EVERSOURCE

Operations Project Authorization Form

Approved on March 16, 2022 EPAC

Link to Meeting Minutes

Project Title: ECT – Convert [redacted] SS to 115kV (T) & (D)	**Project Number: 405122 (T) & CS00401 (D)**
Date Prepared: 03/09/2022	**Company: Eversource CT**
Organization: System Planning	**Class(es) of Plant: T SS, D SS, T Line**
Project Initiator: [redacted]	**Project Category: Lines - Structures, Stations - General**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 40512211**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: June 2023	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type (check all that apply):** ☒ **PTF** ☒ **non-PTF** ☒ **Distribution** ☐ **N/A (General Plant)**
Total Capital Request: $43.7M (405122 $17.2M; CS00401 $25.2M; CD01755 $1.3M*) *Note: CD01755 previously approved at CPAC 11/23/21	**Authorization Type: Full Funding**

[1] Executive Summary

This Project Authorization Form (PAF) requests full funding of $43.7M (Transmission Substation $15.9M, Transmission Line $1.3M, Distribution Substation $25.2M, Distribution Line $1.3M) to [redacted]

The project received Partial Funding of $2.5M: $1M Transmission (405122), approved in PowerPlan on September 25, 2020; and $1.5M Distribution (CS00401), approved in PowerPlan on October 28,2020.

This project will convert the [redacted] will comply with Eversource standards.

The [redacted] which was approved by CPAC November 23rd, 2021 for $1.3M under project funding number CD01755. This project scope is recognized as being necessary only as a result of the Transmission Reliability needs. Consequently, a Distribution project and a Distribution workorder was required to purchase the cables and all associated material and equipment and resources for this project. Transmission will journal all costs from the Distribution workorder to the Transmission workorder. these costs will be journaled because it is being driven by the Transmission scope which will be added to the Transmission project total.

Associated projects to complete the [redacted]

[redacted]

The other solutions identified within the chosen solution group and the other groups are addressed in separate PAFs. This project was presented to and approved by the Solution Design Committee on July 20, 2020.

As of February 2022, the approved partial funding for the [redacted] has been spent on the following Transmission & Distribution scope items (reference below breakdown of the project costs):

- Completion of preliminary Transmission & Distribution engineering design
- Identification of environmental, licensing, and permitting requirements
- Development of environmental mapping
- Development of a licensing and permitting plan
- Development of a siting plan
- Development of a procurement plan
- Completion of a real estate evaluation including land rights review
- Determination of construction and outage sequence requirements
- Site walkdowns and Constructability Review Form
- Development of full funding PAF and planning grade estimate

This full funding request will support the following Transmission & Distribution scope items:

- Completion of Detailed and IFC Engineering
- Completion & receipt of permits
- Ordering materials
- Risk Assessment Workshop - March 2022
- Subsidiary Board presentation - April 2022
- Preparing & processing civil, electrical and test contractor RFPs
- Project controls activities (schedule, cost estimates, contracts)
- Assemble, connect and test mobile substation
- Civil & Electrical Construction starting May 2022
- Test & Commission

The following summary provides a breakdown of the project costs.

Project Number/ Work Order	Class of Plant	Scope	Amount
40512211	T SS		$15.9M
40512287	T SS		
80065979	T Line		$1.3M
CS004011	D SS		$ 25.2M
CS004012	D SS		
80070417	D SS		
CD01755	D Line		$1.3M
Total			**$43.7M**

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[2] PROJECT COSTS SUMMARY

Table [2]1. Not [redacted]

Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	2025	2026	2027	Total
1. ROW / Easements / Land purchases									
2. Environmental Approvals / Permits		$50	$50	$34					$134
3. Outreach			$10	$8					$18
4. Siting Approvals / Permits		$11	$27	$23					$61
5. Engineering / Design		$280	$296	$304					$880
6. Materials (Eversource purchased)			$984	$666					$1,651
7. Construction (incl matl's by contractors)		$29	$3,301	$2,294					$5,624
8. Testing / Commissioning				$766					$766
9. PMT Project Mgmt Team		$118	$106	$84					$309
10. Removals		$250	$252	$173					$676
11. Other									
12. Risks			$585	$537					$1,122
Project Directs Total w/Risks		**$740**	**$5,610**	**$4,891**					**$11,241**
13. Indirects/Overhead		$333	$1,642	$1,518					$3,494
14. AFUDC		$31	$331	$352					$714
Project Total - Baseline Budget		**$1,104**	**$7,583**	**$6,761**					**$15,449**
15. Contingency			$249	$227					$476
#N/A									
Project Total - Funding Approval Level		**$1,104**	**$7,833**	**$6,988**					**$15,925**
16. Reimbursables/Customer Contribution									
#N/A									
Project Total (less reimbursables)		**$1,104**	**$7,833**	**$6,988**					**$15,925**
Total O&M									
TOTAL REQUEST		**$1,104**	**$7,833**	**$6,988**					**$15,925**

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Table [2]2. Note: [redacted]

Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	2025	2026	2027	Total
1. ROW / Easements / Land purchases									
2. Environmental Approvals / Permits									
3. Outreach									
4. Siting Approvals / Permits									
5. Engineering / Design			$38	$39					$77
6. Materials (Eversource purchased)			$11	$12					$23
7. Construction (incl matl's by contractors)			$357	$367					$723
8. Testing / Commissioning									
9. PMT Project Mgmt Team			$25	$22					$46
10. Removals			$38	$40					$78
11. Other									
12. Risks			$47	$47					$93
Project Directs Total w/Risks			**$516**	**$525**					**$1,041**
13. Indirects/Overhead			$100	$102					$201
14. AFUDC			$22	$28					$50
Project Total - Baseline Budget			**$637**	**$655**					**$1,292**
15. Contingency			$20	$20					$39
#N/A									
Project Total - Funding Approval Level			**$657**	**$675**					**$1,331**
16. Reimbursables/Customer Contribution									
#N/A									
Project Total (less reimbursables)			**$657**	**$675**					**$1,331**
Total O&M									
TOTAL REQUEST			**$657**	**$675**					**$1,331**

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Risk for the transmission estimates [redacted] (405122)

Risk	Allocation
1. Potential UG Obstructions	$340,000
2. Severe Weather, Delays, OT	$350,000
3. Design development	$215,000
4. Bedrock 15 ft. down	$30,000
5. Mitigation plans may be requested by adjacent landowners and/or Town of Ledyard	$46,000
6. Environmental Contamination	$144,000
7. SCLL Mitigation	$40,000
Total	$ 1,165,000

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Table [2]3. Note: [redacted]

Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	2025	2026	2027	Total
1. ROW / Easements / Land purchases									
2. Environmental Approvals / Permits			$50	$34					$84
3. Outreach			$17	$14					$30
4. Siting Approvals / Permits			$46	$38					$84
5. Engineering / Design		$298	$617	$636					$1,551
6. Materials (Eversource purchased)			$4,656	$3,151					$7,807
7. Construction (incl matl's by contractors)		$7	$3,097	$2,150					$5,254
8. Testing / Commissioning		$3		$766					$769
9. PMT Project Mgmt Team		$33	$401	$389					$823
10. Removals		$161	$34	$77					$272
11. Other									
12. Risks			$950	$820					$1,770
Project Directs Total w/Risks		**$501**	**$9,869**	**$8,073**					**$18,444**
13. Indirects/Overhead		$689	$2,127	$2,068					$4,884
14. AFUDC		$24	$505	$556					$1,085
Project Total - Baseline Budget		**$1,214**	**$12,501**	**$10,698**					**$24,413**
15. Contingency			$393	$353					$746
#N/A									
Project Total - Funding Approval Level		**$1,214**	**$12,894**	**$11,051**					**$25,159**
16. Reimbursables/Customer Contribution									
#N/A									
Project Total (less reimbursables)		**$1,214**	**$12,894**	**$11,051**					**$25,159**
Total O&M									
TOTAL REQUEST		**$1,214**	**$12,894**	**$11,051**					**$25,159**

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Risk for the distribution estimate [redacted]

Risk	Allocation
1. Potential UG Obstructions	$430,000
2. Severe Weather, Delays, OT	$450,000
3. Design development	$445,000
4. Bedrock 15 ft. down	$65,000
5. Mitigation plans may be requested by adjacent landowners and/or Town of Ledyard	$70,000
6. Delays Receiving and/or Defective Materials	$215,000
7. Local Siting Delays	$95,000
Total	$1,770,000

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Table [2]4. Note: [redacted]

Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
1. ROW / Easements / Land purchases													
2. Environmental Approvals / Permits		$50	$99	$68									$218
3. Outreach			$26	$22									$49
4. Siting Approvals / Permits		$11	$73	$61									$145
5. Engineering / Design		$578	$951	$980									$2,509
6. Materials (Eversource purchased)			$5,652	$3,829									$9,481
7. Construction (incl matl's by contractors)		$36	$6,755	$4,810									$11,601
8. Testing / Commissioning		$3		$1,533									$1,536
9. PMT Project Mgmt Team		$151	$532	$494									$1,177
10. Removals		$412	$325	$289									$1,026
11. Other													
12. Risks			$1,582	$1,404									$2,985
Project Directs Total w/Risks		$1,241	$15,995	$13,490									$30,726
13. Indirects/Overhead		$1,022	$3,869	$3,688									$8,579
14. AFUDC		$55	$858	$936									$1,849
Project Total - Baseline Budget		$2,318	$20,722	$18,114									$41,154
15. Contingency			$662	$600									$1,262
#N/A													
Project Total - Funding Approval Level		$2,318	$21,384	$18,714									$42,415
16. Reimbursables/Customer Contribution													
#N/A													
Project Total (less reimbursables)		$2,318	$21,384	$18,714									$42,415
Total O&M													
TOTAL REQUEST		$2,318	$21,384	$18,714									$42,415

Table [2]5. Note: Gales Ferry D-Line - Project Costs Summary from CD01755 PAF

***Note: CD01755 previously approved at CPAC 11/23/21**

Dollar values are in thousands

	Prior Authorized	2022	20__	20__+	Totals
Capital Additions - Direct	$0	$145	$0	$0	$145
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ___%	$0	$75	$0	$0	$75
Total - Direct Spending	$0	$220	$0	$0	$220
Capital Additions - Indirect	$0	$930	$0	$0	$930
Subtotal Request	$0	$1,150	$0	$0	$1,150
AFUDC	$0	$9	$0	$0	$9
Total Capital Request	$0	$1,159	$0	$0	$1,159
O&M	$0	$131	$0	$0	$131
Total Request	$0	$1,290	$0	$0	$1,290

Detail other costs, project risk items and their allocations:

Risk cost allocation entered in tables beneath the Estimate tables above and also below in section [7] Risk and Risk Mitigation Plans.

Explain unique payment provisions, if applicable:

Material Authorization Forms were utilized for this Gales Ferry Conversion project in lieu of supply chain concerns in 2022. These costs are summarized in the table below. At the date of submission of this PAF, orders have been delivered to vendors, no payments for materials have been made to vendors and no invoices yet received.

40512211	Mobile Transformer and Circuit switcher	Sub-Total	$	384,290.00
40512211	Long Lead Materials	Sub-Total	$	953,400.00
40512287	Long Lead Materials	Sub-Total	$	215,000.00
CS004011	Long Lead Materials	Sub-Total	$	4,726,060.10
CS004012	Long Lead Materials	Sub-Total	$	88,245.00
		Grand Total	**$**	**6,366,995.10**

Identify and detail any unique O&M impacts resulting from this project:

Not Applicable

[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

Project Need Statement

[redacted]

Project Objectives

This project is part of a suite of projects selected to eliminate the thermal overloads and voltage violations identified in the Eastern Connecticut (ECT) Needs Assessment, and to improve the reliability of the transmission system as part of the ECT Working Group Solutions study.

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Project Scope

TRANSMISSION SCOPE (WO#: 40512211, 40512287, 80065979):

[redacted]

[redacted]

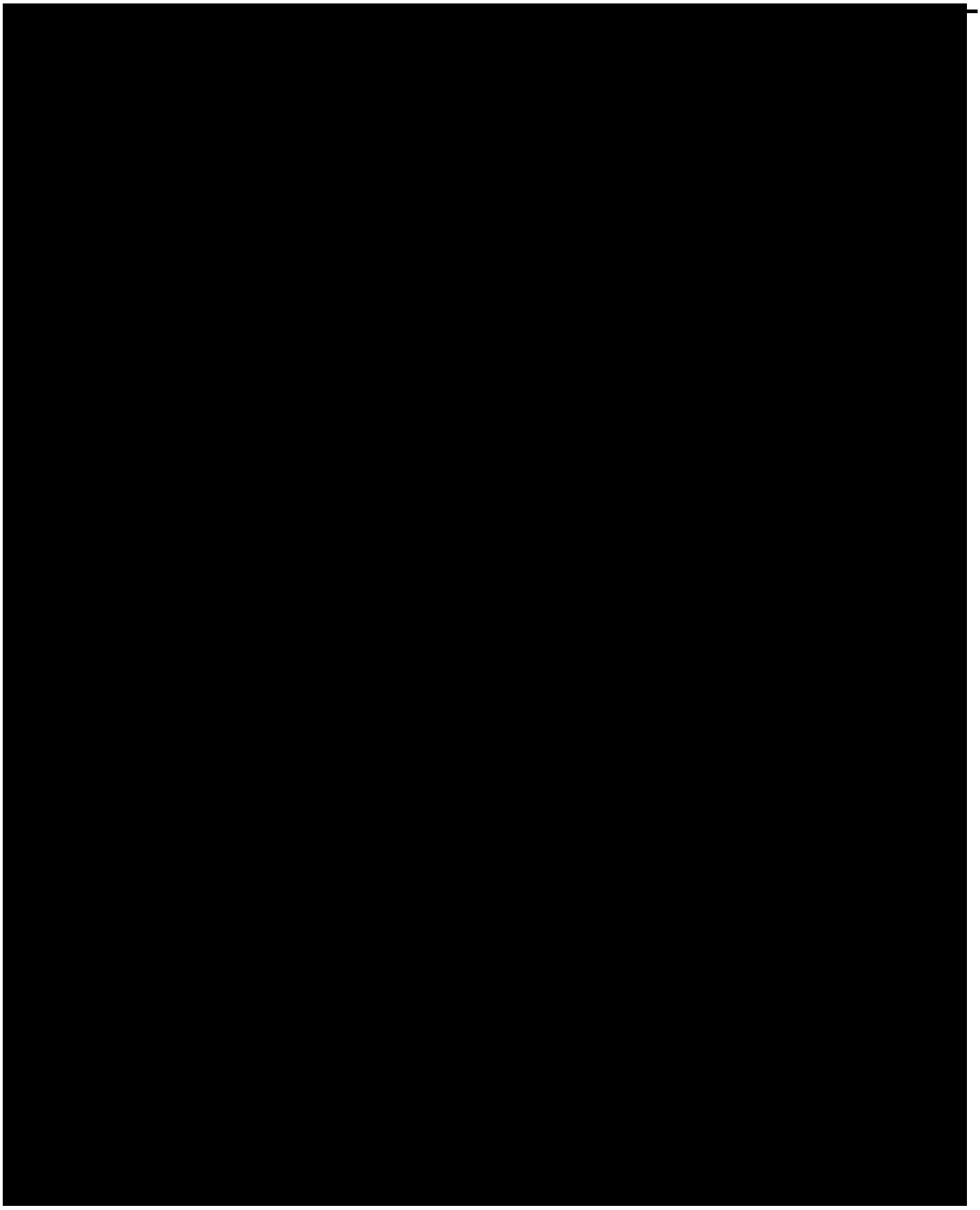
Asset Protection

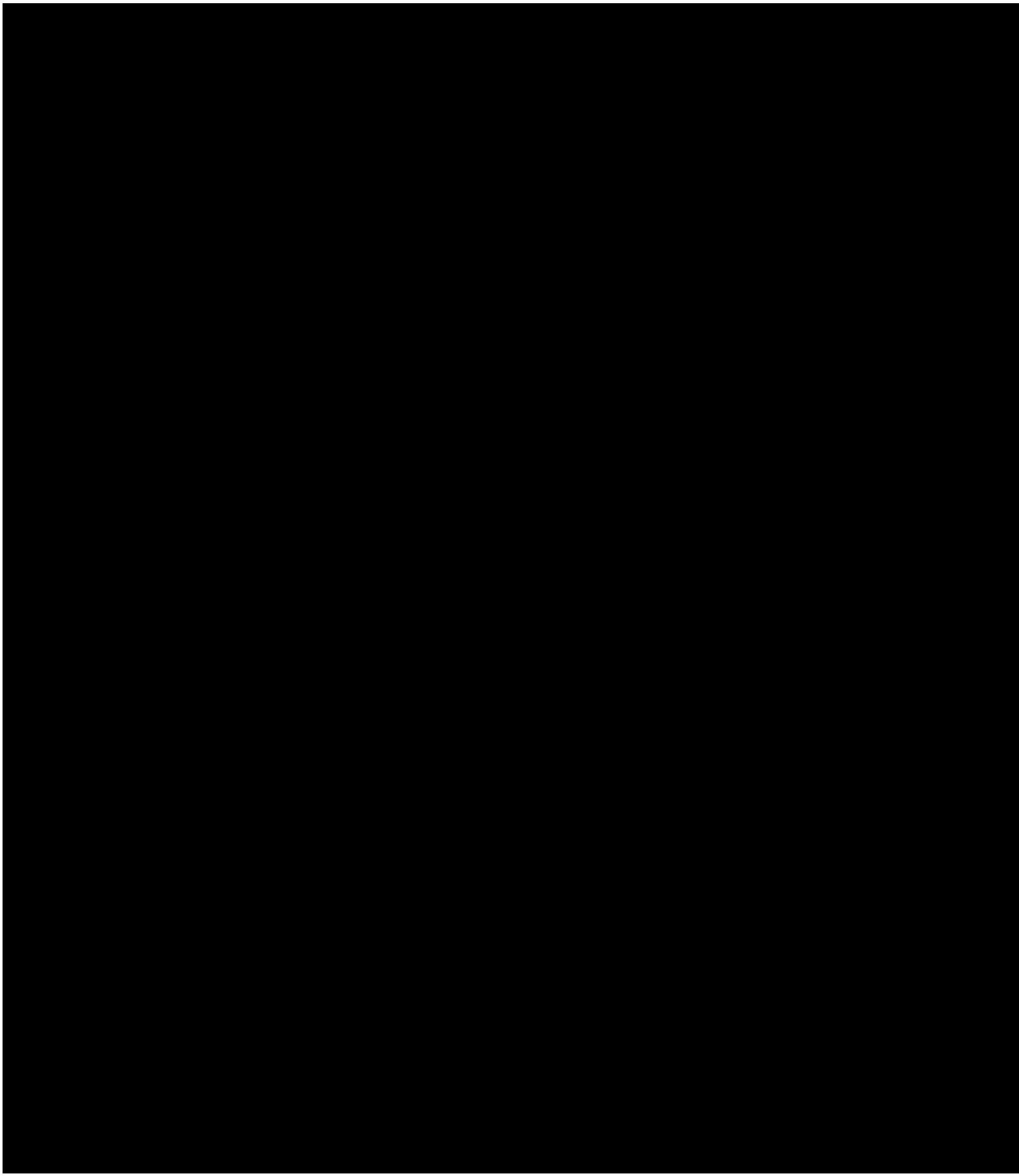
[redacted]

