EVERSOURCE

Operations Project Authorization Form

Approved on March 2, 2022 EPAC

Link to Meeting Minutes

Project Title: [redacted] Mobile Position	**Project Number: CS00429**
Date Prepared: 03/11/2022	**Company: Eversource CT**
Organization: System Planning	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Transformers**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80099644**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: June 2023	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type (check all that apply):** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Total Capital Request: $2.477M	**Authorization Type: Full Funding**

[1] Executive Summary

This project is seeking Full Funding approval of $2.477M for project number CS00429 to support material procurement, construction, and test services for upgrades to [redacted]

This Project had $100K of Initial Funding approved in PowerPlan on December 7, 2021. To date, $48K has been spent to develop conceptual alternatives, associated cost estimates, and completion of preliminary design of the chosen solution. This project solution was approved by the Solution Design Committee (SDC) on October 13, 2021.

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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	2024	2025	2026	2027	Total
1. ROW / Easements / Land Acquisition									
2. Environmental Approvals / Permits									
3. Outreach			$2	$1					$2
4. Siting Approvals / Permits			$10	$4					$13
5. Engineering / Design		$48	$23	$8					$79
6. Materials (Eversource purchased)			$276	$2					$278
7. Construction (incl matl's by contractors)			$593	$190					$783
8. Testing / Commissioning				$132					$132
9. Project Mgmt Team			$26						$26
10. Removals			$9						$9
11. Other									
12. Risks			$130	$50					$180
SUBTOTAL DIRECTS W/ RISKS	**$100**	$48	$1,069	$386					$1,503
13. Indirects/Overhead			$568	$235					$803
14. AFUDC			$56	$57					$113
PROJECT TOTAL – BASELINE BUDGET	**$100**	$48	$1,693	$678					$2,419
15. Contingency			$43	$15					$58
TOTAL CAPITAL REQUEST	**$100**	$48	$1,736	$693					$2,477
16. Reimbursables/Customer Contribution									
PROJECT TOTAL (LESS REIMBURSABLES)	$100	$48	$1,736	$693					$2,477
O&M									
TOTAL REQUEST	**$100**	$48	$1,736	$693					$2,477

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Control Breaker Cables Failures	$30,000
2. Underground Conduit Damaged	$15,000
3. Risk related to breaker energization, Mobile Transformer install & Outage Plan	$50,000
4. Delays / outages resulting in OT work	$25,000
5. Contaminated Soil	$60,000
Total	$180,000

Explain unique payment provisions, if applicable:

Not applicable

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

Not applicable

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[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

Project Need Statement

The following project will add a mobile position at the [redacted]

[redacted]

[redacted]

Project Objectives

[redacted]

[redacted]

Project Scope

[redacted]

Substation drawings accurately reflect what exists in the field.

II. Identification of Required Engineering Studies

1. Thermal Ratings, Sound Study, structural and foundation calculations.

III. Site Development:

N/A

IV. Above Grade Design Requirements – Evaluation of substation/switchyard expansion requirements.

1. Impacts to existing yard design:
   a. Physical Impacts to substation equipment footprint – Possible.
      i. The new Mobile Transformer will require a careful layout review to ensure the new equipment will fit within the available space while meeting Eversource standard clearances.
   b. Impacts to design basis of existing grounding system – **Yes**, New Circuit switcher and Bus support stand foundations will need to be connected with existing ground grid.
   c. Impacts to Direct Lightning Stroke Protection – **No**, a lightning protection study is **not** required.
   d. Identify Yard Lighting and or Physical Security modifications – **No**, yard lighting in the substation will **not** require a detailed lighting level study.
   e. Fault current analysis will be conducted by P&C Engineering. Assuming use of the new Mobile transformer 70MX (30MVA) impedance will be approximately 21.1% on a 30MVA base at 23kV Nominal, the fault current would not be an issue supplying two feeders.
2. Above Grade Electrical Modifications/Additions:

   The above grade equipment modifications and/or additions are described below:
   a. Add 115kV Candle stick circuit switcher with existing 115kV disconnect 1C-4X1-4 switch
   b. Three phase strain bus will be installed connect Mobile Transformer 115kV to provide adequate clearances between Mobile Transformer and 115kV breaker 1C-2T-2 (52/2T) bushing. 115kV A bus support(s) will be Installed for new circuit switcher combo unit to support the strain bus.

V. Below Grade Design Requirements

1. Foundation Addition/Modifications:



VI. Site Development Requirements & Other Considerations:

1. Real Estate/Siting & Permitting Considerations (i.e., acquisitions, offset encroachment, ROW impacts):
   a. No, expansion of the existing [redacted] site is **not** required. All equipment will be installed within the existing fence
2. Environmental –
   a. Environmental impact will be determined by project team. The soil removed to install the TRENWA will be removed to an off-site location.
3. Audible Noise level Changes/Considerations: a sound study is **not required** to verify the projected noise levels do not exceed applicable regulations.
4. Identify Major Grading or drainage requirements:

a. Determine depth of existing conduits for possible interference while laying out underground TRENWA for covering up mobile transformer cables in vicinity of entry gate.

5. Identify Changes to Site/Substation yard access road: **NA**
6. T-Line Considerations: **NA**

VII. Control Enclosure Evaluation

1. Control Enclosure physical space evaluation.
2. Raceway System modifications (including BPS requirements) – This is not a BPS station.
3. AC Station Service loading and evaluation of existing AC/DC panel boards –
   a. The project team shall review arrangement for wiring AC loads and DC recloser controls and auxiliary components. The station service impact for the new AC/DC recloser controls have been evaluated and show minimal impact.
4. DC Battery/Charger Impacts and evaluation of existing DC panel boards.
   a. P&C Engineering will look into wiring the trip signals to reclosers and circuit switcher controls.
   b. There are no adverse impacts to the existing DC Battery/Charger system
5. HVAC addition/modifications – **NA**



IX. Protection & Controls Scope of Work-Existing R&CE

1. Modifications to One-Line, Three-line, Control Schematics, and Panel Drawings to reflect removals and additions.



Substation Equipment *(use as applicable, delete if N/A)*

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

Background

[redacted]

[redacted]

[redacted]



[4] ALTERNATIVES CONSIDERED

This project was presented to and approved by the Solution Design Committee (SDC) on October 13, 2021.

Alternative 1: [redacted] (This is not the preferred solution):

[redacted]

The Conceptual grade cost estimate for this design is $2.06M.

Alternative 2: [redacted] (this is the preferred solution):

[redacted]

[redacted]



The Conceptual grade cost estimate for this design is $2.46M

Alternative 3: [redacted] **(This is not the preferred solution):**



The high-level cost estimate for this design is $12.0M. The high-level estimate comes from Substation Engineering using an estimate of $4.0M per transformer.

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
Project Need by Date	06/30/2023
Date of IFR Approval	12/17/2020
Complete Conceptual design of Alternative(s)	9/29/2021
Initiator complete SSF form	10/04/2021
SDC Presentation Date(s)	10/13/2021
Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval but do not require ISO alternative selection)	N/A
Preliminary Design Complete	02/08/2022
Preliminary Design Constructability review complete	01/26/2022
Full funding estimate complete	02/08/2022
Full funding estimate review	02/08/2022
Initiator complete PAF form	02/18/2022
EPAC Funding Dates (Partial and/or Full)	03/02/2022
Detail Design Complete	03/07/2022
Final Constructability Review Complete	01/26/2022
Targeted Milestone Dates:	
· Siting Approval (if applicable)	
· Env. Approvals (if applicable)	N/A
· Outage & Energization Plan Issued	June
· All Material on Site	09/22/2022
· Outage Permit(s) Approved	TBD
IFC Design Complete	04/04/2022
Start of Construction	06/20/2022
Project ISD	06/02/2023
Relay Settings Issued (*Required for Full Funding requests)	03/24/2022
ISO Related Milestones (for applicable projects)	N/A
· ISO Preferred Alternative Selected	N/A
· Conversion of Tx development costs, 183 to 107 · (following ISO preferred alternative selection)	N/A
· PAC Presentation	N/A
· TCA Submittal	N/A

See Attachment B for the P6 schedule.

[6] Regulatory Approvals

An Exempt Modification is required to be submitted to the Connecticut Siting Council

[7] Risk and Risk Mitigation Plans

Contingency:

A contingency amount of $58.1K has been included in the total project estimate to account for any unknows.

Risk Mitigation:

Risk	Mitigation
1. Control Breaker Cables Failures	Replace if needed. Risk is allocated in project budget
2. Underground Conduit Damaged	Have alternative paths and solutions for conduit installation. Risk is allocated in project budget
3. Risk related to breaker energization, Mobile Transformer install & Outage Plan	Use point-to-point wiring check prior to energizing any equipment. Risk is allocated in the project budget
4. Delays / outages resulting in OT work	Construction delays caused by weather and storm duty are possible, risk is allocated in project budget for delays
5. Contaminated Soil	Soil testing will be conducted; risk is allocated in project budget if contaminated soil is discovered

[8] REFERENCES

References
1. Distribution System Planning Guide DSPG 2020
2. Sub 014 Substation Ground
3. Sub 099 Design Basis Manual
4. [redacted] Mobile Position IFR 12/7/2020
5. [redacted] Mobile Position SSF 10/13/2021

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. P6 Schedule	*YES*
C. Constructability Review	*YES*
D. Updated Substation Nomenclature Diagram	*YES*
E. P&C Preliminary Checklist	*YES*
F. Substation Preliminary Checklist	*YES*
G. Substation Layout Drawing	*YES*

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

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **Mobile Position**		**Project Number: CS00429**	
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:		Enter ISO-NE ID	
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?		No	
OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☐ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?		Yes	
Has an outage schedule been approved?		No	
Are Operations & Maintenance procedures/training required?		No	
STANDARDS			
Does the project include standard equipment and designs?		Yes	
SUBSTATION ENGINEERING			
Does this impact Revenue Metering		No	
Is preliminary short circuit/ breaker duty analysis required?		Yes	
Are there any changes to the baseline audible noise?		No	
Is there an impact to the existing ground grid?		Yes	
Is a Transient Over Voltage (TOV) analysis required?		No	

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] Mobile Position	**Project Number: CS00429**

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)*	Yes
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 - Full Review

ESTIMATE SUMMARY

Project Title: Add a Mobile Position at Farmington 1C
Project Mod/Level: [redacted]
Project Number: CS00429
WO & Task #: 80099864
Estimate revision # 01
Estimate Type - Station work

Estimate # C-22-27
Date of Estimate 01/15/2022
Estimate done by: [redacted]
In Service date (Est): 06/01/2023

Template Revision # 31.70a

All Estimate Summary for FP4 Calc (escalation separate)

