# 11th Street Bridge Protected Bike Lane

Owners:

K.Y.T.C.

City of Covington, KY
City of Newport, KY

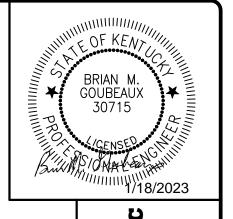
Plans Prepared For:

Devou Good Foundation

## SHEET INDEX

SHEET	TITLE
1	TITLE SHEET
2	TYPICAL SECTIONS
3-4	PLAN SHEETS
	PRODUCT CUT SHEETS AND STANDARD DRAWINGS





VICINITY MAP

NOT TO SCALE

# **DESIGN AND GENERAL NOTES**

<u>Scope:</u> Installation of a Protected Bike Lane (PBL) in the existing outside, west-bound vehicular lane. All other vehicular lanes are to remain as per existing.

#### **Limitations and Contractor Expectations:**

- All utilities are to be cleared prior to any excavation. Contractor is to contact Kentucky 811 and review potential private utilities with the Owner (KYTC) prior to initiating any work.
- Contractor is reponsible for all Maintenance of Traffic (MOT) plans, approval and implementation, as per KYTC, City of Covington and City of Newport review and approval.
- Contractor is responsible for means, methods, safety of personnel and temporary support of excavations and nearby structures during construction.
- Any variations or discrepancies between field conditions and the information within this design document are to be immediately brought to the attention of the Engineer.

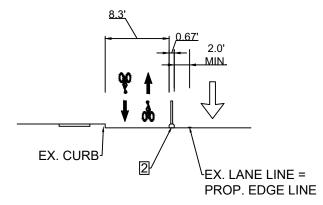
		ENGINEERING LI	513-383-7040	hamantengineering@gmail.com	
REVISION DESCRIPTION / DATE:					ISSUE DATE:
			_		

11th Street Bridge
Protected Bike Lane

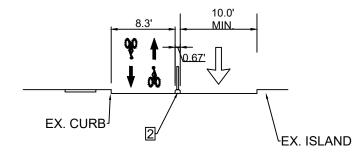
TITLE SHEET

Sheet No.:

1/4



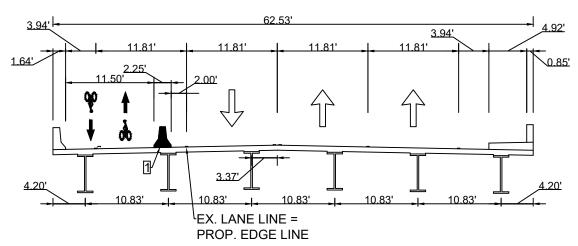
TYPICAL SECTION PROSPECT AVENUE: BUSH STREET TO BEGIN BRIDGE APPROACH SLAB



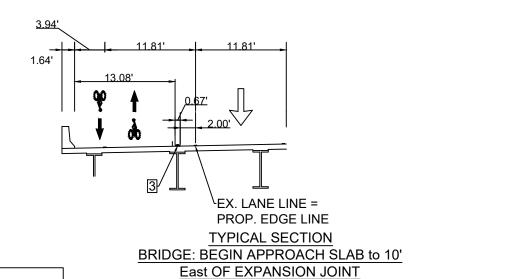
**TYPICAL SECTION** PROSPECT AVENUE: 11TH ST TO BUSH STREET

