The Type A Foundation is the normally required foundation construction. Where rock is encountered, the Engineer may approve the use of Type B or C Foundation. Prior to installing a foundation in rock, obtain a subsurface investigation certified by a geotechnical engineer licensed in the State of Iowa

1. Shape top 11 inches with forms.
2. Install rodent guard or non-shrink grout with weep hole.
3. Furnish nut, nut and plate, or nut and anchor bolt assembly ring plate on embedded end.

### MAST ARM POLE FOUNDATION IN SOIL
#### TYPE A FOUNDATION

<table>
<thead>
<tr>
<th>Max. Mast Arm Length</th>
<th>Foundation Size</th>
<th>&quot;V&quot; Bars Count</th>
<th>Length</th>
<th>Tie Bars Count</th>
<th>Upper Spacing</th>
<th>Lower Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>35'-0&quot;</td>
<td>3'-0&quot;</td>
<td>12</td>
<td>8</td>
<td>11'-6&quot;</td>
<td>17</td>
<td>9</td>
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<td></td>
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<td></td>
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<td>45'-0&quot;</td>
<td>3'-0&quot;</td>
<td>12</td>
<td>8</td>
<td>13'-6&quot;</td>
<td>19</td>
<td>11</td>
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<td>8</td>
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<td>12</td>
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<td>5</td>
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<td>60'-0&quot;</td>
<td>3'-0&quot;</td>
<td>13</td>
<td>8</td>
<td>17'-6&quot;</td>
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<td>15</td>
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<td>10</td>
<td>17'-6&quot;</td>
<td>28</td>
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<tr>
<td>90'-0&quot;</td>
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<td>10</td>
<td>21'-6&quot;</td>
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<td>8&quot;</td>
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</tr>
<tr>
<td>100'-0&quot;</td>
<td>4'-0&quot;</td>
<td>18</td>
<td>10</td>
<td>23'-6&quot;</td>
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<td></td>
<td>8&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- #5 Ties
- 1" Ø Ground Wire Duct
- Expansion Material
- Conduit to nearest Handhole
- Anchor Bolts
- Ground Rod Clamp
- Ground Rod
- Signal Cable w/ground wire
- Conduit

**Figure CR 8010.102**

**POLE FOUNDATION**

**Traffic Signal Pole Foundation**

**Supplemental Specifications To SUDAS**

**Cedar Rapids General**

**City of the Season**

**NEW 10-9-18**

**SHEET 1 OF 4**
Type B Foundation is applicable for traffic signal poles with mast arm lengths up to 60 feet.

If the excavation for a Type B Foundation is left open for more than 1 calendar day, install temporary barrier rail if any part of the excavation is located within the clear zone. Temporary barrier rail layout requires the Engineer's approval.

Competent rock has an average unconfined compressive strength (q) of at least 2.0 ksi and rock quality designation of at least 90%. Conditions not meeting minimum requirements will require either:
- A site specific design, or
- Using the parameters for Mast Arm Pole Foundation in Soil.

1. Shape top 11 inches with forms.
2. Install rodent guard or non-shrink grout with weep hole.
3. Furnish nut, nut and plate, or nut and anchor bolt assembly ring plate on embedded end.
4. Place 13 equally spaced #8 vertical bars.
5. Cast foundation concrete against competent rock. If foundation is formed, place backfill with concrete cast against rock.
6. When in contact with rock, place ground rods as specified in National Electrical Code, current edition.
7. #6 bars spaced at 8 inch maximum. Ties may be welded to vertical bars.

FIGURE CR 8010.102
SHEET 2 OF 4

MAST ARM POLE FOUNDATION IN ROCK
TYPE B FOUNDATION

- Shape top 11 inches with forms.
- Install rodent guard or non-shrink grout with weep hole.
- Furnish nut, nut and plate, or nut and anchor bolt assembly ring plate on embedded end.
- Place 13 equally spaced #8 vertical bars.
- Cast foundation concrete against competent rock. If foundation is formed, place backfill with concrete cast against rock.
- When in contact with rock, place ground rods as specified in National Electrical Code, current edition.
- #6 bars spaced at 8 inch maximum. Ties may be welded to vertical bars.
2. "V" Bars

3. Expansion Material

4. Grade

5. Pavement

6. Finished

7. Anchor Bolts

8. #6 Ties

9. 4'-0" Max.

10. 2'-0" Min.

11. 3" Clearance

12. Clearance

13. Top of Rock

14. Tie Bars

15. Rock Socket

16. Drilled Shaft

17. Tie Bars

18. Spacing

19. Min.

20. Max.

21. L - 6"

22. #8

23. #10

24. #9

25. L = 4½" (Typ.)

26. W = 6"

27. W = 4½"

28. D = 4½" (Typ.)

29. R = 1'-0"

30. W = 6"

31. D = 4½" (Typ.)

32. Note: All dimension are out to out.

33. FIGURE CR 8010.102

34. SHEET 3 OF 4

35. TRAFFIC SIGNAL

36. POLE FOUNDATION

37. New

38. Cedar Rapids General

39. Supplemental Specifications To SUDAS

40. MAST ARM POLE FOUNDATION IN ROCK

41. TYPE C FOUNDATION

42. Type A Foundation Soil parameters.

43. Conditions not meeting minimum requirements will require site specific designs or shall use the Type A Foundation Soil parameters.

44. #6 Ties

45. Stagger hooks to engage different "V" bars each row

46. "V" Bars

47. (See Table for Count)

48. #8

49. L = 4½" (Typ.)

50. W = 6"

51. D = 4½" (Typ.)

52. #6 Ties

53. When in contact with rock, place ground rods as specified in National Electrical Code, current edition.
PEDESTRIAN POLE FOUNDATION IN SOIL OR ROCK

1. Shape top 11 inches with forms.
2. Install rodent guard or non-shrink grout with weep hole.
3. Connect ground wire to grounding lug in the pedestal base.
4. When in contact with rock, place ground rods as specified in National Electrical Code, current edition.

- Top of Rock
- Expansion Material
- Conduit to nearest Handhole
- Anchor Bolts
- No steel reinforcing required for pedestal foundation
- Ground Rod Clamp
- Signal Cable w/ground wire
- Ground Rod
- 4'-0" Min.
- 3'-0" Dia.
- 2'-0" Dia.
- 2'-0" Min.
- 2'-0" Min.
- 2'-0" Min.
- 2'-0" Min.
- 2'-0" Min.