

MO-FLEX BREEDING & GESTATION BUILDING PLAN

PREPARED FOR: MISSOURI PLAN SERVICE

PLAN NUMBER: MO2-726-94C1

DEVELOPED BY:

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ANIMAL STRUCTURES SPECIALIST

COMMERCIAL AGRICULTURE PROGRAM
UNIVERSITY EXTENSION

AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY OF MISSOURI - COLUMBIA

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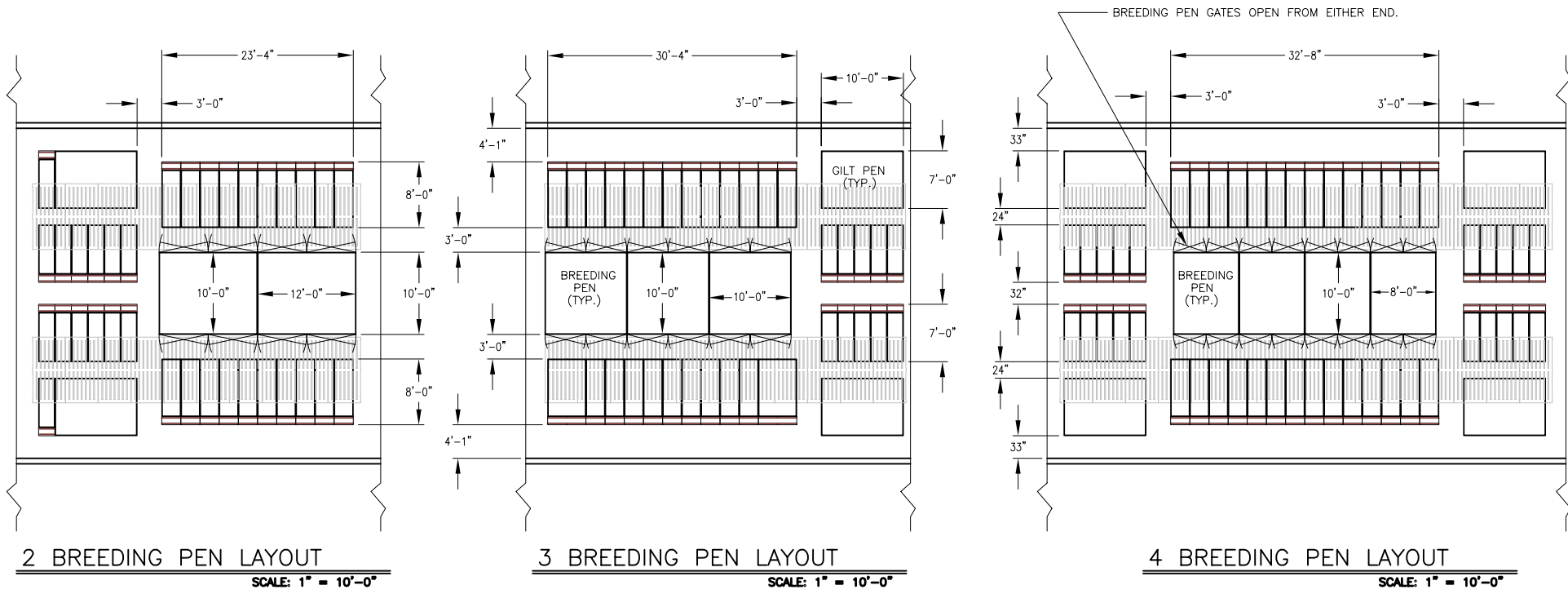
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WARRANTY DISCLAIMER:

THE PLAN CONTAINED HEREIN PROVIDES DRAWINGS AND RECOMMENDATIONS FOR THE BREEDING & GESTATION BUILDING ONLY. THE DRAWINGS AND RECOMMENDATIONS ARE FOR A BUILDING BASED ON 1994 MISSOURI STRUCTURAL REQUIREMENTS. NEITHER THE UNIVERSITY OF MISSOURI, UNIVERSITY EXTENSION NOR THE COOPERATIVE EXTENSION SERVICE, OR THEIR RESPECTIVE AGENTS OR EMPLOYEES, HAVE MADE, AND DO NOT HEREBY MAKE, ANY REPRESENTATION, WARRANTY OR COVENANT WITH RESPECT TO THE DRAWINGS OR RECOMMENDATIONS HEREIN.

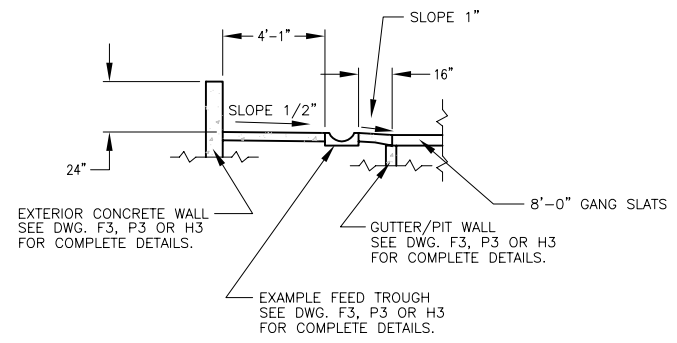
ADDITIONAL PROFESSIONAL SERVICES WILL BE REQUIRED TO TAILOR THIS PLAN TO YOUR SITUATION, INCLUDING BUT NOT LIMITED TO:

ASSURANCE OF COMPLIANCE WITH LOCAL CODES AND REGULATIONS;
DEVELOPMENT AND/OR REVIEW OF SPECIFICATIONS FOR MATERIALS AND EQUIPMENT;
SELECTION OF PROPER SITE PROVIDING ADEQUATE NATURAL RESOURCE BASE;
SUPERVISION OF SITE PREPARATION, BID LETTING AND CONSTRUCTION;
DEVELOPMENT OF A MANURE STORAGE SYSTEM AND MANURE MANAGEMENT PLAN;
AND PROVISIONS FOR UTILITIES, ROADS AND/OR OTHER ACCESS.



