

**APPENDIX 6:
ELECTRICAL DRAWINGS**

CHINOOK SOLAR PROJECT

SUBSTATION AND COLLECTOR SYSTEM DRAWING INDEX

SUBSTATION AND COLLECTOR SYSTEM DRAWING INDEX			
DRAWING NUMBER	TITLE	REVISION	DATE
SUBSTATION			
001C-01	115/34.5kV SUBSTATION - ONE LINE - SWITCHING DIAGRAM	A	09-16-2019
001P-01	115/34.5kV POI SWITCHYARD - ONE LINE - SWITCHING DIAGRAM	A	09-16-2019
100-01	115/34.5kV SUBSTATION - SITE PLAN	B	09-16-2019
101C-01	115/34.5kV COLLECTOR SUBSTATION - GENERAL ARRANGEMENT PLAN VIEW	B	09-16-2019
101C-02	115/34.5kV COLLECTOR SUBSTATION - GENERAL ARRANGEMENT ELEVATION VIEW	B	09-16-2019
101C-03	115/34.5kV COLLECTOR SUBSTATION - GENERAL ARRANGEMENT ELEVATION VIEW	B	09-16-2019
101P-01	115kV POI SWITCHYARD - GENERAL ARRANGEMENT PLAN VIEW	B	09-16-2019
101P-02	115kV POI SWITCHYARD - GENERAL ARRANGEMENT ELEVATION VIEW	B	09-16-2019
101P-03	115kV POI SWITCHYARD - GENERAL ARRANGEMENT ELEVATION VIEW	B	09-16-2019
COLLECTION SYSTEM			
800-01	34.5kV COLLECTOR SYSTEM & 115kV INTERCONNECTION - OVERALL ONE LINE DIAGRAM	A	09-05-2019
810-01	34.5kV COLLECTOR SYSTEM - OVERALL PLAN VIEW	B	09-16-2019
810-02	34.5kV COLLECTOR SYSTEM - CABLE TRENCH UNDERGROUND ROUTING - PLAN VIEW	B	09-16-2019
810-03	34.5kV COLLECTOR SYSTEM - CABLE TRENCH UNDERGROUND ROUTING - PLAN VIEW	B	09-16-2019
810-04	34.5kV COLLECTOR SYSTEM - CABLE TRENCH UNDERGROUND ROUTING - PLAN VIEW	B	09-16-2019
810-05	34.5kV COLLECTOR SYSTEM - CABLE TRENCH UNDERGROUND ROUTING - PLAN VIEW	B	09-16-2019
850-01	34.5kV COLLECTOR SYSTEM - DIRECT BURIED CABLE TRENCH DETAILS	B	09-16-2019
853-01	115kV TRANSMISSION LINE - DIRECT BURIED CABLE TRENCH DETAILS	B	09-16-2019
920-01	115kV TRANSMISSION LINE - 115kV RISER STRUCTURE DEAD-END TYPICAL DETAILS	B	09-16-2019

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

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MSE Engineering, LLC

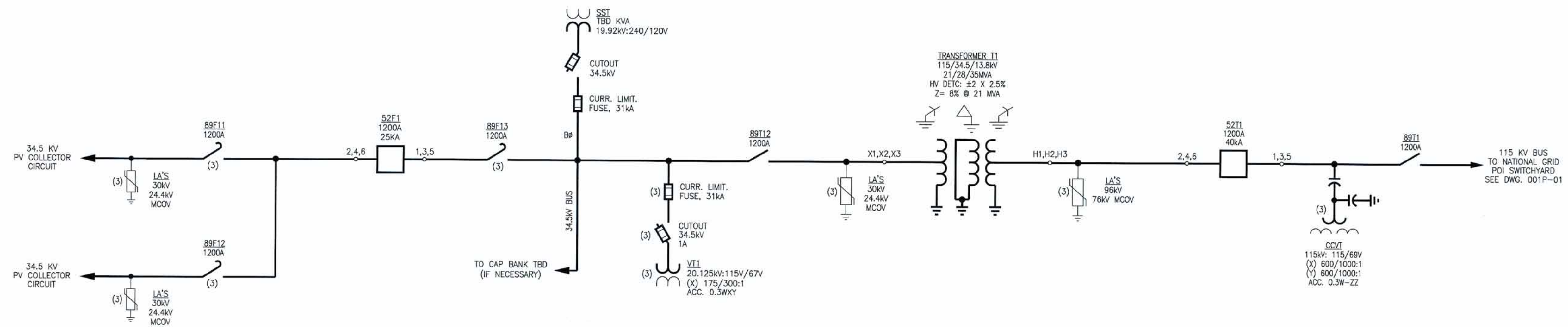
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115/34.5kV SUBSTATION AND 34.5kV COLLECTION SYSTEM
DRAWINGS INDEX

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	NONE	000	01	B





NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
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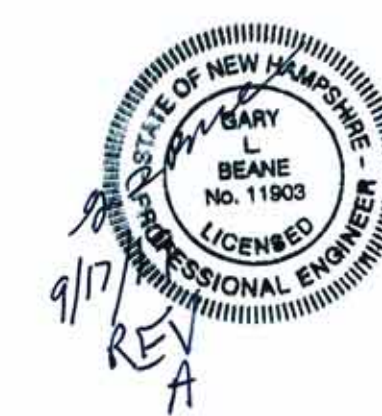
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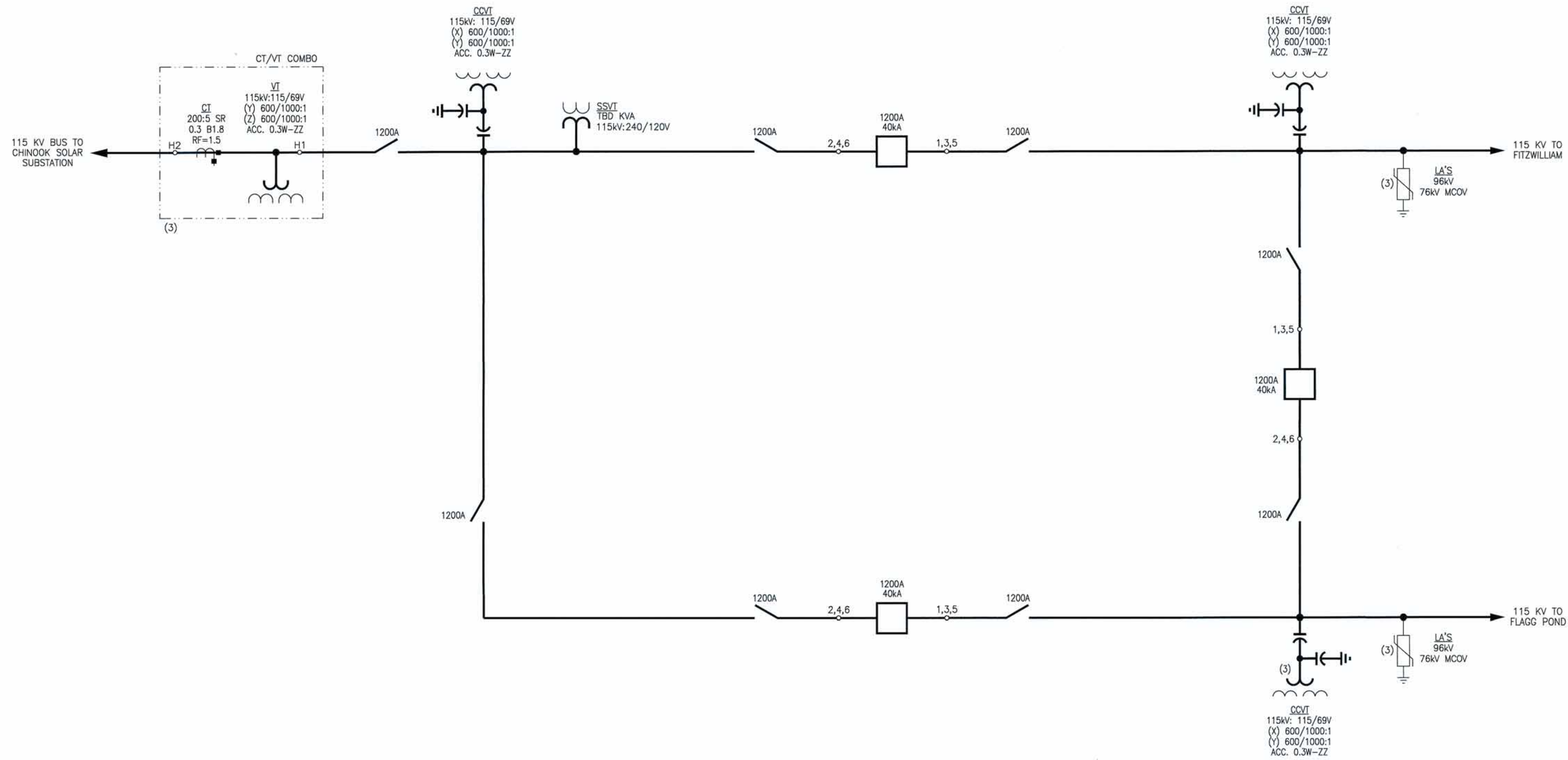
MSE Engineering, LLC
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PV PROJECT
NEXTERA ENERGY RESOURCES

115/34.5 KV COLLECTOR SUBSTATION
ONE LINE
SWITCHING DIAGRAM

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	NONE	001C	01	A





NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
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DRAWING
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MSE

