EVERSOURCE

Operations Program Release Form

Approved on June 22, 2022 EPAC

Link to Meeting Minutes

Project Title: [redacted] **OCB Replacement Program Release**	**Project Number: CS00414**
Date Prepared: 06/10/2022	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Circuit Breakers**
Managing Organization: Transmission / Major Projects	**Schedule ID#: CS004141**
Project Manager: [redacted]	**Project Type: Program**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: 06/01/2023	**Program Level Title: CT OCB Replacement and Bus Rehabilitation Program**
Eng./Constr. Resources Budgeted? Yes	**Program Level Project Number: CS00411**
Total Capital Request: $5.312M	**Facility Type (check all that apply):** ☐ **PTF** ☐ **non-PTF** ☒ **Distribution** ☐ **N/A (General**

[1] Executive Summary

This Program Release is requesting $5.312M to replac [redacted]

This Program Release is requesting dollar authorization in accordance with the program level criteria specified in the CT OCB Replacement Program PAF CS00411 (Attachment E) and this document for this specific location. The Program Level PAF had $450K of initial funding approved in PowerPlan on May 27, 2021. The scope for this Program Release is defined in the Program Level PAF and in this document with modifications necessary that address this location.

This work started under the capital work order CS004114 in 2021. This release is to reallocate the charges to a new project under the CT OCB Replacement Program. The amount spent through June 3, 2022 is $206K for this release, which was spent on preliminary engineering to develop the scope of work, constructability review (performed 2/17/2021) and the preliminary (-25% /+25%) estimate. The target in service date (ISD) is June 1, 2023.

[2] PROJECT COSTS SUMMARY

Unitized Release Cost

Note: Dollar values are in thousands

Line item Category	Unitized Program Level PAF Cost *	Release Cost	Delta
1. ROW / Easements / Land Acquisition	$0	$0	$0
2. Environmental Approvals / Permits	$0	$0	$0
3. Outreach	$6	$6	$0
4. Siting Approvals / Permits	$0	$0	$0
5. Engineering / Design	$58	$88	$30
6. Materials (Eversource purchased)	$714	$565	($149)
7. Construction (incl matl's by contractors)	$1,260	$1,393	$133
8. Testing / Commissioning	$691	$717	$26
9. Project Mgmt Team	$22	$27	$5
10. Removals	$77	$77	$0
11. Other	$0	$0	$0
12. Risks	$422	$381	($41)
SUBTOTAL DIRECTS W/ RISKS	**$3,249**	**$3,253**	**$4**
13. Indirects/Overhead	$1,559	$1,705	$146
14. AFUDC	$291	$195	($95)
PROJECT TOTAL – BASELINE BUDGET	**$5,099**	**$5,154**	**$55**
15. Contingency	$265	$159	($106)
TOTAL CAPITAL REQUEST	**$5,364**	**$5,312**	**($52)**
16. Reimbursables/Customer Contribution	$0	$0	$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$5,364**	**$5,312**	**($52)**
O&M	$0	$0	$0
Total Request	**$5,364**	**$5,312**	**($52)**

** Based on a unit cost of $671K for eight (8) units with associated equipment per Table 1 below.*

Table 1 Quantity of Equipment Comparison for Release versus Program

Equipment	Release Qty	Equivalent Program Qty	Comments
1. Oil Circuit Breakers (OCBs)			
a. Feeders	8 x 1200A	8 x 1200A	
b. Ties & Transformers		2 x 2000A	No Tie or Transformer OCBs
2. Manual Disconnect Switches			
a. Feeders	16 x 1200A	8 x 1200A	16 versus 8 Two Required for each feeder OCB
b. Ties & Transformers		2 x 2000A	No Tie or Transformer OCBs
c. Reactors	5 x 1200A	8 x 1200A	5 versus 8
4. Reactors	5 x 3	8 x 3	15 versus 24
5. Grounding Switches	3 x 3	8 x 3	9 versus 24

Justification for Modification

1. **ROW / Easements / Land Acquisition: $0K –** No changes with respect to the program.
2. **Environmental Approvals / Permits: $0K –** No changes with respect to the program.
3. **Outreach: $0K –** No changes with respect to the program.
4. **Siting Approvals / Permits: $0K –** No changes with respect to the program.
5. **Engineering / Design: $30K –** Engineering costs increased due to more design work for this release as a result of the increased number of manual disconnect switches included in this release compared with the program.
6. **Materials (by Eversource): ($149K) –** The cost of materials for this release decreased from the program due primarily to the decreased number of circuit breakers and reactors being replaced as compared to the program quantities, see Table 1.
7. **Construction (including materials supplied by contractors): $133K–** Costs increased due to more construction work for this release due to greater total quantity of equipment to be removed compared to equivalent program quantities, see Table 1.
8. **Testing / Commissioning: $26K –** Costs increased based on experience of previous releases which found that program estimate to complete testing and commissioning was too low.
9. **Project Management Team: $5K –** Costs increased due to additional work in assessing scope compared with the program.
10. **Removals: $18K –** Costs increased due to more removal work for this release due to types of equipment to replaced and the equipment costs associated with the type of equipment. The net result is increased costs for removal work.
11. **Other: $0K –** No changes with respect to the program.
12. **Risk: ($41K) –** Risk cost reduction due to the advantages of scale for this release.
13. **Indirects/Overhead: $146K –** Indirect charges are calculated using the direct costs which have increased for this release.
14. **AFUDC: ($95K) –**AFUDC charges are based on duration of project which comparatively less than the release.
15. **Contingency: ($106K) –** Contingency reduction due to the advantages of scale for this release.
16. **Reimbursables/Customer Contribution: $0K –** No changes with respect to the program.
17. **O&M: $0K –** No changes with respect to the program.

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Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	Total
1. ROW / Easements / Land Acquisition						
2. Environmental Approvals / Permits						
3. Outreach			$3	$3		$6
4. Siting Approvals / Permits						
5. Engineering / Design		$8	$64	$15		$88
6. Materials (Eversource purchased)		$166	$315	$85		$565
7. Construction		$1	$698	$694		$1,393
8. Testing / Commissioning			$175	$541		$717
9. Project Mgmt Team		$1	$14	$12		$27
10. Removals			$38	$39		$77
11. Other						
12. Risks			$228	$153		$381
SUBTOTAL DIRECTS W/ RISKS	**$450**	**$177**	**$1,534**	**$1,542**		**$3,253**
13. Indirects/Overhead		$28	$794	$884		$1,705
14. AFUDC		$1	$89	$105		$195
PROJECT TOTAL – BASELINE BUDGET	**$450**	**$206**	**$2,417**	**$2,531**		**$5,154**
15. Contingency			$78	$80		$159
TOTAL CAPITAL REQUEST	**$450**	**$206**	**$2,495**	**$2,611**		**$5,312**
16. Reimbursables/Customer Contribution						
PROJECT TOTAL (LESS REIMBURSABLES)	$450	**$206**	**$2,495**	**$2,611**		**$5,312**
O&M						
TOTAL REQUEST	**$450**	**$206**	**$2,495**	**$2,611**		**$5,312**

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$30K
2. Severe Weather, Delays, OT	$42K
3. Design Development	$75K
4. Delays / outages related to breaker energization plans	$140K
5. Control Breaker Cable Failures	$56K
6. Foundation replacements.	$38K
Total	$381K

Explain unique payment provisions, if applicable: N/A

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

[3] PROJECT SCOPE

The project release scope includes the following:

[redacted]

Table 2 Substation Equipment

Equip Type	Device Position /	Device Removals	Device Additions
[redacted]			

Equip Type	Device Position /	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]			

Equip Type	Device Position /	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]			

Equip Type	Device Position / Nomenclature	Device Removals *include manufacturer*	Device Additions *include manufacturer*

See Attachment B for Nomenclature Diagram.

A constructability review was performed on 02/17/2021 (see Attachment C). All issues and comments have been reviewed and addressed during preliminary design.

[4] ALTERNATIVES CONSIDERED

There are no changes from the Program Level PAF.

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[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
1. Project Need by Date	06/01/2023
2. Date of IFR Approval	05/26/2021
3. Complete Conceptual design of Alternative(s)	N/A
4. Initiator complete SSF form	N/A
5. SDC Presentation Date(s)	N/A
6. Conversion of Tx development costs.	N/A
7. Preliminary Design - Complete	03/09/2022
8. Preliminary Design Constructability Walkdown - Complete	02/17/2021
9. Full funding estimate review - Complete	06/10/2022
10. Full funding estimate - Complete	07/05/2022
11. Initiator complete PAF form	07/14/2022
12. EPAC Funding Dates (Full)	06/22/2022
13. Detail Design Complete	06/28/2022
14. Targeted Milestone Dates:	
· Siting Approval (if applicable)	N/A
· Env. Approvals (if applicable)	N/A
· Outage & Energization Plan Issued	01/23/2023
· All Material on Site	02/14/2023
· Outage Permit(s) Approved	07/25/2022
15. IFC Design Complete	07/22/2022
16. Start of Construction	02/15/23
17. Project ISD	06/01/2023

[6] Regulatory Approvals

None. There are no changes from the Program Level PAF.

[7] Risk and Risk Mitigation Plans

Contingency: Contingency of $161K is included in this release for any unanticipated unknowns.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Be flexible with construction and have alterative paths and solutions to conduit installations. Risk allocation is included to address this risk.
2. Severe Weather, Delays, OT	Outage cancelled due to unplanned events on the system resulting in schedule delays and additional potential labor costs to remobilize is a risk. This will also be mitigated by: • Being flexible and reviewing with contractors to determine availability. • Building float time into the construction schedule. • Review and confirm mobile transformer scheduled as required. Risk allocation is included to address this risk.
3. Design Development	Weekly project meeting meetings to discuss project status and schedule to ensure we are all on track. Risk allocation is included to address this risk.
4. Delays / outages related to breaker energization plans	Rescheduling and OT as required. Risk allocation is included to address this risk
5. Control Breaker Cables Failures	Review early and Install new control breaker cables as required. Risk allocation is included to address this risk.
6. Foundation replacements.	Add risk dollars to provide new foundations if study results indicate new foundations are required.

No subsurface work resulting in environmental cleanup costs is expected. There is a risk that some underground conduit will require replacing resulting in contaminated disposal costs. Risk is low and has not been included in identified risk table.

[8] REFERENCES

References
1.
2.
3.
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimate	YES
B. P6 Schedule	YES
C. Constructability Review	YES
D. System and Station One-Lines	YES
E. CS00411 - CT OCB Replacement Program PAF	YES

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **OCB Replacement Program Release**		**Project Number: CS00414**	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?	No		
Is an ISO-NE PAC presentation required?	No		
ISO-NE Presentation Date (if completed):	N/A		
Cost in ISO-NE Presentation ($M) (if completed):	N/A		
Is a PPA required?	No		
ISO-NE Approval Date (if completed):	N/A		
Is a TCA Application Required?	No		
TCA Submittal Date (if submitted):	N/A		
Cost in TCA Submittal ($M) (if submitted):	N/A		
Enter ISO-NE RSP / Asset Condition ID, if assigned:	N/A		
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?	No		
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?	No		
Are there any changes to the baseline audible noise?	No		
Is there an impact to the existing ground grid?	No		
Is a Transient Over Voltage (TOV) analysis required?	No		

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] OCB Replacement Program Release	**Project Number: CS00414**
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?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
What is the level of outreach expected?	Low
Is any part of this project in an Environmental Justice Community?	No
Has ROW Coordination reviewed this project?	No
Is this project coordinating with other existing scheduled work?	No
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by Eversource Engineering
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Partial Review

ESTIMATE SUMMARY

Project Title [redacted] Replacement Program Release
Project Mgr/Lead [redacted]
Project Number CS00414
WO & Task #: CS004114 (Program WO)
Estimate revision #: 00
Estimate Type - Station work

Estimate #: C-22-217
Date of Estimate:06/03/2022
Estimate done by [redacted]
In Service date (ISD)06/01/2023

Template Revision # 01.70c1

Alt Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-22-217
Date of Estimate:06/03/2022

Project Number: CS00414
WO & Task #: CS004114 (Program WO)

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	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Environmental Approvals / Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Outreach	$5,400	0.2%	0.1%	$0	$2,600	$2,800	$0	$0	$0	$0	$0	$0	$0	$0
4	Siting Approvals / Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	Engineering / Design	$87,600	2.7%	1.6%	$8,500	$63,800	$15,300	$0	$0	$0	$0	$0	$0	$0	$0
6	Materials (Eversource purchased)	$565,400	17.4%	10.6%	$166,000	$314,600	$84,800	$0	$0	$0	$0	$0	$0	$0	$0
7	Construction (incl matl's by contractors)	$1,392,800	42.8%	26.2%	$1,500	$697,800	$693,500	$0	$0	$0	$0	$0	$0	$0	$0
8	Testing / Commissioning	$716,600	22.0%	13.5%	$0	$175,200	$541,400	$0	$0	$0	$0	$0	$0	$0	$0
9	PMT Project Mgmt Team	$27,300	0.8%	0.5%	$1,000	$14,200	$12,100	$0	$0	$0	$0	$0	$0	$0	$0
10	Removals	$77,100	2.4%	1.5%	$0	$38,000	$39,100	$0	$0	$0	$0	$0	$0	$0	$0
11	Other	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	Risks	$381,000	11.7%	7.2%	$0	$228,000	$153,000	$0	$0	$0	$0	$0	$0	$0	$0
125	0	$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Directs Total w/Risks	**$3,253,200**	100.0%	61.2%	**$177,000**	**$1,534,200**	**$1,542,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
13	Indirects/Overhead	$1,705,300		32.1%	$28,000	$793,700	$883,600	$0	$0	$0	$0	$0	$0	$0	$0
14	AFUDC	$195,400		3.7%	$1,200	$89,100	$105,100	$0	$0	$0	$0	$0	$0	$0	$0
125	0	$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Baseline Budget	**$5,153,900**		97.0%	**$206,200**	**$2,417,000**	**$2,530,700**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
15	Contingency	$158,700		3.0%	$0	$78,500	$80,200	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Funding Approval Level	**$5,312,600**		100.0%	**$206,200**	**$2,495,500**	**$2,610,900**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
16	Reimbursables/Customer Contribution	$0			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total (less reimbursables)	**$5,312,600**			**$206,200**	**$2,495,500**	**$2,610,900**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Cost per key qty (if appl)	664,075 $'s / EA SIEMENS SDV6-27-25-1200													
	Amount of Escalation included above	$65 100			$0	$0	$65 100	$0	$0	$0	$0	$0	$0	$0	$0
6	Total materials - Eversource	$565.400			$166.000	$314.600	$84.800	$0	$0	$0	$0	$0	$0	$0	$0
	Total materials - Contractor	$22			$22	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total materials	$565 422			$166 022	$314 600	$84 800	$0	$0	$0	$0	$0	$0	$0	$0
	NOTE: Risk / Contingency is 11 3% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)														

	TOTAL w/ escal broken out
ROW / Easements / Land purchas	$ -
Environmental Approvals / Permi	$ -
Outreach	$ 5,300
Siting Approvals / Permits	$ -
Engineering / Design	$ 87,100
Materials (Eversource purchased	$ 564,100
Construction (incl matl's by cont	$ 1,372,600
Testing / Commissioning	$ 700,800
PMT Project Mgmt Team	$ 26,900
Removals	$ 75,900
Other	$ -
Risks	$ 381,000
	$3,213,700
Indirects/Overhead	$ 1,679,600
AFUDC	$ 195,400
	$ -
	$5,088,700
	$ -
Contingency	$ 158,600
	$5,247,300
	$ -
	$ -
	$5,247,300
	$ 65,100
Escal total	**$5,312,400**
Check total	-$200

Estimate Range

-25%	25%
$3,984,000	**$6,641,000**

COMMENTS

Project Scope:
Key qty's and UOM (tie to inputs on est sheets)

8 EA SIEMENS SDV6-27-25-1200

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT Station work

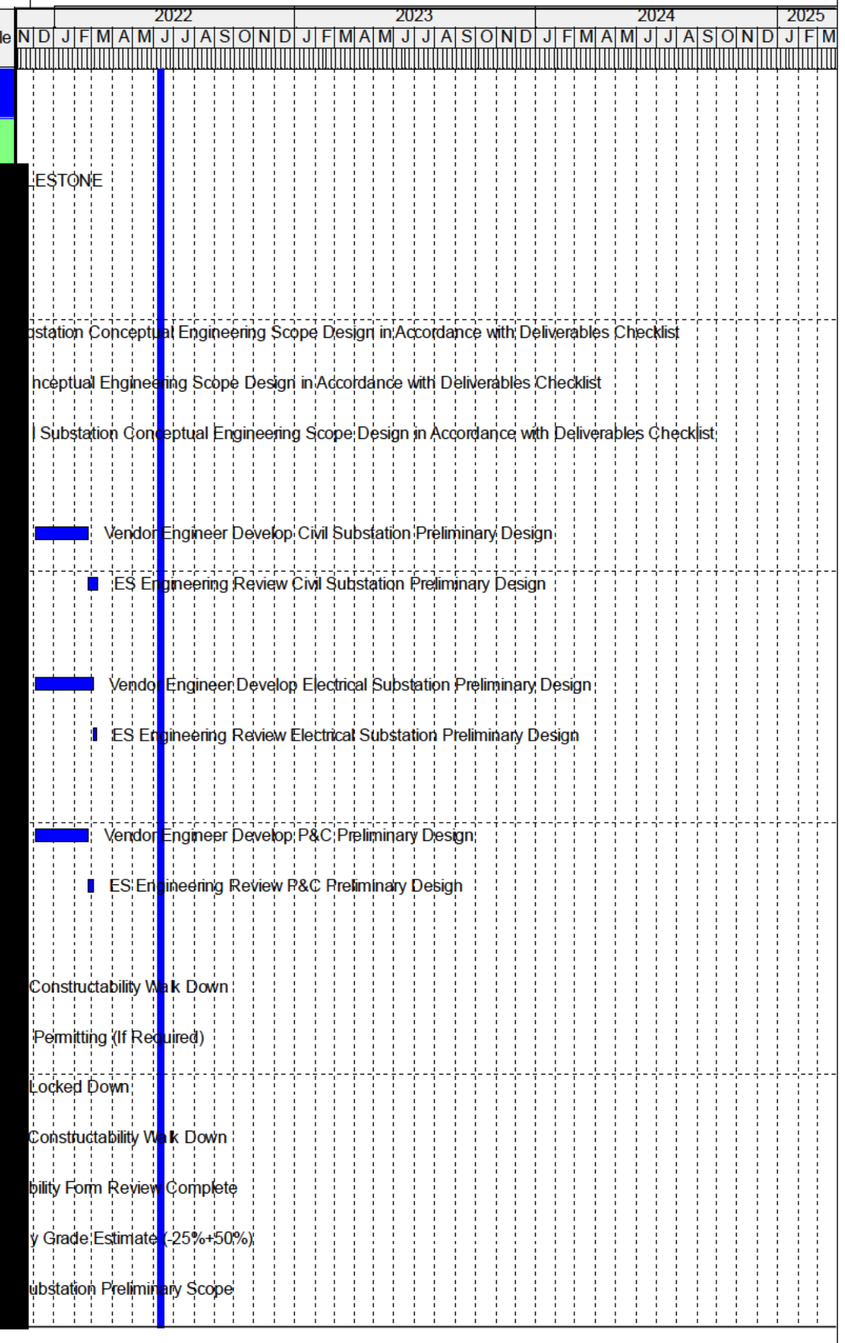
- Engineering to be outsourced with in-house review, construction and testing to be out-sourced with external resources.
- This estimate was developed with the use of existing breaker control conduits with no digging in existing soil.
- This estimate was developed utilizing the existing foundation, no new foundations were included in this estimate.
- Material estimates based on previous work, and vendor quotes.
- All new equipment will be installed within the confines of the existing fenced yard.
- No additional allowances have been added for aggressive outage recall times.
- Estimate includes risk for all new control cables to be installed in the event of failure during megger testing. This estimate includes addition risk if the switches due to long lead times are not here in time to take advantage of the OCB outages.

