

NON-CONFIDENTIAL

Request IR-2:

In response to IR 1(h), the utility provided a table breaking down the cost elements for Phase 1 (L5017/L5046 tap) and Phase 2 (83V 504 switch). Please provide a breakdown of the internal and external labour tasks, along with the allocated hours and associated costs required for Phase 1 and Phase 2.

Response IR-2:

Please refer to the table below for the cost breakdown as requested for internal labour only. All external services/labour are covered under the contracts or consultant vendor costs (using NS Power's approved Master Services Agreements).

Cost Element	Labour Description	Phase 1 – L5017/L5046 tap (hours)	Phase 1 – L5017/L5046 tap (\$ total cost)	Phase 2 – 83V-504 switch (hours)	Phase 2 – 83V-504 switch (\$ total cost)
Regular Labour (NS Power internal resources – engineering)	1) Transmission Line design engineer	1) 110	1) 6,820	1) 40	1) 2,480
	2) Substation (switch) design engineer	2) 10	2) 628	2) 40	2) 2,480
Regular Labour (NS Power internal resources – project management)	1) Project Manager	1) 200	1) 12,400	1) 140	1) 8,680
	2) Scheduling resources	2) 40	2) 2,373	2) 17	2) 1,168

CI C0059483 – 83V L-5017 and L-5046 Rebuild Tap (NSEB m12719)
NSPI Responses to Nova Scotia Energy Board Information Requests

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Cost Element	Labour Description	Phase 1 – L5017/L5046 tap (hours)	Phase 1 – L5017/L5046 tap (\$ total cost)	Phase 2 – 83V-504 switch (hours)	Phase 2 – 83V-504 switch (\$ total cost)
Regular Labour (NS Power internal resources – various field and office technical resources)	1) Project design	1) 5	1) 2,250	1) 15	1) 6,750
	drafting	2) 88	2) 3,5464	2) 37	2) 14,911
	2) Power Line	3) 300	3) 15,000	3) 200	3) 10,000
	Technician	4) 5	4) 1,605	4) 5	4) 1,605
	Switching	5) 5	5) 2,250	5) 10	5) 4,500
	procedure				
	3) Field				
	Supervisor				
	hours				
	4) Project				
	Commissioning (T-line and Substations)				
	5) Project Close-out				

PARTIALLY CONFIDENTIAL (Attachment Only)

Request IR-3:

Please provide all formal quotes received, including detailed task breakdowns, this includes any obtained through Master Service Agreements, that were used to estimate the costs. These should be listed separately for Phase 1 and Phase 2 and should cover contractors, consultants, construction, and all other activities identified in the table provided in response to IR 1(h).

Response IR-3:

Please refer to IR-2 for the cost breakdown for internal labour. The table below explains how the Company arrived at the project estimates for all contract and consultant costs required to complete this project. Please note, material costs are actuals, with most taken from NS Power warehouse inventory. All material is procured through a competitive process to set up MSAs for inventoried materials. Additionally, all Transmission Line costs presented in the calculators (Partially Confidential Attachments 3 and 4) are taken from NS Power's established Line Services Agreement.

Cost Element	Phase 1 – L5017/L5046 tap (\$ cost)	Phase 1 – L5017/L5046 tap (estimate comments)	Phase 2 – 83V-504 switch (\$ cost)	Phase 2 – 83V-504 switch (estimate comments)
Engineering Design (consultant)	40,698	Partially Confidential Attachment 1- CIMA+	79,780	Partially Confidential Attachment 2 - CBCL
T-line construction	360,926	Partially Confidential Attachment 3- Summary page (T-line project cost calculator)	65,000	Estimated based on initial T-line scope. Design being progressed by CBCL.
Substation construction (switch)	0	Inline switches being installed at this tap location scope. These will be installed as part of the T-line work.	10,4965	Partially Confidential Attachment 4 (substation estimate calculator). Estimated based on initial scope. Design being progressed by CBCL.

CI C0059483 – 83V L-5017 and L-5046 Rebuild Tap (NSEB m12719)

NSPI Responses to Nova Scotia Energy Board Information Requests

PARTIALLY CONFIDENTIAL (Attachment Only)

Cost Element	Phase 1 – L5017/L5046 tap (\$ cost)	Phase 1 – L5017/L5046 tap (estimate comments)	Phase 2 – 83V-504 switch (\$ cost)	Phase 2 – 83V-504 switch (estimate comments)
T-line Material	155,799	Partially Confidential Attachment 3- Summary page (T- line project cost calculator)	35,000	Estimated based on initial T-line scope. Design being progressed by CBCL.
Substation Material	29,367	Partially Confidential Attachment 5 – Inline switches quotation	25,440	Partially Confidential Attachment 4 (substation estimate calculator). Estimated based on initial scope. Design being progressed by CBCL. Partially Confidential Attachment 6 (switch invoice).
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	Partially Confidential Attachment 3- Summary page (T- line project cost calculator)	178,021	Estimated based on initial T-line scope. Design being progressed by CBCL.