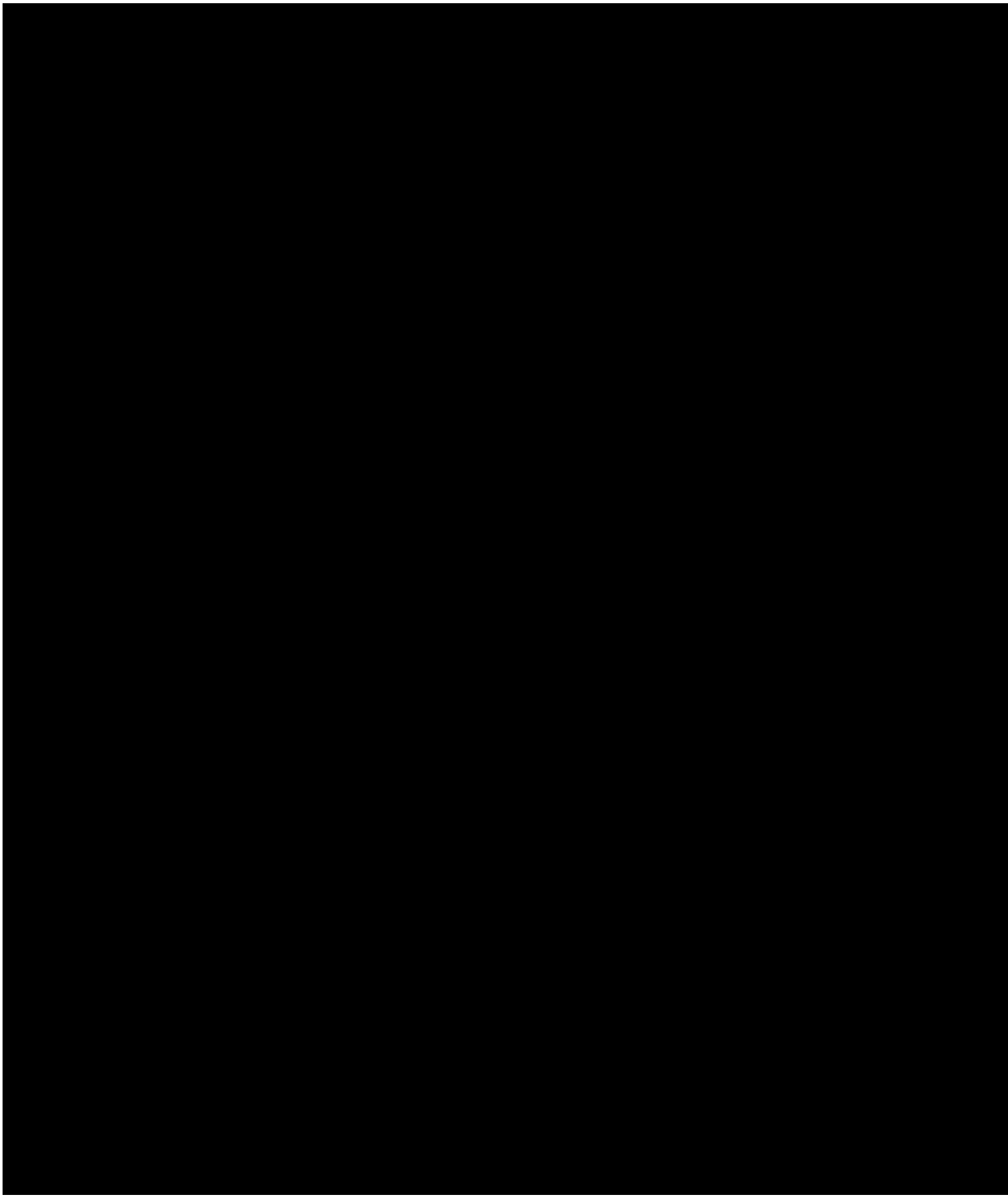
DISTRIBUTION SCOPE (WO#: CS004011, CS004012, 80070417):

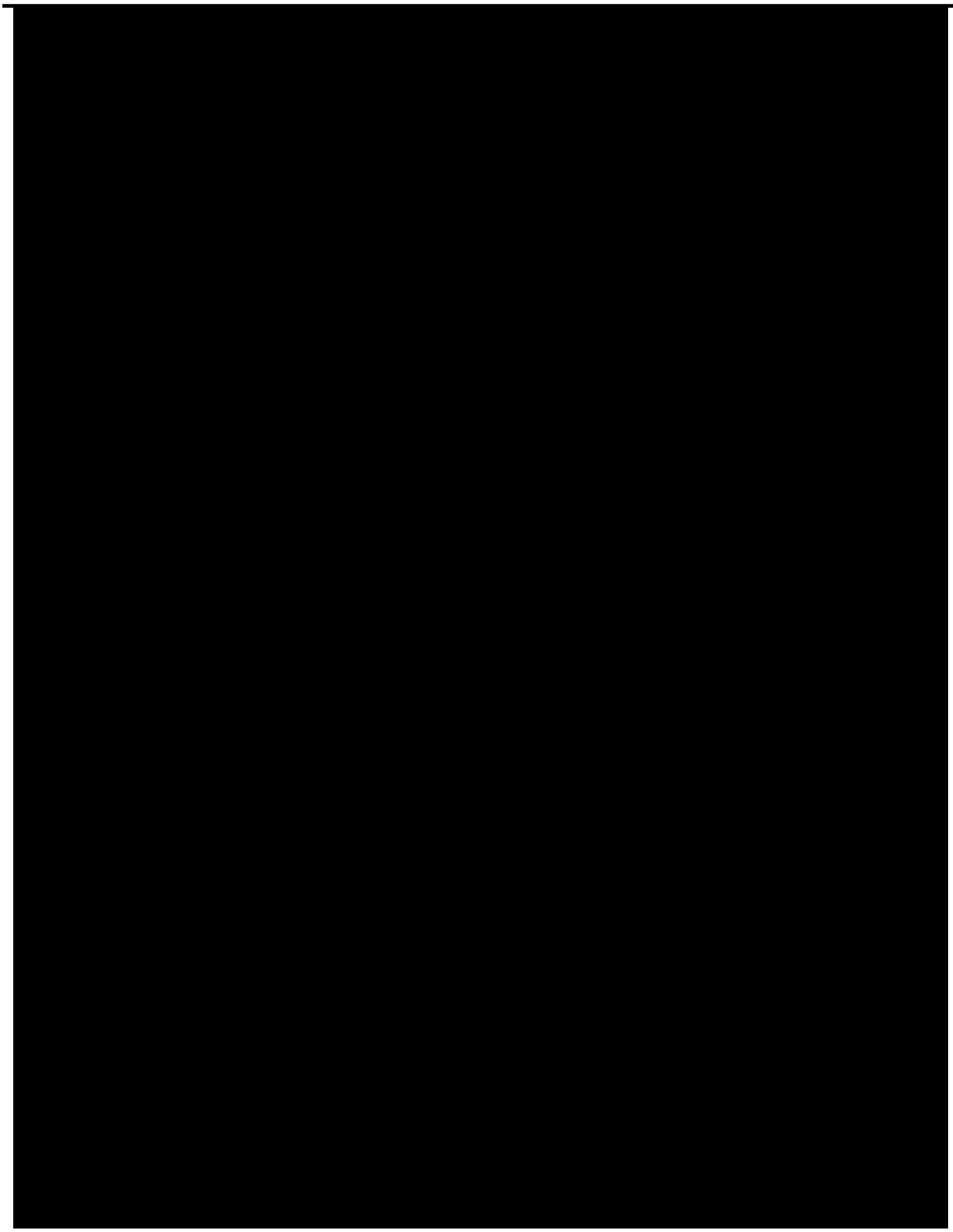
Below Grade Structural / Civil

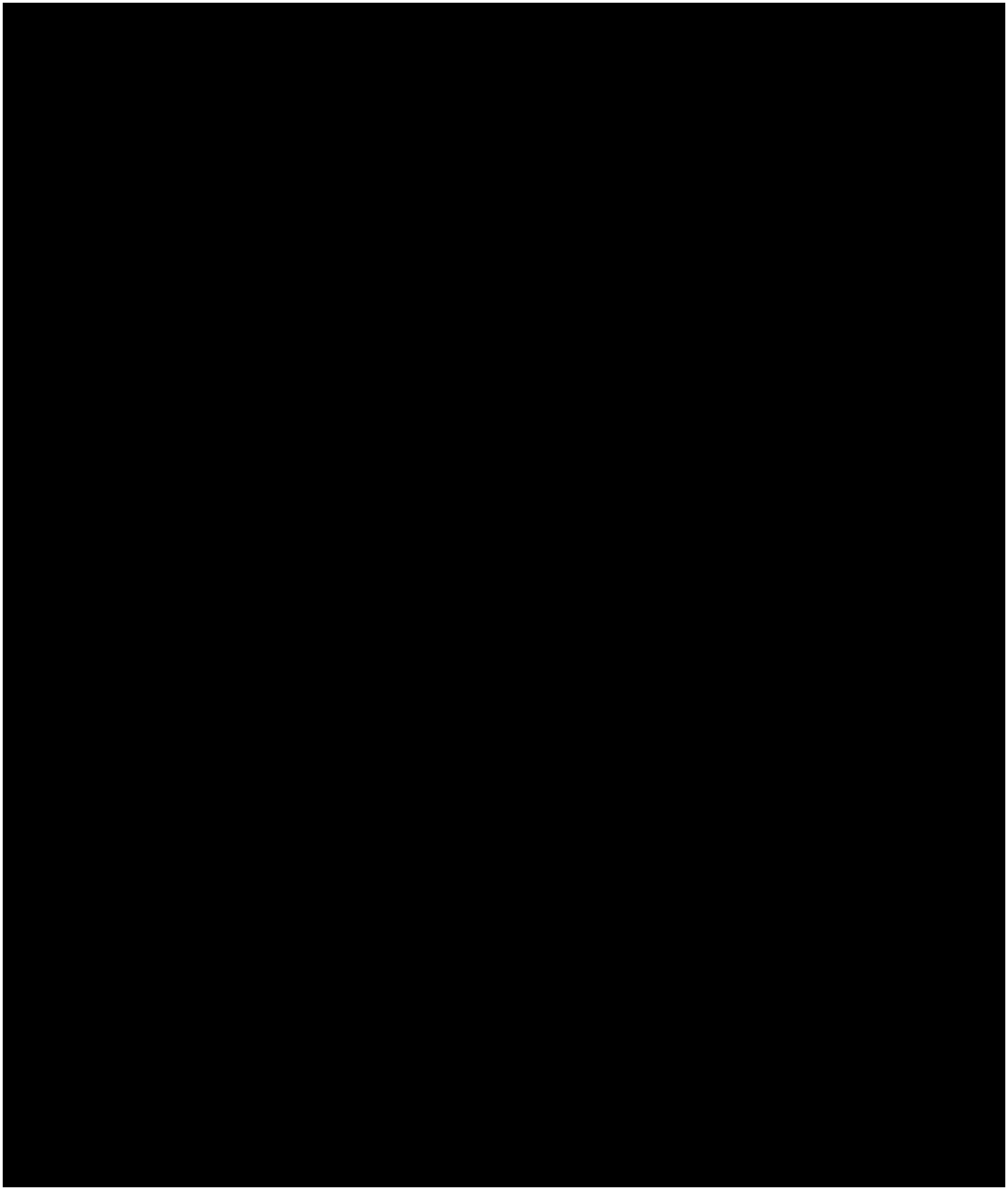
[redacted]











[redacted]

Protection & Controls (P&C)

[redacted]

- [redacted]:

[redacted]

Station	Equipment	Device Designation	Device Additions	Communication Path
[redacted]				

[redacted]

Station	Equipment	Device Designation	Device Additions	Communication Path
[redacted]				

[redacted]

[redacted]

Device

[redacted]

Test & Commission

[redacted]

Please reference No. 4, the ECRP Outage Schedule 3-7-22.

Substation Equipment

Station	Device Position / Nomenclature	Device Removals	Device Additions
[redacted]			

See also electrical equipment Removals/Additions Attachment D - One Lines. A constructability review was performed on January 25, 2022 (see Attachment C).

Background

Background / Justification

The ECT Working Group, comprised of Eversource, ISO-NE, and Connecticut Municipal Electric Energy Cooperative (CMEEC), divided the solutions into four (4) groups. The four (4) groups provided a means to compare similar electrical solutions with one another. Ultimately the four (4) solution groups satisfy all of the ECT 2029 needs by providing satisfactory solutions to the thermal overloads and low voltage violations in the corridor.

The four (4) solution groups (and solution component project funding numbers) are:

[redacted]

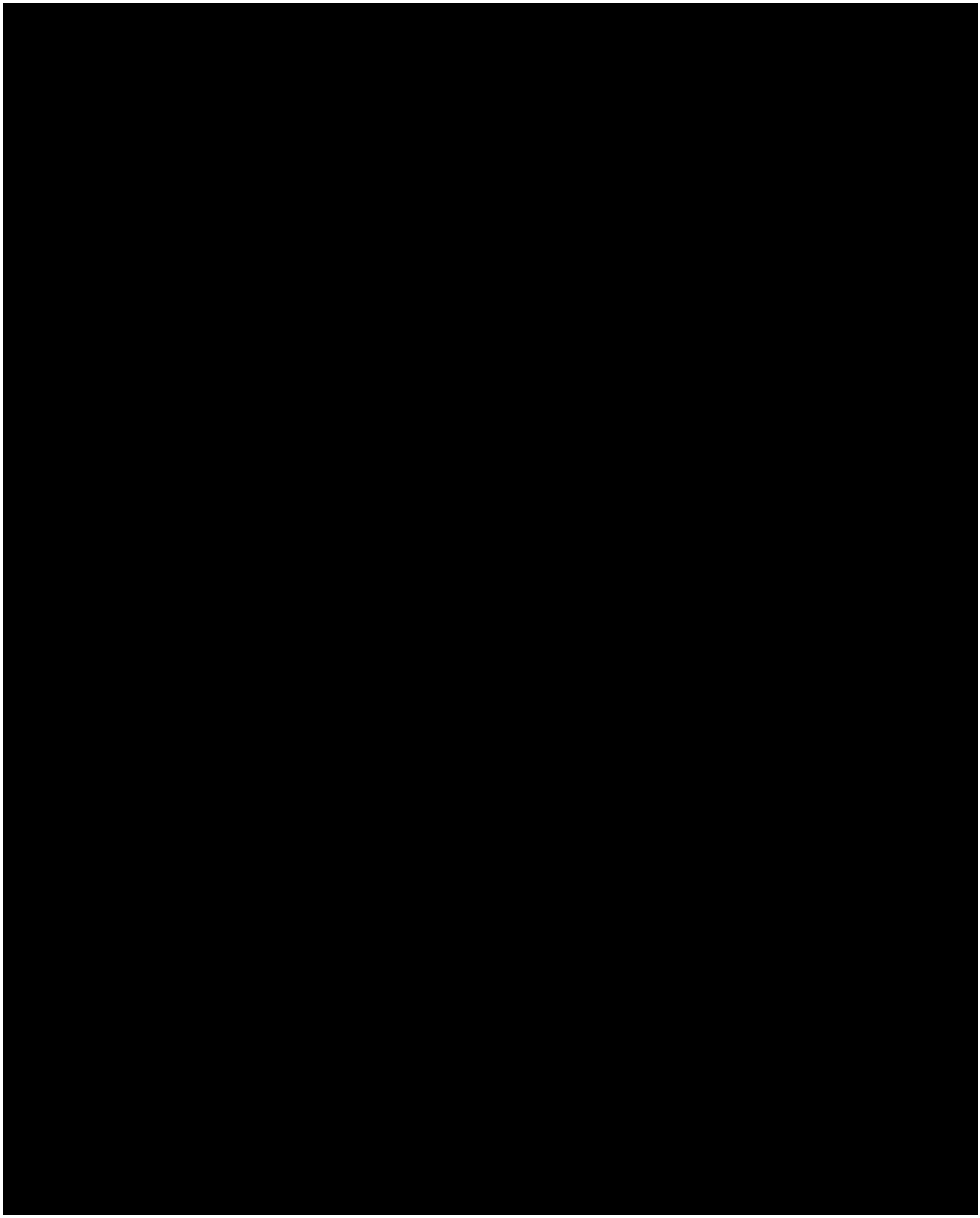
The needs are summarized as follows:

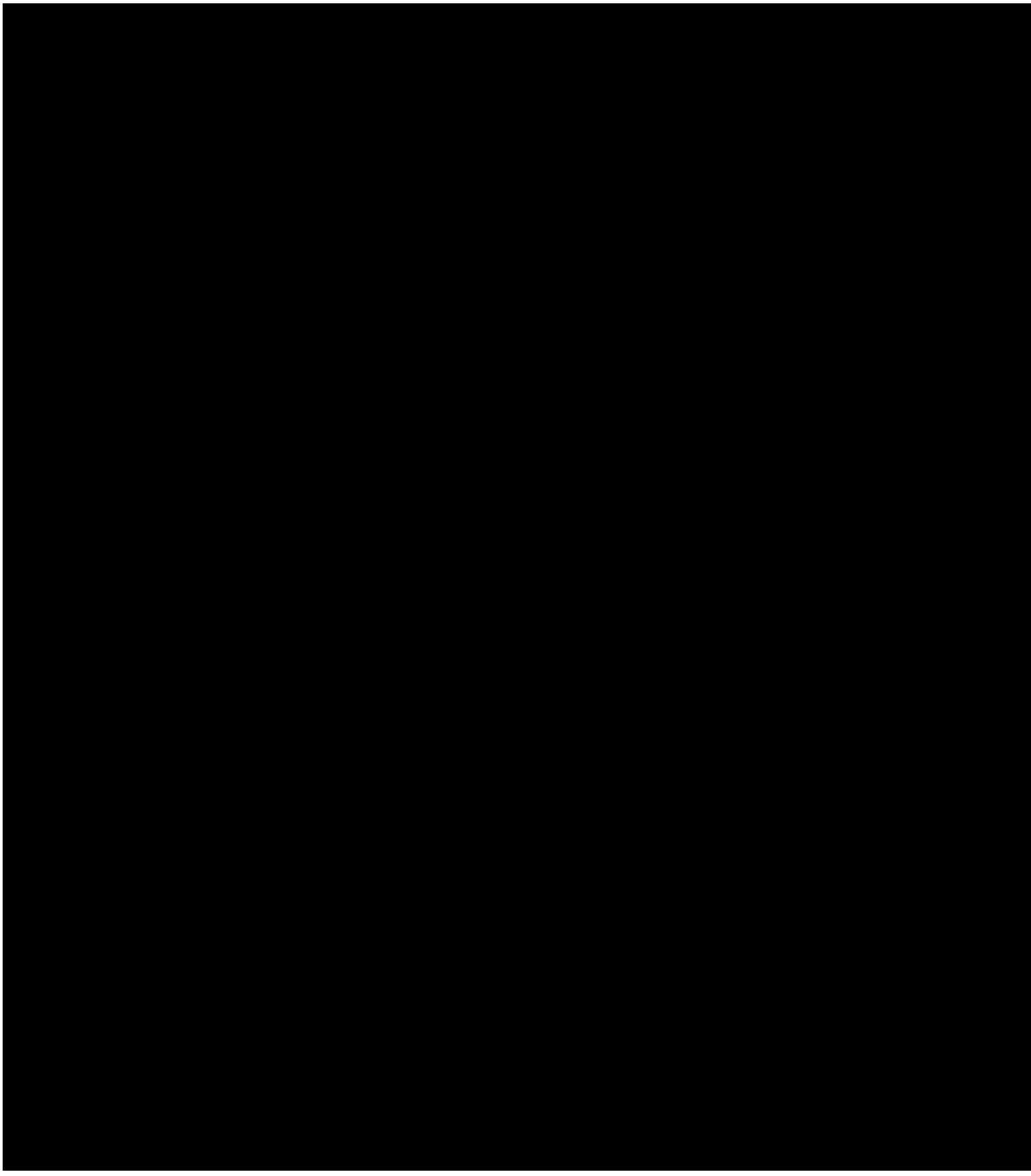
- [redacted]

