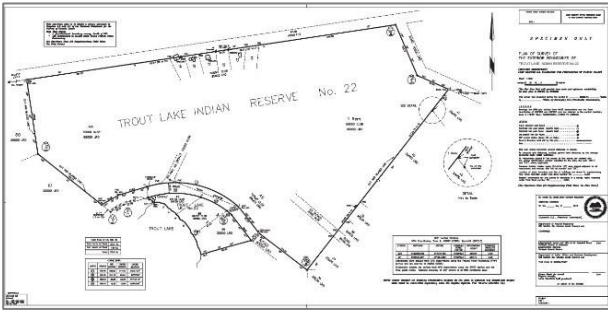


## Plan Preparation and Office Work

The most labour-intensive cost driver for surveys occurs “behind the scenes”, not visible to the client.



The research, calculations, drafting of the plan and quality control of the plan accounts for the most time involved when compared to any other aspects of a survey.

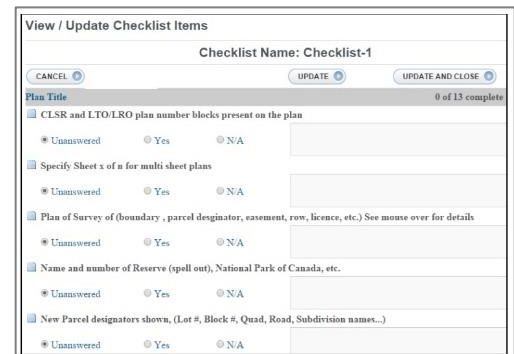
This may be surprising to some, as one would think that the field work component (with field personnel, equipment, travel, etc.) would be the most labour intensive.

However, the results of the survey cost study indicated that *surveyors and their staff spend more time (1) doing calculations, (2) drafting plans and (3) performing quality control checks; than in any other activity in the process.*

1. After the field crew submits their data/results, the information is reviewed and assessed by the surveyor, and according to the survey cost study, this accounts for 5.7 hours per project on average. The type of work and issues encountered in the field can add to the difficulty of the analysis and calculations:

- Old evidence (for example: wooden posts set in the 1900’s) were not set or measured with the same tools or accuracy, so it can be challenging to reconcile with modern techniques.
- Sometimes modern survey evidence has been destroyed over large areas due to new development (roads, pipelines, large buildings). Computing the original positions of the monuments from very little found evidence can be difficult and time consuming.
- Natural boundaries can be defined by the Ordinary High Water Mark (OHWM) or water’s edge of lakes, creeks or rivers. Re-measuring old ‘natural’ boundaries or making survey ties to current ones, can often require extra care and time during evaluation of the field work.

When the calculations are complete, and the survey monuments are placed, the drafting of the final survey plan proceeds. This is completed by a competent drafts person who is familiar with Canada Lands survey and plan requirements.



## Plan Preparation and Office Work

2. The drafting of a survey plan and report (where required) must be done according to the National Standards for the Survey of Canada Lands (Standards). The experience of a company's employees with surveys on Canada Lands and the complexity and availability of survey fabric in the area can directly affect and extend the time needed to complete a plan.



*On average, the cost study found that the number of hours spent on drafting the plan was 23.3 hours.*

This is the most labour-intensive part of the overall survey. The drafting of the plan is also one of the more important parts of the survey process, as it visually depicts what was done by the field work and graphically defines the extents of the parcel or boundary being dealt with.

3. Once the draftsman has completed the preliminary plan, the surveyor reviews the plan and conducts a quality control check on the plan, to ensure that it properly depicts all the field work, conforms to the requirements of the Standards, and reflects the requirements in the survey instructions.

*The average number of hours spent on the quality control of the plan is approximately 6.4 hours per plan, in which this work is carried out by the surveyor who will be signing the plan.* Any changes to the Standards, the scope of the project or survey instructions directly impact the amount of labour required.

In October 2016, the Standards were amended to enable the survey plan to be digitally signed and submitted. *“While digitally submitted plans have clear benefits and potential for future cost savings and efficiencies, there is a cost to implementing this change”.* Other changes to the Standards included the types of plans allowed, submission of CAD (computer aided drafting) files and other plan requirements. These changes can cause a previously experienced draftsman and surveyor to have to become re-acquainted with the plan requirements. While the surveyor does not charge his/her client for the additional training to become re-familiar with changes to the Standards, the efficiency that the surveyor and draftsman once had, must be re-attained.



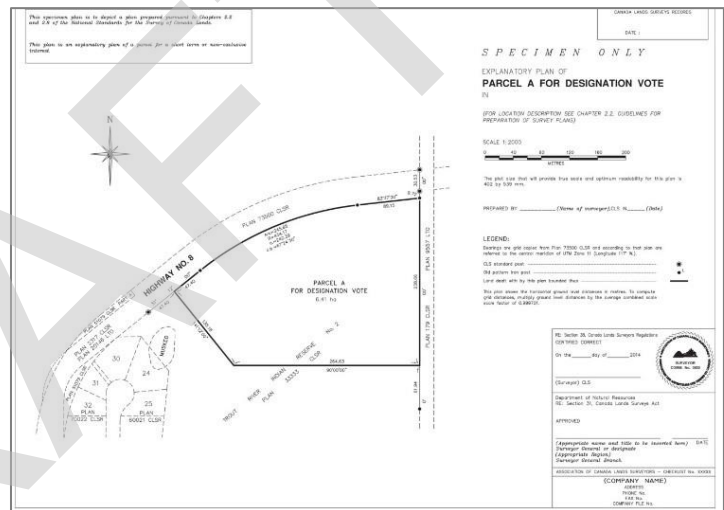
## Plan Preparation and Office Work

**Where changes to the scope of work are necessary, it is important to identify these as soon as possible in the process.**

If changes, such as lot configurations or sizes, are identified once the plan has been prepared, not only are there additional costs to the field work component, there are additional costs to the drafting of the plan and the quality control of the additional work by the surveyor. Even though it may seem to be as easy as “moving some lines and text around”, there is a lot more involved in the re-drafting of a plan. There is a lot of data associated/tagged with each point, line and text in a CAD file, moving one line can cause a lot of additional work to address other parts of the digital file.

Upon the surveyor completing his/her quality control checks on the plan, survey report (if required) and CAD file, any necessary amendments are completed. Errors or issues identified by the MyCLSS checklist are to be addressed by the surveyor before the plan can be accepted by the Surveyor General Branch (SGB)<sup>1</sup> for their final review. The plan is then certified by the surveyor and submitted to the SGB through the plan submission website MyCLSS.

Depending on the type of plan being prepared, the First Nation’s approval may be required prior to the plan submission.



### **There may be ways to mitigate the costs of Plan Preparation and Office Work:**

1. The Cost Study notes the value of good relationships, particularly between the Land Manager and the Surveyor. The Land Manager may choose a surveyor that has demonstrated experience working in the Canada Lands Surveys system, in-turn reducing costs associated with the challenges identified above.
2. Land Managers must prepare a thorough, accurate Scope of Work, avoiding changes after the survey has commenced, if possible. Understanding the Standards will be very helpful in this regard and can be discussed with a surveyor and staff at the SGB.
3. Land Managers can improve awareness within the community regarding the impact of survey monument destruction and the many increases in costs that can result in future surveys, including complications in Plan Preparation and Office Work.

<sup>1</sup> Surveyor General Branch (SGB) of Natural Resources Canada (NRCan)