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Project Approval Form

Project Title: [redacted] **Remediation**	**Project Number: CD01687**
Date Prepared: 10/04/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RIGHT OF WAY LINES
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: 12/31/2025	
Total Capital Request: $15,258K	**Authorization Type:** Full Funding

1. Executive Summary

This project was established to cover the costs associated with remediation of [redacted], as a result of drone pole inspections performed in 2020.

- Approved Partial Funding Authorization: $11,866.8K at the 5/25/2023 OCRC meeting.
- Requesting Full Funding authorization: $15,258.6K or 129% of the Partial Funding authorization.
- Project Location:
  - Division: Central
  - District: Cheshire AWC
  - Towns: Newington, Farmington & New Britain

There is no change in scope. The increase is due to increased material and labor costs. The 2023 portion of this project has been completed, so the revised cost estimate reflects the actual dollars for 2023. The 2024 work will be done by contractors, but currently there is no bid for this work. The estimate for 2024 work, therefore, is based on detailed work orders, but used contractor labor premium and estimate for labor costs. Detailed estimates are not yet available for the 2025 work, so the 2025 portion of this project is based on the Partial Funding estimate, plus a premium for anticipated labor and material costs.

The 2023 work was done as specified.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2023	Year 2024	Year 2025_+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	5.7	368.7	256.3	630.7
Outside Services	809.0	1,857.0	2,509.9	5,175.9
Materials	518.6	638.1	633.9	1,790.6
Removals	164.8	406.0	481.2	1,052.0
Risk and Contingency	0.0	421.2	493.2	914.4
Other	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**1,498.1**	**3,691.0**	**4,374.5**	**9,563.6**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	634.8	2,345.5	2,695.3	5,675.6
Capitalized interest or AFUDC, if any	19.4	0.0	0.0	19.4
Subtotal – Indirect Costs	**654.2**	**2,345.5**	**2,695.3**	**5,694.9**
Total Gross Capital Costs	**2,152.3**	**6,036.5**	**7,069.8**	**15,258.6**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**2,152.3**	**6,036.5**	**7,069.8**	**15,258.6**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

The following is the ROW related outage history for these feeders, since 1/1/2007.

[redacted]

b. Project Need

Drone pole inspections were performed in 2020 on the facilities in the [redacted]. The patrol finds were ranked from 1 to 5, with one being the most severe. For the [redacted], there was one pole ranked as priority 1, 25 poles as priority 2 and 36 poles as priority three. The priority one find was already taken care of under a blanket ROW pole replacement work order.

[redacted] due to the large amount of work it will take to access the poles due to wetlands and/or ROW brush clearing.

c. Project Scope

[redacted]

4. Alternatives Considered

[redacted]

Project Option Comparison

Design Criteria	Option					
[redacted]						
Authorization Type	Full	Partial	Partial	Partial	Partial	Partial
Capital Cost	$15.3M	$10.1M	$12.5M	$21.2M	$36.8M	$101.8M
Expense Cost	$0.3M	$0.4M	$0.5M	$0.9M	$1.6M	$4.4M
Total Cost	$15.6M	$10.5M	$13.0M	$22.1M	$38.4M	$106.2M

Cost / CM Saved	$299/CM	$206/CM	$242/CM	$404/CM	$12.04/CM	$27.85/CM
Cost / CI Saved	$54.0K/CI	$56.7K/CI	$37.9K/CI	$60.3K/CI	$44.1K/CI	$54.6K/CI
Preferred option	X					

Note: the costs for options 2 thru 6 were updated to reflect the increased costs to account for the legacy units used, which are 30% lower than the units used today due to increased labor and material costs.

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Completion Date
Partial Funding Approval	May 25, 2023
Detailed Design, Segment 01, 02, 05 & 06	Completed
Detailed Design, Segments 04	June 2024
Full Funding Approval	October 12, 2023
Construction End Date, Segment 01	Completed
Construction End Date, Segments 02, 03, 05 & 06	December 31, 2024
Construction End Date, Segment 04	December 31, 2025

6. Regulatory Decisions

- None

7. Codes and Standards

- None

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023-25	Medium	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	2022-24	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2023-25	High	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.	2022-24	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2023-25	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023-25	Low	Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time.

9. References

- None

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

Attachment	Included in Submittal?
A. Cost Estimate	*N/A*
B. Geographic Map	*YES*
C. System and Station One-Lines	*YES*
D. Load Summary	*YES*
E. Partial Funding PAF	*YES*
F. Initial Funding PAF	*YES*

