EPCOR Distribution & Transmission Inc.

City of Edmonton Transmission Reinforcement Facility Application

February 28, 2025

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Appendices

1.0 APPLICATION

1. EPCOR Distribution & Transmission Inc. ("EDTI") submits this application ("Application") for the City of Edmonton Transmission Reinforcement ("CETR") project ("Project") for an order or orders of the Alberta Utilities Commission (the "AUC" or "Commission"), including permits, licences and approvals as applicable, as follows:

(a) pursuant to Sections 14 and 15 of the *Hydro and Electric Energy Act*, RSA 2000, c H-16 (the "HEEA"), authorizing EDTI to construct and operate a new 240/72/15 kV substation to be named the Fort Road substation;

(b) pursuant to Sections 14 and 15 of the HEEA, authorizing EDTI to construct and operate a new double circuit 240kV transmission line between the 915L Cut Point[1] and the Fort Road substation, the two circuits to be designated as 915L and 993L, respectively;

(c) pursuant to Sections 14 and 15 of the HEEA, authorizing EDTI to construct and operate a new 72kV double circuit transmission line between the Fort Road substation and the existing Namao substation, to be designated as 72FN27 and 72FN28, respectively;

(d) pursuant to Sections 14 and 15 of the HEEA, authorizing EDTI to construct and operate a new fibre optic cable between Clover Bar substation and Fort Road substation, designated as FO-166 to facilitate telecommunications; and a new fibre optic cable between Fort Road substation and Namao substation, designated as FO-167 to facilitate telecommunications;

(e) pursuant to Sections 14 and 15 of the HEEA, authorizing EDTI to alter and operate the existing Clover Bar and Namao substations;

(f) pursuant to Section 18 of the HEEA, allowing EDTI to connect transmission lines 915L and 993L to AltaLink Management Ltd. ("AML") transmission lines 915L and 993L[2], respectively;

(g) pursuant to Section 18 of the HEEA, allowing EDTI to connect the new transmission lines 915L and 993L to the Fort Road substation;

[1] The transmission line currently designated 915L will be cut by AML at a proposed new point of interconnection (the "Cut Point" or "Interconnection Point"), with the existing section running from East Edmonton to the Cut Point being designated 915L, and the section from Clover Bar to Cut Point being designated 993L.

[2] The Functional Specification for this Project (Appendix B) refers to the new 240kV circuits as either 915L/915EL and 993L/993EL.

(h) pursuant to Section 21 of the HEEA, authorizing EDTI to discontinue operations of the existing 72CN10, 72KN23, 72CK12 and 72CK13 underground transmission lines[3];

(i) pursuant to Section 21 of the HEEA, authorizing EDTI to discontinue operations of the existing Kennedale substation; and

(j) such other relief as EDTI may request or the Commission determines appropriate.

2. In addition, EDTI requests that all temporary workspaces and access roads as described in Section 2.20 be reflected in the permit(s) and licence(s) for the approved facilities.

3. In support of this Application, EDTI provides the attached information as required in Sections 7.2.1 and 11.1.2 of AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines*, effective March 28, 2024 ("AUC Rule 007").

4. Communication with respect to this Application should be directed to the Applicant and its external legal counsel as follows:

EPCOR Distribution & Transmission Inc.
Regulatory Affairs
12116 107 St NW
Edmonton, Alberta T5G 2S7

Attention: Teresa Crotty-Wong
Phone: (780) 412-3799
Email: RegulatoryAffairs@epcor.com

EPCOR Utilities Inc.
Legal Services
2000, 10423 101 St NW
Edmonton, AB T5H 0E8

Attention: Britt Tan
Phone: (780) 412-3998
Email: btan@epcor.com

Borden Ladner Gervais LLP
Centennial Place, East Tower
1900, 500 – 3rd Avenue SW
Calgary, AB T2P 0R3

Attention: Jonathan Liteplo
Phone: (403) 232-9533
Email: jliteplo@blg.com

5. For the purposes of public notice, EDTI's contact information is as follows:

[3] EDTI will submit a decommissioning and salvage application at a later date for assets that are discontinued from use.

EPCOR Distribution & Transmission Inc.

Attention: Jennifer McEwen
Phone: (780) 412-4040
Email: consultation@epcor.com

6. Respectfully submitted by EPCOR Distribution & Transmission Inc. this 28th day of February, 2025.

EPCOR Distribution & Transmission Inc.

Per: *< Electronically Submitted >*

Gianfranco (John) Cassano
Director, Transmission
EPCOR Distribution & Transmission Inc.

2.0 PROJECT DESCRIPTION

2.1 Description of the Proposed Project (TS1)

7. This AESO-directed Project is needed to address forecast load growth exceeding current transmission system capability, and aging transmission assets in the area.[4] A copy of the AESO's direct assignment letter is included as Appendix A to this Application.

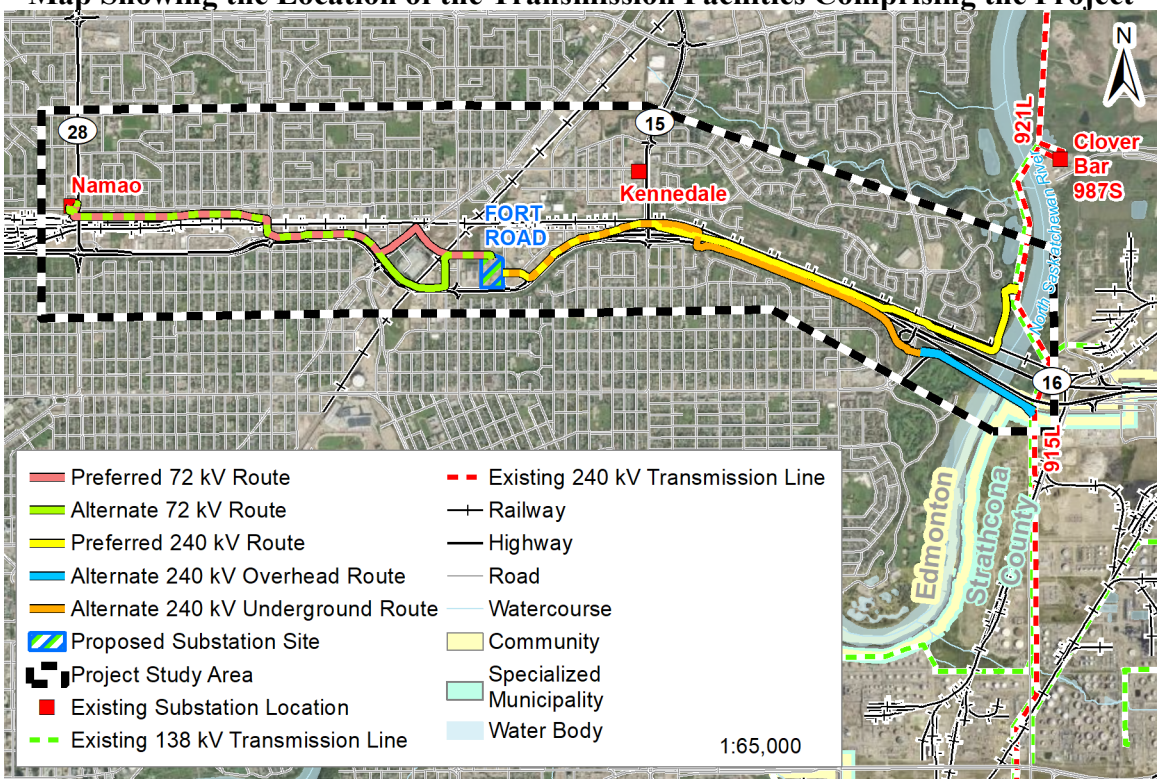
8. The Project is located in EDTI's transmission service area within the municipal boundaries of the City of Edmonton ("COE") and is comprised of a number of new transmission facilities, including a new 240/72/15kV substation (to be named the Fort Road substation), a 240kV double circuit transmission line (to be designated 915L and 993L) connecting the Fort Road substation to AML's existing 915L transmission line, and a 72kV double circuit transmission line (to be designated 72FN27 and 72FN28) connecting the Fort Road substation to EDTI's existing Namao substation. The Project also includes alterations to the existing Namao and Clover Bar substations, and discontinuing the operation of certain existing transmission facilities, including EDTI's Kennedale substation and 72kV underground transmission lines 72CN10, 72KN23, 72CK12 and 72CK13.

9. The AESO's Need Identification Document ("NID") for the Project was approved by the Commission in Decision 28633-D01-2024. The AESO's Functional Specification for the Project is included in Appendix B and is discussed further in Section 2.6 below. The AESO's latest Direction Letter relating to the Project (directing EDTI to file this Application) is included in Appendix A-3.

10. A map showing the location of the transmission facilities comprising the Project is provided as Figure 2.1-1 below. More detailed facilities maps are provided and described in Section 2.21 below and a number of Appendices referenced in that section.

[4] Decision 28633-D01-2024 para. 2

Figure 2.1-1
Map Showing the Location of the Transmission Facilities Comprising the Project



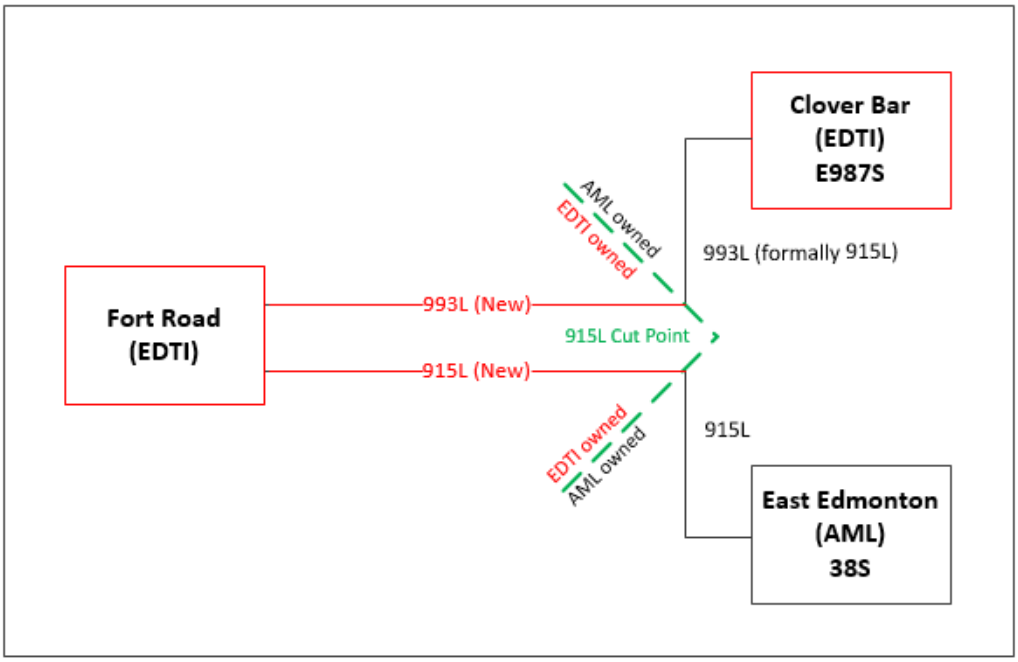
11. The Project will include the following primary components, described by Project stage:

Stage 1:

- EDTI will add one new 240/72/15 kV substation to be designated Fort Road substation including the following:
  - Land preparation activities, including the removal of surface material from an area approximately 105 x 113 metres and backfilling with appropriate materials to provide geotechnical stability. Excavated material will be tested for contamination prior to removal from site and disposed of or stored appropriately;
  - Civil works including installation of a grounding grid and foundations for electrical apparatus;
  - Construction of a small building to house switchgear and control equipment.
- AML will cut its existing 240kV transmission line 915L between AML's East Edmonton 38S substation and EDTI's Clover Bar substation, with the portion of line north of the cut point to be re-designated as 993L and the portion south of the

cut point retaining the designation 915L. Figure 2.1-2 below shows the cut point and the demarcation between AML and EDTI transmission lines.

Figure 2.1-2
Cut Point and Demarcation Between AML and EDTI Transmission Lines



- EDTI will install two 240kV circuits from the 915L cut point (one connecting to 915L and one connecting to 993L) for approximately 5 km and terminate them into the proposed Fort Road substation. The newly constructed transmission circuits will also be designated as 915L and 993L, respectively.
- EDTI will construct one new fibre optic line and modify an existing fibre optic line:
  - The new fibre optic line, designated "FO-166", will be approximately 5.5 km in length and will follow the new 993L 240kV line from the Fort Road substation to the Clover Bar substation. It will connect the Fort Road substation to EDTI's fibre optic network. FO-166 will be jointly owned and operated by EDTI and AML. AML will own the section of FO-166 that is installed on its existing 915L/947L[5] structures north of the cut-point and extending to the Clover Bar Substation. EDTI will own the new fibre optic cable that will be installed along EDTI's new 240kV double circuit transmission lines and a short, new segment that will connect from AML's 915L/947L structure (outside of the Clover Bar substation) to inside the

[5] Existing 915L will be renamed to 993L north of the cut point.

Clover Bar substation. Additional details of the connection of FO-166 into Clover Bar are described further in Section 2.15 below.

- EDTI's FO-40 cable will be extended to create a connection between the proposed Fort Road substation and EDTI's Kennedale substation. This connection is proposed to facilitate testing and pre-commissioning activities at Fort Road substation ahead of the FO-166 installation that is contingent on the 240kV transmission line infrastructure construction.

Stage 2:

- EDTI will add two 72kV circuits, to be designated 72FN27 and 72FN28, between the proposed Fort Road substation and the existing Namao substation, that will be approximately 4.3 km in length, with a minimum line rating of 85 MVA (summer/winter) for each circuit.
- EDTI will construct a new fibre optic line designated "FO-167" which will be approximately 4.3 km in length (optical ground wire ("OPGW") along 72FN27 and 72FN28 lines) and will connect the proposed Fort Road substation to the Namao substation.
- EDTI will expand the Namao substation fence and re-terminate transmission line 72VN21 to the bay currently occupied by 72KN23.
- EDTI will add one 72kV breaker to the existing 72KN23 bay at Namao substation to maintain current operating conditions for 72VN21.
- EDTI will discontinue from use for transmission purposes the 72kV transmission circuits 72KN23 and 72CN10.

Stage 3:

- EDTI will transfer the loads connected through 15 kV feeders and the existing Demand Transmission Service ("DTS") contract capacity of 45.4 MW at the Kennedale substation to the proposed Fort Road substation.
- EDTI will discontinue from use for transmission purposes the existing Kennedale substation and the remaining 72kV transmission circuits (72CK12 and 72CK13) connected to the Kennedale substation.
- EDTI will add or modify associated equipment as required for the above transmission development.

12. Related to the Project, EDTI's Distribution function will transition twelve 15kV distribution feeders currently connected to and supplied by the Kennedale substation to the new Fort Road substation. Additionally, at locations, where the 72kV transmission line will be located above existing distribution lines[6], those distribution lines and other facilities attached to the distribution structures (including third-party-owned communication cables and City of Edmonton-owned streetlight heads) will be relocated onto the new transmission structures to minimize the amount of new right-of-way width ("ROW") required for the new transmission line. The locations of the distribution underbuilds are described in Section 2.10 (Transmission Line Structures Type) and shown in Appendix C.

13. Temporary workspace requirements for the Project are described in Section 2.20.

14. The scheduled in-service dates ("ISD") for the Project are June 1, 2028 (Stage 1), September 1, 2028 (Stage 2), and June 1, 2029 (Stage 3). Further information on the project schedule is provided in Section 2.18 below.

2.2 Customer Project or Application Related to Proposal Under Section 24.31 of the Transmission Regulation (TS2)

15. Not applicable. The application is not for a customer project, nor an application related to a proposal for a market participant under Section 24.31 of the *Transmission Regulation*.

2.3 Details of Ownership Structure (TS3)

16. The following is a list of the owners and operators of all new and existing transmission facilities falling within the purview of this Application:

- The Clover Bar, Namao and proposed Fort Road substations, as well as the proposed transmission lines 72FN27 and 72FN28 will be wholly owned and operated by EDTI.
- The existing transmission lines 915L and 993L will continue to be owned and operated by AML.
- The new transmission lines 915L and 993L extending from the interconnection point with 915L, will be owned and operated by EDTI.

[6] Co-locating distribution assets on transmission structures would apply to sections common to both Preferred and Alternate 72kV Routes.

- For the Preferred 240kV Route, AML will own the 240kV slack span from their final structure to EDTI's first structure.
- For the Alternate 240kV Route, EDTI will own and operate the 240kV slack span from existing and new AML structure, and the demarcation point between AML and EDTI lines will be at the pad where the slack span terminates on AML structures.
- The optical ground wire ("OPGW") installed from the AML cut point to 915L/947L structure 19 (new 993L) on the north side of Clover Bar substation will be owned and operated by AML. The OPGW and/or fibre optical cable to the Fort Road substation from the AML interconnection point, designated as FO-166 will be owned and operated by EDTI. The section of fibre optic cable from the existing AML 915L structure 19 into Clover Bar substation will be owned and operated by EDTI.
- The existing fibre optic cables FO-40 and FO-25 will continue to be owned and operated by EDTI.

17. EDTI confirms that it is a qualified owner as defined in the Glossary of AUC Rule 007.

2.4 Existing Approvals (TS4)

18. Existing facilities approvals are shown in Table 2.4-1 below.

Table 2.4-1
Existing Facilities Approvals

	Facility	A Approval	B TFO
1	Kennedale substation	Permit and Licence No. 20170-D02-2015	EDTI
2	Clover Bar E987S substation	Permit and Licence No. 29364-D01-2024	EDTI
3	Namao substation	Permit and Licence No. 27194-D01-2022	EDTI
4	Transmission line 72NK23	Permit and Licence No. U2000-061	EDTI
5	Transmission line 72CK12	Permit and Licence No. U2000-053	EDTI
6	Transmission line 72CK13	Permit and Licence No. U2000-054	EDTI
7	Transmission line 72CN10	Permit and Licence No. U2000-055	EDTI
8	Transmission line 915L	Permit and Licence No. U2009-270	AML
9	Interconnection of transmission line 915L to Clover Bar E987S substation	Order No. U2009-421	AML and EDTI
10	FO-82	Permit and Licence No. U2014-551	EDTI

19. EDTI will also need to relocate two fibre optic lines, FO-25 and FO-40, which do not have existing permits and licences. These fibre optic lines run from Clover Bar substation to Kennedale substation (FO-25) and from the Kennedale substation to a manhole near the intersection of 124 Avenue and 67 Street (FO-40), and were constructed in 1993 and 1998 when permits and licences

were not regularly issued for telecommunications infrastructure. FO-40 will be altered to terminate at the proposed Fort Road substation, and should the Preferred 240kV Route be approved, FO-25 will be altered to accommodate the new transmission line alignment.

2.5 ISO Direct Assignment Letter (TS5)

20. The relevant Direction letters from the AESO to EDTI for the Project are summarized in Table 2.5-1 below. Copies are included in the referenced Appendices.

Table 2.5-1
ISO Direction Letters

	A	B
Reference	**Date**	**Direction Description**
1 Appendix A-1	October 31, 2024	Prepare a Service Proposal to address the requirements identified in the Functional Specification; and Provide a Service Proposal Cost Estimate with an accuracy range of +20% / -10%.
2 Appendix A-2	November 28, 2024	Prepare a Facility Proposal to meet the need identified in the AESO's NID
3 Appendix A-3	February 25, 2025	EDTI to file its Facility Application

21. In addition to the direction letters provided by the ISO, EDTI is attaching a letter in Appendix A-4 from the ISO certifying[7] that the technical aspects of the Application meet the requirements set out in the needs identification document filed and approved in Proceeding 28633.

2.6 Functional Specification and Connection to the Transmission System (TS6 and IC2)

22. On October 31, 2024, the AESO issued Functional Specification Version V5 (dated October 30, 2024), to EDTI. A copy of the Functional Specification is attached as Appendix B.

23. Requirement IC2 in Rule 007 states: "Provide a statement from the ISO, at such time determined by the ISO, that endorses the interconnection and confirms that the interconnection will not result in adverse effects to the interconnected electric system." Rule 007 also states: "The Commission will consider requirement IC2 to be met if the application to connect to the transmission system is accompanied by a needs identification document from the ISO." The AESO's NID for the Project was previously filed and approved by the Commission in Decision 28633-D01-2024.

[7] This letter is in accordance to section 15.1 of the *Hydro Electric Energy Act* (RSA 2000, c. H-16).

2.7 Design and Rating of Transmission Line and Major Elements of Substation (TS7)

24. The equipment for the proposed Fort Road substation and transmission lines will be selected to meet the requirements in the most recent Functional Specification for the Project, attached as Appendix B to this Application.

25. The proposed 240kV and 72kV lines will have capacities and operating voltages as shown in Table 2.7-1 below:

Table 2.7-1
Transmission Circuit Capacity Ratings (MVA)

	Component	A Winter	B Summer
1	915L/993L (240kV)	492	492
2	72FN27/72FN28 (72kV)	85	85

26. Transformers at the Fort Road substation will have capacities as shown in Table 2.7-2 below:

Table 2.7-2
Transformer Capacity Ratings (MVA)

	Transformer	A Rating[8]
1	Fort Road 240/72kV Tx1 and Tx2	100/133/167
2	Fort Road 240/15kV Tx3 and Tx4	45/60/75

27. Consistent with the Functional Specification, the equipment in the proposed Fort Road substation and any new equipment at the Namao substation will adhere to voltage ranges shown in Table 2.7-2, and have current and basic insulation level ratings as shown in Tables 2.7-3 to 2.7-5 below:

[8] The three transformer ratings shown correspond to the available cooling stages.

Table 2.7-3
Planned Operating Range for New Facilities[1]

	Substation Name and Number	A Nominal (kV)	B Minimum Limit (kV)	C Normal Operating Minimum (kV)	D Normal Operating Maximum (kV)	E Maximum Limit (kV)
1	Fort Road 72kV	72	65	68.5	75.5	79
2	Fort Road 240kV	240	224	238	255	264
3	Namao	72	65	68.5	75.5	79
4	Clover Bar 240kV[9]	240	224	238	255	264

[1] Existing facilities at Namao and Clover Bar are outside of the scope of this project.

Table 2.7-4
Minimum Continuous Equipment Current Ratings (A)

	Component	A 69/72kV	B 240kV
1	Main Bus	1200	3000
2	Cross Bus	N/A	2000
3	Equipment or Line Terminal	800	2000

Table 2.7-5
Basic Insulation Levels (kV)

	Nominal Voltage Classification (kV rms)	A 240kV	B 72kV
1	Station Post Insulators and Air breaks	900	350
2	Circuit Breakers	1050	350
3	Current and Potential Transformers	1050	350
4	Transformer Windings (protected by surge arresters)	850	350

2.8 Conductor Size and Arrangement Selected (TS8)

72kV Aerial (Preferred and Alternate Routes)

28. EDTI is proposing to utilize a bare overhead aluminum conductor steel reinforced ("ACSR") conductor for the 72kV transmission line segments. The chosen conductor size is 477 kcmil ACSR 'Hawk', which has a total outside diameter measuring 21.8 mm. In total, there will be six current carrying conductors, three for each circuit, one for each phase.

29. EDTI selected the 477 kcmil ACSR 'Hawk' to meet the minimum line rating of 85 MVA in the AESO's Functional Specification. The chosen conductor has a summer rating capacity of 91 MVA and a winter rating capacity of 112 MVA. The next lowest rated commonly used

[9] There are no new transmission circuits being added at the Clover Bar substation; however, a new fibre optic cable will be added at Clover Bar and a new circuit will terminate at the substation (i.e. 993L).

conductor, 397 kcmil 'Ibis', has a summer rating capacity of 82 MVA and a winter rating capacity of 101 MVA, which does not meet the AESO Functional Specification requirements.

30. The 72kV transmission lines will have a double circuit configuration and will be mounted on either composite fibre poles or steel monopoles. The conductor arrangement is single conductor, unbundled with one overhead shield wire ("OHSW") and one optical ground wire ("OPGW"). The OPGW is designated as FO-167. Representative structure drawings are included in Appendix C-1.

240kV Underground Transmission Conductors

31. For the underground portion of the 240kV transmission line, EDTI performed an ampacity study to determine the sizing of the conductor/cable, to ensure that the cable operates within the allowed temperature range. The study took into consideration the proposed depth of the underground installation, the proximity of adjacent cables (mutual heating), the material and size of the surrounding ductbank and the existing thermal properties of soil surrounding the ductbank which can greatly affect how effectively heat transfer can occur from the cable.

32. EDTI selected 2000 sq mm underground conductor[10] for underground portions of the 240kV route to ensure that the transmission line has the minimum capacity of 492 MVA (summer/winter) as per the Functional Specification requirements. The underground conductor may increase to 2500 sq mm in areas where heat dissipation is of concern, such as when trenchless crossings are utilized due to additional soil cover and mutual heating caused by the closer proximity of the cables in a steel casing versus a ductbank. The underground conductor size for all segments will be finalized with detailed design as it may vary based on the specific thermal characteristics of the soil. As shown in Appendix C-3, there will be one cable per phase and each cable will be installed in conduit. The conduits will be in a concrete encased ductbank. The ductbank will also contain ducts for fibre optical cable, FO-166. Refer to the typical duct bank configuration in Appendix C-3.

[10] In underground cables, the overall cable size is larger than the conductor size. Conductor size refers to the cross-sectional area of the actual current-carrying component of an underground cable. The current-carrying conductor is surrounded by insulation, jacketing and other parts of an underground cable.

240kV Aerial Conductors

33. For aerial 240kV transmission segments, EDTI is proposing to use an aluminum-conductor steel-reinforced conductor ("ACSR") for the aerial 240kV transmission line segments. The chosen conductor size is 1033.5 kcmil and has a total outside diameter measuring 31.65 mm. In total, there will be six current carrying conductors, three for each circuit, one for each phase.

34. EDTI selected the 1033.5 kcmil ACSR 'Curlew' to match the line rating and existing conductor of the existing 915L and also because it meets the minimum line rating of 492 MVA in the summer/winter that is prescribed in the AESO's Functional Specification. EDTI performed a study to assist in determining the conductor size which confirmed that the 1033.5 kcmil ACSR 'Curlew' would provide satisfactory performance having regard to thermal ratings, corona, radio interference, and noise.

35. As part of AC mitigation measures, an aerial counterpoise will be installed under the 240kV aerial conductors on the Alternative Route Aerial segment. The counterpoise will be 1033.5 kcmil, the same size as the phase conductors, however it will not be energized and will be grounded periodically to manage the electrical effects. The counterpoise is shown on the 240kV structure drawings in Appendix C-1.

36. For any portions of the 240kV and 72kV routes that are above ground (aerial), shielding will be provided by an overhead optical ground wire. The proposed OPGW will be comprised of an aluminum clad steel outer layer and aluminum inner layer, along with 48 glass fibre strands contained within stainless steel tubes. Shielding is not required on underground cable.

2.9 Rationale for the Rating/Size of Proposed Conductor or Major Substation Equipment (TS9)

37. Not applicable. The application is direct assigned by the ISO.

2.10 Proposed Transmission Line Structure Type, Including Height and Spacing (TS10)

38. The proposed structure locations are provided in the strip maps and attached as Appendix D. Where shifts in location are necessary, the final structure locations will be determined with consideration of final survey results in the field, landowner feedback, the results of environmental and historical pre-disturbance assessments and more detailed geotechnical information. EDTI expects that structure locations may be moved up to approximately 15 metres along the proposed centreline or perpendicularly within 5 metres of the centreline. A lateral adjustment of 5 metres or less will not be discernible on the illustrations included with this Application. Structure adjustments greater than these limits that have the potential to adversely affect stakeholders, or for reasons other than outlined above, would be assessed to determine if an amendment to this Application is required.

72kV circuits 72FN27 and 72FN28 (Preferred and Alternate Routes)

39. The proposed 72kV circuits 72FN27 and 72FN28 will utilize predominantly double circuit monopole structures. Tangent structures (used for straight segments of the line) will be direct embedded fiber reinforced poles ("FRP"), while steel structures mounted on cast-in-place concrete foundations will be used at light and medium angles, and deadends (terminations). There will be a small number of single-circuit structures used near the Namao substation. Generally, a ruling span of approximately 80-100 metres and a maximum span of 110 metres is proposed, however in congested urban setting, routing may dictate structure position with shorter spans.

40. The proposed 72kV circuits will have four structures where the phases on each of the circuits, 72FN27 and 72FN28, are transposed as part of the mitigation measures for electrical effects to the nearby railway. Each circuit will be fully transposed two times, and each transposition will occur over two structures.

41. For the common alignment of the Preferred and Alternate 72kV Routes, the 72kV transmission line will be located above existing distribution infrastructure. There are also third-party-owned communication cables and City of Edmonton-owned streetlight heads on existing distribution structures which will be relocated to and consolidated with the new transmission structures to minimize the amount of new right of way required for the new transmission line.

42. Illustrations of the proposed structure types are shown in Appendix C-1. A structure list including type and approximate heights of structures is provided in Appendix C-2. Locations of individual structures are indicated on the strip maps provided in Appendix D-2.

240kV circuits 915L and 993L (Preferred Route – Underground)

43. The proposed 240kV circuits 915L and 993L, while primarily underground, will utilize two monopole transition structures mounted on cast-in-place concrete foundations to transition from the new underground line to AML's aerial transmission line. Each transition structure will have three transitions between the aerial conductor and the cable mounted on the structure, along with one surge arrestor per phase. Structure diagrams are included in Appendix C-1 and Truescape renderings of the transition structures in Hermitage Park are included in Appendix H (PDF pages 50 to 68).

44. For the transmission lines that are buried, cables will be contained in a concrete encased duct bank. A typical duct bank configuration is shown in Appendix C-3. The structure list including type and height is shown in Appendix C-2. Approximate locations of individual structures are indicated on the strip maps provided in Appendix D-3, with the structure type indicated in Appendix C-2.

240kV lines 915L and 993L (Alternate Route – Hybrid aerial and underground)

45. The Alternate Route for the 240kV 915L and 993L lines will be constructed using a combination of above ground and underground, or "hybrid" construction. The above ground portion will connect to the existing AML 915L line and continue above ground for approximately 1 km and then transition to underground for the remainder of the route up to and including the termination into proposed Fort Road substation.

46. The aerial segments of the Alternate Route 240kV 915L and 993L lines, will utilize double circuit steel monopole structures mounted on cast-in-place concrete foundations for the tangents and angles, while dead-end structures throughout the route will use pairs of single circuit steel monopoles, also on cast-in-place concrete foundations. Where the Alternate 240kV Route segments cross the North Saskatchewan River, RC22E double circuit lattice dead-end towers will be used. These towers will be attached to cast in place concrete or screw pile cluster foundations.

47. Typical structure outlines are included in Appendix C-1, and a structure list including type, height, span length is provided in Appendix C-2. Locations of individual structures are indicated on the strip maps provided in Appendix D-3, with the structure type shown in Appendix C-2.

48. Where the proposed 240kV Alternate Route transitions to underground from above ground, it will utilize two monopole transition structures mounted on cast-in-place concrete foundations. Each transition structure will have three transitions between the aerial conductor to the cable mounted on the structure, along with one surge arrestor per phase. Structure diagrams are included in Appendix C-1 and Truescape renderings of the transition structures and overhead portion near Victoria Trail NW (Winter) are included in Appendix H (PDF pages 34-49).

49. For the transmission lines that are buried, cables will be contained in a concrete encased duct bank. A typical duct bank configuration is shown in Appendix C-3. Structure list including structure type and height is shown in Appendix C-2. Approximate locations of individual structures are indicated on the strip maps provided in Appendix D-3.

2.11 Right-of-Way Width (TS11)

2.11.1 Fort Road Substation

50. The new Fort Road substation, situated between the new 240kV and 72kV transmission lines, will be located at 12310 – 62 Street NW in Edmonton Alberta. The site will be approximately 187 by 259 metres and will have a substation footprint roughly 164 by 210 metres. The substation footprint was sized to ensure there will be sufficient space for maintenance and replacement of equipment with minimal outages. The overall substation site footprint also allows for flexibility when considering future lifecycle replacement of Victoria to Rossdale underground transmission lines when these circuits reach end of life as noted in the Decision 28633-D01-2024, section 5.3.2.2.1.