BREEDING SYSTEM LAYOUT INFORMATION

1. BREEDING SYSTEM POD CAN HAVE EITHER 2, 3 OR 4 INDIVIDUAL BREEDING PENS.
2. BREEDING PENS CAN BE EITHER 8, 10 OR 12 FEET LONG.
3. BREEDING PENS ARE ALWAYS 10 FEET WIDE.
4. GATES FOR BREEDING PENS ARE HALF THE LENGTH OF PEN AND OPEN FROM EITHER END.
5. BOAR CRATES ARE 28" WIDE AND 8' LONG.
6. BOAR PENS ARE 56" WIDE AND 8' LONG.
7. NUMBER OF BOAR CRATES/PENS CAN BE ADJUSTED TO MEET NEEDS OF OPERATION.
8. LENGTH OF A ROW FOR BOARS IS MATCHED WITH TOTAL LENGTH OF BREEDING PENS IN A GIVEN BREEDING POD.
9. ALLEYS BETWEEN BREEDING PENS AND BOAR CRATES/PENS ARE 3' WIDE.
10. GILT PENS ARE 7' WIDE AND 10' LONG.
11. NUMBER OF GILT PENS CAN BE ADJUSTED TO MEET NEEDS OF OPERATION.
12. GILT PENS CAN BE LOCATED ON EITHER SIDE OR BOTH SIDES OF A BREEDING POD.
13. GILT PENS ARE USUALLY LOCATED ACROSS FROM BOAR CRATES/PENS.
14. ALLEYS BETWEEN GILT PENS AND BOAR AREAS ARE ALWAYS 3' WIDE.
15. SOW CRATES ARE 24" WIDE AND 7' LONG.



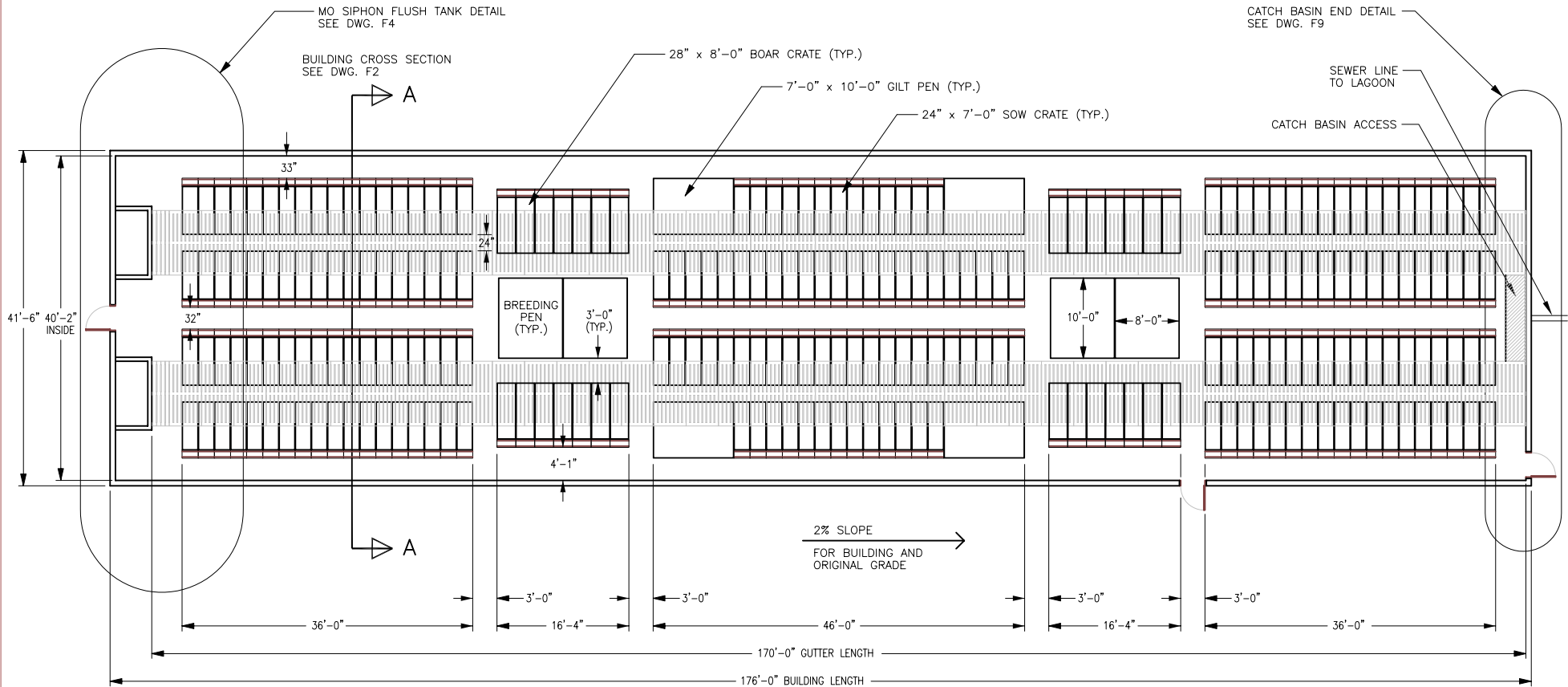
BOAR AREA CONCRETE CROSS SECTION DETAIL
SCALE: 1/4" = 1'-0"

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BREEDING SYSTEM DETAILS			
MO-FLEX BREEDING & GESTATION BUILDING PLAN			
DESIGNED BY: JMZ	DRAWN BY: JMZ	CHECKED BY: JMZ	
COOPERATIVE EXTENSION SERVICE AGRICULTURAL ENGINEERING DEPARTMENT-UNIVERSITY OF MISSOURI-COLUMBIA UNIVERSITY EXTENSION - COMMERCIAL AGRICULTURE PROGRAM UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING		PLAN NO.: M02-726-94C1	DATE: 9/94
		SCALE: AS SHOWN	SHEET 2 : 2 OF 20

MO-FLEX BREEDING & GESTATION BUILDING FLUSH SYSTEM USING MO SIPHON TANKS

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCORPORATE DIFFERENT BREEDING LAYOUTS



FLUSH BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

- 4 - 8'-0" x 10'-0" BREEDING PENS
- 28 - 28" x 8'-0" BOAR CRATES
- 4 - 7'-0" x 10'-0" GILT PENS
- 216 - 24" x 7'-0" SOW CRATES

SITE SELECTION AND PREPARATION INFORMATION

1. SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
2. SOIL BUILDING PAD SHOULD SLOPE 2% FROM TANK END TO BASIN END FOR GOOD FLUSHING PERFORMANCE.
3. NO SLOPE ACROSS WIDTH OF SOIL BUILDING PAD SHOULD EXIST.
4. BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.
5. IF NATURAL VENTILATION IS DESIRED, BUILDING LENGTH SHOULD RUN EAST AND WEST IN MISSOURI, AND AREA 100' TO THE SOUTH AND NORTH SHOULD BE CLEAR.

