

# Instructions

Assembly  
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Operation

12/2009

## **Annapolis™ Embedded Bollard**

**HANDLE WITH CARE!** Pangard II® Polyester Powder coat is a strong, long-lasting finish. Protect this finish from damage during installation. Place unwrapped powder coated parts on packaging foam or other non-abrasive surface. Do not place or slide powder coated parts on concrete or other hard or abrasive surfaces – this will damage the finish causing rust to occur. Use touch-up paint to repair any finish abrasions.

**NOTE:** Landscape Forms is not responsible for site preparation or footings.

### **Procedure for installing embedded bollard with no light:**

1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be embedded (see Figure 1.)
2. Embed bollard tube in a concrete footing that meets local frost conditions (see Figures 2 and 3).
3. Clean concrete from bollard before it sets.
4. After concrete cures, assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in cast top.

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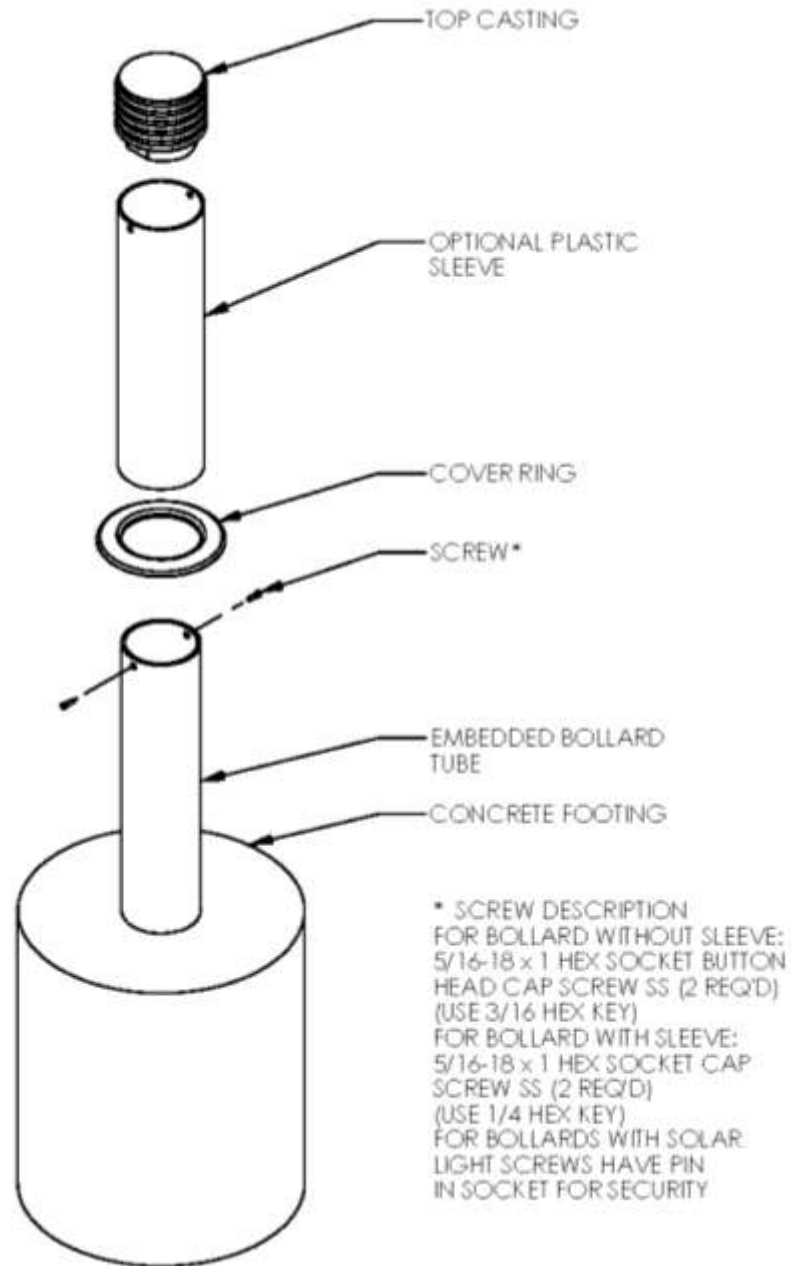
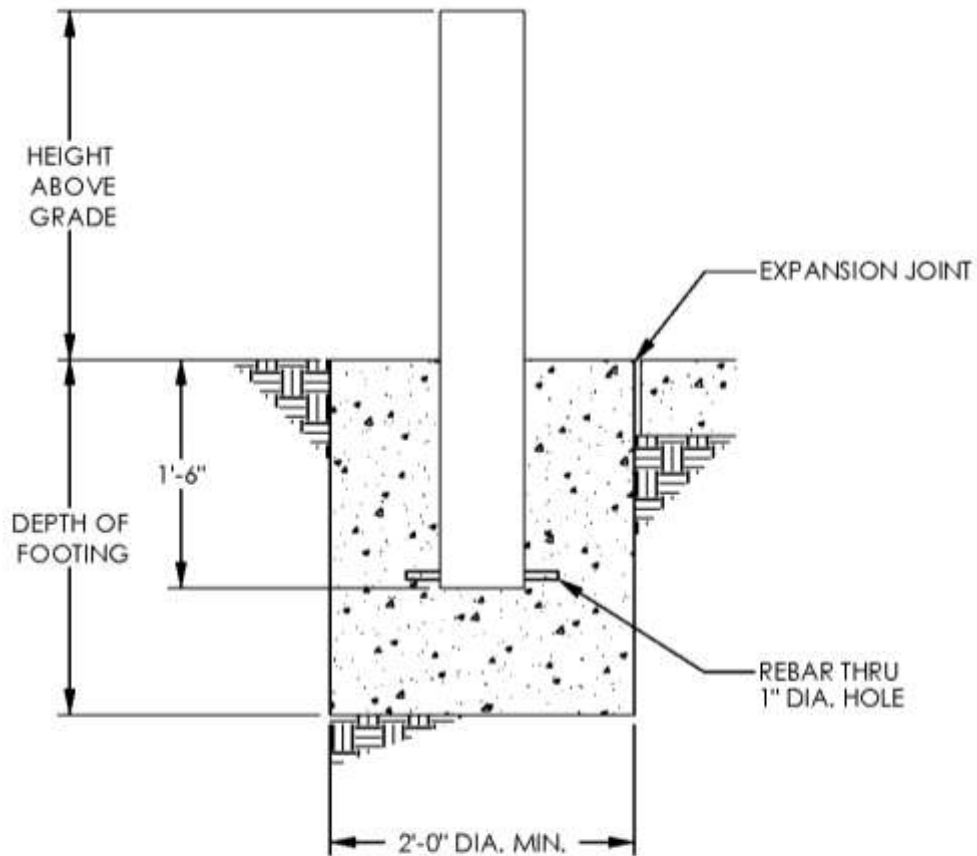


