

MaxiForce™ Steel Bollard Base Installation Schedule

For Universal, Simple, Removable, and EZ Bases

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

Base Type	Concrete Pier Diameter (In.)	Concrete Pier Height (In.)	Concrete Pier Reinforcing	Bollard Base/Embedment at Concrete Pier
Universal	12"	39"	2 - #4 Vert.	8" Min
Simple	12"	39"	2 - #4 Vert.	8" Min
Removable	12"	39"	2 - #4 Vert.	8" Min
EZ	12"	39"	2 - #4 Vert.	6" Min

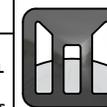
Engineered Anchorage System for MaxiForce™ Steel Bollard Bases - Continuous Beam Footing (For Universal, Simple, Removable and EZ Bases)

Base Type	Concrete Grade Beam Width (In.)	Concrete Grade Beam Height (In.)	Concrete Grade Beam Reinforcing	Bollard Base/Embedment at Concrete Grade Beam
Universal	12"	22"	3 - #4 Cont.	8" Min
Simple	12"	22"	3 - #4 Cont.	8" Min
Removable	12"	22"	3 - #4 Cont.	8" Min
EZ	12"	22"	3 - #4 Cont.	6" Min

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).

Drawing Rev. 1	Created 11/1/2010
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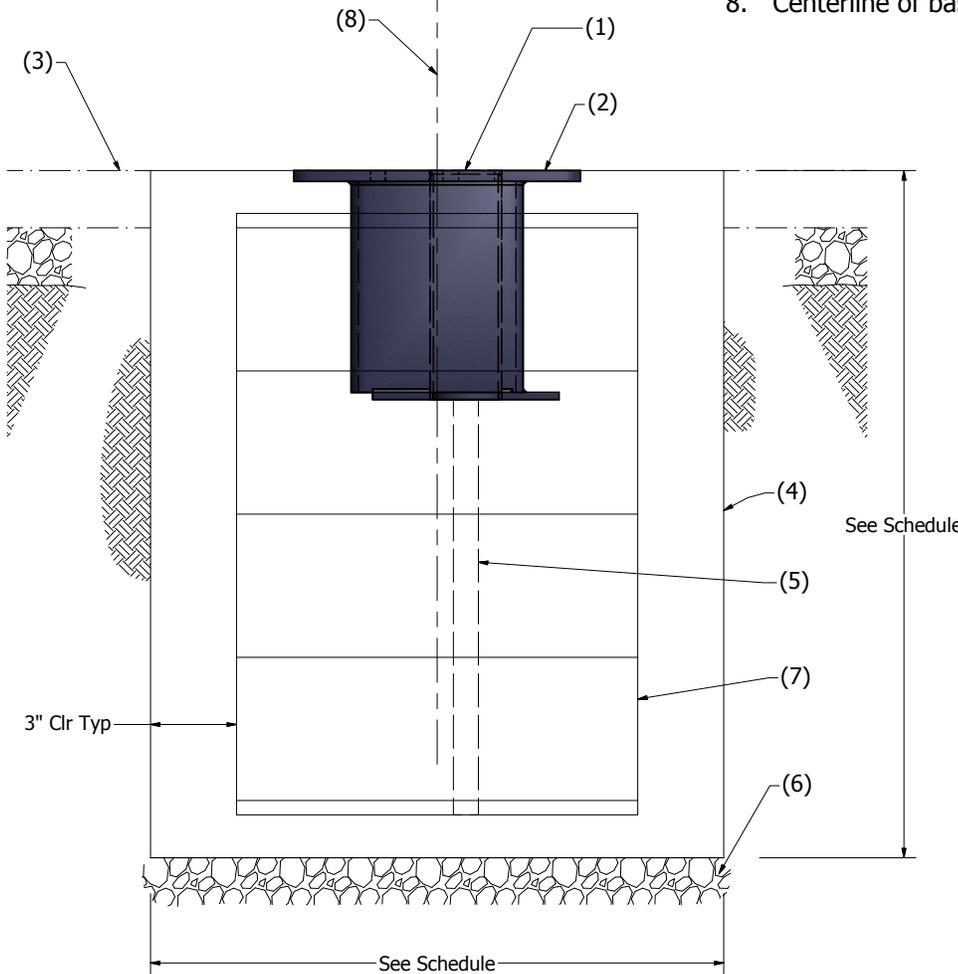
Model	U/S/R/EZ Base Installation Schedule		
Size	File Name	U_S_R_EZ Base Inst Sched	
C	Scale	NA	DO NOT SCALE DRAWING Sheet 1 Of 1

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

Protected Side

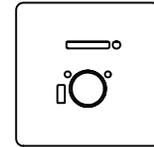
Attack Side

1. MaxiForce™ Steel pipe bollard per specification.
2. MaxiForce™ Universal Base assembly per Blue Ember Technologies.
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 base and concrete base pier.



