Department of Design and Construction	SPECIFICATION BULLETIN	SB 23-002

Title: **PIPE BOLLARD**

Prepared:	Approved:
Digitally signed by Richard Jones, PE CWI CDT 4/27/2023	How Sheen Pau, P.E. Digitally signed by How Sheen Pau, P.E. Date: 2023.04.27 09:13:35 -04'00' 4/27/2023
Richard Jones, P.E. CWI CDT Date Executive Director, Specifications	How Sheen Pau, P.E. Date Associate Commissioner – Infrastructure Design

APPLICABILITY:

- This Specification Bulletin (SB) is effective for projects advertised on or after 5/8/2023.

SUPERSEDENCE:

- This SB supersedes the following SBs: **None.**

ATTACHMENTS:

1. *Section 7.08 (5 pages)*

REVISIONS TO THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION STANDARD HIGHWAY SPECIFICATIONS, DATED 5/16/2022:

All references contained below are to the New York City Department of Transportation Standard Highway Specifications, Dated May 16, 2022. Said Standard Highway Specifications are hereby revised as follows:

a) **Add** the new Section 7.08 – Pipe Bollard, Cover Protected

For questions regarding this bulletin, please contact Richard Jones, jonesri@ddc.nyc.gov.

7.08. Pipe Bollard, Cover Protected

7.08.1. DESCRIPTION.

Under these items, the Contractor must furnish and install cover protected pipe bollards certified for low-speed vehicle impact, in accordance with the Contract Drawings or Work Orders, the specifications, and directions of the Engineer.

7.08.2. MATERIALS.

(A) Pipe bollard protective cover.

1. The pipe bollard protective cover should be as shown on sketch 7.08-1A titled “PIPE BOLLARD PROTECTIVE COVER”

(B) Concrete for bollard foundation and sidewalk pavement restoration.

Concrete for bollard foundations and hollow pipe bollard cores must comply with the requirements of **Section 3.05**, Concrete, class B-32.

Where the adjoining sidewalk is pigmented, the final cured concrete for pavement restoration must also be pigmented to match in color. Pigmenting must comply with the requirements of **Section 4.13**. No additional payment will be made for the cost of pigmenting the concrete for pavement restoration.

(C) Steel for solid pipe bollard cores must comply with the requirements of **Section 2.35** and the requirements of ASTM Designation A36. Steel for hollow pipe bollard cores must comply with the requirements of **Section 2.35** and the requirements of ASTM Designation A500 grade C. Steel must be thoroughly cleaned and primed in accordance with the requirements of **Section 2.13.4**.

(D) Steel bars for concrete reinforcement must comply with the requirements of **Section 2.23** and the requirements of ASTM Designation A615, unless otherwise specified by the manufacturer.

(E) Standoffs, sleeves, or energy damper bushings must comply with manufacturer’s requirements, as approved by the Engineer.

(F) Sub grade and soil stabilization materials must be either unslaked lime or cement in accordance with the requirements of **Section 6.95**.

(G) Fill And backfill materials must comply with the requirements for Select Granular Fill in accordance with **Section 4.11**.

(H) Sidewalk expansion joints must comply with the requirements of **Section 2.15**, Type IV.

7.08.3. CERTIFICATION RATING.

The Contractor must furnish pipe bollards that are ASTM F3016/F3016M-19 low-speed vehicle impact certified by the manufacture.

Each pipe bollard must comply with one of the impact condition designations indicated in Table 7.08-I, and must be installed where specified in the Contract Drawings or Work Orders.

Table 7.08-I – ASTM F3016/F3016M-19 Impact Condition Designations

Impact Speed Rating	Surrogate Test Vehicle Weight (pounds)	Nominal Minimum Test Speed (miles per hour)	Permissible Speed Range (miles per hour)
S10	5000 ± 110	10	9 to 18.9

7.08.4. METHODS.

(A) Delivery, Storage, And Handling.

Stored pipe bollards must be protected from the elements with a covering, waterproof and ventilated to avoid condensation. The Contractor must protect all steel from corrosion, deformation, and other damage during delivery, storage, and handling. Pipe bollards must be stored on platforms or pallets sloped to provide drainage. Pipe bollards must be stored in the manufacturer's original packaging, or a packaging of equal or greater strength and integrity.

(B) Excavation.

All excavation and backfilling work required for the installation of pipe bollard foundations, including the removal of curbs, sidewalks, pavement, and other materials necessary to complete the Work in accordance with the Contract Drawings or Work Orders, must be made to dimensions sufficient to accommodate the installation of pipe bollard foundation materials, and must be done in accordance with the requirements of **Section 6.02**, and the requirements herein. Pipe bollards must not be installed within 36 inches of any portion of gas mains and appurtenances, shallow (less than four (4') feet) water mains and appurtenances, electrical conduits and duct banks, and communication conduits and duct banks.