Figure 1.  
Embedded bollard assembly

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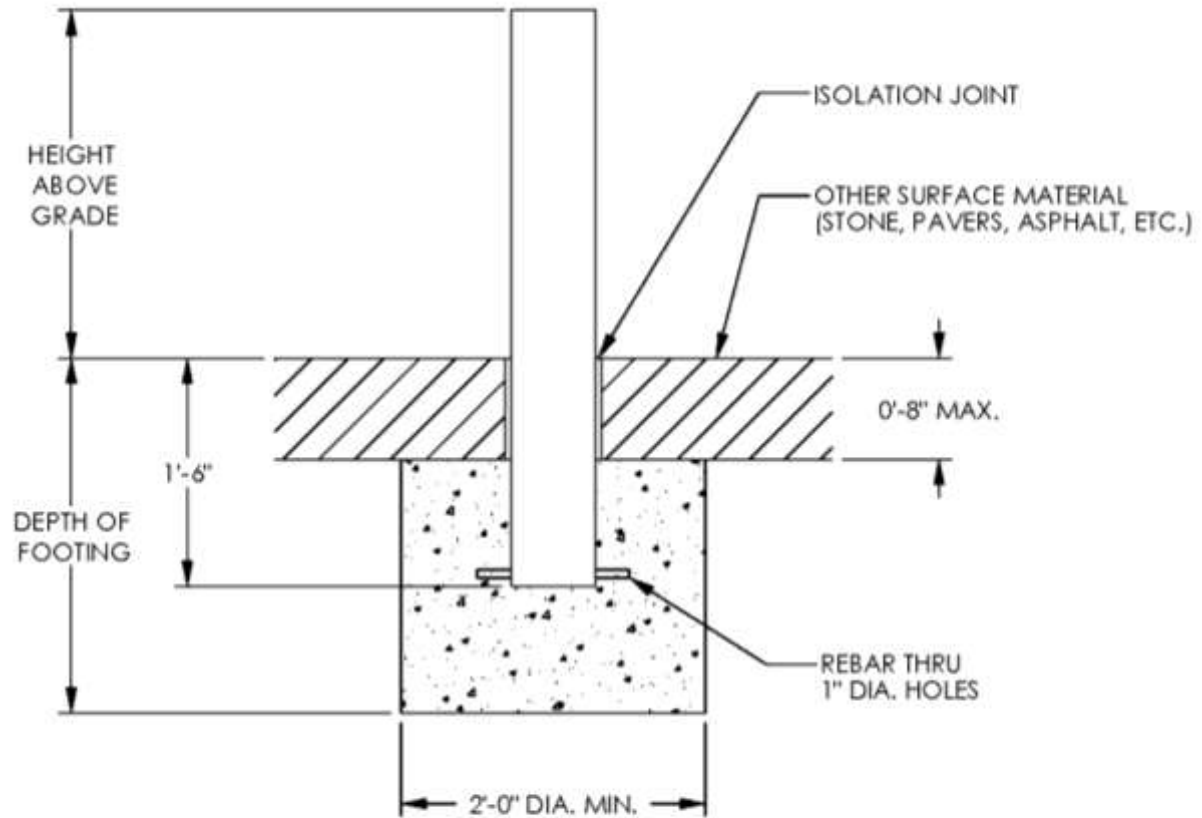


HEIGHT ABOVE GRADE: 2'-3 1/2" FOR 6" BOLLARD, 2'-3" FOR 12" BOLLARD  
DEPTH OF FOOTING: 2'-0" MIN. OR AS FROST CONDITIONS REQUIRE

Figure 2.  
Footing detail for embedded bollard with no light or with solar light

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HEIGHT ABOVE GRADE: 2'-3 1/2" FOR 6" BOLLARD, 2'-3" FOR 12" BOLLARD  
DEPTH OF FOOTING: 2'-0" MIN. OR AS FROST CONDITIONS REQUIRE

Figure 3.  
Alternate footing detail for embedded bollard with no light or with solar light

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## Procedure for installing embedded bollard with LED light:

1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be embedded (see Figure 1).
2. Embed bollard tube in a concrete footing that meets local frost conditions (see Figures 2, 3 and 4).

