



INDUSTRIAL CONCRETE PRODUCTS BERHAD

Pile Properties For Ø 17.72" x 3.15" Spun Pile - ACI Design

Nominal pile diameter	D	450 mm 17.72 in
Nominal pile wall thickness	t	80 mm 3.15 in
PCD		379 mm 14.92 in
Area of concrete	A_g	144.14 in ²
Diameter of PC bars	d	9.0 mm 0.35 in
Number of PC bars	n	12
Total area of steel	A_{ps}	1.18 in ²
Section modulus	S_b	468.60 in ³

Concrete Properties

Concrete cylinder strength	f'_c	10,152 psi
Unit weight of concrete	w_c	150 pcf
Modulus of elasticity of concrete	E_c	5,292,703 psi
Compressive stress in concrete due to effective prestress	f_{pc}	1,020 psi
Constant for stiffness	K	7.50
Constant for nominal concrete	λ	1.00
Modulus of rupture of concrete, $K \lambda (f'_c)^{0.5}$	f_r	756 psi
Concrete stress block factor	β_1	0.65

PC Bars Properties

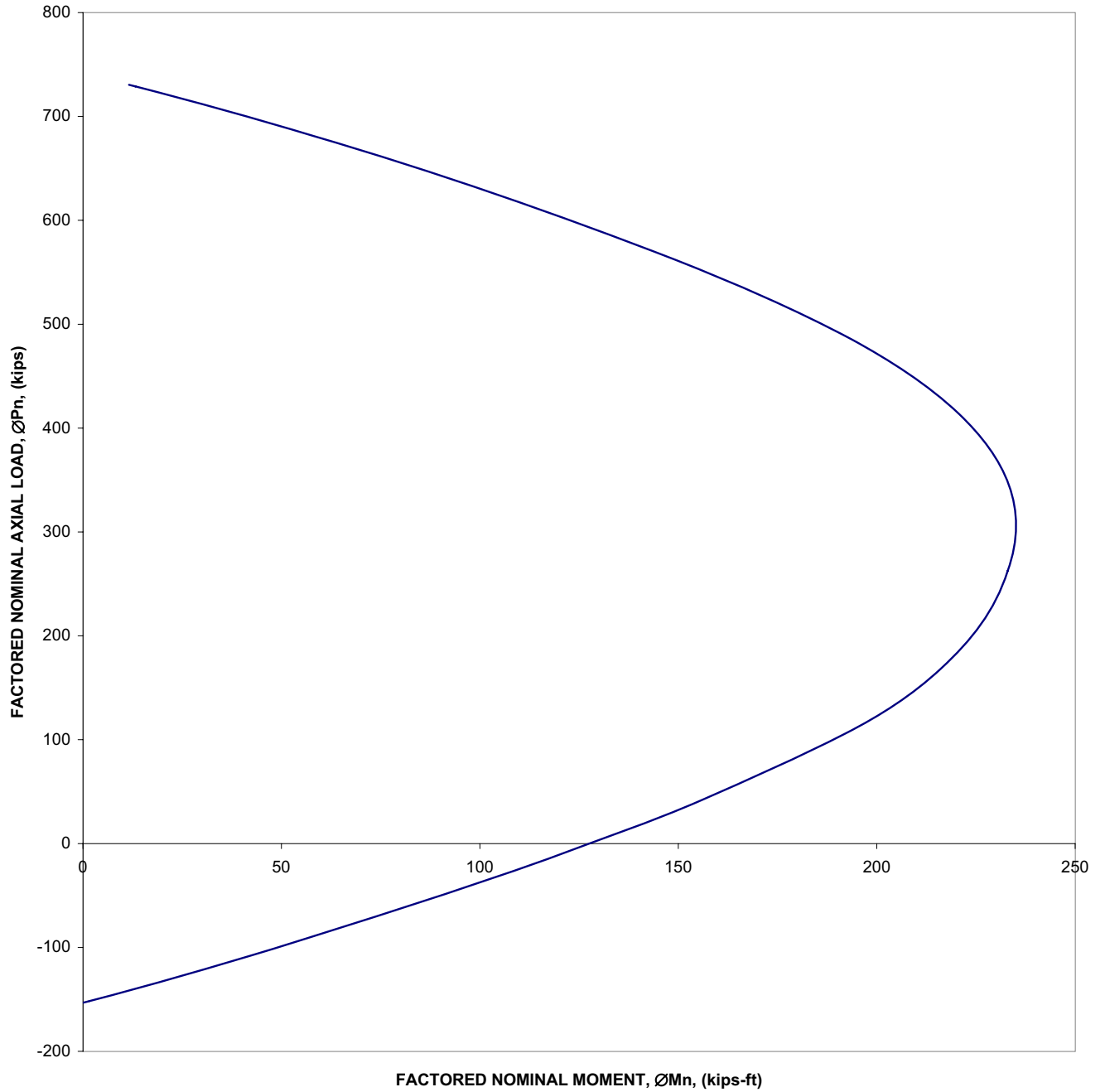
Modulus of elasticity of prestressing reinforcement	E_{ps}	27,557,170 psi
Tensile strength of prestressing reinforcement	f_{pu}	205,954 psi
Effective stress in prestressing reinforcement, $0.6 f_{pu}$	f_{se}	123,572 psi