Estimate # C-22-27
Date of Estimate 01/15/2022

Project Number: CS00429
WO & Task #: 80099864

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	ROW / Easements / Land purchases														
2	Environmental Approvals / Permits														
3	Outreach	$3,000				$2,000	$1,000								
4	Siting Approvals / Permits	$13,000	0.1%	0.1%		$10,000	$4,000								
5	Engineering / Design	$78,600	5.2%	3.2%	$47,900	$23,300	$7,600								
6	Materials (Eversource purchased)	$278,300	18.5%	11.2%		$276,400	$1,900								
7	Construction (Incl matl's by contractors)	$783,200	52.1%	31.6%		$592,700	$190,500								
8	Testing / Commissioning	$132,300	8.8%	5.3%			$132,300								
9	PMT Project Mgmt Team	$26,400	1.8%	1.1%		$26,400									
10	Removals	$8,900	0.6%	0.4%		$8,900									
11	Other														
12	Risks	$180,000	12.0%	7.3%		$130,000	$50,000								
135	**Project Directs Total w/Risks**	**$1,503,800**	99.0%	60.1%	**$47,900**	**$1,068,700**	**$387,300**								
13	Indirects/Overhead	$802,600		32.4%		$567,500	$235,100								
14	AFUDC	$112,800		4.6%		$56,300	$56,500								
135	**Project Total - Baseline Budget**	**$2,419,500**		97.1%	**$47,900**	**$1,693,500**	**$678,100**								
15	Contingency	$58,100		2.3%		$43,300	$14,800								
	Project Total - Funding Approval Level	**$2,477,600**		99.4%	**$47,900**	**$1,738,800**	**$693,900**								
16	Reimbursables/Customer Contribution														
	Project Total (less reimbursables)	**$2,477,600**			**$47,900**	**$1,738,800**	**$693,900**								
	Cost per key qty (if appl)	- $'s / EA													
	Amount of Escalation included above	$16,700					$16,700								
6	Total materials - Eversource	$278,300				$276,400	$1,900								
	Total materials - Contractor	$900				$900									
	Total materials	$279,200				$277,300	$1,900								

NOTE: Risk/ Contingency is 10.6% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

Estimate Range	**-25%**	**25%**
	$1,858,000	**$3,097,000**

	TOTAL w/ escal broken out
ROW / Easements / Land purchas	$ -
Environmental Approvals / Permi	$ -
Outreach	$ 2,400
Siting Approvals / Permits	$ 12,900
Engineering / Design	$ 78,500
Materials (Eversource purchased	$ 278,300
Construction (Incl matl's by cont	$ 777,600
Testing / Commissioning	$ 128,500
PMT Project Mgmt Team	$ 26,400
Removals	$ 8,900
Other	$ -
Risks	$ 180,000
	$1,493,500
Indirects/Overhead	$ 796,000
AFUDC	$ 112,800
	$ -
	$2,402,300
	$ -
Contingency	$ 58,100
	$2,460,400
	$ -
	$ -
	$ -
	$2,460,400
	$ 16,700
Excel total	**$2,477,100**
Check total	-$500

COMMENTS:

Project Scope:
Key qty's and UOM (tie to inputs on left of sheet) - EA

[redacted]

The anticipated Equipment Removals include the following.
- No equipment Removals except soil removals during excavation.

Major Materials Required
- 115kV Circuit Switcher - Candle stick unit(1).
- MV Station Reclosers (02).
- 40" Wooden Poles(02).
- Wooden Cross Arms with steel Braces (16).
- 10ft x 2ft x2ft wide PVC TRENWA with Lid - (100ft length each).
- 23 KV, Standard Strength, TR206 Insulators station posts (3).
- Aluminum - Connector, Welded, Straight Terminal 3" - 4 Hole (3).
- 230V Hook-stick switches (1200 Amp Includes insulators) – (01).
- Insulated Control cables (3/c #10-500ft, 12/c #12-500ft, 4/c #12-(500ft) and 3/4"-1/2" Wedge Anchors - (12).
- Foundation 23 KV Outdoor poles - (2) ,

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

- Engineering to be assumed outsourced with in-house review, construction and testing to be out-sourced with external resources.
- This estimate was developed with the use of new 115kV Disconnect control conduits and new conduits for Reclosers.
- This estimate was developed utilizing the new foundations for Circuit switcher and wooden poles.
- Material estimates based on previous work.
- The Estimate will assume Prior Actuals of $48K from Powerplan.
- 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.

RISKS

Control Breaker Cables Failures	$ 30,000
Underground Conduit Damaged	$ 15,000
Risk related to breaker energization. Mobile Transformer install & Outage Plan	$ 50,000
Delays / outages Resulting in OT work	$ 25,000
Contaminated soil	$ 60,000