**CAUTION!** Fixtures and wiring must be installed in accordance with local codes and ordinances. Do not install lighted bollards within 10 feet of a pool, spa, or fountain.

3. Clean concrete from bollard before it sets.
4. After concrete cures, unpack LED fixture. Refer to light fixture manufacturer's instructions packed with fixture.
5. **WITH POWER OFF!** Connect LED fixture wires to supply wires using approved local electrical code standard wire connectors. Tuck excess wires into Bollard.
6. Attach LED fixture to fixture bracket with (2) #8-32 X ½" button head cap screws and tighten securely. Assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

**NOTE:** Procedure for replacing LED Light Fixture in bollards can be found on Page 6 & 7.

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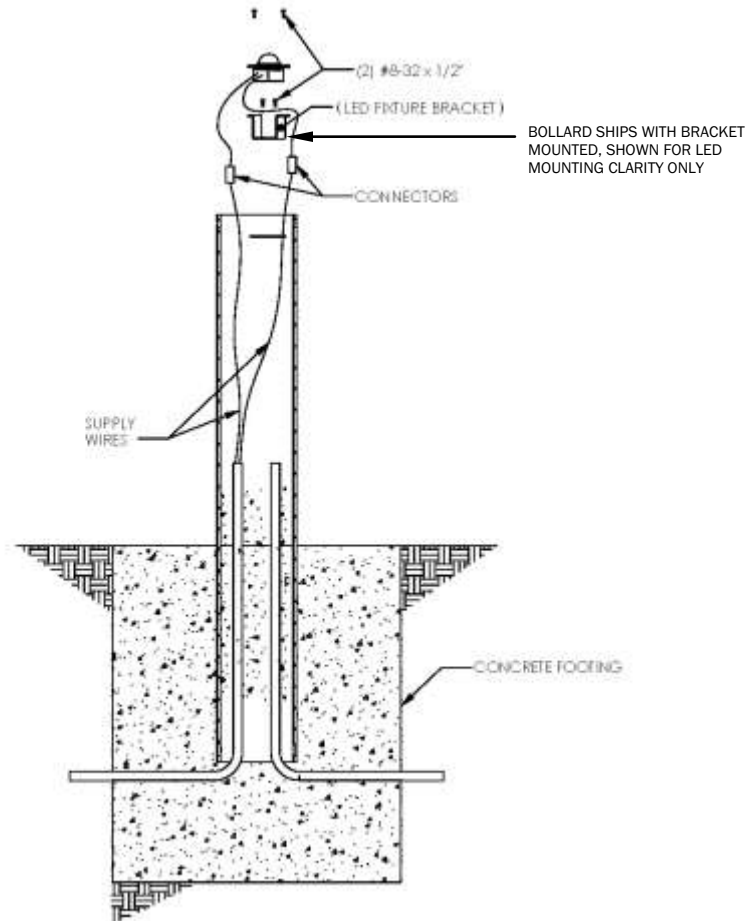


Figure 4.  
Assembly detail for bollard with LED light

## Procedure for Replacing LED Light fixture in Bollards:

**WARNING! TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS, TURN OFF POWER AND ALLOW FIXTURE TO COOL BEFORE REPLACING LAMP. DO NOT TOUCH HOT LAMP, LENS, OR ENCLOSURE.**

1. Remove two top retaining screws and top casting (see Figure 5).
2. Place top casting on a protected surface to keep from marking up surface finish.
3. Remove (2) #8-32 X 1/2" button head cap screws from LED light fixture.

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4. WITH POWER OFF! Disconnect wire connectors from LED fixture and reconnect new LED fixture to wires using approved local electrical code standard wire connectors
5. Tuck excess wires into Bollard and re-install (2) #8-32 X 1/2" button head cap screws to secure new LED light fixture.
6. Replace bollard top casting, and top retaining screws. Align holes in top casting with threaded holes for retaining screws. Top retaining screws should pass through holes in cast top.

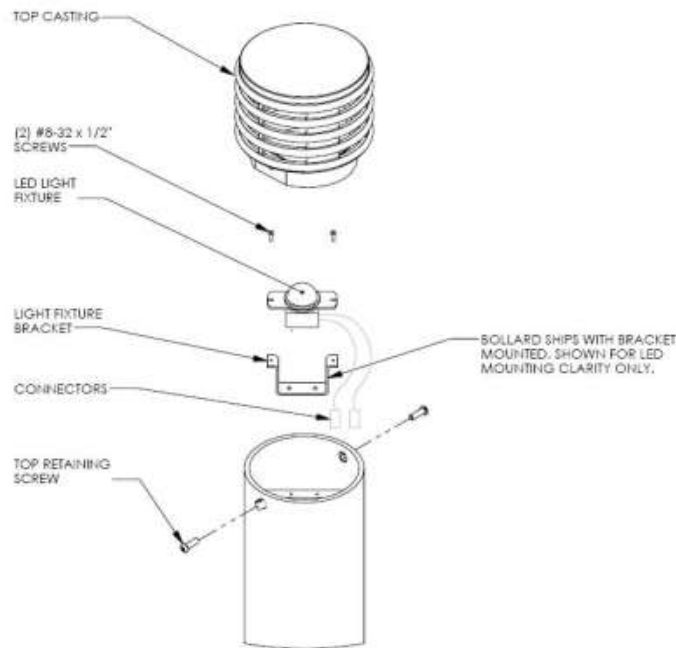


Figure 5.  
Replacing detail for LED light

## Procedure for installing embedded bollard with solar light:

**NOTE:** Locate bollard where solar light receives an average of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.

1. Remove top retaining screws, top casting with solar light and battery, optional plastic sleeve, and cover ring from bollard to be embedded (see Figure 1). Solar light and battery remain attached to top casting with wing nuts.