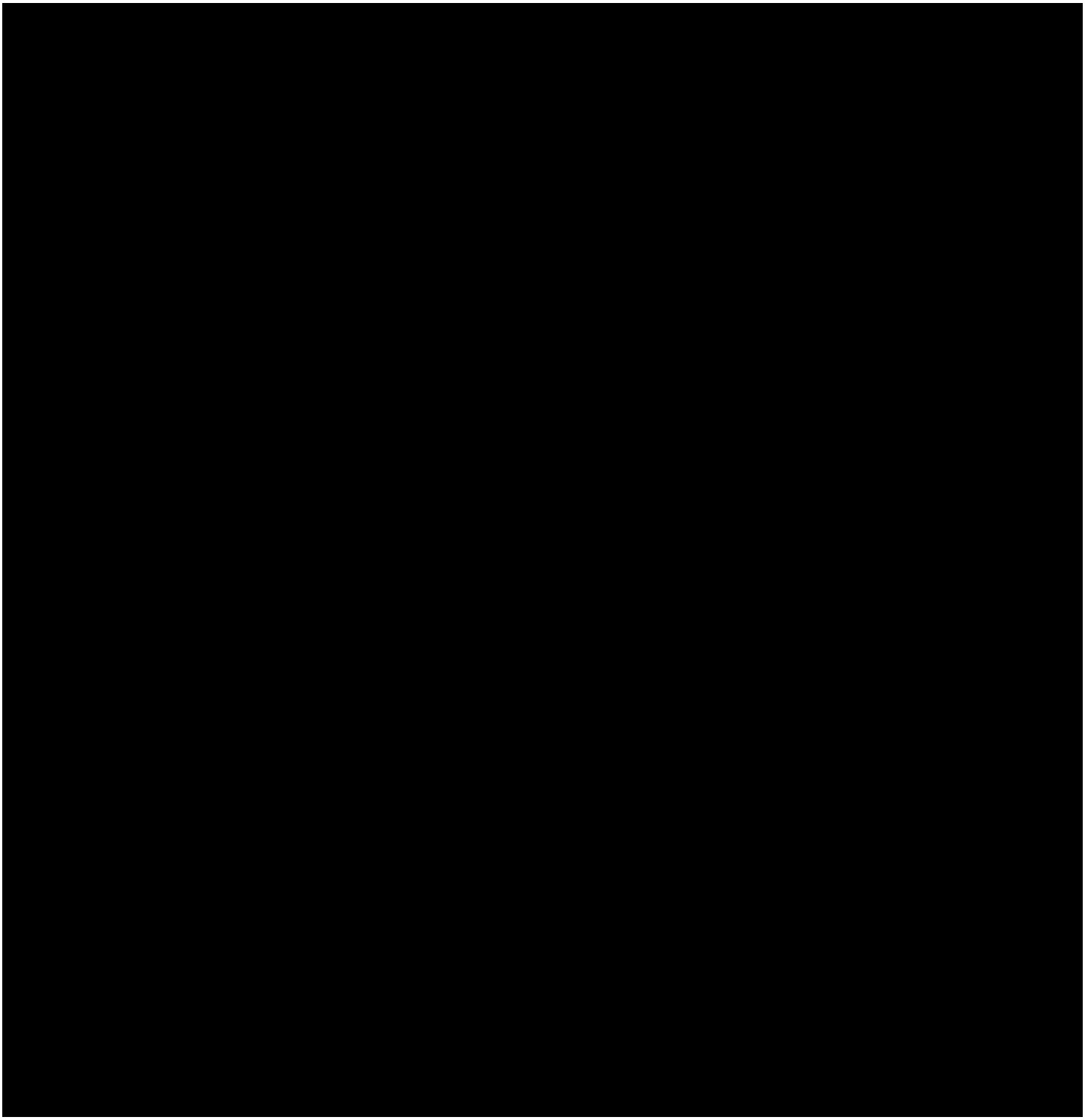
Attachment A – Cost Estimate

- N/A

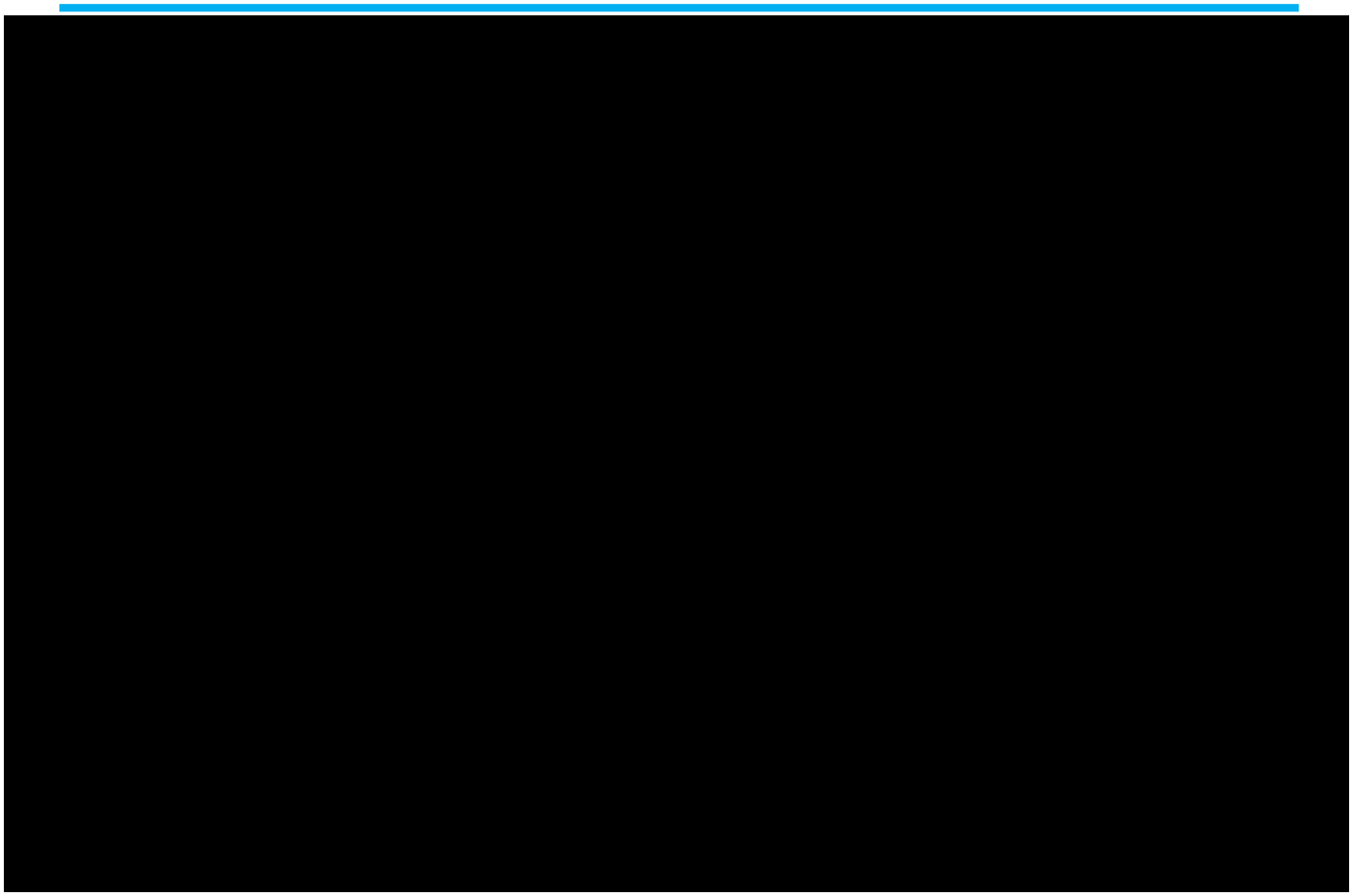
Attachment B – Maps

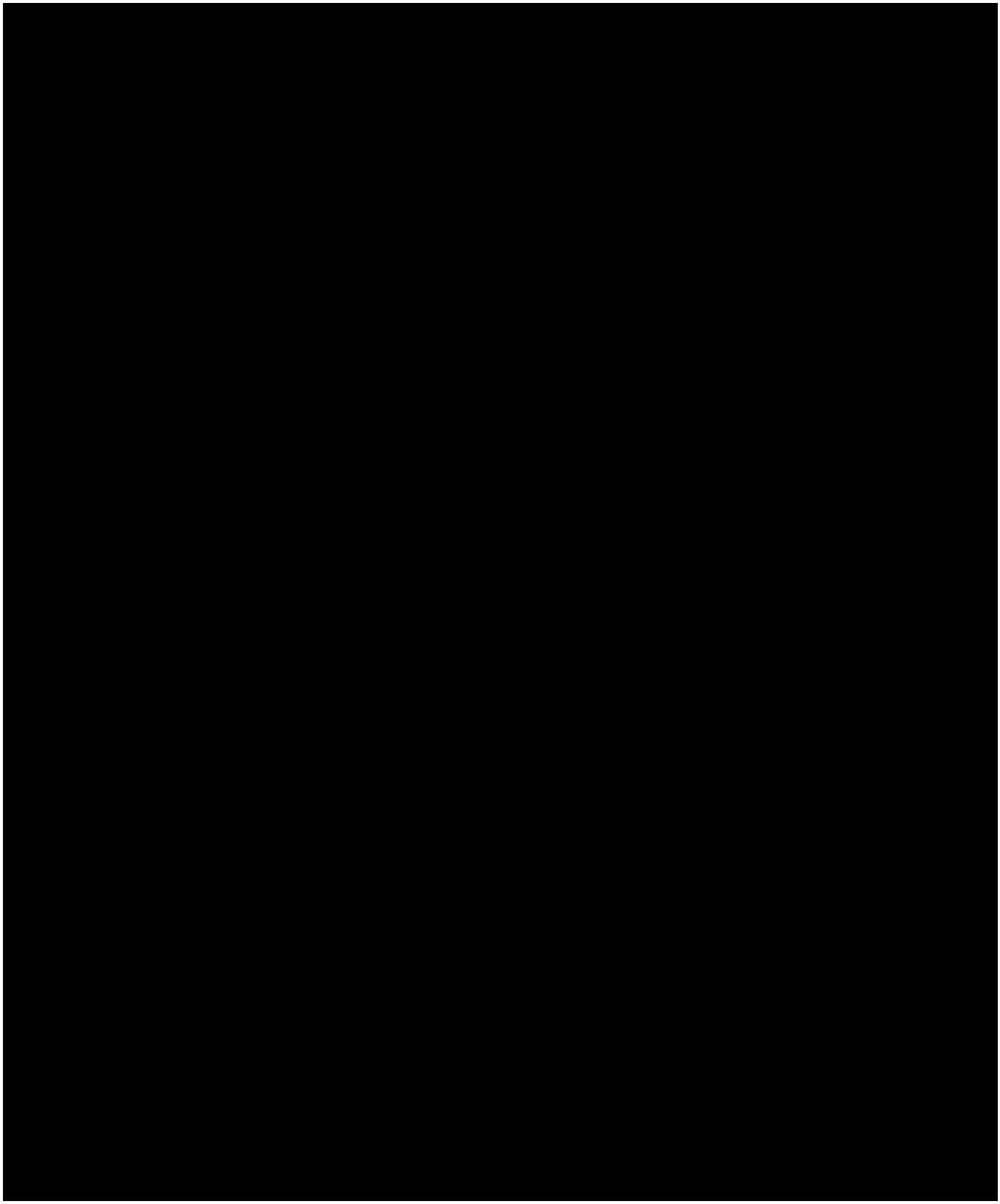


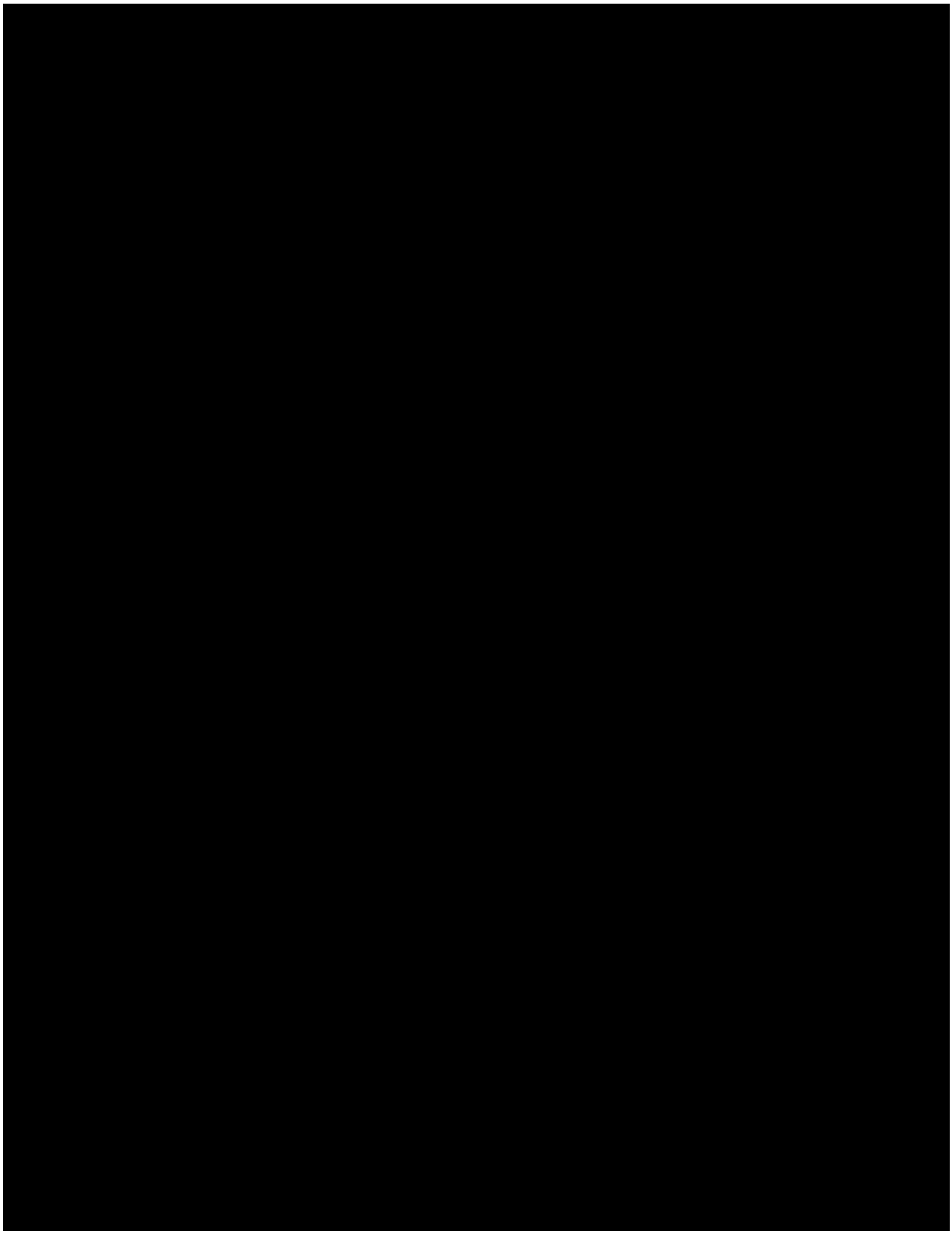


