

Footprint or Buffer?

A Comparison of Regulatory Approaches for Managing
Historical Resources for Linear Projects

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EnviroTech 2019
April 24, 2019

- Introduction
- Background – Historical Resources
- The Challenge
- Footprint Approach– Athabasca Pipeline Twinning (APT)
- Buffer Approach – Wood Buffalo Extension (WBE)
- Advantages and Disadvantages
- Outcomes/Conclusions

- Development of linear projects requires baseline assessment of historical resources
- Regulatory approval from the historical resources Ministry is required prior to construction
- For environmental scope, historical resources are becoming biggest budget and schedule risk
 - Due to uncertainty
- Strong Indigenous interest
- Advance planning and assessment are key; however, project footprints continually change
- Presents scheduling challenges when approvals are needed during construction execution phase

Historical Resources

What are they?

- Archaeological sites (buried artifacts and other evidence that tell us about human life in the past)
- Palaeontological sites (fossilized remains of plants and animals)
- Historic buildings and other structures
- Aboriginal traditional use sites



- Impossible to know ahead of assessment, how many sites will be found in what location or of what value.
- Field assessment and mitigative excavation must be completed under snow-free and frost-free conditions (May to October in Alberta)
- Often at least two years of fieldwork for larger projects
 - First season - field assessments
 - Second season – mitigation of significant sites
- Field assessments and mitigative excavation are conducted largely by hand
- Labour-intensive and time-consuming

Historical Resources

Process in Alberta

- Desktop assessment relative to the project footprint. Includes recommendations for field assessment work
- Regulator (ACT) reviews desktop assessment and provides direction on field assessments
- Field assessments consist of foot survey and subsurface testing at identified target areas. Subsurface testing is usually conducted by hand/shovel



Historical Resources

Process in Alberta

- Results of the field assessments and recommendations for site mitigation (if required) are submitted to ACT
- ACT reviews these and issue requirements for significant sites (*i.e.* site mitigation)
- If mitigation is not required, clearances are issued
- Review period - minimum 8 weeks



The Challenge

- Approvals are footprint based
- Footprints change throughout linear project development
- Construction contractors are typically not engaged until closer to construction start
- Late footprint changes can be numerous
 - stockpile sites, laydown areas, log decks, shooflies, extra-temporary workspace (ETWS), and access routes.
- Footprint changes require additional field assessment and regulatory review. Site mitigation may also be required



The Challenge

- Construction schedules typically do not allow for 8+ weeks for field assessments and regulatory approvals
- Results in cost increases
 - regulatory fees
 - consultant costs
 - contractor standby
 - contractor work arounds