2.11.2 Namao Substation

51. The existing Namao 72kV switchyard will be expanded by approximately 15 metres towards the existing property line to the west, as shown in Appendix G, to accommodate new incoming transmission lines 72FN27 and 72FN28.

2.11.3 72FN27 and 72FN28 (Preferred and Alternate Routes)

52. For the overhead 72kV Preferred and Alternate Routes, to accommodate conductor swing and requirements under the Alberta Electric Utility Code ("AEUC"), a general right-of-way width ("ROW") of 14 metres is required (7 metres either side of centerline). This width will provide sufficient clearance so that, in the event of a conductor blowout[11], the horizontal distances to buildings outside the right-of-way will be maintained at a safe distance.

53. Detailed strip maps provided in Appendix D-2 show locations requiring private easements and locations where temporary access on private land is needed. Once construction is complete, landowners will regain use of their lands and will have the ability to resume normal activities within the easement boundaries, as long as these activities do not interfere with the safe operation and maintenance of the transmission line.

2.11.4 915L and 993L – 240kV Underground Portion of Preferred and Alternate Routes

54. To maintain appropriate clearance to the underground 240kV transmission lines, a general right-of-way width of 10 metres is required (5 metres either side of centerline). This practice is driven by the need to:

- prevent damage to the underground infrastructure from construction or tree roots in close proximity to the underground duct bank; and
- decrease co-heating with other utility infrastructure, such as water pipes or power lines.

55. In areas of congested underground infrastructure on public lands or road rights-of-way, clearances will be reviewed on a case-by-case basis during the detailed design stage to ensure the appropriate clearances are maintained to ensure the safe operation and maintenance of underground infrastructure.

56. Detailed strip maps provided in Appendix D-3 show locations requiring private easements and locations where temporary access on private land is needed (e.g. CN property). Once construction is complete, landowners will regain use of their lands and will have the ability to resume normal activities within the easement boundaries, as long as these activities do not interfere

[11] Blowout is the term that refers to the horizontal displacement of a conductor caused by wind pushing the conductor, or by 'blowing out'.

with the safe operation and maintenance of the transmission line (e.g. digging/excavation within 5 metres either side of the duct bank).

2.11.5 915L and 993L – 240kV Overhead Portion and Transition structures on Preferred and Alternate Routes

57. The overhead portion of the Alternate 240kV Route will be installed in City of Edmonton transportation corridors and some Utility right-of-way ("URW") on private properties. For EDTI's Preferred 240kV Route, AML will own the slack span that connects to the proposed underground cable to AML's existing overhead 240kV lines. There are no overhead segments associated with EDTI's Preferred 240kV Route for this Project.

58. Both 240kV Preferred and Alternate Routes will have two monopole deadend riser (transition) structures each, one for 915L and one 993L. The transition structure is a steel monopole with one surge arrestor and transition per phase, that enables the aerial conductor to connect to underground conductor/cable. Examples of structure images are provided in Appendix C-1.

59. A ROW width of 28 metres (14 metres on either side of centerline) for the overhead 240kV lines will be required to ensure compliance with ISO Rule 503.22 and the AEUC, and to prevent the possibility of building encroachments, where applicable. This width will provide sufficient clearance in the event of conductor blowout, such that the required horizontal distances to structures (such as buildings) outside the right-of-way are maintained.

60. Once construction is complete, landowners will regain the use of their lands. They will have the ability to resume normal activities within the easement boundaries, as long as these activities do not interfere with the safe operation and maintenance of the transmission line.

2.11.6 FO-166

61. The proposed routing for the Preferred and Alternate Routes includes a new 23 metre fibre optic duct running from existing AML 915L structure 19 (915L19) to the existing Clover Bar substation fence, primarily crossing land owned by Capital Power Corporation ("CPC"). A ROW width of two metres (one metre on either side of the centre line) will be used to prevent damage to the underground duct from construction or tree roots.

2.12 Description of Major Substation Equipment Being Applied For (TS12)

62. The proposed new 240/72/15kV Fort Road substation will be located at 12310 62 Street NW (Lot 5, Block 5, Plan 0221247). The final major equipment that will be in the substation includes:

- two 240/72kV, 100/133/167 MVA transformers;
- two 240/15kV, 45/60/75 MVA transformers;
- six 240kV circuit breakers;
- four 72kV circuit breakers;
- twenty-five 15kV circuit breakers;
- a secure perimeter fence; and
- other substation equipment as described in the Application.

63. At the Namao substation, EDTI proposes to add one 72kV circuit breaker. The final major equipment that will be in the substation includes:

- three (3) 72/14.4kV, 30/40 MVA transformers;
- seven (7) 72kV circuit breakers;
- twenty-nine (29) 14.4kV circuit breakers; and
- a secure perimeter fence; and
- other substation equipment as described in the Application.

64. The Namao substation Permit and Licence also requires amendment to update the legal land description and municipal address as follows:

> Paragraph 1: "Block 12, Plan 668KS, Township 53, Range 24, west of the Fourth Meridian, known municipally as 9710 – 127 Avenue in the city of Edmonton."
>
> to be replaced with
>
> "**Lot 3, Block 12, Plan 8521687**, Township 53, Range 24, west of the Fourth Meridian, known municipally as **12715 101 Street NW**, in the city of Edmonton."

65. No alterations to the major equipment at the Clover Bar substation, as listed in P&L 29364-D01-2024, will be required to facilitate the Project.

2.13 Switching and Protection Features of Proposed Facilities (TS13)

66. EDTI will complete system protection coordination studies and coordinate with AML and EDTI's distribution function as required to establish settings appropriate for the facility additions and operation of the Alberta Interconnected Electric System. This will include alterations to the protection and control settings at EDTI's Namao and Clover Bar substations as required to accommodate the new and modified facilities. EDTI owns and operates the Namao and Clover Bar substations in accordance with substation Permit & Licence Nos. 27194-D01-2022 and 29364-D01-2024, respectively.

67. The proposed Project protection and control systems will comply with all appropriate AESO standards and ISO Rules.

68. EDTI proposes the following switching and protection features for the new equipment at the Fort Road substation:

- 240kV and 72kV line protection;
- Transformer protection;
- 240kV and 72kV circuit breaker, bus and sync-check protection;
- 15kV switchgear protection – combination of individual feeder and bus-level protection; and,
- 15kV under-frequency load shedding.

69. At the Namao substation, EDTI will update the 72kV line protection settings and include breaker failure protection and sync-check protection. The 240kV line protection will also be updated at the Clover Bar substation to ensure compliance with ISO requirements.

2.14 Electrical Interactions of Proposed Transmission Facilities with Other Facilities (TS14)

70. The addition of 72kV and 240kV transmission lines has the potential for electrical interaction with railways, pipelines, and telecommunications equipment near the proposed transmission lines. EDTI assessed the potential for electrical interaction effects and, where appropriate, addressed them with potentially affected infrastructure owners. This section describes EDTI's assessment of the potential electrical interaction effects of the Project, the measures that EDTI will implement to eliminate or reduce those effects where present, and how EDTI proposes to address any significant residual effects.

2.14.1 Pipelines

71. The new 240kV transmission lines are not expected to have electrical interaction with adjacent pipeline infrastructure due to the compact conductor spacing of the underground sections used for both the Preferred and Alternate Routes. The configuration enhances phase cancellation which reduces electromagnetic impacts to surrounding pipelines[12].

72. The new 72kV double circuit transmission lines have the potential for limited electrical interaction with pipelines along the Preferred and Alternate Routes in the area near Fort Road. These effects can be effectively mitigated by grounding both the transmission structures and pipelines, as well as through horizontal distancing of the structure foundations from the pipelines during detailed design. Through its interactions with the potentially affected stakeholder (EPCOR Water Services Inc.), EDTI has committed to completing any required electrical interference studies on the approved route and to working with impacted equipment owners to ensure that any required mitigation measures (e.g., grounding) are addressed in detailed design.

2.14.2 Telecommunications Equipment

73. EDTI engaged Dr. Harvey Lehpamer, P.Eng of Power Engineers, Inc. to conduct a Radio Frequency Interference ("RFI") study for the area near the proposed transmission lines. A copy of the study is included as Appendix E-2. Dr. Lehpamer relied on data from the Government of Canada Spectrum Management System Data website[13], which is the regulating body for registered radio frequency users. The data was collected for users within the Project area to assess the potential for RFI from the Project's above-ground infrastructure. Underground routes do not have RFI impacts on existing radio frequency facilities.

74. For the overhead segment of the Alternate 240kV Route, the report concludes that RFI is not expected. The report concludes that on a segment of the 72kV routes, there is the potential for temporary RFI at one site during construction when cranes are on site to erect the transmission structure; however, this radio frequency site is adjacent to a retired route segment and therefore impacts will not be experienced from either the Preferred or Alternate 72kV Routes.

[12] Appendix E-1 Commonrow Report Executive Summary
[13] Spectrum Management System Data (Government of Canada) https://ised-isde.canada.ca/site/spectrum-management-system/en/spectrum-management-system-data. Accessed: February 2025.

2.14.3 Railway

75. The Project will include approximately 10 km of transmission lines that will run in parallel and in relatively close proximity to existing Canadian National Rail Company ("CN") railway infrastructure, including main-line track, connecting lines, crossover lines, and yard track. CN's railway facilities are part of CN's east-west mainline railway system, which provides rail transportation service across the country, linking points east of Edmonton, including eastern Canada, the Maritimes and the eastern and southeastern US, with the Canadian west coast. Figure 2.14.3-1 below provides an overview of CN's rail network across North America, showing the importance of CN's main-line operations in Edmonton in facilitating the efficient transportation of goods across North America.

Figure 2.14.3-1
CN Rail Network Overview[14]

76. The Project's 72kV and 240kV transmission lines will electrically interact with CN's railway infrastructure, through the various coupling mechanisms. EDTI first began consulting with

[14] CN 2023 Annual Report https://www.cn.ca/-/media/files/investors/investor-annual-report/2023-cn-annual-report.pdf, PDF pages 4-5.

CN with respect to the Project and its potential electrical interference impacts[15] during the summer of 2022. Section 6.3.3 of this Application provides a detailed summary of the consultation that occurred between EDTI and CN. Additionally, EDTI retained Commonrow Consulting Ltd. ("Commonrow"), a specialist in electrical effects engineering, to assess electrical interference risks from the Project on adjacent CN tracks and provide a report ("Commonrow Report") detailing whether the 72kV and 240kV transmission lines could meet CN's safety and operational criteria to ensure safe and reliable railway operations. The Commonrow Report provided as Appendix E-1 assesses how electrical interference from the Project may impact CN's railway signalling systems, equipment reliability and personnel safety.

77. As described in Section 6.3.3, after significant consultation, EDTI and CN entered into a Memorandum of Understanding ("MOU") in October 2024 to reflect their common understanding of the impacts of the Project on CN's operations, the level of impacts that would be tolerable to CN and the type and level mitigation measures that would be acceptable to CN. Following the completion of electromagnetic induction modeling and analyses by EDTI's expert Commonrow (described further below), EDTI and CN signed an amended and restated MOU in February 2025, a copy of which is included in Appendix P-2.

78. The potential electrical effects on CN's railway infrastructure include, as described further in Appendix E-1:

- Power system faults which can induce high voltages and currents, potentially damaging relays, circuit boards, and microprocessors, causing system failures in CN's signaling and control systems.
- Touch and step potential safety limits due to voltage induced in the rails by the transmission lines during steady state and fault conditions could pose safety risks to CN personnel and the public; and
- Interference with railway signalling and control equipment that relies on the railway tracks as communication "circuits". Electrical interference can disrupt track circuits, which detect train occupancy, leading to false signal activations or malfunctioning crossing warning systems, creating operational and safety hazards.[16]

[15] The terms 'electrical effects', 'electrical interference', 'electromagnetic induction impacts' and 'electrical induction' are used interchangeably in this application.

[16] According to CN, the broken rail detection feature enabled by their current track signaling and communications arrangement cannot be replicated with other communication systems.

Background

79. An electromagnetic field ("EMF") from a power line can induce a voltage onto adjacent parallel metallic infrastructure. The longer the parallel, the stronger the magnetic field and thus the higher the induced voltage. Other factors, such as power line voltage level, loading, fault levels, distance to rails, fault clearing time, conductor phasing, and use of counterpoise or conductor separation, affect EMF strength, and therefore affect the level of the induced voltage. This is true for any long metallic objects including pipelines, railways and fences.

80. Mitigation of induced voltage on CN's mainline railway at this location requires careful coordination with CN, because these rails are used as communication mediums, or "signalled track", for CN's signalling and communications ("S&C") system. Rail lines are composed of steel rail sections that are electrically isolated from one another using Insulated Joints ("IJs"). IJ is a term used to refer to the strip of electrical insulation sandwiched between adjacent rail sections, as well as the electrical wires that connect to the tracks on each side of the IJ. These IJs allow the electrical signals on the rails to be transmitted to a small building (bungalow[17]) housing the S&C equipment.

81. As discussed further in the Appendix E-1, the S&C system is based on the metal train wheels (axles) and metal train cars bridging (or shorting) the IJ-isolated sections of track and changing the electrical characteristics of the circuits, thus providing S&C equipment with inputs in the form of changing voltages/electrical levels allowing for the identification of train locations, direction and speed. The dynamic electrical nature created by rolling trains changes conduction paths as trains roll over the IJs, creating a longer electrical circuit, triggering the S&C equipment to act accordingly (e.g., lower cross-arms, initiate lights, etc.) and provide a condition check that the rails are intact (i.e., a loss of signal may indicate a damaged or broken rail). The electrical signals on the rails must be kept within a certain range that is detectable to the S&C equipment as well as within safety limits. Induced voltage caused by nearby power lines in steady state or fault conditions can result in changes to these electrical levels, which can then interfere with S&C systems, raising potential safety concerns. During fault conditions on the power lines, conditions arise that can present a direct safety risk to employees who may come into contact with the rail, in addition to risk to the S&C equipment.

82. The term "control point" refers to areas on the track for which train movements are controlled, such as turn-outs to tracks going in a different direction (i.e., a railway intersection) or signalling points. Control points are defined by the railway operator and are typically made up of

[17] See Section 3.3.3 of the Common Report in Appendix E-1 for additional information.

several sections of tracks isolated by IJs. Control points can be separated by a few hundred metres or by several kilometres. CN identified eight control points within the Project area.

83. It is important to note that any additional equipment to be installed on railway infrastructure to mitigate induction effects can impact the proper operation of S&C devices and must, therefore, be evaluated and agreed to by the railway operator. When considering a possible mitigation measure, the railway operator will consider the impact that the additional equipment will have on its ongoing operations, including the reliability and coordination of the railway operator's S&C system and the safe operation of trains.

CN Limits and Criteria

84. CN stipulated a number of limits and criteria, from a railway safety and operations perspective, that would have to be met when their tracks are exposed to electrical interference from the proposed 72kV and 240kV lines. Those criteria included a mix of maximum acceptable induction voltages (maximum rail to ground voltage, and maximum voltage and current for track connected devices), all of which CN stated must be met to maintain safe and reliable railway operations. The criteria also included the types and maximum numbers of mitigation devices that CN would allow to be installed on its system, to ensure that its S&C system would function reliably.

85. Key limits and criteria stipulated by CN are described in the MOU in Appendix P-2, and are summarized in Table 2.14.3-1.

Table 2.14.3-1
CN Limits and Criteria

	A **Description**	B **Value / Condition**
1	Scenarios to be studied for induction effects	CN specified locations for train on track including multiple trains throughout the Project area and areas adjacent to the Project area that contain train tracks and power lines that become connected electrically when trains are present.
2	Lightning arrestor firing [18]voltage	All locations of lightning arrestors as outlined in CN's train plan were to be modeled using the ERICO 2050F. Cascading of the lightning arrestors' firing as a fault state mitigation must not extend beyond one adjacent control point.
3	Bungalow grounding	Bungalow grounding configuration based on SCP-1102 "Made Grounds" code of practice and modelled in assumed 50 Ohm -m soil.
4	Rail resistance to ground for the specified areas	10 Ohm-kf
5	Ballast resistivity	3000 Ohm-m
6	Ballast thickness	10 Inches
7	Maximum train length	4,900 m
8	Equipment protection limit for steady-state rail-to-rail voltage and equipment current	5 V (as per AREMA C&S Manual Part 3.1.20 paragraph 10) and 5 A
9	Lowest track-connected impedance	B/R circuit – TD-4 card 0.65 ohm
10	Personnel safety limit for steady-state rail-to-ground voltage	25 V
11	Personnel safety limit for fault-state rail-to-ground voltage and step voltage (standing on native soil)	351 V (calculated as per IEEE-80)
12	Induced voltage limit for signaling and communication circuits	430 V (as per CSA C22.3 No.3)
13	Maximum number of Insulated Joint pairs to be installed	6
14	Grounding and bonding of unsignalled tracks	Acceptable
15	Narrowband shunt tuning	60 Hz
16	Maximum number of narrowband shunts per control point	4, subject to CN's approval of any exceptions
17	Multiple narrowband shunts can be used on the same circuit	Yes, limited to a maximum of 2

Commonrow Study

86. To analyze the potential electrical effects of the CETR transmission line on CN's railway and identify potential mitigation measures, EDTI retained Commonrow, a well-recognized expert in the field of electrical effects engineering. Commonrow used industry standard SES software

[18] Lightening arrestor 'firing' also means 'activation'

sourced from Safe Engineering Services & Technologies Ltd. to predict and analyze the induction effects of the Project.[19]

87. Working with EDTI and CN, Commonrow developed a comprehensive model of CN's infrastructure to evaluate the electrical effects of different transmission line routing alternatives on CN's railway infrastructure, and to identify potential mitigation measures and residual effects. The model included the CETR project area, as well as adjacent areas with interconnecting train tracks and power lines that become connected electrically when trains are present as described in Appendix E-1. Significant effort was put into building the model to ensure that the complexity of the rail system within the Project area was accurately accounted for and robustly analyzed. Commonrow modelled a number of transmission line configurations, assuming that the types and maximum numbers of mitigation measures acceptable to CN had been installed on the railway, and that appropriate mitigation measures had been installed on the transmission lines.[20] A number of train scenarios were modelled, including train locations and various train lengths.

88. The limits and criteria provided by CN described above were relied on by Commonrow in completing its work. In an effort to reduce the level of electromagnetic induction effects from an overhead 240kV transmission line as much as reasonably possible, EDTI worked with the AESO to reduce the winter peak load rating on the overhead 240kV transmission line configuration from 606 MVA to 492 MVA (single summer/winter rating). This reduction reflects the cooling effects from colder winter weather not being applicable to underground cable as they are to above ground conductors. This capacity was reflected in Commonrow's modeling of the overhead segments of Routes A, D and E, in order to minimize the induced voltage on the adjacent railway lines, thereby reducing the amount of induction mitigation required on the railway lines. The capacity of the power lines was modelled with thermal limits (i.e., 492 MVA) to ensure that any condition of the power system is considered to ensure safe operation of the railway under any power system case. This aligns with one of the parameters stipulated by CN (i.e., mitigation measures must account for the full thermal capacity of the line to ensure that CN's assets can be safely operated for the full life of the transmission assets[21]).

[19] SES software module "CDEGS" is standard software used in the electrical industry to study lightning and grounding.

[20] For the overhead lines (72kV; 240kV Route A fully overhead; 240kV Routes D and E overhead portions), mitigation measures to be installed on the transmission lines running in parallel to the railway lines include aerial counterpoise (parallel grounded conductor near the current-carrying conductors), phase optimization, and phase transpositions (found to be effective on the 72kV lines but not the 240kV lines). These measures were incorporated into Commonrow's modeling, as described in the Commonrow report (Appendix E-1).

[21] Appendix P-2 paragraph 5.

89. Commonrow's report, detailing its analyses, conclusions and recommendations, including additional details respecting the limits and criteria stipulated by CN and how they were incorporated into Commonrow's work, is provided in Appendix E-1.

90. Commonrow modeled and assessed one 72kV route and four 240kV routes. The 72kV route was the Preferred 72kV Route, which Commonrow determined would have the highest potential induction impact on the railway. The four 240kV routes included a full aerial configuration (referred to as Route A), a full underground configuration (referred to as Route B, now the Preferred 240kV Route) and two hybrid underground/overhead configurations (one of which is referred to as Route E, now the Alternate 240kV Route; and one referred to as Route D).[22] The four 240kV routes are shown in the Siting Technical Report (Appendix F-2) in Figures 33, 34, 32, and 31, respectively, and are also shown in Project Specific Information Package ("PSIP") 7 (Appendix L-4, PDF page 59).

91. Commonrow's report concludes that the Preferred 72kV Route will be compatible with CN's railway operations provided that one of the compatible 240kV routes/configurations is selected. Modelling of the Alternate 72kV Route was not completed for reasons described above and due to the Alternate 72kV Route being further away from CN's operations than the Preferred 72kV Route. Commonrow's conclusions with respect to the compatibility of the 240kV routes/configurations with the railway operations are summarized in the Table 2.14.3-2, and are detailed in Commonrow's report in Appendix E-1.

[22] One additional 240kV hybrid route referred to as Route C was considered by EDTI in its site selection process, but it had been retired from consideration prior to Commonrow's analysis (and was therefore not assessed by Commonrow) as its estimated cost was substantially the same as Route B (fully underground), but it would have had considerably greater social impacts. Route C and the reasons it was retired from further consideration as a viable route for the Project are described in 6.4.1 of the Siting Technical Report attached in Appendix F-2.

Table 2.14.3-2
Summary of Commonrow Results
Steady-State and Fault-State Conditions

	A **240 kV Routes (PSIP-7)**	B **Steady-State**	C **Fault State**	D **Comments**
1	Route A	Not Compatible	Not Compatible	• Not compatible • Steady state requires far more narrow band shunts than acceptable to CN • Cascading lightning arrestor firing will be outside of acceptable limits
2	Route B	Compatible	Compatible	• Compatible • Mitigation for steady state conditions will not increase from pre-CETR conditions • Fault state touch voltage will be below threshold values • Cascading lightning arrestor firing will be within acceptable limits
3	Route D	Compatible	Not Compatible	• Not compatible • Steady state conditions will not increase from pre-CETR (baseline) conditions • Fault state touch voltage will be above acceptable limits • Cascading lightning arrestor firing will be outside of acceptable limits
4	Route E	Compatible	Compatible	• Compatible • ViableMitigation for steady state conditions will not increase from pre-CETR conditions • Fault state touch voltage will be below threshold values • Cascading lightning arrestor firing will be outside of acceptable limits

Other Potential Mitigation Options Considered

92. In an effort to determine whether there were any other viable means of mitigating the electromagnetic induction impacts on the railway to acceptable levels, EDTI evaluated the potential for 240kV overhead routes located a greater distance from the railway. Specifically, Commonrow advised that a distance between an overhead 240kV line and the railway lines of approximately 300 metres might be enough to mitigate the induction effects on the railway to an acceptable level. EDTI evaluated all possible routes at this or a greater distance from the rail lines, including potential overhead routes along 118 Avenue to the south and Hermitage Road to the north, and determined that the routes are not feasible because they would come within potentially unsafe distances to residences and buildings, likely requiring their removal in order for the route to be viable, as per Safety Code limits of approach. EDTI's evaluation of these routes is described in more detail in Section 5.4.2 of the Siting Technical Report in Appendix F-2.

Conclusion

93. As described further in Section 2.16 below and the Siting Technical Report found in Appendix F-2, based on CN's limits and criteria for electromagnetic induction-related impacts on its railway lines and operations, the results of Commonrow's modeling and analyses and the lack of any viable alternative overhead 240kV routes, EDTI retired an overhead option and all hybrid options with the exception of Route E.

2.15 Changes to Existing Facilities Required to Accommodate Proposed Facilities (TS15)

94. The Project includes modifications to EDTI's Namao, Clover Bar and Kennedale substations, a number of 72kV transmission lines, and AML's 240kV transmission lines, and the relocation and modification of fibre optic cables, as described below.

Namao Substation

95. At the Namao substation, the Project scope includes the following modifications to connect the two new 72kV circuits (72FN27 and 72FN28) from Fort Road substation, including equipment, protection and control, and SCADA settings as follows:

- Disconnect and discontinue from use the existing 72kV transmission line connection bays for 72CN10 and 72KN23. This will also include updating protection and control settings, SCADA, and other systems to reflect removal of these two circuits.
- Add one new 72kV circuit breaker to the existing 72KN23 bay to ensure reliable operation of the Namao substation that incorporates the bay changes outlined below:
    - Relocate existing circuit 72VN21 onto a new gantry structure and connect to the substation via the vacated 72KN23 bay;
    - Repurpose the existing 72VN21 bay for the new 72FN27 connection;
    - Repurpose the existing 72CN10 bay for the new 72FN28 connection; and
    - Install motorized disconnects with grounding switches at all three bays.
- Expand the substation yard approximately 15 metres west, towards the property line, to accommodate the addition of the new gantry structure and to improve vehicle access to existing equipment.
- Update the protection and control equipment and settings at Namao substation to accommodate the new breaker addition in the 72VN21 bay.

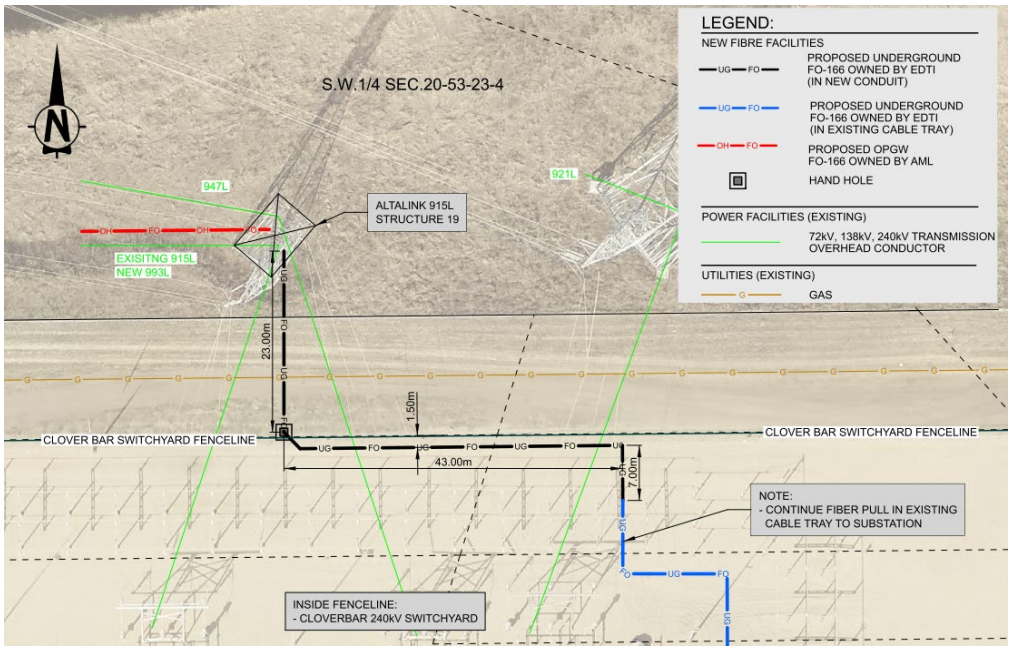
- Terminate the new OPGW, designated as FO-167, which is mounted on the structures for the new 72FN27 and 72FN28 transmission lines going into the substation.

Clover Bar Substation

96. The Project scope includes the following modifications to EDTI's existing Clover Bar substation to accommodate the connection of the 240kV circuit 993L (formerly 915L) and FO-166 to Fort Road substation:

- Add new 993L line protection panel and implement new protection and SCADA settings for 993L;
- Connect the new FO-166 from the existing 915L/947L structure 19 (new 993L) into the substation. This includes installation of approximately 23 metres of a new 2-inch cable conduit from existing 915L structure 19 directly south into the substation. Inside the substation fence line, the new 2-inch duct will connect to an existing cable tray. This will provide a route for FO-166 from the existing 915L structure 19 into the building termination point. FO-166 will transition from OPGW to underground FO cable in a splice enclosure located on existing 915L structure 19. Figure 2.15-1 below shows the alignment of the FO-166 cable which deviates from the overhead transmission line 915L;

Figure 2.15-1
FO-166 Routing from AML Structures near Clover Bar Substation



- Disconnect and discontinue from use the existing 72kV transmission line connection bays and circuit breakers for 72CN10, 72CK12, and 72CK13; and
- Update protection and control settings for existing assets to reflect all changes.

Kennedale Substation

97. The Kennedale substation will be discontinued from use for transmission purposes after EDTI transfers all distribution load from the Kennedale substation to the new Fort Road substation, transfers the transmission lines feeding the Kennedale substation to the new and existing substations and all other substation equipment is de-energized. Decommissioning and salvage of the Kennedale substation will be addressed in a future application to the Commission, as discussed in Section 3.6.

72kV Transmission Lines (72CN10, 72CK12, 72CK13 and 72KN23)

98. The existing 72CN10, 72CK12, 72CK13, and 72KN23 transmission lines will be de-energized and discontinued from use for transmission purposes. Decommissioning and salvage of these lines will be addressed in a future decommissioning application to the Commission, as discussed further in Section 3.6.

Transmission Line 915L

99. All changes to transmission line 915L required to accommodate the proposed facilities will be completed by AML as per the Functional Specification (see Figure 2.1-2 above and Appendix B). AML will seek approval for changes to 915L in a separate Facility Application.

Fibre Optic Cables

100. EDTI intends to leave the existing fibre optic cables that currently terminate at the Kennedale substation until the time of decommissioning of the Kennedale substation, which will be applied for in a future Application. EDTI will provide details in that application on any relocation plans for these fibre optics when engineering is completed for decommissioning of these assets. There are some minor modifications required to the following to accommodate the scope of the Project:

- FO-40 is an existing fibre optic cable that terminates at the Kennedale substation and a former meter shop. As part this project, EDTI will relocate a section of FO-40 and create a new termination point at the new Fort Road substation, keeping the other termination point at the Kennedale substation. FO-40 will be used for pre-commissioning activities ahead of putting the new FO-166 and FO-167 cables into service. These fibre optic cables are associated with the 240kV and 72kV line construction, respectively. FO-40 will remain in operation after the project is complete, however it may be connected to other fibre optic cables at Kennedale as part of decommissioning activities; and
- FO-25 is an existing fibre optic cable between the Kennedale and Clover Bar substations. The alignment of FO-25 has limited potential conflicts with the Preferred 240kV Route, and may require small alignment modifications to accommodate the proposed underground duct bank.

2.16 Transmission Line Routing Alternatives and Relative Effects (TS16)

101. This section provides an overview of the process used to identify and analyze potential sites for the Fort Road substation and routes for the 72kV and 240kV transmission lines, and to ultimately select the proposed substation site and preferred and alternate transmission line routes for the Project. More detailed descriptions of the various activities that occurred during the siting process, including in-depth descriptions of the methodology and procedures used, are provided in the following appendices:

- Appendix F-1 – Siting and Routing Methodology ("Siting Methodology"), describing EDTI's overall framework for identifying and selecting substation sites and transmission line routing for the Project;
- Appendix F-2 – Siting Technical Report prepared by Maskwa Environmental Consulting ("Maskwa"), describing in detail the siting process used for the Project, which culminated in the selection of the preferred and alternate routes for the transmission lines and the proposed Fort Road substation site; and
- Appendix F-3 – Route Revision Log, consisting of a record of the specific route revisions made during the routing process for the Project.

102. EDTI's consultations through its Participant Involvement Program ("PIP") played a crucial role in the siting process for the Project, providing important information and feedback from a broad range of stakeholders on potential sites and routes, and enabling EDTI and Maskwa to identify facilities locations with the lowest overall impact. Feedback was collected and carefully reviewed to refine identified routing options. Stakeholders were engaged to discuss potential impacts posed by the proposed Project in a number of ways. All feedback received from stakeholders was assessed and incorporated into the site and route development and refinement decisions where feasible, as described in Sections 5.2 and 6.2 of the Siting Technical Report and throughout the Route Revision Log. The PIP is described in detail in Section 6.0 with PIP materials provided in Appendix L.

