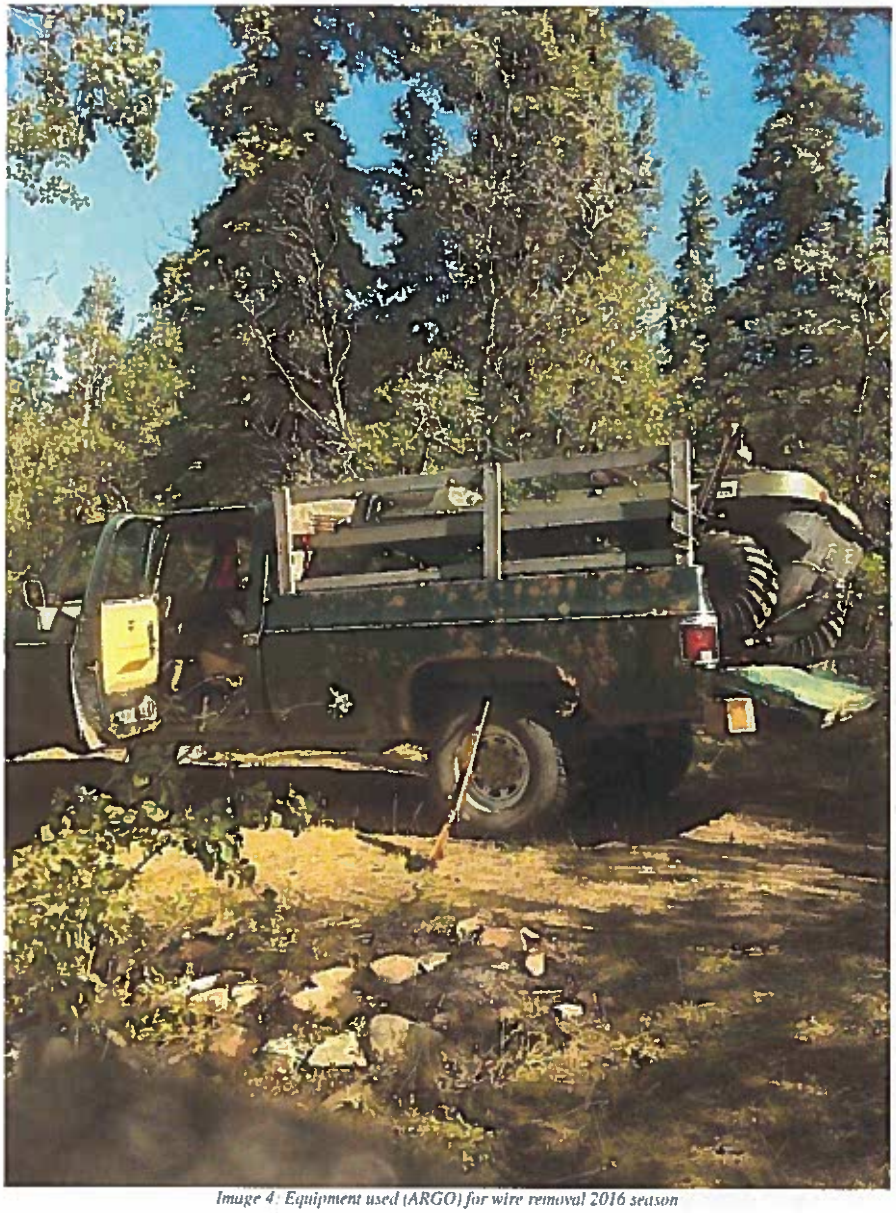

Image 4: Equipment used (ARGO) for wire removal 2016 season

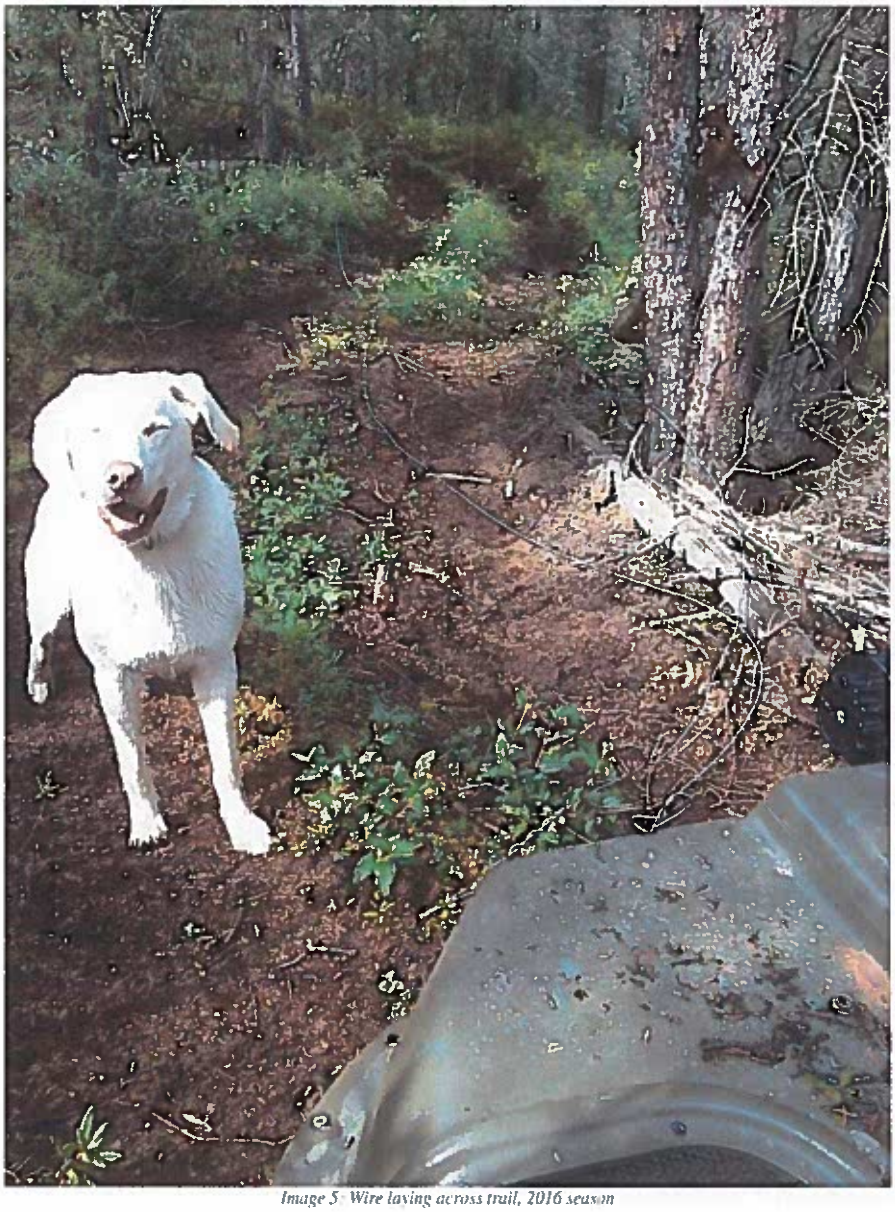

Image 5: Wire laying across trail, 2016 season

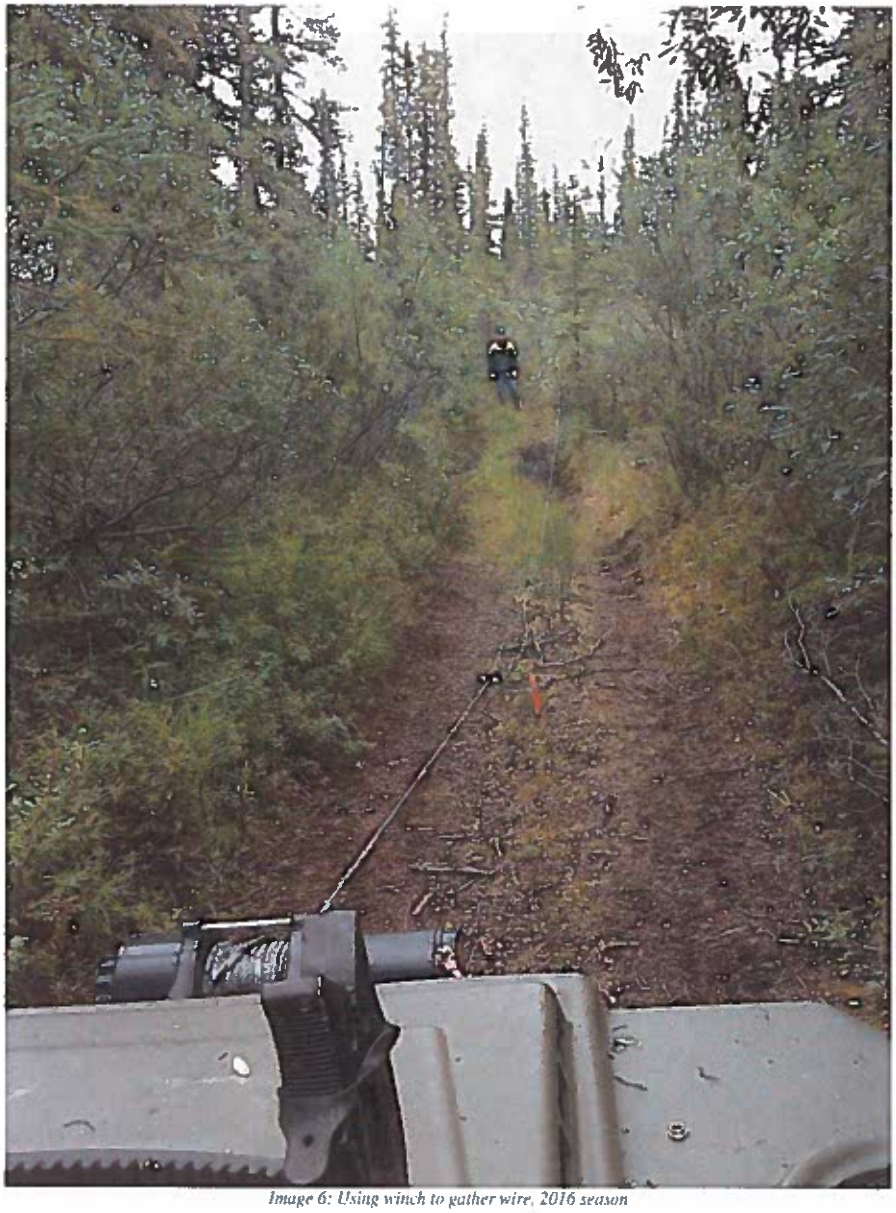

Image 6: Using winch to gather wire, 2016 season

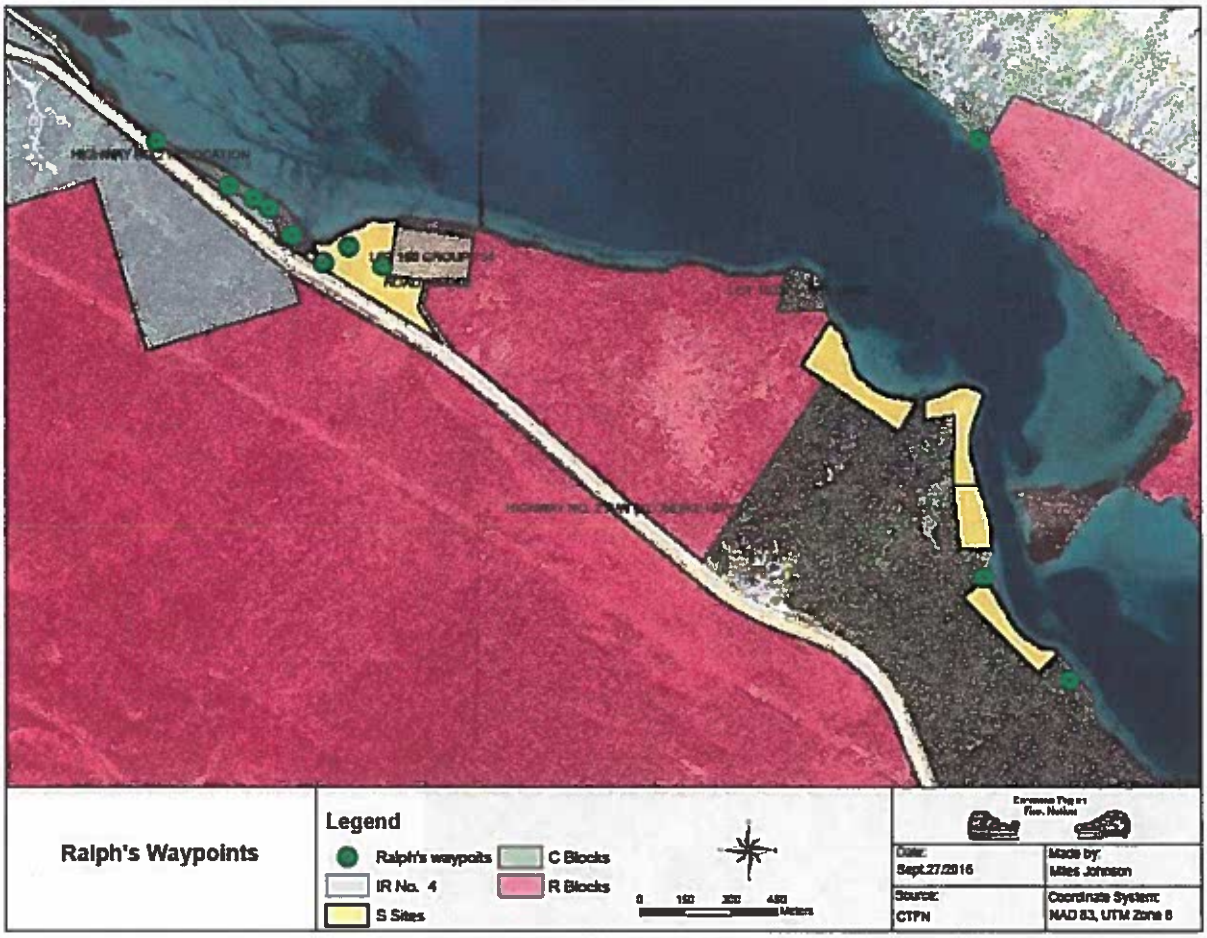

Figure 3: Waypoints for Wire Removal of Conrad Telegraph 2016

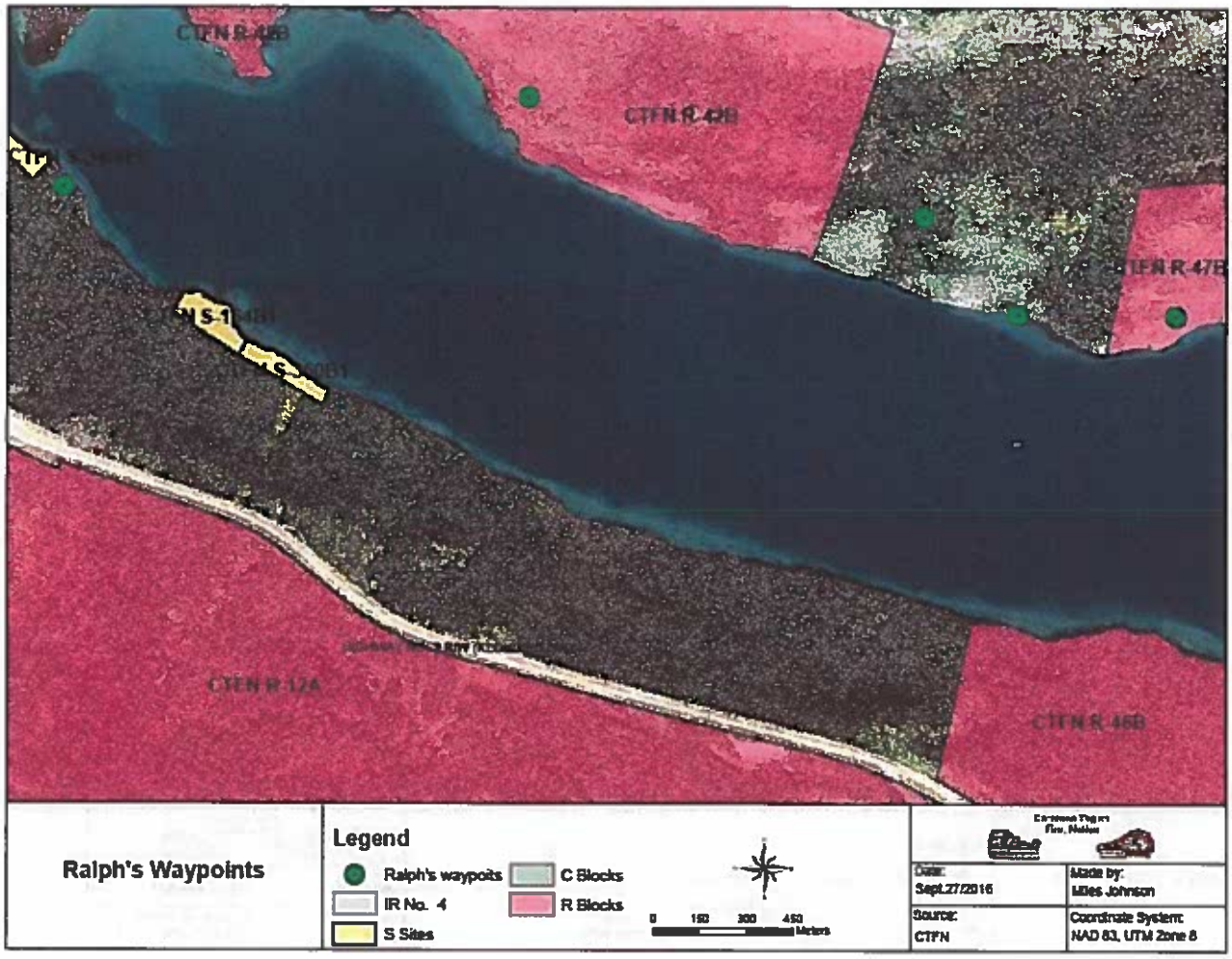

Figure 4: Waypoints for Wire Removal on Tagish Lake

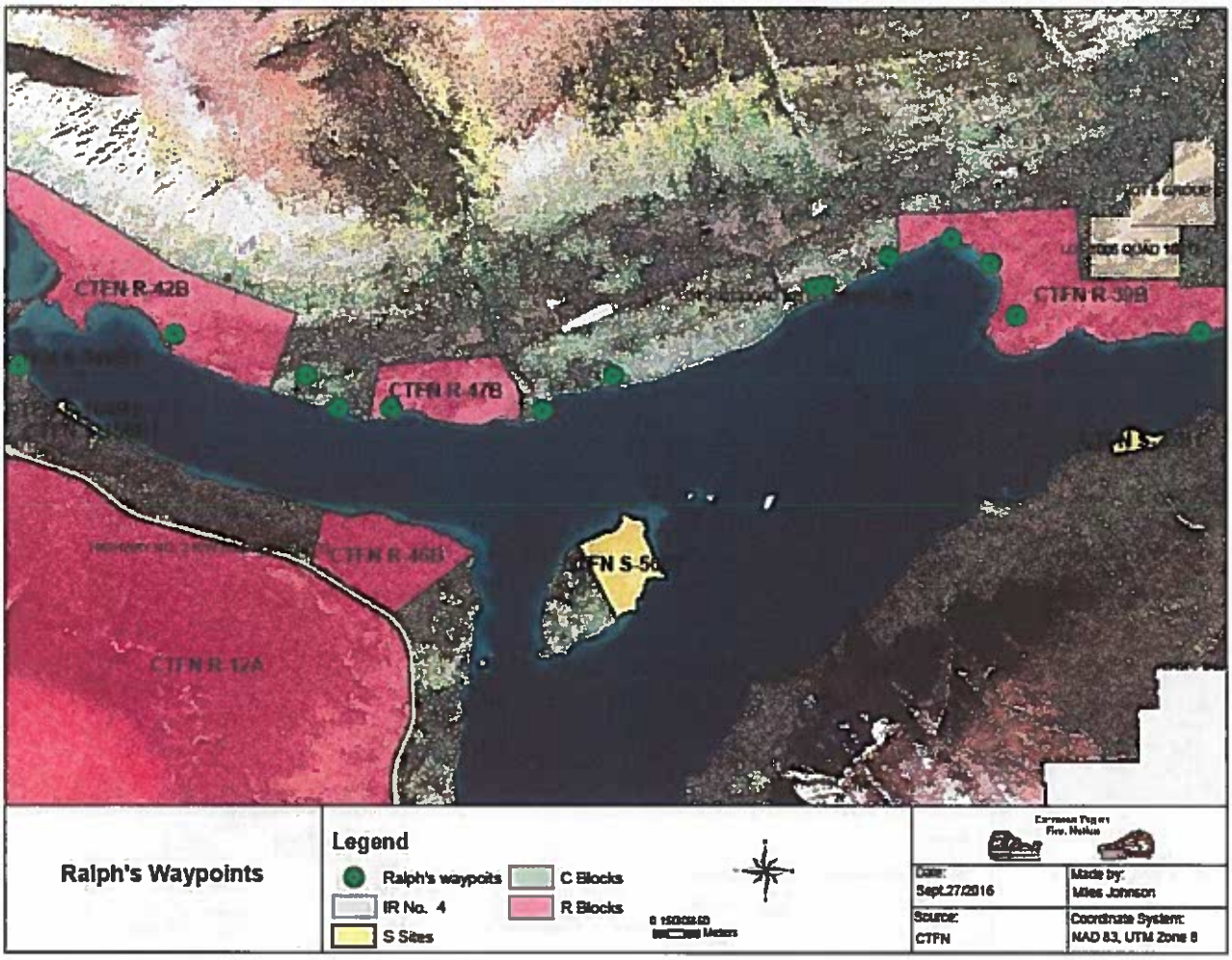

Figure 5. Waypoints of Wire Removal on Tagish Lake

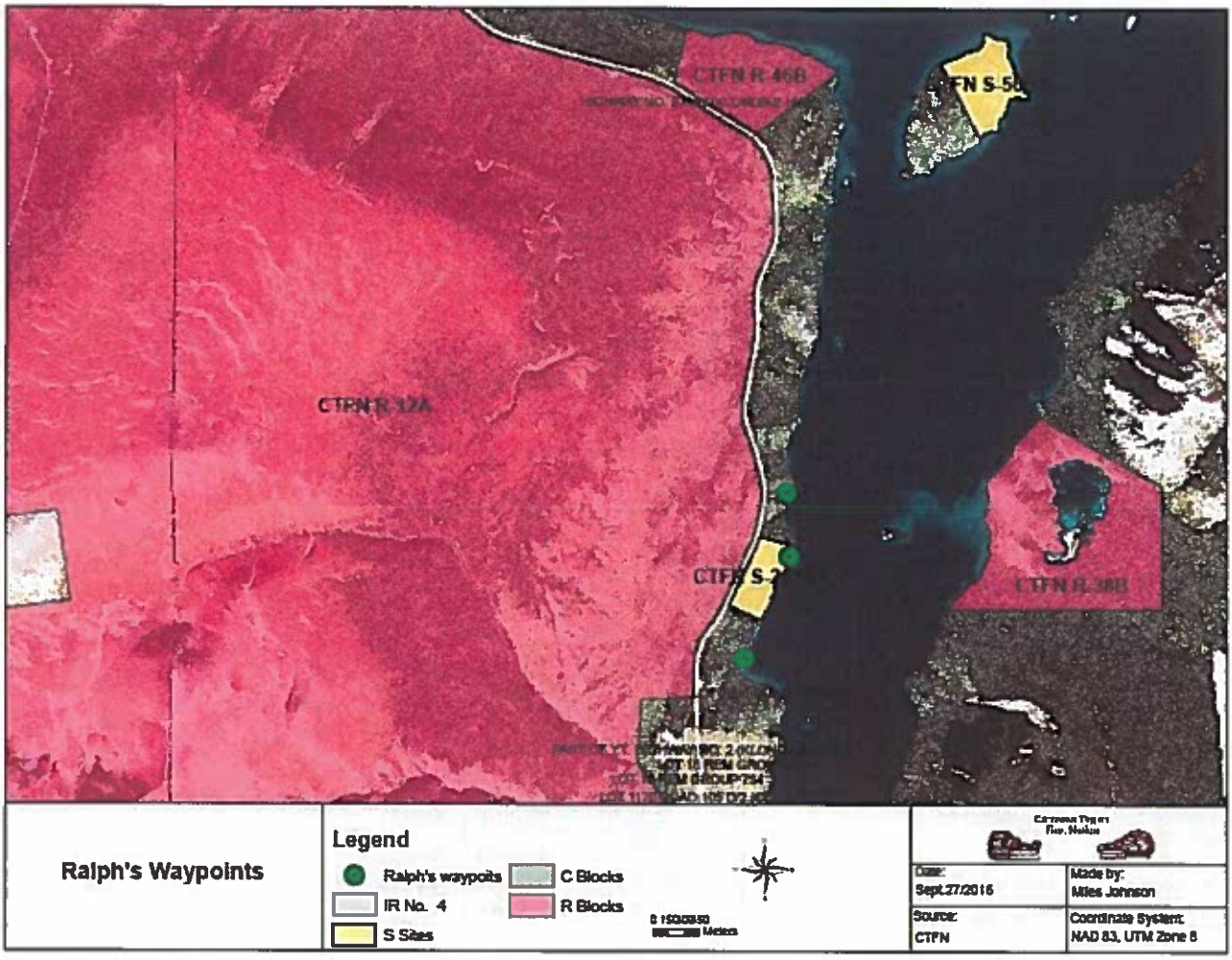

Figure 6: Waypoints of Wire Removal, Conrad Telegraph

Financials

Table 1: Proposed Initial Budget

Expenditure Categories		Budget Item	Projected Cost	Other Funding Source(s) (Potential or Confirmed) (In Kind or Monetary)	Funds Requested from Trust
1.Capital Expenses *(equipment, machinery)*		None	None	None	None
