EVERSOURCE

Supplement Authorization Form

Project Title: Long Hill Rd Lateral Reliability	Project Number: CD01951
Date Prepared: 07/18/2024	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Initiating Organization: Distribution	**Project Type:** Specific
Project DDE: [redacted]	**Capital Investment part of 5-year 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)
Current Authorized Amount: $2,508.6K	**Approved In-Service Date:** 12/31/24
Supplement Request: $1,366K	**Estimated In-Service Date:** 12/31/24
Total Capital Request: $3,875K	**Authorization Type: Supplement Request**
	Reason: Scope Change

1. Project Background

Supplemental funding is being requested for this project. The total capital request is $3,875K which is $1,366K (54%) more than the current authorized amount of $2,508K. There is currently $3,224K spent.

This project was established to address the [redacted] and has seen 11 outages over the past 4 years – 1 outage was planned to replace a step transformer, 1 outage was a motor vehicle incident, and 9 were tree related. The 9 tree related outages occurred consistently throughout the lateral. The circuit was trimmed to ETT specs in 2019. [redacted]. Hazard trees would be removed during the reconductoring process. [redacted]

However, there was a scope change approved at CPAC on September 14, 2023, [redacted]

[redacted]

The decision was made to not complete this project as designed in the full funding estimate and instead make the project safe and stop construction to lower the projected cost. Completing the project as presented in the full funding estimate would cost a total of $4,150K ($1,642K more than authorized) compared to stopping and making the project safe which will cost $300K less at a total project cost of $3,875K.

Making the project safe will still satisfy the original reliability concerns. [redacted]

[redacted]

2. Supplement Justification Overview

CD01951 is now being stopped and made safe. The scope change of stopping work and making safe is resulting in a variance of $1,366K compared to the Full Funding authorization amount. $730K of this variance has already been spent and is due to the Full Funding authorization amount being presented as a high-level estimate, while the actual work required more labor and tree trimming than anticipated. The remaining $630K variance is due to the labor and material required to make the job safe.

3. Supplement Justification Detail

The primary reason for the $730K portion of the variance that has already been spent is due to requiring $328K more tree trimming and $402K more labor than estimated [redacted] The town had an issue with the trimming and required more than expected. The labor required to [redacted] came in higher than estimated due to the construction units not accurately reflecting it.

The remaining $630K portion of the variance is to make the job safe and stop construction. [redacted]

[redacted]

Spend to date ($3.1M):

- Construction Percentage completed per approved design to date is 85%.
- Scope completed to date is 85%, no scope change based on Full Funding authorized amount on 9/14/23.
- 126 poles estimated, all holes drilled with contractor.
- Engineering Design: $96K
- Loaders: $1,2561K
- Material: $562K
- Other: $64K
- Outside Services (Antasio Trucking, Lounsbury, Charter Oak, Coleman Drilling, E-J Electric, McVac Environmental, Williams-Scotland): $136K
- Overtime: $58K
- Police Services: $2K
- Straight Labor: $543K
- Tree trimming: $465K. (Estimated at $137K).

Cost Comparisons to complete job as designed or stop and make safe:

- Full Funding Authorized amount: $2,508K
- Supplemental Request: $1,366K
- To complete job as designed from Full Funding approval + supplemental = $4,150K
- To stop job and make safe: $3,875K.
  - The cost to make safe is $630K due to requiring 2500+ manhours to do so. The spend to date is $3,244K bringing the total cost of this project to make safe $3,875K.
- **Difference between finish as designed or stop and make safe: $300K.**

4. Supplement Cost Summary (Project Total)

Financial Evaluation ($000's)

Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Internal Labor and Construction Equipment	527.2	361.2	312.3	673.5
Outside Services	701.4	500.3	201.1	701.4
Materials	527.0	300.0	227.0	527.0
Removals	79.0	278.9	-193.5	85.4
Risk and Contingency	0.0	92.1	101.5	193.6
Other	47.2	0.0	47.2	47.2
Subtotal	**1,881.8**	**1,532.5**	**695.6**	**2,228.1**

Indirect Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Indirects/Overheads (including benefits)	1,268.5	950.7	602.1	1,552.8
Capitalized interest or AFUDC, if any	94.1	25.4	68.7	94.1
Subtotal	**1,362.7**	**976.1**	**670.8**	**1,646.9**
Total Capital Costs (Gross)	**3,244.5**	**2,508.6**	**1,366.4**	**3,875.0**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**3,244.5**	**2,508.6**	**1,366.4**	**3,875.0**

New Total Request by Year (if applicable)

Note: If multi-year project, include actuals for current and years past, and then show forecasted spend for upcoming years.