#### LEGEND:

- 1 PRECAST CONCRETE JERSEY BARRIER 2 CONCRETE CURB BARRIER + WHITE POST
- 3 PEXCO FG 300 w/ WHITE POST



TYPICAL SECTION BRIDGE: 10' East OF EXPANSION JOINT TO END OF PROPOSED BARRIER

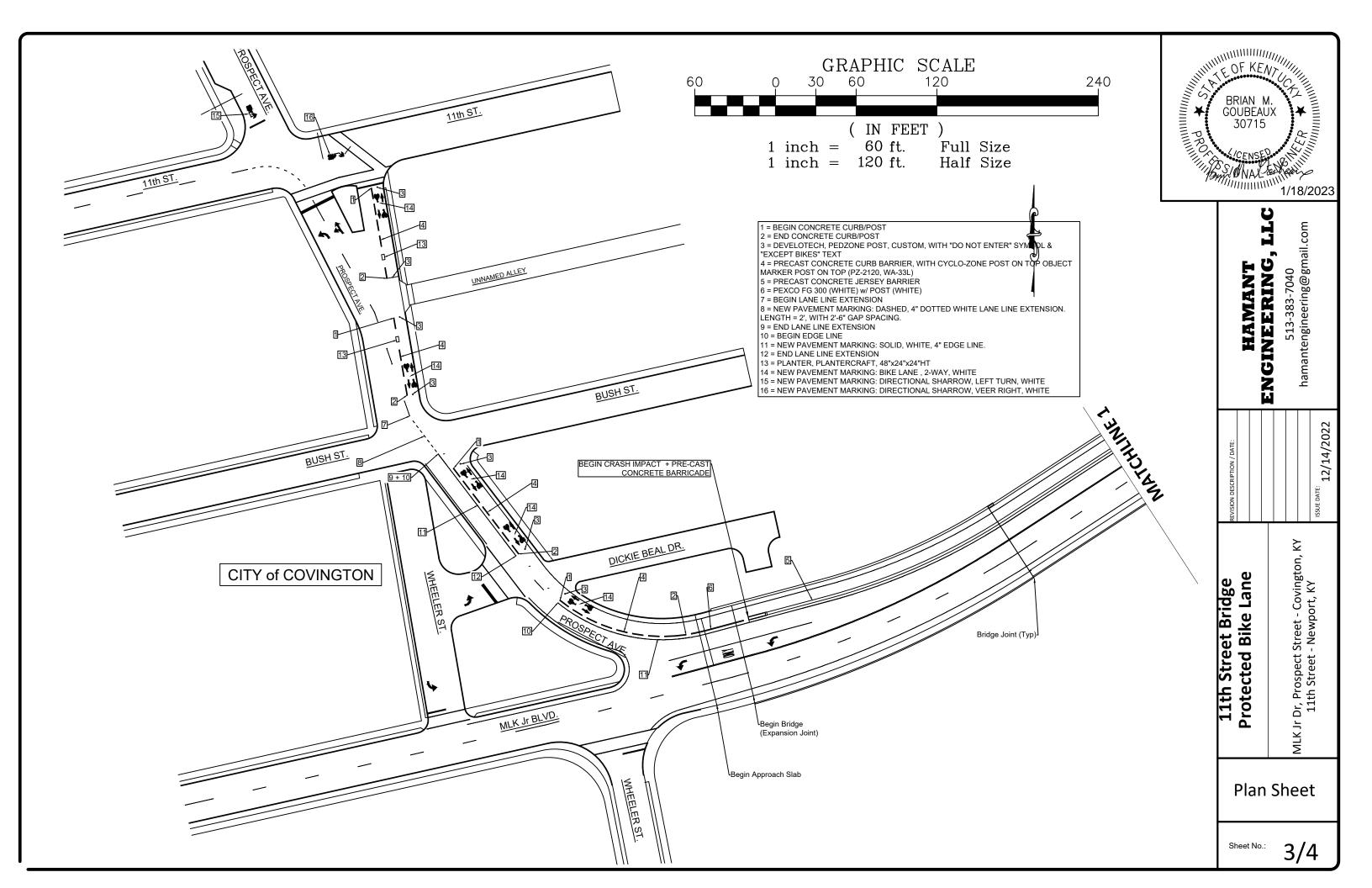


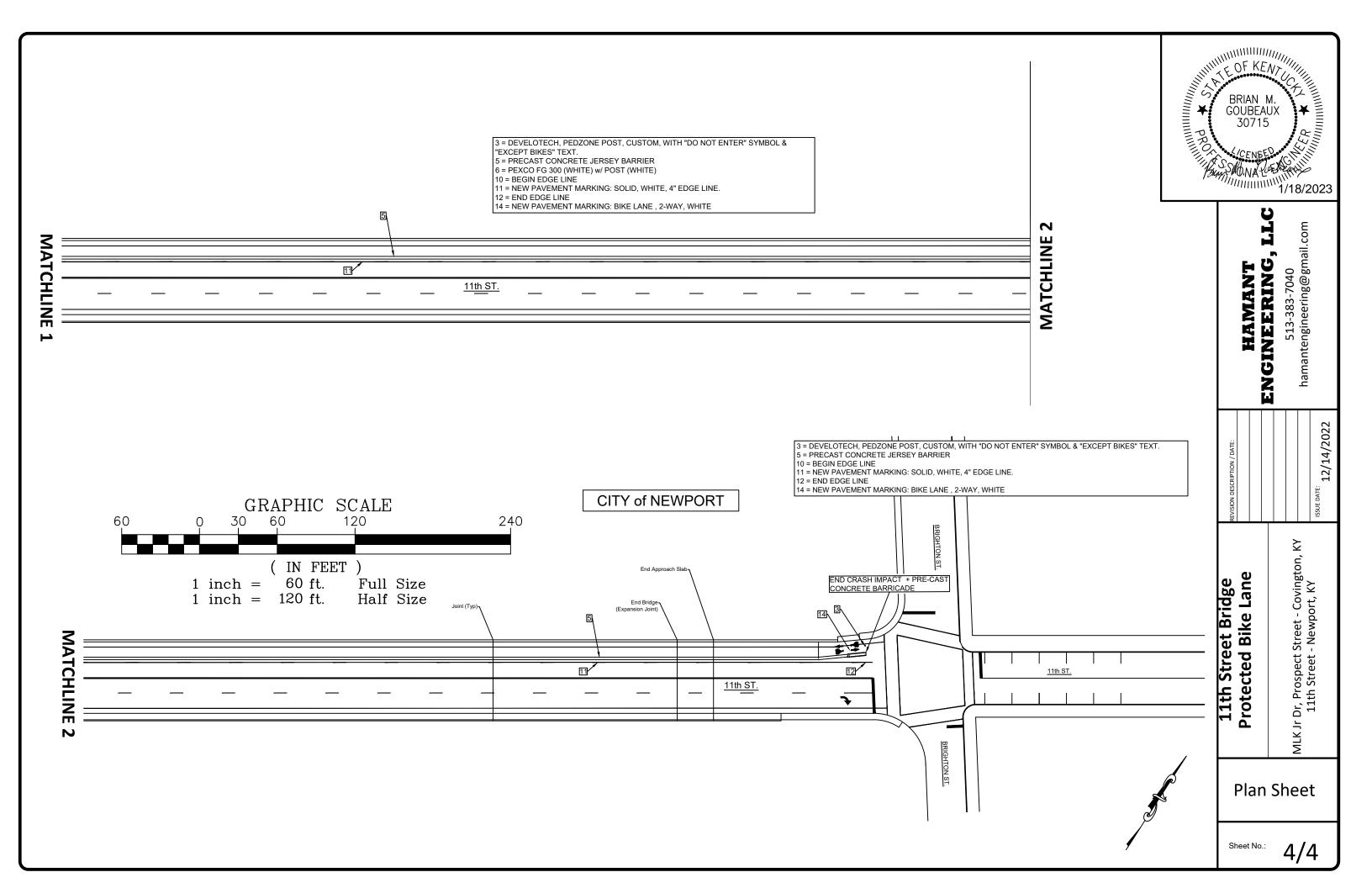


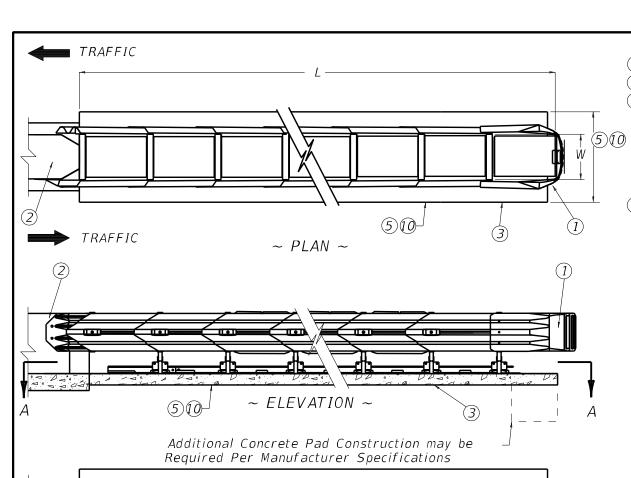
513-383-7040 hamantengineering@gmail.com HAMANT ENGINEERING 12/14/2022 MLK Jr Dr, Prospect Street - Covington, KY 11th Street - Newport, KY **Protected Bike Lane** 11th Street Bridge Typical

Sections

Sheet No.:







~ SECTION A-A ~

Reinforcement Per Manufacturer

Specifications

~ CONCRETE PAD SECTION ~ (Per Manufacturer Specifications) Refer to Notes(5)