The Case Studies

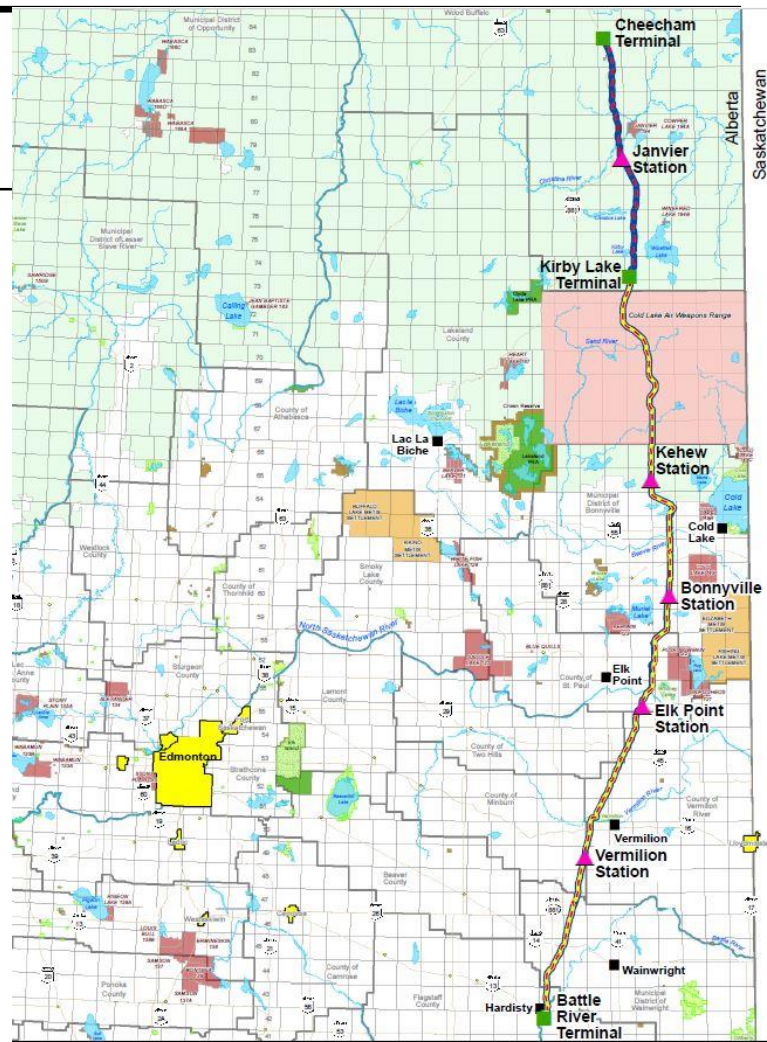
Footprint vs. Buffer



Footprint Approach

Athabasca Pipeline Twinning Project

- ~350 km pipeline project
- East-central Alberta
- Parkland and boreal forest regions
- Desktop assessment completed early 2012
- Regulatory requirements received spring 2012
- Field assessments largely complete in 2012
- Site mitigation started in 2013
- Approval for most of line received in 2013



Footprint Approach

The Challenge

- Construction started in 2013 and so did requests for footprint modification
- Hundreds footprint modifications received
- Became apparent that the regular process of conducting field assessments and regulatory review would not work
 - schedule delays
 - cost implications
- An innovative, streamlined approval approach was needed

Footprint Approach

The Solution – Red/Green Mapping

- Collaborative solution developed between Enbridge, the archaeological consultant and ACT
- Archaeology team evaluated an area within 50 m of the original project footprint and ranked areas as
 - “low” archaeological potential (i.e. low probability for encountering a significant archaeological site) or
 - “moderate to high” (i.e. higher probability for encountering a significant archaeological site).

Footprint Approach

The Solution – Red/Green Mapping

- Low areas mapped **green**
 - Construction activities could proceed in green areas
 - a final “as built” footprint provided to the regulator in a shapefile
- Moderate to high areas mapped **red**
 - Archaeology team would evaluate footprint change at a finer scale
 - no further work recommended,
 - some ground truthing, and/or
 - field-based assessment
 - Based on need for further assessment, construction team would determine how necessary additional footprint was

