EVERSOURCE

Project Approval Form

Project Title: [redacted] 4.8 kV feeders	**Project Number:** CD01546
Date Prepared: 08/29/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** HI OVER LO VOLTAGE REMOVAL
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: 12/31/2023	
Total Capital Request: $4,092M	**Authorization Type:** Full Funding

1. Executive Summary

This Project CD01546 converts the existing [redacted]

Full Funding Approval:

This project was designed and built as specified at a capital cost of $4,092M versus a partial estimate of $3.809M or 107% of ENG. Although contractor resources were utilized to construct the project, they were not included in the original partial estimates. Had the partial estimate reflected the use of contractor labor, the partial estimate would have been $5.045M and the ACT would have been or 81% of ENG.

2. Project Cost Summary

Financial Evaluation ($000's)

Capital Costs	2021	2022	2023	Total
Internal Labor and Construction Equipment	0.0	9.7	31.2	40.9
Outside Services	61.5	989.4	612.7	1,663.6
Materials	0.0	498.4	37.3	535.8
Removals	4.0	97.4	62.8	164.2
Risk and Contingency	0.0	0.0	285.5	285.5
Other	0.0	1.4	0.0	1.4
Subtotal	**65.5**	**1,596.3**	**1,029.5**	**2,691.3**

Indirect Capital Costs	2021	2022	2023	Year 1
Indirects/Overheads (including benefits)	58.1	761.3	581.2	1,400.6
Capitalized interest or AFUDC, if any	1.2	31.9	-33.2	0.0
Subtotal	**59.3**	**793.2**	**548.1**	**1,400.6**

Total Capital Costs (Gross)	**124.8**	**2,389.5**	**1,577.6**	**4,091.9**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total O&M Project Costs	**4.0**	**98.3**	**63.3**	**165.6**
Project Costs (Net of Reimbursement)	**124.8**	**2,389.5**	**1,577.6**	**4,091.9**

3. Technical Justification

a. Background

[redacted]

b. Project Need

[redacted]

c. Project Scope

[redacted]

4. Alternatives Considered

Project Option Comparison

Option 1,

[redacted]

	Option
[redacted]	

Estimate type	ACT	Partial	Partial
Capital Cost	$4.092M	$5.779M	$4.181M
Expense Cost	$.165M	$.248M	$.179M
Total Cost	$4.257M	$6.027M	$4.360M
Preferred option	X		

5. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	April 2021
100% Detailed Engineering Completion	September 2021
Fully Funded	September 2023
Construction Start	July 2022
In Service Date	December 2023

6. Regulatory Decisions

7. Codes and Standards

8. Risk and Contingencies

Contingencies:

Risk Mitigation:

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022/2023	Low	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Customer Permission / Siting Council / Municipal approvals	2022/2023	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2022/2023	Med	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2022/2023	Med	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2022/2023	High	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2022/2023	Low	If storm activity delays work, we may be forced to use external resources.

System abnormal configuration	2022/2023	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Technological risks involving integration of new technology	2022/2023	Low	Before use of new technology ensure support of standards and manufacturer. Schedule project to accommodate for extra time or ensure new technology is not on the critical path.
Wetlands / Environmentally sensitive area	2022/2023	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1.
2.
3.
4.
5.

10. Attachments (One Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. P6 Schedule	*NO*
C. Geographic Map	*YES*
D. System and Station One-Lines	*YES*
E. Load Summary	*YES*
F.	

Cost Estimates

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	Convert [redacted] and [redacted]	1,2,3,4,6,8	$5,259,824	$0	100%	$0.00	$0.00	☑
O2	Convert [redacted] convert [redacted]	1,2,3,5,6,8	$6,206,845	$0	100%	$0.00	$0.00	☐

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	Convert [redacted] From [redacted] S/S to N. Brooksv[redacted]	$1,657,069			$0.00	$0.00
2	Convert [redacted] S/S to S. Main	$1,463,826			$0.00	$0.00
3	Recond[redacted] w/3-PH 556 SC	$1,052,715			$0.00	$0.00
4	Convert[redacted] & Step	$486,355			$0.00	$0.00
5	Convert [redacted]	$1,433,376			$0.00	$0.00
6	Convert[redacted]	$412,045			$0.00	$0.00
7	[redacted] Close Gap 1-PH	$152,939			$0.00	$0.00
8	Install Regulator	$187,814			$0.00	$0.00

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Design Alternative CD01546-01

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	24.00%
SubTotal:	$1,336,346
Contingency Amount:	$320,723
Estimate:	$1,657,069
Reimbursement:	$0
Net Amount:	$1,657,069
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$308,387.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25			$28,800.00
OH WIRE OH - Neutral [redacted]	16-OH31			$3,840.00
XF OH - OH XF - 1ph [redacted]	16-OH45			$6,328.80
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58			$1,605.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25			$4,800.00
OH WIRE OH - Neutral [redacted]	16-OH31			$1,280.00
XF OH - Stepdown - 1ph - on POLE [redacted]500kva step	16-OH49			$6,800.00
OH WIRE OH - Neutral [redacted]extend sec from pole[redacted]	16-OH31			$1,280.00

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Design Alternative			CD01546-01
XF OH - OH XF - 1ph [redacted]elocate xf on pole [redacted] o make way for low side fuse	16-OH45	[redacted]	$2,109.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25	[redacted]	$34,800.00
OH WIRE OH - Neutral [redacted]	16-OH31	[redacted]	$3,840.00
XF OH - OH XF - 1ph [redacted]	16-OH45	[redacted]	$4,219.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58	[redacted]	$1,605.60
XF OH - Stepdown - 1ph - on POLE [redacted]rem 4.8/13.8 stepup & install 23/13.8 stepdown	16-OH49	[redacted]	$6,800.00
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 [redacted]	16-OH26a	[redacted]	$55,440.00
OH WIRE OH - Neutral [redacted]	16-OH31	[redacted]	$1,280.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58	[redacted]	$2,140.80
POLE OH - POLE - 3ph (Telephone custodian) [redacted]balance of poles	16-OH12	[redacted]	$7,120.00
XF DB/UG - Padmount XF - 3ph [redacted]pads [redacted]	16-UG131	[redacted]	$12,598.40
ENCLOSURE DB/UG - Transformer Pad/Handhole [redacted]pads [redacted]	16-UG143	[redacted]	$12,417.60
DB CABLE DB/UG - #1 - 3-1/C (3ph) Al [redacted]to pad[redacted]	16-UG112	[redacted]	$6,080.00

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Design Alternative			CD01546-01
DB CABLE DB/UG - #1 - 3-1/C (3ph) Al [redacted]o pad[redacted]	16-UG112	[redacted]	$6,080.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25		$4,800.00
OH WIRE OH - Neutral [redacted]	16-OH31		$1,280.00
XF OH - Stepdown - 1ph - on POLE [redacted]	16-OH49		$6,800.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted]rep balance of poles where spacer cable is being replaced.	16-OH12		$24,920.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil [redacted]repl 5kv spacer cable with 556 spacer cable b/w poles[redacted]	16-OH29		$266,240.00
XF OH - OH XF - 1ph [redacted]per dars 2 OH xf's are not dual's	16-OH45		$6,328.80
SECTIONALIZE OH - Recloser - 3ph [redacted]remove 5kv reclosers[redacted]	16-OH38		$95,979.20
TRAFFIC OH/DB/UG - Traffic Control - Police Officer [redacted]and sidetaps	16-ALL18	[redacted]	$134,081.00
EQUIPMENT OH - Conversion Prep Work - 3ph [redacted]	16-OH57		$51,500.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$13,380.00
XF OH - OH XF - 1ph [redacted]nst 50kva xf and extend sec to pole[redacted]on [redacted]where a step will be installed in segment 4	16-OH45		$2,109.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25	[redacted]	$7,200.00
OH WIRE	16-OH31		$1,920.00

