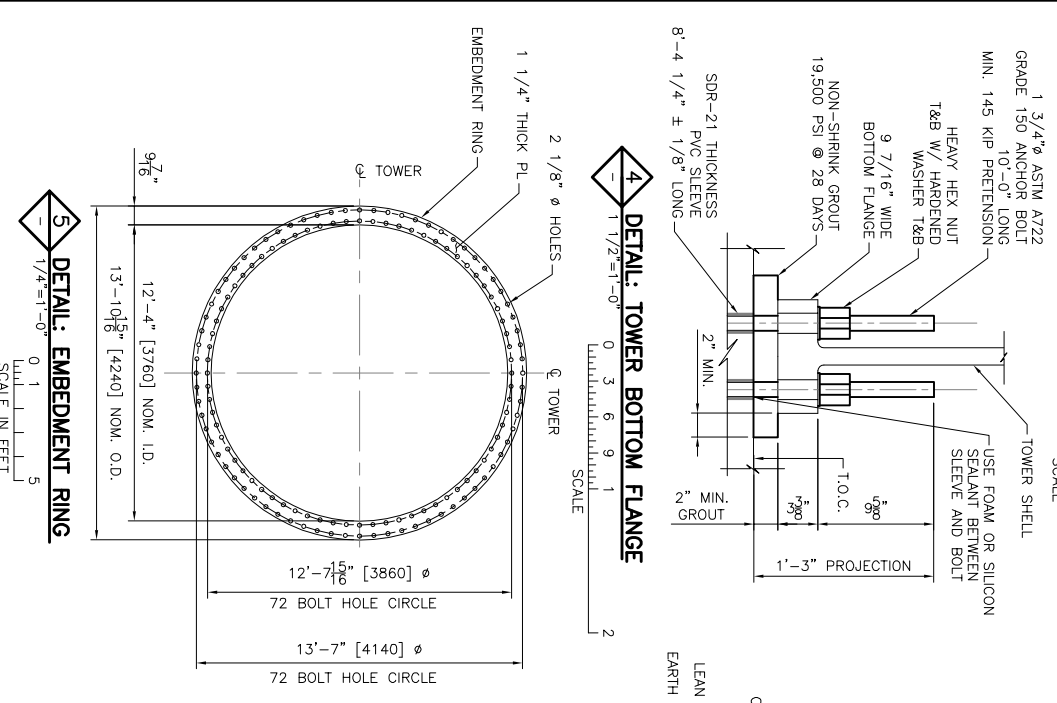
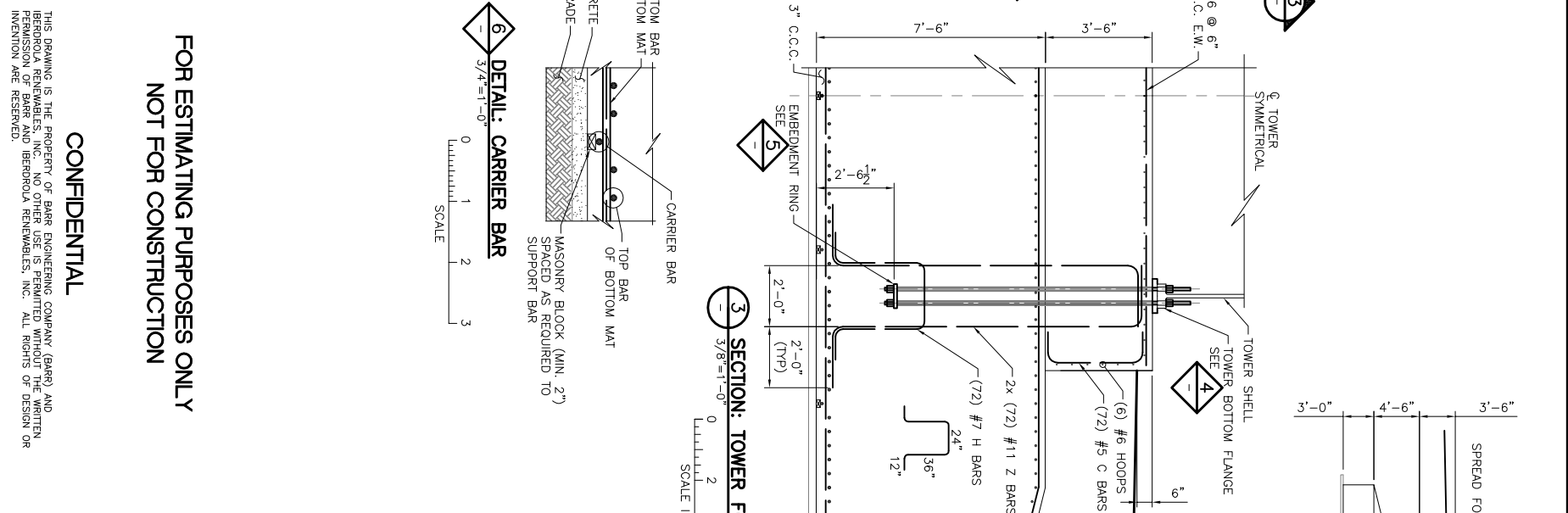


