Xcel Energy®

Transmission

Summary of Project Parts

Doc# G-PM-SOP

Date: 10/18/2024

This is a summary of known project parts and the information provided is the Owner's best estimate of cost and lead-time from WO approval for each project. However, there are many factors that influence actual costs and these duration estimates, such as: construction requirements of permitting authorities to secure approvals; unexpected increases in material costs; unexpected increases or changes in labor charges; permitting authorities and required siting approvals; inclement weather and other acts of god; equipment delivery; company and non-company labor scheduling and availability; ability to schedule outages on Xcel Energy's and other electric companies' electric systems; emergencies occurring on Xcel Energy's or other electric companies' systems; and other factors not specifically identified. A proposed system One-line diagram is attached to this summary. This Summary of Project Parts will be included with the detailed project scoping documents and estimates as they become available for each part identified below.

Overall Project Manager: Josh Tomlinson
Overall In-Service Date: 12/31/2026
Overall Project Scope: This project on Line 0710, 69kV, includes installing a new stub pole northeast of the existing structure 0710-3 to create additional clearance from the bike path. This project is located in Cannon Falls, MN and is reimbursable.
Operating Company: NSPM

Included in this pkg.	Item #	L4 WBS	L5 WBS	PM WO	Description	Proj. Engineer	Requested In-Service Date	Estimated Capital Cost	Estimated O&M Cost	Est. Type
☒	1	A.0000276		TBD	0710-3 Guy Reloc	HDR	12/31/2026	$139,688	$0	B
☐	2									
☐	3									
☐	4									
☐	5									
☐	6									
☐	7									
☐	8									

Total Project Lead-time (mo.): 6 mo.

Total Net Expenditure (TNE) of All Capital Parts + AFUDC:* $139,688

Total Net Expenditure (TNE) of All O&M Parts:*

* The TNE is the total cost of all projects listed that have costs completed to date. The accuracy of the TNE will be dependent on the estimate type indicated beside each line item. See below for estimate accuracy.

Estimate Type Legend
B = Budget Estimate
C = C2 Estimate Update
I = IFC Estimate Update
A = Actual Cost (Complete and In-Service)
NC = Estimate not yet available (Estimate will indicate $0 until an estimate type is provided.)

Scoping Estimate – External
Revision 0

A "Scoping Estimate" is provided by Xcel Energy for the convenience of the requesting entity (Requester). It is produced before engineering design has been completed and in many instances, before any engineering design has begun. Xcel Energy will make every effort to produce a representative estimate that incorporates as many project-specific factors as possible. However, a Scoping Estimate is generally based on typical conditions encountered on past construction projects and uses historical cost data from other Xcel Energy projects, which may or may not be directly comparable. A Scoping Estimate will only give a broad-based estimate of the possible costs that may be incurred during a potential construction project. Xcel Energy will not proceed to construction based on a Scoping Estimate.

Requester Name: Al Singer, Real Estate Manager Phone 952-891-7001
Address: Dakota County Administration Fax 952-891-7031
14955 Galaxie Ave.
Apple Valley, MN 55124-8579

The Requester should review the information detailed below and notify Xcel Energy in writing as soon as possible if anything in the preliminary scope or these assumptions is incorrect.

Project Information:

Transmission Line:	0710-3 to Cannon Falls Substation
Project Tracking number:	TBD
Location:	Cannon Falls, MN
Title:	Guy Wire Relocation

Preliminary Scope:

This project on Line 0710, 69kV, will include installing a new stub pole, span guys, and down guy wires northeast of the existing structure 0710-3 to create additional clearance from the bike path. This project is located in Cannon Falls, MN and is reimbursable.

Preliminary Assumptions:

- Laydown yard location will be determined by Siting and Land Rights team at time of detailed design.
- Project schedule and duration are contingent upon outage and crew availability in the month(s) of scheduled construction.
- Existing Lines 0710 and 0711 will be able to handle outage for stub pole installation
- Estimate assumes internal vegetation management and matting resources
- Estimate assumes internal construction resources

By signing below, the Requester agrees that this document sets forth the correct Project Information, Scope, and Assumptions.

Scoping Estimate of Costs by Xcel Energy:

HD Estimate Name(s): C-T-HD LINE 0710-STR3-Cannon Sub 69kV Str 3 Guy Wire_SE

• Engineering	$ 28,863
• Project Management	$8,211
• Material	$ 3,747
• Easements/S&LR	$ 7,500
• Construction	$ 60,386
• Risk/OVH/Esc.	$23,482
• **Scoping Estimate TNE:**	**$139,688**

Preliminary Schedule:

(Schedule starts upon return of this estimate, the associated agreement and payment for engineering)

- Engineering & detailed estimate 4 (weeks)
- (Schedule stops until payment for construction is received)
- Final design & material lead time 20 (weeks)
- Construction duration 2 (weeks)

To proceed with design of this project, Xcel Energy will require full payment of the engineering costs noted above. When preliminary engineering is complete a Relocation Agreement and a revised, detailed estimate, referred to as an Appropriations Estimate, will be developed and mailed to the requestor. Before materials can be ordered and construction dates can be finalized, the requestor must review, sign and return the Relocation Agreement, Appropriations Estimate and payment of 80% of the estimated total project cost.

Engineering and Design Deposit for this estimate $28,863
(Requestor will be responsible for all Engineering and Design Costs)

This estimate is valid for 90 days from the latest signature date below.

A Scoping Estimate must be signed by both parties and dated. Each signature below is made contingent upon this document being signed by the other party.

Prepared By: Ben Arbizzani
Xcel Energy - NSP
Transmission Engineering Consultant
10/24/2024

Approved By
Xcel Energy:

Joshua Tomlinson Date
Xcel Energy - NSP
Project Manager II - Consultant

Approved By
Xcel Energy:

Al Singer Date
Dakota County Administration
Real Estate Manager

Overhead Transmission Line Design Guide

0710-3 to CTF
Str 0710-3 to Cannon Falls – Reloc Guy Wire
(0710 & 0711, 69kV)

Create Date: 10/15/2024

Revision Date:

Engineer(s): Ben Arbizzani

Designer(s):

Table of Contents

List of Tables

1.0 PROJECT SUMMARY

1.1 Project Overview

This project on Line 0710, 69kV, will include installing a new stub pole, span guys, and down guy wires northeast of the existing structure 0710-3 to create additional clearance from the bike path. This project is located in Cannon Falls, MN and is reimbursable.

