

ENMAX SOUTHEAST SUBSTATION

Safety Enhancement Project



PROJECT OVERVIEW

ENMAX Power Corporation (ENMAX) owns and operates ENMAX No. 32 Substation (No. 32 Substation) which is located along the banks of the Bow River near the intersection of Deerfoot Trail and Bow Bottom Trail in Southeast Calgary. A portion of the outdoor electrical equipment (switchgear) poses an operational safety risk to our crews and this risk needs to be addressed. Additionally, No. 32 Substation is located in the Bow River floodway and was completely isolated by water during the 2013 Calgary flood event. ENMAX is proposing two project options to address the safety concern and ensure the continued reliability of our transmission system (the Project).

In October 2020, ENMAX applied to the Alberta Utilities Commission (AUC) with a proposal to resolve the safety concern at No. 32 Substation by building a new substation outside the Bow River floodway, located in Quarry Park. This proposed substation is referred to as ENMAX No. 45 Substation (No. 45 Substation). On March 2, 2021, the AUC denied ENMAX's application and directed ENMAX to file a new application to resolve the No. 32 Substation safety concern. All documents related to the previous proceeding can be found on the AUC's website under proceeding number **25934**.

PROJECT OPTIONS

ENMAX plans to file an application with two options for the AUC to consider, and each option will require a different level of flood mitigation. If the No. 32 Substation project option is approved, flood mitigation will be built to a one in 350-year flooding event. If the No. 45 Substation project option is approved, flood mitigation will be built to a one in a 100-year flooding event.

PROPOSED SCHEDULE

ENMAX plans to file a Facility Application to the AUC in March 2022. Subject to receiving approvals and procuring materials, construction of the No. 32 Substation option is anticipated to begin in Q1 2025. Project construction is anticipated to take approximately 22 months with a proposed in-service date of Q4 2026.

If the No. 45 Substation is approved, construction is anticipated to begin in Q3 2023 and is anticipated to take approximately 20 months with a proposed in-service date of Q2 2025.

ENMAX will provide notification to impacted stakeholders in advance of construction.

**For more than 100 years,
ENMAX has delivered safe and
reliable electricity in Calgary.**

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NO. 32 SUBSTATION MODIFICATION AND FLOOD MITIGATION

The existing control building currently located at the northwest corner of the substation will be replaced with a new building positioned at the northeast corner of the substation. This new building will include all new equipment and house a portion of the existing switchgear currently located outside. This work is expected to be fully contained within the existing substation fence line and legal boundary.



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Safety Enhancement Project

FLOOD MITIGATION OPTIONS

Additionally, ENMAX will complete flood mitigation work at No. 32 Substation to protect the west bank from further erosion and high flood waters to ensure the continued safe and reliable operation of the facility. ENMAX is proposing two flood mitigation concepts for the AUC's consideration.

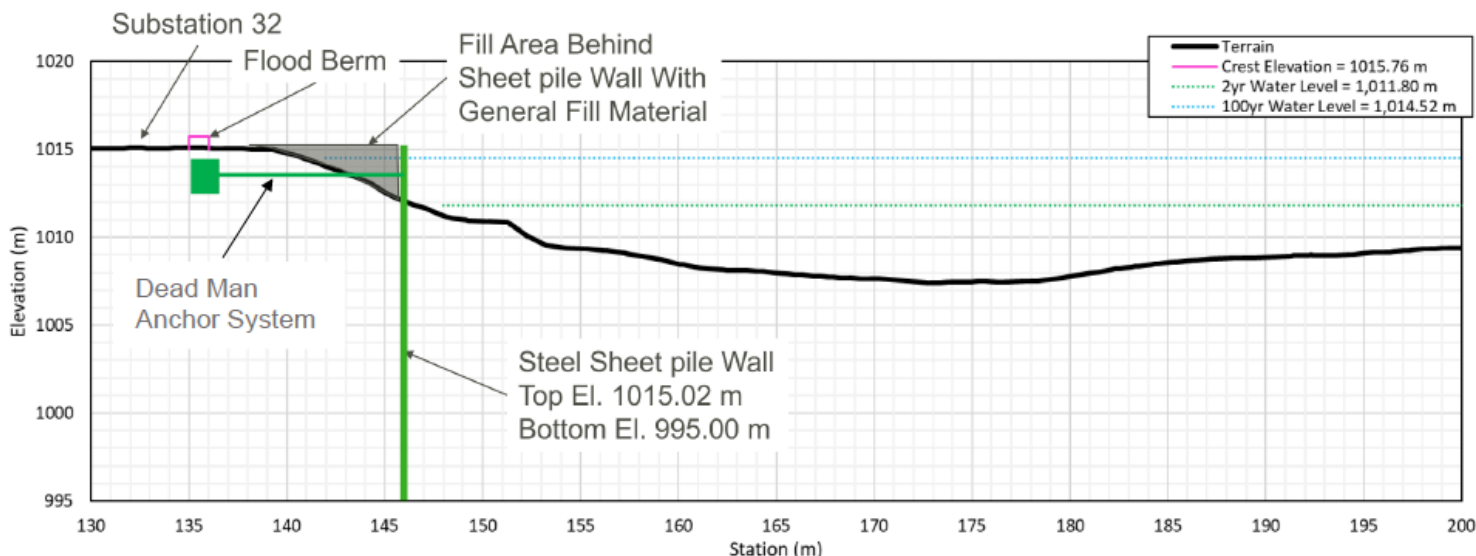
Flood Mitigation Option #1: Steel Sheet Pile Wall