2. Wages, Contract Services		1.Honoraria/contracts 2.Project Management	$18000 $1000	$1000 CTRRC in kind $1000 CTFN in kind	$18000
3. Office & Administrative Expenses *(telephone, printing, postage)*		Admin	$1000	$1000 CTRRC in kind $1000 CTFN in kind	None
4. Travel Expenses *(Accommodation, food, transportation)*		1.vehicle rental 2.Fuel	$2000 $500		$2000 $500
5. Materials & Supplies		Equipment rental	$3500		$3500
6. Facility Expenses		1.Meetings	$750	$750 CTRRC/CTFN in kind	None
7. Other		Advertising/Press Releases	$1000		$1000

Expenditure Category	Item	Projected Cost	Actual Cost	Receipts Included
1.Capital Expenses *(equipment, machinery)*	None	None	None	N/A
2. Wages, Contract Services	1.Honoraria/contracts	$18,000	$11,950	Yes
			$4,939.40	Yes (GL)
	2. Project Management	$1,000	CTFN in-kind	N/A
3. Office & Administrative Expenses (telephone, printing, postage)	Field Mapping	$1,000	CTFN in-kind	N/A
4. Travel Expenses *(accommodation, food, transportation)*	1. Vehicle Rental	$2,000	$500.00	Yes (GL)
	2. Fuel	$500	$466.43	Yes (GL)
5. Materials & Supplies	Equipment Rental	$3,500	$1167.99	Yes (GL)
6. Facility Expenses	Meetings	$750	CTFRC in-kind	N/A
7. Other	Advertising and Press Release	$1,000		
	Totals	$27,750	$19,023.82	

Supporting Documents:

1. Wire Labourer Contract
2. Contractor invoice
3. GL line entries (spreadsheet)
4. Y2C2 Proposal

Telegraph Wire Labourer

- 6 week hire (13 weeks hiring policy)
- Wage: level 4, 5th increment $24.60/hr
- reports directly to the Natural Resources Manager

The Heritage, Lands and Natural Resources department, in conjunction with the Carcross/Tagish Renewable Resources Council, has acquired funding from the Fish and Wildlife Enhancement Trust Fund for the removal of telegraph wire within CTFN's traditional territory.