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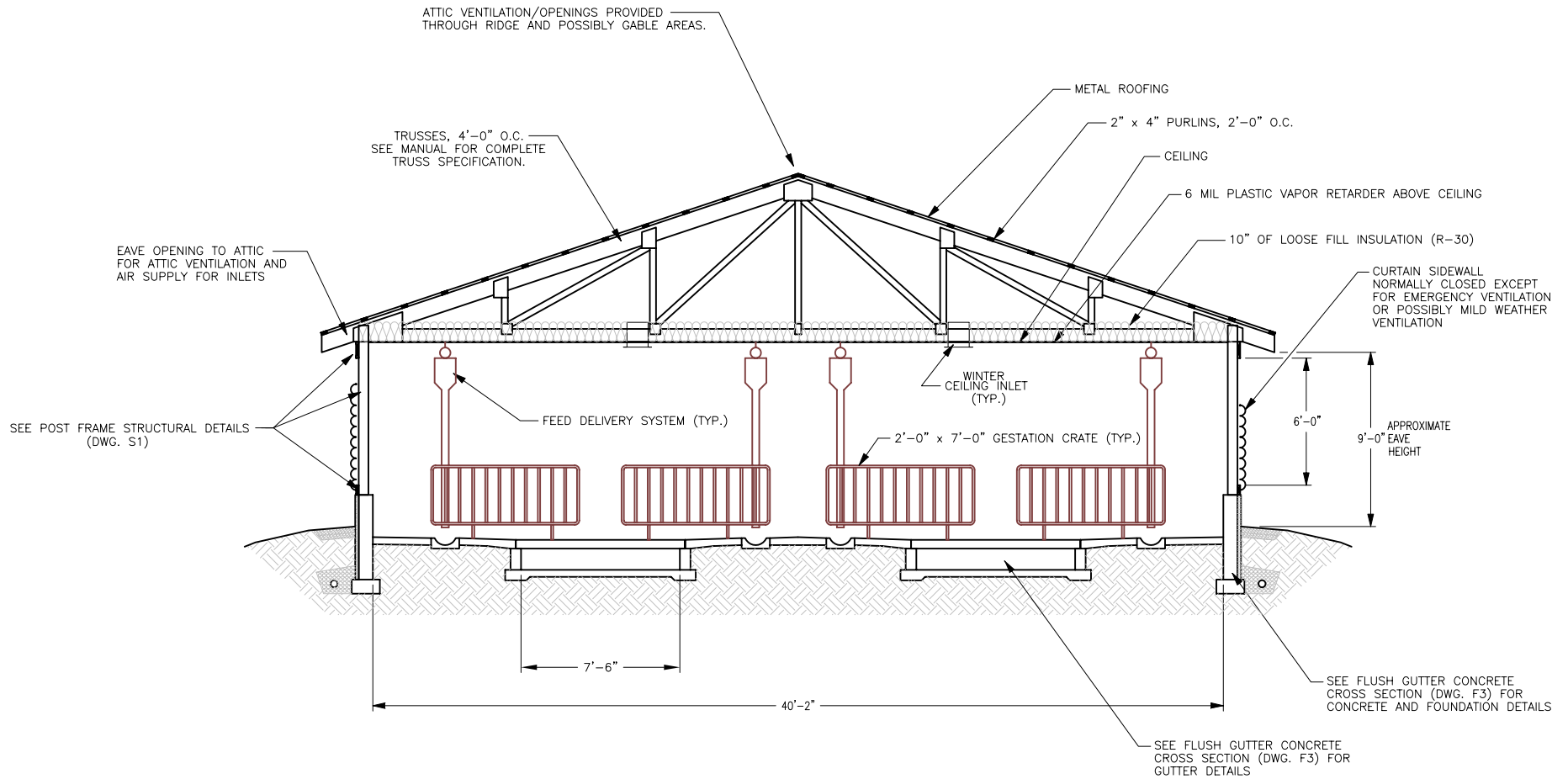
FLOOR PLAN USING FLUSH AND MO SIPHON TANKS

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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PLAN NO.: MO2-726-94C1	DATE: 9/94	
SCALE: 1"=10'-0"	SHEET F1 : 3 OF 20	

