

# NYCT All Electric Bus Pilot Program

Prototypical Charging Equipment  
Williamsburg Bridge Plaza Upgrade

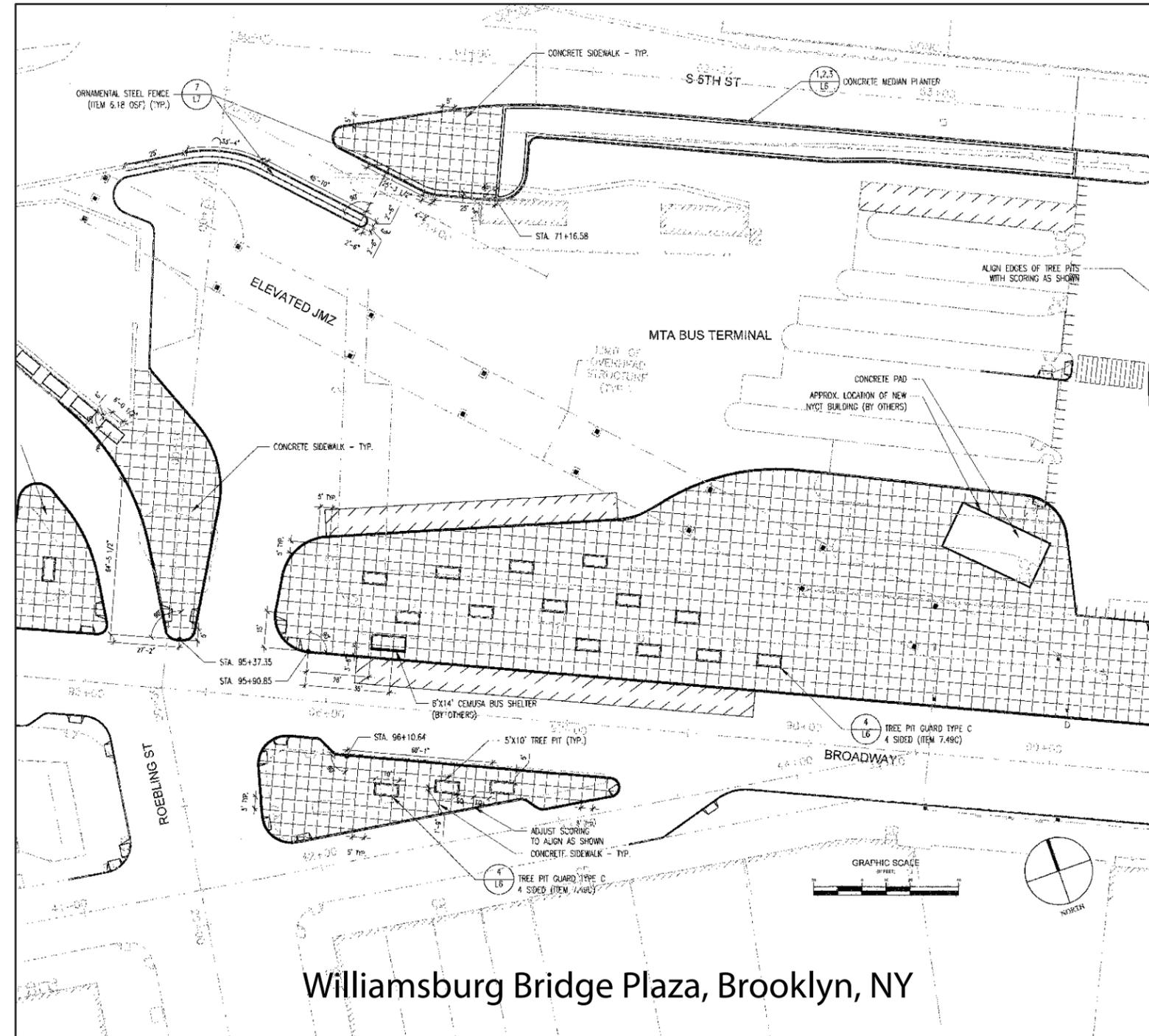
Public Design Commission Hearing  
December 13th, 2021



# Project Site: Williamsburg Bridge Plaza, Brooklyn, NY



LOCATION PLAN - BOROUGH SCALE



Williamsburg Bridge Plaza, Brooklyn, NY

LOCATION PLAN - NEIGHBORHOOD SCALE



## Problems with Existing Mast and Charging Equipment: Proterra



- The existing Proterra system was built to a proprietary standard that works exclusively with Proterra busses of that vintage. It was initially leased to NYCT as part of a pilot program.
- Since the original installation, the SAE (Society of Automotive Engineers) has implemented the widely adopted standard J3105/1 which dictates recommended practices for automated connection to electric vehicles, with a pantograph.
- Currently, all charging equipment manufacturers have adopted this standard (including Proterra) and Proterra no longer supports their proprietary equipment. The Proterra equipment is functionally obsolete.
- The new mast and chargers will be compliant with SAE-J3105/1 and will work seamlessly with all electric buses manufactured for North American markets.