Project: L5017 & L5046
Modifications



Part A | Statement of Work

This Statement of Work is governed by the terms of the Master Engineering Services Agreement Number 2024-NS-CIMA between Nova Scotia Power Incorporated and CIMA+ effective as September 1st, 2024.

Issue Date: May 6th, 2025

Project Title: L5017 & L5046 Modifications Rev01

1.0 Background

Nova Scotia Power Inc (“NS Power” or “NSPI”) is a regulated, vertically integrated, electric utility that has produced and supplied electricity to Nova Scotians for close to 100 years. It provides 95 per cent of the transmission and distribution of electricity in Nova Scotia and serves approximately 515,000 residential, commercial, and industrial customers.

NSPI Transmission Line Engineering department requires assistance for the Transmission line modifications for L5017 and L5046, which is a 69kV line in Wolfville, NS.

2.0 Scope of Work

The scope for this project is modifications to L5017 and L5046.

Modifications Required:

- No changes to L5017-055
- L5017-056 to be replaced with a 69-DT-3 structure
- L5017-057 to be removed (structure number re-used)
- L5017-058 to be replaced with a 69-TH-2 structure and renamed L5017-057
- L5017-059 to be replaced with a 69-DT-3 structure, moved approx. 3m to the West and renamed L5017-058
- L5017-056 to L5017-059 will be reconducted with Linnet
- No changes to L5017-060, which remains a 69-TH-2
- L5046-001 to L5046-004 to be removed (structure number re-used)
- L5046-005 to be replaced with a 69-DMA-3 structure. It will be replaced to the left 1m offset.
- New structure 69-DB-3 which will be named L5046-001 will be placed past L5017 line, but between L5017-058 and L5017-059. This structure will be the flying tap connection for L5046 from L5017 using Linnet ACSR conductor. In-line switches to be installed at this location in each direction. Potential for the two poles closest to the stream will need to be cribbed.
- Linnet conductor will be used for all modifications

The modifications required can be summarized below in **Figure 1**.

Project: L5017 & L5046
Modifications

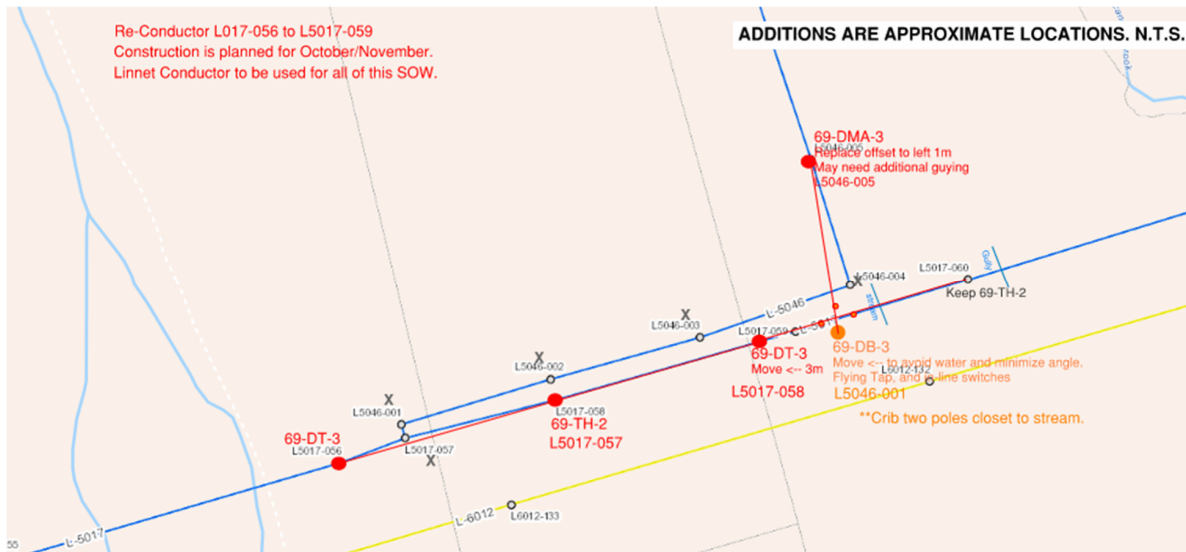


Figure 1: Proposed Modifications for Site

Assumptions

Scope of work assumptions as per the NSPI request are:

- NSPI Standard design criteria applies (NSPI Transmission Line Design Standard Rev02).
- Standard checks of all wires/structures for strength, clearances, swing, etc. will be performed.
- Modeling of all required structure/line modifications using M4 structures.
- A new switch off Melanson Road is required but will not be a part of this scope of work proposal.