FLUSH BUILDING

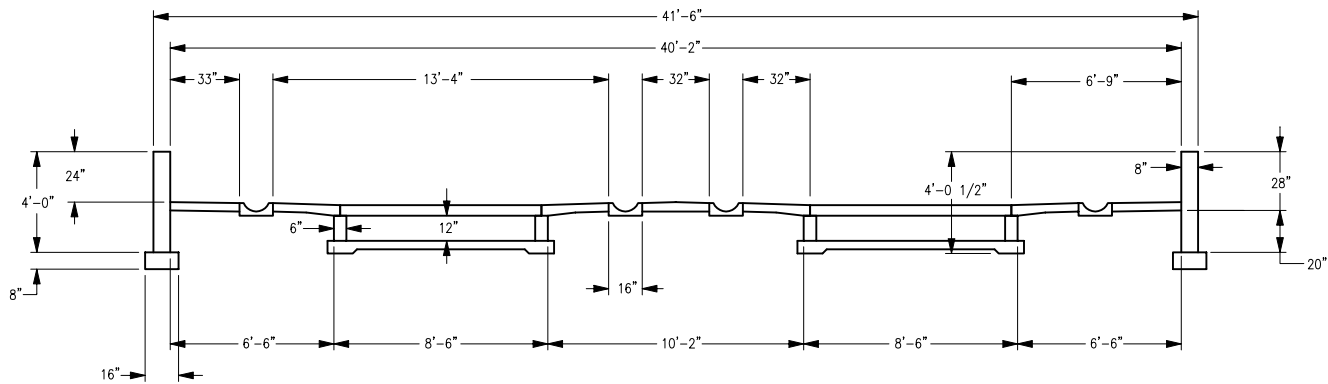


FLUSH BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

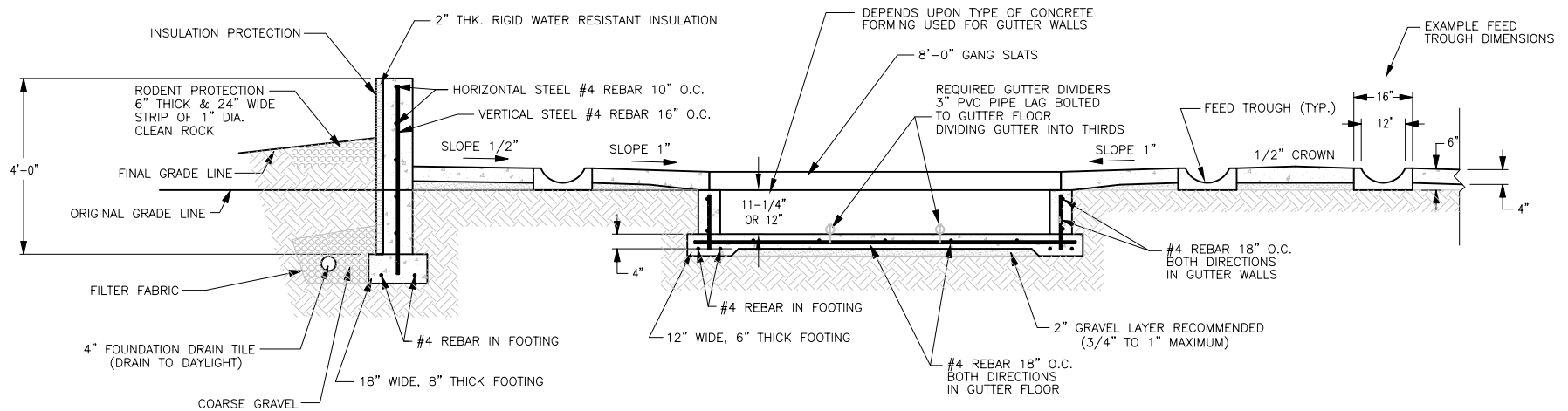
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FLUSH BUILDING CROSS SECTION			
MO-FLEX BREEDING & GESTATION BUILDING PLAN			
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		SCALE: 1/4"=1'-0"	SHEET P2 : 4 OF 20



FLUSH GUTTER CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"

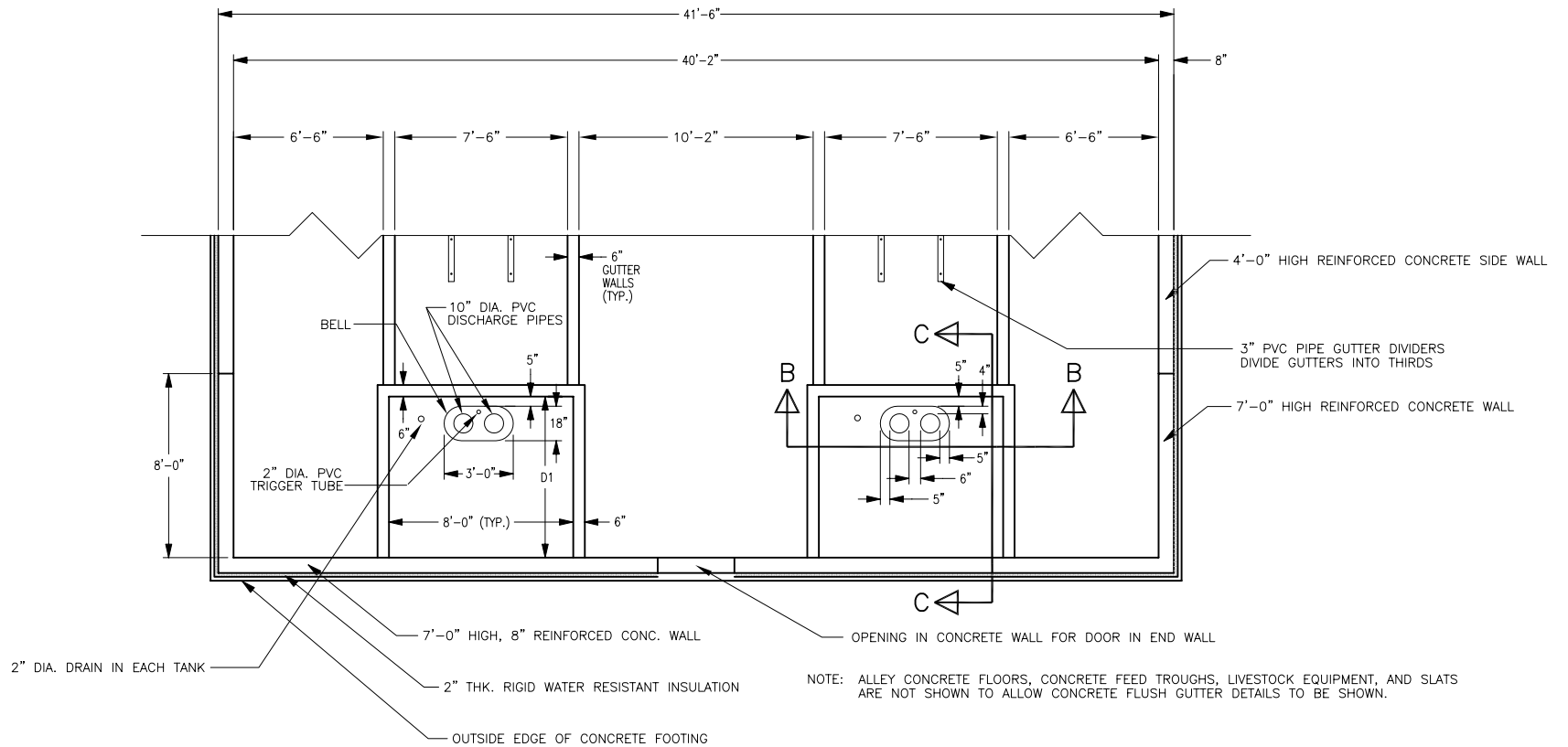


SIDEWALL, GUTTER & GUTTER WALL DETAILS

SCALE: 1/2" = 1'-0"

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FLUSH GUTTER CONCRETE CROSS SECTION			
MO-FLEX BREEDING & GESTATION BUILDING PLAN			
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COOPERATIVE EXTENSION SERVICE		DATE:	9/94
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UNIVERSITY EXTENSION - COMMERCIAL AGRICULTURE PROGRAM		SCALE:	AS SHOWN
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING		SHEET	P3 : 5 OF 20
		CHECKED BY:	JMZ



MO SIPHON FLUSH TANK DETAIL

SCALE: 1/4" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
160'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