103. This section is organized under the following main topic headings:

- Summary of Siting Process
- Fort Road Substation Site
- 72kV Transmission Line Routes
- 240kV Transmission Line Routes

2.16.1 Summary of Siting Process

104. EDTI retained Maskwa to assist in identifying and assessing potential substation sites and transmission line routes, based on EDTI's Siting Methodology included in Appendix F-1. EDTI first developed the Siting Methodology a number of years ago with Maskwa's assistance as a basic framework for ensuring sound, informed analysis and decision-making for EDTI's siting of new substations and transmission lines.

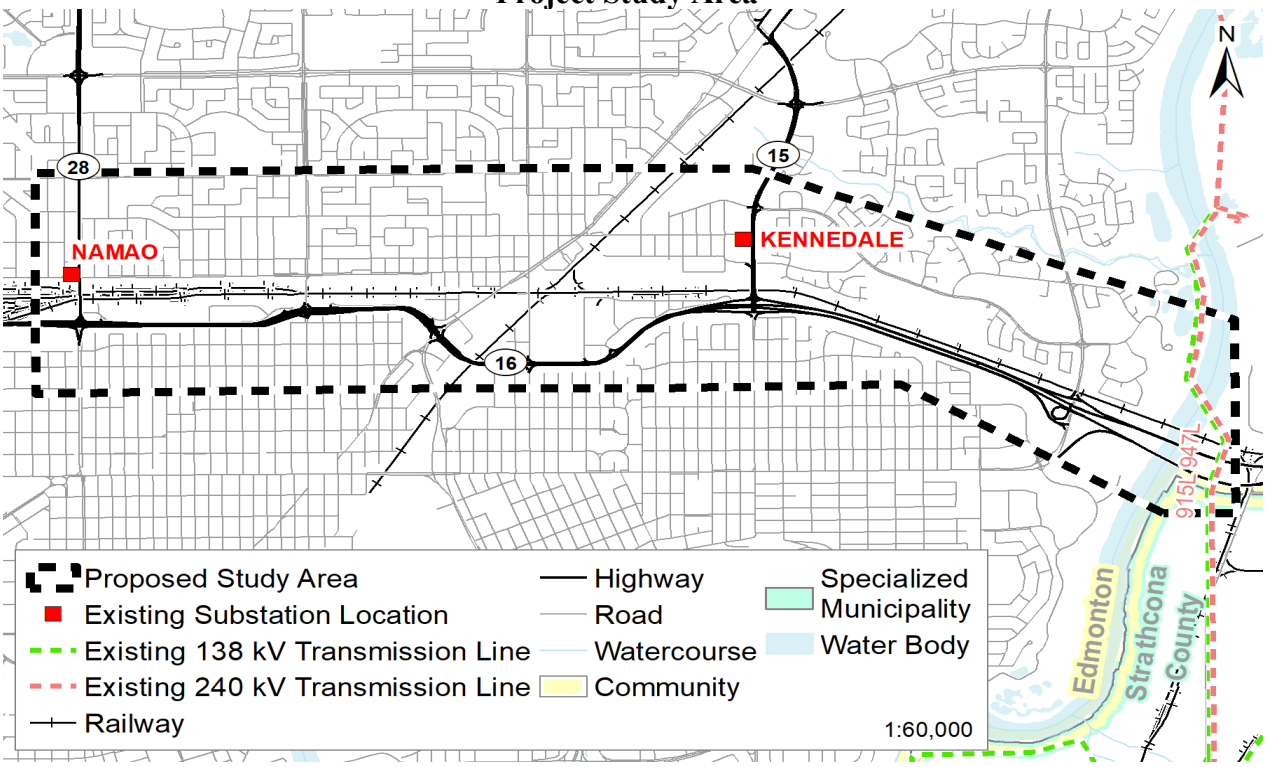
105. In accordance with the Siting Methodology, the siting process for the Project incorporated information relevant to the Project, including jurisdictional land use planning principles, engineering requirements, technical information, feedback from stakeholders through the PIP, and other relevant information. It reflected an iterative approach to identifying and evaluating potential siting and routing options, and for ultimately narrowing down the options considered to final preferred and alternate facility locations that avoid and/or mitigate potential adverse social, economic and environmental effects to the extent reasonably possible.

106. The siting process was circumscribed by the technical solution outlined in the AESO Needs Identification Document approved by the AUC in Decision 28633-D01-2024 (i.e., the AESO's preferred development, Option 4), and involved the following main stages:

- Determination of Project Study Area
- Preliminary Route Development Stage
- Detailed Route Development Stage
- Final Route Development Stage

107. The Project study area for siting the facilities was developed by Maskwa with input from EDTI in two phases. The first study area was developed early in the siting process and reflected an area that encompassed the full scope of the AESO's preferred development. This initial study area and the rationale behind it are described in Section 4.1 of Maskwa's Siting Technical Report in Appendix F-2. It was used for identifying and evaluating potential sites for the new Fort Road substation and routes for both the 72kV and 240kV transmission line components of the Project. Figure 2.16.1-1 shows the initial Project study area.

Figure 2.16.1-1
Project Study Area



108. An adjusted study area was developed by Maskwa for the 240kV transmission line component of the Project after it was determined that partially or fully underground configurations would have to be considered due to the adverse impacts of overhead 240kV configurations on the nearby CN railway facilities. This adjusted study area and the rationale behind it are described in Section 5.4.2.1 of the Siting Technical Report included in Appendix F-2. It was used for identifying and evaluating potential routes for underground and hybrid underground/aboveground 240kV transmission lines.

109. The three stages of route development for the Project are described in detail in the Siting Technical Report.[23] Briefly:

[23] The general timing for the stages of route development is provided below:

- Substation site – Preliminary (June 2022), Detailed (July to September 2022), Final (October 2022). The purchase of the substation site was completed in December 2022.
- 72kV transmission line – Preliminary (June 2022 to December 2022), Detailed (January 2023 to March 2024), and Final (April 2024 to February 2025).
- 240kV transmission line – Preliminary (June 2022 to December 2022), Detailed (January 2023 to September 2024), and Final (October 2024 to February 2025).

- In the Preliminary Route Development stage, preliminary sites and route segments were identified that, based on the information compiled at the time, were determined to be viable and would avoid or minimize potential conflicts and adverse impacts. This involved the identification of general transmission line corridors and a target substation site area, which were then narrowed down to specific preliminary routes and substation locations based on an analysis of existing technical and land use information, and early discussions with key stakeholders. Key stakeholders consulted in this stage included stakeholders with regulatory authority or potential interest and information respecting the Project study area, including the City of Edmonton ("the City"), Alberta Transportation and Economic Corridors, Alberta Environment and Protected Areas ("EPA"), AML and CN Rail. Field surveys and desktop verification were also conducted to support the development of preliminary sites/routes. The preliminary sites and routes formed the basis for the initial Project-specific information packages issued publicly, as well as discussions with external stakeholders, to garner feedback and input to be taken into account in the Detailed Route Development stage;

- In the Detailed Route Development stage, the preliminary siting options were refined, based on stakeholder input and feedback, and ongoing engineering work and field surveys, with a view to either avoiding or minimizing potential adverse impacts where reasonably possible. The refined sites and routes formed the basis for additional Project-specific information packages issued publicly, open houses in the community, and further targeted consultations with various external stakeholders, to obtain additional focused feedback and input to be taken into account in the Final Route Development stage; and

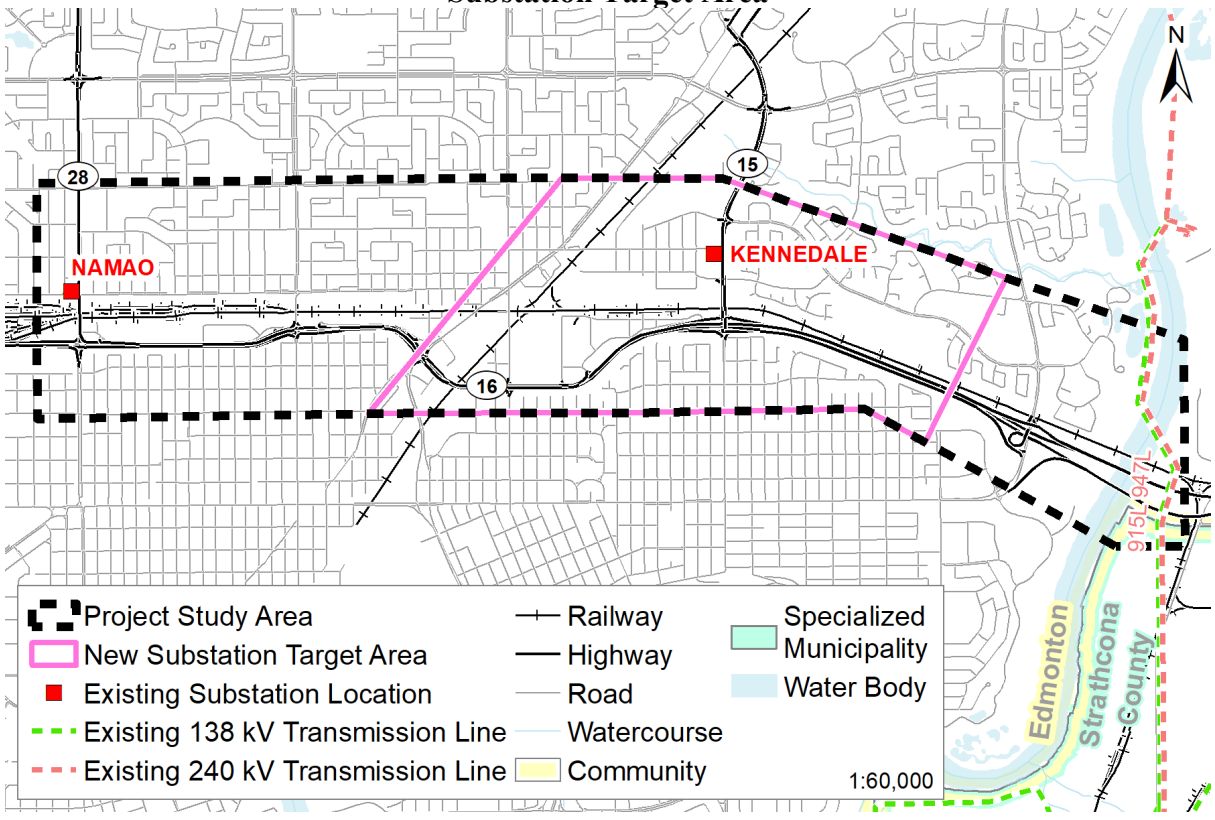
- The Final Route Development stage involved identifying viable route(s) and site(s) from the refined detailed routes and sites that would have the lowest overall impact and, from those, selecting a preferred transmission line route and substation site and, to the extent possible, one or more alternate routes/sites for inclusion in EDTI's facility application. Stakeholder feedback, along with an evaluation of the routes from an overall potential impact perspective using the siting principles for the Project, comparative metrics, as well as the application of professional judgment and experience were relied on to determine the Preferred and Alternate routes included in this Application.

110. The siting process and final proposed locations for each of the Fort Road substation, and the 72kV and 240kV transmission lines are described below.

2.16.2 Fort Road Substation Site

111. The siting process for the Fort Road substation began with determining an appropriate target area for the site, shown in Figure 2.16.2-1. The target area was chosen with a view to minimizing the distance from the existing 915L in order to minimize the length and cost of new 240kV line that would be required, minimizing the distance from the Kennedale substation in order to minimize the distance over which existing distribution feeders would have to be relocated and the associated cost, and taking full advantage of existing compatible industrial land uses within the Project study area.

Figure 2.16.2-1
Substation Target Area

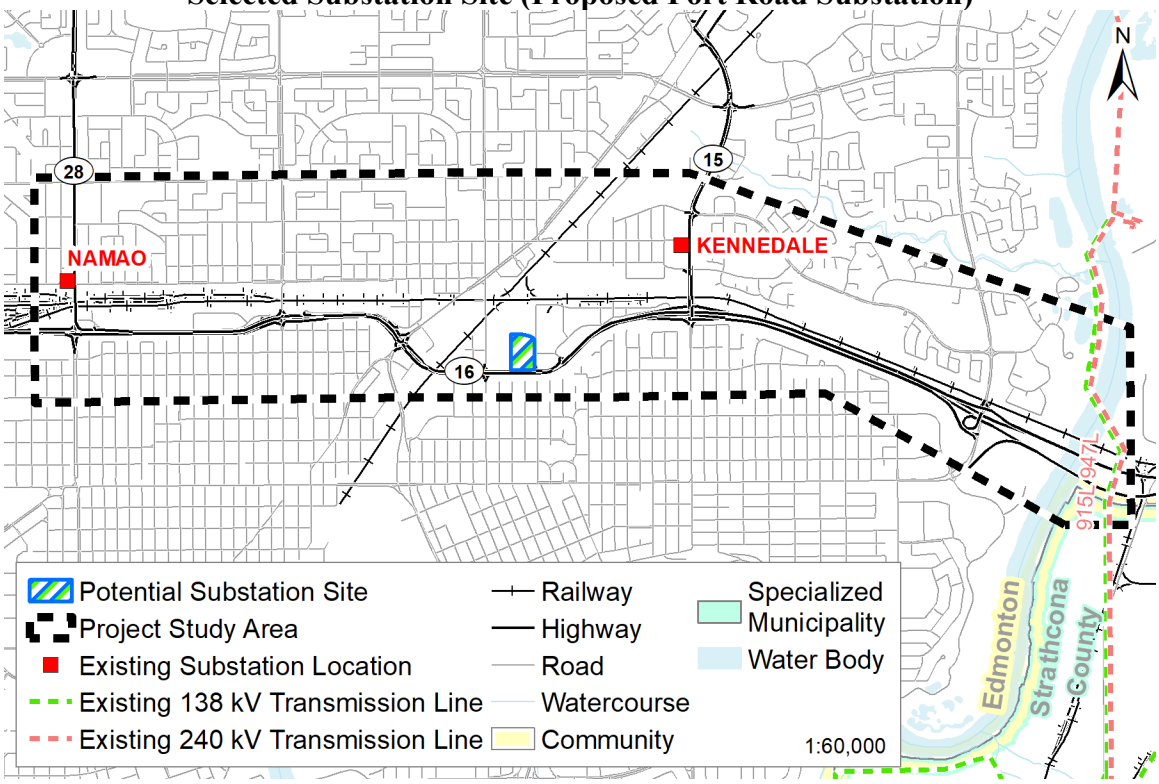


112. Several sites within the substation target area were investigated and assessed as potential locations for the new substation using a suite of relevant criteria, including size to accommodate the proposed and ultimate development plan, proximity to the Kennedale substation, a preference for bare or less developed land, proximity to potential transmission line routing corridors, avoidance of residential or other non-compatible land uses, current zoning and future anticipated zoning, drainage, distance from existing infrastructure like rail lines, construction access, and ease of acquisition (number of owners, number of parcels, willingness to sell).

113. Potential sites were removed from consideration for different reasons, such as not being of adequate size, owner not interested in selling (in the case of one City-owned property), and conflicting neighbouring land uses. The specific potential substation sites assessed and the rationales for their removal from consideration are provided in Sections 2-5 of the Route Revision Log.

114. Figure 2.16.2-2 shows the location of the final selected site. Overall, the site was preferable to other sites for a number of reasons, including that it met EDTI's size requirements, was located in an existing industrial area with surrounding industrial land uses, had few existing utilities and structures, had good accessibility for initial construction and ongoing operation and maintenance, and the landowner was willing to sell the site to EDTI. A detailed description of the land acquisition process that EDTI undertook to purchase the site is provided in Section 7.2.

Figure 2.16.2-2
Selected Substation Site (Proposed Fort Road Substation)



2.16.3 Transmission Line Routes

115. Routing corridors were identified within the study area where the proposed transmission facilities would generally be easier and safer to construct from an engineering perspective, and compatible with existing land use based on an assessment of the specific land use zoning designations and associated land uses that exist or are planned within the study area. A compatibility matrix was developed to guide and support the routing corridor development, and to assess general compatibility in relation to short and long-term impacts of transmission facilities. The following categories of potential impacts were identified for use in the siting process:

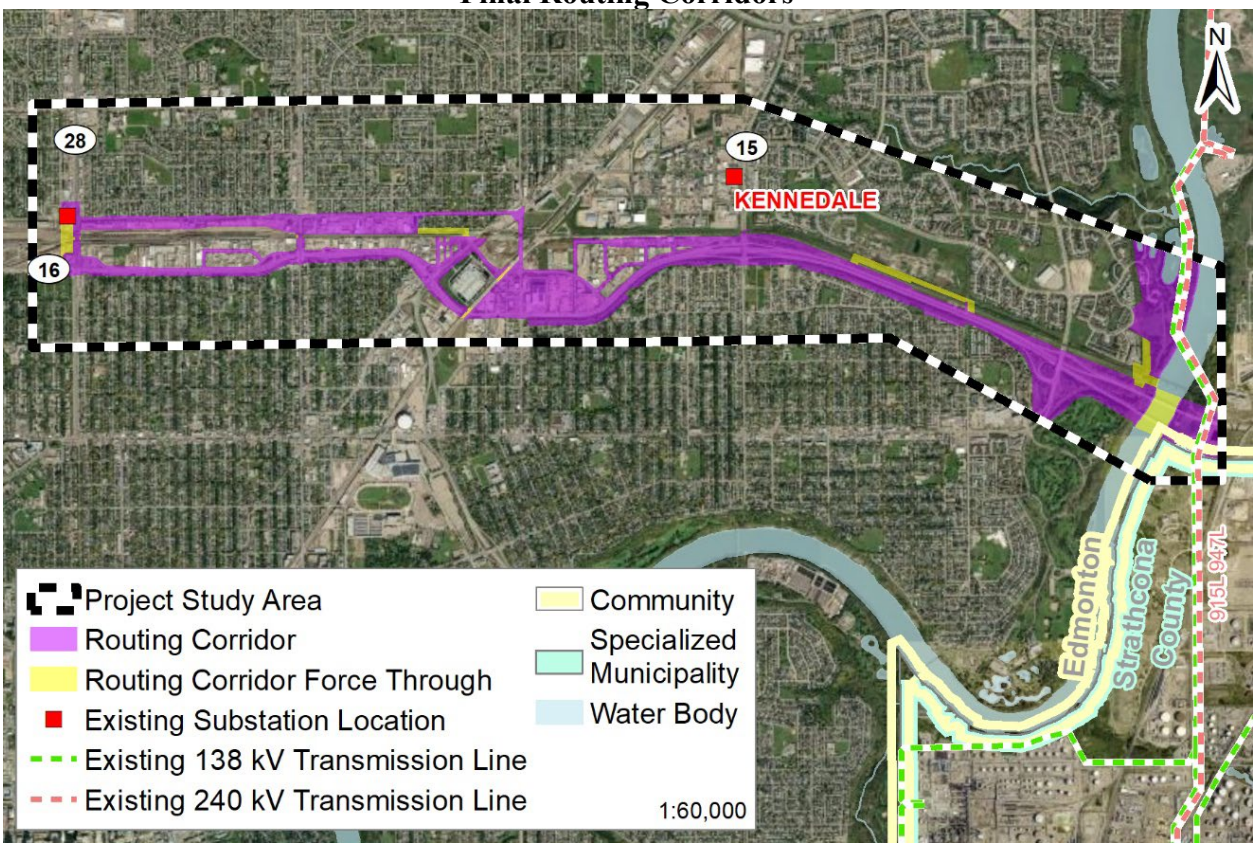
- Residential (potential impacts to residential features or concerns);
- Environmental (potential constraints that may impact environmental features or concerns);
- Visual (potential visual impacts or concerns);
- Technical considerations (potential technical constraints that may impact construction, access, maintenance, engineering and design, electrical induction / interference); and

- Special constraints (potential constraints that may impact businesses/industrial operations, proximity to communication towers, schools/hospitals, railways, and future development plans in the area).

116. The compatibility rankings are shown in Section 4.5.1 of the Siting Technical Report, and the compatibility rankings for each of the land use zoning designations in relation to each of the impact categories described above are shown in Section 4.5.2 of the Siting Technical Report. Using the compatibility rankings, EDTI and Maskwa worked to establish routing corridors for the Project – areas where the proposed transmission facilities would be considered generally more compatible and constructible.

117. Figure 2.16.3-1 illustrates the final routing corridors that were established to begin the development of a preliminary routing grid for the Project.

Figure 2.16.3-1
Final Routing Corridors



2.16.3.1 72kV Routes

118. Selection of the preliminary 72kV routes focused on utilizing existing transportation corridors, such as the Yellowhead Trail and 127 Avenue. The Yellowhead Trail is a well-established, major transportation corridor that runs through the entire study area. The 127 Avenue corridor was also considered because it is an established transportation corridor that runs generally east to west through the 72kV portion of the study area that is not fully residential.

119. The preliminary 72kV routes were selected as the routes within the corridors with the lowest overall potential impacts. These routes were primarily located on public lands along the fringes of transportation corridors, thereby minimizing proximity to residential land use zoning. Further, locating the proposed transmission lines within an existing transportation corridor would generally minimize potential incremental impacts. The preliminary 72kV routes are shown in Figure 10 of the Siting Technical Report.

120. A description of the revisions made to the preliminary 72kV routes in the Detailed Route Development stage, including refinements and retirements and the rationales behind them, is provided in Section 5.3 of the Siting Technical Report. The process reflected considerable input from a broad range of stakeholders, including industrial and commercial landowners, the City of Edmonton and other government agencies, railway owner CN, Indigenous communities through EDTI's Indigenous PIP, as well as further engineering and technical analysis by EDTI and its external subject matter experts. The resulting detailed routes are shown in Figure 15 of the Siting Technical Report.

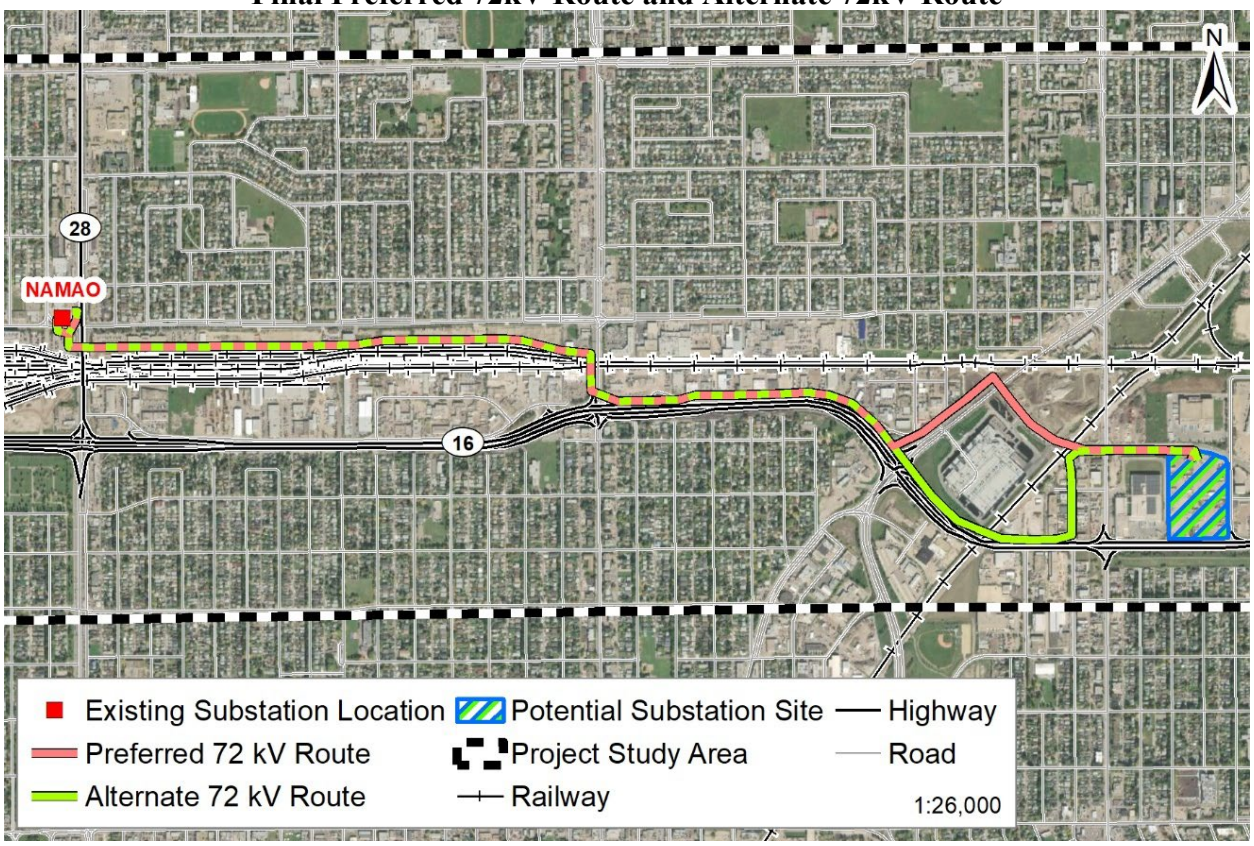
121. Section 6.3 of the Siting Technical Report provides a detailed description of the 72kV route refinements that occurred in the Final Route Development stage, based on further careful consideration of additional stakeholder feedback, verification of constructability, identification of conflicts and associated mitigations, as well as consideration of applicable routing metrics and estimated costs. The 72kV routes under consideration were reduced to two, and minor refinements were made to those routes to further address stakeholder impacts, as described in Section 6.3.2 of the Siting Technical Report and Section 8 of the Route Revision Log.

122. As detailed in Section 6.5.1 of the Siting Technical Report, although both remaining routes were determined to be viable, EDTI selected the N1-Common-N2 route as the Preferred 72kV Route taking into account all stakeholder consultation, and after analyzing both routes under the five route selection criteria categories. The primary rationales for this decision are that this route is lower in cost, requires fewer structures, is shorter in length, and impacts fewer private land

parcels compared to the N1-Common-S2 route (the Alternate 72kV Route). Overall, the Preferred 72kV Route has a lower overall impact compared to the Alternate 72kV Route.

123. Figure 2.16.3.1-1 shows the Preferred and Alternate 72kV Routes.

Figure 2.16.3.1-1
Final Preferred 72kV Route and Alternate 72kV Route



2.16.3.2 240kV Routes

124. The route selection process for the 240kV routes is described in detail in the Siting Technical Report.

125. As described in Section 4.7.2 of the Siting Technical Report, the Preliminary Route Development stage was dominated by consideration of overhead 240kV routing.

126. However, by the Detailed Route Development stage it had become apparent that routing a 240kV overhead configuration within the study area would be challenging from two key perspectives: first, due to potential electromagnetic induction impacts on the CN mainline railway

running along the Yellowhead Trail corridor; and, second, due to the highly congested existing urban development near and extending away from the Yellowhead Trail, within which there are no existing linear corridors that are wide enough or otherwise suitable to accommodate a new 240kV overhead transmission line.

127. Consequently, as described in detail in Section 5.4 of the Siting Technical Report, the Detailed Route Development stage included, in addition to overhead routing, consideration of underground and hybrid underground/overhead routes that would eliminate or minimize electromagnetic induction impacts on the CN railway and that could be sited along the shortest paths between the Fort Road substation and a suitable interconnection point on AML's existing 915L transmission line.

128. During the Final Route Development stage, however, it had become apparent that an overhead configuration was not viable, as the electromagnetic induction impacts on the railway could not be sufficiently mitigated for the reasons described in Sections 2.14 and 6.3.3 of the Application, and a viable route for a 240kV overhead line that was far enough away from the railway to adequately mitigate the electromagnetic induction effects on the railway could not be identified.[24] As a result, the Final Route Development stage was dominated by consideration of underground and hybrid underground/overhead routes.

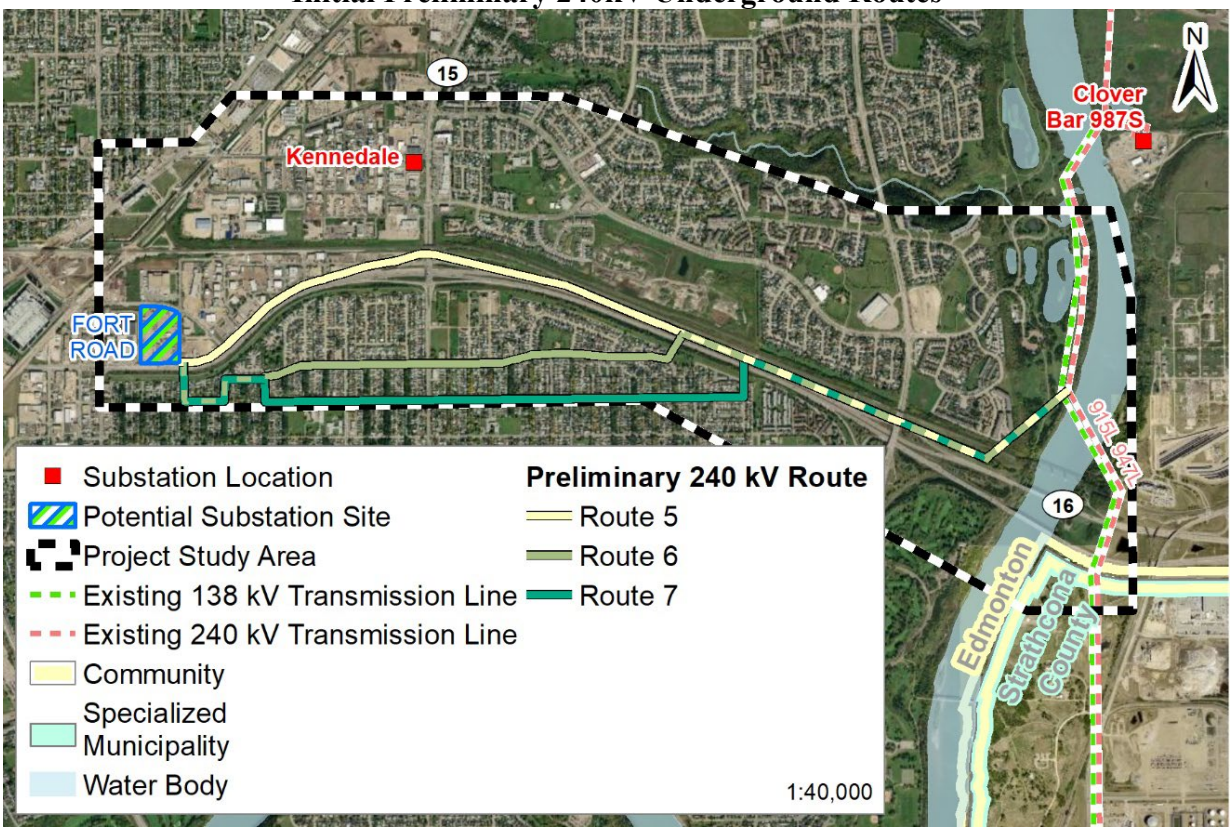
129. Details of the full route selection process for the 240kV transmission line, including all stages, is provided in the Siting Technical Report. However, as the relevant routing considerations dictated the use of underground or hybrid underground/overhead configurations only, EDTI in this section provides an overview of the 240kV route selection process that addressed those configurations.

130. As described in Section 5.4.2.6 of the Siting Technical Report, during the Detailed Route Development stage, EDTI retained an underground transmission line technical consultant (Stantec). EDTI, Maskwa and Stantec undertook a process to develop and analyze potential underground routing corridors, evaluate compatibility of underground configurations with existing

[24] EDTI evaluated overhead routes that use physical (horizontal) distance to the rails as a mitigation to electrical effects on the railway. Specifically, EDTI's electrical interference engineering subject matter expert indicated that a distance between an overhead 240kV line configuration and railway lines of approximately 300 metres may be enough to satisfactorily mitigate (i.e. eliminate) the induction effects on the railway. Based on this, EDTI evaluated all possible routes at this or a greater distance from the rails, including potential overhead routes along 118 Avenue to the south and Hermitage Road to the north, and determined that the routes are not feasible because in both cases they would come within potentially unsafe distances to residences and buildings, likely requiring their removal in order for the route to be viable, as per Safety Code limits of approach. This is described in more detail in Section 5.4.2 of the Siting Technical Report.

and anticipated future land uses, and assess constructability. The constructability assessment included consideration of engineering, design, construction, reclamation, operation, and relative costs, as well as construction, reclamation and operating practices, and surface and subsurface infrastructure conflicts, referred to as impedance levels. This work culminated in the identification of three underground routes as shown in Figure 2.16.3.2-1 below.