The following inputs from NSPI will be given:

- LiDAR data/PLS-model will be provided and it captures both transmission lines

Deliverables

The following items are required as deliverables for this project scope:

- IFR 30% Design Package
 - Design Criteria
 - Structure List, Structure Spotting (to confirm locations with stream and wetlands)
 - Preliminary PLS-CADD models for lines L5017 and L5046
 - The PLS-CADD model shall include the criteria file
- IFR 60% Design Package; including but not limited to:
 - Updated PLS-CADD models for L6021 and L6024
 - PLS-CADD models
 - Design Criteria



Project: L5017 & L5046
Modifications

- Plan/Profile Drawings
- Structure Drawings
- Structure List and Staking Table
- Insulator Assembly Drawings with NSPI Item Numbers
- Bill of Materials (BOM) with NSPI Item Numbers
- Stringing Charts
- Phasing Diagrams (Provided by NSPI)
- IFC 100% Design Package
 - Same as IFR 60% Design Package but signed and sealed by P.Eng. with active Engineers Nova Scotia registration
 - CAD files and PLS .bak files

3.0 Timelines

Timelines for the scope of work will be determined during the Engineering kick off meeting and follow the below schedule in **Table 1**.

Table 1: Engineering Stages Schedule

Stages	Date
Purchase Order Issue Date	TBD
Engineering Kickoff Meeting	PO Issue Date + 5 Days ²
IFR 30% Design Package	June 13 th , 2025
IFR 60% Design Package	July 25 th , 2025
IFC 100% Design Package	August 29 th , 2025

Notes

- 1: Days are to be considered working days.
- 2: Timeline of engineering kick off meeting will be scheduled by CIMA+ based on NSPI availability.
- 3: Timelines to be re-evaluated upon if any other received POs from NSPI.

Project: L5017 & L5046
Modifications



Part B | Proposal Submission Requirements

CIMA+ will complete all tasks required for Part A: Statement of Work and submit documents as noted in the Deliverables section.

1.0 Schedule

The schedule will be as per **Part A Section 3.0 Timelines**.

2.0 Engineering Tasks

All included engineering tasks are listed in the table presented in **Appendix A | Engineering Tasks and Associated Hours**.

3.0 Proposed Team

Below is the proposed team for this proposal. Project team to be confirmed and introduced at project kick off meeting.

Marianne LeBlanc, P.Eng. – Project Manager, Lead Engineer
Rachel Coombs, EIT – Line Engineer
Ethan Rogers – Junior Technologist

4.0 Price

Pricing is to be Canadian funds, excluding taxes.

- (a) Time and Materials Basis: N/A – See part (b)
- (b) Fixed Price: Lump sum: \$ [REDACTED]

Notes

1. **Table 1** shown below to be completed showing transparency in pricing provided above.

Table 1: Fixed Price Breakdown

<u>TASK</u>	<u>COST</u>
Project Management & Coordination	[REDACTED]
Engineering	
Drawings	
TOTAL	

Project: L5017 & L5046
Modifications



Notes

- 1: Table has been completed showing transparency in pricing.
- 2: Total pricing does not include HST.

5.0 Assumptions/Exclusions

The following clarifications apply to this proposal:

- NSPI to provide file names/naming convention for the package
- NSPI to provide the Phasing Diagrams
- NSPI to provide the details/drawings for structure framing of standard structures
- All wood pole structures are directly embedded. The embedded depth shall be 10% (pole length) + 0.61m (2ft) unless NSPI provided has soil data showing poor soil conditions. Thus, the estimated engineering work shall not allocate hours for foundation design.
- A new switch off Melanson Road is required but will not be a part of this scope of work proposal.

6.0 Proposal Submission and Acceptance

This proposal is submitted by:
ENGINEERING COMPANY:

CIMA CANADA INC.
302-238A Brownlow Avenue
Dartmouth, NS, B3B 2B4, Canada
T: (902) 468-4040
cima.ca

AUTHORIZED ENGINEER:

A handwritten signature in black ink, appearing to read "Karl Olechnowicz".

Karl Olechnowicz, P.Eng.
VP | Energy – Lines and Substations
karl.olechnowicz@cima.ca
T: (514) 501-9551

THIS PROPOSAL IS ACCEPTED BY:

A handwritten signature in black ink, appearing to read "Lance Taylor".

(Signature of NSPI External Commitment Authority)

CIMA+ Reference:
00012232 | Z0027629

Project: L5017 & L5046
Modifications



Appendix A | Engineering Tasks and Associated Hours

2025-05-06



PROJECT : L5017 and L5046 Modifications		Prepared by M. LeBlanc	
Client Ref: ---		Checked by D. Lamont	
Client : NSPI		Date : 2025-05-06	
CIMA File : 00012232		Rev. : Rev. 0	
LOT NUMBER	DESCRIPTION		
		Hours	\$
<u>LOT 600</u>	<u>Coordination</u>		
	Project management and coordination (internal and external)	10	\$
	Quality assurance	16	\$
	Meetings	28	\$
	Total Coordination and meetings	54	\$
<u>LOT 700</u>	<u>Engineering</u>		
	<u>Design - IFR</u>		
	30% Design		
	Design Criteria	10	\$
	Structure List/Structure Spotting	16	\$
	Stick Structure Modelling	14	\$
	Reviewing Input/Lidar Importing	6	\$
	60% Design Package		
	Plan and Profile - PLSCADD	20	\$
	M4 Modelling (~5 structures)	20	\$
	Project Summary	18	\$
	Structure List/Construction Staking List	10	\$
	BOM	20	\$
	<u>Design - IFC</u>		
	Incorporate IFR Comments, analyses and checks	24	\$
	Sag and Tension/Stringing Charts	20	\$
	IFC Package	12	\$
	Total Engineering	190	\$
<u>LOT 800</u>	<u>Drawings</u>		
	IFR Package	88	\$
	IFC Package	88	\$
	Total Drawings	176	\$
	TOTAL FEES, EXPENSES AND SUBCONTRACTORS	420	\$

Prepared by Cima 2025-05-06

Page 1



PART A – STATEMENT OF WORK

This Statement of Work is governed by the terms of the Master Engineering Services Agreement Number 2024-NS-CBCL between Nova Scotia Power Incorporated (NSPI) and CBCL Limited effective as of September 1, 2024.

