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Reliance Foundry is an award-winning supplier of high quality stock and custom-designed site furnishings

for architectural, traffic management, and industrial applications. Reliance Foundry brings over 90 years of expertise to the design and manufacturing of our products.

Reliance Foundry bollards add architectural accents to your perimeter security, landscaping, traffic control, and streetscape projects. Use bollards as design features for new and existing buildings, and as decorative covers over steel security posts. This section includes solar-powered light bollards.

Specification Coordination: Edit this guide specification to meet project requirements. Coordinate with other specification sections as required. If using more than one bollard type, use the same designation in both drawings and specifications. Display hidden text to see or print notes to specifier.

Drawing Coordination: Show locations, sizes, layout, and spacing of each type of bollard required. Show footing and security post details, if required. Soft metric conversion is provided for all measurements.

**SECTION 32 39 13.17**

**SOLAR-POWERED LED LIGHT BOLLARDS**

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Solar-powered light bollards.

Accessories

[\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_]

Edit following to coordinate with other specification sections in project.

* + - * 1. Related Requirements:

[Division 03 Sections: [Concrete] [Mortar] fill for security posts.]

[Division 08 Sections: Padlocks.]

[\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_]

Edit below to include only reference standards used in project.

* + - 1. REFERENCE STANDARDS
				1. ASTM A36 – Standard Specification for Carbon Structural Steel.
				2. ASTM A312 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
				3. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
				4. ASTM A536 – Standard Specification for Ductile Iron Castings.
				5. ASTM B26 – Standard Specification for Aluminum-Alloy Sand Castings.
				6. CE Mark – Manufacturer’s declaration of compliance with European Union Low Voltage Directive 2006/95/EC.
				7. RoHS – Directive 2002/95/EC on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment.
			2. SUBMITTALS
				1. Comply with Section [01 33 00 – Submittal Procedures.] [\_\_\_\_\_\_\_\_\_.]
				2. Product Data: Provide for each type of bollard, component, finish, and accessory specified.
				3. Color Samples: [Submit manufacturer’s standard colors for selection.] [Submit sample of color specified.]
				4. Setting Drawings: Show embedded items and cutouts required for work specified in other Sections.
				5. Maintenance Data: Submit manufacturer’s field touch-up, cleaning, and maintenance instructions.
				6. Warranty Documentation: Submit sample of manufacturer’s warranty.
			3. QUALITY ASSURANCE
				1. Comply with Section [01 43 00 – Quality Assurance.] [\_\_\_\_\_\_\_\_\_.]
			4. DELIVERY, STORAGE AND HANDLING
				1. Comply with Section [01 66 00 – Product Storage and Handling Requirements.] [\_\_\_\_\_\_\_\_\_.]
				2. Protect bollards and accessories during delivery, storage, and handling.
			5. WARRANTY
				1. Comply with Section [01 78 36 – Warranties.] [\_\_\_\_\_\_\_\_\_.]
				2. Provide manufacturer’s standard warranty against defects in materials and workmanship.

Warranty Period: Five years from date of invoice, except as otherwise indicated.

Coatings: Two years, against peeling, cracking, or significant color change.

Solar-Powered Lighting System: Three years.

1. PRODUCTS
	* + 1. MANUFACTURERS
				1. Manufacturer: Reliance Foundry Co. Ltd.

Phone: 604-547-0460 or 1-877-789-3245

Fax: 604-590-8875

Website: <http://www.reliance-foundry.com/bollard>

Email: info@reliance-foundry.com

* + - * 1. Substitutions: [Comply with provisions of [Section 01 25 00 "Substitution Procedures"] [\_\_\_\_\_\_\_\_\_] for substitution procedures.] [Not allowed.]
			1. SOLAR-POWERED LIGHT BOLLARDS

See [www.reliance-foundry.com/bollard/solar-powered-lighting-bollard-options](http://www.reliance-foundry.com/bollard/solar-powered-lighting-bollard-options) for more information about choosing the best solar-powered lighting system for your bollards.