# Existing Bus Charging Equipment: Protterra Mast



# Proposed ABB Mast Upgrade: Simulation A



# Existing Bus Charging Equipment: Proterra Mast



# Proposed ABB Mast Upgrade: Simulation B



# Proposed ABB Mast Upgrade: Simulation C



# Proposed ABB Mast Upgrade: Simulation D



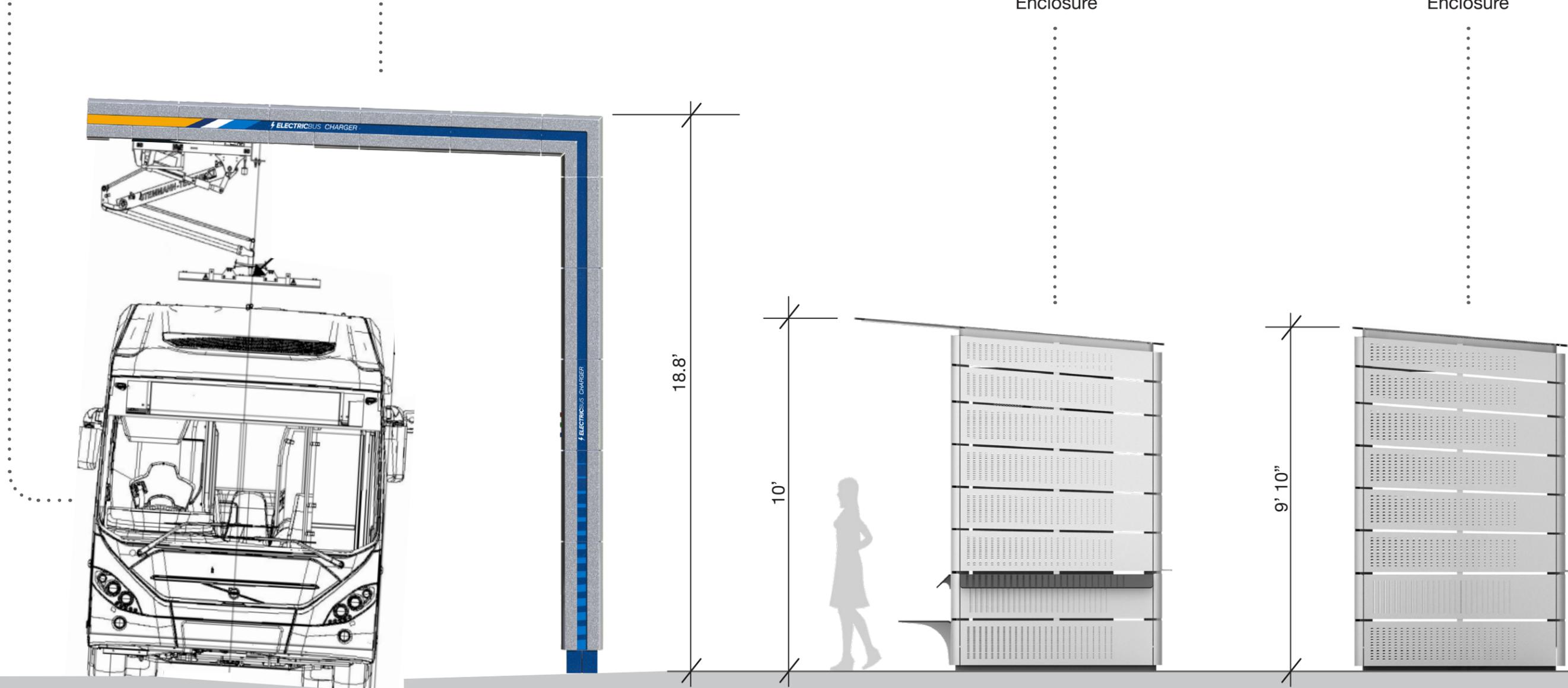
# Proposed ABB Mast Upgrade: Coordination with existing enclosure design