Where directed, the Contractor must either saw-cut or core-drill the existing concrete sidewalk to facilitate installation of pipe bollards, while at the same time minimizing the impact on existing sidewalk, as directed by the Engineer. When saw-cutting, the Contractor must saw-cut along existing score lines and other partial sidewalk flags, or slab locations. All work must be done in a safe, neat, competent, and efficient manner to cause the least possible damage to streets, sidewalks, and other infrastructure, to the satisfaction of the Engineer. All saw-cutting and core-drilling must be done with water to prevent dust. Saw-cutting or core-drilling must be for the full depth of sound concrete, granite slab, or bluestone sidewalk, to the top of the underlying sidewalk foundation. The saw-cut must be straight and vertical with sharp edges. The core-drill must be vertical with sharp edges. No saw-cutting, core-drilling or encroachment into adjacent sidewalk flags, panels or slabs will be permitted. Any property damage caused by the excavations must be repaired at the Contractor's expense to the satisfaction of the Engineer.

Excavation for bollard foundation must not exceed 42 inches below sidewalk grade. Excavations for bollard foundation must be carefully conducted to approach the neat lines of the bollard foundation as closely as possible without disturbing the underlying soil; hand excavation must be used within the last twelve (12") inches, using augers, clamshell diggers, pickaxes, hand-held shovels, and any other approved hand-held tools. No forms will be permitted as the concrete must be placed directly against the undisturbed sides of the excavation. If an exception to this is necessary due to poor soil conditions, an alternate method must be used, such as flowable fill, as

approved by the Engineer, at no separate cost. Any unsuitable material must be removed and replaced with acceptable material thoroughly compacted.

The excavation of ledge rock and boulders must comply with the requirements of **Section 4.11**.

(C) Installation.

The Contractor must prepare the site for installation, laying out in accordance with the Contract Drawings or Work Orders the placement of pipe bollards to the satisfaction of the Engineer. Where a pipe bollard, or bollard foundation, or both, are required to be installed in a particular orientation to resist vehicle impact loads, such orientation will be indicated on the Contract Drawings, and Contractor must indicate the orientation on the site layout to the satisfaction of the Engineer.

Pipe bollards must be installed in accordance with the Manufacture's installation instructions as approved by the Engineer, and the requirements herein. Concrete bollard foundation for pipe bollards must not be placed during periods of rainfall.

(D) Pavement Restoration.

Where the adjoining sidewalk material is concrete, the permanent restoration of sidewalk pavement must conform to the requirements of **Section 4.13**, and the requirements herein, including the installation of expansion joints to isolate the bollard foundation from the adjoining concrete sidewalk pavement. Where existing adjoining concrete sidewalk pavement is pigmented, the top six (6") inches of bollard foundation must be pigmented to match the adjoining concrete sidewalk pavement to the satisfaction of the Engineer.

Where the adjoining sidewalk material is granite block paver, concrete paver, bluestone flags, asphalt block pavers, or brick pavers, the permanent restoration of sidewalk pavement adjoining the bollard foundation must conform to the requirements of **Section 6.06**, **Section 6.07**, **Section 6.60**, or **Section 6.66**, as directed by the engineer. Expansion joint is not required between the bollard foundation and sidewalk material that is not concrete flags.

The top surface of the bollard foundation must be pitched away from the pipe bollard steel core, at a slope of ten (10) horizontal to one (1) vertical, to a nominal horizontal distance of two (2") inches away from the protective cover of the pipe bollard or to the pipe bollard foundation expansion joint, whichever distance is closest to the protective cover of the pipe bollard.

7.08.5. SUBMITTALS.

All submittals must comply with **Section 1.06.13** and in accordance with the following requirements:

(A) Certifications and Catalog Cuts: The Contractor must submit for approval, the pipe bollard manufacturers' catalog, supporting literature, detail drawings, and accredited independent testing laboratory certification for ASTM impact speed ratings.

(B) Shop Drawings: Before the Work is started, the Contractor must submit shop drawings for approval.

(C) The Contractor must submit digital photographs in a format approved by the Engineer, of the following views:

1. Site conditions prior to pipe bollard layout;

2. Site view with mark-out of bollard locations, rod or tape measure evidence of minimum foundation depth;
3. Clear view (top-down) of excavated subgrade for bollard foundation;
4. Final site view with installed pipe bollards and restored sidewalk pavement.

7.08.6. MEASUREMENTS.

The quantity measured for payment will be the number of Pipe Bollards, Cover Protected installed in accordance with the specifications, in accordance with the Contract Drawings or Work Orders, and to the satisfaction of the Engineer.

