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Operations Project Authorization Form

Approved on February 2, 2022 EPAC

Link to Meeting Minutes

Project Title: [redacted] **Upgrades**	**Project Number: CS00515**
Date Prepared: 01/27/2022	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Reactor**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80124364**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: 05/17/2022	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type (check all that apply):** ☐ **PTF** ☐ **non-PTF** ☒ **Distribution** ☐ **N/A (General Plant)**
Total Capital Request: $534K	**Authorization Type: Full Funding**

[1] Executive Summary

This Program Authorization Form is requesting $534K for [redacted]

The upgrades are required to [redacted]

This Project is associated with the Distribution Project CD01724 - [redacted] Load Transfer to [redacted]. The design and construction work for project CD01724 is being coordinated with this project and has an in-service-date scheduled for June 2022. The estimated cost for project CD01724 is $934K and for this project, CS00515, is $534K.

This Project had $100K of Initial Funding approved in PowerPlan on September 28, 2021. Minimal charges have been accrued as of January 20, 2022 to develop the Engineering Design package.

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[2] PROJECT COSTS SUMMARY

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	Total
1. ROW / Easements / Land Acquisition	$	$0	$0	$	$0
2. Environmental Approvals / Permits	$	$0	$0	$	$0
3. Outreach	$	$0	$1	$	$1
4. Siting Approvals / Permits	$	$0	$0	$	$0
5. Engineering / Design	$	$0	$18	$	$18
6. Materials (Eversource purchased)	$	$0	$87	$	$87
7. Construction (incl matl's by contractors)	$	$0	$111	$	$111
8. Testing / Commissioning	$	$0	$47	$	$47
9. Project Mgmt Team	$	$2	$3	$	$5
10. Removals	$	$0	$7	$	$7
11. Other	$	$0	$0	$	$0
12. Risks	$	$0	$36	$	$36
SUBTOTAL DIRECTS W/ RISKS	**$100**	**$2**	**$309**	**$**	**$311**
13. Indirects/Overhead	$	$1	$203	$	$204
14. AFUDC	$	$0	$7	$	$7
PROJECT TOTAL – BASELINE BUDGET	**$100**	**$3**	**$518**	**$**	**$522**
15. Contingency	$	$0	$12	$	$12
		$0	$0		$0
TOTAL CAPITAL REQUEST	**$100**	**$3**	**$530**	**$**	**$534**
16. Reimbursables/Customer Contribution	$	$0	$0	$	$0
		$0	$0		$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$100**	**$3**	**$530**	**$**	**$534**
O&M	$	**$0**	**$0**	$	**$0**
TOTAL REQUEST	**$100**	**$3**	**$530**	**$**	**$534**

See Attachment A for the cost estimate.

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions, additional duct required, etc.	$10K
2. Severe Weather, Delays, OT	$16K
3. Potential Soil Contamination	$10K
Total	$36K

Explain unique payment provisions, if applicable:

No unique payment provides for this project.

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

No unique O&M impacts resulting in this project.

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[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

A customer in Plainville, CT has indicated they are updating their facility and are adding a

[redacted]

Project Scope

The project work scope to [redacted]

[redacted]

A constructability review was conducted on January 10, 2022. The completed form is included as Attachment C.

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Substation Equipment

Station	Device Position / Nomenclature	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]	[redacted]	[redacted]	[redacted]

Background

A customer is installing a 250,000 square-foot cold storage warehouse on [redacted]

[4] ALTERNATIVES CONSIDERED

The preferred alternative was selected as part of Distribution Engineering project CD01724 - [redacted]. This project was present at the CPAC (OCRC) on September 30, 2021 and the project was approved on November 11, 2021. See Reference 1 for more details. The following is a summary of the CD01724 considerations.

Alternative 1 - Do nothing. [redacted]

Alternative 2 - [redacted]

Alternative 3 - [redacted]. This is the preferred design alternative. See Attachment A for the planning-level cost estimate of $534K.

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
1. Project Need by Date (Needs to be started by Date to meet target ISD)	2021-10-01
2. Date of IFR Approval (P6 Act: Initial Funding Request Approved @ EPAC)	2021-09-28 Completed
3. Complete Conceptual design of Alternative(s)	2021-08-15 Completed
4. Initiator complete SSF form	N/R
5. SDC Presentation Date(s)	N/R
6. Conversion of Tx development costs, 183 to 107	N/R
7. Preliminary Design Complete (P6 Act: Preliminary Design / Engineering Completed)	2022-01-03 Completed
8. Preliminary Design Constructability review complete (P6 Act: Preliminary Constructability Review Complete)	2022-01-14 Completed
9. Full funding estimate complete (P6 Act: Create Planning Grade Estimate (+/- 25% Full Funding))	2022-01-18 Completed
10. Full funding estimate review (P6 Act: Review Planning Grade Estimate (+/- 25% Full Funding))	2022-01-24 Completed
11. Initiator complete PAF form (P6 Act: Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review)	2022-01-24
12. EPAC Funding Dates (Full Approval) (P6 Act: EPAC Full Funding Approval)	2022-03-03
13. Detail Design Complete (P6 Act: Elect IFC - Electrical (AG) w/Final BOM)	2022-01-31
14. Final Constructability Review Complete	N/R
15. Targeted Milestone Dates:	
· Siting Approval (if applicable)	N/R
· Env. Approvals (if applicable)	N/R
· Outage & Energization Plan Issued (P6 Act: Construction Rep SUBMIT OUTAGE REQUESTS)	2022-02-01
· All Material on Site (P6 Act: Material On-Site)	2021-04-01
· Outage Permit(s) Approved (P6 Act: OUTAGE / General Construction Work)	2021-05-17
16. IFC Design Complete (P6 Act: ALL Final Engineering Issued for Construction W/BOM)	2022-02-20
17. Start of Construction (P6 Act: Construction Start Milestone)	2022-04-18
18. Project ISD (P6 Act: EQUIPMENT IN SERVICE DATE)	2022-05-17
19. Relay Settings Issued (*Required for Full Funding requests) (P6 Act: ALL FINAL RELAY PROTECTIVE SETTING ISSUED)	2022-03-01
20: ISO Related Milestones (for applicable projects)	
· ISO Preferred Alternative Selected	N/R
· Conversion of Tx development costs, 183 to 107	N/R
· (following ISO preferred alternative selection)	N/R

The P6 schedule is included as Attachment B.

[6] Regulatory Approvals

N/A – No approvals are required for this project.

[7] Risk and Risk Mitigation Plans

Contingency:

$12K is budgeted for contingency for project unknowns.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions, additional duct required, etc.	Be flexible with construction and have alterative paths and solutions to conduit installations. Risk allocation is also included in the estimate.
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. Risk allocation is also included in the estimate.
3. Potential Soil Contamination	Perform soil sampling to identify any potential contamination issues. Risk allocation is also included in the estimate.

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[8] REFERENCES

References
1. Project : CD01724 [redacted] Load Transfer to [redacted]
2. Project : CS00115 [redacted] – Replace 4A-1X Transformer
3. Project : CS00115 [redacted] – Replace 4A-3X Transformer
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. Station One-Lines	*YES*
E. Station Layout	*YES*

Project Checklist – Transmission & Substation Capital Project			
Project Name: [redacted] **Feeder 4A1 Upgrades**		**Project Number: CS00515**	
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):		Enter Date	
Cost in ISO-NE Presentation ($M) (if completed):		Enter Cost ($M)	
Is a PPA required?		No	
ISO-NE Approval Date (if completed):		Enter Date	
Is a TCA Application Required?		No	
TCA Submittal Date (if submitted):		Enter Date	
Cost in TCA Submittal ($M) (if submitted):		Enter Cost ($M)	
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?		Yes	
Are Operations & Maintenance procedures/training required?		No	
STANDARDS			
Does the project include standard equipment and designs?		Yes	
SUBSTATION ENGINEERING			
Does this impact Revenue Metering		No	
Is preliminary short circuit/ breaker duty analysis required?		Yes	
Are there any changes to the baseline audible noise?		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] Feeder 4A1 Upgrades	**Project Number: CS00515**

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?	Yes
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

ES IMA R SUMMARY

Project Title: [redacted] Roofing Upgrades
Project No: [redacted]

Project Number: C220515
WO # Task #: 001-2 .06
Estimate rev date #: 02
Estimate Type: - Bid w/ work

Estimate #: TBD
Date of Estimate:043 -2022

Estimate done by: [redacted]
In Service date: [redacted]