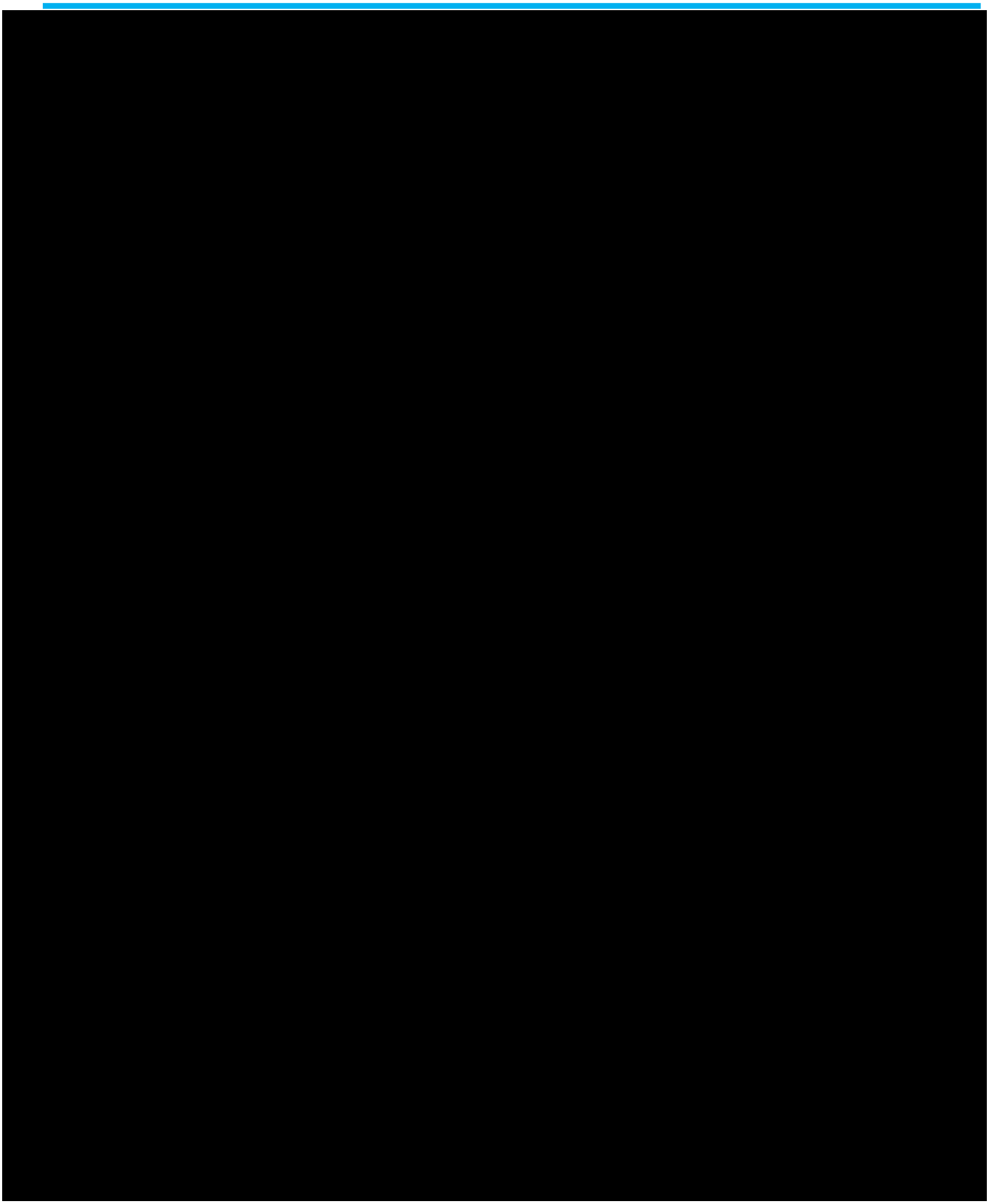


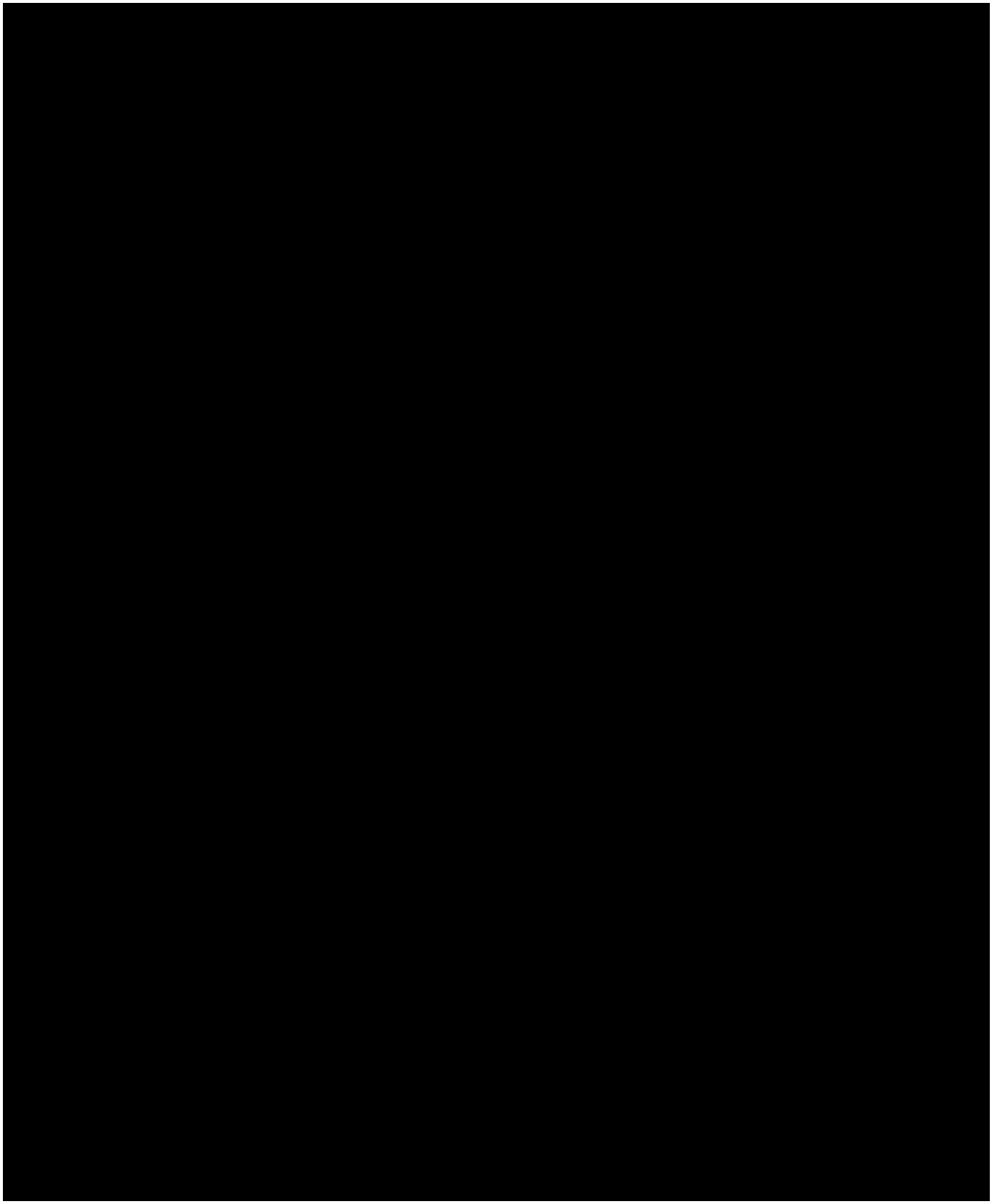














Attachment C – One-Lines



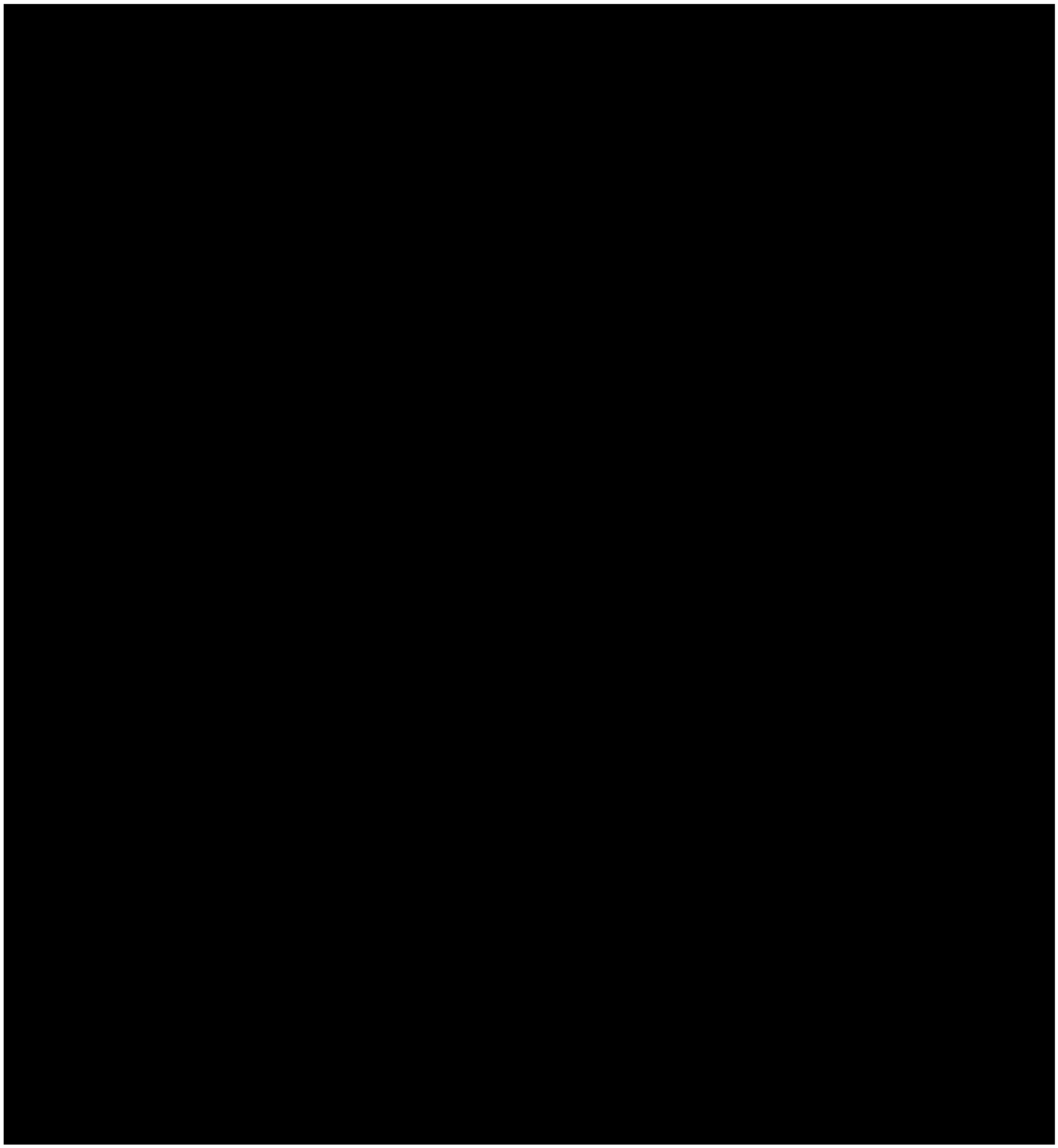
Attachment D – Load Summary

Project Load Summary

Project Number: CD01687

Project Name: ROW 032 Remediation

Before



Project Load Summary

Project Number: CD01687

Project Name: ROW 032 Remediation

Option 1

[redacted]

