Request IR-1:

Page 1 of the application states:

> **The tap structures and switches at this location were identified as requiring replacement as part of NS Power's inspection program. The replacement work included in this project consists of the removal and replacement of 9 transmission structures, 1 new transmission switch (83V-504).**
>
> **…**
>
> **This project will be constructed in two phases. The first phase will consist of the installation of three in-line switches at the tap location, after which the first five transmission structures will be replaced. The second phase will include the removal of an existing switch and installation of one new switch(83V-504), which will also require the replacement of 4 additional transmission structures.**

(a) Please provide a completion timeline for both phases of the project.

(b) What is the age of the transmission line switch and the nine transmission structures being replaced?

(c) Why are the nine transmission structures being replaced?

(d) What are the retirement costs associated with the transmission structures or other components being replaced as part of this project?

(e) Page 1 of Attachment 1 lists only one structure ID L5017-057 which failed tap and switches inspection on 9-Apr-23. Please provide an assessment of the nine transmission structures that are being replaced.

(f) What is the voltage level of the L-5046 and L-5017?

(g) Why does the utility require design consulting costs totaling $137,096, when it would have replaced or installed taps or switches of the same voltage level on other transmission lines?

(i) Please explain why this work can't be done by internal engineering resources.

(h) Please provide a breakdown of the costs between various project scopes such as the nine transmission structures, one new transmission switch and in-line switches.

(i) Please provide a GIS drawing that includes both the proposed facilities and existing facilities for this project in one drawing. Please use different colour labels to differentiate between them.

(j) How was the 15% contingency amount determined, and which risks is it intended to cover?

Response IR-1:

(a) Phase 1 construction of the tap structures is scheduled for Q2 2026. Phase 2 construction, which includes the installation of the new 83V-504 switch is scheduled for Q3 2026. The timelines for both construction phases are dependent on the availability of the necessary transmission line outages; and therefore, are subject to change based on the actual conditions across NS Power's transmission network.

(b) L-5017 was constructed in 1963; therefore, the transmission structures and switches are approximately 63 years old in 2026. L-5046 was constructed in 1976; therefore, these structures would be approximately 50 years old in 2026.

(c) As engineering design has progressed since project submission, a total of ten transmission structures are being replaced between the two construction phases of this project.

To install the new 83V-504 switch, five transmission structures around the new location must be upgraded to taller structures to allow the installation of overhead shield wire required for grounding the new switch. One structure (L5017-057) is being replaced due to deteriorated condition identified through inspection. The remaining structures around L5017-057 are being replaced to accommodate the redesigned tap configuration, meet conductor sag and clearance requirements and improve sectionalization. Please refer to Attachment 1, which provides a visual overview of the expected work.

(d) For L-5017 and L-5046, the breakdown of the Original Cost subject to retirement by asset is:

Capital Activity	**Retirement Cost ($)**
3500 - Wood Poles	133,721
3900 - O/H Conductor	73,962
4300 - Substation Devices	40,085
Total	**247,768**

(e) Please note that not all structures being replaced have been highlighted for replacement based on condition during our inspection. Please refer to part (c) above which details the requirement for the structure replacement. The inspection report for L5017-057 was provided as Attachment 1 to the Application. Please refer to Attachments 2 and 3 for the remaining structure inspection reports.

(f) Both L-5046 and L-5017 transmission lines operate at a voltage of 69kV.

(g) The design work required to refurbish the L-5046 tap and to replace 83V-504 involves updating the designs for the 69 kV Right of Way (ROW) switches. Even though standard designs are being updated, it is still necessary to complete site-specific Issued for Construction (IFC) packages, so engineering labour, (whether internal or external) is

required for the successful completion of the detailed design activities associated with this project.

NS Power has elected to engage external consultants to complete detailed design activities on this project due to internal resourcing constraints. There are a number of projects in 2026 which will support system reliability and grid expansion and will require internal resources to develop design packages. The use of external consultants will allow for timely completion of this project while balancing internal design resources.

NS Power has Master Services Agreements with consultants to ensure competitive pricing is achieved.

(h) This project can be best represented financially by separating the project costs into the two construction phases. Phase 1 costs are predominantly associated with installation of five transmission structures and installation of three in-line switches, while Phase 2 costs relate primarily to the remaining five structure replacements and installation of the new 83V-504 switch. Please refer to the table below showing estimated costs for the tap and the new switch installation:

Cost Element	**Phase 1 – L5017/L5046 tap ($)**	**Phase 2 – 83V-504 switch ($)**
Engineering Design (consultant)	40,698	79,780
Regular Labour (NS Power internal resources – engineering)	7,448	4,965
Regular Labour (NS Power internal resources – project management)	14,773	9,848
Regular Labour (NS Power internal resources – various field and office technical resources)	56,603	37,735
T-line construction	360,926	165,000
Substation construction (switch)	-	104,965
T-line Material	155,799	35,000
Substation Material	29,367	25,440
Various other expenses related to design, planning, field supervision, traffic control, environmental & archeological, vegetation, project close-out, other goods and services, vehicle overheads, capitalized interest, administrative overhead and contingency	251,746	178,021
Total	**917,360**	**640,755**

