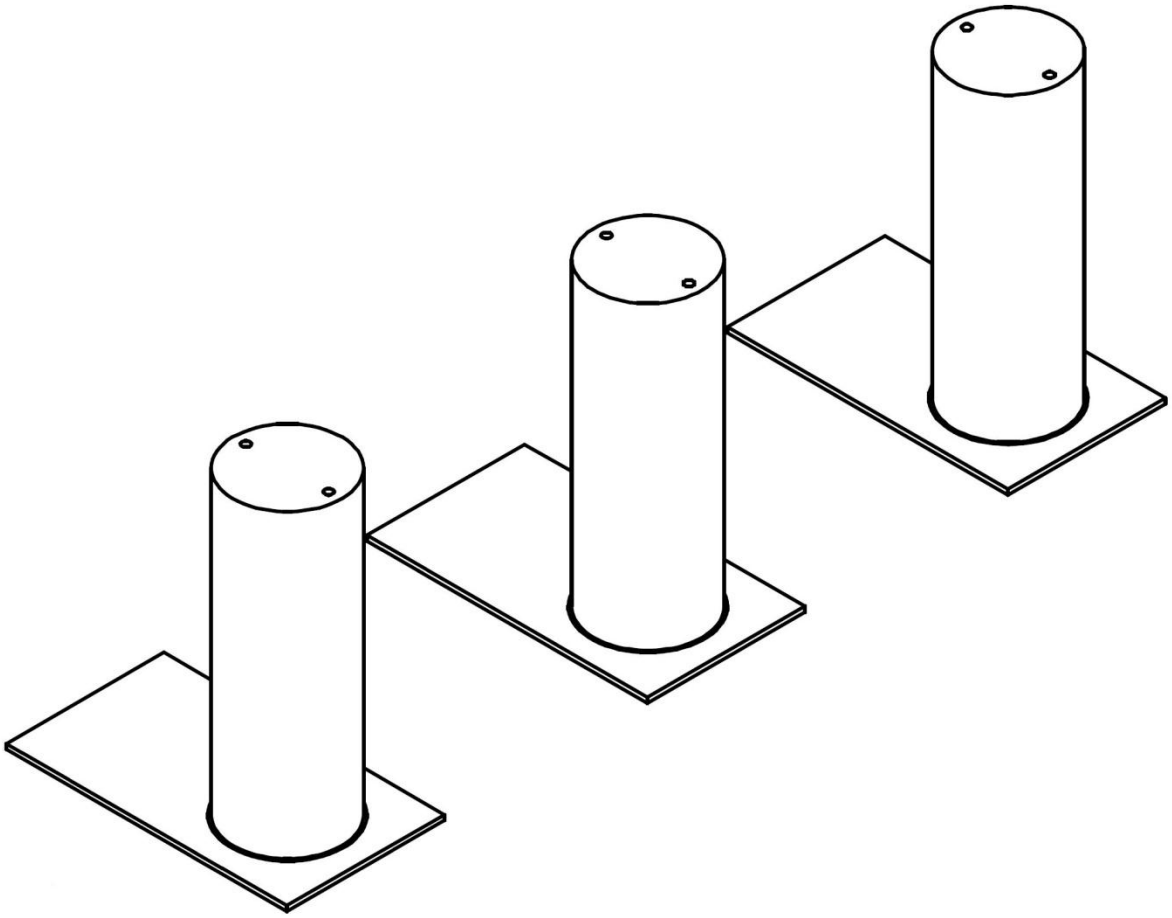
DEFENDER

Installation Manual



DEFENDER SERIES BOLLARDS

GENERAL INSTALLATION GUIDELINES
(Unless otherwise specified)

1.0 BOLLARD BARRIER FOUNDATION

DETERMINE VEHICLE BARRIER LOCATION AND PREPARE EXCAVATION/FOUNDATION FOR INSERTION OF BARRIER ACCORDING TO PLANS.