**NOTE:** Solar bollards are shipped with a hex key for security screws. Do not connect battery wire until step 5.

2. Embed bollard tube in a concrete footing that meets local frost conditions (see Figures 2 and 3).

3. Clean concrete from bollard before it sets.

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4. After concrete cures, assemble cover ring and optional sleeve.
5. Connect red battery wire to red (positive) battery terminal (see figure 6).
6. Assemble top casting with solar light and battery to the bollard tube. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

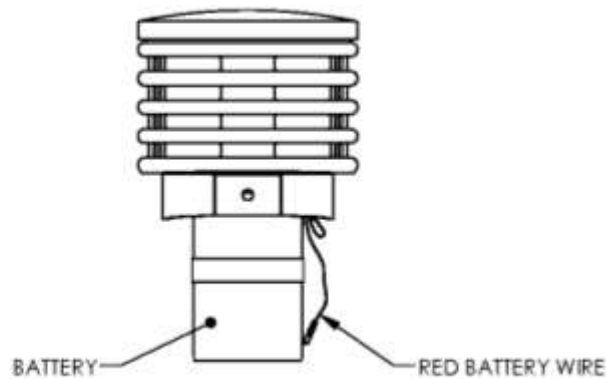


Figure 6. Battery connection

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## **Annapolis™ Removable Bollard**

**HANDLE WITH CARE!** Pangard II® Polyester Powder coat is a strong, long-lasting finish. Protect this finish from damage during installation. Place unwrapped powder coated parts on packaging foam or other non-abrasive surface. Do not place or slide powder coated parts on concrete or other hard or abrasive surfaces – this will damage the finish causing rust to occur. Use touch-up paint to repair any finish abrasions.

**NOTE:** Landscape Forms is not responsible for site preparation, footings, or drainage.

**NOTE:** Bollards with the solar powered light option should be located where they will receive an average of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar light is not suitable for installation at latitudes greater than 50 degrees.

### **Procedure for embedding the removable bollard socket:**

1. Excavate for socket footing and install drain (see Figure 1). Depth of socket is 1'-6". Depth of footing is 2'-0" minimum, or as frost conditions require.
2. Before pouring concrete, make sure the factory installed tape covers outside of hole near upper end of socket. Make sure lower end of socket is sealed to prevent concrete from entering. PVC cap may be cut to fit drain connection.

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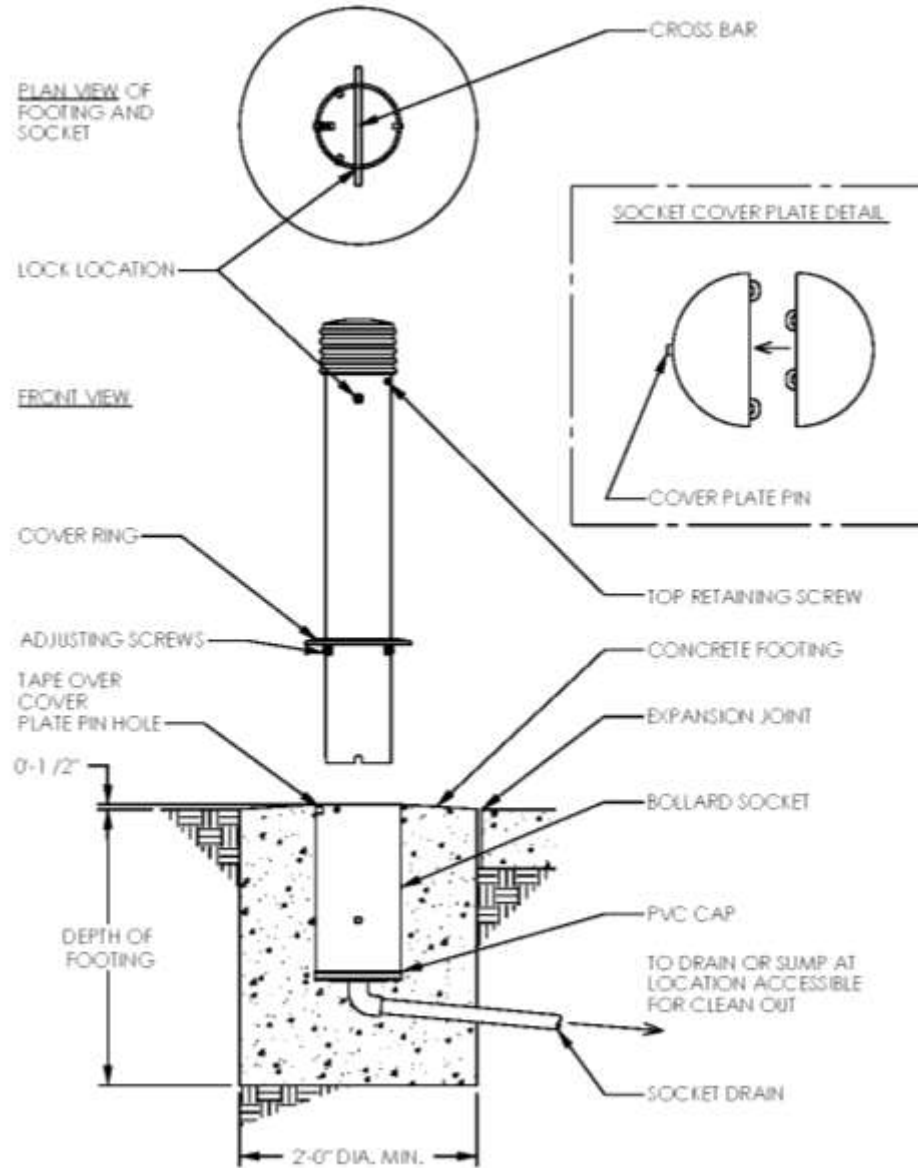