Capital Costs	2021	2022	2023	2024	TOTAL
Internal Labor & Equipment	0.0	7.9	250.0	374.1	632.1
Outside Services	0.0	8.2	260.4	389.6	658.3
Materials	0.0	6.2	195.6	292.7	494.6
Removals	0.0	5.0	157.8	236.1	398.8
Risk and Contingency	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.6	17.5	26.2	44.3
SUBTOTAL Direct Cost	**0.0**	**27.9**	**881.4**	**1,318.9**	**2,228.1**
Indirects / Overheads	0.0	19.6	541.0	992.2	1,552.8
AFUDC	0.0	0.5	29.2	64.4	94.1
SUBTOTAL Indirect Cost	**0.0**	**20.1**	**570.2**	**1,056.6**	**1,646.9**
TOTAL Capital Request	**0.0**	**48.0**	**1,451.6**	**2,375.4**	**3,875.0**
Less Total Customer Contribution	0.0	0.0	0.0	0.0	**0.0**
TOTAL Project Cost	**0.0**	**48.0**	**1,451.6**	**2,375.4**	**3,875.0**

5. Lessons Learned

Project Title: Long Hill Rd Lateral Reliability	**Project Number: CD01951**
Date Prepared: 09/14/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
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: 12/31/24	
Total Capital Request: $2,508.8K	**Authorization Type:** Full Funding

1. Executive Summary

[redacted]ity of the Long Hill Road three-phase lateral on the [redacted] and has seen 11 outages over the past 4 years – 1 outage was planned to replace a step transformer, 1 outage was a motor vehicle incident, and 9 were tree related. The 9 tree related outages occurred consistently throughout the lateral. The circuit was trimmed to ETT specs in 2019 and is scheduled to be trimmed again in 2023. [redacted] Hazard trees will be removed during the reconductoring process. Six laterals will be stepped down to remain at 8.32 kV.

9/14/23 – Full Funding request. The Partial Funding estimate is $1,394K, approved on 3/17/22. The original Full Funding estimate, based on ACT workorders, is $1,232.3K, a difference of $161.7K, or a 12% decrease. However, there is a change of scope, which explains why the new Full Funding estimate is $2,508.8K, as follows:

- [redacted]

[redacted]

The project was scheduled to be completed by 12/31/23 but was delayed due to residents complaining about the tree trimming and tree removals. A town hall meeting was held in which Eversource was present to explain the reason for this project and Eversource's tree trimming program. The project was able to resume after the town hall meeting.

The project is expected to be completed in 2024.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2023	Year 2024	Year 2024 ENG Estimate	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	183.3	111.1	66.8	361.2
Outside Services	29.7	18.0	452.6	500.3
Materials	73.8	44.7	181.5	300
Removals	74.2	45.0	159.7	278.9
Risk and Contingency	53.5	32.4	6.2	92.1
Other	0.0	0.0	0.0	0
Subtotal – Direct Costs	**414.6**	**251.2**	**866.8**	**1,532.6**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	352.7	213.7	384.3	950.7
Capitalized interest or AFUDC, if any	0.0	0.0	25.4	25.4
Subtotal – Indirect Costs	**352.7**	**213.7**	**409.8**	976.2
Total Gross Capital Costs	**767.3**	**465.0**	**1,276.5**	**2,508.8**
Customer Contribution	**0.0**	**0.0**	**0.0**	0
Total Net Capital Project Costs	**767.3**	**465.0**	**1,276.5**	**2,508.8**

Detail Estimate, see Attachment "A".