ESTIMATE SUMMARY

Estimate Type: Planning

ITEM	Description	TOTAL	% of Direct	% of Total	Prices	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	[redacted]	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Env consumables/waste (Trash)	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Instrum	$600	0.2%	0.1%	$0	$0	$600	$0	$0	$0	$0	$0	$0	$0	$0
4	Hvng equipment Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	Engineering Hvng gn	$16,100	5.9%	3. %	$ 32	$0	$17,700	$0	$0	$0	$0	$0	$0	$0	$0
6	Materials (Roofing only purchased	$66,400	27.0%	16.2%	$0	$0	$66,400	$0	$0	$0	$0	$0	$0	$0	$0
7	Construction (Incl labor by	$110,800	35.9%	26.7%											
8	Roofing	$ 6,600	45.1%	0.0%	$0	$0	$110,800	$0	$0	$0	$0	$0	$0	$0	$0
9	Temporary Environmental	$ 6,600	45.1%	0.0%	$0	$0	$ 6,600	$0	$0	$0	$0	$0	$0	$0	$0
10	Perf Photographic/Team	$6,100	1.9%	1.5%	$1,700	$0	$0 .00	$0	$0	$0	$0	$0	$0	$0	$0
11	Rentals	$7,000	2.3%	1.5%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
12	Other	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	Fees	$34,000	11.8%	8.7%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
14	[redacted]	$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Direct+ Total	$314,700	100.0%	69.2%	$3,700	$0	$206,900	$0	$0	$0	$0	$0	$0	$0	$0
1	[redacted]	$20,000		36.2%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2	MOBI	$4,500		1.5%	$0	$0	$4,500	$0	$0	$0	$0	$0	$0	$0	$0
3		$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Baseline	$321,200		97.7%	$3,400	$0	$216,100	$0	$0	$0	$0	$0	$0	$0	$0
1	Contingency	$12,100		3.3%	$0	$0	$12,100	$0	$0	$0	$0	$0	$0	$0	$0
2		$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Pending	$321,200		100.0%	$3,400	$0	$230,200	$0	$0	$0	$0	$0	$0	$0	$0
1	Admin cost on Customer Contribution	$0			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2		$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3		$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total (less Customer Contribution)	$321,200			$3,400	$0	$230,200	$0	$0	$0	$0	$0	$0	$0	$0
	Cost per Inquiry (if appl)	-	#n/												
	Amount Internal and Indirect	$12,100			$0	$0	$12,100	$0	$0	$0	$0	$0	$0	$0	$0
1	Total Internal - Bellevue	$12,100			$0	$0	$12,100	$0	$0	$0	$0	$0	$0	$0	$0
	Total Internal - Contract	$0			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Internal	$66,400			$0	$0	$66,400	$0	$0	$0	$0	$0	$0	$0	$0

NOTE: If no Contingency is 0% of Project Total (no or limit exceptions) and/or if not set rate is)

Rollover Items			
	20%	-	20%
	$400,000	-	$667,000

[redacted]

Project Scope:
Can dp's and CCM / tie in
[redacted]

We can't - would not - whole new Bellevue roof
Also 10k

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT_Redmond

Engineer - Eg. owner advises and tests and it is at this test schedule
Materials - Eg. Roofing only - without 1 sqft - Estimator has yet used in the design. Will / doesn't write rebates and if @ the next estimate - engineers, office rates - owner's assumes - and @ 0 orders as set me.
No Site Visits, or Eg. Estimate - without 1 sqft - Estimator has yet used in the design. Will / doesn't write rebates and if @ the next estimate - engineers, office rates - owner's assumes - and @ 0 orders as set me.

RISKS

1. Underground obstructions, additional duct required, etc.	$	12,000
2. Severe Weather, Delays, OT	$	140,000
3. Soil Contamination	$	140,000
	$	-
	$	-
	$	-

Reference Assumptions PPA Rev [illegible]

Estimate #: TBD
Date of Estimate:043 -2022

Project Number: C220515
WO # Task #: 001-2 .06

TOTAL w/ actual broken out

Under 1 thousand	$	-
Env consumables	$	-
Instrum	$	600
Hvng equipment Permits	$	-
Engineering Hvng gn	$	17,600
Materials (Roofing only purchased	$	66,400
Construction (Incl labor by	$	107 .00
Roofing	$	6 .00
Temporary Environmental	$	6,100
Perf Photographic/Team	$	7,000
Rentals	$	[redacted]
Other	$	-
Fees	$	[redacted]
[redacted]	$	-
		$314,000
[redacted]	$	1[redacted]
MOBI	$	4,500
	$	-
		$320,500
Contingency	$	12,100
	$	-
		$321,100
	$	-
	$	-
	$	-
		$321,100
	$	12,100
	$	66,400
Rollover Items		$253,700
Rollover Items		20%