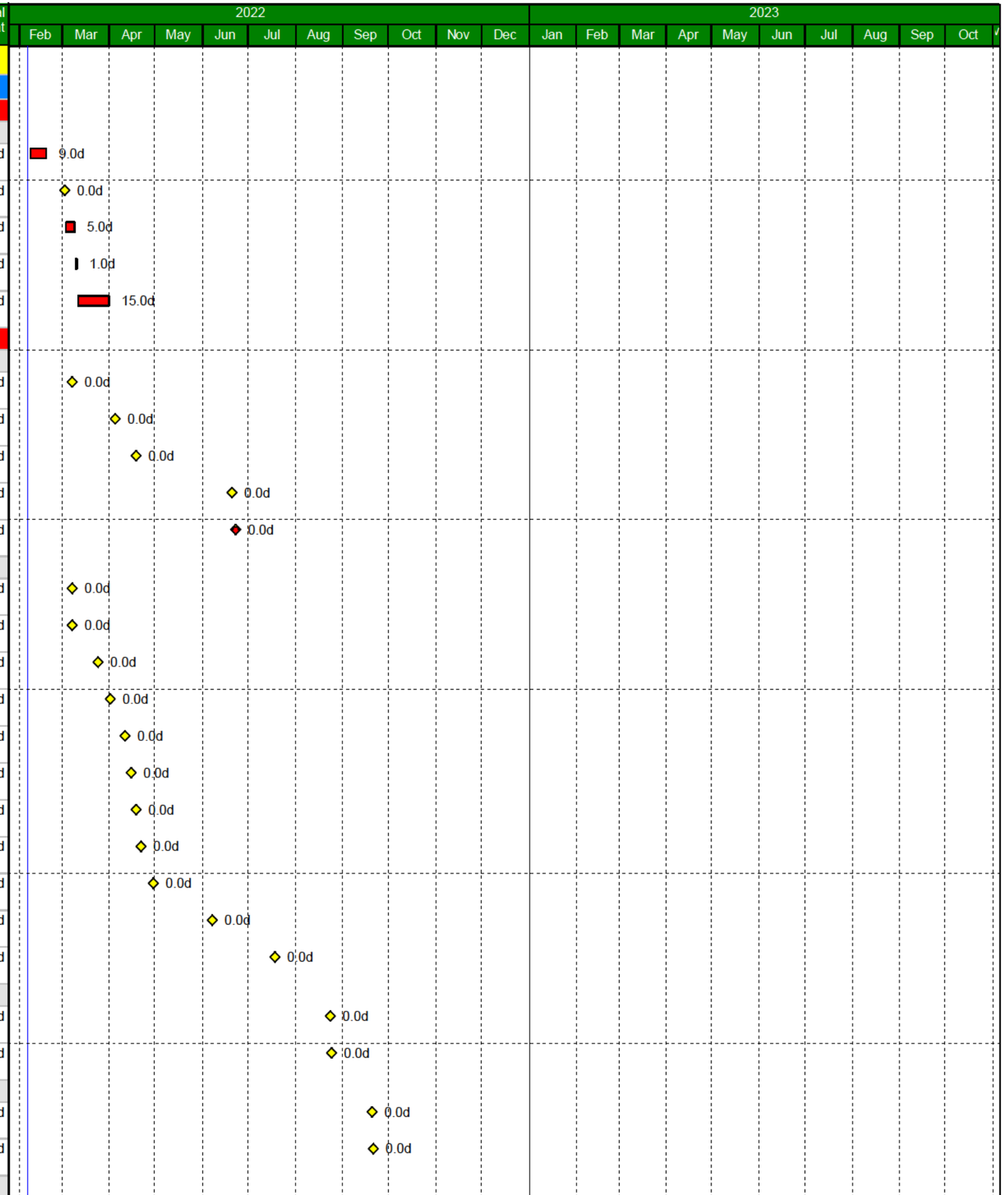
UNESCALATED LINE ITEM DOLLARS

Project Number CS00429
Date of Estimate 01/15/2022
Estimate revision # 01

Escalation Rate — E Rate $ —

		Prior Mhrs	Prior DOLLARS	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
CSTXX-CONSTRUCTION	R																							
Electrical Construction	LT																							
General Construction	LT																							
SCADA / Automation	LT			$1,260																				$1,260
Telecom - Field	LT																							
Construction Reps (Internal)	LT			$4,200																				$4,200
Support Switch/Tag	LT			$7,339																				$7,339
Other (specify)	LT																							
Other (specify)	LT																							
Other (specify)	LT																							
LT Total				$12,799																				$12,799
Employee Expenses	AE			$640																				$640
Construction Purchased Material	AM			$6,547		$1,649																		$7,996
Outside Construction Vendor	AO			$554,732	1214	$184,011																		$738,743
Sales tax on Constr. Vendor																								
Vehicles (now in Indirects section)	AV																							
Inspection services (Outside Vendor)	AO																							
Construction Insp (Outside vendor)	AO			$23,880																				$23,880
Rents and Leases	BR																							
CSTXX Subtotal				$597,398		$185,760																		$784,158
Escalation																								
CSTXX Total				$597,398	1214	$185,760																		$784,158
ENPXX-TG ENGINEERING/DESIGN																								
Project Services/Drafting	LT			$5,808																				$5,808
T- Line Engineering/Design	LT																							
D- Street Engineering/Design	LT			$1,742																				$1,742
Civil Engineering/Design	LT																							
Substation (T) Engineering/Design	LT																							
Substation (D) Engineering/Design	LT			$4,200	48	$2,100																		$6,300
Protection & Controls Engineering	LT			$4,536	24	$1,361																		$5,897
Survey Engineering	LT																							
SCADA / Automation Engineering	LT																							
Telecom Engineering	LT																							
Other - PE	LT																							
Actuals PowerPlan	LT		$47,858																					$47,858
LT Total			$47,858	$16,286	64	$3,461																		$67,605
Employee Expenses	AE			$814		$172																		$987
Contractor Engineering - T-Lines	AO																							
Contractor Engineering - D-Street	AO																							
Contractor Engineering - T -Station	AO																							
Contractor Engineering - D-Station	AO																							
Contractor Engineering - P&C	AO																							
Contractor Engineering - Survey	AO																							
Contractor Engineering - SCADA / Automation	AO																							
Contractor Engineering - Telecom	AO																							
Contractor Engineering - Asset Management	AO			$6,200	24	$3,720																		$9,920
Contractor Engineering - Specify	AO																							
Contractor Engineering - Specify	AO																							
Vehicles (now in Indirects section)	AV																							
ENPXX Subtotal			$47,858	$23,300		$7,354																		$78,512
Escalation																								
ENPXX Total			$47,858	$23,300	88	$7,354																		$78,512
LNDXX-TG LAND																								
Real Estate	LT																							
Employee Expenses	AE																							
Purchase Land	AM																							
Vehicles (now in Indirects section)	AV																							
Fees and Payments	BF																							
LNDXX Subtotal																								
Escalation																								
LNDXX Total																								
MATXX-TG MATERIAL																								
Eversource	AM			$260,660																				$260,660
Outside Services	AM			$676																				$676
	AM																							
Freight																								
Sales Tax Eversource/outside services	3.9%			$10,200																				$10,200
Other																								
MATXX Subtotal				$271,788																				$271,788
Escalation																								
MATXX Total				$271,788																				$271,788
PSMXX-PROJECT MANAGER & SUPPORT																								
Project Management (PM)	LT																							
Project Planning/Cost (IP)	LT																							
Contracts/Purchasing (CIP)	LT																							
System Planning	LT			$8,532																				$8,532
Environmental	LT																							
SCS - Notification	LT			$90		$32																		$122
Legal	LT																							
Estimating	LT			$4,736																				$4,736
Siting - Exempt Modification	LT			$500		$200																		$700
Asset Management	LT																							
Other -	LT																							
Other -	LT																							
Other -	LT																							
Other -	LT																							
LT Total				$13,858		$232																		$14,090
Employee Expenses	AE			$693		$12																		$705
Project Support Vendor - PM	AO			$12,400																				$12,400
Project Support Vendor - IP	AO																							
Project Support Vendor - CIP	AO																							
Project Support Vendor - System Planning	AO																							
Project Support Vendor - Environental	AO																							
Project Support Vendor - SCS - Notification	AO			$1,710		$610																		$2,320
Project Support Vendor - Legal	AO																							
Project Support Vendor - Estimating	AO																							
Project Support Vendor - Siting - Exempt Modification	AO			$9,000		$3,200																		$12,200
Project Support Vendor - Asset Management	AO																							
Project Support Vendor - Other	AO																							
Project Support Vendor - Other	AO																							
Project Support Vendor - Other	AO																							
Project Support Vendor - Other	AO																							
Vehicles (now in Indirects section)	AV																							
Property or CWIP tax large proj. allowance	BR																							
Builder All risk insurance excluding deductables(if project is over $50m)	BR																							
Fees and Payments - Environental	BF																							
Fees and Payments - Siting	BF																							
Fees and Payments - Other	BF																							
PSMXX Subtotal				$37,861		$4,054																		$41,715
Escalation																								
PSMXX Total				$37,861		$4,054																		$41,715
REMXX-TG REMOVAL																								
Engineering/Design	LT																							
Internal Construction	LT																							
LT Total																								
Employee Expenses	AE																							
Outside Services	AO																							
Contractor Labor	AO			$8,880																				$8,880
Vehicles (now in Indirects section)	AV																							
Rents and Leases	BR																							
REMXX Subtotal				$8,880																				$8,880
Escalation																								
REMXX Total				$8,880																				$8,880
TSTXX-TG TEST																								
Test / Field Engr. Labor (In House)	LT																							
Lead Commissioning Engr. (LCE) (internal)	LT																							
Employee Expenses	AE																							
Test / Field Engr. Labor (contractor)	AO				440	$81,400																		$81,400
Lead Commissioning Engr. (LCE) (contractor)	AO				220	$47,080																		$47,080
Vehicles (now in Indirects section)	AV																							
TSTXX Subtotal						$128,480																		$128,480
Escalation																								
TSTXX Total					660	$128,480																		$128,480
SUBTOTAL PROJECT DIRECT COST		-	$47,858	$959,007	1962	$526,940																		$1,513,815
Risk																								
Risk				$130,000		$50,000																		$180,000
				$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Risk Total				$130,000		$50,000																		$180,000
TOTAL PROJECT DIRECT COST (w risk)		-	$47,858	4798	$1,089,007	1962	$576,940																	$1,693,815
INDIRECTS																								
Non-Productive Time Allocation (2NP)	15.1%				$6,463		$556																	$7,019
Payroll Benefits Allocation (2PB) Incl NPT	44.0%				$6,479																			$6,479
Gen SVC OO Overhead (2GS) Incl NPT	80.0%				$27,745		$3,399																	$31,144
E&S Allocations (2EB,2SL,2EB)	60.0%				$420,139		$197,140																	$617,280
A&ME Allocations (2AB)	1.3%				$17,496		$6,597																	$24,096
Stores Expense Allocation (2SF)	8.0%				$20,668																			$20,668
Lobby Stock																								
MDEC (2MI)	6.0%				$56,335		$19,725																	$76,060
Vehicles (2VB)	28.0%				$12,024		$1,034																	$13,058
Indirects Subtotal					$567,534		$228,452																	$795,986
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)			$47,858		$1,656,535		$805,100																	$2,399,495
AFUDC																								
AFUDC (2A)				6.50%	$56,246	6.50%	$56,509	6.50%		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%		$112,807
In Service Dollars					-		-		-		-		-		-		-		-		-			
Cumulative ISS					-		-		-		-		-		-		-		-		-			
AFUDC Subtotal					$56,246		$56,509																	$112,807
TOTAL PROJECT COST - Baseline Budget			$47,858		$1,697,033		$861,609																	$2,402,300
Contingency																								
Contingency					$43,255		$14,832																	$58,087
Other			$ -		$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Contingency SubTotal					$43,255		$14,832																	$58,087
TOTAL PROJECT COST - Approved Funding			$47,858		$1,736,088		$876,441																	$2,460,387
Reimbursables / Customer Contribution																								
Reimbursables / Customer Contribution (enter as negative)			$ -		$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
80099644 [redacted] Mobile Position Addition (CS00429)							
INITIALIZATION AND SCOPE DEVELOPEMENT							
Project Initiation							
EPAC Full Funding							
	PAFF2100	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	[redacted]	9.0d	08-Feb-22 A	18-Feb-22	0.0d
	PAFF2110	EPAC Full Funding Meeting		0.0d		02-Mar-22*	0.0d
	PAFF2200	Incorporate EPAC Full Funding PAF Review Comments	[redacted]	5.0d	03-Mar-22	09-Mar-22	-2.0d
	FF1000	EPAC Full Funding Approval	Eversource Project Approval Committee	1.0d	10-Mar-22	10-Mar-22	-2.0d
	FF1010	Full Funding PowerPlan Approval	Eversource Project Approval Committee	15.0d	11-Mar-22	31-Mar-22	0.0d
T-Minus Milestones							
Civil T-Minus Milestones							
	AT1811	Detail Civil Design/Engineering Completed		0.0d		07-Mar-22	73.0d
	AT0805C	Civil IFC - Civil (BG) w/BOM		0.0d		04-Apr-22	76.0d
	AT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)		0.0d		18-Apr-22	62.0d
	AT00	T00 START OF CIVIL CONSTRUCTION		0.0d	20-Jun-22*		0.0d
	AT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED		0.0d		22-Jun-22	-3.0d
Electrical T-Milestones							
	BT1811	Detail Design/Engineering Completed		0.0d		07-Mar-22	92.0d
	BT2605	Preliminary Design / Engineering Completed		0.0d		07-Mar-22	92.0d
	BT0404	T04 ALL FINAL RELAY PROTECTIVE SETTING ISSUED		0.0d		24-Mar-22	115.0d
	BT0805E	Elect IFC - Electrical (AG) w/Final BOM		0.0d		01-Apr-22	107.0d
	BT0409	T04 ALL FIRM TOAAPPLICATIONS DUE TO LCC (for DISTRIBUTION Non-transformer equipment)		0.0d		11-Apr-22*	97.0d
	BT0805P	P&C IFC - P&C w/BOM		0.0d		15-Apr-22	93.0d
	BT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)		0.0d		18-Apr-22	90.0d
	BT1202	P/C DESCRIPTION / DRAFT OPERATING INSTRUCTIONS ISSUED		0.0d		21-Apr-22	87.0d
	BT1201	SCADA Date (Tab) Sheets/Signal List Sent to LCC		0.0d		29-Apr-22	79.0d
	BT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED		0.0d		07-Jun-22	40.0d
	BT00	T00 START OF ELECTRICAL CONSTRUCTION		0.0d	18-Jul-22*		0.0d
T-Minus Milestones for Poles and Circuit Breaker Work							
	CT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED		0.0d		23-Aug-22	0.0d
	CT00	T00 START POLES & CIRCUIT BKR INSTALLATION		0.0d	24-Aug-22*		0.0d
T-Minus Milestones for Switches and Circuit Switcher							
	DT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED		0.0d		20-Sep-22	0.0d
	DT00	T00 START OF SWITCHES & CIRCUIT SWITCHER		0.0d	21-Sep-22*		0.0d
T-Minus Milestones for Transformer Test							



Remaining Work | Actual Work | Critical Milestones
Critical Remaining Work | Milestone | Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	FT1801	T18 ALL FIRM TOAAPPLICATIONS DUE TO LCC (for DISTRIBUTION Transformer TEST ENERGIZATION)		0.0d		11-Apr-22*	15.0d
	FT00	T00 START TRANSFORMER TESTING		0.0d	22-May-23*		0.0d
	ENVIRONMENTAL APPROVALS AND PERMITS						
	ENVIRONMENTAL APPROVALS AND PERMITS						
	ENVIRONMENTAL APPROVALS AND PERMITS						
	A1280	Determine Soil Volume	[redacted]	5.0d	23-Feb-22	01-Mar-22	292.0d
	A3630	Soil Disposal On Site		5.0d	02-Mar-22	08-Mar-22	292.0d
	A3640	Soil Disposal Off Site		5.0d	02-Mar-22	08-Mar-22	297.0d
	PREPARE COMPLIANCE MATRICES - REGULATORY & COMMITMENTS						
	PREPARE COMPLIANCE MATRICES - REGULATORY & COMMITMENTS						
	A1220	Prepared Compliance Matrices - Non-Reqgulatory (Commitments)	Deb A. Mercier, Siting & Construction Serv.	50.0d	19-May-21 A	18-Apr-22	43.0d
	A1230	Prepared Compliance Matrices - Regulatory	Siting Lead Generic, Siting Manager,	50.0d	19-May-21 A	18-Apr-22	43.0d
	ENGINEERING & DESIGN						
	Civil Engineering						
	Civil Engineering						
	DSSE-110	Civil Package to Design	[redacted]	11.0d	03-Jan-22 A	22-Feb-22	10.0d
	DSSE-120	Civil Package IFC		17.0d	11-Mar-22	04-Apr-22	-2.0d
	Electrical Engineering						
	Electrical Engineering						
	DSSE-205	Detail Electrical Design Package Drafting to Design		20.0d	31-Jan-22 A	07-Mar-22	0.0d
	DSSE-210	Final (100%) Electrical Design Package IFR		10.0d	08-Mar-22	21-Mar-22	0.0d
	DSSE-240	Electrical Engineering - Electrical Package IFC (Physical & Electrical)		9.0d	22-Mar-22	01-Apr-22	0.0d
	DSSE-230	Electrical Engineering - BOM Complete		10.0d	22-Mar-22	04-Apr-22	0.0d
	DSSE-480	PE INITIATES CASCADE FORMS (Apenndix A) for Construction		10.0d	04-Apr-22	15-Apr-22	284.0d
	DSSE-460	Operating Instructions - SSED Review Draft Distribution OI		10.0d	08-Apr-22	21-Apr-22	59.0d
	DSSE-920	Operating Instructions - SSED Review Draft Convex OI		10.0d	08-Apr-22	21-Apr-22	59.0d
	P&C Engineering						
	P&C Engineering						
	DSSE-410	Drafting Prepare & Issue Back to P&C		5.0d	27-Dec-21 A	11-Feb-22	32.0d
	A3380	Issue P&C Package Design		10.0d	22-Feb-22	07-Mar-22	27.0d
	DSSE-220	SDS Complete		29.0d	08-Mar-22	15-Apr-22	27.0d
	DSSE-450	Operating Instructions - Prepare and Issue Draft Distribution OI to Engineering	Procedure Writing Group	10.0d	25-Mar-22	07-Apr-22	59.0d
	DSSE-470	Operating Instructions - P&C Review Draft Distribution OI		10.0d	08-Apr-22	21-Apr-22	59.0d
	DSSE-930	Operating Instructions - P&C Review Draft Convex OI		10.0d	08-Apr-22	21-Apr-22	59.0d
	DSSE-990	P&C INITIATE SCADA Data Sheets		10.0d	18-Apr-22	29-Apr-22	53.0d
	Relay Settings						