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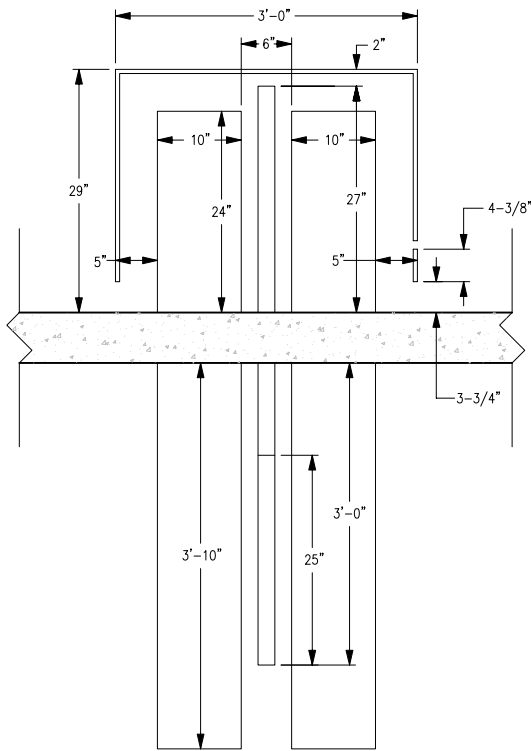
MO SIPHON FLUSH TANK DETAIL

MO-FLEX BREEDING & GESTATION BUILDING PLAN

DESIGNED BY: **JMZ** DRAWN BY: **JMZ** CHECKED BY: **JMZ**

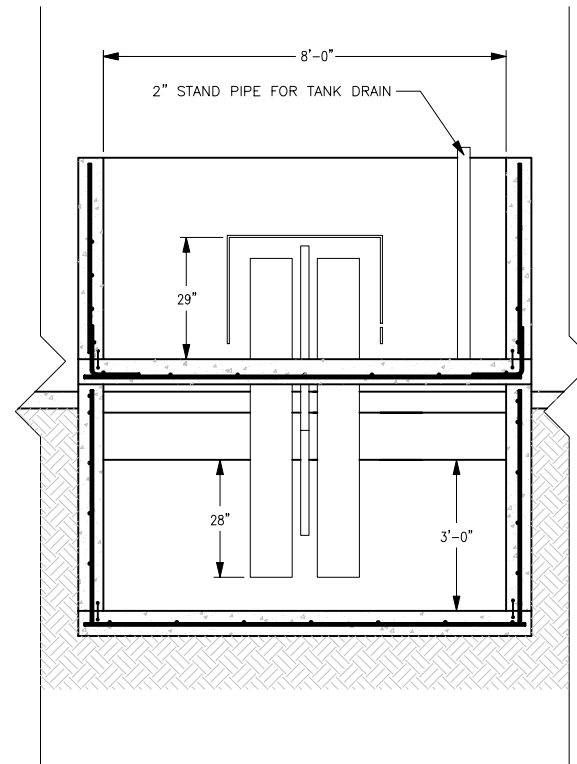
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 SCALE: **1/4"=1'-0"** SHEET: **F4 : 6 OF 20**



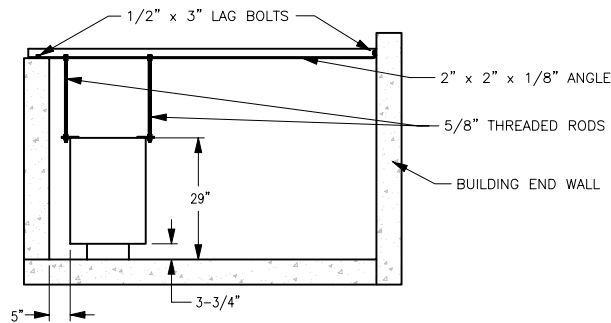
PIPING DIMENSIONS

SCALE: 1" = 1'-0"



B SIPHON FLUSH TANK SECTION
B (SIPHON DETAILS)

SCALE: 1/2" = 1'-0"



BELL SECURING DETAIL

SCALE: 1/2" = 1'-0"

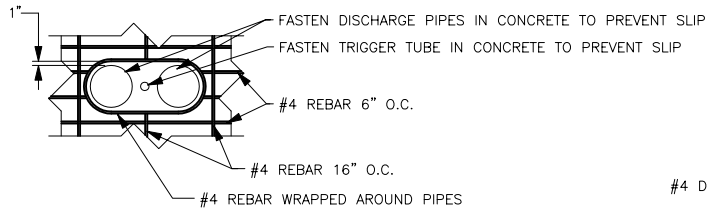
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TANK AND SUMP LONGITUDINAL SECTION (PART 1)

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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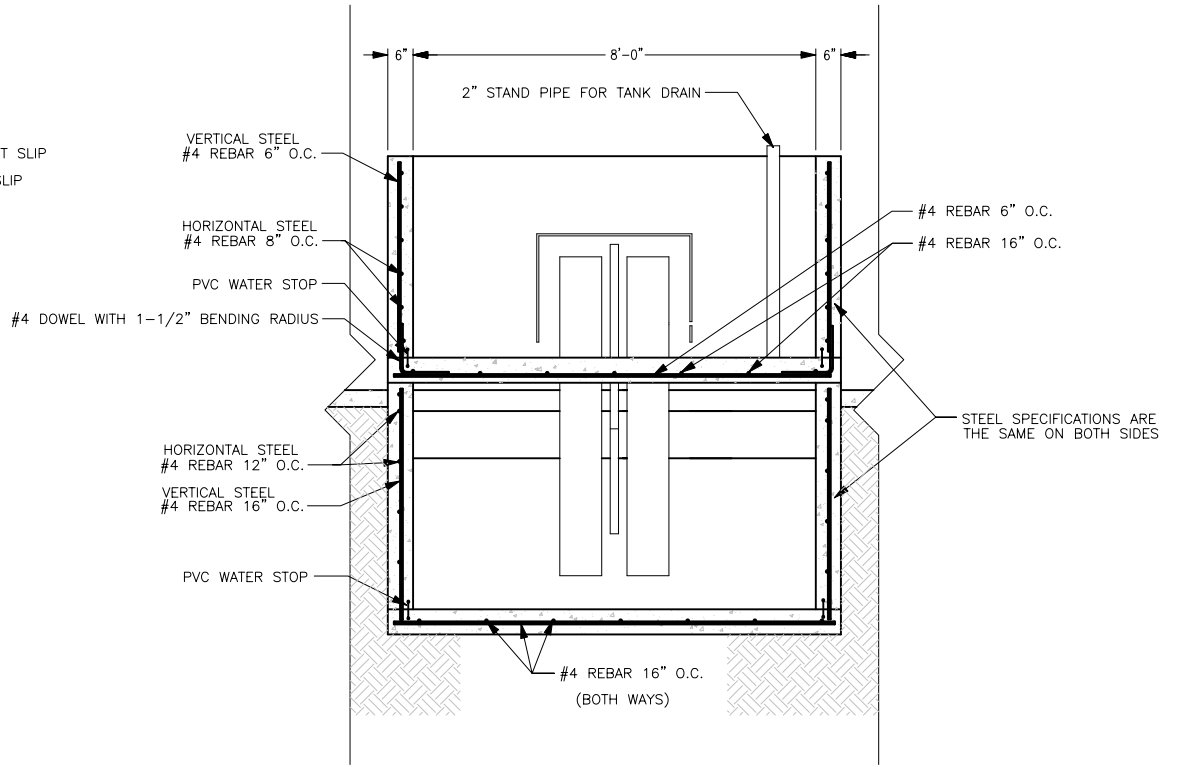
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SCALE: AS SHOWN	SHEET: P5 : 7 OF 20	