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OH - Neutral [redacted]			
POLE	16-UG145	[redacted]	$7,370.40
DB/UG - Riser - 1ph [redacted]			
UG CABLE	16-UG151		$44,640.00
DB - Cable Replacement - 1ph [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
OTHER	16-ALL14		$1,800.00
OTHER [redacted]			
POLE	16-OH12		$35,600.00
OH - POLE - 3ph (Telephone custodian) [redacted] repl balance of pole where 4/0 copper is being retained, the poles that do not required clearance or size.			
OTHER	16-ALL14	[redacted]	$1,800.00
OTHER [redacted] once [redacted] is converted tie the [redacted]			
OH WIRE	16-OH25		$45,600.00
OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) ott t[redacted]			
OH WIRE	16-OH31		$7,680.00
OH - Neutral ott to [redacted]			
XF	16-OH45		$8,438.40

Design Alternative CD01546-01

OH - OH XF - 1ph ott to [redacted]			
EQUIPMENT OH - Conversion - CUTOVER ott to [redacted]	16-OH58	[redacted]	$3,211.20
POLE OH - POLE - 1ph (Telephone custodian) ott to [redacted] repl balance of poles	16-OH11		$5,628.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] 20h2 [redacted]	16-OH58		$535.20
OH WIRE OH - Remove circuit wire (3 phase) [redacted] rem 20h2 underbuild	16-OH37A		$4,480.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$535.20
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] 20h2 [redacted]	16-OH25		$2,400.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted]	16-OH12		$3,560.00
UG CABLE DB/UG - 1/0 - 3-1/C (3ph) Cu [redacted]	16-UG113A		$5,640.00
XF DB/UG - Padmount XF - 3ph [redacted]	16-UG131		$6,299.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$535.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$535.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$535.20
OTHER	16-ALL14		$500.00

Design Alternative			CD01546-01
OTHER [redacted]			
EQUIPMENT OH - Conversion Prep Work - 1ph [redacted]	16-OH56	[redacted]	$1,236.00
EQUIPMENT OH - Conversion Prep Work - 3ph [redacted]	16-OH57		$2,060.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$535.20

Design Alternative CD01546-02

Estimate

Preliminary
Estimate Summary

Revision Number:	1
Contingency:	24.00%
SubTotal:	$1,180,505
Contingency Amount:	$283,321
Estimate:	$1,463,826
Reimbursement:	$0
Net Amount:	$1,463,826
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$272,424.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] sidetap at pole [redacted]	16-OH25			$45,600.00
OH WIRE OH - Neutral [redacted] sidetap at pole [redacted]	16-OH31			$2,560.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] sidetap at pole [redacted]	16-OH58			$3,211.20
POLE OH - POLE - 1ph (Telephone custodian) [redacted] sidetap at pole [redacted] balance of poles	16-OH11			$9,380.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] from smain side	16-OH25			$33,600.00
OH WIRE OH - Neutral [redacted] from smain side	16-OH31			$6,400.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted] from smain side	16-OH37A			$4,480.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] from smain side	16-OH58			$2,676.00

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POLE OH - POLE - 1ph (Telephone custodian) [redacted]rom smain side, balance of poles	16-OH11	[redacted]	$9,380.00
POLE OH - POLE - 1ph (Telephone custodian) [redacted]rom smain side, to pole [redacted] backyard	16-OH11		$3,752.00
EQUIPMENT OH - Conversion Prep Work - 3ph mansion, pole [redacted]	16-OH57		$2,060.00
EQUIPMENT OH - Conversion - CUTOVER mansion, pole [redacted]	16-OH58		$535.20
POLE OH - POLE - 3ph (Telephone custodian) mansion, pole [redacted]	16-OH12		$3,560.00
OTHER OTHER mansion, pole [redacted]ser and mobile taps	16-ALL14		$2,000.00
EQUIPMENT OH - Conversion Prep Work - 3ph mansion, pole [redacted]	16-OH57		$2,060.00
EQUIPMENT OH - Conversion - CUTOVER mansion, pole [redacted]150kva, per dars cable is 4ct 25kv	16-OH58		$535.20
EQUIPMENT OH - Conversion Prep Work - 3ph mansion, pole [redacted]	16-OH57		$2,060.00
EQUIPMENT OH - Conversion - CUTOVER mansion, pole [redacted]	16-OH58		$535.20
POLE OH - POLE - 1ph (Telephone custodian) [redacted]	16-OH11		$3,752.00
OH WIRE OH - Neutral [redacted]	16-OH31		$1,280.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$4,219.20

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EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58	[redacted]	$1,070.40
OH WIRE OH - Neutral [redacted] sidetap at pole [redacted]	16-OH31		$2,560.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] sidetap at pole [redacted] recond with1/0 tw	16-OH25		$4,800.00
XF OH - OH XF - 1ph [redacted] sidetap at pole [redacted] increase xf on pole [redacted] to 50kva and extend sec to step pole [redacted]	16-OH45		$2,109.60
XF OH - Stepdown - 1ph - on POLE [redacted] sidetap at pole [redacted] install step down on pole [redacted]	16-OH49	[redacted]	$6,800.00
XF OH - OH XF - 1ph [redacted] sidetap at pole [redacted] install xt on pole [redacted] and extend sec to step pole [redacted]	16-OH45		$2,109.60
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of precontingency total	16-ALL18	[redacted]	$114,897.00
POLE OH - POLE - 1ph (Telephone custodian) rabineau	16-OH11		$1,876.00
OH WIRE OH - Neutral rabineau	16-OH31		$960.00
XF OH - OH XF - 1ph rabineau	16-OH45		$2,109.60
EQUIPMENT OH - Conversion - CUTOVER rabineau	16-OH58		$535.20
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 rabineau record 3-sections of 3-ph with 1/0 tw from pole [redacted]	16-OH26a		$27,720.00
OH WIRE OH - Remove circuit wire (3 phase) rabineau rem 3-sections of 2-ph #4 from pole [redacted]	16-OH37A	[redacted]	$1,440.00
EQUIPMENT	16-OH58		$4,816.80

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Design Alternative CD01546-02

OH - Conversion - CUTOVER [redacted] b/w poles [redacted]			
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil [redacted] b/w poles 138 [redacted] & 112 [redacted] recond 4/0 aac with 556 SC	16-OH29	[redacted]	$348,160.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted] b/w poles [redacted] recond 4/0 aac with 556 tw balance of poles	16-OH12	[redacted]	$42,720.00
XF OH - OH XF - 1ph [redacted] b/w poles [redacted] xf's not duals in dars	16-OH45	[redacted]	$6,328.80
SECTIONALIZE OH - Cutouts or Arresters - 1ph [redacted] b/w poles [redacted], at pole 122 install 600A cutout style switchs	16-OH19	[redacted]	$1,371.20
EQUIPMENT OH - Remove Capacitor, any kVAR [redacted] b/w poles [redacted], at pole 122 rem cap bank	16-OH54	[redacted]	$1,800.00
EQUIPMENT OH - Remove Capacitor, any kVAR [redacted] b/w poles [redacted], pole 115 rem cap bank	16-OH54	[redacted]	$1,800.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted] b/w poles [redacted] sidetap	16-OH12	[redacted]	$7,120.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] b/w poles [redacted] sidetap	16-OH58	[redacted]	$535.20
POLE OH - POLE - 1ph (Telephone custodian) [redacted] b/w poles [redacted] idetap	16-OH11	[redacted]	$1,876.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] b/w poles [redacted] idetap	16-OH25	[redacted]	$3,600.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] b/w poles [redacted] sidetap	16-OH58	[redacted]	$535.20
EQUIPMENT OH - Conversion - CUTOVER [redacted] b/w poles [redacted]	16-OH58	[redacted]	$535.20
OTHER	16-ALL14	[redacted]	$1,800.00