Footprint Approach

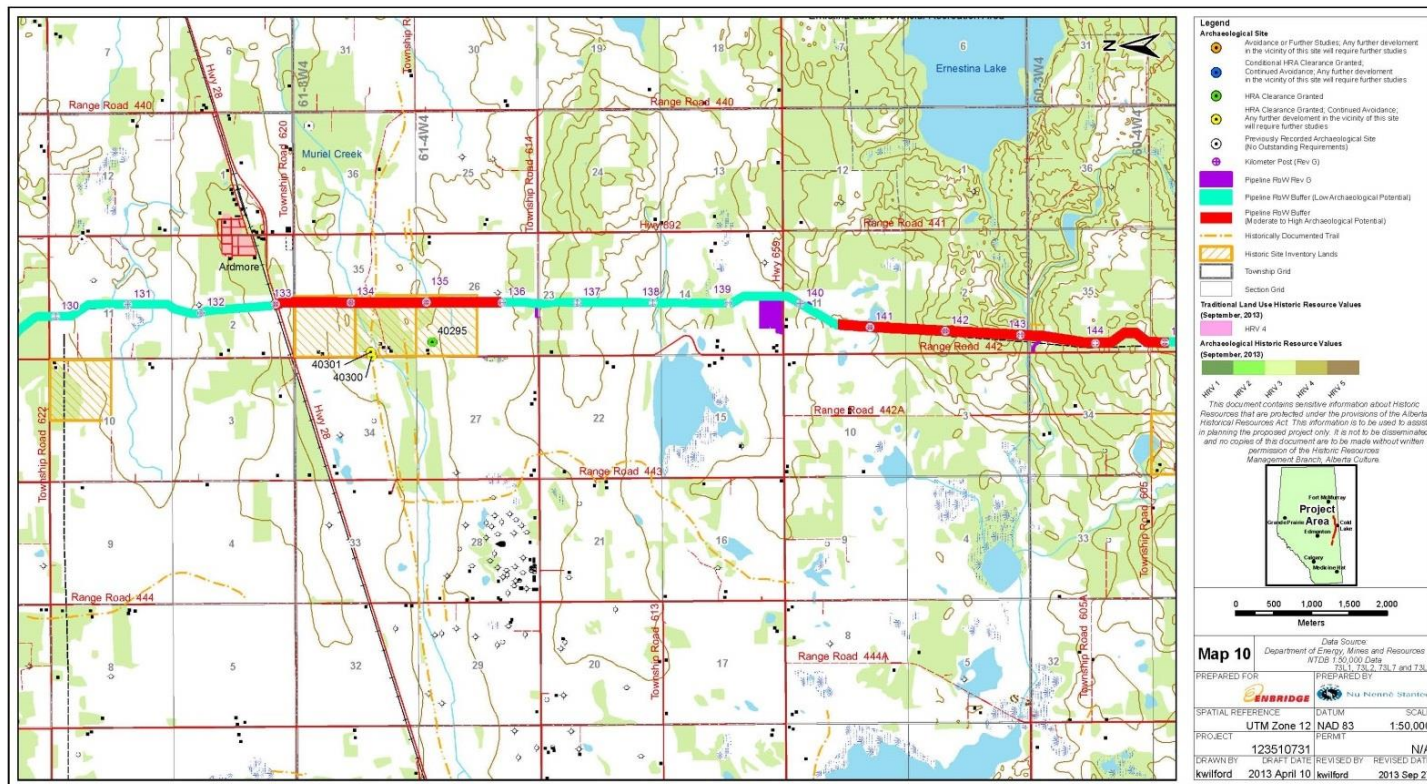
The Solution – Red/Green Mapping



- 52 were in the green
- 82 were in the red
 - 18 required field assessment

Footprint Approach

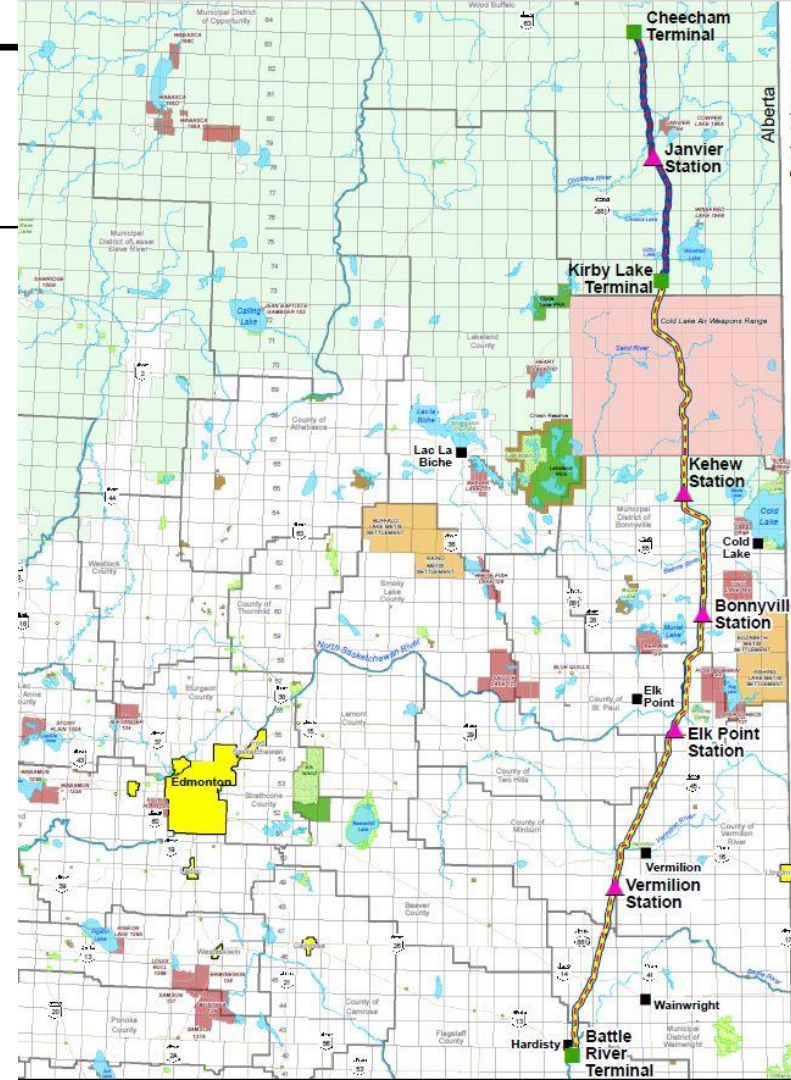
The Solution – Red/Green Mapping



Buffer Approach

Wood Buffalo Extension

- ~460 km pipeline
- Generally paralleled Athabasca Pipeline Twinning Project
- In 2014
 - Desktop assessment completed
 - Regulatory requirements received
 - Field assessments largely complete
 - Approval for most of line received



Buffer Approach

Wood Buffalo Extension

- Red/green mapping approach was innovative, but administratively challenging
- Looked at ways to improve the process
- Most additional footprint requests occur within 50 m of the RoW
- Conduct assessment on an area larger than the known project footprint