OSTXX-CONSTRUCTION	R		Prior Mhrs	Prior DOLLARS	2021 Mhrs	2021 DOLLARS	[redacted]	2022 DOLLARS	[redacted]	TOTAL DOLLARS
Electrical Construction	LT		0	$0	0	$0		$0		$0
General Construction	LT		0	$0	0	$0		$0		$0
SCADA / Automation	LT		0	$0	0	$0		$0		$0
Telecom - Field	LT		0	$0	0	$0		$0		$0
Construction Reps (Internal)	LT		0	$0	0	$0		$0		$0
Support Switch/Tag	LT		0	$0	0	$0		$16,960		$16,960
Other (specify)	LT		0	$0	0	$0		$0		$0
Other (specify)	LT		0	$0	0	$0		$0		$0
Other (specify)	LT		0	$0		$0		$0		$0
LT Total			0	$0	0	$0		$16,960		$16,960
Employee Expenses	AE	6%	0	$0		$0		$948		$948
Construction Purchased Material	AM	1%	0	$0		$0		$995		$995
Outside Construction Vendor	AQ		0	$0	0	$0		$86,540		$86,540
Sales tax on Constr. Vendor		0.0%	0	$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0
Inspection services (Outside Vendor)	AQ		0	$0		$0		$0		$0
Construction Reg (Outside vendor)	AQ		0	$0		$0		$23,040		$23,040
Rents and Leases	BR		0	$0		$0		$0		$0
OSTXX Subtotal				$0		$0		$108,053		$108,053
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
OSTXX Total			0	$0	0	$0		$108,053		$108,053
ENRXX-TG ENGINEERING/DESIGN										$0
Project Services/Drafting	LT		0	$0		$0		$3,180		$3,180
T- Line Engineering/Design	LT		0		0	$0		$4,240		$4,240
D- Street Engineering/Design	LT		0	$0	0	$0		$0		$0
Civil Engineering/Design	LT		0	$0		$0		$0		$0
Substation (T) Engineering/Design	LT		0	$0	0	$0		$0		$0
Substation (D) Engineering/Design	LT		0			$0		$3,816		$3,816
Protection & Controls Engineering	LT		0	$359		$0		$5,088		$5,447
Survey Engineering	LT		0	$0	0	$0		$0		$0
SCADA / Automation Engineering	LT		0	$0	0	$0		$0		$0
Telecom Engineering	LT		0	$0	0	$0		$0		$0
Other - specify	LT		0	$0	0	$0		$0		$0
Other - specify	LT		0	$0	0	$0		$0		$0
LT Total			0	$359	0	$0		$16,324		$16,683
Employee Expenses	AE	6%	0	$0		$0		$816		$816
Contractor Engineering - T-Lines	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - D-Street	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - T -Station	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - D-Station	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - PSC	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - Survey	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - SCADA / Automation	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - Telecom	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - Specify	AQ		0			$0		$0		$0
Contractor Engineering - Specify	AQ		0	$0	0	$0		$0		$0
Contractor Engineering - Specify	AQ		0	$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0
ENRXX Subtotal				$359		$0		$17,140		$17,499
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
ENRXX Total			0	$359	0	$0		$17,140		$17,499
LNDXX-TG LAND										0
Real Estate	LT		0	$0	0	$0		$0		$0
Employee Expenses	AE	6%	0	$0		$0		$0		$0
Purchase Land	AM		0	$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0
Fees and Payments	BF		0	$0						$0
LNDXX Subtotal				$0		$0		$0		$0
Escalation			0	$0						$0
		0%	0	$0		$0		$0		$0
LNDXX Total			0	$0	0	$0		$0		$0
MATXX-TG MATERIAL										$0
Eversource	AM		0			$0		$81,435		$81,435
Outside Services	AM		0			$0		$0		$0
	AM		0	$0						$0
Freight		0%	0	$0						$0
Sales Tax Eversource/outside services	3.0%	3.0%	0	$0		$0		$3,200		$3,200
Other		0%	0	$0		$0		$0		$0
MATXX Subtotal				$0		$0		$84,635		$84,635
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
MATXX Total				$0		$0		$84,635		$84,635
PSMXX-PROJECT MANAGER & SUPPORT										$0
Project Management (PM)	LT		0	$52	0	$0		$2,226		$2,278
Project Planning/Cost (IP)	LT		0	$0		$0		$318		$318
Contracts/Purchasing (CIP)	LT		0		0	$0		$212		$212
System Planning	LT		0			$0		$0		$0
Environmental	LT		0	$0	0	$0		$0		$0
SCS - Notification	LT		0	$0		$0		$26		$26
Legal	LT		0			$0		$0		$0
Estimating	LT		0			$0		$106		$106
Siting - None	LT		0			$0		$0		$0
Asset Management	LT		0			$0		$318		$318
Other -	LT		0			$0		$0		$0
Other -	LT					$0		$0		$0
Other -	LT		0			$0		$0		$0
Other -	LT		0			$0		$0		$0
LT Total				$52	0	$0		$3,206		$3,258
Employee Expenses	AE	6%	0	$0		$0		$160		$160
Project Support Vendor - PM	AQ		0		0	$0		$0		$0
Project Support Vendor - IP	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - CIP	AQ		0		0	$0		$0		$0
Project Support Vendor - System Planning	AQ		0	$1,679	0	$0		$0		$1,679
Project Support Vendor - Enviromental	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - SCS - Notification	AQ	0.0%	0		0	$0		$500		$500
Project Support Vendor - Legal	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Estimating	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Siting - None	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Asset Management	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0		$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0		0	$0		$0		$0
Property or OWP tax large proj. allowance	BR		0			$0		$0		$0
Builder All risk insurance excluding deductibles(if project is over $20m)	BR		0		0	$0		$0		$0
Fees and Payments - Environmental	BF		0		0	$0		$0		$0
Fees and Payments - Siting	BF		0	$0	0	$0		$0		$0
Fees and Payments - Other	BF		0	$0	0	$0		$0		$0
PSMXX Subtotal				$1,732		$0		$3,006		$5,596
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
PSMXX Total				$1,732	0	$0		$3,006		$5,596
REMXX-TG REMOVAL										$0
Engineering/Design	LT		0	$0	0	$0		$0		$0
Internal Construction	LT		0	$0	0	$0		$0		$0
LT Total			0	$0		$0		$0		$0
Employee Expenses	AE	10%	0	$0		$0		$0		$0
Outside Services	AQ	0.0%	0	$0		$0		$0		$0
Contractor Labor	AQ	0.0%	0	$0	0	$0		$6,780		$6,780
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0
Rents and Leases	BR		0	$0						$0
REMXX Subtotal				$0		$0		$6,780		$6,780
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
REMXX Total				$0	0	$0		$6,780		$6,780
TSTXX-TG TEST										$0
Test / Field Engr. Labor (In House)	LT			$0	0	$0		$0		$0
Lead Commissioning Engr. (LCE) (Internal)	LT			$0	0	$0		$0		$0
Employee Expenses	AE	10%		$0		$0		$0		$0
Test / Field Engr. Labor (contractor)	AQ			$0	0	$0		$29,800		$29,800
Lead Commissioning Engr. (LCE) (contractor)	AQ			$0	0	$0		$16,640		$16,640
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0
TSTXX Subtotal				$0		$0		$45,440		$45,440
Escalation			0	$0				$0		$0
		0%	0	$0		$0		$0		$0
TSTXX Total				$0	0	$0		$45,440		$45,440
SUBTOTAL PROJECT DIRECT COST			-	$2,090	0	$0		$265,914	0	$268,004
Risk										$0
Risk						$0		$36,000		$36,000
					0	$ -		$ -		$0
					0	$ -		$ -		$0
Risk Total				$0		$0		$36,000		$36,000
TOTAL PROJECT DIRECT COST (w risk)			-	$2,090	0	$0		$301,914	0	$304,004
INDIRECTS										
Non-Productive Time Allocation (ZNP)		15.1%	0	$63		$0		$5,492		$5,555
Payroll Benefits Allocation (ZFB) incl NPT		44.0%	0	$0		$0		$9,595		$9,595
Gen SVC CO Overhead (ZGS) incl NPT		80.0%	0	$360		$0		$17,975		$18,355
E&S Allocations (ZEB,ZEL,ZES)		60.0%	0	$715		$0		$126,505		$127,220
AS&E Allocations (ZAS)		1.3%	0	$34		$0		$5,306		$5,340
Stores Expense Allocation (ZST)		6.0%	0	$0		$0		$6,515		$6,515
Lobby Stock		0.0%	0	$0		$0		$0		$0
MOEC (ZM)		6.0%	0	$135		$0		$16,213		$16,348
Vehicles (ZVE)		28.0%	0	$15		$0		$10,217		$10,232
		0.0%	0	$0			0.00%	$0		$0
Indirects Subtotal				$1,341		$0		$196,808	0	$198,149
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)				$3,432		$0		$498,722		$502,154
AFUDC										$0
										$0
AFUDC (ZX)				$17	0.50%	$0	0.50%	$6,647	1	$6,664
In Service Dollars					$0		$0		0	$0
Cumulative ISS					-		-		0	$0
									0	$0
AFUDC Subtotal				$17		$0		$6,647		$6,664
TOTAL PROJECT COST - Baseline Budget				$3,449		$0		$505,369		$508,818
Contingency										$0
Contingency				$0		$0		$12,093		$12,093
Other				$ -		$ -		$ -		$0
										$0
Contingency SubTotal				$0		$0		$12,093		$12,093
TOTAL PROJECT COST - Approved Funding				$3,449		$0		$517,462		$521,110
Reimbursables / Customer Contribution										$0
Reimbursables / Customer Contribution (enter as negative)				$ -		$ -		$ -		$0
		0.0%		$0		$0		$0	0	$0

Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
80124364 [redacted] Upgrades for Amerocold (FPN CS00515)														
80124364.01 INITIALIZATION AND SCOPE DEVELOPEMENT														
[redacted]	80124364			START	Completed	[redacted]	SCHEDULE START MILESTONE		01-Sep-21 A		0			A3550, PI1200
80124364.01.01 Initial Funding														
[redacted]	80124364			PI1200	Completed		Project Initiator Develop Intitial Funding Request		01-Sep-21 A	01-Sep-21 A	0	[redacted]	START	PI1000, A1230
	80124364		EPAC-I	PI1300	Completed		Initial Funding Request Approved @ EPAC		01-Sep-21 A	01-Sep-21 A	0		PI1000	FEED-1170, PI1610, A3560, PF1000
	80124364			PI1000	Completed		Submit Initial Funding Request			01-Sep-21 A	0		PI1200	PI1300
	80124364			PI1400	Completed		Assign Project Manager Request Resources for Project Team		01-Sep-21 A	01-Sep-21 A	0		PI1610	CE1400, CE1000, CE1100, PI1500, PI1600, CE1600, CE1710, CE1700
	80124364			PI1600	Completed		Assign Cost Analyst		01-Sep-21 A	01-Sep-21 A	0		PI1400	CE1600, CE1710
	80124364		PPA-IF	PI1610	Completed		Initial Funding PowerPlan Approval Create WO#		01-Sep-21 A	01-Sep-21 A	0		PI1300	PI1400, A3790
	80124364			PI1500	Completed		Assign Scheduler		01-Nov-21 A	05-Nov-21 A	0		PI1400	CE1710, CE1600
80124364.01.02 SDC Approval														
[redacted]	80124364		SDC	SDC1000	Completed		Solution Design Committee(SDC) Approval		06-Dec-21 A	06-Dec-21 A	0		SSF1000	DE1800
	80124364			SSF1000	Completed		Develop Soultions Selection Form (SSF)		06-Dec-21 A	07-Dec-21 A	0		CGE1000	SDC1000
80124364.01.09 Project Initiation														
80124364.01.09.3 EPAC Full Funding														
[redacted]	80124364			DE1700	Completed		Conduct Initial Risk Management & SCLL Review (Project Initiator & PM)		20-Dec-21 A	21-Dec-21 A	0		DE1800	DE2000
	80124364			DE1800	Completed		Review Detail Siting & Permitting (If Required)		10-Jan-22 A	10-Jan-22 A	0		DSSE-200, SDC1000	DE1700
	80124364			DE1900	Completed		Conduct Preliminary Constructability Walk Down		11-Jan-22 A	11-Jan-22 A	0		DSSE-400, DSSE-260, DSSE-100	DE2000
	80124364		Construct	DE2000	Completed		Preliminary Constructability Review Complete		11-Jan-22 A	14-Jan-22 A	0		DE1700, DE1900	DE1600
	80124364		EST-FULL	DE1600	Completed		Create Planning Grade Estimate (+/-25% Full Funding)		14-Jan-22 A	18-Jan-22 A	0		DE2000	DE1610
	80124364		EST-FULL	DE1610	In Progress		Review Planning Grade Estimate (+/-25% Full Funding)	0	18-Jan-22 A	02-Feb-22	12		DE1600	PAFF2000
	80124364			PAFF2000	Not Started		Submit Full Funding PAF for Internal Review	0	03-Feb-22	07-Feb-22*	3		DE1610	PAFF2100
	80124364		PAF Submit	PAFF2100	Not Started		Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	1	08-Feb-22	15-Feb-22	6		PAFF2000	PAFF2105
	80124364			PAFF2105	Not Started		EPAC Full Funding Meeting	0		16-Feb-22*	0		PAFF2100	PAFF2200
	80124364			PAFF2200	Not Started		Incorporate EPAC Full Funding PAF Review Comments	17	17-Feb-22	24-Feb-22	5		PAFF2105	FF1000
	80124364		EPAC-F	FF1000	Not Started		EPAC Full Funding Approval	17	25-Feb-22	03-Mar-22	5		PAFF2200	FF1010, A3500, A3540
	80124364		PPA-FF	FF1010	Not Started		Full Funding PowerPlan Approval	196	04-Mar-22	17-Mar-22	10		FF1000	
80124364.01.12 T-Minus Milestones														
80124364.01.12.01 Civil T-Minus Milestones														
[redacted]	80124364	T-26.05	ENG-PRELIM	AT2605	Completed		Preliminary Design / Engineering Completed			03-Jan-22 A	0		DSSE-100	AT00
	80124364	T-18.11	ENG-DTL	AT1811	Completed		Detail Design/Engineering Completed			12-Jan-22 A	0		DSSE-205	AT00
	80124364	T-24.04		AT2404	Completed		DETERMINE / ASSIGN LCE (LEAD COMMISSIONING ENGINEER)			14-Jan-22 A	0		LCE200	AT00
	80124364	T-08.05.Civil	BG-IFC	AT0805C	Not Started		Civil IFC - Civil (BG) w/BOM	76		31-Jan-22	0		DSSE-120	AT00
	80124364	T-12.01		AT1201	Not Started		SCADA Date (Tab) Sheets/Signal List Sent to LCC	47		01-Mar-22	0		DSSE-990	AT00