Figure 1.  
Removable bollard socket installation

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## Procedure for installing removable bollards:

1. Remove socket cover plate and separate halves. (*Hint: use a flat blade screwdriver to pry up edge opposite cover plate pin.*)
2. Store socket cover plate below cross bar inside socket.
3. Use key to open bollard latch (key horizontal). Remove key.
4. Position bollard near socket and align 3 slots in bollard with bars in socket.

**WARNING! TO AVOID INJURY TO PERSONS HANDLING BOLLARD, USE TWO PERSONS TO TEAM LIFT AND CARRY BOLLARD.** Weight of bollard is 75 lbs.

5. Ease bollard into socket. Twist until bars fit into slots.

**CAUTION:** Dropping bollard into socket may damage bollard or socket.

6. Adjusting screws may be used to adjust fit between bollard and socket. Be sure locknuts are tight.
7. Use key to close latch (key will be vertical). Remove key.
8. Pull up on bollard to insure latch is engaged.

## Procedure for removing removable bollards:

1. Use key to open latch (key will be horizontal). Remove key.
2. Carefully lift bollard out of socket and store on surface that will not damage finish.

**WARNING! TO AVOID INJURY TO PERSONS HANDLING BOLLARD, USE TWO PERSONS TO TEAM LIFT AND CARRY BOLLARD.** Weight of bollard is 75 lbs.

3. Retrieve socket cover plate halves from bottom of socket.
4. Place cover plate half with pin into socket (see Figure 6). Place second half into socket.

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## Procedure for activating solar light:

The solar light should not be activated until the bollard is ready to be installed where it will receive required exposure to sunlight.

1. Use security hex key provided to remove top retaining screws (see Figure 1).
2. Lift top casting with solar light and battery out of bollard tube.
3. Connect red battery wire to red (positive) battery terminal (see Figure 2).
4. Assemble top casting with solar light and battery to the bollard tube. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

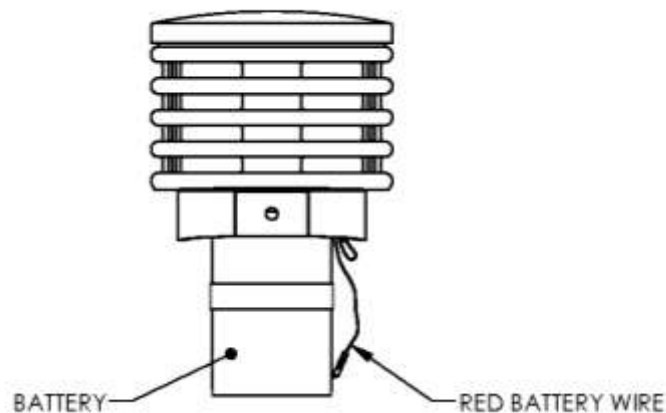


Figure 2.  
Battery connection

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## Annapolis™ Bollard Solar Light Retrofit Top

**LOCATION:** The solar light requires an average of 4 hours of direct sunlight per day. Exposure during the middle of the day is best. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.

**COMPATIBILITY:** The solar retrofit top can replace the top casting on any 6" Annapolis bollard, except embedded bollards filled with concrete. Annapolis bollards with low voltage lighting must be modified to accept the retrofit top (refer to the procedure on page 2).

**HANDLE WITH CARE!** Pangard II® Polyester Powder coat is a strong, long-lasting finish. Protect this finish from damage during installation. Place unwrapped powder coated parts on packaging foam or other non-abrasive surface. Do not place or slide powder coated parts on concrete or other hard or abrasive surfaces – this will damage the finish causing corrosion to occur. Use touch-up paint to repair any finish abrasions.

### Recommended procedure for installing solar light retrofit top:

1. Remove two top retaining screws.
2. Lift top casting out of bollard tube. This aluminum item should be recycled, if possible.
3. Connect red battery wire to red (positive) battery terminal (see Figure 1).
4. Place retrofit top with solar light and battery on the bollard tube.
5. Align holes in top casting and optional sleeve with threaded holes for retaining screws. Use security screws provided with retrofit top and special hex key to fasten top casting to bollard tube. Retaining screws should pass through holes in top casting.

