### MaxiForce™ Steel Bollard Base Installation Schedule
For Universal, Simple, Removable, and EZ Bases

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#### Engineered Anchorage System for MaxiForce™ Steel Bollard Bases - Single Footing
(For Universal, Simple, Removable and EZ Bases)

<table>
<thead>
<tr>
<th>Base Type</th>
<th>Concrete Pier Diameter (In.)</th>
<th>Concrete Pier Height (In.)</th>
<th>Concrete Pier Reinforcing</th>
<th>Bollard Base/Embedment at Concrete Pier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Simple</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Removable</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>EZ</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>6&quot; Min</td>
</tr>
</tbody>
</table>

#### Engineered Anchorage System for MaxiForce™ Steel Bollard Bases - Continuous Beam Footing
(For Universal, Simple, Removable and EZ Bases)

<table>
<thead>
<tr>
<th>Base Type</th>
<th>Concrete Grade Beam Width (In.)</th>
<th>Concrete Grade Beam Height (In.)</th>
<th>Concrete Grade Beam Reinforcing</th>
<th>Bollard Base/Embedment at Concrete Grade Beam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Simple</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Removable</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>EZ</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>6&quot; Min</td>
</tr>
</tbody>
</table>

#### Design and Construction Notes

1.0 For continuous concrete grade beam footing, pipe bollards shall be spaced 4’ - 0” O.C. maximum.

2.0 Allowable Foundation Pressure = 2,000 psf. Allowable Lateral Bearing = 150/psf. Assumed in-place soil, Sand, Silty Sand, Clayey Sand, Silty Gravel, or Clayey Gravel. For higher soil allowable design values, site soil investigation by a Registered Geotechnical Engineer is required.

3.0 See supplemental concrete footing details for additional information.

4.0 Material Specifications: Concrete = 3,000 psi (28-day min); Reinforcing ASTM A615 (60 ksi for all bars #5 and larger 40 ksi for all bars #4 and smaller).

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Engineered Anchorage System for the MaxiForce™ Simple Base Circular Concrete Pier Footing

1. MaxiForce™ Steel pipe bollard per specification.
3. Finished grade or pavement.
4. Concrete base pier per schedule, at each pipe sleeve.
5. 3/4" Dia. PVC pipe as needed for drainage below pipe sleeve.
6. Compacted gravel bed (3" minimum).
7. #3 hoop ties at 12" O.C. and 2 - #3 ties at top and bottom of concrete pier.
8. Centerline of bollard and concrete base pier.
Engineered Anchorage System for the MaxiForce™ Simple Base Continuous Beam Footing

1. MaxiForce™ Steel pipe bollard per specification.
3. Finished grade or pavement.
4. Continuous concrete grade beam per schedule.
5. 3/4" Dia. PVC pipe as needed for drainage below pipe sleeve.
6. Compacted gravel bed (3" minimum).
7. #4 at 12" O.C. - TYP. with 4" min. hooks with 135 degree bend - TYP. UNO.
8. Centerline of bollard and concrete grade beam.
9. Continuous longitudinal reinforcement per schedule - lap splice 24" min. - TYP. UNO.

Installation Orientation

Protected Side

Attack Side

See Schedule