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Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
[redacted]	80124364	T-04.04		AT0404	Not Started	[redacted]	ALL FINAL RELAY PROTECTIVE SETTING ISSUED	47		01-Mar-22	0		DSSE-440	AT00
	80124364	T-04.01		AT0401	Not Started		ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	44		04-Mar-22	0		DSSE-560	AT00
	80124364	T-13.01		AT1301	Not Started		COMMISSIONING PLAN COMPLETE	20		28-Mar-22	0		LCE500	AT00
	80124364	T-02.03		AT0203	Not Started		CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	0		03-Apr-22	0		A1170	AT00
	80124364	T-00	SOC	AT00	Not Started		AT-00 START OF CONSTRUCTION - Civil	0	18-Apr-22*		0		AT0203, AT0401, AT1301, AT1201, AT2404, AT0805C, AT0404, AT1811, AT2605	A1120, CSM
80124364.01.12.02 Electrical & P&C T-Milestones														
[redacted]	80124364	T-26.05	ENG-PRELIM	BT2605	Completed		Preliminary Design / Engineering Completed			03-Jan-22 A	0		DSSE-200, A3380	BT00
	80124364	T-18.11	ENG-DTL	BT1811	Completed		Detail Design/Engineering Completed			12-Jan-22 A	0		DSSE-205, DSSE-410	BT00
	80124364	T-24.04		BT2404	Completed		DETERMINE / ASSIGN LCE (LEAD COMMISSIONING ENGINEER)			14-Jan-22 A	0		LCE200	BT00
	80124364	T-08.05.Elect	AG-IFC	BT0805E	Not Started		Elect IFC - Electrical (AG) w/Final BOM	83		31-Jan-22	0		DSSE-240	BT00
	80124364	T-08.05	ENG-IFC	BT0805	Not Started		ALL Final Engineering Issued for Construction W/BOM	58		31-Jan-22	0		DSSE-120, DSSE-240, DSSE-220	BT00
	80124364	T-08.05.P&C	P&C-IFC	BT0805P	Not Started		P&C IFC - P&C w/BOM	83		31-Jan-22	0		DSSE-220	BT00
	80124364	T-04.09		BT0409	Not Started		BT-04.09 ALL FIRM TOA APPLICATIONS DUE TO LCC (for DISTRIBUTION Non-transformer equipment)	38		10-Feb-22*	0		A1250	BT00
	80124364	T-12.01		BT1201	Not Started		SCADA Date (Tab) Sheets/Signal List Sent to LCC	54		01-Mar-22	0		DSSE-990	BT00
	80124364	T-04.04		BT0404	Not Started		ALL FINAL RELAY PROTECTIVE SETTING ISSUED	54		01-Mar-22	0		DSSE-440	BT00
	80124364	T-12.02		BT1202	Not Started		P/C DESCRIPTION / DRAFT OPERATING INSTRUCTIONS ISSUED	47		08-Mar-22	0		DSSE-460, DSSE-930, DSSE-920, DSSE-470	BT00
	80124364	T-13.01		BT1301	Not Started		COMMISSIONING PLAN COMPLETE	27		28-Mar-22	0		LCE500	BT00
	80124364	T-02.03		BT0203	Not Started		CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	0		10-Apr-22	0		A1170	BT00
	80124364	T-04.01		BT0401	Not Started		ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	9		15-Apr-22	0		DSSE-1010, DSSE-550, TRANS-570	BT00
	80124364	T-00	SOC	BT00	Not Started		B-T-00 - START OF CONSTRUCTION - WO#	0	25-Apr-22*		0		DSSE-240, DSSE-120, BT2605, BT1811, BT2404, BT0805E, BT0805, BT0805P, BT0409, BT0203, BT1201, BT0404, BT1202, BT1301, BT0401	A1130, A1140, TOA-Const
80124364.03 ENVIRONMENTAL APPROVALS AND PERMITS														
80124364.03.00 PREPARE COMPLIANCE MATRICES - REGULATORY & COMMITMENTS														
[redacted]	80124364			A1230	In Progress	[redacted]	Prepared Compliance Matrices - Regulatory	0	01-Sep-21 A	01-Apr-22	53	[redacted]	PI1200	A1170, A1220
	80124364			A1220	Not Started		Prepared Compliance Matrices - Non-Regulatory (Commitments)	-53	04-Apr-22	16-Jun-22	53		A1230	A1170
80124364.04 SITING APPROVALS AND PERMITS														
[redacted]	80124364			A3560	Completed		Permitting - PM Send Scope to Siting Team		20-Dec-21 A	27-Dec-21 A	0		PI1300	A3570
	80124364			A3570	Completed		Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)		28-Dec-21 A	11-Jan-22 A	0		A3560	A3590
80124364.05 ENGINEERING & DESIGN														
80124364.05.01 Civil Engineering														
[redacted]	80124364			DSSE-100	Completed		Design Package to Civil		06-Dec-21 A	13-Dec-21 A	0			DSSE-110, DE1900, AT2605
	80124364		ES-DTL	DSSE-110	Completed		Civil Package to Design		14-Dec-21 A	05-Jan-22 A	0		DSSE-100	DSSE-500, DSSE-120
	80124364		ES-IFC	DSSE-120	In Progress		Civil Package IFC	14	06-Jan-22 A	31-Jan-22	10		DSSE-110	NX9A-NC31, BT0805, A1170, AT0805C, A1250, BT00,