2.0 DRAINAGE

ONCE INSTALLATION CONFIGURATION IS DETERMINED AND THE FOUNDATION EXCAVATION IS PREPARED, ADEQUATE DRAINAGE MUST BE INSTALLED.

2.1 FOUNDATION DRAINAGE OPTIONS

A. ROUTE DRAINAGE FROM BARRIER TO APPROVED STORM DRAIN.

B. INSTALL SUMP PIT AND SUMP PUMP (AS REQUIRED BY SITE CONDITIONS) TO EJECT WATER RUNOFF FROM BARRIER. EJECT TO STORM DRAIN OR GUTTER.

C. INSTALL “FRENCH DRAIN” IN BARRIER FOUNDATION. USE ONLY IN EXTREMELY DRY CLIMATES.

* ADEQUATE DRAINAGE REQUIRED!
* 2” MINIMUM DRAIN LINE RECOMMENDED. LOCAL PRECIPITATION MAY REQUIRE LARGER DRAINAGE CAPACITY.
* CONSIDERATION SHOULD BE GIVEN TO SPECIAL DRAINAGE CONDITIONS DURING WINTER MONTHS.

3.0 INSTALLATION OF VEHICLE BARRIERS

A. DIG DOWN 56 INCHES AND FRAME THE OUTSIDE DIMENSIONS OF THE BASE AS PER THE SPEC. (SEE APPROVED DRAWINGS.). LAY DOWN 2 INCHES OF GRAVEL AND TAMP AND LEVEL. FORM THE REBAR GRID USING ½ IN. REBAR ON 12 IN. CENTERS AND STUB UP NO MORE THAN 3 INCHES AS PER DRAWINGS.

B. INSTALL DRAINAGE. INSTALL DRAIN LINES, CONNECTING TO THE 2.5 IN. FEMALE CONNECTOR AT BOLLARD BASE. RUN DRAIN LINE TO STORM WATER SEWER.

C. PREPARE AND POUR BASE SLAB PER PLANS. SIX-INCH BASE SLAB RECOMMENDED UNLESS OTHER SPECIAL CONDITIONS EXIST. POUR THE PAD 6 IN. THICK USING 3000-PSI CONCRETE OR BETTER. VIBRATE AND FINISH TO A SMOOTH, LEVEL SURFACE. WHEN CURED, (USUALLY 24 HOURS) SET THE BOLLARDS, WHICH WILL BE LEVEL TO GRADE.

D. PLACE BOLLARDS ONTO FOUNDATION. BOLLARDS SHOULD BE SET IN LINE WITH EACH OTHER AND SPACED 36" ON CENTER. IT IS IMPORTANT TO SET THE BARRIERS AT 90 DEGREES TO THE SURFACE OR PREMATURE WEAR MAY OCCUR.

SPECIAL NOTE: SPACING GREATER THAN 36" ON CENTER WILL NOT BE IN COMPLIANCE WITH THE US DEPARTMENT OF STATE CRASH TEST RATING FOR THE DEFENDER SERIES BOLLARD.

E. INSTALL CONDUITS TO INTER-CONNECT THE BOLLARDS TO THE HYDRAULIC POWER UNIT CONTROL SYSTEM. TRENCH FROM THE HPU STUB-UP AREA TO THE BOLLARDS FOR THE REQUIRED CONDUITS. LAY IN CONDUIT AND COVER.

- THIS NORMALLY INVOLVES:
  - (1) 3" PVC CONDUIT WITH LONG SWEEPING ELBOWS THAT CAN ACCOMADATE UP TO (1) 1 INCH AND (1) ¾ INCH HYDRAULIC LINES (SEE JOB SPECIFIC SCHEMATICS).
  - (2) 1" PVC CONDUITS FOR CONTROL WIRING/LIMIT SWITCHES PLUS ADDITIONAL CONDUIT IF ACCESSORY OPTIONS ARE SELECTED.