Engineering, LLC

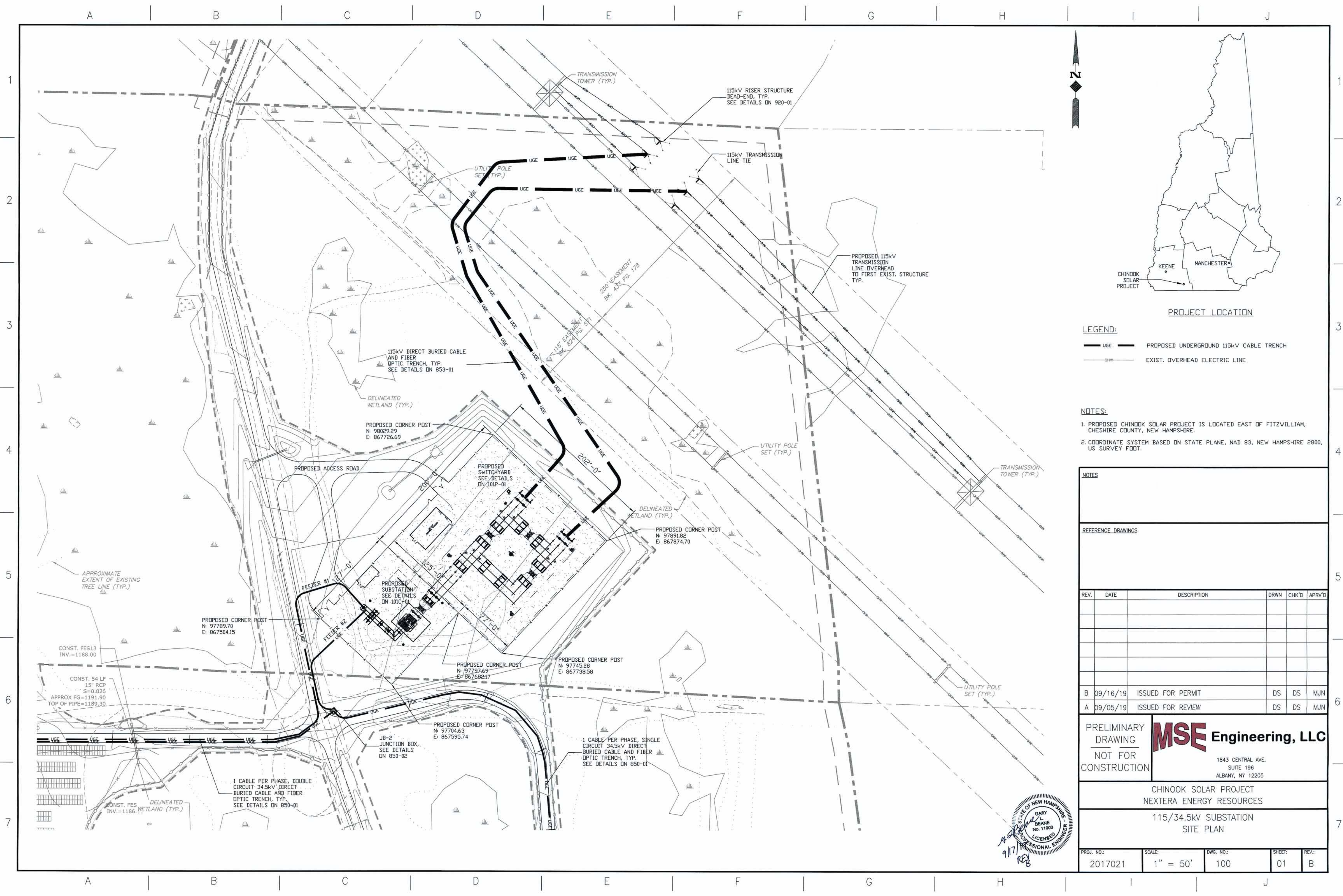
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

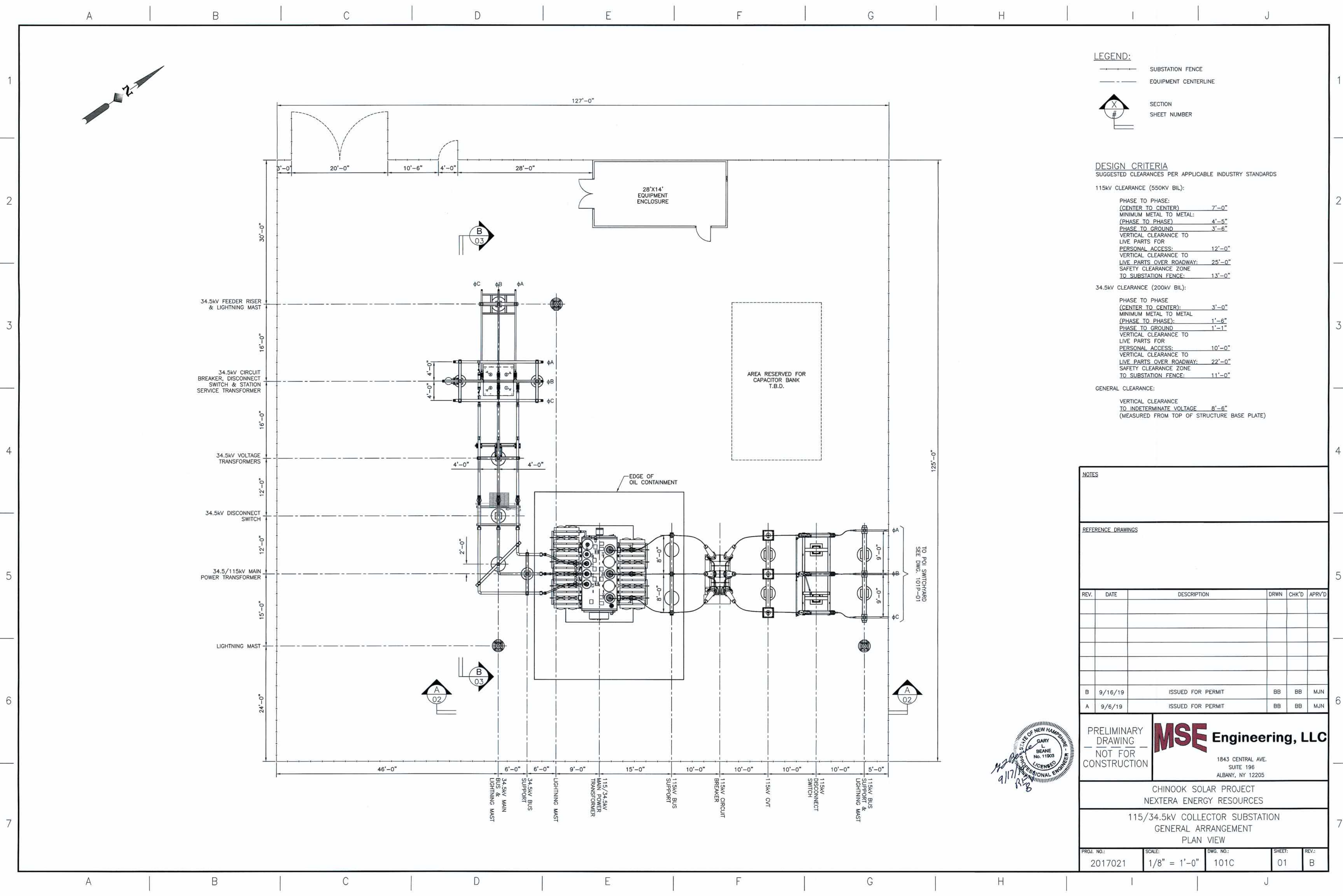
CHINOOK SOLAR PV PROJECT
NEXTERA ENERGY RESOURCES

115 KV POI SWITCHYARD
ONE LINE
SWITCHING DIAGRAM

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	NONE	001P	01	A







LEGEND:

--- SUBSTATION FENCE

--- EQUIPMENT CENTERLINE

SECTION
SHEET NUMBER

DESIGN CRITERIA
SUGGESTED CLEARANCES PER APPLICABLE INDUSTRY STANDARDS

115kV CLEARANCE (550kV BIL):

PHASE TO PHASE (CENTER TO CENTER)	7'-0"
MINIMUM METAL TO METAL (PHASE TO PHASE)	4'-5"
PHASE TO GROUND	3'-6"
VERTICAL CLEARANCE TO LIVE PARTS FOR PERSONAL ACCESS	12'-0"
VERTICAL CLEARANCE TO LIVE PARTS OVER ROADWAY	25'-0"
SAFETY CLEARANCE ZONE TO SUBSTATION FENCE	13'-0"

34.5kV CLEARANCE (200kV BIL):

PHASE TO PHASE (CENTER TO CENTER)	3'-0"
MINIMUM METAL TO METAL (PHASE TO PHASE)	1'-6"
PHASE TO GROUND	1'-1"
VERTICAL CLEARANCE TO LIVE PARTS FOR PERSONAL ACCESS	10'-0"
VERTICAL CLEARANCE TO LIVE PARTS OVER ROADWAY	22'-0"
SAFETY CLEARANCE ZONE TO SUBSTATION FENCE	11'-0"

GENERAL CLEARANCE:

VERTICAL CLEARANCE TO INDETERMINATE VOLTAGE	8'-6"
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(MEASURED FROM TOP OF STRUCTURE BASE PLATE)

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	9/16/19	ISSUED FOR PERMIT	BB	BB	MJN
A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