Service axial load, $(0.33f'_c - 0.27f_{pc}) A_g$	N	443 kips
Nominal axial load, $0.85 f'_c (A_g - A_{ps}) - A_{ps}(f_{se} - 0.003 E_{ps})$	P_n	1,185 kips
Factored nominal axial load, $0.85 \times 0.75 P_n$	ϕP_n	755 kips
Cracking moment capacity, $[(f_{se} A_{ps}/A_g) + f_r] S_b$	M_{cr}	70 kips-ft
Nominal moment capacity, $0.85 f'_c A^* c (y_t - y') - \Sigma[A_{ps} f_{ps} (d - y_t)]$	M_n	141 kips-ft
Factored nominal moment capacity, $0.9 M_n$	ϕM_n	127 kips-ft
Unit weight of pile		241.78 kg/m



INDUSTRIAL CONCRETE PRODUCTS BERHAD

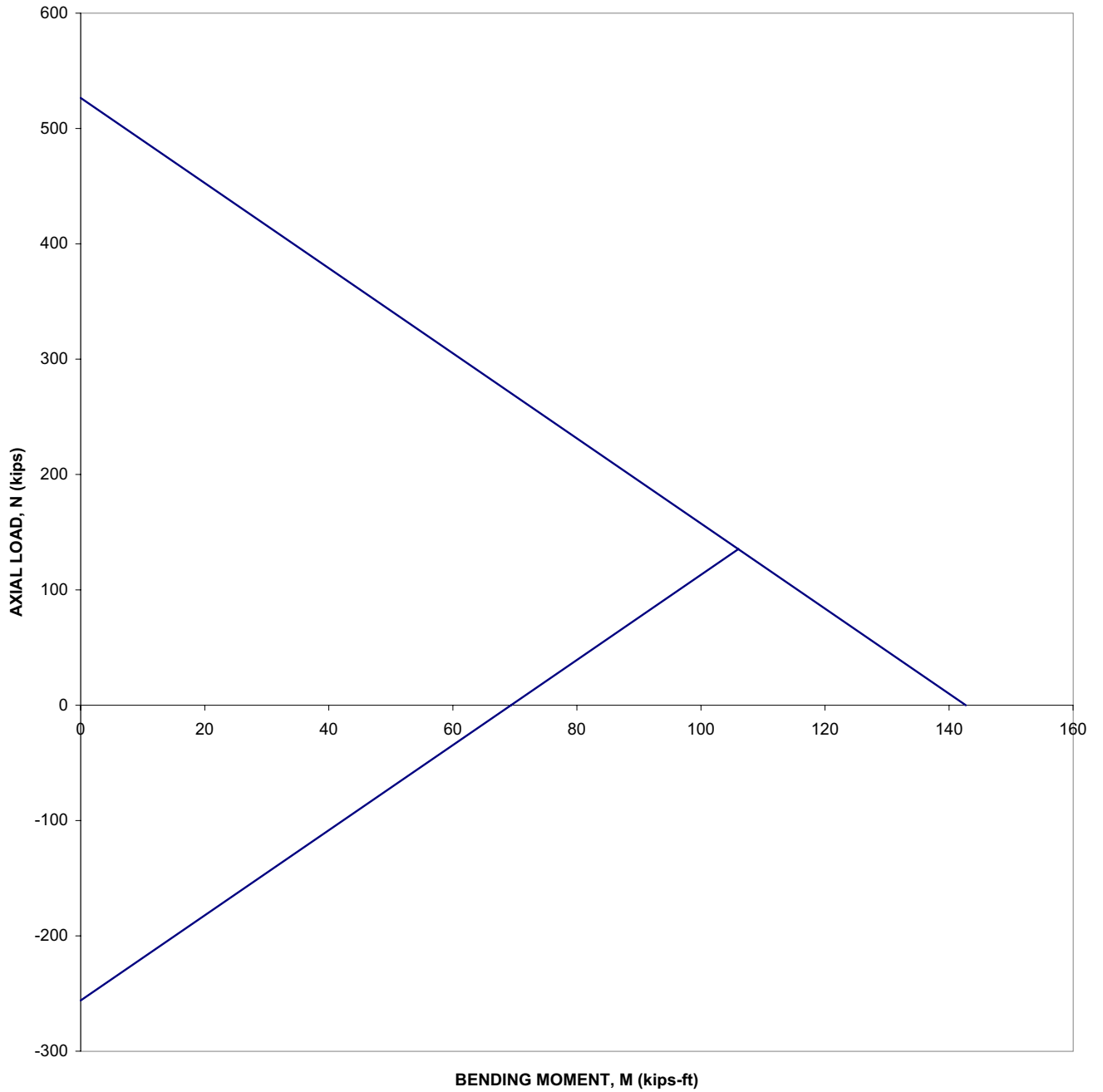
INTERACTION CURVE FOR 17.72" x 3.15" ICP PILE