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Project Approval Form

Project Title [redacted] Remediation	Project Number: CD01687
Date Prepared: 08/25/2023	Company: Eversource CT
Organization: Distribution Engineering	Project Category: RIGHT OF WAY LINES
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: 12/31/2025	
Total Capital Request: $11,866.8K	Authorization Type: Partial Funding

1. Executive Summary

This project was established to cover the costs associated with remediation of [redacted] as a result of drone pole inspections performed in 2020. This ROW consists of the [redacted] line within the ROW. The lines are constructed with a mix of 336 AAC bare and 2/0 CU bare conductors on standard 2/2/2 double circuit crossarm construction. [redacted]

This project is being revised to reflect a change in scope with regards to segment 04, which is the portion [redacted] The original scope included only replacement of the priority two & three poles in this segment. However, for a substantial portion of this segment, extensive work will be needed to gain access to the poles, due to wetlands. Therefore, this project proposes to [redacted]

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Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.1

Project Approval Form

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2023	Year 2024	Year 2025_+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	121.0	201.2	183.9	506.1
Outside Services	997.7	1,658.8	1,515.7	4,172.2
Materials	398.1	661.9	604.8	1,664.8
Removals	359.8	598.2	546.6	1,504.6
Risk and Contingency	8.1	13.4	12.3	33.8
Other	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	1,884.7	3,133.5	2,863.3	7,881.5
Indirect Capital Costs				
Indirect/Overheads (including benefits)	907.8	1,509.4	1,379.2	3,796.5
Capitalized interest or AFUDC, if any	45.2	75.1	68.6	188.8
Subtotal – Indirect Costs	953.0	1,584.5	1,447.8	3,985.3
Total Gross Capital Costs	2,837.7	4,718.0	4,311.1	11,866.8
Customer Contribution	$0	$0	$0	$0
Total Net Capital Project Costs	2,837.7	4,718.0	4,311.1	11,866.8

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3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

The following is the ROW related outage history for these feeders, since 1/1/2007.

[redacted]

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b. Project Need

Drone pole inspections were performed in 2020 on the facilities in the [redacted] The patrol finds were ranked from 1 to 5, with one being the most severe. For the [redacted] there was one pole ranked as priority 1, 25 poles as priority 2 and 36 poles as priority three. The priority one find was already taken care of under a blanket ROW pole replacement work order.

[redacted]

it will take to access the poles due to wetlands and/or ROW brush clearing.

c. Project Scope

The project scope is as follows:

[redacted]

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4. Alternatives Considered

[redacted]

Project Option Comparison

Design Criteria	Option [redacted]					
[redacted]						
Authorization Type	Partial	Partial	Partial	Partial	Partial	Partial
Capital Cost	$11.9M	$10.1M	$11.8M	$18.8M	$28.9M	$83.6M
Expense Cost	$0.5M	$0.4M	$0.5M	$0.8M	$1.2M	$3.5M
Total Cost	$12.4M	$10.5M	$12.3M	$19.6M	$30.1M	$87.1M

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Cost / CM Saved	$242/CM	$205/CM	$229/CM	$358/CM	$9.45/CM	$22.85/CM
Cost / CI Saved	$43.8K/CI	$56.5K/CI	$35.9K/CI	$53.4K/CI	$34.6K/CI	$44.8K/CI
Preferred option	X					

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Completion Date
Partial Funding Approval	May 2023
Detailed Design, Segment 01	Completed
Detailed Design, Segments 02, 03, 05 & 06	September 2023
Construction End Date, Segment 01	December 2023
Detail Design, Segment 04	June 2024
Construction End Date, Segments 02, 03, 05 & 06	December 2024
Construction End Date, Segment 04	December 2025

6. Regulatory Decisions

- None

7. Codes and Standards

- None

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8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023-25	Medium	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	2022-24	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2023-25	High	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.	2022-24	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2023-25	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023-25	Low	Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time.

9. References

- None

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Operations Project Authorization Form

Project Title: [redacted] **Remediation**	**Project Number: CD01687**
Date Prepared: 03/08/2023	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** Lines - ROW
Project Manager [redacted]	**Project Type:** Specific
Project Sponsor [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: 12/31/2024	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $6,605K	**Authorization Type:** Initial Funding

Executive Summary

This project was established to cover the costs associated with remediation of [redacted] in [redacted], as a result of drone pole inspections performed in 2020. This ROW mainly consists of the [redacted]

The scope of this project includes replacement of the two double circuit pole lines in the first section of the ROW, approximately 3,100' each, which includes reconductoring from 336 AAC bare primary with 556 AAC 175 MIL covered conductor. Open wire construction is proposed for this segment since the pole lines are in a ROW shared with transmission facilities and have very little tree exposure. [redacted]

This project is being revised to reflect a change in scope with regards to segments 02 and 03, with are the [redacted] The original scope included only replacement of the poles in these segments. However, since most of the poles are being replaced, and extensive work will be needed to gain access to the poles, this project proposes to reconductor [redacted] The revised capital cost is now $6,605K, an increase of $2,228K or 51% over the existing approved amount of $4,377K.

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Project Costs Summary

Note: Dollar values are in thousands

Capital Costs	Year 2023	Year 2024	Year 2025+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	$68	$134	$0	$202
Outside Services	$946	$1,876	$0	$2,822
Materials	$198	$392	$0	$590
Removals	$237	$469	$0	$706
Risk and Contingency	($2)	($4)	$0	($6)
Other	$0	$0	$0	$0
Subtotal – Direct Costs	**$1,446**	**$2,868**	**$0**	**$4,314**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$740	$1,469	$0	$2,209
Capitalized interest or AFUDC, if any	$28	$55	$0	$82
Subtotal – Indirect Costs	**$768**	**$1,524**	**$0**	**$2,292**
Total Gross Capital Costs	**$2,214**	**$4,391**	**$0**	**$6,605**
Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Net Capital Project Costs	**$2,214**	**$4,391**	**$0**	**$6,605**

Technical Justification:

Project Need, Objective and Justification:

Drone pole inspections were performed in 2020 on the facilities in th[redacted] The patrol finds were ranked from 1 to 5, with 1 being the most severe. [redacted] there was 1 pole ranked as priority 1, 25 poles as priority 2 and 36 poles as priority 3. The priority 1 find was already taken care of under a blanket ROW pole replacement work order.

Since 19 of the poles finds ranked as priority 2 or 3 were in the first section of the [redacted]

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Project Scope:

The project scope is as follows:

[redacted]

Major Material:

30,100' of 3 phase 556 AAC 175 MIL covered conductor

Background:

[redacted]