Estimate: C-T-HD LINE 0710-STR3-Cannon Sub 69kV Str 3 Guy Wire_SE

1.2 SAP Project Numbers

Scoping Estimate, A.0000276

1.3 Schedule

Table 1: Schedule	
SE Scope Review	10/31/2024

1.4 Xcel Energy Standards

(Create Links to the version of each standard you are using or note version and date)

Table 2: Standards		
Standard	**Version, Date**	**Approved PW Exception Link**
XEL-STD-Transmission Line Structural Loading Criteria	2.5, 01/09/2024	
XEL-STD-Transmission Line Clearance Criteria	4.4, 11/07/2023	
XEL-STD-Design of Transmission Line Foundations	4.2, 07/20/2023	
XEL-STD-Guideline for Design of Transmission Line Insulators	3.4, 05/02/2023	
XEL-STD-Specification for Procurement of Insulators - Bell Suspension	1.4, 03/21/2022	
XEL-STD-Specification for Procurement of Insulators - Polymer Braced Line Posts	1.5, 03/21/2022	
XEL-STD-Specification for Procurement of Insulators - Polymer Line Post	3.4, 03/21/2022	
XEL-STD-Specification for Procurement of Insulators - Polymer Suspension	2.4, 03/21/2022	
XEL-STD-Design Guide for Transmission Line Conductor	2.7, 04/27/2023	
XEL-STD-Guideline for Optical Ground Wire - OPGW	3.2, 12/21/2023	
XEL-STD-Guideline for Lightning Shielding of	1.4,	

Transmission Lines	04/13/2023	
XEL-POL-Facility-Rating-Methodology.doc	14, 11/15/2020	
ProjectWise Link to PLS Reports *(User Created Reports)*	-	
Link To Feature Code File *(User Created Reports)*	-	
Link To Criteria File *(User Created Reports)*	3.4	

2.0 GENERAL DESIGN CONSIDERATIONS

2.1 General Design

Table 3: General Design	
Voltage	69kV
Line Length	0.02 Miles
Substations	Cannon Falls (CTF)
Min Elevation	849ft
Max Elevation	853ft
AAT (Average Annual Temp)	50°F
AAMT (Average Annual Min Temp)	-80°F
Terrain	Urban
County	Dakota County, MN
PLS CADD Coordinate System	UTM 15N
ROW Width (New/Existing)	Existing

2.2 Installs/Removals

This project installs the following:

- One (1) 50ft stub pole, direct embed
- Three (3) span guys, ½" Utility Grade EHS
- Three (3) down guys and anchors, ½" Utility Grade EHS

This project removes the following

- Two (2) down guy wires and anchors

2.3 Typical Structures

2.3.1 Tangent

Tangent structures will be wood single-pole, horizontal post double circuit structures.

2.3.2 Angle

Angle structures will be two single-circuit, single-poles with suspension insulators.

2.3.3 Deadend

Deadend structures will be two single-circuit, single-poles with jumpers.

2.3.4 Switches

Switch structures will be laminated wood poles.

2.3.5 Structure Finish

The structure finish will be creosote coating (embedment depth +2%) for all new wood poles.

2.3.6 Substation Termination

Substation work is not required for this project.

2.4 Aerial Markers and Signage

Aerial markers will be used for all structures to label structure number, aligning with Xcel's standard drawings.

2.5 FAA and Local Height Restrictions

-This project is within 5 miles of Stanton Airfield – KSYN and does not require and notice to FAA Notice per 14 CFR 77.9

2.6 Survey Information

LiDAR will be determined if required at point of detailed design. Cost included in estimate to account for updating documentation per construction records.

2.7 Avian Protection

n/a

2.8 Outage Constraints on Design

A one (1) week outage will be required on Line 0711 between CTF and Switch 4S186 and on Line 0710 between CTF and NOF (Switch 4S26) for the work required to remove existing guys and install a new stub pole and associated guy wires.

2.9 Constructability & Assumptions

- Laydown yard location will be determined by Siting and Land Rights team at time of detailed design.
- Project schedule and duration are contingent upon outage and crew availability in the month(s) of scheduled construction.
- Existing Lines 0710 and 0711 will be able to handle outage for stub pole installation
- Estimate assumes internal vegetation management and matting resources
- Estimate assumes internal construction resources

2.10 Maintenance Plan

Design of new stub pole and associated guy wires will utilize standard materials and assemblies.

2.11 Line Crossing Locations

This Line is a double circuit with 0710 and 0711. No crossings present within scope of work.

3.0 CONDUCTOR AND SHIELD WIRE

3.1 Conductor and Shield Wire Type

Table 4: Conductor and Shield Wire Type

	Existing Wire	
Conductor	336 26/7 ACSR / 477 26/7 ACSS	
OPGW		
Shield Wire	3/8” EHS	

Table 5: Conductor and Shield Wire Data					
Name	**Size/Stranding**	**XP#/CatID**	**Rated Strength (lb)**	**Diameter (in)**	**Unit Weight (lb/ft)**
"Linnet" ACSR	336 26/7	WIR036	14,100	0.721	0.6558
"Hawk" ACSS	477 26/7	WIR055	15,600	0.858	0.656
3/8" EHS	7-strand	WIR020	15,400	0.360	0.273

3.2 Conductor Design Temperature and Ampacity

Table 6: Line Ampacity (Preliminary)		
	Summer Line Rating	Winter Line Rating
Normal Operating Temperature	392°F (°C)	392°F (°C)
Emergency Operating Temperature	392°F (°C)	392°F (°C)
Normal Operating Amperage	668A	735A
Emergency Operating Amperage	735A	870A
MVA Normal	79.8 MVA	87.8 MVA
MVA Emergency	87.8 MVA	104MVA

