INDUSTRIAL CONCRETE PRODUCTS BERHAD

Pile Properties For Ø 19.69" x 3.54" Spun Pile - ACI Design

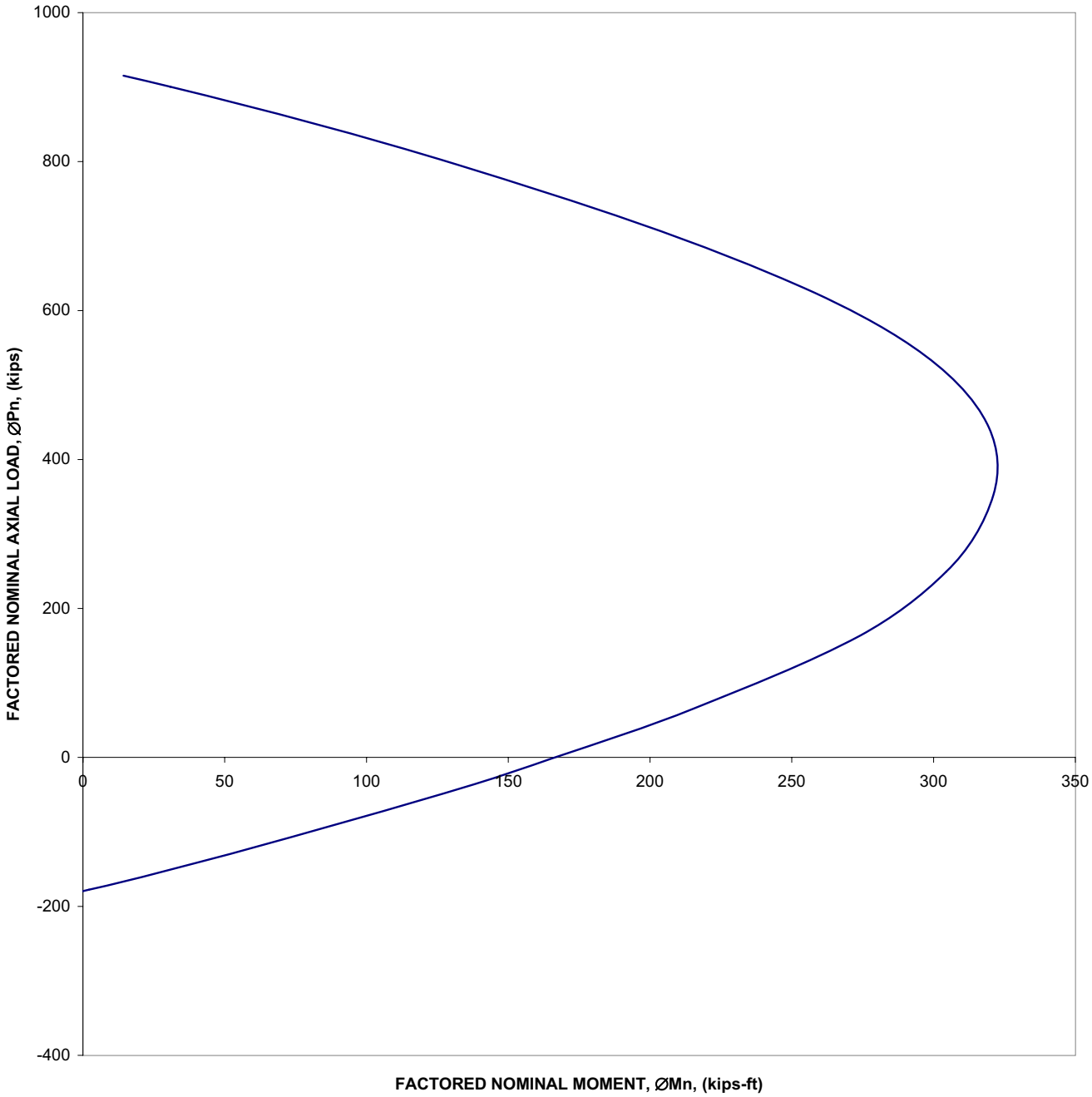
Nominal pile diameter	D	**500**	mm
		19.69	in
Nominal pile wall thickness	t	**90**	mm
		3.54	in
PCD		**410**	mm
		16.14	in
Area of concrete	A_g	179.68	in^2
Diameter of PC bars	d	**10.7**	mm
		0.42	in
Number of PC bars	n	**10**	
Total area of steel	A_{ps}	1.39	in^2
Section modulus	S_b	645.50	in^3
Concrete 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}	1,002	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	**555**	kips
Nominal axial load, $0.85 f_c' (A_g - A_{ps}) - A_{ps}(f_{se} - 0.003 E_{ps})$	P_n	1,481	kips
Factored nominal axial load, $0.85 \times 0.75 P_n$	$\varnothing P_n$	**944**	kips
Cracking moment capacity, $[(f_{se} A_{ps}/A_g) + f_r] S_b$	M_{cr}	**92**	kips-ft
Nominal moment capacity, $0.85 f_c' A^* c (y_t - y') - \Sigma[A_{ps} f_{ps} (d - y_t)]$	M_n	184	kips-ft
Factored nominal moment capacity, $0.9 M_n$	$\varnothing M_n$	**166**	kips-ft
Unit weight of pile		301.40	kg/m