7.08.7. PRICE TO COVER.

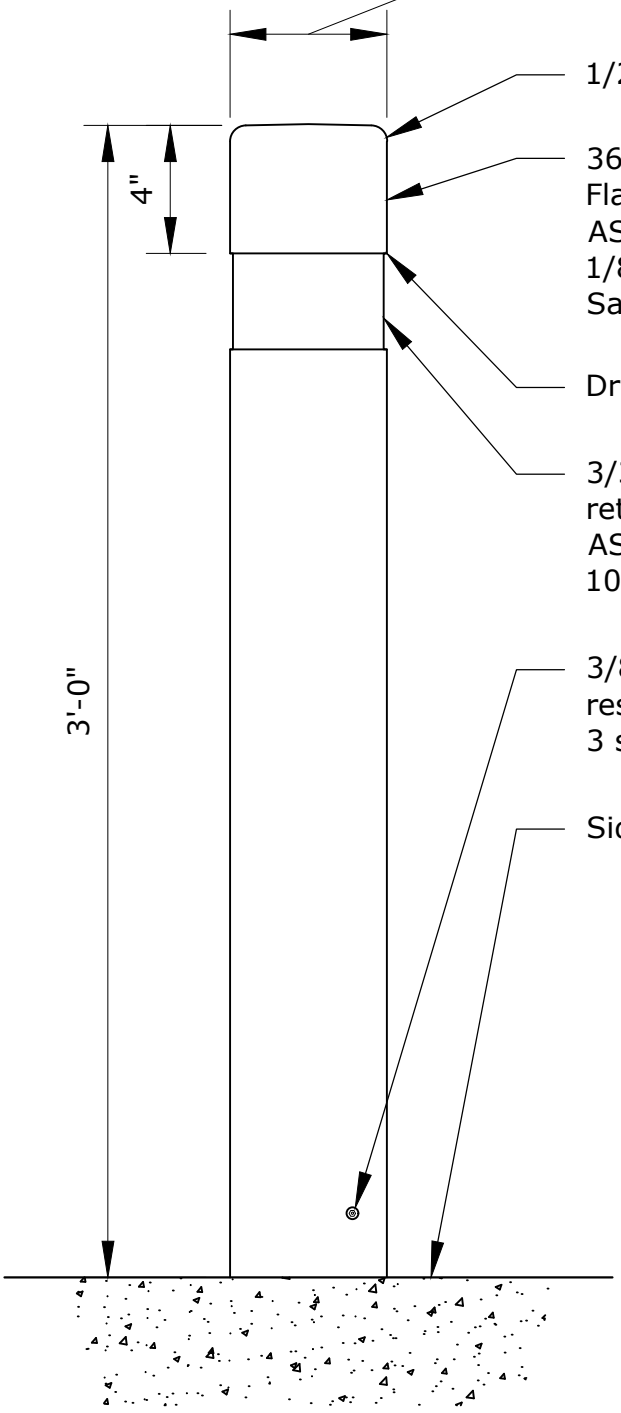
The unit price bid for each Pipe Bollard, Cover Protected, of each ASTM certified impact speed rating, retroreflective option, and protective cover type, must cover the cost of all labor, materials, equipment, insurance, and accessories necessary to furnish and install approved protective cover pipe bollard complete with pavement and sub grade excavation and removals, bollard foundation installation, sawcutting, coring, backfill, sidewalk pavement restoration, as specified, all in accordance with the Contract Drawings or Work Orders, the specifications, and the directions of the Engineer.

No separate payment will be made for unclassified excavation and removal of sidewalk pavement and subbase material. Removal of encountered boulders and ledge rock will be paid for under item 4.11 – Excavation and Filling. The cost of unclassified excavation and removal of sidewalk pavement and subbase material, and hand excavation will be deemed included in the price bid for the pipe bollard item.

No separate payment will be made for saw-cutting or core-drilling existing sidewalk. No separate payment will be made for the restoration and reconstruction of excavated sidewalk pavement. The cost of either saw-cutting or core-drilling existing sidewalk, and the cost of sidewalk pavement reconstruction will be deemed included in the price bid for the pipe bollard item.

Payment will be made under:

Item No.	Item	Pay Unit
7.08 AR	S10 RATED PIPE BOLLARD WITH RETROREFLECTIVE TAPE ON PROTECTIVE COVER	EACH
7.08 ARL	S10 RATED PIPE BOLLARD WITH RETROREFLECTIVE TAPE ON PROTECTIVE LANDMARK COVER	EACH



Diameter as per manufacturer,
narrow profile preferred

1/2" bullnose radius

36" protective bollard cover,
Flat top (1:48 radial pitch from center),
ASTM A312 Stainless Steel, Grade TP 316,
1/8" min. wall thickness,
Satin #6 buffed finish

Drip groove at top recess edge

3/32" recess wtih optional white or yellow 3" retroreflective tape,
ASTM D4956-19 type VIII compliant,
10 year outdoor rated, aggressive adhesion

3/8" min. stainless steel socket set tamper resistant security machine screw bolt,
3 screws equidistant 120° around

Sidewalk grade

Notes:

1. Bollard offset from face of curb: 18" min. between intersections, 36" min. at intersections, corner quadrants, and driveways.
2. 4' min. clear space between bollards.
3. Prior to installing decorative sleeve, surface of pipe cleaned of debris.

CITY OF NEW YORK
DEPARTMENT OF
TRANSPORTATION

PIPE BOLLARD PROTECTIVE COVER

Drawn by:	NS
Checked by:	RW
Approved by:	NP
Scale:	2" = 1'-0"
Date:	10/11/2022

Sketch:

7.08-1A