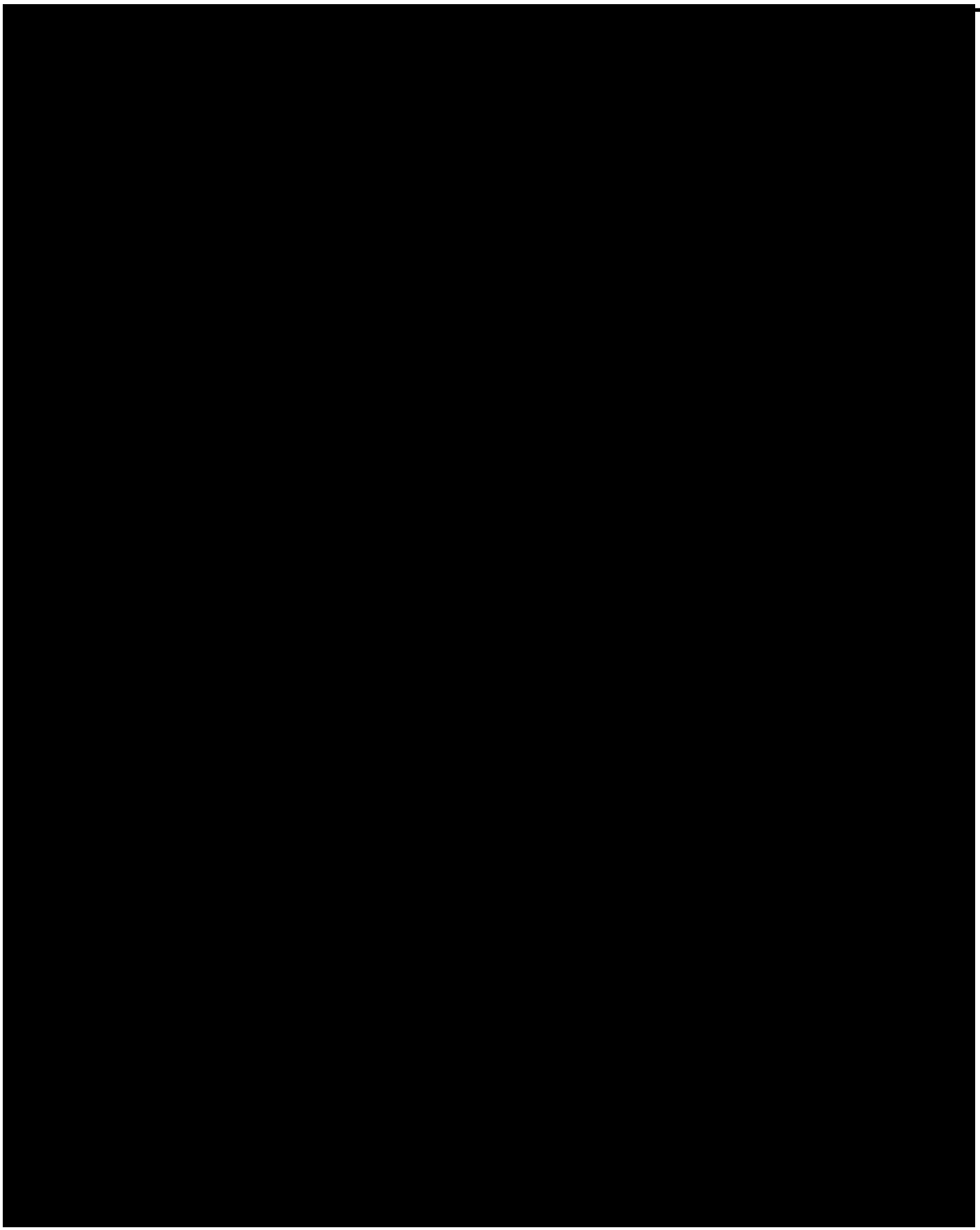
[redacted]

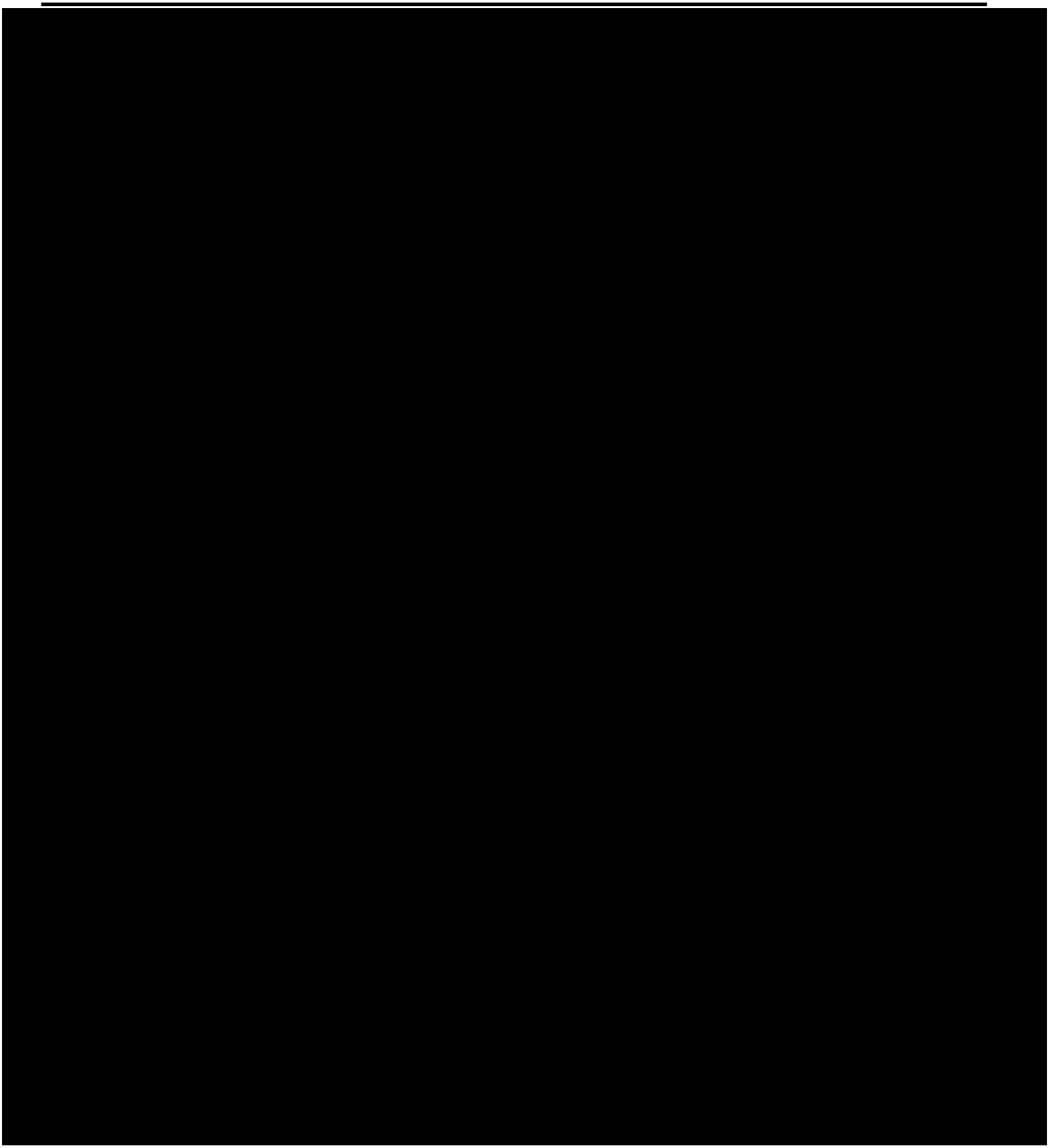
[4] ALTERNATIVES CONSIDERED

[redacted]









The Table below details the estimates of the solution components of ECT Alternatives 1 and 2 as well as the associated asset condition projects. It also has a comparison of the total costs of the two alternatives. As noted above, [redacted] conversion is not considered as part of Alternative 1 solution.

ID	Solution Component	Alt. 1	Alt. 2	Asset Cond. Alt. 1	Asset Cond. Alt. 2	Estimate Number	Estimate Value	Planned In-Service Date	Comments
[redacted]		X	X			C-20-52	$42,670,000	2022	
		X	X						
		X	X						
		X				C-20-117	$3,610,789	2023	
			X			C-20-118	$3,791,933	2023	
		X				C-20-40 Rev B	$46,607,400	2023	Estimate accounts for QP 831
			X			C-20-72	$3,338,477	2021	
			X			C-20-66a	$13,523,134	2023	Includes 61850 Conversion at Station
			X			C-20-67	$23,008,772		Includes 61850 Conversion at Station
				X	X	C-20-62a	$31,653,246	2022	Conversion and Asset Condition are the same scope except $443.7k incremental cost for 1272 ACSS
						C-20-60	$5,819,148	2022	Asset condition scope to be completed prior to ECT and covers all ECT scope.
				X	X	C-20-61	$13,386,346	2022	Anticipated that all 31 structures will need to be replaced in the next 5 years.
				X	X	C-20-64a	$7,409,419	2021	Conversion and Asset Condition are the same scope except $85.7k incremental cost for 1272 ACSS
			X			C-20-65a	$6,019,520	2023	
						C-20-57	$5,441,741	2022	ECT scope overlaps the Asset Condition Scope.
						C-20-181a	$2,748,300	2022	
				X	X	C-20-58	$4,130,567	2021	Asset Condition scope will be completed prior to ECT
			X				$4,059,474	2022	ECT scope for 100 line beyond what is completed by Asset Condition project
			X			C-20-59	$8,235,852	2023	
						C-20-119	$48,157,791	2024	
		X	X			C-20-68	$43,752,478	2024	
		X	X			C-20-71	$5,657,231	2021	
						C-20-70	$12,891,847	2021	
	[redacted]								
	Alternative 1	$42,670,000	$50,218,189	$56,050,178	$106,268,367	$43,752,478	$5,657,231	**$198,348,076**	
	Alternative 2	$42,670,000	$110,989,542	$7,567,198	$118,556,740	$43,752,478	$5,657,231	**$210,636,449**	
								$12,288,373	**Deltas (Alt 2 minus Alt 1)**

Note: Estimates updated to current indirect rates in February 2020.

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
Project Need by Date	June 30, 2023
Date of IFR Approval	N/A
Complete Conceptual design of Alternative(s)	N/A
Initiator complete SSF form	N/A
SDC Presentation Date(s) – Partial Funding Approval	July 20, 2020
Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval but do not require ISO alternative selection)	June 23, 2020
Preliminary Design Complete	October 20, 2021
Preliminary Design Constructability review complete	October 08, 2020
Full funding estimate complete	February 21, 2022
Full funding estimate review	February 21, 2022
Initiator complete PAF form	February 21, 2022
EPAC Funding Dates (Partial and/or Full)	March 16 2022
Subsidiary Board Presentation / Approval	April 22, 2022
Detail Design Complete	March 15 2022
Final Constructability Review Complete	January 25, 2022
Targeted Milestone Dates:	
· Siting Approval (if applicable)	May 04, 2022
· Env. Approvals (if applicable)	Feb 25, 2022
· Outage & Energization Plan Issued	March 31, 2022
· All Material on Site	August 11, 2022
· Outage Permit(s) Approved	May 28, 2022
IFC Design Complete	May 16, 2022
Start of Construction	May 16, 2022
Project ISD	June 15, 2023
Relay Settings Issued (*Required for Full Funding requests)	July 13, 2022
ISO Related Milestones (for applicable projects)	
· ISO Preferred Alternative Selected	June 23, 2020
· Conversion of Tx development costs, 183 to 107 · (following ISO preferred alternative selection)	June 23, 2020
· ISO PAC Presentation	May 20, 2020
· TCA Submittal	April 15, 2022

A P6 Project Schedule is provided in Attachment B.

[6] Regulatory Approvals

The following approvals are required:

- Connecticut Siting Council (CSC) Petition
- Planning Advisory Committee (PAC)
- Proposed Plan Applications (PPA)
- Transmission Cost Allocation (TCA)
- ACOE Self Verification 401/404 Permit

Environmental confirmed this project will not require a US Army Corp of Engineers (USACOE) Pre-Construction Notification (PCN), Natural Diversity Data Base (NDDB) Determination or CT Department of Energy and Environmental Protection (CTDEEP) Stormwater Pollution Control Plan (SWPCP) Permit. Environmental requirements for Cultural Resource Investigation are to be determined.

Regulatory Standards for testing equipment which must be adhered to are listed in the Section [8] References.

[7] Risk and Risk Mitigation Plans

Contingency:

The project cost estimate allocates $1,256K of contingency for any risks that are not yet known and do not yet have mitigation plans.

Risk Mitigation:

Risk for the transmission estimates [redacted] (405122)

Risk	Allocation	Mitigation
1. Potential UG Obstructions	$340,000	Complete potholing after 70% engineering is completed to identify obstructions and incorporate into design prior to IFC. Cross check original substation prints. Risk allocation is also included.
2. Severe Weather, Delays, OT	$350,000	Define construction critical paths, identify float, and ensure that on-time resolutions are developed for projects to avoid delays. Risk allocation is also included.
3. Design development	$235,000	Clearly define scope – review engineering firms design on schedule – perform constructability review prior to start of construction. Risk allocation is also included.
4. Bedrock 15 ft. down	$30,000	Complete borings at 30% engineering is completed to identify obstructions and incorporate into design prior to IFC. If bedrock is unearthed drilling contractor will be brought in. Risk allocation is also included.
5. Mitigation plans may be requested by adjacent landowners and/or Town of Ledyard	$46,000	A sound study was completed determined there the addition of the 2X and 3X transformers would have minimal impact to the overall sound level at the station. The design incorporated the physical space around the new transformer to install fire and sound walls. Risk allocation is also included.

6. Environmental Contamination	$144,000	Test soil and disposal of contaminated soil if found. Risk allocation is also included.
7. SCLL Mitigation	$70,000	Project team planned fenced mobile substation to be located in ROW with tap off 1410 line as solution for duration of construction period. Project team in active weekly coordination with associated Eversource team and Groton Utilities to communicate and mitigate outage overlaps & associated SCLL conditions. Risk allocation is also included.
	$1,215,000	

Risk for the distribution estimate [redacted] (CS00401)

Risk	Allocation	Mitigation
1. Potential UG Obstructions	$430,000	Complete potholing after 70% engineering is completed to identify obstructions and incorporate into design prior to IFC. Cross check original substation prints.
2. Severe Weather, Delays, OT	$450,000	Define construction critical paths, identify float, and ensure that on-time resolutions are developed for projects to avoid delays.
3. Design development	$445,000	Clearly define scope – review engineering firms design on schedule – perform constructability review prior to start of construction
4. Bedrock 15 ft. down	$65,000	Complete borings at 30% engineering is completed to identify obstructions and incorporate into design prior to IFC. If bedrock is unearthed drilling contractor will be brought in.
5. Mitigation plans may be requested by adjacent landowners and/or Town of Ledyard	$70,000	A sound study was completed determined there the addition of the 2X and 3X transformers would have minimal impact to the overall sound level at the station. The design incorporated the physical space around the new transformer to install fire and sound walls.
6. Delays Receiving and/or Defective Materials	$215,000	Use approved vendors, contract delivery dates, hold contractors to schedule, Liq. Damages clause in contract – request factory testing of critical path items
7. Local Siting Delays	$95,000	Inform town leaders as soon as possible
Total	$1,770,000	

The project cost estimate allocates $2.985M for known potential risks that do have mitigation plans as noted above.

The Project team ran a Risk Assessment Workshop March 4, 2022. Subject Matter Experts (SMEs) for the respective areas that require representation for this risk workshop session were identified and included.

[8] REFERENCES

References
1. ISO-NE 2029 Eastern Connecticut Needs Assessment Report, dated November 2019
2. PAF titled "405121-405122-405123-405124-405125-405133-CS00401 – ECT 2029 Reliability Project – 69-kV Conversion – Partial Funding - PAF
3. PAF titled "CD01755 PAF Revised 11-23-21 11B61 Whalehead Rd"
4. ECRP Outage Schedule 3-7-22
5.CIP-006 Cyber Security - Physical Security
6. PRC-005 - Protection System Maintenance
7. SUB 022.9 - R&CR Security Systems
8. SUB 202 - ES Substation Equipment Testing Acceptance Guidelines

[9] ATTACHMENTS (One-Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A1. Cost Estimate C-22-51 (D) 405122 SS Conversion - [redacted] - Est.	*YES*
A2. Cost Estimate C-22-51 (T) 405122 SS Conversion - [redacted] - Est.	*YES*
A3. Cost Estimate C-22-51 (TL) 405122 SS Conversion - [redacted] - Est.	*YES*
A4. Cost Estimate [redacted] - Multiple Estimate Summary	*YES*
B. P6 Schedule	*YES*
C. Constructability Review	*YES*
D. System and Station One-Lines	*YES*
E. Equipment & Material Breakdown	*YES*
F. Aerial Maps	*YES*
G. Conceptual Layout	*YES*
H. Construction Schedule	*YES*

INSTRUCTIONS:
It is the responsibility of the initiator to contact the subject matter experts in the listed area disciplines to determine if the project considerations contained in this list are applicable to their project. They should fill out the checklist and determine a transition plan for the purpose of project execution. See the PAF Guide for additional instruction.

