

TURBINE ARRANGEMENT DETAIL

SYMBOL LEGEND

- WIND TURBINE GENERATOR
- CABLE TERMINATION AT RISER
- SURGE ARRESTER, ELBOW STYLE
- UNDERGROUND COLLECTOR SYSTEM TRENCH (POWER + COMMUNICATIONS + GROUND CABLES)
- ABOVE GRADE 2-WAY SPlice BOX FOR PD TESTING
- ABOVE GRADE 3-WAY JUNCTION BOX
- FEEDER CIRCUIT BREAKER (SEE SUBSTATION PACKAGE FOR MORE INFORMATION)

NOTES

- CONDUCTOR LENGTHS SHOWN DO NOT INCLUDE ANY ADDITIONAL LENGTH FOR CROSSINGS, TURNS, ELEVATION CHANGE, TOWER ENTRY, CUTTING, SPlicing, ETC.
- COLLECTOR SYSTEM TRENCHES WILL ALSO CONTAIN FIBER OPTIC CABLE AND CONTINUOUS GROUND WIRE. (REFER C001 FOR MORE INFORMATION)
- CABLE ROUTING AND JUNCTION BOX PLACEMENT SHOWN ARE PRELIMINARY AND MAY BE FIELD-ADJUSTED BASED ON REEL-MANAGEMENT AND SITE CONDITIONS. HAVE OWNER REVIEW FINAL PLACEMENT.
- INTERMEDIATE UNDERGROUND CABLE SPlice LOCATIONS NOT SHOWN OR COUNTED. CONTRACTOR SHALL INSTALL SPlices BASED ON CABLE REEL-MANAGEMENT TECHNIQUES FOR SPlicing GUIDELINES AND SPlice MANUFACTURER'S INSTRUCTIONS.

WIRE INFORMATION CHART			
WIRE	CONDUCTOR INFO	VOLTAGE	ON-SIZE NOTES
1250	1250 KCMIL, Al	35kV	TBD
1000	1000 KCMIL, Al	35kV	TBD
750	750 KCMIL, Al	35kV	TBD
500	500 KCMIL, Al	35kV	TBD
410	410 AWG, Al	35kV	TBD
310	310 AWG, Al	35kV	TBD
110	110 AWG, Al	35kV	TBD

ISSUED/REVISED FOR		
NO.	DATE	DESCRIPTION

PROJECT MANAGER	PROJECT-NO#
ENGINEER	ENGINEER-NAME
DESIGNER	DESIGNED-BY
DATE	DATE
SCALE	SCALE
PROJECTED BY	APPROVED BY
ELECT. APPROVALS	CIVIL APPROVALS

PROJECT DESIGNED FOR:

PROJECT:

FILE:

SCALE:

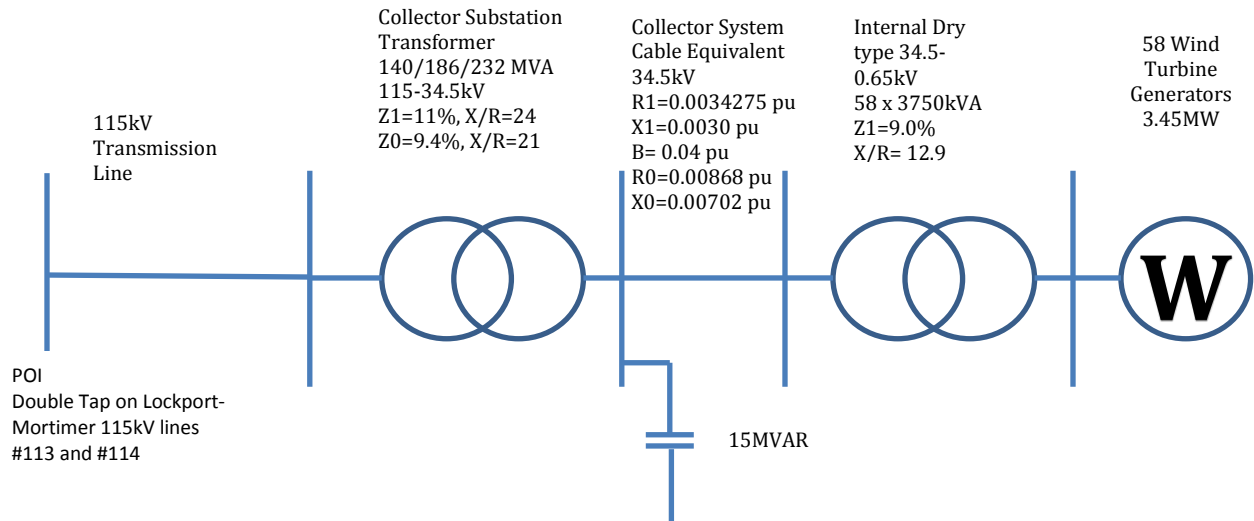
SCALE:

PROJECT NUMBER

Heritage Renewables, LLC

Orleans County, New York

Equivalent one line diagram



POI #1 (Primary) - Double Tap on Lockport- Mortimer 115kV lines #113 and #114

Transmission Line Ampacity and Rating					Normal Ampacity (Amps) at 75° C Operating Temp			Emergency Ampacity (Amps) at 100° C Operating Temp		
Voltage (kV)	Latitude	Wind Speed	Conductor	Project Elevation [ft]	Summer (40 C Ambient Air Temperature)	25 °C	Winter (0 C Ambient Air Temperature)	Summer (40 C Ambient Air Temperature)	25 °C	Winter (0 C Ambient Air Temperature)
					115		2 ft/sec	795 kcmil ACSR Bundled (2)		1144
MAX Capacity (MVA)					227.87	285.43	359.13	316.31	357.14	414.51

Transmission Line Impedance Calculation								Zbase=Vb ² /Sb [ohms]	Vb [kV]
Transmission Line Equivalent	Project R+ ohm/mile,eq	Project X+ ohm/mile,eq	Project C+ μF/mile,eq	Project R0 ohm/mile,eq	Project X0 ohm/mile,eq	Project C0 μF/mile,eq			
	0.0659526	0.6019816	0.0190425	0.4387474	1.6376677	0.0132806		132.25	115
Transmission Line Equivalent - Sgl Ckt (kV/100 MVA)	Project R+pu,eq	Project X+pu,eq	Project B+pu,eq	Project R0pu,eq	Project X0pu,eq	Project B0pu,eq		B+Ohm	B0Ohm
	0.000150	0.001366	0.000285	0.000995	0.003715	0.000199		2.15E-06	1.50E-06

Notes: Collector System and Transmission lines on 100MVA base