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

- Refer to 'Distribution Partial/Full Funding Request Form – Guide, rev0'.

b. Project Need

[redacted]

3

c. Project Scope

[redacted]

4. Alternatives Considered

Project Option Comparison

	Option		
[redacted]			
Authorization Type	Partial	Partial	Full
Capital Cost	$1,128.7	$1,383.6	$2,508.8K
Expense Cost	$64.1K	$78.6K	$302.4K
Total Cost	$1,192.8K	$1,462.2K	$2,811.2K
Total Cost / CM Saved	$39.66	$39.66	$23,101
Total Cost / CI Saved	$4,650	$4,650	$/CI
Preferred option			X



5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Date
Partial Approval	3/17/22
100% Detailed Engineering Completion	8/31/22
Fully Funded	9/14/23
Construction Start	3/1/23
In Service Date	12/31/24

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.	2023	High	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	2023	High	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2023	Low	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.	2023	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2023	High	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.

6

Technological risks involving integration of new technology	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	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. Outage History	*YES*
C. Geographic Map	*YES*

Attachment A

Option 1 – Reconductor Long Hill Rd (no conversion)

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Design Alternative CD01951-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	20.00%
SubTotal:	$994,030
Contingency Amount:	$198,806
Estimate:	$1,192,836
Reimbursement:	$0
Net Amount:	**$1,192,836**
Description:	

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$3,509.60
TREE OH - Tree Trimming 100k given by Susan Stotts for reliability inprovement.	16-OH61	$100,000.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 5% of total	16-ALL18	$50,000.00
POLE OH - POLE - 3ph (Telephone custodian) All poles plus 3	16-OH12	$103,240.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil Reconductor 7,200' from Step-down to 100k fuse @3125	16-OH29	$737,280.00

[redacted]

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]						

Asset & Investment Management System 9/14/2023 Page 5 of 19

Option 2 – Reconductor and Convert Long Hill Rd

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Segment CD01951-02

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$1,218,479
Contingency Amount:	$243,696
Estimate:	$1,462,175
Reimbursement:	$0
Net Amount:	**$1,462,175**

Description:

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$3,509.60
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14	135,604.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil	16-OH29	737,280.00
XF DB/UG - Padmount XF - 1ph	16-UG130	625,177.60
XF DB/UG - Padmount XF - 3ph	16-UG131	$6,299.20
XF OH - Stepdowns, 3-1ph - on one POLE @p3116, 3104,1627, 1647, 1710	16-OH50	50,000.00
TREE OH - Tree Trimming 100k given by Susan Stotts for reliability inprovement.	16-OH61	100,000.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 5% of total	16-ALL18	40,000.00
EQUIPMENT OH - Conversion - CUTOVER Cost for cut over of all 33 xfmrs being converted or installed.	16-OH58	26,224.80

Asset & Investment Management System 9/14/2023 Page 8 of 19

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Segment		[redacted]	CD01951-02
XF OH - Stepdowns, 3-1ph - on one POLE Install step down at 3125.	16-OH50		$10,000.00
XF OH - OH XF - 1ph Replace the 40OH xfmrs	16-OH45		$84,384.00

Reconductor and convert Wilburs Ln, West St

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Design Alternative CD01951-03

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$604,837
Contingency Amount:	$145,161
Estimate:	$749,998
Reimbursement:	$0
Net Amount:	**$749,998**
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger	23-ALL19	$77,000.00
POLE OH - POLE - 1ph (Telephone custodian)	23-OH11	$34,143.20
SECTIONALIZE OH - Cutouts or Arresters - 1ph	23-OH19	$124,779.20
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge)	23-OH25	$177,840.00
OH WIRE OH - Neutral	23-OH31	$47,424.00
EQUIPMENT OH - Conversion Prep Work - 1ph	23-OH56	$75,519.60
EQUIPMENT OH - Conversion - CUTOVER	23-OH58	$50,790.48
TREE OH - Tree Trimming Estimate from Dale	23-OH61	$15,000.70
EQUIPMENT OH - Remove Capacitor, any kVAR P1755 Wilburs ln	23-OH54	$2,340.00

Asset & Investment Management System 9/14/2023 Page 11 of 19

11

16

Reconductor and convert County Rd, Hemlock Rd, Beaver Head Rd

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Design Alternative — CD01951-04