Electric Bus

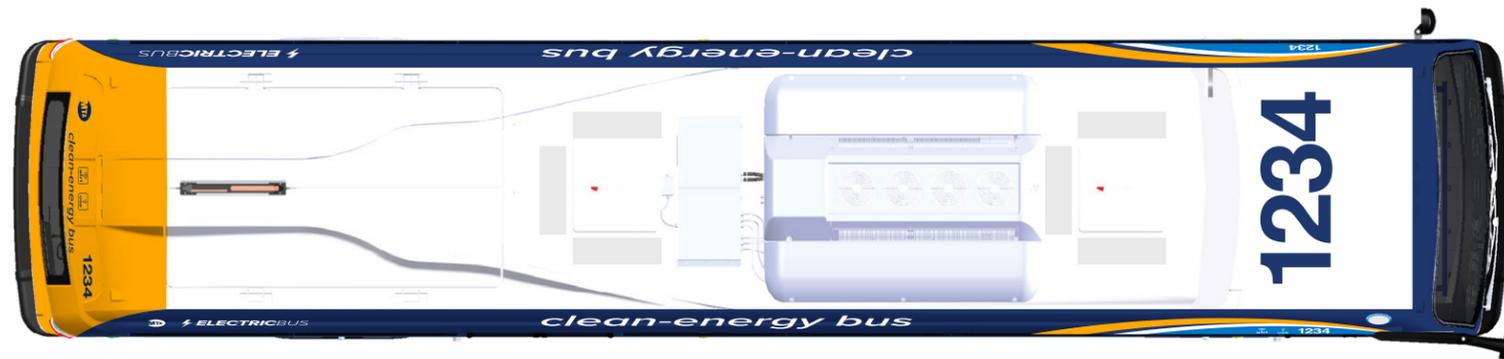
Overhead Charger

Charger and Compressor Enclosure

Switch Boards and Transformer Enclosure

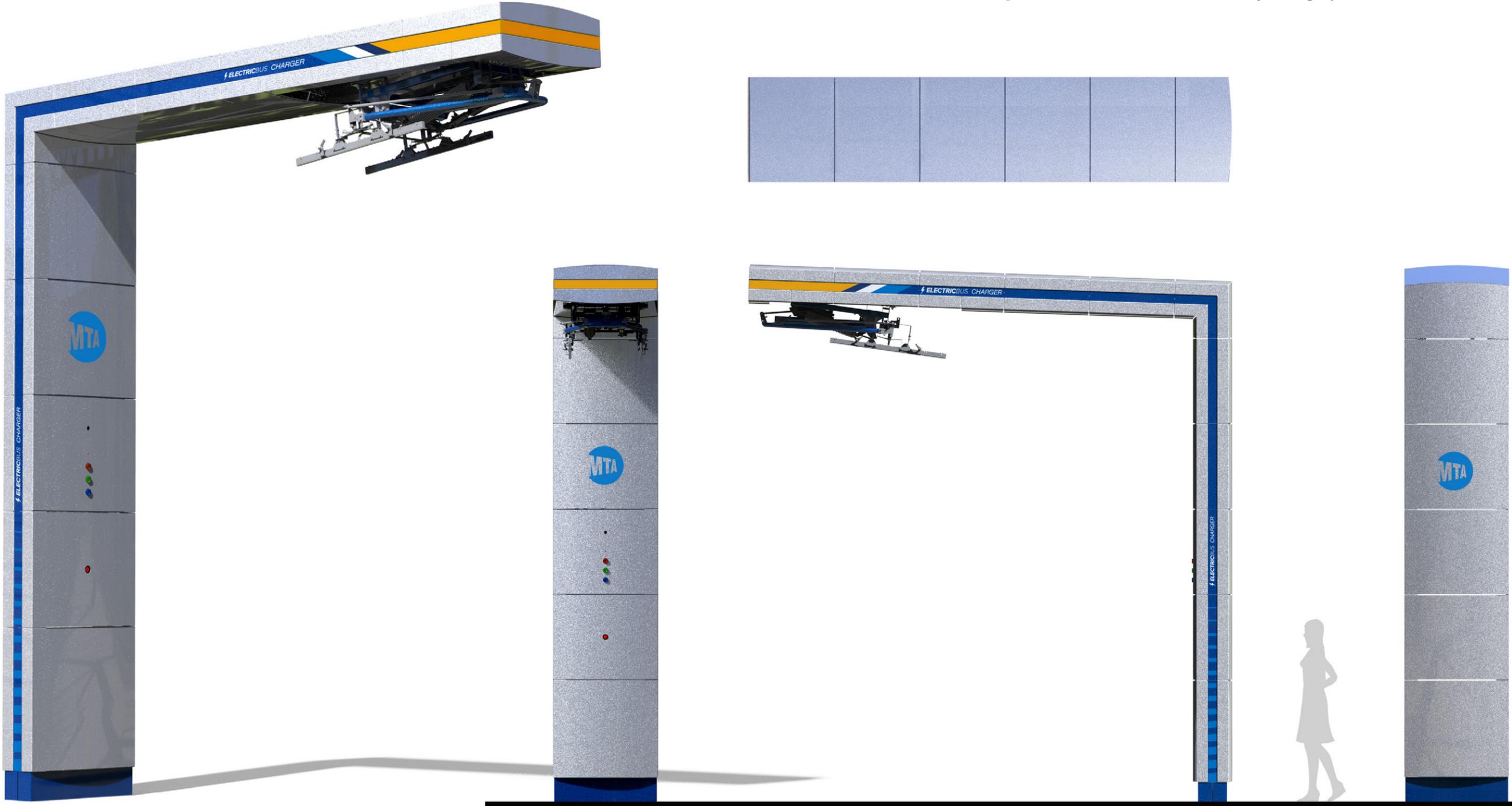


# All Electric Bus: Mast graphics inspiration

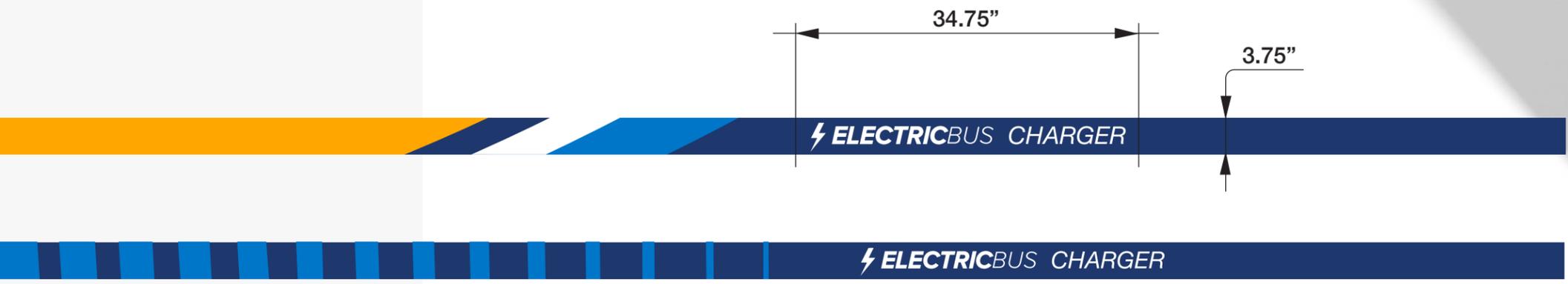


