

SPUN CAST CYLINDER PILE

The hollow, prestressed concrete spun cast cylinder pile is a unique structural member.



Bridge Bent with precast Cap

In thousands of elevated structures all over the world, it functions as both foundation and pier or column. It supports high axial and bending loads over long lengths without lateral bracing.

Precise fabrication and exacting installation of the spun cast cylinder pile make possible systems construction – where caps, decks and all components of the superstructure may be prefabricated for assembly to very close tolerances. Major savings in construction cost result.

In service, the cylinder pile is virtually maintenance free. A special concrete is cast by a process unique to cylinder piles which achieves a very high density and low porosity. The pile is virtually impervious to moisture. Cylinder Piles in marine structures since 1950 show no evidence of deterioration.

When a structure requires elevation, when it involves high axial and bending loads and particularly under severe marine exposure, cylinder piles are the logical choice.

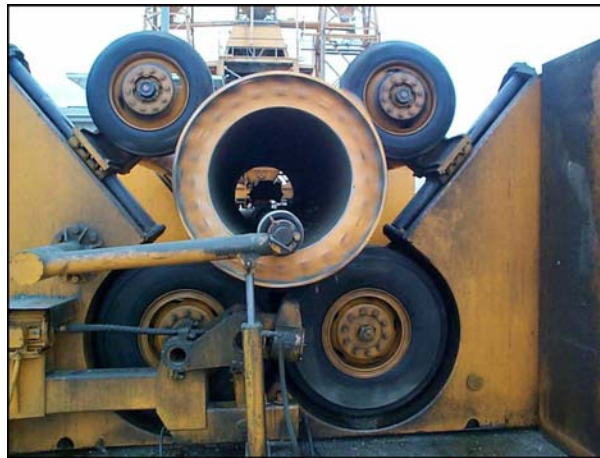
The Spun Cast cylinder pile produced by the CEN-VI-RO process is truly a unique structural member – superior in many respects to other cylinder piles, whether spun or bed cast, and to conventional bed-cast concrete piles.



Very Low Slump Concrete

The cylinder pile is manufactured to strict quality controlled standards.

Methods and materials produce a very high-strength, extremely dense and exceedingly impermeable concrete resulting in outstanding performance especially in marine environments.



CEN-VI-RO Process

The manufacturing process insures uniform distribution of coarse aggregate through the cylinder wall and a constant wall thickness, resulting in quality concrete of uniform strength throughout.

Cylinder piles are centrifugally cast in 16-foot-long sections which are assembled end-to-end to the total required pile length and post-tensioned with prestressing strands; pile lengths are readily adjusted to meet job requirements.

Each section is properly cured and inspected to meet exacting standards before pile assembly.

The close tolerances of manufacturing equipment and methods insure straight piles regardless of length.



66" Cylinder Pile 144-ft Long

The Spun Cast Cylinder Pile combines:

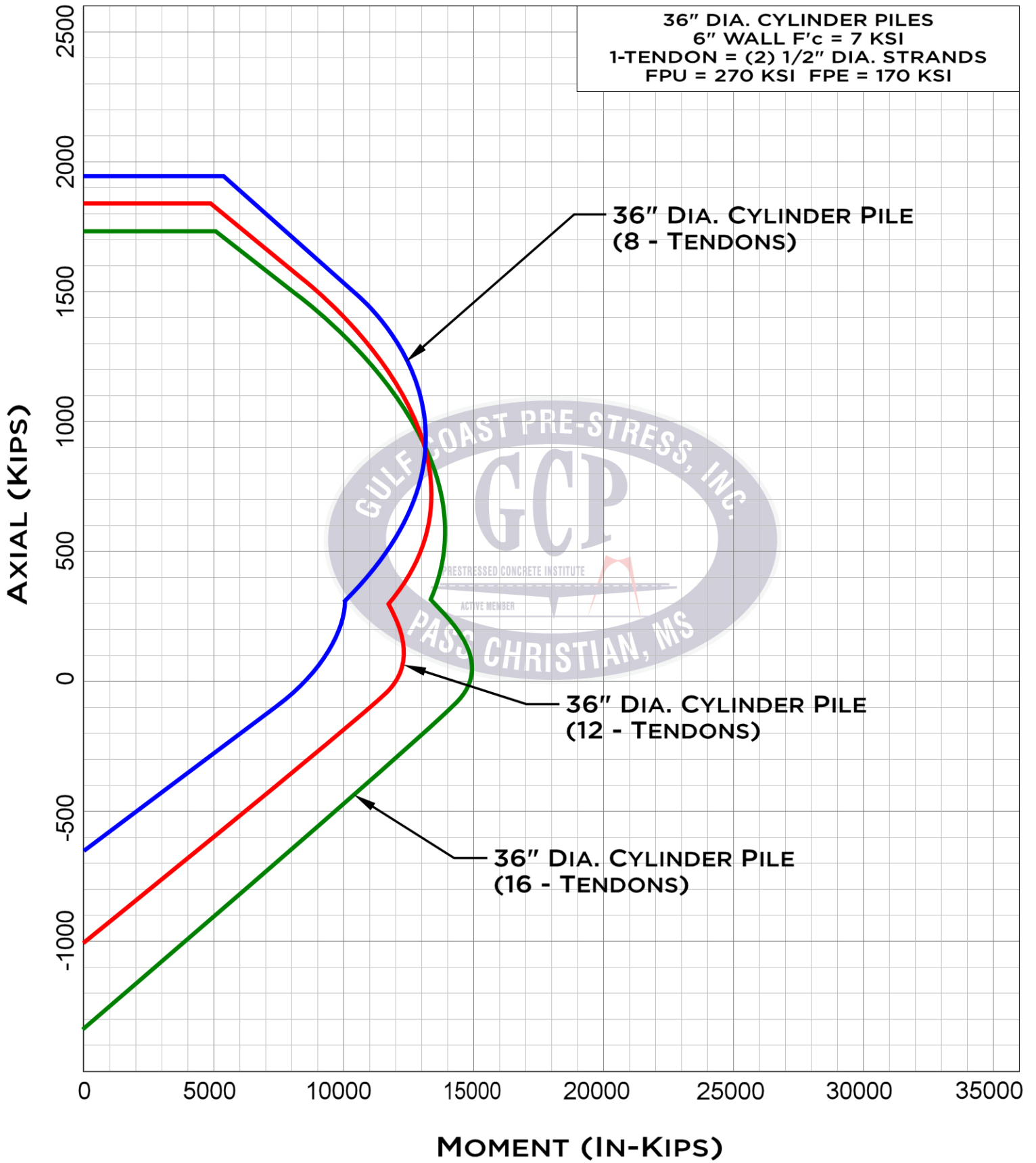
- **Quality Control**
- **High strength concrete**
- **High density concrete**
- **Low porosity concrete**
- **Uniformity of concrete**
- **Uniform wall thickness**
- **Design variations**