This is a temporary position for 6 weeks during the summer of 2016. The Labourer will be required to guide and assist the Y2C2 crews the week of July 11-15 and August 8-12, 2016. Additionally, the Labourer will work with a contractor that is to be hired for the Work Planning requirement under the Contribution Agreement. The Labourer will identify downed wire around Carcross and Tagish and will guide the contractor to locations. At times, the Labourer may be required to accompany the contractor or CTFN employees to citizens' home in order to gather community comments.

The Labourer will also be responsible for providing the Land Management Board and the Carcross/Tagish Renewable Resources Council will updates on the work done with Y2C2 and the overall progress of the project. The incumbent will also work with the Heritage branch in identifying telegraph wire and safe removal during the Heritage Trail restoration at 10 Mile.

Job Description:

- locate downed telegraph wire in and around Carcross and Tagish
- GPS wire locations
- assess requirements for removal including but not limited to access to locations (ie. ATV, boats, on foot), tools needed, and identify other needs to safe removal
- work with and/or guide youth groups or other organizations to wire locations
- keep daily records of the locations worked or scouted
- updating the Land Management Board and the Carcross/Tagish Renewable Resources Council regularly on the progression of the project
- work with external contractor
- ensure that hazardous wire is removed if possible or visibly flagged for later removal
- educate Y2C2 crews about CTFN history, impact of wire on the land, and need to rehabilitate natural resources by removing wire

Requirements:

- ability and comfort working in a wilderness environment
- ability to work with a contractor and to convey traditional and local uses of the land
- knowledge of Carcross/Tagish First Nation traditional territory and land base
- ability to use or willingness to learn how to use a GPS

Figure 7: Wire Labourer Contract

March 2, 2017 **Invoice No. 1**

To
Carcross Tagish First Nation
PO Box 130
Carcross, YK Y0B 1B0

Attention To
Tamara Grantham

Activity	Time	Rate	Cost
Interim report			
Gather info from CTFN	10	100	1000
Mapping	10	75	750
Report of activities completed	20	100	1000
Five year Plan			
History	40	100	4000
Mapping	16	75	1200
Develop plan	40	100	4000
		Total	11950

Due upon receipt

Thank you for your business!

Jennifer Herkes

Tel 250.552.4817

305 Killoren Cres
Prince George, BC
V2M 6J8

jenherkes@gmail.com

Figure 8: Contractor Invoice

Expense costings of the wire pick up				
2016-2017				
Account Code 712				
Page	GL Code	Description	Date	Amount
87	712-5800	Reimbursements (Equipment rental)	08-02-16	167.99
88	712-6130	Vehicle rental	08-23-16	$500.00
88	712-6430	Equipment Rental	07-26-16	$250.00
88	712-6440	Fuel	07-12-16	$72.18
		Fuel	07-22-16	$95.04
		Fuel	07-29-16	$76.00
		Fuel	08-05-16	$76.19
		Fuel	08-10-16	$89.88
		Fuel	08-16-16	$57.14
90	712-6550	Material and Supplies (Equipment Rental)	08-08-16	$750.00
108	712-6890	Wage Benefits	07-29-16	$21.85
109		Wage Benefits	08-12-16	$19.42
		Wage Benefits	08-26-16	$19.42
110	712-6895	Wage Benefits CPP	07-29-16	$74.90
111		Wage Benefits CPP	08-12-16	$65.87
112		Wage Benefits CPP	07-29-16	$43.24
113		Wage Benefits CPP	08-19-16	$92.96
113		Wage Benefits CPP	08-26-16	$38.43
117	712-6900	Wages	07-29-16	$92.99
117		Wages	07-29-16	$1,549.80
118		Wages	08-12-16	$82.66
118		Wages	08-12-16	$1,377.60
118		Wages	08-26-16	$82.66
118		Wages	08-26-16	$1,377.60
			Total	$7,073.82

Table 2. General Ledger Entries Related to Project

Yukon Youth Conservation Corps (Y2C2) Project Proposal

Tell us about you:

Name of Organization: Carcross Tagish First Nation & Carcross Tagish Renewable Resources Council
Contact Person(s): Natalie Leclerc & Randy Taylor Title: Natural Resource Manager & CTRRC
Address: BOX 130
Community: Carcross Postal Code: Y0B 1B0
Telephone: (day) [illegible] (evening) [illegible] Fax: [illegible]
E-mail: natalie.leclerc@ctfn.ca

Tell us what you would like done:

1. Project Title (8 words maximum): Abandoned telegraph wire removal - Year2 2018

2. Project Location: Conrad, Marsh Lake Nearest Community Carcross
Distance from Community 20-50km (km) (Attach map if possible)

3. Brief description of project (200 words maximum):

Telegraph wire was installed from Dawson City to Bennett, with a branch to Atlin in [illegible]. There are many different branches strung throughout the Yukon. The wire has since been abandoned and now poses a significant threat to wildlife, specifically ungulates. On September 11 2016, a moose was tangled in the telegraph wire and has to be euthanized by a Conservation Officer. There are several other cases of ungulate remains found entangled in the abandoned wire. Community concerns have escalated since the September incident, and this project is a priority for the CTFN and CTRRC (projected for the next 2-3 years).

We are proposing that 1-6 Y2C2 crews work with CTFN and CTRRC to assist in removing the abandoned wire. This project is a continuation of last years project.

4. Benefits to Yukon environment, and quality of life of Yukoners (including economic):

Reducing the hazard to ungulate populations, especially moose which are declining in population within the Southern Lakes, will have a significant beneficial impact. Caribou are also at risk of being tangled in the wire. Both of these animals contribute to the traditional economy of the the Carcross and Tagish people and should be available for subsistence purposes. By removing the wire, not only does it benefit the people of the community, but it also reduces the potential hazard for people (Yukoners and tourists) recreating within the Southern Lakes area.

5. What kind of learning opportunities does this project offer to the Y2C2 Workers? What skills training and experiences could you provide (e.g. seminars, workshops, tours, etc.)?

- Historical aspects of the Gold Rush era technology and the Yukon Whitepass Route;
- Traditional and cultural values of wildlife to the people of Carcross/Tagish First Nation;
- Public awareness of the consequences of leaving abandoned items in the forest;
- Working and living on the land.
- An introduction to working in the environmental field

6. How many workers will you need, for how long, and when?
Will you require a full crew of 4-5 workers? Yes ☑ No ☐ If no, how many Green Team workers? ___
How many days will you need them? 14
When are the best dates for completing this project? end July/August

That's it! Please submit by April 30th to:

Youth Programs Coordinator
Department of Environment
Conservation Officer Services Branch (V-18)
Box 2703, Whitehorse, Yukon Y1A 2C6

E-mail: Morris.Lamrock@gov.yk.ca
Phone: (867) 667-3041 or 1-800-661-0408
Fax: (867) 393-6206

Background

The gold rush of the late 1890s brought thousands of people to the Yukon, and with them, the need for communication. The Yukon Telegraph line was constructed between 1899 and 1901, resulting in 1700 kilometres of telegraph wire strung between Quesnel BC and Dawson City Yukon. Initially the telegraph line connected in Bennett, BC to the White Pass Yukon Railway (WPYR) Telegraph Line. The lines diverged at Caribou Crossing, with the Yukon Telegraph going east to Tagish (to connect with the RCMP Post), and the WPYR following the rail line north to Whitehorse. Later in 1906, a line was built to connect the boomtown of Conrad City to the telegraph. The lines operated until 1936 as wireless technologies improved. It is estimated that there was approximately 225 km of wire in the Southern Lakes area from the BC border to McCrae. Figure 1 illustrates the approximate location of the telegraph wire in the Southern Lakes Study area.

Since falling into disuse, the wire has fallen to the ground, grown into trees, and in many cases, has created hazards to the wildlife and land users of the area. Over the years there have been documented cases of ungulate mortalities caused by the wire (CTRRC 2016). Over time, as poles continue to deteriorate, more wire will end up on the ground, creating dangerous situations to wildlife.

There have been recorded projects in the past that have focused on the removal of nuisance and dangerous wire including wire fencing and telegraph wire dating back to 1999. The Southern Lakes Wire Recovery Project in 2015 began to focus more closely on Telegraph wire in the southern Lakes area. The 2016 Southern Lakes Wire Recovery Project, funded by the Carcross/Tagish Renewable Resources Council (CTRRC), built upon past work, and moved forward with wire clean-up.