F. AFTER CONDUITS HAVE BEEN INSTALLED AND ATTACHED TO THE BOLLARDS, FINISH THE REMAINING CONCRETE POUR.

- WHEN INSTALLING THE BOLLARDS IT IS RECOMMENDED THAT THE BARRIERS BE SLIGHTLY ELEVATED ABOVE GRADE TO ALLOW FOR WATER RUN-OFF AWAY FROM THE BARRIER. A MINIMUM 3,000 PSI CONCRETE MIX IS RECOMMENDED.

4.0 ELECTRO-HYDRAULIC POWER UNIT

A. DETERMINE LOCATION OF ELECTRO-HYDRAULIC POWER UNIT (HPU) (75' TO 100' IS THE MAXIMUM DISTANCE FOR CONNECTION BETWEEN THE BOLLARDS AND THE HPU, UNLESS REVIEWED AND APPROVED BY BOON EDAM, INC.)

B. SET HPU IN AN ADEQUATELY VENTILATED LOCATION. (SEE THE JOB SPECIFIC SPECS FOR THE HPU FOOT PRINT.) IF A CONCRETE FOUNDATION IS REQUIRED, FORM THE PAD 4 TO 6 INCHES LARGER THAN THE HPU FOOT PRINT. SET IN THE CONDUIT STUB-UPS AND FINISH SMOOTH. WHEN CURED, (USUALLY 24 HOURS) SET HYDRAULIC POWER UNIT AND FASTEN TO CONCRETE PAD WITH MIN. 5/16" x 3-1/2" ANCHOR BOLT.

- STUP-UPS INCLUDE THE FOLLOWING:
    a. MAIN FACILITY POWER FEED
    b. MASTER CONTROL PANEL
    c. REMOTE CONTROL PANEL
    d. TRAFFIC LIGHTS
    e. VEHICLE SAFETY LOOPS
    f. HYDRAULIC LINES
    g. CONTROL WIRING/LIMIT SWITCHES
    h. ANY OTHER ACCESSORY WIRING

C. IF THE HPU IS LOCATED OUTSIDE AN OPTIONAL WEATHER-RESISTANT ENCLOSURE IS REQUIRED.

D. MAIN ELECTRICAL POWER FOR THE VEHICLE BARRIER SYSTEM IS CONNECTED AT THE HPU.

5.0 CONTROL STATIONS

A. LOCATE AND INSTALL THE MASTER AND REMOTE CONTROL PANELS (AS REQUIRED).

- IT IS RECOMMENDED THAT AT LEAST ONE CONTROL PANEL BE INSTALLED WITHIN “LINE OF SIGHT” WITH THE VEHICLE BARRIERS FOR SAFETY CONSIDERATIONS.