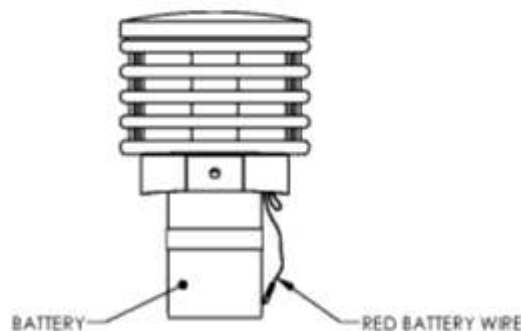


Figure 1 - Battery connection

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## Recommended procedure for modifying bollards with Halogen low voltage lighting: (Sold Prior to 5/2009)

**WARNING!** TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS, TURN OFF POWER AND ALLOW FIXTURE TO COOL BEFORE PROCEEDING.

**WIRING OPTIONS:** Bollards selected for conversion to solar lighting can be modified without disconnecting power to other bollards on a low voltage circuit.

1. Remove two top retaining screws.
2. Lift top casting out of bollard tube. This aluminum item should be recycled, if possible.
3. Cut the fixture wire and seal the end of the wire on the supply side with a suitable insulating product (see Figure 2).
4. Remove the light fixture sleeve by cutting two steel straps that support the sleeve. Bend remaining parts of the steel straps downward so they are close to the bollard wall.

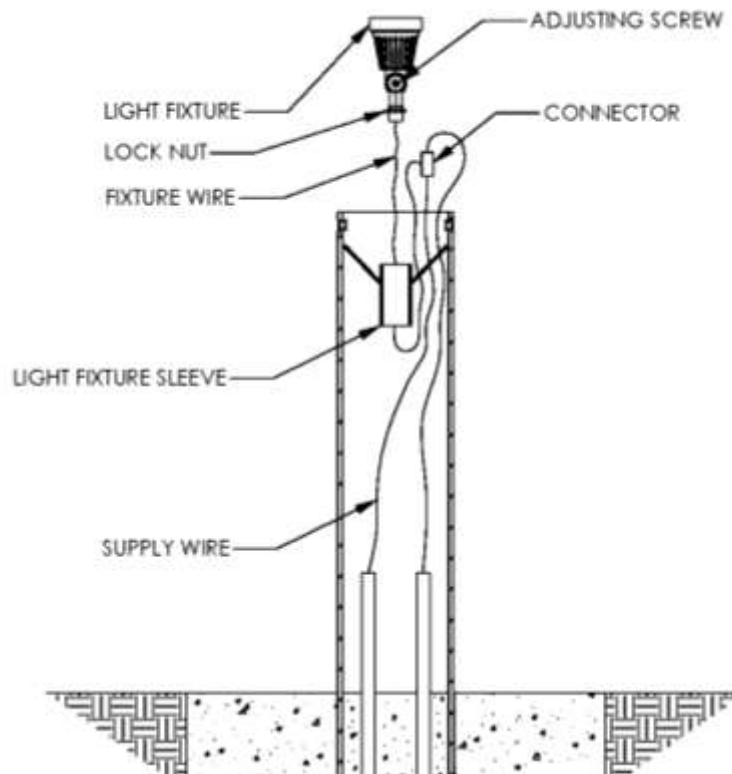


Figure 2. - Modifying low voltage lighting

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## **Annapolis™ Surface Mount Bollard**

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**NOTE:** Landscape Forms is not responsible for site preparation, footings, or electrical wiring.

### **Procedure for installing surface mount bollard with no light:**

Anchoring hardware and installation are the responsibility of the installer. The surface mount bollard has a 3/8" thick mounting plate that can accept 4 anchors up to 1/2" thread size. If stud anchors are used, select an anchor length that allows the stud to extend 1" above the mounting surface.

1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be mounted (see Figure 1).
2. Place bollard in the desired position and mark hole locations.
3. Move bollard to allow access for drilling holes.
4. Install the bollard and anchors according to the anchor manufacturer's instructions. We recommend stainless steel anchor hardware.
5. Assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