RISKS

1	Potential UG Obstructions	$ 30,000
2	Severe Weather Delays CT	$ 42,000
3	Design Development	$ 75,000
4	Delays / outages related to breaker energization plans	$ 140,000
5	Control Breaker Cables Failures	$ 56,000
6	Existing foundations and structures for switches not suitable for	$ 38,000
	0	

CSTXX-CONSTRUCTION	R	Prior Mhrs	Prior DOLLARS	2022 Mhrs	2022 DOLLARS	2023 Mhrs	2023 DOLLARS	2024 Mhrs	2024 DOLLARS	2025 Mhrs	2025 DOLLARS	2026 Mhrs	2026 DOLLARS	2027 Mhrs	2027 DOLLARS	2028 Mhrs	2028 DOLLARS	2029 Mhrs	2029 DOLLARS	2030 Mhrs	2030 DOLLARS	2031 Mhrs	2031 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
Electrical Construction	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
General Construction	LT	0	$1,472		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$1,472
SCADA / Automation	LT	0	$0		$8,400		$5,040	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$13,440
Telecom - Field	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Construction Reps (internal)	LT	0	$0		$43,080		$23,100	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$66,180
Support Switch/Tag	LT	0	$0		$0		$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
Other (specify)	LT	0	$0		$0		$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
Other (specify)	LT	0	$0		$0		$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
Other (specify)	LT	0	$0		$0		$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0		$0
LT Total		0	$1,472		$51,480		$28,140	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$81,092
Employee Expenses	AE	0	$0		$2,573		$1,407		$0		$0		$0		$0		$0		$0		$0		$0		$3,980
Construction Purchased Material	A	0	$0		$6,438		$6,438		$0		$0		$0		$0		$0		$0		$0		$0		$12,876
Outside Construction Vendor	A	0	$0		$643,785		$643,785	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$1,287,570
Sales tax on Const. Vendor		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Inspection services (Outside Vendor)	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Construction Insp (Outside vendor)	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Rents and Leases	B	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
CSTXX Subtotal		0	$1,472		$704,226		$679,780		$0		$0		$0		$0		$0		$0		$0		$0		$1,385,448
Escalation		0	$0																						$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
CSTXX Total		0	$1,472		$704,226		$679,780	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$1,385,448
ENRXX-TG ENGINEERING/DESIGN																									$0
Project Services/Drafting	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
T-Line Engineering/Design	LT	0			$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
D- Street Engineering/Design	LT	0	$0		$1,826		$968	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$2,904
Civil Engineering/Design	LT	0	$0		$3,485		$561		$0		$0		$0		$0		$0		$0		$0		$0		$4,066
Substation (T) Engineering/Design	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Substation (D) Engineering/Design	LT	$3,433			$3,780		$630	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$7,843
Protection & Controls Engineering	LT	$8,049			$6,804		$1,361	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$13,214
Survey Engineering	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
SCADA / Automation Engineering	LT	0	$0		$2,224		$2,224	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$4,448
Telecom Engineering	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Other - specify	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Other - specify	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
LT Total		0	$8,482		$18,229		$5,764	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$32,475
Employee Expenses	AE	0	$0		$811		$358		$0		$0		$0		$0		$0		$0		$0		$0		$1,169
Contractor Engineering - T-Lines	A	0	$0		$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - D-Street	A	0	$0		$9,954		$2,496		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$12,450
Contractor Engineering - T -Station	A	0	$0		$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - D-Station	A	0	$0		$11,304		$2,512		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$13,816
Contractor Engineering - P&C	A	0	$0		$23,364		$3,792		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$27,176
Contractor Engineering - Survey	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - SCADA / Automation	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Telecom	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Shop	A				$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Supply	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Supply	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Vehicles (now in Indirects section)	AV	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
ENRXX Subtotal		0	$8,482		$63,612		$14,883		$0		$0		$0		$0		$0		$0		$0		$0		$87,146
Escalation		0	$0																						$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
ENRXX Total		0	$8,482		$63,612		$14,883	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$87,146
LNDXX-TG LAND																								0	$0
Real Estate	LT	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Employee Expenses	AE	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
Purchase Land	A	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
Vehicles (now in Indirects section)	AV	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
Fees and Payments	BF	0	$0																					0	$0
LNDXX Subtotal		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
Escalation		0	$0																					0	$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
LNDXX Total		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
MATXX-TG MATERIAL																								0	$0
Eversource	AM	0	$188,022		$296,570		$74,142		$0		$0		$0		$0		$0		$0		$0		$0	0	$558,734
Outside Services	AM	0			$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
	AM																							0	$0
Freight		0	$0																					0	$0
Sales Tax Eversource/outside services	0.0	0	$0		$11,600		$2,900		$0		$0		$0		$0		$0		$0		$0		$0	0	$14,500
Other		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
MATXX Subtotal			$188,022		$308,170		$77,042		$0		$0		$0		$0		$0		$0		$0		$0	0	$581,234
Escalation		0	$0																					0	$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
MATXX Total			$188,022		$308,170		$77,042		$0		$0		$0		$0		$0		$0		$0		$0	0	$581,234
PSMXX-PROJECT MANAGER & SUPPORT																									$0
Project Management (PM)	LT	0	$754		$6,242		$6,242	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$11,218
Project Planning/Cost (PP)	LT	0	$0		$1,383		$1,383	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$2,766
Contracts/Purchasing (CP)	LT	0			$1,501		$1,501		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$3,002
System Planning	LT	0			$1,422		$1,422		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$2,844
Environmental	LT	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
SCS - Notification	LT	0	$0		$129		$134	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$263
Legal	LT				$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Estimating	LT	0	$147		$2,268		$0	0	$0	0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0		$2,415
Siting - None	LT	0			$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Asset Management	LT		$66		$1,588		$1,588		$0		$0		$0		$0		$0		$0		$0		$0		$3,274
Other -	LT	0			$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Other -	LT				$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Other -	LT	0			$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Other -	LT	0			$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
LT Total			$979		$13,633		$11,270	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$25,882
Employee Expenses	AE	0	$0		$952		$664	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$1,616
Project Support Vendor - PM	A	0		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - IP	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - CP	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - System Planning	A	0		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Environmental	A	0		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - SCS - Notification	A	0		0	$6,400	0	$6,640	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$6,400
Project Support Vendor - Legal	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Estimating	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Siting - None	A	0		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Asset Management	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Other	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Other	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Other	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Project Support Vendor - Other	A	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Vehicles (now in Indirects section)	AV	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Property or CWIP tax large proj. allowance	B	0			$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Builder' All risk insurance excluding deductables(if project is over $50m)	B	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Fees and Payments - Environmental	BF	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Fees and Payments - Siting	BF	0	$0	0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Fees and Payments - Other	BF	0	$0	0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
PSMXX Subtotal			$979		$18,785		$14,374		$0		$0		$0		$0		$0		$0		$0		$0		$32,118
Escalation		0	$0																						$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
PSMXX Total			$979		$18,785		$14,374	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$32,118
REMXX-TG REMOVAL																									$0
Engineering/Design	LT	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Internal Construction	LT	0	$0		$33,004		$33,004	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$66,008
LT Total		0	$0		$33,004		$33,004		$0		$0		$0		$0		$0		$0		$0		$0		$66,008
Employee Expenses	AE	0	$0		$4,951		$4,951		$0		$0		$0		$0		$0		$0		$0		$0		$9,902
Outside Services	A	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Contractor Labor	A	0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Vehicles (now in Indirects section)	AV	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Rents and Leases	B	0	$0																						$0
REMXX Subtotal			$0		$37,955		$37,955		$0		$0		$0		$0		$0		$0		$0		$0		$75,910
Escalation		0	$0																						$0
		0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
REMXX Total			$0		$37,955		$37,955	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$75,910
TSTXX-TG TEST																									$0
Test / Field Engr. Labor (In House)	LT		$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Lead Commissioning Engr. (LCE) (Internal)	LT		$0		$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Employee Expense	AE		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Test / Field Engr. Labor (contractor)	A		$0		$111,000		$333,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$444,000
Lead Commissioning Engr. (LCE) (contractor)	A		$0		$64,200		$192,600	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$256,800
Vehicles (now in Indirects section)	AV	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
TSTXX Subtotal			$0		$175,200		$525,600		$0		$0		$0		$0		$0		$0		$0		$0		$700,800
Escalation		0	$0																						$0
	0%	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
TSTXX Total			$0		$175,200		$525,600	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$700,800
SUBTOTAL PROJECT DIRECT COST		-	$179,955		$1,396,128		$1,349,573	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$2,852,469
Risk																									$0
Risk					$228,000		$153,000		$0		$0		$0		$0		$0		$0		$0		$0		$381,000
				0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$0
				0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$0
Risk Total			$0		$228,000		$153,000		$0		$0		$0		$0		$0		$0		$0		$0		$381,000
TOTAL PROJECT DIRECT COST (w risk)		-	$179,955		$1,624,128		$1,502,573	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$3,233,469
INDIRECTS																									
Non-Productive Time Allocation (ZNP)	17.0%	0	$1,810		$19,774		$13,290		$0		$0		$0		$0		$0		$0		$0		$0		$34,874
Payroll Benefits Allocation (ZPB) incl NPT	44.0%	0	$17		$43,477		$31,477		$0		$0		$0		$0		$0		$0		$0		$0		$74,971
Gen SVC OO Overhead (ZSVB) incl NPT	80.0%	0	$7,815		$29,822		$15,944		$0		$0		$0		$0		$0		$0		$0		$0		$53,583
S&A Allocations (ZSB,ZBL,ZEB)	50.0%	0	$14,326		$637,739		$559,787		$0		$0		$0		$0		$0		$0		$0		$0		$1,211,851
AS&E Allocations (ZAB)	1.8%	0	$2,043		$24,212		$25,876		$0		$0		$0		$0		$0		$0		$0		$0		$52,131
Stores Expense Allocation (ZST)	8.0%	0	$0		$23,736		$5,931		$0		$0		$0		$0		$0		$0		$0		$0		$29,667
Lobby Stock	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
MOEC (ZMI)	6.0%	0	$1,843		$62,416		$63,675		$0		$0		$0		$0		$0		$0		$0		$0		$127,934
Vehicles (ZMI)	28.0%	0	$139		$22,586		$21,890		$0		$0		$0		$0		$0		$0		$0		$0		$44,615
	0.0%	0	$0		$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0		$0
Indirects Subtotal			$28,011		$863,757		$767,869		$0		$0		$0		$0		$0		$0		$0		$0	0	$1,629,626
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)			$204,966		$2,527,885		$2,360,489	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$4,885,354
AFUDC																									$0
																									$0
AFUDC (ZK)			$1,220	0.50%	$69,068	0.50%	$105,132	0.50%	$0	0.50%	$0	0.50%	$0	0.50%	$0	0.50%	$0	0.50%	$0	0.50%	$0	0.50%	$0	1	$105,410
In Service Dollars					$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0
Cumulative ISS					-		-		-		-		-		-		-		-		-		-	0	$0
AFUDC Subtotal			$1,220		$69,068		$105,132		$0		$0		$0		$0		$0		$0		$0		$0		$105,410
TOTAL PROJECT COST - Baseline Budget			$206,186		$2,416,953		$2,466,886		$0		$0		$0		$0		$0		$0		$0		$0		$4,889,894
Contingency																									$0
Contingency			$0		$78,485		$80,168		$0		$0		$0		$0		$0		$0		$0		$0		$158,653
Other			$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$0
Contingency SubTotal			$0		$78,485		$80,168		$0		$0		$0		$0		$0		$0		$0		$0		$158,653
TOTAL PROJECT COST - Approved Funding			$206,186		$2,495,388		$2,546,783		$0		$0		$0		$0		$0		$0		$0		$0		$5,047,327
Reimbursables / Customer Contribution																									$0
Reimbursables / Customer Contribution (enter as negative)			$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$0
	0.0%		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	0	$0

Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004141 E Hartford 32G OCB Replacement Program Release (8) (RLC) 9 (CS0041			03-Nov-20 A	640	23-Aug-23		
CS004141.01 INITIALIZATION AND SCOPE DEVELOPEMENT			08-Feb-21 A	516	01-Mar-23		
	START	SCHEDULE START MILESTONE	08-Feb-21 A	0			
CS004141.01.09 Project Initiation			11-Feb-21 A	361	14-Jul-22		
CS004141.01.09.00 Engineering Scope Development			05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1000	N/R Develop Civil Substation Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1400	N/R Develop P&C Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1100	N/R Develop Electrical Substation Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
CS004141.01.09.01 Civil Engineering Preliminary Design			03-Dec-21 A	67	09-Mar-22 A		
V-PRELIM	DE2010	Vendor Engineer Develop Civil Substation Preliminary Design	03-Dec-21 A	55	23-Feb-22 A		
ES-PRELIM	DE2020	ES Engineering Review Civil Substation Preliminary Design	24-Feb-22 A	10	09-Mar-22 A		
CS004141.01.09.02 Electrical Engineering Preliminary Design			03-Dec-21 A	69	07-Mar-22 A		
V-PRELIM	DE2030	Vendor Engineer Develop Electrical Substation Preliminary Design	03-Dec-21 A	55	01-Mar-22 A		
ES-PRELIM	DE2040	ES Engineering Review Electrical Substation Preliminary Design	02-Mar-22 A	10	07-Mar-22 A		
CS004141.01.09.06 P&C Engineering Preliminary Design			03-Dec-21 A	69	03-Mar-22 A		
V-PRELIM	DE2090	Vendor Engineer Develop P&C Preliminary Design	03-Dec-21 A	55	23-Feb-22 A		
ES-PRELIM	DE2100	ES Engineering Review P&C Preliminary Design	24-Feb-22 A	10	03-Mar-22 A		
CS004141.01.09.2 EPAC Partial Funding			01-Mar-21 A	66	07-Apr-21 A		
	CE1521	Schedule Preliminary Constructability Walk Down	01-Mar-21 A	5	05-Mar-21 A		
	CE1530	N/R - Review Siting & Permitting (If Required)	01-Mar-21 A	5	05-Mar-21 A		
	CE1540	Preliminary ISD Date Locked Down	01-Mar-21 A	5	05-Mar-21 A		
	CE1522	Conduct Preliminary Constructability Walk Down	05-Mar-21 A	5	11-Mar-21 A		
Construct	CE1524	Release Constructability Form Review Complete	22-Mar-21 A	5	24-Mar-21 A		
EST-PART	CE1550	Develop Preliminary Grade Estimate (-25%+50%)	22-Mar-21 A	6	07-Apr-21 A		
Scope Comp	CE1510	Develop Electrical Substation Preliminary Scope	24-Mar-21 A	5	24-Mar-21 A		



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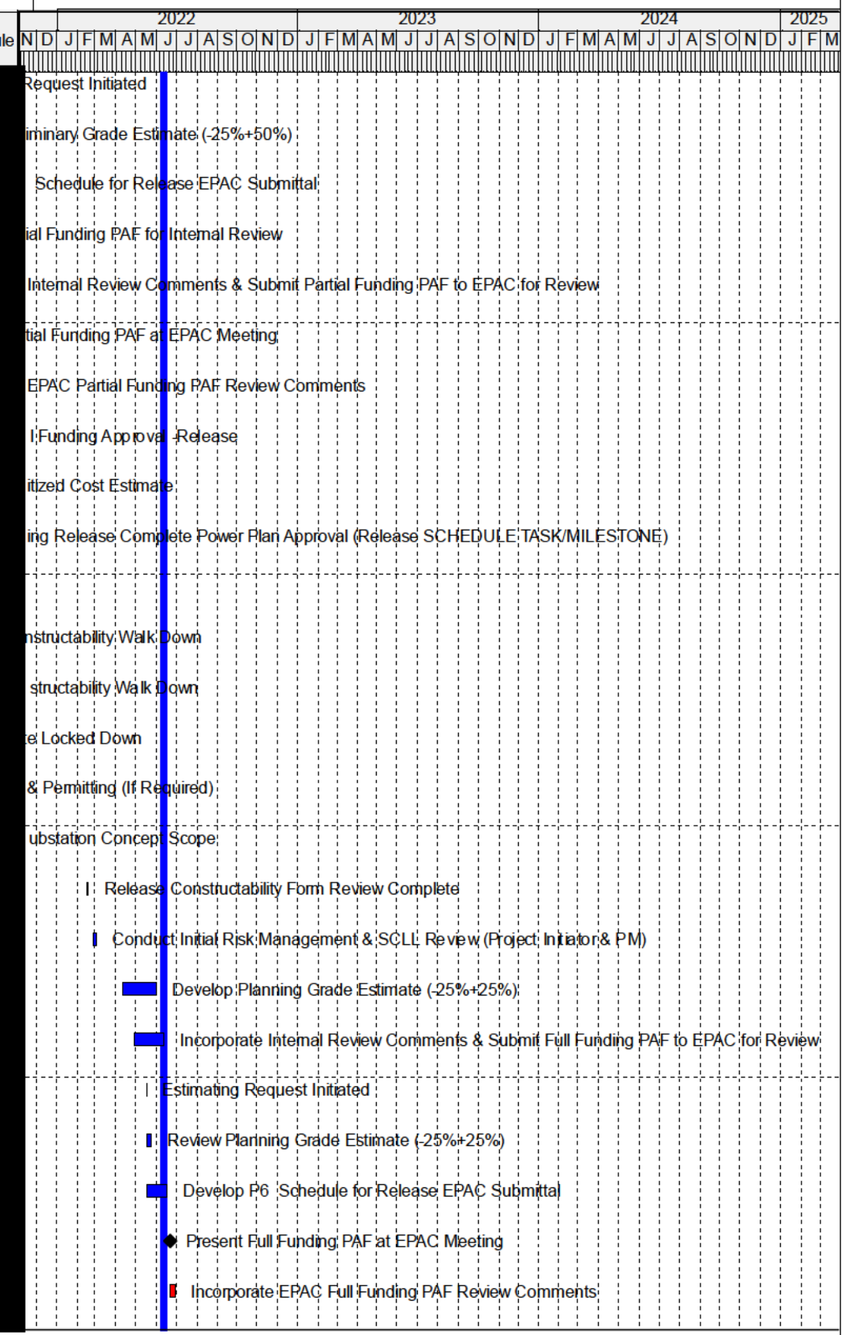
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	CE1551	N/R - Estimating Request Initiated	07-Apr-21 A	3	07-Apr-21 A		
	CE1552	N/R - Review Preliminary Grade Estimate (-25%+50%)	07-Apr-21 A	5	07-Apr-21 A		
	CE1541	N/R - Develop P6 Schedule for Release EPAC Submittal	07-Apr-21 A	5	07-Apr-21 A		
	PAPF1510	N/R - Submit Partial Funding PAF for Internal Review	07-Apr-21 A	3	07-Apr-21 A		
	PAPF1511	N/R - Incorporate Internal Review Comments & Submit Partial Funding PAF to EPAC for Review	07-Apr-21 A	3	07-Apr-21 A		
	PAPF1512	N/R - Present Partial Funding PAF at EPAC Meeting	07-Apr-21 A	1	07-Apr-21 A		
	PAPF1513	N/R - Incorporate EPAC Partial Funding PAF Review Comments	07-Apr-21 A	3	07-Apr-21 A		
EPAC-P	PAPF1514	N/R - EPAC Partial Funding Approval -Release	07-Apr-21 A	10	07-Apr-21 A		
EST-PART	CE1562	N/R - Develop Unitized Cost Estimate	07-Apr-21 A	5	07-Apr-21 A		
PPA-PF	FPR1515	N/R - Partial Funding Release Complete Power Plan Approval (Release SCHEDULE TASK/MILESTONE)		0	07-Apr-21 A		
CS004141.01.09.4 EPAC Full Funding			11-Feb-21 A	358	14-Jul-22		
	DE1421	Schedule Planning Constructability Walk Down	11-Feb-21 A	5	11-Feb-21 A		
	DE1422	Conduct Planning Constructability Walk Down	17-Feb-21 A	1	17-Feb-21 A		
	DE1440	Preliminary ISD Date Locked Down	01-Mar-21 A	5	19-Mar-21 A		
	DE1430	N/R - Review Siting & Permitting (If Required)	15-Mar-21 A	5	15-Mar-21 A		
	DE1410	Develop Electrical Substation Concept Scope	18-Mar-21 A	5	19-Mar-21 A		
Construct	DE1424	Release Constructability Form Review Complete	17-Feb-22 A	1	17-Feb-22 A		
	DE1400	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM)	25-Feb-22 A	3	01-Mar-22 A		
EST-FULL	DE1450	Develop Planning Grade Estimate (-25%+25%)	11-Apr-22 A	10	01-Jun-22 A		
PAF Submit	PAFF1411	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	28-Apr-22 A	6	13-Jun-22 A		
	DE1451	Estimating Request Initiated	17-May-22 A	1	17-May-22 A		
	DE1452	Review Planning Grade Estimate (-25%+25%)	17-May-22 A	10	25-May-22 A		
	DE1441	Develop P6 Schedule for Release EPAC Submittal	18-May-22 A	5	16-Jun-22 A		
EPAC-F	PAFF1412	Present Full Funding PAF at EPAC Meeting		0	22-Jun-22*		
	PAFF1413	Incorporate EPAC Full Funding PAF Review Comments	23-Jun-22	5	29-Jun-22		