A steel sheet pile wall will be constructed along the riverbank, to provide additional protection along the Bow River. This also includes constructing concrete tie-ins between the sheet pile wall and existing lock block flood berm at the north and south ends of the sheet pile wall. ENMAX does not anticipate being directly in the Bow River for this work to be completed, and ENMAX will obtain all municipal, provincial and federal approvals that are necessary to facilitate the flood mitigation work.

Sheet pile wall: A steel wall that is built to retain earth, water, or any other filling material.

Concrete tie-ins: Used in the forming of the sheet pile wall to maintain equal space between the concrete forms.

Flood berm: A barrier constructed along the perimeter of the substation to protect land from flooding or eroding.



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Safety Enhancement Project



Example of Sheet Pile Wall construction



Example of Sheet Pile Wall

Riprap: Intentionally placed rock used to protect shoreline structures against scour and water erosion.

Self-launching apron:

Riprap placed at the toe of the bank is referred to as a self-launching apron. In the event of a flood, the riprap will fill voids that are caused by the removal of sediment to provide scour protection.

Groynes:

Built perpendicular to the shoreline of a river, groynes interrupt water flow and limit the movement of sediment, which slows down the process of erosion.

PROPOSED NO. 45 SUBSTATION AND REDUCED FLOOD MITIGATION AT NO. 32 SUBSTATION

For this option, ENMAX would construct a new substation with a new 800 metre transmission line to connect to the current transmission system. The new No. 45 Substation would be located approximately 800 metres northeast of 24 Street SE and Quarry Park Blvd SE and would include:

- a new substation building,
- one outdoor 50 MVA 138/13.8kV transformer,
- four outdoor 138kV breakers; and,
- medium voltage (MV) air-insulated switchgear and associated auxiliary protection and control systems located inside the building.

For this option, ENMAX would also complete flood mitigation work at No. 32 Substation. ENMAX proposes the same two options for flood mitigation but this work would be built to withstand a one in a 100-year flooding event, as there will be less equipment to protect at the No. 32 Substation.

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NEW AND EXISTING TRANSMISSION LINES

For the No. 45 Substation option, ENMAX will build a new 800 metre double-circuit 138kV overhead transmission line consisting of eight new self-supporting steel monopoles (monopoles). The monopoles, consisting of double circuit dead-end, single circuit dead-end, and double tangent monopoles, will range from approximately 20 to 40 metres in height. Three existing wood transmission poles (wood poles) on transmission line 138-31.84L will be replaced with one single circuit and two double circuit dead-end monopoles ranging from approximately 20 to 30 metres in height.



Proposed double circuit dead-end monopole



Proposed single circuit dead-end monopole



Proposed double circuit tangent monopole

CONSTRUCTION METHODS

Temporary access accommodations and road closures may take place periodically during construction. All flood mitigation work will be completed within our project boundary and ENMAX will obtain all required approvals to complete the required work in the Bow River.

ENMAX will work with stakeholders and the City of Calgary to minimize the impact to residences, businesses, and commuters in the area. There are no planned power outages that would impact customers during project construction.