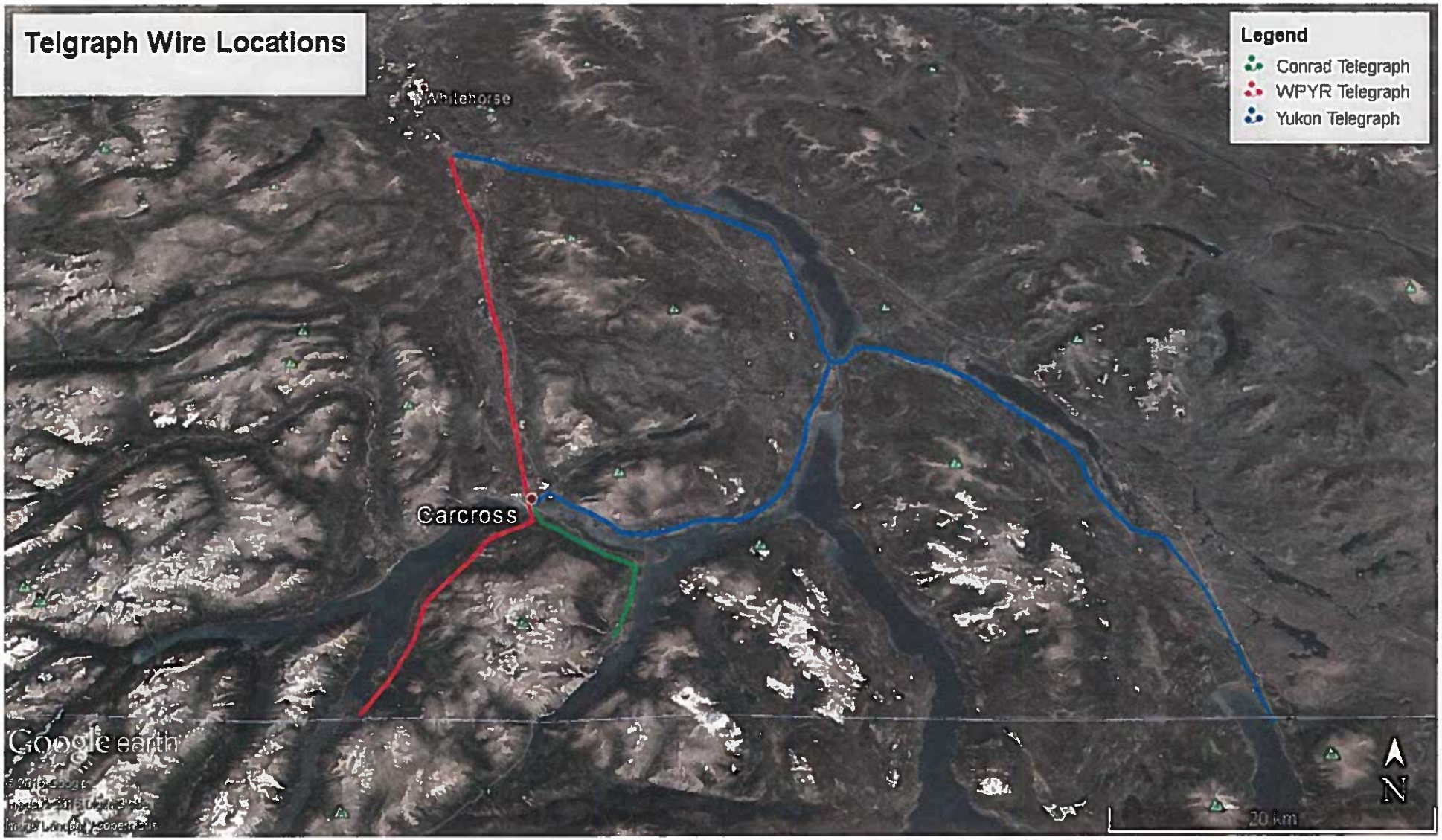

FIGURE 1: TELEGRAPH WIRE LOCATIONS-ESTIMATED

Previous Work and Recovery

To best develop a plan for removing remaining telegraph wire, it is important to have an idea of where the wire is located and how much has been already removed. To identify where the wire is located, archival maps were reviewed, as well as a literature review of the Yukon Telegraph Line. Previous reports were reviewed to get an understanding of where wire has already been removed.

Location

Gathering information on the location of telegraph wire in the area proved difficult. Maps obtained from the archives provided the location of the Yukon Telegraph Line, but none indicated the location of the wire associated with the White Pass Yukon Railway. The existence of the WPYR telegraph line is mentioned often in the literature, and, the Yukon Telegraph joined to the WPYR line at Bennett before the connection to Telegraph Creek was made (Miller, 2004). Figure 2 is a 1946 map (Yukon Archives, 1946) that illustrates the Yukon Telegraph line as well as the WPYR route (although not the telegraph line).

There is no mapped record of the telegraph line between Conrad and Carcross, however, historic documents about Conrad mention the line. Murray Lundburg (Lundberg, 1996) refers to agreements made for a telegraph line to be run between Carcross and Conrad.

The telegraph line fell into disuse in 1936 when wireless technologies became more reliable. Eventually, telephones would replace telegraph as the primary means of long-distance communication. The telegraph line has been ignored, neglected, and forgotten in many cases for the last 80 years. The result has been rotten and fallen poles, with wire hanging and dangling throughout the wilderness.

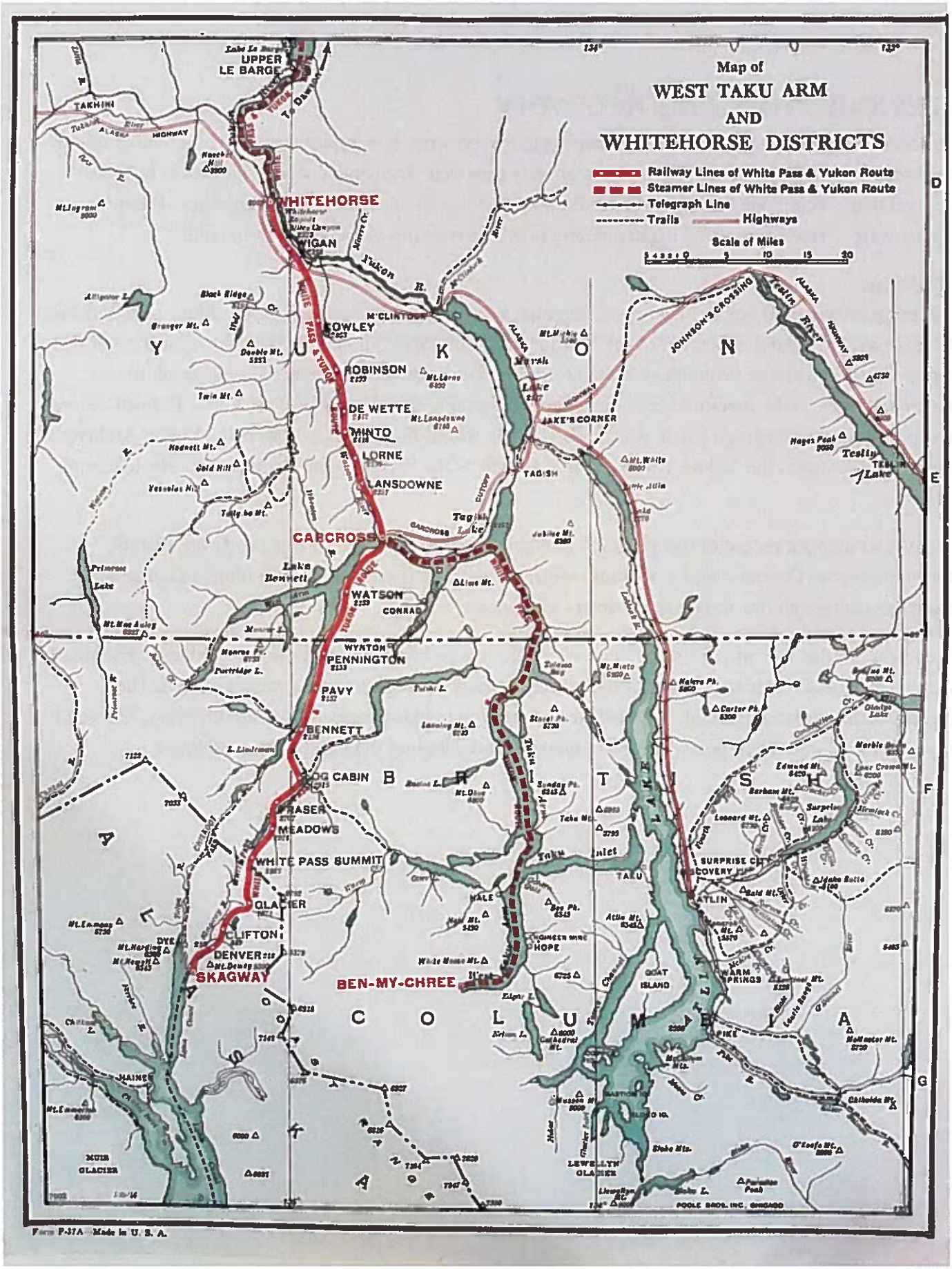

FIGURE 2: WEST TAKU ARM AND WHITEHORSE DISTRICTS 1946 MAP

Recovery and Removal

In recent years, there have been instances of wildlife being caught in the wire, ending up injured, and in some cases dying. Two moose tangled in telegraph wire were recorded in 2001 along the Whitepass route between Carcross and Spirit Lake (Files 2001-MO-13&14). These reports prompted Whitepass to conduct some wire removal activities along their route. Another incident of wildlife in the wire was publicly recorded in 2015 where a distress moose was found tangled in the wire along the Whitepass route, approximately 16 km north of Carcross.