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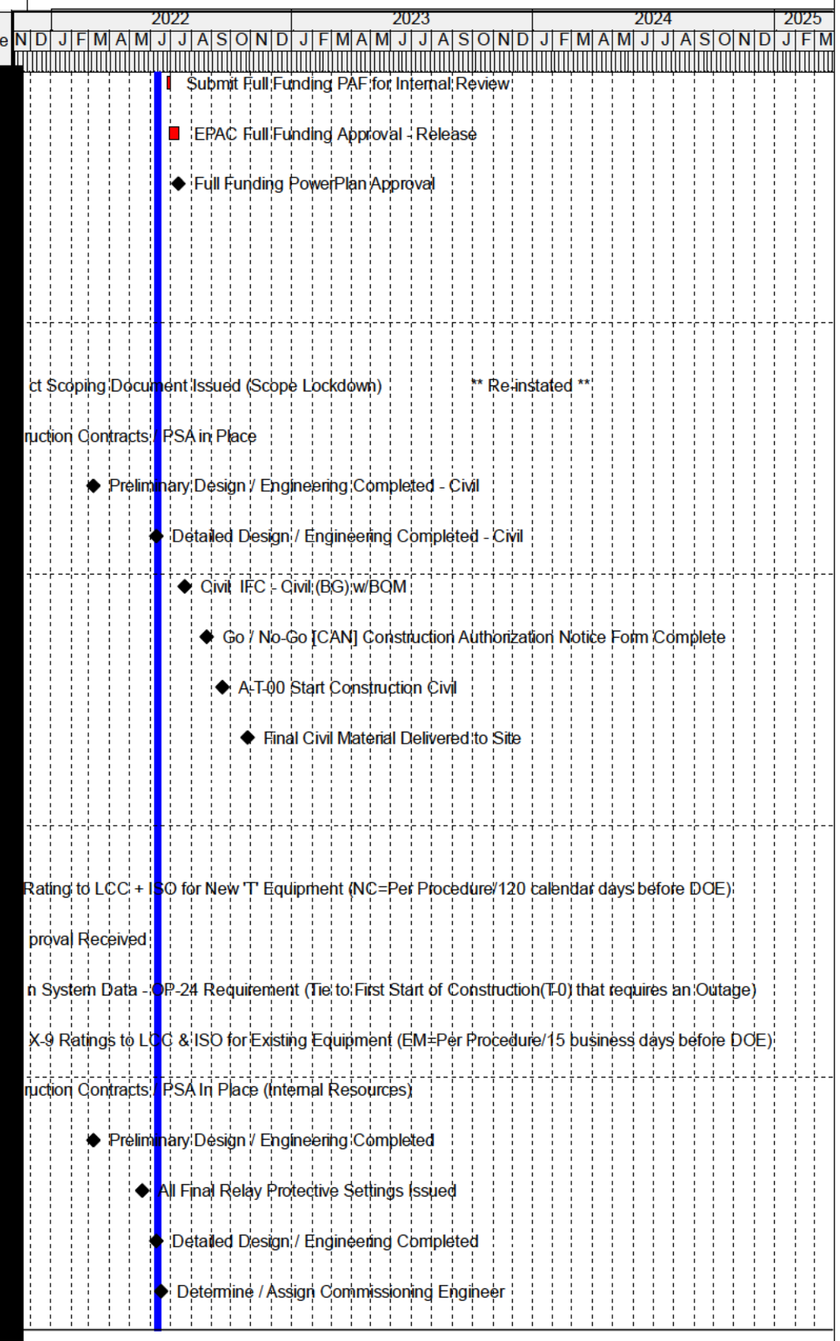
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	PAFF1410	Submit Full Funding PAF for Internal Review	27-Jun-22	5	01-Jul-22		
	PAFF1414	EPAC Full Funding Approval - Release	30-Jun-22	10	14-Jul-22		
PPA-FF	FFR1415	Full Funding PowerPlan Approval		0	14-Jul-22		
CS004141.01.1 T-Minus Milestones			09-Mar-21 A	452	01-Mar-23		
CS004141.01.1.01 Civil T-Minus Milestones			19-Mar-21 A	535	26-Oct-22		
CS004141.01.1.01.01 T-Minus Milestones Civil			19-Mar-21 A	535	26-Oct-22		
ENG-SCOPE	AT3001	A-T-30.01 Engr Project Scoping Document Issued (Scope Lockdown) ** Re-instated **		0	19-Mar-21 A		
	AT0814	Construction Contracts / PSA in Place		0	23-Aug-21 A		
ENG-PRELIM	AT2605	Preliminary Design / Engineering Completed - Civil		0	07-Mar-22 A		
ENG-DTL	AT1811	Detailed Design / Engineering Completed - Civil		0	10-Jun-22 A		
BG-IFC	AT0805C	Civil IFC - Civil (BG) w/BOM		0	22-Jul-22		
	AT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete		0	26-Aug-22		
SOC	AT00	A-T-00 Start Construction Civil	18-Sep-22*	0			
	AT0401	Final Civil Material Delivered to Site		0	26-Oct-22		
CS004141.01.1.02 Electrical T-Milestones			09-Mar-21 A	452	01-Mar-23		
CS004141.01.1.02.01 T-Minus Milestones Electrical Group 1			09-Mar-21 A	424	19-Jan-23		
	BT1805	N/R A-T-18.05 NX-9 Rating to LCC + ISO for New 'T' Equipment (NC=Per Procedure/120 calendar days before DOE)		0	09-Mar-21 A		
	BT1003	N/R - PPA (I.3.9) Approval Received		0	29-Mar-21 A		
	BT0901	N/R - T-09 Protection System Data - OP-24 Requirement (Tie to First Start of Construction(T-0) that requires an Outage)		0	29-Mar-21 A		
	BT0301	T-03 NX-9 Ratings to LCC & ISO for Existing Equipment (EM=Per Procedure/15 business days before DOE)		0	23-Aug-21 A		
	BT0814	Construction Contracts / PSA In Place (Internal Resources)		0	23-Aug-21 A		
ENG-PRELIM	BT2605	Preliminary Design / Engineering Completed		0	07-Mar-22 A		
	BT0404	All Final Relay Protective Settings Issued		0	19-May-22 A		
ENG-DTL	BT1811	Detailed Design / Engineering Completed		0	10-Jun-22 A		
	BT2404	Determine / Assign Commissioning Engineer		0	16-Jun-22		



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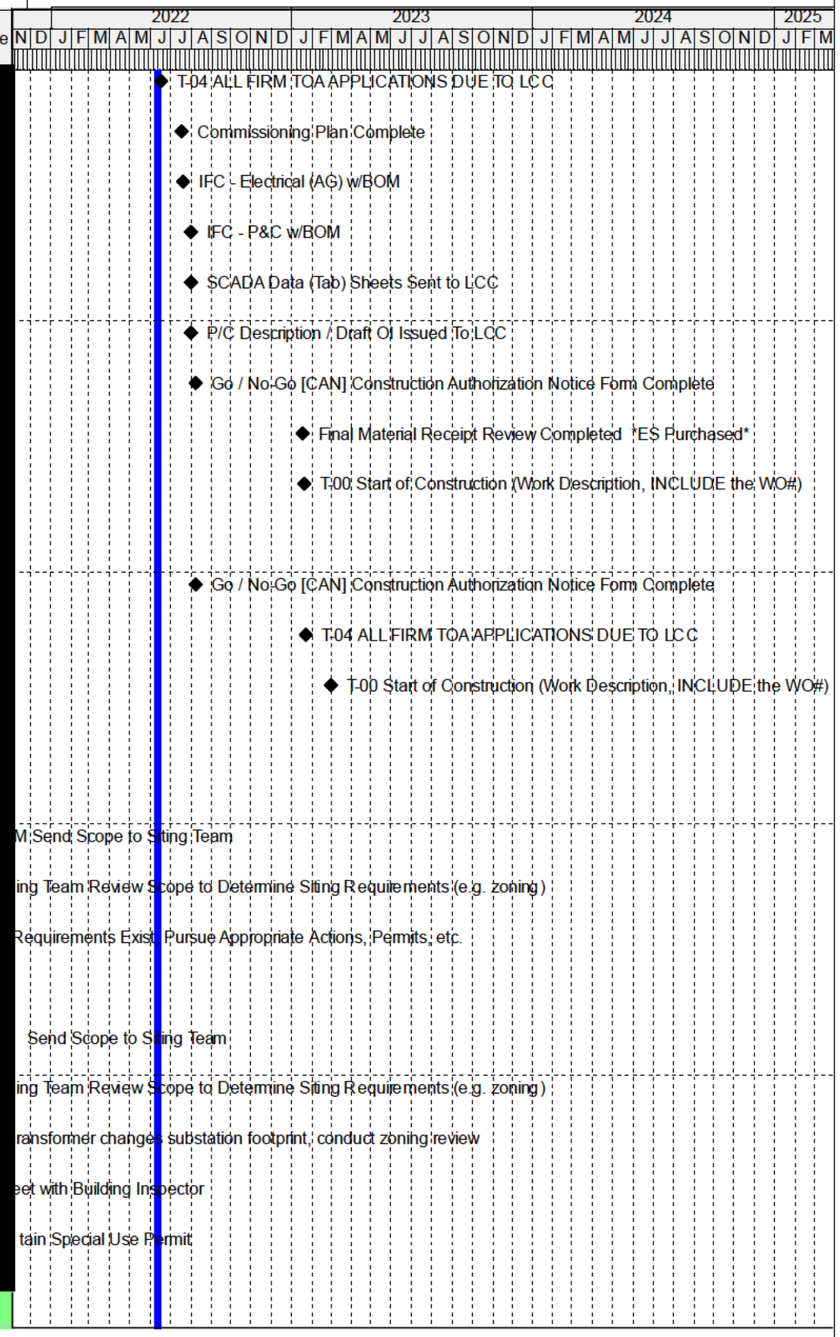
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources
	BT0409	T-04 ALL FIRM TOA APPLICATIONS DUE TO LCC		0	17-Jun-22*	
	BT1301	Commissioning Plan Complete		0	19-Jul-22	
AG-IFC	BT0805E	IFC - Electrical (AG) w/BOM		0	21-Jul-22	
ENG-IFC	BT0805P	IFC - P&C w/BOM		0	01-Aug-22	
	BT1201	SCADA Data (Tab) Sheets Sent to LCC		0	01-Aug-22	
	BT1202	P/C Description / Draft OI Issued To LCC		0	01-Aug-22	
	BT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete		0	08-Aug-22	
	BT0401	Final Material Receipt Review Completed *ES Purchased*		0	18-Jan-23	
SOC	BT00	T-00 Start of Construction (Work Description, INCLUDE the WO#)	19-Jan-23*	0		
CS004141.01.1.02.1 T-Minus Milestones Electrical Group 2			08-Aug-22	204	01-Mar-23	
	CT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete		0	08-Aug-22	
	CT0409	T-04 ALL FIRM TOA APPLICATIONS DUE TO LCC		0	23-Jan-23*	
SOC	CT00	T-00 Start of Construction (Work Description, INCLUDE the WO#)	01-Mar-23*	0		
CS004141.04 SITING APPROVALS AND PERMITS			09-Mar-21 A	50	09-Mar-21 A	
CS004141.04.01 PERMITTING - Local - Short Form			09-Mar-21 A	45	09-Mar-21 A	
	A3590	N/R - Permitting - PM Send Scope to Siting Team	09-Mar-21 A	5	09-Mar-21 A	[redacted]
	A3600	N/R -Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting Generic
	A3610	N/R -Permitting - If Requirements Exist, Pursue Appropriate Actions, Permits, etc.	09-Mar-21 A	30	09-Mar-21 A	Siting and Permitting Generic
CS004141.04.02 PERMITTING - Local - Long Form			09-Mar-21 A	50	09-Mar-21 A	
	A3620	N/R -Permitting - PM Send Scope to Siting Team	09-Mar-21 A	5	09-Mar-21 A	[redacted]
	A3630	N/R -Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting Generic
	A3640	N/R -Permitting - If transformer changes substation footprint, conduct zoning review	09-Mar-21 A	5	09-Mar-21 A	Siting and Permitting Generic
	A3650	N/R -Permitting - Meet with Building Inspector	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting Generic
	A3660	N/R -Permitting - Obtain Special Use Permit	09-Mar-21 A	20	09-Mar-21 A	Siting and Permitting Generic
CS004141.05 Engineering & Design			03-Nov-20 A	576	06-Jun-23	



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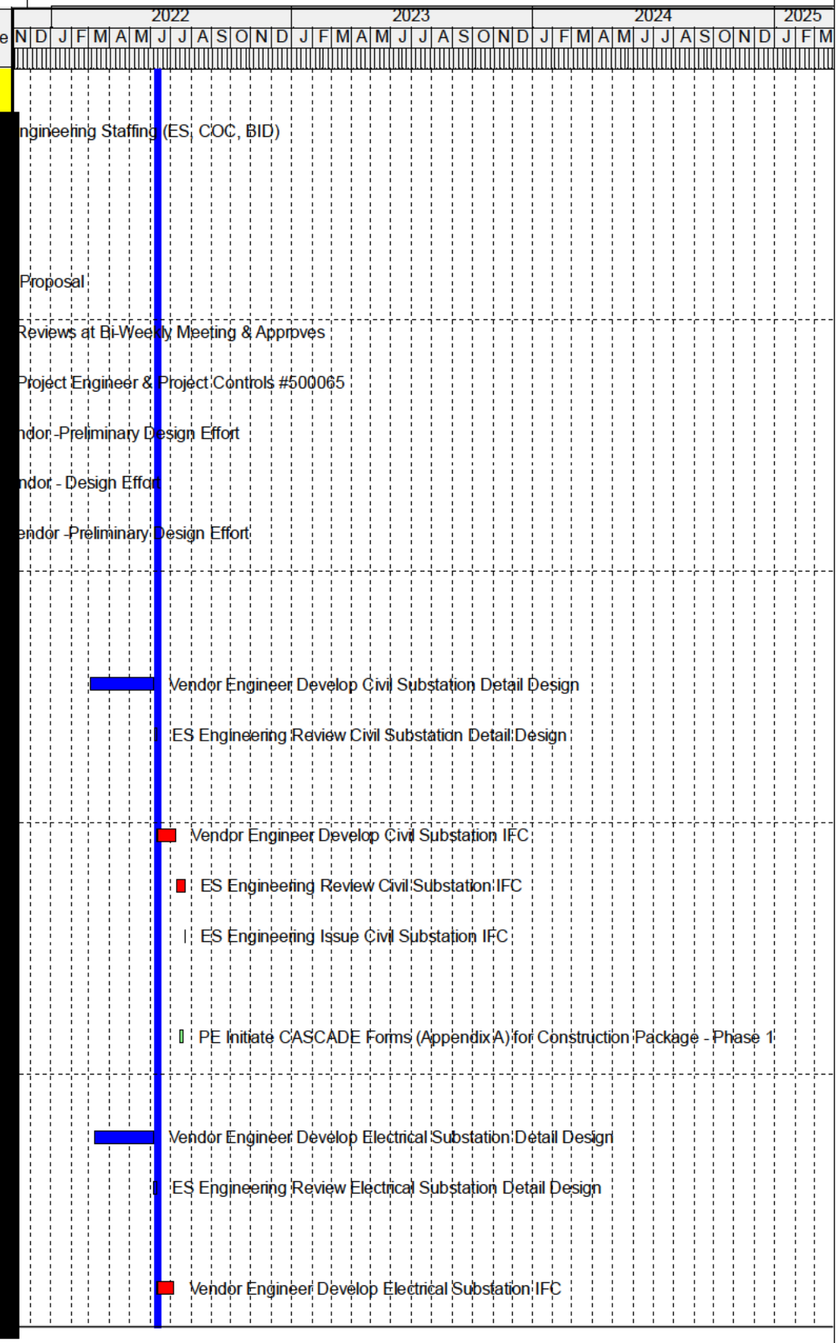
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004141.05.00 Engineering Services Staffing			03-Nov-20 A	70	03-Feb-21 A		
	A3370	Decision Required Regarding Engineering Staffing (ES, COC, BID)	03-Nov-20 A	1	04-Nov-20 A		
CS004141.05.00.02 EOC - Engineer of Choice Process			03-Nov-20 A	70	03-Feb-21 A		
	TMP1140	EOC- Provide RFP to Vendors	03-Nov-20 A	2	04-Nov-20 A		
	TMP1150	EOC- Vendors Responds with Proposal	05-Nov-20 A	5	18-Nov-20 A	RLC Engineerin	
	TMP1180	EOC- EOC Committee Reviews at Bi-Weekly Meeting & Approves	26-Jan-21 A	1	26-Jan-21 A		
	TMP1200	EOC- DR Prepared by Project Engineer & Project Controls #500065	29-Jan-21 A	3	03-Feb-21 A		
	TMP1220	EOC- PO Issued for Vendor -Preliminary Design Effort	01-Feb-21 A	10	03-Feb-21 A	Purchasing Departmen	
	TMP1240	EOC- CO Issued for Vendor - Design Effort	01-Feb-21 A	10	03-Feb-21 A	Purchasing Departmen	
	TMP1250	EOC- NTP Issued for Vendor -Preliminary Design Effort	01-Feb-21 A	4	03-Feb-21 A	Purchasing Departmen	
CS004141.05.01 Civil Engineering			01-Mar-22 A	102	22-Jul-22		
CS004141.05.01.01 Civil Engineering Detail Design			01-Mar-22 A	79	10-Jun-22 A		
V-DTL	CE1200	Vendor Engineer Develop Civil Substation Detail Design	01-Mar-22 A	30	06-Jun-22 A	RLC Engineerin	
ES-DTL	CE1210	ES Engineering Review Civil Substation Detail Design	07-Jun-22 A	10	10-Jun-22 A		
CS004141.05.01.02 Civil Engineering IFC Design			10-Jun-22 A	30	22-Jul-22		
V-IFC	CE1300	Vendor Engineer Develop Civil Substation IFC	10-Jun-22 A	25	08-Jul-22	RLC Engineerin	
	CE1310	ES Engineering Review Civil Substation IFC	11-Jul-22	10	22-Jul-22		
ES-IFC	CE1320	ES Engineering Issue Civil Substation IFC	22-Jul-22	1	22-Jul-22		
CS004141.05.02 Electrical Engineering			28-Jul-21 A	466	06-Jun-23		
CASCADE	CSD1000	PE Initiate CASCADE Forms (Appendix A) for Construction Package - Phase 1	15-Jul-22	5	21-Jul-22		
CS004141.05.02.01 Electrical Engineering Detail Design			09-Mar-22 A	67	10-Jun-22 A		
V-DTL	EE1200	Vendor Engineer Develop Electrical Substation Detail Design	09-Mar-22 A	30	06-Jun-22 A	RLC Engineerin	
ES-DTL	EE1210	ES Engineering Review Electrical Substation Detail Design	06-Jun-22 A	5	10-Jun-22 A		
CS004141.05.02.02 Electrical Engineering IFC Design			10-Jun-22 A	29	21-Jul-22		
V-IFC	EE1300	Vendor Engineer Develop Electrical Substation IFC	10-Jun-22 A	25	07-Jul-22	RLC Engineerin	



