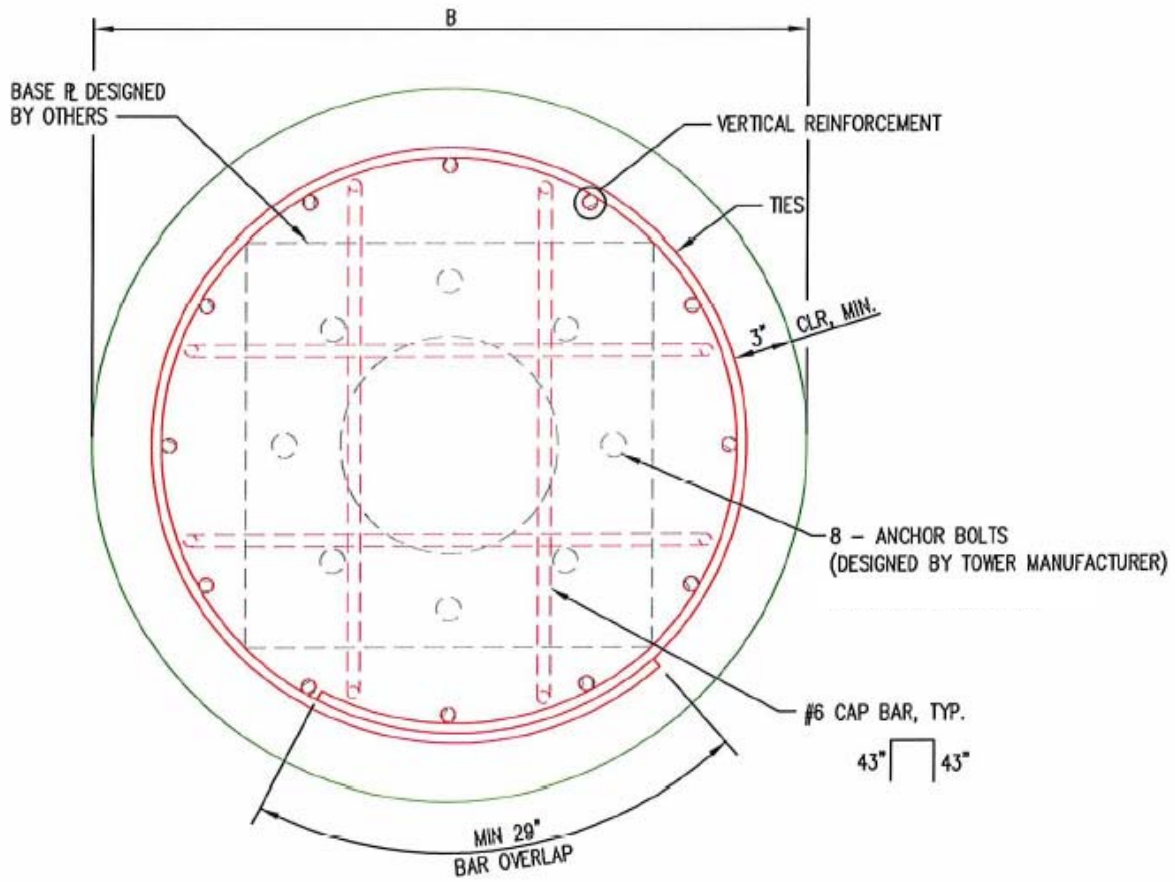


1 FOUNDATION SECTION

01

NOT TO SCALE



1
02

DETAIL

SCALE: 1 1/2" = 1'-0"

General Project Notes

1. Foundations were designed in accordance with the International Building Code 2003.
2. Special Inspections are not required.
3. Foundations were designed to account for the stiffness of the pier and the effect of soil/structure interaction.
4. A Professional Engineer registered in the state where the individual project is located shall assume responsibility for the site-specific design. The Professional Engineer shall assure design suitability for varying site and soil conditions such as soil classifications, water table, existence of expansive/collapsible soils, susceptibility to liquefaction, frost depth, etc.
5. Foundations are designed for a net allowable bearing pressure as indicated in the schedule. These values are per the requirements specified in IBC 2003, Table 1804.2. Pier designs for Class 5 soil assumed a side-shear friction contribution equal to 5% of allowable end bearing value.
6. Soil types and properties shall be verified by the project Professional Engineer.
7. Concrete work shall be in conformance with the requirements set forth in ACI 301/318.
8. All reinforcing steel shall be ASTM A-615 Grade 60 deformed bars.
9. Anchor bolt design shall be provided by others. Anchor bolt number, size, type, and configuration shall be capable of resisting all applied moment, shear and axial forces.
10. Concrete shall have minimum 28-day strength of 2,500 psi and 5% air entrainment (+/- 1%).
11. All steel reinforcement shall be continuous; no splices are allowed.
12. Design loads were specified by the turbine manufacturer, Southwest Windpower.
13. Design loads shown in the schedule are unfactored.

Drilled Pier Foundation Selection for Southwest Windpower Storm Turbine with Tower Height 10.18 meters (33.40 feet) - Revised 3/14/06

Soil Classification		Allowable Soil Pressure		Design Loads at Tower Base*			Minimum Pier Dimensions**			Reinforcement		Anchor Bolts***		
		Lateral	Vertical	Shear (V)	Moment (M)	Vertical (P)	Depth (A)	Diameter (B)	Projection (C)	Vertical	Ties	Quantity	Diameter	Bolt Circle
		psf	psf	lbs	foot-pounds	pounds	feet	inches	inches			each	inches	inches
Class 1	Crystalline bedrock	1200	12,000	867	26,290	760	6	18	6	(8)-#6	#4 @ 9" O.C. max	8	1.00	17.00
							5	24	6	(12)-#6				
Class 2	Sedimentary and foliated rock	400	4,000	867	26,290	760	8	18	6	(8)-#6	#4 @ 9" O.C. max	8	1.00	17.00
							7	24	6	(12)-#6				
Class 3	Sandy gravel and/or gravel (GW and GP)	200	3,000	867	26,290	760	10	18	6	(8)-#6	#4 @ 9" O.C. max	8	1.00	17.00
							9	24	6	(12)-#6				
Class 4	Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	150	2000	867	26290	760	10	24	6	(12)-#6	#4 @ 9" O.C. max	8	1.25	17.00
Class 5	Clay, sandy clay, silty clay, clayey silt, silt, and sandy silt (CL, ML, MH and CH)	100	1,500	867	26,290	760	11	24	6	(12)-#6	#4 @ 9" O.C. max	8	1.00	17.00
							10	30	6	(12)-#6				

* These are the unfactored wind turbine extreme loads using a hub-height wind speed of 62.9 m/s (140 mph), a wind shear exponent of 0.20 and a tower drag coefficient of 0.28 [from Polhamus, E.C., NASA CR 3809, 1984].

** Piers of 18" diameter are not compatible with the current anchor bolt pattern. Therefore, 24" diameter piers must be used with this particular tower.

*** Installation of circular ties and anchor bolts shall be in accordance with the drawings.