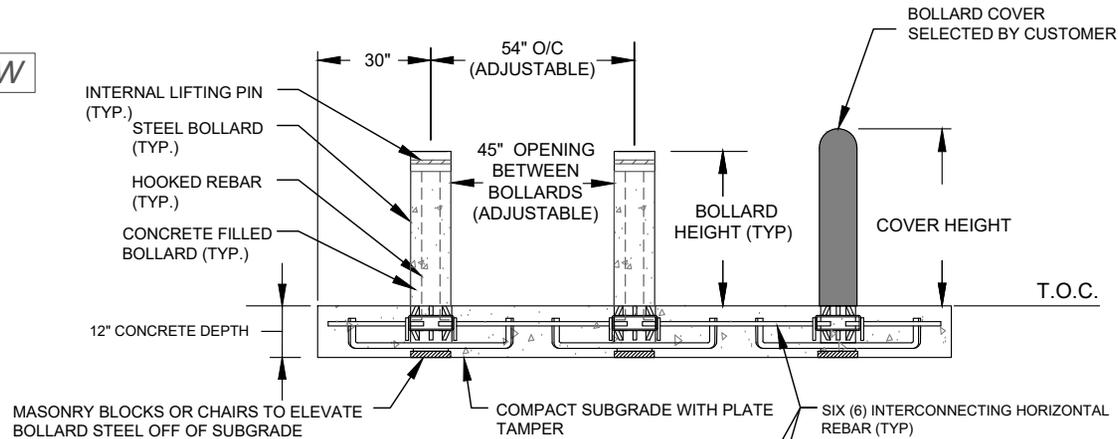


SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

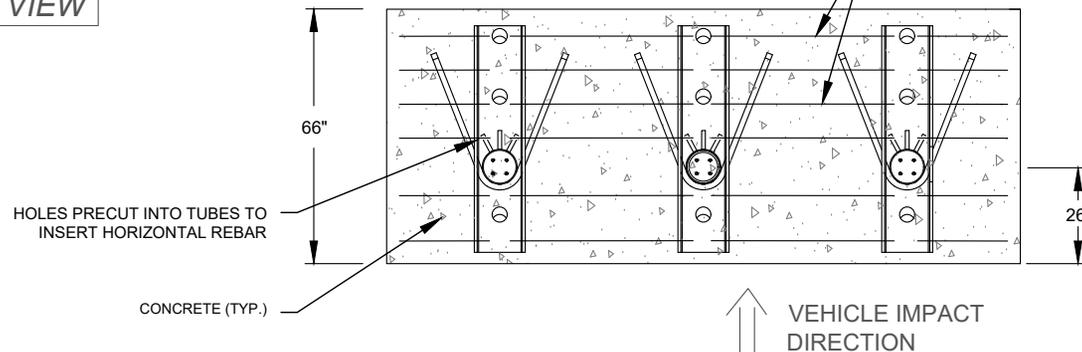
STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT
 ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

TYPICAL BOLLARD ARRAY (FIXED AND/OR REMOVABLE)

FRONT VIEW



TOP VIEW



KEY CAPABILITIES

1. SIMPLE AND QUICK INSTALLATION - ONLY ONE PREFABRICATED MODULAR BOLLARD COMPONENT
2. ADJACENT BOLLARDS ARE CONNECTED BY HORIZONTAL REBARS.
3. ONLY A TAMPED SUB GRADE IS REQUIRED (NO GRAVEL OR CONCRETE MUD PAD).
4. SHALLOW FOUNDATION AVOIDS UNDERGROUND UTILITIES.
5. NO FIELD WELDING OR BOLTING (REDUCES INSTALLATION TIME AND COST).
6. MODULAR BOLLARD SYSTEM ACCOMMODATES TURNS, GRADE CHANGES, AND FIELD ADJUSTMENTS.
7. NO STIRRUPS OR REBAR TYING IS NEEDED. HORIZONTAL REBAR SLIDES INTO PREDRILLED HOLES.
8. NO SPECIALTY BOLLARDS, COMPONENTS, OR PARTS REQUIRED TO MAKE TURNS OR INSTALL ACROSS GRADE CHANGES.
9. COATINGS AND FINISHES AVAILABLE INCLUDING PRIMED & PAINTED, HOT DIPPED GALVANIZED, POWDER COATED, ETC
10. VARIETY OF BOLLARD COVERS AVAILABLE (THERMOPLASTIC, DECORATIVE, STAINLESS STEEL, CONCRETE, LIGHTED, ETC.)