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OTHER [redacted]b/w poles [redacted]remove step up			
XF OH - OH XF - 1ph [redacted]b/w poles [redacted]	16-OH45	[redacted]	$2,109.60
EQUIPMENT OH - Conversion - CUTOVER [redacted]b/w poles [redacted]	16-OH58		$535.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]b/w poles [redacted]	16-OH58		$535.20
POLE OH - POLE - 3ph (Telephone custodian) [redacted]/w poles [redacted]convert to 23kv but retain 4/0 Cu	16-OH12		$53,400.00
OH WIRE OH - Neutral [redacted]b/w poles [redacted]convert to 23kv but retain 4/0 Cu	16-OH31		$8,960.00
EQUIPMENT OH - Conversion Prep Work - 3ph [redacted]b/w poles [redacted]convert to 23kv but retain 4/0 Cu, the poles not being replaced	16-OH57		$26,780.00
XF OH - OH XF - 1ph [redacted]b/w poles [redacted]xf's not duals in dars	16-OH45	[redacted]	$6,328.80
XF OH - OH XF's - bank of 3-1ph [redacted]b/w poles [redacted]xf's not duals in dars	16-OH46		$15,057.60
EQUIPMENT OH - Conversion - CUTOVER [redacted]pole 1[redacted]and pad [redacted]per dars 25kv cable and dual pad	16-OH58		$535.20
EQUIPMENT OH - Conversion Prep Work - 1ph [redacted]ole[redacted]	16-OH56	[redacted]	$1,236.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]pole [redacted]	16-OH58		$3,746.40
EQUIPMENT OH - Conversion Prep Work - 1ph [redacted]pol[redacted]	16-OH56		$1,236.00
EQUIPMENT	16-OH58		$535.20

Design Alternative CD01546-02

OH - Conversion - CUTOVER [redacted] pole [redacted]			
OTHER OTHER [redacted] pole [redacted] remove stepup	16-ALL14	[redacted]	$1,800.00
EQUIPMENT OH - Conversion Prep Work - 3ph [redacted] pole [redacted]	16-OH57		$2,060.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] pole [redacted]	16-OH58		$535.20
XF DB/UG - Padmount XF - 3ph [redacted] pole [redacted] per dars cable is 25kv sc 01776910 for pad is unknown	16-UG131		$6,299.20
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] pole [redacted]	16-OH25	[redacted]	$9,600.00
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 [redacted] pole [redacted]	16-OH26a		$12,320.00
OH WIRE OH - Neutral [redacted] pole [redacted]	16-OH31		$1,280.00
OH WIRE OH - Remove circuit wire (1 phase) [redacted] pole [redacted]	16-OH37		$480.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted] pole [redacted]	16-OH37A		$640.00
EQUIPMENT OH - Conversion - CUTOVER [redacted] pole [redacted]	16-OH58		$535.20
XF OH - Stepdown - 1ph - on POLE [redacted] rem 4.8/13.8 stepup & install 23/13.8 stepdown	16-OH49		$6,800.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted] pole [redacted]	16-OH12		$3,560.00
XF OH - OH XF's - bank of 3-1ph	16-OH46		$5,019.20

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s main, pole 5647			
EQUIPMENT OH - Conversion - CUTOVER [redacted] pole [redacted]	16-OH58		$535.20

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Design Alternative CD01546-03

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	24.00%
SubTotal:	$848,964
Contingency Amount:	$203,751
Estimate:	$1,052,715
Reimbursement:	$0
Net Amount:	$1,052,715
Description:	

Item Description	CU	$ / Per	Qty	Amount
OH WIRE OH - Remove circuit wire (1 phase)	16-OH37	[redacted]		$8,160.00
OTHER OTHER 30% contractor adder	23-ALL14			$195,915.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil [redacted]recond 4300 feet of 1-ph with 556 SC and close in the open between [redacted]	16-OH29			$440,320.00
POLE OH - POLE - 3ph (Telephone custodian) fenn, balance of poles	16-OH12			$49,840.00
OTHER OTHER Fenn, ett the atea currently open, based on estimate from arborist	16-ALL14			$30,000.00
OH WIRE OH - Neutral [redacted]idetap	16-OH31			$1,280.00
POLE OH - POLE - 1ph (Telephone custodian) [redacted]idetap, balance of poles	16-OH11			$3,752.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]idetap, recond #4 Cu with 1/0 tw	16-OH25			$17,280.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of precontingency total	16-ALL18			$102,417.00

Project Approval Form

Design Alternative CD01546-04

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	24.00%
SubTotal:	$392,222
Contingency Amount:	$94,133
Estimate:	$486,355
Reimbursement:	$0
Net Amount:	$486,355
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$90,513.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25			$4,800.00
OH WIRE OH - Neutral [redacted]	16-OH31			$1,280.00
XF OH - Stepdown - 1ph - on POLE [redacted]pole 4231, 500 kva step down	16-OH49			$6,800.00
OH WIRE OH - Remove circuit wire (1 phase) [redacted]rem 2200 feet of the center phase from pole [redacted]	16-OH37			$5,280.00
XF OH - OH XF - 1ph [redacted] replace 15kva on pole [redacted] with a 50kva and extend the sec to the step pole on [redacted]	16-OH45	[redacted]		$2,109.60
TRAFFIC OH/DB/UG - Traffic Control - Police Officer [redacted]	16-ALL18	[redacted]		$39,352.00
XF OH - Stepdown - 1ph - on POLE [redacted], inst step on pole [redacted]	16-OH49			$6,800.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]recond[redacted]	16-OH25			$36,000.00

Project Approval Form

Design Alternative			CD01546-04
OH WIRE OH - Remove circuit wire (3 phase) [redacted] record [redacted]	16-OH37A	[redacted]	$4,800.00
XF OH - OH XF - 1ph [redacted] record [redacted]	16-OH45		$8,438.40
EQUIPMENT OH - Conversion - CUTOVER [redacted] record [redacted]	16-OH58		$2,140.80
POLE OH - POLE - 1ph (Telephone custodian) [redacted] record [redacted] balance of poles	16-OH11		$3,752.00
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 [redacted]	16-OH26a		$117,040.00
OH WIRE OH - Neutral [redacted]	16-OH31		$5,120.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$6,328.80
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$3,211.20
POLE OH - POLE - 3ph (Telephone custodian) [redacted] balance of poles	16-OH12		$7,120.00
OTHER OTHER [redacted] REM step up on rockview	16-ALL14		$1,800.00
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 [redacted]	16-OH26a		$32,340.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$4,219.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$1,605.60

Design Alternative			CD01546-04
SECTIONALIZE OH - Cutouts or Arresters - 1ph [redacted] create open at pole [redacted] with open cutout	16-OH19		$1,371.20

Design Alternative CD01546-05

Estimate

Preliminary
Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$1,155,948
Contingency Amount:	$277,428
Estimate:	$1,433,376
Reimbursement:	$0
Net Amount:	$1,433,376
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$266,757.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted]	16-OH37A			$13,440.00
XF OH - OH XF - 1ph [redacted]	16-OH45			$16,876.80
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58			$4,816.80
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted] recond [redacted]	16-OH25			$36,000.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted] recond [redacted]	16-OH37A			$4,800.00
XF OH - OH XF - 1ph [redacted] recond [redacted]	16-OH45			$4,219.20
EQUIPMENT OH - Conversion - CUTOVER [redacted] recond [redacted]	16-OH58			$2,140.80
POLE OH - POLE - 1ph (Telephone custodian) [redacted] recond [redacted] balance of 50%	16-OH11			$3,752.00

Project Approval Form

Design Alternative			CD01546-05
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 [redacted]	16-OH26a	[redacted]	$117,040.00
OH WIRE OH - Neutral [redacted]	16-OH31		$5,120.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$6,328.80
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$3,211.20
POLE OH - POLE - 1ph (Telephone custodian) [redacted] balance of poles	16-OH11		$3,752.00
OTHER OTHER [redacted] REM step up on rockview	16-ALL14		$1,800.00
POLE OH - POLE - 3ph (Telephone custodian) [redacted] balance of 50%	16-OH12		$21,360.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil [redacted] recond w/556 3-ph b/w [redacted]	16-OH27		$325,920.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25		$43,200.00
OH WIRE OH - Neutral [redacted]	16-OH31		$5,760.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted]	16-OH37A		$5,760.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$12,657.60
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$3,746.40