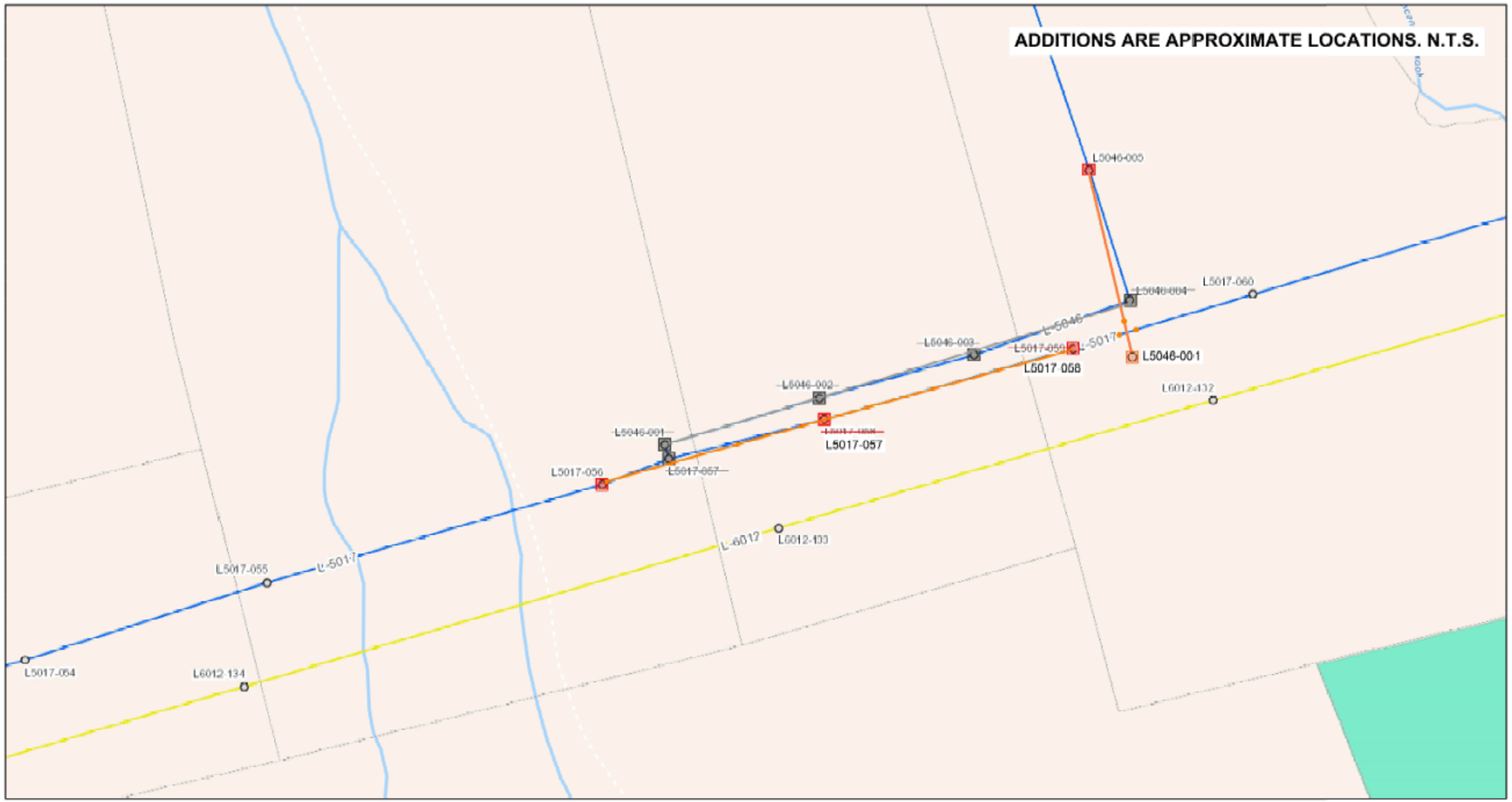
(i) Please refer to Attachment 1, showing the GIS map with structure location changes at the tap location. The structures at the new 83V-504 switch location will be replaced in the same location as existing structures. This design is currently being finalized.

(j) As outlined in the contingency statement of the application:

> Contingency for this project has been determined using a combination of internal subject matter expert (Professional Engineers) judgement, and the non-binding contingency guidelines. Consistent with the maturity matrix, this project is being filed as a Class 3 estimate with a contingency of 15 percent. Risks intended to be covered by this contingency include contractor availability during the warmer construction months and pricing uncertainties for material costs associated with grounding material. The new switch requires a grounding grid, which can only be completed after the switch design has been finalized. During grounding grid construction, excavation is required and additional rock breaking to install the grid may be required. In addition, the contingency will cover delays in the delivery of long lead material items, as well as unknown items that may be discovered during the detailed engineering design process, such as road lane closures, traffic control and the installation of traffic barriers or bollards to provide protection to the switch structure from any vehicular impact.