Project Checklist - Transmission & Substation Capital Project			
Project Name: Convert [redacted] to 115kV (T)&(D)		**Project Number: 405122/CS00401**	
Facility Type: ☐BPS ☒BES ☒PTF ☐PTF non-regional ☒non-PTF ☒CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?		Yes	
Is an ISO-NE PAC presentation required?		Yes	
ISO-NE Presentation Date (if completed):		05/20/2020	
Cost in ISO-NE Presentation ($M) (if completed):		$36M	
Is a PPA required?		Yes	
ISO-NE Approval Date (if completed):		06/17/2021	
Is a TCA Application Required?		Yes	
TCA Submittal Date (if submitted):		06/30/2022	
Cost in TCA Submittal ($M) (if submitted):		Enter Cost ($M)	
Enter ISO-NE RSP / Asset Condition ID, if assigned:		1853 ISO-NE ID	
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?		No	
OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☒ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?		Yes	
Has an outage schedule been approved?		No	
Are Operations & Maintenance procedures/training required?		No	
STANDARDS			
Does the project include standard equipment and designs?		Yes	
SUBSTATION ENGINEERING			
Does this impact Revenue Metering		No	
Is preliminary short circuit/ breaker duty analysis required?		Yes	
Are there any changes to the baseline audible noise?		Yes	
Is there an impact to the existing ground grid?		Yes	
Is a Transient Over Voltage (TOV) analysis required?		Yes	

Project Checklist - Transmission & Substation Capital Project	
Project Name: Convert [redacted] to 115kV	**Project Number: 405122/CS00401**

P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	Yes
Are there any changes that affect the baseline EMI?	No
SITING	
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	Yes
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	Yes
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
What is the level of outreach expected?	Medium
Is any part of this project in an Environmental Justice Community?	No
Has ROW Coordination reviewed this project?	Yes
Is this project coordinating with other existing scheduled work?	Yes
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	Yes
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by the Eversource Estimating Team
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Full Review

ESTIMATE SUMMARY

Project Title: Conver[redacted] 88 to 115 kV
[redacted]
Project Number: 405122
WO & Task #: CS00401
Estimate revision #: 01b
Estimate Type - Station work

Estimate #: C-22-51a (D)
Date of Estimate: 03/25/2022
Estimate done by: [redacted]
In Service date (ISD): 12/31/2023

Template Revision #01.72a

All Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-22-51a (D)
Date of Estimate 03/25/2022

Project Number: 405122
WO & Task #: CS00401

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	ROW / Easements / Land purchases														
2	Environmental Approvals / Permits	$83,800	0.5%	0.3%		$49,700	$34,100								
3	Outreach	$30,500	0.2%	0.1%		$16,800	$13,700								
4	Siting Approvals / Permits	$83,800	0.5%	0.3%		$46,200	$37,600								
5	Engineering / Design	$1,551,100	8.4%	6.2%	$297,800	$617,400	$695,900								
6	Materials (Eversource purchased)	$7,806,900	42.3%	31.0%		$4,656,000	$3,150,900								
7	Construction (Incl matls by contractors)	$5,253,800	28.5%	20.9%			$2,149,800								
					$6,900	$3,097,300									
8	Testing / Commissioning	$789,200	4.2%	3.1%	$2,800		$786,400								
9	PMT Project Mgmt Team	$822,600	4.5%	3.3%	$32,600	$401,500	$388,500								
10	Removals	$272,100	1.5%	1.1%	$161,200	$34,300	$76,600								
11	Other														
12	Risks	$1,770,000	9.6%	7.0%		$950,000	$820,000								
125															
	Project Directs Total w/Risks	**$18,443,800**	100.0%	73.3%	**$601,300**	**$9,889,200**	**$8,073,300**								
13	Indirects/Overhead	$4,884,000		19.4%	$888,600	$2,127,000	$2,068,400								
14	AFUDC	$1,084,900		4.3%	$23,900	$504,800	$556,200								
126															
	Project Total - Baseline Budget	**$24,412,700**		97.0%	**$1,213,800**	**$12,501,000**	**$10,697,900**								
15	Contingency	$746,500		3.0%		$383,000	$363,500								
	Project Total - Funding Approval Level	**$26,159,200**		100.0%	**$1,213,800**	**$12,884,000**	**$11,061,400**								
16	Reimbursables/Customer Contribution														
	Project Total (less reimbursables)	**$26,159,200**			**$1,213,800**	**$12,884,000**	**$11,061,400**								
	Cost per key qty (if appl)	25,159,200	$'s / EA Upgrade 15kV Distribution												
	Amount of Escalation included above	$219,500					$219,500								
6	Total materials - Eversource	$7,806,900				$4,656,000	$3,150,900								
	Total materials - Contractor	$1,218,500				$726,800	$491,700								
	Total materials	$9,025,400				$5,382,800	$3,642,600								

NOTE: Risk / Contingency is 11.1% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

Estimate Range	**-25%**	**25%**
	$18,888,000	**$31,448,000**

	TOTAL w/ escal broken out
ROW / Easements / Land purchas	$ -
Environmental Approvals / Permit	$ 82,900
Outreach	$ 30,100
Siting Approvals / Permits	$ 82,700
Engineering / Design	$ 1,532,600
Materials (Eversource purchased	$ 7,780,100
Construction (Incl matls by cont	$ 5,198,300
Testing / Commissioning	$ 749,900
PMT Project Mgmt Team	$ 811,200
Removals	$ 269,800
Other	$ -
Risks	$ 1,770,000
	$18,284,800
Indirects/Overhead	$ 4,823,700
AFUDC	$ 1,084,900
	$ -
	$24,193,200
	$ -
Contingency	$ 746,500
	$24,938,700
	$ -
	$ -
	-
	$24,938,700
	$ 259,500
Excel total	**$25,158,200**
Check total	

COMMENTS:

Project Scope: Convert Gales Ferry (11B) 88 to 116 kV - From 69kV
Key qty's and UOM (tie to inputs on est sheets)

1	EA	Upgrade 15kV Distribution

[redacted]

Assumptions/Clarifications:
Indirect rates based on: [redacted] Station work

This project also include Estimate C-22-51 (T) and C-22-53 (T1)
Underground 15kV cables are not included in this estimate and included in a distribution work order
P6 schedule provided - see 405122 Gales Ferry Remaining 01Feb, dated 2/1/2022
Estimate is based on Engineering Scoping document dated 2/1/2022 and 30% engineering drawings only, actual quantities may vary during detailed engineering.
PM, APM, Cost Analyst, Scheduler, Outage Coordinator, all outsource - per Estimate Request Form - 405122 dated 6/3/2021
Construction Rep. internal, from June 2020 to June 2023 - per Constructability Review Dated Jan. 2022
Construction Rep. external from April 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Engineering internal for oversight and support - per Estimate Request Form - 405122 dated 6/3/2021
Engineering outsource for detail work - per Estimate Request Form - 405122 dated 6/3/2021
ICE outsourced from Jan. 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Electrical and Civil construction - outsourced - per Estimate Request Form - 405122 dated 6/3/2021
Expansion area outside of substation into wetlands, east side of substation - per Constructability Review Dated Jan. 2022
Extensive fill is required to reach retaining wall up to existing grade for expansion - per Constructability Review Dated Jan. 2022
Costs for laydown area at Depot Rd. and 54CT Rt. #12 are included in this estimate - per Constructability Review Dated Jan. 2022
OT/Saturday/Sunday is included to support limited outage durations (6 months) - see outage/construction sequence
Environmental
Soils used on site as fill for expansion area pending Environmental Testing - per Constructability Review Dated Jan. 2022
Tested/clean soils being stockpiled from other projects to bring in as fill as needed -per Constructability Review Dated Jan. 2022
ACOE 401/404 permit is included - per Constructability Review Dated Jan. 2022
Archeological review is included - per Constructability Review Dated Jan. 2022 - a risk item is included
NDDB and SWCPP is included - per Constructability Review Dated Jan. 2022
Mitigation plans may be requested by the Town of Ledyard or adjacent landowners, Ex. matting, visual barriers, and sound barriers - -per Constructability Review Dated Jan. 2022
Primary batteries are included, backup not - per Constructability Review Dated Jan. 2022
Insurance policy for mobile transformer not included
Rev. #01 - transfer mobile transformer costs to transmission asset estimate C-22-51 (T) - per management on teams call 3/25/2022

RISKS

Potential UG Obstructions	$ 450,000
Severe Weather. Delays. OT	$ 450,000
Design development	$ 445,000
Bedrock 15FT down	$ 65,000
Mitigation plans may be requested by adjacent landowners and/or	$ 70,000
Delays Receiving and/or Defective Materials	$ 215,000
Local Siting Delays	$ 95,000

UNESCALATED LINE ITEM DOLLARS

Project Number 488122
Date of Estimate 03/25/2022
Estimate revision # 01b

Escalation Rate — E Rate: $

CSTXX-CONSTRUCTION	R	Prior Mhrs	Prior DOLLARS	2022 Mhrs	2022 DOLLARS	2023 Mhrs	2023 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
Electrical Construction	LT		$5,736						$5,736
General Construction	LT								
SCADA / Automation	LT								
Telecom - Field	LT								
Construction Reps (internal)	LT				$40,950		$40,950		$81,900
Support Switch/Tag	LT								
Other - Substation General	LT		$1,166						$1,166
Other (specify)	LT								
Other (specify)	LT								
LT Total			$6,902		$40,950		$40,950		$88,802
Employee Expenses	AE				$2,048		$2,048		$4,096
Construction Purchased Material	AM				$21,766		$14,511		$36,277
Outside Construction Vendor	AC				$2,176,824		$1,451,283		$3,627,707
Sales Tax on Const. Vendor									
Vehicles (now in Indirects section)	AV								
Inspection services (Outside Vendor)	AC								
Construction Rep (Outside vendor)	AC				$150,960		$115,440		$266,400
Rents and Leases	BR								
CSTXX Subtotal			$6,902		$2,392,348		$1,624,232		$4,023,282
Escalation									
CSTXX Total			$6,902		$2,392,348		$1,624,232		$4,023,282
ENRXX-TO ENGINEERING/DESIGN									
Project Services/Drafting	LT				$25,168		$25,168		$50,336
T- Line Engineering/Design	LT								
D- Street Engineering/Design	LT								
Civil Engineering/Design	LT		$11,736		$21,296		$21,296		$54,328
Substation (T) Engineering/Design	LT								
Substation (D) Engineering/Design	LT		$11,736		$27,300		$27,300		$66,335
Protection & Controls Engineering	LT		$11,736		$27,216		$27,216		$66,168
Survey Engineering	LT								
SCADA / Automation Engineering	LT				$8,896		$8,896		$17,792
Telecom Engineering	LT				$8,896		$8,896		$17,792
Other - specify	LT								
Other - specify	LT								
LT Total			$35,207		$118,772		$118,772		$272,751
Employee Expenses	AE				$5,839		$5,839		$11,678
Contractor Engineering - T-Lines	AC								
Contractor Engineering - D-Street	AC								
Contractor Engineering - T -Station	AC								
Contractor Engineering - D-Station	AC		$131,299		$113,040		$113,040		$357,379
Contractor Engineering - P&C	AC				$75,840		$75,840		$151,680
Contractor Engineering - Survey	AC								
Contractor Engineering - SCADA / Automation	AC		$26,259		$86,800		$86,800		$199,859
Contractor Engineering - Telecom	AC		$15,300		$49,800		$49,800		$114,400
Contractor Engineering - Civil	AC		$53,519		$93,000		$93,000		$239,519
Contractor Engineering - Drafting	AC		$37,323		$74,400		$74,400		$186,123
Contractor Engineering - Specify	AC								
Vehicles (now in Indirects section)	AV								
ENRXX Subtotal			$297,806		$617,391		$617,391		$1,532,588
Escalation									
ENRXX Total			$297,806		$617,391		$617,391		$1,532,588
LNDXX-TO LAND									
Real Estate	LT	[redacted]							
Employee Expenses	AE								
Purchase Land	AM								
Vehicles (now in Indirects section)	AV								
Fees and Payments	BF								
LNDXX Subtotal									
Escalation									
LNDXX Total									
MATXX-TO MATERIAL									
Sveitsocure	AM				$4,433,072		$2,955,382		$7,388,454
Outside Services	AM				$726,749		$484,498		$1,211,248
Freight	AM								
Sales Tax Sveitsocure/outside services	3.9% 3.9%				$201,200		$134,200		$335,400
Other									
MATXX Subtotal					$5,361,020		$3,574,080		$8,935,100
Escalation									
MATXX Total					$5,361,020		$3,574,080		$8,935,100
PSMXX-PROJECT MANAGER & SUPPORT									
Project Management (PM)	LT		$11,175		$24,024		$24,024		$59,223
Project Planning/Cost (IP)	LT				$1,186		$1,186		$2,372
Contracts/Purchasing (CIP)	LT				$8,576		$8,576		$17,152
System Planning	LT								
Environmental	LT				$17,760		$11,840		$29,600
SCS - Notification	LT				$841		$963		$1,804
Legal	LT				$7,864				$7,864
Estimating	LT								
Siting - Local Zoning	LT				$2,300		$1,800		$4,100
Asset Management	LT								
Other - Outreach	LT		$3,227		$4,616				$7,843
Other - Siting Approvals/Permits	LT		$1,182		$4,616				$5,798
Other -	LT								
Other -	LT								
LT Total			$16,584		$71,583		$48,089		$136,356
Employee Expenses	AE		$3,579		$2,404		$2,404		$8,963
Project Support Vendor - PM	AC		$7,991		$161,200		$161,200		$330,391
Project Support Vendor - IP	AC								
Project Support Vendor - CIP	AC								
Project Support Vendor - System Planning	AC								
Project Support Vendor - Environmental	AC				$31,968		$21,312		$53,280
Project Support Vendor - SCS - Notification	AC				$15,970		$12,600		$28,570
Project Support Vendor - Legal	AC								
Project Support Vendor - Estimating	AC				$6,200				$6,200
Project Support Vendor - Siting - Local Zoning	AC				$43,900		$34,700		$78,600
Project Support Vendor - Asset Management	AC								
Project Support Vendor - APM	AC		$7,991		$161,200		$161,200		$330,391
Project Support Vendor - Cost Analysis	AC				$9,300		$9,300		$18,600
Project Support Vendor - Scheduler	AC				$9,300		$9,300		$18,600
Project Support Vendor - Other	AC								
Vehicles (now in Indirects section)	AV								
Property or CWIP tax (age proj. allowance	BR								
Builder All risk insurance excluding deductibles(if project is over $50m)	BC								
Fees and Payments - Environmental	BF								
Fees and Payments - Siting	BF								
Fees and Payments - Other	BF								
PSMXX Subtotal			$32,565		$514,200		$460,105		$1,006,870
Escalation									
PSMXX Total			$32,565		$514,200		$460,105		$1,006,870
REMXX-TO REMOVAL									
Engineering/Design	LT	[redacted]							
Interior Construction	LT		$18,071		-$67,138				-$49,067
LT Total			$18,071		-$67,138				-$49,067
Employee Expenses	AE 15%				-$10,071				-$10,071
Outside Services	AC								
Contractor Labor	AC		$143,104		$111,528		$74,352		$328,984
Vehicles (now in Indirects section)	AV								
Rents and Leases	BR								
REMXX Subtotal			$161,175		$34,319		$74,352		$269,846
Escalation									
REMXX Total			$161,175		$34,319		$74,352		$269,846
TSTXX-TO TEST									
Test / Field Engr. Labor (In House)	LT	[redacted]							
Lead Commissioning Engr (LCE) (Internal)	LT								
Employee Expense	AE								
Test / Field Engr. Labor (contractor)	AC		$2,796				$577,200		$579,996
Lead Commissioning Engr (LCE) (contractor)	AC						$166,920		$166,920
Vehicles (now in Indirects section)	AV								
TSTXX Subtotal			$2,796				$744,120		$746,916
Escalation									
TSTXX Total			$2,796				$744,120		$746,916
SUBTOTAL PROJECT DIRECT COST		-	$501,238		$8,919,279		$7,594,280		$16,514,396
Risk									
Risk					$950,000		$820,000		$1,770,000
					$ -		$ -		
					$ -		$ -		
Risk Total					$950,000		$820,000		$1,770,000
TOTAL PROJECT DIRECT COST (w risk)		-	$501,238		$9,869,279		$7,914,280		$18,284,396
INDIRECTS									
Non-Productive Time Allocation (ZNP)	15.1%		10,904		$24,707		$31,276		$66,887
Payroll Benefits Allocation (ZPB) Incl NPT	44.0%				$13,257		$20,730		$7,473
Gen SVC CO Overhead (ZSG) Incl NPT	80.0%		57,901		$175,203		$153,579		$386,583
S&S Allocations (ZSS,ZSL,ZSS)	40.0%		530,853		$1,488,660		$1,480,273		$3,499,586
AS&E Allocations (ZAS)	0.8%		10,910		$84,757		$70,240		$173,907
Stores Expense Allocation (ZST)	8.0%				$354,649		$236,431		$591,077
Lobby Block									
MISC (ZMI)			69,792						$69,792
Vehicles (ZVE)	7.5%		555		$12,313		$15,586		$28,555
Indirects Subtotal			$680,586		$2,127,024		$2,006,115		$4,823,730
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)			$1,180,824		$11,996,307		$9,922,195		$23,108,326
AFUDC									
AFUDC (ZK)			$23,902	7.00%	$504,832	7.00%	$556,178	1	$1,084,912
In Service Dollars									
Cumulative ISS					-		-		
AFUDC Subtotal			$23,902		$504,832		$556,178		$1,084,912
TOTAL PROJECT COST - Baseline Budget			$1,213,726		$12,501,139		$10,478,373		$24,193,238
Contingency									
Contingency					$392,989		$353,490		$746,480
Other			$ -		$ -		$ -		
Contingency Sub/Total					$392,989		$353,490		$746,480
TOTAL PROJECT COST - Approved Funding			$1,213,726		$12,894,128		$10,831,863		$24,939,717
Reimbursables / Customer Contribtion									
Reimbursables / Customer Contribution (enter as negative)			$ -		$ -		$ -		

ESTIMATE SUMMARY

Project Title: [redacted] SS to 115 kV
Project Manager: [redacted]
Project Number: 405122
WO & Task #: 40512211
Estimate revision #: 01b
Estimate Type - Station work

Estimate #: C-22-51 (T)
Date of Estimate: [redacted]
Estimate done by: [redacted]
In Service date: [redacted]

Template Revision # 01.20a

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	ROW / Easements / Land purchases														
2	Environmental Approvals / Permits	$134,000	1.2%	0.8%	$50,200	$49,700	$34,100								
3	Outreach	$18 100	0.2%	0.1%		$9 700	$8 400								
4	Siting Approvals / Permits	$60,900	0.5%	0.4%	$11,100	$26,600	$23,200								
5	Engineering / Design	$880,400	7.8%	5.5%	$280,500	$295,500	$304,400								
6	Materials (Eversource purchased)	$1 650 700	14.7%	10.4%		$984 400	$666 300								
7	Construction (Incl matl's by contractors)	$5,623,800	50.0%	35.3%	$29 300	$3 300 900	$2,293 600								
8	Testing / Commissioning	$766,400	6.8%	4.8%			$766,400								
9	PMT Project Mgmt Team	$308,600	2.7%	1.9%	$118,000	$106,200	$84,400								
10	Removals	$675 700	6.0%	4.2%	$250 500	$252 100	$173 100								
11	Other														
12	Risks	$1,122,000	10.0%	7.0%		$585,000	$537,000								
135	**Project Directs Total w/Risks**	**$11,240,600**	100.0%	70.6%	**$739,500**	**$5,610,100**	**$4,890,900**								
13	Indirects/Overhead	$3 493 600		21.9%	$333 300	$1 642 000	$1 518 300								
14	AFUDC	$714,500		4.5%	$31,500	$331,100	$351,900								
135	**Project Total - Baseline Budget**	**$15,448,700**		97.0%	**$1,104,400**	**$7,583,200**	**$6,761,100**								
15	Contingency	$475 800		3.0%		$249 300	$226 500								
	Project Total - Funding Approval Level	**$15,324,500**		100.0%	**$1,104,400**	**$7,832,500**	**$6,387,600**								
16	Reimbursables/Customer Contribution														
	Project Total (less reimbursables)	**$15,324,500**			**$1,104,400**	**$7,832,500**	**$6,387,600**								
	Cost per key qty (if appl)	15,924,500	$'s / EA Upgrade 115 kV Substation Transmission												
	Amount of Escalation included above	$155,800					$155,800								
6	Total materials - Eversource	$1 650 700				$984 400	$666 300								
	Total materials - Contractor	$1,020,800				$608,700	$411,900								
	Total materials	$2 671 500				$1 593 100	$1 078 200								

NOTE: Risk / Contingency is 11.2% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

Estimate Range	-25%	25%
	$11,943,000	$19,906,000

All Estimate Summary for PPN Calc (escalation separate)