Figure 2.16.3.2-1
Initial Preliminary 240kV Underground Routes



131. After further review, Stantec ultimately recommended Route 5 running within the north side of the Yellowhead Trail corridor as the lowest cost, most constructible and least impactful underground route. The other two routes which ran through residential areas were retired as their construction would be highly disruptive to traffic and residents. Stantec proceeded to complete further development of Route 5, leading up to its inclusion in PSIP-4 which was issued publicly in April 2024 and attached in Appendix L-4.

132. During the Final Route Development stage, several hybrid routes were considered, with a view to minimizing the cost associated with mitigating the electromagnetic induction impacts on the railway through the use of at least some overhead 240kV line, leading up to the development

of PSIP-7 which was issued publicly in September 2024 and attached in Appendix L-4. Three potential hybrid routes were developed for consideration as follows:

- Hybrid Route C (Siting Technical Report, Figure 30) was developed to use a portion of a previously proposed overhead segment from Hermitage Park connection point to a point just east of Victoria Trail, where it would transition to an underground configuration for the rest of the route, terminating at Fort Road substation. The location of transition was selected to avoid locating the substantial transition structures west of Victoria Trail in storm water management areas and to maximize the amount of overhead line.

- Hybrid Route D (Siting Technical Report, Figure 31) was developed to maximize the amount of overhead line through the use of a portion of a previously proposed overhead segment, and to avoid the telecommunication towers on the north side of Yellowhead Trail.

- Hybrid Route E (Siting Technical Report, Figure 32) was developed to provide an additional hybrid option that would follow originally proposed overhead alignments on the north and south side of Yellowhead Trail but in an underground configuration, along with a small portion of overhead line at the east end to cross the North Saskatchewan River and interconnect with AML's 915L.

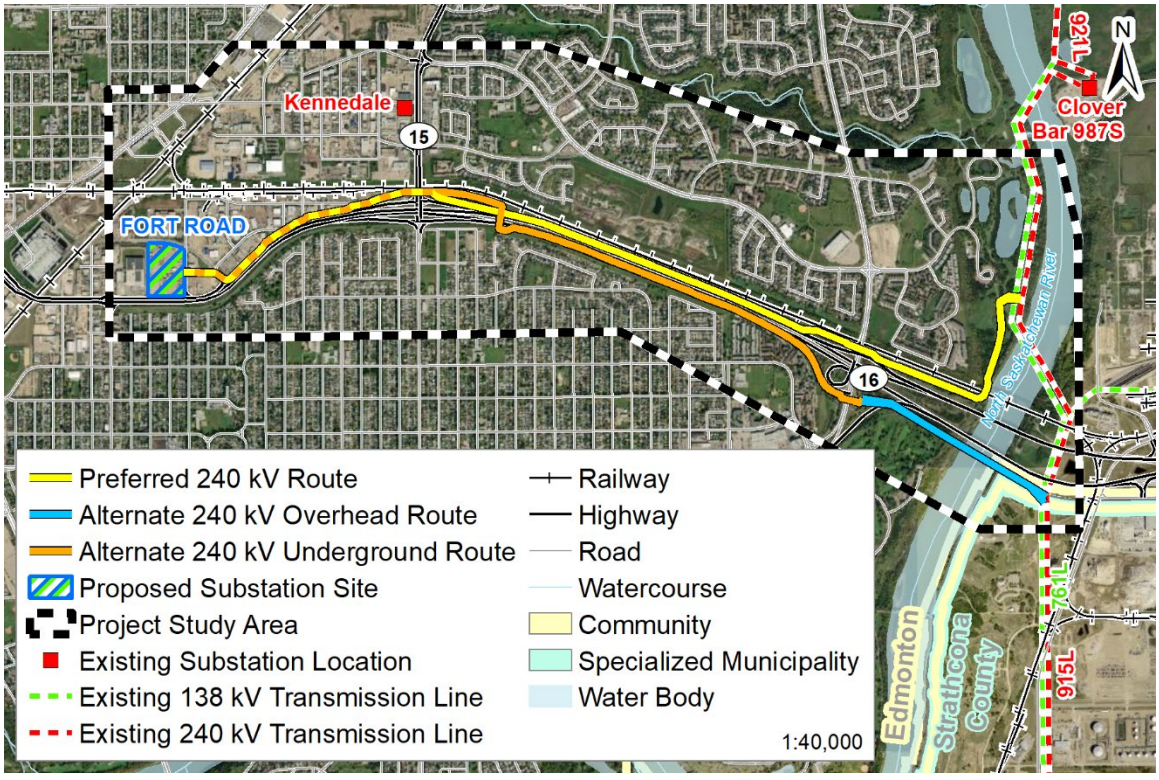
133. Section 6.4 of the Siting Technical Report provides a detailed description of the 240kV route refinements that occurred at the Final Route Development stage, reflecting consideration of stakeholder feedback, verification of constructability, identification of conflicts and associated mitigations, as well as consideration for routing metrics and estimated costs.

134. As described in detail in Section 6.4.1 of the Siting Technical Report, Hybrid Route C was removed due to the similarity of its cost to Route B, but having higher social impacts. Overhead Route A and Hybrid Route D did not offer sufficient inherent mitigation of electromagnetic induction effects to be acceptable from a railway safety perspective. However, fully underground Route B and Hybrid Route E, with its much shorter overhead portion, did offer sufficient inherent mitigation of electromagnetic induction effects to be acceptable from a railway safety perspective. As a result, Route B and Hybrid Route E were carried forward in the Final Route Development stage selection process.

135. As described in Section 6.5.2 of the Siting Technical Report, although both Route B and E are viable, taking into account all relevant factors, EDTI determined that Route B (fully underground) poses lower overall impacts than Route E (hybrid). While Route B has an estimated additional $3 million in construction costs when compared to Route E, Route E poses higher impacts than Route B in almost all other categories. The number of impacts and the level to which they are eliminated or mitigated by the Preferred 240kV Route justifies the incremental cost. Overall, Route B is the Preferred 240kV Route and Route E is the Alternate. Although the electromagnetic induction effects on the railway were ultimately the determining factor driving the selection of the final 240kV routes, additional benefits will also be realized that further contribute to the feasibility of the underground and hybrid routing, such as reducing the amount of tree removal, lowering environmental impacts, and reducing the need for private property land access. Such routing is also consistent with the preferences of a number of key stakeholders, including the City of Edmonton, as described in more detail in Sections 5.2.2, 6.2.2 and 6.4.1 of the Siting Technical Report.

136. Figure 2.16.3.2-2 shows the Preferred and Alternate 240kV Routes.

Figure 2.16.3.2-2
Final Preferred 240 kV Route and Alternate 240 kV Route



2.17 Electric Single-Line Diagram or Switching Map and Substation Layout Diagram (TS17)

137. Electrical single line diagrams of the proposed substation at Fort Road and modifications proposed at the Namao and Clover Bar substations are included in Appendix G. Appendix G includes the following:

- An updated system connection diagram reflecting the addition of the new proposed transmission lines and substation;
- A single line diagram of the new proposed Fort Road substation;
- A substation layout diagram of the new proposed Fort Road substation;
- A revised single line diagram for the Namao substation;
- A revised substation layout diagram of the Namao substation; and,
- A revised single line diagram for the Clover Bar substation.

2.18 Construction Schedule, Equipment and Method of Construction (TS18)

138. Construction related to the new and existing substations, new 72kV and 240kV transmission lines, and modifications to existing transmission infrastructure is planned to commence in January 2026 and be completed in summer 2029. The work activities and modifications to existing facilities are described in Sections 2.1 and 2.15, respectively.

139. EDTI's Project construction schedule is provided in Table 2.18-1 below:

Table 2.18-1
CETR Construction Schedule Assuming S25.2 Direction Letter

	Description	A Commencement	B Completion
	Fort Road substation		
1	Construction	January, 2026	January, 2028
2	Commissioning	January, 2028	May, 2028
3	In-service date ("ISD")	June, 2028	
	Namao substation		
4	Construction	September, 2027	July, 2028
5	Commissioning	July, 2028	August, 2028
6	ISD	September, 2028	
	Clover Bar substation		
7	Construction	January, 2028	April, 2028
8	Commissioning	May, 2028	May, 2028
9	ISD	June, 2028	
	240kV lines (915L, 993L) – Preferred Route (Underground)		
10	Construction	March, 2026	April, 2028
11	Commissioning	April, 2028	May, 2028

	Description	A Commencement	B Completion
12	ISD	June, 2028	
	240kV lines (915L, 993L) – Alternate Route (Hybrid)		
13	Construction	March, 2026	April, 2028
14	Commissioning	January, 2028	May, 2028
15	ISD	June, 2028	
	72kV lines (72FN27/28)		
16	Construction	October, 2027	May, 2028
17	Commissioning	May, 2028	August, 2028
18	ISD	September, 2028	
	Distribution feeder transfers (Kennedale to Fort Road)		
19	Construction	March, 2026	May, 2029
20	Commissioning	February, 2028	May, 2029
21	ISD (load transfer, 12 15kV circuits)	June, 2028	June, 2029
	Remove from Transmission Service		
22	72CN10	Summer, 2028	
23	72KN23	Summer, 2028	
24	72CK12	June, 2029	
25	72CK13	June, 2029	
26	Kennedale substation	June, 2029	

140. The construction schedule for the new Fort Road substation will be driven by the delivery timing of long lead items, specifically the substation transformers and 240kV circuit breakers. EDTI forecasts the delivery of the transformers to occur in October 2027, and the 240kV circuit breakers in May 2027. Construction of the Fort Road substation and the new 240kV transmission Lines 915L and 993L will take approximately two years and are planned to be in service by June 1, 2028.

141. The construction schedule for the new 240kV transmission lines 915L and 993L is driven by delivery of long lead 240kV underground cable, and completing engineering and civil construction prior to arrival of those cables. EDTI intends to complete a Request for Procurement ("RFP") process leading up to an expected AUC decision date for this Application, initiating work for the approved route upon issuance of permit and license. EDTI must be able to begin civil construction work for the underground transmission line in March 2026 to be ready for anticipated cable delivery in late 2026. Cable installation and splicing will take approximately one year and would be complete in late 2027 or early 2028. Commissioning work will occur in 2028 prior to a planned energization on June 1, 2028.

142. Once the Fort Road substation is in service, EDTI intends to energize the 72kV transmission lines (72FN27 and 72FN28) and complete the required modifications to the Namao substation in September 2028. Concurrent with these construction activities, and once the new 72kV lines are available to be energized, EDTI will disconnect the existing 72kV transmission lines 72CN10 and 72KN23 from the Namao substation, transition the connection circuit 72VN21

to the former 72KN23 bay, and connect the new 72kV lines to the Namao substation in summer 2028.

143. Finally, the relocation and transfer of the 15kV distribution circuits from the Kennedale substation to the proposed Fort Road substation will begin in June 2028, in conjunction with the energization of the Fort Road substation. The final distribution circuit transfer is planned to be completed in June 2029. Once the final circuit transfer is completed, EDTI will discontinue from transmission service the existing 72kV transmission lines 72CK12 and 72CK13 and the Kennedale substation.

144. Required construction equipment will include excavation and earth hauling equipment, concrete placing and paving vehicles, cranes, flatbed trucks, hydro-vac trucks and other typical construction equipment.

145. All work on this Project will comply with the *Occupational Health and Safety Act*, as well as the *Building Code Regulation*, pursuant to the *Safety Codes Act* (Alberta).

146. Subject to outcomes of negotiations with contractors, construction is expected to occur Monday through Saturday between 7:30am and 5:30pm for transmission lines, and Monday through Friday between 7:30am and 5:30pm for substations, although occasional overtime and overnight work may be required. Construction noise will be managed in accordance with section 2.10 of AUC Rule 012 and City of Edmonton noise bylaws as described in section 4.

147. With respect to ROW maintenance for the proposed facilities, EDTI will follow its well-established vegetation management program which typically involves annual inspection and/or pruning or clearing of vegetation, to allow for access to complete maintenance in the ROW surrounding EDTI's transmission equipment. Pruning is prioritized over removal to preserve wildlife habitat, visual aesthetics as well as slope stability and water absorption of the soils. Patrols will also be used to identify hazard trees that require pruning or clearing. Hazard trees are trees that are outside of the designated ROW that pose a hazard to the safe operation of the transmission line due to unstable rooting conditions, heavy lean, mechanical or biotic damage combined with height and distance to the line.

2.19 Requested Approval Date, Construction Start and Completion Dates, and Expected In-Service Date (TS19)

148. AESO has stipulated an in-service date for the new facilities of June 2030 which EDTI proposes to advance by one year to June 2029 should its request for Direction from the AESO under Section 25.2 of the *Transmission Regulation* for advanced procurement of long lead equipment be approved.

149. EDTI's proposed dates for AUC approval and Project completion are as follows:

Requested Approval Date	December 20, 2025
Construction Start Date	January, 2026
Construction Completion Date	June 1, 2029
Expected In-Service Date for Stage 1[25]	June 1, 2028
Expected In-Service Date for Stage 2[26]	September 1, 2029
Expected In-Service Date for Stage 3[27]	June 1, 2029
Completion Deadline (if applicable)	Not applicable

Ramifications if Approval is Delayed

150. EDTI requests Commission approval of this Application by December 20, 2025. This is required to allow EDTI to secure necessary permits to start construction and to schedule contractors to start land preparation and civil works for the Substation starting in January 2026 and the 240 kV transmission line civil works by March 2026. If approval is delayed beyond December 20, 2025, EDTI may be delayed in starting construction in the 2026 construction season, potentially forcing some work into winter months at additional cost.

151. In Decision 28633-D01-2024, the Commission approved the need to expand and enhance the transmission system to address both forecast load growth in the area and aging transmission infrastructure. Delays in obtaining approval will impact the in-service dates noted above and increase the risk of failure of aging transmission infrastructure, which may result in the inability to reliably serve new and existing load in the area.

[25] Stage 1 refers to the completion of the Fort Road substation and proposed 240kV transmission lines, as per section 2.1.
[26] Stage 2 refers to the completion of the 72kV transmission lines, as per section 2.1.
[27] Stage 3 refers to the completion of the relocation of distribution infrastructure, as per section 2.1.

152. To mitigate this risk to the reliability of the transmission system, EDTI requested from the AESO an advanced procurement direction pursuant to Section 25.2 of the *Transmission Regulation*, specifically for the required transformers and 240kV circuit breakers which will be required regardless of which transmission routes are approved (i.e. Preferred or Alternate). If Section 25.2 direction is not received, the schedule ISDs for the different stages of the Project outlined above will be delayed by approximately one year due to delays in completing procurement of key long lead equipment, specifically the required transformers and 240kV circuit breakers.

2.20 Location of Required Temporary or Permanent Workspace Areas and Access Roads (TS20)

153. Appendix D includes maps which show temporary workspace areas and access roads for the Project, including:

- Tables listing workspace for each property
- Strip maps for 240kV routes
- Strip maps for 72kV routes

154. Temporary workspaces, shown in Appendix D, include work pads (for transmission structures and underground vaults) and pull sites (for pulling conductors onto the structures or through ducts). It is also assumed that any location within the ROW may be used as temporary or permanent workspace. Temporary access points reflect areas to allow for construction vehicles to access the right-of-way where adjacent public access is not available. Where these areas overlap public access they may require temporarily restricting public access to facilitate activities related to the construction and stringing of the transmission line.

155. EDTI has made efforts to use access areas from public roadways, however in certain situations, access will have to be gained through private land (such as privately owned parking areas) or City of Edmonton Parks. Where applicable, the need for such access has been included as part of consultation with affected stakeholders in EDTI's PIP.

156. EDTI requests that all temporary workspaces and access roads be reflected in the permit and licence for the approved route.

2.21 Drawings, Maps and Air Photo Mosaics (TS21)

157. A map of the Project including the proposed Fort Road substation, Preferred and Alternate Routes is provided in the figures below.

Figure 2.21-1
Proposed Fort Road Substation

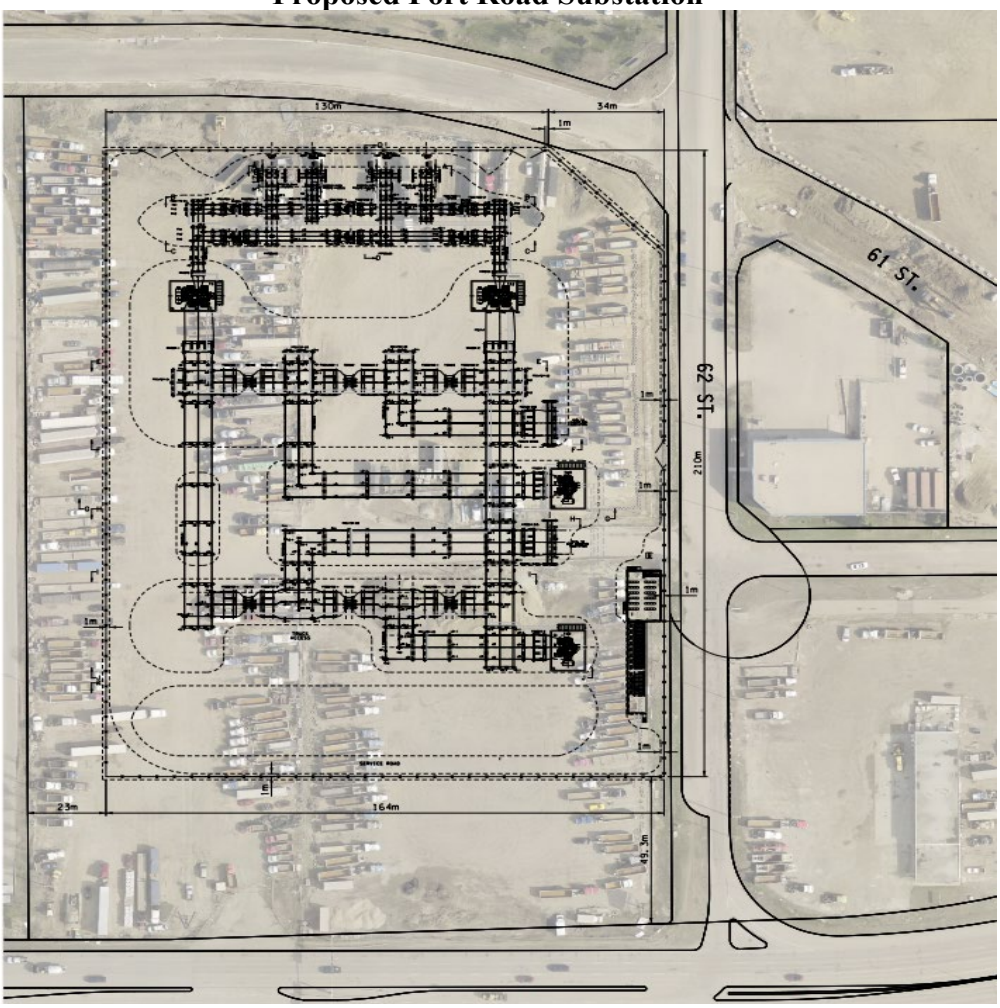
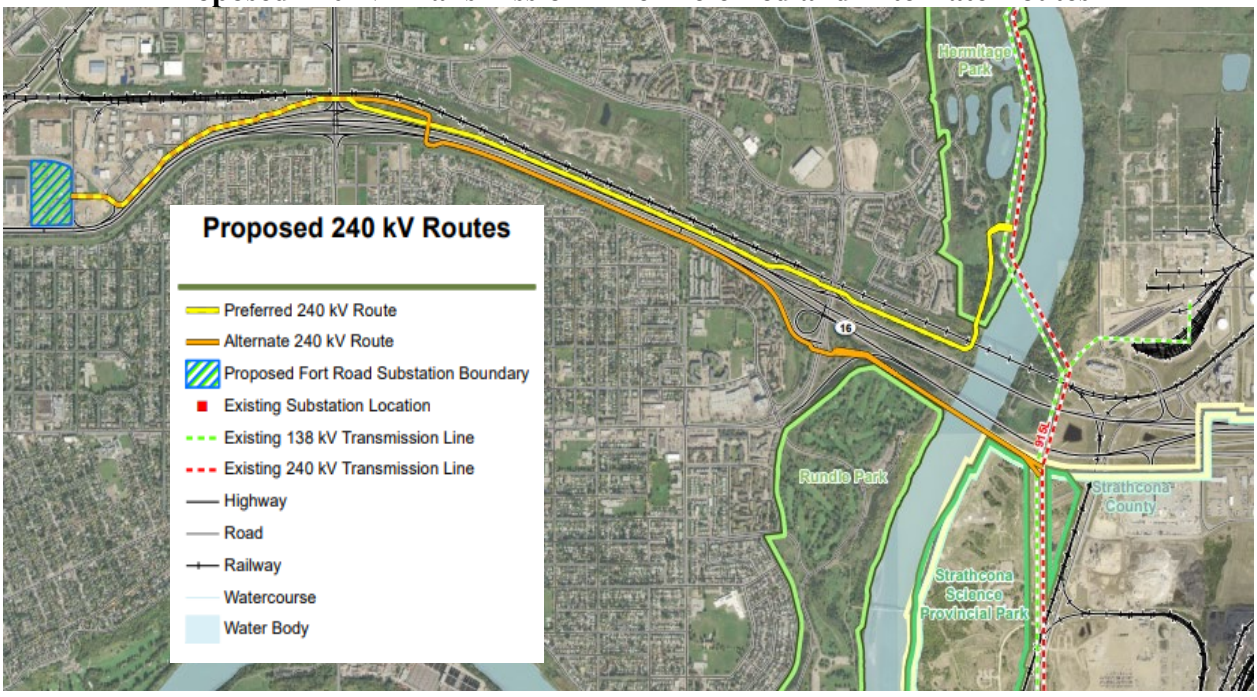


Figure 2.21-2
Proposed 72kV Transmission Line Preferred and Alternate Routes

Figure 2.21-3
Proposed 240kV Transmission Line Preferred and Alternate Routes



158. Table 2.21-1 below lists the locations of the information required under TS21 of Rule 007.

Table 2.21-1
References to Maps

	A **Description**	B **Reference**
1	Study area and reasons	Section 2.16 and Appendix F-3 – Route Revision Log
2	Right of way widths and location	Section 2.11 and Appendix D – Route Strip-Maps
3	Location of the transmission line relative to property lines	Appendix D
4	Map of property owners and names	Appendix L-1, Appendix D-2 and D-3
5	Land use and resource features map along the transmission line and substation	Appendix I-1 (Appendix A of Environmental Evaluation)
6	Map of environmental features, wildlife and aquatic habitat, ecological communities, environmentally sensitive areas, protected areas and designations present in the local study area.	Appendix I-1 (Appendix A of Environmental Evaluation)

2.22 Keyhole Markup Language File (TS22)

159. A Keyhole Markup Language (.kmz) file is provided in Appendix D-4.

2.23 Visual Aesthetics and Screening (TS23)

160. In designing the proposed facilities, EDTI took steps to minimize the potential visual effects of the Project. Visual effects tend to be subjective and therefore their perceived significance will vary from one observer to the next. However, the following factors will serve to minimize the level of potential visual effects of the Project:

- The proposed Fort Road substation is sited within an existing industrial area;
- Siting the transmission lines within the road allowance and/or parallel to other existing linear developments will generally reduce visual impacts;
- Where possible, transmission lines have been sited to avoid existing trees and thus the need for their removal;
- EDTI has proposed double circuit transmission lines, which will reduce the visual impact compared to two separate single circuit transmission lines;
- Where possible, EDTI has sited the 72kV transmission lines along the back of private commercial properties to maximize separation from residential properties;
- EDTI has proposed an underground configuration of the Preferred 240kV Route, which will reduce visual impacts compared to an overhead route;
- If the Alternative 240kV route is approved, monopole structures are proposed for the overhead segment, where practicable, which will reduce visual impacts compared to other types of overhead structures (e.g., steel lattice towers);

- For the 72kV routes, EDTI has attempted to locate transmission structures more than 30 metres away from the property line of residences whenever possible to mitigate potential visual effects;
- For overhead routes, EDTI intends to choose a finish for transmission structures that will minimize glare to residents and motorists.

161. To better assist stakeholders' understanding of the potential visual effects of the new overhead transmission lines and substation, EDTI contracted Truescape Ltd. ("Truescape") to develop visual renderings of the proposed transmission lines and Fort Road substation from several different vantage points within the Project area. The Truescape visual renderings, which were comprised part of EDTI's PIP materials, are included in Appendix H. Each vantage point provides a view of the existing landscape (i.e., with no proposed facilities), as well as separate views with the applicable proposed route option super-imposed over the existing landscape. The visual renderings were shown at the Open Houses on April 30 and May 2, 2024, and were posted on EDTI's Project website (epcor.com/cetr). One sample viewpoint was included in the PSIP-4A and PSIP-4B fact sheets with an invitation to view more viewpoints on the Project website. The visual renderings were revised throughout the course of the Project to reflect changes to the proposed routes, where applicable.

162. As some of the routes shown in the visual renderings on the Project website have since been retired. Tables 2.23-1 and 2.23-2 below show which viewpoints are associated with the 240kV and 72kV transmission line route options, respectively.

Table 2.23-1
Viewpoint (Visual Renderings) by 240kV Routes from PSIP-7

		A	B	C	D	E
	240 kV Viewpoint Locations	**Route A (Retired)**	**Route B (Preferred Route)**	**Route C (Retired)**	**Route D (Retired)**	**Route E (Alternate Route)**
1	Viewpoint 01-1 - Hyndman Rd Complex Parkside	✓		✓	✓	✓
2	Viewpoint 01-2 - Hyndman Rd Complex Parkside		✓	✓		
3	Viewpoint 02 - Hyndman Rd	✓				
4	Viewpoint 04 - 124 Ave	✓				
5	Viewpoint 05 - 126 Ave	✓	✓	✓	✓	✓
6	Viewpoint 07 - 1180 Hyndman Rd	✓		✓	✓	✓
7	Viewpoint 08-1 - Yellowhead Hwy - Newton	✓				
8	Viewpoint 08-2 - Yellowhead Hwy - Newton	✓				
9	Viewpoint 11-1 – Victoria Trail NW (winter)	✓	✓	✓	✓	✓
10	Viewpoint 11-2 - Victoria Trail NW (winter)	✓			✓	
11	Viewpoint 12-1 - Hermitage Park Road	✓		✓	✓	✓
12	Viewpoint 12-2 - Hermitage Park Road		✓	✓		
13	Viewpoint 12-3 - Hermitage Park Road		✓			
14	Viewpoint 12-4 - Hermitage Park Road (winter)	✓		✓	✓	✓
15	Viewpoint 12-5 - Hermitage Park Road (winter)		✓	✓		
16	Viewpoint 13 - Yellowhead Hwy - Bergman	✓				

Table 2.23-2
Viewpoint (Visual Renderings) by 72kV Route Segments from PSIP-4

	72 kV Viewpoint Locations	N1 (Preferred Route)	N2 (Preferred Route)	S1 (Retired)	S2 (Alternate Route)
1	Viewpoint 11 - 127	✓		✓	
2	Viewpoint 16-1 - 125a Ave, 72kV	✓		✓	
3	Viewpoint 16-2 - 125a Ave, 72kV	✓		✓	

3.0 ENVIRONMENTAL INFORMATION

3.1 Environmental Evaluation (TS24)

163. EDTI retained Maskwa Environmental Consulting Ltd. ("Maskwa") to complete an Environmental Evaluation ("EE") and Environmental Protection Plan ("EPP") for the Project. These are included as Appendix I-1 and Appendix I-2, respectively. The EE and EPP include the following information:

- Environmental and land use conditions in the Project area (Section 3 of the EE);
- Potential effects of the Project on the environment (Section 4 of the EE);
- Methodology used to identify, evaluate and rate the potential environmental effects and determine their significance (Section 2 of EE);
- Mitigation measures EDTI proposes to reduce the potential adverse effects (Section 4 of the EE and Section 5 of the EPP);
- Potential residual effects and their significance after the deployment of above-noted mitigation measures (Section 4 of the EE);
- Overview of proposed monitoring activities during the lifetime of the Project (Section 6 of the EPP);
- Qualifications of the individuals who conducted and oversaw the development of the EE (Appendix B of the EE); and
- A summary of the Project's compatibility with various municipal services (Section 1 of the EE).

3.1.1 Environmental Assessment Overview

164. A summary of potential impacts to the environmental and land use conditions was compiled by Maskwa based on desktop analyses, field survey, professional experience in completing environmental effects assessments for similar projects, and general environmental best management practices. A desktop assessment was completed (as part of the EE) to determine the Valued Ecosystem Components ("VEC"s) that would potentially be impacted by the Project and those that would not. For those VECs that may be impacted by the Project, the results of the detailed desktop assessment, environmental field surveys, and the potential impact on the VECs are described in detail in the EE, including comparative environmental metrics for each VEC.

165. The VECs that were determined to be potentially impacted by Project activities include:

- Soils and terrain;
- Surface water;
- Groundwater;
- Vegetation species and communities;
- Wildlife species and wildlife habitat;
- Aquatic species and habitat; and
- Land use and environmentally sensitive areas.

166. Overall, the EE concludes that both the Preferred and Alternate 240kV and 72kV Routes will not result in significant adverse environmental impacts as the residual effects, after mitigations, are not significant. Despite the greater need for excavation and soil management activities during construction, the 240kV Preferred Route will have fewer environmental effects due to less disruption to wildlife and wildlife habitat, specifically due to the higher avian collision risk associated with the 240kV Alternate Route, which spans across the North Saskatchewan River and traverses through the Strathcona Science Provincial Park. For the 72kV Routes, both the Preferred and Alternate routes have minimal environmental impacts as they are located in a developed urban setting (i.e. existing level of disturbance is high); however, the 72kV Preferred Route is a shorter route and overall has reduced disturbances and environmental impacts than the 72kV Alternate Route.

167. While the Preferred routes are likely to have less environmental effects than the Alternative routes, the EE concludes that the predicted residual effects of the Project for each VEC assessed are likely to be insignificant. This conclusion assumes that the mitigation measures recommended in the EPP are implemented and that all relevant regulatory requirements are adhered to. In other

words, the mitigation measures set out in the EPP are expected to be sufficient to satisfactorily mitigate anticipated environmental effects. As such, the Preferred and Alternate 72kV Routes, Preferred and Alternate 240kV Routes, Fort Road substation, and Namao substation modifications, and Clover Bar substation Fibre Optic Line are all considered acceptable from an environmental perspective.

168. To support adherence to the EPP, the EPP outlines the requirement for the Environmental Monitor to conduct regular site inspections and submit regular monitoring reports to EDTI's Primary Point of Contact (refer to Section 6 of the EPP for details related to monitoring). The EPP is a living document intended to be updated and modified over time based on project/site specific environmental learnings, additional permit or approval conditions, construction-specific variances needed, or deficiencies found during the monitoring program.

169. The following sections, organized by VEC, provide an overview of the potential environmental effects of the Project, including route-specific environmental conditions, potential adverse effects, mitigation measures, monitoring requirements, and residual effects and their significance.

3.1.2 Soils and Terrain

170. Existing soil and terrain conditions were assessed using desktop methods supplemented by geotechnical investigations. The Project is mostly sited on, or adjacent to, lands that have been previously disturbed by industrial activities, transportation corridors, and existing utility uses.

171. Table 3.1.2-1 below summarizes the potential impacts to soils and terrain resulting from the Project and references to the applicable mitigation measures in the EPP.