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$483,095
Contingency Amount:	$115,943
Estimate:	$599,037
Reimbursement:	$0
Net Amount:	$599,037
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger Beaver Head	23-ALL19	$17,000.00
POLE OH - POLE - 1ph (Telephone custodian) Beaver Head	23-OH11	$14,632.80
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) Beaver Head	23-OH25	$65,520.00
OH WIRE OH - Neutral Beaver Head	23-OH31	$9,984.00
EQUIPMENT OH - Conversion Prep Work - 1ph Beaver Head	23-OH56	$3,213.60
EQUIPMENT OH - Conversion - CUTOVER Beaver Head	23-OH58	$5,566.08
TREE OH - Tree Trimming Beaver Head	23-OH61	$4,999.80
EQUIPMENT OH - Conversion - CUTOVER Country	23-OH58	$12,523.68
TRAFFIC OH/DB/UG - Traffic Control - Flagger County	23-ALL19	$22,500.00

Asset & Investment Management System — 9/14/2023 — Page 14 of 19

Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.3
Refer to Distribution Capital Project Supplement Process
JA-AM-2001-C, Rev.0



Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

Design Alternative		[redacted]	CD01951-04
POLE OH - POLE - 1ph (Telephone custodian) County	23-OH11		$17,071.60
SECTIONALIZE OH - Cutouts or Arresters - 1ph County	23-OH19		$21,390.72
SECTIONALIZE OH - Cutouts or Arresters - 1ph County	23-OH19		$8,912.80
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) County	23-OH25		$78,000.00
OH WIRE OH - Neutral County	23-OH31		$13,312.00
EQUIPMENT OH - Conversion Prep Work - 1ph County	23-OH56		$16,068.00
TREE OH - Tree Trimming County	23-OH61		$5,003.70
TRAFFIC OH/DB/UG - Traffic Control - Flagger Hemlock	23-ALL19		$20,000.00
POLE OH - POLE - 1ph (Telephone custodian) Hemlock	23-OH11		$17,071.60
SECTIONALIZE OH - Cutouts or Arresters - 1ph Hemlock	23-OH19		$8,912.80
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) Hemlock	23-OH25		$68,640.00
OH WIRE OH - Neutral Hemlock	23-OH31		$18,304.00
EQUIPMENT OH - Conversion Prep Work - 1ph Hemlock	23-OH56		$3,213.60

Asset & Investment Management System | 9/14/2023 | Page 15 of 19

Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.3
Refer to Distribution Capital Project Supplement Process
JA-AM-2001-C, Rev.0