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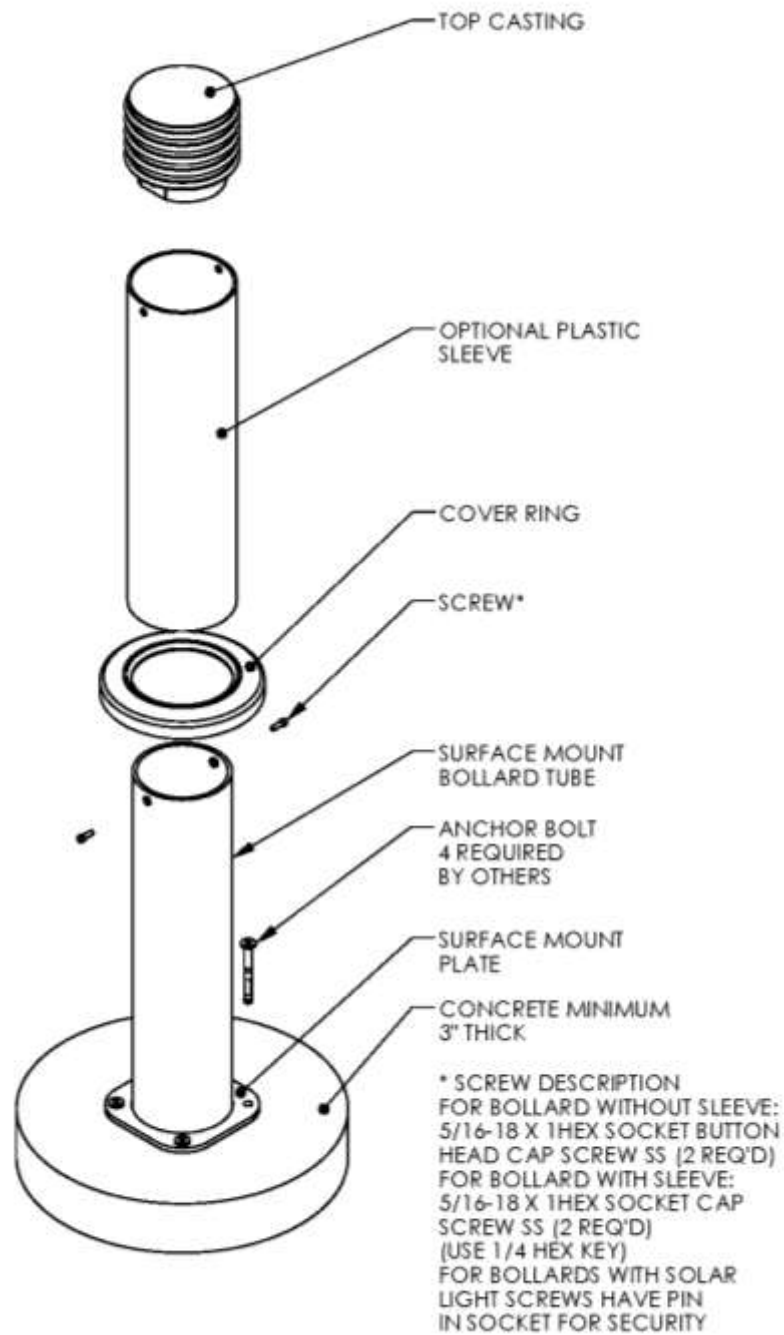


Figure 1.  
Surface mount bollard assembly

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## Procedure for installing surface mount bollard with LED light:

Anchoring hardware, wiring, and installation are the responsibility of the installer. The surface mount bollard has a 3/8" thick mounting plate that can accept 4 anchors up to 1/2" thread size. If stud anchors are used, select an anchor length that allows the stud to extend 1" above the mounting surface.

**CAUTION!** Fixtures and wiring must be installed in accordance with local codes and ordinances. Bollard LED light fixtures are intended for use with low voltage landscape lighting systems. Do not install lighted bollards within 10 feet of a pool, spa, or fountain.

1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be mounted (see Figure 1).
2. Place bollard in the desired position and mark hole locations.
3. Move bollard to allow access for drilling holes.
4. Install the bollard and anchors according to the anchor manufacturer's instructions.
5. Unpack LED light fixture. Refer to light fixture manufacturer's instructions packed with fixture.
6. **WITH POWER OFF**, connect fixture wires to supply wires using approved local electrical code standard connectors.
7. Attach LED light assembly to LED mounting bracket with two 8-32 X 1/2" socket head button head cap screws, tighten securely.
8. Feed fixture wire into Bollard, (see Figure 2) and using two 8-32 X 1/2" button head cap screws attach LED light Assembly to retainer bracket, tighten securely.
9. Assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

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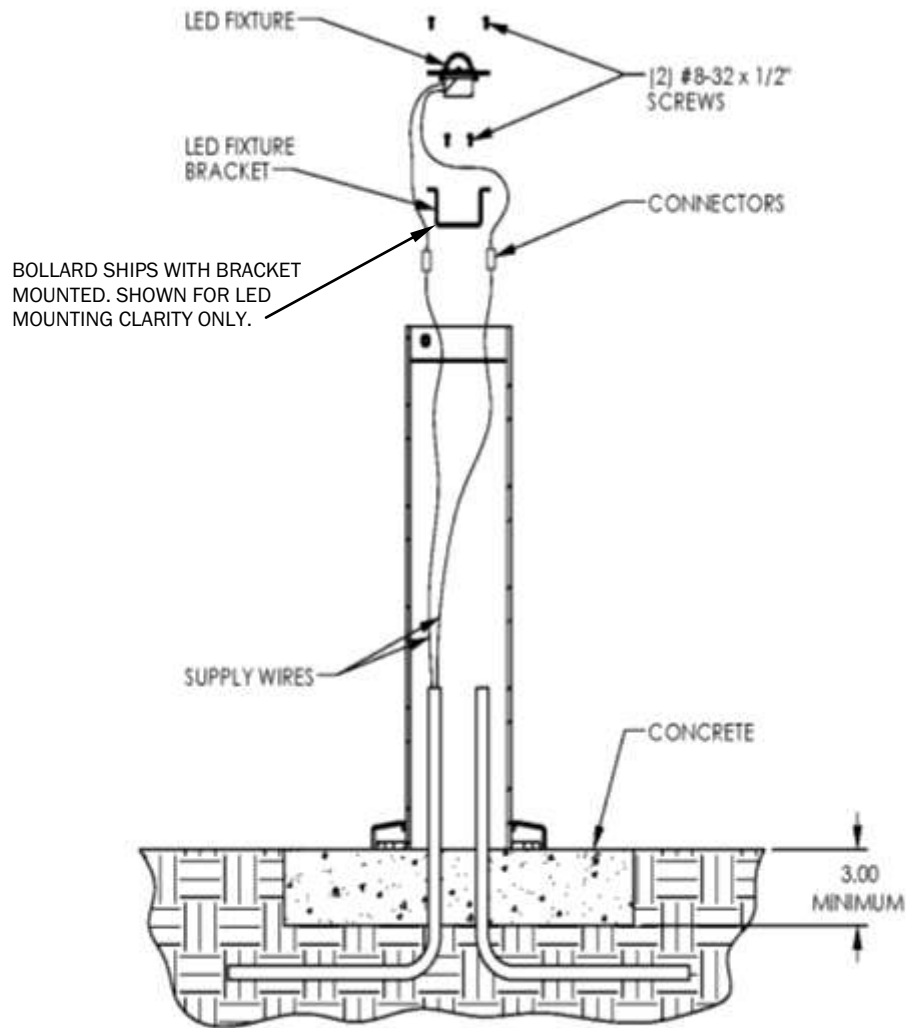