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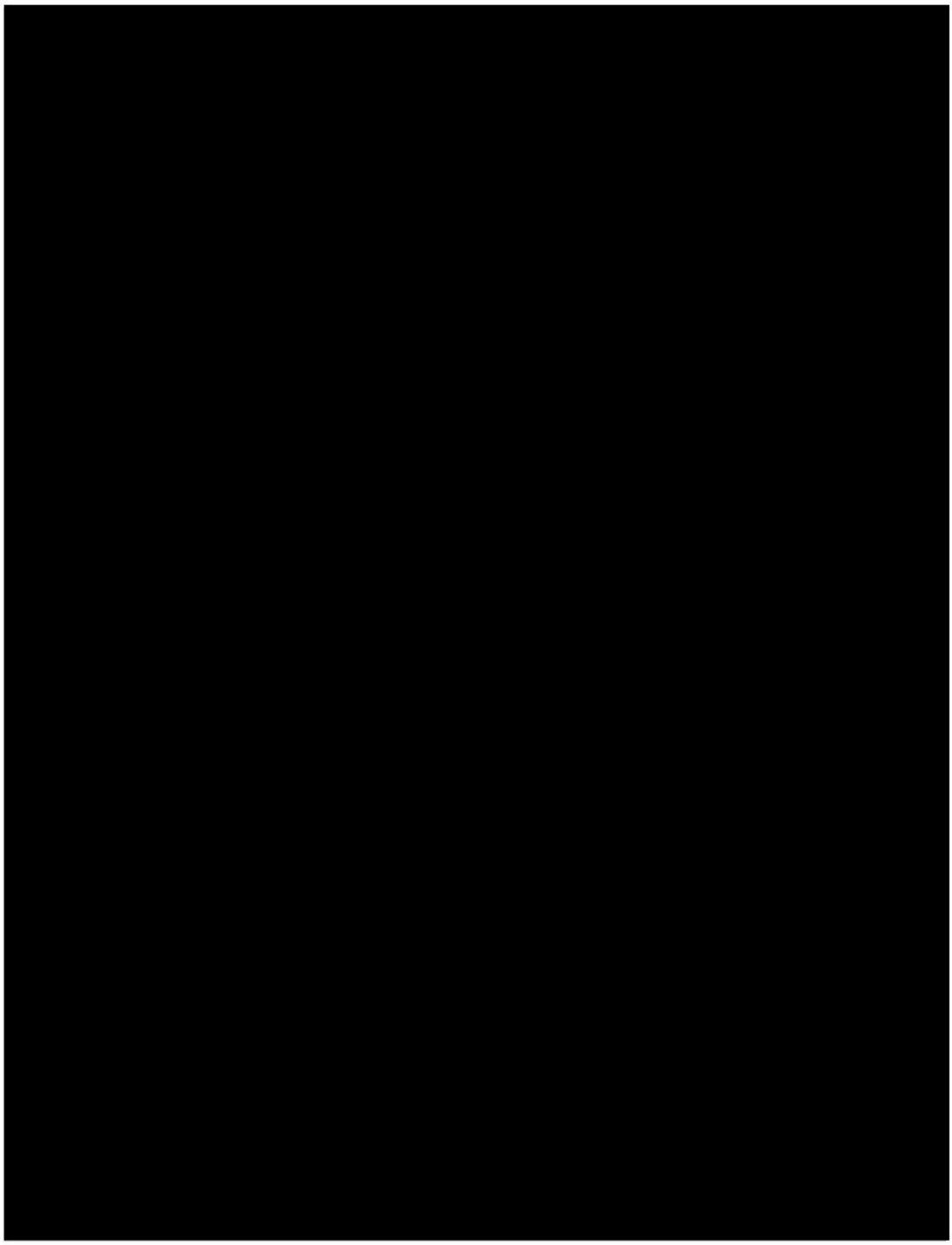

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Alternatives Considered:

Were alternative solutions considered/applicable? Include any cost/benefit analysis.

Alternatives were considered (please describe below)

[redacted]

Project Option Comparison

Design Criteria	[redacted]					
Cost	$6.77M	$5.35M	$7.40M	$14.68M	$30.10M	$87.11M
Cost / CM Saved	$133/CM	$105/CM	$138/CM	$267/CM	$9.45/CM	$22.85/CM
Cost / CI Saved	$24,535/CI	$22,205/CI	$22,641/CI	$40,668/CI	$37,166/CI	$44,831/CI
Preferred option	X					

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

No

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Project Schedule

Milestone/Phase Name	Estimated Completion Date
Revised Preliminary Approval	March 2023
Detailed Design, Segment 01	Completed
Detailed Design, Remainder of project	June 2023
Construction Start Date	March 2023
Construction End Date, Segment 01	December 2023
Construction End Date, Remainder of project	December 2024

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023-24	Medium	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	2022-23	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2023-24	High	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.	2022-23	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2023-24	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023-24	Low	Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time.

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References

None

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01687

[redacted] Remediation

Work Classification

Category: Line
Type: SRRL
Type Desc: RIGHT OF WAY LINES
Work Type:

Ownership / Management

AWC: Cheshire
Statewide: No
Owner: [redacted]
Manager: [redacted]

Project Information

Status: Prelim Design Approved
SPS #:
AIS Score:
Associated Projects:
Assignment ID:
Patrol Find ID:

Budget Summary - Preferred Option

Proposed Scope

2023

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
1	ROW to SE Road Rebuild with 556 TW	Prelim	1	24%	$2,959,477	$2,959,477
				2023 Total:	$2,959,477	$2,959,477

2024

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
2	ROW off Batterson Park Rd Farmington	Prelim	1	28%	$1,732,566	$1,732,566
3	ROW off Alexander Rd New Britain	Prelim	1	28%	$2,041,581	$2,041,581
5	ROW off Red Oak Hill Rd Farmington	Prelim	1	28%	$835,016	$835,016
6	ROW off New Britain Ave Farmington	Prelim	1	28%	$311,386	$311,386
				2024 Total:	$4,920,549	$4,920,549

2025

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
4	ROW off Colt Hwy Farmington	Prelim	1	32%	$4,496,227	$4,496,227
				2025 Total:	$4,496,227	$4,496,227
				Total Project:	$12,376,253	$12,376,253

Design Alternative CD01687-01

Estimate

	Preliminary Estimate Summary
Revision Number:	1
Contingency:	24.00%
SubTotal:	$2,386,675
Contingency Amount:	$572,802
Estimate:	$2,959,477
Reimbursement:	$0
Net Amount:	$2,959,477
Description:	Preliminary: need to check ROW access

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
OTHER OTHER 10% adder for working in a ROW	16-ALL14			$133,100.00
OTHER OTHER 30% adder for contract Labor	16-ALL14			$519,100.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$399,300.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$60,406.40
OTHER OTHER Brush Clearing: 40 spans at $500/span	16-ALL14			$20,000.00
OTHER OTHER Incremental cost for steel vs wood poles: 43 poles @ $4.3K per pole	16-ALL14			$184,900.00
OTHER OTHER Matting: 300' @ $500k/mile	16-ALL14			$28,410.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor with double circuit 556 TW, both lines.	16-OH27			$962,240.00

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Design Alternative CD01687-02

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	28.00%
SubTotal:	$1,353,567
Contingency Amount:	$378,999
Estimate:	$1,732,566
Reimbursement:	$0
Net Amount:	$1,732,566
Description:	Revised estimate, dated 3/2/2023 due to change in scope.

Item Description	CU	$ / Per	Qty	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	[redacted]		$2,000.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$75,600.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil 2,750' x 2	16-OH27			$426,800.00
OH WIRE OH - Remove circuit wire (3 phase) 2,750' x 2	16-OH37A			$17,600.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$294,900.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$226,800.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$19,667.20
OTHER OTHER Brush Removal	16-ALL14			$7,000.00
OTHER OTHER	16-ALL14			$103,200.00

Design Alternative CD01687-02

Incremental cost for steel vs wood poles: 24 @ $4.3K per pole

OTHER OTHER Matting: 1,900' @ $500/mile	16-ALL14	[redacted]	$180,000.00

Design Alternative CD01687-03

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	28.00%
SubTotal:	$1,594,985
Contingency Amount:	$446,596
Estimate:	$2,041,581
Reimbursement:	$0
Net Amount:	$2,041,581
Description:	

Item Description	CU	$ / Per	Qty	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	[redacted]		$4,000.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$89,100.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$347,500.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$267,300.00
OH WIRE OH - Remove circuit wire (3 phase) 4,350' x 2	16-OH37A			$27,840.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil 4350' x 2	16-OH27			$675,120.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$36,524.80
OTHER OTHER Brush clearing	16-ALL14			$10,000.00
OTHER OTHER Incremental cost for steel vs wood poles: 32 poles @ $4.3K/pole	16-ALL14			$137,600.00

Project Approval Form

Design Alternative CD01687-04

Estimate

	Preliminary Estimate Summary
Revision Number:	1
Contingency:	32.00%
SubTotal:	$3,406,233
Contingency Amount:	$1,089,994
Estimate:	$4,496,227
Reimbursement:	$0
Net Amount:	$4,496,227
Description:	