NOTE: REMOVABLE BOLLARD MODEL IS AVAILABLE



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**SHALLOW MOUNT
 MODULAR BOLLARD
 SYSTEM - M30 (K4)**

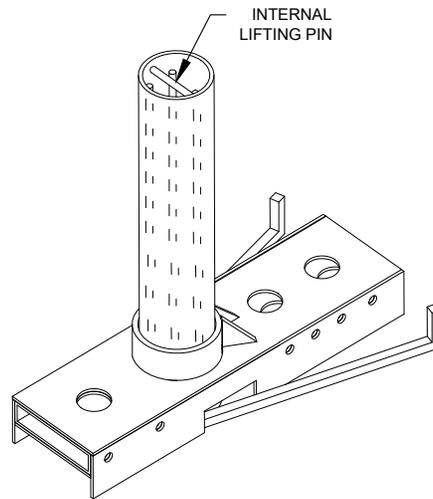
SAMPLE DRAWINGS

SHEET: 1 OF 6
 20181112-01-PD
 SCALE: N.T.S.

SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT
ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

MATERIALS PROVIDED BY BARRIER1 SYSTEMS



(1) EACH:
PREFABRICATED BOLLARD
WITH BASE STRUCTURE
(PRE-ASSEMBLED)



(1) EACH:
BOLLARD COVER
SELECTED BY CUSTOMER

MATERIALS PROVIDED BY INSTALLATION CONTRACTOR:

1. ABOUT 1.0 CUBIC YARDS OF CONCRETE PER BOLLARD
2. SIX (6) HORIZONTAL REBAR PER BOLLARD TO CONNECT ADJACENT BOLLARDS
3. MASONRY BRICKS OR CHAIRS TO ELEVATE BOLLARD STEEL OFF SUBGRADE



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**SHALLOW MOUNT
MODULAR BOLLARD
SYSTEM - M30 (K4)**

SAMPLE DRAWINGS

SHEET: 2 OF 6

20181112-01-PD

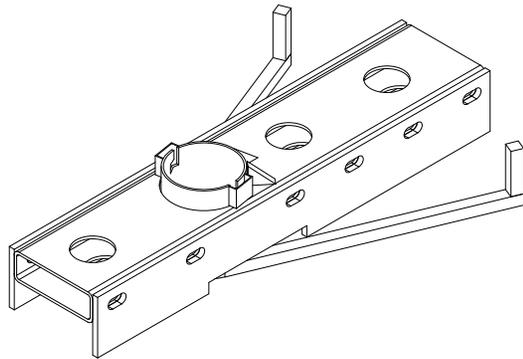
SCALE: N.T.S.

SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

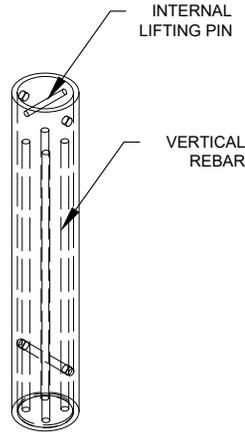
STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT

ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

MATERIALS PROVIDED BY BARRIER1 SYSTEMS



(1) EACH:
EMBEDDED BOLLARD
BASE



(1) EACH:
REMOVABLE BOLLARD
PIPE



(1) EACH:
SLEEVE COVER



(1) EACH:
BOLLARD COVER
SELECTED BY CUSTOMER

MATERIALS PROVIDED BY INSTALLATION CONTRACTOR:

1. ABOUT 1.0 CUBIC YARDS OF CONCRETE PER BOLLARD
2. SIX (6) HORIZONTAL REBAR PER BOLLARD TO CONNECT ADJACENT BOLLARDS
3. MASONRY BRICKS OR CHAIRS TO ELEVATE BOLLARD STEEL OFF SUBGRADE



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**SHALLOW MOUNT
MODULAR BOLLARD
SYSTEM - M30 (K4)**