Efforts to remove and clear barbed wire and telegraph wire from the region has been documented since 1996 (Domes, 2003) (Sembsmoen & Dome, 2005) (Sembsmoen, 2005) (CTRRC, 2015). Early efforts focused more on wire fence removal than telegraph wire. Table 1 lists the recorded efforts to record and remove telegraph wire and their results.

Year	Location	Who	Results
2001	Carcross to McCrae	WPYR	Unknown amount of wire recovered.
2002	Yukon River	Monica Krieger and Carol Domes	Documented telegraph wire along the river. Noted that some had been cut and removed.
2002	Yukon River	TJ Grantham and Rob Florkiewiz	Followed old wire along Yukon River from the Yukon River Bridge heading south.
2003	Little Atlin Lake	Y2C2-Amy Darling	Unknown amount or location of wire recovered.
2003	Yukon River-South of Gentian Lake	Y2C2-Amy Darling	Unknown amount or location of wire recovered.
2004	Yukon River	SLCSC	3.9 km removed along the Yukon River (mapped)
2005	Carcross to McCrae	SLCSC	Fully recorded and walked 38 miles (61 km) of the WPYR line between Carcross and McCrae
2015	Conrad		5 km cleared (mapped)
2016	Conrad to Carcross	CTRRC, CTFN	All wire cleared, except 6 km (mapped)
2016	Carcross to Tagish	CTRRC, CTFN	Cleared 21 km of wire from Carcross to 10 Mile (mapped)

TABLE 1: RECORDED WIRE RECOVERY AND REMOVAL PROJECTS

There is very little specific spatial information concerning the removal of telegraph wire. This is particularly true concerning the WPYR wire. The Conrad wire has been almost completely cleared, with only approximately 6 km remaining. The actual amounts remaining Along Little Atlin Lake to Tagish, and from Tagish to McCrae are unknown. Based on an estimated total of 225 Km of Telegraph wire in the region, and an estimated 40 km of wire removed; it is estimated that there remains 180 km of wire.

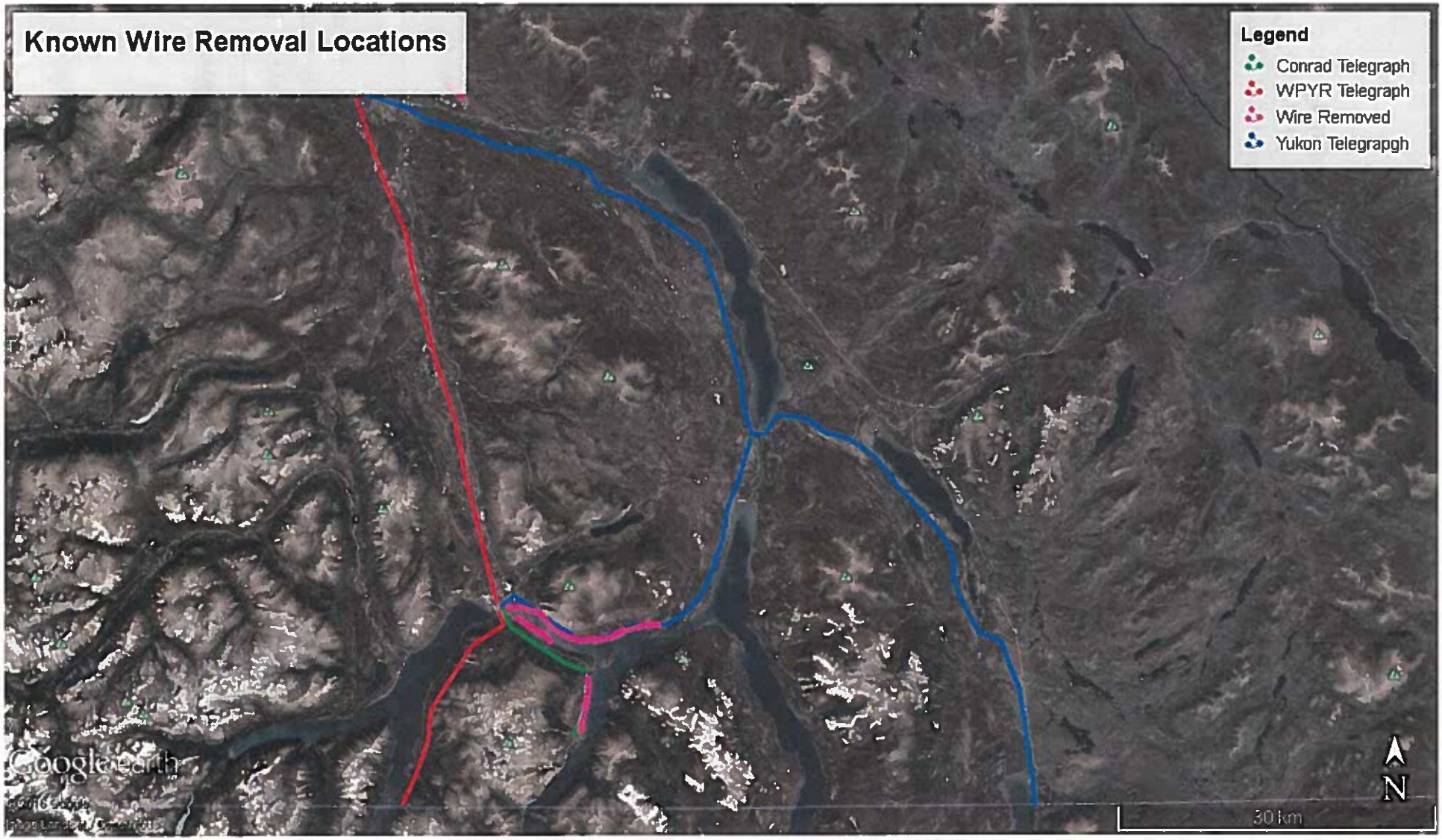

FIGURE 3: KNOWN WIRE REMOVAL LOCATIONS

Work To Do - A Five Year Plan

It is the goal to have the wire in the Southern Lakes region cleaned up within the next five years. The plan to achieve this is derived from the information provided in previous reports, lessons learned in previous years, other similar projects (NWT, 2017), and suggestions to improve systems from key employees.

Considerations

To develop a plan, it is important to consider the goals and potential limitations. The following is a list of factors that were considered when developing the plan.

- Looking for the wire is time consuming
- Locating the wire needs to be completed in snow free conditions.
- Low water levels facilitate locating and removing wire
- Access to wire may be difficult
- Y2C2 crews are only available for 2 weeks per season
- Crews of 3 people are recommended
- Wire removal along WPYR route can only be done with the consent and cooperation of WhitePass
- Priorities to protecting wildlife
- Average collection is less than a kilometre of wire per day per crew

Locating the wire is often a challenge, and can take a lot of time searching in the bush. The wire can be found suspended from trees, sometimes grown into a tree (ref), on the ground, and sometimes buried under the moss and topsoil. Because the wire was often strung close to the lakes and rivers, wire is also located in the water. Because of these considerations, it is recommended to have a small 2-person crew start locating the wire locate wire locations during snow-free conditions, in the early spring when water levels are low. Low water levels will also allow for improved access to some areas. Planning to map and source the wire will also allow for access issues to be identified and addressed, providing information for detailed fieldwork plans.

The Y2C2 crews have been involved in wire removal for a number of years, this experience, and their enthusiasm is appreciated and invaluable. It is important to make the most of their availability. If some wire locations are already mapped, then crews can set to removing wire more quickly, without spending time searching. It has been recommended to have crews of 3: 1 driver (ARGO or UTV), and 2 others to collect and wind the wire.