Table 7: IEEE Std. 738-2006 Input Data			
Summer Ambient	104°F	**Atmosphere**	Clear
Winter Ambient	50°F	**Conductor description**	
Wind speed	4ft/s	**Conductor resistance**	0.209 ohm/mile at 20°F
Wind Angle	90°		0.257 ohm/mile at 75°F (°C)
Elevation	850ft	**Emissivity**	0.5
Conductor bearing (deg.)	90	**Solar Absorptivity**	0.5
Sun time (Hrs)	12	**Summer Date**	June 21st (Day 172)
Conductor latitude	40°N	**Winter Date**	March 31st (Day 90)

3.3 Subtran Information

PMC: COV_TP-CTF-69.0-1
PMC: NOT-CTF-69.0-1

3.4 Wire Tension Limits

Table 8: Wire Stringing Tension Limits		
Description	**Wire Condition**	**Tension Limit**
NESC *Medium/Heavy* (250B)	Initial FE	40%
Concurrent Ice and Wind (250D)	Initial FE	80%
NESC Extreme Wind (250C)	Initial FE	80%
NESC Tension Limit (261H1c)	Initial FE	35%
NESC Tension Limit (261H1c)	Creep FE	25%

3.5 Galloping

The required galloping criteria are below in Table 9.

(Adjust Tables As Needed)

Table 9: Galloping Criteria			
Risk Region	**Amplitude Factor**	**Method**	**Required Clearance Between Ellipses**
NSPM	1.0	CIGRE Report 322	Should Not Overlap

The loading criteria to determine the swing and sag of the conductors are (respectively):

- 32°F, no ice, 2 psf. wind (swing), creep
- 32°F, no ice, 0 psf. Wind (sag), creep

3.6 Vibration Mitigation

Hubbell Fargo Online application software use to determine damper needs.

Table 10: Total Number of Spiral Vibration Dampers Recommended Per Span		
Span Length (ft)	Standard Application	Hi Mass
0-800	TBD	SWR-DMP-089-001 (1)
801-1600	TBD	SWR-DMP-089-001 (2)
1601-2400	TBD	
**Reference Wire-Accessories Company Standards*		

3.7 Spacers

n/a

3.8 Phasing and Transpositions

n/a

3.9 EMF, Audible Noise, and Corona

n/a

3.10 Conductor Splicing

n/a

3.11 Conductor Finish

n/a

4.0 LIGHTNING PERFORMANCE AND GROUNDING

4.1 Lightning Performance

n/a

4.2 Structure Grounding

Structures will be grounded per latest Xcel Energy Standards.

4.3 System Protection Considerations

4.3.1 Relay Protection Requirements

n/a

4.3.2 Fault Current Requirements

Table 11: Fault Current Requirements	
Calculated Fault Current Rating Required	TBD kA^2*sec
WIR020 3/8" EHS	TBD kA^2*sec

5.0 CLEARANCE CRITERIA

5.1 Elevation Zone

≤5300'

5.2 Weather Conditions

Table 13: Weather Criteria			
Description	**Wire Temp (°F)**	**Wire Ice Thickness (in)**	**Wind (psf)**
NESC *Medium/Heavy* (250B)	0	0.5	4
NESC Concurrent Ice and Wind (250D)	15	0.5	9.216
NESC Extreme Wind (250C)	60	0	25.6
AAMT/Uplift	-20	0	0
AAT/Deflection	40	0	0
Differential Ice	32	0.5	0
Construction	-20	0	2

5.3 Typical Vertical Clearances

Vertical clearances are checked based on the conditions in Table 12.

Table 12: Conditions for Vertical Clearances	
Condition	**Weather Case**
1	Max Opt Temp, no wind, no ice, Final Sag
2	32°F, no wind, max design radial ice, Final Sag
3	60°F, 6 PSF wind, no ice, Final Sag

5.4 Horizontal Clearances

Horizontal clearances are checked based on the conditions in Table 13.

Table 13: Conditions for Horizontal Clearances	
Condition	**Weather Case**
1	No Wind, 60°F, Final Sag
2	6PSF wind, 60°F, Final Sag
3	NESC250C wind, 60°F, Final Sag

5.5 ROW Clearances

Table 14: ROW Clearances	
Weather Case	**Clearance (ft)**
60°F, no wind, Creep FE	11.3
60°F, 6PSF wind, Creep FE	8.3
60°F, 90 MPH wind, Creep FE	0.4

5.6 Clearances for Live Line Maintenance

Clearances shall maintain MAD clearances per latest Xcel Energy Criteria

5.7 Insulator Swing & Structure Clearances

All insulator designs shall be analyzed utilizing insulator swing analysis software within PLS-CADD. Allowable insulator swing angle is dependent upon insulator assembly geometry. Structure geometry has been selected to prevent electrical clearance violations under required weather conditions. These weather conditions are defined in Table 15.

Table 15: Insulator Swing	
Weather Case	**Clearance (ft)**
60°F, no wind, Initial FE	2.2
60°F, 6PSF (48.4 MPH) wind, Creep FE	1.4
60°F, 14.6 PSF (75.6 MPH) wind, Creep FE	0.6

-Clearance to guy or span wires = 1.9ft

6.0 INSULATION DESIGN

6.1 Electrical Ratings

Table 16 describes the minimum insulation level for the given insulator assemblies.

Table 16: Insulator Electrical Ratings	
Insulator Assembly	**Combined Min Dry Arc (in)**
Tangent – Horz Post INY-HLP-252-002 (69kV)	35.75”
DE – Strain ING-BEL-004-035 (69 kV)	41.50”

6.2 Mechanical Ratings

The allowable loading limits shown in Table 17 have been applied to their respective insulator configuration.