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01951
Long Hill Reconductor

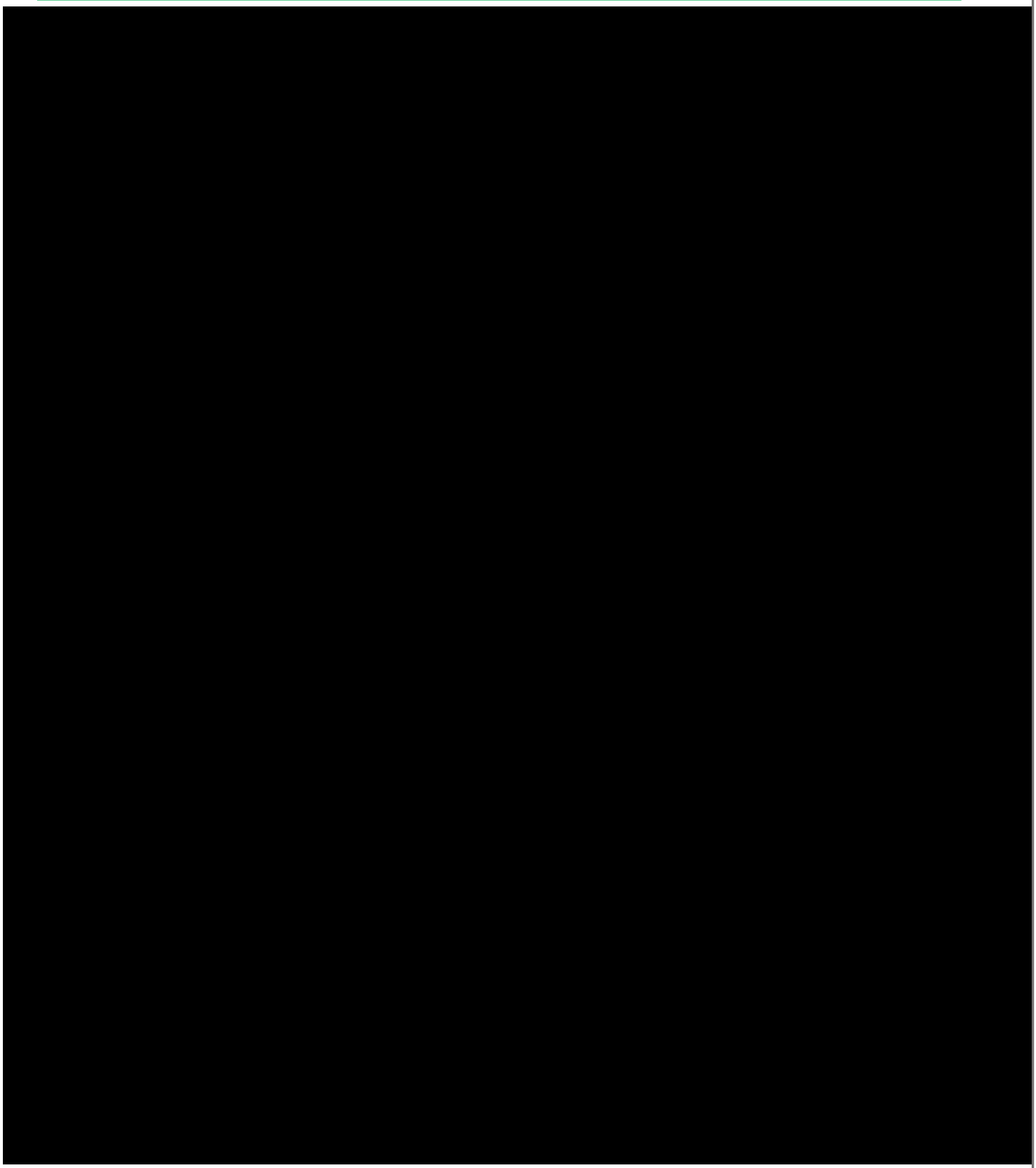
Design Alternative		[redacted]	CD01951-04
EQUIPMENT OH - Conversion - CUTOVER Hemlock	23-OH58		$5,566.08
TREE OH - Tree Trimming Hemlock	23-OH61		$12,000.30
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Hemlock, County and Beaver Head	23-ALL17		$13,687.44