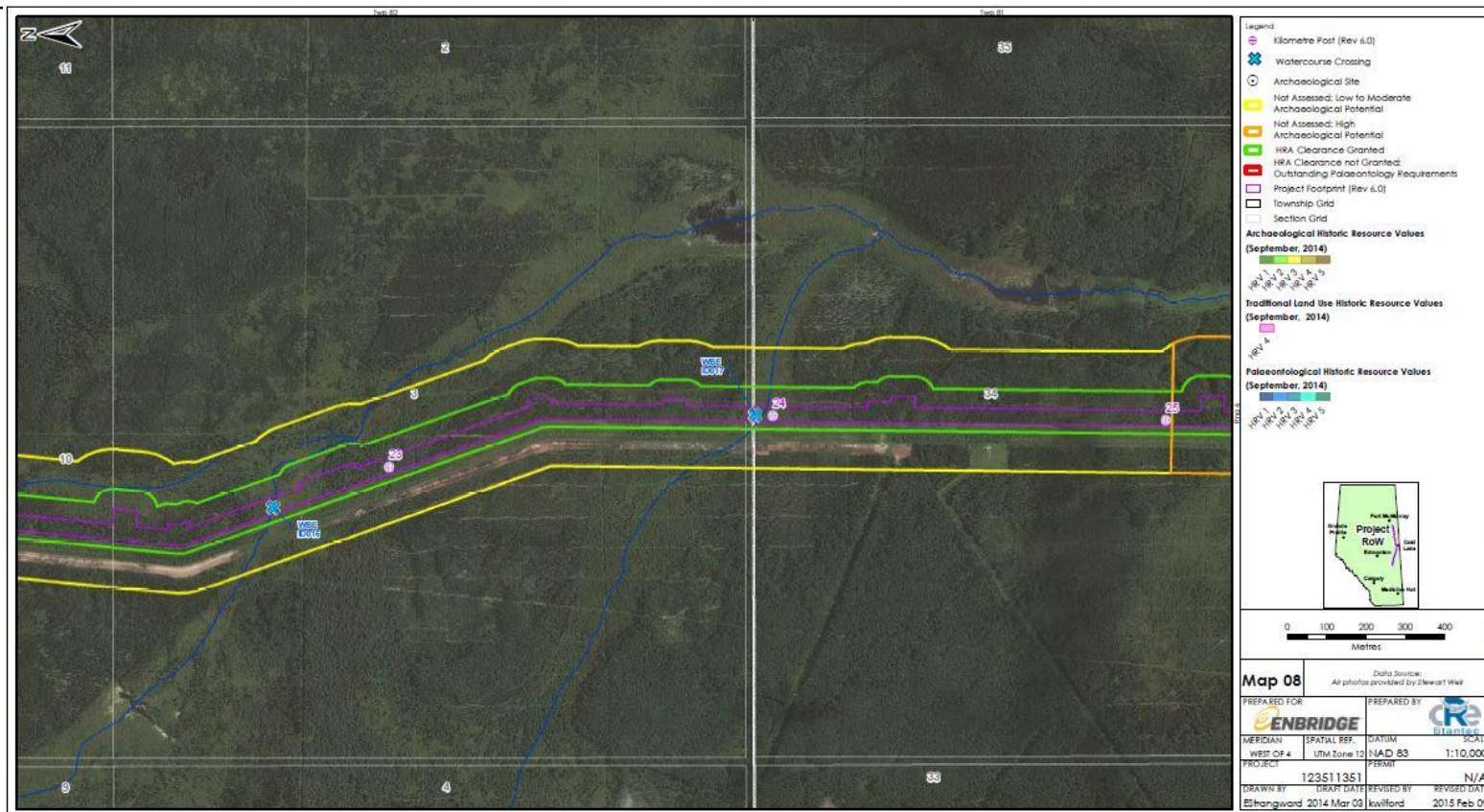
Buffer Approach

Wood Buffalo Extension

- Desktop and field assessments were completed on the footprint and the 50 m buffer
- Increased to 100 m at major watercourses and horizontal directional drill locations
- Regulatory approval was granted for footprint and buffer
- Resulted in very little additional archaeological work during construction.
- Most additional footprint requests by the construction contractor were located within the buffer

Buffer Approach

Wood Buffalo Extension



Footprint vs Buffer Approach

Footprint

Advantages

- Reduced front end field time
- Reduced front end cost
- Field program focuses more closely on the actual area of construction impact

Disadvantages

- Increased complexity in tracking ETWS requests
- Increased potential for non-compliance
- Increased need for regulatory input
- Lesser certainty around archaeological constraints during earlier stages
- Limits ability to avoid impacts to archaeology from ETWS

Footprint vs Buffer Approach

Buffer

Advantages

- Decreased complexity in tracking ETWS requests
- Decreased need for regulatory input following the completion of the field assessment
- Increased certainty around archaeological constraints at an earlier stages
- Increases ability to avoid impacts to archaeology from ETWS during planning phase

Disadvantages

- Increased front end field time
- Increased front end cost
- ACT was concerned intensity of the field assessment would be reduced because of the larger footprint

Outcomes/Conclusions

- Red/Green Mapping became a formalized approach with ACT for future projects
- Regulatory requirements can be flexible given the right approach and team
- Red/Green Mapping highlighted additional footprint requests are not always necessary
- Appropriate approach is dependent on project goals



Questions?

Thank you