- **Length adjustments**
- **Maximum combined-load strength per unit weight to produce a unique structural member.**

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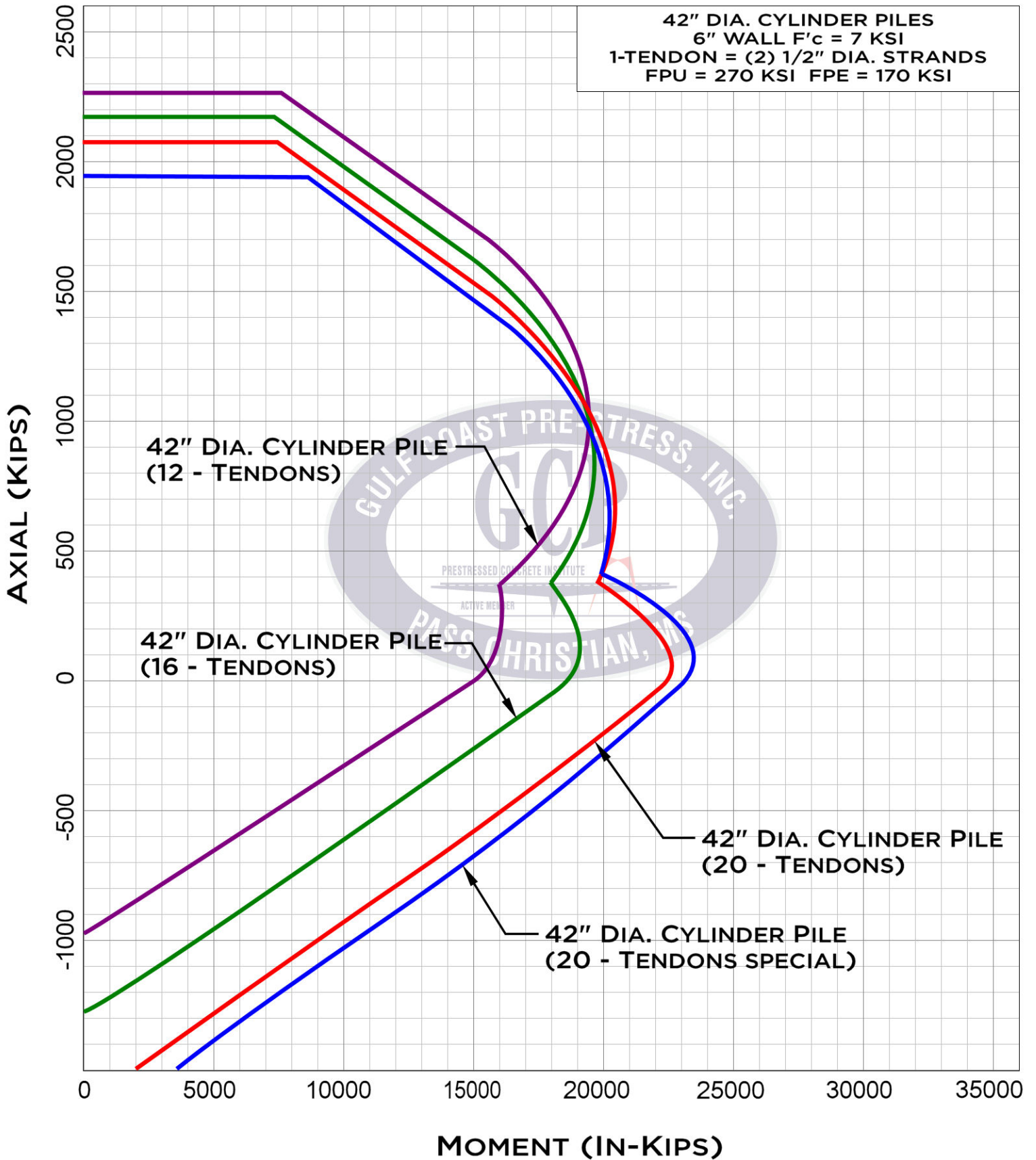