Table 17: Mechanical Ratings	
Insulator Assembly Configuration	**NESC District Loading**
INY-HLP-252-002 (Tangent/Running Angle)	50% of STL (specified tension load)/. Max vertical working load per manufacture = *3,250* lbs.
ING-BEL-004-035 (Dead End)	50% of SML, Max factored tension = *30,000* lbs

7.0 FOUNDATION DESIGN CRITERIA

7.1 Soil Conditions

n/a

7.2 Design Software

PLS-Cadd

7.3 Project Specific Design Considerations

n/a

7.4 Foundation Type

Backfill will be used for all new direct embed poles conforming to Xcel's latest standards

Scope Summary Report

Project Information:

Project Title:	LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS Level 2:	A.0000276 The formatting of this WBS Level 2 number looks incorrect. T
WBS Level 4:	A.0000276.0XX.00X.00X
Operating Company (OPCO):	NSPM
State:	MN
Project Tier:	3
Sub/T-Line:	Transmission Line
InEight Estimate Name:	0710 STR3-CANNON FALLS Reloc Guy Wire Reimb
Project Stage:	Scoping
Estimate Date:	11/26/2024
In-Service Date:	12/31/2026
Project Manager:	Josh Tomlinson
CMT Sponsor Engineer:	Ben Gallay
Project Lead Engineer:	
Estimate Prepared By:	Ben Arbizzani (if other than Project Lead Engineer)
Project Length (mi):	0.02 (See Scope Segment Details below)
Voltage (kV):	69

General Project Purpose & Scope:

This project is to install a new stub pole north east of existing structure 0710-3 to create additional clearance from the bike path. This project is located in Cannon Falls, MN and is reimbursable.

Estimate Assumptions:

1 Laydown yard location will be determined by Siting and Land Rights team at time of detailed design
2 Project schedule and duration are contingent upon outage and crew availability in the month(s) of scheduled construction
3 Existing Lines 0710 and 0711 will be able to handle an outage for stub pole installation
4 Estimates assumes internal vegetation management and matting resources
5 Estimate assumes internal construction resources

Scope Details:

Scope Segment	Segment Description	Segment Length (mi)
S.1	0710-3	0.02
S.2		
S.3		
S.4		
S.5		

Scope Segment	Segment Description	Segment Length (mi)
S.6		
S.7		
S.8		
S.9		
S.10		

Scope Segment	Typical Tangent Type (INSTALL)	Description (*Optional*)	Total Str Count (Install)

None Entered

Scope Segment	Typical Tangent Type (REMOVAL)	Description (*Optional*)	Total Str Count (Remove)

None Entered

Scope Segment	Typical Angle Type	Description (*Optional*)	Total Str Count (Install)	Total Str Count (Remove)

None Entered

Scope Segment	Typical Dead End Type	Description (*Optional*)	Total Str Count (Install)	Total Str Count (Remove)
S.1	Wood_Mono_Guy	Stub Pole	1	

Wires

Scope Segment	Phase Wire Type	Qty Phase Install (Station mi)	Qty Phase Remove (Station mi)	Shield Wire Type	Qty SW Install (Station mi)	Qty SW Remove (Station mi)

None Entered

Major Property Units:

Below are the major property units that will be installed/removed as part of this project:

	Property Unit	Install	Remove	Comments
1	Arrester (Multiple)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
2	Conductor Overhead (2920187209)	No	No	0 Station mile(s) install, 0 Station mile(s) remove above
3	Damper (2950189709)	No	No	Assumed that installed and removed structures have dampers
4	Guy Wire (3490241709)	Yes	Yes	1 Str(s) Installed & 0 Str(s) Removed above
5	Insulator (2920189459)	No	No	1 Str(s) Installed & 0 Str(s) Removed above
6	Pole, Cross Arm (6460817409)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
7	Pole, Insulated Cross Arm (6460817509)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
8	Pole Not Wood (6460816409)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
9	Pole Wood (6460817209)	Yes	No	1 Str(s) Installed & 0 Str(s) Removed above
10	Switch Gang (Multiple)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
11	Tower (7960880809)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
12	X-Brace (8710945709)	No	No	0 Str(s) Installed & 0 Str(s) Removed above
13	Anti-Galloping Device (Not a PU)	No	No	Not a Property Unit