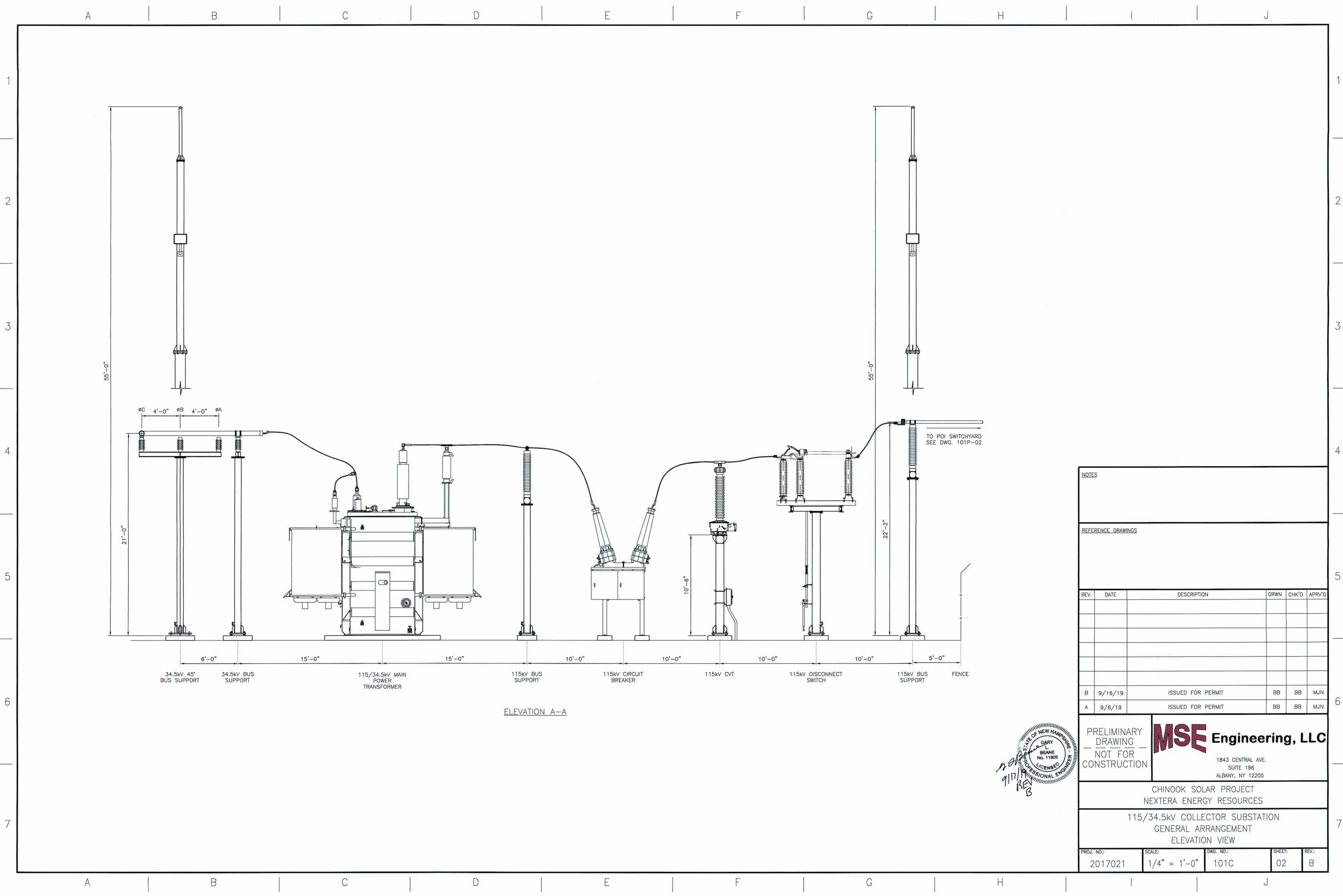
MSE Engineering, LLC
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115/34.5kV COLLECTOR SUBSTATION
GENERAL ARRANGEMENT
PLAN VIEW

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1/8" = 1'-0"	101C	01	B





ELEVATION A-A

9/17/19
RAB

NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	9/16/19	ISSUED FOR PERMIT	BB	BB	MJN
A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN

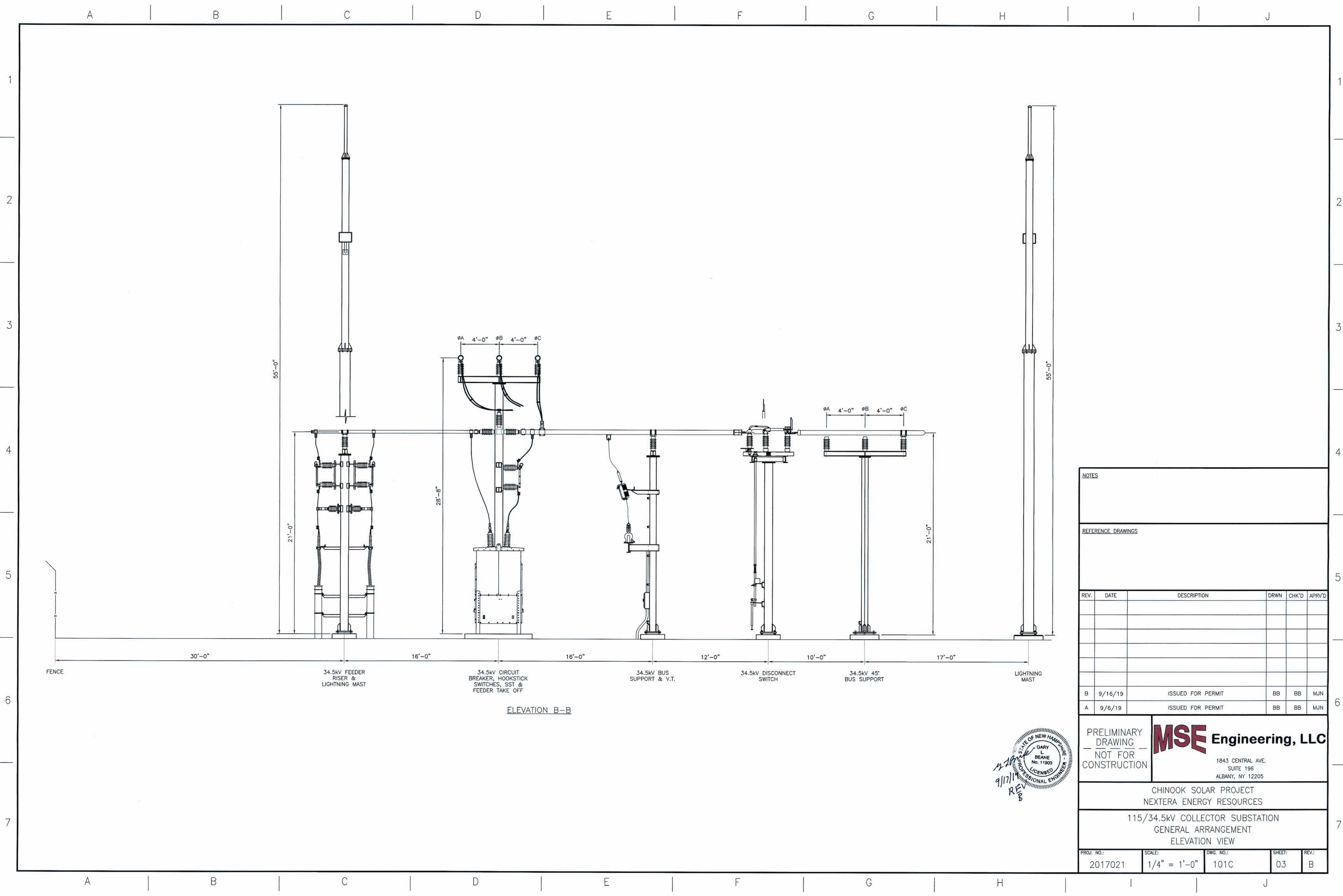
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ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115/34.5kV COLLECTOR SUBSTATION
GENERAL ARRANGEMENT
ELEVATION VIEW

PROJ. NO.: 2017021	SCALE: 1/4" = 1'-0"	DWG. NO.: 101C	SHEET: 02	REV.: B
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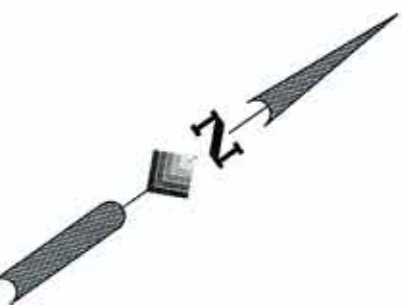