Table 3.1.2-1
Summary of Potential Effects to Soils and Terrain

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Soil compaction, admixing, and rutting during site preparation, construction, and operations	Sections 5.1, 5.4, 5.8, and 5.9
2	Soil erosion by water and wind during site preparation and construction	Sections 5.1, 5.3, 5.4, 5.8, and 5.9
3	Contamination from inadvertent spills/releases from vehicles and equipment during site preparation, construction, and operations	Sections 5.1, 5.2, 5.3, 5.4, 5.8, and 5.9
4	Chance discovery of existing soil contamination during site preparation and construction, especially at the substation locations	Sections 5.1, 5.2, 5.4, and 5.8

172. Key comparisons in soil and terrain conditions and impacts between the Preferred and Alternate routes are detailed in Section 3 of the EE, and summarized below:

- The differences between the 72kV route options are negligible. Both route options are viable from a soils and terrain perspective.
- The differences between the 240kV routing options are generally negligible, and both are viable from a soils and terrain perspective. However, the Preferred 240kV Route is primarily underground relative to the Alternate 240kV Route, which is largely underground but partially above ground, and avoids open trenching within Hermitage Park. Due to the greater extent of soil disturbance during site preparation and construction, the Preferred 240kV Route has a higher potential for erosion compared to the Alternate 240kV Route. Mitigation measures that will minimize the potential for erosion impacts are outlined in the EPP.

173. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse residual effects on soils and terrain.

3.1.3 Surface Water

174. Existing surface water conditions were assessed using desktop methods. Surface water features were delineated by a qualified biologist. No surface water fieldwork was completed as the desktop assessment was sufficient to determine the baseline surface water conditions, however, surface water features (e.g., ephemeral drainages) were noted when encountered during the 2023 field surveys.

175. Table 3.1.3-1 below summarizes the potential impacts to surface water resulting from the Project and references the applicable mitigation measures in the EPP.

Table 3.1.3-1
Summary of Potential Effects to Surface Water

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Vegetation alteration and/or removal of hydric soils during site preparation, construction, and operations	Sections 5.1, 5.3 to 5.6, 5.8, and 5.9
2	Soil alteration due to activities completed within surface water features during site preparation, construction, and operations	Sections 5.1, 5.3, 5.4, 5.8, and 5.9
3	Soil alteration and/or removal due to activities completed within surface water features during site preparation, construction, and operations	Sections 5.1, 5.3, 5.4, 5.8, and 5.9

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
4	Alteration of surface water quality (e.g., via soil erosion/sedimentation or inadvertent chemical spills/releases into surface water bodies) during site preparation, construction, and operations	Sections 5.1 to 5.4, 5.8, and 5.9
5	Changes to surface drainage patterns during site preparation and construction	Sections 5.1, 5.3, 5.4, 5.8, and 5.9
6	Reduction in overall wetland function as effected by the above pathways during site preparation and construction	Sections 5.1 to 5.6, 5.8, and 5.9

176. The 240kV Preferred and Alternate Routes are located near the North Saskatchewan River which is located on the easternmost section of the Project and Local Study Area ("LSA"). The Preferred 240kV Route is sited in close proximity to the North Saskatchewan River (approximately 27 metres from the centerline of the route to the North Saskatchewan River, though entirely outside of the bed, bank and riparian area of the North Saskatchewan River). Only the Alternate 240kV Route is proposed to cross the North Saskatchewan River; it also overlaps one ephemeral drainage and intersects one wetland classified as a temporary graminoid marsh.

177. For the 72kV route options, there are no surface water features and no anticipated direct impacts to existing surface water conditions for the substation components or the 72kV route options.

178. Key comparisons in surface water conditions or impacts between the Preferred and Alternate Routes for the 72kV and 240kV routes are summarized below:

- There are no differences between the Preferred and Alternate 72kV Routes in terms of existing surface water conditions, and both are viable from a surface water perspective.
- For the 240kV transmission line, the Alternate 240kV Route crosses over the North Saskatchewan River, overlaps an ephemeral drainage, and potentially impacts one temporary graminoid marsh. The Preferred 240kV Route is within 4.1 metres of riparian vegetation associated with the North Saskatchewan River and within 16.5 metres of the North Saskatchewan River itself. Although both routes are viable, the Preferred 240kV Route has less environmental impact than the Alternate 240kV Route from a surface water perspective. If the Alternate 240kV Route were selected, additional permitting under the *Water Act*[28] would be

[28] *Water Act*, RSA 2000, c W-3 https://www.canlii.org/en/ab/laws/stat/rsa-2000-c-w-3/latest/rsa2000-c-w-3.html. Accessed: February 2025.

required as construction will likely impact the above-noted wetlands (refer to Section 5.1 of this Application for more details regarding permitting)

179. EDTI concurs with Maskwa's conclusion that significant adverse impacts from the Project on surface water are not anticipated, because work activities and infrastructure placement is planned outside of watercourse beds and banks. Should the Alternate 240kV Route be approved, EDTI will apply for *Water Act* authorizations from Alberta Environment Protected Areas ("AEPA") if it is determined that transmission line construction and laydown areas will temporarily impact watercourses or wetlands. Work within watercourse and wetland areas will only commence after the appropriate authorizations are in place and have been reflected in the Issued for Construction EPP.

180. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse residual effects on surface water features.

3.1.4 Groundwater

181. Existing groundwater conditions were assessed using desktop methods. No fieldwork was completed, as the desktop assessment was sufficient to determine baseline groundwater conditions.

182. Table 3.1.4-1 below summarizes the potential impacts to groundwater resulting from the Project and provides references to the applicable mitigation measures in the EPP.

Table 3.1.4-1
Summary of Potential Effects to Groundwater

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Penetration of groundwater aquifer(s) resulting from construction and excavation activities for transmission structure foundations in locations where the water table is shallow	Sections 5.1 to5.4
2	Impacts on groundwater quality resulting from an inadvertent release (e.g., spill) of a deleterious substance during site preparation, construction, and operations	Sections 5.1 to 5.4, 5.8, and 5.9
3	Discovery of groundwater contamination during localized excavation from foundation/structure installation along the potential routes or substation components	Sections 5.1 to 5.4

183. The desktop assessment identified that Project-related ground disturbance activities during construction are anticipated to mainly occur above the water table, and are therefore unlikely to interact with construction activities.

184. Key comparisons in groundwater conditions or impacts between the Preferred and Alternate Routes are summarized below:

- The differences in groundwater conditions and potential groundwater well interactions associated with each of the route options for the 72kV and 240kV components are negligible. The Preferred 240kV Route has a slightly higher area of very high aquifer vulnerability and groundwater risk compared to the Alternate 240kV Route, because it intersects with a slightly larger area of high aquifer vulnerability. However, all routes are viable from a groundwater perspective.

185. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse residual effects on groundwater.

3.1.5 Vegetation Species and Communities

186. Existing vegetation species and community conditions were assessed using desktop methods and further supplemented by on-site vegetation and rare plant surveys. Field surveys were limited to the North Saskatchewan River valley because the Project area outside the North Saskatchewan River valley is an urban, modified or disturbed landscape.

187. Table 3.1.5-1 below summarizes the potential impacts to vegetation species and communities resulting from the Project and provides references to the applicable mitigation measures in the EPP.

Table 3.1.5-1
Summary of Potential Effects to Vegetation Species and Communities

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Disturbance or loss of native vegetation, COE trees and natural stands, or their habitat, during site preparation and construction	Sections 5.1, 5.4 to 5.6, 5.8, and 5.9
2	Introduction or spread of weeds/invasive species during site preparation, construction, and operations	Sections 5.1, 5.4 to 5.6, 5.8, and 5.9

188. A summary of the key results of the assessments includes the following:

- Vegetation communities within the LSA are primarily disturbed and modified by human activity, with small areas of remnant natural vegetation (i.e., native/naturalized forest) present along the slopes of the North Saskatchewan River valley.

- Vegetation communities within the LSA reflect a history of disturbance through the dominance of non-native plant cover, including eight noxious weed species.
- The Project does not intersect any agricultural lands.
- The 72kV transmission line, Fort Road substation, Namao substation and Clover Bar substation Fibre Optic Line scopes are located on lands that are largely disturbed and therefore have limited potential to support rare plant species and rare ecological communities, neither of which were observed during the field surveys.
- The Preferred 240kV Route will require the removal of approximately 2.3 hectares (ha) of tree canopy cover, and the Alternate 240kV Route will require the removal of approximately 7.1 ha of tree canopy cover.

189. Key comparisons in vegetation species and community conditions and impacts between the Preferred and Alternate Routes are summarized below:

- For the 72kV transmission line, differences are negligible between the Preferred and Alternate Routes in terms of existing land cover, vegetation species communities, and weeds. No significant adverse effects from a vegetation perspective are anticipated for either the Preferred or Alternate Routes.
- For the 240kV transmission line, differences are generally negligible in terms of impacts on vegetation species and communities (existing land cover, vegetation species communities, and weeds); however, the Alternate 240kV Route would require substantially more tree removal than the Preferred 240kV Route.

190. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse effects on vegetation species and communities.

3.1.6 Wildlife Species and Wildlife Habitat

191. EDTI identified wildlife Species of Management Concern[29] (SOMC) and habitat with potential for wildlife to occur based on a desktop review. The desktop review included a review of the Alberta Conservation Information Management System (ACIMS), the Fisheries and Wildlife Management Information System (FWMIS), and wildlife sensitivity maps.

[29] As defined in the EE, section 3.5.1.

192. Table 3.1.6-1 below summarizes the potential impacts to wildlife species and wildlife habitat resulting from the Project and provides references to the applicable mitigation measures in the EPP.

Table 3.1.6-1.
Summary of Potential Effects to Wildlife Species and Wildlife Habitat

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Disruption to local wildlife and wildlife habitat during site preparation, construction, and operations	Sections 5.1, 5.7 to 5.9
2	Loss of wildlife habitat through vegetation removal during site preparation, construction, and operations	Sections 5.1, 5.5, 5.7 to 5.9
3	Wildlife encounters during site preparation, construction, and operations	Sections 5.1, 5.7 to 5.9
4	Avian fatalities resulting from collisions and electrocutions with Project infrastructure during operations	Section 5.7

193. Based on the desktop review, a wildlife survey program was developed to assess the Project for wildlife SOMC and their features (e.g., nests, dens, leks, and hibernaculum). On this basis, breeding bird surveys, raptor stick nest surveys, and an avian collision risk survey were conducted by qualified biologists in summer 2023, which included documentation of incidental wildlife and wildlife features, if observed.

194. Assessments and surveys of wildlife species and wildlife habitat findings for the Project include the following:

- The 72kV route options and substation components of the Project are not anticipated to impact wildlife or wildlife habitat as these areas are predominantly developed, with limited habitat resources.
- There is potential for wildlife SOMC to occur along portions of the proposed 240kV transmission line within the North Saskatchewan River valley.
- Wildlife surveys detected a single SOMC (a common yellowthroat), and incidentally observed three other SOMCs within the North Saskatchewan River valley: American white pelican, Forster’s tern, and pileated woodpecker.
- The 240kV route options within the North Saskatchewan River valley are not located within the setback of any active wildlife features (e.g., nests, dens, leks, and hibernaculum). Should sensitive wildlife or wildlife features be discovered during construction of the Project, the EPP provides explicit guidance on how works should proceed including inspections, monitoring, and establishment of setback areas around sensitive features (i.e. no-go zones).

195. Key comparisons in wildlife species and wildlife habitat conditions and impacts between the Preferred and Alternate routes are summarized below:

- The differences between the 72kV route options are negligible. Neither route option is anticipated to impact wildlife or wildlife habitat.
- The Alternate 240kV Route partially overlaps a Key Wildlife and Biodiversity Zone ("KWBZ") within public lands in Strathcona Science Provincial Park. As works associated with the Alternate 240kV Route (within the KWBZ) will occur within 100 metres of an all-weather road, work can proceed during the Restricted Activity Period ("RAP") so long as ground conditions are appropriate, in accordance with the Master Schedule of Standards and Conditions (AEPA 2024[30]).
- The Preferred 240kV Route has less potential to impact wildlife than the Alternative Route as the Alternate 240kV Route includes a new transmission line crossing the North Saskatchewan River, creating a high risk of avian collision. There is no risk of avian collision associated with the Preferred 240kV Route as it is located underground and does not cross the North Saskatchewan River.

196. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent significant adverse residual effects on wildlife species and wildlife habitat.

3.1.7 Aquatic Species and Habitat

197. Existing aquatic species and habitat conditions were assessed using desktop methods. No fieldwork was completed, as the desktop assessment was sufficient to determine baseline aquatic species and habitat conditions.

198. Table 3.1.7-1 below summarizes the potential impacts to aquatic species and habitat resulting from the Project and provides references to the applicable mitigation measures in the EPP.

[30] AEPA 2024. *Master Schedule of Standards and Conditions*. Accessed: February 2024. Available at: https://open.alberta.ca/publications/master-schedule-of-standards-and-conditions

Table 3.1.7-1.
Summary of Potential Effects to Aquatic Species and Habitat

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Sediment-laden runoff is released to watercourses, contributing to sedimentation during site preparation, construction, and operations	Sections 5.1, 5.3, 5.4, 5.8, and 5.9
2	Spills and/or runoff of other deleterious material into the watercourses, contributing to sedimentation and water quality impacts during site preparation, construction, and operations	Sections 5.1 to 5.4, 5.8, and 5.9
3	Introduction or spread of whirling disease or other aquatic invasive species during site preparation, construction, and operations	Sections 5.3

199. Key results of the assessment include the following:

- The LSA for the Project overlaps the North Saskatchewan River, which provides aquatic habitat for a wide variety of fish species, including three fish SOMCs.
- The portion of the North Saskatchewan River overlapped by the LSA is designated as a Class A water body, associated with the presence of lake sturgeon.
- No instream work is anticipated with either 240kV transmission line route option, therefore impacts to aquatic species and habitat are likely limited to potential indirect water quality impacts.

200. Key comparisons in aquatic species and habitat conditions and impacts between the Preferred and Alternate routes are provided below:

- The differences in aquatic species and habitat conditions associated with each of the route options for the 72kV and 240kV Project components are negligible, and both are viable from that perspective.
- Given that the Alternate 240kV Route crosses the North Saskatchewan River and would be associated with more potential indirect impacts, the Preferred 240kV Route has less environmental impact than the Alternate 240kV Route from an aquatic species and habitat perspective.

201. Neither of the 240kV route options requires instream works. As such, no restricted activity period under the *Water Act* (RSA 2000, c. W 3)[31] applies, and no federal permitting or approval from Fisheries and Oceans Canada (DFO) is required, as long as the general measures to protect fish and fish habitat are implemented as described further in section 5.1 of the EPP.

[31] *Water Act*, (RSA 2000, c. W-3). https://www.canlii.org/en/ab/laws/stat/rsa-2000-c-w-3/latest/rsa2000-c-w-3.html. Accessed: February 2025.

202. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse residual effects on aquatic species and habitat.

3.1.8 Land Use and Environmentally Sensitive Areas

203. To assess existing land use and environmentally sensitive areas, the following datasets were reviewed as part of a desktop assessment:

- Alberta Land Titles and Surveys Spatial Information System (Spatial Information System 2025);
- Environmentally Significant Areas in Alberta (ESAs; Fiera Biological Consulting Ltd. [Fiera] 2014, 2016);
- Oil and gas facilities (Alberta Energy Regulator 2025).
- Parks and protected areas;
- COE Environmental Sensitivity – Score Map
    - A general score derived for areas with significant ecological value based on natural vegetation, desktop wetland data, potential threats to those assets [e.g., human land use];
    - This is generally assessed in a more accurate and thorough manner as part of the assessment for individual VECs, and;
- Alberta Listing of Historic Resources – Fall 2024 Edition (ACSW 2024).

204. No fieldwork was completed as the desktop assessment was sufficient to determine baseline land use and environmentally sensitive areas conditions.

205. Table 3.1.8-1 below summarizes the potential impacts on land use and environmentally sensitive areas resulting from the Project and provides references to the applicable mitigation measures in the EPP.

Table 3.1.8-1.
Summary of Potential Effects to Land Use and Environmentally Sensitive Areas

	A **Potential effects**	B **EPP Reference to Proposed Mitigations**
1	Disturbance and/or destruction of historical resources	Section 5.1

206. A summary of the desktop assessment includes the following:

- Land uses within the LSA are primarily disturbed (e.g., transportation, industrial, recreation), and the Project is sited to parallel existing disturbance to the extent possible.
- The Project overlaps three municipal parks and one provincial park.
- The 72kV route options do not overlap Historic Resource Value ("HRV") lands, however the 240kV routes overlap lands assigned HRV 4 and 5 for previously recorded historic resources and high archaeological and palaeontological sensitivity. Additional information regarding historical resource impacts is provided in section 5.3 of this Application.

207. Key comparisons in land use and environmentally sensitive areas or impacts between the Preferred and Alternate routes are summarized below:

- The differences between the Preferred and Alternate 72kV Routes are negligible in terms of land use and environmentally sensitive areas, and both are viable from that perspective.
- The Preferred 240kV Route will temporarily impact activities within the municipal Hermitage Park during construction, while the Alternate 240kV Route will temporarily impact activities within the Strathcona Science Provincial Park. Each route option will also include the permanent installation of transmission structures within the respective park space.
- Although COE environmental sensitivity values are similar for both 240kV routes, the Alternate 240kV Route overlaps more area categorized as very high and extremely high environmental sensitivity values compared to the Preferred 240kV Route.
- Overall, both the Preferred and Alternate 240kV Routes are acceptable from a land use perspective, but the Preferred Route is expected to have a lesser impact as it overlaps less area listed as 'high or extremely high' in the COE's Environmental Sensitivity – Score Map relative to the Alternate 240kV Route.

208. EDTI concurs with Maskwa's conclusion that the mitigation measures described in the EPP will be sufficient to prevent any significant adverse residual effects on land use and environmentally sensitive areas.

3.2 Compatibility of the proposed Project with various municipal services

209. A draft municipal Environmental Impact Assessment (EIA) and Site Location Study was completed and submitted to the Urban Growth and Open Space Section in the Urban Planning and Economy Department (Urban Growth) of the COE. In preparing these studies, EDTI and Maskwa consulted with and received feedback from the COE which is summarized in Table 6.3.1.1-2 of this Application. Urban Growth had no concerns with the Project and outlined their preference for the Preferred 240kV Route. Once the AUC has approved a route for the Project, the EIA will be updated to reflect the approved routes and will be submitted for final approval by COE Council.

3.3 Assessment for Historical Contamination at Substations

210. The Project includes the construction of a new substation (Fort Road substation) and alterations to the Namao and Clover Bar substations. A review of public databases and a suite of Environmental Site Assessments ("ESA") were undertaken to understand current and historical contamination risk at each substation location. The ESAs indicated that there are several contaminants of potential concern ("COPC") that require consideration at each site, in accordance with the *Alberta Tier 1* and *Tier 2 Soil and Groundwater Remediation Guidelines*. Historical contamination at the above noted substations is summarized below and detailed within the EE.

211. As noted in previous proceedings, EDTI is aware of the duty to take remedial measures under Section 112 of the *Environmental Protection and Enhancement Act* ("EPEA") if the release of a regulated substance could cause, is causing, or has caused an adverse effect on the environment. Pursuant to s. 112 of the EPEA, the duty to take remedial measures is engaged when:

> a substance that may cause, is causing or has caused an adverse effect is released into the environment, the person responsible for the substance shall, as soon as that person becomes aware of or ought to have become aware of the release,
>
> (a) take all reasonable measures to
> (i) repair remedy and confine the effects of the substance, and
> (ii) remediate manage, remove or otherwise dispose of the substance in such a manner as to prevent an adverse effect or further adverse effect,
>
> and
>
> (b) restore the environment to a condition satisfactory to the Director.

> The duty to remediate engages when EDTI becomes aware, or ought to have become aware, that a release of a regulated substance has occurred and the release has caused or is likely to cause an adverse effect. Where the installation of new equipment results in the identification of such a release, recent or historical, and where the installation facilitates access to contamination, it may be reasonable and necessary to take measures to repair, remedy and confine the contamination under the direction of AEP. However, where there is no indication that the operation of the existing equipment has resulted in a release that has caused or is likely to cause an adverse effect at the site of the equipment replacement, the mere presence of equipment at the site that could contain a regulated substance does not, by itself, engage the duty to remediate. [32]

212. If at any point during Project construction and operation, contamination that may cause, is causing or has caused an adverse effect is found to have been released into the environment, EDTI will report the contamination pursuant to Section 110 of the EPEA and will manage the contamination in accordance with Section 112 of EPEA. Any remediation activities undertaken by EDTI, including for example, the management, transportation and disposal of contaminated soils and/or groundwater discovered during construction operations, will be completed according to the mitigation measures prescribed in the EPP (Appendix I-2).

213. A summary of the assessments undertaken for the Namao, Clover Bar and Fort Road substations is provided in Table 3.3-1 below and summarized in the following subsections.

Table 3.3-1
Summary of Contaminated Lands Assessments at Substation Sites

A	**Substation**	B **Assessment**
1	Namao substation	• Phase 1 ESA (SNC-Lavalin Inc. 2017) • Soil Assessment (SNC-Lavalin Inc. 2018) • Soil Assessment (SNC-Lavalin Inc. 2019) • Phase 1 ESA (MEMS 2023a) • 2024 Spill Assessment and Remediation (Vertex 2024)
2	Fort Road substation	• Phase 1 ESA (MEMS 2022a) • Phase 2 ESA (MEMS 2022b) • Supplemental Phase 2 ESA (MEMS 2023b) • Phase 2 ESA (MEMS 2024a) • Environmental Risk Management Plan (MEMS 2024b)
3	Clover Bar substation	• Environmental Evaluation: Clover Bar Interconnection Project (Maskwa 2022)[33]

[32] Proceeding ID 1811, EDTI's response to AUC-EDTI-03(a)
[33] Exhibit 27676-X0024, Appendix H-1.

3.3.1 Namao Substation

214. The existing Namao substation is surrounded by several properties with records of historical contamination. Various soil assessments have been conducted at the Namao substation to assess contamination. No contamination above applicable Alberta Tier 1 criteria, nor any definitive indications of contamination were identified during the course of these assessments. In 2024, a 72kV cable fault and a diesel spill occurred in the Namao substation yard in respect of which EDTI completed remediation to Alberta Tier 1 criteria in the impacted areas.

3.3.2 Fort Road Substation

215. The area proposed for the new Fort Road substation is currently used as a vehicle storage site but was originally developed in 1911 for meat packing and processing. There are several COPCs at this site, including organic and inorganic materials, and the Phase 2 ESAs found exceedances of salinity, trace metals, hydrocarbons and asbestos. Additional assessment was completed to delineate the extent of the COPCs, and to guide forthcoming remediation plans. EDTI retained Millennium EMS Solutions Ltd. to prepare an Environmental Risk Management Plan that provides direction on how to manage the risk for potential adverse effects to human health or the environment from residual COPCs in the subsurface.

216. Contamination at the Fort Road substation site is expected to be brought within provincial guidelines to operate safely through targeted remediation (i.e., where there are COPCs higher than what can be safely risk managed, these areas will be remediated) and the development of the above-mentioned risk management plan with administrative controls. Discussions with AEPA are ongoing in this regard.

217. Several areas within the Fort Road substation site are proposed for remediation to address exceedances in salinity (chloride), trace metals, hydrocarbons, and asbestos. EDTI is currently preparing a Request for Proposals for the completion of the remediation activities. All associated work is planned to be completed in the summer and fall of 2025.

218. Where there are soil disturbances on or immediately adjacent to the substation site during construction, mitigation measures for the discovery of contaminated soil and groundwater will be undertaken, as detailed in Section 5.4 of the EPP (Appendix I-2).

3.3.3 Clover Bar Substation

219. Historical contamination associated with the Clover Bar substation was thoroughly assessed in the EE completed for EDTI's Clover Bar Interconnection Project (AUC Proceeding 27676 – Exhibit X0024). To date, no additional releases (spills) of contaminants to soil or water, or any subsequent ESA reporting, has occurred at the Clover Bar Substation.

220. The existing Clover Bar Substation is located within the footprint of the former Celanese Edmonton Petrochemical Manufacturing Plant (i.e., a former acetate plant). From a contamination assessment perspective, there are multiple records detailing past assessments, reclamation, remediation, and monitoring programs. The review of historical contamination noted that there were pre-existing levels of groundwater and soil contamination above provincial guidelines, including exceedances of benzene, methyl-tert-butyl ether, arsenic, cobalt, iron, selenium, and ammonia. Maskwa conducted environmental monitoring during the construction of the Clover Bar Interconnection Project and did not observe any soil or groundwater contamination.

221. Work at the Clover Bar substation is not likely to cause further adverse impact to soil or groundwater in the work area, as any discoveries of contamination will be addressed in mitigation provided in the Project-specific EPP.

3.4 Environmental Impact Assessment (TS25)

222. Not applicable, as the Project is not wholly or partially located on federal lands (First Nations reserves, national parks or military bases).

3.5 Project-Specific Environmental Protection Plan or Environmental Management Plan (TS26)

223. EDTI retained Maskwa to prepare a stand-alone, project specific EPP. A copy is attached as Appendix I-2. Summaries of the mitigation measures referenced in the EPP are provided in Section 3.1 of this Application.

224. The EPP describes the mitigation measures and monitoring activities that EDTI is committed to implementing during construction and operation of the Project to minimize any potential adverse effects on the environment. The mitigation measures EDTI proposes to implement are described in Section 5 of the EPP (Appendix I-2). Monitoring activities are described in Sections 6 of the EPP.

3.6 Decommissioning of Existing Transmission Facilities (TS27)

225. Following completion of the Project, reclamation and restoration of temporary workspace areas and temporary access required for construction of the Project will be undertaken as described in section 5.8 of the EPP (Appendix I-2).

226. At each stage of the Project, EDTI will comply with AEPA Reclamation Practices and Criteria for Powerlines, made pursuant to the *Environmental Protection and Enhancement Act* and the *Environmental Protection and Enhancement (Miscellaneous) Regulation*. EDTI's specific reclamation and restoration measures are described in Section 5.8 of the EPP. A post-construction reclamation plan will be prepared and approved by EDTI prior to commencement of final reclamation work.

227. Consistent with the Functional Specification issued by the AESO, EDTI will discontinue from use for transmission purposes the Kennedale substation, the three existing underground 72kV transmission lines connecting to the Kennedale substation and one 72kV transmission line connecting Clover Bar and Namao substations (i.e., 72KN23, 72CK13, 72CK12, and 72CN10). De-energization of the four transmission lines and all substation equipment at the Kennedale substation will occur once all distribution load has been removed from Kennedale and transferred to the Fort Road substation. The manner in which these facilities will be removed from service does not depend on the alternatives approved for the proposed new 72kV or 240kV transmission lines.

228. EDTI will continue to evaluate the appropriate scope of work for the final decommissioning and salvage activities required for the discontinued facilities. This work will occur after construction of the Project is complete and will be addressed in a future application to the Commission. Generally, however, EDTI anticipates that this future scope of work will likely include the following:

- Removal of all equipment from the Kennedale substation yard;
- Remediation of any contamination in the substation yard resulting from oil/fluid leaks;
- Excavation and removal of underground civil works from the substation yard (i.e., duct/duct banks, cable trenches, foundations, etc.);

- Removal, renewal or renovation of the existing substation building, subject to the results of a future evaluation to assess the need for a building at Kennedale after the substation and 72kV transmission lines are discontinued from use;
- Draining of fluid from the underground 72kV pipes, and removal of the transmission cables;
- Cleaning and inspection of the underground 72kV pipes for potential future repurposing (i.e., for communication cables); and

229. In addition to the decommissioning activities listed above, EDTI has several fibre optic cables which currently terminate at the Kennedale substation and will need to be re-routed prior to decommissioning the Kennedale substation. Final re-routing of these lines has not yet been determined; however, EDTI will submit a separate application to re-route the following fibre lines at a later date: FO-7, FO-9, FO-25, FO-40, FO-59, FO-82, FO-91, and FO-136.

4.0 NOISE

4.1 Noise Impact Assessment (TS28)

230. EDTI retained Acoustical Consultants Inc. ("ACI") to complete an AUC Rule 012 compliant Noise Impact Assessment ("NIA"), provided as Appendix J. The NIA report assessed the proposed Fort Road substation which is expected to have four new transformers as described in Section 2.12 of this Application. ACI completed a site visit in March 2023 to identify existing noise sources within the study area, locations of residential and commercial receptors, and to model noise impacts of the proposed four transformers, as well as an additional fifth transformer, to reflect the potential for future expansion at the substation.

231. The proposed substation will be subject to the City of Edmonton Community Standards Bylaw[34], which has daytime and nighttime limits of 65 dBA and 50 dBA, respectively, compared to AUC Rule 012[35] daytime and nighttime limits of 61 dBA and 51 dBA, respectively. EDTI's consultant confirmed that the recent changes to AUC Rule 012, effective September 30, 2024, did not impact ACI's findings. The new permissible sound levels for multi-family residential areas (i.e. higher population density category) do not apply at the Fort Road location. The NIA concludes

[34] City of Edmonton Community Standards Bylaw 14600 (Part III – Noise Control), effective October 22, 2024, https://www.edmonton.ca/public-files/assets/document?path=Bylaws/C14600.pdf
[35] AUC Rule 012 - Noise Control, Table 1 - Basic Sound Level, Category 2

that the proposed substation will be in compliance with both the City of Edmonton Community Standards Bylaw and AUC Rule 012[36].

Table 4.1-1
Compliance with Permissible Sound Levels (PSL)

	A **AUC Rule 012 PSL** [1]	B **EDTI Projected Maximum Sound Level** [3]	C **City of Edmonton PSL** [4]	D **EDTI Projected Maximum Sound Level** [5]	E **Compliant with AUC Rule 012 and COE Bylaw 14600 (Yes/No)**
Reference	AUC Rule 012, Section 2.1 (PDF page 4)	Appendix J, Table 3 (PDF page 13)	Bylaw 14600, Part III, Sections 19-22	Appendix J, Table 2 (PDF page 12)	
Most Impacted Residential Receptor					
1 Daytime PSL	61 dBA [2]	48.1 dBA	65 dBA	43.9 dBA	Yes
2 Nighttime PSL	51 dBA	48.1 dBA	50 dBA	43.9 dBA	Yes
Most Impacted Commercial/Industrial Receptor					
3 Daytime PSL	n/a	n/a	75 dBA	56.1 dBA	Yes
4 Nighttime PSL	n/a	n/a	60 dBA	56.1 dBA	Yes

[1] AUC Rule 012, Permissible Sound Level Determination, Appendix J of the Application, pg. 33 (PDF pg. 38).
[2] AUC Rule 012, Section 2.1(8) - Daytime adjustment determined by adding 10 dBA to the nighttime basic sound level.
[3] Acoustical Consultants Inc. *Application ONAN Case* noise modeling results compared to AUC Rule 012 criteria.
[4] City of Edmonton Community Standards Bylaw 14600 (Part III – Noise Control), effective October 22, 2024, https://www.edmonton.ca/public-files/assets/document?path=Bylaws/C14600.pdf, PDF pages 14-15.
[5] Acoustical Consultants Inc. *Application ONAN Case* noise modeling results compared to City of Edmonton Noise Bylaw 14600 criteria.

232. Noise resulting from construction will be intermittent, and will be managed in accordance with Section 2.10 of AUC Rule 012 through the following measures:

- EDTI intends to conduct construction activities primarily between the hours of 7 a.m. and 10 p.m. to reduce the impact from construction noise. EDTI does not anticipate that a significant amount of nighttime construction will be required, however, where nighttime construction is unavoidable (e.g., vacuum degasifying of transformer oil during final transformer commissioning) or should changing circumstances necessitate the need for nighttime construction, EDTI will work with the City of Edmonton to obtain additional noise permits, as required;
- EDTI will advise nearby residents of significant noise-causing activities and schedule these events to reduce disruption to those residents; and

[36] Alberta Utilities Commission Rule 012, effective September 30, 2024, https://media.auc.ab.ca/prd-wp-uploads/regulatory_documents/Consultations/Rule012.pdf

- EDTI will ensure that all internal combustion engines used during construction are well maintained with muffler systems.

5.0 APPROVALS FROM OTHER AGENCIES

5.1 Other Acts That May Apply to Project and Status of Other Approvals (TS29)

233. EDTI has identified the following Acts and Regulations under which EDTI will potentially require approvals and/or that set out requirements that EDTI will have to comply with in relation to the Project. This includes municipal (i.e., City of Edmonton) bylaws, regulations and policies.