Project Approval Form

Design Alternative			CD01546-05
POLE OH - POLE - 1ph (Telephone custodian) [redacted]balance of 50%	16-OH11	[redacted]	$9,380.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25		$60,000.00
OH WIRE OH - Neutral [redacted]	16-OH31		$6,720.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted]	16-OH37A		$8,000.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$8,438.40
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$4,816.80
POLE OH - POLE - 1ph (Telephone custodian) [redacted] balance of 50%	16-OH11		$7,504.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25		$18,000.00
OH WIRE OH - Neutral [redacted]	16-OH31		$960.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted]	16-OH37A		$2,400.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$4,219.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$1,070.40
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of precontingency total	16-ALL18		$115,981.00

Project Approval Form

Design Alternative CD01546-06

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	24.00%
SubTotal:	$332,294
Contingency Amount:	$79,751
Estimate:	$412,045
Reimbursement:	$0
Net Amount:	$412,045
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$76,683.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25			$24,000.00
OH WIRE OH - Neutral [redacted]	16-OH31			$960.00
OH WIRE OH - Remove circuit wire (1 phase) [redacted]	16-OH37			$2,880.00
XF OH - OH XF - 1ph [redacted]	16-OH45			$6,328.80
XF OH - OH XF - 1ph [redacted]	16-OH45			$4,219.20
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58			$1,070.40
OTHER OTHER [redacted] rem stepup	16-ALL14			$1,800.00
POLE OH - POLE - 1ph (Telephone custodian) [redacted]	16-OH11			$16,884.00

Project Approval Form

Design Alternative			CD01546-06
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25	[redacted]	$91,200.00
OH WIRE OH - Neutral [redacted]	16-OH31		$11,520.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted]	16-OH37A		$12,160.00
XF OH - OH XF - 1ph [redacted]	16-OH45		$8,438.40
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$8,028.00
OTHER OTHER [redacted] hidden, stonehendg, rem step down @ 1800 ea	16-ALL14		$5,400.00
OTHER OTHER [redacted] rem reg	16-ALL14		$1,800.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) [redacted]	16-OH25		$18,000.00
OH WIRE OH - Neutral [redacted]	16-OH31		$960.00
OH WIRE OH - Remove circuit wire (1 phase) [redacted]	16-OH37		$1,800.00
EQUIPMENT OH - Conversion - CUTOVER [redacted]	16-OH58		$1,070.40
POLE OH - POLE - 1ph (Telephone custodian) [redacted] balance of poles	16-OH11		$3,752.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of precontingency total	16-ALL18		$33,340.00

Project Approval Form

Design Alternative CD01546-07

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$123,338
Contingency Amount:	$29,601
Estimate:	$152,939
Reimbursement:	$0
Net Amount:	$152,939
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 30% contractor adder	23-ALL14	[redacted]		$28,463.00
TREE OH - Tree Trimming estimate from arborist	16-OH61			$30,000.00
OH WIRE OH - Line Extension - 1ph (any gauge) [redacted] close gap between [redacted]	16-OH32			$52,500.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of prfecontingency total	16-ALL18			$12,375.00

Project Approval Form

Design Alternative CD01546-08

Estimate

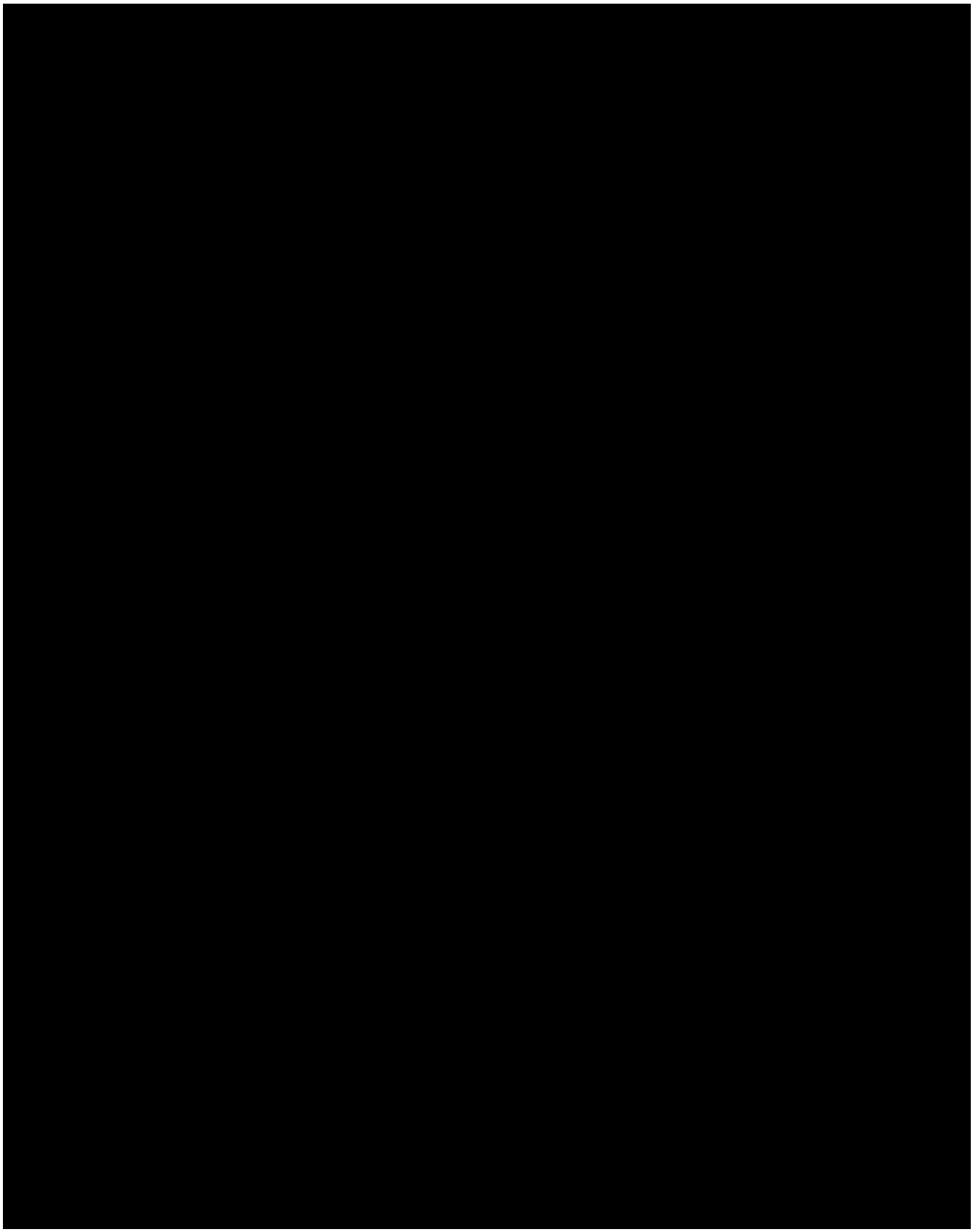
	Preliminary Estimate Summary
Revision Number:	1
Contingency:	24.00%
SubTotal:	$151,463
Contingency Amount:	$36,351
Estimate:	$187,814
Reimbursement:	$0
Net Amount:	$187,814