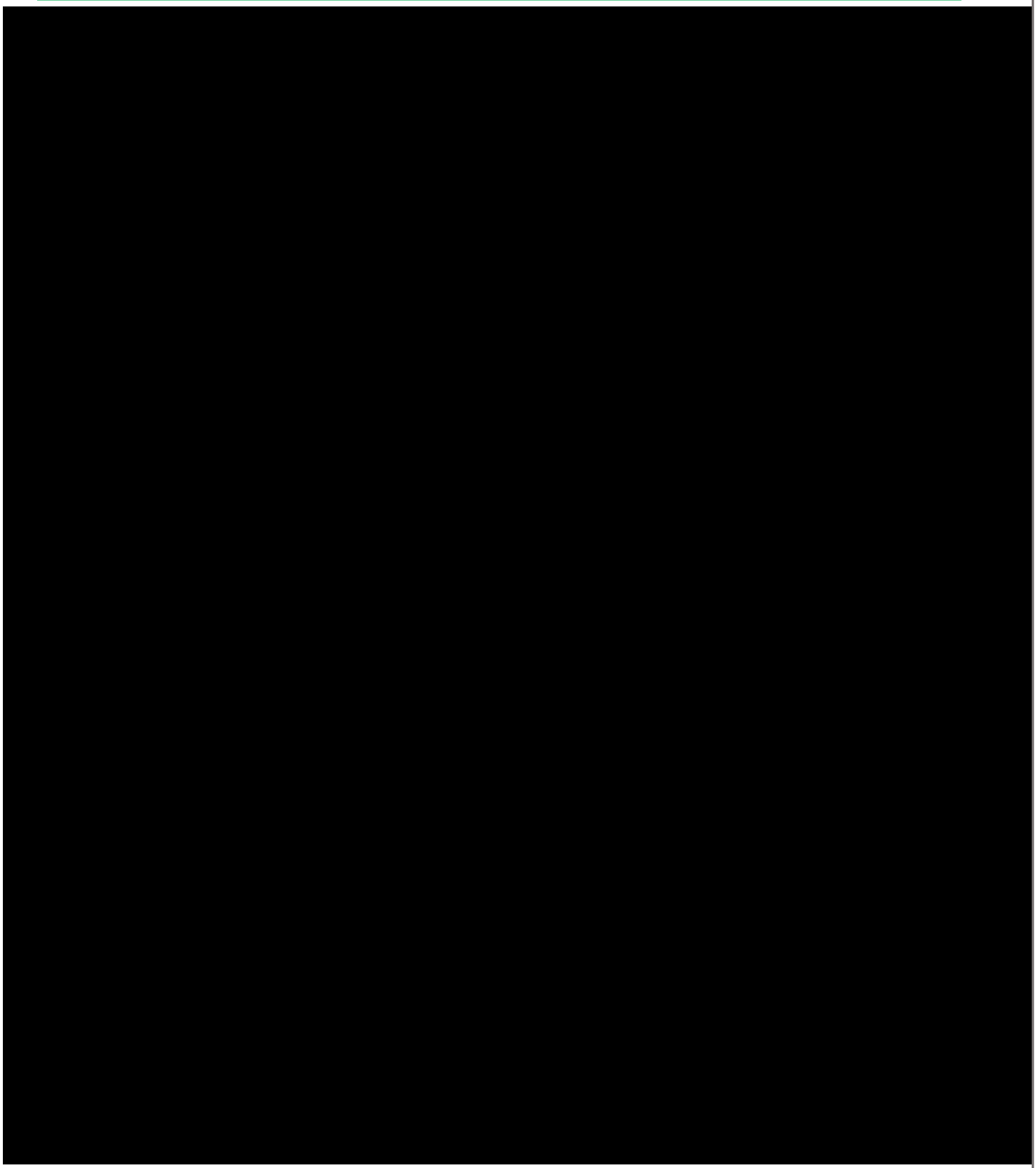
Attachment B