Estimate #: C-22-51 (T)
Date of Estimate: 03/21/2022

Project Number: 405122
WO & Task #: 40512211

		TOTAL w/ escal broken out
ROW / Easements / Land purchas	$	-
Environmental Approvals / Permi	$	133,100
Outreach	$	17 900
Siting Approvals / Permits	$	60,200
Engineering / Design	$	871,500
Materials (Eversource purchased	$	1,640,700
Construction (Incl matl's by cont	$	5,563,000
Testing / Commissioning	$	744,100
PMT Project Mgmt Team	$	306,100
Removals	$	670 600
Other	$	-
Risks	$	1,122,000
		$11,129,200
Indirects/Overhead	$	3 449 400
AFUDC	$	714,400
	$	-
		$15,293,000
	$	-
Contingency	$	475 800
		$15,768,800
	$	-
	$	-
		$15,768,800
	$	155,800
Excel total		**$15,924,600**
Check total		$100

COMMENTS

Project Scope: Convert [redacted]

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 1T - CT - Station work

This project also includes Estimate C-22-51 (D) and C-22-51 (TL)
Estimate only includes cost for work within the Substation perimeter fence - including the expansion area
PS Schedule provided - see 405122 Gales Ferry Remaining 01Feb, dated 2/1/2022
Not a BPS station but built to BPS standards - per Constructability Review Dated Jan. 2022
61850 Transmission station - per Constructability Review Dated Jan. 2022
Estimate is based on Engineering Scoping document dated 2/1/2022 and 30% engineering drawings only, actual quantities may vary during detailed engineering.
PM, APM, Cost Analyst, Scheduler, Outage Coordinator, all outsource - per Estimate Request Form - 405122 dated 6/3/2021
Construction Rep. internal, from June 2020 to June 2023 - per Constructability Review Dated Jan. 2022
Construction Rep. external from April 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Engineering internal for oversight and support - per Estimate Request Form - 405122 dated 6/3/2021
Engineering outsource for detail work - per Estimate Request Form - 405122 dated 6/3/2021
LCE outsourced from Jan. 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Electrical and Civil construction - outsourced - per Estimate Request Form - 405122 dated 6/3/2021
Expansion area outside of substation into wetlands, east side of substation - per Constructability Review Dated Jan. 2022
Extensive fill to build retaining wall up to existing grade for expansion - per Constructability Review Dated Jan. 2022
Presume Bedrock 15FT down might impact 400-line structure - per Constructability Review Dated Jan. 2022
Costs for laydown area at Depot Rd. and 54CT Rt. #12 are included - per Constructability Review Dated Jan. 2022
Working around live equipment, clearances required - per Constructability Review Dated Jan. 2022
Mobile transformer and circuit switch will be required connected to the 1410 line form August 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Mobile transformer located in transmission right of way and on Eversource property - per Constructability Review Dated Jan. 2022
Insurance policy for mobile transformer not included
SCLI planning is included - per Constructability Review Dated Jan. 2022
OT/Saturday/Sunday work will be required to support limited outage durations (6 months) - see outage/construction sequence
Security
  Key card access and cameras required --per Constructability Review Dated Jan. 2022
Environmental
  Soils will be used on site as fill for expansion area pending Environmental Testing - per Constructability Review Dated Jan. 2022
  Tested/clean soils being stockpiled from other projects to bring in as fill as needed -per Constructability Review Dated Jan. 2022
  ACOE 401/404 permit required - per Constructability Review Dated Jan. 2022
  Archeological review required - per Constructability Review Dated Jan. 2022
  NDDB and SWCPP required - per Constructability Review Dated Jan. 2022
Mitigation plans may be requested by the Town of Ledyard or adjacent landowners, Ex. matting, visual barriers, and sound barriers - -per Constructability Review Dated Jan. 2022
All new equipment except for the (118-1T-2) circuit breaker - -per Constructability Review Dated Jan. 2022
Relocate existing 115 kV breaker (118-1T-3) currently operating at 69 kV - per Estimate Request Form - 405122 dated 6/3/2021
Batteries new primary only with no backup - -per Constructability Review Dated Jan. 2022
New battery enclosure -per Constructability Review Dated Jan. 20
Rev. 01 - Include cost for CIP Security
Rev. 01 - Include cost for Mobile Transformer conduit bank
Existing Control Building will remains, shell only - per Constructability Review Dated Jan. 2022
  Panels replaced
  Preassembled breaker RIO cabinets
  New cable trays and lighting
  New relays and meters
  Mimic board

RISKS

Potential UG Obstructions	$	120,000
Severe Weather Delays, OT	$	120,000
Design development	$	235,000
Bedrock 15FT down	$	30,000
Mitigation plans may be requested by adjacent landowners and/or	$	27,000
Environmental	$	120,000
SCLI Mitigation	$	70,000

UNESCALATED LINE ITEM DOLLARS

Project Number 405122
Date of Estimate 03/28/2022
Estimate revision # 01b

		Escalation Rate	E Rate	$							
				Prior		2022		2023		1	
				Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	
CSTXX-CONSTRUCTION	R										
Electrical Construction	LT				$16,249						
General Construction	LT										
SCADA / Automation	LT										
Telecom - Field	LT										
Construction Reps (internal)	LT						$40,950		$40,950		
Support Switch/Tag	LT						$6,592		$6,592		
Other - Journal Entry Adjustments	LT				$11,091						
Other (specify)	LT										
Other (specify)	LT										
LT Total					$28,339		$49,512		$49,512		
Employee Expenses	AE						$2,476		$2,476		
Construction Purchased Material	AM						$24,663		$16,595		
Outside Construction Vendor	AQ						$2,489,307		$1,669,536		
Sales tax on Constr. Vendor											
Vehicles (now in Indirects section)	AV										
Inspection services (Outside vendor)	AQ										
Construction Insp (Outside vendor)	AQ						$150,960		$115,440		
Rents and Leases	BR										
CSTXX Subtotal					$28,339		$2,717,148		$1,843,561		
Escalation											
CSTXX Total					$28,339		$2,717,148		$1,843,561		
ENRXX-TG ENGINEERING/DESIGN											
Project Services/Drafting	LT										
T- Line Engineering/Design	LT										
D- Street Engineering/Design	LT										
Civil Engineering/Design	LT				$30,884		$3,872		$3,872		
Substation (T) Engineering/Design	LT				$44,277		$8,300		$8,300		
Substation (D) Engineering/Design	LT										
Protection & Controls Engineering	LT				$13,282		$4,536		$4,536		
Survey Engineering	LT										
SCADA / Automation Engineering	LT						$2,224		$2,224		
Telecom Engineering	LT						$2,224		$2,224		
Other - specify	LT										
Other - specify	LT										
LT Total					$88,553		$19,156		$19,156		
Employee Expenses	AE						$468		$468		
Contractor Engineering - T-Lines	AQ										
Contractor Engineering - D-Street	AQ										
Contractor Engineering - T- Station	AQ				$115,144		$81,640		$81,640		
Contractor Engineering - D-Station	AQ										
Contractor Engineering - P&C	AQ				$76,764		$62,160		$62,160		
Contractor Engineering - Survey	AQ										
Contractor Engineering - SCADA / Automation	AQ						$24,800		$24,800		
Contractor Engineering - Telecom	AQ						$24,800		$24,800		
Contractor Engineering - Civil	AQ						$37,200		$37,200		
Contractor Engineering - Prints	AQ						$24,800		$24,800		
Contractor Engineering - Specify	AQ										
Vehicles (now in Indirects section)	AV										
ENRXX Subtotal					$350,481		$295,514		$295,514		
Escalation											
ENRXX Total					$350,481		$295,514		$295,514		
LNDXX-TG LAND											
Real Estate	LT										
Employee Expenses	AE										
Purchase Land	AM										
Vehicles (now in Indirects section)	AV										
Fees and Payments	BF										
LNDXX Subtotal											
Escalation											
LNDXX Total											
MATXX-TG MATERIAL											
Eversource	AM						$600,639		$600,426		
Outside Services	AM						$608,673		$405,782		
	AM										
Freight											
Sales Tax Eversource/outside services	6.9%						$58,900		$39,200		
Other											
MATXX Subtotal							$1,268,212		$1,045,408		
Escalation											
MATXX Total							$1,268,212		$1,045,408		
PSMXX-PROJECT MANAGER & SUPPORT											
Project Management (PM)	LT				$43,295		$6,592		$6,592		
Project Planning/Cost (IP)	LT										
Contracts/Purchasing (CIP)	LT										
System Planning	LT										
Environmental	LT				$17,665		$17,780		$11,840		
SCS - Notification	LT						$493		$410		
Legal	LT						$7,664				
Estimating	LT										
Siting - Local Zoning	LT						$1,300		$1,100		
Asset Management	LT										
Other - Outreach	LT				$1,208		$4,816				
Other - Siting Approvals/Permits	LT				$24,439		$4,816				
Other -	LT										
Other -	LT										
LT Total					$86,957		$42,991		$19,902		
Employee Expenses	AE						$2,150		$995		
Project Support Vendor - PM	AQ				$48,958		$37,200		$37,200		
Project Support Vendor - IP	AQ										
Project Support Vendor - CIP	AQ										
Project Support Vendor - System Planning	AQ										
Project Support Vendor - Environmental	AQ				$32,270		$21,968		$21,212		
Project Support Vendor - SCS - Notification	AQ						$9,180		$7,780		
Project Support Vendor - Legal	AQ										
Project Support Vendor - Estimating	AQ						$6,200				
Project Support Vendor - Siting - Local Zoning	AQ				$11,112		$26,300		$21,400		
Project Support Vendor - Asset Management	AQ										
Project Support Vendor - APM	AQ						$18,600		$18,600		
Project Support Vendor - Cost Analysis	AQ						$9,300		$9,300		
Project Support Vendor - Scheduler	AQ						$9,300		$9,300		
Project Support Vendor - Other	AQ										
Vehicles (now in Indirects section)	AV										
Property or OWP tax large proj. allowance	BR										
Builder All risk insurance excluding deductibles(if project is over $60m)	BR										
Fees and Payments - Environmental	BF										
Fees and Payments - Siting	BF										
Fees and Payments - Other	BF										
PSMXX Subtotal					$179,297		$192,189		$145,789		
Escalation											
PSMXX Total					$179,297		$192,189		$145,789		
RSMXX-TG REMOVAL											
Engineering/Design	LT										
Internal Construction	LT										
LT Total											
Employee Expenses	AE										
Outside Services	AQ										
Contractor Labor	AQ				$350,481		$252,064		$168,056		
Vehicles (now in Indirects section)	AV										
Rents and Leases	BR										
RSMXX Subtotal					$350,481		$252,064		$168,056		
Escalation											
RSMXX Total					$350,481		$252,064		$168,056		
TSTXX-TG TEST											
Test / Field Engr. Labor (In House)	LT										
Lead Commissioning Engr. (LCE) (Internal)	LT										
Employee Expense	AE										
Test / Field Engr. Labor (contraction)	AQ								$577,200		
Lead Commissioning Engr. (LCE) (contactor)	AQ								$166,920		
Vehicles (now in Indirects section)	AV										
TSTXX Subtotal									$744,120		
Escalation											
TSTXX Total									$744,120		
SUBTOTAL PROJECT DIRECT COST				-	$758,540		$6,035,147		$4,343,449		
Risk											
Risk							$585,000		$537,000		
							$ -		$ -		
							$ -		$ -		
Risk Total							$585,000		$537,000		
TOTAL PROJECT DIRECT COST (w risk)				-	$758,540		$6,610,147		$4,770,449		
INDIRECTS											
Non-Productive Time Allocation (ZNP)	15.1%				$29,102		$16,805		$13,330		
Payroll Benefits Allocation (ZPB) Incl NPT	44.0%				$41,790		$25,064		$25,064		
Gen SVC CO Overhead (ZGE) Incl NPT	80.0%				$79,895		$57,200		$30,949		
E&S Allocations (ZES,ZEL,ZEM)	40.0%				$178,210		$1,410,211		$1,200,144		
ASAE Allocations (ZAS)	0.8%				$6,796		$62,275		$44,935		
Stores Expense Allocation (ZST)	8.0%						$72,081		$48,034		
Lobby Stock											
MOBC (ZMB)											
Vehicles (ZVB)	7.5%				$1,545		$8,374		$6,643		
Indirects Subtotal					$333,338		$1,641,960		$1,474,099		
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)					$1,072,998		$7,382,127		$6,389,847		
AFUDC											
AFUDC (ZIA)					$31,460	7.00%	$331,128	7.00%	$381,865		
In Service Dollars											
Cumulative ISS							-		-		
AFUDC Subtotal					$31,460		$331,128		$381,865		
TOTAL PROJECT COST - Baseline Budget					$1,104,358		$7,665,356		$6,806,402		
Contingency											
Contingency							$249,252		$228,580		
Other					$ -		$ -		$ -		
Contingency SubTotal							$249,252		$228,580		
TOTAL PROJECT COST - Approved Funding					$1,104,358		$7,882,607		$6,031,982		
Reimbursables / Customer Contribution											
Reimbursables / Customer Contribution (enter as negative)				-	$ -		$ -		$ -		

ESTIMATE SUMMARY

Project Title [redacted] to 115 kV
Project Manager [redacted]
Project Number 405122
WO & Task #: 40512287
Estimate revision #: 00b
Estimate Type - Lines work

Estimate #: C-22-51 (TL)
Date of Estimate:02/23/2022
Estimate done by [redacted]
In Service date (MDY):12/31/2023

Template Revision #21.72a

Alt Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-22-51 (TL)
Date of Estimate:02/23/2022

Project Number: 405122
WO & Task #: 40512287

ESTIMATE SUMMARY

Estimate Type: Planning

Description	TOTAL	% of Directs	% of Total	Priors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ROW / Easements / Land purchases														
Environmental Approvals / Permits														
Outreach														
Siting Approvals / Permits														
Engineering / Design	$77 500	7.4%	5.8%		$38 200	$39 300								
Materials (Eversource purchased)	$23,200	2.2%	1.7%		$11,500	$11,700								
Construction (Incl matls by contractors)	$723,500	69.5%	54.5%		$356,900	$366,600								
Testing / Commissioning														
PMT Project Mgmt Team	$46 100	4.4%	3.5%		$24,600	$21,500								
Removals	$78,000	7.5%	5.9%		$38,400	$39,600								
Other														
Risks	$93 000	8.9%	7.0%		$46 500	$46 500								
Project Directs Total w/Risks	**$1,041,300**	100.0%	78.2%		**$516,100**	**$525,200**								
Indirects/Overhead	$201,200		15.1%		$99,500	$101,700								
AFUDC	$49,600		3.7%		$21,500	$28,100								
Project Total - Baseline Budget	**$1,292,100**		97.0%		**$637,100**	**$655,000**								
Contingency	$39,400		3.0%		$19,800	$19,600								
Project Total - Funding Approval Level	**$1,331,500**		100.0%		**$656,900**	**$674,600**								
Reimbursables/Customer Contribution														
Project Total (less reimbursables)	**$1,331,500**				**$656,900**	**$674,600**								
Cost per key qty (if appl)	1,331,500	$'s / EA Relocate one 115kV three pole structure and foundations with new concrete foundations												
Amount of Escalation included above	$15 800					$15 800								
Total materials - Eversource	$23,200				$11,500	$11,700								
Total materials - Contractor	$131,600				$65,300	$66,300								
Total materials	$154 800				$76 800	$78 000								

NOTE: Risk / Contingency is 11% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)

Alt Estimate Summary for PP4 Calc (escalation separate)		TOTAL w/ escal broken out
ROW / Easements / Land purchas	$	-
Environmental Approvals / Permi	$	-
Outreach	$	-
Siting Approvals / Permits	$	-
Engineering / Design	$	76 300
Materials (Eversource purchased	$	23,000
Construction (Incl matl's by cont	$	713,700
Testing / Commissioning	$	-
PMT Project Mgmt Team	$	45 500
Removals	$	76,900
Other	$	-
Risks	$	93 000
		$1,028,400
Indirects/Overhead	$	198,300
AFUDC	$	49,600
	$	-
		$1,276,300
	$	-
Contingency	$	39,400
		$1,315,700
	$	-
	$	-
	$	-
		$1,315,700
	$	15 800
Excel total		**$1,331,500**
Check total		

Estimate Range	-25%	25%
	$999,000	$1,664,000

COMMENTS

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 1T - CT . Lines work

The project also includes Estimate C-22-51 (T) and Substation Distribution Estimate C-22-51 (D)
PS schedule provided - see 405122 Gales Ferry Remaining 01Feb, dated 2/1/2022
Structure #7020-1 relocate 50LF east - on the new 1911 line - per PM e-mail dated 2/21/2022
Reuse structure #7020-1 - three pole steel structure - per PM e-mail dated 2/21/2022
Temporary wood pole for connection onto the 1410 line to the mobile transformer - per PM e-mail dated 2/21/2022
Estimate is based on Engineering Scoping document dated 2/1/2022 and 30% engineering drawings only, actual quantities may vary during detailed engineering.
PM, APM, Cost Analyst, Scheduler, Outage Coordinator, all outsource - per Estimate Request Form - 405122 dated 6/3/2021
Construction Rep. Internal, form June 2020 to June 2023 - per Constructability Review Dated Jan. 2022
Construction Rep. external from April 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Engineering Internal for oversight and support - per Estimate Request Form - 405122 dated 6/3/2021
Engineering outsource for detail work - per Estimate Request Form - 405122 dated 6/3/2021
LCE outsourced from Jan. 2022 to June 2023 - per Constructability Review Dated Jan. 2022
Construction - outsourced - per Estimate Request Form - 405122 dated 6/3/2021

RISKS

Potential UG Obstructions	$	20 000
Severe Weather Delays OT	$	30 000
Mitigation plans may be requested by adjacent landowners and/or	$	19,000
Environmental	$	24,000