Item Description	CU	$ / Per	Qty	Amount
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A	[redacted]		$41,536.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$189,700.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$740,000.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$569,200.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil 6,490' x 2	16-OH27			$1,007,248.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$43,548.80
OTHER OTHER Brush removal	16-ALL14			$20,000.00
OTHER OTHER Incremental cost for steel vs wood pole: 50 poles @ $4.3K per pole	16-ALL14			$215,000.00
OTHER OTHER Matting: 1.14 miles @ $500K per mile	16-ALL14			$570,000.00

Design Alternative CD01687-05

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	28.00%
SubTotal:	$652,356
Contingency Amount:	$182,660
Estimate:	$835,016
Reimbursement:	$0
Net Amount:	$835,016
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 10% adder for working in ROW	16-ALL14	[redacted]		$15,500.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$60,600.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$46,600.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph additional crossarms for 2/2/2 construction	16-OH17A			$53,382.40
OTHER OTHER Brush Clearing	16-ALL14			$10,000.00
OTHER OTHER incremental cost for steel vs wood poles in ROW, $4.3K per pole	16-ALL14			$81,700.00
POLE OH - POLE - 3ph (CL&P custodian) pole replacements off Meadow Rd	16-OH14			$18,704.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil reconductor [redacted] with 556 TW 2/2/2: 2,200' x 2	16-OH27			$341,440.00
OH WIRE OH - Remove circuit wire (3 phase) remove existing [redacted] bare conductors	16-OH37A			$14,080.00

Design Alternative CD01687-05

OTHER OTHER Remove old poles: 19 poles @ $500/pole	16-ALL14	[redacted]	$9,500.00
OTHER OTHER Track vehicle	16-ALL14		$850.00

Design Alternative CD01687-06

Estimate

Preliminary Estimate Summary

Revision Number:	1
Contingency:	28.00%
SubTotal:	$243,270
Contingency Amount:	$68,116
Estimate:	$311,386
Reimbursement:	$0
Net Amount:	$311,386
Description:	

Item Description	CU	$ / Per	Qty	Amount
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14	[redacted]		$42,084.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$15,500.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$60,600.00
OTHER OTHER 30% adder for estimate adjustment	16-ALL14			$46,600.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$25,286.40
OTHER OTHER Brush removal	16-ALL14			$10,000.00
OTHER OTHER Incremental cost for steel vs wood poles: 9 poles @ $4.3K/pole	16-ALL14			$38,700.00
OTHER OTHER Remove old poles: 9 @ $500/pole	16-ALL14			$4,500.00

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Project Approval Form

Design Alternative CD01687-07

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$2,339,918
Contingency Amount:	$561,580
Estimate:	$2,901,499
Reimbursement:	$0
Net Amount:	$2,901,499
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18			$4,000.00
OH WIRE OH - Line Extension w/Aerial Cable - (any gauge)	16-OH35			$892,800.00
OH WIRE OH-Install Aerial Cable-existing poles (any gauge)	16-OH36			$570,400.00
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A			$39,680.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$190,000.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$580,000.00
OTHER OTHER Matting: 50 @ $450/mat	16-ALL14			$22,500.00
OTHER OTHER Remove old poles	16-ALL14			$21,500.00

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Project Approval Form

Design Alternative CD01687-08

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$8,208,756
Contingency Amount:	$1,970,101
Estimate:	$10,178,857
Reimbursement:	$0
Net Amount:	**$10,178,857**
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
OTHER OTHER 10% adder for working in ROW	16-ALL14			$680,000.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 1000 CU EPR, 3 @ 6,360' each & 1 @ 500'	16-UG114B			$1,879,680.00
CONDUIT UG-Ductline-up to 12 duct-Non- Traveled/Non-Paved 12 x 6" duct bank concrete enclosed	16-UG138			$164,256.00
CONDUIT UG-Ductline-up to 12 duct - Traveled Way / Paved 12 x 6" duct bank on the road	16-UG137			$1,717,272.00
CONDUIT UG-Ductline-up to 12 duct - Traveled Way / Paved 2 x 6" ducts for laterals to risers	16-UG137			$434,792.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$2,040,000.00
POLE DB/UG - Riser - 3ph 4 standard risers with 900 Amp disconnects	16-UG146			$43,177.60
ENCLOSURE UG - MANHOLE - Pour in place 8 x 14' pour in place MH to incercept existing duct bank on Quincy Ln.	16-UG140			$107,976.80

Project Approval Form

Design Alternative			CD01687-08
TRAFFIC OH/DB/UG - Traffic Control - Police Officer At road crossings	16-ALL18	[redacted]	$4,000.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu laterals to riser poles	16-UG114B		$133,440.00
OTHER OTHER Matting: 50 mats @ $450/mat	16-ALL14		$22,500.00
OH WIRE OH - Remove circuit wire (3 phase) Removal of 4 feeders in row	16-OH37A		$39,680.00
OTHER OTHER Remove existing risers for cables t[redacted]	16-ALL14		$4,000.00
OH WIRE OH - Remove circuit wire (1 phase) Remove neutral	16-OH37		$15,360.00
OTHER OTHER Remove poles in row	16-ALL14		$21,500.00
UG CABLE UG - Transition Splice Splices for laterals to [redacted]	16-UG120		$5,273.60
ENCLOSURE UG - MANHOLE - Precast Standard 8 x 14' pre-cast MH's	16-UG139		$881,809.60

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Project Approval Form

Design Alternative CD01687-09

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$22,049,421
Contingency Amount:	$6,173,838
Estimate:	$28,223,259
Reimbursement:	$0
Net Amount:	$28,223,259

Description:

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$28,076.80
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18			$2,633,000.00
POLE DB/UG - Riser - 3ph	16-UG146			$86,355.20
OTHER OTHER 30% adder for contract labor	16-ALL14			$5,265,000.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for shifting second feeder in overbuild	16-OH17A			$782,473.60
OH WIRE OH - Line Extension w/Aerial Cable - (any gauge) Aerial cable fo[redacted]	16-OH35			$5,443,200.00
OH WIRE OH - Line Extension w/Aerial Cable - (any gauge) Aerial cable fo[redacted]	16-OH35			$424,800.00
OH WIRE OH-Install Aerial Cable-existing poles (any gauge) Aerial Cable for[redacted]	16-OH36			$271,400.00
OH WIRE OH - Line Extension w/Aerial Cable - (any gauge) Aerial cable for[redacted]	16-OH35			$5,906,880.00

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Design Alternative			CD01687-09
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu Cable for [redacted]	16-UG114B	[redacted]	$451,200.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu Cable for [redacted]	16-UG114B		$464,640.00
SECTIONALIZE OH - Hydraulic Recloser - 1ph Ne[redacted]	16-OH40		$6,855.20
SECTIONALIZE OH - Recloser - 3ph New [redacted]	16-OH38		$239,948.00
OTHER OTHER Remove old 4A9-160R	16-ALL14		$1,000.00
SECTIONALIZE OH - Remove Recloser (any) Remove old [redacted]	16-OH42		$39,592.00
OTHER OTHER Splice into aerial cables for risers to [redacted] $2,500 each	16-ALL14	[redacted]	$5,000.00

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Project Approval Form

Design Alternative CD01687-10

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$66,581,632
Contingency Amount:	$18,642,857
Estimate:	$85,224,489
Reimbursement:	$0
Net Amount:	$85,224,489
Description:	