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Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
80124364.05.02 Electrical Engineering														
[redacted]	80124364			DSSE-260	Completed	[redacted]	Submit Electrical Design to Siting & Permitting for Filing w/Regulator Authority		20-Dec-21 A	21-Dec-21 A	0	[redacted]	PF1000	DE1900, A1180, A1200, A1240, A1190, A1210, TIE_0
	80124364		ES-PRELIM	DSSE-200	Completed		Detail Electrical Design Package Design to Drafting		29-Dec-21 A	05-Jan-22 A	0		PF1000, A3380	DE1800, DSSE-205, BT2605
	80124364		ES-DTL	DSSE-205	Completed		Detail Electrical Design Package Drafting		06-Jan-22 A	12-Jan-22 A	0		DSSE-200	AT1811, FEED-530, DSSE-210, DSSE-520,
	80124364		ES-100%	DSSE-210	In Progress		Final (100%) Electrical Design Package IFR	14	13-Jan-22 A	18-Jan-22	0		DSSE-205	LCE100, DSSE-220, DSSE-240, DSSE-230
	80124364			DSSE-230	Not Started		Electrical Engineering - BOM Complete	236	18-Jan-22	19-Jan-22	2		DSSE-210	
	80124364		ES-IFC	DSSE-240	Not Started		Electrical Engineering - Electrical Package IFC (Physical & Electrical)	14	18-Jan-22	31-Jan-22	10		PF1000, DSSE-210	NX9A-NC31, BT0805, BT0805E, A1170, DSSE-480, DSSE-990, A1250, BT00,
	80124364			DSSE-920	Not Started		Operating Instructions - SSED Review Draft Convex OI	33	02-Mar-22	08-Mar-22	5		DSSE-450, DSSE-440	BT1202
	80124364			DSSE-460	Not Started		Operating Instructions - SSED Review Draft Distribution OI	33	02-Mar-22	08-Mar-22	5		DSSE-450, DSSE-440	BT1202
80124364.05.04 P&C Engineering														
[redacted]	80124364		ES-CONCPT	DSSE-400	Completed		Prepare & Issue P&C Design Package to Drafting		20-Dec-21 A	22-Dec-21 A	0		FEED-1160	DE1900, DSSE-410
	80124364			DSSE-410	Completed		Drafting Prepare & Issue Back to P&C		23-Dec-21 A	28-Dec-21 A	0		DSSE-400	A3380, BT1811
	80124364		ES-PRELIM	A3380	Completed		Issue P&C Package Design		29-Dec-21 A	03-Jan-22 A	0		DSSE-410	NX9A-NC69, NX9A-EM44, DSSE-510, DSSE-200, A1010, BT2605
	80124364			DSSE-220	In Progress		SDS Complete (~= P&C IFC)	14	28-Dec-21 A	31-Jan-22	10		DSSE-210	NX9A-NC31, BT0805P, BT0805, DSSE-990, DSSE-440, DSSE-450, A3470
	80124364			DSSE-450	Not Started		Operating Instructions - Prepare and Issue Draft Distribution OI to Engineering	33	01-Feb-22	01-Mar-22	20		DSSE-220	DSSE-920, DSSE-460, DSSE-930, DSSE-470
	80124364		CASCADE	DSSE-480	Not Started		P&C INITIATE CASCADE FORMS (Apenndix A) for Construction	51	01-Feb-22	01-Mar-22	20		DSSE-240	CFM
	80124364		SCADA	DSSE-990	Not Started		P&C INITIATE SCADA Data Sheets	33	01-Feb-22	01-Mar-22	20		DSSE-220, DSSE-240	AT1201, BT1201
	80124364			DSSE-470	Not Started		Operating Instructions - P&C Review Draft Distribution OI	33	02-Mar-22	08-Mar-22	5		DSSE-440, DSSE-450	BT1202
	80124364			DSSE-930	Not Started		Operating Instructions - P&C Review Draft Convex OI	33	02-Mar-22	08-Mar-22	5		DSSE-440, DSSE-450	BT1202
80124364.05.04.1 Relay Settings														
[redacted]	80124364		ES-RSET	DSSE-440	Not Started		Relay Settings - Prepare and Issue Relay Settings IFC	33	01-Feb-22	01-Mar-22	20		DSSE-220	DSSE-930, DSSE-470, DSSE-920, DSSE-460, AT0404, BT0404
80124364.06 MATERIAL PROCUREMENT														
[redacted]	80124364			A3790	In Progress		Material Expemption Form	8	20-Dec-21 A	21-Jan-22	4		PI1610	DSSE-510, DSSE-520, DSSE-500, FEED-530
80124364.06.1 MATERIAL FOR P&C														
[redacted]	80124364		DR-RM	DSSE-510	Not Started		MATERIAL - P&C - Prepare & Issue DR	7	18-Jan-22	24-Jan-22	5		A3380, A3790	DSSE-980
	80124364			DSSE-980	Not Started		MATERIAL - P&C - Procurement Issue PO	9	25-Jan-22	03-Feb-22	10		DSSE-510	DSSE-1000
	80124364			DSSE-1000	Not Started		MATERIAL - P&C - Material Vendor Delivery Leadtime	9	04-Feb-22	14-Apr-22	70		DSSE-980	DSSE-1010
	80124364		M-DELIV	DSSE-1010	Not Started		MATERIAL - P&C - Confirm Material Delivery to Site	9	15-Apr-22	15-Apr-22	1		DSSE-1000	BT0401
80124364.06.2 MATERIAL FOR ELECTRICAL														
[redacted]	80124364		DR-RM	DSSE-520	Not Started	[redacted]	MATERIAL - Electrical - Prepare & Issue DR	17	18-Jan-22	24-Jan-22	5		DSSE-205, A3790	DSSE-590, DSSE-1020
	80124364		DR-AGMAT	DSSE-590	Not Started		Electrical (AG) Material Ordered	17		24-Jan-22	0		DSSE-520	DSSE-1020
	80124364			DSSE-1020	Not Started		MATERIAL - Electrical - Procurement Issue PO	23	25-Jan-22	03-Feb-22	10		DSSE-520, DSSE-590	DSSE-1030
	80124364			DSSE-1030	Not Started		MATERIAL - Electrical - Material Vendor Delivery Leadtime	23	04-Feb-22	31-Mar-22	56		DSSE-1020	DSSE-550

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Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
[redacted]	80124364		M-DELIV	DSSE-550	Not Started	[redacted]	MATERIAL - Electrical - Confirm Material Delivery to Site	23	01-Apr-22	01-Apr-22	1	[redacted]	DSSE-1030	BT0401
80124364.06.3 MATERIAL FOR CIVIL														
[redacted]	80124364		DR-RM	DSSE-500	Not Started		MATERIAL - CIVIL - Prepare & Issue DR	31	18-Jan-22	24-Jan-22	5		DSSE-110, A3790	DSSE-600, DSSE-1040
	80124364		DR-BGMAT	DSSE-600	Not Started		Civil (BG) Material Ordered	31		24-Jan-22	0		DSSE-500	DSSE-1040
	80124364			DSSE-1040	Not Started		MATERIAL - CIVIL - Procurement Issue PO	44	25-Jan-22	03-Feb-22	10		DSSE-500, DSSE-600	DSSE-1050
	80124364			DSSE-1050	Not Started		MATERIAL - CIVIL - Material Vendor Delivery Leadtime	44	04-Feb-22	03-Mar-22	28		DSSE-1040	DSSE-560
	80124364		M-DELIV	DSSE-560	Not Started		MATERIAL - CIVIL - Confirm Material Delivery to Site	44	04-Mar-22	04-Mar-22	1		DSSE-1050	AT0401
80124364.06.4 MATERIAL FOR Reactor														
[redacted]	80124364		DR-MM	FEED-530	Not Started		MATERIAL- Reactor - Prepare & Issue DR	48	18-Jan-22	24-Jan-22	5		DSSE-205, A3790	TRANS-1180, TRANS-1060
	80124364		DR-AGMM	TRANS-1180	Not Started		MATERIAL- Reactor Ordered	48		24-Jan-22	0		FEED-530	TRANS-1060
	80124364			TRANS-1060	Not Started		MATERIAL- Reactor - Procurement Issue PO	69	25-Jan-22	03-Feb-22	10		FEED-530, TRANS-1180	TRANS-1070
	80124364			TRANS-1070	Not Started		MATERIAL- Reactor - Material Vendor Delivery Leadtime	69	04-Feb-22	13-Feb-22	10		TRANS-1060	TRANS-570
	80124364		M-DELIV	TRANS-570	Not Started		MATERIAL- Reactor - Confirm Material Delivery to Site	69	14-Feb-22	14-Feb-22	1		TRANS-1070	BT0401
80124364.07 CONSTRUCTION														
[redacted]														
[redacted]	80124364			A1120	Not Started		Construction - Civil	0	18-Apr-22*	01-May-22	14		AT00	A3620, CFM, A1130, A1140
80124364.07.04 CONSTRUCTION - ELECTRICAL														
[redacted]	80124364			A1130	Not Started		Construction - Electrical	0	25-Apr-22*	02-May-22	7		A1120, BT00	CFM, NX9A100
80124364.07.05 CONSTRUCTION - P&C														
[redacted]	80124364			A1140	Not Started		Construction - P&C Implement Relay Settings	0	25-Apr-22*	02-May-22	7		A1120, BT00	CFM
80124364.07.92 CONSTRUCTION - CONST.REP TASKS														
[redacted]	80124364		TOA	A1250	Not Started		Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage)	38	01-Feb-22	10-Feb-22	10		DSSE-240, DSSE-120	BT0409
	80124364		CASCADE	A1260	Not Started		Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD)	170	18-May-22	27-May-22	10		CFM	A1030
80124364.07.94 CONSTRUCTION RESOURCE TRACKING														
[redacted]	80124364			A1070	Not Started		RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT	16	25-Apr-22	25-Apr-22	1		TOA-Const	CFM
	80124364			ConRep-S	Not Started		RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP	-6	18-Apr-22	17-May-22	30		CSM	CFM
	80124364			A1080	Not Started		RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN	-6	17-May-22	17-May-22	1		TOA-Const	CFM
	80124364			CONSTelec	Not Started		RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	-6	18-Apr-22	17-May-22	30		CSM	CFM
80124364.07.96 CONSTRUCTION OUTAGES														
[redacted]	80124364		CRH	CSM	Not Started		Construction Start Milestone	0	18-Apr-22		0		AT00	ConRep-S, TOA-Const, CONSTelec
	80124364			CFM	Not Started		Construction Finish Milestone	-6		17-May-22	0		NX9A-EM74, NX9500, A1140, DSSE-480, A1080, A1150, A1130, A1070, A1120, LCE620, ConRep-S,	NX9FINAL50, A1020, A1030, A1040, A1110, DSSE-1100, A1270, ISD, A1260, NX9FINAL10, LCE800,
	80124364		ISD	ISD	Not Started		EQUIPMENT IN SERVICE DATE (requires FOOB constraint)	-6		17-May-22*	0		LCE610, LCE700, CFM	LCE800
	80124364		OUT	TOA-Const	Not Started		OUTAGE / General Construction Work	-6	25-Apr-22	17-May-22	23		CSM, NX9A100, BT00	A1070, A1080
80124364.09 TEST AND COMMISSION														
80124364.09.01 TEST - SERVICES STAFFING DECISION														