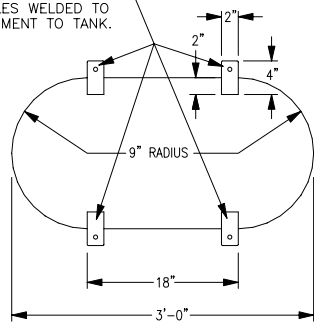
NOTE: ALL STEEL SHOULD BE TIED TOGETHER AT JOINTS.

STEEL DETAILS AROUND PIPING

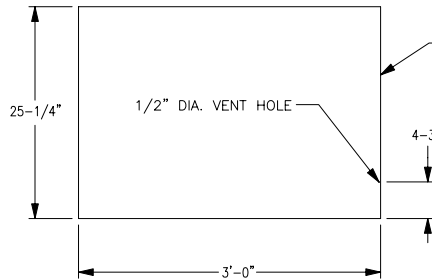
SCALE: 1/2" = 1'-0"



2" x 4" x 1/4" FLAT STEEL WITH 11/16" HOLES WELDED TO BELL FOR ATTACHMENT TO TANK.



TOP VIEW



SIDE VIEW

10 GA. STAINLESS STEEL

B SIPHON FLUSH TANK DETAIL
B (CONCRETE DETAILS)

SCALE: 1/2" = 1'-0"

TANK BELL CONSTRUCTION DETAILS

SCALE: 1" = 1'-0"

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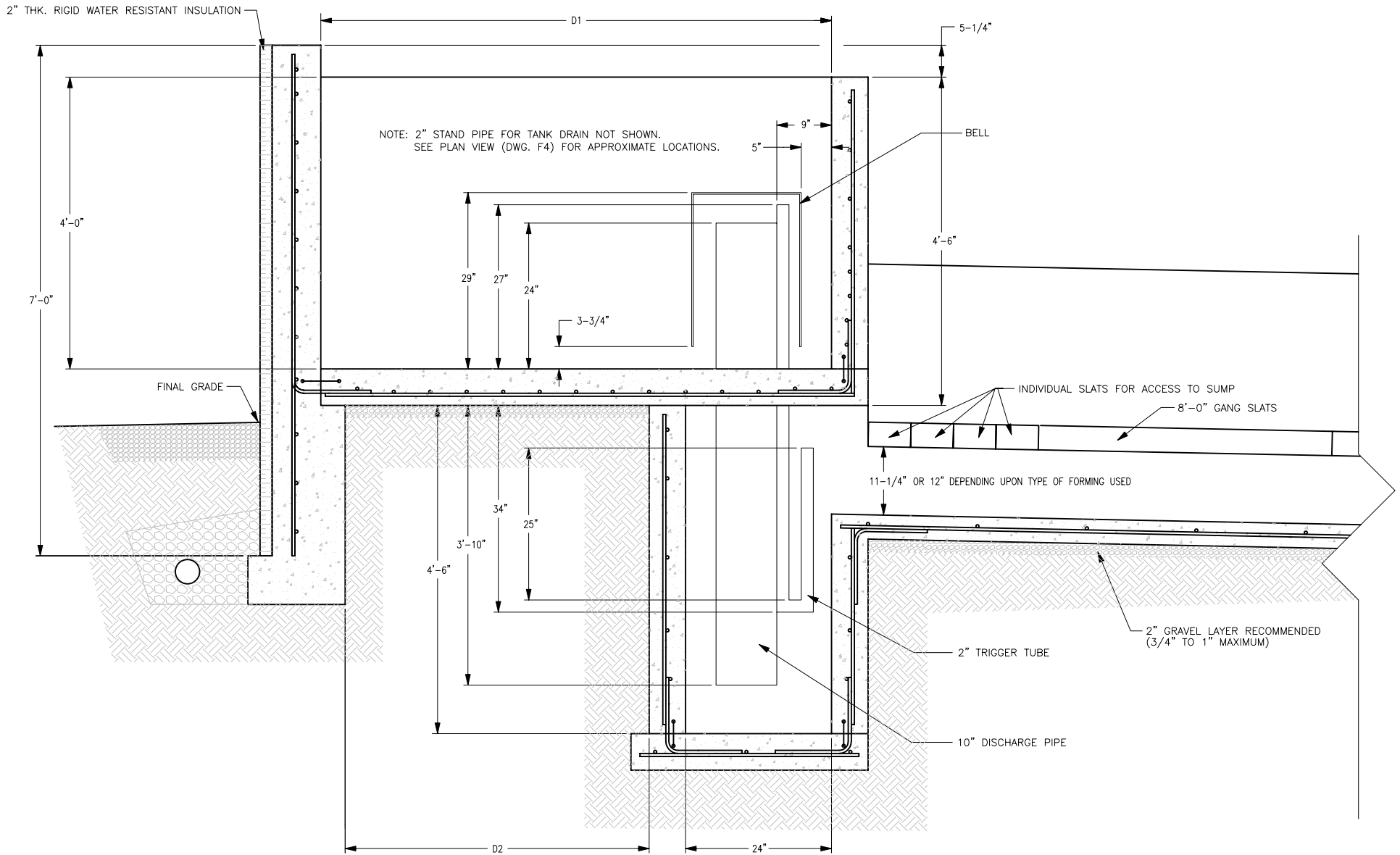
TANK AND SUMP LONGITUDINAL SECTION (PART 2)

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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PLAN NO.: **MO2-726-94C1** DATE: **9/94**
 SCALE: **AS SHOWN** SHEET: **P6 : 8 OF 20**



c MO SIPHON FLUSH TANK SECTION
c (SIPHON DETAILS)

SCALE: 1" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
161'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

NOTE:
 GUTTER LENGTH IS THE DISTANCE FROM THE FRONT OF THE TANK TO THE FAR END WALL.