# Proposed ABB Mast Upgrade: Renderings, Finishes & Graphics

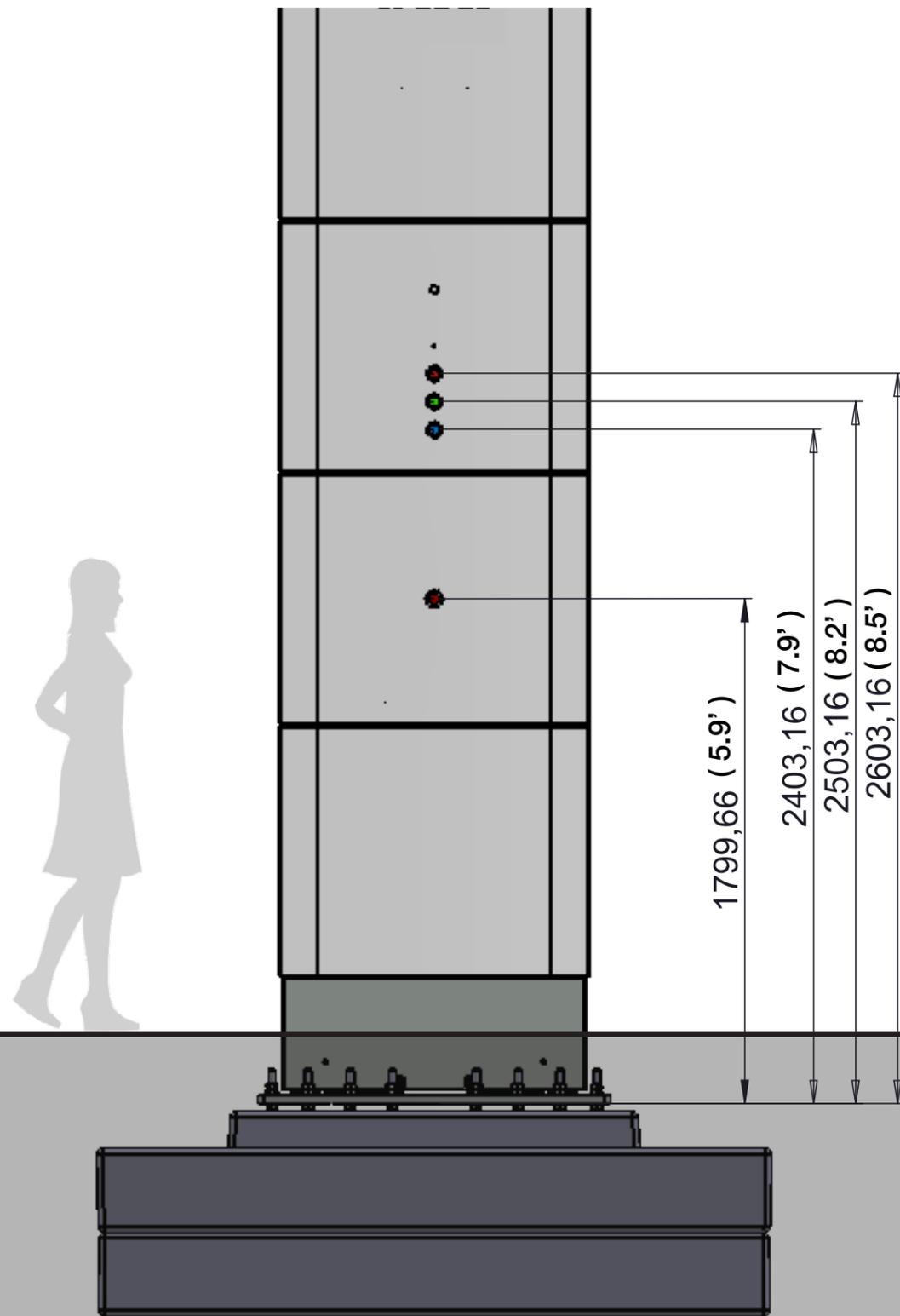
**Finishes**  
**Mast Body: Silver:** Powder-Coat: Protech PK612S3 (to match existing enclosures)  
**Blue Band & Skirt:** Powder-Coat: RAL to match Pantone 288 C  
**MTA: Light Blue, Yellow and White:** Vinyl-cut graphics



