

# **BOLLARDS**

**M50 (K12) RATED  
CRASH TEST CERTIFIED**

(15,000 LBS TRUCKS @ 50 MPH)

**SHALLOW MOUNT**

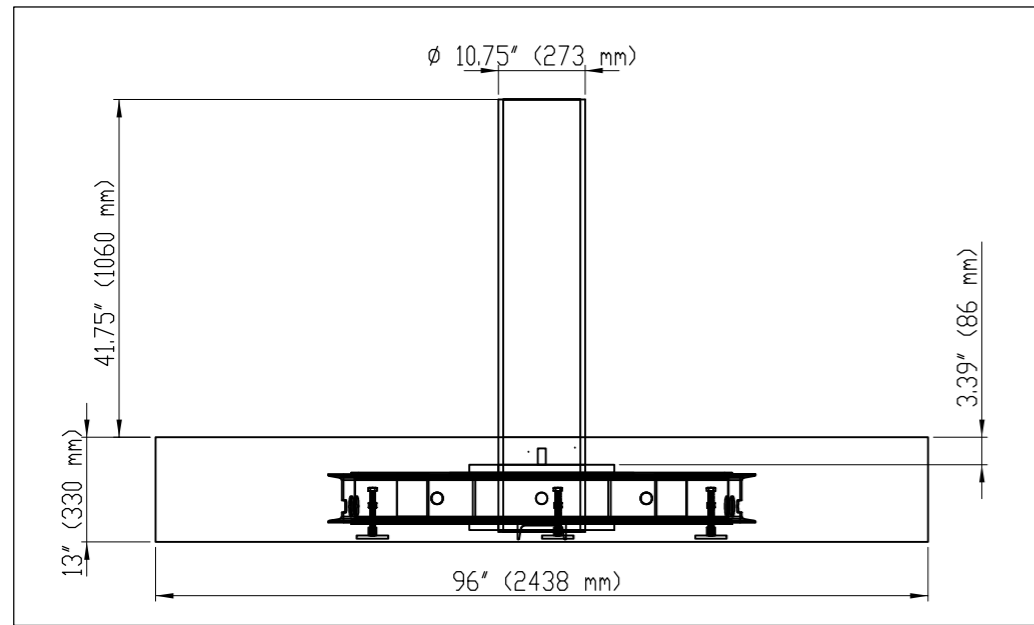
(13" DEEP FOUNDATION)



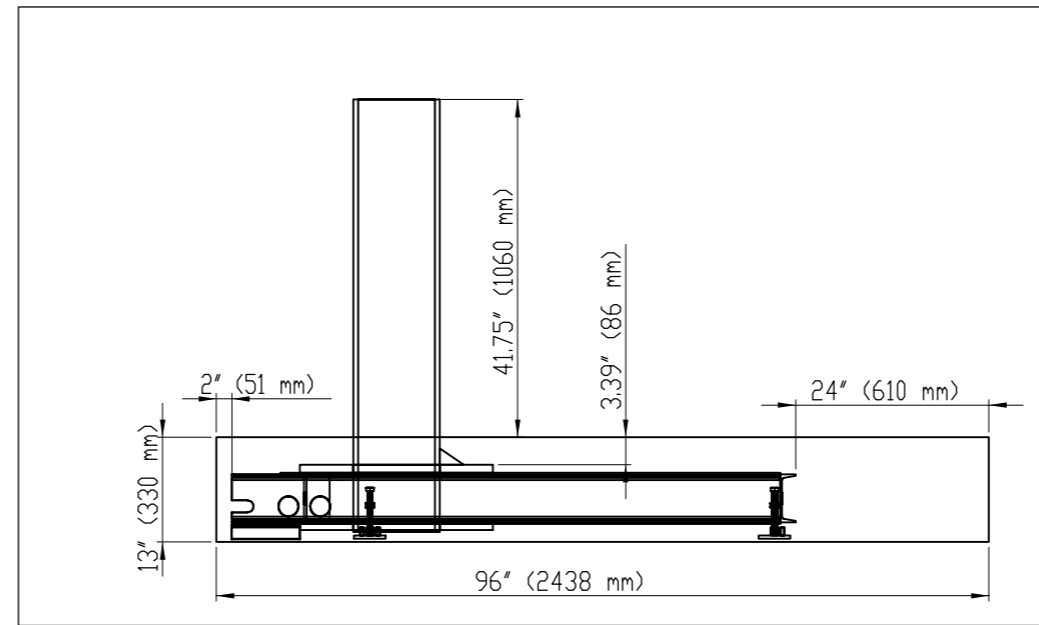
BOLLARD -- M50 (K12) RATED ASSEMBLY  
 SHALLOW MOUNT FOUNDATION -- RATED FOR VEHICLES UPTO 15000 LBS AND 50 MPH  
 SINGLE BOLLARD ASSEMBLY

NOTES

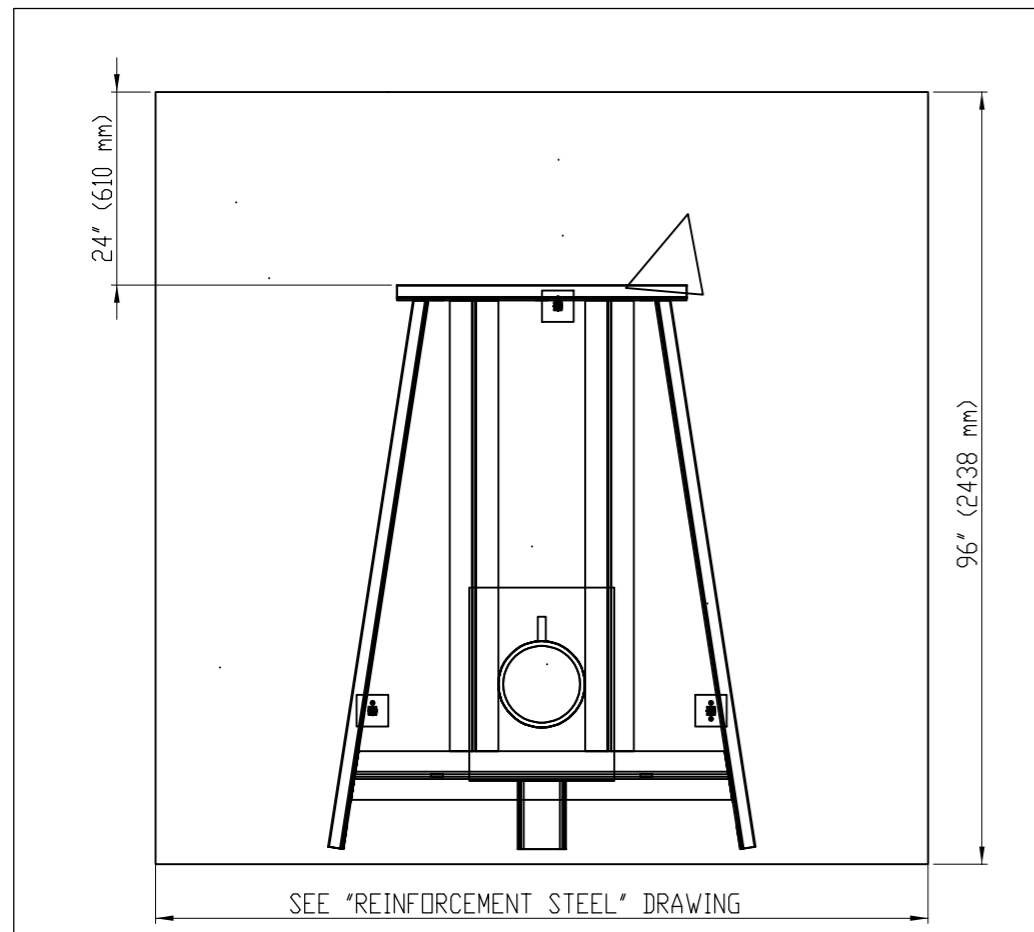
1. ALL MATERIALS (BOLLARDS) WILL BE PROVIDED BY ATLAS EXCEPT FOR THE CONCRETE AND REINFORCEMENT STEEL
2. THE CONCRETE SHALL BE A MINIMUM OF 4000 PSI
3. STEEL REINFORCEMENT SHALL HAVE A MIN OF 1" CONCRETE COVER ON TOP SIDE. ROTATE OR CUT WWF TO CLEAR ANGLE.
4. PROVIDE A MINIMUM CONCRETE COVER OF 2" AT FRONT (ATTACK SIDE) BACK (SECURE SIDE) AND LEFT/RIGHT SIDES.
5. BOLLARDS SHALL BE FILLED WITH CONCRETE, PROVIDE DOME/SLOPED CONCRETE TOP TO SHED WATER
6. BOLLARDS ARE AVAILABLE IN A FLAT OR SLOPED TOP, STEEL CAPS AND OTHER CUSTOM CONFIGURATION OPTIONS AVAILABLE
7. STANDARD BOLLARD SIZE IS 10" (10.75" OD) AND WITH 41.75" HEIGHT. CUSTOM HEIGHTS ARE AVAILABLE
8. REBAR NOT SHOWN ON THIS DRAWING, SEE "REINFORCEMENT STEEL DRAWING" FOR REBAR REQUIREMENT



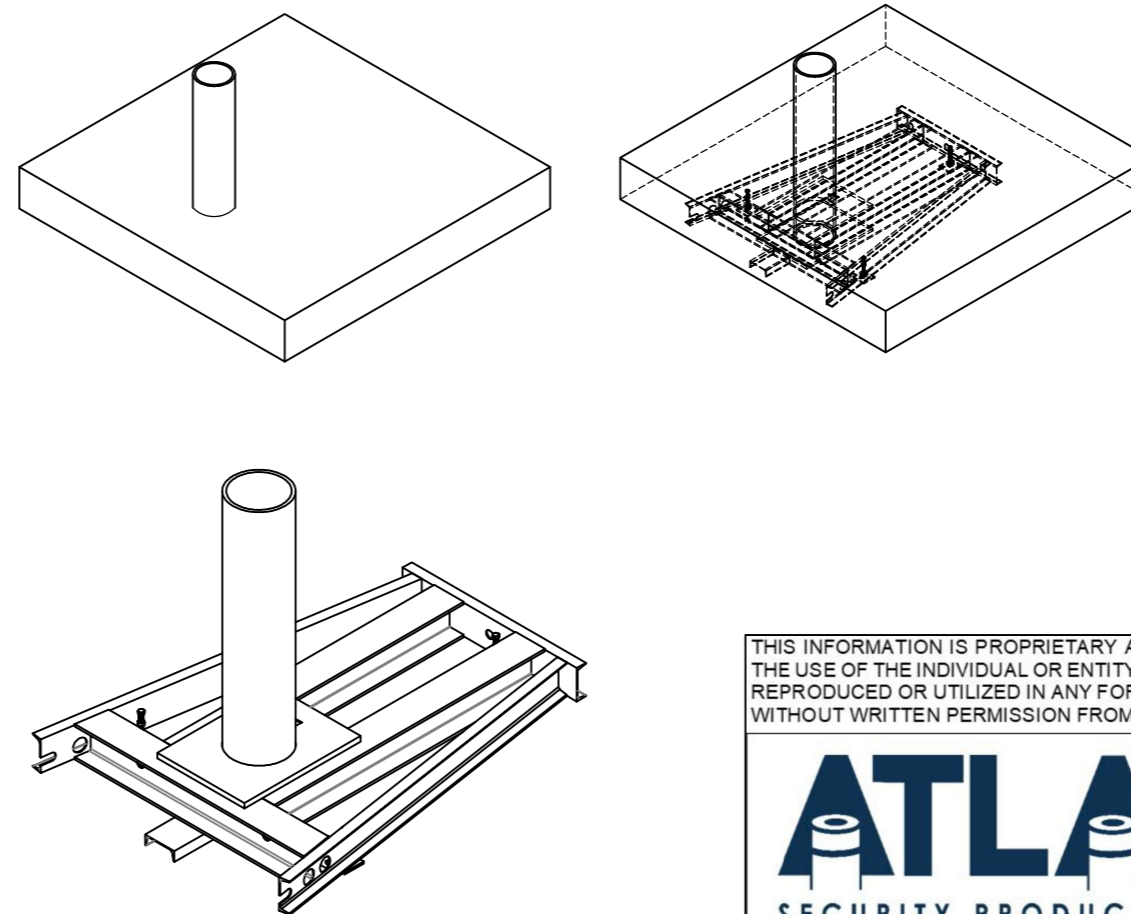
FRONT ELEVATION



SIDE VIEW



PLAN (TOP) VIEW



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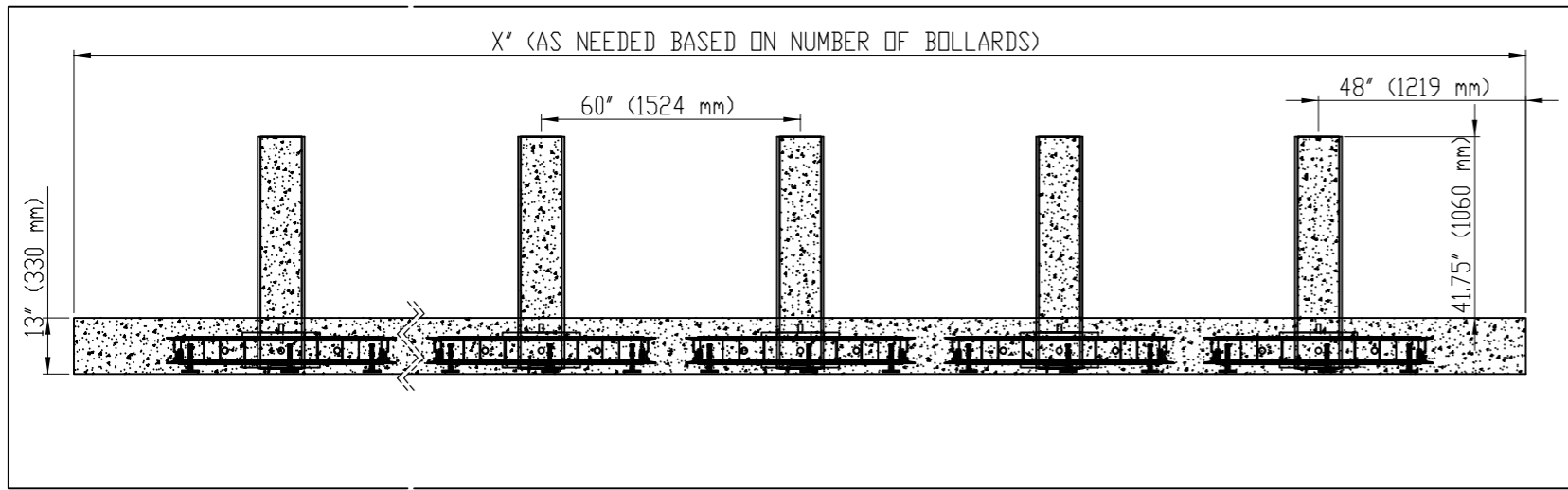
**ATLAS**  
 SECURITY PRODUCTS INC  
**AMERISTAR - ASSA ABLOY**

NAME OF CLIENT:	
PROJECT:	
DWG DATE:	DWG BY:
SCALE: N/A	UNITS: IN
TITLE: M50 CRASH RATED (ASTM F2656) SHALLOW MOUNT BOLLARD ASSEMBLY	
DWG NO: ASPI-SB-120	

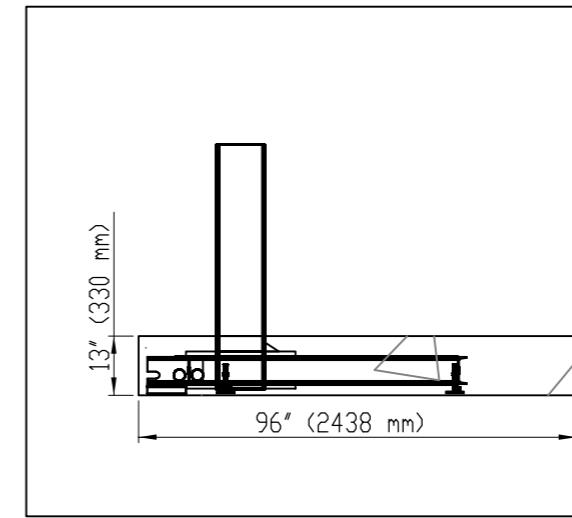
BOLLARD -- M50 (K12) RATED ASSEMBLY  
 SHALLOW MOUNT FOUNDATION -- RATED FOR VEHICLES UPTO 15000 LBS AND 50 MPH  
 MULTIPLE BOLLARDS INSTALLATION

NOTES

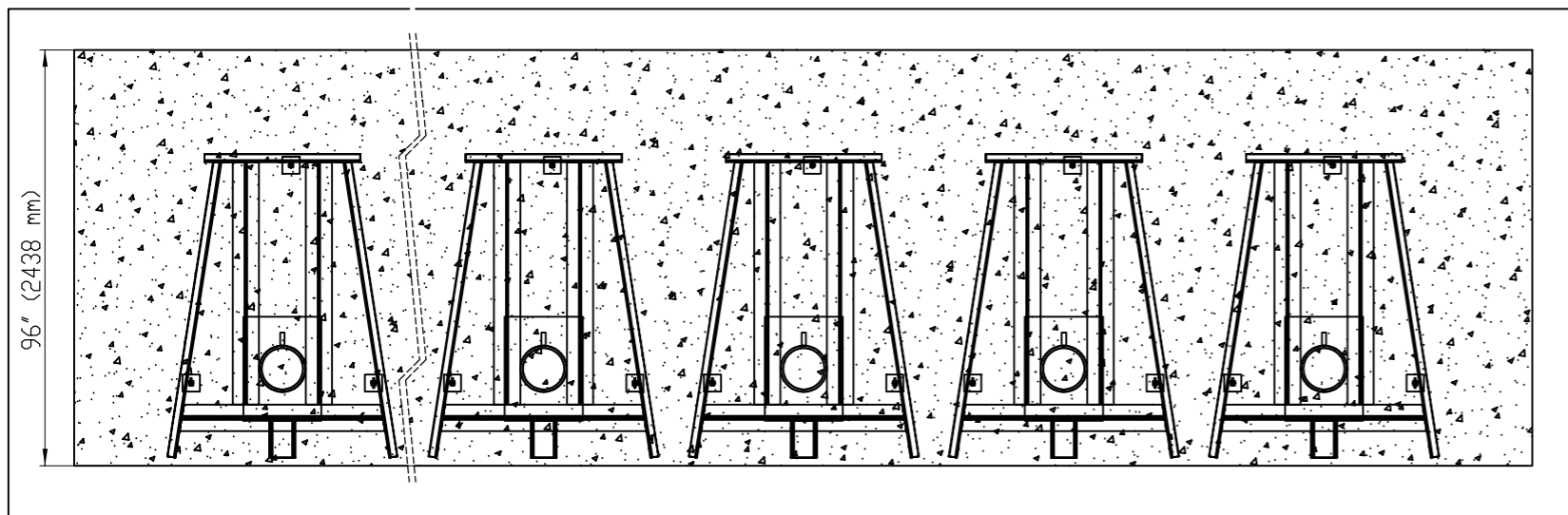
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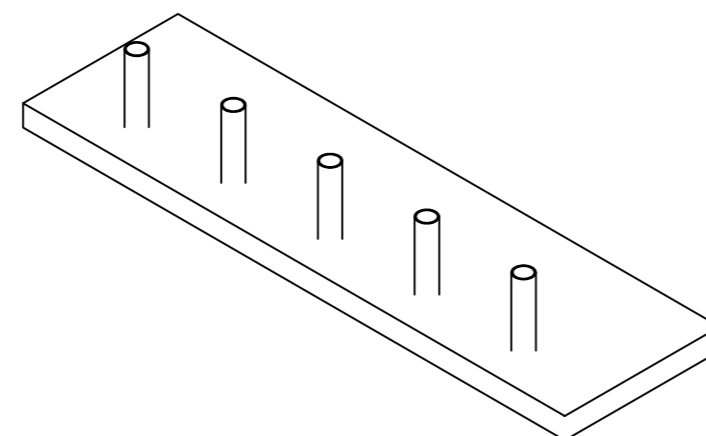
FRONT ELEVATION



SIDE VIEW



PLAN (TOP) VIEW



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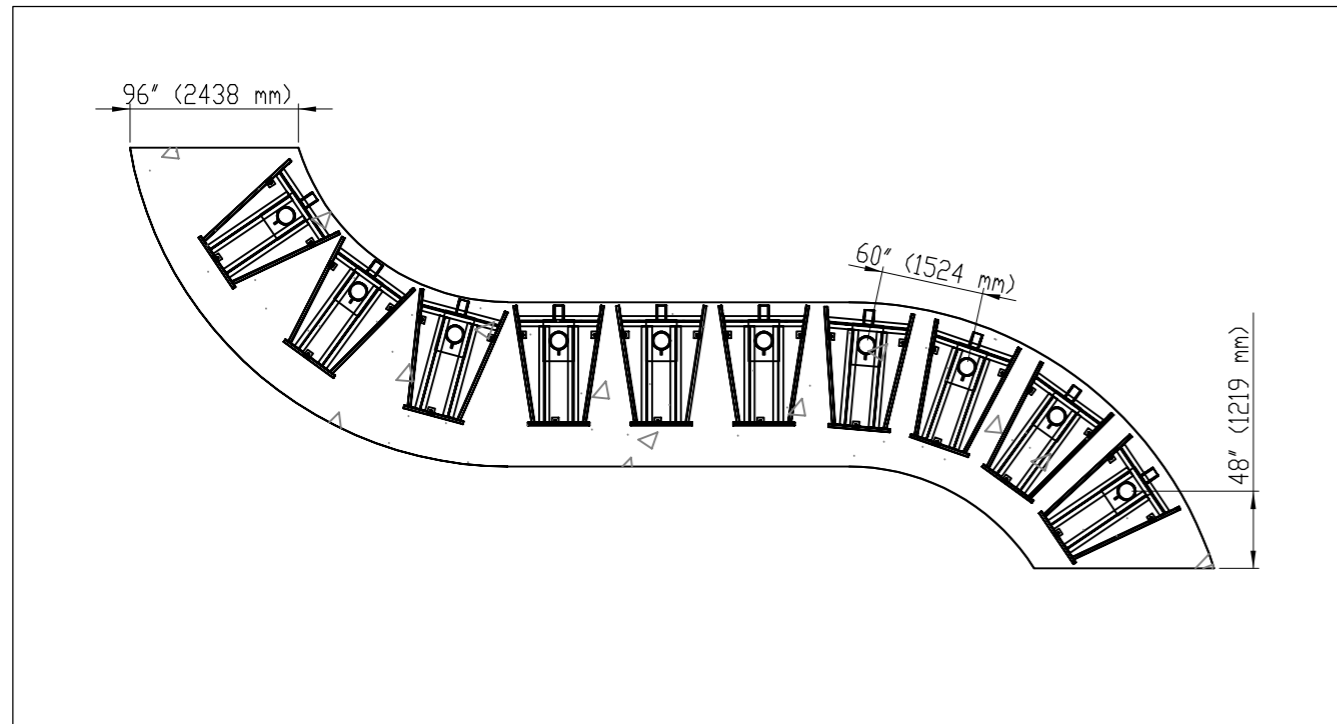


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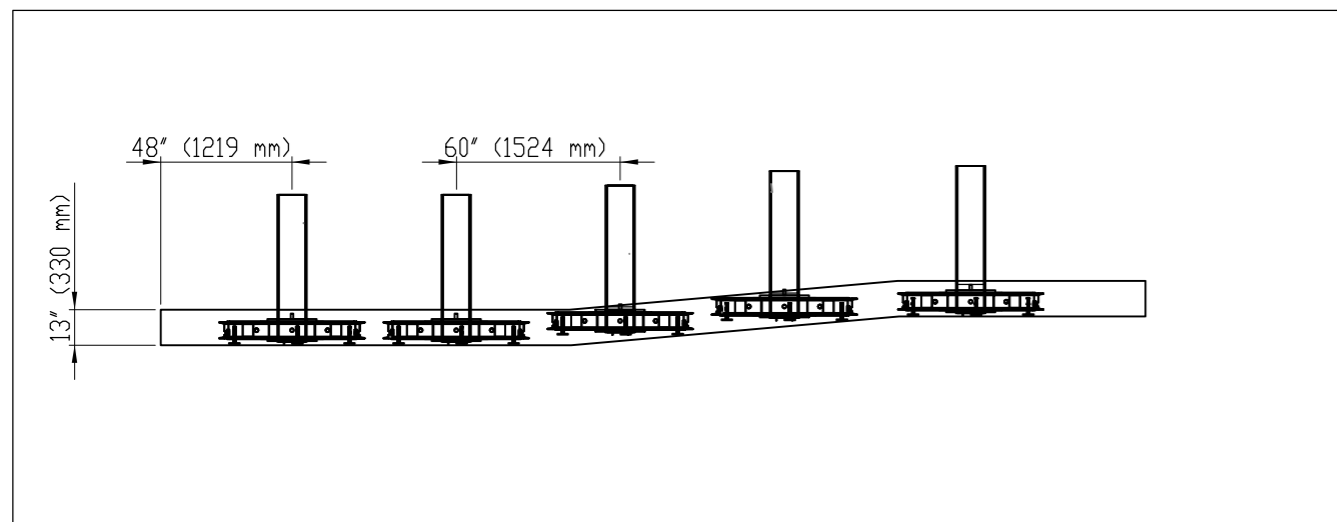
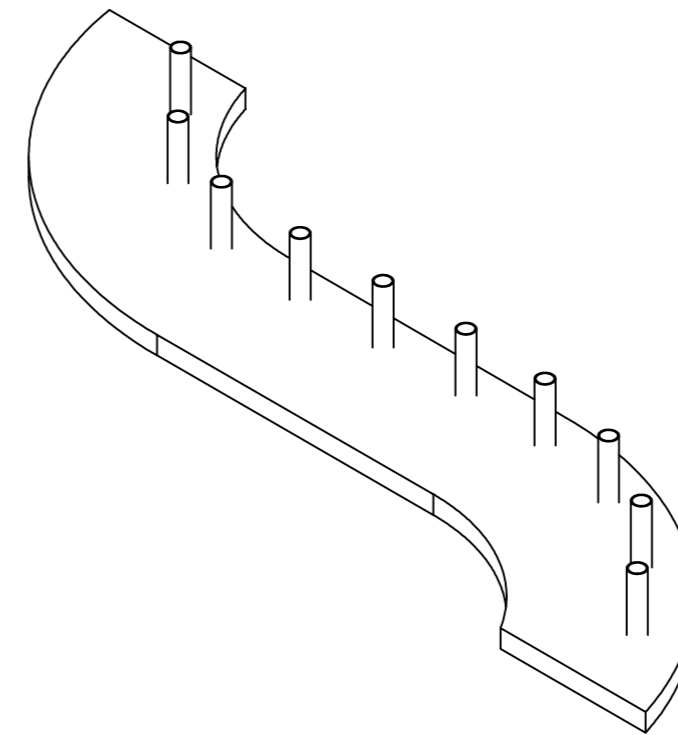
BOLLARD -- M50 (K12) RATED ASSEMBLY  
 SHALLOW MOUNT FOUNDATION -- RATED FOR VEHICLES UPTO 15000 LBS AND 50 MPH  
 MULTIPLE BOLLARDS CURVE AND HEIGHT CHANGE INSTALLATION

NOTES

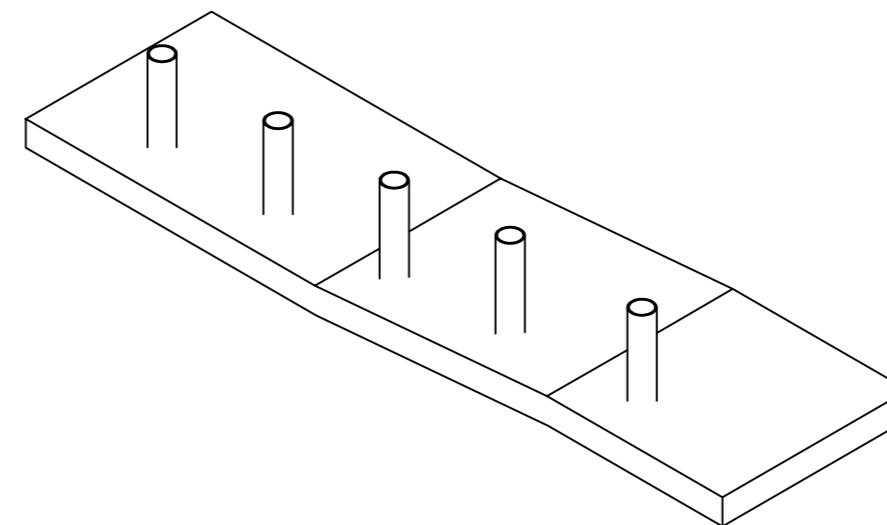
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CHANGE IN CURVE



CHANGE IN ELEVATION



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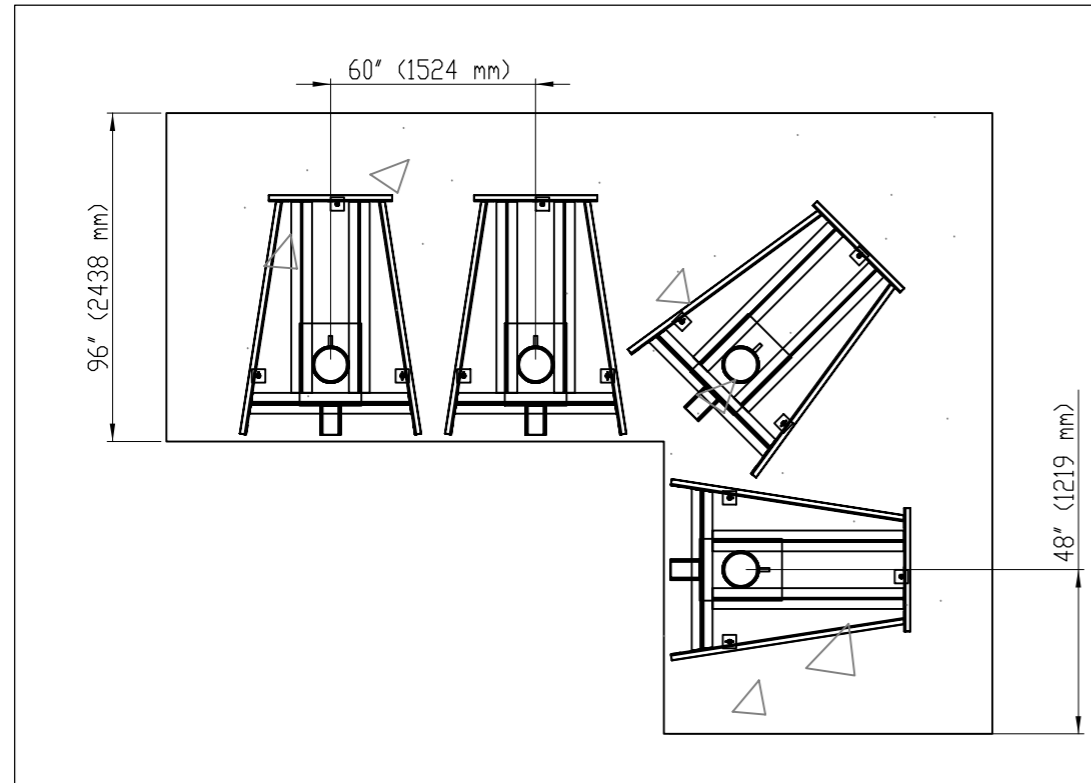


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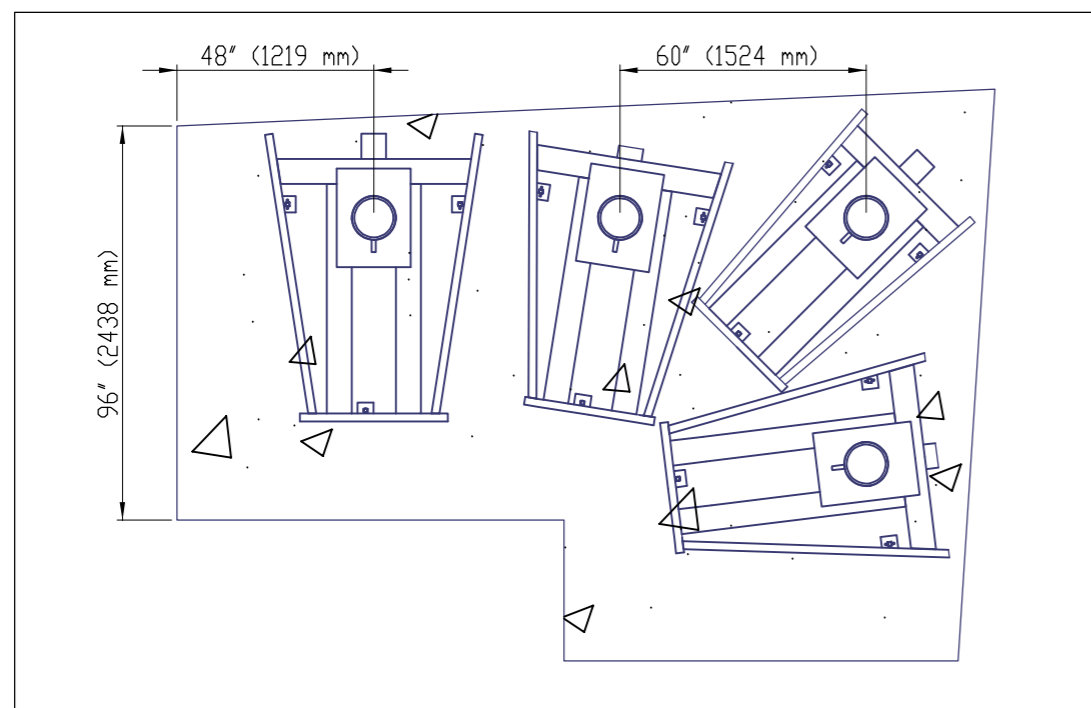
BOLLARD -- M50 (K12) RATED ASSEMBLY  
 SHALLOW MOUNT FOUNDATION -- RATED FOR VEHICLES UPTO 15000 LBS AND 50 MPH  
 MULTIPLE BOLLARDS CORNER INSTALLATION

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INSIDE CORNER

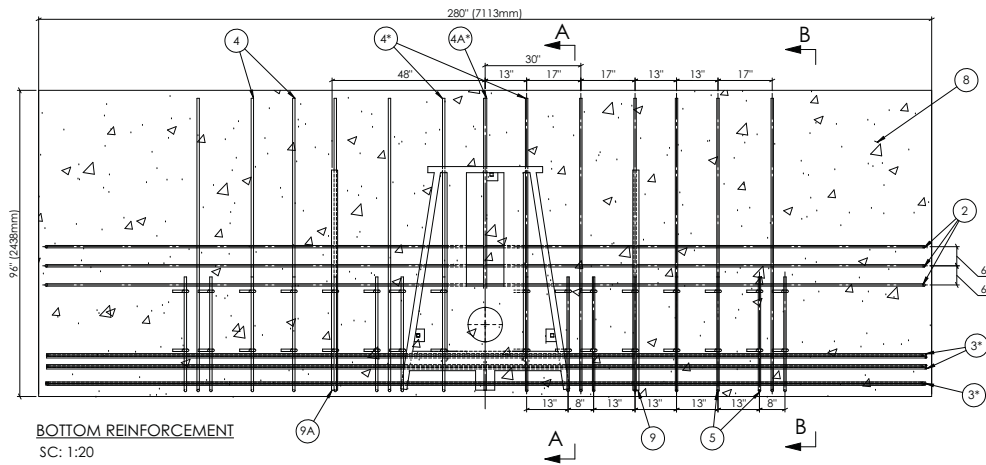


OUTSIDE CORNER

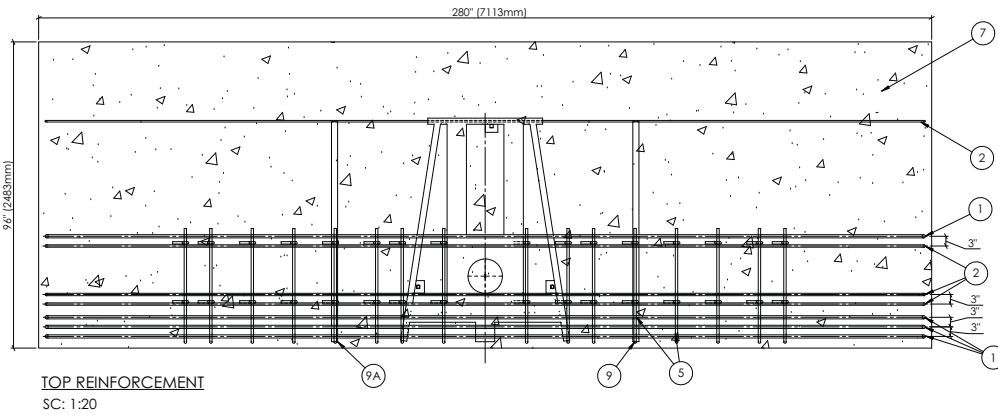
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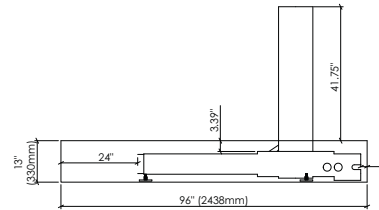
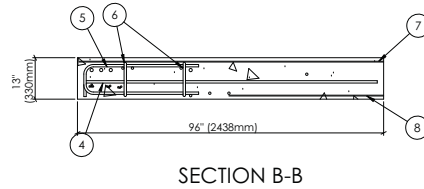
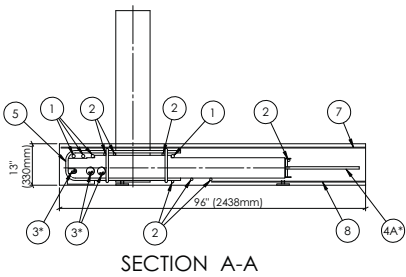
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DWG NO: ASPI-SB-120	



Note: Wire mesh is not shown for clarity.



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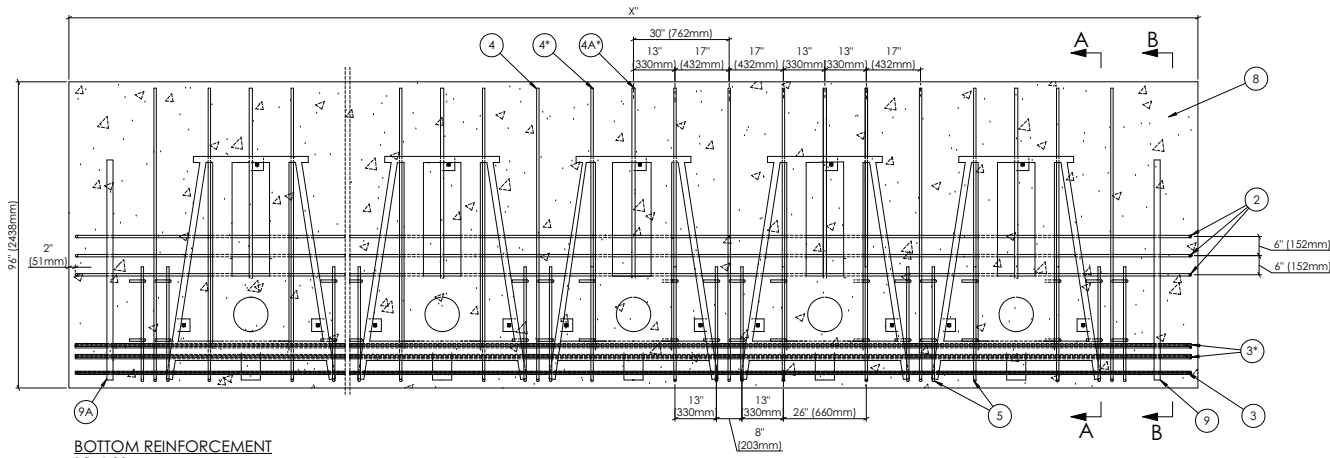
\* Rebar thru holes provided in assembly.

GROUP	SIZE	QTY.	SHAPE/ LENGTH
1	#8 (1" dia)	4	
2	#6 (.75" dia)	7	
3	#4 (.5" dia)	10	
4	#6 (.75" dia)	12	
4A	#6 (.75" dia)	1	
5	#6 (.75" dia)	16	
6	#6 (.75" dia)	32	
7	4"x4".25" Wire Mesh (8" wide)	1	
8	4"x4".25" Wire Mesh (4" wide)	1	
9	Channel (Provided by manufacturer)	1	
9A	Channel (Provided by manufacturer)	1	

MATERIAL TABLE		
MTERIAL DESCRIPTION	UNIT	QTY.
CONCRETE FC 4000psi	in <sup>2</sup>	
STEEL REINFORCEMENT A615Gr60 Ø 1/2"	lb	
STEEL REINFORCEMENT A615Gr60 Ø 3/4"	lb	
STEEL REINFORCEMENT A615Gr60 Ø 1"	lb	

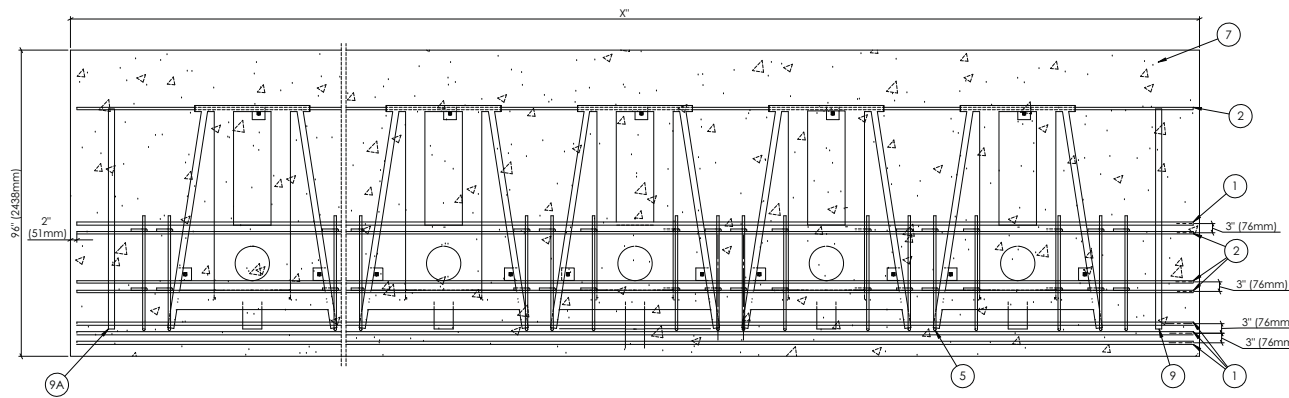
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ATLAS SECURITY PRODUCTS INC.			
P.O. BOX 29423, ROCKVILLE, MD 20859			
NAME OF CLIENT	DATE	REV	DESCRIPTION
PROJECT NAME	DATE	REV	DESCRIPTION
BY	DATE	REV	DESCRIPTION
APP'D	DATE	REV	DESCRIPTION
CHECKED	DATE	REV	DESCRIPTION



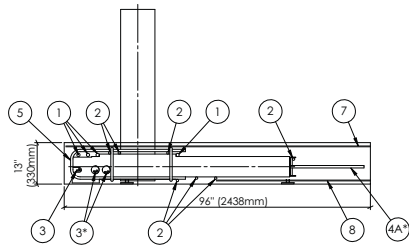
**BOTTOM REINFORCEMENT**  
SC: 1:20

Note:- Wire mesh is not shown for clarity.

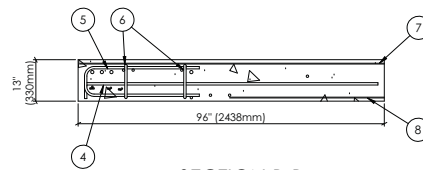


**TOP REINFORCEMENT**  
SC: 1:20

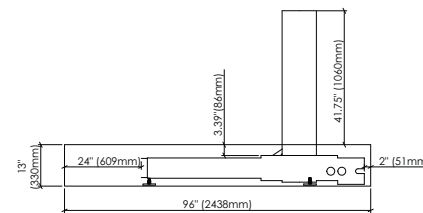
Note:- Wire mesh is not shown for clarity.



**SECTION A-A**



**SECTION B-B**



GROUP	SIZE	QTY.	SHAPE / LENGTH
1	#8 (1" (25mm)dia)	4	X-4" (X-101mm) $\phi$ 1" (25mm) 8" (203mm)
2	#6 (.75" (19mm)dia)	7	X-4" (X-101mm) $\phi$ 0.75" (19mm) 8" (203mm)
3	#4 (.5" (13mm)dia)	10	X-4" (X-101mm) $\phi$ 0.5" (13mm) 8" (203mm)
4	#6 (.75 (19mm) dia)	x	$\phi$ 0.75" (19mm) 92" (2337mm) 8" (203mm)
4A	#6 (.75 (19mm) dia)	x	$\phi$ 0.75" (19mm) 63" (1600mm) 8" (203mm)
5	#6 (.75 (19mm) dia)	x	9.375" (238mm) 36" (914mm) $\phi$ 0.75" (19mm)
6	#6 (.75 (19mm) dia)	x	10" (254mm) 12" (305mm) $\phi$ 0.75" (19mm)
7	4" (101mm)x4" (101mm)x.25" (6mm) Wire Mesh (8' (2438mm) wide)	1	
8	4" (101mm)x4" (101mm)x.25" (6mm) Wire Mesh (4' (1219mm) wide)	1	
9	Channel (Provided by manufacturer)	1	69" (1752mm)
9A	Channel (Provided by manufacturer)	1	69" (1752mm)

**MATERIAL TABLE**

MTERIAL DESCRIPTION	UNIT	QTY.
CONCRETE FC 4000psi	in <sup>2</sup>	
STEEL REINFORCEMENT A615Gr60 $\phi$ 1/2"	lb	
STEEL REINFORCEMENT A615Gr60 $\phi$ 3/4"	lb	
STEEL REINFORCEMENT A615Gr60 $\phi$ 1"	lb	

ATLAS SECURITY PRODUCTS INC.  
P.O. BOX 29425, ROCKVILLE, MD 20899

NAME OF CLIENT	DATE	BY	CHK BY
PROJECT NAME	DATE	BY	CHK BY
REV. NO.	SCALE	DATE	BY
APP'D	SCALE	DATE	BY
REV. NO.	SCALE	DATE	BY