Issue Date: February 23, 2025

Project Title: 83V-504 ROW Switch Addition / L-5017 Line Upgrades

1. Introduction

To support the addition of a transmission Right of Way (ROW) switch to 69 kV transmission line L-5017, Nova Scotia Power (NS Power) requires an engineering service provider to create an Issued for Construction (IFC) drawing set consisting of physical, civil, and transmission components.

2. Scope of Work

As defined in Appendix A.

3. Timelines

Milestone Schedule

Purchase Order Issue Date	TBD
Engineering kickoff meeting	Issue Date + 5 days
30% Package Issued	Issue Date + 15 days
60% Package Issued	Issue Date + 30 days
90% Package Issued	Issue Date + 45 days
100% (IFC) Package Issued	Issue Date + 60 days
IFC Package Accepted	Issue Date + 65 days

('Days' are working days)



PART B - PROPOSAL SUBMISSION

(completed by the Consultant)

1. SCOPE OF WORK

CBCL has reviewed the scope of work provided in the Appendix and makes the following observations.

Background

CBCL completed a line clearance assessment of L-5017 in 2016/17 and has access to the survey data and photos collected at that time and the final clearance report authored by Mark Chapman.

NS Property Online indicates the line easement was established in 1963. ROW width is noted as 66-feet wide, with provisions for tree cutting within 50-feet of the centerline.

Electrical Parameters

Voltage level is 69kV nominal. Conductor type is 336.4 MCM 26/7 ACSR 'Linnet'.

Switch type is identified as Cleaveland Price drawing C06A418 and will form the basis of the installation details.

Functional Requirements & Constraints

CBCL understands that a remote grounding installation is to be used for the bonding of the switch structure. The bond wire is to be installed in the standard overhead shield wire (OHSW) position on the rebuilt structures. Clearance to primary phases in-span and ground/road clearance checks will be performed.

Line upgrades will be required to accommodate this new OHSW on structures 068 through 072. The span between structures 068 and 069 is a longer span (~200m) crossing a gully. The new switch structure is to be located between this steep sloped area and the Melanson Road roadway.

The clearance assessment completed by CBCL in 2017 was premised on potential for re-insulation (adding bells) and a thermal rating increase to 60degC but was also assessed at 100degC. It is assumed that a similar methodology is desired here.

CBCL notes that there is an intersecting distribution line at the site. This obstacle will be accommodated in the design work.

The replacement transmission structures are expected to be based on NS Power 69kV transmission standards, including:

- 69-T-H2(O): 69kV Tangent 2-pole structure with suspension insulators, tangent OHSW, cross-arm and cross-bracing.
- 69-DT-2(O): 69kV Dead-end 2-pole structure with suspension jumper, dead-end OHSW.
- 69-DT-3-LP(O): 69kV Dead-end 3-pole structure with line post jumper, dead-end OHSW.
- TSA1402: OHSW Dead-end



- TSA1403: OHSW Double Dead-end
- TSA1405: OHSW Tangent
- TSA1408: OHSW Double Dead-end Tangent

It is assumed that no angle structures are required, based on the current information CBCL has for this line section.

Switch Structure

NSPI transmission standards will be used as the basis for essentially all scope elements outlined in this SOW. However, specifically related to the switch structure's connections and steel components, CBCL will apply the NS Power standards without a full detailed analysis, and will assume they are adequate to perform their intended function. CBCL will perform reviews to ensure the connections are dimensionally compatible and constructable. The various details will be copied from the NSPI standards and placed on project-specific sheets. If modified to suit site specific needs are found to be required, CBCL will notify the NSPI project engineer to discuss the path forward. The stamping of these sheets will certify the general arrangements but will not necessarily cover all aspects of a detailed analysis. These limitations will be clearly declared on the sheet to delineate responsibilities.

CBCL understands that a pullover area is desired to allow for a work vehicle to park while the switch is being operated.

The SOW makes no indication that a fence is required to protect the switch site. None is included in this proposal.

Civil Design

CBCL will develop the general arrangement of the site including mass grading, parking area layout, and equipment layout. We will establish design grades for the site, considering cut and fill quantities, based on the topographic survey, conceptual plan and standard drawings provided by NSPI and LiDAR data. Limits of the grading and drainage will be within NSPI right of way and drainage will be managed to avoid negative impacts downstream.