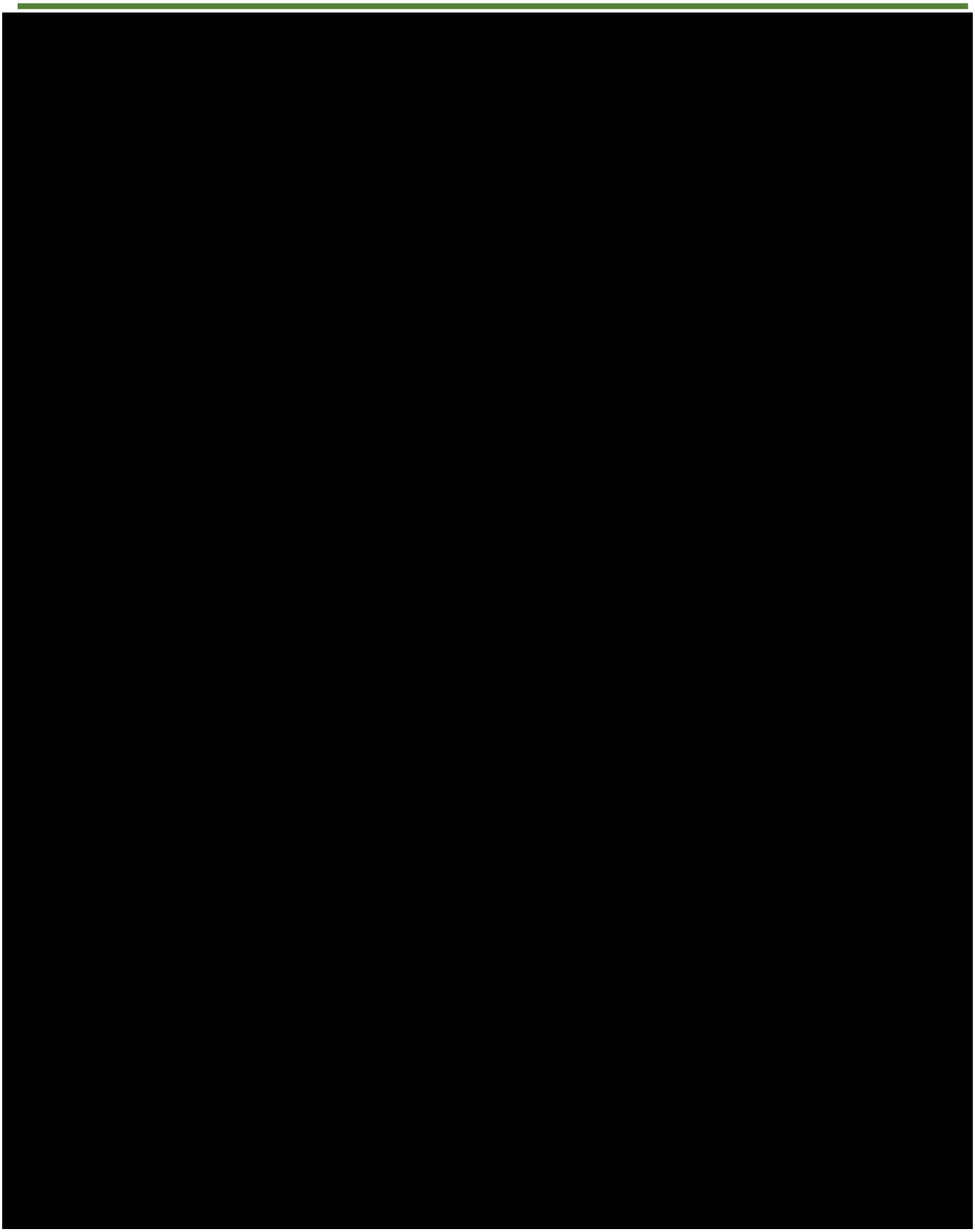
Description:

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$3,509.60
OTHER OTHER 30% contractor adder	23-ALL14			$34,953.00
EQUIPMENT OH - Regulators, 3-1ph - on RACK 3-PH regulator, 5% voltage regulation	16-OH48			$61,800.00
OH WIRE OH - Line Extension - 3ph (556 kcmil) for necessary connections	16-OH34			$36,000.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer police 15% of precontingency total	16-ALL18			$15,200.00