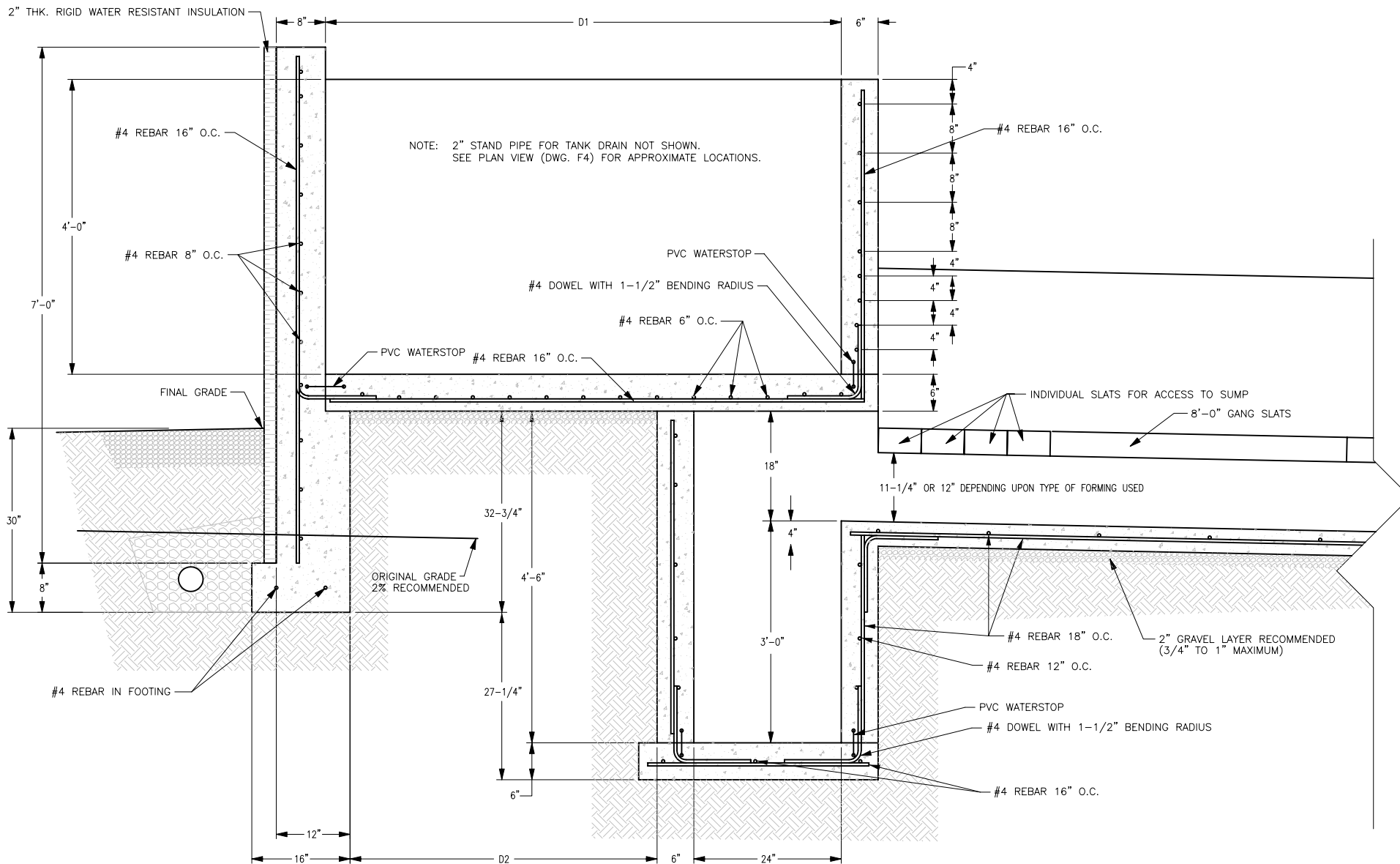
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TANK AND SUMP CROSS SECTION (PART 1)

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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SCALE: 1"=1'-0"	SHEET: F7 : 9 OF 20	



MO SIPHON FLUSH TANK SECTION
(CONCRETE DETAILS)

SCALE: 1" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
161'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

NOTE:
 GUTTER LENGTH IS THE DISTANCE FROM THE FRONT OF THE TANK TO THE FAR END WALL.

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TANK AND SUMP CROSS SECTION (PART 2)

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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PLAN NO.: M02-726-94C1	DATE: 9/94	
SCALE: 1"=1'-0"	SHEET	P8 : 10 OF 20