2. METHODOLOGY

CBCL understands that NS Power would like to use a 30/60/90/IFC design framework. CBCL feels this project is small enough to eliminate at least one milestone gate to save time and cost, however we are open to adhering to the requested framework.

A kick-off meeting will be held shortly after authorization to proceed to ensure all parties are aligned.

CBCL has reviewed the Strum survey data and photos noted in Appendix A. We feel a **site visit** is worthwhile for the small incremental cost. The prime benefit of a site visit is that the designer(s) may gain a broader appreciation for the site terrain and any inherent obstacles. We have not



included for any additional topographical survey, however, CBCL is able to provide this service should it be required.

CBCL will leverage the standards provided to form the basis of design. To save time and cost, CBCL will only take responsibility for elements to which we have performed such analysis as to be confident to accept said responsibility. These limitations will be clearly denoted on the drawings.

CBCL will model the transmission line section using industry standard **PLS-CADD** line modelling software. Site development plans will be designed using AutoCAD Civil3D.

A **Bill of Materials** (BOM) will be generated. NS Power standard materials will be referenced, and any non-standard materials will be identified clearly.

3. DELIVERABLES

The initial deliverables will be the overall site development plan view, physical plan view for the switch structure, and switch structure general arrangement/elevation drawing followed by the more detailed sections and assembly/detail drawings.

Civil works will include deliverables as noted, specifically General Site Plan, Grading Plan (with cut/fill), and Drainage Plan.

The deliverables section in Appendix A lists “N/A” under the transmission title, however CBCL is aware of the expected contents of an NSPI transmission construction package and has included the following deliverables based on the required scope of work:

- Design Basis
- Overall Plan View
- Environmental Map
- Plan & Profile (PLS-CADD output)
- Structure List (Staking Table)
- Bill of Materials
- Structure Framing Drawings (NSPI standard with adjustments as required to suit site)
- Assembly Detail Drawings (NSPI standard with adjustments as required to suit site)
- Stringing Charts
- Vibration Report

Record drawings have been requested to capture the as-built condition of the site.

Final design files will be provided in PDF and DWG formats as requested.



4. DESIGN TEAM

Mark Chapman, P.Eng., is the manager of CBCL's Electrical Utilities & Renewables department. He has 19-years experience in the field of T&D Engineering, most notably in T&D line design. Mark will act as the project sponsor for this work and will provide design oversight.

Megan Fudge, P.Eng., has been involved in various facets of T&D engineering, both overhead and underground design, over the past 5-years at CBCL. Megan will be the prime designer overseeing the preparation of the deliverables.

Brennan Thorne, P.Eng., is a Senior Civil Engineer that has been working at CBCL for 15 years. Brennan will perform the review of site conditions and oversee preparation of the site development drawings.

The team has access to many internal resources, including drafters and 3D modelers. The team will work closely with the design leads and NS Power representatives to accomplish the work.

5. SCHEDULE

NS Power has requested a total duration of 65 working days (13 weeks) between PO issuance and IFC delivery. This is contingent on 2-week design periods and 1-week review periods and four (4) milestone gates.

CBCL accepts the schedule as written in Part A and Appendix A, with actual dates adjusted based on project start. We note this is contingent on timely receipt of required information and review comments. CBCL suggests removing one review stage. If kept, we request shifting once week from the IFC stage to the 90% stage, as more significant comments would be expected in the 60% deliverables review.

6. PRICE:

Pricing is to be Canadian funds, excluding taxes.

(a) Time and Materials Basis:

Estimated Total Contract price: \$ [Click here to enter text.](#)

OR

(b) Fixed Price: Lump sum: \$ REDACTED



Major Task	Price
Civil Site Development	\$ [REDACTED]
Physical Design	\$ [REDACTED]
Transmission Design	\$ [REDACTED]
Site Visit	\$ [REDACTED]
Total	\$ [REDACTED]

Note that any proposed resources shall be the resources that will be presented at the time of the engagement. Any substitutions of resources at the time of the engagement, must be at an equivalent classification and be approved by NS Power.

Engineer shall provide details on travel, subcontractor and other costs below:

- CBCL has included for expenses related to one round trip site visit.
- CBCL does not expect to require a subcontractor for this design work.

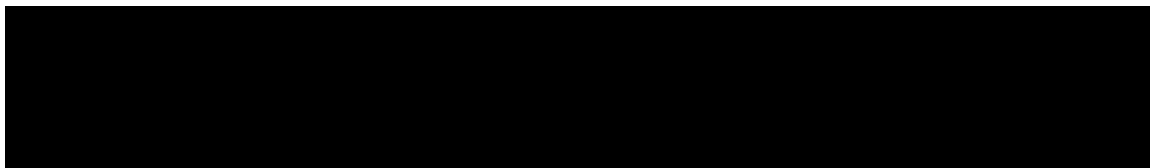
This Proposal is submitted by:

Engineering Company: CBCL Limited

Authorized Signature of Engineer: Mark Chapman

Name: Mark Chapman, P. Eng.