NOISE IMPACT ASSESSMENT

ENMAX is not required to complete a noise impact assessment (NIA) for the option at No. 32 Substation because a noise producing transformer will not be installed. However, ENMAX will update the previous NIA completed for the No. 45 Substation option as part of the application in proceeding number **25934** through equipment modeling. This update will meet the requirements of AUC Rule 012: Noise Control.

Transformer: Equipment that reduces the high voltage electricity coming in through transmission lines, to a much lower voltage suitable to send out on distribution wires.

Breaker: Interrupts the flow of electricity when unexpected surges or faults occur in order to protect the system from damage, similar to the breakers in the main service panel of your home.

Switchgear: Switchgear buildings house electrical equipment like cables, switches and breakers. Switchgear building ensure the equipment is protected from weather damage so that a reliable source of electricity is available for years to come.

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COMMITMENT TO COMMUNITY

ENMAX is committed to being a responsible corporate neighbour. Our commitment includes providing timely and meaningful engagement with stakeholders about projects. We provide opportunities for residents, occupants and landowners to be informed about projects, and to engage with us from the planning phase through construction.

ABOUT ENMAX CORPORATION

Headquartered in Calgary, Alberta, with operations across Alberta and Maine, ENMAX Corporation (ENMAX) is a leading provider of electricity services, products and solutions. Through its subsidiaries, ENMAX Power Corporation and Versant Power, ENMAX owns and operates transmission and distribution utilities in Calgary, Alberta and northern and eastern Maine, safely and reliably delivering electricity to all Calgary homes and businesses and more than 159,000 customers in Maine. Through ENMAX Energy Corporation, ENMAX owns and operates 1,512 MW of generation and offers a range of innovative electricity, natural gas and energy services to more than 690,000 residential, commercial and industrial customers across Alberta. ENMAX is a private corporation and The City of Calgary is its sole shareholder.

CONTACT INFORMATION

Your input is valuable to us. We will ensure you get answers to your questions and your concerns are understood. For more information about the proposed Project, please contact:

ENMAX POWER CORPORATION

Phone: 403-514-1471

E-mail: stakeholderrelations@enmax.com

Website: enmax.com/SESsubstation

To learn more about the regulatory process, please contact:

ALBERTA ELECTRIC SYSTEM OPERATOR

Phone: 1-888-866-2959

Email: stakeholder.relations@aeso.ca

Website: aeso.ca

ALBERTA UTILITIES COMMISSION

Phone: 403-310-4282

Email: info@auc.ab.ca

Website: auc.ab.ca

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Safety Enhancement Project

NO. 32 SUBSTATION

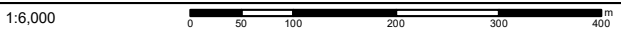


Southeast Substation Safety Enhancement Project

No. 32 Substation Modification

Newsletter Map

- Legend**
- Existing Substation
 - Fence line
 - Project Boundary
 - ATS Quarter Section Fabric
 - Buildings
 - Hydrology
 - Natural Area



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Data sources:
Civil and Circuity; ENMAX 2021;
Landbase; City of Calgary 2021.