- ~ NOTES ~
- 1) NOSE ASSEMBLY (OBJECT MARKER TYPE 1 AS REQUIRED)
- (2) BACKUP
- (3) 6" CONCRETE PAD PER MANUFACTURER SPECIFICATIONS.
- 4. CRASH CUSHION TYPE VI , CLASS  $\underline{\mathcal{A}}$  ,  $\underline{\mathcal{B}}$  ,  $\underline{\mathcal{C}}$
- A CLASS B OR C, AS REQUIRED
- B EITHER TEST LEVEL 2 (TL2) OR TEST LEVEL 3 (TL3),AS REQUIRED.
- SEE "CONNECTION DETAILS OF CRASH CUSHION TYPE VI TO DOUBLE FACE GUARDRAIL".
- THE CONCRETE PAD, PAD EXCAVATION AND STEEL REINFORCEMENT, INSTALLED IN PLACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CRASH CUSHION TYPE VI. DIMENSION AND REINFORCEMENT SPECIFICATIONS FOR CONCRETE PADS ARE TO BE PROVIDED BY THE MANUFACTURER. THE PAD WILL NOT BE REQUIRED WHEN THE UNIT IS CONSTRUCTED ON RIGID PAVEMENT.
- 6. CRASH CUSHION TYPE VI MAY BE USED AT THE END OF: CONCRETE MEDIAN BARRIER, BRIDGE PIERS AND STEEL "W" BEAM GUARDRAIL (DOUBLE FACE).
- 7. WHEN CRASH CUSHION TYPE VI CONNECTS TO: CONCRETE MEDIAN BARRIER OR BRIDGE PIER THE CONTRACT UNIT PRICE SHALL INCLUDE: CRASH CUSHION TYPE VI, ALL HARD-WARE, ADDITIONAL RAIL ELEMENTS, POST, CONCRETE PAD AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION.
- 8. THIS DRAWING DEPICTS A CONNECTION OF CRASH CUSHION TYPE VI TO CONCRETE MEDIAN BARRIER END. FOR THIS APPLICATION SEE CURRENT STD. DWG.RBE-065
  " CONCRETE MEDIAN BARRIER END ".
- 9. WHEN CRASH CUSHION TYPE VI CONNECTS TO DOUBLE FACE GUARDRAIL SEE CURRENT SEPIA 018 "CONNECTION DETAILS OF CRASH CUSHION TYPE VI TO DOUBLE FACE GUARDRAIL".
- (1) CRASH CUSHIONS ARE TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS, INCLUDING THE CONCRETE PAD.

  THE MANUFACTURER SHALL FURNISH TWO (2) SETS OF SHOP PLANS TO THE CONTRACTOR WITH EACH INSTALLATION.
- 11.THE CRASH CUSHION TYPE VI MAY ALSO BE UTILIZED FOR TEMPORARY USE AND CONSTRUCTION ZONES (CLASS BT).
- 12. A CRASH CUSHION TYPE VI CLASS B IS TO BE USED IN AREAS WHERE CRASH HISTORY IS NOT KNOWN TO BE SEVERE.
- 13. A CRASH CUSHION TYPE VI CLASS C IS CONSIDERED A SEVERE USE CRASH CUSHION.

ADDITIONAL BID ITEMS AND UNIT TO BID OBJECT MARKER TYPE 1 (AS REQUIRED)

FACH

	SPEED		ATTENUATOR	SUGGESTED ADT*		
CLASS	( MPH )	MODEL	PRODUCT NAME	LENGTH	RANGE (P.C.P.L.) **	
	45 & LESS	TL2	UNIVERSAL TAU-M	14'-2"		
В	45 & LESS	1 LZ	3-BAY QUADGUARD M10	12'-0''	UP TO	
	OVER 45	TL3	UNIVERSAL TAU-M	22'-9"	12,000	
			5-BAY QUADGUARD M10	18'-0''		
	OVER 45	TL3	SCI100GM	23'-0"	8,000 AND	
			QUADGUARD ELITE M10	26'-7''	OVER	