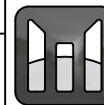
Installation Orientation

Protected Side



Attack Side

Drawing Rev. 1	Created 11/1/2010
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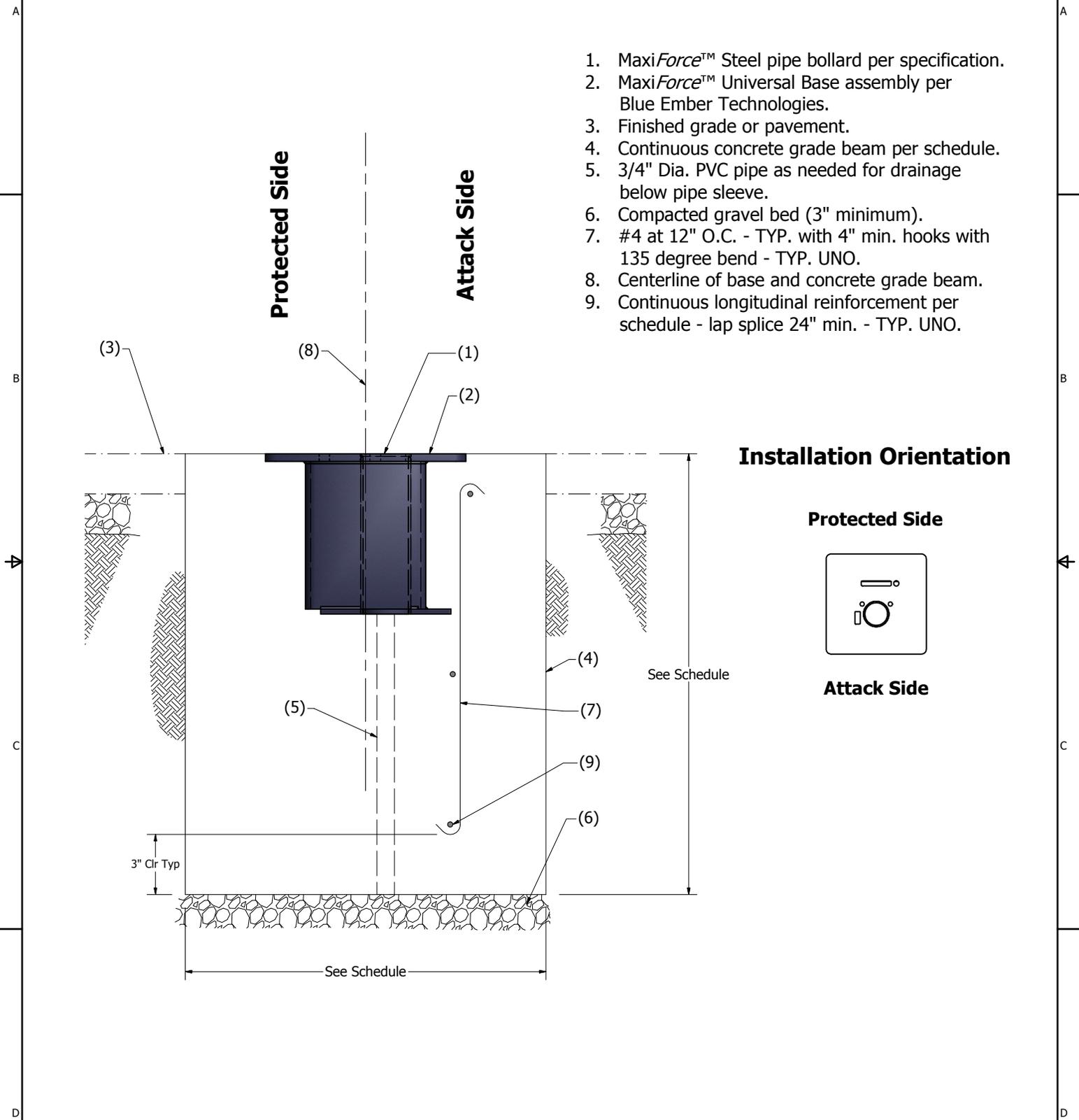


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Model	Universal Base Pier Footing		
Size	File Name	U Base Pier Footing	
C	Scale	NA	DO NOT SCALE DRAWING
			Sheet 1 Of 1

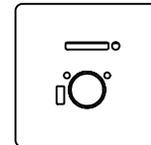
Engineered Anchorage System for the MaxiForce™ Universal Base Continuous Beam Footing

1. MaxiForce™ Steel pipe bollard per specification.
2. MaxiForce™ Universal Base assembly per Blue Ember Technologies.
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 base and concrete grade beam.
9. Continuous longitudinal reinforcement per schedule - lap splice 24" min. - TYP. UNO.



Installation Orientation

Protected Side



Attack Side

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Model	Universal Base Beam Footing	
Size C	File Name U Base Beam Footing	
Scale NA	DO NOT SCALE DRAWING	Sheet 1 Of 1