# Proposed ABB Mast: Graphics



# Proposed ABB Mast: Interface

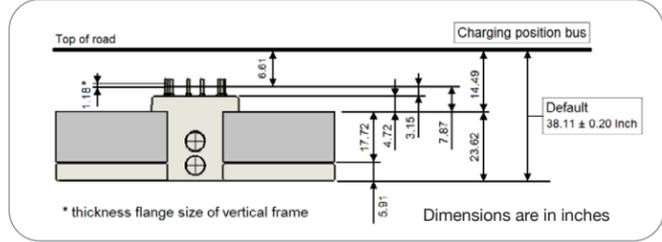
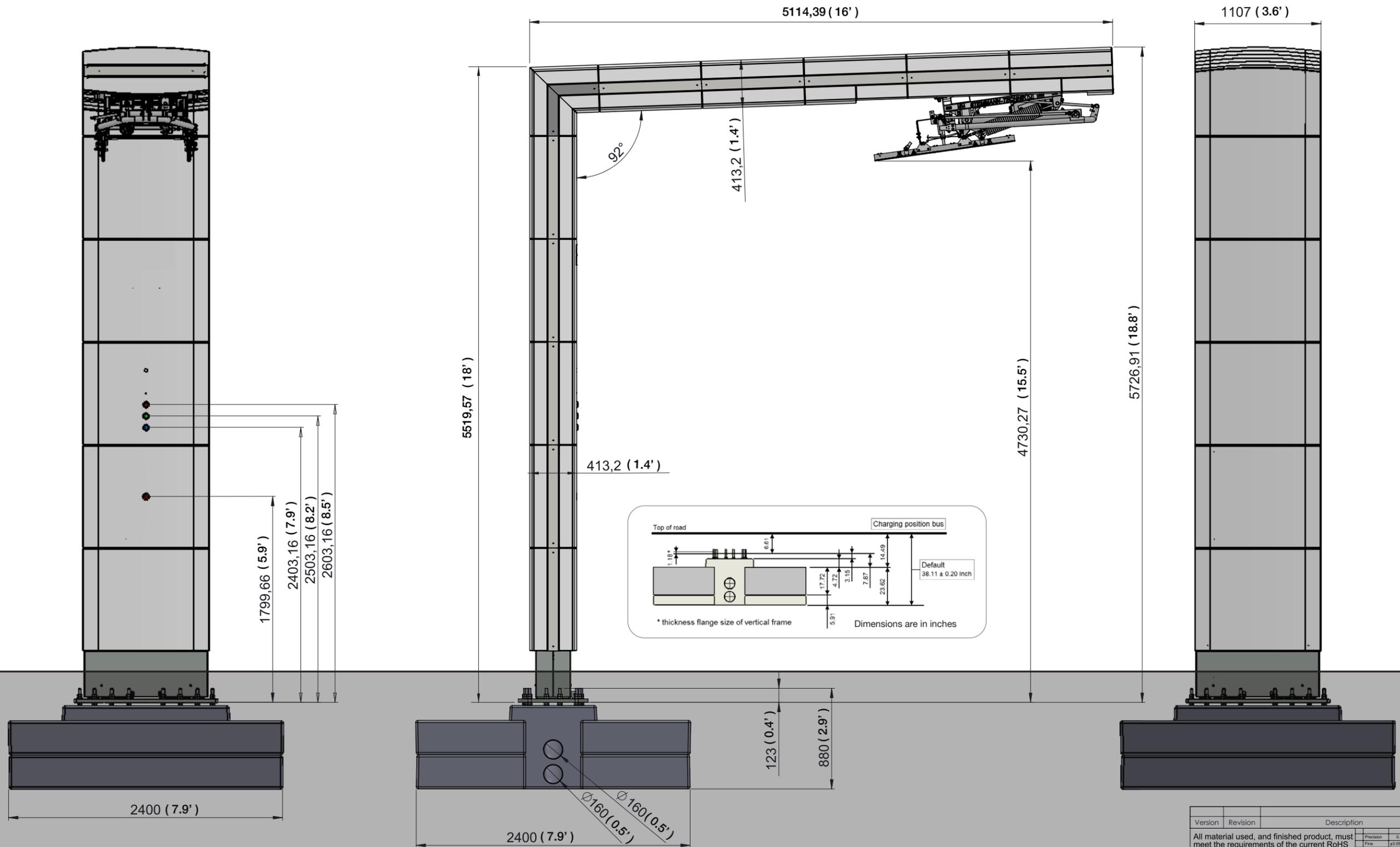


## Charge state indicator lights

State	Charge status
Continuous	Error
Continuous Blinking	Ready to charge Initializing
Continuous Blinking	Charge complete Charging

Emergency stop button (EMO)

# Proposed ABB Mast: Dimensions & Foundation



Dimensions are in Millimeters and ( Feet )

- Product must meet cosmetic standard requirements (Category A, B or C) specified in ABB Cosmetic standards procedure C02-QAM-001-2.
  - Supplier's inspection must comply FAI procedure C04-QAM-002-2.
  - Dimensions specified in oval are critical to function and require inspection. Dimensional Quality shall be CPK1,33 MIN. Provide report for minimum 33pcs batch.
  - Part(s) shall be adequately packaged to prevent damage in shipment and handling in cell type separators, protective wrapped as required.
  - Noted surfaces to be free of all scratches, ejector marks and shrink marks.
- Drawing is for notes and CTF dimension only. Refer to individual CAD file for 3-D geometry.