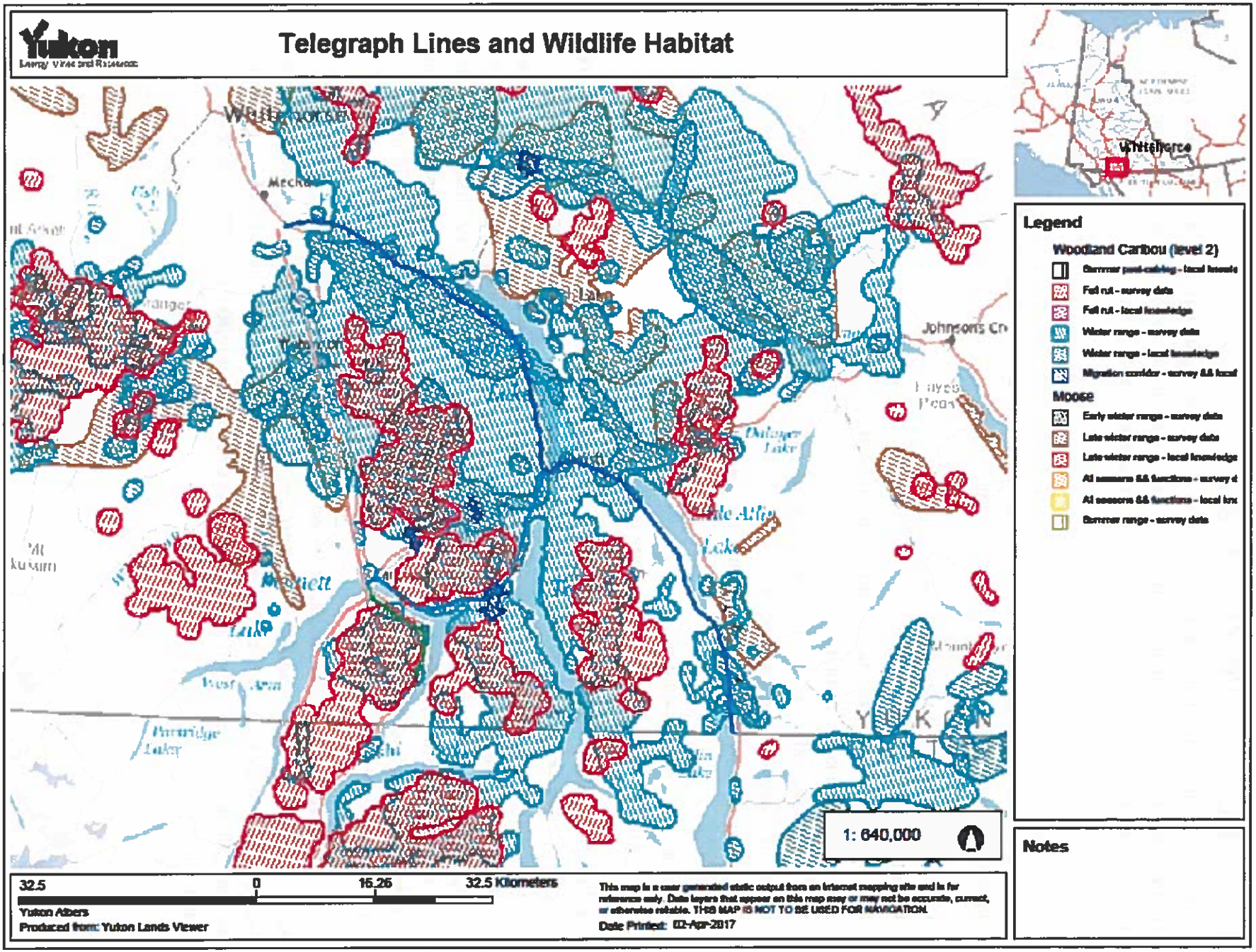

FIGURE 4: TELEGRAPH LINES AND WILDLIFE HABITAT

Any collection of wire from the WhitePass route requires the cooperation and consent of WhitePass. WhitePass has stated in the past that they are interested in working on the wire removal, however, actual communication and action has proven to be more complicated. It is recommended that communication attempts start as early as possible. It is also recommended that communication be initiated and supported by the CTRRC, rather than C/TFN Government to avoid any potential conflicts of interest that the C/TFN government may have.

As the priority of the CTRRC is to protect the wildlife, removal will be prioritized (where possible) based on the location of wire in relation to wildlife habitat. Figure 4 illustrates the estimated wire locations in relation to wildlife habitat information provided by Yukon Lands Viewer. According to this data, moose habitat is most at risk along the WPYR line between Carcross and McCrae, this corresponds with records of moose being caught in the wire along this route. This is the area of highest priority if agreements with WhitePass can be acquired. The Yukon Telegraph line intersects with areas identified as caribou winter range, and fall rut, with higher amounts of intersection north of Tagish. Based on the wildlife data, and potential for human interaction, the following are the priority removal areas in order:

1. WPYR Carcross to McCrae (60 Km)
2. Yukon Telegraph Carcross to Conrad (6 km remaining)
3. Yukon Telegraph Tagish to Carcross (16 km remaining)
4. Yukon Telegraph Tagish to McCrae (50 km)
5. Yukon Telegraph Little Atlin Lake /Atlin Lake (51 km)
6. WPYR Bennett Lake (22 km)

To determine realistic timelines for this plan, the average rate of wire removal was calculated. Data from previous years removing the Yukon Telegraph line, as well as information about the Canol Road Wire Recovery project (NWT, 2017), was used to calculate the average amount of wire removed per day (Table 2). Based on these calculations, the workplan is based on expectations of removing 0.6 km of wire in a day, per crew. This means that it will take approximately 300 crew days to complete the 180 km of wire remaining. Based on a 5-year plan, and a single crew, work can be done in 13 week portions each spring and summer.

Project	Kilometres	Days	Crews	Daily average
Canol Road	128	45	5	0.57
Southern Lakes 2016	27	25	1	1.08
Southern Lakes 2015	5	15	1	0.33
			Average KM per day	0.66

TABLE 2: AVERAGE WIRE REMOVAL PER DAY

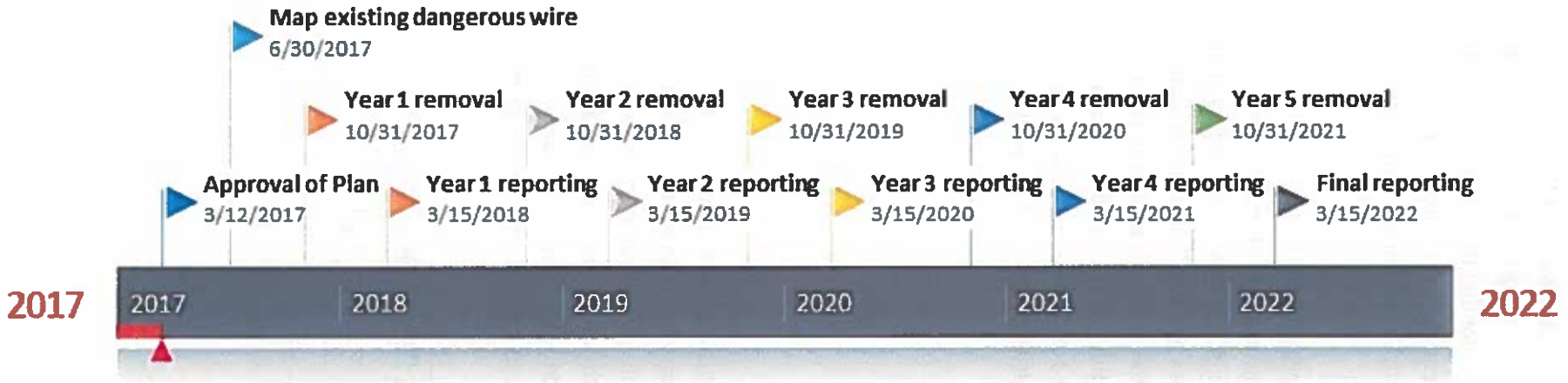

FIGURE 5: FIVE-YEAR TIMELINE

End Goals

- Remove all dangerous wire from Southern Lakes Area
- Develop good working relationship with WPYR
- Provide employment to C/TFN Citizens
- GPS information to provide to Heritage Branch concerning the location of wire and other structures (poles, cabins, etc.)
- Complete reporting to all Funders
- Advertising the success of the project

This plan is achievable in five years. Over the five years, it is hoped that all dangerous wire is removed, providing a safe, clean, and remediated environment. Over those five years, C/TFN citizens will be employed seasonally. Further benefits of the success of this project are developing a good working relationship with WPYR and sharing information about the project and its success to the residents of the Southern Lakes area. Further, the project will have contributed to the documentation of a historical resource while helping to clean up a nuisance that has affected the wildlife in the area.