1 PLAN: TOWER FOUNDATION
3/32"=1'-0"
SCALE



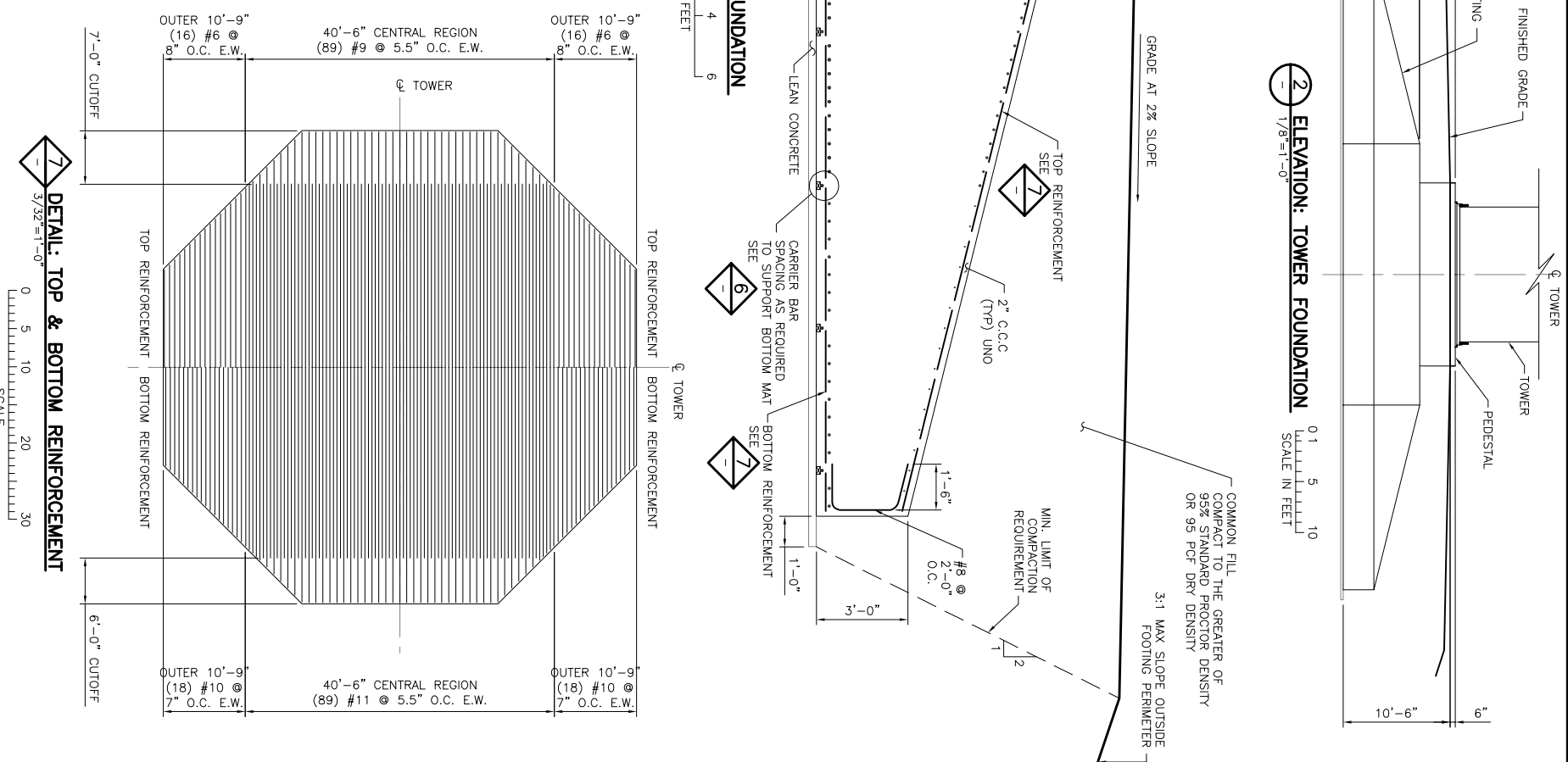
4 DETAIL: TOWER BOTTOM FLANGE
1/2"=1'-0"
SCALE