Version	Revision	Description	Designer	Date	ECO
All material used, and finished product, must meet the requirements of the current RoHS directive of the European Union.					
Material		SEE NOTE	Treatment		SEE NOTE
Title		PANTOGRAPH DOWN WITH FOUNDATION.			Issued
Modified					Mech. Eng. approved
Elec. Eng. approved					Mfg. approved
Mfg. approved					Weight (Kg)
Size		A2	Scale	1:100	Sheet
Unit (mm)		1/1		Revision	
Drawing no.		DG		AA	

© Copyright 2020 ABB EVI Spa. All rights reserved. Reproduction, use or disclosure to third parties without express written authority is strictly forbidden.



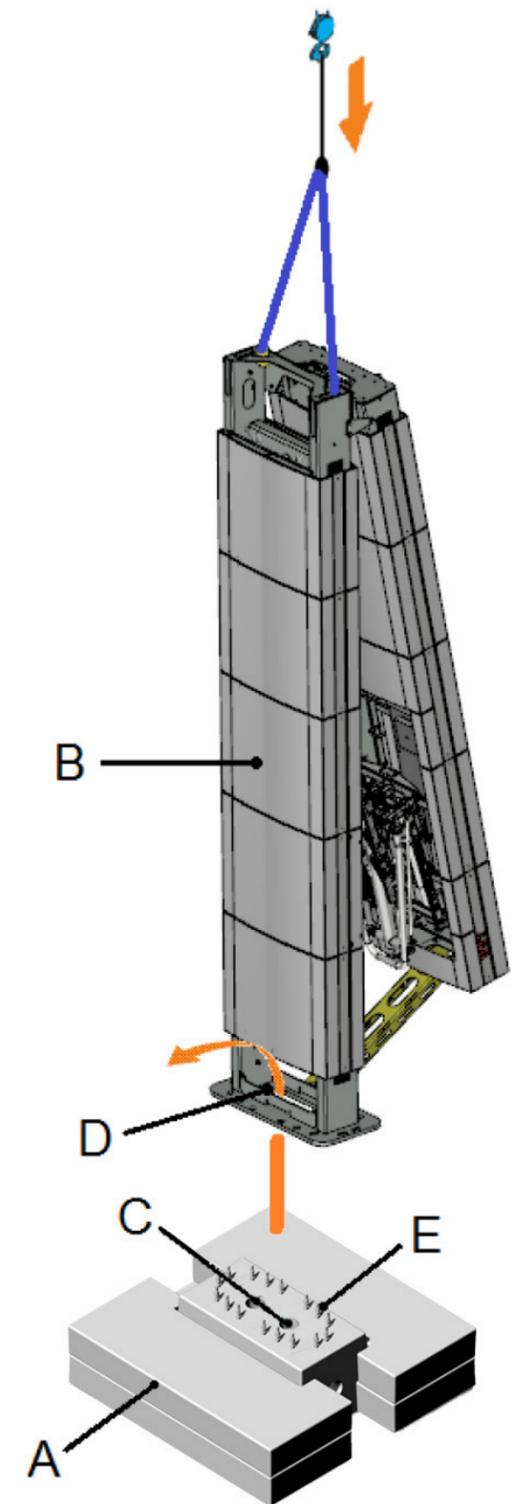
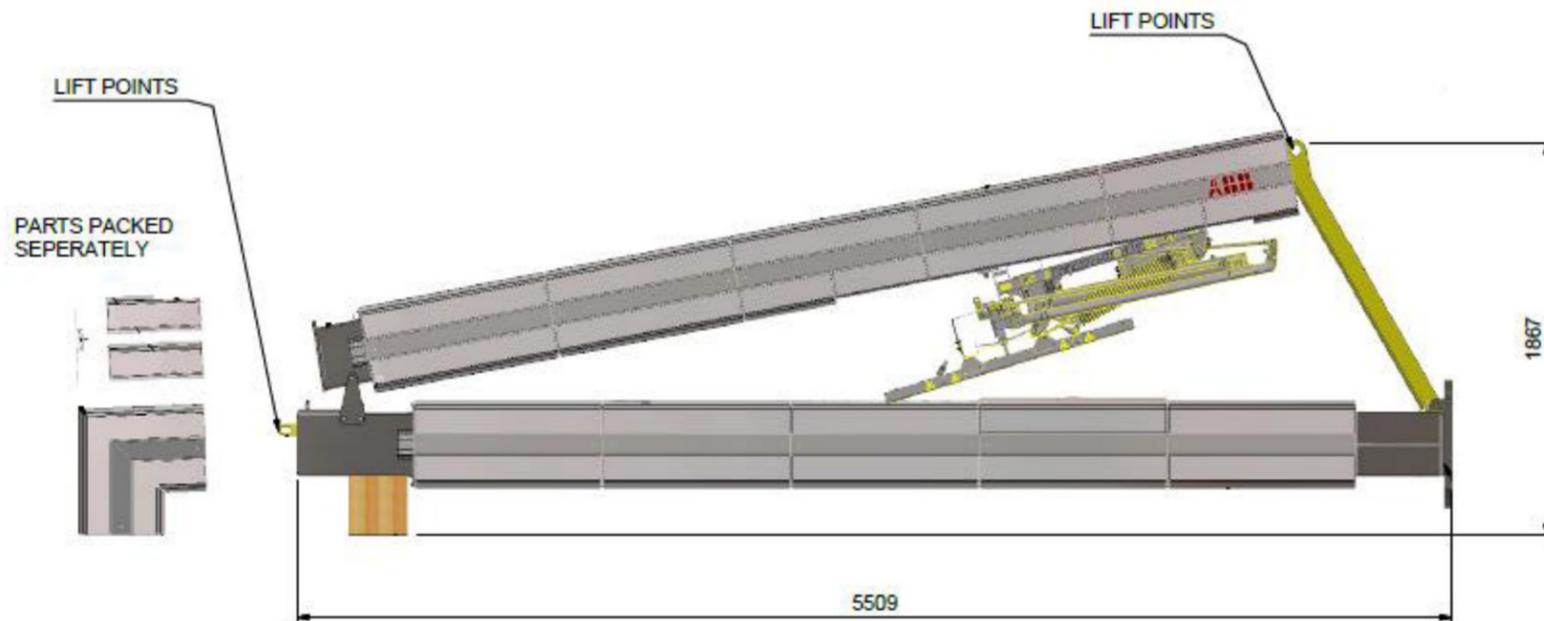
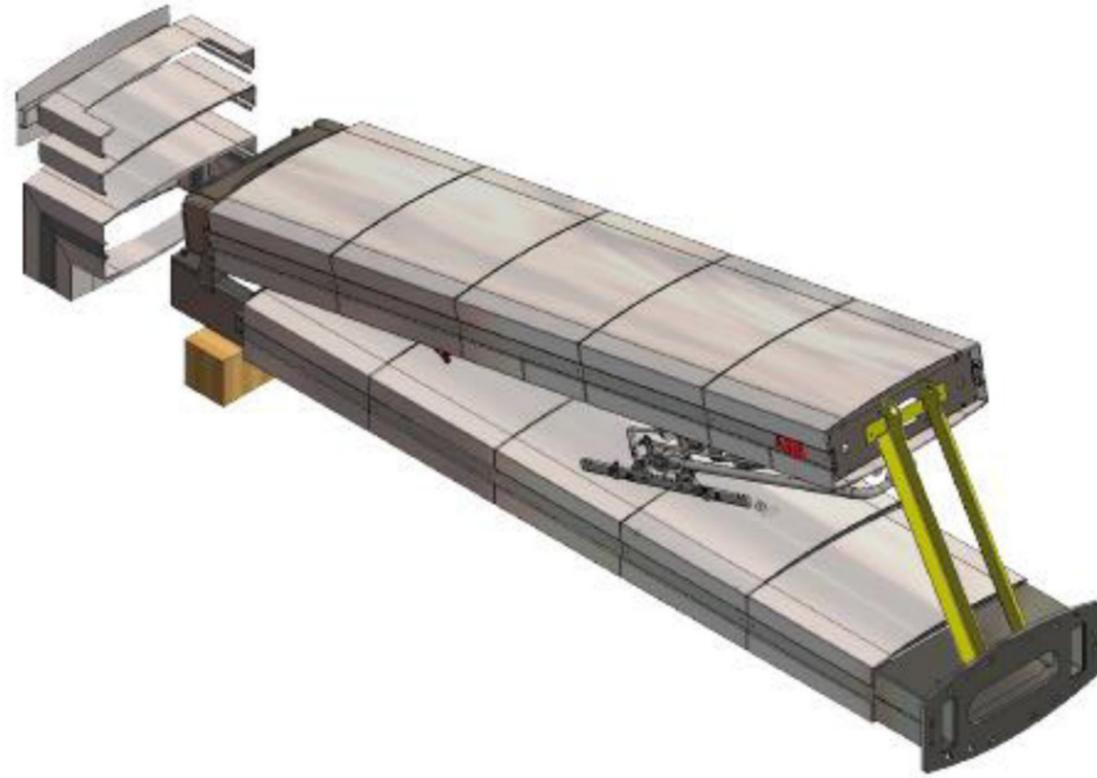
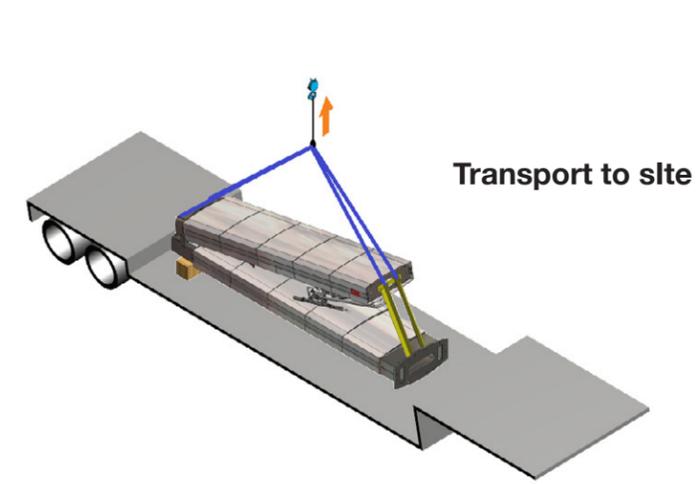
All Electric Bus Pilot Program