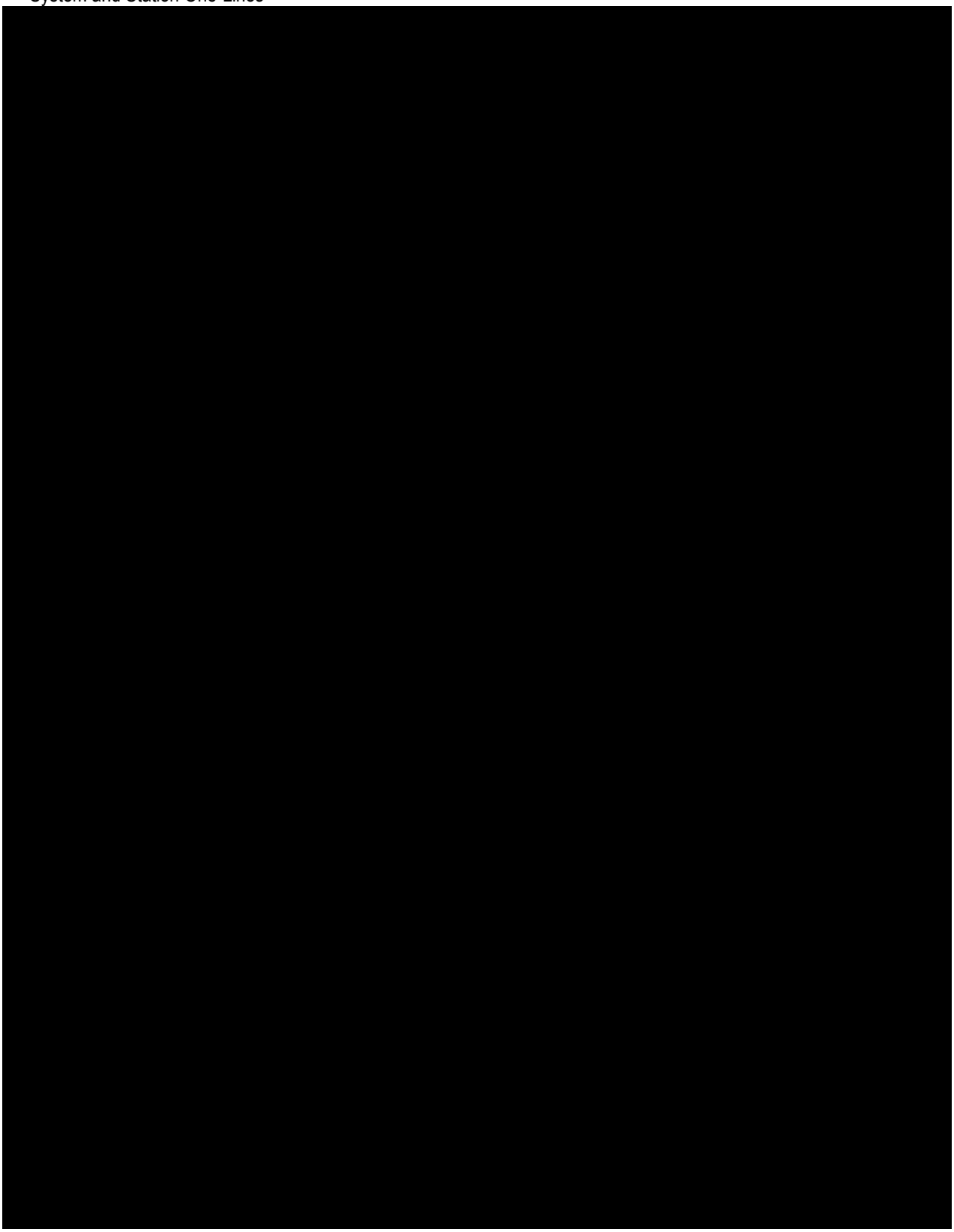
Project map.pdf

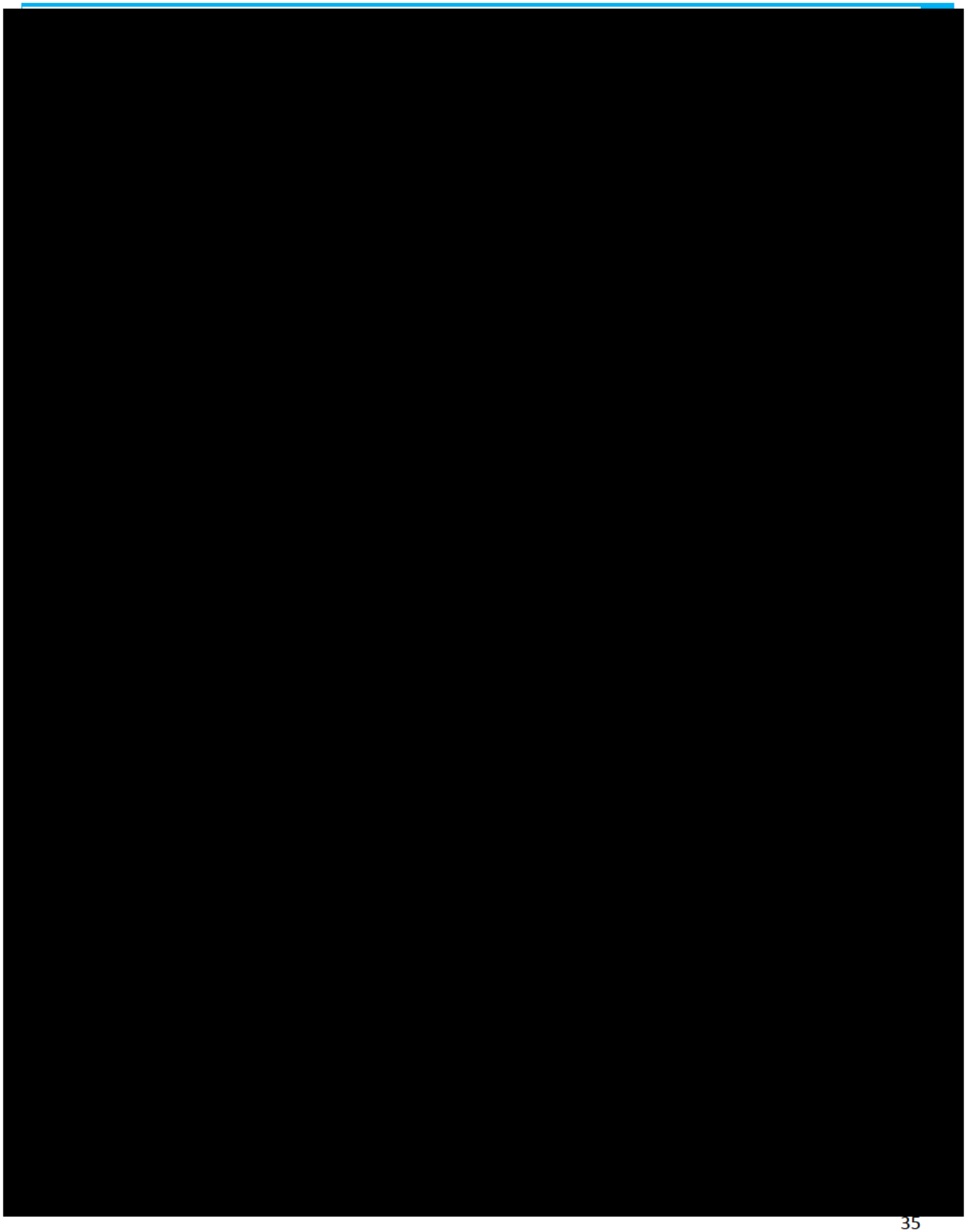
Geographic Map is pasted in whole and attached for more clarity.