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Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
[redacted]	80124364			A1010	Completed	[redacted]	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC		14-Jan-22 A	14-Jan-22 A	0	[redacted]	A3380	A3470, A3510
80124364.09.01.01 TEST SERVICES - CONTRACTOR OF CHOICE														
[redacted]	80124364			A3470	Not Started		TEST SERVICES - COC - Eversource Provides Spec / RFQ to COC	14	01-Feb-22	07-Feb-22	5		A1010, DSSE-220, DSSE-240, DSSE-120	A3480
	80124364			A3480	Not Started		TEST SERVICES - COC - COC Evaluates Spec and Provides Quote	14	08-Feb-22	22-Feb-22	10		A3470	A3490
	80124364			A3490	Not Started		TEST SERVICES - COC - Eversource Reviews Quote from COC	14	23-Feb-22	08-Mar-22	10		A3480	A3500
	80124364			A3500	Not Started		TEST SERVICES - COC - Eversource Awards Contract - PO Issued	14	09-Mar-22	15-Mar-22	5		A3490, FF1000	LCE320, LCE310
80124364.09.02 LCE PLANNING														
[redacted]	80124364			LCE100	Completed		PM to Request Lead Commissioning Engineer GO/NO-GO {Preliminary or Detail design is often the predecessor}		28-Dec-21 A	29-Dec-21 A	0		DSSE-210	LCE200
	80124364			LCE200	Completed		Assign Lead Commissioning Engineer		30-Dec-21 A	14-Jan-22 A	0		LCE100	LCE310, AT2404, BT2404
	80124364		V-COMPLN	LCE400	Not Started		Develop Test and Commissioning Plan	14	18-Mar-22	21-Mar-22	2		LCE320, LCE310	LCE500
	80124364		ES-COMPLN	LCE500	Not Started		LCE Review and Approve Vendor's Test and Commissioning Plan	14	22-Mar-22	28-Mar-22	5		LCE400	LCE620, AT1301, LCE610, BT1301
80124364.09.04 TEST ACTIVITIES														
[redacted]	80124364			LCE310	Not Started		Mobilize LCE Prior to Construction	20	16-Mar-22	17-Mar-22	2		A3500, A3540, LCE200	LCE400
	80124364			LCE320	Not Started		Mobilize Testing Vendor Prior to Construction	20	16-Mar-22	17-Mar-22	2		A3500, A3540	LCE400
	80124364			LCE610	Not Started		LCE Oversee Execution of Test and Commissioning Plan	24	29-Mar-22	17-Apr-22	20		LCE500	ISD
	80124364			LCE620	Not Started		Execute Test and Commissioning Plan	19	29-Mar-22	21-Apr-22	24		LCE500	LCE700, CFM
	80124364			LCE700	Not Started		LCE Ensure Test Group Prepare Electrical Field Mark Ups	19	22-Apr-22	22-Apr-22	1		LCE620	ISD
80124364.10 PROJECT CLOSE OUT														
[redacted]	80124364			DSSE-1100	Not Started		Complete TD-707 Turnover Document / Forward to SOC & Mailing List	117	18-May-22	24-May-22	5		CFM	A1040
	80124364		ES-FLDASB	A3620	Not Started		Prepare & Submit Civil Field Mark Ups (Tie after Last Civil Construction Activity)	22	02-May-22	31-May-22	21		A1120	A3730
	80124364		ES-FLDASB	A3640	Not Started		Test Prepare & Submit Electrical Field Mark Ups	0	02-Jun-22	30-Jun-22	21		LCE900	A3750
	80124364		ES-FLDASB	A3650	Not Started		Prepare & Submit P&C Field Mark Ups	0	02-Jun-22	30-Jun-22	21		LCE900	A3770
	80124364		PM	A3660	Not Started		PM to Document Civil As-Built Drawings Complete	22	25-Aug-22	25-Aug-22	1		A3740	A3670
	80124364		PM	A3680	Not Started		PM to Document Electrical As-Built Drawings Complete (Electrical, P&C)	0	27-Sep-22	27-Sep-22	1		A3780, A3760	A3710, A3690
	80124364		ES-FLSASB	A3670	Not Started		FE Files Civil Design Drawings at Station	22	26-Aug-22	07-Oct-22	30		A3660	A1040
	80124364		ES-FLSASB	A3690	Not Started		FE Files Substation Design Drawings at Station	0	28-Sep-22	09-Nov-22	30		A3680	A1040
	80124364		ES-FLSASB	A3710	Not Started		FE Files P&C Design Drawings at Station	0	28-Sep-22	09-Nov-22	30		A3680	A1040
80124364.10.01 Civil As-Builts														
[redacted]	80124364		ES-ASB	A3730	Not Started		Eversource Engineering Verifies Civil Mark Ups and Updates As-Built Drawing Package	22	01-Jun-22	17-Aug-22	55		A3620	A3740
	80124364		ES-ASB	A3740	Not Started		ES Create Civil Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	22	18-Aug-22	24-Aug-22	5		A3730	A3660
80124364.10.02 Electrical As-Builts														
[redacted]	80124364		ES-ASB	A3750	Not Started		Eversource Engineering Verifies Electrical Mark Ups and Updates As-Built Drawing Package	0	01-Jul-22	19-Sep-22	55		A3640, LCE800	A3760
	80124364		ES-ASB	A3760	Not Started		Electrical Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	0	20-Sep-22	26-Sep-22	5		A3750	A3680
80124364.10.03 P&C As-Builts														
[redacted]	80124364		ES-ASB	A3770	Not Started		Eversource Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package	0	01-Jul-22	19-Sep-22	55		A3650	A3780

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Project Lead	Project ID	T-Milestones	Activity Flag	Activity ID	Activity Status	Activity Scheduler	Activity Name	Total Float	Start	Finish	Remaining Duration	Resources	Predecessors	Successors
[redacted]	80124364		ES-ASB	A3780	Not Started	[redacted]	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	0	20-Sep-22	26-Sep-22	5	[redacted]	A3770	A3680
80124364.10.04 Test Closout														
[redacted]	80124364			LCE800	Not Started		LCE Ensures Marked up Prints Ready for Pick-up	30	18-May-22	18-May-22	1		CFM, ISD	A3750
	80124364			LCE900	Not Started		LCE Review Test Data and Issue Commissioning Report	0	18-May-22	01-Jun-22	10		CFM	A3650, A3640
80124364.10.05 SITE RESTORATION CLOSEOUT														
[redacted]	80124364			A1110	Not Started		Restore / Remediate Site	143	18-May-22	01-Jun-22	10		CFM	FINISH
80124364.10.06 MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLO														
[redacted]	80124364			A1020	Not Started		Cost Analyst Prepares FINAL Units of Property	123	18-May-22	29-Jun-22	30		CFM	FINISH
	80124364			A1030	Not Started		Asset Management Complete Asset Update(s) in CASCADE	115	31-May-22	12-Jul-22	30		A1260, CFM	FINISH
80124364.10.07 PROJECT MANAGEMENT CLOSEOUT														
[redacted]	80124364			A1270	Not Started		Prepare TD-707 Document	122	18-May-22	29-Jun-22	30		CFM	FINISH
	80124364			A1040	Not Started		PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	0	10-Nov-22	23-Dec-22	30		CFM, A3690, A3670, A3710, DSSE-1100	FINISH
	80124364			FINISH	Not Started		Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)	0		27-Dec-22	0		NX9A-EM74, NX9FINAL60, A1020, A1040, A1110, A1270, A1030, NX9FINAL20	
80124364.13 OVERHEAD / INDIRECTS														
80124364.13.01 PROJECT MANAGEMENT														
[redacted]	80124364			A1170	Not Started		Prepare CAN (Construction Authorization Notice)	0	21-Mar-22	01-Apr-22	10		A1220, DSSE-240, DSSE-120, A1230	AT0203, BT0203

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

Project Title: [redacted] r Upgrade	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00515	**Project Constructability Phase:**	
Date(s) of Constructability Review: 01/10/2022	☐ Conceptual Engineering Design	
Click to enter a date	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	

Project Scope Statement:
The project will increase the rating of the 4A1 circuit by replacing the existing 4A1-1W, 520A reactor with new 700A reactor. In addition, a new underground cable system will be installed on the 4A1 feeder to connect the feeder to new distribution lines to the Farmington 1C substation.