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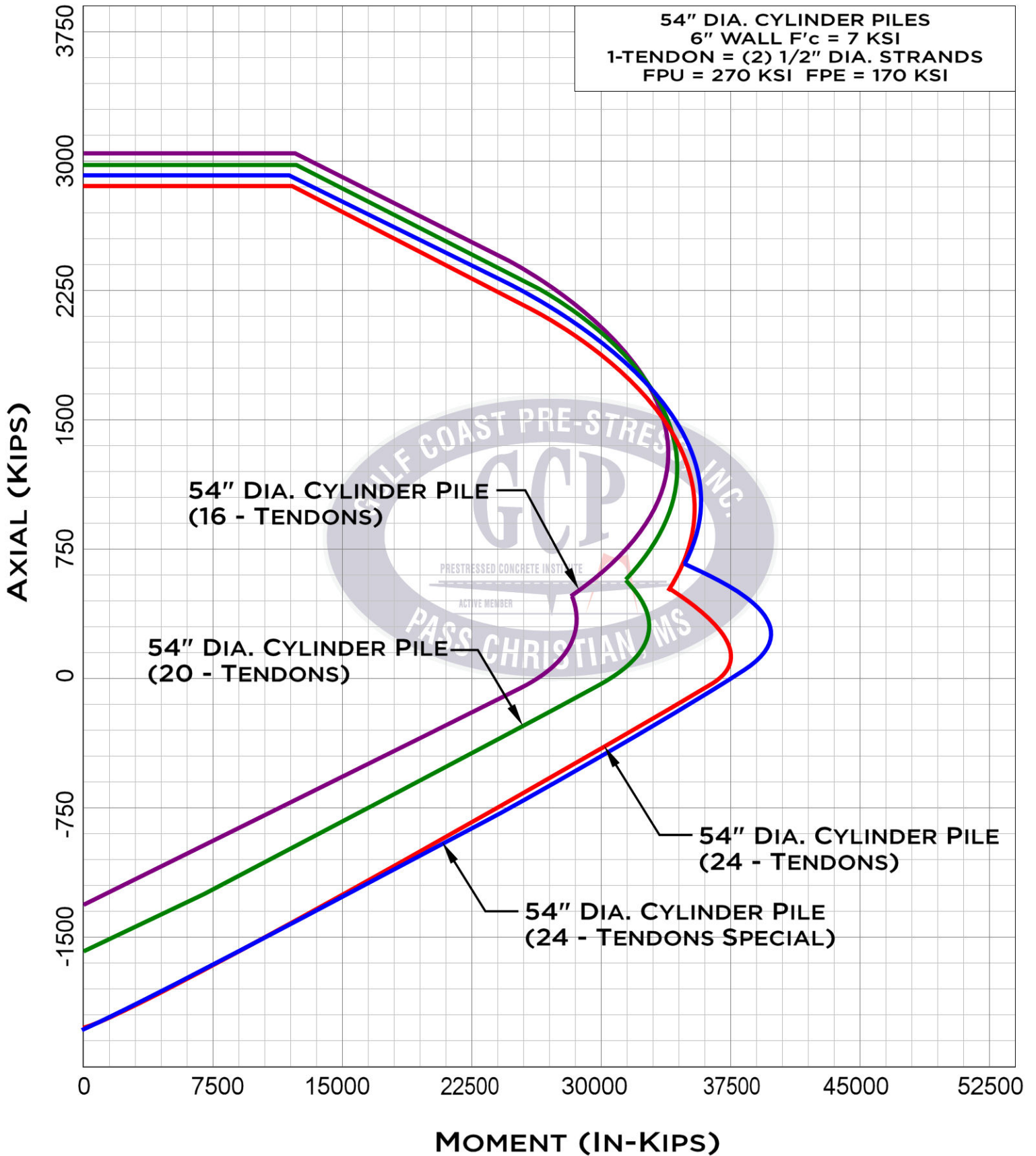
ULTIMATE STRENGTH DESIGN