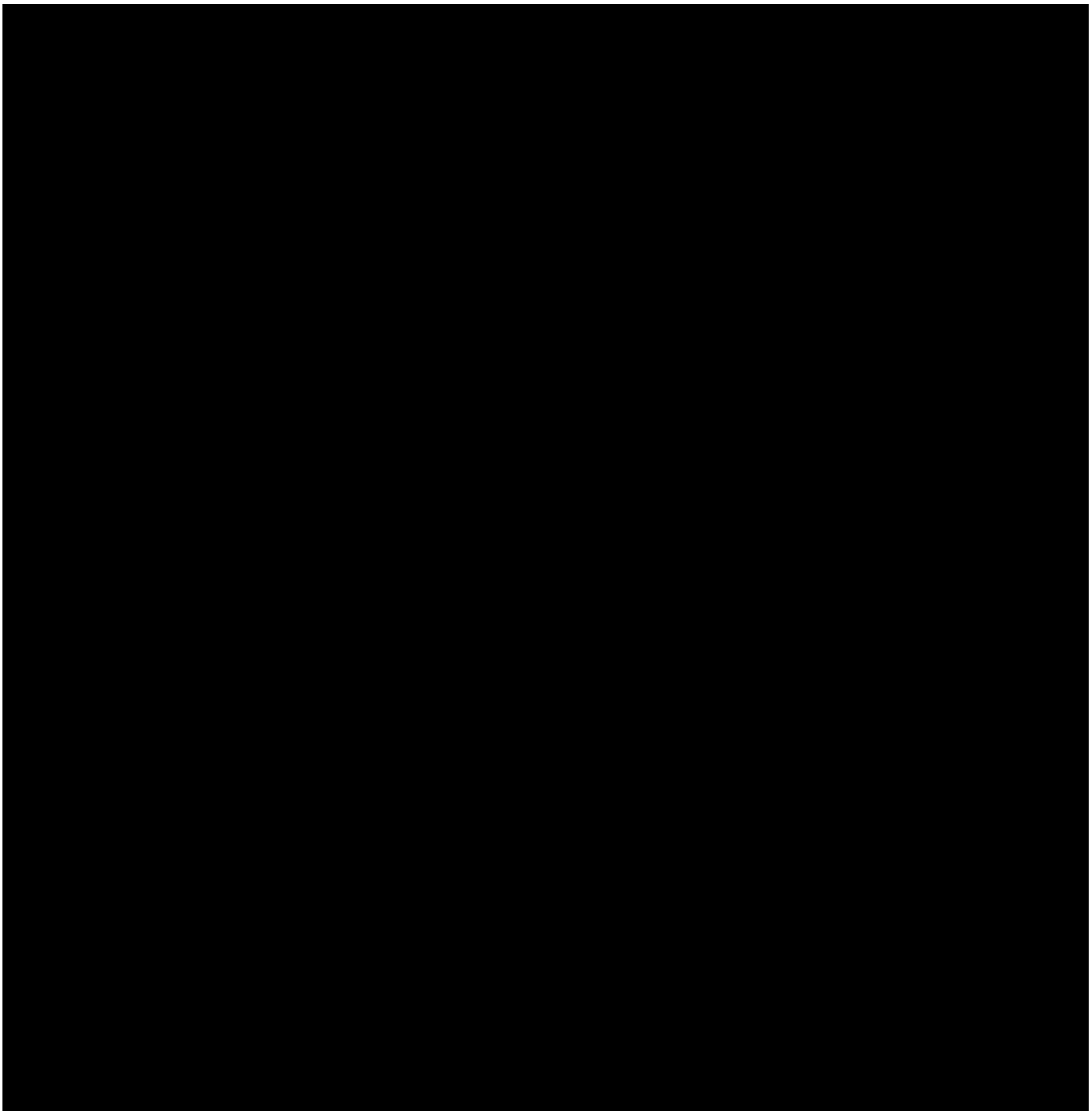




System and Station One-Lines

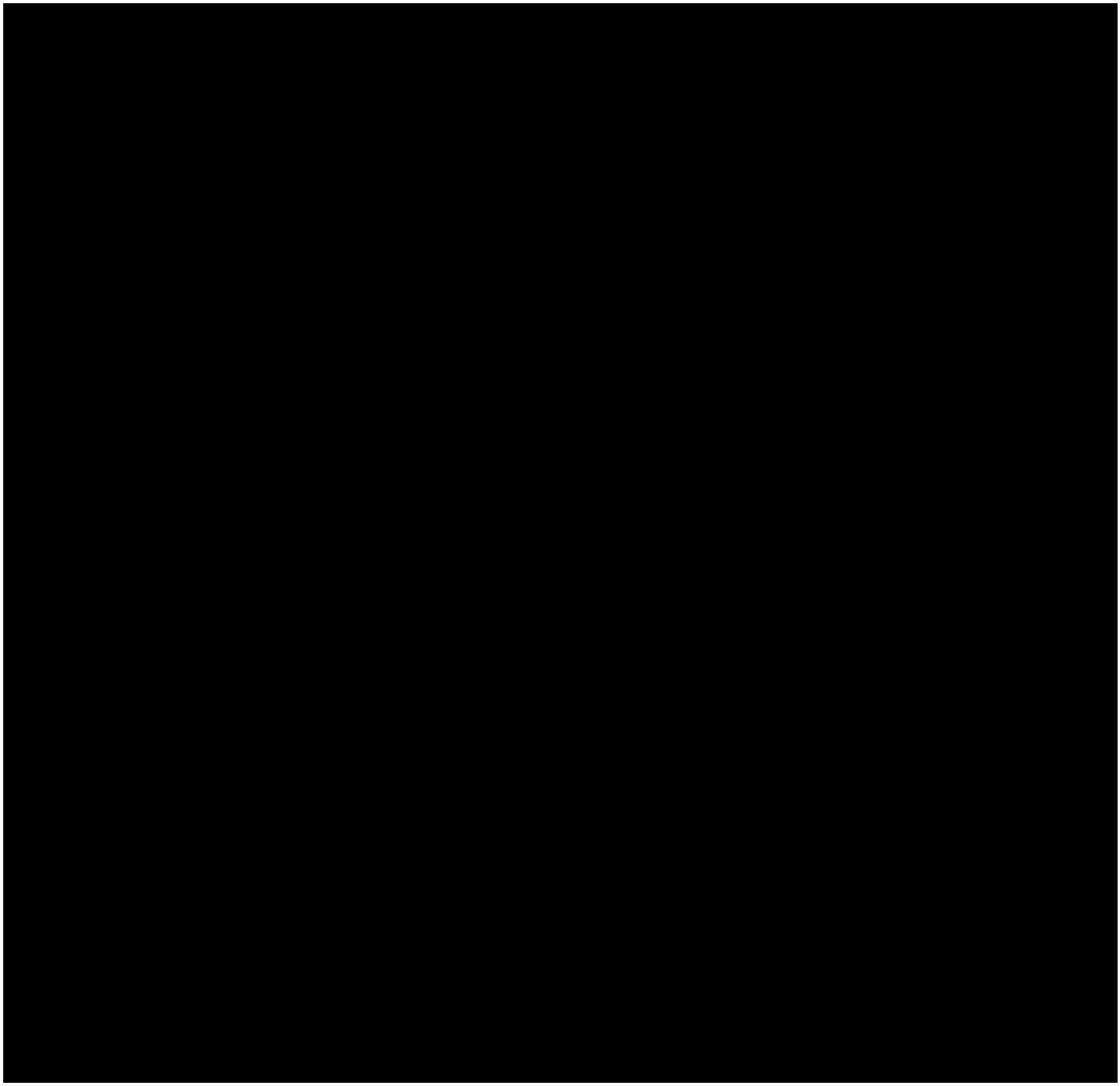


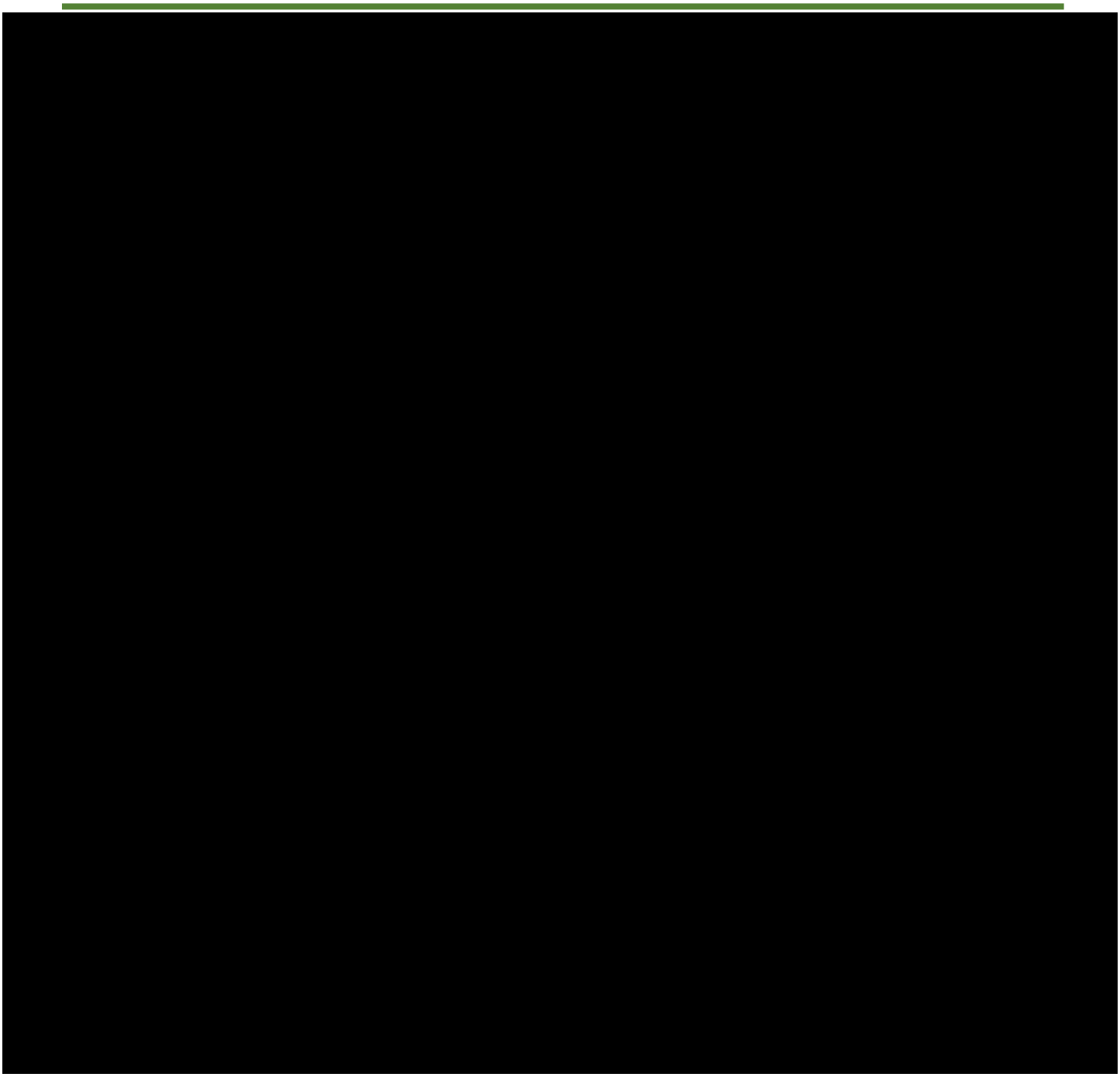


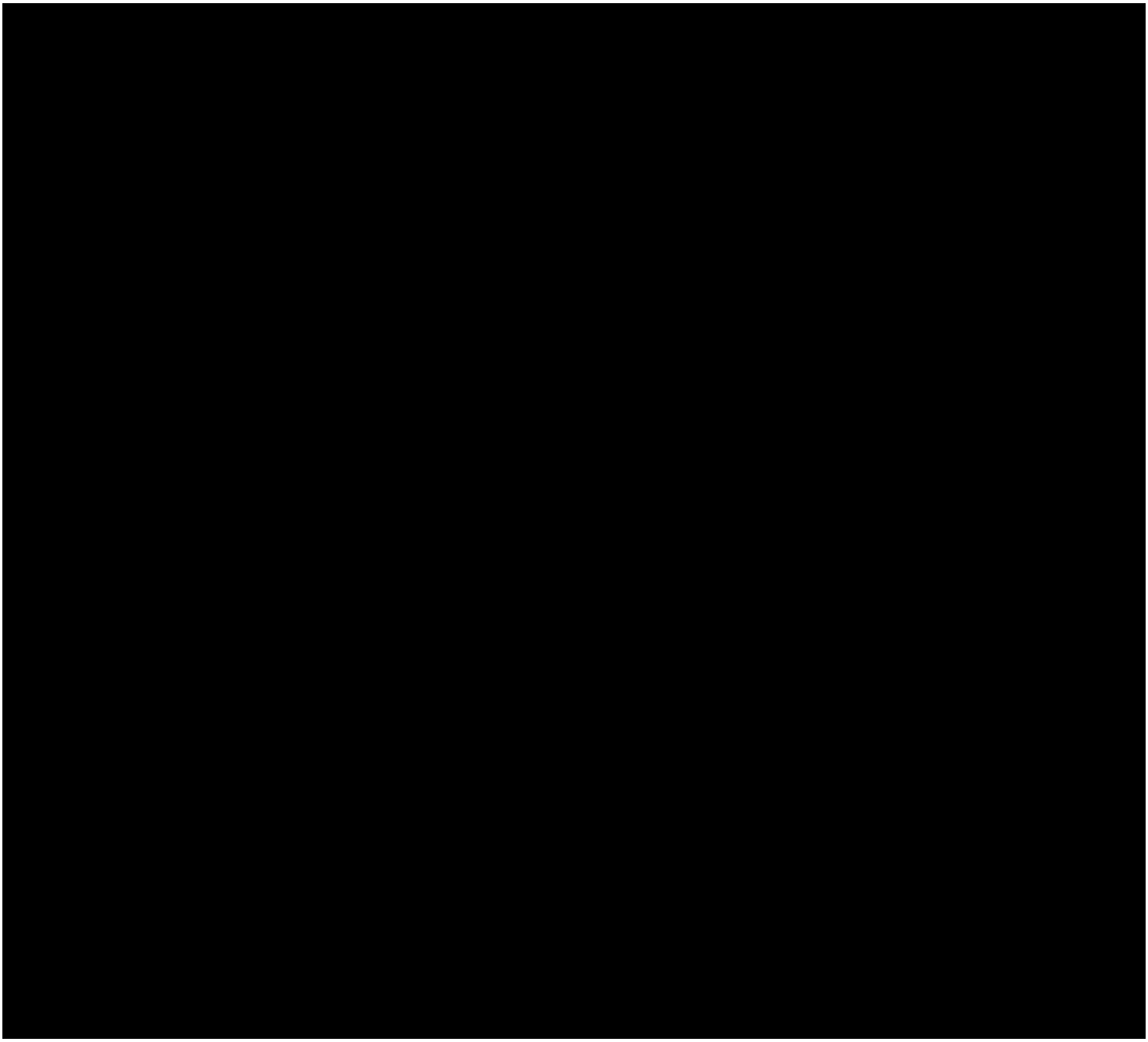












Operations Project Authorization Form

Date Prepared: 06/15/2021	**Project Title: [redacted] 4.8 kV feeders**
Company/ies: Eversource CT	**Project ID Number: CD01546**
Organization: Distribution Engineering	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Line**
Project Manager: [redacted]	**Project Type: Hi over Lo Voltage Removal**
Project Sponsor: [redacted]	**Project Purpose: Convert 4.8kV feeders and [redacted]**
Estimated in service date: 12/31/2022	**If Transmission Project: PTF? No**
Eng. / Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan? Yes**
Authorization Type: Preliminary Funding	**O&M Expenses Part of the Original Operating Plan? Yes**
Total Request: $4,046,019	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

Project CD01546 converts away [redacted]

[redacted]

[redacted]

Project Costs Summary
In thousands of dollars

	Prior Authorized	2022	2023	2024+	Totals
Capital Additions - Direct	$0	$2,089	$0	$0	$2,089
Removals net of Salvage ___%	$0	$224	$0	$0	$224
Total - Direct Spending	$0	$2,313	$0	$0	$2,313
Capital Additions - Indirect	$0	$1,470	$0	$0	$1,470
Subtotal Request	$0	$3,783	$0	$0	$3,783
AFUDC	$0	$27	$0	$0	$27
Total Capital Request	$0	$3,811	$0	$0	$3,811
O&M	$0	$235	$0	$0	$235
Total Request	$0	$4,046	$0	$0	$4,046

Financial Evaluation

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$468	$0	$0	$468
Overtime Labor	$92	$0	$0	$92
Outside Services	$1,216	$0	$0	$1,216
Materials	$480	$0	$0	$480
Other, including contingency amounts (describe)	$58	$0	$0	$58
Total Direct Costs	**$2,313**	**$0**	**$0**	**$2,313**

Indirect Capital Costs	Year 1	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	$1,470	$0	$0	$1,470
Capitalized interest or AFUDC, if any	$26	$0	$0	$26
Total Indirect Costs	**$1,496**	**$0**	**$0**	**$1,496**
Total Capital Costs	**$3,809**	**$0**	**$0**	**$3,809**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$3,809**	**$0**	**$0**	**$3,809**
Total O&M Project Costs	**$237**	**$0**	**$0**	**$237**

Total Project Cost	**$ 4,046**	**$ -**	**$ -**	**$ 4,046**

AIMS Cost Estimate Snapshot:

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01546
Convert [redacted]

Work Classification

Category: Line
Type: RBOE
Type Desc: HI OVER LO VOLTAGE REMOVAL
Work Type:

Ownership / Management

AWC: Cheshire
Statewide: No
Owner
Manager [redacted]

Project Information

Status: Draft
SPS #:
AIS Score:
Associated Projects:
Assignment ID:
Patrol Find ID:

Budget Summary - Preferred Option

Convert 20H2 and 20H3

2022

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
1	Conver[redacted]/S to[redacted]	Prelim	0	24%	$1,274,669	$1,274,669
2	Conver[redacted]S/S to[redacted]	Prelim	0	24%	$1,126,020	$1,126,020
3	Recond[redacted]w/3-PH 556 SC	Prelim	0	24%	$809,781	$809,781
4	Conver[redacted] & Step	Prelim	0	24%	$374,119	$374,119
6	Convert[redacted]	Prelim	0	24%	$316,958	$316,958
8	Install Regulator	Prelim	0	24%	$144,472	$144,472