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☒	☒	Project Management	[redacted]	☒	☐	S/S Engineering	
☐	☐	Asset Management		☐	☐	P&C Engineering	
☒	☒	Constr. Management		☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☐	Telecom	
☐	☐	S/S Operations**		☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	ROW T&D Rights & Survey	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☒	☒	Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Project Services (Outreach)	
☐	☐	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 the review even if external construction resources are planned

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

[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:

Wayne Vargas / _____[redacted]_____ _____1/10/22_____

Name / Signature *Date*

Documents available for use prior to Constructability Review					
[X]	Document	[X]	Document	[X]	Document
☒	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	☒	Proposed Schedule	☐	Construction Sequence/Timeline
☐	Previous Notes / Comments / Observations	☒	Major Material / Equipment List	☐	Replace / Reuse of equipment

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1	700 A reactors, installed on another feeder in SS, are wider than existing reactors. These were installed as an emergency and spacing does not meet existing requirements – exemption was granted by SS ENG.	Eng ensure design standards met
2	UG conduit planned for 2 foot depth. Where are windows in Manhole? Will most likely need to slop down to windows.	Design to accommodate
3	Lead to for manholes may be long	Order as soon as material exemption approved
4		
5		

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management**		

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
1	**Scope of Work** - Is scope adequately developed and sufficiently detailed for intended deliverable? - Any complimentary projects or other adjacent obsolete equipment for inclusion? - Any overlapping projects that could impact work/outages? - Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence - Any remote station impacts? - Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	X	1. Scope is well defined. No known overlapping projects. Co-ordinating with distribution as they are responsible for running cables to feeder. 2. [redacted] • Has structural steel for reactors been identified? 3. [redacted] Where are windows in Manhole? Will most likely need to slop down to windows.
2	**Materials Identified/Ordered** -Any concerns with BOM/Major Materials? Review BOM lead times and project need dates -Specialty Major Materials: Identify Specialty Equipment & Materials potentials - temporary/replacement - long lead items? -Any Materials needed to facilitate construction access?	☐	1. Reactors are in stock – must get reservation once material exemption approved. Should pull and get to site as soon as exemption approved. 2. Manholes may have long lead times, depending on supplier.
3	**Control House** - Review Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station breaker availability and service loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	X	No Control house work.
4	**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	X	

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
5	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Pre-Project Sound Measurements Needed? Sound Walls? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Assess condition of existing yard equipment foundations and viability for reuse (if proposed) -Review station expansion areas (if needed) for structures, old foundations, etc. -Any Steel Structural Plan Considerations? -Any impacts to construction plan?	☐	No station expansion needed, but temporary fencing will be required during construction when manhole installed outside fence. All work on Eversource property.
6	**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?	X	There is no existing UG conduits identified in proposed route of new UG conduit.
7	**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.)	X	There is no existing UG conduits identified in proposed route of new UG conduit.
8	**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	X	

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	X	
10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	X	N/A
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	X	N/A
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	X	N/A
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e., Low Bus, Deterioration, etc.**		
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	X	
3	**Identify/Consider Required Depts for Construction?** -Who is constructor: Internal vs External Resources -S/S Ops, GO, Test, Field Engineering, etc. -Specialty Contractors Required? -Required Oversite Needed - Estimated level of CR and LCE support needed	☐	Internal crews to do construction. Need to confirm with testing internals crews will perform.

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
4	**Site Plan, Access, and Temporary Construction Facilities:** -Confirm maintenance access for proposed new or replaced equipment -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) - Identification of Unique Requirements, i.e. (access bridges, station service, etc.) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any police details needed for deliveries, restricted hours, and/or need for extended hour approvals -Any Sanitary Civil Requirements? (Septic tanks, etc.) -Review turning radius for delivery trucks (if critical) -Any Substation Access and site/yard access Limitations? -Office Trailer Needs: Facilities, Utilities, Restroom, Container, Dumpster Space -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Where will new vs removed equipment go? -Construction permit for trailers outside substation fence?	X	No access issues.
5	Unique Equipment Considerations: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser	X	

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	**Outage & Energization Plan and Construction Sequence:** *Review electrical working clearances for equipment during construction, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized.* ***Considerations:*** -Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -Distribution Clearances -Clearance Holder Assignments -Drawings vs Field Conditions -Outage boundaries and interconnections -Phased approach needs for additional mobilizations -Verify outage sequence supports the planned construction sequence and timeline. (Lead Commissioning Engineer "LCE", Substation Operations, and Outage Planner input) -Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions -Additional outage requirements: Railroad Catenaries, Fiber outage, SCADA outage, Relay permissions -Seasonal or weather conditions impacts		2 outages will be required. One outage will be needed to replace the reactors (directly under bus). Another outage will be needed and co-ordinated with distribution when connection to feeder is made to OH bus.
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	X	
8	Need for mobile generator and where connected (if needed)	X	Mobile generator not needed
9	Need for mobile battery and where connected (if needed)	X	Mobile battery not needed
10	OT work required or Notable Permit Conditions (special hours)?	☐	
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	X	

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Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☐	Should pre-characterize soil near manhole install for offsite disposition of soil.
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	X	
3	Risk or presence of PCB's/Asbestos/Lead/SF6	X	
4	Transformer Spill Containment Recommended?	X	
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	X	
6	Environmental oversight considerations? (Inspection type/Interval)	☐	
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	X	N/A
D	**Siting, Project Services, and ROW T&D Rights & Survey**		
1	**Any regulatory concerns or approvals needed?** - Any concerns noted that could be mitigated by scope/design alterations? - Likely to require visual screening? What considerations (feasibility or location)? -Zoning Relief and Permits required?	X	
2	Other siting considerations?	X	No need for exemptions or modifications identified based on current scope of work.
3	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	X	
4	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	X	
5	Installation within Eversource Rights - Is Rights and Restrictions Review required?	X	

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	Expanding Footprint / New Buildings / Fence line or future Expansion Plans?	X	
7	Proposed Equipment on same property? - Any Encroachments	X	
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	X	
2	Space on existing panels for new equipment? (front & rear of panel fronts)	X	
3	Panel fronts conform to drawings	X	
4	Access to bring new panels into control enclosure	X	
5	Nameplate list and location of nameplates	X	
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	X	
7	Temporary protection, relays, control cable needed? How long will they be required?	X	
8	Will relay setting changes be needed? Any additional outage requirements for changes?		P&C to confirm if any setting changes needed for higher current rated reactor.
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	X	
2	Review path to get telecom circuits into the station and paths within the control house. Determine whether new underground duct or overhead tray work is needed.	X	
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	X	
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	X	
5	Review and list any remote station impacts/updates	X	
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	X	