ELEVATION B-B

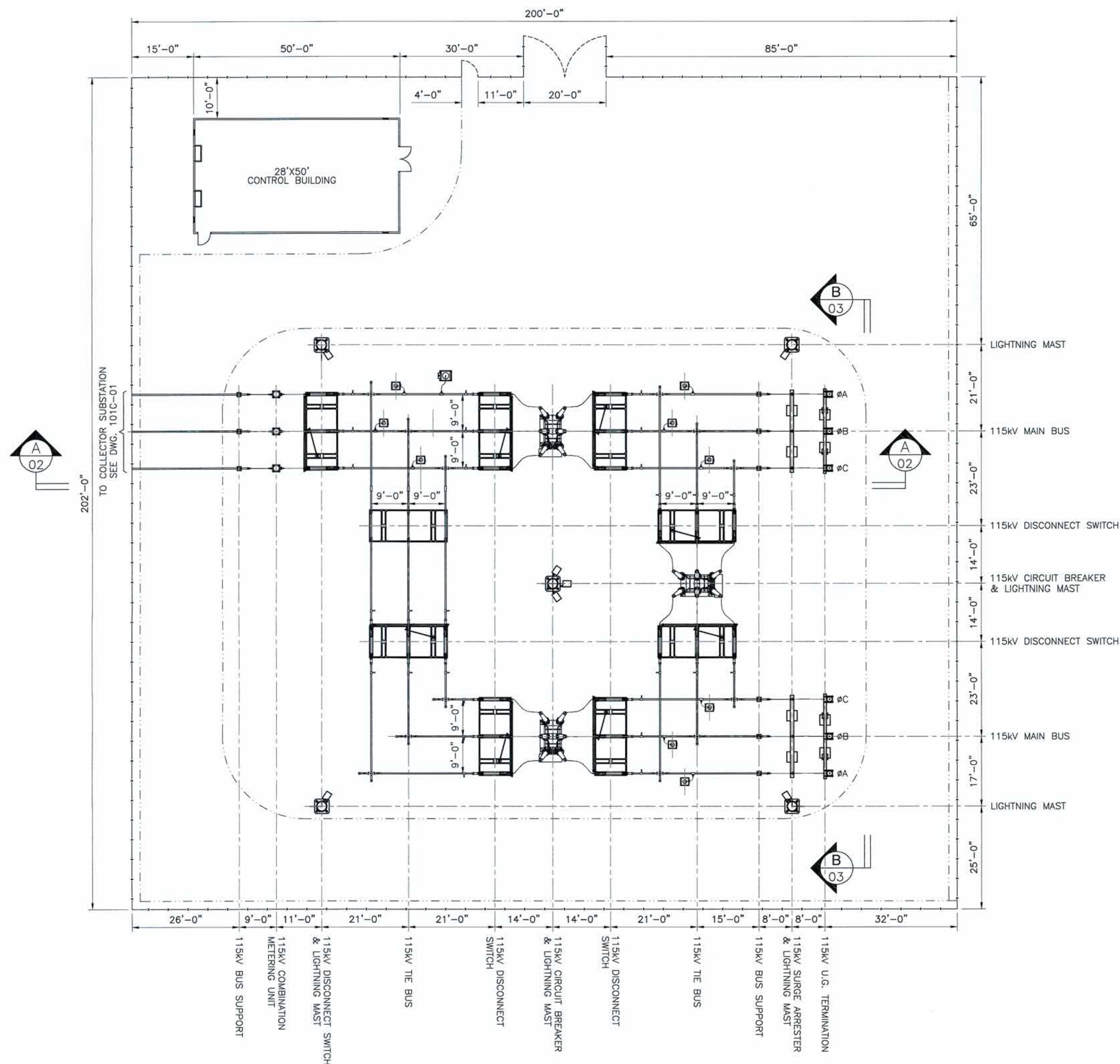


NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
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A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN
PRELIMINARY DRAWING NOT FOR CONSTRUCTION		<div>MSE Engineering, LLC</div> <div>1843 CENTRAL AVE. SUITE 196 ALBANY, NY 12205</div>			
CHINOOK SOLAR PROJECT NEXTERA ENERGY RESOURCES					
115/34.5kV COLLECTOR SUBSTATION GENERAL ARRANGEMENT ELEVATION VIEW					
PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:	
2017021	1/4" = 1'-0"	101C	03	B	

A B C D E F G H I J



1
2
3
4
5
6
7



A B C D E F G H I J

LEGEND:

- SUBSTATION FENCE
- EQUIPMENT CENTERLINE
- DRIVEABLE ACCESS

SECTION SHEET NUMBER

DESIGN CRITERIA
SUGGESTED CLEARANCES PER APPLICABLE INDUSTRY STANDARDS

115kV CLEARANCE (550KV BIL):

PHASE TO PHASE: (CENTER TO CENTER)	7'-0"
MINIMUM METAL TO METAL: (PHASE TO PHASE)	4'-5"
PHASE TO GROUND	3'-6"
VERTICAL CLEARANCE TO LIVE PARTS FOR PERSONAL ACCESS:	12'-0"
VERTICAL CLEARANCE TO LIVE PARTS OVER ROADWAY:	25'-0"
SAFETY CLEARANCE ZONE TO SUBSTATION FENCE:	13'-0"

GENERAL CLEARANCE:

VERTICAL CLEARANCE TO INDETERMINATE VOLTAGE	8'-6"
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(MEASURED FROM TOP OF STRUCTURE BASE PLATE)

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	9/16/19	ISSUED FOR PERMIT	BB	BB	MJN
A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

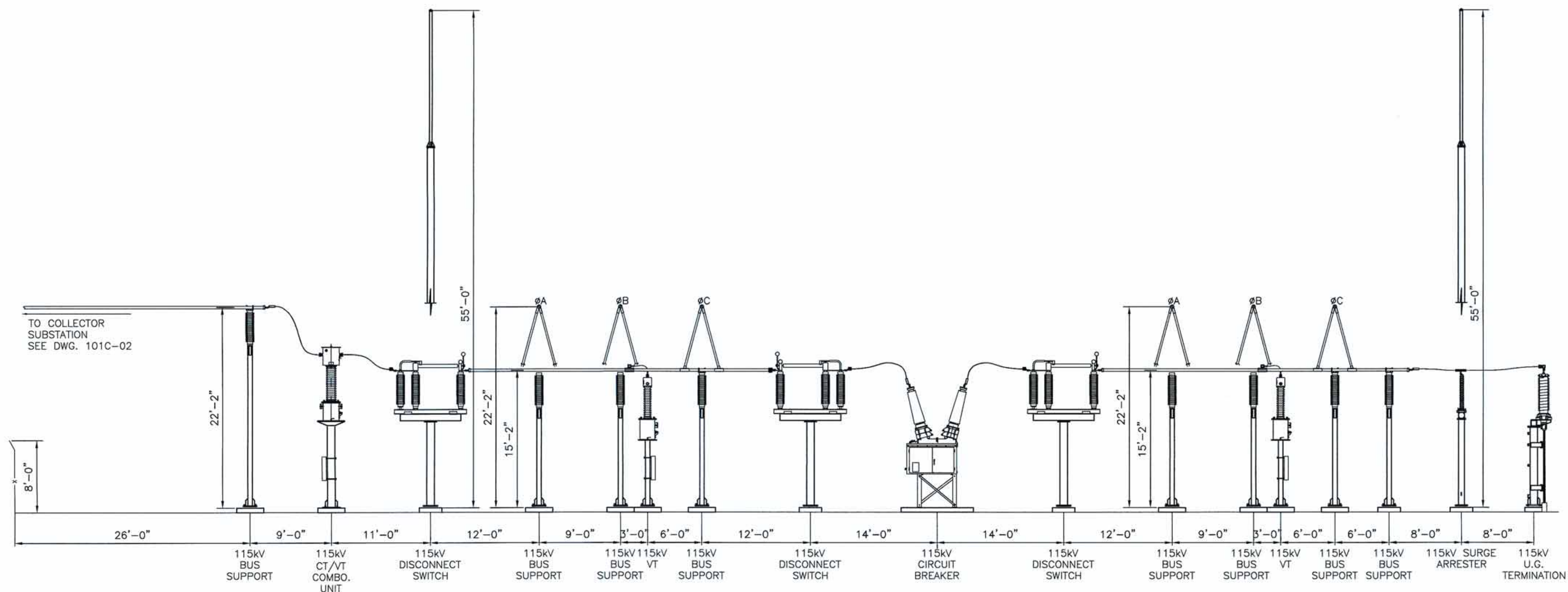
MSE Engineering, LLC
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115kV POI SWITCHYARD
GENERAL ARRANGEMENT
PLAN VIEW

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1/16" = 1'-0"	101P	01	B





ELEVATION A-A

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
B	9/16/19	ISSUED FOR PERMIT	BB	BB	MJN
A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

MSE

Engineering, LLC

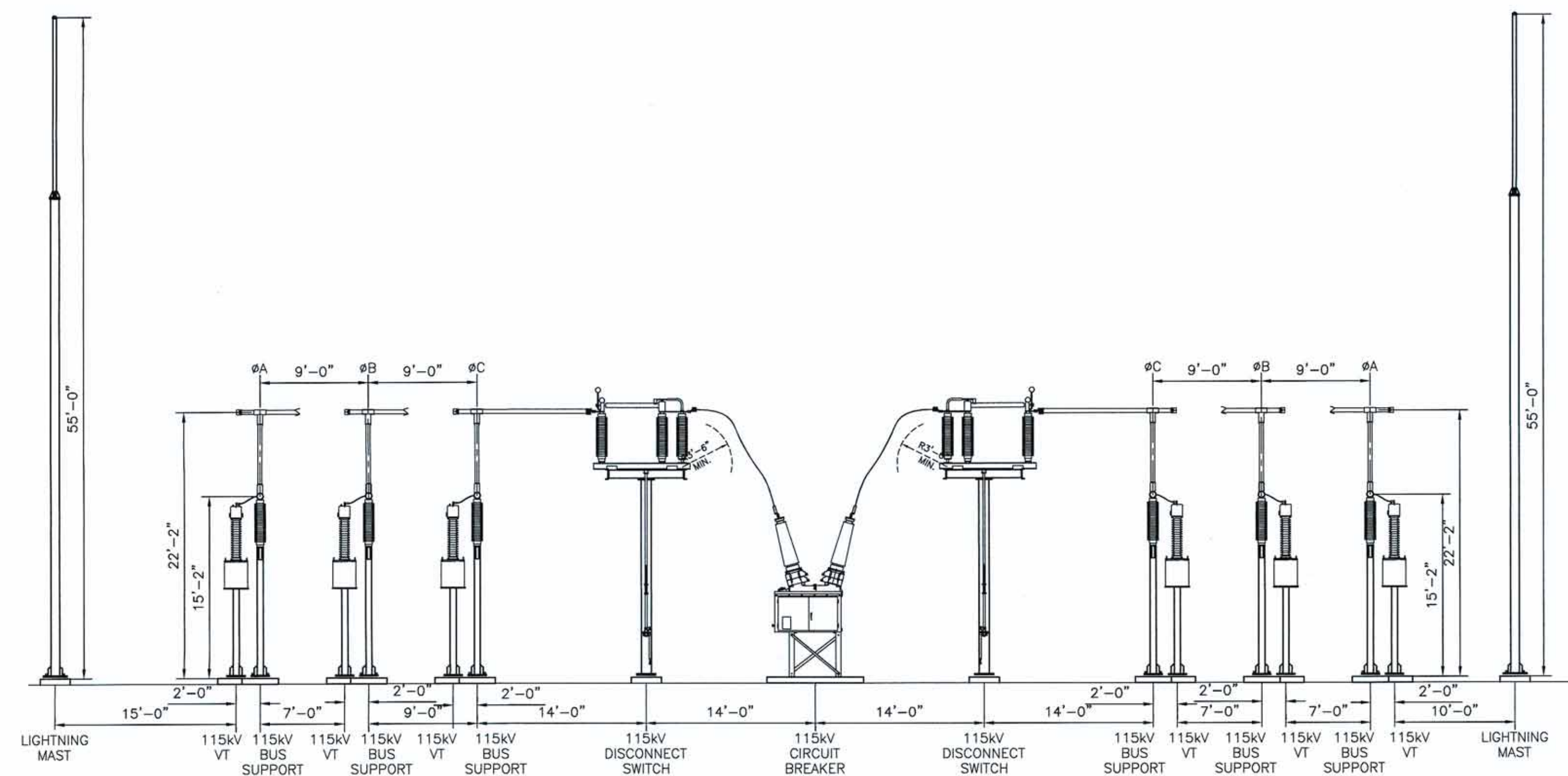
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115kV POI SWITCHYARD
GENERAL ARRANGEMENT
ELEVATION VIEW