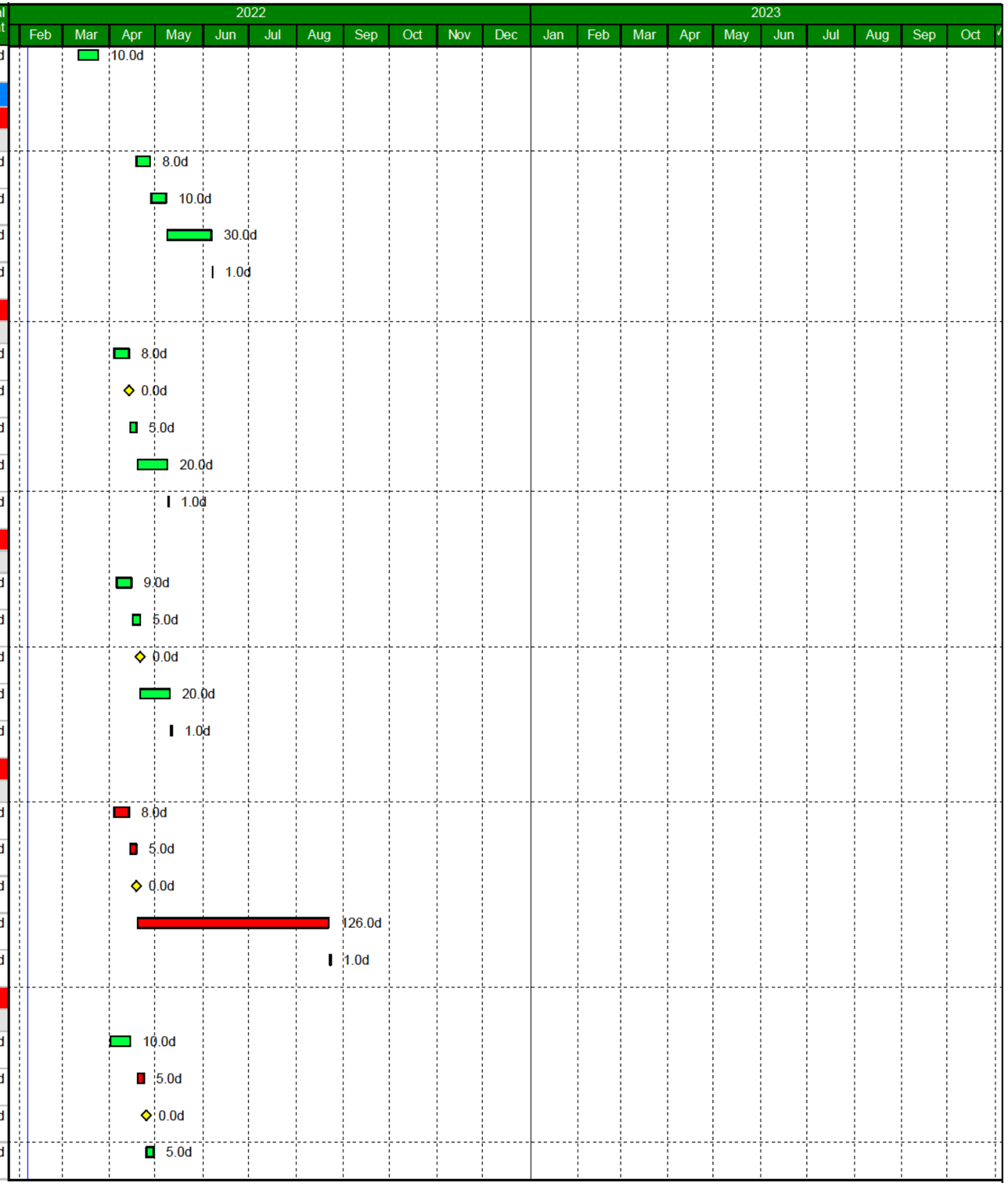
Remaining Work
Critical Remaining Work
Actual Work
Milestone
Critical Milestones
Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	DSSE-440	Relay Settings - Prepare and Issue Relay Settings IFC	[redacted]	10.0d	11-Mar-22	24-Mar-22	59.0d
	MATERIAL PROCUREMENT						
	MATERIAL - P&C						
	MATERIAL - P&C						
	DSSE-510	MATERIAL - P&C - Prepare & Issue DR	[redacted]	8.0d	18-Apr-22	27-Apr-22	27.0d
	DSSE-980	MATERIAL - P&C - Procurement Issue PO	Purchasing Department	10.0d	28-Apr-22	07-May-22	40.0d
	DSSE-1000	MATERIAL - P&C - Material Vendor Delivery Leadtime	Purchasing Department	30.0d	08-May-22	06-Jun-22	40.0d
	DSSE-1010	MATERIAL - P&C - Confirm Material Delivery to Site	Purchasing Department	1.0d	07-Jun-22	07-Jun-22	40.0d
	MATERIAL - ELECTRICAL						
	MATERIAL - ELECTRICAL						
	DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	[redacted]	8.0d	04-Apr-22	13-Apr-22	48.0d
	DSSE-590	Electrical (AG) Material Ordered		0.0d		13-Apr-22	335.0d
	DSSE-1020	MATERIAL - Electrical - Procurement Issue PO	Purchasing Department	5.0d	14-Apr-22	18-Apr-22	69.0d
	DSSE-1030	MATERIAL - Electrical - Material Vendor Delivery Leadtime	Purchasing Department	20.0d	19-Apr-22	08-May-22	69.0d
	DSSE-550	MATERIAL - Electrical - Confirm Material Delivery to Site	Purchasing Department	1.0d	09-May-22	09-May-22	69.0d
	MATERIAL - CIVIL						
	MATERIAL - CIVIL						
	DSSE-500	MATERIAL - CIVIL - Prepare & Issue DR	Civil Engineer	9.0d	05-Apr-22	15-Apr-22	25.0d
	DSSE-1040	MATERIAL - CIVIL - Procurement Issue PO	Purchasing Department	5.0d	16-Apr-22	20-Apr-22	37.0d
	DSSE-600	Civil (BG) Material Ordered		0.0d		20-Apr-22	27.0d
	DSSE-1050	MATERIAL - CIVIL - Material Vendor Delivery Leadtime	[redacted]	20.0d	21-Apr-22	10-May-22	39.0d
	DSSE-560	MATERIAL - CIVIL - Confirm Material Delivery to Site	Purchasing Department	1.0d	11-May-22	11-May-22	39.0d
	MATERIAL - 23kV CIRCUIT BREAKER/RECLOSER						
	MATERIAL - 23kV CIRCUIT BREAKER/RECLOSER						
	DSSE-540	MATERIAL - 23kV Circuit Breaker - Prepare & Issue DR	[redacted]	8.0d	04-Apr-22	13-Apr-22	0.0d
	DSSE-1080	MATERIAL - 23kV Circuit Breaker - Procurement Issue PO	Purchasing Department	5.0d	14-Apr-22	18-Apr-22	0.0d
	DSSE-1190	23kV Circuit Breaker Material Ordered		0.0d		18-Apr-22	0.0d
	DSSE-1090	MATERIAL - 23kV Circuit Breaker - Material Vendor Delivery Leadtime	Purchasing Department	126.0d	19-Apr-22	22-Aug-22	0.0d
	DSSE-580	MATERIAL - 23kV Circuit Breaker - Confirm Material Delivery to Site	Purchasing Department	1.0d	23-Aug-22	23-Aug-22	0.0d
	MATERIAL - SWITCHES						
	MATERIAL - SWITCHES						
	DSSE-1250	MATERIAL - Switches - Prepare & Issue DR	[redacted]	10.0d	01-Apr-22	14-Apr-22	1.0d
	DSSE-1270	MATERIAL - Switches - Procurement Issue PO	Purchasing Department	5.0d	19-Apr-22	23-Apr-22*	-1.0d
	DSSE-1260	Switches Material Ordered		0.0d		25-Apr-22	0.0d
	DSSE-1500	Release for Drawings		5.0d	25-Apr-22	29-Apr-22	53.0d