Federal legislation:

- *Canadian Navigable Waters Act* (RSC 1985, c. N-22);
- *Fisheries Act* (RSC 1985, c. F-14);
- *Impact Assessment Act* (SC 2019, c 28, s. 1);
- *Migratory Birds Convention Act* (1994, SC 1994, c. 22);
- *Migratory Birds Regulations* (SOR/2022-105);
- *Radiocommunication Act* (RSC 1985, c. R-2); and
- *Species at Risk Act* (SC 2002, c. 29).

Provincial legislation:

- *Agricultural Pests Act* (RSA 2000, c. A-8);
- *Alberta Land Stewardship Act* (SA 2009, c. A-26.8);
- *Alberta Wetland Identification and Delineation Directive* (GOA 2015a);
- *Alberta Wetland Mitigation Directive* (GOA 2018);
- *Alberta Wetland Policy* (GOA 2013a);
- *Code of Practice for Powerline Works Impacting Wetlands* (GOA 2019);
- *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (GOA 2013b);
- *Electrical Code Regulation* (Alta Reg 209/2006);
- *Electric Utilities Act* (SA 2003, c. E-5.1);
- *Environmental Assessment (Mandatory and Exempted Activities) Regulation* (Alta Reg 111/1993);
- *Environmental Protection and Enhancement Act* (RSA 2000, c. E-12);

- *Historical Resources Act* (RSA 2000, c. H-9);
- *Hydro and Electric Energy Act* (RSA 2000, c. H-16);
- *Hydro and Electric Energy Regulation* (Alta Reg 32/2024);
- *Municipal Government Act* (RSA 2000, c. M-26);
- *Occupational Health and Safety Act* (SA 2020, c. O-2.2);
- *Personal Information Protection Act* (SA 2003, c. P-6.5);
- *Pipeline Act* (RSA 2000, c. P-15);
- *Pipeline Rules* (Alta Reg 125/2023);
- *Public Lands Act* (RSA 2000, c. P-40);
- *Safety Codes Act* (RSA 2000, c. S-1);
- *Soil Conservation Act* (RSA 2000, c. S-15);
- *Surface Rights Act* (RSA 2000, c. S-24);
- *Water Act* (RSA 2000, c. W-3);
- *Weed Control Act* (SA 2008, c. W-5.1);
- *Weed Control Regulation* (Alta Reg 19/2010);
- *Wildlife Act* (RSA 2000, c. W-10); and
- *Wildlife Regulation* (Alta Reg 143/1997).

Municipal Bylaws and Policies

- *Public Tree Bylaw 18825 (COE 2022a);*
- *Development Setbacks from River Valley/Valley Crests, Policy Number C542A (COE 2016);*
- *Bylaw 2202 Parkland Bylaw (Consolidated on October 17, 2022) (COE 2022b);*
- *Bylaw 14600 Community Standards Bylaw (Consolidated on October 22, 2024[37]) (COE 202); and*
- *North Saskatchewan River Valley Area Redevelopment Plan Bylaw No. 7188 (COE 1985).*

234. The status of known and expected approvals are provided in Table 5.1-1 below. Compliance with the other legislation noted above is expected to be managed through design, project planning and/or the implementation of the EPP.

[37] Includes standards related to noise control.

Table 5.1-1
Status of Approvals From Other Agencies

		A	B
	Legislation	**Approval Requirement**	**Status of Approval**
Federal	*Canadian Navigable Waters Act*	A Minor Acts Notification may be required to support the river crossing construction activities if the Alternate 240kV Route is approved.	If required, this approval/authorization will be obtained after route selection and ahead of construction start. The Project is exempt from assessment under the federal Impact Assessment Act (as it is not an activity listed in the Physical Activities Regulation (SOR 2019, c. 285).
Provincial	*Historical Resources Act*	Approvals required for ground disturbance in proximity to known or potential sensitive archeological or paleontological sites/features.	Approvals will be applied for and in place ahead of construction start (see Section 5.3).
	Public Lands Act	Crown land easements are required for project activities and permanent or temporary installations within Public Land. If the Alternate 240kV Route is approved, this will require Project components within the Strathcona Science Provincial Park, requiring a park easement disposition from the Province.	If the Alternate 240kV Route is approved, park easement disposition under the *Public Lands Act* (RSA 2000, c. P-40) will be required for the portion of the Project residing within Strathcona Science Provincial Park.
	Water Act	The Alternate 240kV Route overlaps a wetland. If construction of the Alternate 240kV Route has the potential to impact on that wetland, a Code of Practice for Powerline Works Impacting Wetlands notification would be required.	If required, this approval/authorization will be obtained after route approval and ahead of construction start.
Municipal	*North Saskatchewan River Valley Area Redevelopment Plan Bylaw No. 7188*	An Environmental Impact Assessment (EIA) and City of Edmonton Council approval is required for the scope of the project occurring within the North Saskatchewan River Valley Bylaw area.	A draft EIA was submitted to the COE. The COE had no concerns with the Project. The EIA will be updated to reflect the final approved routing and will be submitted to the COE for approval ahead of Project construction.
	Parkland Bylaw2202	Parkland Access Permits are required for activities within COE Parkland areas.	Parkland Access Permits will be obtained after detailed design is complete and ahead of construction start.
	Public Tree Bylaw 18825	Permits are required for construction activities within 5 metres of a Boulevard/Open Space Tree, or 10 metres of a Natural Stand.	EPCOR maintains a blanket tree permit for certain project-related activities. The requirement for standalone tree permitting will be identified during detailed design and obtained prior to construction.

5.2 Alberta Environment and Protected Areas ("EPA") (TS30)

235. Various branches of Alberta EPA were consulted throughout the planning of the Project, including the Fish and Wildlife Stewardship, Forestry and Parks, and Wetlands teams. EDTI consulted EPA on the proposed routes to determine what actions, if any, were required for each route. This included providing the EPA teams with project information packages and subsequent updates. As described below, consultation focused on ensuring that EDTI was aware of the relevant legislation and discussed each potential route with EPA. None of the EPA departments consulted raised any issues associated with the proposed routes for the 72kV and 240kV transmission lines that would impact the feasibility of any of the proposed routes. Generally, consultation with EPA personnel confirmed their expectation that EDTI comply with relevant environmental legislation and applicable guidelines. A summary of the consultation is provided below.

Alberta Environment and Protected Areas – Fish and Wildlife Stewardship ("EPA-FWS")

236. As part of its consultation with EPA-FWS, EDTI provided project information (e.g. Appendix L-4: PSIP-1, PSIP-4 and PSIP-7) and a wildlife summary report to EPA-FWS. EPA-FWS considered the Project route options as low risk to wildlife values having regard for the current level of landscape modification, low habitat potential for wildlife, low impacts to identified wildlife species, and presence of existing disturbances, and determined that the scope of EDTI's wildlife assessment and planned wildlife surveys was sufficient. EPA-FWS did not express a preference for any particular route option and provided general feedback to follow applicable provincial legislation including the *Wildlife Act* (RSA 2000, c. W-10) and *Wildlife Regulation* (Alta Reg 143/1997).

237. In response to feedback provided by EPA-FWS, EDTI included mitigation measures in its EPP (Appendix I-2) to reduce the risk of contravening the *Wildlife Act* (RSA 2000, c. W-10) and *Wildlife Regulation* (Alta Reg 143/1997). Examples include prioritizing the removal of vegetation (where required) to periods less sensitive for wildlife and buffering sensitive wildlife features appropriately.

Alberta Forestry and Parks (formerly EPA-Public Lands)

238. After reviewing PSIP-1, PSIP-4, and PSIP7, Alberta Forestry and Parks advised that the 240kV Route option through Hermitage Park (i.e., 240kV Preferred Route) would be their preferred connection option compared to other alternate connection points located east of the North Saskatchewan River, as there would be no impact on the Strathcona Science Provincial Park. Alberta Forestry and Parks expressed specific concerns with potential vegetation removal within Strathcona Science Provincial Park associated with the proposed 240kV Alternate Route. They noted that to permit the vegetation removal and permanent installation of infrastructure within the Strathcona Science Provincial Park, EDTI would be required to obtain the appropriate easement dispositions. Accordingly, the Alternate 240kV alignment was sited to minimize impacts to the Park and vegetation removal, where feasible.

Alberta Environment and Protected Areas – Wetlands and Alberta Environment and Parks – Capital Region ("EPA-Wetlands")

239. After reviewing project materials, EPA-Wetlands confirmed that any project activities that have the potential to impact wetlands, waterbodies or watercourses would require an approval under the Water Act. Based on the scope of the Project, a code of practice notification (and subsequent authorization) for powerline works impacting wetlands may be required for the 240kV Alternate Route as it has the potential to impact a wetland (see Section 3.1.3 of this Application for additional details). EDTI does not anticipate any issues with obtaining *Water Act* authorization, if required.

5.3 Historical Resources Act Approval (TS31)

240. Circle CRM Group Inc. submitted applications on behalf of EDTI for approval of the Project under the *Historical Resources Act*[38] ("HRA"). HRA approvals have been received for the Fort Road Substation (HRA No. 4940-23-0086-003), Namao Substation (HRA No. 4940-23-0086-002) and the Preferred and Alternate 72kV Routes. These approvals are included in Appendix K.

241. HRA approval has also been received for the Preferred 240kV Route (HRA No. 4940-23-0086-005, provided in Appendix K). The approval is conditional on the completion of a targeted Historical Resources Impact Assessment (HRIA) for archaeological resources for an area within the North Saskatchewan River Valley. Should the Preferred 240kV Route be approved, EDTI

[38] Historical Resources Act, RSA 2000, c H-9

would not commence any work activities in this area until HRIA is complete, and the conditions of the HRA approval are satisfied.

242. An HRA application was submitted on February 19, 2025 (Application #028980625) for the Alternative 240kV Route. HRA approval is anticipated to be received within 4 weeks of the submission date.

243. All HRA approvals will be reflected in the Issued for Construction EPP(s).

6.0 PARTICIPANT INVOLVEMENT PROGRAM

6.1 Summary of Participant Involvement Program (TS32)

244. EDTI completed a Participant Involvement Program ("PIP") for the Project in accordance with Appendix A1 of Alberta Utilities Commission ("AUC") *Rule 007: Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*. EDTI followed the AUC's guidelines for notification and consultation for "overhead or underground transmission line and/or new substation development and/or substation upgrades and/or minor transmission line replacements within the original right-of-way – urban"[39]. EDTI also notified those that may be affected by the decommissioning and salvage of transmission facilities[40]. The PIP included notification and consultation with landowners, occupants, residents, local businesses, elected officials, government agencies, community organizations, Indigenous groups, and interested parties. These are referred to collectively as "stakeholders". Notification and consultation activities for the Project have been ongoing since January 2023 and will continue until the Project is completed and commissioned into service.

245. EDTI takes its participant involvement obligations very seriously and is committed to establishing open and effective lines of communication with stakeholders throughout the planning and execution stages of the Project. In designing and executing the PIP, EDTI sought to inform and consult with all landowners, occupants and interest holders of land whose rights may be directly and adversely affected by the Project. The objectives of the PIP were to provide potentially affected parties with Project-specific information and opportunities to ask questions, voice their concerns, and provide input into the Project. EDTI undertook these activities with a commitment

[39] AUC Rule 007, Appendix A1-1 – Participant involvement program guidelines, Section 5, PDF 133.
[40] Ibid, PDF 134. EDTI will submit a separate decommissioning and salvage application closer to when construction activities are forecast to commence.

to work with potentially impacted and other interested parties to address questions or concerns and, where possible, to resolve issues through changes to its Project planning and design where appropriate.

246. EDTI notified approximately 18,500 landowners, occupants, residents, businesses and other potentially interested parties in the project notification area. EDTI engaged approximately 1,014 stakeholders (occupants, residents, landowners) having interests in land located on or directly adjacent to the proposed facilities in personal consultations.

247. The remainder of Section 6 is organized into the following sections:

- Section 6.2 Public Notification
- Section 6.3 Project Consultation
- Section 6.4 Project Feedback

6.2 Public Notification

248. EDTI created and distributed information about the Project to ensure that all stakeholders included in the PIP were provided details of the Project and its impact(s). This includes those notified about the Project by unaddressed mail and addressed mail.

249. Addressed mail is used to notify stakeholders who own property directly adjacent to the proposed facilities. Property owners are identified through information on land titles. This ensures that directly adjacent property owners that do not occupy property still receive the information. The addressed mail numbers fluctuate throughout each mailout as new stakeholders are identified and former stakeholders removed if they no longer had interests (e.g. retired routes or sold properties) in the project area. The addresses for these stakeholders are included in Appendix L-1 and listed as consult.

250. EDTI uses unaddressed mail to notify those within the project notification area that are beyond directly adjacent stakeholders and to ensure those that occupy directly adjacent properties receive the information. Delivery of unaddressed mail was completed via Canada Post's bulk mail service to selected letter carrier walks. The letter carrier walks ranged from 100 to 650 metres from the proposed and existing facilities to be altered or removed from service. These letter carrier walks were selected to ensure those who were within the first row of development were included. Unaddressed postal mail distribution areas can change monthly as a result of changes to Canada Post letter carrier routes. As a result, the area notified and number of unaddressed mail can fluctuate with each mailout. Each mailout reflected these fluctuations, however EDTI attempted to keep the

letter carrier walk areas as similar as reasonably possible for each mailout. This included hand delivering project specific information packages to maintain a similar notification area, if required. A map outlining the notification area is included in Appendix L-2.

251. Appendix L-3 provides a list of all the letter carrier walks used to distribute each PSIP. As bulk mail distribution does not make use of mailing addresses, EDTI cannot provide a list of, or mailing addresses for, occupants, residents, and landowners who were contacted via this method.

252. A total of nine Project Specific Information Packages ("PSIP") were sent to those within the project notification area from January 2023 to December 2024. The PSIPs were developed to provide project specific information and updates during the PIP and are included in Appendix L-4. EDTI developed separate transmission-line specific fact sheets which were included with PSIP-1 and PSIP-4 to provide specific information to recipients along the 240kV transmission line routes and 72kV transmission line routes. Those located near the proposed substation received both fact sheets, and all stakeholders were provided the project overview. The PSIPs created for the Project contained the necessary information for potentially interested parties to understand the Project and to participate in the PIP in an effective manner.

6.2.1 PSIP-1

253. PSIP-1 was mailed on January 9, 2023 to 18,521 addresses, by direct mail (827) and unaddressed mail using postal code addresses (17,694). This mailout included three variations of PSIP-1 to provide project specific information for the proposed facilities relevant to each stakeholder: PSIP-1A (72kV fact sheet), PSIP-1B (240kV fact sheet), and PSIP-1C (240kV and 72kV fact sheet). All versions of PSIP-1 included the following information:

- A project overview, including a description of the need and rationale for the Project;
- A description of proposed facilities and equipment;
- A site-specific map, showing the proposed facilities located near the participant (e.g., PSIP-1A (72kV fact sheet), PSIP-1B (240kV fact sheet), and PSIP-1C (240kV and 72kV fact sheet));
- Structure sample images and dimensions;
- A proposed project schedule including the anticipated application filing date, construction start date, and in-service date;
- Information on the need for the project as defined by the AESO and the AESO's Need Overview document;

- An overview of the regulatory approval process, including a description of the role of the AUC and a copy of the AUC brochure *Participating in the AUC's independent review process to consider facility applications*; and
- Contact information for EDTI, AESO, and AUC.

6.2.2 PSIP-2

254. PSIP-2 was mailed on July 6, 2023 to 18,802 addresses through direct mail (942) and unaddressed mail (17,860). PSIP-2 provided an update on project timelines.

6.2.3 PSIP-3

255. PSIP-3 was mailed on November 12, 2023 to 20,272 addresses through direct mail (1,030) and unaddressed mail (19,242). PSIP-3 provided an update to inform stakeholders that the route review process was still ongoing and that another project update would be sent in spring 2024. PSIP-3 also provided an update that the AESO planned to file its Need Identification Document Application with the AUC at the end of 2023/beginning of 2024.

6.2.4 PSIP-4

256. PSIP-4 was mailed on April 2, 2024 to 18,679 addresses through direct mail (1,043), unaddressed mail (17,636) and email (425). Email was added as a distribution method based on stakeholders' stated preferences for notification identified throughout the PIP. Similar to PSIP-1, PSIP-4 included three variations to provide project specific information for the proposed facilities relevant to each stakeholder: PSIP-4A (72kV fact sheet), PSIP-4B (240kV fact sheet), and PSIP-4C (240kV and 72kV fact sheets). PSIP-4 was intended to update stakeholders on the project including refined route options, the addition of a 240kV underground route option, and a summary of the feedback received from stakeholders since PSIP-1. Each version of PSIP-4 included the following information:

- An overview of the project, including the need and rationale for the Project;
- Description of proposed facilities and equipment;
- A site-specific map, showing the proposed facilities located near the participant (e.g., PSIP-4A (72kV fact sheet), PSIP-4B (240kV fact sheet), and PSIP-4C (240kV and 72kV fact sheet));
- Structure images and dimensions;
- Visual renderings;

- Proposed project schedule including the deadline for stakeholders to provide feedback, the application filing date, construction start date, and in service date;
- Summary of consultation to date and potential impacts;
- Description of construction methods;
- An overview of the regulatory process, including a description of the role of the AUC and a copy of the AUC brochure *Participating in the AUC's independent review process to consider facility applications*;
- Electric and magnetic fields (EMF) brochure; and,
- Contact information for EDTI, AESO and AUC.

257. Due to changes in the unaddressed postal walks in the T5B postal area EDTI also hand delivered 37 packages in the area between 82 Street and 75 Street, between 125 Avenue and Yellowhead Trail to keep the notification area similar to earlier mailouts and ensure stakeholders within the first row of development continued to be included.

6.2.5 PSIP-5

258. PSIP-5 was mailed on April 24, 2024 to 2,871 addresses through unaddressed mail. PSIP-5 corrected a Canada Post mailing issue where some fact sheets (PSIP-4A and PSIP-4B) may have been delivered to an incorrect letter carrier walk within the T5A postal code area. This resulted in some letter carrier walks receiving the incorrect fact sheet. EDTI re-mailed the correct fact sheets to these letter carrier walks. PSIP-5 explained this issue to stakeholders and included the correct fact sheet for their area.

6.2.6 PSIP-6

259. PSIP-6 was mailed on July 7, 2024 to 18,679 addresses through direct mail (1,043) and unaddressed mail (17,636); this was the same list of recipients used for PSIP-4. This mailout was to correct an issue with the business reply envelopes included in PSIP-4. The intent of the business reply envelopes was to provide stakeholders a way to send their completed feedback form to EDTI by mail at no cost. EDTI was made aware that these envelopes were being returned to sender and not being delivered back to EDTI. EDTI worked with Canada Post to resolve the issue and mailed out a communication (PSIP-6) explaining the issue, providing a new feedback form and Business Reply Envelope, and a reminder of the July 31, 2024 deadline to provide feedback for the facility application.

6.2.7 PSIP-7

260. PSIP-7 was mailed on September 18, 2024 to 9,727 addresses along the 240kV transmission line routes through direct mail (670), unaddressed mail (9,057) and email (416). Email was added as a distribution method based on stakeholders' stated preferences for notification identified throughout the PIP. PSIP-7 provided information on the then current routes under consideration, including the 240kV above ground route, 240kV underground route and new 240kV hybrid route options. PSIP-7 included the following information:

- An overview of the Project, including the need and rationale for the Project;
- Description of proposed facilities and equipment;
- The locations of proposed facilities on a site-specific map;
- Illustrations of proposed structure and dimensions;
- Proposed project schedule including the deadline for stakeholders to provide feedback, the application filing date, construction start date, and in service date;
- An overview of the regulatory process, including a description of the role of the AUC and a copy of the AUC brochure *Participating in the AUC's independent review process to consider facility applications*; and,
- Contact information for EDTI and AUC.

6.2.8 PSIP-8

261. PSIP-8 was emailed to 89 stakeholders on November 27, 2024 and mailed to 19 stakeholders through Purolator on December 5, 2024 who previously expressed concerns regarding potential impacts on property values. Purolator was used for this mailout due to the Canada Post strike. This mailout provided an update that the property value study was not yet complete and EDTI would send out additional information when the study was complete.

6.2.9 PSIP-9

262. PSIP-9 was sent by registered mail to stakeholders that EDTI had been unable to contact throughout the PIP. The registered mail packages were sent between September and December 2024 and included the last project update (PSIP-4A for stakeholders in the 72kV transmission line area and PSIP-7 for stakeholders in the 240kV transmission line area) and a cover letter explaining that EDTI had not been able to contact them and wanted their feedback. Stakeholders who owned property where a right-of-way may be required were provided with the utility right-of-way fact sheet (Appendix L-5) and a site-specific map with the right-of-way area on their property. PSIP-9 was sent by registered mail through Canada Post in September, however due to the postal strike, EDTI used Purolator from November to December 2024.

6.2.10 Website

263. Information included in the PSIPs was used to create a website for the Project (epcor.com/cetr). The website was made accessible to the public on January 9, 2023 and has been and will continue to be updated as required.

264. EDTI will remain available to stakeholders via telephone, e-mail and website, and will continue to monitor these channels and respond to any requests, questions or concerns from stakeholders until the Project is commissioned.

265. Additionally, EDTI will continue to notify stakeholders of major developments for this Project through EPCOR's website, including:

- Filing of the Facility Application with the AUC;
- AUC approval of the Project;
- Updates to the construction schedule; and
- EDTI's completion of the Project.

6.3 Project Consultation (TS33 and TS34)

266. In accordance with the requirements of AUC Rule 007, EDTI implemented a consultation program in conjunction with its notification program. The consultation program included interactions with government and interested agencies, personal consultation with directly adjacent occupants, residents and landowners, and other interested parties that contacted EDTI through the notification program and requested direct consultation.

267. A list of stakeholders that are part of the PIP is included in Appendix L-1. This list provides a summary of directly adjacent owners and occupants, agencies, as well as interested parties that contacted EDTI through the notification program. A summary of EDTI's consultation efforts with different types of stakeholders is provided in the following sections.

6.3.1 Local Government and Agencies (TS35)

268. EDTI contacted representatives from local jurisdictions with interests in the Project area as described further below.

6.3.1.1 City of Edmonton

269. EDTI consulted with the City of Edmonton as the local municipal jurisdiction and largest landowner in the Project area. This included City Councillors and various City of Edmonton departments as described in more detail below.

City of Edmonton – City Councillors

270. EDTI engages City Councillors in projects that involve new transmission lines and substation developments. For this project, four City of Edmonton wards were identified within the Project area:

- Ward Dene – represented by Councillor Aaron Paquette
- Ward Métis – represented by Councillor Ashley Salvador
- Ward Tastawiyiniwak – represented by Councillor Karen Principe
- Ward Anirniq – represented by Councillor Erin Rutherford

271. EDTI and the AESO attended meetings with the four Councillors, or their delegates, to discuss the Project and answer any questions. Project briefs and the PSIPs were sent to the

Councillors to ensure they and their staff were updated on the Project's progress. Councillors brought up potential concerns from their constituents, as noted in Appendix L-1, but did not provide feedback on the transmission line route options. Table 6.3.1.1-1 summarizes EDTI's communications with City Councillors.

Table 6.3.1.1-1
Summary of City of Edmonton Councillor Interactions

	A Date	B Communication
1	January 11, 2023	Emails sent to Councillors Paquette, Salvador, Rutherford, and Principe with PSIP-1, Councillor brief and the AESO's Need Overview Document.
2	January 20 to February 3 2023	Virtual meetings to discuss the Project. • Councillor Paquette – January 20, 2023 • Councillor Salvador – January 20, 2023 • Councillor Rutherford – January 27, 2023 • Councillor Principe – February 3, 2023
3	November 27, 2023	Update to Councillors and Mayor on the filing of the AESO's Need Application with the AUC.
4	April 2024	Emails sent to Councillors Paquette, Salvador, Rutherford, and Principe with PSIP-4 and Councillor brief.
5	September 2024	Emails sent to Councillors Paquette, Salvador, Rutherford, and Principe with PSIP-7 and Councillor brief.

City of Edmonton - Operations

272. EDTI began early consultation with various City of Edmonton departments and areas in April 2022 including:

- Integrated Infrastructure Services (e.g., Infrastructure Planning and Design – Transportation Planning and Design, Infrastructure Delivery – Yellowhead Trail Portfolio, Building Great Neighbourhoods – Neighbourhoods Planning and Design)
- Urban Planning Economy (e.g., Planning and Environment Services – Urban Growth and Open Space)
- City Operations (e.g., Edmonton Transit Service – LRT Operations and Maintenance, Parks and Road Services – Open Space Operations)

273. EDTI summarized the feedback provided by each department and provided it to the City Manager. On July 31, 2024, EDTI received a letter from the City of Edmonton stating their position on the Project and the route options and providing feedback on nine aspects of the Project (Appendix O). Table 6.3.1.1-2 and below summarizes the issues/concerns expressed by the City in this letter, along with EDTI's responses, and the resolution status. Table 6.3.1.1-3 below

summarizes general comments and concerns that were communicated throughout the PIP, EDTI's responses and the resolution status.

Table 6.3.1.1-2
Feedback from the City of Edmonton's July 31, 2024 Letter (Appendix O)

	A **City of Edmonton Feedback (Appendix O)**	B **EDTI Response**	C **Resolution Status**
1	"The proposed transmission line route alignments and substation site location for the CETR Project should not adversely affect the design, safety and function of Yellowhead Trail. Including future plans to expand the Beverly and Cloverbar Bridges." (Appendix O, Paragraph 8, Section i)	EDTI met with the Yellowhead Trail Freeway Conversion project team and incorporated feedback to minimize impacts, including: • Following existing distribution alignments for the 72kV transmission line routes; • Removing the 72kV route segment along 66 Street; • Removing the south 72kV route segment (S1) along Yellowhead Trail; • Confirming proposed 240kV routes do not impact City plans to expand the Beverly and Clover Bar bridges over the North Saskatchewan River; • Adjusting the 240kV routes to avoid the use of barriers; and • Proposing an underground 240kV route to avoid structures along Yellowhead Trail.	EDTI's preferred route selection is consistent with the City's feedback.
2	"The City's position is that the CETR Project should not adversely affect the Fort Road Expansion Project." (Appendix O, Paragraph 8 Section ii)	EDTI has two 72kV route options near Fort Road. EDTI has considered the City's future plans in the structure placement.	The City has confirmed that the Preferred 72kV Route is their preferred alignment.
3	"The CETR Project should not adversely affect the proposed 66 Street Intersection Removal Project." (Appendix O, Paragraph 8, Section iii)	EDTI altered the alignment of the 72kV routes to avoid any planned future conflict with alterations to the 66 Street intersection.	Resolved with current route options.
4	"The CETR Project should not adversely affect the open space and transportation planning of the Balwin and Belvedere Revitalization Project and should be sufficiently setback from residential and non-residential areas of Edmonton." (Appendix O, Paragraph 8, Section iv)	EDTI retired the 72kV route option adjacent to 127 Avenue. The removal of this option should eliminate any potential conflict with the Balwin and Belvedere Revitalization Project as well as increase distance from residential areas.	EDTI route selection is consistent with the City's feedback.
5	"The Namao Substation connections and substation design changes should be consistent with City planning principles and policies." (Appendix O, Paragraph 8, Section v)	Alterations to the Namao substation are limited to within EPCOR's property line, which is zoned as Public Utility.	Resolved.

	A **City of Edmonton Feedback (Appendix O)**	B **EDTI Response**	C **Resolution Status**
6	"EDTI should route the proposed new transmission lines underground." (Appendix O, Paragraph 8 Section vi)	EDTI has proposed a 240 kV underground route. EDTI has not proposed an underground 72kV route; however, the preferred overhead route is consistent with the City's feedback on overhead routing.	EDTI Preferred 240kV Route selection is consistent with the City's feedback. The proposed 72kV routes are consistent with the City's feedback for overhead routes.
7	"EDTI should take any necessary steps to mitigate impacts to parks and recreational areas, the urban forest, and the environment." (Appendix O, Paragraph 8, Section vii)	This is consistent with the siting technical report. Where needed, mitigation measures have been included in the EPP as outlined in Appendix I.	EDTI route selection is consistent with the City's feedback.
8	"EDTI should be aware of risks routing the New 240kV Line near the former Domtar Inc. lands and comply with applicable environmental laws and requirements, and should not route the line through the City's "Greenbelt"[41] lands without prior coordination with both the City and Domtar Inc." (Appendix O, Paragraph 8, Section viii)	The 240 kV underground route is south of CN's railway and outside of the City's Greenbelt lands. EDTI confirms it is aware of the risks of routing near the former Domtar Inc. lands and will comply with any environmental laws and requirements for construction in this area.	EDTI route selection is consistent with the City's feedback.
9	"The CETR Project should not adversely impact Light Rail Transit operations and maintenance." (Appendix O, Paragraph 8, Section ix)	EDTI met with the Edmonton Transit Services Group to ensure all measures were taken into consideration to avoid impacts to LRT operations and maintenance. EDTI adjusted the 72kV structure heights to accommodate LRT crossings.	EDTI route selection is consistent with the City's feedback.

[41] The City's Greenbelt land refers to the land north of the CN rail tracks, between the tracks and residences.

Table 6.3.1.1-3
Summary City of Edmonton Feedback

	A **City of Edmonton Feedback**	B **EDTI Response**	C **Resolution Status**
1	The City stated concerns with the Alternate 240kV Route due to the visual impact of both a river crossing and overhead to underground transition structures along Yellowhead Trail, which is an entranceway into the City of Edmonton.	One of the proposed 240 kV underground routes does not require a river crossing.	EDTI route selection is consistent with the City's feedback.
2	The City stated concerns with tree removal	The proposed 240kV underground route has less environmental impact compared to the other route options. See section 3.0 and Appendix for information on the EPP. EDTI retired the 72kV route option adjacent to 127 Avenue. The removal of this option limits tree trimming/removal required for the 72kV transmission line.	EDTI route selection is consistent with the City's feedback.
3	The City stated concerns with the proximity of the structures to residential areas.	EDTI has proposed a 240 kV underground route that would not require structures near residential areas. Where possible, EDTI has sited the 72kV Routes along the back of private commercial properties to maximize separation from residential properties. EDTI has attempted to locate transmission structures more than 30 meters away from the property line of residences whenever possible.	EDTI route selection is consistent with the City's feedback.
4	The City stated concerns with potential impacts on the Yellowhead Trail Freeway Conversion project	EDTI met with the Yellowhead Trail Portfolio team to understand potential impacts. This includes retiring the route option along 66 Street.	EDTI route selection is consistent with the City's feedback.

274. Although the City has stated its preference for undergrounding the 72kV transmission line, they have identified the Preferred 72kV Route as more acceptable than the Alternate 72kV Route, as it is further from Yellowhead Trail and the Yellowhead Trail Freeway Conversion project.

275. The City did not express any concern with the proposed Fort Road substation location.

6.3.1.2 County of Strathcona

276. As a portion of the Project is within the County of Strathcona (Alternate 240kV Route), EDTI consulted with the County of Strathcona who inquired if there would be structures located in the Strathcona Science Provincial Park. EDTI confirmed that there will be no structures in the Park. Structures will be located in the road right-of-way and on AML's right-of-way.

6.3.2 Provincial Elected Officials

277. EDTI sent personalized emails to four MLAs within the project notification area, including:

- Peggy Wright (representing Edmonton-Beverly-Clareview);
- Sharif Haji (representing Edmonton-Decore);
- Janis Irwin (representing Edmonton-Highlands-Norwood); and
- Kyle Kasawski (representing Sherwood Park).

278. To date, none of the MLAs have expressed concerns or asked questions regarding the Project.

6.3.3 Canadian National Railway

279. EDTI worked closely with CN throughout the planning of the Project to analyze potential impacts of the proposed transmission line on CN’s operations, both from an electrical effects and land use standpoint. The following is a summary of EDTI’s consultations with CN.