(1b) SAP Entry Form

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
Region: NSPM
State: MN

Project Stage: Scoping
Estimate Date: 10/4/2024

Snapshot Date: 11/26/2024

Project Structure Overview	Name	Identification	Cost to Date (From CJI3N)	Estimate Costs to Complete	Overheads Cost to Complete	Total Cost	Estimate Total Hrs to Complete (1)	Scoping Est. Snapshot	Approp. Est. Snapshot	Eng. Est. Snapshot	Closeout Actuals	Variance %	Closeout Comments
WBS Level 1	**Group Name**	Make sure WBS L4 Identification contains periods!			E&S (% of Directs) >	2.65%		2.65%					
WBS Level 2		A.0000276			Material P&W (% of Directs) >	2.31%		2.31%					
WBS Level 3		A.0000276.0XX			A&G (% of Directs) >	0.26%		0.26%					
					Escalation (% of Directs) >	1.12%		1.12%					
WBS Level 4 - Transmission Line	**LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Gu**	**A.0000276.0XX.00X.00X**	**$ 0**	**$ 129,188**	**$ 4,791**	**$ 133,979**	**(w/out AFUDC)**	**$ 133,979**				0.00%	
WBS Level 5 - PLAN		**A.0000276.0XX.00X.00X.01**	**$ 0**	**$ 44,574**	**$ 1,598**	**$ 46,172**		**$ 46,172**					
Order - Internal Labor (INLAB)	Internal Labor (INLAB)	1	$ -	$ 24,574	$ 715	$ 25,289	254	$ 25,289				0.00%	
Order - Contribution in Aid of Const (CAIC)	Contribution in Aid of Const (CAIC)	2	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - External Siting & Land Rights (EXSLR)	External Siting & Land Rights (EXSLR)	3	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - External Engineering (EXENG)	External Engineering (EXENG)	4	$ -	$ 20,000	$ 883	$ 20,883	99	$ 20,883				0.00%	
Order - Geotech	Geotech	5	$ -	$ -	$ -	$ -	0	$ -				0.00%	
WBS Level 5 - PROC		**A.0000276.0XX.00X.00X.02**	**$ 0**	**$ 3,747**	**$ 195**	**$ 3,942**		**$ 3,942**					
Order - Anchor Bolts (ANCR BLT)	Anchor Bolts (ANCR BLT)	16	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Conductor and Fiber/Shield Wire (COND)	Conductor and Fiber/Shield Wire (COND)	17	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Culverts (CLVT)	Culverts (CLVT)	18	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Foundation Material (FND MAT)	Foundation Material (FND MAT)	19	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Insulators & Hardware (INS & HW)	Insulators & Hardware (INS & HW)	20	$ -	$ 2,864	$ 149	$ 3,014	-	$ 3,014				0.00%	
Order - Structures (STR)	Structures (STR)	21	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Switch (SW)	Switch (SW)	22	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Temporary Work Material (TMP MAT)	Temporary Work Material (TMP MAT)	23	$ -	$ -	$ -	$ -	-	$ -				0.00%	
Order - Wood Structures (WD STR)	Wood Structures (WD STR)	24	$ -	$ 883	$ 46	$ 929	-	$ 929				0.00%	
Order - Concrete	Concrete	25	$ -	$ -	$ -	$ -	-	$ -				0.00%	
WBS Level 5 - CNST		**A.0000276.0XX.00X.00X.03**	**$ 0**	**$ 67,886**	**$ 2,997**	**$ 70,883**		**$ 70,883**					
Order - Internal Construction (INCNST)	Internal Construction (INCNST)	56	$ -	$ 59,946	$ 2,647	$ 62,593	0	$ 62,593				0.00%	
Order - External Construction (EXCNST)	External Construction (EXCNST)	57	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - Civil Construction (CVL)	Civil Construction (CVL)	58	$ -	$ 440	$ 19	$ 459	0	$ 459				0.00%	
Order - Trucking (TRCK)	Trucking (TRCK)	59	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - Restoration (RSTR)	Restoration (RSTR)	60	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - Temporary Facilities (TFAC)	Temporary Facilities (TFAC)	61	$ -	$ -	$ -	$ -	0	$ -				0.00%	
Order - Vegetation Management (VMGMT)	Vegetation Management (VMGMT)	62	$ -	$ 7,500	$ 331	$ 7,831	0	$ 7,831				0.00%	
Order - Removal (REM)	Removal (REM)	63	$ -	$ -	$ -	$ -	0	$ -				0.00%	
WBS Level 5 - Other		**A.0000276.0XX.00X.00X.04**	**$ 0**	**$ -**		**$ -**		**$ -**					
Indirect Costs			**$ 0**	**$ 12,982**		**$ 12,982**		**$ 12,982**					
		Risk Reserve	$ -	$ 11,621	$ -	$ 11,621	-	$ 11,621				0.00%	
		Escalation	$ -	$ 1,361	$ -	$ 1,361	-	$ 1,361				0.00%	
AFUDC (Not included in project totals above)													
		AFUDC		$ 5,709	$ -	$ 5,709	-	$ 5,709				0.00%	
		Project Total with AFUDC				**$ 139,688**	**(w/ AFUDC)**	**$ 139,688**					

Property Unit Report

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS Level 4: A.0000276 (Lvl 4: A.0000276.0XX.00X.00X)
Sub/T-Line: Transmission Line
Region: NSPM
State: MN
Project Stage: Scoping
Estimate Date: 10/4/2024

Summary

Total Cost:	$	139,688.08
Total CWIP Cost:	$	113,688.08
CWIP Percentage:		81.39%
Total RWIP Cost:	$	26,000.00
RWIP Percentage:		18.61%

Action (Install / Removal)	Plant Account No.	Property Unit Description	Quantity	Unit	% Allocation	Cost Estimate	Comments
I	3490241709	Guy Wire	5	0	75.37%	$ 105,289	
I	6460817209	Pole Wood	1	0	6.01%	$ 8,399	
R	3490241709	Guy Wire	2	0	18.61%	$ 26,000	
					Total	**$ 139,688.08**	

Monthly Forecast Report

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS: A.0000276 (Lvl 4: A.0000276.0XX.00X.00X)
Sub/T-Line: Transmission Line
Operating Company (OPCO): NSPM
State: MN
Project Stage: Scoping

Project Start Date:
Estimate Date: 10/4/2024
In-Service Date: 12/31/2026

Escalation % 1.12%
Total Project Risk Reserve: $ 11,621

Total Cost to Date: $ 0

Total after Escalation Monthly Forecast after Escalation	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Total**
2024									$ -	$ 3,281	$ 6,381	$ -	**$ 9,662**
2025	$ -	$ 4,077	$ 17,279	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 21,356**
2026	$ -	$ 1,843	$ 8,169	$ 8,175	$ 8,181	$ 8,187	$ 8,193	$ 8,199	$ 8,205	$ 8,211	$ 11,983	$ 11,992	**$ 91,340**
2027													**$ -**
													$ 122,358

Schedule Activity Hours Report

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS: A.0000276 (Lvl 4: A.0000276.0XX.00X.00X)
Sub/T-Line: Transmission Line