Date : 21-03-06

INDUSTRIAL CONCRETE PRODUCTS BERHAD

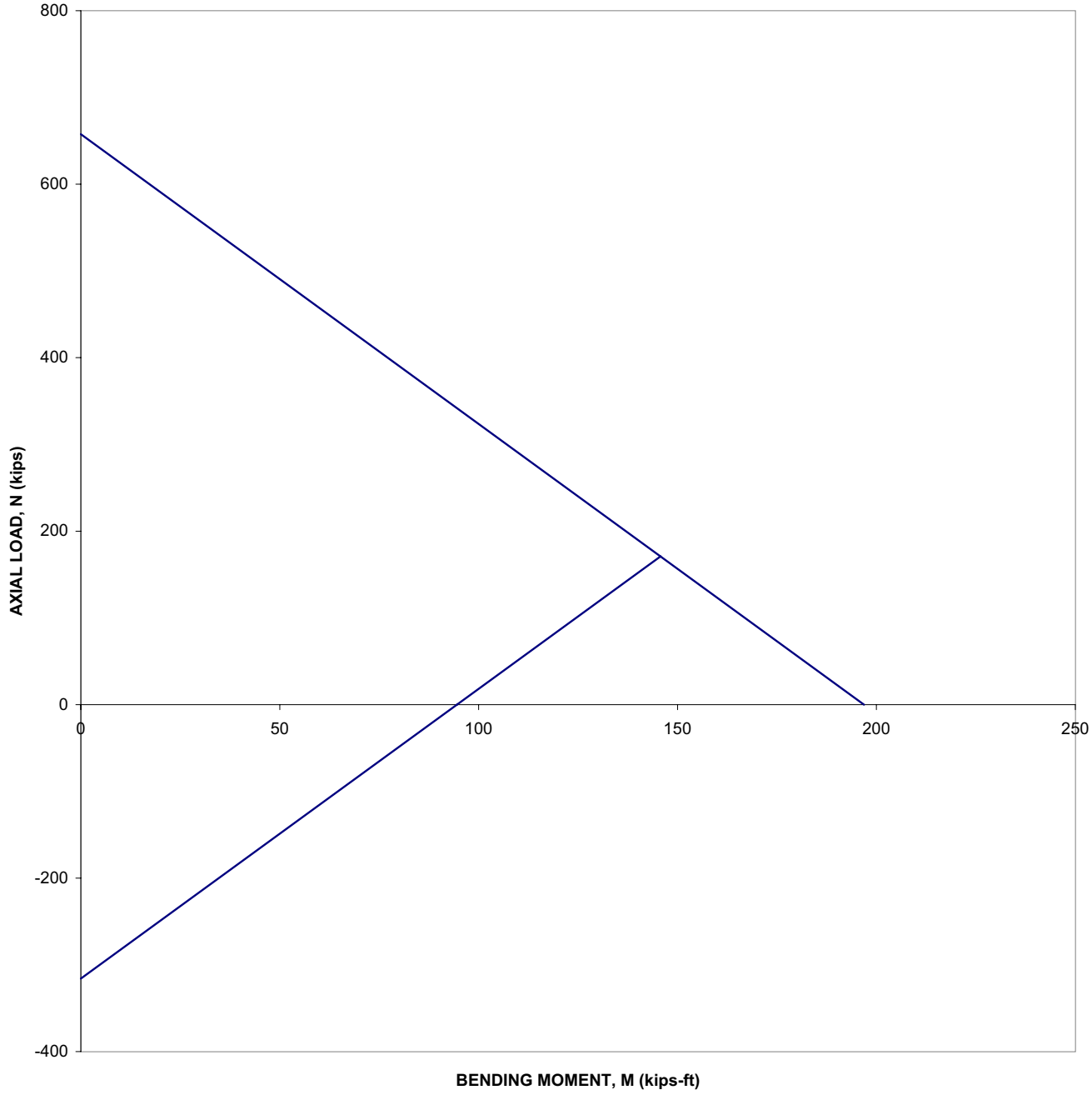
INTERACTION CURVE FOR 19.69" x 3.54" ICP PILE