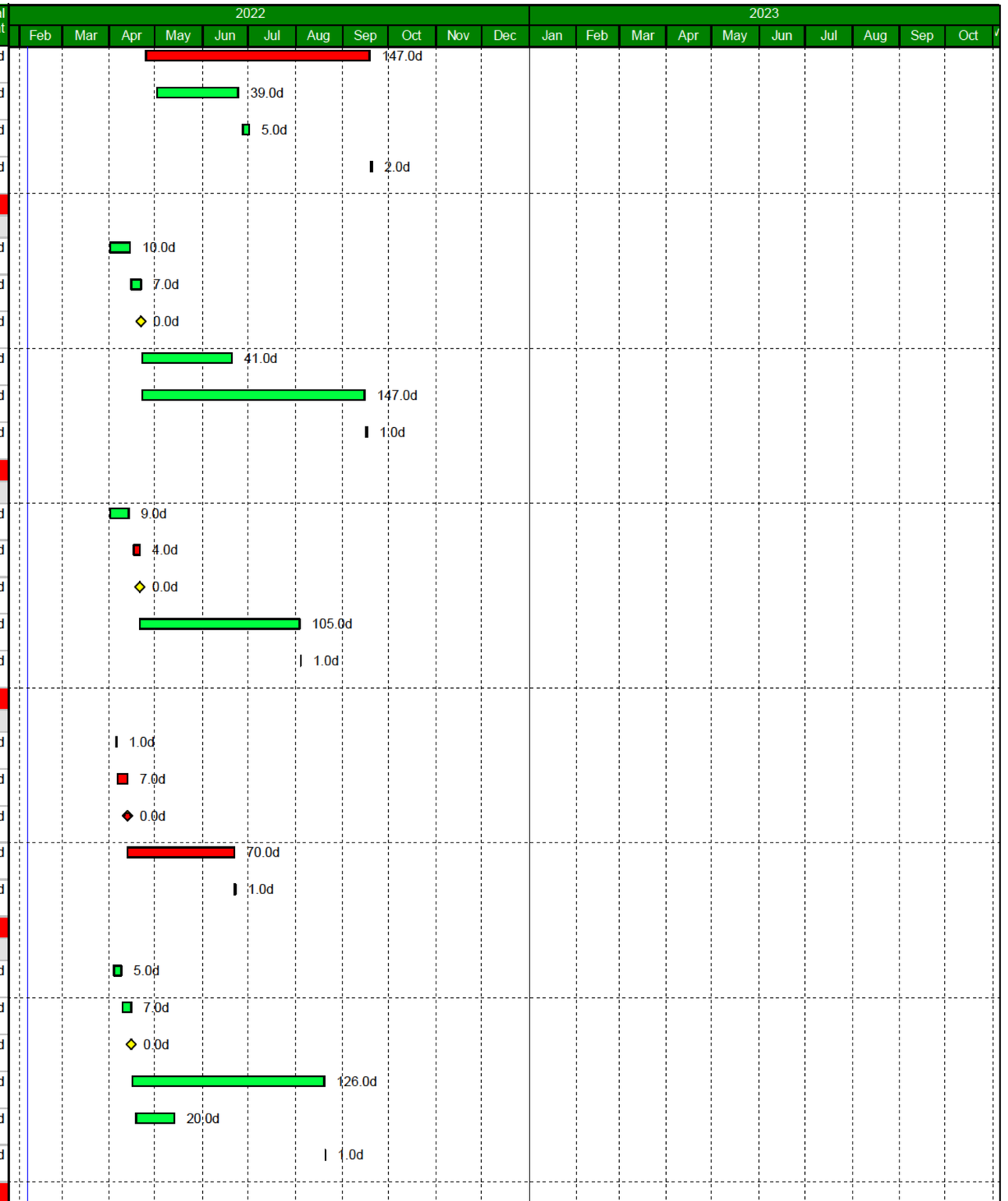
Remaining Work | Actual Work | Critical Milestones
Critical Remaining Work | Milestone | Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	DSSE-1280	MATERIAL - Switches - Material Vendor Delivery Leadtime	Purchasing Department	147.0d	25-Apr-22	18-Sep-22	0.0d
	DSSE-1510	Drawings Reviewed and Approved by ES		39.0d	02-May-22	24-Jun-22	53.0d
	DSSE-1520	Release for Manufacturing		5.0d	27-Jun-22	01-Jul-22	53.0d
	DSSE-1290	MATERIAL - Switches - Confirm Material Delivery to Site	Purchasing Department	2.0d	19-Sep-22	20-Sep-22	0.0d
	MATERIAL - 115 kV CIRCUIT SWITCHER						
	MATERIAL - 115 kV CIRCUIT SWITCHER						
	DSSE-1400	MATERIAL - 115kV Circuit Switcher - Prepare & Issue DR	[redacted]	10.0d	01-Apr-22	14-Apr-22	2.0d
	DSSE-1420	MATERIAL - 115kV Circuit Switcher - Procurement Issue PO	Purchasing Department	7.0d	15-Apr-22	21-Apr-22	4.0d
	DSSE-1440	115kV Circuit Switcher Material Ordered		0.0d		21-Apr-22	2.0d
	DSSE-1530	Drawings Reviewed and Approved by ES		41.0d	22-Apr-22	20-Jun-22	63.0d
	DSSE-1430	MATERIAL - 115kV Circuit Switcher - Material Vendor Delivery Leadtime	Purchasing Department	147.0d	22-Apr-22	15-Sep-22	4.0d
	DSSE-1410	MATERIAL - 115kV Circuit Switcher - Confirm Material Delivery to Site	Purchasing Department	1.0d	16-Sep-22	16-Sep-22	4.0d
	MATERIAL - 23kV SINGLE POLE SINGLE THROW						
	MATERIAL - 23kV SINGLE POLE SINGLE THROW						
	DSSE-1200	MATERIAL - 23kV Single Pole Single Throw - Prepare & Issue DR	[redacted]	9.0d	01-Apr-22	13-Apr-22	2.0d
	DSSE-1220	MATERIAL - 23kV Single Pole Single Throw - Procurement Issue PO	Purchasing Department	4.0d	17-Apr-22	20-Apr-22*	0.0d
	DSSE-1240	23kV Single Pole Single Throw Material Ordered		0.0d		20-Apr-22	13.0d
	DSSE-1230	MATERIAL - 23kV Single Pole Single Throw - Material Vendor Delivery Leadtime	Purchasing Department	105.0d	21-Apr-22	03-Aug-22	19.0d
	DSSE-1210	MATERIAL - 23kV Single Pole Single Throw - Confirm Material Delivery to Site	Purchasing Department	1.0d	04-Aug-22	04-Aug-22	19.0d
	MATERIAL - TRENWA						
	MATERIAL - TRENWA						
	DSSE-1300	MATERIAL - TRENWA - Prepare & Issue DR	[redacted]	1.0d	05-Apr-22	05-Apr-22	-2.0d
	DSSE-1320	MATERIAL - TRENWA- Procurement Issue PO	Purchasing Department	7.0d	06-Apr-22	12-Apr-22	-4.0d
	DSSE-1340	TRENWA Material Ordered		0.0d		12-Apr-22	-2.0d
	DSSE-1330	MATERIAL - TRENWA - Material Vendor Delivery Leadtime	Purchasing Department	70.0d	13-Apr-22	21-Jun-22	-3.0d
	DSSE-1310	MATERIAL - TRENWA - Confirm Material Delivery to Site	Purchasing Department	1.0d	22-Jun-22	22-Jun-22	-3.0d
	MATERIAL - POLE RECLOSERS (2)						
	MATERIAL - POLE RECLOSERS (2)						
	DSSE-1350	MATERIAL - Pole Reclosers (2) - Prepare & Issue DR	[redacted]	5.0d	04-Apr-22	08-Apr-22	1.0d
	DSSE-1370	MATERIAL - Pole Reclosers (2) - Procurement Issue PO	Purchasing Department	7.0d	09-Apr-22	15-Apr-22	3.0d
	DSSE-1390	Pole Reclosers (2) Material Ordered		0.0d		15-Apr-22	1.0d
	DSSE-1380	MATERIAL - Pole Reclosers (2) - Material Vendor Delivery Leadtime	Purchasing Department	126.0d	16-Apr-22	19-Aug-22	3.0d
	DSSE-1540	Drawings Approved and Reviewed by ES		20.0d	18-Apr-22	13-May-22	69.0d
	DSSE-1360	MATERIAL - Pole Reclosers (2) - Confirm Material Delivery to Site	Purchasing Department	1.0d	20-Aug-22	20-Aug-22	3.0d
	MATERIAL - STEEL STRUCTURES						



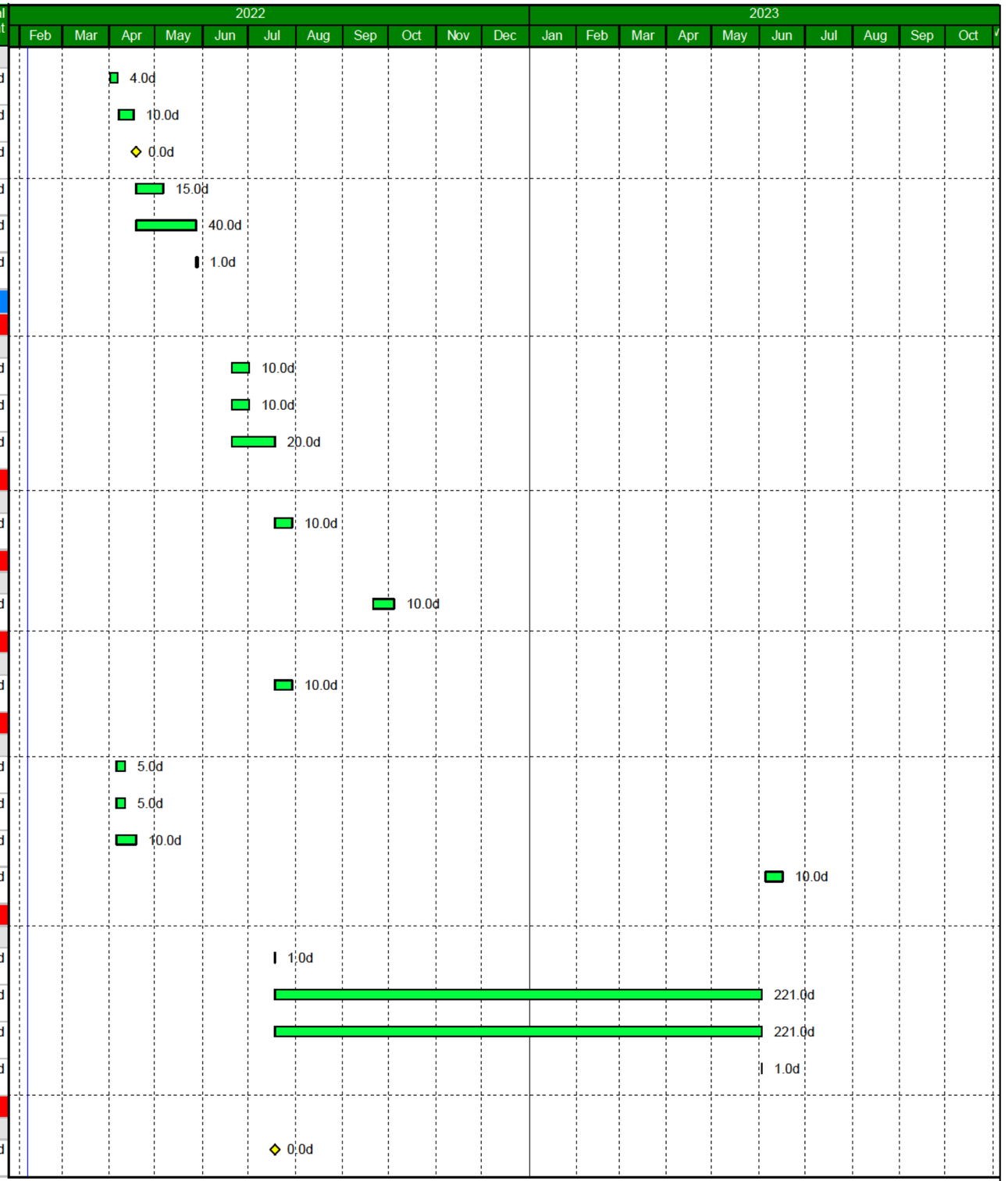
Remaining Work | Actual Work | Critical Milestones
Critical Remaining Work | Milestone | Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	MATERIAL - STEEL STRUCTURES						
	DSSE-1450	MATERIAL - Steel Structures - Prepare & Issue DR	[redacted]	4.0d	01-Apr-22	06-Apr-22	17.0d
	DSSE-1470	MATERIAL - Steel Structures - Procurement Issue PO	Purchasing Department	10.0d	07-Apr-22	16-Apr-22	23.0d
	DSSE-1490	Steel Structures Material Ordered		0.0d		18-Apr-22	16.0d
	DSSE-1550	Drawings Reviewed and Approved by ES		15.0d	18-Apr-22	06-May-22	29.0d
	DSSE-1480	MATERIAL - Steel Structures- Material Vendor Delivery Leadtime	Purchasing Department	40.0d	18-Apr-22	27-May-22	22.0d
	DSSE-1460	MATERIAL - Steel Structures - Confirm Material Delivery to Site	Purchasing Department	1.0d	28-May-22	28-May-22	22.0d
	CONSTRUCTION						
	CONSTRUCTION - CIVIL						
	CONSTRUCTION - CIVIL						
	A3650	Construction - Spread Soil On Site	[redacted]	10.0d	20-Jun-22	01-Jul-22	220.0d
	A3660	Construction - Soil Disposal Off Site		10.0d	20-Jun-22	01-Jul-22	220.0d
	A1120	Construction - Civil - Install Trenwa and Foundations		20.0d	20-Jun-22	18-Jul-22	220.0d
	CONSTRUCTION - ELECTRICAL						
	CONSTRUCTION - ELECTRICAL						
	A1130	Construction - Electrical	Const Rep T Generic - SS	10.0d	18-Jul-22	29-Jul-22	211.0d
	CONSTRUCTION - P&C						
	CONSTRUCTION - P&C						
	A1140	Construction - P&C Implement Relay Settings	Const Rep T Generic - SS	10.0d	21-Sep-22	04-Oct-22	160.0d
	CONSTRUCTION - COMMUNICATIONS						
	CONSTRUCTION - COMMUNICATIONS						
	A1150	Construction - Field Communications	Const Rep T Generic - SS	10.0d	18-Jul-22	29-Jul-22	211.0d
	CONSTRUCTION - CONST.REP TASKS						
	CONSTRUCTION - CONST.REP TASKS						
	A1250	Construction Rep SUBMIT OUTAGE REQUESTS for equipment (4 weeks before outage)	[redacted]	5.0d	05-Apr-22	11-Apr-22	67.0d
	A3670	Construction Rep SUBMIT OUTAGE REQUESTS for equipment (18 weeks before outage)		5.0d	05-Apr-22	11-Apr-22	11.0d
	A1170	Prepare CAN (Construction Authorization Notice)		10.0d	05-Apr-22	18-Apr-22	43.0d
	A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD)		10.0d	05-Jun-23	16-Jun-23	9.0d
	CONSTRUCTION RESOURCE TRACKING						
	CONSTRUCTION RESOURCE TRACKING						
	A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT	Distribution Switching Crew	1.0d	18-Jul-22	18-Jul-22	220.0d
	ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP	[redacted]	221.0d	18-Jul-22	02-Jun-23	0.0d
	CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	Distribution - S/S Electrician	221.0d	18-Jul-22	02-Jun-23	0.0d
	A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN	Distribution Switching Crew	1.0d	02-Jun-23	02-Jun-23	0.0d
	CONSTRUCTION OUTAGES						
	CONSTRUCTION OUTAGES						
	CSM	Construction Start Milestone		0.0d	18-Jul-22		0.0d