Initial Engagement (July 2022 to September 2022)

280. In July 2022, EDTI first approached CN to discuss preliminary routing options for new transmission lines in an area that encompassed CN's operations along the Yellowhead Trail Freeway. In September 2022, EDTI met with CN's Public Works department to discuss possible impacts of the Project and its anticipated schedule. CN emphasized that its rail line is the principle main line between Vancouver / Prince Rupert to Winnipeg and the East Coast and accommodates a large number of trains each day (approximately 20 to 35). CN stated that it would not accept transmission line structures on its railway right of way, in order to maintain space for growth in its operations over the long term.

Technical Working Group for Modeling Parameters (October 2022 to April 2023)

281. In the fall/winter of 2022 EDTI and CN established a joint technical working group for the Project. The working group began meeting in February 2023 to address potential electromagnetic induction effects of the Project on the railway. The working group included representatives from the following areas within the two companies:

- EDTI's CETR Project team;
- CN Public Works;
- CN Signals & Communications (S&C) Engineering;
- EDTI engineering consultant (Maskwa High Voltage); and
- Commonrow, an expert consulting firm retained by EDTI to address AC interference, modeling and mitigation for the Project.

282. In the first part of 2023, the working group established technical criteria for the evaluation of AC interference, which included:

- technical pass / fail criteria for AC induction on the tracks (criteria based on either industry standards or on other typical inputs into AC mitigation studies);
- modeling conditions for evaluating these criteria; and
- railway specific characteristics.

Initial Simulations, Results and Evaluation of Mitigation Options (April 2023 to December 2023)

283. Following the establishment of the technical criteria, Commonrow worked to create preliminary engineering simulation in SES software generally used for these types of electrical analysis. The simulation modelled AC interference and tested different transmission line route configurations under consideration at that time, based on the technical inputs provided by CN and EDTI. Commonrow also evaluated a number of potential mitigation options for discussion with CN.

284. During Q1 and Q2 2023, EDTI met with CN to discuss and obtain input on the preliminary results of Commonrow's simulations.

285. In late Q2 2023, Commonrow's modeling results indicated that all routing alternatives set out in EDTI's January 2023 mailout (PSIP-1) would have some level of electrical induction impacts on the railway and would therefore require mitigation.

286. In Q3 2023, EDTI and CN initiated discussions regarding potential mitigation measures, including the installation of narrow band shunts and Dairyland Overwatch[42] HEFPDs (high energy fault protection devices). At the same time, EDTI considered potential powerline mitigations using overhead and underground counterpoises. Simulation work conducted by Commonrow indicated that aerial counterpoise was a potentially effective mitigating of AC interference issues on CN's rails when combined with narrow band shunts, while buried counterpoise had little effect. CN advised that narrow band shunts were currently used to mitigate electrical effects to CN's rail system and could be implemented if required; however, CN had not used Dairyland Overwatch HEFPDs but indicated that it would review their potential suitability.

287. After review of technical information on Dairyland Overwatch HEFPDs during the summer and fall of 2023, including information sessions with manufacturers arranged by EDTI, CN's Signals Engineering team ultimately advised EDTI that because CN had no prior experience implementing or working with these devices, they were not willing to install them as part of the mitigations for this project due to the potential for adverse impacts to CN's operations.

[42] Dairyland Electrical Industries' Overwatch™ HEFPD (high-energy fault protection device) is a device specifically designed to high-energy AC faults from railroad signaling circuits to ground. It operates as a normally open voltage-triggered solid-state switch, closing immediately upon sensing voltage above a predetermined threshold, and reopening once the over-voltage event has cleared.

Land use and other considerations (January – November 2024)

288. In January 2024, EDTI engaged CN's real estate group to confirm the process for reviewing specific crossings, encroachments and lines in close proximity to CN's right-of-way based on the routes that were being considered in EDTI's April 2024 PSIP (PSIP-4).

289. During further discussions in Q1 and Q2 of 2024, EDTI provided CN with information on the Project's overlap with CN's rights-of-way for various transmission routing alternatives, and CN provided a framework for potential lease or easement agreements that could be reached. During these discussions, CN indicated that 72kV Segment S1 from EDTI's April 2024 mail-out (PSIP-4) would not be acceptable to CN for safety and operational reasons. Given this, EDTI subsequently retired this route segment from further consideration. CN indicated that it would be able to accommodate all other 72kV segments based on the information provided.

290. In November 2024, EDTI met with CN's Public Works to discuss construction coordination for the 240 kV transmission lines. During this discussion, CN agreed to work with EDTI throughout the design to ensure any planned maintenance that CN would be undertaking could be coordinated with the construction of the 240 kV transmission line.

Consideration of Alternative Mitigations, Including Underground and Hybrid Routing, Insulating Joints, and Land Use Considerations (January 2024 to November 2024)

291. In an effort to identify the most cost-effective technical solution for the 240kV line, EDTI with Commonrow's assistance investigated other mitigation alternatives, including the use of Insulating Joints ("IJ"), an underground transmission line, and overhead routes at a further distance to the railways that were less likely to create electrical effects on CN's infrastructure.

292. In the summer of 2024, the working group re-visited the use of IJs, a relatively common device installed on CN tracks, to mitigate AC interference conditions after CN indicated they did not wish to utilize Dairyland Overwatch HEFPDs as mitigation measures. During this time, Commonrow identified configurations of IJs that could mitigate the AC interference effects under modeling parameters established by the working group during the first half of 2024. The number of incremental IJs required for the various routes under consideration ranged in quantities from zero (for underground and mostly underground alternatives) to eleven IJs required (for overhead routes closer to the railway). CN examined the stretch of track where IJs were proposed to be installed and identified that a maximum of six IJs would be acceptable to CN operations, due to the impacts of a greater number of IJs on CN's S&C systems. EDTI then evaluated the

acceptability of its routes based on this criterion and found that only one overhead route configuration, a fully underground route as well as several hybrid routes would potentially be viable if only six IJs were acceptable. In September 2024, EDTI initiated public engagement on five potential 240kV routes, which were set out in its September 2024 mailout (PSIP-7) to stakeholders.

293. Also in Q1 and Q2 of 2024, CN requested that EDTI use an alternative criterion of 5A as a limit that their track connected equipment could withstand instead of the more commonly used industry guideline of 5V, as measured from rail-to-rail, for evaluating AC induced effects on track connected equipment. To complete the new study required using the 5A criteria, Commonrow required various track-connected equipment impedances from CN to calculate the current with the modelled voltage. This work was completed by CN in late summer 2024, and Commonrow was then able to incorporate the 5A criteria into its modeling work.

294. In the fall of 2024, Commonrow compiled results of simulations of available routes using IJs, grounding and bonding of unsignalled track, and aerial counterpoise as mitigations, and presented them to CN in October 2024. CN S&C engineering determined that the proposed modeling parameters and mitigations were acceptable and entered into a Memorandum of Understanding ("MOU") to reflect EDTI's and CN's mutual understanding of the impacts of the Project on CN's operations and the modifications or steps required to mitigate those impacts. A copy of the MOU is included as Appendix P-1.

Updated Modeling Criteria and Mitigations (December 2024 to February 2025)

295. In December 2024, CN provided new information that invalidated the mitigations previously determined to be acceptable and asked for further study. CN specifically stipulated that:

- Modelling scenarios should allow for two trains on tracks, including mainline and secondary tracks. Previously, only one 4.9 km train had been modeled, and only on mainline track.
- During fault conditions, modelling should include train-on-track condition. Previously, it had been agreed in early 2023 that fault condition would not be modeled with any train-on-tracks.
- Both the 5V and 5A criteria should be applied as the equipment protection limit for steady-state rail-to-rail current. As noted above, CN had previously requested the 5A criteria to be used.

296. In late 2024, CN reconfirmed that since it had no prior experience implementing or working with Dairyland Overwatch HEFPD devices, CN was unwilling to install them on its system due to the potential for impacts to its operations.

297. Based on the new information provided by CN, in late Q4 2024 and early 2025, Commonrow updated its analysis. In December 2024 and January 2025, EDTI and Commonrow met with CN's S&C Engineering team to gather all of the information necessary to update Commonrow's modeling and analysis, including:

- specific train and track scenarios CN wanted to be included in the model;
- track configurations for additional sections of track to be added to the model; and
- confirmation of mitigation measures acceptable to CN (such as allowable devices, quantities and their locations).

298. In late January 2025, Commonrow completed updates to its model to include the additional information. By early-February 2025, Commonrow had generated new modeling results for a limited number of specific train and powerline scenarios considered to be the most impactful to CN's railway system and are summarized in Appendix E-1.

299. Through this further work, Commonrow identified that there was pre-existing AC interference from existing transmission lines in the area that paralleled existing CN rail tracks in areas outside but adjacent to the Project area (i.e., various tracks running along 17 Street NW between Yellowhead Trail and Baseline Road). EDTI reviewed this condition with CN, who investigated and indicated they have not yet seen any operational issues resulting from this pre-existing AC interference. Commonrow advised that one possible reason for this is the combination of power line loading being lower than the maximum rated loading that is used in its modeling, as well as CN indicating the affected portion of CN's track uses an older style of signaling system that is less affected by AC interference.[43] Should power line loading increase substantially, and/or CN upgrade the signaling in this area to modern coded track signaling, CN may begin to experience issues related to AC interference, regardless of whether the Project is completed or not.

300. Commonrow was able to evaluate mitigation of 72kV and 240kV routing scenarios in the model using combinations of the following mitigation measures which were acceptable to CN:

- Use of 60 Hz narrow band shunts, up to a limit specified by CN Rail.

[43] Section 3.4 of the Commonrow Report in Appendix E-1 for additional information.

- Grounding and bonding of all unsignalled tracks.
- Use of transposition structures on the 72kV transmission lines.
- Use of aerial counterpoise on 240kV overhead lines;
- Use of existing lightning arresters ("arrester") that are part of the existing circuit board protection for S&C equipment. arresters are activated at certain voltage surge thresholds (e.g., 250 V) and ground the downstream equipment in the event of such an electrical surge. Arresters are not self-resetting devices and after they fire, the S&C equipment can be left unprotected from additional surges until the arrester are re-set or replaced. As such, CN has specified a maximum amount of arrester firing cascading (propagation) within the project area.
- Upgrades to bungalow[44] grounding in combination with arrester firing to ensure optimal grounding of downstream equipment, as described above.

301. Results of the analysis were presented to CN's S&C Engineering team in February 2025, and the following items were discussed:

- CN indicated that they would require the pre-existing condition described above to be addressed in order for them to accept any proposed new transmission lines that could potentially affect CN's operations. Commonrow indicated that baseline condition could be mitigated through installation of 60 Hz narrow band shunts by CN along the affected segment of track.[45]
- Route A (fully overhead): Not technically viable because the nature and extent of the mitigation measures that would be required to reduce the induced voltage to safe levels during steady state and fault conditions were not acceptable to CN from a railway operations perspective. Specifically, in the steady state condition, the number of narrow band shunts required to be installed on the railway line would be above the maximum amount acceptable to CN for safe railway operations. Under the fault condition, with the type and number of mitigation measures acceptable to CN, the maximum rail-to-ground voltage induced on the railway line as well as cascading arrester firing would be above the maximum amount acceptable to CN for safe railway operations.
- Route B (fully underground): Technically viable because the nature and extent of the mitigation measures required to reduce the induced voltage to safe levels were acceptable to CN.

[44] Section 3.3.3 of the Commonrow Report in Appendix E-1 for additional information.
[45] Section 5.1 of the Commonrow Report in Appendix E-1 for additional information.

- Route D (Hybrid, approximately half underground, half overhead): Not technically viable because the nature and extent of the mitigation measures that would be required to reduce the induced voltage to safe levels during fault conditions were not acceptable to CN from a railway operations perspective. In other words, with the type and number of mitigation measures acceptable to CN, the maximum rail-to-ground voltage induced on the railway line would be above the maximum levels acceptable to CN for safe railway operations.
- Route E (Hybrid, mostly underground, with an overhead river crossing): Technically viable because the nature and extend of mitigation measures required to reduce induced voltages to safe levels were acceptable to CN.

302. EDTI and CN will continue to work collaboratively during detailed design to finalize and optimize mitigation measures that are acceptable to CN.

303. Based on these conclusions and agreements, EDTI and CN executives updated and signed an amended and restated MOU (signed dated February 19, 2025). A copy of the Amended and Restated MOU is included in Appendix P-2 to this Application.

304. Table 6.3.3-1 below summarizes the issues/concerns expressed by CN, EDTI's responses, and the resolution status, grouped by electrical interference, land use, and other feedback for the 72kV 240kV route options.

Table 6.3.3-1
Summary of Feedback from CN

	A **CN Feedback**	B **EDTI Response**	C **Resolution Status**
	Electrical Interference		
1	Electrical interference should not exceed limits provided by CN Rail and any mitigations for electrical interference requiring track-connected equipment may only include equipment, quantities and locations approved by CN.	EDTI has engaged Commonrow and worked with CN to determine technical limits for electrical interference, acceptable mitigation measures and validate that proposed transmission facilities will meet CN's criteria. EDTI and CN will continue to work together through detailed design.	Ongoing. EDTI and CN have signed an MOU (Appendix P-2). EDTI and CN will continue to work together through detailed design.
2	Any pre-existing AC interference issues within the project area should be resolved as part of design of the CETR project.	Commonrow is assessing pre-existing conditions and will propose additional testing, analysis, and detailed mitigation measures (as necessary) to address baseline conditions.	Ongoing.

	A **CN Feedback**	B **EDTI Response**	C **Resolution Status**
3	CN's expectation is that it will not incur any capital or operating costs in relation to the CETR project and the subsequent ongoing operation of the transmission line.	EDTI understands that CN will not incur costs to mitigate AC induction issues. Capital cost estimates for AC Mitigation are included in the project cost estimate.	Ongoing. More detailed cost estimates will be available following detailed design.
	Lands		
4	Crossing of the Walker Yard by 72kV route S1 is not acceptable due to safety and operational concerns.	72kV route S1 is retired.	Resolved
5	Any temporary or permanent workspace within CN owned land or right of way would require a lease or easement agreement. Fees for lease or easement agreements will be based on land fair market value.	EDTI has identified all temporary and permanent workspace requirements for proposed routes and reviewed them with CN (See strip maps in Appendix D).	Ongoing. EDTI and CN have signed an MOU (Appendix P-2). Specific lease and /or easement agreements will be negotiated on approved routes.
6	CN has a track safety zone of 30 feet from any rails. Any work within the track safety zone requires flagging provided by CN personnel	EDTI has identified the track safety zone alongside all temporary or permanent workspace (See strip maps in Appendix D).	Ongoing. Once EDTI has an approved route EDTI and its construction contractor will work with CN to arrange flagging personnel where required.
	Other Feedback		
7	Planned works should not interfere with CN Rails long term expansion plans.	EDTI has included review of future expansion plans in route planning.	Resolved
8	To ensure coordination and safe operations, EDTI and CN will need to enter into agreements with respect to operational requirements, joint safety protocols, environmental mitigation measures and communications and coordination protocols.	Understood and agreed.	Ongoing. Operational communications plans will be established at a later date (see MOU, Appendix P-2).
9	The CETR project should not interfere with CN Rail maintenance activities.	EDTI has requested additional information on CN Rail maintenance activities, once available.	Ongoing. EDTI and CN will keep in regular communication through development of the CETR project to coordinate with any CN Rail maintenance activities.

6.3.4 Personal Consultation

305. Stakeholders identified for personal consultation consisted of persons and corporations that own, occupy, or have interest in land directly adjacent to the proposed facilities, and other interested parties that EDTI either identified or was approached by for personal consultation. A complete list of the stakeholders identified for consultation is provided in Appendix L-1).

306. EDTI sought to consult with all stakeholders that are directly adjacent to the transmission line route options or substation site location as required in AUC Rule 007 Appendix A1 Table A1-1 for new transmission development in an urban area.

307. Personal consultation was completed through phone calls, emails, in-person communications, door knocks, and text messages. From January 2023 to February 2025, EDTI attempted to contact stakeholders a minimum of three times using one or more of these methods. If an occupant could not be contacted, registered mail was sent to the occupant's address. Where the Land Title indicated that the property owner was different from the occupant, registered mail was sent to the address of the owner as stated on the Land Title.

308. EDTI retained Maskwa. to support consultation activities for the Project, including assisting in one-on-one consultation with directly adjacent occupants, residents and landowners. EDTI completed training sessions with Maskwa prior to each consultation round that included a review of the project details, what to discuss during consultations, information on the Project Need (AESO) and regulatory process (AUC), stakeholder tracking requirements, and other key messages.

309. Consultation Round 1 occurred from January 2023 to April 2024 in coordination with the mailing of PSIP-1 on January 9, 2023. During this consultation period, EDTI and EDTI's contractors contacted directly adjacent stakeholders to discuss the project, answer questions and record feedback.

310. Consultation Round 2 occurred from April 2024 to September 2024 in coordination with the mailing of PSIP-4 on April 2, 2024. During this consultation period EDTI and EDTI's contractors contacted directly adjacent stakeholders to discuss the project, answer questions and record feedback. Landowners of property where a right-of-way may be required were provided with a utility right-of-way fact sheet (Appendix L-5) and a site-specific map with the right-of-way area on their property.

311. Consultation Round 3 occurred from September 2024 to February 2025 in coordination with the mailing of PSIP-7 on September 18, 2024. During this consultation period EDTI and EDTI's contractors contacted stakeholders who were directly adjacent to the 240kV hybrid route option transition structures locations and those along the new underground segment in hybrid route option 'E' identified in PSIP-7 to discuss the project, answer questions and record feedback. Landowners of property where a ROW may be required were provided with a utility ROW fact

sheet (Appendix L-5) and a site-specific map with the ROW area on their property. During this time, EDTI continued to contact stakeholders in the 72kV route area to consult on PSIP-4.

6.3.5 Public Consultation

312. As a part of the PIP, EDTI invited participants in the project notification area to provide feedback and ask questions about the Project. Feedback could be provided in various ways including phone, email, feedback forms (paper and online), and in person at the Project open houses. Feedback received and EDTI's responses are summarized in Appendix L-1.

Feedback Forms

313. Paper feedback forms with postage paid return envelopes were included in PSIP-1, PSIP-4, PSIP-5, PSIP-6, PSIP-7 and PSIP-9. The feedback forms included a space for feedback/questions, contact information, and to indicate preferred contact method. This also provided stakeholders with an option to provide anonymous feedback. Online feedback forms were also available on the Project webpage (epcor.com/cetr).

Virtual Question and Answer Sessions

314. Two Virtual Question and Answer sessions were held on January 31, 2023 at 12:00 pm and February 2, 2023 at 7:00 pm to: provide information about the Project to interested parties in an accessible and transparent manner; provide stakeholders with opportunities to ask questions of the Project team and third-party technical experts; and to ensure stakeholders understood the scope and potential impacts of the Project as well as the opportunity to express concerns, and provide feedback and input. The panel included representatives from EDTI, AESO (Project Need), Exponent Inc. (for inquiries on EMF and health), and Maskwa (routing and siting). Approximately 30 stakeholders in total attended the two Virtual Question and Answer sessions with 87 questions asked. EDTI responded to all stakeholders who submitted questions.

315. Questions received during the Virtual Question and Answer sessions and EDTI's responses were recorded and summarized on the Project webpage over the period March 2023 to April 2024. The presentation provided during the Virtual Question and Answer sessions, and questions received during the sessions are included in Appendix L-6.

In-Person Open Houses

316. In-person open houses were held on April 30, 2024 at the Delton Community League Hall, and on May 2, 2024 at the Montrose Community League Hall, to provide stakeholders with the opportunity to ask questions, express concerns and provide feedback to the Project team in person. At the open houses, EDTI provided (on display boards) maps of the proposed routes, visual renderings of the proposed structures, information on EMF, a summary of feedback from the first round of consultation, and information about the AUC. The open house display boards are included in Appendix L-7. Representatives from EDTI, Maskwa Environmental Consulting Ltd. (routing and siting), Maskwa High Voltage Ltd. (engineering), and AML were in attendance to answer questions and record concerns and feedback. EDTI retained Maskwa to assess and develop potential substation site locations and transmission line routes and attend the open houses to answer questions on the routing and siting for the Project. Approximately 50 participants in total attended the two open houses. EDTI's responses to stakeholders' questions and feedback is included in Appendix L-1.

6.3.6 Indigenous Consultation

317. In developing its Indigenous PIP, EDTI engaged the Aboriginal Consultation Office ("ACO"), Government of Alberta's Landscape Analysis Indigenous Relations Tool ("LAIRT"), and the Commission. The PIP for Indigenous engagement for the Project was developed in accordance with Section 7, Appendix A1-B of AUC Rule 007. Over the course of its PIP, EDTI submitted a number of pre-consultation assessment requests to the ACO to reflect changes in the Project's scope and reassess whether there were additional consultation requirements with Indigenous Nations and communities.

318. For each of the requests submitted to the ACO, EDTI received an Adequacy Assessment Decision deeming consultation adequate. EDTI's PIP was consistent with information from the ACO, LAIRT database, and Commission.

319. Table 6.3.6-1 below summarizes EDTI's requests to the ACO and their outcomes, the outcomes of EDTI's LAIRT search, and its request to the Commission and their outcomes, all of which guided EDTI's engagement activities with Indigenous Nations and communities.

Table 6.3.6-1
Summary of ACO, LAIRT and AUC Interactions

	A **Interaction**	B **Date**	C **Reason for request**	D **Outcome/Response**
1	LAIRT	11/29/2022	Preliminary assessment of Indigenous consultation	LAIRT report indicates that Enoch Cree Nation No. 440 and Paul First Nation are the Indigenous groups in the Project area
2	ACO (FNC202300225)	02/14/2023	Initial project scope	Level 1-Streamlined Consultation is required with Enoch Cree Nation No. 440 and Paul First Nation
3	ACO (FNC202400431)	04/11/2024	New 240kV scope (addition of an underground alternative and other route refinements)	ACO determined that consultation is "Already Deemed Adequate" as per FNC202300225
4	AUC	04/22/2024	EDTI's feedback request to AUC on the PIP for Indigenous groups	AUC recommends including Lac Ste. Anne Métis Community Association ("LSAMCA") on its Indigenous community engagement list[46]
5	ACO (FNC202401156), (FNC202401169)	10/11/2024 - 12/10/2024	New 240kV scope (Crown land easement required in Strathcona Science Provincial Park for 240kV Route A, D, and E)[47]	ACO determined that its previous Adequacy Assessment Decision (FNC202300225) does not apply to areas within Strathcona Science Provincial Park, and issued a Pre-Consultation Assessment direction on Nov 14, 2024, continuing to recommend Level 1-Streamlined Consultation with Enoch Cree Nation No. 440 and Paul First Nation. On Dec 10, 2024, the ACO issued its final Adequacy Assessment Decision, deeming EDTI's consultation efforts adequate
6	AUC	12/11/2024	EDTI's feedback request to AUC on the PIP for Indigenous groups, specifically regarding the Crown land easement	AUC deemed EDTI's Indigenous PIP reasonable based on the information provided and that the Project meets Category A factors

320. In addition to the ACO-directed engagement with Enoch Cree Nation No. 440 ("ECN") and Paul First Nation ("PFN"), EDTI expanded its Indigenous engagement efforts by identifying 30 other Indigenous Nations, communities, and representative organizations (32 in total) that may have an interest in the Project. A list of these Nations, communities and representative organizations is provided in Appendix L-1.

321. Given the historical and cultural significance of the North Saskatchewan River valley to Indigenous peoples, EDTI sought feedback from all 32 identified Indigenous Nations, communities, and representative organizations on potential Project impacts on cultural practices

[46] EDTI already included LSAMCA as part of its Indigenous PIP
[47] Appendix L-4 (PSIP-7).

or lands that are in continued use or were traditionally used by Indigenous peoples. Throughout the PIP, EDTI worked to understand the values and perspectives of First Nations and Métis communities and respond to their interests and concerns related to the Project.

322. All 32 Indigenous Nations, communities, and representative organizations were provided with PSIPs 1, 3, 4, and 7, sent in January 2023, November 2023, April 2024, and September 2024, respectively, by email and/or registered mail. Each of the four PSIPs was sent with an accompanying cover letter offering opportunities to provide feedback on the Project and an invitation to meet to discuss. The PSIPs included copies of the *Participating in the AUC's Independent Review Process to Consider Facility Applications* brochure. Each of the PSIPs also referenced future opportunities for Indigenous monitoring and other activities during construction.

323. A project timeline update email, in follow-up to the January 2023 PSIP-1, was sent to each of the 32 Indigenous Nations, communities, and representative organizations in August 2023. EDTI also emailed all 32 Indigenous Nations in November 2023, April 2024, and September 2024, in addition to the registered mailings of each of those respective PSIPs, to provide electronic links to EPCOR's CETR Project webpage and the PSIP update for those months over the course of the Project.

6.3.6.1 Indigenous Nations and Communities Feedback

324. Each of the 32 Indigenous Nations, communities, and representative organizations were invited to provide input. Responses were received from seven Indigenous Nations, communities, and representative organizations as noted below:

- Blood Tribe (Kainai Nation)
- Enoch Cree Nation No. 440
- Lac Ste. Anne Métis Community Association
- Otipemisiwak Métis Government
- Paul First Nation
- Samson Cree Nation
- Whitefish (Goodfish) Lake First Nation

325. Feedback highlighted concerns with potential environmental impacts to natural areas and the river; aquatic health; tree removal; impacts to birds, wildlife and vegetation; EMF; and the Project decommissioning process. None of the Indigenous recipients who engaged with EDTI

objected to the Project, and EDTI responded to their Project-specific concerns. A summary of EDTI's engagement with the seven Indigenous Nations, communities, and representative organizations, including concerns expressed and addressed by EDTI, is provided in Table 6.3.6.1-1 below. The table also lists the 25 other Indigenous Nations, communities, and representative organizations contacted that have not responded to EDTI. As noted above, all were provided a total of four PSIPs over the course of two years. EDTI sent follow-up emails soon after each PSIP to confirm receipt and asked whether there were any Project-specific questions or concerns.

Table 6.3.6.1-1
Indigenous Engagement Summary

	A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
1	Alexander First Nation	Yet to engage	n/a	n/a
2	Alexis Nakota Sioux Nation	Yet to engage	n/a	n/a
3	Beaver Lake Cree Nation	Yet to engage	n/a	n/a
4	Blood Tribe (Kainai Nation)	EDTI hosted Blood Tribe members on a site visit on Nov 14, 2024. The following concerns were expressed: • Tree clearing and replanting • Federal Department of Fisheries and Oceans ("DFO") plans for the river crossing decommissioning (five existing underground cables opposite and crossing to the Clover Bar substation)	The City of Edmonton has an equitable compensation program through its Corporate Tree Management Policy and Tree Reserve Procedure for loss of tree canopy due to damage or removal. This helps to maintain or enhance the size of Edmonton's urban forest. The appropriate level of detail, environmental understanding, and site and context-specific mitigations will be implemented at the decommissioning stage (estimated in 2030), which is considered a separate scope of work. Once the details of decommissioning (e.g., scope, methods, etc.) are understood, the appropriate environmental assessments and permit applications will be undertaken.	On Nov 20, 2024, EDTI sent an email to the Blood Tribe summarizing discussions from the site visit and asking if any revisions were required. The Blood Tribe did not respond to that communication. On Jan 31, 2025, EDTI emailed the Blood Tribe with an update on timing for filing of the Facility Application and a summary of its engagement on the Project, asking for confirmation of its accuracy. The Blood Tribe responded the same day confirming the summary was accurate. EDTI remains open to responding to any further project-related concerns the Blood Tribe may express.
5	Cold Lake First Nations	Yet to engage	n/a	n/a
6	Confederacy of Treaty Six First Nations	Yet to engage	n/a	n/a
7	Enoch Cree Nation No. 440	Enoch Cree Nation responded on Feb 3, 2025 to EDTI's Project summary and update email of the same day. The two parties agreed to meet initially on the Project on Feb 13, 2025. At the meeting, Enoch Cree	EDTI met with Enoch Cree Nation on the Project for the first time on Feb 13, 2025, providing information respecting routing and siting considerations, Indigenous engagement, and the environmental planning process.	At the Feb 13, 2025 presentation, Enoch Cree Nation agreed to continue dialogue with EDTI on an Elders session following submission of the Facility Application filing and on potential HRIA and Project construction monitoring activities and business opportunities.

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	Nation expressed interest in the following: • potential project procurement opportunities and • monitoring opportunities related to potential Historic Resource Impact Assessment (HRIA) activities in 2025 and at the time of construction in 2026.	Also discussed were potential procurement opportunities for Enoch Cree Nation on the project as well as monitoring opportunities for potential Historic Resource Impact Assessment (HRIA) activities in 2025 and at the time of construction in 2026. The two parties also agreed to schedule a future Enoch Cree Nation Elders session on the Project, post Facility Application filing.	The two parties agreed to schedule a future Enoch Cree Nation Elders session on the Project, post Facility Application filing. EDTI noted during the presentation that it was very close to completing and submitting its Application to the AUC but would respond to any feedback from Enoch Cree Nation both before and after filing. EDTI remains open to addressing any project-related concerns Enoch Cree Nation may express in any forum both prior to and following the filing of the Project Facility Application. On Feb 18, 2025, EDTI sent a summary of the meeting topics discussed to Enoch Cree Nation, requesting verification of its accuracy, thanking ECN for its engagement, and outlining next steps agreed to in the Project consultation with the Nation.
8 Ermineskin Cree Nation	Yet to engage	n/a	n/a
9 Frog Lake First Nation	Yet to engage	n/a	n/a
10 Heart Lake First Nation	Yet to engage	n/a	n/a
11 Horse Lake First Nation	Yet to engage	n/a	n/a
12 Kehewin Cree Nation	Yet to engage	n/a	n/a
13 Lac Ste. Anne Métis Community Association	EDTI met with LSAMCA's President on Mar 7, 2024 and Jun 28, 2024. While neither meeting exclusively pertained to the CETR Project, siting of the Fort Road substation and 240kV transmission line routes were discussed, in	LSAMCA has not made a formal request for capacity funding to support its engagement on the Project, but EDTI is open to receiving a proposal from LSAMCA in this regard. In October 2024, EDTI offered to provide LSAMCA representatives with a	On Jan 31, 2025, EDTI emailed LSAMCA with an update on timing for filing of the Facility Application and a summary of its engagement on the Project, asking for confirmation of its accuracy. LSAMCA has not responded to that communication.