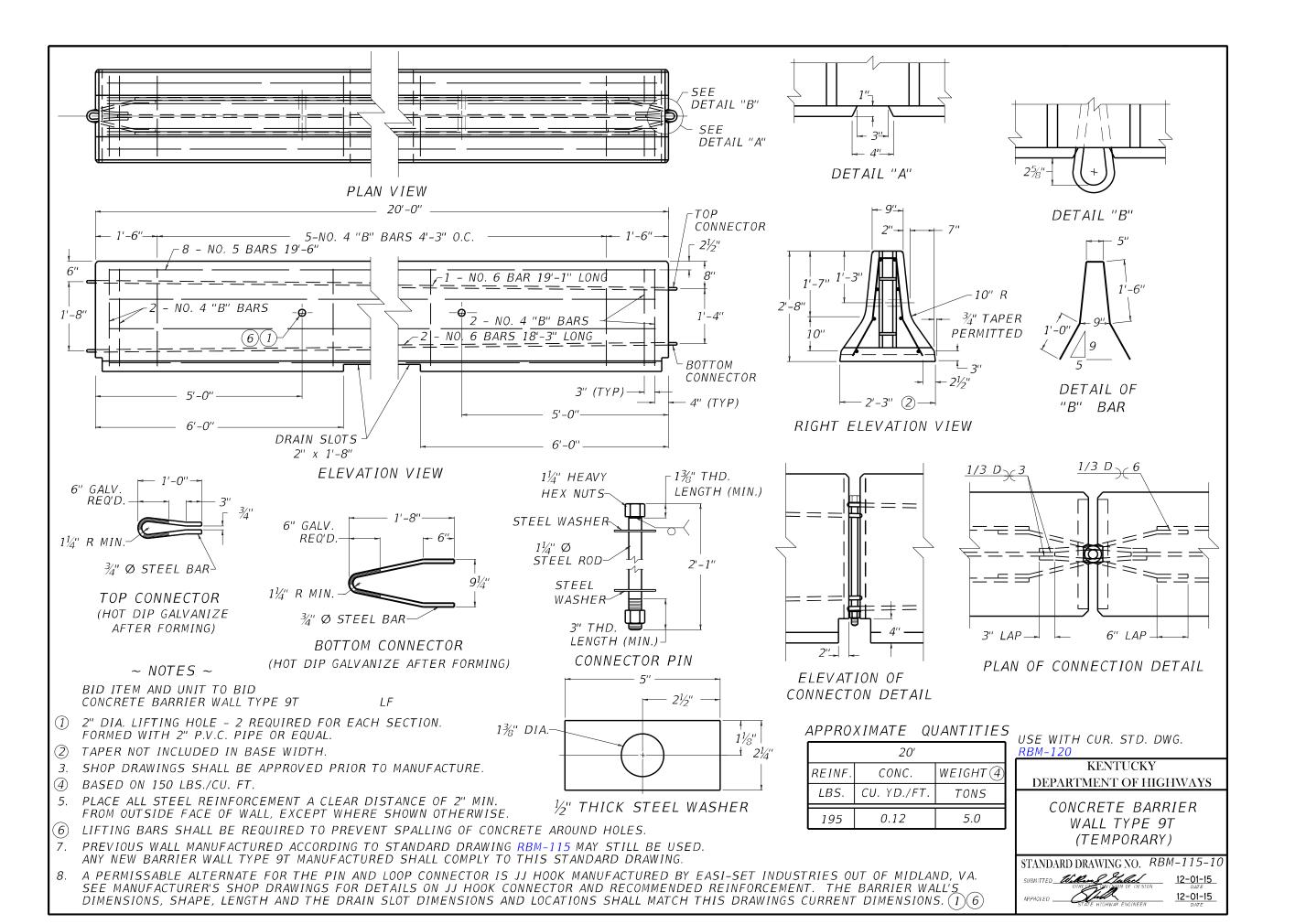
W = 2'-0'' ( INSIDE BAY WIDTH )

\* AVERAGE DAILY TRAFFIC \*\* PASSENGER CARS PER LANE USE WITH CUR. STD. DWG. RBE-065 RBC-110

KENTUCKY DEPARTMENT OF HIGHWAYS

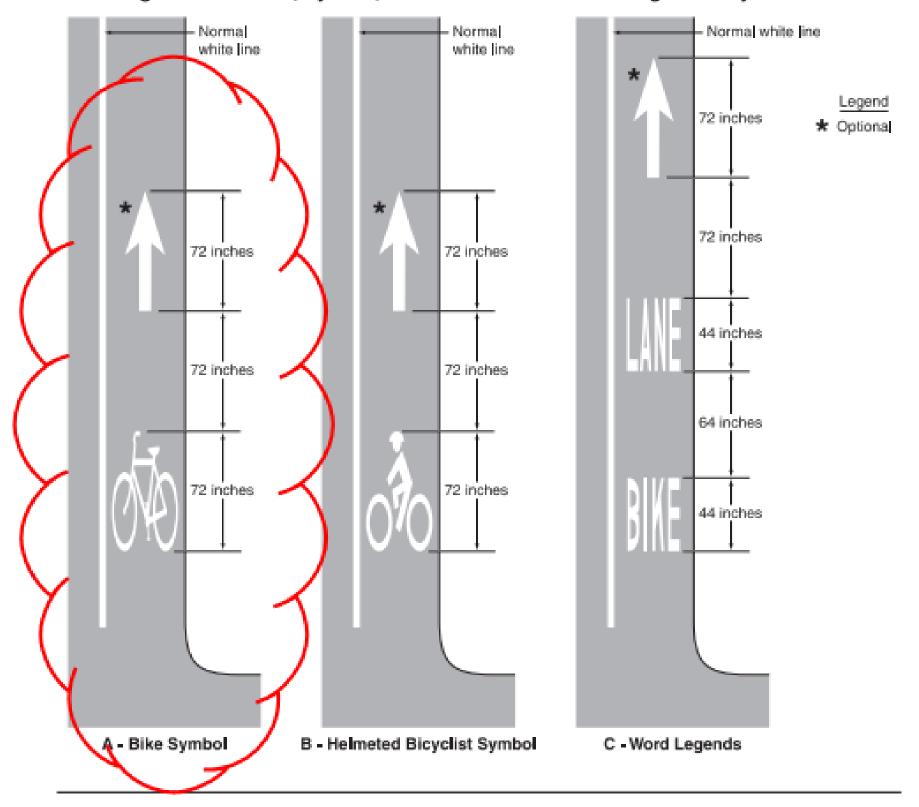
CRASH CUSHION TYPE VI <u>ABC</u> (ONE & TWO DIRECTION)