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1/8" = 1'-0"	101P	02	B





ELEVATION B-B



NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APPR'D
B	9/16/19	ISSUED FOR PERMIT	BB	BB	MJN
A	9/6/19	ISSUED FOR PERMIT	BB	BB	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

MSE

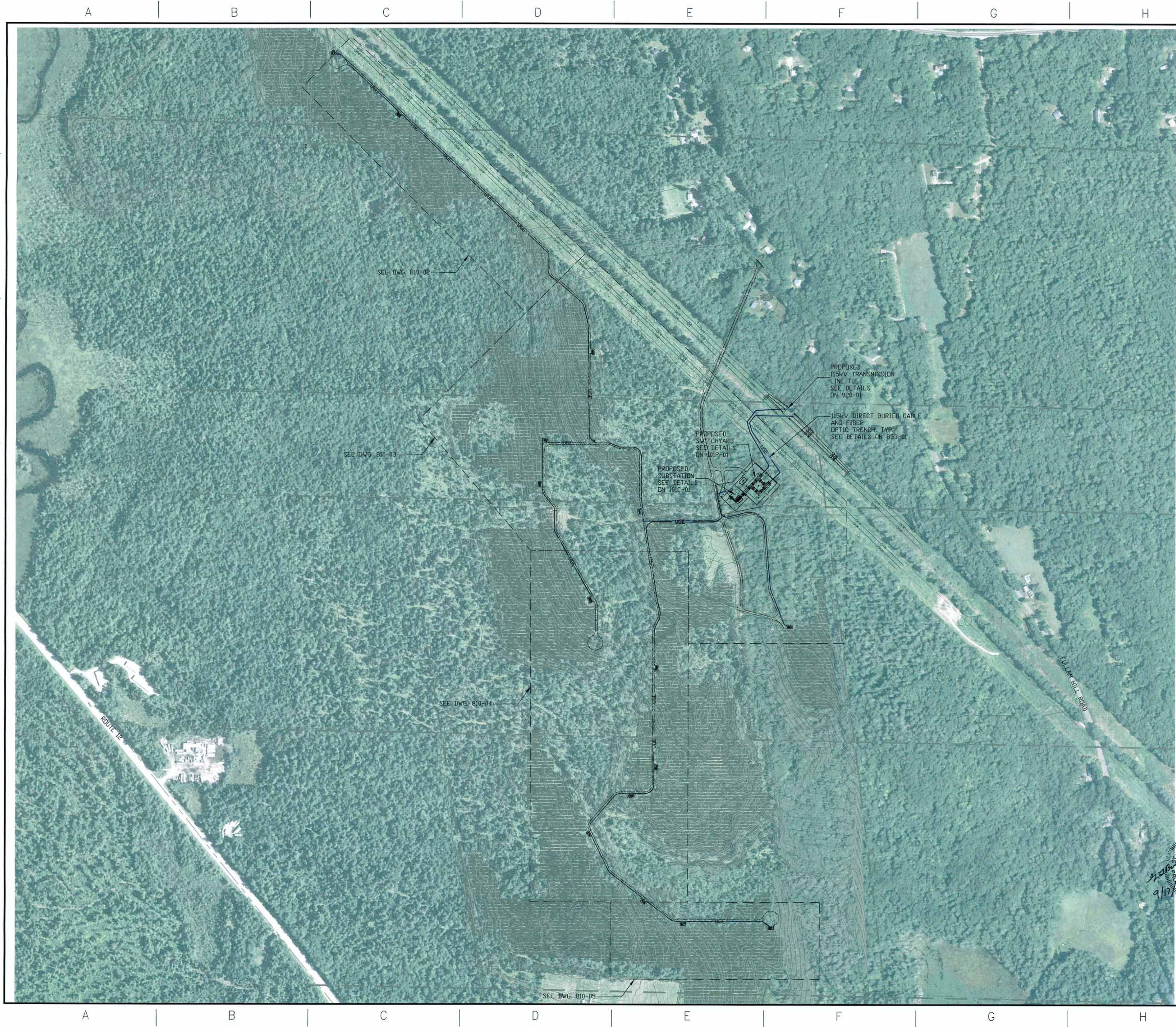
Engineering, LLC

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SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

115kV POI SWITCHYARD
GENERAL ARRANGEMENT
ELEVATION VIEW

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1/8" = 1'-0"	101P	03	B



PROJECT LOCATION

LEGEND:

- UGE — PROPOSED UNDERGROUND COLLECTION SYSTEM
- CHW — EXIST. OVERHEAD ELECTRIC LINE

NOTES:

1. PROPOSED CHINOOK SOLAR PROJECT IS LOCATED EAST OF FITZWILLIAM, CHESHIRE COUNTY, NEW HAMPSHIRE.
2. COORDINATE SYSTEM BASED ON STATE PLANE, NAD 83, NEW HAMPSHIRE 2800, US SURVEY FOOT.

NOTES					

REFERENCE DRAWINGS					

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

PRELIMINARY
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CONSTRUCTION

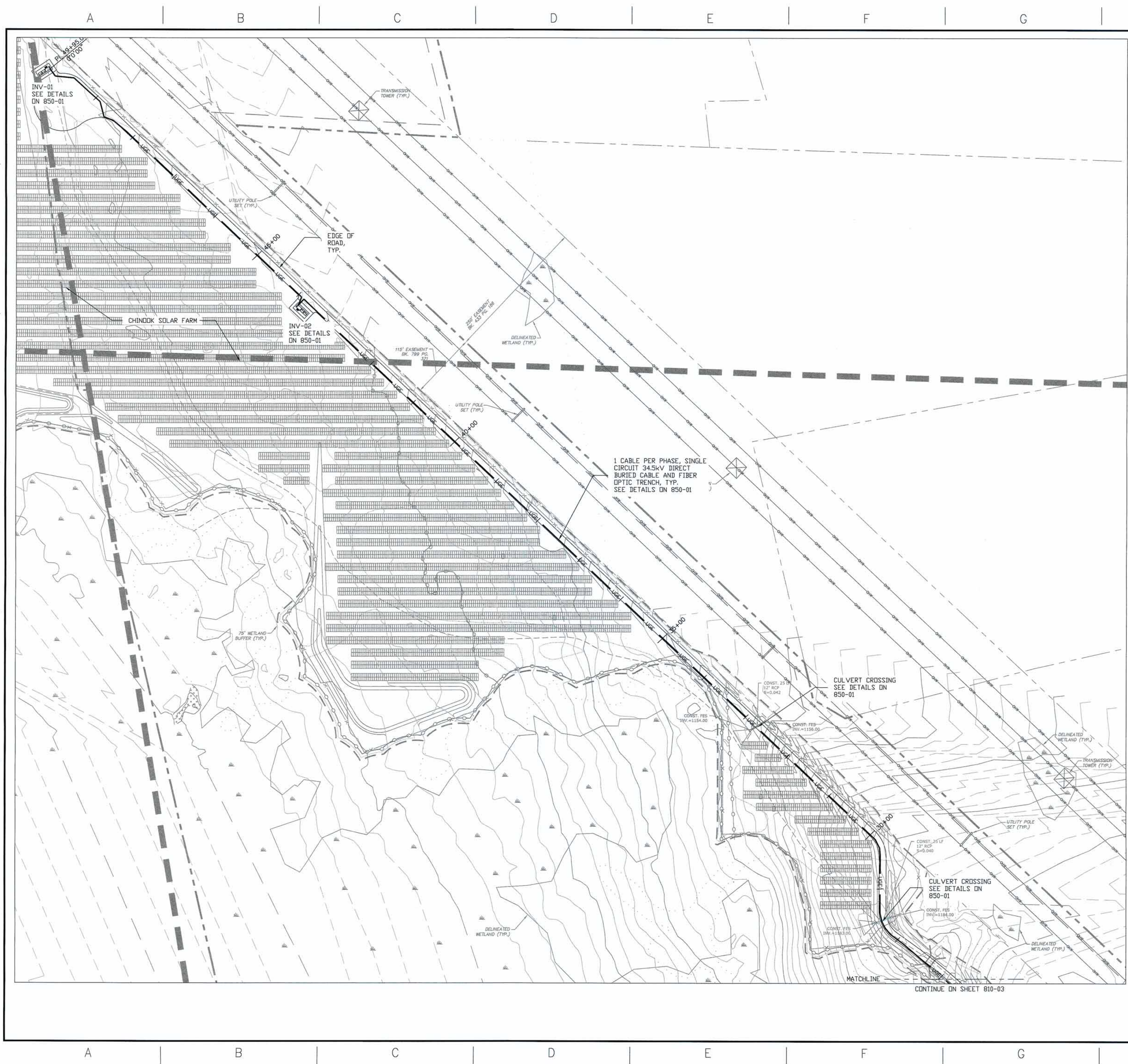
MSE Engineering, LLC

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SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

34.5kV COLLECTION SYSTEM
OVERALL SITE PLAN VIEW

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1" = 300'	810	01	B



LEGEND:

- UGS PROPOSED UNDERGROUND COLLECTION SYSTEM
- OHE EXIST. OVERHEAD ELECTRIC LINE
- INV INVERTORS

NOTES:

- PROPOSED CHINOOSK SOLAR PROJECT IS LOCATED EAST OF FITZWILLIAM, CHESHIRE COUNTY, NEW HAMPSHIRE.
- COORDINATE SYSTEM BASED ON STATE PLANE, NAD 83, NEW HAMPSHIRE 2800, US SURVEY FOOT.

