



Illinois Department of Transportation

Memorandum

To: Jay Wavering Attn: Jon Kelley
From: Chris Isbell By: Luke Murphy *LTM*
Subject: Contract 72D17 Traffic Signal Foundation Recommendations
Date: June 9, 2023

Borings Taken June 2nd, 2023 indicated that the Average Unconfined Compressive Strength of the soils encountered at the intersection of 6th and Lincolnshire on the south end of Springfield is more than 1.0 tsf for the 72' long mast arms, but less than 1.0 tsf for the shorter 58' long mast arms. An Average Unconfined Compressive Strength of 1.0 tsf is required to use the standard foundation diameters and depths as shown in Highway Standard 878001-11. As a result, foundation diameters and depths have been determine using the borings and Traffic Signal Layout dated 1/16/2023. The resultant recommendations are given in the table below:

Intersection Quadrant	Mast Arm Length	Recommendations	
		Foundation Diameter	Foundation Depth
NE	72'	42"	25'
NW	58'	42"	25'
SE	58'	42"	25'
SW	72'	42"	25'

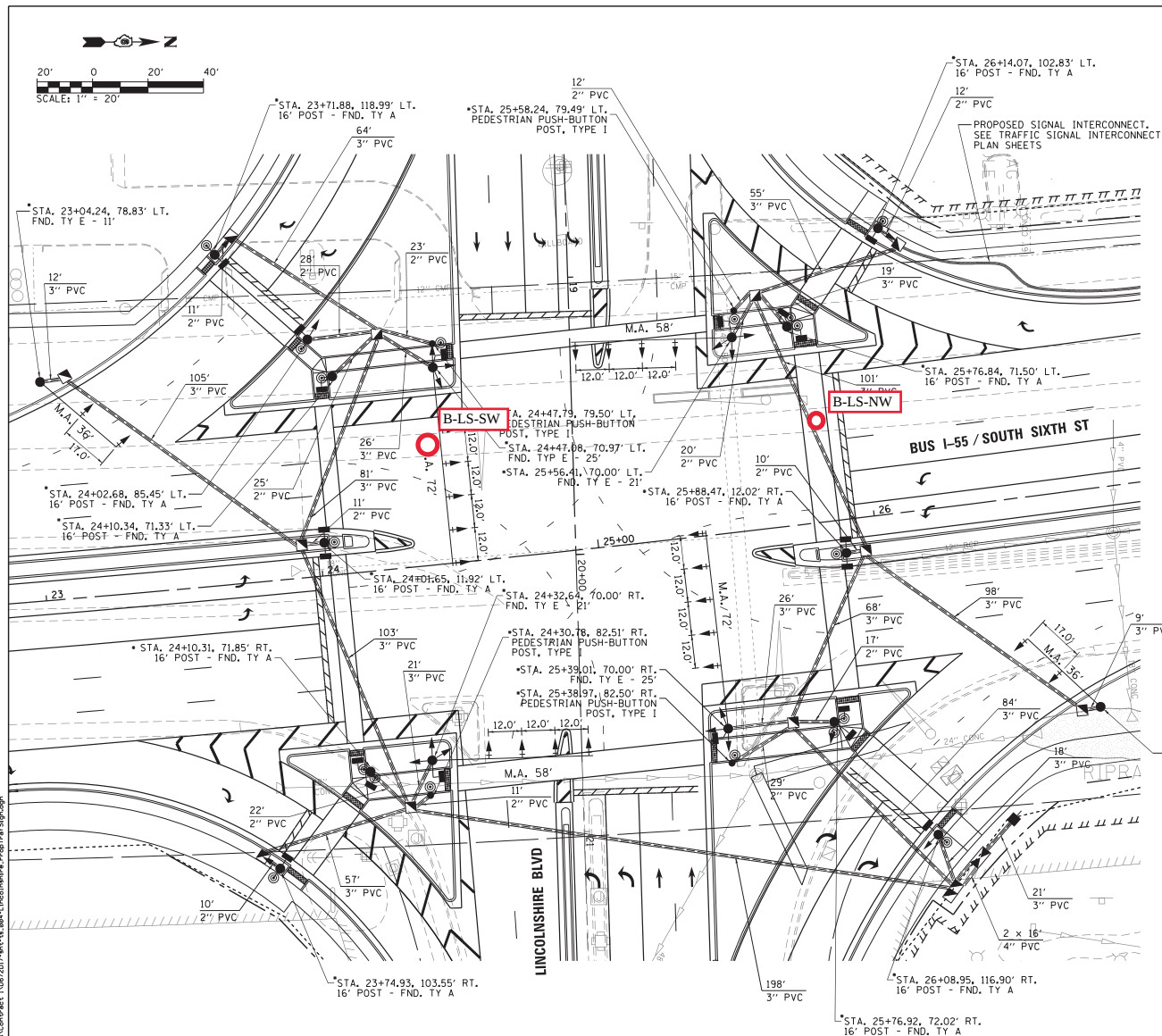
It should be noted that both borings encountered Tan colored Shale at a depth of 21'. A rock socket with a different diameter is not required for the construction of the shaft. The following note, or a version of it should be included on the Traffic Signal Layout for the intersection:

Shale, or a shale like rock, is expected at a depth of 21 feet. The Contractor should anticipate and have the capacity to construct the drilled shaft in a Shale-like rock. Additional effort for the proper construction of drilled shafts in shale shall not be paid for separately.

In addition to the recommendations given in the table, please see the attachments for boring location layout and boring logs.

If you have any questions or comments please contact Luke Murphy at 217-782-6709 or at luke.t.murphy@illinois.gov .

Cc: Chris Siefert



BILL OF MATERIALS

SIXTH STREET AND LINCOLNSHIRE BLVD

ITEM	UNIT	QUANTITY
SERVICE INSTALLATION, TYPE A	EACH	1
UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	241
UNDERGROUND CONDUIT, PVC, 3" DIA.	FOOT	1166
UNDERGROUND CONDUIT, PVC, 4" DIA.	FOOT	32
HANDHOLE	EACH	11
DOUBLE HANDHOLE	EACH	1
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 10	FOOT	1464
LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	4
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1
UNINTERRUPTIBLE POWER SUPPLY, STANDARD	EACH	1
TRANSCEIVER - FIBER OPTIC	EACH	1
FIBER OPTIC CABLE IN CONDUIT, 24 FIBERS, SINGLE MODE	FOOT	3163
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	5613
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	7038
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	5811
ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 18 3C	FOOT	1464
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C	FOOT	35
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	1518
TRAFFIC SIGNAL POST, ALUMINUM 16 FT.	EACH	11
PEDESTRIAN PUSH-BUTTON POST, TYPE I	EACH	4
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 36 FT.	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 58 FT.	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 72 FT.	EACH	2
CONCRETE FOUNDATION, TYPE A	FOOT	33
CONCRETE FOUNDATION, TYPE C	FOOT	3
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	22
CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	92
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	22
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	6
SIGNAL HEAD, POLYCARBONATE, LED, 3-FACE, 1-3-SECTION, 2-5-SECTION, BRACKET MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	10
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 2-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	5
TRAFFIC SIGNAL BACKPLATE	EACH	22
PEDESTRIAN PUSH-BUTTON	EACH	18
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING SERVICE INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	6
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	10
CAMERA MOUNTING ASSEMBLY	EACH	4
VIDEO VEHICLE DETECTION SYSTEM	EACH	1
COMBINATION LIGHTING CONTROLLER	EACH	1
TEMPORARY LIGHTING SYSTEM	L SUM	1

GENERAL NOTES

- SEE TRAFFIC SIGNAL INTERCONNECT SHEETS FOR PROPOSED CONDUIT OUTSIDE SHEET LIMITS & PROPOSED SIGNAL INTERCONNECTS.
- SEE REMOVAL SHEETS FOR EXISTING HANDHOLE AND CONCRETE FOUNDATION REMOVAL. ALL ITEMS INCLUDED UNDER REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT ARE LISTED ON THE TEMPORARY TRAFFIC SIGNAL LAYOUT SHEET.
- REMOVED TRAFFIC SIGNAL EQUIPMENT SHALL BE RETURNED TO IDOT.