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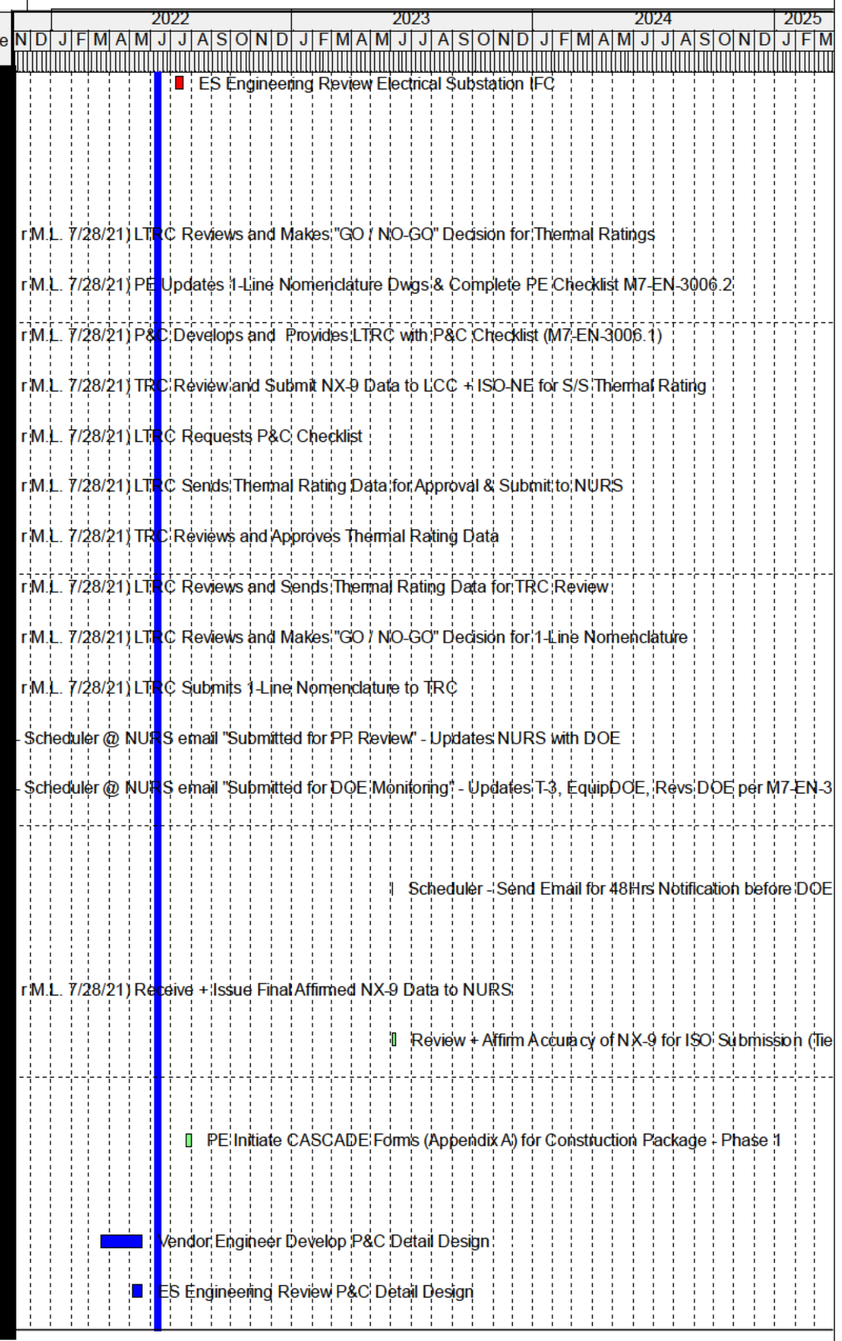
ES-IFC	EE1310	ES Engineering Review Electrical Substation IFC	08-Jul-22	10	21-Jul-22		
CS004141.05.02.1 Substation NX9 For Existing Equipment			28-Jul-21 A	466	06-Jun-23		
CS004141.05.02.1.01 Substation - Preliminary Thermal Data			28-Jul-21 A	19	23-Aug-21 A		
	NX9A-NC07	N/R (per M.L. 7/28/21) LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC01	N/R (per M.L. 7/28/21) PE Updates 1-Line Nomenclature Dwgs & Complete PE Checklist M7-EN-3006.2	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC11	N/R (per M.L. 7/28/21) P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1)	28-Jul-21 A	1	28-Jul-21 A		
NX-9	NX9A-NC21	N/R (per M.L. 7/28/21) TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC09	N/R (per M.L. 7/28/21) LTRC Requests P&C Checklist	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC17	N/R (per M.L. 7/28/21) LTRC Sends Thermal Rating Data for Approval & Submit to NURS	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC15	N/R (per M.L. 7/28/21) TRC Reviews and Approves Thermal Rating Data	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC13	N/R (per M.L. 7/28/21) LTRC Reviews and Sends Thermal Rating Data for TRC Review	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC03	N/R (per M.L. 7/28/21) LTRC Reviews and Makes "GO / NO-GO" Decision for 1-Line Nomenclature	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC05	N/R (per M.L. 7/28/21) LTRC Submits 1-Line Nomenclature to TRC	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC19	N/R - Scheduler @ NURS email "Submitted for PP Review" - Updates NURS with DOE	23-Aug-21 A	1	23-Aug-21 A		
	NX9A-NC23	N/R - Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006	23-Aug-21 A	1	23-Aug-21 A		
CS004141.05.02.1.03 Substation - NX-9 Pre NX9-DOE			02-Jun-23	1	02-Jun-23		
	NX9500	Scheduler - Send Email for 48Hrs Notification before DOE.	02-Jun-23	1	02-Jun-23		
CS004141.05.02.1.04 Substation - NX-9 Post NX9-DOE/ISD			28-Jul-21 A	466	06-Jun-23		
	NX9FINAL60	N/R (per M.L. 7/28/21) Receive + Issue Final Affirmed NX-9 Data to NURS	28-Jul-21 A	1	28-Jul-21 A		
	NX9FINAL50	Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD)	02-Jun-23	3	06-Jun-23		
CS004141.05.06 P&C Engineering			12-Apr-21 A	329	01-Aug-22		
CASCADE	CSD1030	PE Initiate CASCADE Forms (Appendix A) for Construction Package - Phase 1	26-Jul-22	5	01-Aug-22		
CS004141.05.06.01 P&C Engineering Detail Design			18-Mar-22 A	45	20-May-22 A		
V-DTL	PC1100	Vendor Engineer Develop P&C Detail Design	18-Mar-22 A	30	20-May-22 A		
ES-DTL	PC1110	ES Engineering Review P&C Detail Design	06-May-22 A	10	19-May-22 A		



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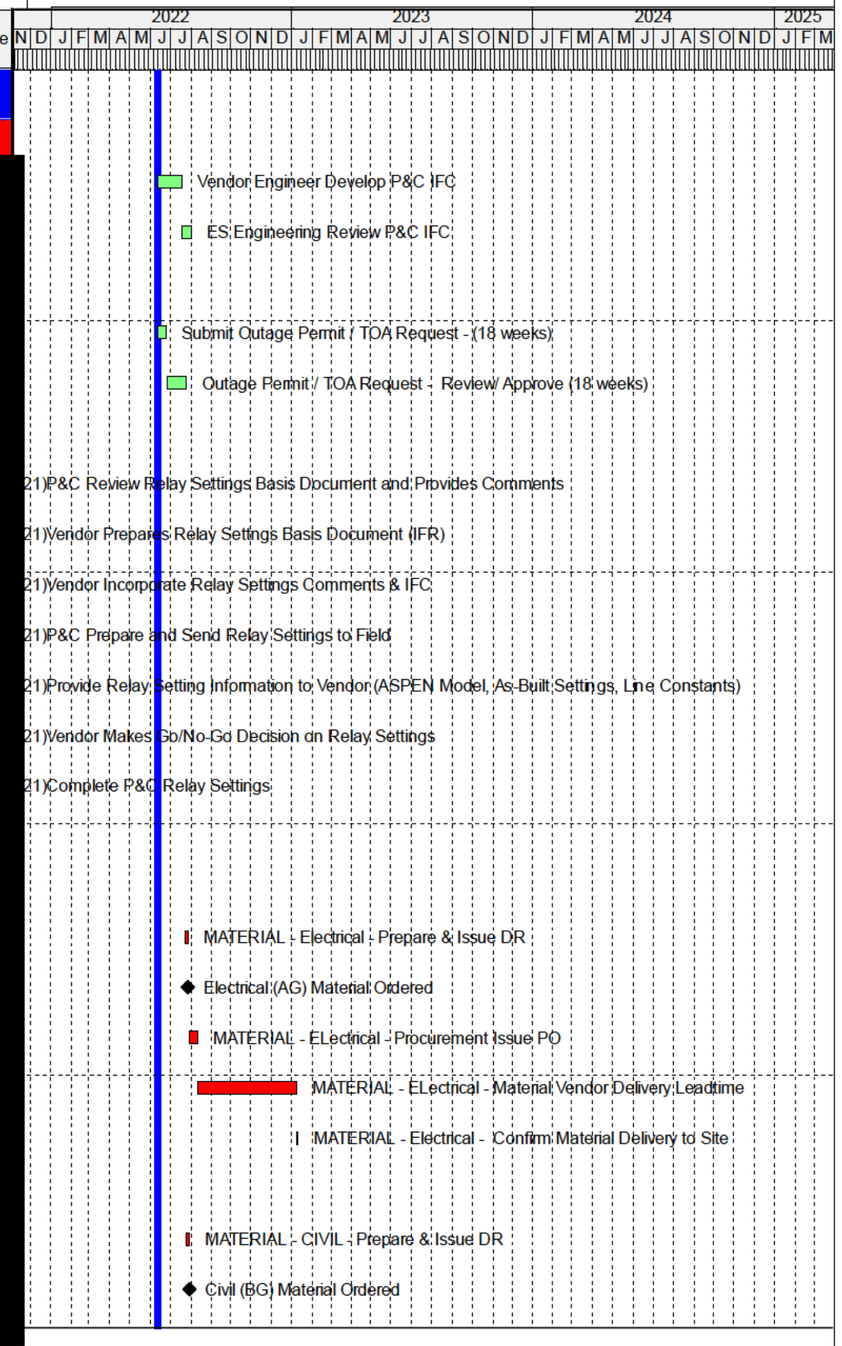
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004141.05.06.02 P&C Engineering IFC Design			12-Apr-21 A	329	01-Aug-22		
CS004141.05.06.02.03 P&C Design Package			13-Jun-22	35	01-Aug-22		
V-IFC	PC1320	Vendor Engineer Develop P&C IFC	13-Jun-22	25	18-Jul-22		
	PC1330	ES Engineering Review P&C IFC	19-Jul-22	10	01-Aug-22		
CS004141.05.06.02.03.1 Outage Permit Process			13-Jun-22	30	25-Jul-22		
	OPERM1000	Submit Outage Permit / TOA Request - (18 weeks)	13-Jun-22*	10	24-Jun-22		
	OPERM1010	Outage Permit / TOA Request - Review/ Approve (18 weeks)	27-Jun-22*	20	25-Jul-22		
CS004141.05.06.02.01 Relay Settings			12-Apr-21 A	1	12-Apr-21 A		
	A7420	N/R (per TP-4/12/21)P&C Review Relay Settings Basis Document and Provides Comments	12-Apr-21 A	1	12-Apr-21 A		
	A7540	N/R (per TP-4/12/21)Vendor Prepares Relay Settngs Basis Document (IFR)	12-Apr-21 A	1	12-Apr-21 A		
V-RSET	A7500	N/R (per TP-4/12/21)Vendor Incorporate Relay Settings Comments & IFC	12-Apr-21 A	1	12-Apr-21 A		
ES-RSET	A7440	N/R (per TP-4/12/21)P&C Prepare and Send Relay Settings to Field	12-Apr-21 A	1	12-Apr-21 A		
	A7550	N/R (per TP-4/12/21)Provide Relay Setting Information to Vendor (ASPEN Model, As-Built Settings, Line Constants)	12-Apr-21 A	1	12-Apr-21 A		
	A7551	N/R (per TP-4/12/21)Vendor Makes Go/No-Go Decision on Relay Settings	12-Apr-21 A	1	12-Apr-21 A		
	PC1400	N/R (per TP-4/12/21)Complete P&C Relay Settings		0	12-Apr-21 A		
CS004141.06 Material Procurement			20-Sep-21 A	338	08-Apr-23		
CS004141.06.2 Material - Electrical			22-Jul-22	116	09-Jan-23		
DR-RM	DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	22-Jul-22	5	28-Jul-22		
DR-AGMAT	DSSE-530	Electrical (AG) Material Ordered		0	28-Jul-22		
	DSSE-1020	MATERIAL - ELectrical - Procurement Issue PO	29-Jul-22	10	11-Aug-22	Purchasing Departmen	
	DSSE-1030	MATERIAL - ELectrical - Material Vendor Delivery Leadtime	12-Aug-22	150	08-Jan-23	Material Coordinator	
M-DELIV	DSSE-550	MATERIAL - Electrical - Confirm Material Delivery to Site	09-Jan-23	1	09-Jan-23	Material Coordinator	
CS004141.06.3 Material - Civil			25-Jul-22	66	26-Oct-22		
DR-RM	DSSE-500	MATERIAL - CIVIL - Prepare & Issue DR	25-Jul-22	5	29-Jul-22		
DR-BGMAT	DSSE-540	Civil (BG) Material Ordered		0	29-Jul-22		



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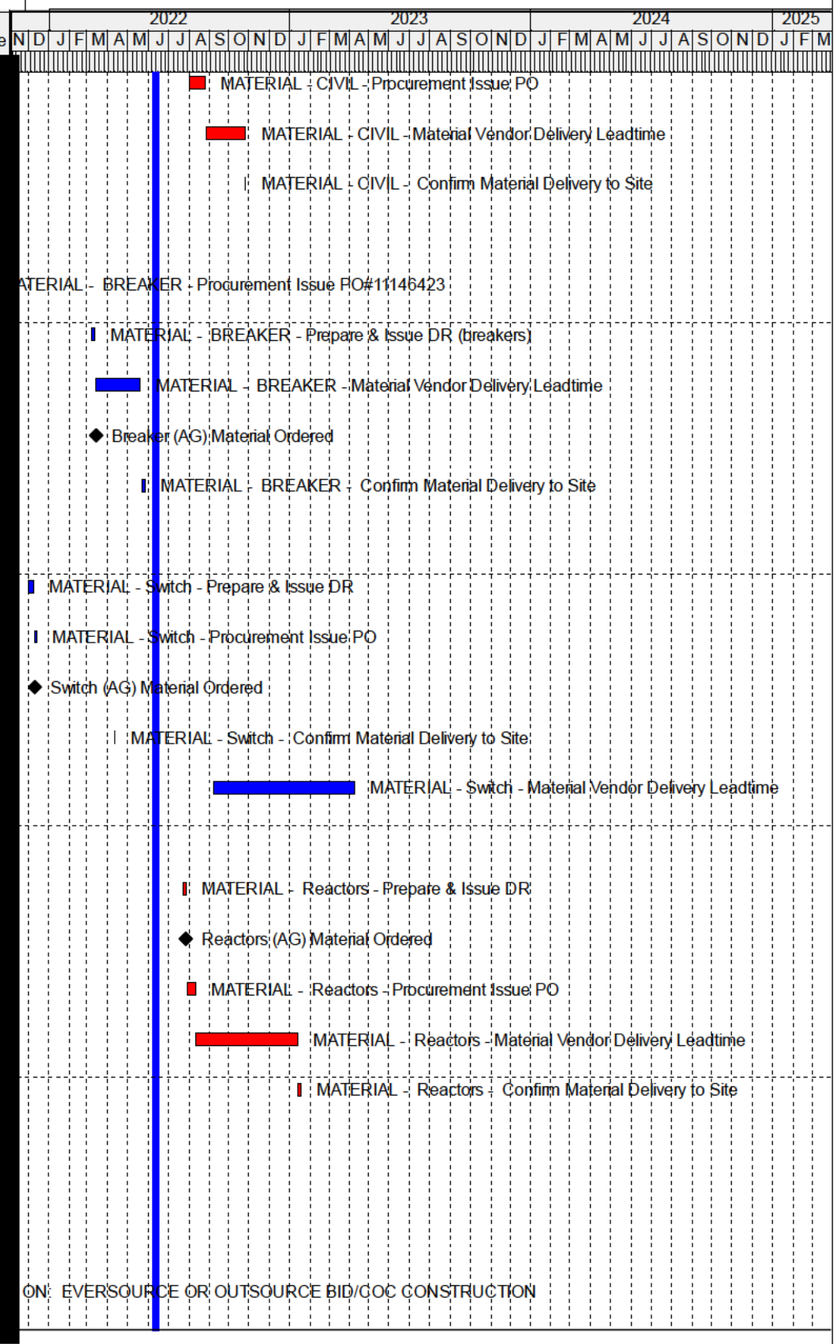
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources
	DSSE-1040	MATERIAL - CIVIL - Procurement Issue PO	01-Aug-22	20	26-Aug-22	Purchasing Department
	DSSE-1050	MATERIAL - CIVIL - Material Vendor Delivery Leadtime	27-Aug-22	60	25-Oct-22	Material Coordinator
M-DELIV	DSSE-560	MATERIAL - CIVIL - Confirm Material Delivery to Site	26-Oct-22	1	26-Oct-22	Material Coordinator
CS004141.06.6 Material - Breakers			20-Sep-21 A	93	27-May-22 A	
	DSSE-1160	MATERIAL - BREAKER - Procurement Issue PO#11146423	20-Sep-21 A	10	27-Sep-21 A	Purchasing Department
DR-MM	DSSE-1150	MATERIAL - BREAKER - Prepare & Issue DR (breakers)	07-Mar-22 A	5	11-Mar-22 A	
	DSSE-1140	MATERIAL - BREAKER - Material Vendor Delivery Leadtime	14-Mar-22 A	90	20-May-22 A	Material Coordinator
DR-AGMAT	DSSE-1180	Breaker (AG) Material Ordered		0	14-Mar-22 A	
M-DELIV	DSSE-1130	MATERIAL - BREAKER - Confirm Material Delivery to Site	23-May-22 A	5	27-May-22 A	Material Coordinator
CS004141.06.4 Material - Switch			02-Dec-21 A	338	08-Apr-23 A	
DR-MM	DSSE-1210	MATERIAL - Switch - Prepare & Issue DR	02-Dec-21 A	5	08-Dec-21 A	
	DSSE-1220	MATERIAL - Switch - Procurement Issue PO	10-Dec-21 A	10	14-Dec-21 A	Purchasing Department
DR-AGMAT	DSSE-1215	Switch (AG) Material Ordered		0	10-Dec-21 A	
M-DELIV	DSSE-1190	MATERIAL - Switch - Confirm Material Delivery to Site	11-Apr-22 A	1	11-Apr-22 A	Material Coordinator
	DSSE-1200	MATERIAL - Switch - Material Vendor Delivery Leadtime	09-Sep-22 A	212	08-Apr-23 A	Material Coordinator
CS004141.06.1 Material - Reactors			22-Jul-22	122	18-Jan-23	
DR-MM	DSSE-1250	MATERIAL - Reactors - Prepare & Issue DR	22-Jul-22	5	28-Jul-22	
DR-AGMAT	DSSE-1270	Reactors (AG) Material Ordered		0	28-Jul-22	
	DSSE-1260	MATERIAL - Reactors - Procurement Issue PO	29-Jul-22	10	11-Aug-22	Purchasing Department
	DSSE-1240	MATERIAL - Reactors - Material Vendor Delivery Leadtime	12-Aug-22	155	13-Jan-23	Material Coordinator
M-DELIV	DSSE-1230	MATERIAL - Reactors - Confirm Material Delivery to Site	14-Jan-23	5	18-Jan-23	Material Coordinator
CS004141.07 Construction			31-Mar-21 A	569	30-Jun-23	
CS004141.07.2 Construction Group 1			31-Mar-21 A	569	30-Jun-23	
CS004141.07.2.1 Construction Services Selection			31-Mar-21 A	345	23-Aug-21 A	
	A3550	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC CONSTRUCTION	31-Mar-21 A	5	31-Mar-21 A	