B. ALL CONTROL PANELS SHOULD BE INTERCONNECTED DIRECTLY WITH THE HPU.

6.0 FINAL SYSTEM CONNECTION

A. BASIC INSTALLATION SHOULD NOW BE COMPLETE.

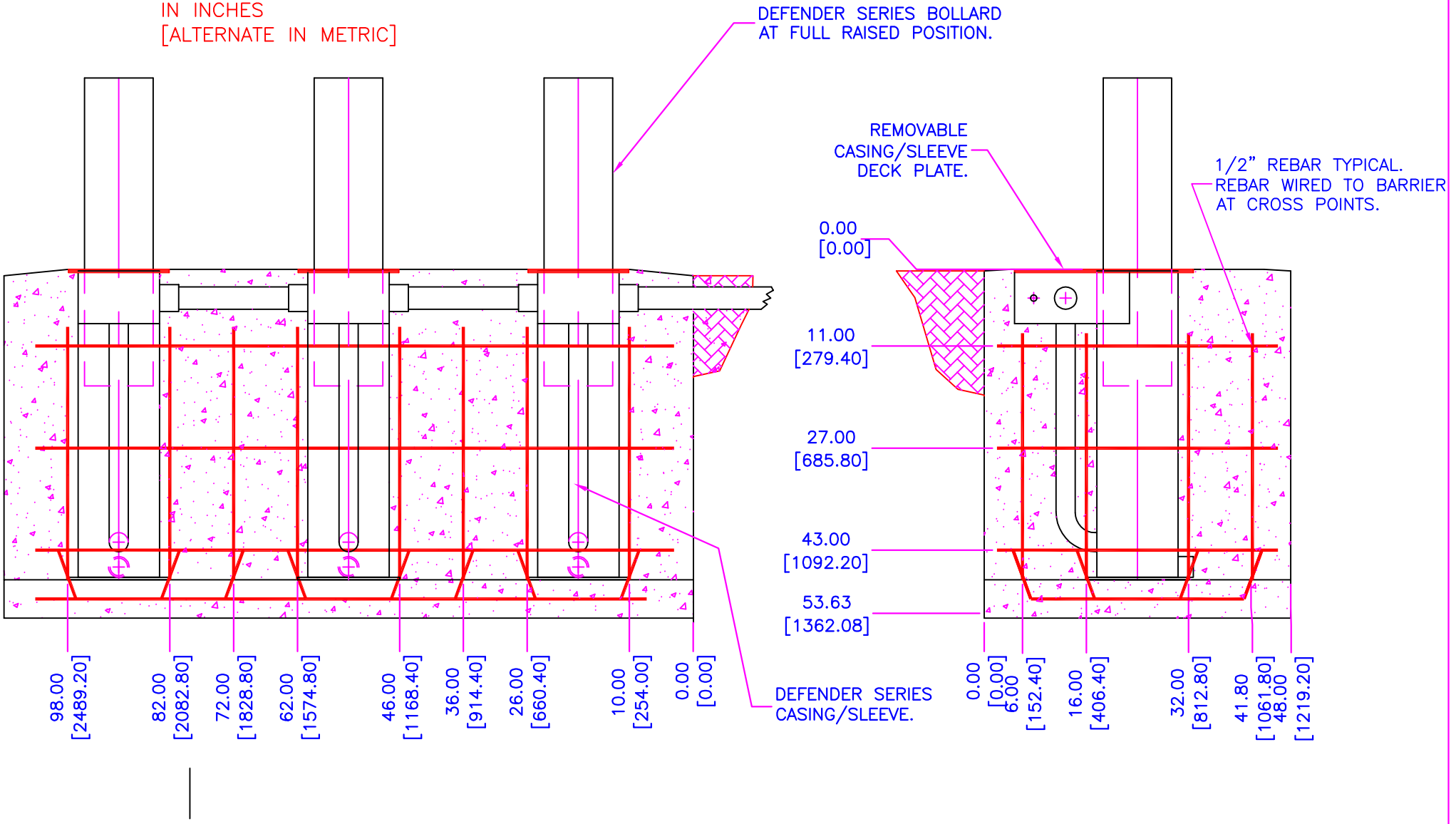
B. THE BOLLARDS REQUIRE HYDRAULIC ENERGY TO POWER THE SYSTEM TO RAISE AND LOWER. THIS REQUIRES HYDRAULIC INTERCONNECTION OF LINES BETWEEN THE HPU AND THE BOLLARDS. INSTALL HYDRAULIC LINES AS REQUIRED ON THE JOB SPECIFIC HYDRAULIC SCHEMATIC AND ENSURE THAT DUST, DIRT AND ANY OTHER CONTAMINATES DO NOT GET INTO THE LINES.

C. INSTALL THE POWER AND CONTROL WIRING AS REQUIRED PER THE JOB SPECIFIC SCHEMATICS.

D. BE SURE TO FOLLOW POWER UNIT START- UP PROCEDURES AND RUN SEVERAL OPERATIONAL TESTS ON THE COMPLETE SYSTEM PRIOR TO FINAL USAGE.

// END OF SPECIFICATION \\

NOTE:
ALL DIMENSIONS
IN INCHES
[ALTERNATE IN METRIC]



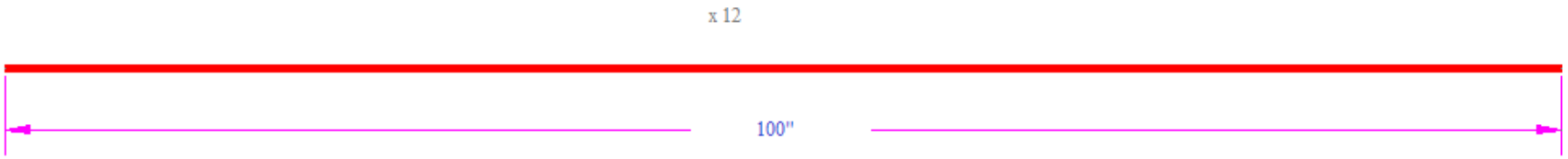
AMERISTAR®
1555 N. Mingo
Tulsa, OK 74116
1-888-333-3422
www.ameristarfence.com

TITLE: 3 DEFENDER REBAR		
DATE:	SCALE:	SHEET: 1/1
DRN BY:	CHK BY: xxxxxxxxx	REV: a
DRAWING NO:		

3 Defender Rebar

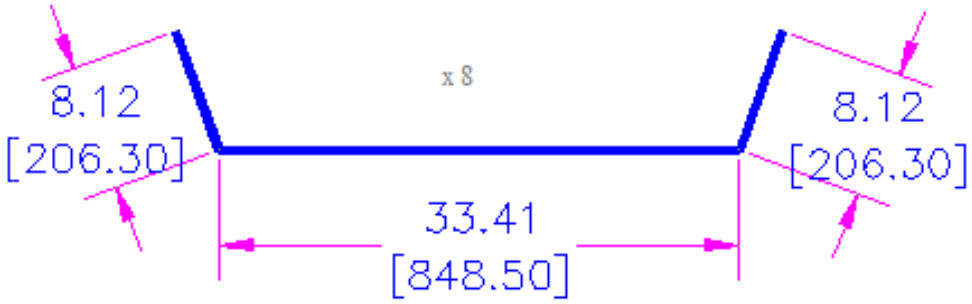
Product	Item	Quantity	Size
3 Defender	1	12	#4
3 Defender	2	32	#4
3 Defender	3	8	#4
3 Defender	4	24	#4
3 Defender	5	4	#4

1

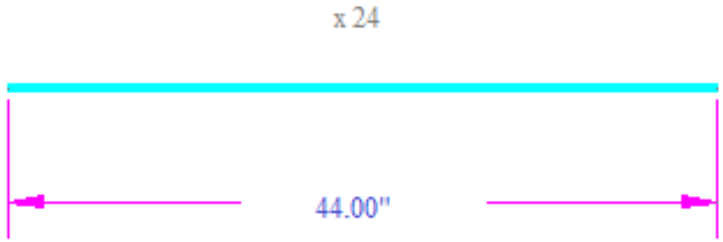


2

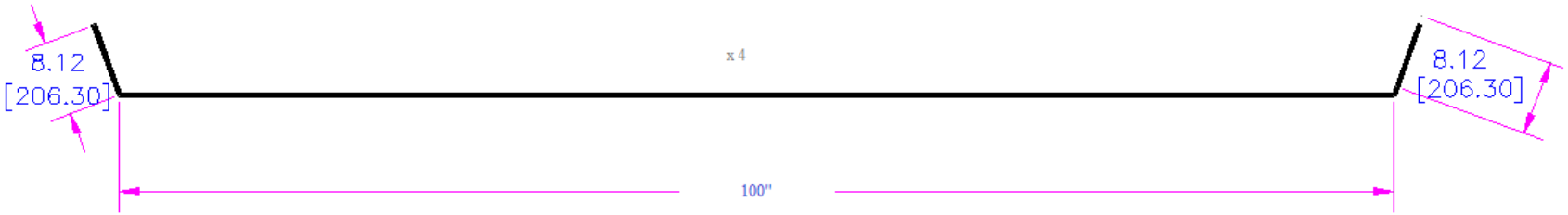
3


x 8
8.12
[206.30]
8.12
[206.30]
33.41
[848.50]

4


x 24
44.00"

5


x 4
8.12
[206.30]
8.12
[206.30]
100"