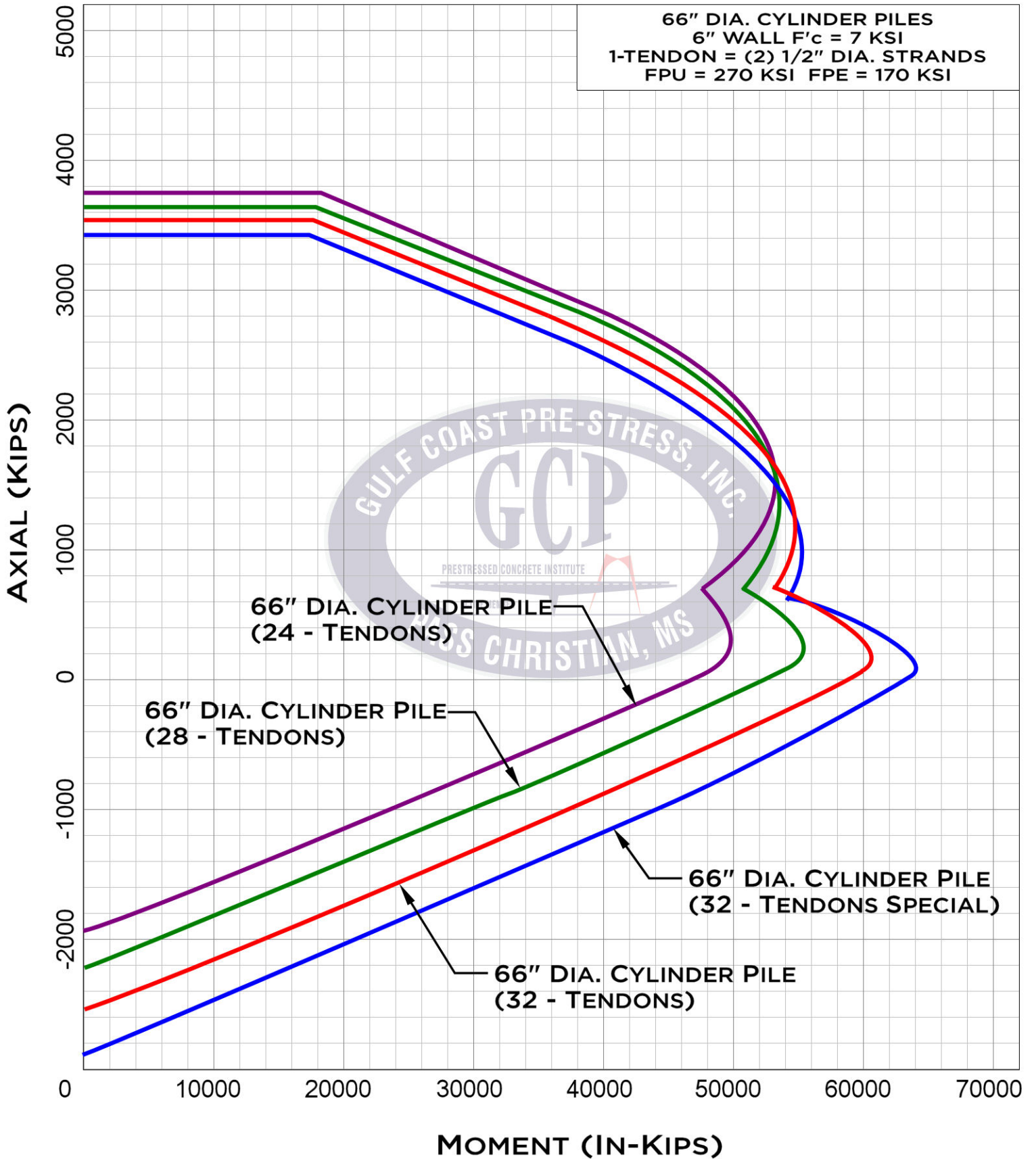
ULTIMATE STRENGTH DESIGN



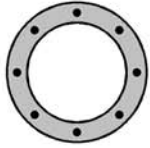
ULTIMATE STRENGTH DESIGN



ULTIMATE STRENGTH DESIGN



CYLINDER PILES



36" Diameter Section
8 Tendons

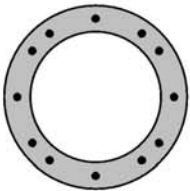


36" Diameter Section
12 Tendons

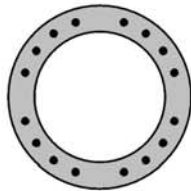


36" Diameter Section
16 Tendons

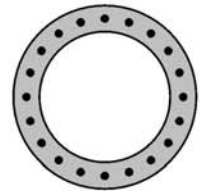
36" Cylinder Piles



42" Diameter Section
12 Tendons

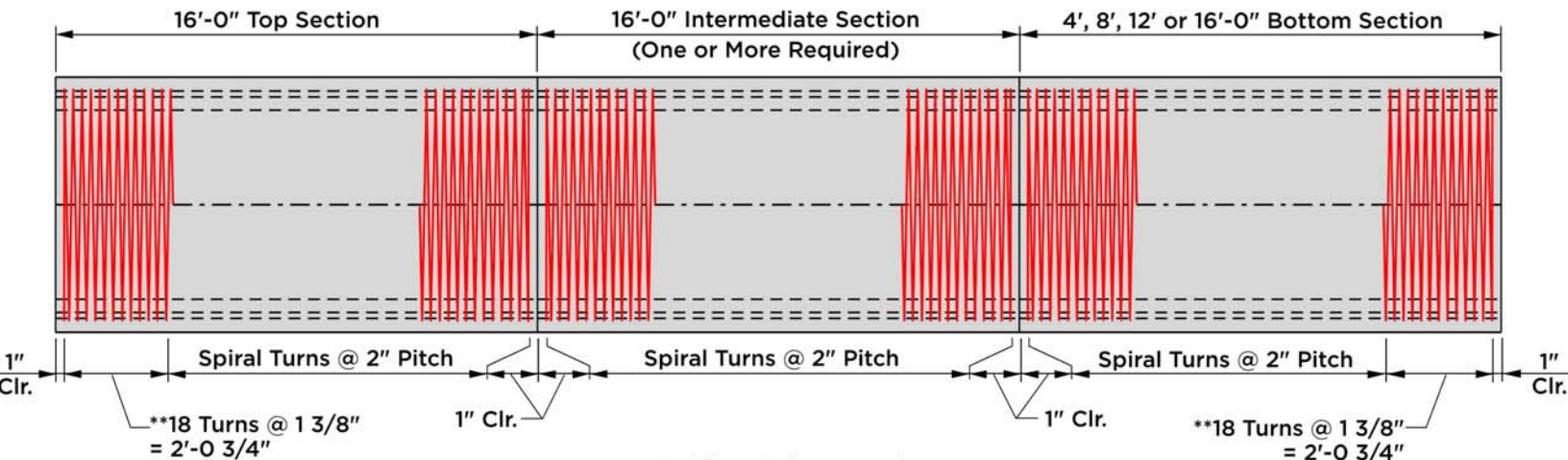


42" Diameter Section
16 Tendons



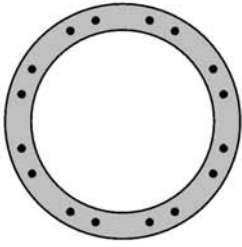
42" Diameter Section
20 Tendons

42" Cylinder Piles