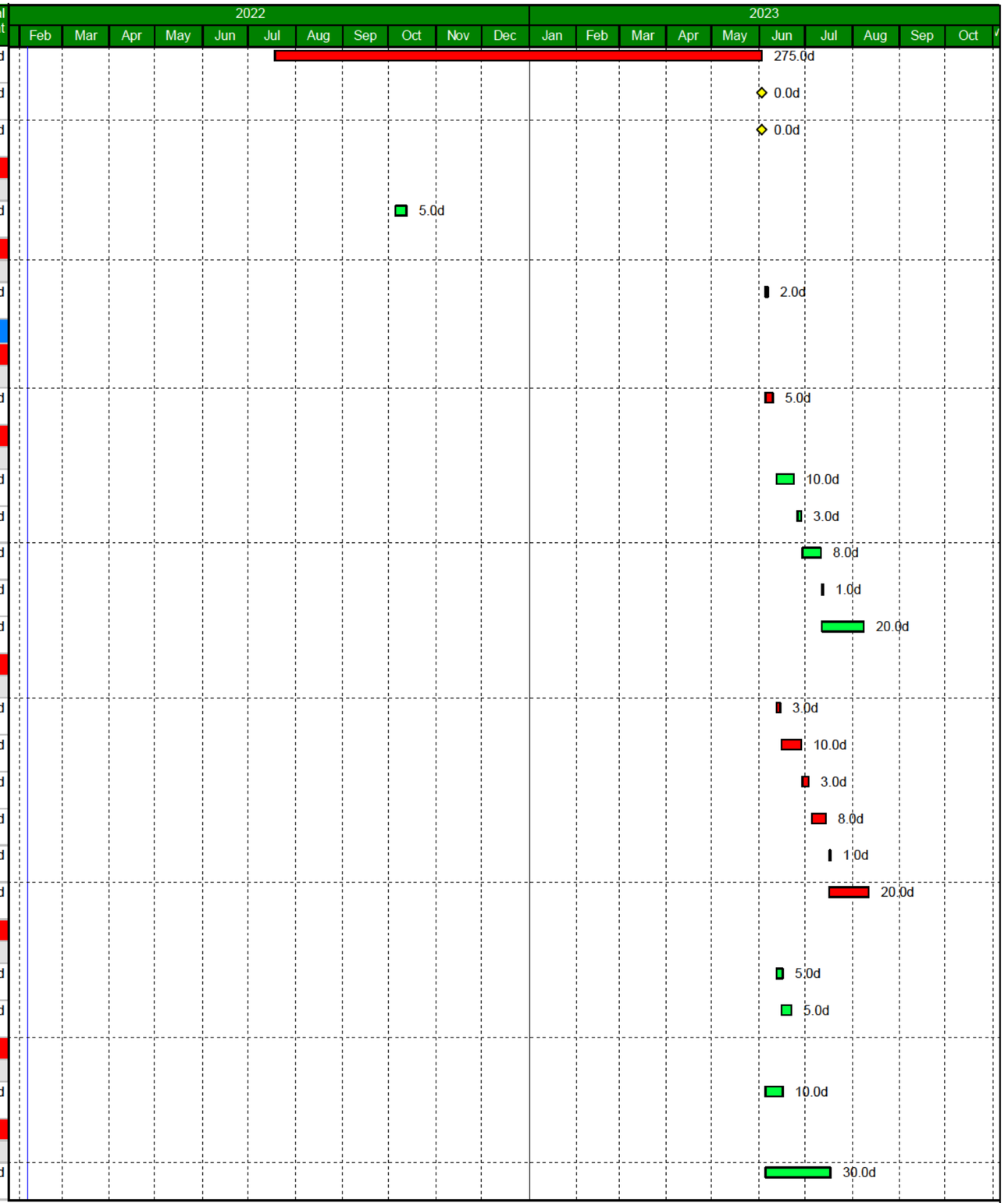
Remaining Work | Actual Work | Critical Milestones
Critical Remaining Work | Milestone | Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	TOA-Const	OUTAGE / General Construction Work	Construction Resources	275.0d	18-Jul-22	02-Jun-23	0.0d
	CFM	Construction Finish Milestone		0.0d		02-Jun-23	1.0d
	ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)		0.0d		02-Jun-23*	24.0d
	EQUIPMENT TEST						
	EQUIPMENT TEST						
	TOA-Test	Test Equipment	CT/WMA Test Contractor-GENERIC	5.0d	05-Oct-22	12-Oct-22	160.0d
	CONSTRUCTION CLOSEOUT						
	CONSTRUCTION CLOSEOUT						
	DSSE-900	Prepare Civil Field Mark Ups (Tie after Last Civil Construction Activity)	Construction Resources	2.0d	05-Jun-23	06-Jun-23	6.0d
	PROJECT CLOSE OUT						
	PROJECT CLOSE OUT						
	PROJECT CLOSE OUT						
	DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	[redacted]	5.0d	05-Jun-23	09-Jun-23	0.0d
	Civil As-Builts						
	Civil As-Builts						
	DSSE-860	Eversource Engineering Verifies Civil Mark Up As-Built Drawing Package	[redacted]	10.0d	12-Jun-23	23-Jun-23	3.0d
	DSSE-970	Eversource Engineering Updates Civil As-Built Drawing Package	CT- Substation Design Drafter Generic, CT-	3.0d	26-Jun-23	28-Jun-23	3.0d
	DSSE-870	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	CT- Substation Design Drafter Generic, CT-	8.0d	29-Jun-23	11-Jul-23	3.0d
	DSSE-880	PM to Document Civil As-Built Drawings Complete	[redacted]	1.0d	12-Jul-23	12-Jul-23	22.0d
	DSSE-1120	Complete TD-176 CIVIL Design Prep & Issue As-Built Dwgs	CT- Substation Design Drafter Generic	20.0d	12-Jul-23	08-Aug-23	3.0d
	Electrical As-Builts						
	Electrical As-Builts						
	DSSE-1130	Eversource Engineering Obtains Hard Copy As-Builts from the Field	CT- Substation Design Drafter Generic	3.0d	12-Jun-23	14-Jun-23	0.0d
	DSSE-820	Eversource Engineering Verifies Quality of Electrical Mark Up As-Built Drawing Package	[redacted]	10.0d	15-Jun-23	28-Jun-23	0.0d
	DSSE-940	Eversource Engineering Updates Electrical As-Built Drawing Package		3.0d	29-Jun-23	03-Jul-23	0.0d
	DSSE-830	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	CT- Substation Design Drafter Generic, CT-	8.0d	05-Jul-23	14-Jul-23	0.0d
	DSSE-840	PM to Document Electrical As-Built Drawings Complete	[redacted]	1.0d	17-Jul-23	17-Jul-23	19.0d
	DSSE-1110	Complete TD-176 Electrical Design Prep & Issue As-Built Dwgs	CT- Substation Design Drafter Generic	20.0d	17-Jul-23	11-Aug-23	0.0d
	P&C As-Builts						
	P&C As-Builts						
	DSSE-950	P&C Submits SDS As-Builts	[redacted]	5.0d	12-Jun-23	16-Jun-23	11.0d
	DSSE-960	P&C Submits Relay Setting As-Builts		5.0d	15-Jun-23	21-Jun-23	8.0d
	SITE RESTORATION CLOSEOUT						
	SITE RESTORATION CLOSEOUT						
	A1110	Restore / Remediate Site	CT/WMA.Construction Contractor-GENERIC	10.0d	05-Jun-23	16-Jun-23	39.0d
	MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLOSEOUT						
	MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLOSEOUT						
	A1020	Cost Analyst Prepares FINAL Units of Property	[redacted]	30.0d	05-Jun-23	17-Jul-23	19.0d



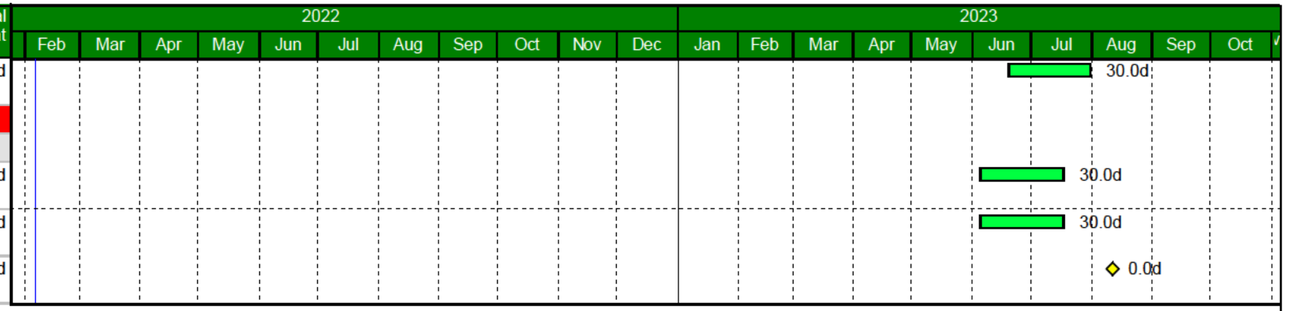
Remaining Work | Actual Work | Critical Milestones
Critical Remaining Work | Milestone | Actual Milestone

Data Date
07-Feb-22

16-Feb-22

Project Lead: [redacted]

ITE - ITE	Activity ID	Activity Name	Resources	RD	Start	Finish	Total Float
	A1030	Asset Management Complete Asset Update(s) in CASCADE	[redacted]	30.0d	19-Jun-23	31-Jul-23	9.0d
	PROJECT MANAGEMENT CLOSEOUT						
	PROJECT MANAGEMENT CLOSEOUT						
	A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.		30.0d	05-Jun-23	17-Jul-23	18.0d
	A1270	Prepare TD-707 Document		30.0d	05-Jun-23	17-Jul-23	18.0d
	FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)		0.0d		11-Aug-23	0.0d



EVERSOURCE

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

Substation Constructability Review

Project Title: [redacted] Mobile Position	☐	Prior Constructability Review Performed?
	☐	Program Related Site-Specific Review?
Project Numbers(s): CS00429	**Project Constructability Phase:**	
Date(s) of Constructability Review: **01/26/2022** Click to enter a date	☐ Conceptual Engineering Design ☒ Preliminary Engineering Design ☐ Detailed Engineering Design	
Project Scope Statement: Performed Constructability Review Walkdown to determine if the Preliminary Drawings are correct.		