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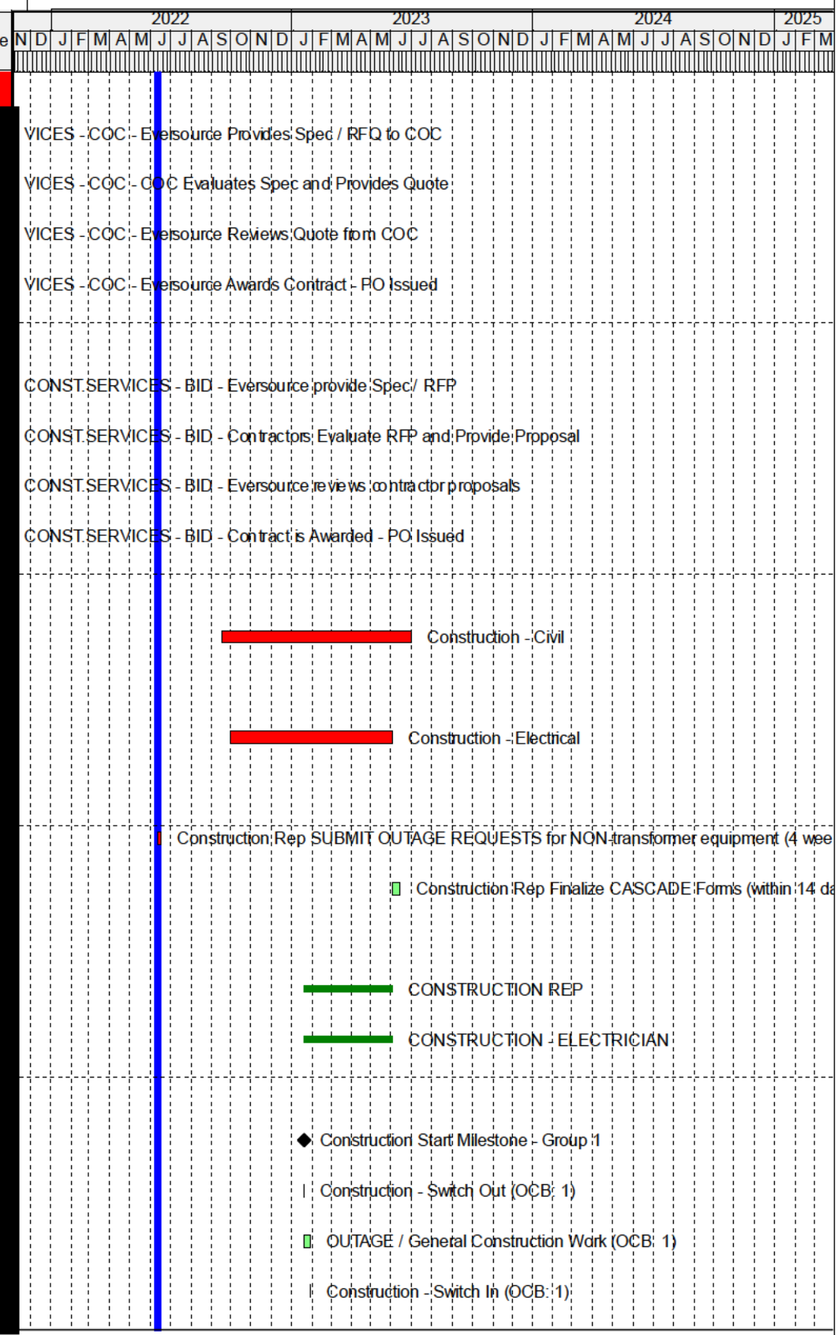
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004141.07.2.1.01 Contractor Of Choice Group			31-Mar-21 A	35	31-Mar-21 A		
	A3390	N/R - CONST.SERVICES - COC - Eversource Provides Spec / RFQ to COC	31-Mar-21 A	5	31-Mar-21 A	Purchasing Departmen	
	A3400	N/R - CONST.SERVICES - COC - COC Evaluates Spec and Provides Quote	31-Mar-21 A	10	31-Mar-21 A	CT/WMA C Contractor-	
	A3410	N/R - CONST.SERVICES - COC - Eversource Reviews Quote from COC	31-Mar-21 A	10	31-Mar-21 A		
	A3420	N/R - CONST.SERVICES - COC - Eversource Awards Contract - PO Issued	31-Mar-21 A	10	31-Mar-21 A	Purchasing Departmen	
CS004141.07.2.1.02 BID Process Group			23-Aug-21 A	65	23-Aug-21 A		
	A3430	N/R - CONST.SERVICES - BID - Eversource provide Spec / RFP	23-Aug-21 A	15	23-Aug-21 A	Purchasing Departmen	
	A3440	N/R - CONST.SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	23-Aug-21 A	15	23-Aug-21 A	CT/WMA C Contractor-	
	A3450	N/R - CONST.SERVICES - BID - Eversource reviews contractor proposals	23-Aug-21 A	15	23-Aug-21 A		
	A3460	N/R - CONST.SERVICES - BID - Contract is Awarded - PO Issued	23-Aug-21 A	20	23-Aug-21 A	Purchasing Departmen	
CS004141.07.2.03 Construction - Civil			19-Sep-22	197	30-Jun-23		
	A1120	Construction - Civil	19-Sep-22*	197	30-Jun-23	Const Rep Field Sup -	
CS004141.07.2.04 Construction - Electrical			30-Sep-22	245	01-Jun-23		
	A1130	Construction - Electrical	30-Sep-22*	245	01-Jun-23	Const Rep T Generic -	
CS004141.07.2.92 Construction - Const. Rep Tasks			13-Jun-22	254	15-Jun-23		
	A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage) - Group 1	13-Jun-22	5	17-Jun-22	Constructio Rep	
	A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD) - Group 1	02-Jun-23	10	15-Jun-23	Const Rep T Generic -	
CS004141.07.2.94 Construction Resource Tracking			19-Jan-23	94	01-Jun-23		
	ConRep-S	CONSTRUCTION REP	19-Jan-23	94	01-Jun-23	Constructio Rep	
	CONSTelec	CONSTRUCTION - ELECTRICIAN	19-Jan-23	94	01-Jun-23	Distribution - S/S	
CS004141.07.2.96 Construction Outages Group 1			19-Jan-23	94	01-Jun-23		
CRH	CSM1	Construction Start Milestone - Group 1	19-Jan-23	0			
	SWOUP1B1	Construction - Switch Out (OCB: 1)	19-Jan-23	1	19-Jan-23	Distribution Switching	
OUT	TOA-Const1	OUTAGE / General Construction Work (OCB: 1)	19-Jan-23	10	30-Jan-23	Constructio Resources	
	SWINP1B1	Construction - Switch In (OCB: 1)	30-Jan-23	1	30-Jan-23	Distribution Switching	



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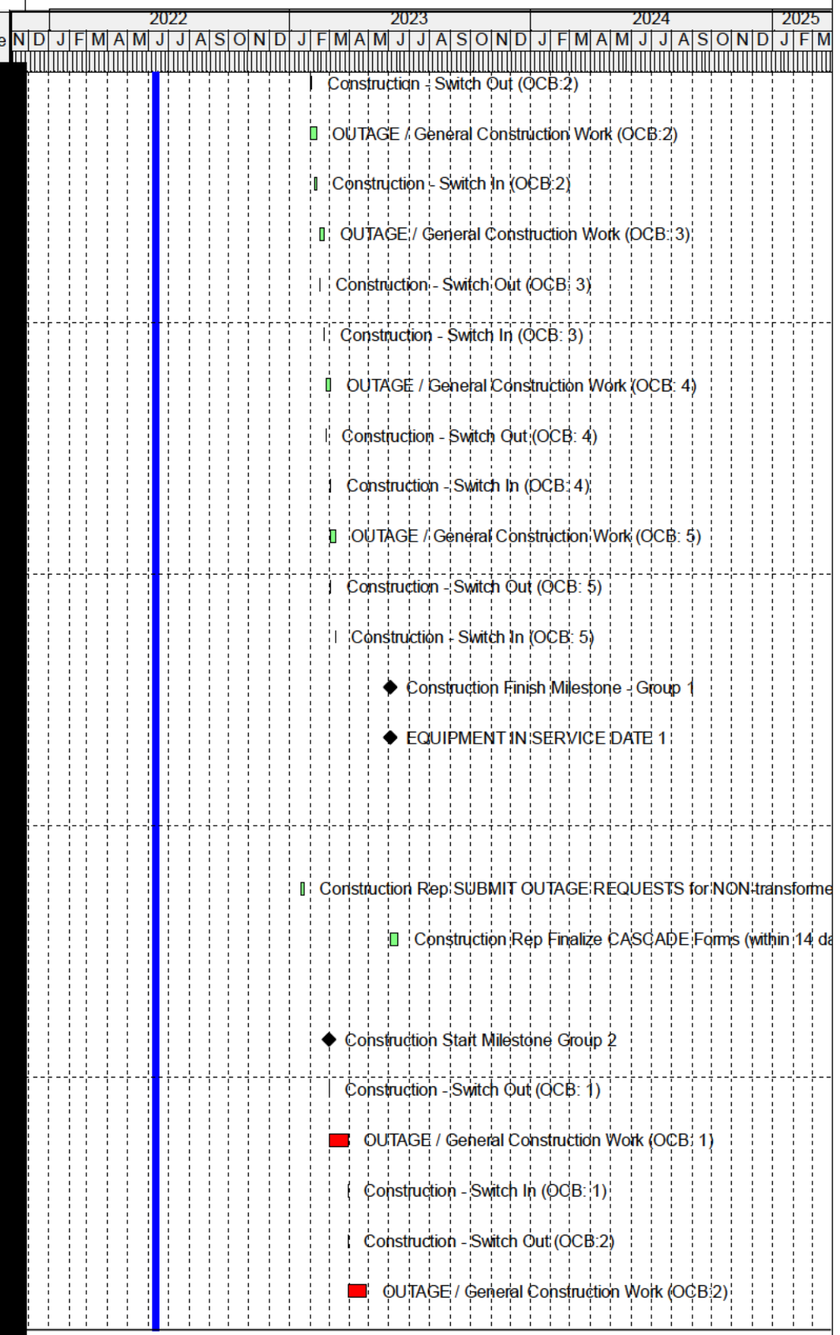
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources
	SWOUP1B2	Construction - Switch Out (OCB:2)	02-Feb-23	1	02-Feb-23	Distribution Switching Crew
OUT	TOA-Const2	OUTAGE / General Construction Work (OCB:2)	02-Feb-23	7	09-Feb-23	Construction Resources
	SWINP1B2	Construction - Switch In (OCB:2)	09-Feb-23	1	09-Feb-23	Distribution Switching Crew
OUT	TOA-Const3	OUTAGE / General Construction Work (OCB: 3)	16-Feb-23	7	23-Feb-23	Construction Resources
	SWOUP1B3	Construction - Switch Out (OCB: 3)	16-Feb-23	1	16-Feb-23	Distribution Switching Crew
	SWINP1B3	Construction - Switch In (OCB: 3)	23-Feb-23	1	23-Feb-23	Distribution Switching Crew
OUT	TOA-Const4	OUTAGE / General Construction Work (OCB: 4)	24-Feb-23	7	03-Mar-23	Construction Resources
	SWOUP1B4	Construction - Switch Out (OCB: 4)	24-Feb-23	1	24-Feb-23	Distribution Switching Crew
	SWINP1B4	Construction - Switch In (OCB: 4)	03-Mar-23	1	03-Mar-23	Distribution Switching Crew
OUT	TOA-Const5	OUTAGE / General Construction Work (OCB: 5)	04-Mar-23	7	11-Mar-23	Construction Resources
	SWOUP1B5	Construction - Switch Out (OCB: 5)	04-Mar-23	1	04-Mar-23	Distribution Switching Crew
	SWINP1B5	Construction - Switch In (OCB: 5)	11-Mar-23	1	11-Mar-23	Distribution Switching Crew
	CFM1	Construction Finish Milestone - Group 1		0	01-Jun-23	
ISD	ISD1	EQUIPMENT IN SERVICE DATE 1		0	01-Jun-23*	
CS004141.07.1 Construction Group 2			17-Jan-23	106	15-Jun-23	
CS004141.07.1.92 Construction - Const. Rep Tasks Group 2			17-Jan-23	106	15-Jun-23	
	A7552	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage) - Group 2	17-Jan-23*	5	23-Jan-23	Construction Rep Generic
	A7553	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD) - Group 21	02-Jun-23	10	15-Jun-23	Const Rep T Generic - SS
CS004141.07.1.96 Construction Outages Group 2			01-Mar-23	66	01-Jun-23	
	CSM2	Construction Start Milestone Group 2	01-Mar-23	0		
	SWOUP1B6	Construction - Switch Out (OCB: 1)	01-Mar-23	1	01-Mar-23	Distribution Switching Crew
OUT	TOA-Const6	OUTAGE / General Construction Work (OCB: 1)	01-Mar-23	25	29-Mar-23	Construction Resources
	SWINP1B6	Construction - Switch In (OCB: 1)	29-Mar-23	1	29-Mar-23	Distribution Switching Crew
	SWOUP1B7	Construction - Switch Out (OCB:2)	30-Mar-23	1	30-Mar-23	Distribution Switching Crew
OUT	TOA-Const7	OUTAGE / General Construction Work (OCB:2)	30-Mar-23	25	27-Apr-23	Construction Resources



Remaining Level of Effort | Remaining Work | Mile...
Actual Work | Critical Remaining Work

TASK filter: All Activities

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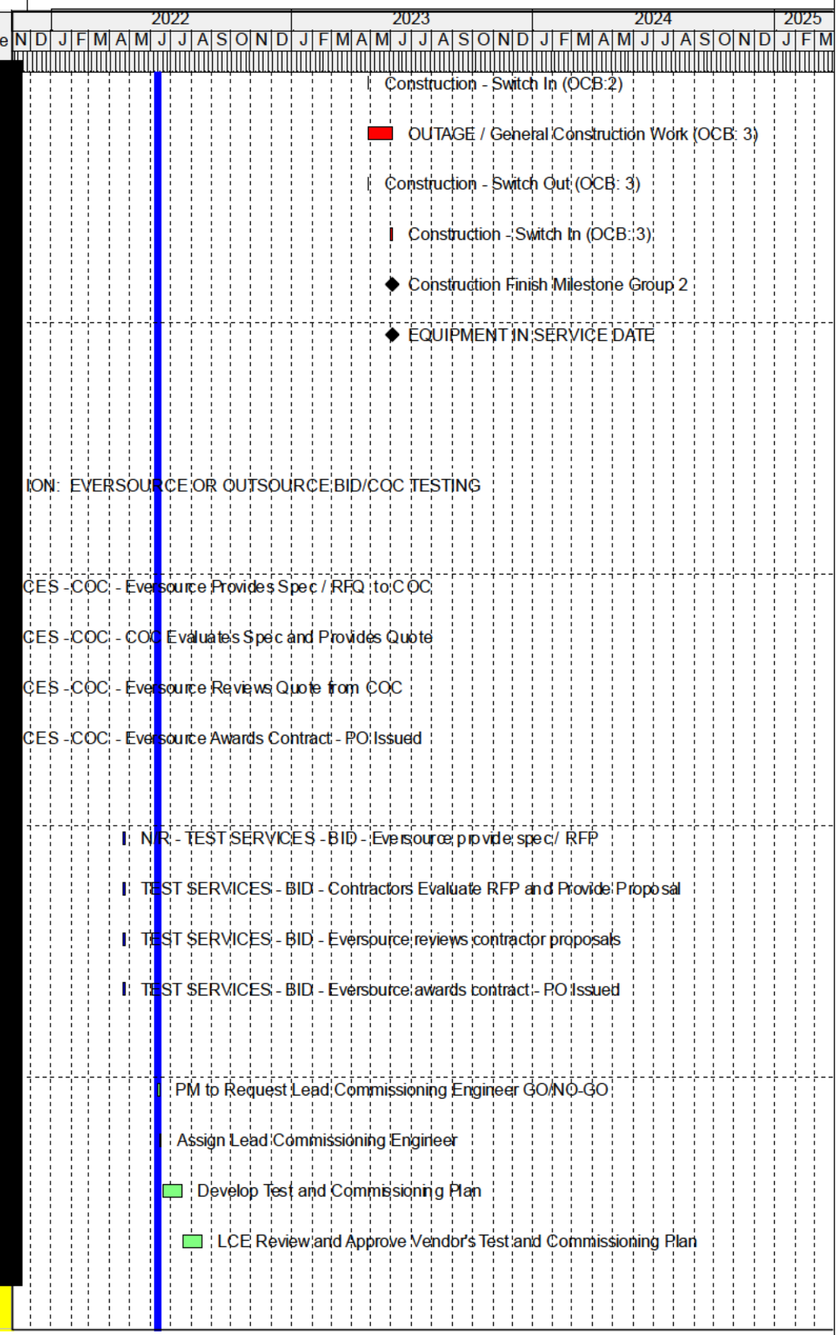
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources
	SWINP1B7	Construction - Switch In (OCB:2)	27-Apr-23	1	27-Apr-23	Distribution Switching
OUT	TOA-Const8	OUTAGE / General Construction Work (OCB: 3)	28-Apr-23	30	01-Jun-23	Constructio Resources
	SWOUP1B8	Construction - Switch Out (OCB: 3)	28-Apr-23	1	28-Apr-23	Distribution Switching
	SWINP1B8	Construction - Switch In (OCB: 3)	01-Jun-23	1	01-Jun-23	Distribution Switching
	CFM2	Construction Finish Milestone Group 2		0	01-Jun-23	
ISD	ISD2	EQUIPMENT IN SERVICE DATE		0	01-Jun-23*	
CS004141.09 Test And Commission			31-Mar-21 A	367	30-Sep-22	
CS004141.09.01 TEST - SERVICES STAFFING DECISION			31-Mar-21 A	255	22-Apr-22 A	
	A1010	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC TESTING	05-Apr-21 A	5	09-Apr-21 A	
CS004141.09.01.01 TEST SERVICES - CONTRACTOR OF CHOICE			31-Mar-21 A	40	31-Mar-21 A	
	A3470	N/R - TEST SERVICES - COC - Eversource Provides Spec / RFQ to COC	31-Mar-21 A	5	31-Mar-21 A	Purchas ng Departmen
	A3480	N/R - TEST SERVICES - COC - COC Evaluates Spec and Provides Quote	31-Mar-21 A	10	31-Mar-21 A	CT/WMA Test
	A3490	N/R - TEST SERVICES - COC - Eversource Reviews Quote from COC	31-Mar-21 A	10	31-Mar-21 A	Purchas ng Departmen
	A3500	N/R - TEST SERVICES - COC - Eversource Awards Contract - PO Issued	31-Mar-21 A	10	31-Mar-21 A	Purchas ng Departmen
CS004141.09.01.02 TEST SERVICES - BID PROCESS			22-Apr-22 A	1	22-Apr-22 A	
	A3510	N/R - TEST SERVICES - BID - Eversource provide spec / RFP	22-Apr-22 A	1	22-Apr-22 A	Purchasing Departmen
	A3520	TEST SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	22-Apr-22 A	1	22-Apr-22 A	CT/WMA Test
	A3530	TEST SERVICES - BID - Eversource reviews contractor proposals	22-Apr-22 A	1	22-Apr-22 A	Purchasing Departmen
	A3540	TEST SERVICES - BID - Eversource awards contract - PO Issued	22-Apr-22 A	1	22-Apr-22 A	Purchasing Departmen
CS004141.09.02 LCE Planning			13-Jun-22	47	17-Aug-22	
	LCE100	PM to Request Lead Commissioning Engineer GO/NO-GO	13-Jun-22	2	14-Jun-22	
	LCE200	Assign Lead Commissioning Engineer	15-Jun-22	2	16-Jun-22	
V-COMPLN	LCE400	Develop Test and Commissioning Plan	20-Jun-22	21	19-Jul-22	CT/WMA Test
ES-COMPLN	LCE500	LCE Review and Approve Vendor's Test and Commissioning Plan	20-Jul-22	21	17-Aug-22	LEAD COMMISSI
CS004141.09.04 Test Activities			17-Jun-22	74	30-Sep-22	