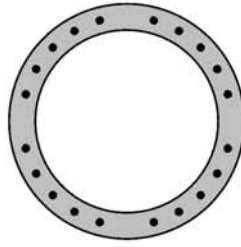


Pile Elevation

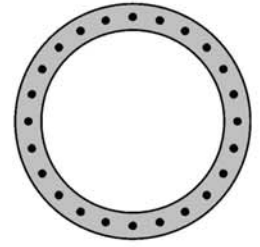
CYLINDER PILES



54" Diameter Section
16 Tendons

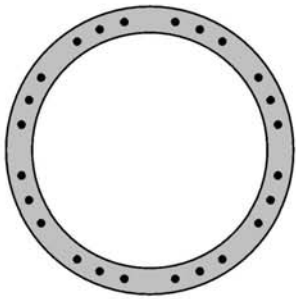


54" Diameter Section
20 Tendons

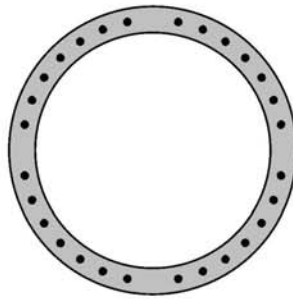


54" Diameter Section
24 Tendons

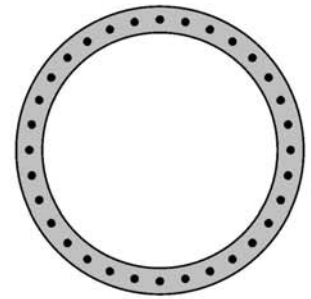
54" Cylinder Piles



66" Diameter Section
24 Tendons

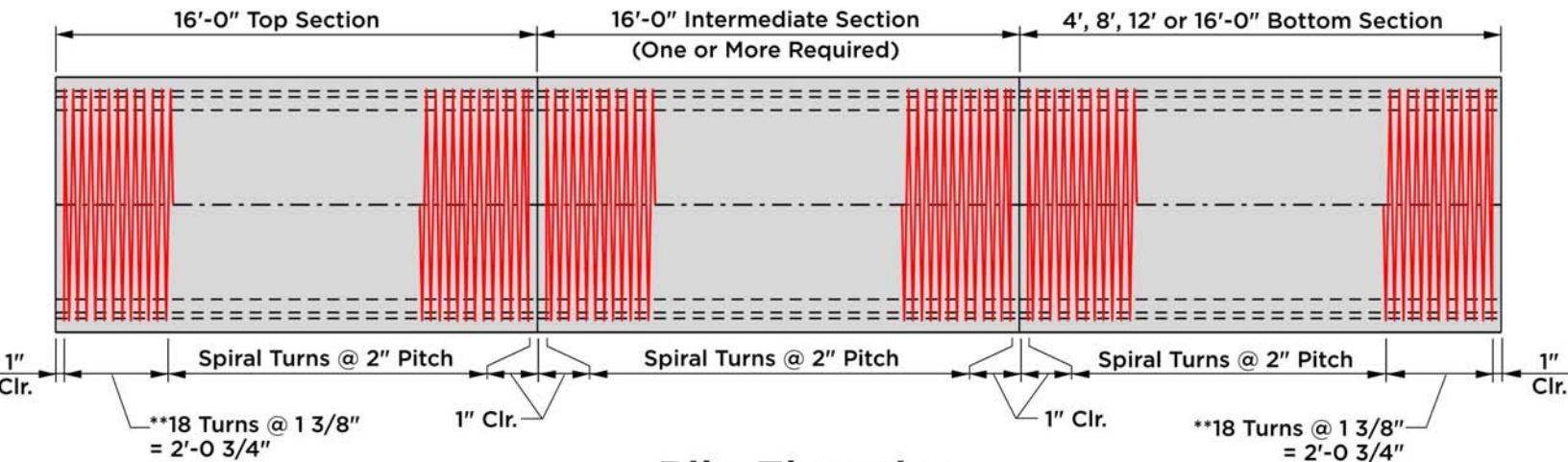


66" Diameter Section
28 Tendons



66" Diameter Section
32 Tendons

66" Cylinder Piles



Pile Elevation

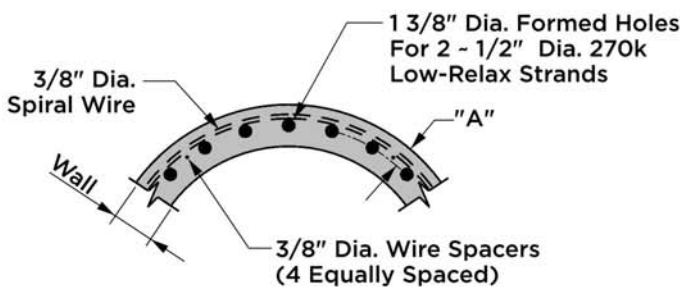
** Use 24 Spiral Turns @ 1 3/8" When
The 32 Tendon Configuration is Used