UNESCALATED LINE ITEM DOLLARS

Project Number 405122
Date of Estimate 02/23/2022
Estimate revision # 00b

Escalation Rate — E Rate $ 55 — 1

CSTXX-CONSTRUCTION	R	Prior Mhrs	Prior DOLLARS	2022 Mhrs	2022 DOLLARS	2023 Mhrs	2023 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
Electrical Construction	LT								
General Construction	LT								
SCADA / Automation	LT								
Telecom - Field	LT								
Construction Reps (Internal)	LT								
Support Switch/Tag	LT								
Other -	LT								
Other (specify)	LT								
Other (specify)	LT								
LT Total									
Employee Expenses	AE								
Construction Purchased Material	AM				$2,708		$2,708		$5,416
Outside Construction Vendor	AQ				$270,779		$270,779		$541,558
Sales tax on Constr. Vendor									
Vehicles (now in Indirects section)	AV								
Inspection services (Outside Vendor)	AQ								
Construction Rep (Outside vendor)	AQ				$20,720		$20,720		$41,440
Rents and Leases	BR								
CSTXX Subtotal					$294,207		$294,207		$588,414
Escalation									
CSTXX Total					$294,207		$294,207		$588,414
ENRXX-TG ENGINEERING/DESIGN									
Project Services/Drafting	LT								
T- Line Engineering/Design	LT				$4,840		$4,840		$9,680
D- Street Engineering/Design	LT								
Civil Engineering/Design	LT				$4,840		$4,840		$9,680
Substation (T) Engineering/Design	LT								
Substation (D) Engineering/Design	LT								
Protection & Controls Engineering	LT								
Survey Engineering	LT								
SCADA / Automation Engineering	LT								
Telecom Engineering	LT								
Other - specify	LT								
Other - specify	LT								
LT Total					$9,680		$9,680		$19,360
Employee Expenses	AE				$464		$464		$968
Contractor Engineering - T-Line	AQ				$15,600		$15,600		$31,200
Contractor Engineering - D-Street	AQ								
Contractor Engineering - T -Station	AQ								
Contractor Engineering - D-Station	AQ								
Contractor Engineering - P&C	AQ								
Contractor Engineering - Survey	AQ								
Contractor Engineering - SCADA / Automation	AQ								
Contractor Engineering - Telecom	AQ								
Contractor Engineering - Civil	AQ				$12,400		$12,400		$24,800
Contractor Engineering - Specify	AQ								
Contractor Engineering - Specify	AQ								
Vehicles (now in Indirects section)	AV								
ENRXX Subtotal					$38,184		$38,184		$76,328
Escalation									
ENRXX Total					$38,184		$38,184		$76,328
LNDXX-TG LAND									
Real Estate	LT								
Employee Expenses	AE								
Purchase Land	AM								
Vehicles (now in Indirects section)	AV								
Fees and Payments	BF								
LNDXX Subtotal									
Escalation									
LNDXX Total									
MATXX-TG MATERIAL									
Eversource	AM				$5,973		$5,973		$11,946
Outside Services	AM				$65,354		$65,354		$130,707
	AM								
Freight									
Sales Tax Eversource/outside services	3.0%				$2,800		$2,800		$5,600
Other									
MATXX Subtotal					$74,127		$74,127		$148,253
Escalation									
MATXX Total					$74,127		$74,127		$148,253
PSMXX-PROJECT MANAGER & SUPPORT									
Project Management (PM)	LT				$2,184		$2,184		$4,368
Project Planning/Coat (I/P)	LT								
Contracts/Purchasing (C/P)	LT								
System Planning	LT								
Environmental	LT								
SCS - None	LT								
Legal	LT								
Estimating	LT								
Siting - None	LT								
Asset Management	LT								
Other - Outreach	LT								
Other - Siting Approvals/Permits	LT								
Other -	LT								
Other -	LT								
LT Total					$2,184		$2,184		$4,368
Employee Expenses	AE				$109		$109		$218
Project Support Vendor - PM	AQ				$18,600		$18,600		$37,200
Project Support Vendor - I/P	AQ								
Project Support Vendor - C/P	AQ								
Project Support Vendor - System Planning	AQ								
Project Support Vendor - Environmental	AQ								
Project Support Vendor - SCS - None	AQ								
Project Support Vendor - Legal	AQ								
Project Support Vendor - Estimating	AQ				$3,720				$3,720
Project Support Vendor - Siting - None	AQ								
Project Support Vendor - Asset Management	AQ								
Project Support Vendor -	AQ								
Project Support Vendor -	AQ								
Project Support Vendor -	AQ								
Project Support Vendor - Other	AQ								
Vehicles (now in Indirects section)	AV								
Property or OWIP tax large proj. allowance	BR								
Builder All risk insurance excluding deductibles(if project is over $50m)	BR								
Fees and Payments - Environmental	BF								
Fees and Payments - Siting	BF								
Fees and Payments - Other	BF								
PSMXX Subtotal					$24,613		$20,893		$45,506
Escalation									
PSMXX Total					$24,613		$20,893		$45,506
REMXX-TG REMOVAL									
Engineering/Design	LT								
Internal Construction	LT								
LT Total									
Employee Expenses	AE								
Outside Services	AQ								
Contractor Labor	AQ				$38,442		$38,442		$76,884
Vehicles (now in Indirects section)	AV								
Rents and Leases	BR								
REMXX Subtotal					$38,442		$38,442		$76,884
Escalation									
REMXX Total					$38,442		$38,442		$76,884
TSTXX-TG TEST									
Test / Field Engr. Labor (In House)	LT								
Lead Commissioning Engr. (LCE) (Internal)	LT								
Employee Expense	AE								
Test / Field Engr. Labor (contractor)	AQ								
Lead Commissioning Engr. (LCE) (contractor)	AQ								
Vehicles (now in Indirects section)	AV								
TSTXX Subtotal									
Escalation					-				
TSTXX Total									
SUBTOTAL PROJECT DIRECT COST		-		2270	$469,583	2346	$466,839	4,617	$936,385
Risk									
Risk					$46,500		$46,500		$93,000
					$ -		$ -		
					$ -		$ -		
Risk Total					$46,500		$46,500		$93,000
TOTAL PROJECT DIRECT COST (w risk)		-		2270	$516,083	2346	$512,339	4,617	$1,029,385
INDIRECTS									
Non-Productive Time Allocation (2NP)	15.1%				$1,786		$1,786		$3,572
Payroll Benefits Allocation (2PB) Incl NPT	44.0%								
Gen SVC CO Overhead (2GS) Incl NPT	80.0%				$10,920		$10,920		$21,840
E&S Allocations (2EB,2EL,2ES)	20.0%				$80,966		$80,222		$161,188
AS&E Allocations (2AS)	0.8%				$4,535		$4,470		$9,005
Stores Expense Allocation (2ST)	8.0%				$478		$478		$956
Lobby Stock									
MDEC (2M)									
Vehicles (2VE)	7.5%				$890		$890		$1,780
Indirects Subtotal					$99,546		$98,766		$198,312
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)					$615,629		$611,098		$1,226,697
AFUDC									
AFUDC (2X)				7.00%	$21,546	7.00%	$28,072	1	$49,618
In Service Dollars									
Cumulative ISS					-		-		
AFUDC Subtotal					$21,546		$28,072		$49,618
TOTAL PROJECT COST - Baseline Budget					$637,145		$639,171		$1,276,315
Contingency		-							
Contingency		-			$19,771		$19,585		$39,357
Other		-	$ -		$ -		$ -		
Contingency SubTotal					$19,771		$19,585		$39,357
TOTAL PROJECT COST - Approved Funding					$656,916		$658,756		$1,315,672
Reimbursables / Customer Contribution									
Reimbursables / Customer Contribution (enter as negative)			$ -		$ -		$ -		

Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
40512211 [redacted] (WO#40512211/87, 80065979 & CS0040111/2)								
40512211.01 Project Initiation								
40512211.01.3 Project Initiation								
40512211.01.3.02 EPAC Full Funding								
	PAFF2200	0		EPAC Full Funding Meeting	03/16/22 16*			0
	PAFF2210	5	03/17/22 08	Incorporate EPAC Full Funding PAF Review Comments	03/23/22 16			209
EPAC-F	FF1010	0		EPAC Full Funding Approval	04/22/22 16			209
PPA-FF	FF1025	22	03/24/22 08	Full Funding Subsidiary Board Review and Approval	04/22/22 16			209
PPA-FF	FF1000	6	04/25/22 08	Full Funding PowerPlan Approval	05/02/22 16			209
40512211.01.12 T-Minus Milestones								
ENG-DTL	ENG-DTL	0		Detail Design/Engineering Completed	04/01/22 16			30
40512211.01.12.01 Civil T-Minus Milestones								
ENG-DTL	AT1811C	0		Detailed Design / Engineering Completed	03/15/22 16			61
	AT0203	0		Go / No-Go [CAN] Construction Authorization Notice Form Complete	04/04/22 16			41
REG	AT0801	0		Permits Approved / Received (Environ, Local)*	05/04/22 16			11
SOC	AT00	0	05/16/22 08*	T-00 Construction Start Civil*				0
BG-IFC	AT1805C	0		IFC - Civil	05/16/22 16			-1
CONSTSER	AT0814	0		Construction Contracts / PSA in Place	05/24/22 16			-9
40512211.01.12.02 Electrical T-Minus Milestones								
40512211.01.12.02.01 "B" Block Switchgear and Enclosures								
	BT2404	0		Determine / Assign Lead Commissioning Engineerin	02/28/22 08			205
ENG-DTL	BT1811	0		Detailed Design / Engineering Completed	03/15/22 16			189
	BT1801	0		T-18 All Firm TOA Applications Due to LCC (Transmission Projects)	03/31/22 16*			47
	BT0203	0		Go / No-Go [CAN] Construction Authorization Notice Form Complete	04/04/22 16			169
	BT0901	0		T-09 Protection System Data - OP-24 Requirement	04/12/22 16*			98
AG-IFC	BT0805E	0		IFC - Elect	05/16/22 16			127
CONSTSER	BT0814	0		Construction Contracts / PSA in Place	05/24/22 16			119

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
M-DELIV	BT0401	0		Final Mat'l Receipt Review Complete (delivered onsite)	08/11/22 16	[redacted]		40
SOC	BT00	0	09/21/22 08*	T-00 Construction Start Electrical				0
40512211.01.12.02.02 3X Construction								
NX9-NE	DT1805	0		T-18 NX-9 Rating to LCC and ISO for New 'T' Equipment	07/18/22 16*			205
NX9-EE	DT0301	0		T-03 NX-9 Ratings to LCC + ISO for Equipment Changes	07/22/22 16*			306
M-DELIV	DT0401	0		Final Mat'l Receipt Review Complete (delivered onsite)	08/22/22 16			296
SOC	DT00	0	06/15/23 08*	T-00 3X Energization				0
40512211.01.12.06 P&C T-Minus Milestones								
ENG-DTL	ET1811	0		Detailed Design / Engineering Completed	04/01/22 16			439
CONSTSER	ET08141	0		Construction Contracts / PSA In Place	05/24/22 16			386
	ET0805	0		IFC - P&C	07/05/22 16			344
PM	ET0602	0		Units of Property (Items) Issued to Plant Accounting	07/06/22 16			343
	ET0404	0		All Relay Settings Issued	07/13/22 16			336
SOC	ET00	0	06/15/23 08*	T-00 Relay Settings and Energization				0
40512211.04 Siting Approvals / Permits								
40512211.04.02 REGIONAL APPROVALS								
40512211.04.02.01 ISO Technical Approval (I.3.9)								
40512211.04.02.01.03 Transmission Cost Allocation (TCA)								
	APP1000	42	05/17/22 08	Complete Pie Sheet,Cost Comparison Table & Basic Doc's | Covers Entire ECT Program	07/15/22 16			-94
	APP1020	0		ISO TCA Reviewed & Approved | Covers Entire ECT Program	08/12/22 16			333
	APP1010	20	07/18/22 08	Assemble,Route for Approval & Send TCA (12C) Application to ISO-NE | Covers Entire ECT Program	08/12/22 16			-94
40512211.04.03 STATE APPROVALS AND PERMITS								
40512211.04.03.01 Siting Council / Board								
40512211.04.03.01.02 Petition for Gales Ferry Station (not Zone 2)								
CT.CSCSP(	A4085	90	02/04/22 08 A	Connecticut Siting Council - 90 days review period	05/04/22 16			11
40512211.05 Engineering / Design								
40512211.05.01 Civil Engineering								

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Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
40512211.05.01.01 Civil Engineering Detail Design								
ES-DTL	DE1010	6	03/08/22 08 A	ES Engineering Review Civil Substation Detail Desig	03/15/22 16			-94
40512211.05.01.02 Civil Engineering IFC Design								
V-IFC	IFC1000	34	03/16/22 08	Vendor Engineer Develop Civil Substation IFC	05/02/22 16			-94
ES-IFC	IFC1010	10	05/03/22 08	ES Engineering Review Civil Substation IFC	05/16/22 16			-94
ES-IFC	IFC BG	0		IFC BG milestone	05/16/22 16			-1
40512211.05.02 Electrical Engineering								
CASCADE	CSD1000	5	05/10/22 08	PE Initiate CASCADE Forms (Appendix A) for Construction Package	05/16/22 16			364
40512211.05.02.01 Electrical Engineering Detail Design								
ES-DTL	DE1110	6	03/08/22 08 A	ES Engineering Review Electrical Substation Detail Design*	03/15/22 16			-94
40512211.05.02.02 Electrical Engineering IFC Design								
V-IFC	IFC1100	34	03/16/22 08	Vendor Engineer Develop Electrical Substation IFC	05/02/22 16			-94
ES-IFC	IFC1110	10	05/03/22 08	ES Engineering Review Electrical Substation IFC*	05/16/22 16			-94
ES-IFC	IFC AG	0		IFC AG Milestone	05/16/22 16			88
40512211.05.02.03 Substation NX9								
40512211.05.02.03.1 Distribution Transformer #1								
40512211.05.02.03.1.01 Substation - Preliminary Thermal Data								
40512211.05.02.03.1.01.01 Substation - Preliminary Thermal Data								
	NX9A-NC59	5	04/18/22 08*	LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings	04/22/22 16			168
	NX9A-NC14	1	06/29/22 08	Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006	06/29/22 16			152
40512211.05.02.03.1.02 Substation - Verify Thermal Data								
	NX9A-NC2	5	05/17/22 08	LTRC Requests P&C Checklist	05/23/22 16			152
	NX9A-NC18	5	05/24/22 08	P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1)	05/31/22 16			152
	NX9A-NC24	5	06/01/22 08	LTRC Reviews and Sends Thermal Rating Data for TRC Review	06/07/22 16			152
	NX9A-NC2	5	06/08/22 08	TRC Reviews and Approves Thermal Rating Data	06/14/22 16			152

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
NX-9	NX9A-NC22[redacted]	5	06/15/22 08	LTRC Sends Thermal Rating Data for Approval & Submit to NURS	06/21/22 16	[redacted]		152
	NX9A-NC19[redacted]	5	06/22/22 08	TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating	06/28/22 16			152
40512211.05.02.03.1.04 Substation - NX-9 Post NX9-DOE/ISD								
PM	NX9FINAL10	3	06/16/23 08	Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD)	06/20/23 16			115
	NX9A600	1	06/20/23 08	Scheduler - 72 Hrs to Put in Service the NX-9 and Send to TOP Director in NURS after DOE/PM Note of completion.	06/20/23 16			115
	NX9FINAL90	5	06/21/23 08	[If Required] Receive + Issue Final Affirmed NX-9 Data to NURS	06/27/23 16			115
40512211.05.02.03.2 Distribution Transformer #2								
40512211.05.02.03.2.01 Substation - Preliminary Thermal Data								
40512211.05.02.03.2.01.01 Substation - Preliminary Thermal Data								
	NX9A-NC31[redacted]	5	03/14/22 08*	LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings	03/18/22 16			223
	NX9A-NC32[redacted]	1	07/18/22 08	Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006	07/18/22 16			140
40512211.05.02.03.2.02 Substation - Verify Thermal Data								
	NX9A-NC3	5	05/17/22 08	LTRC Requests P&C Checklist	05/23/22 16			227
	NX9A-NC34[redacted]	5	05/24/22 08	P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1)	05/31/22 16			227
	NX9A-NC36[redacted]	5	06/01/22 08	LTRC Reviews and Sends Thermal Rating Data for TRC Review	06/07/22 16			227
	NX9A-NC3	5	06/08/22 08	TRC Reviews and Approves Thermal Rating Data	06/14/22 16			227
NX-9	NX9A-NC35[redacted]	5	06/15/22 08	LTRC Sends Thermal Rating Data for Approval & Submit to NURS	06/21/22 16			227
	NX9A-NC35[redacted]	5	07/18/22 08	TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating	07/22/22 16			210
40512211.05.02.03.2.02.02 Substation - Verify Thermal Data								
	NX9A-NC28[redacted]	5	05/17/22 08	PE to Verify Thermal Data Review PE CheckList (M7-EN-3006.2)	05/23/22 16			140
	NX9A-NC2	5	05/24/22 08	LTRC Reviews and Makes "GO / NO-GO" Decision	05/31/22 16			140
	NX9A-NC3	5	06/01/22 08	LTRC Requests P&C Checklist	06/07/22 16			140

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
	NX9A-NC27	5	06/08/22 08	P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1)	06/14/22 16	[redacted]		140
	NX9A-NC30	5	06/15/22 08	LTRC Reviews and Sends Thermal Rating Data for TRC Review	06/21/22 16			140
	NX9A-NC3	5	06/22/22 08	TRC Reviews and Approves Thermal Rating Data	06/28/22 16			140
	NX9A-NC29	5	06/29/22 08	LTRC Sends Thermal Rating Data for Approval & Submit to NURS	07/06/22 16			140
	NX9A-NC29	1	07/07/22 08	Scheduler @ NURS email "Submitted for PP Review" - Updates NURS with DOE	07/07/22 16			140
NX-9	NX9A-NC28	5	07/08/22 08	TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating	07/14/22 16			140
	NX9A-NC31	1	07/15/22 08	Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006	07/15/22 16			140
40512211.05.02.03.2.04 Substation - NX-9 Post NX9-DOE/ISD								
PM	NX9FINAL11	3	06/16/23 08	Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD)	06/20/23 16			115
	NX9A605	1	06/20/23 08	Scheduler - 72 Hrs to Put in Service the NX-9 and Send to TOP Director in NURS after DOE/PM Note of completion.	06/20/23 16			115
	NX9FINAL10	5	06/21/23 08	[If Required] Receive + Issue Final Affirmed NX-9 Data to NURS	06/27/23 16			115
40512211.05.06 P&C Engineering								
	OP1010	2	04/04/22 08	P&C Validation of PAF's Initial Assessment Go/No-G	04/05/22 16			68
	OP1020	4	04/06/22 08	P&C Updates OP-24 Appendix B	04/11/22 16			68
OP-24	OP1030	1	04/12/22 08	P&C Submits OP-24 Appendix B to ISO-NE	04/12/22 16			68
CASCADE	CSD1030	5	06/15/22 08	PE Initiate CASCADE Forms (Appendix A) for Construction Package	06/21/22 16			339
40512211.05.06.01 P&C Engineering Detail Design								
V-DTL	DE1400	35	01/27/22 08 A	Vendor Engineer Develop P&C Detail Design	03/17/22 16			30
ES-DTL	PC1340	11	03/18/22 08	ES Engineering Review P&C Detail Design	04/01/22 16			30
40512211.05.06.02 P&C Engineering IFC Design								
40512211.05.06.02.03 P&C Design Package								

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Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
V-IFC	PC1320	46	04/04/22 08	Vendor Engineer Develop P&C IFC	06/07/22 16	[redacted]		231
	PC1330	10	06/08/22 08	ES Engineering Review & Issue P&C IFC	06/21/22 16			231
40512211.05.06.02.01 Relay Settings								
ES-RSET	PC1400	15	06/22/22 08	Complete P&C Relay Settings	07/13/22 16			231
40512211.05.07 Communication Engineering								
40512211.05.07.01 Communication Engineering Detail Design								
V-PRELIM	COMM1100	15	04/04/22 08	Vendor Prepare 30% TeleComm ADSS Design	04/22/22 16			237
ES-PRELIM	COMM1110	10	04/25/22 08	ES Review & Comment 30% Tele Comm ADSS Des	05/06/22 16			237
V-DTL	COMM1120	10	05/09/22 08	Vendor Incorporate 30% Comments & Prepare / Issue 70% TeleComm ADSS IFR	05/20/22 16			237
ES-DTL	COMM1130	10	05/23/22 08	ES Review & Comment 70% Tele Comm ADSS Des	06/06/22 16			237
40512211.05.07.02 Communication Engineering IFC Design								
V-IFC	COMM1200	10	06/07/22 08	Vendor Incorporate 70% Comments/Submits 100% TeleComm ADSS Design IFC	06/20/22 16			237
ES-IFC	COMM1540	10	06/21/22 08	ES's TeleComm Final Review and Approve ADSS Transmittal	07/05/22 16			237
40512211.06 Materials (by Eversource)								
40512211.06.02 Electrial Material								
40512211.06.02.01 Electrical Material								
40512211.06.02.01.01 Switchgear								
40512211.06.02.01.01.04 Switchgear Release to Manufacturing								
	A3740	6	03/07/22 08 A	Eversource Procurement releases PO for release to manufacturing	03/14/22 16			34
	A3750	93	03/15/22 08	Manufacturing and delivery of switchgear**	06/15/22 16			46
40512211.06.02.01.01.05 Switchgear Offloading and Re-assembly								
	A3760	21	06/16/22 08	Offloading and installation of switchgear on foundation	07/06/22 16			46
40512211.06.02.01.02 Substation Class Transformers								