Figure 2.  
Surface mount bollard with LED light wiring detail

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## Procedure for replacing LED lights:

**WARNING!** TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS, TURN OFF POWER AND ALLOW FIXTURE TO COOL BEFORE REPLACING LAMP. DO NOT TOUCH HOT LAMP, LENS, OR ENCLOSURE.

1. Remove two top retaining screws and top casting (see Figure 3).
2. Unscrew LED light fixture from light bracket holder, grasp LED light and wires, pull out sufficient wire to expose wiring connections. Disconnect wiring connections and set LED light aside.
3. Re-connect new LED light fixture to wiring leads and tuck excess wires into Bollard.
4. Re-install LED light fixture to mounting bracket with two 8-32 X 1/2" button head cap screws.
5. Replace fixture cap and lower fixture into light fixture sleeve. Replace bollard top casting, and top retaining screws. Align holes in top casting with threaded holes for retaining screws. Top retaining screws should pass through holes in cast top

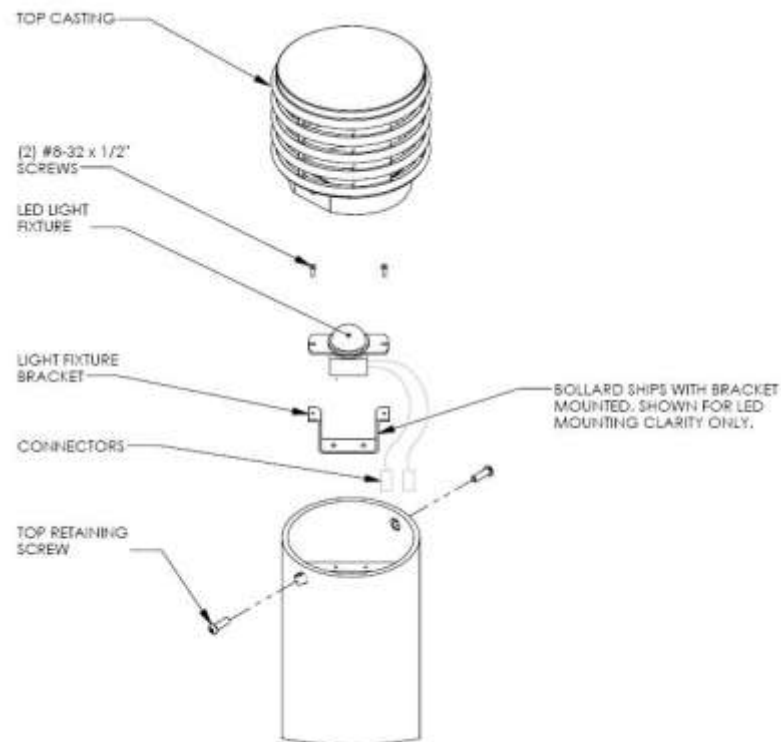


Figure 3.  
Replacing detail for LED light

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## Procedure for installing surface mount bollard with solar light:

Anchoring hardware and installation are the responsibility of the installer. The surface mount bollard has a 3/8" thick mounting plate that can accept 4 anchors up to 1/2" thread size. If stud anchors are used, select an anchor length that allows the stud to extend 1" above the mounting surface.

**NOTE:** Locate bollard where solar light receives an average of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.

1. Remove top retaining screws, top casting with solar light and battery, optional plastic sleeve, and cover ring from bollard to be mounted (see Figure 1). Solar light and battery remain attached to top casting with wing nuts.

**NOTE:** Solar bollards are shipped with a hex key for security screws. Do not connect battery wire until step 6.

2. Place bollard in the desired position and mark hole locations.
3. Move bollard to allow access for drilling holes.
4. Install the bollard and anchors according to the anchor manufacturer's instructions. We recommend stainless steel anchor hardware.
5. Assemble cover ring and optional sleeve.
6. Connect red battery wire to red (positive) terminal (see Figure 4).
7. Assemble top casting with solar light and battery to the bollard tube. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

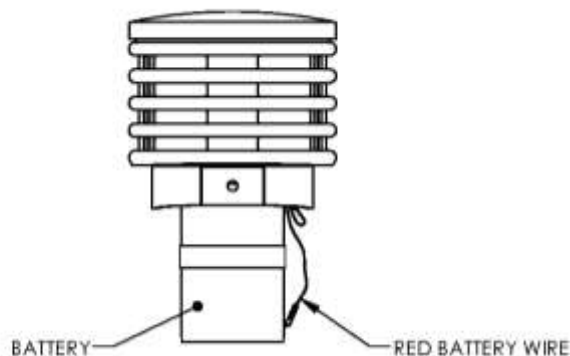


Figure 4.  
Battery connection