

# SIGNAL SUPPORT/ STRAIN POLE FOUNDATIONS

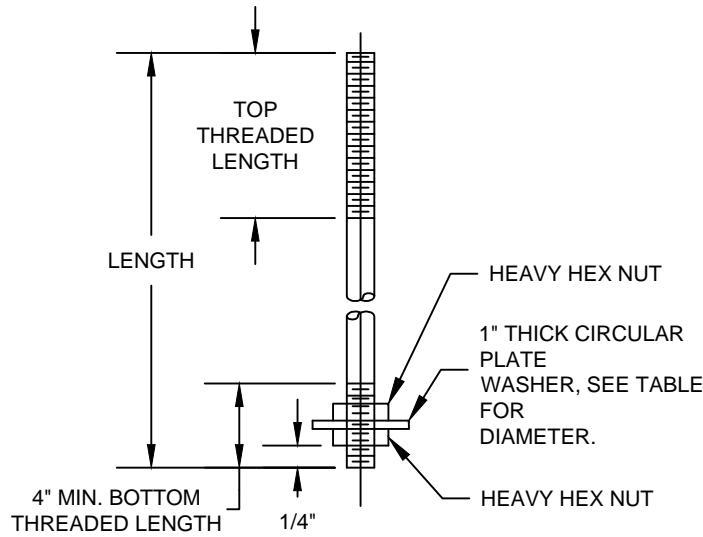
CITY OF COLUMBUS, OHIO  
DEPARTMENT OF PUBLIC SERVICE  
DIVISION OF DESIGN AND CONSTRUCTION

STD DWG  
**4160**

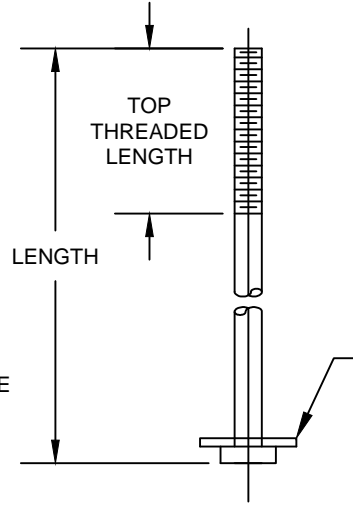
10/01/2018

CITY ENGINEER

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**HEX NUT ANCHOR  
BOLT OPTION**



**HEADED ANCHOR  
BOLT OPTION**

1" THICK CIRCULAR PLATE WASHER, SEE TABLE FOR DIAMETER. ASSURE WASHER IS FIXED TO THE BOLT HEAD BY EPOXY OR SIMILAR MEANS, TO PREVENT MOVEMENT DURING CONCRETE POUR.

**ANCHOR BOLTS**

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

CITY OF COLUMBUS 4120 & 4121 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS		
			SIZE	CIRCLE	P
4	10	36	1.75 X 62	18	7.75
12	11	36	2 X 62	20	8.5
13	15	36	2 X 62	22	8.5
14	15	36	2 X 62	22	8.5
C15	15	36	2 X 62	24	8.5
C16	15	36	2 X 62	22	8.5

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

DIA.	TOP THREAD LENGTH	THREADS PER INCH	PLATE WASHER DIAMETER
1.25	8	7	3
1.5	9	6	3
1.75	9	5	4
2	9	4.5	4
2.25	10	4.5	5
2.5	10	4	5
3	12	4	6

**CITY OF COLUMBUS 4170 TYPE SUPPORTS**

DESIGN NO.	D (feet)	W	ANCHOR BOLTS		
			SIZE	CIRCLE	P
5	9	36	1.75 X 62	16	7.75
6	9	36	1.75 X 62	16	7.75
7	10	36	2 X 62	18	8.5
8	10	36	2 X 62	20	8.5
9	10	36	2 X 62	22	8.5
10	11	36	2.25 X 63	22	9
11	11	36	2.25 X 63	22	9
12	12	36	2.5 X 64	23.5	9.75
13	16	42 or 48	3 X 66	26	11.75
14	17	48	3 X 72	34	11.75

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NOTES:

1. USE 1/2" PREFORMED JOINT FILLER AS PER 705.03 BETWEEN FOUNDATIONS AND ADJACENT PAVED AREAS.
2. A SPECIAL FOUNDATION DESIGN WILL BE REQUIRED WHEN COHESIVE SOIL WITH UNDRAINED SHEAR STRENGTH OF LESS THAN 2000 LB/FT<sup>2</sup> OR GRANULAR SOIL WITH AN ANGLE OF INTERNAL FRICTION LESS THAN 30° AND A WET DENSITY LESS THAN 120 LB/FT<sup>3</sup> IS ENCOUNTERED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN THESE CONDITIONS ARE IDENTIFIED.
3. PROVIDE ALL ANCHOR BOLTS WITH STANDARD STEEL HEX NUTS, LEVELING NUTS, AND PLAIN WASHERS. THE NUTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF THE ANCHOR BOLTS.
4. AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION SHALL APPLY TO THE LOW SIDE OF THE SLOPE. SET THE TOP OF THE FOUNDATION 2" ABOVE THE EXISTING SURFACE ON THE HIGH SIDE OF THE SLOPE. THE ADDITIONAL DEPTH OF FOUNDATION NECESSARY TO MEET THESE REQUIREMENTS SHALL BE ADDED TO THE FORMED TOP.
5. THE SIZE, NUMBER (MINIMUM OF 2), TYPE, AND ORIENTATION OF CONDUIT ELLS SHALL BE AS SHOWN IN THE PLAN, EXCEPT THAT A 3/4" SCHEDULE 40 PVC CONDUIT SHALL BE INSTALLED IN EACH FOUNDATION. UNUSED CONDUIT ELLS SHALL BE CAPPED.
6. TIE SPACING, STARTING FROM THE TOP OF THE DRILLED SHAFT, SHALL BE 3" BETWEEN THE FIRST TWO TIES AND 12" SPACING THEREAFTER.
7. THE ANCHOR BASE POLE FOUNDATION SIDES SHALL BE ORIENTATED PARALLEL TO THE SIDEWALK OR BACK-OF-CURB OR EDGE-OF-PAVEMENT.
8. THE TOP OF THE FOUNDATION SHALL BE SET BASED ON THE FOLLOWING GUIDELINES:
  - FOUNDATION LOCATED ENTIRELY IN WALK OR CONCRETE AREA  
TOP OF FOUNDATION SHALL BE AS PER CITY OF COLUMBUS STANDARD DRAWING 4161.
  - FOUNDATION LOCATED BEHIND CURB ASSOCIATED WITH CURB RAMP  
TOP OF FOUNDATION SHALL BE FLUSH WITH TOP OF CURB AT BACK OF RAMP FOR A PARALLEL RAMP.
  - FOUNDATION LOCATED ADJACENT TO WALK OR CONCRETE AREA  
TOP OF FOUNDATION SHALL BE FLUSH WITH WALK OR CONCRETE AREA FOR A PERPENDICULAR RAMP.
  - FOUNDATION LOCATED ADJACENT TO WALK OR CONCRETE WITH STEEP GRADE CHANGE (RISES STEEPLY BEHIND WALK)  
THE BACK SIDE OF THE FOUNDATION SHALL MATCH THE GROUND SLOPE AND THE STREET SIDE OF THE FOUNDATION SHALL BE ABOVE THE SIDEWALK OR CONCRETE AREA AND COMPLETELY OUT OF THE SIDEWALK OR CONCRETE AREA.
9. THE POLE FOUNDATION TOP SHALL BE EDGED USING A 1/2" SIDEWALK EDGER AND NOT CHAMFERED.
10. ANCHOR BOLT LENGTH SHALL BE INCREASED WHEN FOUNDATION IS INSTALLED IN BRICK SIDEWALK. SEE CITY OF COLUMBUS STANDARD DRAWING 4161 AND 2301 FOR INCREASED LENGTH REQUIREMENTS.
11. ALL REINFORCING STEEL SHALL BE EPOXY COATED AND COMPLY WITH AND BE PLACED IN ACCORDANCE WITH CMSC 509. REBAR CAGE SHALL EXTEND TO WITHIN 3 1/2" ± 1/2" OF TOP AND BOTTOM OF FOUNDATION.
12. IF SHALLOW BEDROCK IS ENCOUNTERED, THE FOUNDATION LENGTH MAY BE DECREASED BY EMBEDDING THE SHAFT A MINIMUM OF 5 FT INTO BEDROCK. FIELD CUT THE VERTICAL REBAR TO FIT THE SHORTENED FOUNDATION.
13. IF EXCAVATING WITHIN 8 FEET OF, BUT GREATER THAN 5 FEET FROM THE EDGE OF AN EXISTING SIGNAL SUPPORT OR STRAIN POLE FOUNDATION, PROVIDE TEMPORARY SUPPORT OF THE POLE (DOWN GUY, HEAD GUY, BASE GUY, MECHANICAL/Crane SUPPORT, ETC.) DURING EXCAVATION AND CONSTRUCTION ACTIVITIES.
14. IF A UTILITY IS WITHIN 5 FEET OF THE FOUNDATION, INCREASE THE FOUNDATION LENGTH (D) TO THE LENGTH SHOWN IN THE TABLE BELOW.

4120 & 4121 TYPE SUPPORTS			4170 TYPE SUPPORTS		
DESIGN NO.	DEPTH OF ADJACENT UTILITY EXCAVATION		DESIGN NO.	DEPTH OF ADJACENT UTILITY EXCAVATION	
	3 FT	6 FT		3 FT	6 FT
4	D=18	D=22	5	D=15	D=19
12	D=18	D=22	6	D=15	D=19
13	D=18	D=22	7	D=15	D=19
14	D=18	D=22	8	D=15	D=19
C15	D=18	D=22	9	D=15	D=19
C16	SEE BELOW		10	D=15	D=19
SPECIAL FOUNDATION REQUIRED FOR UTILITY EXCAVATIONS ADJACENT TO C16.			11	D=20	D=24
			12	D=20	D=24
			13	D=20	D=24
			14	D=20	D=24

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