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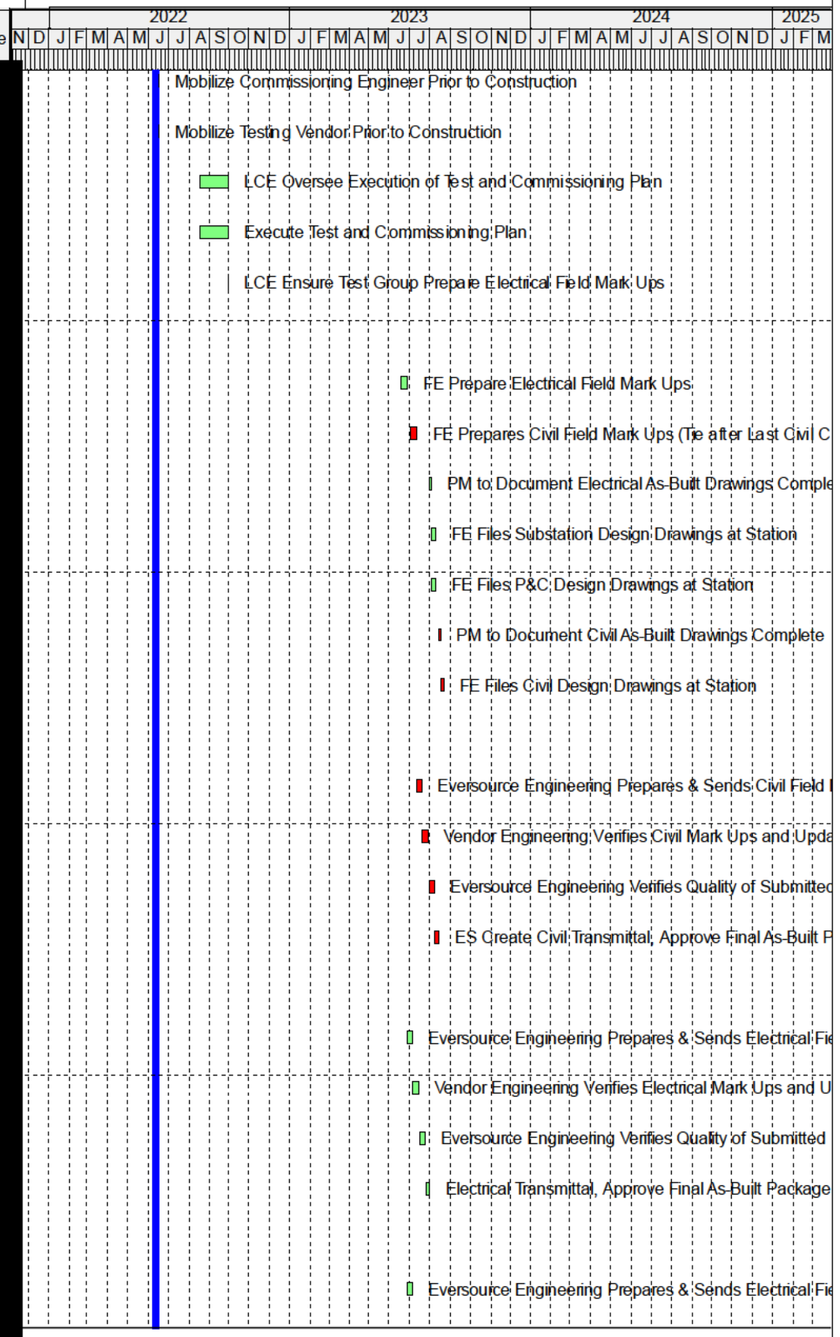
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources
	LCE310	Mobilize Commissioning Engineer Prior to Construction	17-Jun-22	2	18-Jun-22	LEAD COMMISSI ENGINEER
	LCE320	Mobilize Testing Vendor Prior to Construction	17-Jun-22	2	18-Jun-22	CT/WMA Test Contractor
	LCE610	LCE Oversee Execution of Test and Commissioning Plan	18-Aug-22	30	29-Sep-22	LEAD COMMISSI ENGINEER
	LCE620	Execute Test and Commissioning Plan	18-Aug-22	30	29-Sep-22	Engineering Contractor
	LCE700	LCE Ensure Test Group Prepare Electrical Field Mark Ups	30-Sep-22	1	30-Sep-22	LEAD COMMISSI ENGINEER
CS004141.10 Project Close-Out			02-Jun-23	58	23-Aug-23	
V-FLDASB	EV1000	FE Prepare Electrical Field Mark Ups	19-Jun-23	7	27-Jun-23	Tester Not Assigned
V-FLDASB	CV1000	FE Prepares Civil Field Mark Ups (Tie after Last Civil Construction Activity)	03-Jul-23	7	12-Jul-23	
PM	PM1100	PM to Document Electrical As-Built Drawings Complete (Electrical & P&C)	02-Aug-23	1	02-Aug-23	[redacted]
ES-FLSASB	EV1500	FE Files Substation Design Drawings at Station	03-Aug-23	5	09-Aug-23	
ES-FLSASB	PC1500	FE Files P&C Design Drawings at Station	03-Aug-23	5	09-Aug-23	
PM	PM1000	PM to Document Civil As-Built Drawings Complete	16-Aug-23	1	16-Aug-23	[redacted]
ES-FLSASB	CV1500	FE Files Civil Design Drawings at Station	17-Aug-23	5	23-Aug-23	
CS004141.10.01 Civil As-Builts			13-Jul-23	24	15-Aug-23	
ES-ASB	CV1100	Eversource Engineering Prepares & Sends Civil Field Mark Up Packge to Vendor	13-Jul-23	5	19-Jul-23	
V-ASB	CV1200	Vendor Engineering Verifies Civil Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	20-Jul-23	7	28-Jul-23	
ES-ASB	CV1300	Eversource Engineering Verifies Quality of Submitted Civil Drawings	31-Jul-23	7	08-Aug-23	
ES-ASB	CV1400	ES Create Civil Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	09-Aug-23	5	15-Aug-23	
CS004141.10.02 Electrical As-Builts			28-Jun-23	24	01-Aug-23	
ES-ASB	EV1100	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	28-Jun-23	5	05-Jul-23	
V-ASB	EV1200	Vendor Engineering Verifies Electrical Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	06-Jul-23	7	14-Jul-23	
ES-ASB	EV1300	Eversource Engineering Verifies Quality of Submitted Electrical Drawings	17-Jul-23	7	25-Jul-23	
ES-ASB	EV1400	Electrical Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	26-Jul-23	5	01-Aug-23	
CS004141.10.03 P&C As-Builts			28-Jun-23	24	01-Aug-23	
ES-ASB	PC1340	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	28-Jun-23	5	05-Jul-23	



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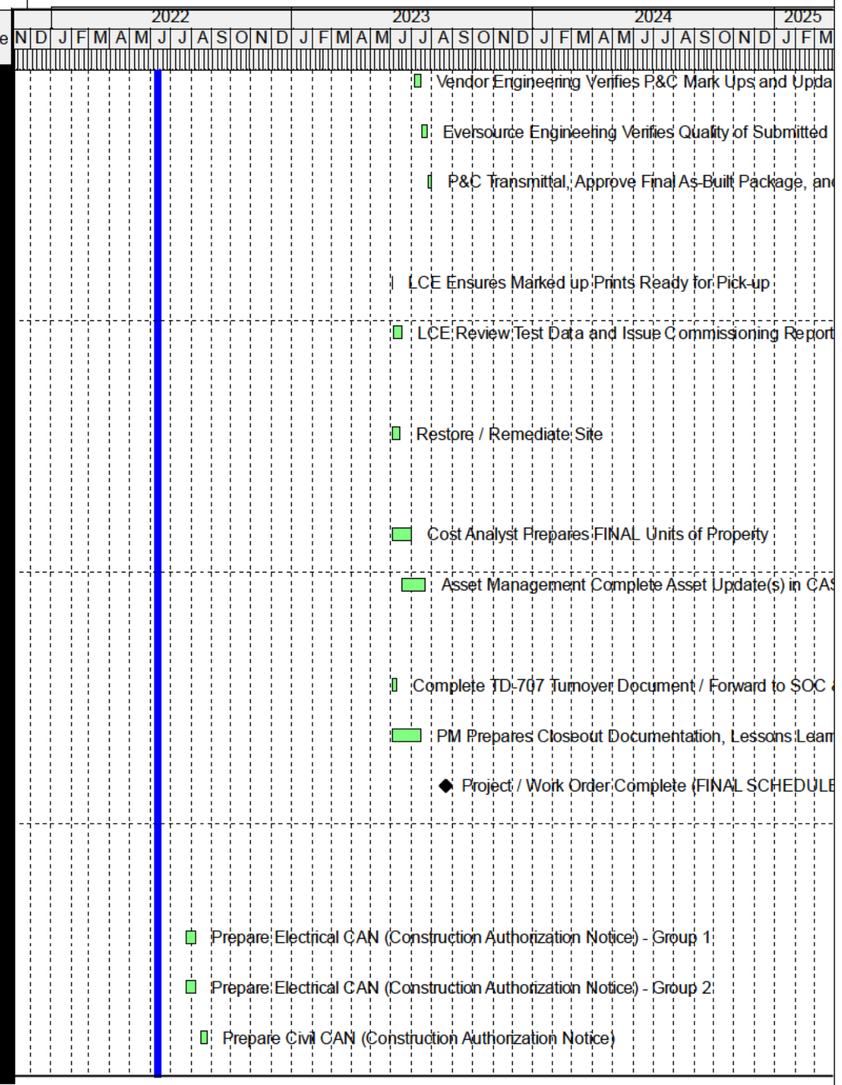
Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
V-ASB	PC1200	Vendor Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	06-Jul-23	7	14-Jul-23		
ES-ASB	PC1300	Eversource Engineering Verifies Quality of Submitted P&C Drawings	17-Jul-23	7	25-Jul-23		
ES-ASB	PC1310	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	26-Jul-23	5	01-Aug-23		
CS004141.10.04 Test Close-Out			02-Jun-23	11	16-Jun-23		
	LCE800	LCE Ensures Marked up Prints Ready for Pick-up	02-Jun-23	1	02-Jun-23	LEAD COMMISSI ENGINEER	
	LCE900	LCE Review Test Data and Issue Commissioning Report	05-Jun-23	10	16-Jun-23	LEAD COMMISSI ENGINEER	
CS004141.10.05 Site Restoration Close-Out			02-Jun-23	10	15-Jun-23		
	A1110	Restore / Remediate Site	02-Jun-23	10	15-Jun-23	CT/WMA C Contractor-	
CS004141.10.06 Material, Equipment, Cost And Asset Management Close-Out			02-Jun-23	35	21-Jul-23		
	A1020	Cost Analyst Prepares FINAL Units of Property	02-Jun-23	21	30-Jun-23	CT- Cost Analyst	
	A1030	Asset Management Complete Asset Update(s) in CASCADE	16-Jun-23	25	21-Jul-23		
CS004141.10.07 Project Management Close-Out			02-Jun-23	58	23-Aug-23		
	DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	02-Jun-23	5	08-Jun-23	Construction Rep	
	A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	02-Jun-23	30	14-Jul-23		
	FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)		0	23-Aug-23		
CS004141.13 Overhead / Indirects			26-Jul-22	24	26-Aug-22		
CS004141.13.01 Project Management			26-Jul-22	24	26-Aug-22		
	B1170	Prepare Electrical CAN (Construction Authorization Notice) - Group 1	26-Jul-22	10	08-Aug-22		
	C1171	Prepare Electrical CAN (Construction Authorization Notice) - Group 2	26-Jul-22	10	08-Aug-22		
	A1170	Prepare Civil CAN (Construction Authorization Notice)	15-Aug-22*	10	26-Aug-22		



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EVERSOURCE

Constructability Review Form: **Substation**

Project Title: [redacted] OCB Replacement Release	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00414	**Project Constructability Phase:**	
Date(s) of Constructability Review: 02/17/2021	☐ Conceptual Engineering Design	
02/17/2021	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	
Project Scope Statement: Replace [redacted]		

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☒	☒	Project Management	[redacted]	☒	☒	S/S Engineering	[redacted]
☐	☐	Asset Management		☐	☐	P&C Engineering	
☒	☒	Constr. Management	[redacted]	☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☐	Telecom	
☐	☐	S/S Operations**		☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	T&D ROW	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☐	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

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Constructability Review Form: **Substation**

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] *02/17/2021* *Name / Signature*

Date

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 List	☐	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	Verify need for aux. transformers required at breakers that do not have a neutral for the necessary 120 volts.	Electrical Engineering
2	Civil engineers to verify structural integrity of existing foundations & structural steel supports	Civil Engineering
3	New switches, if not designed at same height and length, may require bus alterations/adjustment (bus side), conductor alterations (cable side).	Electrical Engineering
4	Scope all -4 & -8 switches with ground studs applied to breaker-side of switch and to be independent of the cable connections (i.e. extension plates)	Electrical Engineering
5	1. [redacted]	Electrical Engineering

	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.**	☐	[redacted]

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	**Prior known Site Specific Conditions - Common or Obvious station Issues**	☐	May be issues with control cables
3	**Scope Adequately Developed** Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence	☐	See action items above.
4	**Materials Identified/Ordered** Long Lead Equipment? Specialty material considerations? Review BOM lead times and project need dates Bids for Specialty Major Materials - Identify Specialty Equipment & Materials potentials - temporary/replacement Any Materials needed to facilitate construction access?	☐	Breakers not ordered, need project approval. Could be delayed at US/Mexico border. 21+ weeks lead-time for breakers.
5	**Any impacts that would drive T-Line Eng Scope?**	☒	
6	**Any other known projects that could overlap or impact outage work?**	☐	Asset management to identify.
B	**Construction**		
1	**Site Plan / Access:** -Confirm maintenance access for proposed new or replaced equipment -Review station expansion areas (if needed) for structures, old foundations, etc. -Verify clear footprint for yard equipment / Property Plan -General access to site, can areas outside substation be utilized? -Substation Entry Plan (driveway and drive path modifications) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any Sanitary Civil Requirements? (Septic tanks, etc) -Assess condition of existing yard equipment foundations and viability for reuse (if proposed)	☐	- - - - - - - - - - - - - See action items above.
2	**Any Substation Access and site/yard access Limitations?** -Review turning radius for delivery trucks (if critical) -Identify Office Trailer / Container / Dumpster Space + source of utilities for construction trailer(s) if needed -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Construction permit for trailers outside substation fence?	☐	- No Issues - Sufficient room for trailers & dumpsters. - - N/A - Space for material is sufficient. - N/A

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	**Outage Planning & Construction Sequence** -Working Clearances - Review electrical clearances for equipment during construction – Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -As-Built drawing review (contacts and contributions) -Outage boundaries -Phased approach needs for additional mobilizations -Detail Design package align with schedule and outage sequence? -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 -Review or give input to planned construction sequence to insure it is reasonable -Verify outage sequence supports the planned construction sequence	☐	[redacted] - CR to utilize. - TBD - N/A - TBD [redacted] -Further breaker control scheme investigation needed to complete outage requirements. -TBD
4	**Need for mobile generator and where connected (if needed)**	☒	
5	**Need for mobile battery and where connected (if needed)**	☒	
6	**Energization Plan** What outages are required, Detailed look at contributions to equipment, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized Mobile transformer, Additional outage requirements, Working clearance, Railroad Catenaries, Distribution overhead/underground/networks, Fiber outage, SCADA outage, Relay permissions	☐	To be established by Test Group/CR/CM and reviewed by LCE once IFC drawings issued.
7	**Identify Required Oversite Needed - Estimated level of CR and LCE support needed**	☐	1 LCE and 1 CR required
8	**OT work required or Notable Permit Conditions (special hours)?**	☐	May need weekend work or extended days if schedule is delayed or system reliability dictates.
9	**Seasonal or weather conditions impacts?**	☐	Some equipment outages are dependent on the season. Inclement weather may impact schedule.
10	**Identify Required Depts for Construction? (who is constructor ?)**	☐	TBD
11	**Specialty Contractors Required?**	☒	
12	**Unique Equipment Considerations, Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser**	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
13	**Underground Obstructions** -Drawing review concerns? -Is preconstruction or test excavation needed? -Is reuse of underground control cables / Conduits /replace Non-Shielded Cable feasible (if applicable) -Are spare conduits available? Are they useable? -Review if any areas will need to be plated for increased load bearing for equipment access (i.e. large Xfmr, etc.)	☐	All conductors should be meggered and replaced if found compromised.
14	**Any other items missing in scope or could be underfunded?**	☐	See action items above.
15	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☒	
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☒	
2	Has Desktop investigation and EAD Review form been completed.	☒	
3	Dewatering requirements	☒	
4	Risk or presence of PCB's/Asbestos/Lead/SF6	☐	TBD. Potential PCB oil in existing breakers & possible asbestos wiring.
5	Permit requirements (Wetlands, Rare Species, etc)	☒	
6	Stormwater Considerations	☒	
7	Transformer Spill Containment Recommended?	☒	
8	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☒	
D	**Siting, S&CS, and T&D Real Estate**		
1	Expanding Footprint / New Buildings or future Expansion Plans?	☒	
2	Installation is within Eversource Rights? - Rights and Restrictions Review	☒	
3	Proposed Equipment on same property? - Any Encroachments	☒	
4	Identify existing lighting and determine if additional lighting is needed?	☒	
5	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☒	
6	Visual mitigation screening considerations (feasibility or location)	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
7	Neighbor/Abutter impacts (noise, visual, sensitive abutters)	☐	
E	**Engineering**		
1	**Scope of Work** Identify if high level scope sufficiently detailed? Any remote station impacts? Does title match the project deliverable/intent?	☐	Scope is not sufficiently detailed. (See Action Items and Resolutions)
2	**Ratings & Dimensions** for Major Equipment. Any concerns upon field review? Equipment Rating One Line (and/or equipment thermal ratings tables) - Review for any errors in field	☐	Design per Eversource standards and station specific needs.
3	**Materials** Any concerns with BOM/Major Materials Review? Where will new vs removed equipment go? Review for OH and UG Items	☐	No material ordered. Plenty of room to store old and new.
4	**Control House** - Review: Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station service and loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	☒	
5	Identification of Unique Requirements, i.e. (access bridges, station service, etc.)	☒	
6	**BPS Separation Requirements** Is this BPS Substation? Y/N (part of PAF) Changes to pre-existing BPS standards?	☒	
7	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☒	
8	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☒	
9	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Any impacts to construction plan?	☐	Foundations need to be reviewed by civil engineers to verify suitable for re-use or need to be upgraded.