Item Description	CU	$ / Per	Qty	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	[redacted]		$8,000,000.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 1000 CU EPR for [redacted]	16-UG114B			$4,776,000.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 1000 CU EPR for [redacted]	16-UG114B			$645,120.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 1000 CU EPR for [redacted]	16-UG114B			$645,120.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 1000 CU EPR for [redacted]	16-UG114B			$6,510,240.00
CONDUIT UG-Ductline-up to 12 duct - Traveled Way / Paved 12 x 6" duct bank	16-UG137			$21,034,236.00
CONDUIT UG-Ductline-up to 12 duct-Non- Traveled/Non-Paved 12 x 6" duct bank from [redacted] to Quincy Ln	16-UG138			$107,616.00
CONDUIT UG-Ductline-up to 12 duct-Non- Traveled/Non-Paved 2 x 6" laterals to West Farms Mall	16-UG138			$283,200.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$15,600,000.00

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Design Alternative			CD01687-10
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 4A10 lateral to West Farms Mall	16-UG114B	[redacted]	$144,000.00
ENCLOSURE UG - MANHOLE - Precast 8 x 14' standard manhole	16-UG139		$8,566,150.40
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu misc laterals	16-UG114B		$172,800.00
POLE DB/UG - Riser - 3ph misc risers	16-UG146		$97,149.60

Project Approval Form

Design Alternative CD01687-11

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$1,469,976
Contingency Amount:	$411,593
Estimate:	$1,881,569
Reimbursement:	$0
Net Amount:	$1,881,569
Description:	

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 10% adder for working in ROW	16-ALL14	[redacted]		$103,000.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$310,000.00
OTHER OTHER Matting: 500 mats at $450/mat (if needed)	16-ALL14			$225,000.00
OH WIRE OH - Remove circuit wire (3 phase) Removal o[redacted] in [redacted]	16-OH37A			$203,904.00
OH WIRE OH - Remove circuit wire (3 phase) Removal of [redacted] in [redacted]	16-OH37A			$9,440.00
OH WIRE OH - Remove circuit wire (3 phase) Removal o[redacted] in [redacted]	16-OH37A			$9,440.00
OH WIRE OH - Remove circuit wire (3 phase) Removal of [redacted] in [redacted]	16-OH37A			$212,064.00
OH WIRE OH - Remove circuit wire (1 phase) Removal of neutral in [redacted]	16-OH37			$166,128.00
OTHER OTHER Removal of poles in [redacted] 462 poles at $500/pole	16-ALL14			$231,000.00

Project Approval Form

Design Alternative CD01687-12

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$2,077,388
Contingency Amount:	$498,573
Estimate:	$2,575,962
Reimbursement:	$0
Net Amount:	$2,575,962
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
OTHER OTHER 10% adder for working in ROW	16-ALL14			$170,000.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil 2 new pole lines [redacted] 2,950')	16-OH29			$1,269,760.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$510,000.00
OTHER OTHER Brush Clearing: 40 spans at $500/span	16-ALL14			$20,000.00
OTHER OTHER Matting: 300' @ $500/mile	16-ALL14			$28,410.00
OH WIRE OH - Remove circuit wire (3 phase) Removal of old conductors	16-OH37A			$39,680.00
OTHER OTHER Remove old poles: 43 at $500/pole	16-ALL14			$21,500.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer Traffic control at road crossings	16-ALL18			$4,000.00

Project Approval Form

Design Alternative CD01687-13

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	28.00%
SubTotal:	$1,095,643
Contingency Amount:	$306,780
Estimate:	$1,402,423
Reimbursement:	$0
Net Amount:	$1,402,423
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$7,019.20
TRAFFIC OH/DB/UG - Traffic Control - Flagger	16-ALL19			$143,000.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$90,000.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$270,000.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil 4A10 from 1/0 TW to 556 TW	16-OH27			$170,720.00
OH WIRE OH - Remove circuit wire (3 phase) [redacted] ROW	16-OH37A			$24,000.00
OTHER OTHER Brush Clearing	16-ALL14			$7,000.00
OH WIRE OH - Remove circuit wire (3 phase) Existing [redacted]	16-OH37A			$7,040.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install cutouts fuse 100K on New Britain Ave pole 1100	16-OH20			$2,315.20

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Design Alternative			CD01687-13
OH WIRE OH - Line Extension - 3ph (556 kcmil) New 4A9, 56 TW	16-OH34	[redacted]	$288,000.00
SECTIONALIZE OH - Recloser - 3ph New 4A9-73S	16-OH38		$47,989.60
SECTIONALIZE OH-Vertical Disconnect Switches-600/900 amp 3-1ph Red Oak Hill Rd pole 373: replace cutouts with switches	16-OH43		$10,283.20
SECTIONALIZE OH - Remove Recloser (any) Rem old 4A9-73S	16-OH42		$5,656.00
OTHER OTHER Remove cutouts on New Britain Ave Pole 2213	16-ALL14		$2,000.00
OTHER OTHER Remove neutral in ROW	16-ALL14		$11,000.00
OH WIRE OH - Remove circuit wire (1 phase) Remove neutral in ROW	16-OH37		$7,920.00
OTHER OTHER Track Vehicle: 2 weeks at $850/week	16-ALL14		$1,700.00

Design Alternative CD01687-14

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$326,570
Contingency Amount:	$91,439
Estimate:	$418,009
Reimbursement:	$0
Net Amount:	$418,009
Description:	Original estimate for Initial Funding Authorization

Item Description	CU	$ / Per	Qty	Amount
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14	[redacted]		$74,816.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$32,000.00
OTHER OTHER 30% adder for contrat labor	16-ALL14			$96,000.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph additional crossarms for 2/2/2 construction	16-OH17A			$44,953.60
OTHER OTHER Brush Cleaning	16-ALL14			$10,000.00
OTHER OTHER Incremental cost of steel vs wood pole, $4,300 per pole	16-ALL14			$68,800.00

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Design Alternative CD01687-15

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	28.00%
SubTotal:	$700,775
Contingency Amount:	$196,217
Estimate:	$896,992
Reimbursement:	$0
Net Amount:	$896,992

Description: Alternative to segment 05

Item Description	CU	$ / Per	Qty	Amount
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14	[redacted]		$18,704.00
OTHER OTHER 10% adder for working in ROW	16-ALL14			$50,000.00
OTHER OTHER 30% adder for contract labor	16-ALL14			$150,000.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph additional crossarms for 2/2/2 construction	16-OH17A			$11,238.40
OTHER OTHER additional labor to cut & kick poles with risers	16-ALL14			$3,000.00
OTHER OTHER Brush clearing	16-ALL14			$10,000.00
EQUIPMENT OH - Capacitor, any kVAR, any voltage Pole 365: replace cap bank with a 600 kVAR bank	16-OH52			$20,694.40
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil Red Oak Hill Rd: 1,955' x 2	16-OH29			$400,384.00
OH WIRE OH - Remove circuit wire (3 phase) Rem[redacted]in ROW	16-OH37A			$15,360.00

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Design Alternative CD01687-15

OH WIRE OH - Remove circuit wire (3 phase) Rem conductors from pol 372 to pole 375 on New Britain Ave	16-OH37A	[redacted]	$1,184.00
OH WIRE OH - Remove circuit wire (1 phase) Rem neutral in ROW	16-OH37		$5,760.00
OH WIRE OH - Remove circuit wire (3 phase) Rem old conductors on Red Oak Hill Rd	16-OH37A		$5,600.00
OTHER OTHER Rem old poles in ROW	16-ALL14		$8,000.00
OTHER OTHER Track vehicle	16-ALL14		$850.00

Design Alternative CD01687-16

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	28.00%
SubTotal:	$121,499
Contingency Amount:	$34,020
Estimate:	$155,519
Reimbursement:	$0
Net Amount:	$155,519
Description:	

Item Description	CU	$ / Per	Qty	Amount
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14	[redacted]		$32,732.00
OTHER OTHER 20% adder for contract labor & additional 10% for working in ROW	16-ALL14			$34,000.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph Additional crossarms for 2/2/2 construction	16-OH17A			$19,667.20
OTHER OTHER Brush removal	16-ALL14			$5,000.00
OTHER OTHER Incremental cost for steel vs wood poles: 7 @ $4.3K per pole	16-ALL14			$30,100.00