* + - * 1. Solar Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-9811.**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 6 inches (15.2 cm) base

Weight: 51 lbs. (23 kg)

Design: Cylindrical with decorative lighted cap.

Material: ASTM A36 steel base; Aluminum cap

Solar Light Cap: Self-contained LED fixture with solar module.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Security post cover, new post.

Security post cover, existing post, adhesive.

* + - * 1. Solar Bike Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-9811-B.**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 6 inches (15.2 cm) base

Weight: 56 lbs. (25.4 kg)

Design: Cylindrical with decorative lighted cap and bike arms.

Material: ASTM A36 steel base; Aluminum cap.

Solar Light Cap: Self-contained LED fixture with solar cell.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Security post cover, new post.

Security post cover, existing post, adhesive.

* + - * 1. Solar Bike Bollard [Designer’s Designation]:

Model: Reliance Foundry; **Model R-9811-FL-B**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 9 1/8 inches (23.2 cm) base

Weight: 60 lbs. (27.2 kg)

Design: Cylindrical with flanged base and decorative lighted cap and bike arms.

Material: ASTM A36 steel base; Aluminum cap.

Solar Light Cap: Self-contained LED fixture with solar cell.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Fixed, existing concrete, flanged.

Security post cover, new post

Security post cover, existing post, adhesive.

Removable, new concrete, anchor.

Removable, existing concrete, insert.

Removable, new concrete, premium retractable.

* + - * 1. Solar Bollard [Designer’s Designation]:

Model: Reliance Foundry; **Model R-9811-FL**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 9.1 inches (23.2 cm) base

Weight: 55 lbs. (24.9 kg)

Design: Cylindrical with flanged base and decorative lighted cap.

Material: ASTM A36 steel base; Aluminum cap.

Solar Light Cap: Self-contained LED fixture with solar cell.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Fixed, existing concrete, flanged.

Security post cover, new post

Security post cover, existing post, adhesive.

Removable, new concrete, anchor.

Removable, existing concrete, insert.

Removable, new concrete, premium retractable.

* + - * 1. Solar Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-9812.**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 6 inches (15.2 cm) base

Weight: 51 lbs. (23 kg)

Design: Cylindrical with decorative lighted cap.

Material: ASTM A36 steel base; Aluminum cap

Solar Light Cap: Self-contained LED fixture with solar module.

Country of Origin: Canada.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Security post cover, new post.

Security post cover, existing post, adhesive.

* + - * 1. Solar Bollard [Designer’s Designation]:

Model: Reliance Foundry; **Model R-9812-FL**

Height: 36 inches (91.4 cm)

Diameter: 6 inches (15.2 cm) body; 9.1 inches (23.2 cm) base

Weight: 55 lbs. (24.9 kg)

Design: Cylindrical with flanged base and decorative lighted cap.

Material: ASTM A36 steel base; Aluminum cap.

Solar Light Cap: Self-contained LED fixture with solar cell.

Country of Origin: Canada.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi-gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Fixed, existing concrete, flanged.

Security post cover, new post

Retain paragraph below with any solar-powered lighting bollard above. Paragraph assumes solar-powered light fixtures will be the same on all types of bollards specified. If lighting options vary by location or bollard type, add requirements to this article or schedule in Drawings.

Solar fixtures are also available for maintenance of existing solar bollards or for retrofitting or customizing bollards without solar light fixtures. Contact Reliance Foundry for assistance.

* + - 1. ACCESSORIES

Retain following if specified bollards require security posts.

Retain the following if specified bollards require security posts.

* + - * 1. Security Post: Steel pipe, ASTM A500, Grade B.

Manufacturer: Reliance Foundry Co. Ltd.

Country of Origin: United States.

Finish: [Red][Grey] primer.

Installation:

Direct embed.

Footing and fill; Concrete or mortar, [3000 psi minimum.]

Retain following if chains draped between metal bollards or bicycle bollards are required. In Drawings, show locations where chain is required, quick-release and padlock locations, and drape of chain.