Title: Manager, Electrical Utilities & Renewables



Introduction

To support the addition of a transmission Right of Way (ROW) switch to 69 kV transmission line L-5017, Nova Scotia Power (NS Power) requires an engineering service provider to create an Issued for Construction (IFC) drawing set consisting of physical, civil, and transmission components. Detailed descriptions of these documents are provided below. The new ROW switch, designated at 83V-504, will be located between transmission structures L-5017-068 and 069 where L-5017 crosses Melanson Rd. in Kings County, Nova Scotia. 83V-504 will be mounted on a two-pole wooden structure. In addition to the new switch and structure, transmission structure L5017-070 should be changed from a tangent to a deadend structure in order to accommodate the new switch. Furthermore, a small parking area should be added adjacent to 83V-504 and L-5017-069 to permit Substation Operations staff to safely pull off of the road when parking to operate the switch.

Descriptions of IFC Packages

Civil Package

The civil package should consist of site development drawings and support structure drawings.

All documents produced as part of the civil package shall be provided in .DWG and .PDF formats. The documents in this package shall be sealed by a Professional Engineer licensed to practice in Nova Scotia.

Site Development Drawings

Using the results of the Strum survey performed on the proposed site for 83V-504, site development drawings should be completed that incorporate the backfill materials in the ground grid layout, S 083V0 5 400 00 002, integrate the poles and supports for the switch structure shown in transmission standards TSA 6000 and TSA 6004, and ensure proper drainage at the switch site. A parking area will need to be incorporated into the site layout to allow a half ton truck to be parked off of Melanson Rd. to permit operations staff to safely operate the switch. The area covered with crushed stone as part of the site grounding scheme should be level. Development drawings should show cut and fill required for the site.

The footprint for the site, including the support structure for 83V-504, L5017-069, and the parking area, should fit within the existing transmission ROW at L5017-069.

The drawings created to show site development should include a site development plan, showing a top-down layout of the site. This drawing should be numbered S 083V0 1 203 00 002.

The site development drawings should also include site development elevation views, showing the cut and backfill required to develop the site. The views on the elevation drawings should be referenced on the site development plan. These drawings be numbered beginning with S 083V0 1 203 00 003 and continuing sequentially through multiple sheets if required.

Municipal permits may be required for the parking area adjacent to 83V-504, but are not part of this SOW.

Switch Structure Drawings

NS Power civil standard drawings in the M263Z series should be used to create site specific drawings showing the switch assembly and its components.

An overall assembly drawing, based on M263Z-C2A, should be created to show how the various items in the switch structure assembly fit together. This drawing should have drawing number S 083V0 1 700 00 001.

The steel components in standards drawings M263Z-C3A through C7A should be issued as standalone drawings that can be sent to a steel manufacturer for their fabrication. These drawings should be on separate sheets and should used drawing numbers beginning S 083V0 1 700 00 002 and continuing sequentially.

Physical Package

The physical package should consist of a plan view and elevation drawings showing the incorporation of 83V-504 with adjacent transmission structure L-5017-069. The site grounding layout should also be included as part of the physical package.

All documents produced as part of the physical package shall be provided in .DWG and .PDF formats. The documents in this package will be approved and sealed by the Engineering Department at NS Power.

Plan View

A plan view should be created showing a top-down view of the equipment on site, including 83V-504, L5017-069, and the site parking area developed as part of the civil IFC package. This drawing should be numbered S 083V0 5 201 00 001.

The plan view of the support structure to be used for 83V-504 can be found on NS Power Physical Standard drawing M210Z-P2.

A drawing of the switch to be used as 83V-504 can be found on Cleaveland Price drawing C06A418.

Elevation Drawing and Bill of Materials

A drawing should be created to show two elevation views taken from plan view S 083V0 5 201 00 001. The first of these elevation views should show 83V-504 and L5017-069 from a view parallel to L5017. The second elevation view should show 83V-504 from a view perpendicular to L5017. Views of a typical NS Power ROW switch mounted on wooden poles can be found on physical standards M210Z-P2 and M210Z-P10. The elevations should be shown on a new drawing numbered S 083V0 5 300 00 003.

Grounding connections above grade should be shown on the elevation drawings. Overhead 4/0 ACSR ground connections between 83V-504 and a buried 10 m x 10 m ground grid located at structure L5017-072 shall be incorporated into the design. This ground conductor should be underbuilt on the existing structures. Connections to overhead ground wires can be found on NS Power physical standard M210Z-P4. Clearance of these ground connectors over Melanson Rd. should be confirmed as part of the transmission design for this site.

The switch operator shall also be connected to the local ground grid. Details of this connection are shown on NS Power physical standard M210Z-P4.2.

The interconnection between the drop leads for 83V-504 and L-5017 is show on NS Power physical standard M210Z-P5. The maximum length for switch drop leads in 5 m. Leads to the switch should match the conductor size of L5017, 336.4 MCM ACSR Linnet.

Details of cable connections to switch pads can be found on NS Power physical standard M204Z-P14.

The elevation views should include Bill of Material (BOM) callouts. A Bill of Materials shall be compiled consisting of all equipment required to install 83V-504.