5 DETAIL: EMBEDMENT RING
1/4"=1'-0"
SCALE IN FEET



3 SECTION: TOWER FOUNDATION
5/8"=1'-0"
SCALE IN FEET

6 DETAIL: CARRIER BAR
3/4"=1'-0"
SCALE



7 DETAIL: TOP & BOTTOM REINFORCEMENT
3/32"=1'-0"
SCALE

2 ELEVATION: TOWER FOUNDATION
1/8"=1'-0"
SCALE IN FEET

**FOR ESTIMATING PURPOSES ONLY
NOT FOR CONSTRUCTION**

CONFIDENTIAL

THIS DRAWING IS THE PROPERTY OF BARR ENGINEERING COMPANY (BARR) AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. PERMISSION OF BARR AND BERDROLA RENEWABLES, INC. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION

CLIENT	DATE	END	CONSTRUCTION	RELEASED TO/FOR	DATE RELEASED

BARR
Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN
55435-4803
P: 1-800-632-2277
F: 1-952-632-2801
www.barr.com

Scale	Date	Drawn	Checked	Designed	Approved
AS SHOWN	31/OCT/08	DH42	JAD2	JAD2	CAK

IBERDROLA RENEWABLES, INC.
RADNOR, PENNSYLVANIA

BUILDING AND DESIGN CODES:
INTERNATIONAL BUILDING CODE 2006, INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS.
BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318, 2008, AMERICAN CONCRETE INSTITUTE.

WIND TURBINE AND TOWER:
MANUFACTURER: GAMESA EOLUCA
MODEL: GAMESA G90
POWER OUTPUT: 2.0 MW
TURBINE HUB HEIGHT: 100m

DESIGN SERVICE LOADS:
UNFACTORED SERVICE LOADS DUE TO EXTREME WIND CONDITION CLASS IEC-IIIa (CRITICAL)
OVERTURNING MOMENT, $M_{xy} = 79,767 \text{ kN-m} = 58,833 \text{ ft-kips}$
HORIZONTAL BASE SHEAR, $H_{xy} = 813 \text{ kN} = 183 \text{ kips}$
VERTICAL TOWER LOAD, $W_z = 3,412 \text{ kN} = 767 \text{ kips}$

FOUNDATION DESIGN DATA:
MIN. FACTOR OF SAFETY OVERTURNING >1.5
MIN. FACTOR OF SAFETY SLIDING >1.5
MIN. FACTOR OF SAFETY AGAINST BEARING CAPACITY FAILURE >2.25 ON EXTREME

REFERENCE DOCUMENTS:
1. GAMESA EOLUCA, "LOADS FOR FOUNDATION OF G90 2MW IIIa 100M HUB HEIGHT", DATED 13/09/2007.
2. BARR ENGINEERING COMPANY, "FINAL PRELIMINARY GEOTECHNICAL ENGINEERING REPORT, CAYUGA RIDGE WIND PROJECT, LASALLE AND LIVINGSTON COUNTIES, ILLINOIS", JUNE 2008.

MIN. 28-DAY COMPRESSIVE STRENGTH OF CONCRETE FOOTING: 5000 PSI
MIN. 28-DAY COMPRESSIVE STRENGTH OF CONCRETE PEDESTAL: 8,000 PSI
MIN. YIELD POINT STRENGTH OF REINFORCING BAR: 60 KSI
MIN. STRENGTH OF ANCHOR BOLTS: TENSILE STRENGTH 150 KSI YIELD STRENGTH 125 KSI
MIN. COMPRESSIVE STRENGTH OF NON-SHRINK GROUT: 19,500 PSI @ 28 DAYS
MIN. YIELD POINT STRENGTH OF EMBEDMENT PLATE: 36 KSI
MAX. AGGREGATE SIZE NO LESS THAN: 1.5 INCHES
ESTIMATED VOLUME OF CONCRETE: 689 CUBIC YARDS
ESTIMATED WEIGHT OF STEEL REINFORCING: 58 TONS
ALLOWABLE SOIL BEARING CAPACITY: 3500 PSF
MIN. SHEAR WAVE VELOCITY: 760 FT/SEC

ABBREVIATIONS:
B.O. BOTTOM OF
C.C.C. CLEAR CONCRETE COVER
E.L. ELEVATION
E.W. EACH WAY
EX. EXISTING
I.D. INSIDE DIAMETER
L.D. LENGTH
MAX. MAXIMUM
MIN. MINIMUM
NOM. NOMINAL

**CAYUGA RIDGE WIND PROJECT
LASALLE AND LIVINGSTON COUNTIES, ILLINOIS
G90 100M SPREAD FOOTING FOUNDATION
PLAN, ELEVATION, SECTION & DETAILS**

BARR PROJECT NO. **13/52-003**
CLIENT PROJECT NO. **-**
DWG. No. **S-01e** REV. No. **B**