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	addition to the following general concerns: • Archaeological history of the river valley and the crossing (Hermitage Park area and Strathcona Science Provincial Park) • Capacity funding to support LSAMCA's engagement in the Project	site visit of proposed route options in Hermitage Park and in the broader Project area. A site visit was scheduled for Oct 22, 2024, but LSAMCA chose not to go through with it at that time. EDTI remains open to rescheduling a site visit for LSAMCA.	EDTI will respond to any further project-related concerns LSAMCA may express, including archaeological-related concerns previously expressed at the Jun 28, 2024 meeting.
14 Louis Bull Tribe	Yet to engage	n/a	n/a
15 Métis Local 1904 - St. Albert-Sturgeon	Yet to engage	n/a	n/a
16 (Former) Métis Nation of Alberta Region 2*	Yet to engage	n/a	n/a
17 (Former) Métis Nation of Alberta Region 4*	Yet to engage	n/a	n/a
18 Michel First Nation	Yet to engage	n/a	n/a
19 Montana First Nation	Yet to engage	n/a	n/a
20 O'Chiese First Nation	Yet to engage	n/a	n/a
21 Onion Lake Cree Nation	Yet to engage	n/a	n/a
22 Otipemisiwak Métis Government Provincial Office	EDTI met with Otipemisiwak Métis Government (OMG, formerly the Métis Nation of Alberta) consultation staff on May 10, 2024, and gave a Project presentation to a broader group of OMG participants on Jul 17, 2024. Following that session, OMG surveyed its members and provided EDTI with a copy of its Citizens Survey on the CETR project. On Oct 1, 2024, EDTI led OMG representatives on a site visit of the proposed 240kV transmission line routes within Edmonton's Hermitage	EDTI is conducting a City of Edmonton Environmental Impact Assessment (EIA), an Environmental Evaluation (EE) in accordance with AUC Rule 007, and developing an Environmental Protection Plan (EPP). The EE and EPP will be publicly available once the Facility Application is filed. EDTI does not anticipate significant or lasting environmental effects as a result of the Project. Both the City of Edmonton EIA and the EE provide a comprehensive assessment of the Project Study Area (this includes	On Oct 1, 2024, OMG emailed EDTI extending its appreciation for the site visit that day and advising that any additional Project feedback would be provided by the Oct 31st deadline (for PSIP 7). EDTI provided OMG with summary site visit notes on Oct 2, 2024, asking for feedback and any necessary clarifications or revisions. OMG had no changes. On Jan 31, 2025, EDTI emailed OMG with an update on timing for filing of the Facility Application and a summary of its engagement on the Project, asking for confirmation of its accuracy. OMG

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	Park. OMG provided its Project recommendations to EDTI on Oct 28, 2024, including their preferred 240kV route. The following concerns were expressed: • Potential environmental impacts and the Project environmental assessments • Protection of natural area and nearby waterways during construction, including mitigation measures • Aquatic health and *Fisheries Act* approval to decommission the existing 72kV lines • Facility application for decommissioning • Ground disturbance related to underground route segments • Vegetation management plan • Measures to mitigate impacts on wildlife (birds) from contact with overhead wires OMG Project recommendations: • Route B (underground) is the best option for the 240kV line • Route N1-N2 is the best option for the 72kV line • OMG is strongly opposed to Route C for the 240kV line, as it will pass through the only remaining native vegetation in Hermitage Park. Preserving this area is crucial to maintaining local biodiversity.	the area up to 1,000 m from the project footprint). The appropriate level of detail, environmental understanding, and site and context-specific mitigations will be implemented at the decommissioning stage (estimated in 2030), which is considered a separate scope of work. Once the details of decommissioning (e.g., scope, methods, etc.) are understood, the appropriate environmental assessments, engagement, and permit applications will be undertaken. For Route B (underground), excavation will result in some vegetation impacts; however, these impacts will be minimized through implementation of appropriate mitigation measures. Some tree removal will be required but trees will be replanted. EDTI is working with the City of Edmonton on a vegetation management plan. The City of Edmonton will either collect a fee from EDTI for vegetation replacement or EDTI will replace vegetation directly. Bird deterrents will be installed on the overhead fibre optical wire for route options requiring a new river crossing (e.g., spirals to make the line more visible and appear bigger).	responded on Feb 4, 2025, confirming that the summary is an accurate reflection of its communication and engagement on the Project thus far and requesting to be kept informed of any further updates. EDTI remains open to responding to any further project-related concerns OMG may express.

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	• Construction should be staged in the fall and winter when OMG citizens' use of Hermitage Park is lower • Minimize disruption to both the community and local wildlife during peak activity seasons • Incorporate the planting and reintroduction of native plant species to support ecosystem health within the impacted area or in adjacent areas • Support restoration of local habitats, foster biodiversity and traditional use activities, and preserve the cultural and environmental significance of species important to Métis heritage and land stewardship.		
23 Papaschase First Nation	Yet to engage	n/a	n/a
24 Papaschase First Nation Association No. 136	Yet to engage	n/a	n/a
25 Paul First Nation	EDTI met with Paul First Nation on Sep 6, 2024. On Oct 8, 2024, EDTI led Paul First Nation representatives on a site visit of the proposed 240kV transmission line routes within Edmonton's Hermitage Park. The following concerns were expressed: • Potential conflicts between underground route options and other existing underground infrastructure and railway lines	EDTI advised that the underground route (Route B) would cross under the CN Railway at a location where the rail is elevated on a bridge (i.e., not at ground level). An underground route would assist in resolving electrical interference with the railway operations. At the Sep 6, 2024 meeting, EDTI summarized the current state of research on EMF as summarized in the April project notice (PSIP-4), highlighting the research findings that EMF from transmission lines does not negatively	On Oct 11, 2024, EDTI provided Paul First Nation with summary site visit notes and requested feedback. On Oct 16, 2024, EDTI sent a revised copy of the notes. Along with a list of EMF-related wildlife studies, EDTI also provided Paul First Nation with a visual rendering of the area visited in Hermitage Pak during the Oct 8, 2024 site visit, as requested at that time. On Jan 31, 2025, EDTI emailed Paul First Nation with an update on timing for filing of the Facility Application and a summary

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	• Impacts of electric and magnetic fields (EMF) on bees, and on the environment in general • Health concerns from EMF • Effects on birds and other species and overall long-term cumulative environmental impacts from this and other projects in the area, primarily from potential EMF effects • Process to maintain mineral oil in the old 72kV cables and protect the river from Project environmental impacts • Environmental Impact Assessment (EIA) processes • Tree removal in Hermitage Park (if Route C is selected) • Decommissioning	impact wildlife species, including bees. EDTI later sent Paul First Nation a memo prepared by Exponent Inc., summarizing original scientific research on EMF. EDTI also compiled a list of EMF-related wildlife studies and provided links to Paul First Nation. Peer-reviewed academic studies have found that there does not appear to be any negative health effects from EMF associated with power lines. As part of the future decommissioning, EDTI noted that three of the five existing 72kV cables will be discontinued from use, and oil removed from them. EDTI explained the process of cathodic protection to prevent oil leaks from removal of underwater cables in the river. This will ensure cable integrity and help prevent corrosion. EDTI described the environmental assessment processes and approvals (for both the City of Edmonton and the AUC) and noted that the Project triggers a City of Edmonton EIA under the River Valley Bylaw. The City's EIA process considers tree and shrub loss due to clearing activity. EDTI will coordinate with the City's environmental department regarding tree removal in Hermitage Park, as needed. The appropriate level of detail, environmental understanding, and site and context-specific mitigations will be implemented at the decommissioning	of its engagement on the Project, asking for confirmation of its accuracy. Paul First Nation has not responded to that communication. EDTI remains open to responding to any further project-related concerns Paul First Nation may express.

	A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
			stage (estimated in 2030), which is considered a separate scope of work. Once the details of decommissioning (e.g., scope, methods, etc.) are understood, the appropriate environmental assessments, engagement, and permit applications will be undertaken.	
26	Piikani Nation	Yet to engage	n/a	n/a
27	Saddle Lake Cree Nation	Yet to engage	n/a	n/a
28	Samson Cree Nation	EDTI met with Samson Cree Nation on Feb 2, 2023. The following concerns were expressed: • Project rationale • Route Option 2B (January 2023, PSIP-1) – concerns with impacts along the bridge and new disturbances in the Project area • Historical resource impacts and past archaeological finds and historical materials found in the Project area • Post-decommissioning plans for Kennedale substation site	EDTI explained that the AESO has directed EDTI, as the TFO responsible for the City of Edmonton region, to undertake the Project as a result of a need to reinforce the transmission system in this part of the City. There will be deep disturbance for the transmission structure to be placed near the river, however direct impact to the river itself will be avoided. It is too early in the Project cycle for an HRA, but there is high potential for finds in the Project area. No determination has been made yet regarding the future plan for Kennedale substation property. EDTI may choose to either sell the land or repurpose it for other uses following decommissioning of the substation.	Plans for Kennedale substation property will be addressed in a future application to the AUC. EDTI will engage Samson Cree Nation on such details at that time. On Jan 31, 2025, EDTI emailed Samson Cree Nation with an update on timing for filing of the Facility Application and a summary of its engagement on the Project, asking for confirmation of its accuracy. Samson Cree Nation has not responded to that communication. EDTI remains open to responding to any further project-related concerns Samson Cree Nation may express, including on the HRA application process raised during the Feb 2, 2023 meeting in the early stages of the Project.
29	Siksika Nation	Yet to engage	n/a	n/a
30	Sunchild First Nation	Yet to engage	n/a	n/a
31	Tsuut'ina Nation	Yet to engage	n/a	n/a
32	Whitefish (Goodfish) Lake First Nation	EDTI met with Goodfish Lake Business Corporation (Whitefish	Both meetings were primarily focused on matters related to procurement, and	On Jan 31, 2025, EDTI emailed Whitefish (Goodfish) Lake First Nation with a

A **Nation / Community**	B **Feedback**	C **EDTI Response**	D **Resolutions**
	(Goodfish) Lake First Nation's business entity) on Feb 2, 2023 and Jan 29, 2025. No project-specific concerns were expressed at either meeting.	not specific to the CETR Project. At the Jan 29, 2025 meeting, EDTI provided a Project update, including EDTI's plans to file the Facility Application in the next few months, and the anticipated timeline for construction commencement in 2026.	summary of the two meetings with Goodfish Lake Business Corporation, and provided an update on timing for filing of the Facility Application. EDTI offered further opportunities for engagement on the Project, specifically with Whitefish (Goodfish) Lake First Nation. The Whitefish (Goodfish) Lake First Nation has not responded to that communication. EDTI remains open to responding to any project-related concerns Whitefish (Goodfish) Lake First Nation may express.

***Note:** In 2023, the Métis Nation of Alberta (MNA) became the Otipemisiwak Métis Government (OMG), and the former MNA regions were redesigned into OMG districts. In the absence of updated direction from OMG Provincial Office about preferred consultation contacts for the new OMG districts, EPCOR elected to notify the former regional offices using the latest contact information available. This is in addition to our direct notification to and engagement with the OMG Provincial Office.

6.4 Participant Project Feedback (TS36)

326. EDTI's PIP included the distribution of Project Specific Information Packages (PSIPs) to thousands of stakeholders and personal consultation with all stakeholders that are directly adjacent to the transmission line route options or substation site location.

327. EDTI made an effort to respond to all questions and concerns about the Project. Generally, EDTI's approach to resolving concerns involved sharing information in an effort to provide additional details about the issue and to alleviate the concern. This included sharing information verbally (phone or in-person), through e-mail, mail or text. Feedback gathered as part of the PIP was recorded and tracked in EDTI's Stakeholder Tracking System (STS). Provided below is a summary of common questions and concerns raised by stakeholders and the information EDTI provided to resolve those concerns.

6.4.1 EMF

328. Approximately 125 stakeholders expressed concerns regarding the potential impacts of electric and magnetic fields (EMF) on human health.

329. EDTI recognizes there are people concerned about EMF, which exists everywhere there is electricity. As an electricity distributor, EDTI takes those concerns very seriously and is guided by EMF research that is compiled and reviewed by reputable national and international health agencies, including Health Canada and the World Health Organization.

330. During the first round of consultation, EDTI provided information on EMF through phone, email, and mail. Stakeholders were provided information on EMF and a link to EPCOR's EMF webpage (www.epcor.com/EMF) that contains information from Health Canada, World Health Organization, Electricity Canada, and the National Institute of Environmental Health Science. Stakeholders could also request this information by mail.

331. To provide additional information, EDTI reached out to a third-party specialist (Exponent Inc.). Exponent Inc. attended the virtual information sessions in January and February 2023 to answer questions on EMF and health. Exponent Inc. also provided a summary of the research and developed projections for both aerial and underground options. This information was outlined in a brochure created by Exponent Inc. (Appendix L-8 Exponent Inc. EMF Brochure) and included in PSIP-4. EDTI sought to provide or offer additional information on EMF throughout the PIP, when required.

6.4.2 Property Value

332. EDTI received feedback from 110 stakeholders who expressed concern that the transmission line would impact property value.

333. EDTI provided information to stakeholders that describes EDTI's routing and siting practices that aim to identify route options that minimize potential impacts on property value, such as proposing options that follow existing features (i.e., highways and berms), and by increasing distance between the transmission line structures and residential properties where possible.

334. To provide additional information in response to concerns on property value, EDTI retained a third-party expert (Serecon Inc.) to evaluate the potential effects of high voltage transmission lines on residential property values within the City of Edmonton and to discuss potential property value impacts on residential properties from the Project. The property value report prepared by Serecon Inc. is included as Appendix N.

335. For the Preferred 72kV Route and the Alternate 72kV Route, Serecon Inc. concluded that due to the distance from the structures and the existing linear disturbances along the routes, no property value impacts are anticipated. For both the Preferred and Alternate 240kV Routes, Serecon concluded that it would not result in any property value impacts to adjacent properties as the lines will be wholly (in the case of the Preferred Route) or mainly (in the case of the Alternate Route) underground. For the above ground portion of the Alternate 240kV Route, no property value impacts are expected due to the large distance between the above-ground structures and the potentially affected residential properties.

336. Information from this report will be provided to stakeholders who expressed concerns regarding property value by mail and email, when available.

6.4.3 Safety

337. Approximately 40 stakeholders expressed concerns with safety of above ground transmission lines (both 240kV and 72kV).

338. EDTI provided information on how safety will be incorporated in the planning process and information on specific safety concerns. Part of this process involved meeting with the City of Edmonton to identify areas near Yellowhead Trail that may require mitigation measures, such as a barrier system for above ground transmission structures, as well as following all required design

guides and roadway requirements. Specific impacts, including potential traffic disruptions, will be identified ahead of construction. EDTI will work closely with the City of Edmonton to mitigate construction impacts as much as possible.

339. Some stakeholders expressed concerns about increased fire risk. EDTI responded that increased fire risk is not anticipated as a result of the proposed above ground or underground transmission lines. Sparks may occur if vegetation comes into contact with an energized power line; to prevent this, EDTI has a robust vegetation management program to ensure branches and other vegetation remain a safe distance from the wires.

340. Some stakeholders expressed concerns regarding an above ground transmission line being affected by severe weather events. EDTI responded that, like any major infrastructure, the potential exists for it to be affected by severe weather. EDTI is accustomed to responding when severe weather conditions arise and will ensure the safety of surrounding areas as quickly as possible in the event of an incident. The proposed 240kV structures are tubular steel and will be installed with appropriately designed foundations to prevent them from being dislodged. In the unlikely event of equipment failure, EDTI personnel are trained to quickly respond to ensure the safety of surrounding areas. EDTI maintains an appropriately sized ROW and restricts development in these areas to ensure the area around its transmission lines is safe.

6.4.4 Environment

341. Approximately 80 stakeholders expressed concerns about potential impacts on the environment. Typical topics of questions and concerns included removal of trees, impacts to walking trails, impacts to Hermitage Park, and the possible new river crossing (required for the Alternate 240kV Route).

342. EDTI responded that environmental assessments for this Project are underway to identify potential impacts. These assessments will be used to create an Environmental Protection Plan, which contains site-specific mitigation measures. EDTI aims to minimize impacts by identifying route options that follow existing linear developments such as roadways, berms and trails.

343. Stakeholders expressed concerns about impacts to trails and recreational areas. EDTI responded that potential impacts to recreational areas will be assessed, and appropriate mitigation measures developed as necessary. EDTI anticipates that potential impacts to recreational areas and trails will be temporary during construction and will end once construction of the transmission lines is complete.

6.4.5 Visual

344. Approximately 100 stakeholders expressed concerns with the visual impact of an above ground transmission line.

345. To demonstrate what the proposed transmission lines will look like, visual renderings were developed for various points along the route options. These visual renderings were made available online[48] and a sample was included in PSIP-4. EDTI provided information on how to access the visual renderings to stakeholders who expressed concerns with the visual impact of an above ground transmission line.

346. The proposed underground configuration of the Preferred 240kV Route would resolve approximately 95 of the 104 concerns regarding visual impact of an above ground transmission line.

6.4.6 Noise

347. Approximately 40 stakeholders expressed concern with noise from an above ground transmission line.

348. EDTI responded that generally, noise is not noticeable from a 72kV or 240kV transmission line. A faint buzzing noise from the line during rainy weather, however, is typically only audible within the right-of-way corridor.

6.4.7 Construction Impacts

349. Approximately 50 stakeholders expressed concerns regarding construction impacts, including vehicle/equipment traffic, noise, impacts to Yellowhead Trail, and power outages.

350. EDTI responded that specific impacts, including potential traffic disruptions, would be identified ahead of construction and mitigated to the extent possible. EDTI will work closely with the City of Edmonton to mitigate construction impacts to the extent possible.

[48] https://epcor-cetr.truescape.com/1.8.0/index.html#/welcome

351. During construction, EDTI will prioritize access points off major roadways and limit access through residential areas. The Preferred 240kV route is expected to have less impacts to residential communities since construction access will be off Yellowhead Trail.
352. During construction, temporary power outages may be required to allow the construction work to be completed safely. EDTI understands outages are an inconvenience and will work with affected customers to minimize the impact of the outages and ensure customers are notified in advance.

6.4.8 Cost

353. Approximately 35 stakeholders expressed concerns regarding the Project cost, and six stakeholders said the lowest cost option should be selected.

354. EDTI shared information that the AESO oversees the planning, maintenance, and operation of the transmission grid and the cost for this is paid for by all Alberta electricity consumers, highlighting the following points:

- These costs are identified as the transmission charge on a power bill and includes costs associated with system projects such as the CETR Project. EDTI provided the AESO contact information (i.e. 1-888-866-2959 or stakeholder.relations@aeso.ca) to those wanting information about transmission costs in Alberta.
- Transmission development is also regulated by the AUC to ensure reasonable rates along with safe and reliable service. With this in mind, EDTI plans projects to minimize costs to ratepayers.
- High-level cost estimates for the Project were provided in PSIP-4. Updated information was provided in response to stakeholders' inquiries received after PSIP-6, which included the following high-level cost estimates that were available at the time:
    - Project cost with 240kV above ground routes - $337 million
    - Project cost with a 240kV underground route - $392 million
    - Project cost with 240kV hybrid route options - $392-400 million

6.4.9 Feedback on 240kV Route Options - Underground

355. There were 144 stakeholders provided feedback that the transmission line should be underground (Preferred 240kV Route). Reasons stakeholders preferred an underground route included:

- **Avoids potential property value impacts**. Stakeholders expressed concerns regarding impact to their property value due to the transmission line.
- **Avoids visual impacts of the transmission structures** (including the removal of vegetation on the berm on the south side of Yellowhead Trail and in Hermitage Park). Stakeholders expressed concerns that the removal of trees along the berm would increase noise and increase the visual impact of Yellowhead Trail. The trees are a valued feature of the berm, which is used as a recreational area.
- **Avoids potential impacts to the environment.** Stakeholders expressed concerns regarding tree removal, the potential impacts of a river crossing, and impacts to birds.
- **Addresses potential safety issues.** Stakeholders expressed concerns regarding damages to the line due to severe weather events, increased fire risk, and collisions from Yellowhead Trail.
- **Resolves concerns regarding health effects.** EDTI provided information from reputable health agencies as well as Exponent Inc. to address concerns regarding EMF. However, many stakeholders remained concerned about EMF after receiving this information and preferred an underground route to minimize EMF from the transmission line.
- **Maximize distance from residences.** Many stakeholders provided feedback to maximize distance between the transmission line and residential properties. The Preferred 240kV Route provides the most distance from residential properties.

6.4.10 Feedback on 72kV Route Options

- **Maximize distance from residences**. Stakeholders provided feedback to increase the distance between the 72kV transmission line and residential properties. In response to feedback, EDTI retired the initial route option adjacent to 127 Avenue which was closest to residences.
- **Limit impacts from construction**. Stakeholders provided feedback to reduce impacts on commercial properties including the requirement for outages. EDTI retired the 72kV S1

route segment which reduces the amount of power outages required. EDTI's preferred route will reduce construction impacts and easement requirements for participants along 67 Street.

7.0 ECONOMIC ASSESSMENT

7.1 Project Cost Estimates (TS37)

356. The estimated cost of the Project with the Preferred 240kV and 72kV Routes is $393.15 million. Cost estimates for the Project with various combinations of the Preferred and Alternate 240kV and 72kV route segments are provided in Table 7.1-1 below. Detailed cost estimates for all configurations in the format specified in AUC Rule 007 are included in Appendix Q. All cost estimates are reflected in 2024 dollars and have an AACE class 3 accuracy (+20% / -10%) as per Section 504.5 of the ISO Rules and AESO Information Document #2015-002R, Service Proposals and Cost Estimating. EDTI confirms that the cost estimates are within the accuracy range of the AACE class 4 cost estimate (+50% / -30%) provided as part of Proceeding 28633[49], despite the change to the Preferred underground configuration for the 240kV segment of the line, increased forecast AFUDC due to supply chain issues, increased contingency amounts and increased estimated costs related to the substation following the development and progression of design.

Table 7.1-1
Cost Estimates for Preferred and Alternate Routes, $2024
Project AACE Class 3 (+20%/-10% accuracy)

		A
	Route Description	Class 3 Estimate[50]
1	Preferred 240kV Route and Preferred 72kV Route	$ 393,145,543
2	Preferred 240kV Route and Alternate 72kV Route	$ 397,182,755
3	Alternate 240kV Route and Preferred 72kV Route	$ 390,240,300
4	Alternate 240kV Route and Alternate 72kV Route	$ 394,277,512

357. During the development of the Service Proposal submitted to the AESO on November 1, 2024, EDTI identified unprecedented long lead times for the delivery of major substation equipment, thereby delaying the in-service date for the Project and affecting the reliability of the transmission system as described in Section 2.19 above. The Service Proposal included an overall project cost estimate of $401,187,483, and an overall project in-service date of June 1, 2030. In light of the long lead times for major substation equipment, EDTI requested from the AESO an

[49] Exhibit 28633-X0004, Appendix C - TFO Cost Estimates.
[50] Cost Estimates assumes receipt of Section 25.2 advanced procurement direction.

advanced procurement direction pursuant to Section 25.2 of the Transmission Regulation. With this direction, EDTI will be able to advance the project's in-service-date to June 1, 2029 as discussed in Section 2.1 of this Application and reduce the overall project cost by approximately $8 million as compared to the Service Proposal cost estimate. This cost reduction is reflected in the amounts in Table 7.1-1 above.

358. The AACE class 3 cost estimate provided in this Application is $121.48 million higher than the AACE class 4 cost estimate provided as part of Proceeding 28633[51]. Using the Preferred 72kV and 240kV Routes shown in row 1 of Table 7.1-1 above, the differences are primarily comprised of the following:

- A $56.92 million increase in transmission line costs consisting of the following:
  - A $52.24 million increase in 240kV line costs due to the change from an overhead to an underground route as described in Section 2.16.3.2 above and the Siting Technical Report (Appendix F-2, Section 5.4.2). For the cost estimate provided in Section 7, EDTI engaged vendors for material costs and a reputable construction contractor to assist in developing the Class 3 cost estimate. The 240kV transmission line costs provided in the NID were unit costs per km, based on the AESO benchmarking tool with approximate adjustments for urban features, as discussed in Proceeding 28633[52].
  - A $4.68 million increase in 72kV transmission line costs reflecting routing refinements as discussed in the Siting Technical Report in , and progress made in preliminary design. EDTI engaged vendors for material costs and a reputable construction contractor to provide the class 3 cost estimate. The 72kV transmission line costs provided in the NID were unit costs per km, based on the AESO benchmarking tool with approximate adjustments for urban features, as discussed in Proceeding 28633[53].
- A $24.93 million increase in other costs including AFUDC and E&S[54] resulting from proportionally higher overall costs as well as a one-year delay to the in-service date compared to the NID due to supply chain challenges;

[51] EDTI revised its original cost estimate for Option 4 of $270.7 million (28633-X0004 - Appendix C - TFO Cost Estimate, pdf 5) in EDTI AESO-AUC-2024JAN12-0001 to 012 (28633-X0025, pdf 72) to correct the escalation amounts. The revised cost estimate of Option 4 in Proceeding 28633 was $271.7 million.
[52] 28633-X0065 EDTI AESO-CCA-2024APR08-007, PDF page 86.
[53] 28633-X0065 EDTI AESO-CCA-2024APR08-007, PDF page 87.
[54] EDTI described its approach to calculating E&S (Engineering & Supervision) in 28633-X0025 EDTI AESO-AUC-2024JAN12-0001 to 012, PDF page 26.

- A $19.97 million increase in contingency that is generally associated with the increase in overall costs described in this section. Contingency as a percentage of overall project costs is relatively similar. EDTI described its approach to developing contingency in proceeding 28633[55]. The increase in contingency levels reflects updates to the risk register, risk probability and cost impacts based on information learned during preliminary design, routing and siting, as well as input from reputable construction contractors and subject matter experts.
- A $9.48 million increase in substation costs based on updated costs reflecting progress in preliminary design resulting in updated Labour and Supply & Install costs. EDTI engaged a reputable construction contractor and internal subject matter experts to provide the class 3 cost estimate based on the preliminary design.
- A $5.97 million increase in owners costs consisting of the following:
  - A $2.5 million increase in additional internal labour and consultant costs to support the increased routing and siting and engineering efforts described in more detail below, and to manage the proposed project over a longer than anticipated project development timeline with greater than expected complexity, including development of underground routes.
  - A $1.2 million increase in engineering consulting costs reflecting required work that was not contemplated at the time of the NID estimate, including:
    - $0.75 million related to preliminary engineering for underground transmission line routes, and
    - $0.45 million related to specialized engineering related to AC railway interference and mitigation studies required for the Project.
  - A $0.75 million increase in routing and siting effort related to ongoing route refinement as described in Section 2.16, including:
    - $0.40 million associated with additional PIP effort related to undertaking additional stakeholder notification and consultation for new routes, and
    - $0.35 million associated with additional routing and siting consultant effort.
  - A $0.40 million increase in regulatory support costs that had not previously been contemplated, including
    - $0.20 million in labour costs necessary to support AESO NID Proceeding 28633, and

[55] 28633-X0025 EDTI AESO-AUC-2024JAN12-0001 to 012, PDF pages 22-23.

    - $0.20 million in Facility Application proceeding resources due to unanticipated increased complexity of the facility application.
  - A $0.29 million increase due to an omission in the NID estimate in Proceeding 28633 for Pre-Service Proposal costs. These costs were for support and development of an AESO directed project, P7008[56]. This project was cancelled in 2021 when the AESO deferred the system upgrades by directing EDTI's distribution function (DFO) to implement a distribution solution to defer the Project.
  - A $0.83 million amount for unanticipated developments.
- A $3.17 million increase in salvage costs, including:
  - $2.47 million in transmission line salvage based on updated scope refinement. EDTI engaged a reputable consultant to provide detailed cost estimates of salvage activities.
  - $0.69 million in substation salvage based on quotes provided by consultants.
- A $2.28 million increase in distributed costs[57] due increases in estimates for Project Management related costs resulting from detailed analysis of execution needs for the CETR project. Costs provided in the NID were unit costs per km, based on the AESO benchmarking tool.
- A $0.12 million increase in anticipated substation land costs based on continued environmental testing and progress made in preliminary design. EDTI engaged a reputable environmental company to support the development of remediation scope as discussed in Sections 3.3.2 and 7.2.

359. These increases are partially offset by the following decreases
- A $1.24 million reduction in land easements largely based on 72kV routing refinements as discussed in the STR provided in Appendix F-2, and
- A $0.12 million decrease in telecommunication costs reflecting a refined the class 3 cost estimate for the preliminary design.

[56] The AESO initially assessed the transmission system constraints for CETR under project 7008. EDTI worked with the AESO and identified an opportunity to implement a distribution-based solution which ultimately changed the original scope of P7008. A new project, P7078, was created to address the system constraints previously identified in P7008.

[57] Distributed costs are a cost category on the AESO's cost estimate template that include procurement management, project management, construction management, contingency and escalation.

7.2 Substation Land Acquisition

360. As described in Section 2.16.2, the proposed substation site was selected as the most suitable and cost-effective location as it was of adequate size and shape to accommodate the substation site, required no existing building removal, was adjacent to the Yellowhead Trail corridor, was in close proximity to the Kennedale substation, and the landowner was willing to sell the land to EDTI despite interest from other potential purchasers.

361. The following is an overview of the land acquisition process that EDTI undertook to complete its due diligence on the property and subsequently purchase the property from the previous owner.

362. Following the selection of the site as the preferred substation location, EPCOR's Facilities and Real Estate team engaged Gettel Appraisals ("Gettel") to conduct a valuation analysis and Coldwell Banker Richard Ellis ("CBRE"), a commercial real estate group, to complete a detailed market analysis of the preferred site. EPCOR was intentional about the timing of land purchase and sought to enter into negotiations with a vendor well before there was any public announcement about the larger study area for the Project. The Gettel appraisal assessed the property at a value of $6.525 million. CBRE assessed the property's market value between $7.6 million and $9.5 million based on comparable properties of similar size and market trends. EDTI entered into negotiations with the site owner during which it became apparent that the market analysis by CBRE represented a viable price range. A purchase price of $7.5 million, an amount which was at the lower end of the range recommended by CBRE, was agreed to subject to removal of conditions.

363. One of the conditions of the land purchase provided EDTI with the opportunity conduct investigations to determine the suitability of the property. To this end, EDTI initiated a Phase I Environmental Site Assessment (ESA) which identified a number of concerns with the site such that a Phase II ESA was recommended. The Phase II ESA, which included field assessments, identified contamination on site and provided an estimate of costs for remediation of that contamination.

364. In Alberta, contaminated sites are required to meet Alberta Tier I or Tier II Soil and Groundwater Remediation Guidelines or to complete a formal risk management assessment of and develop a site-specific plan to address the contamination. Tier I Guidelines are generic remediation guidelines that are developed to be protective of sensitive receptors for a given land use. Tier II Guidelines are considered to be equally protective of sensitive receptors but allow for modification of the guideline based on site-specific conditions, while a Risk Management Plan ("RMP")

provides a procedure for exposure-control measures to ensure risks to human health and the environment from contaminants of potential concern ("CoPCs") are being managed at the site. Actions must be taken to ensure exposure-control measures are implemented and maintained according to the requirements of the RMP and throughout the lifetime of the RMP.

365. Given the industrial nature of the area, the characteristics of the contamination, as well as the proposed use for the land, EDTI determined that it would seek to develop a Risk Management Plan for the site. Contamination at the Fort Road substation site will be reduced through targeted remediation (i.e., where there are CoPCs higher than what can be safely risk managed, these areas will be remediated). The development of the above-mentioned RMP with administrative controls will be completed and submitted to AEPA for approval. The cost to remediate the site just prior to the purchase was estimated at approximately $1.8 million. In September 2024, after additional assessments were completed, the updated costs for remediating the preferred site were estimated to be within the range of $1.8 million to $3.2 million.

366. In light of the contamination and the estimated $1.8 million cost to remediate the property, EDTI re-evaluated its selection of the preferred site. This process involved further investigation into the following alternatives:

- Consideration of an alternate substation design: EDTI considered the option of changing the design of the substation from an air-insulated substation to a gas-insulated switchgear option substation to be able to reduce the substation footprint and use a smaller land parcel. EDTI determined, however, that if it designed the new substation using gas-insulated switchgear, the total equipment cost would increase by approximately $18 million.
- A re-review of site options previously rejected: EDTI revisited the potential purchase of an alternate available property. This option was rejected as the land was located in a more challenging zoning area and was priced substantially higher at $11.2 million.
- A refreshed search for an alternate site: EDTI searched to determine if any new properties were listed for sale within the target area and determined that no new properties were available.

367. Following the completion of this additional investigation, EDTI concluded that its selection of the preferred site would result in the lowest overall project cost. Accordingly, EDTI determined that it would offer a lower purchase price due to the site remediation required. EDTI made an offer much lower than the agreed upon price but, due to market conditions putting upward pressure

on the original appraised value and the fact that the vendor had another interested purchaser, agreed to a final sale price of $6.9 million for the substation land (as compared to the original offer of $7.5 million). Given the locational advantages of the preferred site, the lack of other viable alternatives, the strategic need to negotiate a purchase prior to the Project becoming public knowledge, and the presence of an alternate purchaser for the site, EDTI considers that the purchase of the preferred site for the amount of $6.9 million was the lowest cost alternative for the Project.

368. The purchase of the substation site was completed on December 16, 2022 when the conditions were lifted. The total cost of the site is approximately $8.7 - $10.1 million, which includes the $6.9 million purchase price for the site plus estimated remediation costs of $1.8 - $3.2 million. The name selected for the new substation location is Fort Road substation.

369. EDTI completed additional environmental assessment on the property after the initial work completed in 2022. More information on this work, including EDTI's planned approach to address the historical contamination is provided in Section 3.3.

8.0 MARKET PARTICIPANT CHOICE (TS38)

370. Not applicable, as the applicant is not a market participant applying under Section 24.31 of the *Transmission Regulation.*

9.0 ENERGY STORAGE FACILITIES (TS39 & TS40)

371. Not applicable, as the applicant is not a requesting any energy storage facilities as part of this Project or Facility application.