Williamsburg Bridge Plaza Prop. ABB Mast: Dims & Foundation

Page 16 of 24  
November 19th, 2021



# Proposed ABB Mast: Transportation & Assembly



Installation on concrete foundation  
 A\_ Foundation  
 B\_ Charge Post  
 C\_ Conduit with cables  
 D\_ Opening for cables  
 E\_ Bolts (16x)

# Proposed ABB Mast: Installation



# Problems with Existing Charging Equipment: Bollards for Enclosures

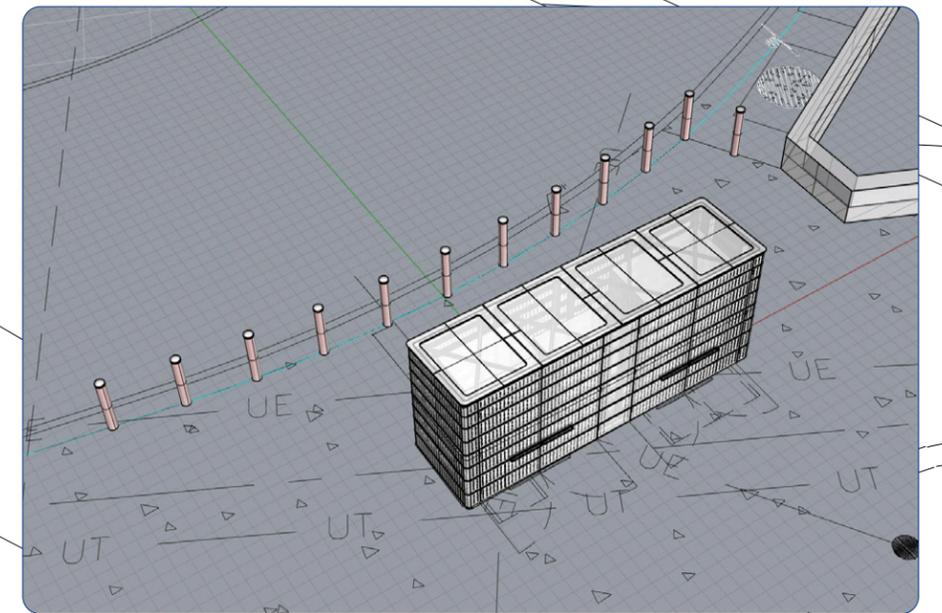
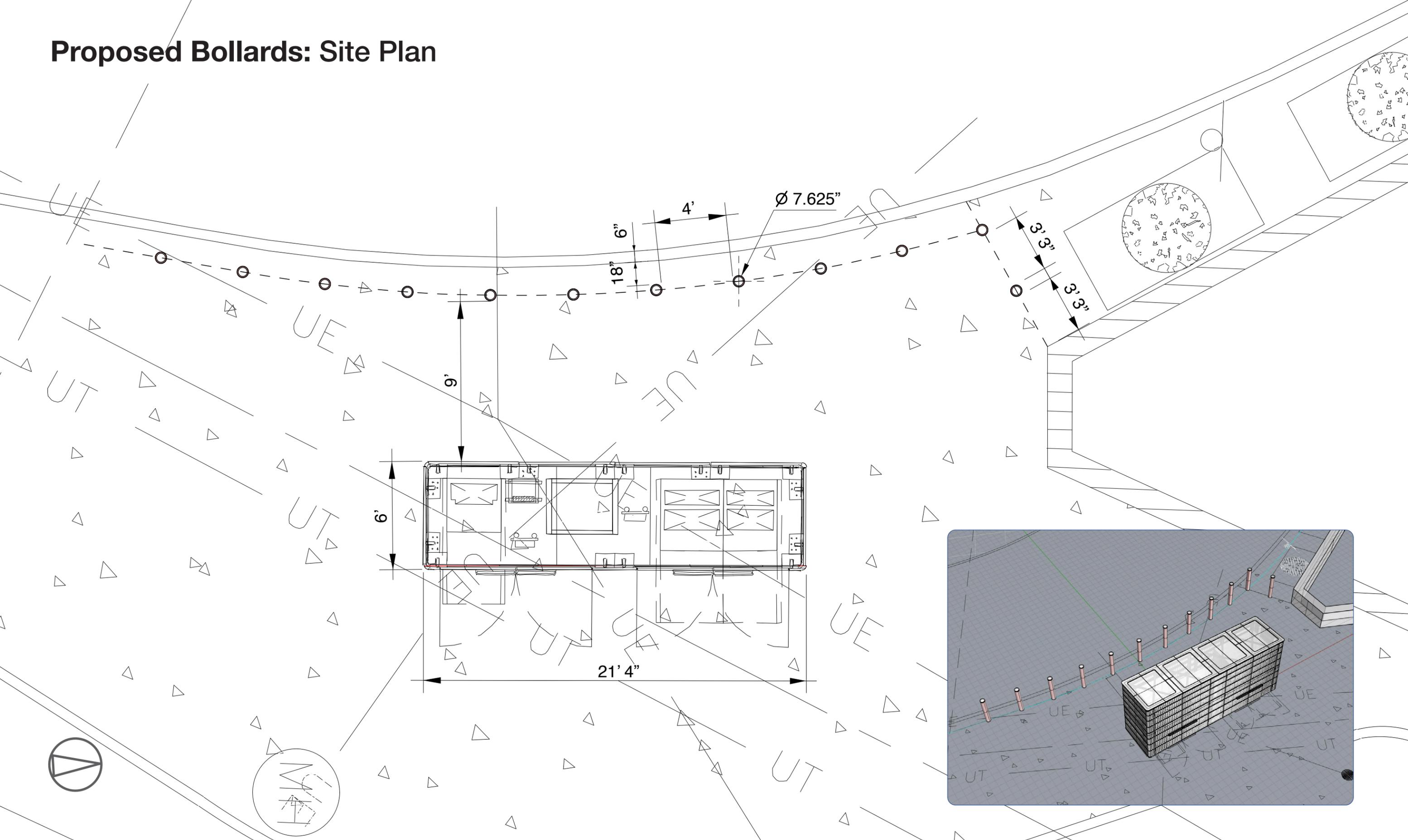
## 2018 Ramp Accident at Williamsburg Bridge Plaza

The car lost control on the curved exit ramp coming off the Williamsburg Bridge and struck and demolished several small trees along the retaining wall in the background, before crashing into the switch-gear enclosure.

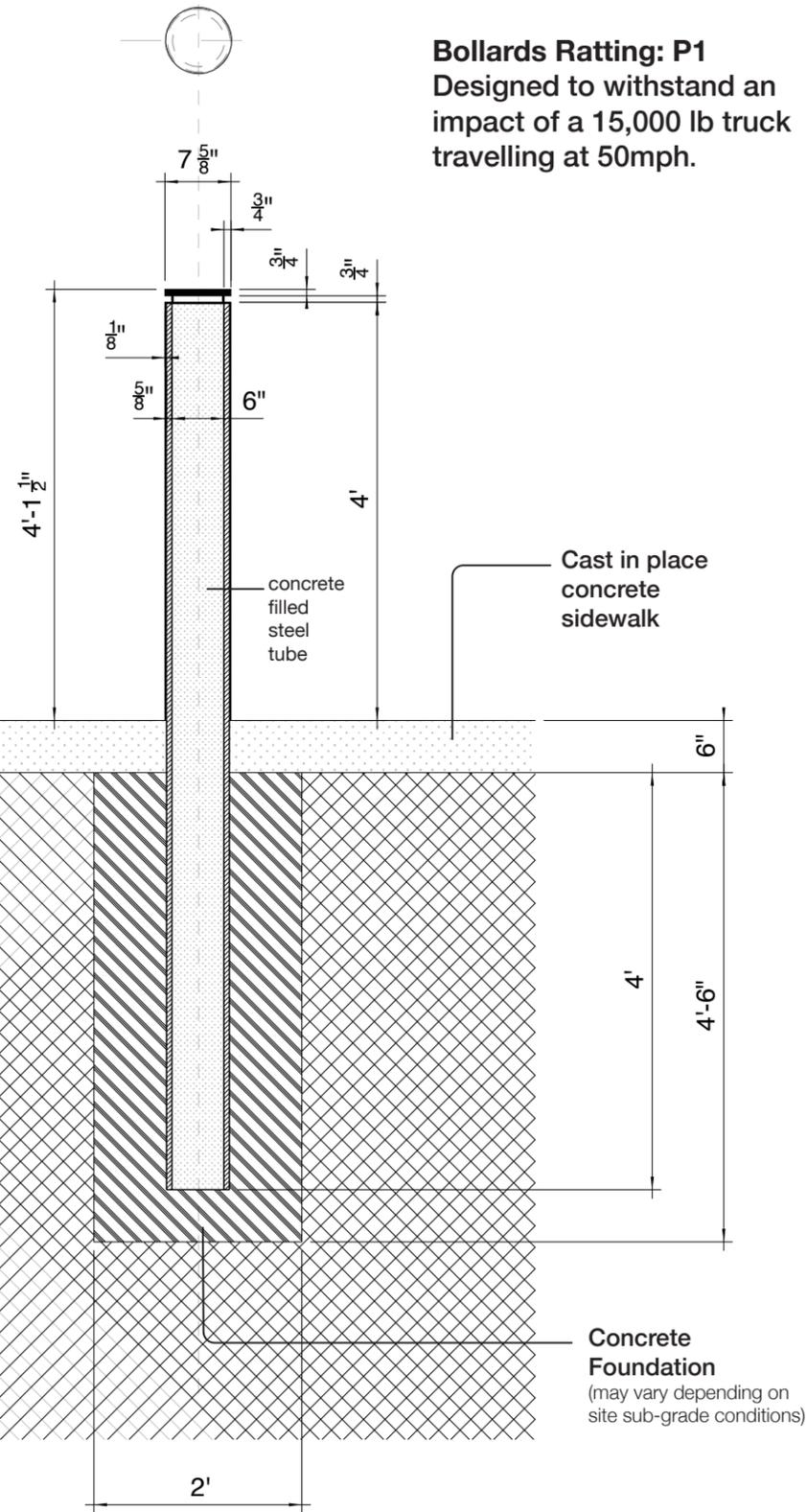
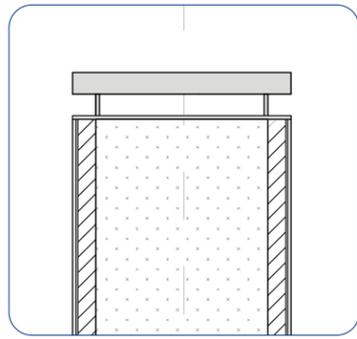
NYCT is proposing to add Bollards on the back side of this enclosure to avoid further accidents, damages to the enclosure, electrical equipment, and/or injuries to maintenance personnel.