Operating Company (OPCO): NSPM
State: MN
Project Stage: Scoping

Activity ID	Activity Name	Est. Duration (wks)	Associated LOE (Stage)	P6 Role Code	P6 Role Description	Est. Hours
Stage 1-Rollup	Project Origination (LOE)		Stage 1	Proj_Mgr	Project Manager	1
Stage 2-Rollup	Budget Estimate Package (LOE)		Stage 2	Proj_Mgr	Project Manager	1
Stage 4-Rollup	Project Development (LOE)		Stage 4	Proj_Mgr	Project Manager	1
Stage 5-Rollup	Engineering (LOE)		Stage 5	Proj_Mgr	Project Manager	10
Stage 6-Rollup	Construction (LOE)		Stage 6	Proj_Mgr	Project Manager	20
Stage 7-Rollup	Close Out (LOE)		Stage 7	Proj_Mgr	Project Manager	10
Stage 2-Rollup	Budget Estimate Package (LOE)		Stage 2	Proj_Cost_Cntl	Project Cost Control	1
Stage 3-Rollup	Budget Approval (LOE)		Stage 3	Proj_Cost_Cntl	Project Cost Control	2
Stage 4-Rollup	Project Development (LOE)		Stage 4	Proj_Cost_Cntl	Project Cost Control	2
Stage 5-Rollup	Engineering (LOE)		Stage 5	Proj_Cost_Cntl	Project Cost Control	3
Stage 6-Rollup	Construction (LOE)		Stage 6	Proj_Cost_Cntl	Project Cost Control	20
Stage 7-Rollup	Close Out (LOE)		Stage 7	Proj_Cost_Cntl	Project Cost Control	13
Stage 1-Rollup	Project Origination (LOE)		Stage 1	Proj_Sche_Cntl	Project Schedule Control	1
Stage 2-Rollup	Budget Estimate Package (LOE)		Stage 2	Proj_Sche_Cntl	Project Schedule Control	1
Stage 3-Rollup	Budget Approval (LOE)		Stage 3	Proj_Sche_Cntl	Project Schedule Control	1
Stage 4-Rollup	Project Development (LOE)		Stage 4	Proj_Sche_Cntl	Project Schedule Control	1
Stage 5-Rollup	Engineering (LOE)		Stage 5	Proj_Sche_Cntl	Project Schedule Control	1
Stage 6-Rollup	Construction (LOE)		Stage 6	Proj_Sche_Cntl	Project Schedule Control	20
Stage 7-Rollup	Close Out (LOE)		Stage 7	Proj_Sche_Cntl	Project Schedule Control	1
Stage 4-Rollup	Project Development (LOE)		Stage 4	Tran_CMT_Spons	CMT Sponsor	6
Stage 5-Rollup	Engineering (LOE)		Stage 5	Tran_CMT_Spons	CMT Sponsor	12
Stage 6-Rollup	Construction (LOE)		Stage 6	Tran_CMT_Spons	CMT Sponsor	25
Stage 7-Rollup	Close Out (LOE)		Stage 7	Tran_CMT_Spons	CMT Sponsor	4
Stage 5-Rollup	Engineering (LOE)		Stage 5	Tran_Surv	Surveyor	8
Stage 7-Rollup	Close Out (LOE)		Stage 7	Tran_Surv	Surveyor	8
Stage 5-Rollup	Engineering (LOE)		Stage 5	Data-Records Mgmt	Data-Records Mgmt	20
Stage 7-Rollup	Close Out (LOE)		Stage 7	Data-Records Mgmt	Data-Records Mgmt	20
Stage 7-Rollup	Close Out (LOE)		Stage 7	FacRate_Eng	Facility Rating Engineer	4
Stage 5-Rollup	Engineering (LOE)		Stage 5	SP_Eng	Sys Protection Engineer	16
Stage 1-Rollup	Project Origination (LOE)		Stage 1	Consult_Tran_Eng	Consulting Engineer/Designer	13
Stage 2-Rollup	Budget Estimate Package (LOE)		Stage 2	Consult_Tran_Eng	Consulting Engineer/Designer	14
Stage 3-Rollup	Budget Approval (LOE)		Stage 3	Consult_Tran_Eng	Consulting Engineer/Designer	14
Stage 4-Rollup	Project Development (LOE)		Stage 4	Consult_Tran_Eng	Consulting Engineer/Designer	14
Stage 5-Rollup	Engineering (LOE)		Stage 5	Consult_Tran_Eng	Consulting Engineer/Designer	14
Stage 6-Rollup	Construction (LOE)		Stage 6	Consult_Tran_Eng	Consulting Engineer/Designer	14
Stage 7-Rollup	Close Out (LOE)		Stage 7	Consult_Tran_Eng	Consulting Engineer/Designer	14

Internal Construction Summary Report

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS Level 4: A.0000276 (Lvl 4: A.0000276.0XX.00X.00X)
Sub/T-Line: Transmission Line
Region: NSPM
State: MN
Project Stage: Scoping
Estimate Date: 10/4/2024

Cost and Hours Summary by Category

Category	Cost	Hours
Internal Civil Labor:	$ -	0
Internal Civil Equipment:	$ -	0
Internal Line Labor:	$ -	0
Internal Line Equipment:	$ -	0
Internal Trucking Labor:	$ -	0
Internal Trucking Equipment:	$ -	0
Total:	$ -	0

Internal Civil Construction Labor & Equipment

												LABOR HOURS						LABOR COST						Per Diem Costs					Equipment		
										Totals =																					
Activity ID	PM Order	Activity / Task	Activity Description	Foundation Type or Mat Type	Foundation Size or Quantity of Mats	Foundation or Mat Quantity	Crew Size	Activity Start Date	Activity Finish Date	Qty of Days	Qty of Weeks	Crew Labor	Foreman	General Foreman	Supervisor	Inspector	Total Hours	Crew Labor	Foreman	General Foreman	Supervisor	Inspector	Total Labor Cost	Crew	Foreman	General Foreman	Inspector	Total Per Diem Cost	Hours Equipment	Cost Equipment	Total Labor & Equipment Cost
No activities defined in Civil tabs																														

Internal Line Construction Labor & Equipment

												LABOR HOURS						LABOR COST						Per Diem Costs					Equipment		
										Totals =																					
Activity ID	PM Order	Activity / Task	Activity Description	Line Construction Type	Qty of Strs Installed per activity	Miles of Line Installed or Removed	Crew Size	Activity Start Date	Activity Finish Date	Qty of Days	Qty of Weeks	Crew Labor	Mtl Handler	General Foreman	Supervisor	Inspector	Total Hours	Crew Labor	Mtl Handler	General Foreman	Supervisor	Inspector	Total Labor Cost	Crew	Foreman	General Foreman	Inspector	Total Per Diem Cost	Total Equipment Hours	Total Equipment Cost	Total Labor & Equipment Cost
No activities defined in Line tabs																														