L5017/L5046

Structure to be REMOVED | Structure to be REPLACED | NEW Structure to be INSTALLED | NEW Conductor to be INSTALLED



11/22/2024, 11:18:27 AM

1:2,686

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

Transmission Structure

Overhead Transmission Line
- 345 kV
- 230 kV
- 138 kV
- 69 kV
- Below 69 kV

Underground Transmission Line
- 138 kV
- 69 kV
- Below 69 kV
- Fence
- Transmission Facility
- Civic Points

- Property
- Wetland of Special Significance
- NSDNR Wetland Inventory
- Existing/Pending Protected Areas
- Protected Watershed
- Municipal Water Supply

- RLUL

Significant Species/Habitat
- Deer Wintering
- Migratory Bird
- Moose Wintering
- Other Habitat
- Species at Risk

- Species of Concern
- Important Bird Area
- Crown Land
- Aboriginal Lands

DNR, NSE, IBA, Esri Community Maps Contributors, Province of New Brunswick, Province of Nova Scotia, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, NRCan, Parks Canada

Line No: L5017

Str #	Str Type / Frm Type	Line Angle	Span	Insulators			GPS Lat	GPS Long	Access	Grd Clr	Min Grd Clr	GC Status	Air Temp	Insp Date	Str Status	Field Priority	Work OrderID	Scheduled	Comments	Env Notification
				Type	Qty	Material														
L5017-056	69-Dt-2	Light (5-30)	213	Suspension (Horizontal Strain)	36	Porcelain (Grey)	45 3' 39.7066"N	-64 19' 52.3189"W	Brook, Deep Gully old road comes in from Slayter Rd	10.9	8.97	Pass	-15	2023	Pass	N/A	8781731	2026	Left tr, couple wphs, not in the best shape, ok this time. Arms slightly bowed. Please reassess next 4 guys- all slack	
L5017-058	69-Dt-2	Tangent	86	Suspension (Horizontal Strain)	36	Porcelain (Grey)	45 3' 40.7679"N	-64 19' 47.1693"W	241 Stated Rd	8.0	7.32	Pass	-11	2023	Pass	N/A	8781731	2026	Both a bit of tr, ok, mossy arms, ok this time 4 guys not wrapped	
L5017-059	69-T-H(2)	Tangent	132	Suspension Vertical	15	Glass (Clear)	45 3' 41.9337"N	-64 19' 41.3945"W	241 states Rd.	9.0	7.87	Pass	-11	2023	Pass	N/A			Structure ok	

Line No: L5046

Str #	Str Type / Frm Type	Line Angle	Span	Insulators			GPS Lat	GPS Long	Access	Grd Clr	Min Grd Clr	GC Status	Air Temp	Insp Date	Str Status	Field Priority	Work OrderID	Scheduled	Comments	Env Notification
				Type	Qty	Material														
L5046-001	1Pole: 69-Dha-1	Heavy (60-90)	15	Suspension (Horizontal Strain)	36	Porcelain (Grey)	45 3' 40.3563"N	-64 19' 50.8615"W	Forest Hill road	8.8	8.540000000000001	Pass	18	2024	Pass	N/A	8781731	2026	Ok	
L5046-002	69-T-POST-1	Tangent	82	Pin(Tie Top)	3	Porcelain (Grey)	45 3' 41.1227"N	-64 19' 47.2740"W	Forest Hill road	6.8	6.42	Flag	18	2024	Pass	N/A	8781731	2026	Ok	
L5046-003	69-T-POST-1	Tangent	85	Pin(Tie Top)	3	Porcelain (Grey)	45 3' 41.8290"N	-64 19' 43.6930"W	Forest Hill road	8.4	8.02	Pass	18	2024	Pass	N/A	8781731	2026	Ok	
L5046-004	69-Dha-1	Heavy (60-90)	100	Suspension (Horizontal Strain)	36	Porcelain (Grey)	45 3' 42.7177"N	-64 19' 40.0841"W	Forest Hill road- call before you dig, old water line for wolfville close to structures	6.2	5.69	Flag	18	2024	Pass	N/A	8781731	2026	Ok	
L5046-005	3Pole: 69-Dt-3	Tangent	70	Suspension Vertical	15	Porcelain (Grey)	45 3' 44.8583"N	-64 19' 41.0289"W	Forest Hill road- call before you dig, old water line for wolfville close to structures	8.5	8.120000000000001	Pass	18	2024	Pass	N/A	8781731	2026	Crossarms getting bad rest ok except for top of poles also no guy guards	