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
10	**Below Grade / Enclosure Raceway** - If possible, evaluate existing raceway and review spacing requirements. Review for any subsurface investigation needs or potential below grade obstructions. GPR/test pits needed? Geotechnical Investigation - is soil boring or resistivity investigation needed?	☐	TBD - If foundations need alterations that warrant.
11	**Grounding Plan (Ground Grid)** - Will footprint impact layout or other equipment? Identify locations to improve grounding. Impacts to foundations and ground grid plans. Observations on wetlands or ability to perform tests	☒	
12	Any Lighting Plan & Fixture Schedule Considerations?	☒	
13	Any Steel Structural Plan Considerations?	☐	Will need steel for new breakers
14	Sound Study Needed? Pre-Project Sound Measurements Needed? Sound Walls?	☒	
15	Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☒	
16	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☐	Will need updates to reflect the removal of the specific grounding switches: [redacted]
17	Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions	☐	TBD
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☒	
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☒	
3	Panel fronts conform to drawings	☒	
4	Access to bring new panels into control enclosure	☒	
5	Nameplate list and location of nameplates	☒	
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☒	
7	Verify auxiliary panels have breaker available or space for new breakers (if needed)	☒	
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	☒	
2	Review path to get telecom circuits into the station and determine whether new underground duct bank is needed.	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☒	
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☒	
5	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☒	
6	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☒	
7	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☒	
8	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☒	

Photos

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

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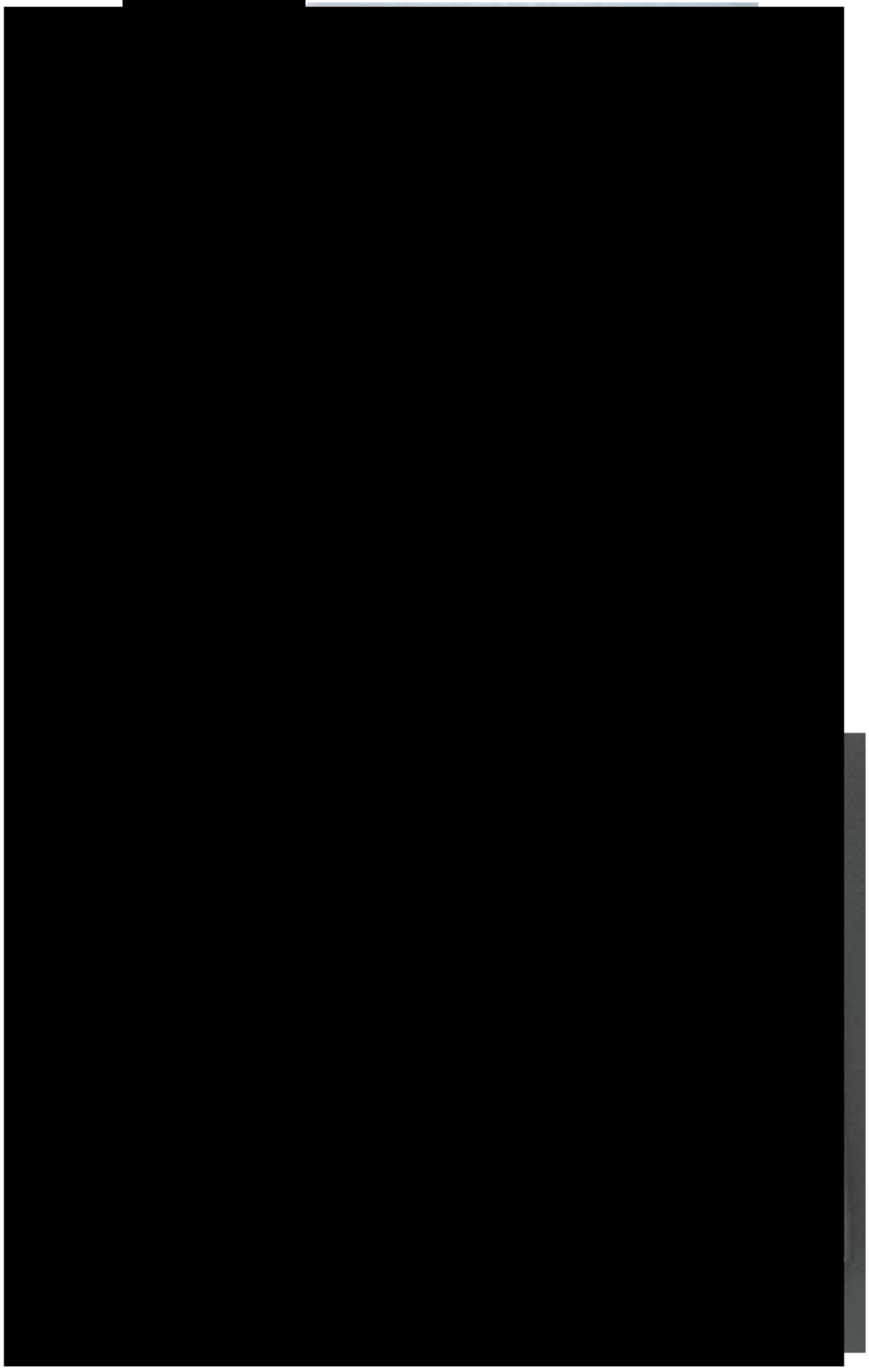
Photos: [redacted]



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[redacted]




TANK CAN BE
PREVENT THIS,
INSTALLED AS
ARRIVAL.
THER PRECAUTIONS.
NON-PCB
LESS THAN 2 PPM
MINERAL OIL
DIELECTRIC FLUID
(TRANSFORMER OIL)
COMBUSTIBLE FLASHPOINT EXCEEDS 140° C
IN CASE OF SPILL PREVENT ESCAPE INTO
WATERWAYS, STORM DRAINS, ETC. PROMPTLY
NOTIFY NU'S REGIONAL DISPATCHER
Northeast Utilities System

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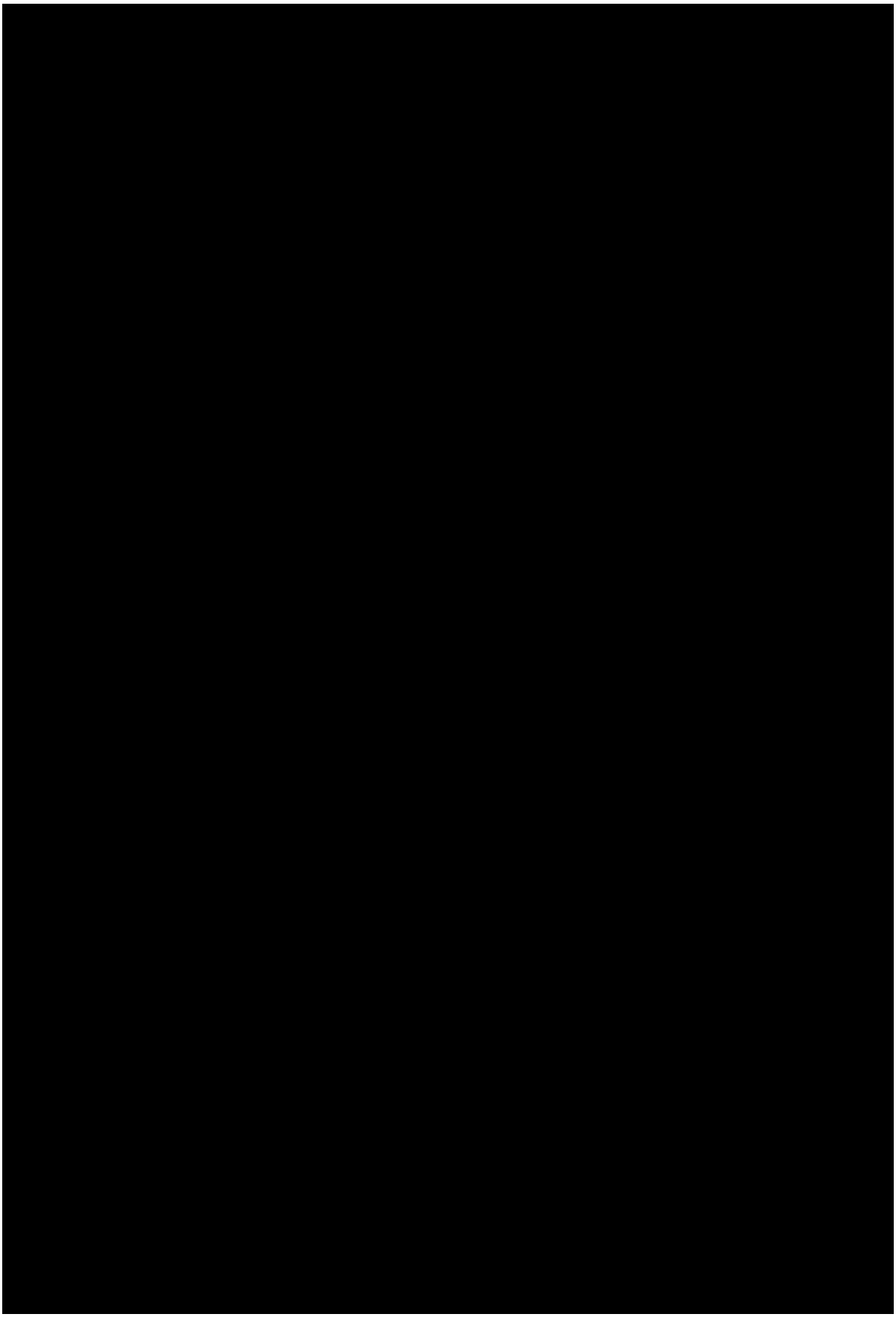

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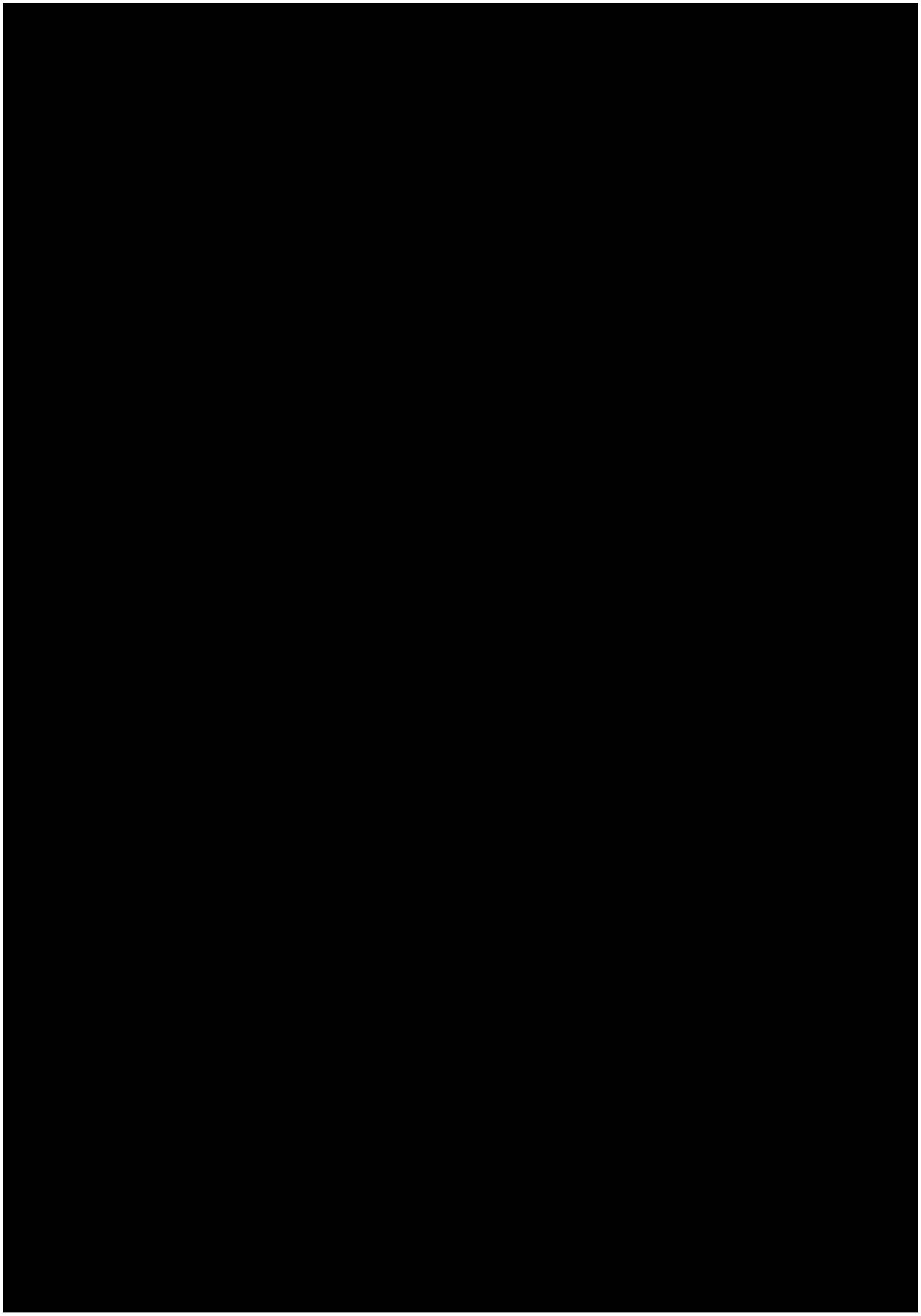

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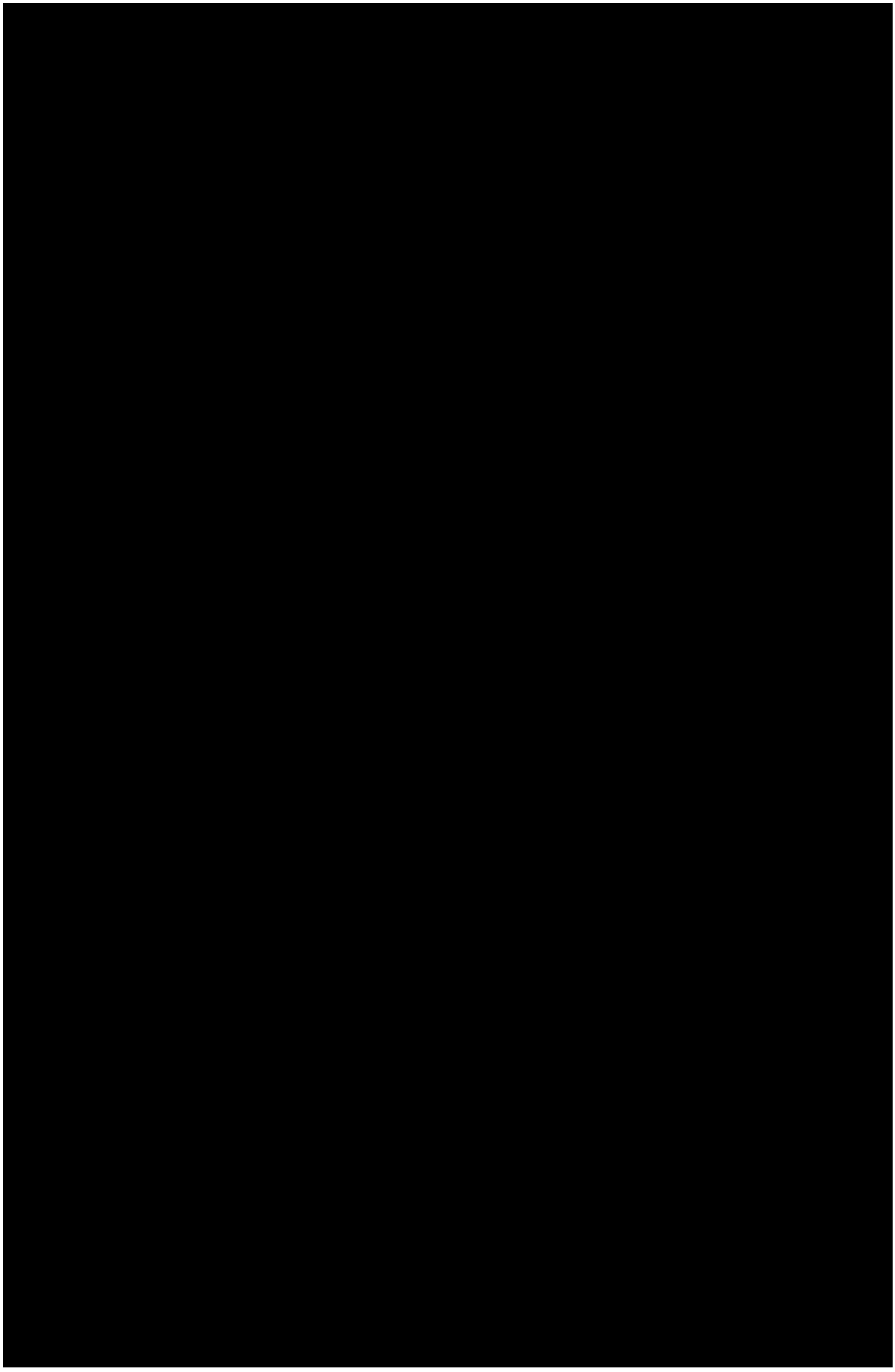
Constructability Review Form: **Substation**