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Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
DR-AGMAT	EMAT1280	5	03/01/22 08 A	CAT ID#/ DR#/ DR Approved - Substation Class Transformers	03/07/22 16	[redacted]	[redacted]	20
	EMAT1330	5	03/08/22 08*	ES Issues P.O. - Substation Class Transformers	03/14/22 16			20
	EMAT1290	108	03/15/22 08	Vendor Manufactures Substation Class Transformers	08/15/22 16			20
	EMAT1340	5	08/16/22 08*	Vendor Deliver Substation Class Transformer 3X (October 2022 requested delivery)**	08/22/22 16			20
	EMAT1825	16	02/01/23 08*	Vendor Deliver Substation Class Transformers 2X (Requested delivery January 2023)	02/23/23 16			21
40512211.06.02.01.04 115kV Disconnect								
DR-MM	EMAT1440	5	03/07/22 08*	CAT ID#/ DR#/ DR Approved - 115kV Disconnect	03/11/22 16			27
	EMAT1480	1	03/14/22 08	Blanket in Place Southern States - 115kV Disconnect	03/14/22 16			27
	EMAT1490	10	03/15/22 08	ES Issues P.O. - 115kV Disconnect	03/28/22 16			27
	EMAT1450	90	03/29/22 08	Vendor Manufactures 115kV Disconnect	08/03/22 16			27
	EMAT1500	6	08/04/22 08	Vendor Deliver 115kV Disconnect	08/11/22 16			27
40512211.06.02.01.05 Relay Panels								
DR-MM	EMAT1620	10	02/28/22 08*	CAT ID#/ DR#/ DR Prepare & Enter - Relay Panels	03/11/22 16			441
DR-MM	EMAT1600	25	02/11/22 00 A	CAT ID#/ DR#/ DR Approved - Relay Panels	03/18/22 16			72
	EMAT1590	29	03/23/22 08	RFP - Relay Panels	05/02/22 16			72
	EMAT1640	18	05/03/22 08	ES Selects Material Vendor - Relay Panels	05/26/22 16			72
	EMAT1650	5	05/27/22 08	ES Issues P.O. - Relay Panels	06/03/22 16			72
	EMAT1610	1	06/06/22 08	Vendor Manufactures Relay Panels	06/06/22 16			72
	EMAT1660	2	06/07/22 08	Vendor Deliver Relay Panels	06/08/22 16			72
40512211.06.02.01.06 Steel								
DR-MM	EMAT1760	15	02/11/22 08 A	CAT ID#/ DR#/ DR Approved - Terminal Structure Steel	03/04/22 16			27
	EMAT1810	10	03/09/22 08	ES Issues P.O. - Steel (Peter Marino)	03/22/22 16			27
	EMAT1770	90	03/23/22 08	Vendor Manufactures Steel	07/28/22 16			27
	EMAT1820	10	07/29/22 08	Vendor Deliver Steel	08/11/22 16			27
	EMATSite	0		Material On Site (Steel) [August10 May Be Need Date=	08/11/22 16			27
40512211.06.02.02 Electrical Service Including Civil & Test, Gales Ferry and ECT Montville								

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
40512211.06.02.02.06 Electrical Construction Service/Contracts						[redacted]		
	BCN2000	4	03/08/22 08 A	Engineering Issues SOW & Dwgs Inputs to Package - sends to procurement	03/11/22 16			1
	BCN2010	6	03/07/22 08 A	Procurement prepare RFP for ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	03/14/22 16			0
	BCN2020	28	03/15/22 08*	RFP / Bid Period - ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	04/11/22 16			0
	BCN2030	5	04/12/22 08	ES Reviews & Evaluates Bids - ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	04/18/22 16			-7
	BCN2040	5	04/19/22 08	ES Select Contractor - ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	04/25/22 16			-7
	ContrAward	0		Construction Contract Award - ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	04/25/22 16			14
	BCN2050	5	04/26/22 08	Bid Award to Vendor - ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	05/02/22 16			-7
	BCN2055	16	05/03/22 08	Issue PO for ElectricalTest & Civil Construction | ECT Gales Ferry & Montville	05/24/22 16			-7
40512211.07 Construction								
40512211.07.01 Civil Construction								
40512211.07.01.07 Site Development								
	A4100	14	05/02/22 08*	Start Gales Ferry Substation Expansion. Clear and Rough Grade Expansion area	05/15/22 16			0
40512211.07.01.05 Foundations								
	A3100	128	05/16/22 08*	Continue retaining wall & backfill. Install cable trench, Conduit and Foundation for firewall and Switchgear.	09/20/22 16			0
	A3102	128	05/16/22 08*	Conduit & Foundation Installation for 1911 Terminal, 11B-1T-8, 11B-3X1-3X	09/20/22 16			0
40512211.07.02 Electrical Construction								
40512211.07.02.00 Plan Construction								
OUT	OPERM1000	52	01/18/22 08 A	Plan Outages and Submit Outage TOA Request - (18 weeks)	03/31/22 16			33
	A4090	1	04/04/22 08*	Submit Construction Authorization Notice for approval	04/04/22 16			19
40512211.07.02.03 Equipment								
40512211.07.02.03.01 11B Cutover								
	AGSOC	0	09/21/22 08*	Start of AG Electrical Outage Construction				0

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
OUT	A4130	1	09/21/22 08*	TOA#TBD: Open loops line side 400-11B-5, Remove connections 11B-2X to 11B-2X3-2	09/21/22 16	[redacted]		0
OUT	A4150	138	09/22/22 08*	TOA#TBD: Build Out 1911 Terminal, 11B-3X and 13.8kV Switchgear	02/06/23 16			0
OUT	A1265	9	02/07/23 08*	TOA#TBD: Gales Ferry 11B Cutover Sequence _Tunnel - Buddington - Gales Ferry 1911 Line	02/15/23 16			0
OUT	A1275	1	02/16/23 08*	TOA#TBD: Open loops_Gales Ferry 11B Cutover Sequence - Montville - Gales Ferry 100 Line	02/16/23 16			0
OUT	A1280	37	02/18/23 08*	Demo 100 Line Terminal, 11B-1X and 13.8kV switchgear	03/26/23 16			0
OUT	A1270	76	02/13/23 08*	TOA#TBD: 13.8kV Feeder cutovers	04/29/23 16			0
	A1285	80	03/27/23 08*	Build 1787 Terminal and 11B-2X	06/14/23 16			0
	A1290	1	06/15/23 08*	Connect 1787 Line taps to 1787-11B-5_Test energize line and terminals	06/15/23 16			0
ISD	ISD	0		In Service Date Gales Ferry	06/15/23 16*			0
	A4220	6	06/22/23 08*	Remove Mobile XFMR Highside and Lowside Connections, Connect 11B-2X	06/27/23 16			0
	A3880	15	06/28/23 08	Clean Up and Demobilize	07/12/23 16			153
40512211.07.02.03.02 11B Distribution Cutover								
OUT	A1245	4	02/14/23 08*	Tie Old and New 13.8kV Swgr Together	02/17/23 16			0
OUT	A1250	1	02/17/23 08*	Montville - Gales Ferry 100 line Retired	02/17/23 16			0
OUT	A1240	16	02/13/23 08*	11B61 Circuit cutover	02/28/23 16			0
OUT	A1255	13	03/06/23 08*	11B1 Circuit cutover	03/18/23 16			0
OUT	A1260	13	03/20/23 08*	11B62 Circuit cutover	04/01/23 16			0
OUT	A1305	13	04/03/23 08*	11B2 Circuit cutover	04/15/23 16			0
OUT	A1310	3	04/17/23 08*	Move Mobile XFMR to New Swgr	04/19/23 16			0
OUT	A1315	12	04/18/23 08*	11B63 Circuit cutover	04/29/23 16			0
40512211.09 Testing / Commissioning								
40512211.09.02 LCE PLANNING								
V-COMPLN	LCE400	21	05/05/22 08	Develop Test and Commissioning Plan	06/03/22 16			207
ES-COMPLN	LCE500	21	06/06/22 08	Eversource LCE Review and Approve Testing and Commissioning Plan	07/05/22 16			207
40512211.09.04 TEST ACTIVITIES								

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Activity Flag	Activity ID	At Completion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
	LCE310	2	05/03/22 08*	Mobilize LCE Prior to Construction	05/04/22 16	[redacted]		305
	LCE320	2	05/03/22 08	Mobilize Testing Vendor Prior to Construction	05/04/22 16			305
	LCE610	30	06/06/22 08	LCE Oversee Execution of Test and Commissioning Plan	07/18/22 16			228
	LCE620	30	07/06/22 08	Execute Test and Commissioning Plan	08/16/22 16			207
	LCE700	1	08/17/22 08	LCE Ensure Test Group Prepare Electrical Field Mark Ups	08/17/22 16			207
40512211.WO-5524211 WO 5524211 - D Support								
40512211.WO-5524211.0 WO 5524211 - D-Support Milestones								
	WO-5524211	0	02/28/22 08	5524211 - 405122-Reloc T STRs for Gales Ferry Conversion - D-Support - SM				420
	WO-5524211	0		5524211 - 405122-Reloc T STRs for Gales Ferry Conversion - D-Support - FM	04/12/22 10			420
40512211.WO-5524211.00 WO 5524211 - Summary Milestones								
	WO-5524211	0	02/28/22 08	5524211 - 405122-Reloc T STRs for Gales Ferry Conversion - SM				420
	WO-5524211	0		5524211 - 405122-Reloc T STRs for Gales Ferry Conversion - FM	04/12/22 10			420
40512211.WO-5524211.10 WO 5524211 - Pre-Construction								
	5524211-0-	0		160 - Prereq - Planned switching/outage requests	02/28/22 08			420
	5524211-0-	0		170 - Prereq - Financial Close Out	02/28/22 08			420
	5524211-0-18	0		180 - Prereq - Deliverables Complete - Work Order Ready to Close	02/28/22 08			420
40512211.WO-5524211.30 WO 5524211 - Construction								
	WO-55242	0	02/28/22 08	5524211 - Underground - TSupport	02/28/22 08	UG - TSupport		451
	WO-55242	0	02/28/22 08	5524211 - Overhead - TSupport	02/28/22 08	OH - TSupport		451
	WO-5524211	0	02/28/22 08	5524211 - Station - Electrician - TSupport	02/28/22 08	ST - Electrician - TSupport		451
	WO-5524211	0	02/28/22 08	5524211 - Station - Field Comm - TSupport	02/28/22 08	ST - Field Comm - TSupport		451
	WO-5524211	0	02/28/22 08	5524211 - Station - Field Engineer - TSupport	02/28/22 08	ST - Field Engineer - TSupport		451
	5524211-10	31	02/28/22 08	10 - Transmission Capital	04/12/22 10	1T-T-LINE1T, 1T-T-LINE1T		420

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Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
40512211.10 Project Close Out						[redacted]		
V-FLDASB	CV1520	21	06/16/23 08	Prepare Civil Field Mark Ups	07/17/23 16			11
V-FLDASB	COMM1510	21	06/16/23 08	Prepare Communication Field Mark Ups	07/17/23 16			11
V-FLDASB	EV1520	21	07/03/23 08	Prepare Electrical Field Mark Ups	08/01/23 16			0
V-FLDASB	PC1410	21	07/03/23 08	Prepare P&C Field Mark Ups	08/01/23 16			0
PM	PM1000	1	10/12/23 08	PM to Document Civil As-Built Drawings Complete	10/12/23 16			11
	COMPL101	90	06/16/23 08	Final Inspection and Punchlist Work	10/24/23 16			33
PM	PM1100	1	10/27/23 08	PM to Document Electrical As-Built Drawings Complete (Electrical, P&C, Communications)	10/27/23 16			0
ES-FLSASB	CV1550	30	10/13/23 08	FE Files Civil Design Drawings at Station	11/27/23 16			11
	COMPL102	0		Project Complete	12/12/23 16			0
ES-FLSASB	EV1540	30	10/30/23 08	FE Files Substation Design Drawings at Station	12/12/23 16			0
ES-FLSASB	COMM1500	30	10/30/23 08	Operations Files Communication Design Drawings at Station	12/12/23 16			0
ES-FLSASB	PC1500	30	10/30/23 08	FE Files P&C Design Drawings at Station	12/12/23 16			0
40512211.10.02 Electrical As-Builts								
ES-ASB	EV1560	5	08/02/23 08	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	08/08/23 16			0
V-ASB	EV1510	30	08/09/23 08	Vendor Engineering Verifies Electrical Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	09/20/23 16			0
ES-ASB	EV1550	20	09/21/23 08	Eversource Engineering Verifies Quality of Submitted Electrical Drawings	10/19/23 16			0
ES-ASB	EV1530	5	10/20/23 08	Electrical Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	10/26/23 16			0
40512211.10.01 Civil As-Builts								
ES-ASB	CV1560	5	07/18/23 08	Eversource Engineering Prepares & Sends Civil Field Mark Up Packge to Vendor	07/24/23 16			11
V-ASB	CV1510	30	07/25/23 08	Vendor Engineering Verifies Civil Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	09/05/23 16			11
ES-ASB	CV1530	20	09/06/23 08	Eversource Engineering Verifies Quality of Submitted Civil Drawings	10/03/23 16			11

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Activity Flag	Activity ID	At ompletion Duration	Start	Activity Name	Finish	Resources	Activity Scheduler	Total Float
ES-ASB	CV1540	5	10/04/23 08	ES Create Civil Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	10/11/23 16	[redacted]		11
40512211.10.03 P&C As-Builts								
ES-ASB	PC1510	5	08/02/23 08	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	08/08/23 16			0
V-ASB	PC1200	30	08/09/23 08	Vendor Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	09/20/23 16			0
ES-ASB	PC1300	20	09/21/23 08	Eversource Engineering Verifies Quality of Submitted P&C Drawings	10/19/23 16			0
ES-ASB	PC1310	5	10/20/23 08	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	10/26/23 16			0
40512211.10.04 Communication As-Builts								
ES-ASB	COMM1530	5	07/18/23 08	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	07/24/23 16			11
V-ASB	COMM1520	30	07/25/23 08	Vendor Engineering Verifies Communication Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	09/05/23 16			11
ES-ASB	COMM1310	20	09/06/23 08	Eversource Engineering Verifies Communication Mark Ups and Updates As-Built Drawing Package	10/03/23 16			11
ES-ASB	COMM1400	5	10/04/23 08	Communications Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	10/11/23 16			11
40512211.10.11 Test Closout								
	LCE800	1	06/16/23 08	LCE Ensures Marked up Prints Ready for Pick-up	06/16/23 16			0
	LCE900	10	06/19/23 08	LCE Review Test Data and Issue Commissioning Report	06/30/23 16			0
40512211.10.09 Work Order / Financial Close Out								
PM	FINCO1000	5	06/22/22 08	PM/ Engr/ Plant Acct Develop Prelim UOP & UOR L	06/28/22 16			236
	FINCO1010	5	06/29/22 08	Review UOP, compl forms, fwrd to Plant Acctng, enter in wrkbk	07/06/22 16			236
40512211.10.10 Project Management Close Out								
CASCADE	CSD1050	10	06/22/22 08	Construction Rep Finalize CASCADE Forms (within 14 days following ISD)	07/06/22 16			339
	CSD1060	30	07/07/22 08	Asset Management Complete Asset Update(s) in CASCADE	08/05/22 16			494

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Constructability Review Form: **Substation**

Project Title: Gales Ferry 69kV conversion	☒	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): 405122/CS00401	**Project Constructability Phase:**	
Date(s) of Constructability Review: 01/25/2022	☒ Conceptual Engineering Design	
	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	
Project Scope Statement: This project is to convert the existing Gales Ferry substation to 115-kV for both transmission and distribution.		

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☒	☐	Constr. Management	[redacted]	☒	☐	Project Engineer	[redacted]
☒	☐	Project Management		☒	☐	S/S Engineering	
☒	☐	Project Management		☒	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☒	☐	P&C Engineering	
☐	☐	S/S Operations**		☒	☐	Telecom	
☐	☐	Field Engineering		☒	☐	Environmental	
☐	☐	Line Engineering		☐	☐	T&D ROW	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☐	Real Estate/Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Outreach (SCS)	
☐	☐	SCADA		☐	☐	Material Procurement	

* Sign-off in the table above for the Detailed Engineering Design Constructability Review indicates that all Action Items/Concerns from prior Constructability Reviews have been mitigated/resolved as documented in this form. Not every department is required to attend walkdowns for every project but should be consulted for project impact considerations

** Internal Eversource Substation Operations must be included in review even if external construction resources are planned

Project Manager certifies that this review was performed to completeness, that all applicable departments were informed of the project and have had opportunity to provide input to this review:

[redacted] *1/31/22*

Name / Signature *Date*

EVERSOURCE

Constructability Review Form: **Substation**

Documents available for use on Constructability Review					
[X]	Deliverable	[X]	Deliverable	[X]	Deliverable
☒	Initial Scope -Birdseye site plan -General Arrangement	☒	Preliminary Drawings -Civil Site Drawing -Electrical Drawing -Section Drawings	☐	Prints in hand for marking up -Panel Front/Read View -Control Enclosure Layout -Floor / Wall Plans
☒	Detailed Scope Document	☒	Previous Notes	☐	Identify Required Contractors
☒	Proposed Schedule	☐	Major Material Items	☐	Replace / Reuse of equipment
☒	Construction Sequence/Timeline	☒	Major Equipment Items	☐	Pre-Walkdown Comments / Observations

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1	[redacted] establish working hours, LCE/CR	Internal CR ([redacted] ECT Gen CR) full time from June 2020 to June 2023. External CR (BHI) full time from April 2022 to June 2023. LCE (TRC) full time from Jan 2022 to June 2023.
2		
3		
4		
5		

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**General**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	N	Working around live equipment. Restricted are for equipment to move in. Fall hazard during construction of retaining wall.
2	**Prior known Site Specific Conditions - Common or Obvious station Issues**	N	Dated equipment. OH distribution lines.
3	**Scope Adequately Developed** Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence	Y	Project still capturing changes in engineering that have been required to include during planning. Additions made: Battery, P&C, Distribution cut overs, conduit/switch gear UG, new UG install away from footings.