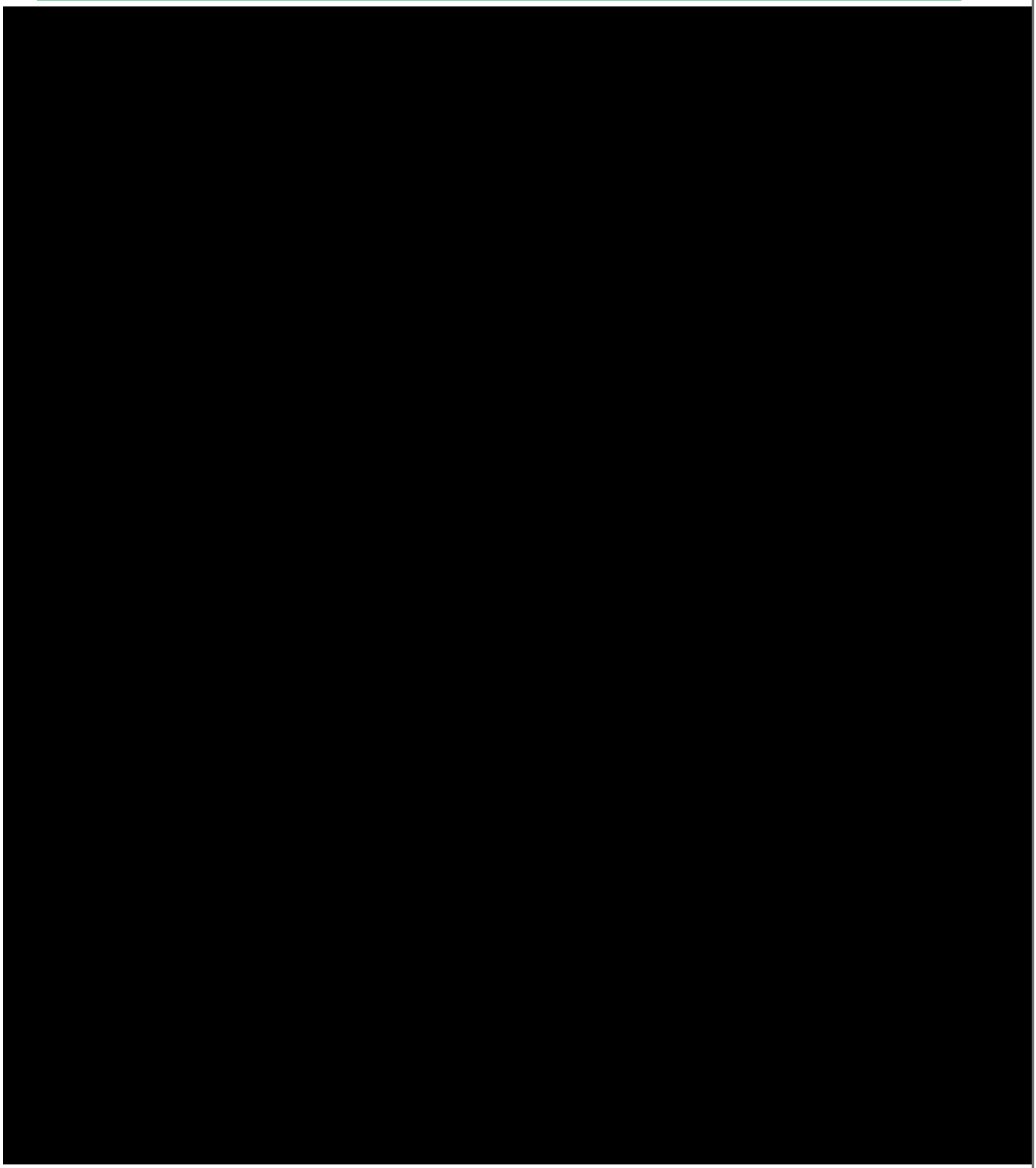
[redacted]