CYLINDER PILES

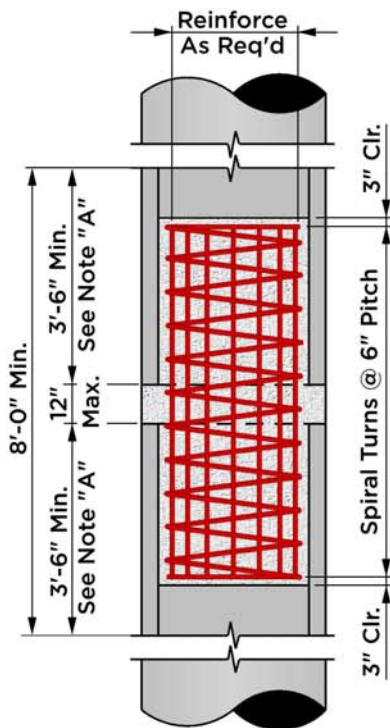
Cylinder Pile Table of Dimensions

Pile Dimensions			Gross Section Properties of Cylinder Piles			*Weight (lbs/ft)	Post-Tension Tendon Configuration
Dia.	Wall	"A"	A (In.)	I (In.)	r (In.)		
36"	6"	3"	565	66160	10.8	609	8, 12, or 16
42"	6"	3"	679	113000	12.9	730	12, 16, or 20
54"	6"	3"	905	264600	17.1	974	16, 20, or 24
66"	6"	3"	1131	514000	21.3	1217	24, 28, or 32

* Based on Unit Weight of Concrete of 155#/cf.