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

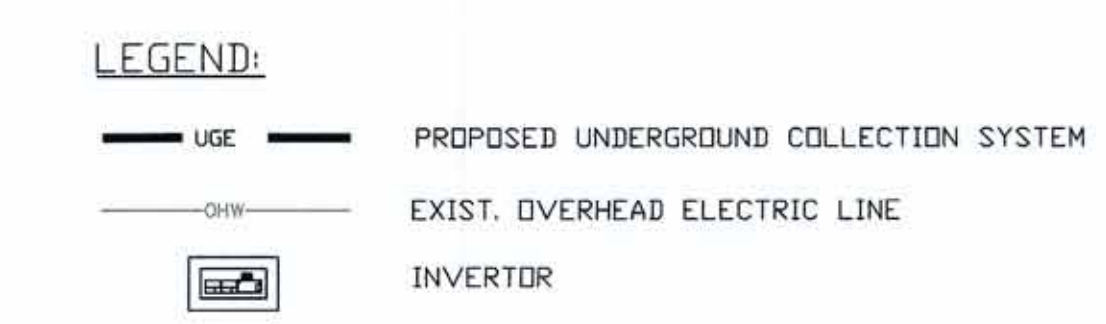
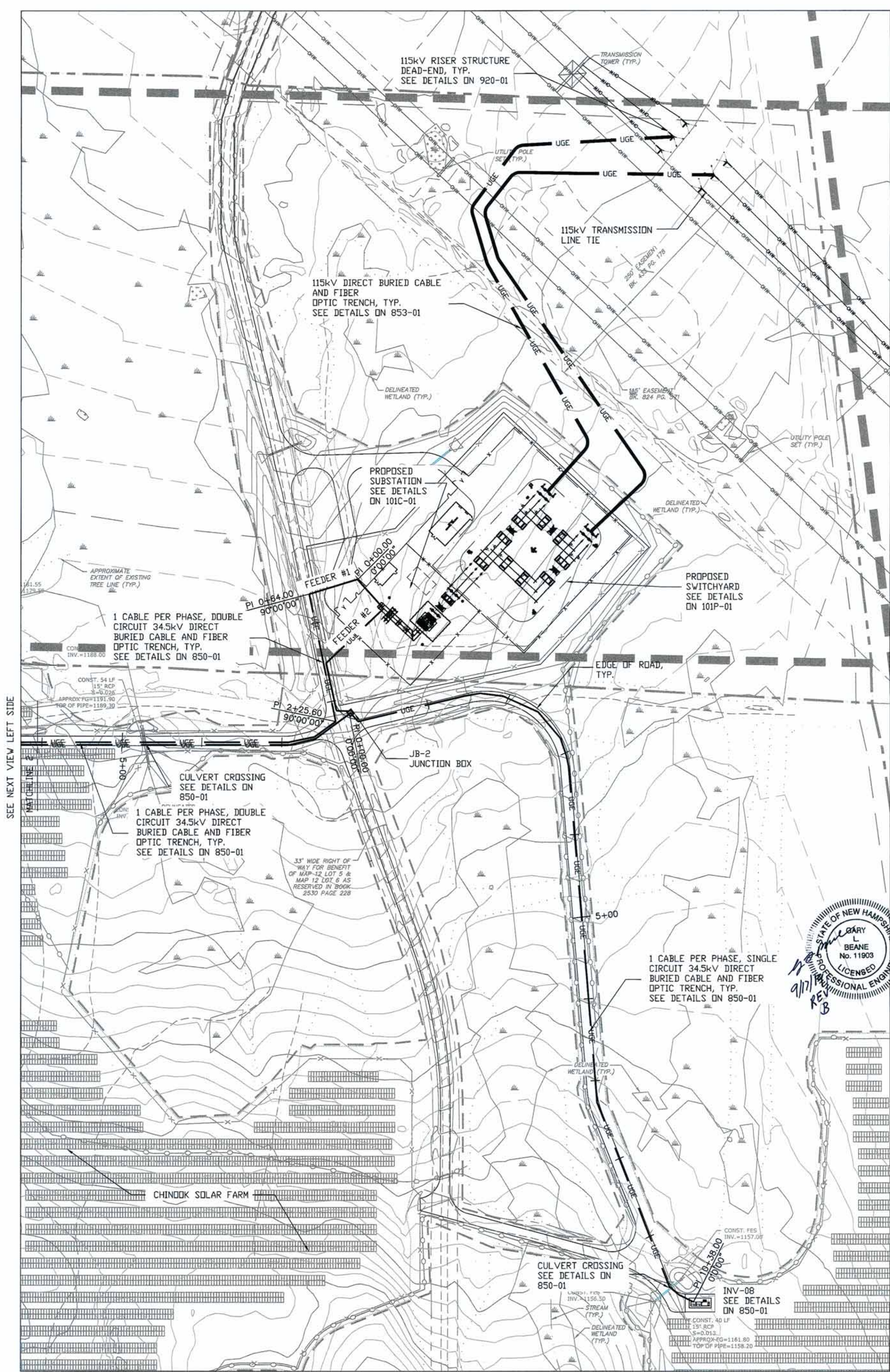
MSE Engineering, LLC
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOSK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