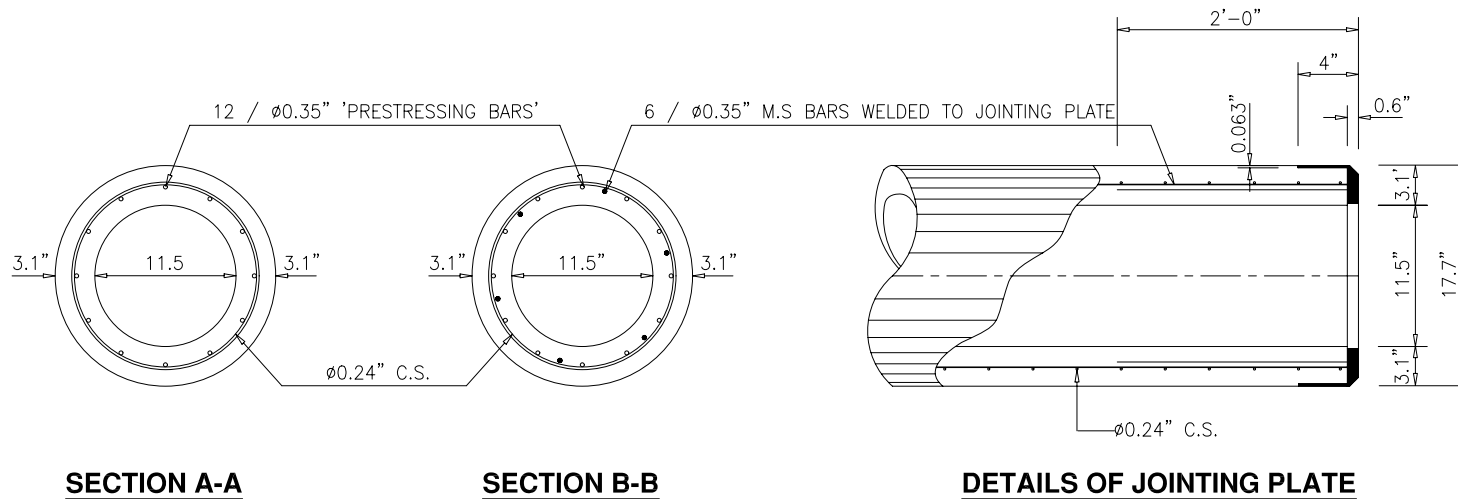
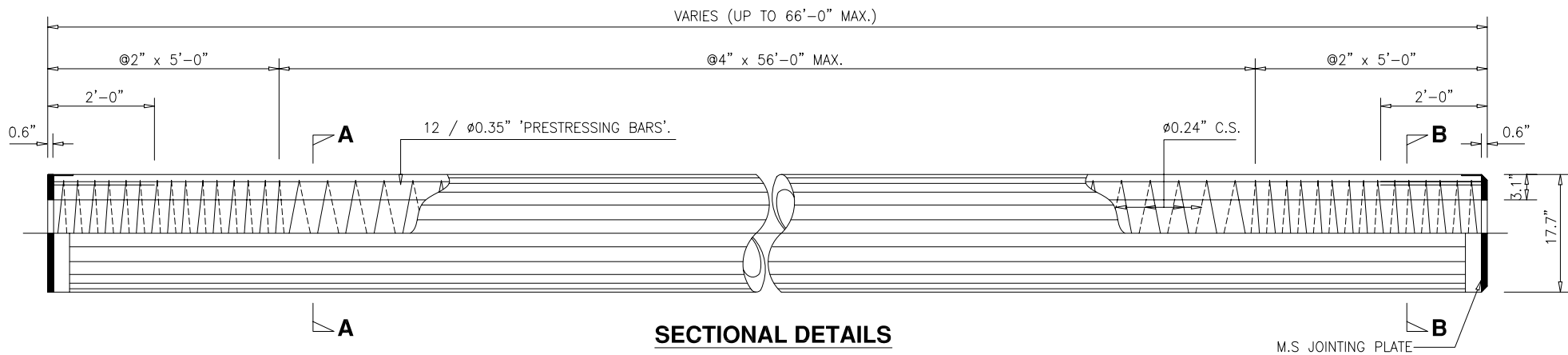