*NOTE: BEFORE ANY OF THESE FOUNDATIONS ARE AUGERED, CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES. ADJUSTMENTS TO ACCOMMODATE EXISTING UTILITIES SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

FILE NAME : \\0672017-shr-its-B04-Lincolnshire-PropTrafficSignal.dgn	USER NAME : Brien Bond	DESIGNED : -	REVISED : -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED TRAFFIC SIGNAL LAYOUT SOUTH SIXTH STREET & LINCOLNSHIRE BLVD	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
Default		DRAWN : -	REVISED : -			666	(110X-S)WRS, N, S	SANGAMON	555	443	
		PLOT SCALE : 40.0000' / in.	CHECKED : -			REVISED : -	CONTRACT NO. 72D17				
		PLOT DATE : 1/16/2023	DATE : 1/13/2023			REVISED : -	ILLINOIS FED. AID PROJECT				



Illinois Department of Transportation

Division of Highways
District 6

SOIL BORING LOG

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Date 6/2/23

ROUTE BL-55 DESCRIPTION North West Quadrant of 6th and Lincolnshire intersection LOGGED BY S. Burke

SECTION LOCATION SW 1/4, SEC. 15, TWP. 15N, RNG. 5W, 3 PM

COUNTY Sangamon DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO.
Station

BORING NO. B-LS-NW
Station 25+79
Offset 38' LT
Ground Surface Elev. ft ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
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Surface Water Elev. N/A ft
Stream Bed Elev. N/A ft
Groundwater Elev.:
▽ First Encounter ft
▽ Upon Completion plugged ft
▽ After Hrs. plugged ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
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Black Dry SILTY CLAY cored thru shoulder		2			Gray and Brown SILTY CLAY LOAM TILL (continued)				
		3	2.5	24	Tan and Gray Dry SHALE	5			
		5	B			22	4+		
						80	P		
Dk Gray to Black		3			boring complete				
		3	2.1	27					
	-5	5	B			-25			
		1							
		2	0.3	29					
Lt Gray Moist SILT LOAM w/ iron oxide nodules		2	B						
Lt Gray Moist SILT		1							
		2	2.0	23					
	-10	2	P			-30			
		0							
		1	0.3	24					
		1	B						
Lt Gray Moist SILTY CLAY LOAM FREE WATER @13		0							
		0	0.6	25					
	-15	2	B			-35			
		0							
		1	0.7	25					
		2	B						
Gray and Brown SILTY CLAY LOAM TILL		0							
		2	0.7	26					
	-20	2	B			-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated) Abbreviations W.O.H - Sampler Advanced By Weight of Hammer, W.O.P - Advanced by Weight of Pipe, B.S. - Before Seating The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



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Date 6/2/23

ROUTE BL-55 DESCRIPTION South West Quadrant of 6th and Lincolnshire intersection LOGGED BY S. Burke

SECTION LOCATION SW 1/4, SEC. 15, TWP. 15N, RNG. 5W, 3 PM

COUNTY Sangamon DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO.	DEPT H	BLOW S	UCS Qu	MOIST	Surface Water Elev.	N/A	ft	DEPT H	BLOW S	UCS Qu	MOIST
Station	(ft)	/6"	(tsf)	(%)	Stream Bed Elev.	N/A	ft	(ft)	/6"	(tsf)	(%)
BORING NO. B-LS-SW					Groundwater Elev.:						
Station 24+46					▽ First Encounter		ft				
Offset 44' LT					▽ Upon Completion	plugged	ft				
Ground Surface Elev. ft					▽ After Hrs.	plugged	ft				
Black Dry SILTY CLAY cored thru shoulder	1				Gray Moist SILTY CLAY LOAM TILL (continued)						
	3	2.4	28		Tan and Gray Dry SHALE			6			
	3	B						25	4+		
								58	P		
	1				boring complete						
	3	1.8	31								
	2	B						-25			
	0										
Lt Gray Moist SILT LOAM	2	0.8	25								
	3	B									
Lt Gray Moist SILT	1										
	3	1.5	27								
	3	B						-30			
	0										
Gray and Brown V. Moist SILTY CLAY LOAM FREE WATER @12	0	0.2	27								
	1	B									
	0										
	1	0.7	37								
	2	B						-35			
	0										
	2	1.9	24								
	2	B									
Gray Moist SILTY CLAY LOAM TILL	1										
	2	0.8	27								
	4	B						-40			

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