Internal Trucking Labor & Equipment

								LABOR & EQUIPMENT HOURS						LABOR & EQUIPMENT COST								
						Totals =																
Activity ID	PM Order	Activity / Task	Activity Description	Truck Tractor Equipment	Semi-Trailer Equipment	Qty of Days	Qty of Weeks	Operator Labor	Truck Tractor	Semi-Trailer	Foreman	General Foreman	Total Hours	Operator Labor	Truck Tractor	Semi-Trailer	Foreman	General Foreman	Total Cost	Total Labor Cost	Total Equipment Cost	Total Labor & Equipment Cost
No activities defined in Trucking tab																						

End of Report

Contract Construction Summary Report

Project Title: LINE 0710-STR3-Cannon Sub 69kV Reloc Str 3 Guy Wire
WBS Level 4: A.0000276 (Lvl 4: A.0000276.0XX.00X.00X)
Sub/T-Line: Transmission Line
Region: NSPM
State: MN
Project Stage: Scoping
Estimate Date: 10/4/2024

Cost Summary by Category

Category	Cost
Contract Bid Units:	$ 60,385.85
Vegetation Management:	$ 7,500.00
Other Contract Costs:	$ -
Total:	$ 67,885.85

Contract Bid Units Summary

Group	Region	PM Order	Total Bid Unit Cost(s)	Total Additional Weight Cost(s)	Total T&E	Total Cost(s)	Start Date	End Date
1	NSPM	Internal Construction (INCNST)	$ 54,496	$ -	$ 5,450	$ 59,946	2/19/2026	12/7/1992
2	NSPM	Civil Construction (CVL)	$ 400	$ -	$ 40	$ 440	1/15/2026	3/15/1901
3	NSPM	Removal (REM)	$ -	$ -	$ -	$ -	-	1/0/1900

Category	Type	Description (Long Text)	Units	Action	Job Aid Reference	Unit Rate ID Code	SAP ID Code	SAP Short Text	Group 1 Project Quantity	Group 2 Project Quantity	Group 3 Project Quantity	Group 1 Weight Adder Quantity	Group 2 Weight Adder Quantity	Group 3 Weight Adder Quantity
Structure	Wood	Sgl≤85'	Per Each	Install	2.1.1.1.1	TO.1.001.1	4010180	ET_CO_SW-SGL≤85'_INS_EA	1					
Structure Related	Anchor	Helix with 5' Extension	Per Each	Install	2.1.3.1.1	TO.4.001.1	4010255	ET_CO_HELIXANCHORWITH5'EXTENSION_INS_EA	2					
Structure Related	Guying	Span Guy; 3/8"-9/16"	Per Linear Foot	Install/Remove/Rep	2.1.3.3.1	TO.6.001.5	4010267	ET_CO_SPAN GUY; 3/8"-9/16"_IRR_EA	800					
Structure	Matting	Laminated Timber 6"	Per Sq Ft	Install/Remove	4.1.1.10.1	TC.19.001.4	4010845	ET_CO_CVL MAT-LAMINATED TIMBER 6"_I/R_EA		400				