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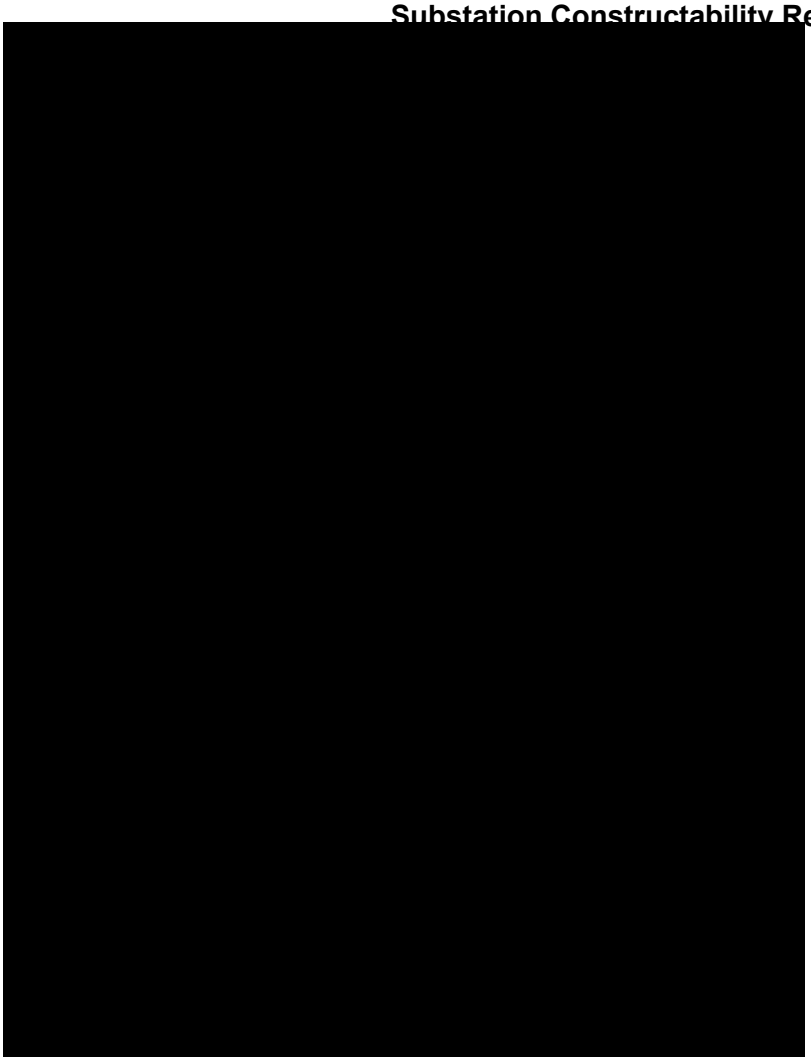
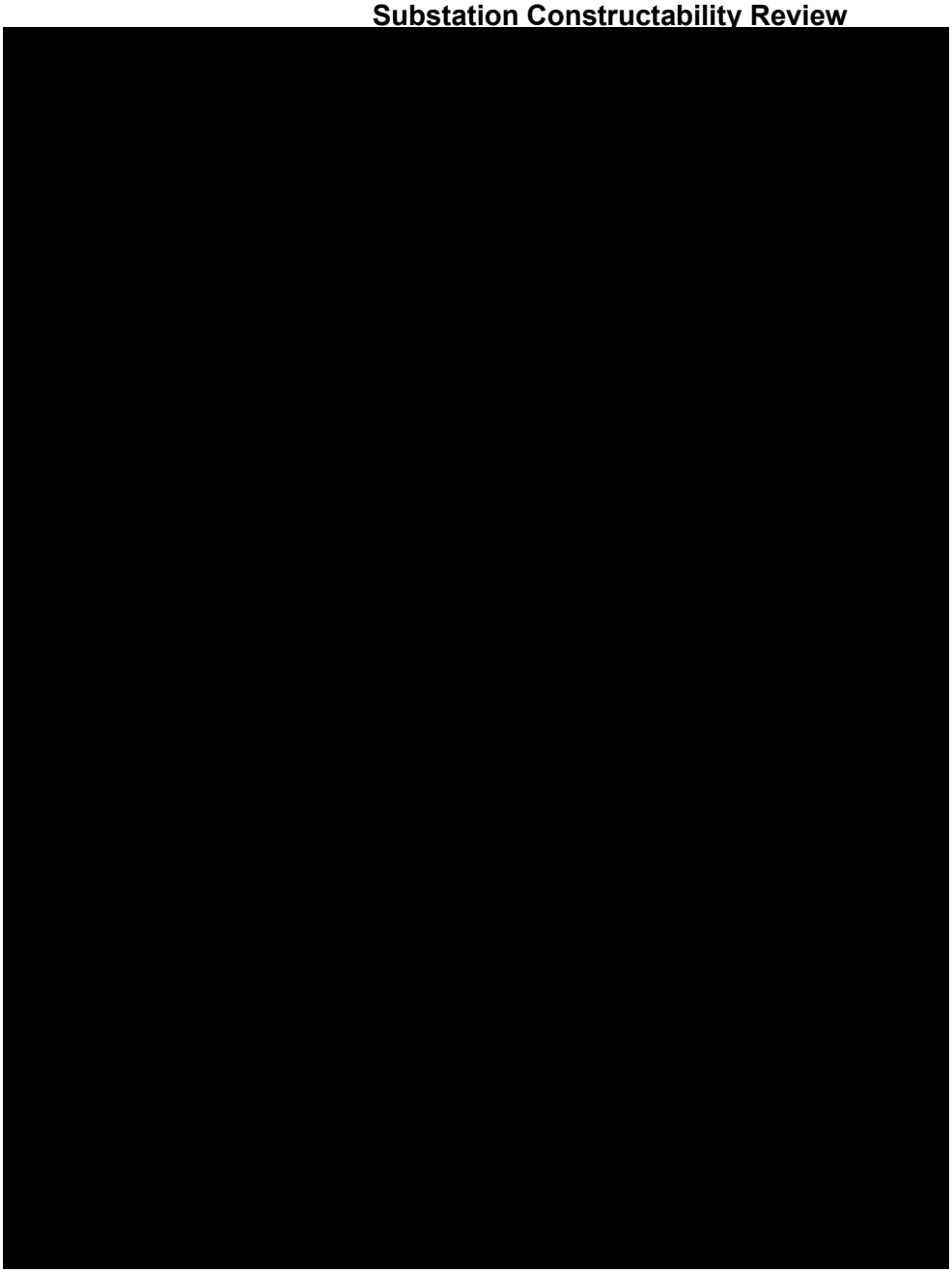
Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	X	
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	X	
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	X	

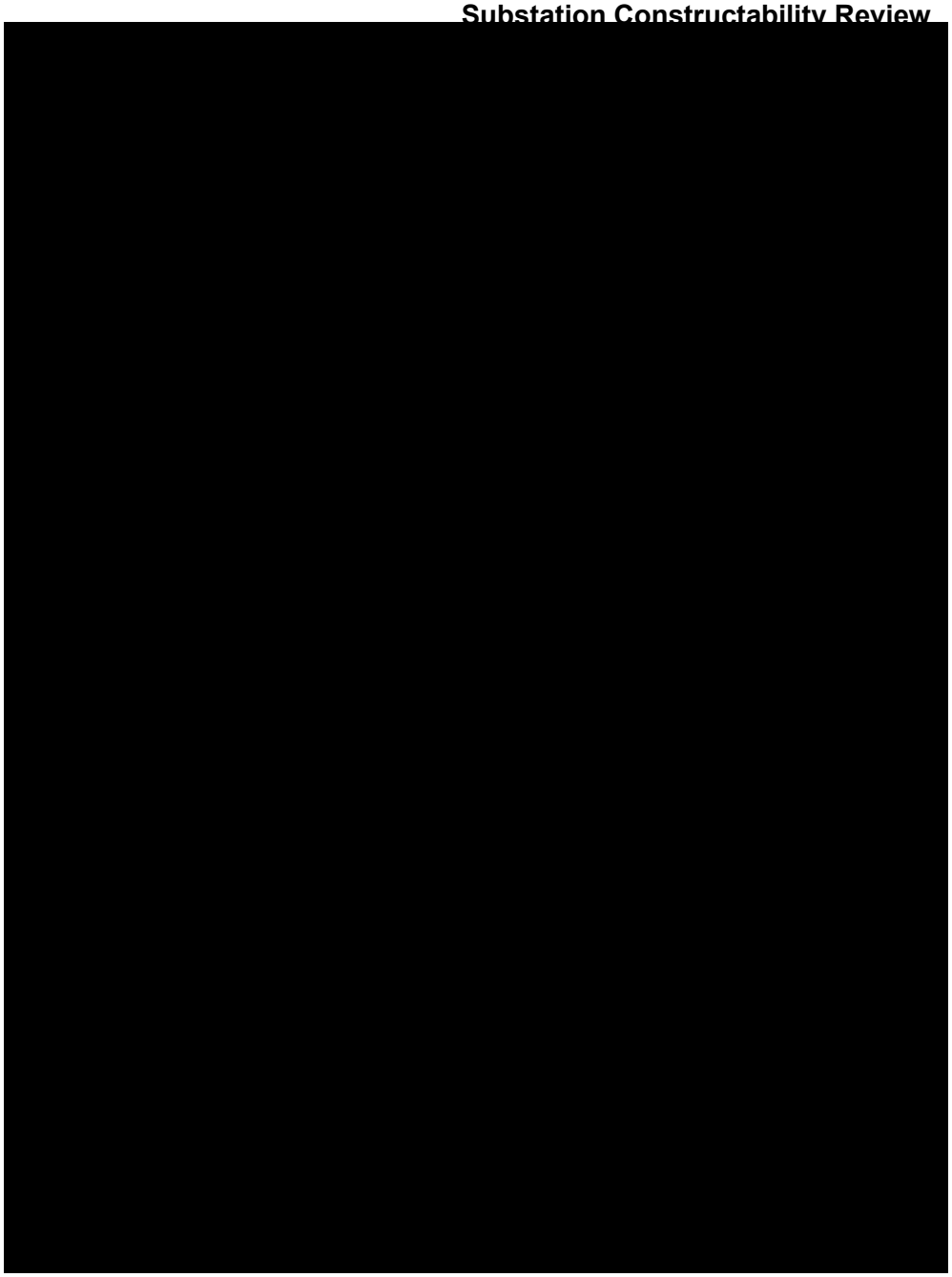
Photos



Feeder 4A1 existing Reactors



Feeder 4A1 existing Reactors



Proposed routing of UG conduit inside SS



[redacted]