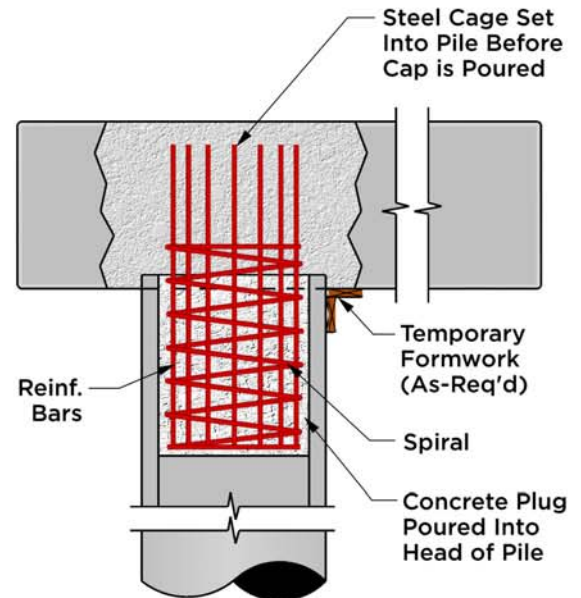


Typical Reinforcing Detail

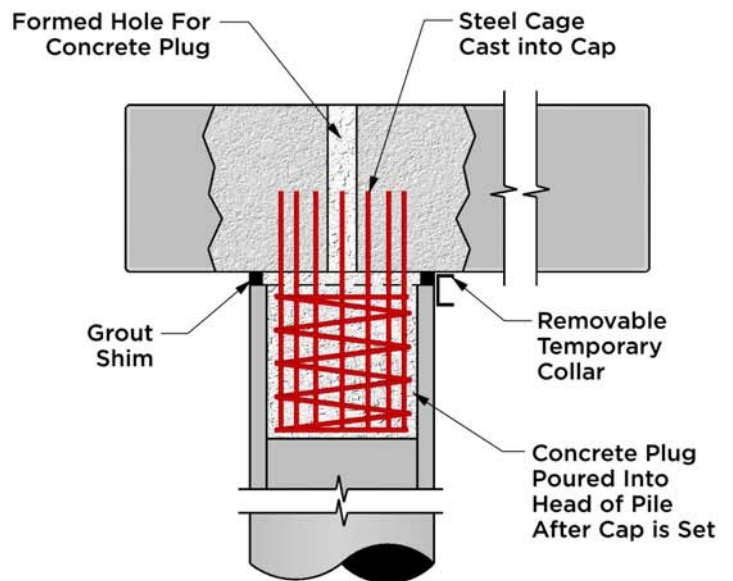


Pile Splice Detail

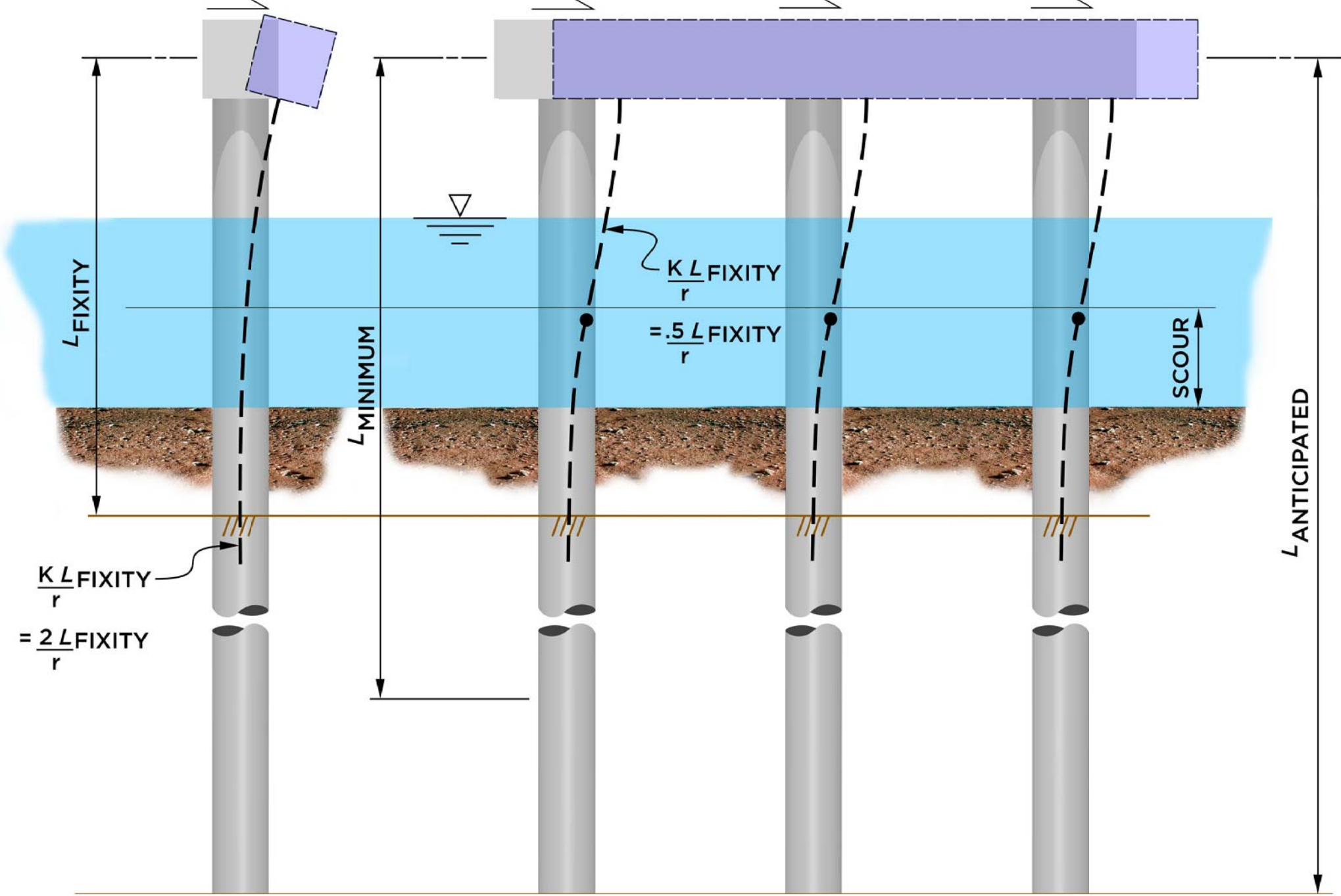
Note "A":
End surfaces in Good Condition May be Brought Into Contact at Pile Splice. Rough or Damaged Ends Shall Be Shimmed Apart And Spliced in Accordance With This Detail.



Cast In Place Pile Cap Detail



Precast Pile Cap Detail



LENGTH TO FIXITY:

$L_{FIXITY} =$

THE LENGTH OF THE PILE/COLUMN FROM THE CAP TO THE POINT OF MAXIMUM MOMENT IN THE SOIL MASS.

MINIMUM TIP ELEVATION:

$L_{MINIMUM} =$

THE MINIMUM LENGTH OF THE PILE TO ENSURE SUFFICIENT EMBEDMENT FOR LATERAL STABILITY.