Grounding Layout

A grounding layout drawing, showing the layout of the draft ground grid prepared by NS Power should be created. This drawing should be numbered S 083V0 5 400 00 002.

Details of the backfill required for this ground grid should be included on the layout drawing, they can be taken from NS Power physical standard drawing M205Z-P54.

All grounding connections below grade should be exothermic welds. Details of these welds can be found on NS Power physical standard drawings M205Z-P31-Sh 2, M205Z-P35-Sh 2, M205Z-P36-Sh 2, and M205Z-P37-Sh 2.

The local ground grid should be supplemented by two 4/0 ACSR overhead ground connections to a remote 10 m x 10 m ground grid located near transmission structure L5017-072. A note should be added to the grounding layout drawing to reflect this.

Transmission Package

All documents produced as part of the transmission package shall be provided in .DWG and .PDF formats. The documents in this package shall be sealed by a Professional Engineer licensed to practice in Nova Scotia.

To accommodate the addition of new switch 83V-504, the following transmission structure changes are anticipated to be required:

- L5017-068 should be replaced with a new deadend structure
- L5017-069 should be replaced with a new tangent structure
- L5017-070 should be replaced with a new tangent structure
- L5017-071 should be replaced with a new tangent structure
- L5017-072 should be changed to a deadend structure

These structure changes should include provision to add an Overhead Shield Wire (OHSW) between L5017-068 and L5017-072. This OHSW will be used to remotely connect the ground grid at 83V-504 to an existing ground grid at L5017-072.

Documents Provided by NS Power

The following documents will be provided by NS Power:

Document Number	Document Name
Grounding Standards	
M205Z-P31 – Sheet 2	Exothermic T Connection: Copperweld
M205Z-P35 – Sheet 2	Exothermic Ground Rod Connection: Copperweld
M205Z-P36 – Sheet 2	Exothermic Ground Rod Connection: Copperweld
M205Z-P37 – Sheet 2	Exothermic X Connection: Copperweld
M205Z-P54	Installation of Copper Ground Grid (C/W Exothermic Connection) and Rod Inside Substation Fence

Physical Standards	
M204Z-P14	Switch Pad Connection Aluminum Pad to Aluminum Conductor
M210Z-P2	Typical 69 kV Installation
M210Z-P4	Overhead Switch Ground
M210Z-P4.2	Crank Switch Handle On Wood Pole with Ground Grid (Anti-Theft Cable)
M210Z-P5	Typical Switch Connection
M210Z-P10	ROW Switch Typical Installation
Civil Standards	
M263Z-C2A	Assembly 69 kV 2 Pole Structure
M263Z-C3A	Frame Assembly
M263Z-C4A	Item SW1A Switch Support Frame
M263Z-C5A	Item SW2A Switch Support Frame
M263Z-C6A	Items SW3A and SW4A Switch Support Frame
M263Z-C7A	Items SW5A and 5B, SW6A and SW7A Switch Support Frame
Transmission Standards	
TSA 1103	Single Guy Tee Double Deadend Assembly
TSA 4002	2 Pole X-Brace Assembly
TSA 6000	Pole Setting Detail
TSA 6004	Log Anchor Setting Details
Miscellaneous	
N/A	Strum Site Topographic Survey
N/A	Draft Ground Grid Layout and Study Results
C602C435	Cleveland Price Switch Arrangement Drawing
C06A418	Cleveland Price Switch Drawing

Summary of Required Deliverables

Required Documents

The following documents should be produced by the engineering service provider as part of the completion of this scope of work:

Document Number	Document Name
Civil IFC Package	
S 083V0 1 203 00 002	Site Development Plan View – 83V-504
S 083V0 1 203 00 00X (Multiple Sheets)	Site Development Sections – 83V-504
S 083V0 1 700 00 001	Assembly Drawing – 83V-504
S 083V0 1 700 00 00X (Multiple Sheets)	Structural Steel Drawings – 83V-504
Physical IFC Package	

S 083V0 5 201 00 001	Plan View – 83V-504
S 083V0 5 300 00 003	Elevations E-E and F-F– 83V-504
S 083V0 5 400 00 002	Grounding Layout – 83V-504
S 083V0 5 604 00 00X (Multiple Sheets)	Bill of Materials – 83V-504
Transmission IFC Package	
N/A	IFC Package

Site Visit

It is anticipated that a site visit will be required for the completion of this scope of work. However, subject to the discretion of the engineering service provider, the combination of previous site visits for modification to L-5017 and the Strum survey of the site may render this unnecessary. The requirement for a site visit, and the timeline for that visit, will be confirmed at the engineering kick-off meeting.

Proposed Timeline

Subject to the availability of the engineering service provider, the following timeline is proposed for this work:

Milestone	Proposed Date
PO Issued	12Feb26
Engineering Kick-off Meeting	19Feb26
30% Package Issued	05Mar26
NS Power Comments Returned / 30% Review Meeting	12Mar26
60% Package Issued	26Mar26
NS Power Comments Returned / 60% Review Meeting	02Apr26
90% Package Issued	16Apr26
NS Power Comments Returned / 90% Review Meeting	23Apr26
IFC Package Issued	07May26
IFC Package Accepted	14May26

Following the issue and acceptance of the IFC package, it may be necessary to make further changes to the design documents for 83V-504 to address issues that may occur during planning and construction and to reflect the as built condition of the site, if it differs from the IFC package.