Department Review/Walkdown Attendees*:

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

[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] 02/15/2022

Name / Signature *Date*

EVERSOURCE

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

Substation Constructability Review

Documents available for use prior to Constructability Review					
[X]	Document	[X]	Document	[X]	Document
☒	Initial Scope -Birdseye site plan -General Arrangement	☒	Preliminary Drawings (DRAFT) -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		
2		
3		
4		
5		

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management**		
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	☐	-Scope was adequately developed and sufficiently detailed for intended deliverable -Add [redacted] position mobile -Conduit -[redacted] poles -23kV Single pole hook switches single throw -115KV Circuit Switchers -Pole Reclosers -Steel Structure -Fiber Optic receivers -Overlapping projects. TBD -Complimentary projects or other adjacent obsolete equipment for inclusion. Transmission project possibly. TBD -No overlapping projects that could impact work/outages. TBD

EVERSOURCE

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
			-No remote station impacts.
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?	☐	
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.	☐	Physical Electrical and Testing.
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	☐	-If a Mobile Transformer is every needed, yes, the mobile will fit. Designer laid out in the designated area. -Nomenclature will be updated.

EVERSOURCE

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? NO -Pre-Project Sound Measurements Needed? Sound Walls? NO -Take measurements for Foundation quantities, dimensions, and concrete volumes (Get off of Drawings) -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 permanent / temporary alterations or relocations required. -No Pre-Project Sound Measurements Needed or Sound Walls. -Measurements for Foundation quantities, dimensions and concrete volumes will be taken off existing Design Drawings. - No CIP Review/Ballistic needed. -Assess condition of existing yard equipment foundations and viability for reuse is N/A. -No Review for station expansion areas needed for structures, old foundations, etc. -No Steel Structure Plan Considerations for Switch/Multiple Bus Supports. -No impacts to construction plan.
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?	☐	-No GPR/Test pits needed. -No Geotechnical Investigation for soil boring or resistivity investigation is needed.
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.)	☐	-No drawing review concerns -No reuse of underground control cables / conduits /replace non-Shielded Cable feasible -No spare conduits available or useable? -Review if any areas will need to be plated for increased load bearing for equipment access- N/A
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	☐	-No Ruse and add to existing footprint impact layout or other equipment. -No footprint impact layout or other equipment -Use existing ground grid and add where necessary.

EVERSOURCE

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?	☐	Yes. Needs to be updated.
10	BPS (Bulk Power Supply) Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☐	-This is not a BPS Substation. -No changes to pre-existing BPS standard.
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☐	N/A
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☐	N/A
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e., Low Bus, Deterioration, etc.**	☐	N/A
2	**Prior known Site-Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☐	Mobile Transformer was verified that the project did not need one. It will be reverified by SCLL when we receive TOAs
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 S/S Ops, GO, Test, Field Engineering will perform the AB and BG work. No required oversite is needed.

EVERSOURCE

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?	☐	-No maintenance access for proposed new or replaced equipment. -Yes, a clear footprint for yard equipment / Property Plan. -General access to site, can areas outside substation be utilized? Yes -No Substation Entry Plan (driveway and drive path modifications) - No Identification of Unique Requirements is needed, i.e. (access bridges, station service, etc.). -No Site Development Plan (grading and drainage) with Cut/Fill. -Existing Rock Conditions? Potential Impacts (rock quantity)? TBD. Not to expect rock while digging for switchgear piers. - No police details needed for deliveries, restricted hours, and/or need for extended hour approvals. -No Sanitary Civil Requirements needed (Septic tanks, etc.). - Turning radius for delivery trucks is good (if critical). -No Substation Access and site/yard access Limitations -Office Trailer Needs: Facilities, Utilities, Restroom, Container, Dumpster Space: Yes, Conex box, roll of dumpster, and (2) trailer. -No weather impacts to Site (Snow Placement) -Yes, Material Laydown and Security were identified. -Where will new vs removed equipment go? Miscellaneous material removal (scrap) is very little and there is room. -No construction permit for trailers outside substation fence is needed
5	**Unique Equipment Considerations**: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser		N/A

EVERSOURCE

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	☐	-Distribution Clearances are good except for crane for circuit switchers -Clearance Holder Assignments will use Eversource process. -Drawings vs Field Conditions are good. -Outage boundaries and interconnections will be performed by testing. -Phased approach needs for additional mobilizations N/A -Verify outage sequence supports the planned construction sequence and timeline. (Lead Commissioning Engineer "LCE", Substation Operations, and Outage Planner input) Test will perform. -No 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 N/A -Seasonal or weather conditions impacts N/A
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	☐	-Grounding plans / Resources? Will we need grounds hung? Yes -Hi-pot testing and where will the equipment be set up? Testing will determine. N/A
8	Need for mobile generator and where connected (if needed)	☐	N/A
9	Need for mobile battery and where connected (if needed)	☐	N/A
10	OT work required or Notable Permit Conditions (special hours)?	☐	N/A
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☐	N/A

EVERSOURCE

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	☐	Yes
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	☐	N/A
3	Risk or presence of PCB's/Asbestos/Lead/SF6	☐	None.
4	Transformer Spill Containment Recommended?	☐	Yes. It is required/recommended.
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☐	N/A
6	Environmental oversight considerations? (Inspection type/Interval)	☐	TBD
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	☐	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?	☐	N/A
2	Other siting considerations?	☐	N/A
3	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	☐	N/A.
4	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☐	N/A
5	Installation within Eversource Rights - Is Rights and Restrictions Review required?	☐	N/A

EVERSOURCE

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	Expanding Footprint / New Buildings / Fence line or future Expansion Plans?	☐	N/A
7	Proposed Equipment on same property? - Any Encroachments	☐	N/A
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☐	No Concern
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☐	No Concern
3	Panel fronts conform to drawings	☐	No Concern
4	Access to bring new panels into control enclosure	☐	N/A
5	Nameplate list and location of nameplates	☐	No Concern
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☐	No Concern
7	Temporary protection, relays, control cable needed? How long will they be required?	☐	No Concern
8	Will relay setting changes be needed? Any additional outage requirements for changes?		New mobile position reclosers being installed will require generic settings for testing. Changes to the 52/2T, 52/3T, and 52/2X trip and close schemes may require outages for these breakers.
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	☐	Yes, reviewed and approved
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.	☐	N/A
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☐	N/A
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☐	Complete
5	Review and list any remote station impacts/updates	☐	N/A

EVERSOURCE

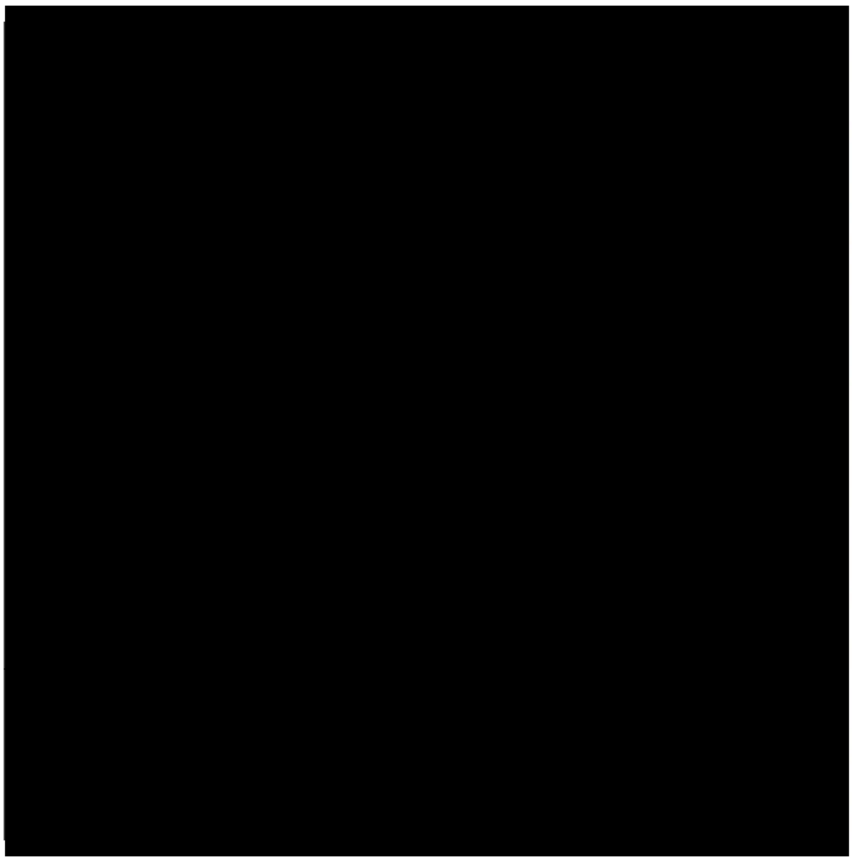
Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☐	Yes.
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☐	Existing cabinet has sufficient space for new equipment.
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☐	Sufficient space.
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☐	Reviewed with SS engineer. No additional requirements required.