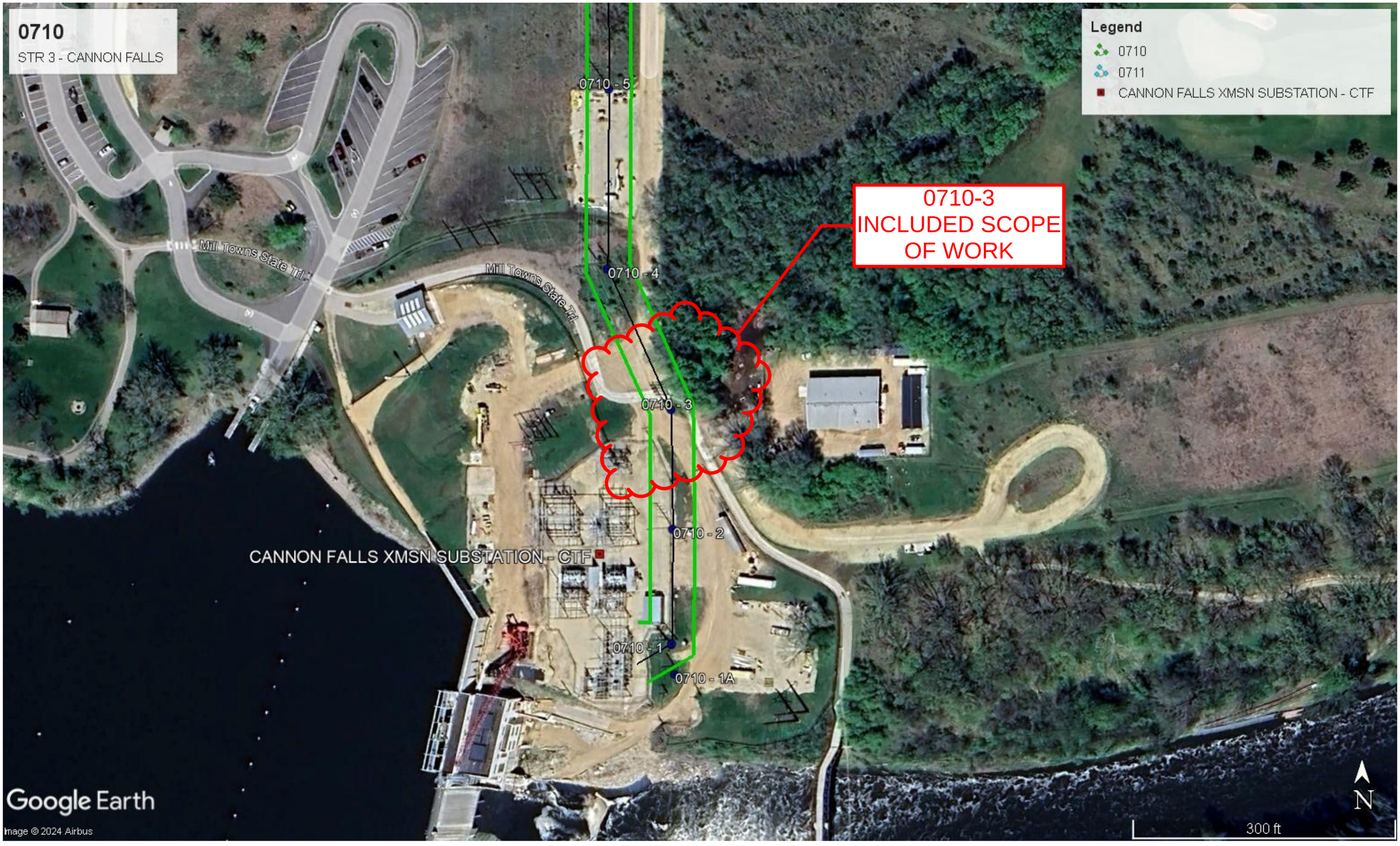
Vegetation Management Summary

PM Order	Description	Total Contract Cost	Start Date	End Date
Vegetation Management (VMGMT)	Pre-Construction Activities	$ 2,500	Stage5	Stage5
Vegetation Management (VMGMT)	Construction Phase Activities	$ 5,000	Stage6	Stage6

Other Contract Costs

PM Order	Description	Total Contract Cost	Start Date	End Date
No activities defined for Other Contracts				

End of Report


0710
STR 3 - CANNON FALLS
Legend
0710
0711
CANNON FALLS XMSN SUBSTATION - CTF
0710-3
INCLUDED SCOPE
OF WORK
0710 - 5
0710 - 4
0710 - 3
0710 - 2
0710 - 1
0710 - 1A
Mill Towns State Trl
Mill Towns State Trl
CANNON FALLS XMSN SUBSTATION - CTF
Google Earth
Image © 2024 Airbus
N
300 ft

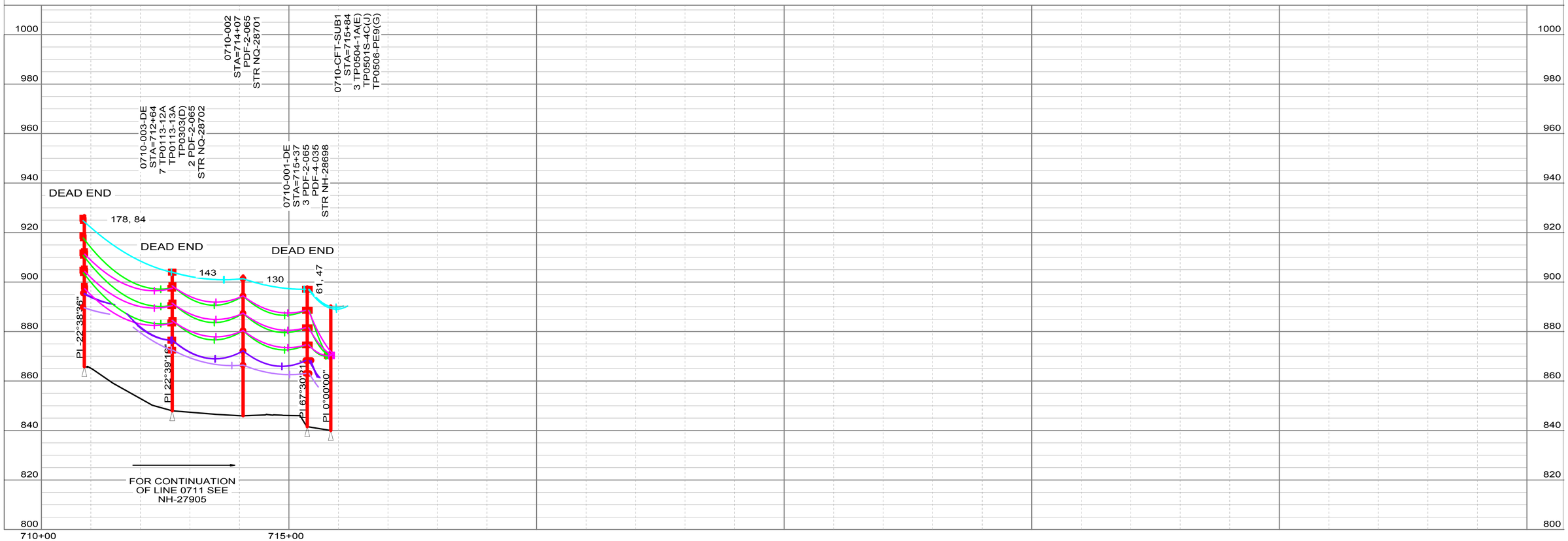
DOUBLE CIRCUIT NOTE:
LINE 0710 IS DOUBLE CIRCUIT WITH LINE 0711
FROM STR 019 TO CANNON FALL TRANS SUB (CTF).
LINE 0710 IS ON THE RIGHT AND LINE 0711 IS ON
THE LEFT WHEN LOOKING TOWARDS CFT SUB.

PLAN VIEW LEGEND

- LINE 0710 CENTERLINE
- ROAD INFORMATION
- TRANSMISSION CROSSING
- DISTRIBUTION CROSSSING
- UNION PACIFIC RAILROAD
- RAILROAD EASEMENT
- WATER BODY
- SECONDARY ALIGNMENT

PROFILE VIEW LEGEND

- SHIELD WIRE - 3/8" EHS STEEL
- LINE 0710 CONDUCTOR - 477 KCMIL 26/7 ACSS
- DISTRIBUTION UNDERBUILD
- DISTRIBUTION NEUTRAL
- TRANSMISSION STRUCTURE
- GROUNDLINE



TRANSMISSION ENGINEERING DEPARTMENT
Xcel Energy®

100.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

LINE 0710 69KV
STR 0703-227 TO CTF SUB

STR. 0710-003-DE TO 0710-CFT-SUB1

NH-33431- 36 OF 36 REV 1

0710_STR227_CTF 12/18/2015