STANDARD DRAWING NO. RBE-060-15
SUBMITTED DETOR DIVISION OF DESTON 02-26-20
DATE 02-26-20



2009 Edition Page 811

Figure 9C-3. Word, Symbol, and Arrow Pavement Markings for Bicycle Lanes



Calc. Book No.:

Std. Drg. Report Date:

Standard Construction Specifications.

P-437



# QuadGuard® M10

**CRASH CUSHIONS** 





#### **FEATURES**

- · Self-supporting steel nose.
- · Tension strut backup.
- · Monorail guide stabilizers.
- · Anchorage in concrete.
- High strength Quad-Beam<sup>™</sup> panels.
- · Does not use anchoring chains or tension cables

#### ASSEMBLY AND MAINTENANCE

- · Damaged cartridges are replaceable.
- · Potentially reusable after an impact within MASH crash test standards.\*

# **=/VALTIR**

#### QuadGuard M Wide Test Level 3 System (not shown)

QuadGuard M10 Test Level 3 System

 System Length – 22' 0" (6.71 m) System Width – 24" (610 mm)

System Length – 22' 0" (6.71 m)

#### QuadGuard M10 Test Level 2 System

- System Length 13' 0" (3.96 m)
- System Width 24" (610 mm)



**SPECIFICATIONS** 

#### Monorail Base

- 2 Engineered Steel Nose
- Telescoping Quad-Beam Fender Panel
- Backup
- G Cartridge
- O Diaphragm



DISTRIBUTED BY

WWW.VALTIR.COM

1.888.323.6374

Copyright © 2022 Valtir, LLC. All Rights Reserved.

to 69" (1.75 m).

QuadGuard® M10

The QuadGuard® M10 is a redirective,

non-gating crash cushion that consists of an engineered steel nose and crushable,

energy absorbing cartridges surrounded by

a framework of steel Quad-Beam™ panels.

The system is tested to the Manual for

Assessing Safety Hardware (MASH) Test Level 3 and Test Level 2. It can be used to shield fixed objects up to 24" (610 mm). A wide Test Level 3 system, the QuadGuard M Wide, is also available for fixed objects up

The QuadGuard® M10, as a member of the

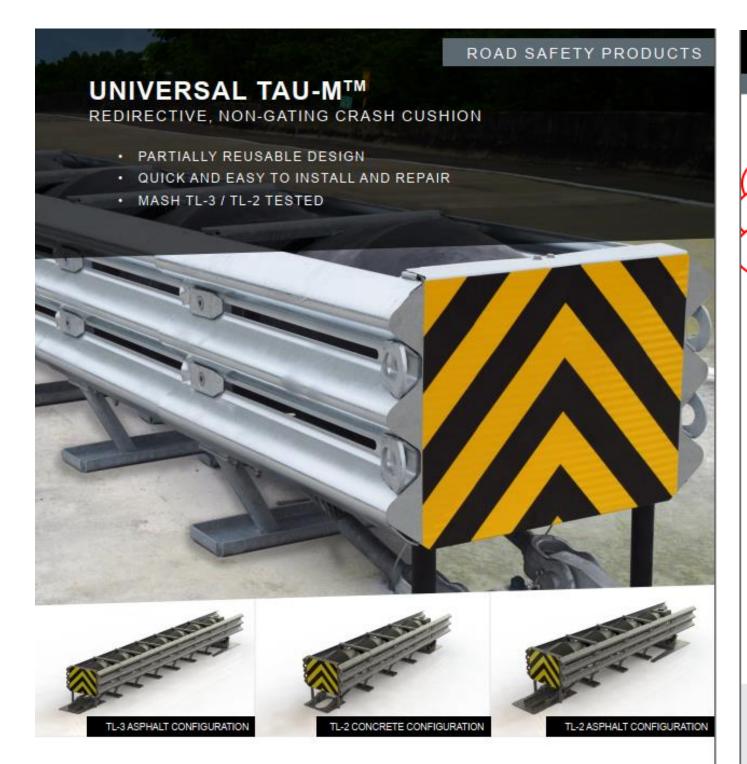
QuadGuard® family of crash cushions,

consists of many of the same components

as the original Test Level 3 QuadGuard®

platform and framework in addition to an

engineered steel nose and monorail shims.