SAMPLE DRAWINGS

SHEET: 3 OF 6

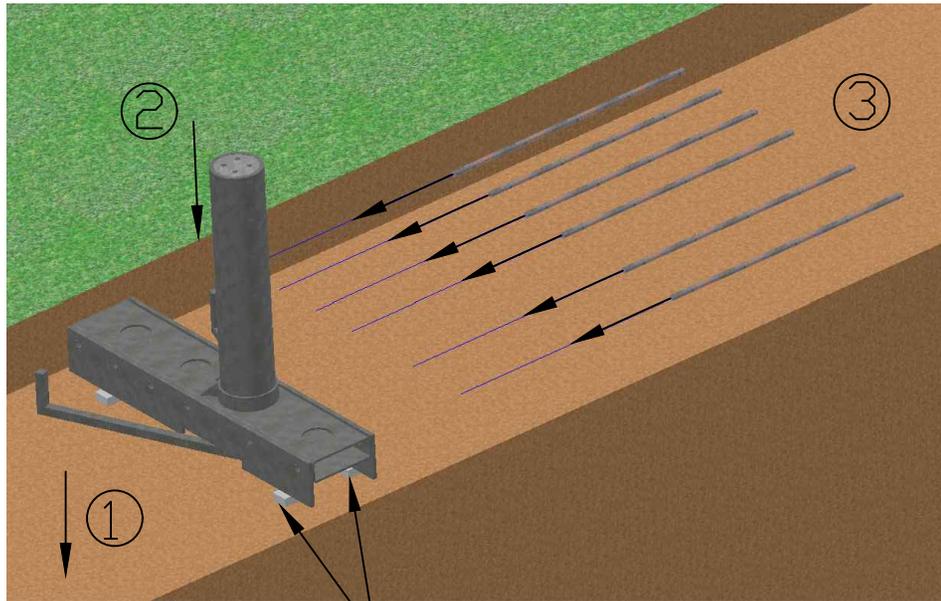
20181112-01-PD

SCALE: N.T.S.

SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT
ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

INSTALLATION STEPS



CHAIRS/MASONRY BLOCKS

① EXCAVATE THEN TAMP SUBGRADE WITH PLATE TAMPER FOR FINISHED EXCAVATION DEPTH OF 12" MINIMUM.

② PLACE PREFABRICATED BOLLARDS INTO EXCAVATION. USE MASONRY BLOCK OR CHAIRS TO ELEVATE OFF SUBGRADE. SO THAT TOP OF GUSSET / SLEEVE IS SAME HEIGHT AS TOP OF CONCRETE.

③ INSERT HORIZONTAL REBAR INSIDE HOLES TO INTERCONNECT ADJACENT BOLLARDS.

④ POUR AND VIBRATE CONCRETE.

⑤ BEFORE CONCRETE CURES, CHECK PLUMB AND LEVEL OF VERTICAL BOLLARD TUBE AND ADJUST TUBE AS NEEDED.

⑥ PLACE BOLLARD COVERS.

KEY CAPABILITIES

1. SIMPLE AND QUICK INSTALLATION - ONLY ONE PREFABRICATED MODULAR BOLLARD COMPONENT
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9. COATINGS AND FINISHES AVAILABLE INCLUDING PRIMED & PAINTED, HOT DIPPED GALVANIZED, POWDER COATED, ETC.
10. VARIETY OF BOLLARD COVERS AVAILABLE (THERMOPLASTIC, DECORATIVE, STAINLESS STEEL, CONCRETE, LIGHTED, ETC.)



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INSTALLATION STEPS

SAMPLE DRAWINGS

SHEET: 4 OF 6

20181112-01-PD

SCALE: N.T.S.

SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT
ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

3D VIEW PRIOR TO POURING CONCRETE



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3D VIEW
PRIOR TO POURING
CONCRETE

SAMPLE DRAWINGS

SHEET: 5 OF 6
20181112-01-PD
SCALE: N.T.S.

SHALLOW FOUNDATION BOLLARD - MODEL SMB-400 (MODULAR & PREFABRICATED)

STOPS 15,000 LB. VEHICLE AT 30 MPH IMPACT
 ASTM F2656-07 M30 P1(K4) CERTIFIED, APPROVED ON DoD ANTI-RAM LIST

BOLLARD COVER EXAMPLES - CUSTOM TYPES, SIZES, SHAPES AND COLORS ARE AVAILABLE



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BOLLARD COVER EXAMPLES

SAMPLE DRAWINGS

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