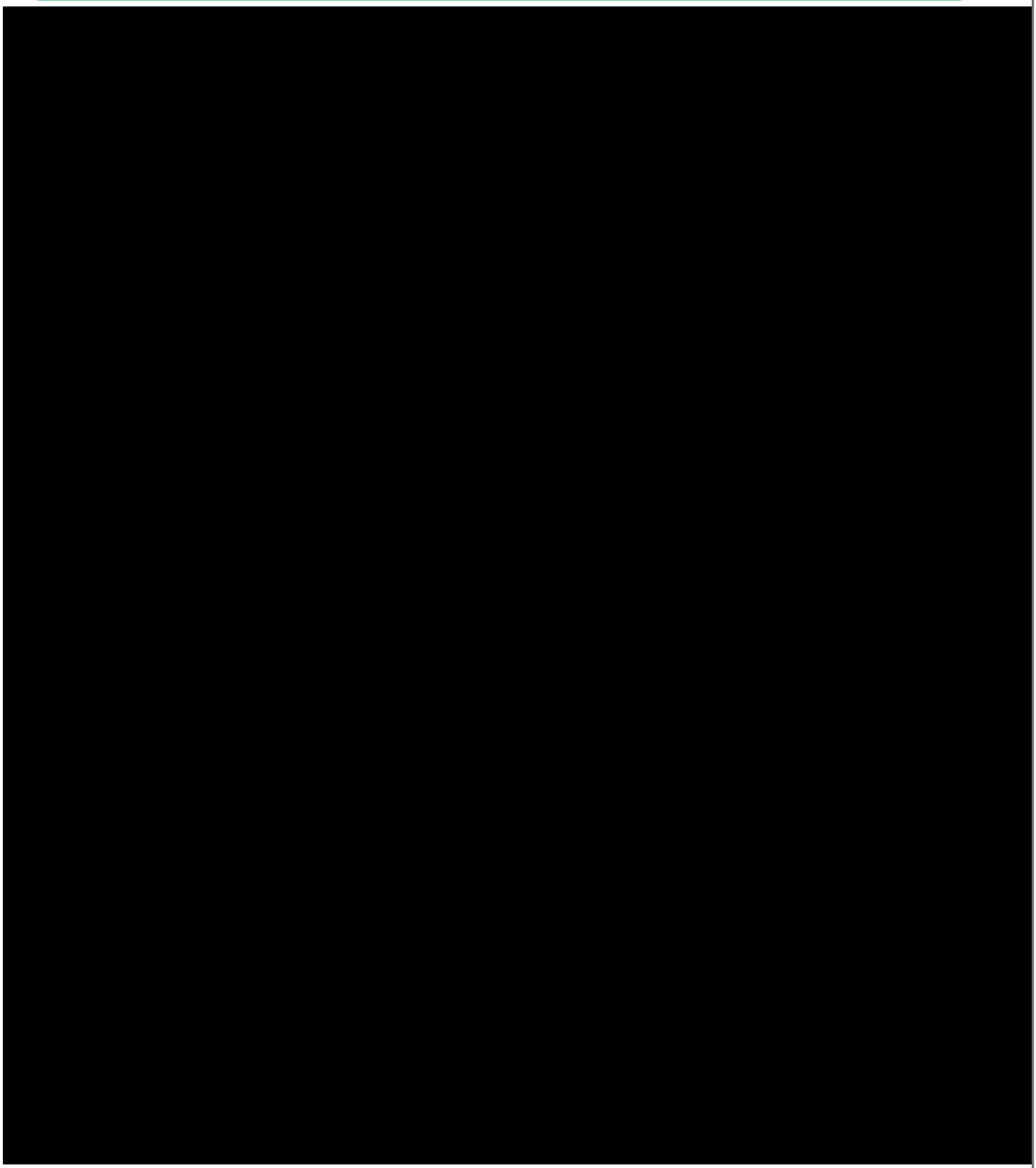
14

19









Operations Project Authorization Form

Project Title: Long Hill Rd Lateral reliability	**Project Number: CD01951**
Date Prepared: 03/17/2022	**Company:** Eversource CT
Organization: EFO	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** Reliability
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: 12/31/2023	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $1.394M	**Authorization Type:** Partial Funding

Executive Summary

[redacted] and has seen 11 outages over the past 4 years – 1 outage was planned to replace a step transformer, 1 outage was a motor vehicle incident, and 9 were tree related. The 9 tree related outages occurred consistently throughout the lateral. The circuit was trimmed to ETT specs in 2019 and is scheduled to be trimmed again in 2023. [redacted]

Project Costs Summary

Capital Costs	2023	2024	2025	Total
Internal Labor and Construction Equipment	$29	$0	$0	$29
Outside Services	$708	$0	$0	$708
Materials	$76	$0	$0	$76
Removals	$31	$0	$0	$31
Risk and Contingency	($4)	$0	$0	($4)
Other	$0	$0	$0	$0
Subtotal	**$841**	**$0**	**$0**	**$841**
Indirect Capital Costs	**Year 1**	**Year 2**	**Year 3+**	**Total**
Indirects/Overheads (including benefits)	$553	$0	$0	$553
Capitalized interest or AFUDC, if any	$0	$0	$0	$0
Subtotal	**$553**	**$0**	**$0**	**$553**
Total Capital Costs (Gross)	**$1,394**	**$0**	**$0**	**$1,394**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**

Technical Justification:

Project Need, Objective and Justification

[redacted]

20

25

[redacted]

Major Material:

7,200 ft. 556 spacer cable
55 - 45' poles (telephone custodian)
40 - OH transformers
6 - Step-down transformers
9 - Padmount transformers

Background

[redacted]



Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.3
Refer to Distribution Capital Project Supplement Process
JA-AM-2001-C, Rev.0

[redacted]

Alternatives Considered:

Alternatives were considered (please describe below)

[redacted]

Regulatory Approvals:

No

Project Schedule

Milestone/Phase Name	Estimated Date
100% Engineering Completion	May 2023
Construction Start	September 2023
Testing/Commissioning	November 2023
In Service Date	December 2023

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	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.	2023	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	2023	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Medium	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods

References

Outage Data Long Hill Rd 3519.xlsx

CD01951_project_needs_statement.pdf

Cd01951 Fault Map.pdf