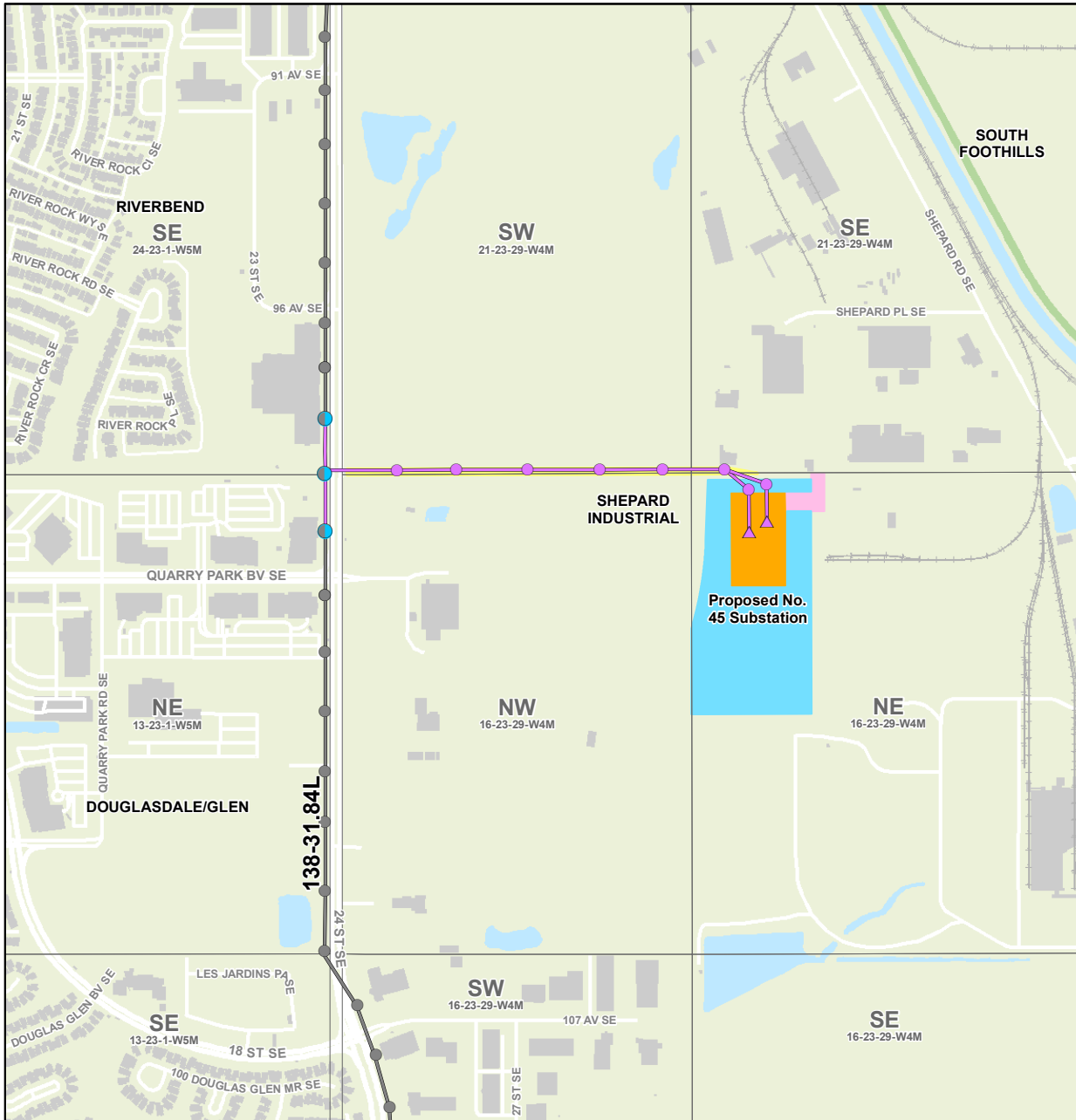
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Safety Enhancement Project

PROPOSED NO. 45 SUBSTATION



<p>Southeast Substation Safety Enhancement Project</p> <p>Proposed No. 45 Substation and Transmission Line Development</p> <p>Newsletter Map</p>	<p>Legend</p> <table border="0"> <tr> <td>Transmission Structures</td> <td>Routes</td> <td>Proposed No. 45 Substation</td> <td>Railway</td> </tr> <tr> <td>● Existing 138-31.84L Wood Pole</td> <td>— Proposed Transmission Line Route</td> <td>■ 138 kV Transmission Line Right of Way</td> <td>— Railway</td> </tr> <tr> <td>● Existing 138-31.84L Wood Pole to be Replaced with Monopole</td> <td>— Existing 138-31.84L Transmission Line Route</td> <td>■ Access Road</td> <td>□ ATS Quarter Section Fabric</td> </tr> <tr> <td>● Proposed Monopole</td> <td></td> <td>■ Property</td> <td>■ Buildings</td> </tr> <tr> <td>▲ Proposed Substation A-Frame</td> <td></td> <td>■ Proposed Substation Location</td> <td>■ Hydrology</td> </tr> <tr> <td></td> <td></td> <td></td> <td>■ Natural Area</td> </tr> </table>	Transmission Structures	Routes	Proposed No. 45 Substation	Railway	● Existing 138-31.84L Wood Pole	— Proposed Transmission Line Route	■ 138 kV Transmission Line Right of Way	— Railway	● Existing 138-31.84L Wood Pole to be Replaced with Monopole	— Existing 138-31.84L Transmission Line Route	■ Access Road	□ ATS Quarter Section Fabric	● Proposed Monopole		■ Property	■ Buildings	▲ Proposed Substation A-Frame		■ Proposed Substation Location	■ Hydrology				■ Natural Area	
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