34.5kV COLLECTION SYSTEM
COLLECTION SYSTEM ROUTE


PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1" = 50'	810	02	B

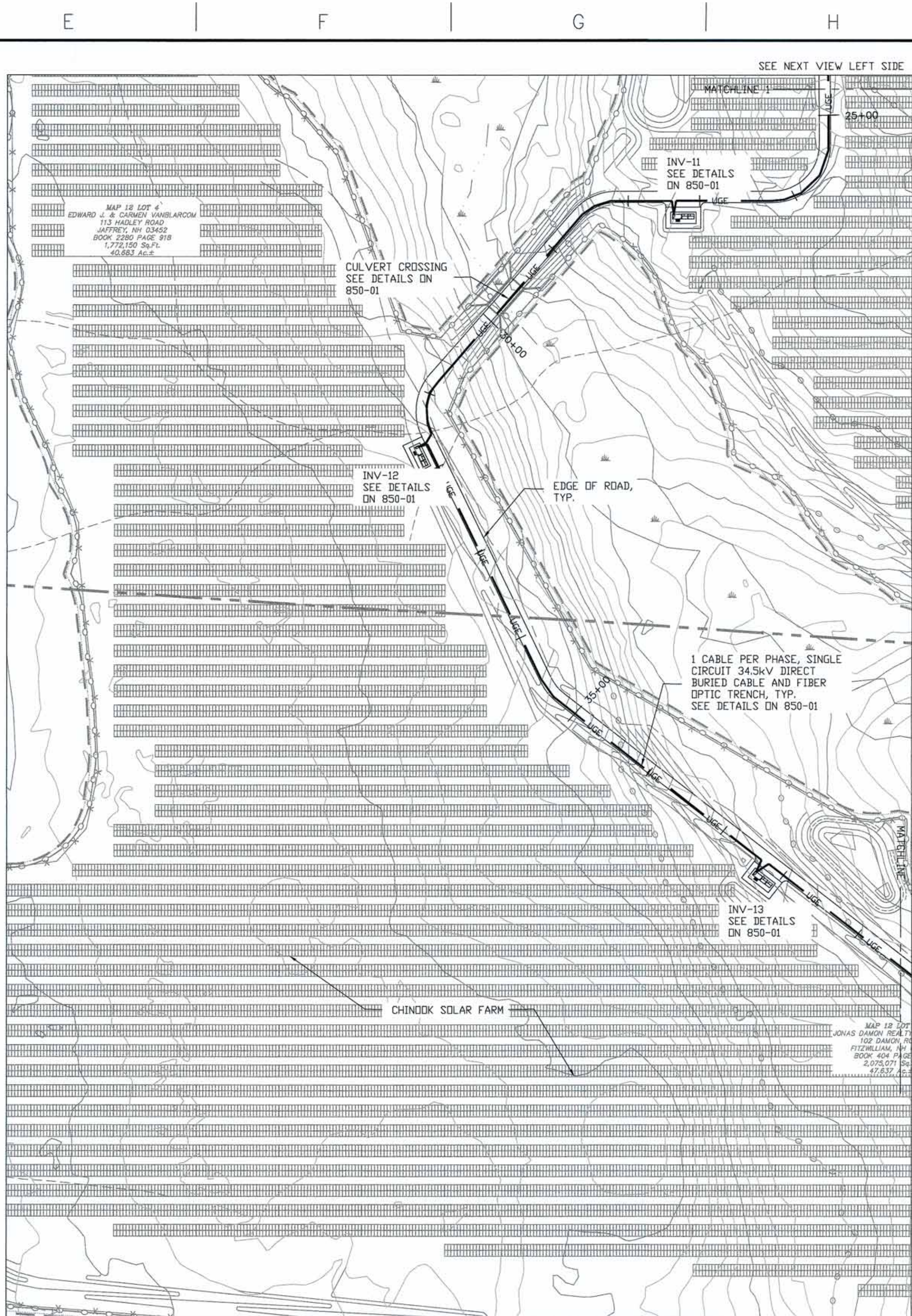
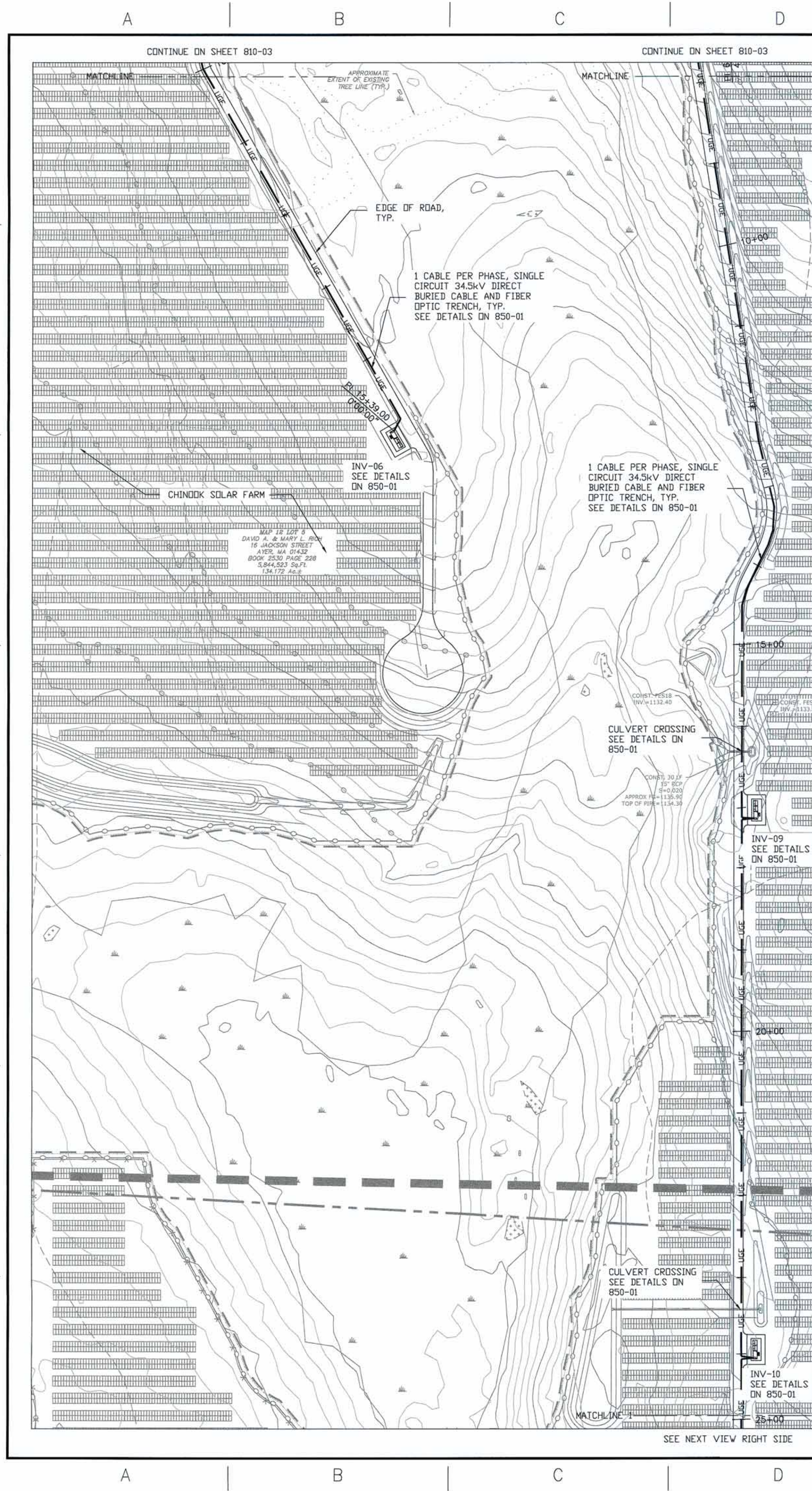




- NOTES:
1. PROPOSED CHINDOK SOLAR PROJECT IS LOCATED EAST OF FITZWILLIAM, CHESHIRE COUNTY, NEW HAMPSHIRE.
 2. COORDINATE SYSTEM BASED ON STATE PLANE, NAD 83, NEW HAMPSHIRE 2800, US SURVEY FOOT.

NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

PRELIMINARY <u>DRAWING</u> NOT FOR CONSTRUCTION		 MSE Engineering, LLC 1843 CENTRAL AVE. SUITE 196 ALBANY, NY 12205	
CHINOOK SOLAR PROJECT NEXTERA ENERGY RESOURCES			
34.5kV COLLECTION SYSTEM COLLECTION SYSTEM ROUTE			
PROJ. NO.: 2017021	SCALE: 1" = 50'	DWG. NO.: 810	SHEET: 03
		REV.: B	



- LEGEND:**
- UGE — PROPOSED UNDERGROUND COLLECTION SYSTEM
 - OHW — EXIST. OVERHEAD ELECTRIC LINE
 - INVERTOR

- NOTES:**
- PROPOSED CHINOOK SOLAR PROJECT IS LOCATED EAST OF FITZWILLIAM, CHESHIRE COUNTY, NEW HAMPSHIRE.
 - COORDINATE SYSTEM BASED ON STATE PLANE, NAD 83, NEW HAMPSHIRE 2800, US SURVEY FOOT.

NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN



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DRAWING
NOT FOR
CONSTRUCTION

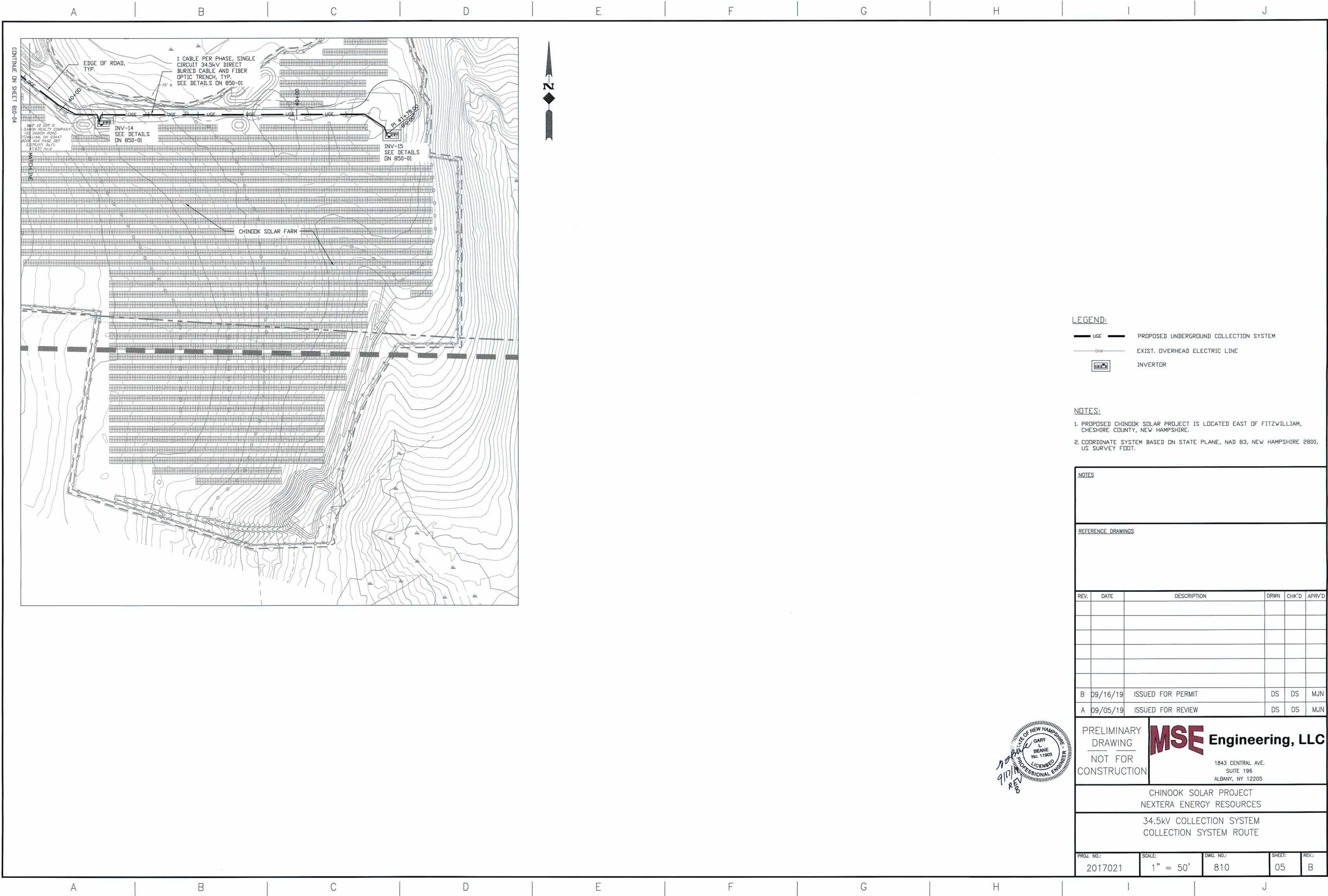
MSE Engineering, LLC

1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

34.5kV COLLECTION SYSTEM
COLLECTION SYSTEM ROUTE

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1" = 50'	810	04	B



LEGEND:

- UGE PROPOSED UNDERGROUND COLLECTION SYSTEM
OHE EXIST. OVERHEAD ELECTRIC LINE
INV INVERTOR

NOTES:

1. PROPOSED CHINOOK SOLAR PROJECT IS LOCATED EAST OF FITZWILLIAM, CHESHIRE COUNTY, NEW HAMPSHIRE.
2. COORDINATE SYSTEM BASED ON STATE PLANE, NAD 83, NEW HAMPSHIRE 2800, US SURVEY FOOT.

NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

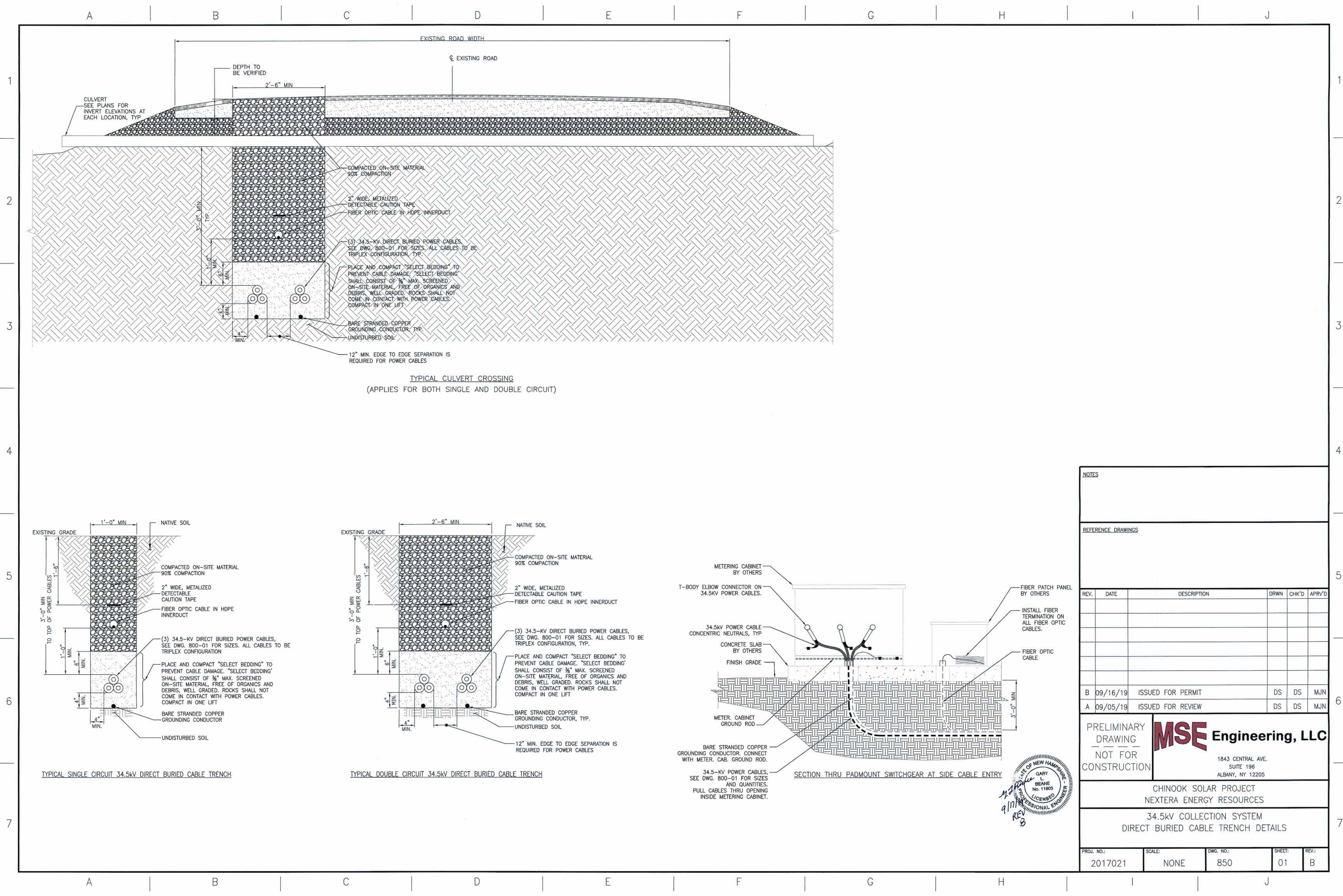
PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

MSE Engineering, LLC
1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

34.5kV COLLECTION SYSTEM
COLLECTION SYSTEM ROUTE

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	1" = 50'	810	05	B



NOTES

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DRWN	CHK'D	APRV'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN

PRELIMINARY
DRAWING
NOT FOR
CONSTRUCTION

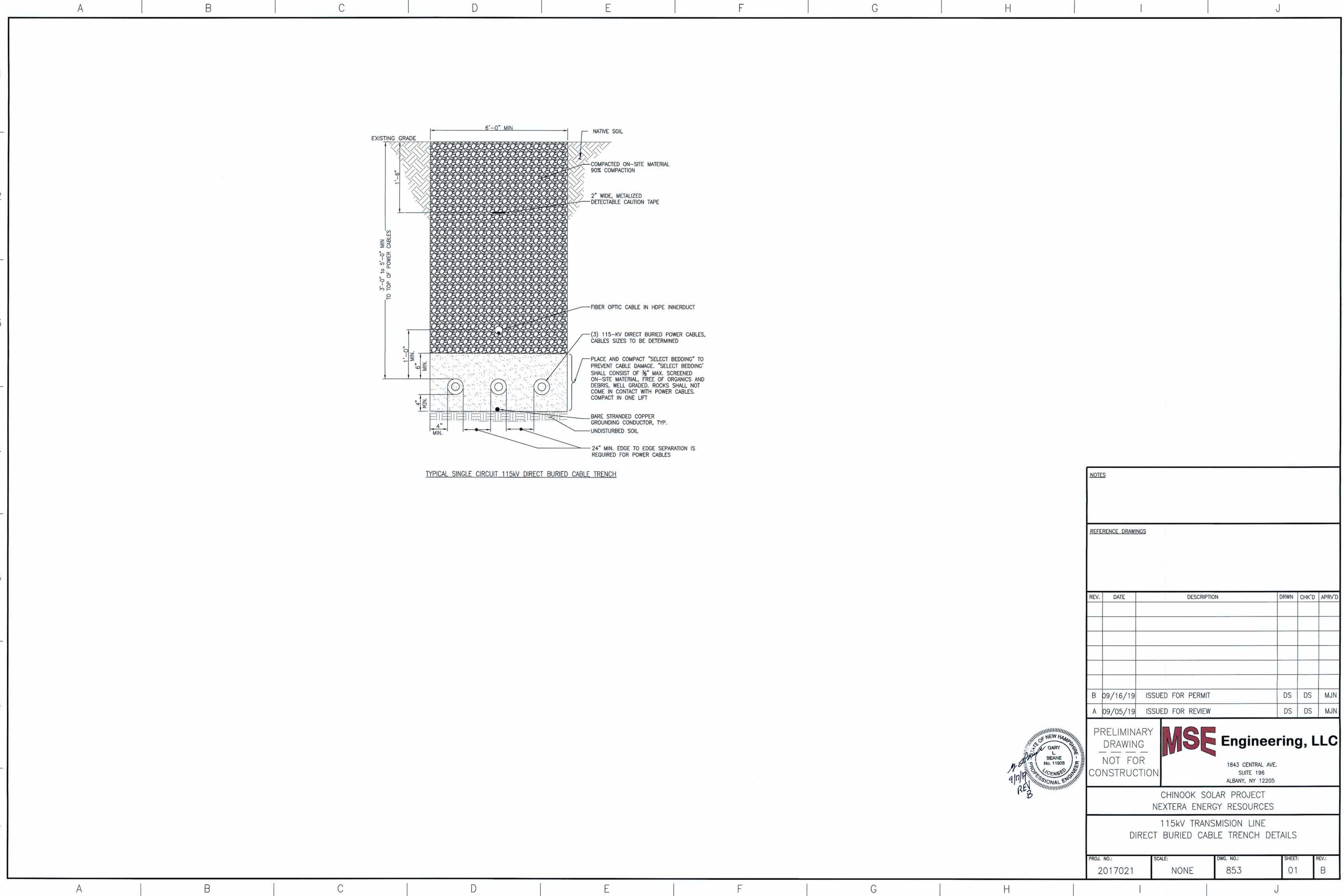
MSE Engineering, LLC

1843 CENTRAL AVE.
SUITE 196
ALBANY, NY 12205

CHINOOK SOLAR PROJECT
NEXTERA ENERGY RESOURCES

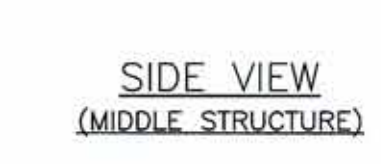
34.5kV COLLECTION SYSTEM
DIRECT BURIED CABLE TRENCH DETAILS

PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:
2017021	NONE	850	01	B



NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APR'D
B	09/16/19	ISSUED FOR PERMIT	DS	DS	MJN
A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN
PRELIMINARY DRAWING NOT FOR CONSTRUCTION		<div><div><div>MSE</div><div>Engineering, LLC</div></div><div>1843 CENTRAL AVE. SUITE 196 ALBANY, NY 12205</div></div>			
CHINOOK SOLAR PROJECT NEXTERA ENERGY RESOURCES					
115kV TRANSMISSION LINE DIRECT BURIED CABLE TRENCH DETAILS					
PROJ. NO.:		SCALE:		DWG. NO.:	
2017021		NONE		853	
SHEET:		REV.:			
01		B			





NOTES					
REFERENCE DRAWINGS					
REV.	DATE	DESCRIPTION	DRWN	CHK'D	APPR'D
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A	09/05/19	ISSUED FOR REVIEW	DS	DS	MJN
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CHINOOK SOLAR PROJECT NEXTERA ENERGY RESOURCES					
115kV TRANSMISSION LINE 115kV RISER STRUCTURE DEAD-END TYPICAL DETAILS					
PROJ. NO.:	SCALE:	DWG. NO.:	SHEET:	REV.:	
2017021	NONE	920	01	B	