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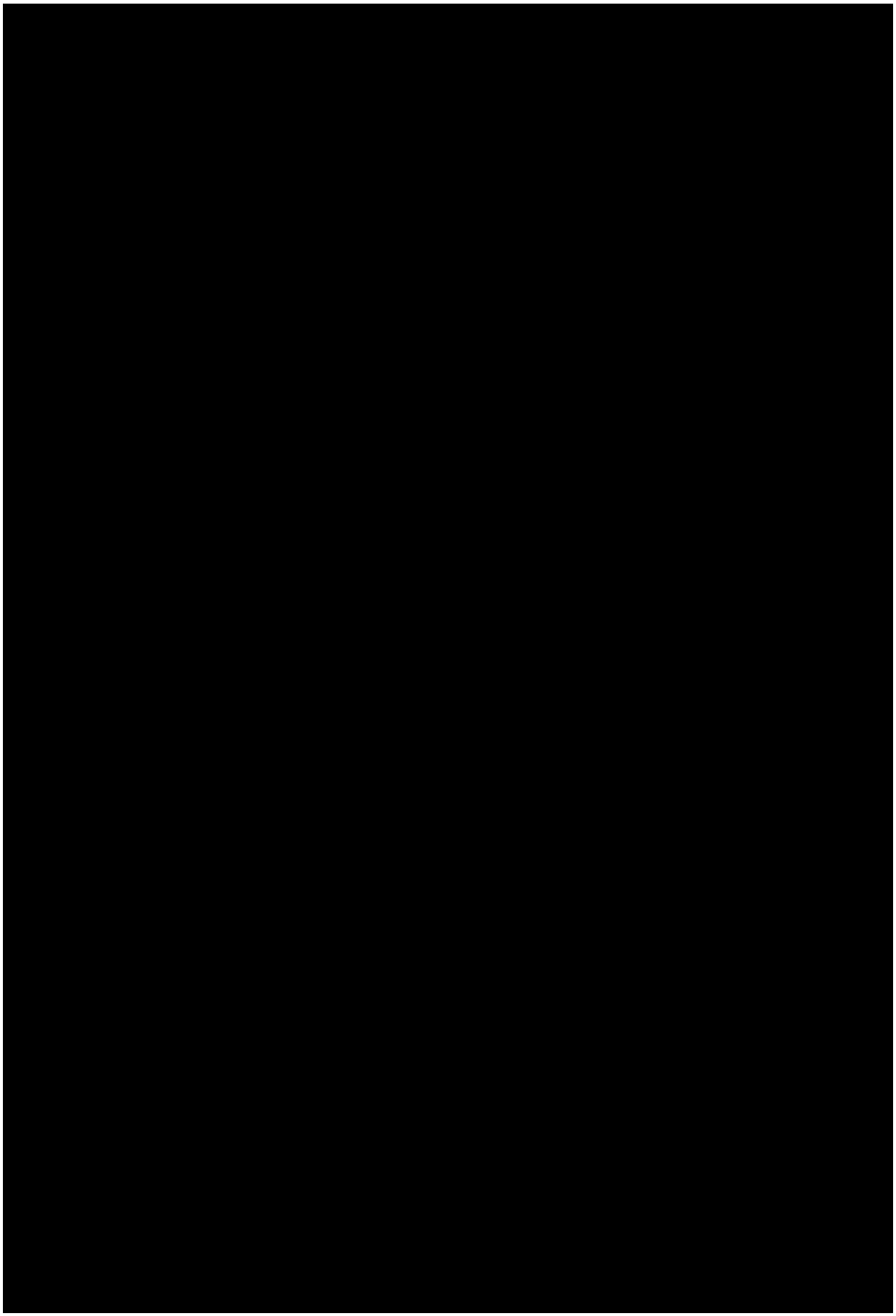
Constructability Review Form: **Substation**



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Constructability Review Form: **Substation**

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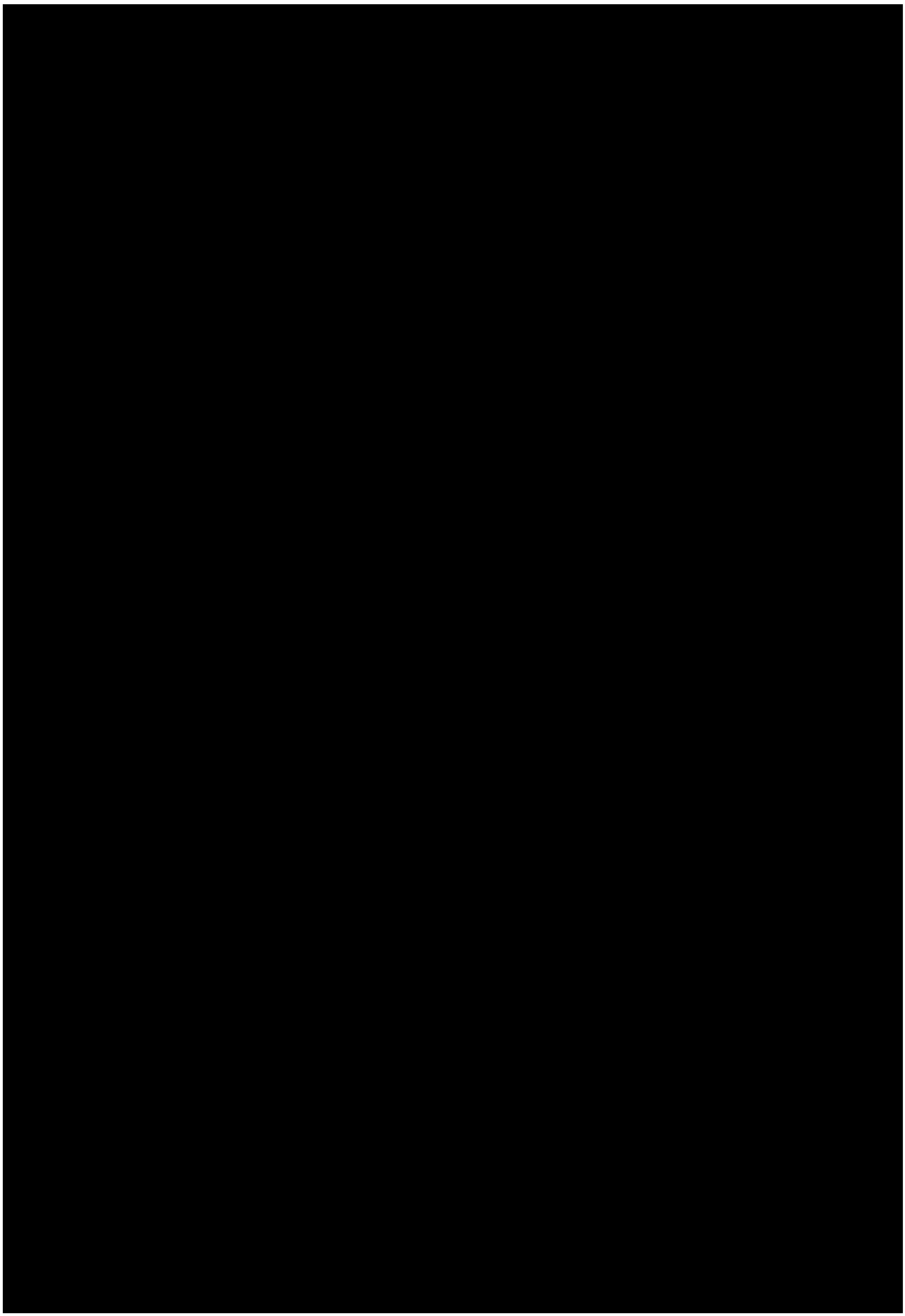

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Constructability Review Form: **Substation**

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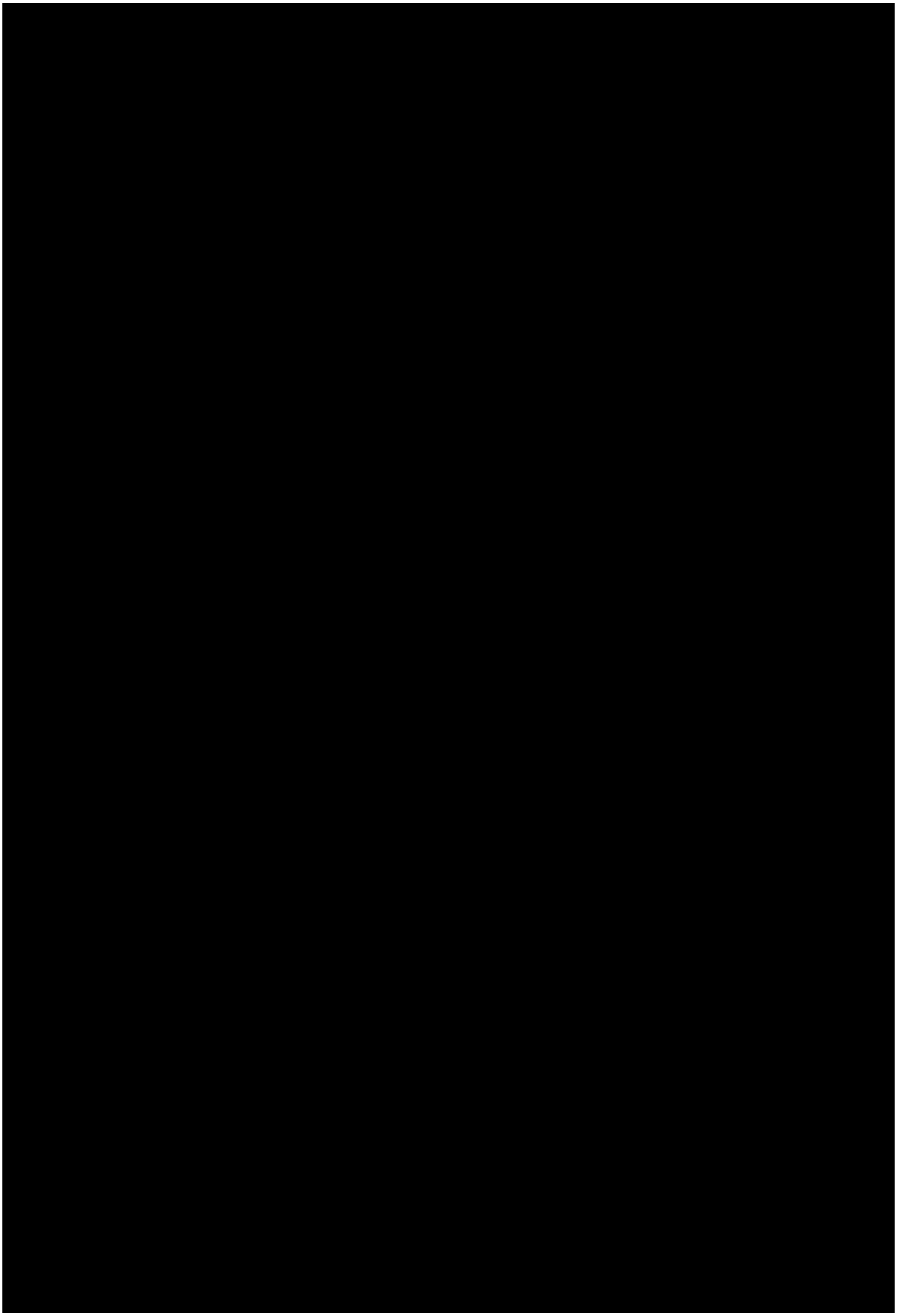

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Constructability Review Form:

[redacted]



Photos: Reactors [redacted]



Photos: Reactors [redacted]



EVERSOURCE

Constructability Review Form: **Substation**

Photos: Reactors [redacted]



Photos: Reactors [redacted]



Photos: Reactors [redacted]



Photos: Reactors [redacted]



Photos: Reactors [redacted]



[redacted]

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Operations Program Level Project Authorization Form

Approved at May 26, 2021 EPAC

Link to Meeting Minutes

Date Prepared: 05/11/2021	**Program Title:** [redacted]
Company: Eversource CT	**Project Number (by state): CS00411 (CT)**
Organization: Asset Management	**Class(es) of Plant:** D SS
Project Initiator: [redacted]	**Project Category:** Stations - Circuit Breakers
Project Manager: [redacted]	**Project Type:** Program
Project Sponsor: [redacted]	**Project Purpose:** Replace Contaminated Circuit Breakers and Bus Rehab
Estimated in service date: Q4 2024	**If Transmission Project: PTF/Non-PTF?** See associated Program Release Forms
Eng. / Constr. Resources Budgeted? See associated Program Release Forms	**Capital Investment Part of Original Operating Plan?** See associated Program Release Forms
Authorization Type: Program Approval	**O&M Expenses Part of the Original Operating Plan?** See associated Program Release Forms
Initial Funding Request: N/A	**Estimated Program Value (by State): CT $32.185M** **CT Projected unit cost: $670.5K Unit cost/breaker**

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This program is requesting program approval of the CT [redacted] in CT now through 2024. Dollar authorization for these costs shall be through submission of individual program releases. Program Release Form submissions shall occur in accordance with the locations and phases identified in this document. "Project Checklist – Transmission & Substation" will be submitted with each Program Release Form.

An initial funding request for the OCB Replacement and Bus Rehabilitation Program for Connecticut was approved on November 23, 2020 for $300K. The initial funding was requested to allow engineering to complete an analysis, design, and estimate of what will be required for the replacement of OCBs and bus rehabilitation. An additional funding request was sent on April 1, 2021 to increase the total initial funding to $450K to allow additional engineering to be included in the program activities. As of May 20, 2021, $256.6K has been spent in development of this program and has completed ten constructability walkdowns and scope definitions and has completed three estimates.

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Financial Unit Cost Evaluation (by State)

Note: Dollar values are in thousands and are unit level costs for Program PAFs

Line item Category	Year 1	Year 2	Year 3+	Total
1. ROW / Easements / Land Acquisition				
2. Environmental Approvals / Permits				
3. Outreach	$1			$1
4. Siting Approvals / Permits				
5. Engineering / Design	$7			$7
6. Materials (Eversource purchased)	$89			$89
7. Construction (incl matl's by contractors)	$157			$157
8. Testing / Commissioning	$86			$86
9. Project Mgmt Team	$3			$3
10. Removals	$10			$10
11. Other				
12. Risks *	$53			$53
SUBTOTAL DIRECTS W/ RISKS	**$406**			**$406**
13. Indirects/Overhead	$195			$195
14. AFUDC	$36			$36
PROJECT TOTAL – BASELINE BUDGET	**$637**			**$637**
15. Contingency	$33			$33
TOTAL CAPITAL REQUEST	**$671**			**$671**
16. Reimbursables/Customer Contribution				
PROJECT TOTAL (LESS REIMBURSABLES)	**$671**			**$671**
O&M				
Total Request	**$671**			**$671**

* *See the* Risks and Risk Mitigation Plans section below for the cost breakdown of the risks.

Unit Breakout Costs (by state)

Note: Dollar values are in thousands

Line item Category	Year 1	Year 2	Year 3+	Total
ST Labor	$10			$10
OT Labor				
Outside Services Labor	$244			$244
Materials*	$89			$89
Removals	$10			$10
Other	$86			$86
Indirects	$195			$195
AFUDC	$36			$36
TOTAL REQUEST	**$671**			**$671**

*All materials including Eversource purchased and outside service purchased. Note that outside service purchased material included in construction in unit cost evaluation above.

Future Financial Impacts:

Provide below the estimated future costs that will result from the project: N/A
Note: Dollar values are in thousands:

Future Costs	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Costs
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in?_____N/A_____
A representative from the respective functional area is required to be included as a project approver.

If this is other than a Reliability Project, please complete the section below;

Provide below the estimated financial benefits that will result from the project:
Note: Dollar values are in thousands:

Future Benefits	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in?_____N/A_____
A representative from the respective functional area is required to be included as a project approver.

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details: No

Are there other environmental cleanup costs associated with this project? If yes, please provide details: No

Technical Justification:

Project Need Statement

[redacted]

Project Objectives

[redacted] otection on electrical equipment where previous poor performance has been exhibited.

Initial funding allows engineering to complete an analysis, design, and estimate of what will be required for the replacement of OCBs and bus rehabilitation for Connecticut projects starting in 2021. Based on the initial walkdowns and subsequent analysis, Substation Technical Engineering, Substation Engineering and Design, Protection and Controls Engineering, Asset Management, and Project Management will develop a scope for each site.

Program Scope

[redacted]. A preliminary summary of the equipment for each release is shown in Table 1. Marked up nomenclature drawings identifying the release equipment is provided in the Attachment 1.

Table 1 Release Equipment Summary:

Substation	Release Number	OCB	Hook Stick	Reactor	Manual Sw	Surge arrestors	move Grd Switch
[redacted]							

Background / Justification

[redacted]

Business Process and / or Technical Improvements:

The equipment improvements to the substation yards will look to minimize future exposure to prolonged customer outages during emergency and routine switching operations and reduced environmental risk. This program will increase system reliability by replacing the obsolete equipment.

The environmental benefit will be realized by replacing aging oil filled equipment, which presents an environmental concern.

Alternatives Considered with Cost Estimates

Alternative 1. Replace OCBs and bus equipment (chosen alternative).

[redacted] ee Attachment A for the alternative 1 Cost Estimate.

Alternative 2. Replace OCB PCB bushings and leave breakers in place

[redacted] The cost for this alternative could be as high as $40 to $50K per breaker. No true conceptual cost estimate for this alternative was done as this alternative does not address the PURA initiative nor the aging bus equipment and was not chosen.

Alternative 3. Replace OCB PCB bushings and leave breakers in place

[redacted] o cost estimate has been provided for this alternative.

Alternative 4. Do Nothing

An alternative to the identified project scope is to do nothing. The identified devices are operational and could go on in service until they fail. At that point an emergent failure project could be created to replace only the failed device(s). This is not recommended because of the failures that have occurred during switching and the subsequent disruptions that this has caused. No true conceptual cost estimate for this alternative was done as this alternative does not address the PURA initiative nor the aging bus equipment and was not chosen.

Project Schedule

Program Schedule Milestone/Phase Name	Estimated Completion Date
Begin Program Execution	Q1 2021
Preliminary scope developed	Q2 2021
Program Level PAF and first Project Releases presented to EPAC	Q2 2021
Complete Program	Q4 2024

Release Schedule Milestone/Phase Name			
Substation	Release Number	Full Funding EPAC Mtg Target	Scheduled Construction Target
[redacted]			
Totals			

Regulatory Approvals

Not applicable

Risks and Risk Mitigation Plans

The risks associated with the work identified in the release to replace equipment will be identified and evaluated in the individual release documentation.

Risk		Funded Amount	Assessment and Mitigation
1.	Breaker control cables are found to be damaged.	$5K	Perform continuity checks on control cables and install new control breaker cables if required.
2.	Underground conduit damaged.	$5K	Check for conduit damage and replace Underground Conduit if required.
3.	Delays / outages related to breaker energization plans.	$25K	Reschedule and provide overtime as required.
4.	Design development Risks.	$6.4K	Add Allowances for Re-Design
5.	Severe Weather, Delays, OT.	$6.4K	Reschedule and provide overtime as required.
6.	Existing foundations not suitable for re-use.	$5K	Replace foundations as required

Contingency

Contingency is included in the estimates to cover possible cost deviations for unknown conditions that may arise during the project. See Individual Program releases.

References

CL&P 2014 Operating Initiatives - Docket No.14-05-06 PURA-03 Dated 06/20/2014

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

Attachment A: Unitized Cost Estimate Backup Details
Attachment B: OCB Releases Nomenclature Diagrams

Cost Estimate Backup Details

Attachment A: Unitized Cost Estimate Backup Details