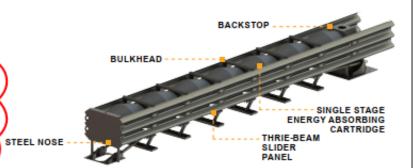




### UNIVERSAL TAU-MTM | REDIRECTIVE, NON-GATING CRASH CUSHION

#### PHYSICAL SPECIFICATIONS

MASH Classification	TL-3 / TL-2		
TL-3 Length	22702	9.92 m	
TL-2 Length	14' 2"	4.33 m	
Width	30"	762 mm	
Height	32 s"	830 mm	



#### MASH TI-3 AND TI-2 TESTED

The Redirective, Non-Gating, Partially Reusable, Universal TAU-M Crash Cushion (TAU-M) is designed to meet MASH TL-3 and TL-2 testing requirements in a compact, partially reusable design. The system is available for concrete and asphalt applications and can shield hazards with widths up to 30" (880 mm). Ease of installation, fast on-sight repairs, and numerous transition options make the TAU-M system an ideal crash cushion to shield most roadside and median hazards. The TAU-M system is also available as an upgrade kit to retrofit existing NCHRP 350 TAU-II Systems into MASH TAU-M Systems.

#### FREQUENTLY ASKED QUESTIONS

# What components of the TAU-M System need to be replaced after a design impact?

Typically, only the damaged cartridges will need to be replaced. The nose and slider panels are designed to withstand multiple design impacts.

#### What type of foundation is needed for the TAU-M System?

A 6" (152 mm) reinforced concrete pad is required. The Universal TAU-M System can also be installed in as little as 4" (102 mm) of asphalt.

#### What transitions are available?

Since TAU-M transitions are non-proprietary, all MASH approved thrie-beam barrier transitions will work with the system.

# What are the major differences between the NCHRP 350 TAU-II System and the MASH TAU-M System?

Upgrades to the system include heavy gauge steel slider panels, large diameter cables, redesigned compact backstop, shortened length, and single stage energy absorbing cartridges.

Can the NCHRP 350 TAU-II System be retrofitted to a MASH TAU-M System?

Yes, existing NCHRP 350 TAU-II Systems can be retrofitted into MASH TAU-M Systems.

#### **FEATURES**

- Minimum number of anchors needed to secure the system
- Reduced length vs. NCHRP 350 TL-3 system
- Upgraded slider panels for increased durability
- Can be installed over bridge expansion joints
- Concrete and asphalt systems available
- Numerous non-proprietary transition
   ontions
- NCHRP 350 to MASH Retrofit kits available

#### DISTRIBUTED BY:



18135 Burke Street, Suite 100 • Omaha, NE 68022 • +1 (402) 829-6800 U.S. Toll Free: (888) 800-3691 • www.lindsay.com

© 2021 Lindasy, All dytta reserved. Barrier Systems and TAU-M are trademarks or registered trademarks of Lindasy Corporation or its subsidiaries. General details for the TRUM System are subject to change shibut redice to effect improvements and upgrades. Additional information is available from Lindasy Transportation Solutions Sales and Services, bc.

PT # TAUM01-10202018



#### SPECIFICATION - FLEXIBLE BOLLARD WITH OBJECT MARKER

The flexible bollards shall be Cyclo-Zone flexible bollard with Object marker (by Develotech Inc.). Bollards are black with yellow reflective sheeting with object marker screen printed on both sides, as per the installation drawings provided per project.

Bollards must comply with the following specifications and shop drawing attached.

Height: 122 cmWidth: 10.2 cmThickness: 0.3 cm

Width of the Reflective Sheeting: 76 mm
 Height of the Reflective Sheeting: 914 mm

· Object marker Reflective Sheeting fixed on both sides

Installation shall be in accordance with manufacturer's recommendations, as follows:

#### ASPHALT PAVEMENT INSTALLATION

Drill four holes (Diameter: ¾ inch, Depth: 4 inches), pour in Bitu-Link™ epoxy, insert Cyclo-Zone anchors and wait 24 hours until the epoxy has hardened. Then, fill the anchors with white grease and fasten the bollard with four bolts.



