Mast Arm Foundation Chart A											
Mast Arm Type	Soil Type	Soil Condition		Diameter	Foundation	Occion Dentis					
		Su *	N ₆₀ *	(in)	Length (ft) *	Casing Depth					
Single Arm	Low Sand	-	5 ≤ N ₆₀ < 10	42	19.5	As Shown on Plans					
	Med Sand	-	10 ≤ N ₆₀ < 20	42	13.0						
	High Sand	-	N ₆₀ ≥ 20	42	12.5						
	Low Clay	500 ≤ S _u < 1000	-	42	16.5						
	Med Clay	1000 ≤ Su < 2000	-	42	14.0						
	High Clay	Su ≥ 2000	-	42	11.5						
Double Arm	Low Sand	=	5 ≤ N ₆₀ < 10	42	18.0						
	Med Sand	-	10 ≤ N ₆₀ < 20	42	14.5						
	High Sand	-	N ₆₀ ≥ 20	42	14.0						
	Low Clay	500 ≤ S _u < 1000	-	42	19.5						
	Med Clay	1000 ≤ Su < 2000	-	42	15.5						
	High Clay	Su ≥ 2000	-	42	12.5						

^{*}S_u = Undrained Shear Strength in Cohesive Soil (psf)

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

- 1) If $N_{60} < 5$ bfp or $S_u < 500$ psf
- 2) If mast arm lengths are greater than 50 feet
- 3) If groundwater is less than 3 feet below the ground surface
- 4) If a rock socket is required for the drilled shaft, if N₆₀ values greater than 50 blows per foot dominate the lower half of the drilled shaft length, or if drilling refusal or split-spoon refusal is encountered above design bottom of foundation elevation.

OTHER NOTES:

A. This chart is for use with Mast Arms. See SIG-030, SIG-031, SIG-032, and SIG-033 for details.

The upper 5 feet of soil modeled as disturbed soil assuming ground is disturbed to locate utilities. Drilled shaft head deflection less than or equal to 1 inch.

APPROVED BY:	MIchigan Department of Transportation	STANDARD PLAN FOR TRAFFIC SIGNAL MAST ARM POLE FOUNDATION DESIGN TABLE				
APPROVED BY:	DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	07/27/23 PLAN DATE	SIG-DESIGN-284-A	SHEET 1 OF 1	

MIchigan Department of Transportation

STANDARD PLAN FOR

DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE

(SPECIAL DETAIL) 07/27/23
FHWA APPROVAL PLAN DATE

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 $^{^*}N_{60}$ = Standard Penetration Resistance (Blows/Foot according to ASTM D-1586) corrected to 60% Hammer Efficiency utilizing the Hammer's Calibrated Energy

^{*}Foundation length measured from the top of the shaft, and assumes maximum 0.25 feet (3 inches) of stickup