* + - * 1. Chain:

Chain: 5/16-inch galvanized steel chain, Grade 30, [quick-release connections.]

Provide sufficient lengths to provide drape [shown on Drawings.] [acceptable to Architect.]

Chain Eye: 5/16-inch diameter steel.

Quick Links: Powder coated chain links with barrel nut closures.

Finish: Powder coated to match bollard finish. [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.]

Retain padlock for removable bollards with padlock hasps and for chains with padlocks.

* + - * 1. Padlock:

[Brass] [Marine Grade], supplied [supplied by bollard manufacturer] [as specified in Section [\_\_ \_\_ \_\_]]. [Key alike.]

* + - * 1. Solar Battery: E-Cell 6 Volt/8Amp replacement battery.

Recharged by solar cell.

Type: Pure lead, spiral wound, absorbed glass mat (AGM).

Normally select first option below. For an additional charge, batteries with high ambient temperature ratings are available.

Operating Ambient Temperature: [Standard, 140º F (60º C)] [High, 176º F (80º C)].

Battery Recycling Program: EnerSys, [www.enersys.com](http://www.enersys.com).

* + - * 1. Solar-Powered Light Fixture: First Light Technologies Ltd.

Lamp: Three high-output Cree light-emitting diodes (LEDs); 50,000 hours L70 lifetime.

Typical Total Output: 160 lumens.

Maximum Total Output: 260 lumens at full power.

Solar Module: High-efficiency mono-crystalline cells, encapsulated in high impact, UV resistant polycarbonate.

Housing: Cast aluminum, alloy AA356.0-F. Minimum 50 percent recycled-material content; minimum 99 percent recyclable material content.

Housing Fasteners: Tamper-resistant.

Safety Standards:

CE Mark.

Compliant with RoHS.

LED Color Temperature: [Warm White, 3000K] [Neutral White, 4500K] [Cool White, 5500K].

See [www.reliance-foundry.com](http://www.reliance-foundry.com/) for photometric charts for optics options below.

Lighting Distribution: [ASM, Pathway Lighting] [SYM, General Area Lighting].

Lighting Programs: Self-contained energy-management micro-controller, using solar cell input to track site lighting patterns and adjust light output. Provide factory pre-set lighting program:

Select one program below, coordinated with Owner’s security and lighting requirements. If Owner’s requirements are not determined, retain multiple programs and select during submittal process.

[Program 1: On at dusk, dim to 30 percent after 5 hours; full illumination 1 hour before dawn, off at dawn.]

[Program 2: On at dusk, off at dawn.]

[Program 3: On at dusk, off after 6 hours.]

[Program 4: On at dusk, dim to 30 percent after 6 hours, off at dawn.]

[Program 5: On at dusk, off after 5 hours; on 1 hour before dawn, off at dawn.]

[One of above programs, as selected by Owner via Submittal.]

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine paving or other substrates for compliance with manufacturer’s requirements for placement and location of embedded items, condition of substrate, and other conditions affecting installation of bollards.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. INSTALLATION
				1. General: Comply with manufacturer’s installation instructions and setting drawings.
				2. Do not install damaged, cracked, chipped, deformed or marred bollards. Field touch-up minor imperfections in accordance with manufacturer’s instructions. Replace bollards that cannot be field repaired.
			3. CLEANING & PROTECTION

Normal cleaning may be done with clean water and a soft cloth. Detailed cleaning and inspection instructions are available at [www.reliance-foundry.com/bollard/maintenance-bollards](http://www.reliance-foundry.com/bollard/maintenance-bollards).

* + - * 1. Protect bollards against damage.
				2. Immediately prior to Substantial Completion, clean bollards in accordance with manufacturer’s instructions to remove dust, dirt, adhesives, and other foreign materials.
				3. Touch up damaged finishes according to manufacturer’s instructions.
			1. CLOSEOUT ACTIVITIES
				1. Provide executed warranty.

END OF SECTION

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Issued April 2018. Subject to change.