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
4	**Materials Identified/Ordered** a. Long Lead Equipment? b. Specialty material considerations? c. Review BOM lead times and project need dates d. Identify Specialty Equipment & Materials; Potential temporary/replacement; Bids for Specialty Major Materials - e. Any Materials needed to facilitate construction access?		a. Transformers. 1 year. switch gear, panels pre-wired (resources vs time) b. Switchgear, firewalls, cable trench, waterfall & tray inside R&CE, mobile transformer & circuit switcher (rental), retaining wall, battery enclosure. c. ECT Long Lead Materials List Document Included. d. Same as "b". e. Temp fence/gates, matting required
5	**Any impacts that would drive T-Line Eng Scope?**		[redacted]
6	**Any other known projects that could overlap or impact outage work?**		1280/400/100/1410 line rebuilds. ADSS. All D-OH lines going UG. [redacted]
B	**Construction**		
1	**Site Plan / Access:** a. Confirm maintenance access for proposed new or replaced equipment b. Review station expansion areas (if needed) for structures, old foundations, etc. c. Verify clear footprint for yard equipment / Property Plan d. General access to site, can areas outside substation be utilized? e. Substation Entry Plan (driveway and drive path modifications) f. Site Development Plan (grading and drainage) with Cut/Fill g. Existing Rock Conditions? Potential Impacts (rock quantity)? h. Any Sanitary Civil Requirements? (Septic tanks, etc) i. Assess condition of existing yard equipment ~~foundations~~ and viability for reuse (if proposed)		a. Confirmed in existing yard b. Expansion area required. Area outside substation required extensive to protect wetland. c. Yard equipment planned in available space. See general arrangement. d. Very limited area outside station. Require all area matting, traffic control measures. e. Minor mods – adding a gate location at the SW corner. f. Extensive fill to build retaining wall up to existing grade for expansion; Extensive matting to avoid slope/grading g. Presume Bedrock (15' down) might impact 400-line structure. should be expecting it during drilling to avoid delays. Substation equipment will use pad/pier so no impacts. h. none i. 10% existing foundation to be reused (R&CE)
2	**Any Substation Access and site/yard access Limitations?** a. Review turning radius for delivery trucks (if critical) b. Identify Office Trailer / Container / Dumpster Space + source of utilities for construction trailer(s) if needed c. Weather impacts to Site (Snow Placement) d. Identify Material Laydown and Security e. Construction permit for trailers outside substation fence?		a. Turning radius measured and included in plan. b. Limited Trailer Space available. Use of Rt 12 laydown yard 5 miles north. c. Stockpile outside station required. High rainfall could be a concern where wetland water level could flood area. d. No security Issues with fencing, Laydown yards in Depot Rd and 54 CT Rt 12.

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
			e. N/A. No space available.
3	**Outage Planning & Construction Sequence** a. Working Clearances - Review electrical clearances for equipment during construction b. Approach Distances – Outage requirements to maintain electrical clearances throughout proposed installation c. As-Built drawing review (contacts and contributions) d. Outage boundaries e. Phased approach needs for additional mobilizations f. Detail Design package align with schedule and outage sequence? g. Lead Commissioning Engineer (LCE), Substation Operations, and Outage Planner - ~~Review or give input to planned construction sequence to insure it is reasonable and scheduled outages associated with the sequence~~ h. Review or give input to planned construction sequence to insure it is reasonable i. Verify outage sequence supports the planned construction sequence		a. Working around live SS equipment will require carefully arranged temp. fencing. All work performed inside of SS fence/wall. Distribution circuits will be built UG ahead of SS equipment installation. b. Fencing as above. c. Cutovers complicated sequence. Working closely with D-Eng. d. Extensions and complicated sequence developed. Enquire with Outage Planner Brad Hultgren. e. One mobilization. 400-line work first. 100-line work second. f. Working with engineering to align construction sequence with current outage durations. g. LCE (TRC) and designated outage planner (BHI) contractors assigned. h. See attached construction & outage sequences. i. See attached construction & outage sequences. [redacted]
4	**Mobile generator:** If needed, where connected		Generation not being used on site. Mobile & circuit switcher being contracted for duration of construction period ($1M rental only). Temp Sub in ROW on matting, taps to 1410 Line, grounding, and fence.
5	**Mobile battery:** If needed, where connected		Need Batt Cart for DC cut overs

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	**Energization Plan** a. What outages required, Detailed look at contributions to equipment, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized b. Additional outage requirements, Mobile transformer c. Fiber outage, SCADA outage, Relay permissions d. Working clearance, Railroad Catenaries, Distribution overhead/underground/networks,		a. [redacted] b. c. Mobile transformer to avoid SCLL. Load bank required for testing. d. OPGW/ADSS must be in place in early stage of construction. Temp setting during construction. Relay permissions not likely to be required. Temp SCADA settings required for mobile sub. e. Working around live equipment. Clearances required.
7	**Identify Required Oversite Needed** - Estimated level of CR and LCE support needed		Internal CR ([redacted] ECT Gen CR) full time from June 2020 to June 2023. External CR (BHI) full time from April 2022 to June 2023. LCE (TRC) full time from Jan 2022 to June 2023.
8	**OT work required or Notable Permit** Conditions (special hours)?		OT / Saturday/Sunday work will be required to support limited outage durations (6 months). See outage/construction sequence.
9	**Seasonal or weather conditions impacts?**		Construction sequence will span four seasons. See 2c. above for snow/winter conditions. Risk of outage recalls due to hurricane/storm related events.
10	**Identify Required Depts for Construction?** (who is constructor?)		External vendors: Prime SS electrical, test & civil subcontractor. Prime OH T-line electrical with drilling sub; Prime civil for access and matting to support mobile and expansion
11	**Specialty Contractors Required?**		Battery, security, transformer vendor, test, SF6 gas, firewall/retaining wall.; splicing OPGW/ADSS
12	**Unique Equipment Considerations**, Gas insulated substation, Gas insulated line, Gas insulated bus; Pass Breaker; Statcom; Sync Condenser		None

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
13	**Underground Obstructions** a. Drawing review concerns? b. Is preconstruction or test excavation needed? c. Is reuse of underground control cables / Conduits /replace Non-Shielded Cable feasible (if applicable) d. Are spare conduits available? Are they useable? e. Review if any areas will need to be plated for increased load bearing for equipment access (i.e. large Xfmr, etc.)		a. All concerns addressed. b. test excavation needed (telecom cable) c. N/A d. N/A e. Possible. See plans for UG conduits/duct banks.
14	**Any other items missing in scope or could be underfunded?**		HVAC. Fire Alarms.
15	**Coordination of boundaries/seams** (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)		Distribution feeders (Eversource). No munis.
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned		Not completed. Sampling planned. Soils will be used on site as fill for expansion area pending Env. Testing. Tested/clean soils being stockpiled from other projects to bring in as fill as needed.
2	Has Desktop investigation and EAD Review form been completed.		ACOE 401/404 Permit required. Self-Verification. Archeological Review required NDDB and SWCPP likely required No DEEP PCN required Yes
3	Dewatering requirements		T-line structure base and SS expansion excavation for retaining wall likely
4	Risk or presence of PCB's/Asbestos/Lead/SF6		SF 6
5	Permit requirements (Wetlands, Rare Species, etc)		Yes, SVNF,. No NDDB PCN.
6	Stormwater Considerations		No SWPCP required, But outlet protection recommended
7	Transformer Spill Containment Recommended?		Buried. Required if exists. See equipment recommendation from manufacture
8	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)		Yes, run UG to riser NE to SE. Move 4 T-line str's, Retaining wall expansion for SS.
D	**Siting, S&CS, and T&D Real Estate**		
1	Expanding Footprint / New Buildings or future Expansion Plans?	Y	The footprint of the substation will be extended into wetlands along the east side. Proposed equipment, fence and temporary mobile transformer are located within ES Fee Property.2
2	Installation is within Eversource Rights? - Rights and Restrictions Review	Y	All project activities are within ES Fee Property. No deed restrictions have been identified.

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	Proposed Equipment on same property? - Any Encroachments	Y	No encroachments identified.
4	Identify existing lighting and determine if additional lighting is needed?		New/replacement lighting is proposed.
5	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work		All aspects considered and discussed in CSC petition. No significant issues identified.
6	Visual mitigation screening considerations (feasibility or location)		Estimate 7 Individual visual mitigation plans may be requested by adjacent landowners, which will be addressed as they arise. Wetland matting. Required visual. Visual barrier possible? Town of Ledyard may ask for Visual mitigation after const.
7	Neighbor/Abutter impacts (noise, visual, sensitive abutters)		The substation is at least partially visible from approximately ten homes. Sound levels are predicted to comply with state noise regulations. Sensitive abutters have been identified at this time.
E	**Engineering**		
1	**Scope of Work** a. Identify if high level scope sufficiently detailed? b. Any remote station impacts? c. Does title match the project deliverable/intent?		a. As above, project engineers have made additions to scope and addendums are being added. See attached ECDs. b. [redacted] will be in outage sequencing. Remote station impacts addressed in separate projects (405123/405125) c. Title sufficient
2	**Ratings & Dimensions for Major Equipment.** a. Any concerns upon field review? b. Equipment Rating One Line (and/or equipment thermal ratings tables) c. Review for any errors in field		a. Footprint-civil. Limited space for construction. Will require specialist equipment for installations. b. Thermal ratings are not impacted. c. None seen
3	**Materials** a. Any concerns with BOM/Major Materials Review? b. Where will new vs removed equipment go? c. Review for OH and UG Items		a. Existing circuit breaker rating. Material escalation a concern. b. [redacted] Removed equipment will be taken directly off site to be broken down. Investment Recovery have been contacted. List approval pending.

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
			c. Distribution will procure manholes/duct banks under project #CS00401 WO# 80070417.
4	**Control House** - Review: a. Control/Battery Enclosure Layout, Unmapped equipment interferences, b. HVAC System (if equipment added), space for new/modified equipment, c. AC / DC station service and loading, d. Panel Space, Expansion, e. one-line and/or riser type panelboard drawings, other.		a. New Primary (no back up) battery added to scope with additional loads from this project. New Battery Enclosure for bid. See procurement tracker. b. No HVAC on scope. c. Load studies complete. d. No issues on space in R&CE. Old panels remain in place. Investment Recovery unlikely. e. Panel drawings and one-line complete.
5	Identification of Unique Requirements, i.e. (access bridges, station service, etc.)		No additional to scope
6	**BPS Separation Requirements** a. Is this BPS Substation? Y/N (part of PAF) b. Changes to pre-existing BPS standards?		a. This is not BPS, but we will try to adhere to BPS standards as much as possible. b. N/A
7	IEC 61850 Requirements - Any Impacts/Retrofit needed?		[redacted]
8	a. Any Upgrades to ES Standards b. Is retrofit needed to bring up to ES standards? c. Can that be done?		a. All new equipment matches ES Standards. b. Yes, see above c. Yes, see above
9	**Wall, Fence, Gate, and Foundation Considerations** a. Any permanent / temporary alterations or relocations required? b. Take measurements for Foundation quantities, dimensions and concrete volumes c. CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? d. Any impacts to construction plan?		a. Total substation expansion and rebuild. b. Approximately 350 cyd. See attached. c. R&CE Key card access & cameras required. Invite security**. d. Ok on scope
10	**Below Grade / Enclosure Raceway** a. If possible, evaluate existing raceway and review spacing requirements. b. Review for any subsurface investigation needs or potential below grade obstructions. GPR/test pits needed?		a. All BPS separated raceways being installed. b. Need identified for exploratory dig on telecom cable. c. Completed.

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
	c. Geotechnical Investigation - is soil boring or resistivity investigation needed?		
11	**Grounding Plan (Ground Grid)** a. Will footprint impact layout or other equipment? b. Identify locations to improve grounding. c. Impacts to foundations and ground grid plans. d. Observations on wetlands or ability to perform tests		a. Yes b. Yes c. Yes. Ground grid included in SS expansion design. And mobile Sub in ROW. d. Resistivity Testing done. No further visit required.
12	Lighting Plan & Fixture Schedule (if applicable)		Included in plan.
13	a. Steel Structural Plan Drawing & Structure Table b. Review steel installation if applicable		a. Included in 30% engineering. b. Included in 30% engineering.
14	Sound Study Needed? Pre-Project Sound Measurements Needed? Sound Walls?		Done
15	Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project		Done
16	a. Nomenclature / Switching One-Line Diagram b. Any obvious deviations from diagrams provided?		a. Majority developed. Still in progress. b. None
17	a. Any design alterations or considerations to eliminate SCLL Conditions b. Reduce Recall Time, Reduce Outage durations, Special Conditions		a. [redacted]. 1 year duration. b. See attached outage sequence
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications		Prefer trays inside.
2	Space on existing panels for new equipment? (front & rear of panel fronts)		All panels go.
3	Panel fronts conform to drawings		New panels will be built per design.
4	Access to bring new panels into control enclosure		Double door at back for panel entry
5	Nameplate list and location of nameplates		Completed as part of design
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.		All new relays and meters at station.
7	Verify auxiliary panels have breaker available or space for new breakers (if needed)		Breaker name plate age. Run ASPEN to be sure
G	**Telecom (as applicable)**		
1	Review telecom equipment in existing control enclosure		[redacted]

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	Review path to get telecom circuits into the station and determine whether new underground duct bank is needed.		[redacted]
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.		[redacted]
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.		[redacted]
5	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination		To be part of this project
6	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed		This project will install a new comm cabinet, fiber mux and ADSS.
7	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed		Adequate space exists for new cabinet
8	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required		[redacted]

Photos

Ex. Equipment control cabinet (Breakers, MODs, CCVTs, PTs, Transformers)

[redacted]







[redacted]

Equipment and Material Breakdown
405122 - ECT - Convert Gales Ferry 11B SS to 115-kV (T)
CS00401 - ECT - Gales Ferry 11B Convert to 115-kV (D)

WO#	Qty	Equipment Type	Description	Lead time (weeks)	Award Strategy
40512211					Blanket In-Place
40512211					Blanket In-Place
40512211					Blanket In-Place
40512211					Blanket In-Place
40512211					Competitive Bid
40512211					Competitive Bid
40512211					Stock Coded
40512211					Stock Coded
40512211					Stock Coded
40512211					Direct Award
CS004011					Blanket In-Place
CS004011					Blanket In-Place
CS004011					Blanket In-Place
CS004011					Direct Award
CS004011					Blanket In-Place
CS004011					Blanket in-Place
CS004011					Blanket In-Place
CS004011					Competitive Bid
CS004011					Direct Award
CS004011					Direct Award
CS004011					Direct Award
CS004011					Stock Coded
CS004011					Stock Coded
CS004012					Blanket In-Place
CS004012					Blanket in-Place
CS004012					Blanket In-Place
CS004012					Blanket In-Place
CS004012					Competitive Bid
CS004012					Direct Award
CS004012					Direct Award
CS004012					Stock Coded
CS004012					Stock Coded
80070417					Stock Coded
80070417					Direct Award
CD01755					chased by D Engineering
CD01755					Purchased by D Engineering
40512211					Competitive Bid
40512211					Competitive Bid
40512211					
40512211					
40512211					
40512211					
40512211					
40512211					Stock Coded
40512211					
40512211					Stock Coded
40512211					Direct Award
40512211					Blanket In-Place
40512211					Stock Coded
40512211					Stock Coded

[redacted]



	Work Order #	Planned Start	Planned End	Equipment Required to be Out of Service	Work to be Performed and Why	# of Days	Comments
1	40512211	05/16/22	05/30/22	None	Start Gales Ferry Substation Expansion. Clear and Rough Grade Expansion area,	14	**Need Anchor Bolts to Rt 12 5/1/2022** **ES to supply smalls**
	CS004011				Pour concrete footing for retaining wall		Manholes to store Rt 12
	80070417				Install Replacement Conduit for D-Feeder 11B61.		**Cable trench to Rt 12 laydown 5/1/22**
2	CS004011	06/01/22	07/30/22	None	Start retaining wall installation.	59	**DoubleWall to site starting 5/18/22**
	80070417				install MH#4 (NE corner)		**Manhole #4 to site from Rt 12 5/10/22**
	80070417				Ductbank and manhole #5		**Manhole #5 to site**
	80070417				[redacted]		
	CS004011				Continue retaining wall & backfill. Install cable trench, Conduit and Foundation for firewall and Switchgear. 2 C/S,		1911 Civil Installation Complete
	40512211				[redacted]		
	80070417				Conduit for Mobile Sub and ADSS. Mobile matting pad,		Civil matting for mobile position
	CS004011				Install Substation Expansion Fence and Grounding.		Barnhart set w/crane
	CS004011				Excavate and Install Foundation for New Battery Enclosure		
3	CS004011	08/01/22	12/14/22	None	remove exising fencing install/ground temp fence for	135	**Switchgear crane onsite 8/1/22 (6 days)**
	CS004011	08/15/22	09/12/22		Mobile substation in position. Taps to 1410. Test.	28	Mountain West trailer. Connect to exisiting switchgear. TOA 22-XXXX.
	CS004011				Install R&CE Relay panels, New Battery & Distribution		**Battery Enclosure crane on site 7/25/22 (2days)**
	CS004011				Set New 3X Transformer. Dress Transformer and fill. Test		**3X Transformer onsite 8/8/22 jack & slide (2days)**
					Install 3X firewall frames		**Firewall Precast Panels to site 8/15/22**
	40512211				Install new 1911 Steel and associated Equipment		**1911 Terminal Steel onsite 8/10/22 (3 days)**
	40512211	09/12/22	09/13/22		[redacted]	1	**New Relay Panels for 1911 & 1787 Line and associted Equipment on site 8/15/22.** DC/ AC Power to 3X and Switchgear for Testing.
4	40512211	02/07/23	02/15/23	[redacted]	CONVEX to Accept dispatch jurisdiction of 1911 & associated equipment	8	TOA 22-XXXX.
	CS004011	02/08/23	02/09/23		24hr soak. Test Energize New 3X	1	Line Tuning, End to End Testing, Relay Setting changes at 1911 Terminal and Energize. Must Coinside with Tunnel Substation 69KV to 115KV Conversion.
5	CS004011	02/10/23	02/15/23		[redacted]	5	**Load bank on site (Testing 1 week)**
	CS004012						Outages to cut over 5 Feeders to New 3X Switchgear
	CS004011	02/03/23	02/18/23	[redacted]	[redacted]	15	DCR 22-B-XXXX. Multible Distribution outages/clearances
		02/18/23	02/19/23		Cut Over Mobile from exisiting to new switchgear	1	TOA 22-XXXX. Deenergize circuit switcher on 1410
		02/16/23	02/16/23		[redacted]		
6	40512287	02/18/23	03/13/23	None	[redacted]	23	[redacted]
	CS004012						[redacted]
7	CS004012	03/13/23	03/26/23	None	Demo below grade: all existing Foundations, 1X, 2X, Breakers	13	Duration may be longer if Concrete and Soil are contaminated.
8	40512287	03/26/23	05/07/23	None	[redacted]	42	Pour 2X-C/S-terminal foundations 3/30/23.
	CS004012						**2X Transformer on site on or around 5/6/23** **1787 Terminal Steel 5/6/23**
					Install New Precast Foundations for 11B-1T-4, 11B-1T-2		**Precast foundations to site 4/15/23**
9	CS004012	05/07/23	05/28/23	None	Set New 2X Transformer. Dress 2X Transformer and fill.	21	DC/ AC Power to 2X for Testing.
					Install 2X firewall frames		**Firewall Precast Panels to site 5/7/22**

	40512287			[redacted]	[redacted].		Reinstall existing Tie Breaker Ready for Cut Over TOA 23-XXXX, multiple TOA requests associated with each cut over
10	CS004012	06/02/23	06/05/23	[redacted]	[redacted]	3	TOA 22-XXXX. Multible TOA's Dead Line Tuning, End to End Settings, Relay Settings. CONVEX to Accept dispatch jurisdiction of 1787 line and
11	CS004012	06/06/23	06/11/23	Temp Circuit Switcher and Mobile Transformer	Remove Mobile Transformer and Circuit Switcher from site. Demo Old 400 Line Terminal that was used for 100 Line.	5	
12	CS004012	06/12/23	06/17/23		[redacted] Site clean up. Remove erosion controls		
17	40512211			None	Clean Up and Demobilize	2	Project Complete end of Q2 2023