INDUSTRIAL CONCRETE PRODUCTS BERHAD

INTERACTION GRAPH FOR 17.72" x 3.15" ICP PILE





NOTES :-

1. PRESTRESSING BAR COMPLY TO JIS G 3137:1994 OR EQUIVALENT.
2. CONFINEMENT STEEL (C.S) SHALL BE HARD DRAWN TO ASTM A82-97A.
3. OTHER REINFORCEMENTS TO BE M.S OR H.T BARS TO B.S 4449 : 1978 OR ASTM A615.
4. EQUIVALENT CYLINDER STRENGTH :-
 a) AT TRANSFER 4,000 psi.
 b) AT 28 DAYS 10,152 psi.
5. ALL PILES WILL BE SUPPLIED WITH MILD STEEL EXTENSION PLATES FOR SPLICING.
6. ALL WELDING SHALL BE IN ACCORDANCE TO B.S 5135 OR AWS D1.4.
7. ORDINARY PORTLAND CEMENT M.S 522 OR ASTM C150-72 SHALL BE USED.
8. ALL DIMENSIONS ARE IN IMPERIAL UNIT.

THIS DRAWING SHALL NOT BE REPRODUCED, COPIED, LOANED OR DISPOSED DIRECTLY OR INDIRECTLY; NOR USED ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED WITHOUT PRIOR WRITTEN CONSENT OF INDUSTRIAL CONCRETE PRODUCTS BERHAD.

PROJECT TITLE :
PILE SIZE Ø17.7"x3.1"

INDUSTRIAL CONCRETE PRODUCTS BERHAD

2ND FLR, WISMA IJM, JLN YONG SHOOK LIN,
 P.O BOX 191,
 46720 PETALING JAYA,
 SELANGOR DARUL EHSAN, MALAYSIA.
 TEL : 603-79558888 (13 LINES)
 FAX : 603-79581111

CHECKED BY :
SCALE N.T.S
DATE 07/04/2006
REVISION

APPROVED BY :
DRAWN BY MN04
FILENAME 17.7"x3.1" (Ø450mm)
DWG. NO. ICP/17.7"x3.1"-06/001