Transmission Workorder Summary			
Project Identification		Description of Work	
	L5017/L5046/83V tap switches		
	Line @L5017 IFC work		
Stations	20V to 43V and 83v tap		
Work Order	8781731/ IN-106960		
Date Created	9/17/2025		
Completed By	m. Cassidy		
Labour and Environment		Additional Services	
Crewdays	21.00	Flagging	\$
Structures Worked On	11	Rock Breaking	
Estimated Start Date	2026	Pole Haulage	\$
Rate Period	Yr 7 (Dec 2025 - Nov 2026)	waste	\$
		road maintenance	\$
		Environmental	\$
		gravel for cribbing	\$
		Services Sub-Total	
		Contract Sub-Total	
CUs		Materials	
Poles	95.50	Project Materials	
Framing	89.90	Materials Sub-Total	
Timber & Spars			
Anchors & Guys	57.50		
Insulators			
Conductor	609.50		
OHGW			
Miscellaneous	106.00		
CU Sub-Total	958.40		
NSPI Administration			
ROW Percentage	13%	Site Supervision	
ROW Travel (CUs)	124.59	Switching	
ROW Travel (\$)	\$	Inspection	
Total CUs Quoted	1082.99	Procurement Labour	
		Contingency	
		A/O on Supervision	
		A/O on Contract	
EUS Rate		Administration Sub-Total	
L&E Sub-Total			
NOTE:		PROJECT TOTAL	
Pricing based on recommendations on data sheet. Discrepancies will be addressed on change orders			
Planning Spreadsheet			
Rate Period	Yr 7 (Dec 2025 - Nov 2026)	Environmental CUs	225.00
Crewdays	21.00	Service Cost	
Structures to be Worked	11.00	Materials	
Total CUs	958.40		

REDACTED C0059483 NSEB IR-3 Attachment 4 Page 1 of 2

CI Number: CI C0059483
Project Number: C0061628
Cost Centre: 900

[illegible]



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NOVA SCOTIA POWER-US\$

25 Lakeside Park Drive
Lakeside Industrial Park
Halifax, Nova Scotia B3J 2W5

Attention: Saleem Raza
Email: Saleem.raza@emera.com

ACKNOWLEDGEMENT

Date: August 6, 2025
Purchase Order No.: 2152695
Our Order No.: 25C2123
Tracking No.: 66663
Delivery: October 31, 2025
F.O.B. Point: Shipping point
Freight Terms: Prepaid and Add
Payment Terms: Net 30 Days
Ship Via: Best Way

Direct inquiries to: Chris Pushic

Item No.	Quan.	Description	Style Number	Unit Price (USD)	Extended Price (USD)
1	9	169923 In-line disconnect switch, type ILO-C, single pole, in-line, hookstick operated, rated 138 kV, 1200 Amp., 61 kA momentary, 650 kV BIL. All copper switch featuring: • 180 degree blade latching • In-line mounted pole units • In-line polymer insulator(fully assembled) • Silver-plated hinge and jaw contacts • Tin-plated terminal pads	C02A520G03	\$ [REDACTED]	\$ [REDACTED]
2	9	207398 standard quick break whips for item #1 Standard quick break whip assembly for 138kV/1200A ILO-C (1-phase)	C102C925G001	\$ [REDACTED]	\$ [REDACTED]
Total order value					\$ [REDACTED]

SHIP TO:

NOVA SCOTIA POWER
25 BEECHVILLE PARK DR
BEECHVILLE INDUSTRIAL PARK
BEECHVILLE, NS B3T 1M9
CANADA

MARKS:

PO #2152695



14000 Route 993 • Trafford, PA 15085-9550 • (724)-864-4177
FAX (724)-864-9040

INVOICE

Page 1

Invoice No: 078018
Date: 04/30/25

NOVA SCOTIA POWER
C/O ACCOUNTS PAYABLE
PO BOX 910
INVOICES@NSPOWER.CA
HALIFAX, NOVA SCOTIA B3J 2W5

Our Order No: 061648
Purchase Order No: 2124536
Quote No: 23K3004
F.O.B. Point: Shipping point
Freight Terms: Prepaid and Add
Shipped Via: R&L 708678441
Terms (\$): Net 30 Days
Interest of 1.5% per month
charged after due date.

Item No.	Quantity	Style Number/Description	Ship Date	Unit Price	Extended Price
1	2	C06A032G22 V2-CA 69/1200 219085 PO Item 1 FREIGHT CHARGE	04/30/25		

Ship To: NOVA SCOTIA POWER
25 LAKESIDE PARK DRIVE
LAKESIDE INDUSTRIAL PARK
LAKESIDE, NS B3T 1M9

Sales Tax: 0.00
Total Invoice:

Marks: CANADA

INVOICE