Photos

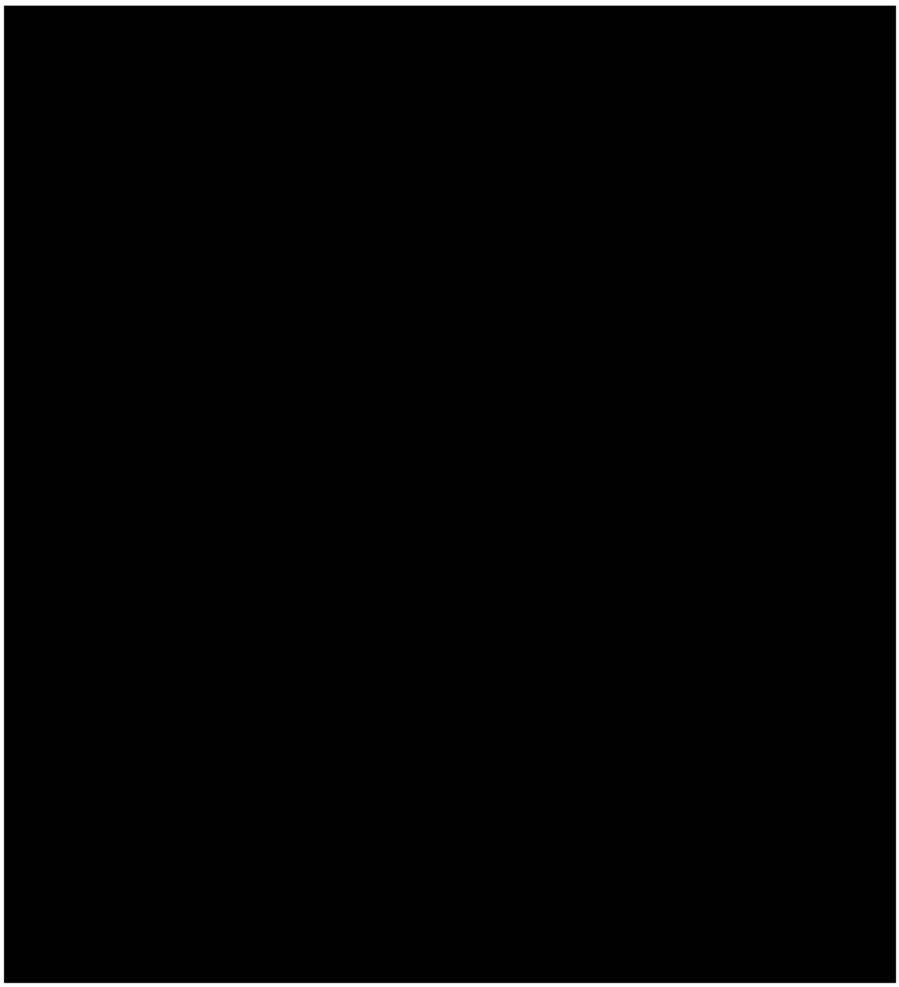
Picture #1: Area where cable trench will be installed.



Picture #2: Feeder Rise Cables to move out with miscellaneous steel plates to add Hook Switches



Picture #3: Area for Mobile Position and Foundations



Responsible Employee Name:	[redacted]
Responsible Employee Email:	[redacted]
Project Name:	Install Mobile Position
Project Number:	CS00429
Workorder Number:	8009964
Alternate:	
Region:	CT
Project Manager:	[redacted]
Project Manager Email:	[redacted]
CC(s) (names ; seperated):	

-PROJECT DESIGN PHASE-

Preliminary

Display Filters

Only Display Deliverables Required for Estimating	☐
Hide N/A Deliverables	☑

Mark Each Deliverable for the Current Design Phase

X = Deliverable Complete and Placed in Project Folder
NA = Deliverable Not Pertinent to the Project Scope of Work
See Comments = Deliverable Not Provided or Partially Provided, Explanation Required

[x] denotes Deliverable Required for Estimating

Deliverables Project Folder Location

\\nu.com\data\SharedData\EPAC Project Deliverables\CS00429\2_Preliminary\

	Description of Deliverables	Conceptual	Preliminary	Detailed	IFC	Closeout
X	Scope of Work Document (Preliminary) Including Remote Stations	[redacted]	X			
X	· Station BPS Classification		NA			
X	· IEC 61850 Design		NA			
X	· List of Other Projects with Potential to Interfere with Design or Construction		NA			
X	· Known Existing Site Specific Conditions		X			
X	· Upgrades to existing equipment to meet current ES Standards		NA			
X	· Identification of Unique P&C Requirements		X			
X	· Engineering Estimates for Design and Technical Support (EE and EOC) Total Project		X			
X	Nomenclature / Operating Diagram (Preliminary)		X			
X	One-Line Metering and Relaying Diagram (Preliminary)		X			
X	Three Line (Preliminary), AC Elementary Diagram		X			
X	Relay Panel Front Views		X			
X	Control Enclosure Layout (Coordinate with Substation Engineering)		X			
-	DC Elementary Diagrams (Schematics)		X			
X	P&C, SCADA Risk Identification & Mitigation Plan (Preliminary, Input to Risk Matrix)		X			
-	Site walkdown and constructability review		X			
X	P&C / SCADA BOM (Preliminary)		X			
-	Relay Setting Plan (Preliminary)		NA			
-	Preliminary SCADA Data Sheet / Signal List		X			
-	Communication Block Diagram		NA			
-	Technical RPF Package(s) for major long-lead materials (Relay Panels, RIOs)		X			
-	P&C Drawing/Deliverable Transmittal List		X			
X	Deliverables Checklist (Preliminary)		X			

Deliverables Project Folder Location					
\\nu.com\data\SharedData\EPAC Project Deliverables\CS00429\2_Preliminary\					
Description of Deliverables	**Conceptual**	**Preliminary**	**Detailed**	**IFC**	**Closeout**

Comments

Include any pertinent comments for management, Estimating or the Project team. Explain if a required deliverable was not provided.

Automated Electronic Signature of Engineer Assigned to the Project and the Designated QA/QC Reviewer

Stage	Responsible Employee	Lead, Manager, or Director
Conceptual	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Preliminary	[redacted] @ 02/10/2022 15:39	Administrator @ 02/18/2022 23:46
Detailed	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Issue For Construction	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Closeout	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-

Responsible Employee Name:	[redacted]
Responsible Employee Email:	[redacted]
Project Name:	[redacted]- Adding A Mobile Position
Project Number:	CS00429
Workorder Number:	80099644
Alternate:	
Region:	CT
Project Manager:	[redacted]
Project Manager Email:	[redacted]
CC(s) (names ; seperated):	[redacted]

-PROJECT DESIGN PHASE-

Preliminary

[x] denotes Deliverable Required for Estimating

Display Filters

Only Display Deliverables Required for Estimating	☐
Hide N/A Deliverables	☑

Mark Each Deliverable for the Current Design Phase

X = Deliverable Complete and Placed in Project Folder
NA = Deliverable Not Pertinent to the Project Scope of Work
See Comments = Deliverable Not Provided or Partially Provided, Explanation Required

Deliverables Project Folder Location

\\nu.com\data\SharedData\EPAC Project Deliverables\CS00429\2_Preliminary\

	Description of Deliverables	Conceptual	Preliminary	Detailed	IFC	Closeout
X	Scope of Work Document (Preliminary) including Remote Stations		X			
X	· Master Project BOM		X			
X	· Above Grade BOM (Preliminary with Long Lead Time Identified)		X			
X	· Below Grade BOM (Preliminary with Long Lead Time Identified)		X			
X	· Fence/Gate Plan		NA			
X	· Identification of Unique Requirements, i.e. (access bridges, station service, etc.)		NA			
X	· BPS Separation Requirements (Preliminary)		NA			
X	· Physical Security Requirements (Preliminary)		NA			
X	· IEC 61850 Requirements (Preliminary)		NA			
X	· Known Existing Site Specific Conditions		X			
X	· Upgrades to ES Standards		NA			
X	· Establish Future Expansion needs		NA			
X	· List of Other Projects with Potential to Interfere with Design or Construction		NA			
X	· Assumed Level of soil contamination (volume), PCB Oil in Equip, Asbestos wiring, etc. (based on		X			
X	· Routing of Lines into and out of Substation (Confirmation of Design with T-Line)		NA			
X	· Wall & Foundation Plan & Table (Foundation quantities, dimensions and concrete volumes)		X			
X	· Sanitary Civil Requirements, including septic tanks		NA			
X	· Engineering Estimates for Design and Technical Support (EE and EOC) Total Project		X			
-	· Evaluation of DC Battery system and Loading		NA			
-	· Define X/R Ratio		NA			
-	· Define Fault Current		NA			
X	General Arrangement		X			
X	Nomenclature / Switching One-Line Diagram		X			

Deliverables Project Folder Location						
\\nu.com\data\SharedData\EPAC Project Deliverables\CS00429\2_Preliminary\						
	Description of Deliverables	**Conceptual**	**Preliminary**	**Detailed**	**IFC**	**Closeout**
-	Equipment Rating One Line (and/or equipment thermal ratings tables)		X			
X	Property Plan		NA			
-	Substation Entry Plan (driveway and drive path modifications)		NA			
-	Section Drawings (only where critical for constructability review)		X			
X	Site Development Plan (grading and drainage) with Cut/Fill Quantities & Expected Quantity of Rock		NA			
-	Siting and Permitting Physical Site Drawings		NA			
X	Transformer Spill Containment		NA			
X	Control Enclosure Layout		NA			
-	Control Enclosure HVAC System Evaluation (if equipment added)		NA			
X	Battery Enclosure Layout		NA			
-	Battery Enclosure HVAC System Evaluation (if equipment added or replaced)		NA			
X	Below Grade Raceway Plan (Preliminary)		X			
X	Enclosure Raceway system plan drawing and/or Evaluation of Existing Raceway		NA			
X	Grounding Plan Drawing Based on Model & Draft Report		NA			
-	Direct Stroke Lightning Protection Analysis and Report		NA			
X	AC Station Service one-line and/or riser type panelboard drawings		NA			
-	Station Service Load Calculation: AC Load and Generator Run Time		NA			
X	DC Battery system one-line and/or riser type panelboard drawings		NA			
-	Lighting level Calculations (if applicable)		NA			
X	Lighting Plan & Fixture Schedule (if applicable)		NA			
X	Steel Structural Plan Drawing & Structure Table (if applicable)		X			
-	Pre-Project Sound Measurements		NA			
-	Sound Study Evaluation (w/remediation options if applicable)		NA			
-	Subsurface Investigation for below grade obstructions (GPR/test pits)		NA			
-	Geotechnical Investigation (soil borings and report)		NA			
-	Soil Resistivity Measurement Report		NA			
-	Stormwater Report – Preliminary		NA			
X	Constructability Review (Preliminary)		X			
X	Substation Risk Identification & Proposed Mitigation (Preliminary, Input to Risk Matrix)		X			
X	Bids for Specialty Major Materials		See Comments			
-	SUB 099 Site Data Table		NA			
-	Master Project Drawing List (Engineering Vendor only)		NA			
-	Civil Site Drawing/Deliverable Transmittal List (Engineering Vendor only)		NA			
-	Electrical Drawing/Deliverable Transmittal List (Engineering Vendor only)		NA			
-	RPF Package(s) Technical Requirements for major long-lead materials (Transformer, Switchgear, Control		X			
-	RFP Package for Detailed Engineering Services (if required)		NA			
X	Deliverables Checklist (Preliminary)		See Comments			
Comments						
This SS deliverbales Checklist is completed for applicable Milestones on project CS00429. Major Material will be ordered post EPAC Full funding approval after Mid-March 2022..						

Deliverables Project Folder Location

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Description of Deliverables	Conceptual	Preliminary	Detailed	IFC	Closeout

Automated Electronic Signature of Engineer Assigned to the Project and the Designated QA/QC Reviewer

Stage	Responsible Employee	Lead, Manager, or Director
Conceptual	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Preliminary	[redacted] 01/20/2022 17:20	[redacted] @ 01/28/2022 18:56
Detailed	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Issue For Construction	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-
Closeout	-Automatic Name and Timestamp-	-Automatic Name and Timestamp-

[redacted]