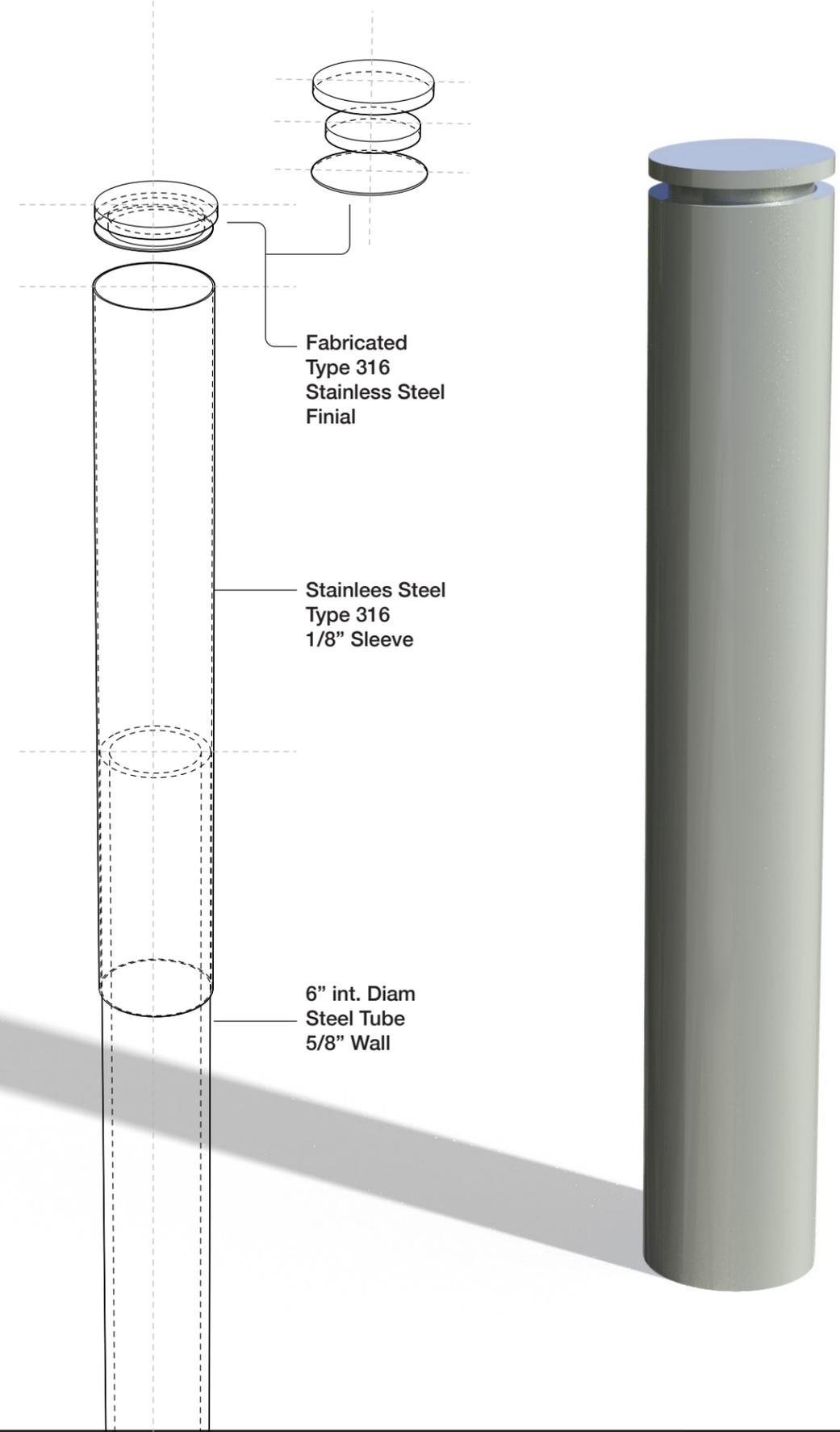
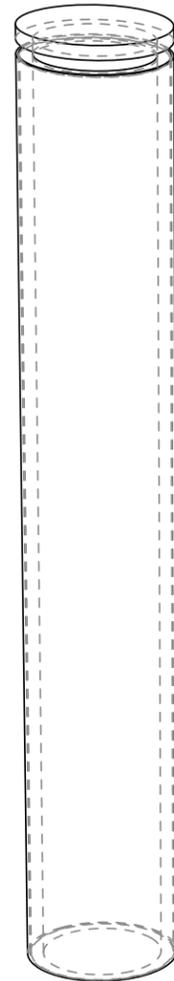
# Proposed Bollards: Site Plan



# Proposed Bollards: Design



**Bollards Rating: P1**  
 Designed to withstand an impact of a 15,000 lb truck travelling at 50mph.



Fabricated Type 316 Stainless Steel Finial

Stainless Steel Type 316 1/8" Sleeve

6" int. Diam Steel Tube 5/8" Wall

# Proposed Bollards: Simulation A



# Proposed Bollards: Simulation B



# Proposed Bollards: Simulation C