Southern Lakes Wire Removal Project Year 1 Timeline

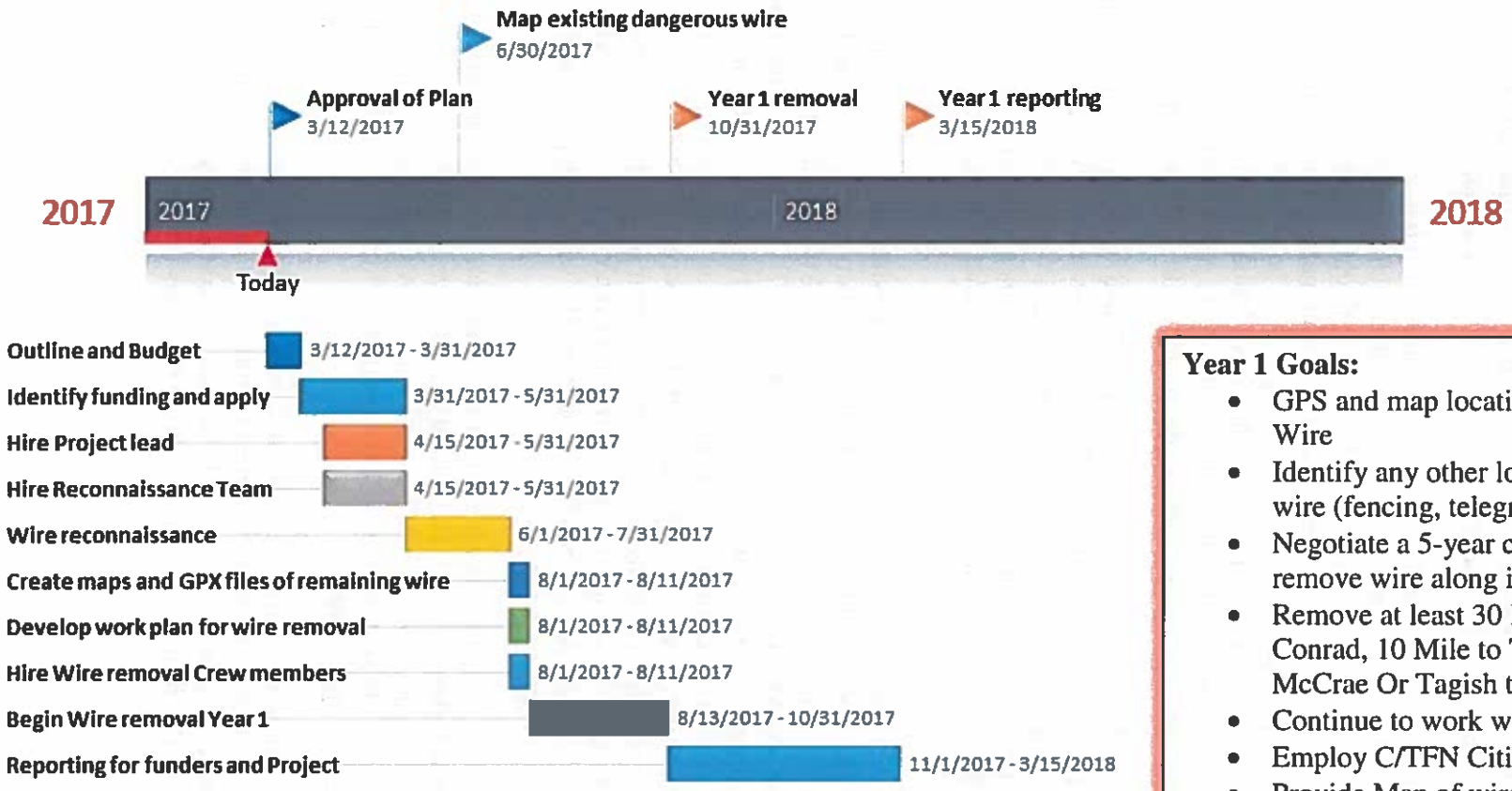

FIGURE 6: YEAR 1 TIMELINE

Year 1 Goals:

- GPS and map locations of Yukon Telegraph Wire
- Identify any other locations of dangerous wire (fencing, telegraph, telephone, etc.)
- Negotiate a 5-year contract with WPYR to remove wire along its route
- Remove at least 30 Km of wire from Conrad, 10 Mile to Tagish, and Carcross to McCrae Or Tagish to McCrae
- Continue to work with Y2C2
- Employ C/TFN Citizens
- Provide Map of wire removed as well as any related structures identified (poles, cabins, etc.) to Heritage Branch
- Advertise project to gain interest and knowledge of wire locations
- Reporting as needed for funding

This first year is an important year to build on the foundation of the work that has already been done, and provide a strong structure to support the work in the following years. Integral to this is the identification of the remaining wire. Information about previous removal programs is incomplete and unclear. To better plan for effective removal, it is important there is a more clear understanding of what wire is in the field. This information will also be provided to the Heritage Branch. This information will also provide information about access and any other concerns that may require an amendment to the work plan. It is recommended that a two-person crew work at mapping the location of the wire.

Based on maps and information from previous reports, the goal of Year 1 will be to further map (with GPS) the remaining wire in the field. This information gathering should start in the spring. To supplement the in-field reconnaissance, information should be gathered from the community about other dangerous wire in the area (fence wire, etc). It is recommended that a table is set up at any opportunity in the community (job fairs, community meetings, etc. The table should have maps of the region and allow people to indicate on the map where they have found dangerous wire, or know of wire that should be removed. These areas can then be ground-truthed and worked into a work plan. These appearances will also provide opportunities for sharing the project with the community and keeping them informed.

The first year will build on existing relations (Y2C2) and work on strengthening relations with WhitePass. Since the wire along the WPYR route has been identified as a priority, and the location of the majority of wildlife incidents, it is important that this wire is removed. A working relationship with WPYR needs to be developed in order to accomplish this goal. Communication should start as early as possible with WhitePass. Agreements with WhitePass should include training of CTFN citizens as lineman to facilitate line removal on poles.

The goal in Year 1 will be to remove at least 30 km of wire. Priority areas include completing wire removal between Conrad and Carcross as well as wire between Ten Mile and Tagish. Any remaining time would focus on the WPYR route from Carcross to McCrae (if partnership is agreed upon), or wire between Tagish and McCrae (if relationships with WPYR are not developed). Application to Y2C2 will be made in the hopes that the crew can provide help for two weeks. The intention will be that the wire locations will have been recorded and the crews' time can be maximized by just pulling wire rather than looking for it. Removal crews should consist of three people; a vehicle operator, and two people to release the wire as needed (cutting, digging, pulling from snags). Once the wire is "free", it can be rolled onto a spool using the winch mechanism on the field vehicle. The spooled wire is easily removed and tied together in easy to transport bundles. Removing the wire from poles, as will be needed along the WPYR route, will require training

At the end of the season, all of the identified wire locations will be mapped, and GPX files will be created for use in following years. All wire that is removed will be recorded spatially (GPS), and mapped, as an illustration of the success of the project. A season review meeting should be held with the Field Supervisor and Project Manager. This meeting will identify challenges that were faced, and work on improvements to the project.

The years that follow will build upon the successes of the first year. Any goals that are not met in Year 1 will need to be addressed in Year 2. At the beginning of each year, a year-specific work plan should be developed in order to meet the goals of the season and address any challenges that were faced the previous season. The following sections outline the goals for years 2-5.

Year 2 Goals:

- Remove 40 km of dangerous wire from Carcross to McCrae or Tagish to McCrae
- Continue to work with Y2C2
- Employ C/TFN Citizens
- Provide Map of wire removed as well as any related structures identified (poles, cabins, etc.) to Heritage Branch
- Advertise project to gain interest and knowledge of wire locations
- Identify any other locations of dangerous wire (fencing, telegraph, telephone, etc)

Year 3 Goals

- Remove 40 km of dangerous wire from Carcross to McCrae and/or Tagish to McCrae
- Continue to work with Y2C2
- Employ C/TFN Citizens
- Provide Map of wire removed as well as any related structures identified (poles, cabins, etc.) to Heritage Branch
- Advertise project to gain interest and knowledge of wire locations
- Identify any other locations of dangerous wire (fencing, telegraph, telephone, etc)

Year 4 Goals

- Remove 40 km of dangerous wire from Carcross to McCrae and/or Tagish to McCrae or Little Atlin Lake/Atlin Lake
- Continue to work with Y2C2
- Employ C/TFN Citizens
- Provide Map of wire removed as well as any related structures identified (poles, cabins, etc.) to Heritage Branch
- Advertise project to gain interest and knowledge of wire locations
- Identify any other locations of dangerous wire (fencing, telegraph, telephone, etc)

Year 5 Goals

- Remove remaining Dangerous Wire
- Continue to work with Y2C2
- Employ C/TFN Citizens
- Provide Map of wire removed as well as any related structures identified (poles, cabins, etc.) to Heritage Branch
- Advertise Project Completion and Success

Expenses and Budget

It is anticipated that Year 1 will require a slightly higher budget than the following years. This is to compensate for the anticipated Project Management time expected to develop the working relationship with WhitePass. It is also expected that there will be more mapping in Year 1 as the wire is located and recorded. Subsequent years will build upon the maps developed in Year 1. Expected costs are higher than those submitted in 2016 as the proposal is to employ the crew for a longer period of time in order to recover as much wire as possible. Table 3 provides a summary.

Expenditure Category	Item	Year 1 Projected Cost	Year 2 Projected Cost	Year 3 Projected Cost	Year 4 Projected Cost	Year 5 Projected Cost
1.Capital Expenses *(equipment, machinery)*	None	None	None	None	None	None
2. Wages, Contract Services	1. Honoraria/contracts	$20,000	$20,000	$20,000	$20,000	$20,000
	2. Project Management	$3,000	$1,000	$1,000	$1,000	$1,000
3. Office & Administrative Expenses (telephone, printing, postage)	Mapping	$2,000	$1,000	$1,000	$1,000	$1,000
4. Travel Expenses *(accommodation, food, transportation)*	1. Vehicle Rental	$2,000	$2,000	$2,000	$2,000	$2,000
	2. Fuel	$1,200	$1,200	$1,200	$1,200	$1,200
5. Materials & Supplies	Equipment Rental	$3,500	$3,500	$3,500	$3,500	$3,500
6. Facility Expenses	Meetings	$1,000	$1,000	$1,000	$1,000	$750
7. Other	Advertising and Press Release	$1,000	$1,000	$1,000	$1,000	$1,000
Totals		**$33,700.00**	**$30,700.00**	**$30,700.00**	**$30,700.00**	**$30,450.00**
Grand Total (5 Years)	**$156,250.00**					

TABLE 3: PROJECTED COSTS OVER 5 YEARS

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