				Strai	in Pole Fo	undation	Chart				
		Soil Coi	ndition	n 30 ft Pole Length			36 ft Pole Length		40 ft Pole Length		
Span Length (ft)	Soil Type	S u	N60	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)
	Low Sand	-	$5 \le N_{60} \le 10$	36	14.0	42	13.5	42	14.0	42	14.5
	Med Sand	-	$10 \leq N_{\rm 60} \leq 20$	36	13.0	42	12.5	42	13.0	42	13.5
< 100	High Sand	-	N ₆₀ > 20	36	12.5	42	12.0	42	12.5	42	12.5
≤ 100	Low Clay	500 ≤ Su≤ 1000	-	36	18.0	42	17.5	42	18.0	42	18.5
	Med Clay	1000 ≤ Su≤ 2000	-	36	14.5	42	14.0	42	14.5	42	15.0
	high Clay	Su ≥ 2000	-	36	11.5	42	11.5	42	12.0	42	12.0
	Low Sand	-	5 ≤ N ₆₀ ≤ 10	36	14.5	42	14.0	42	15.0	42	15.0
	Med Sand	-	$10 \le N_{60} \le 20$	36	13.5	42	13.0	42	13.5	42	14.0
	High Sand	-	N ₆₀ > 20	36	13.0	42	12.5	42	13.0	42	13.0
101 to 120	Low Clay	500 ≤ Su≤ 1000	-	36	18.5	42	18.0	42	19.0	42	19.5
	Med Clay	1000 ≤ Su≤ 2000	-	36	15.0	42	14.5	42	15.0	42	15.5
	high Clay	Su ≥ 2000	-	36	12.0	42	12.0	42	12.4	42	12.5
	Low Sand	-	5 ≤ N ₆₀ ≤ 10	36	15.0	42	15.0	42	15.5	42	16.0
	Med Sand	-	$10 \le N_{60} \le 20$	36	14.0	42	13.5	42	14.0	42	14.5
	High Sand	-	N ₆₀ > 20	36	13.5	42	13.0	42	13.5	42	14.0
121 to 150	Low Clay	500 ≤ Su≤ 1000	-	36	20.0	42	19.5	42	20.0	42	21.0
	Med Clay	1000 ≤ Su≤ 2000	-	36	16.0	42	15.5	42	16.0	42	16.5
	high Clay	Su ≥ 2000	-	36	13.0	42	12.5	42	13.0	42	13.5
	Low Sand	-	5 ≤ N ₆₀ ≤ 10	36	-	42	-	42	16.0	42	16.5
	Med Sand	-	$10 \le N_{60} \le 20$	36	-	42	-	42	14.5	42	15.0
	High Sand	-	N ₆₀ > 20	36	-	42	-	42	14.0	42	14.5
151 to 176	Low Clay	500 ≤ Su≤ 1000	-	36	-	42	-	42	21.0	42	22.0
	Med Clay	1000 ≤ Su≤ 2000	-	36	-	42	-	42	16.5	42	17.5
	high Clay	Su ≥ 2000	-	36	-	42	-	42	13.5	42	14.0
	Low Sand	-	5 ≤ N ₆₀ ≤ 10	36	-	42	-	42	16.0	42	17.0
	Med Sand	-	$10 \le N_{60} \le 20$	36	-	42	-	42	15.0	42	15.5
	High Sand	-	N ₆₀ > 20	36	-	42	-	42	14.5	42	15.0
177 to 200	Low Clay	500 ≤ Su≤ 1000	-	36	-	42	-	42	22.0	42	22.5
	, Med Clay	1000 ≤ Su≤ 2000	-	36	-	42	-	42	17.5	42	18.0
	high Clay	Su ≥ 2000	-	36	-	42	-	42	14.0	42	14.0

* Su = Ultimate Undrained Shear Strength in Cohesive Soil (psf)

* N60 = Standard Penetration Resistance (Blows/Foot according to ASTEM D-1586) Corrected to 60 % Hammer Efficiency Utilizing the Hammer's Calibrated Energy

* Table based on Drilled Shaft Head Deflection < 1 Inch, the Ground Water Table > 3 feet below the groun durface, and the first 3.5 feet of soil modele as Disturbed Soil assuming ground is disturbed to locate utilities

NOTE: A Detailed Site Specific Design is Required for the Following Conditions

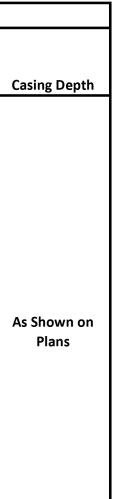
1) If N₆₀ < 5 or S_u <500 psf

2) If Span Lengths are greater than 200 feet

3) If Rock Sockets are required for the drilled shaft

*** When using a tethered span take the required span length and multiply by a 1.3 factor, as an adjustment to obtain the equivalent un-tethered span length. This adjusted un-tethered span length can then be used on the Strain Pole Foundation Design Chart. For example, if a 120 ft span connected to 36 ft strain poles requires tethering, an adjusted un-tethered span length of 156 ft should be used on the Strain Pole Foundation Design Chart to determine the required foundation depth.

File: PW:Reference D	ocuments/Traffic Reference/Signals/Design
	DESCRIPTION
ČMDOT	INITIAL POST TO WEB
Michigan Department of Transportation	
TRAFFIC SIGNAL	
DESIGN	
DRAWN BY:	
CHECKED BY:	



Guides/Final/SIG-DESIGN-153A.dgn

DATE		
02/15/11	TRAFFIC SIGNAL STRAIN	
	INALI IN JIONAL JINAIN	
	EOUNDATION DESIGN TAB	F
	SIG-DESIGN-153-A	SHEET
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