				2022 Total:	$4,046,019	$4,046,019
				Total Project:	$4,046,019	$4,046,019

Asset & Investment Management System 06/15/2021 Page 1 of 19

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01546
Convert [redacted]

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	Conver[redacted] and[redacted]	1,2,3,4,6,8	$4,046,019	$0	100%	$0.00	$0.00	☑
O2	Conver[redacted] convert [redacted]	1,2,3,5,6,8	$4,774,497	$0	100%	$0.00	$0.00	☐

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	Conver[redacted] S/S to [redacted]	$1,274,669			$0.00	$0.00
2	Convert[redacted] S/S to [redacted]	$1,126,020			$0.00	$0.00
3	Recond[redacted] w/3-PH 556 SC	$809,781			$0.00	$0.00
4	Convert[redacted] & Step	$374,119			$0.00	$0.00
5	Conver[redacted]	$1,102,597			$0.00	$0.00
6	Convert[redacted]	$316,958			$0.00	$0.00
7	[redacted] Close Gap 1-PH	$117,645			$0.00	$0.00
8	Install Regulator	$144,472			$0.00	$0.00

Asset & Investment Management System 06/15/2021 Page 2 of 19

Technical Justification:

Project Need Statement

The [redacted]

[redacted]

Project Objectives



Project Scope



Background / Justification



[redacted]

[redacted]

Business Process and / or Technical Improvements:

Old, antiquated, 4.8 kV plant greater than 60 years old will be retired, reducing maintenance costs.

All new overhead construction will be per current Eversource standards.

New automatic loop scheme will be created.

All customer zones will be below 500 customers.

Bare over bare eliminated.

Project Option Comparison

Preferred option: 3.879M, segments 1,2,3,4,6 & 8. [redacted].

Segment 5 instead of segment 4: net increase of $769K, convert [redacted] vs step. [redacted] Not chosen due to cost.

Segment 7 instead of segment 3: net decrease of $591K, [redacted]

	Option		
[redacted]			
Estimate Type	Partial	Partial	Partial
Capital Cost	$3,809M	$4.578M	$3.218M
Expense Cost	$.237M	$.196M	$.138M
Total Cost	$4.046M	$4.774M	$3.357M
Preferred option	X		

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Initial Funding Authorization	April 2021
Detailed Design	September 2021
Full Funding Authorization	December 2021
Construction Begin	January 2022
Construction End	December 2022

Regulatory Approvals

None

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	Low	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Internal construction resources not available to perform the work.	2022	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost if necessary.

Internal engineering resources not available to perform the work.	2022	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost if necessary.
Materials shortage or long lead times	2022	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2022	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2022	Medium	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Technological risks involving integration of new technology	2022	Low	Before use of new technology ensure support of standards and manufacturer. Schedule project to accommodate for extra time or ensure new technology is not on the critical path.

References