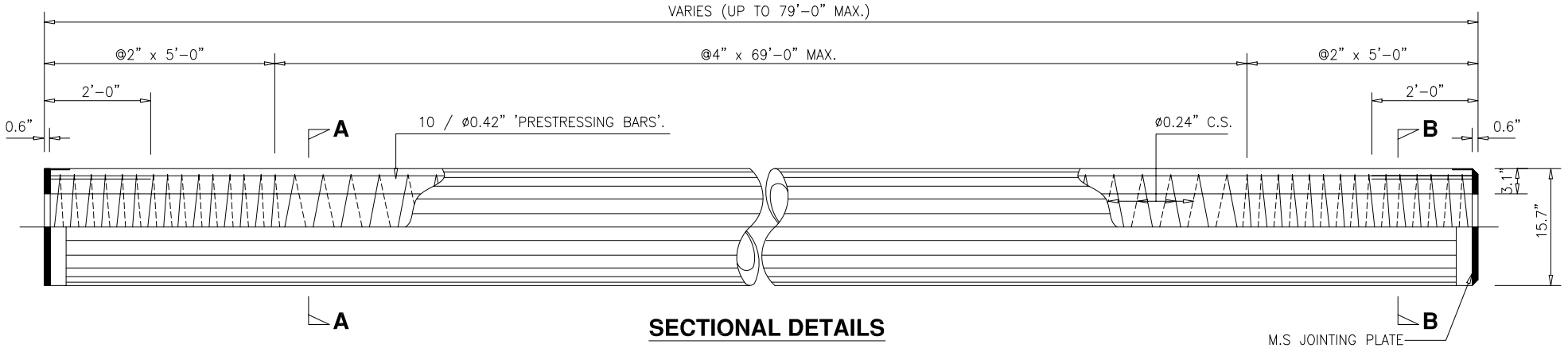
Date : 21-03-06

INDUSTRIAL CONCRETE PRODUCTS BERHAD

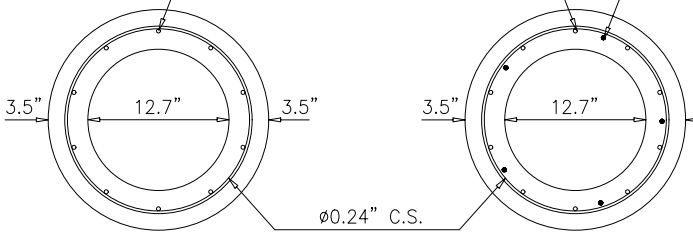
INTERACTION GRAPH FOR 19.69" x 3.54" ICP PILE



Date : 21-03-06

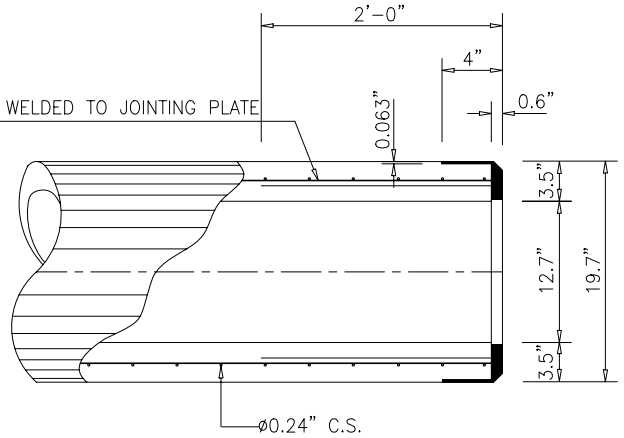


SECTIONAL DETAILS



SECTION A-A

SECTION B-B



DETAILS OF JOINTING PLATE

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.

PROJECT TITLE :

PILE SIZE Ø19.7"x3.5"

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CHECKED BY :		APPROVED BY :	
SCALE	N.T.S	DRAWN BY	MN04
DATE	07/04/2006	FILENAME	19.7"x3.5" (ø500mm)
REVISION		DWG. NO.	ICP/19.7"x3.5"-06/001