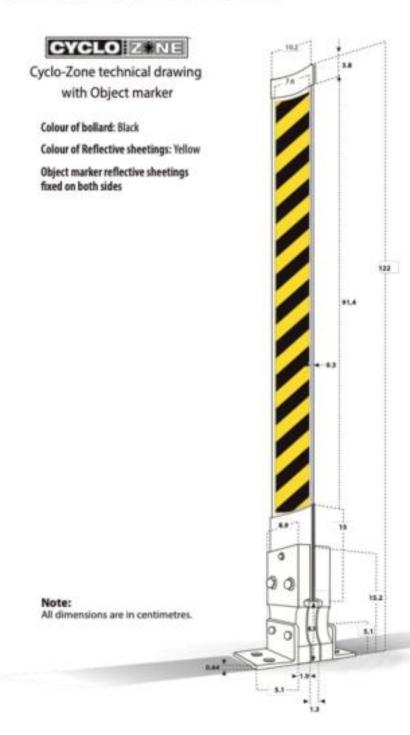
#### CONCRETE ROADWAY OR CURB INSTALLATION

Drill four holes (Diameter: ½ inch, Depth: 13/4 inch), insert drop-in anchors and hammer them with a punch. Then, fill the anchors with white grease and fasten the bollard with four bolts.



Develotech Inc. 4655, Tanguay Street Saint-Hyacinthe (Quebec) J2R 2H3 Canada Phone: 450 799-4537 Fax: 450 799-4538 sales@develotech.com





Develotech Inc. 4655, Tanguay Street Saint-Hyacinthe (Quebec) J2R 2H3 Canada Phone: 450 799-4537 Fax: 450 799-4538 sales@develotech.com





#### SPECIFICATION - FLEXIBLE SIGN

The In-Road flexible signs shall be Ped-Zone sign (by Develotech Inc.). The signs must have white reflective sheeting with Do not enter - except bicycles.pdf graphic on the front side and yellow reflective sheeting with PZ-2120 (WA-33L).pdf graphic on the back side, as per the installation drawings provided per project.

Signs must comply with the following specifications, shop drawing and graphics attached.

Height: 122 cmWidth: 32.4 cmThickness: 0.3 cm

Width of the Reflective Sheeting: 30.5 cm
 Height of the Reflective Sheeting: 94 cm
 Reflective Sheeting fixed on both sides

· Anti Graffiti Protection Film on both sides

Installation shall be in accordance with manufacturer's recommendations, as follows:

#### ASPHALT PAVEMENT INSTALLATION

Drill four holes (Diameter: ¾ inch, Depth: 4 inches), pour in Bitu-Link™ epoxy, insert Ped-Zone anchors and wait 24 hours until the epoxy has hardened. Then, fill the anchors with white grease and fasten the bollard with four bolts.

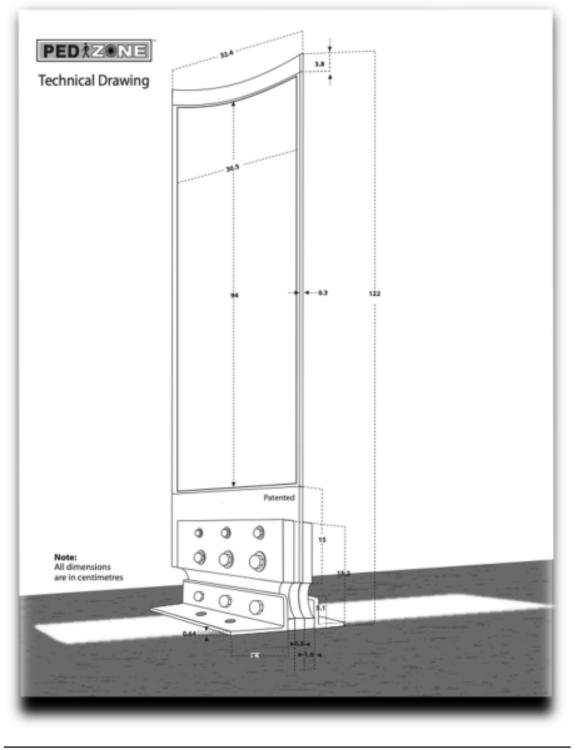


#### CONCRETE ROADWAY OR CURB INSTALLATION

Drill four holes (Diameter: ½ inch, Depth: 1 3/4 inch), insert drop-in anchors and hammer them with a punch. Then, fill the anchors with white grease and fasten the bollard with four bolts.



Develotech Inc. 4655, Tanguay Street Saint-Hyacinthe (Quebec) JZR ZH3 Canada Phone: 450 799-4537 Fax: 450 799-4538 sales@develotech.com









Do not enter - except bicycles.pdf | PZ-2120 (WA-33L).pdf graphic:





