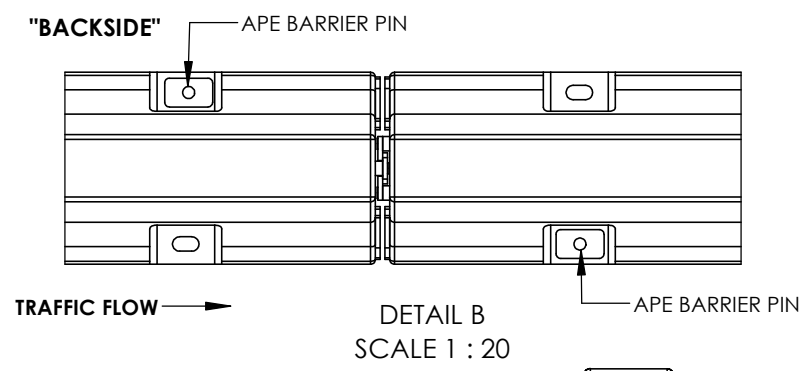
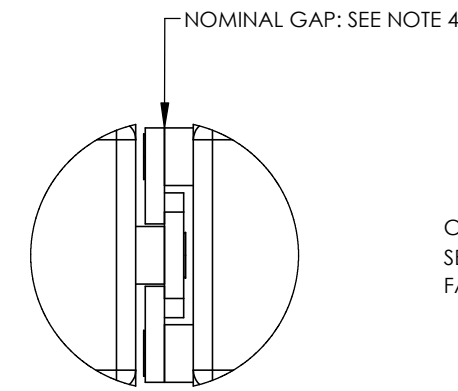
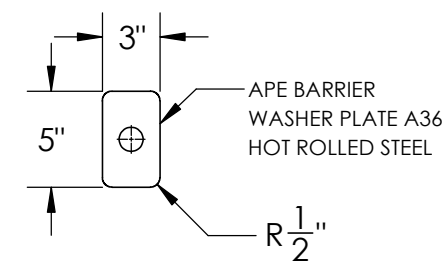


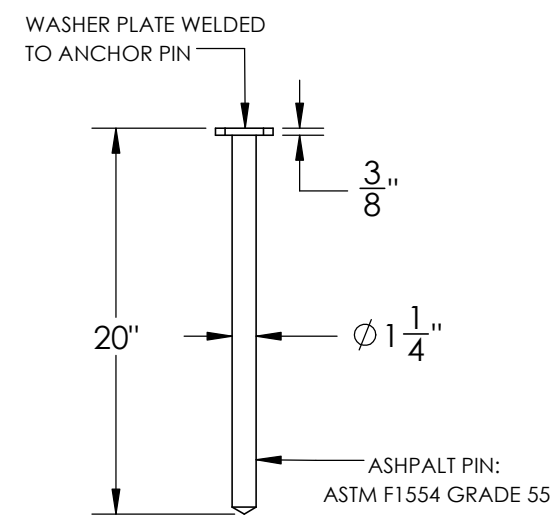
DETAIL A
SCALE 1 : 35



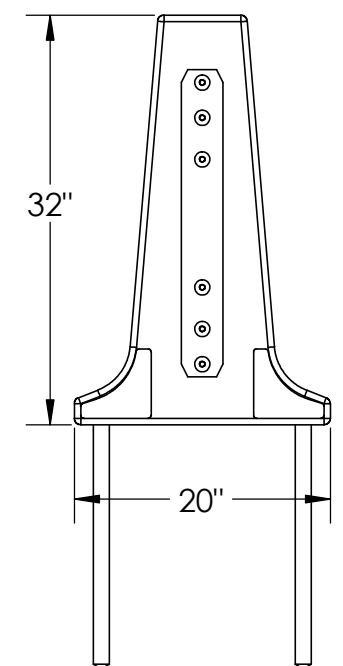
DETAIL B
SCALE 1 : 20



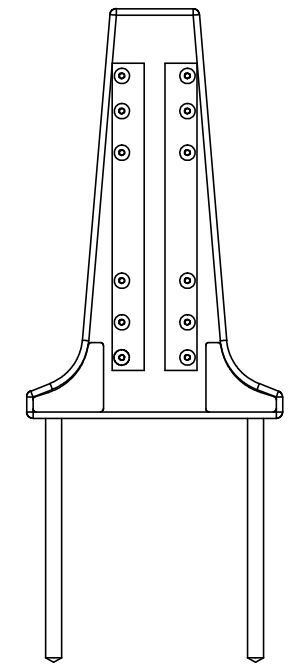
DETAIL C
APE BARRIER SYSTEM JOINT
SCALE 1 : 5



APE BARRIER ASPHALT
DROP PIN
SCALE 1:10



APE BARRIER MALE END
WITH ASPHALT PIN
SCALE: 1:15



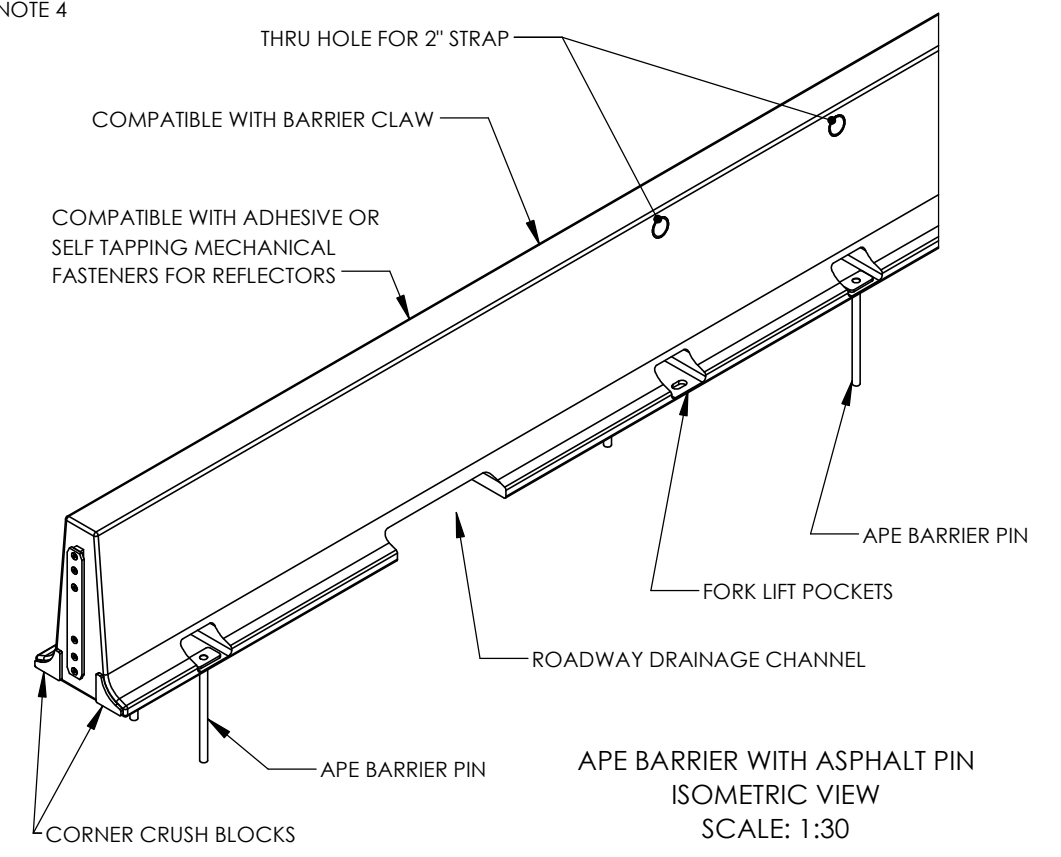
APE BARRIER FEMALE END
WITH ASPHALT PIN
SCALE: 1:15

APE BARRIER LIMITED DEFLECTION PIN CONFIGURATION

PIN THE LENGTH OF NEED AT BEGINNING AND END PER **DETAIL A** (6 PINS). PIN INTERMEDIATE JOINTS IN ACCORDANCE WITH **DETAIL B** (2 PINS PER JOINT). FOR **DETAIL B**, ENSURE THE PIN BEFORE THE JOINT IS ON THE BACKSIDE OF THE BARRIER WALL RELATIVE TO TRAFFIC FLOW.

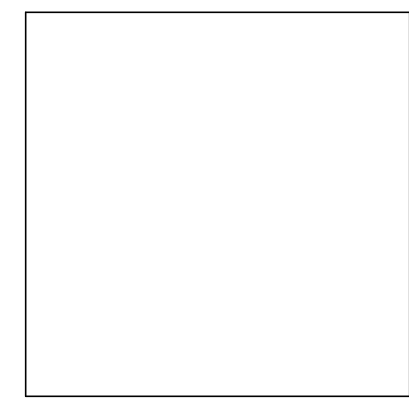
SURFACE	ANCHOR TYPE
ASPHALT ROADWAY (3" MINIMUM)	APE BARRIER ASPHALT DROP PIN
CONCRETE ROADWAY (6" MINIMUM)	APE BARRIER CONCRETE DROP PIN
CONCRETE BRIDGE DECK (8" MINIMUM)	1" KELIBOLT OR APPROVED EQUAL

ASPHALT ROADWAY (3" MINIMUM) IS THE ONLY TESTED CONFIGURATION. IT IS EXPECTED THAT THE OTHER PINS AND PIN SUBSTRATES ARE TO PERFORM EQUIVALENTLY BUT HAS NOT BEEN TESTED.



APE BARRIER WITH ASPHALT PIN
ISOMETRIC VIEW
SCALE: 1:30

- NOTES:
- 1.) APE BARRIERS ARE NOT TO BE INSTALLED IN DIRT OR EARTHEN SOILS. FOR INSTALLATIONS IN BASE MATERIALS OTHER THAN CONCRETE OR ASPHALT, CONTACT THE MANUFACTURER.
 - 2.) STANDARD APE BARRIER LENGTH IS 24 FT (7.3 M).
 - 3.) STANDARD APE BARRIER (24') WEIGHT IS 1,200 LBS (544 KG) ± 10%.
 - 4.) IF AMBIENT TEMPERATURE IS LESS THAN 20°F REMOVE THE SLACK AT JOINT TO ALLOW FOR BARRIER EXPANSION. IF AMBIENT TEMPERATURE IS BETWEEN 20°F AND 95°F, CENTER THE BARRIER CONNECTIONS. IF AMBIENT TEMPERATURE IS ABOVE 95°F, PUSH BARRIER CONNECTIONS TIGHT TO ALLOW FOR BARRIER CONTRACTION.

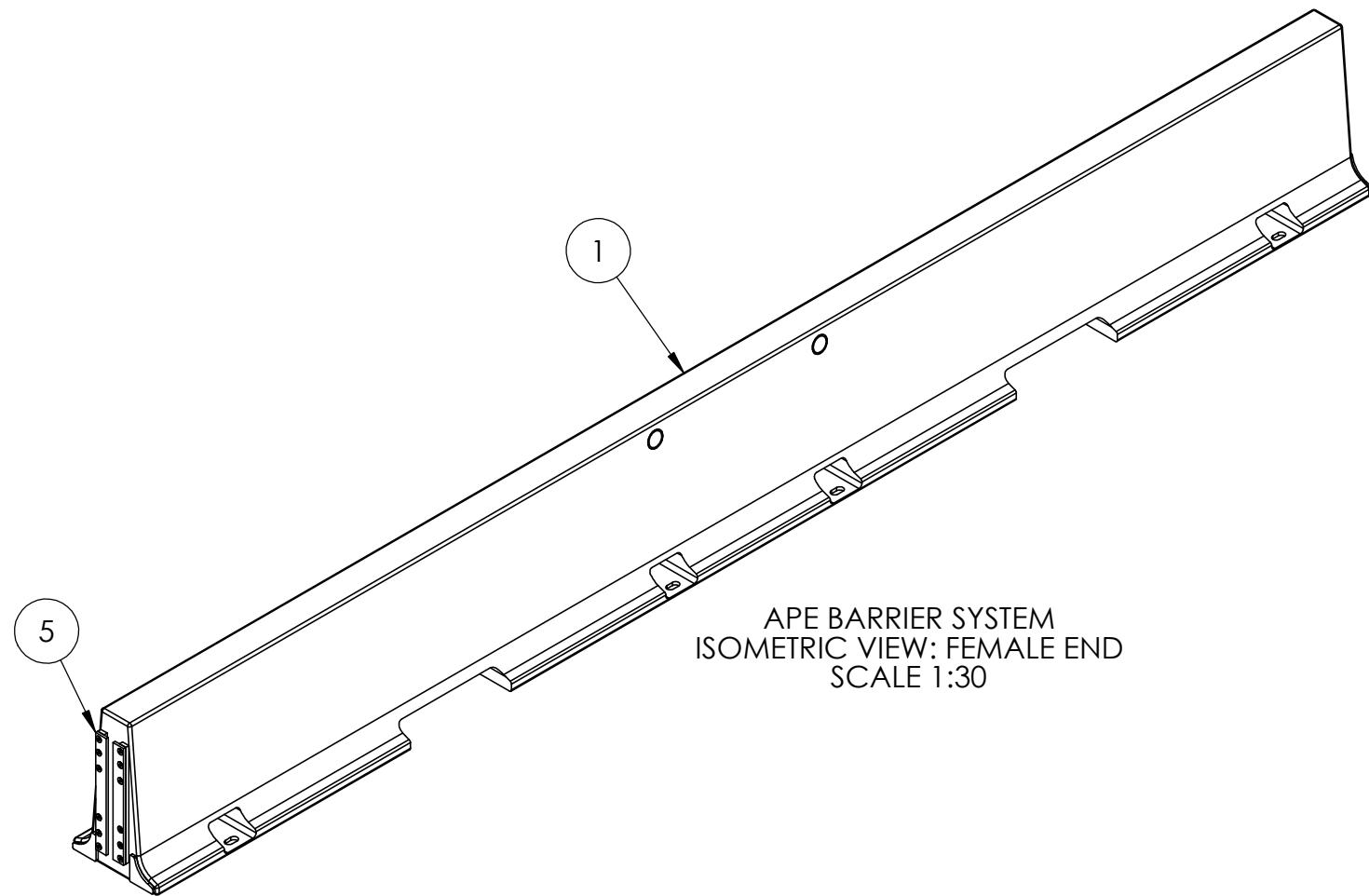


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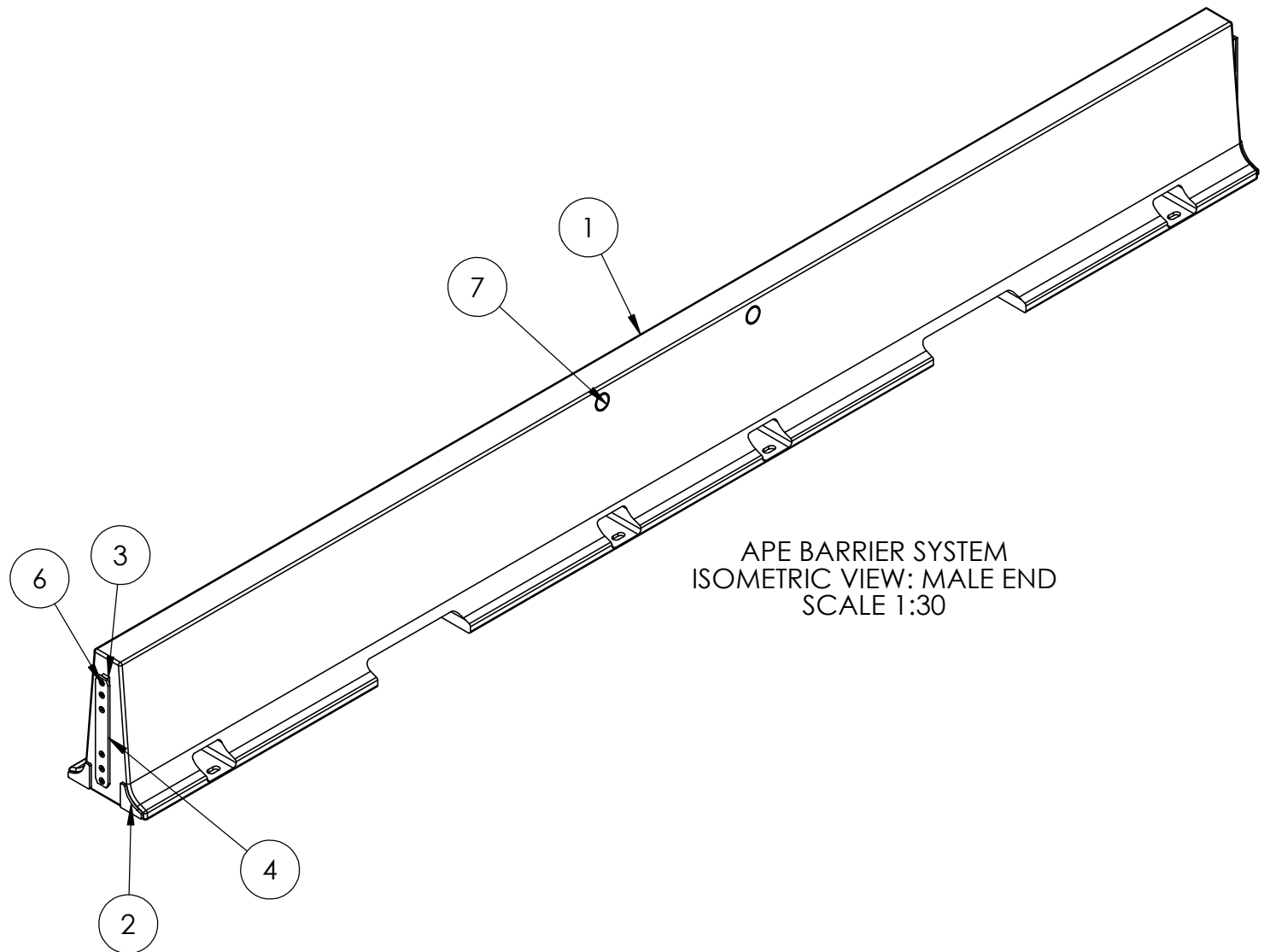
	NAME	DATE
DRAWN	AS III	05/21/24
CHECKED	MB	05/21/24



TITLE: APE BARRIER™ SYSTEM LIMITED DEFLECTION INSTALLATION		
SIZE B	DWG. NO. INS-LTD-001	REV F
WEIGHT: 1200 LBS EA.		SHEET 1 OF 1



APE BARRIER SYSTEM
ISOMETRIC VIEW: FEMALE END
SCALE 1:30



APE BARRIER SYSTEM
ISOMETRIC VIEW: MALE END
SCALE 1:30

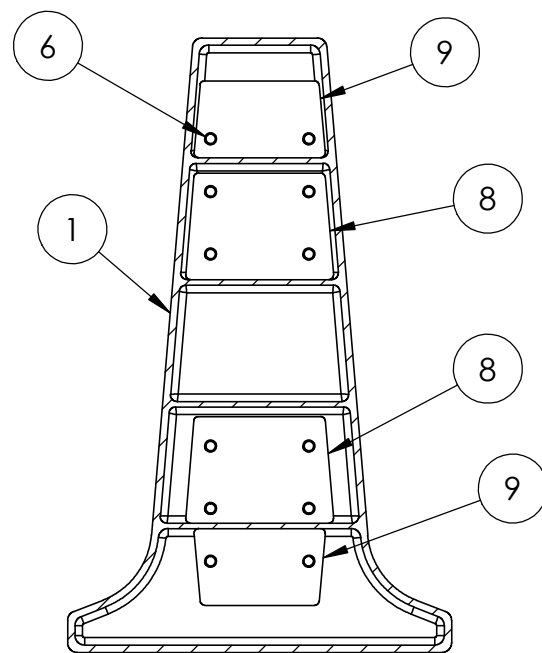
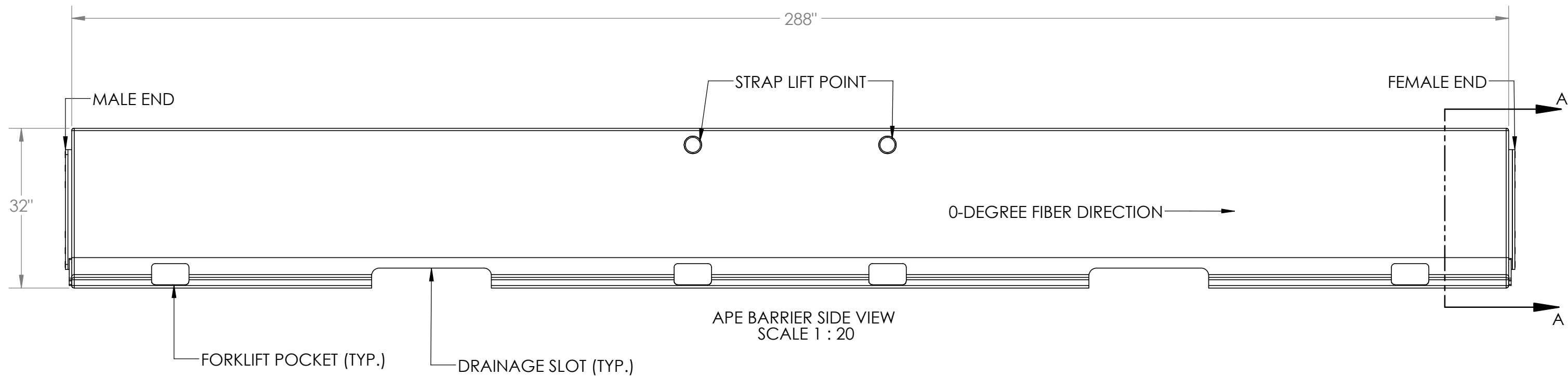
ITEM NO.	ITEM	QTY
1	APE BARRIER SYSTEM BARRIER BODY (PN 2023001 REV O)	1
2	CORNER CRUSH BLOCK (PN 2023007 REV A)	4
3	CONNECTION HARDWARE BASE PLATE	3
4	CONNECTION HARDWARE TYPE A FACE PLATE	1
5	CONNECTION HARDWARE TYPE B FACE PLATE	2
6	5/8"-11 X 2-1/2" HEX DRIVE CAP SCREW	18
7	STRAP LIFT POINT SLEEVE	2
8	STEEL EMBED TYPE A	4
9	STEEL EMBED TYPE B	4
10	FOAM001	6
11	FOAM002	6
12	FOAM003	6
13	FOAM004	6
14	FOAM005	4
15	FOAM006	2

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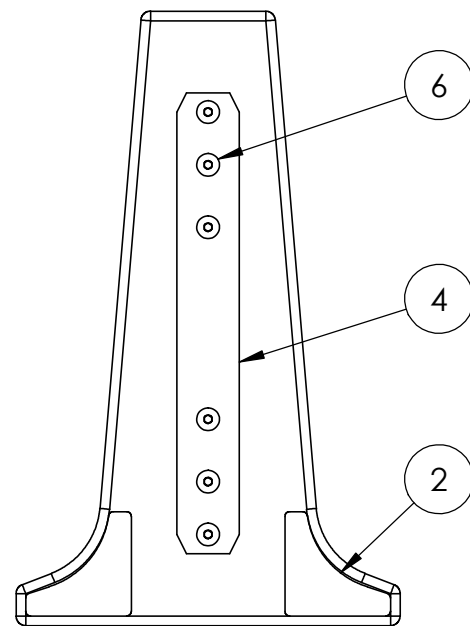
	NAME	DATE
DRAWN	AS III	05/21/24
CHECKED	MB	05/21/24



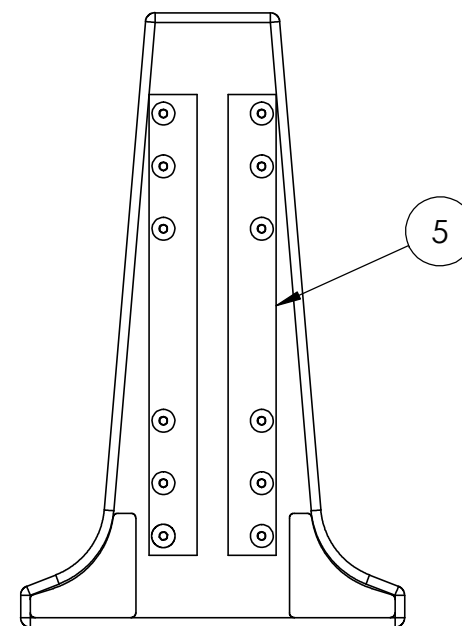
TITLE: APE BARRIER™ SYSTEM MATERIAL OVERVIEW PACKET		
SIZE B	DWG. NO. MAT-0012024	REV E
WEIGHT: 1200 LBS EA.		SHEET 1 OF 4



APE BARRIER SECTION VIEW
EMBEDDED STEEL PLATES SHOWN
SECTION A-A
SCALE 1 : 10



APE BARRIER: MALE END VIEW
SCALE 1 : 10



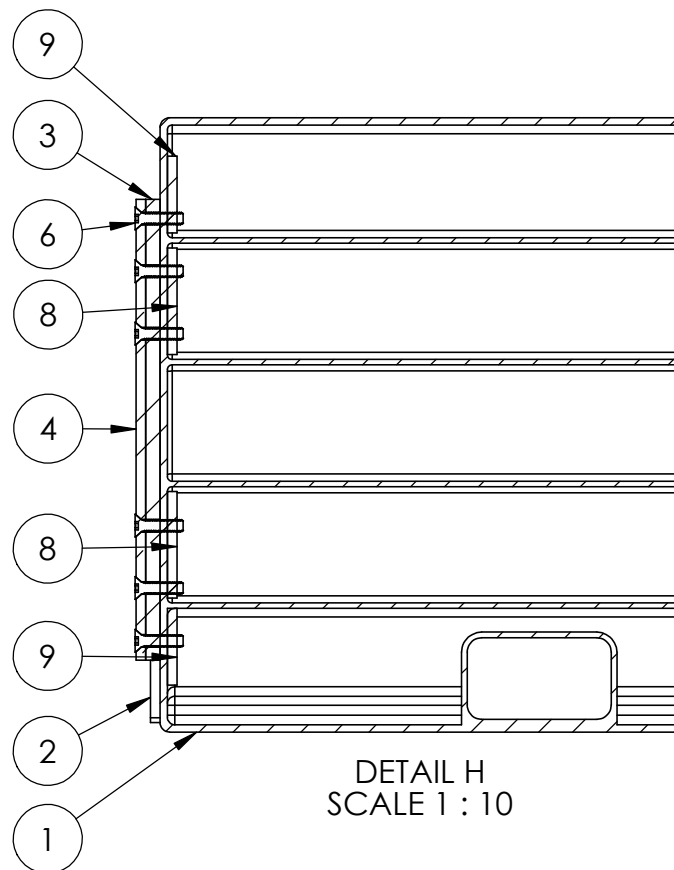
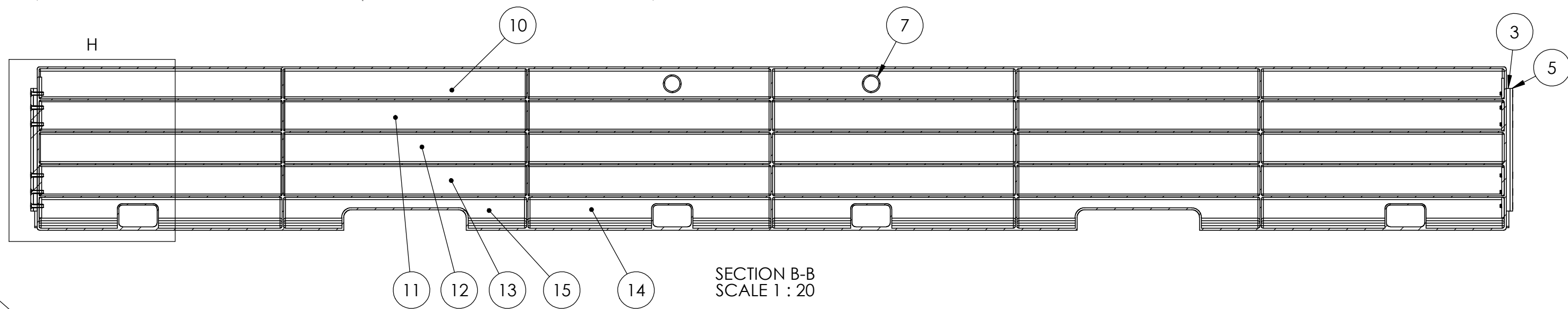
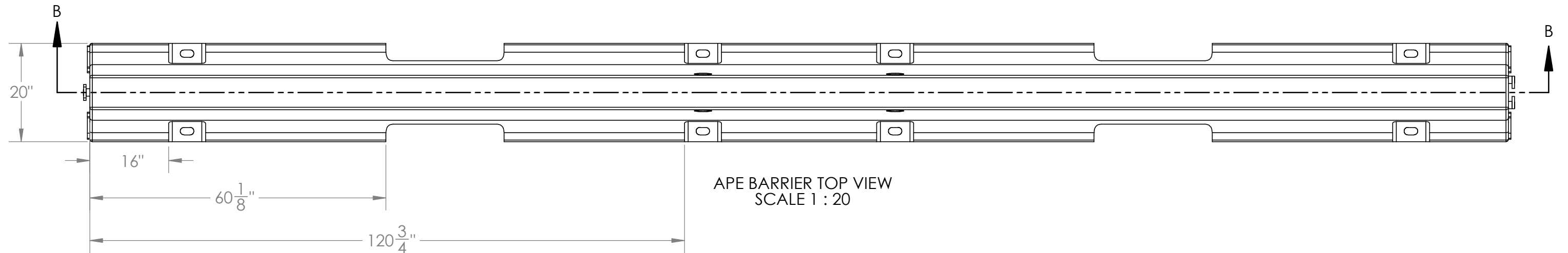
APE BARRIER: FEMALE END VIEW
SCALE 1 : 10

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DRAWN	AS III	05/21/24
CHECKED	MB	05/21/24



TITLE: APE BARRIER™ SYSTEM SIDE VIEW AND SECTON VIEW		
SIZE B	DWG. NO. MAT-0012024	REV E
WEIGHT: 1200 LBS EA.		SHEET 2 OF 4



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			TITLE: APE BARRIER™ SYSTEM TOP VIEW AND SECTION VIEW		
	NAME	DATE			
DRAWN	AS III	05/21/24			
CHECKED	MB	05/21/24			
			SIZE	DWG. NO.	REV
			B	MAT-0012024	E
			WEIGHT: 1200 LBS EA.		SHEET 3 OF 4

Ape Barrier™ System: Material Property Requirements					
ITEM NO.	Material	Description	Quantity	Required Properties	
1,2	Fiber Reinforced Polymer (FRP) Barrier Body and Corner Crush Blocks	E-Glass fiber reinforced polymer composite materials that comprise the barrier body and the corner crush block laminates.	980 lbs (+/- 10%)	1. Min. Ultimate Tensile Stress (Longitudinal) per ASTM D3039: 57.5 ksi 2. Min. Ultimate Compression Stress (Longitudinal) per ASTM 6641: 57.5 ksi 3. Min. Average Tensile Modulus (Longitudinal & Transverse) per ASTM D3039: 3,000 ksi 4. Min. Average Compression Modulus (Longitudinal & Transverse) per ASTM D6641: 3,000 ksi 5. Fiber Architecture: 0/+45/90/-45 Quadraxial 6. Fiber Architecture Weights (+/- 5%): 0 deg: 33.55 oz/sq.yd. / 45 deg: 20.61 oz/sq.yd. / 90 deg: 16.00 oz/sq.yd. / - 45 deg: 20.61 oz/sq.yd 7. Fiber Content by Weight: 68% (+/- 4%)	
3,4,5	Steel Connection Hardware (Type A Face Plate, Type B Face Plate, Base Plate)	Steel components that are externally fastened to the Ape Barrier System to create the connection hardware that joins barriers together.	6 Total	ASTM A36 steel or approved equal	
6	Steel Hex Head Cap Screws	5/8"-11 x 2-1/2" Alloy Steel Hex Drive Flat Head Screw	18	1. Min. Tensile Strength: 130 ksi 2. Drive Size: 3/8" 3. Hardness: Rockwell C37	
7	Lift Point Sleeves	Sleeve insert to prevent abrasion of lifting straps. Non-structural component.	2	Acceptable materials include PVC, ABS, fiber reinforced polymer (FRP), or approved equal.	
8,9	Steel Embeds	1/2" thick embedded steel plates for structural attachment of connection hardware.	8 Total	ASTM A36 steel or approved equal	
10,11,12,13,14,15	Foam Core	Closed cell foam core used during manufacturing process. Non-structural component.	48 cu.ft.	1. Min. Density: 1.5 lb/cu.ft 2. Min. Compressive Strength: 20 psi	
N/A	Adhesive	Methyl Methacrylate Adhesive (MMA) for bonding corner crush block to barrier.	2.5 oz	1. Min. Adhesive Shear Strength per ASTM D5868: 1.0 ksi	
N/A	Asphalt Pin	1-1/4" Dia. x 20" Steel Round Bar. Used during field installation.	Per Drawing INS-LTD-001 REV F	ASTM F1554 GRADE 55 steel or approved equal	
N/A	Washer Plate	(5"x 3" x 3/8") Steel Washer Plate Welded to Asphalt Pin. Used during field installation.	Per Drawing INS-LTD-001 REV F	ASTM A36 steel or approved equal	

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SOLUTIONS

NAME		DATE
DRAWN	AS III	05/21/24
CHECKED	MB	05/21/24

SIZE	DWG. NO.	REV
B	MAT-0012024	E
		SHEET 4 OF 4

TITLE:

APE BARRIER™ SYSTEM MATERIALS OVERVIEW