GENERAL NOTES

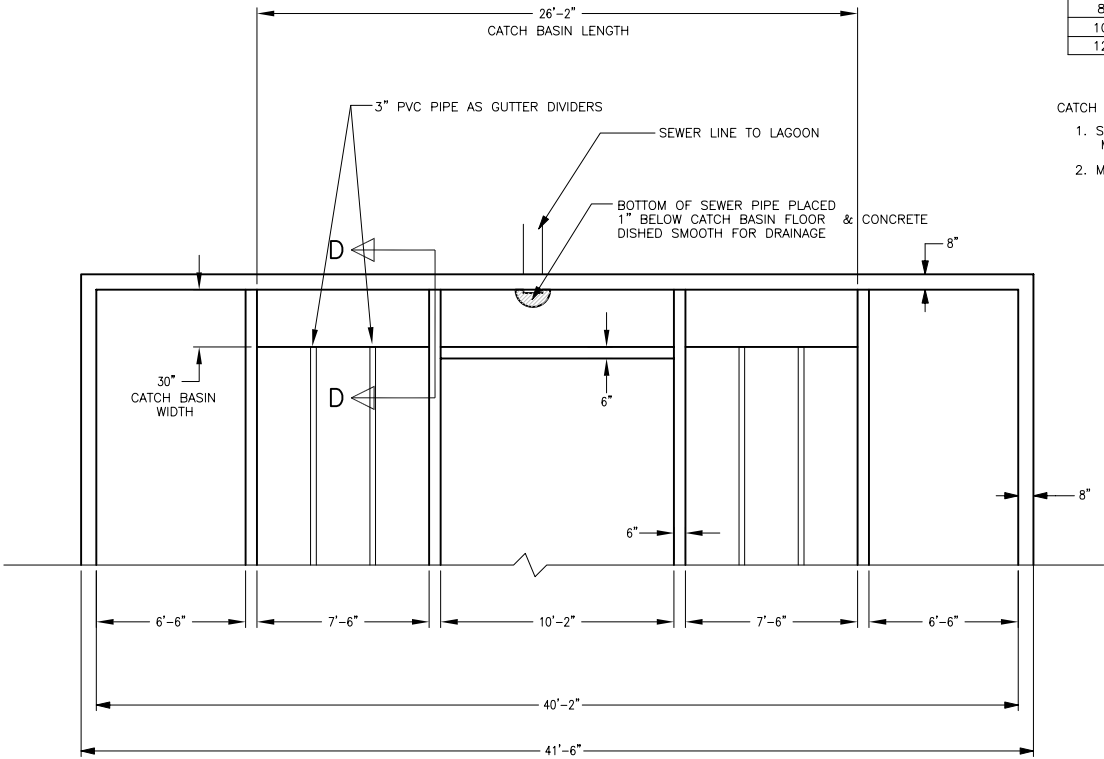
SEWER INFORMATION:

- 1. SEWER LINE SLOPE - 2% .
- 2. SEWER LINE CAN BE LOCATED ANYWHERE IN CATCH BASIN TO SIMPLIFY RETURN TO LAGOON.

SEWER LINE	GUTTER LENGTH
8"	UP TO 200'
10"	201' TO 240'
12"	241' TO 280'

CATCH BASIN:

- 1. SLOPE BASIN FLOOR TO SEWER LINE A MINIMUM OF 1/8"/FT.
- 2. MAXIMUM BASIN DEPTH IS 24".



NOTE: ALLEY CONCRETE FLOORS, CONCRETE FEED TROUGHS, LIVESTOCK EQUIPMENT, AND SLATS ARE NOT SHOWN TO ALLOW FLUSH GUTTER CONCRETE DETAILS TO BE SHOWN.

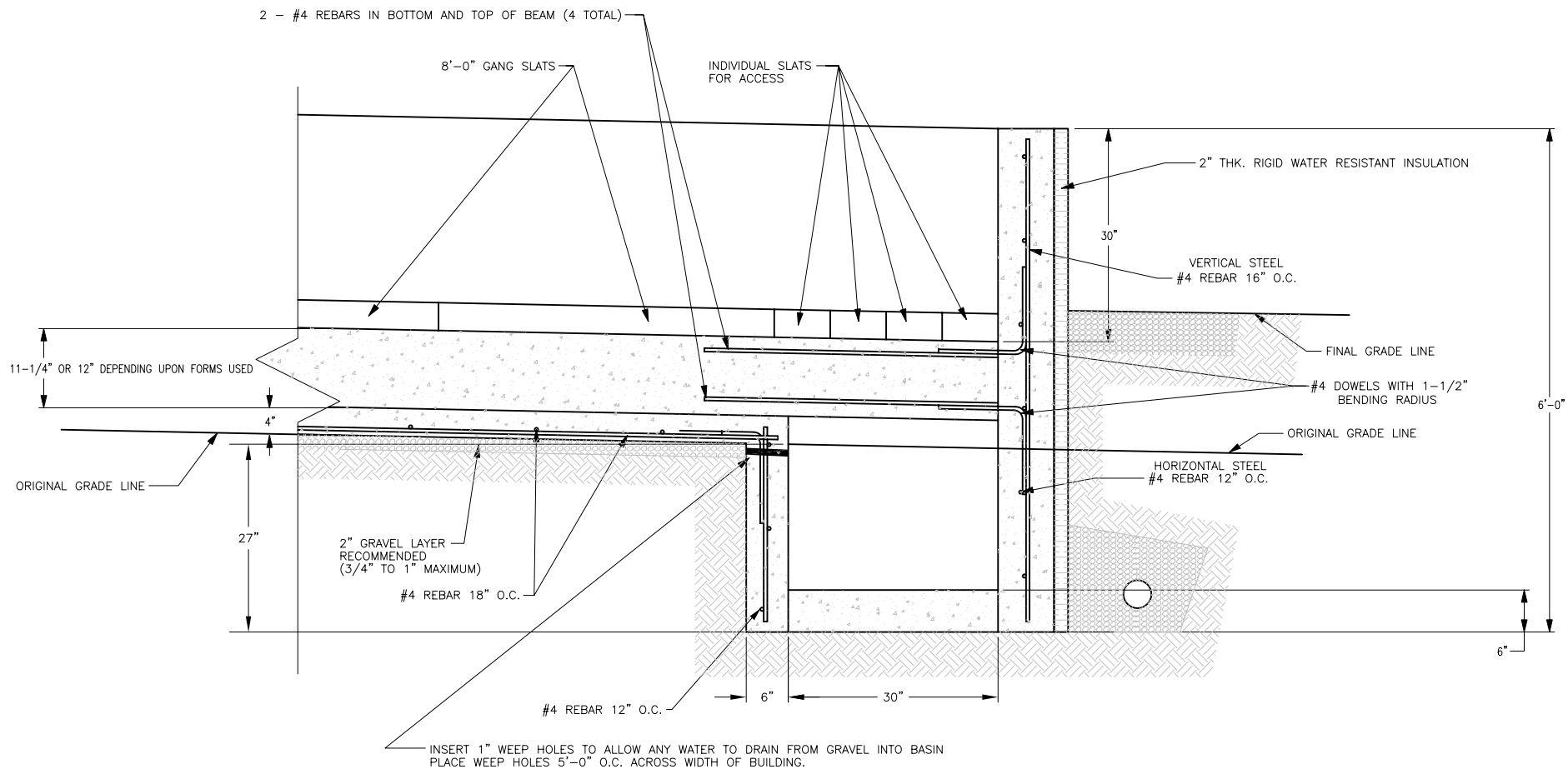
CATCH BASIN DETAIL

SCALE: 1/4" = 1'-0"

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CATCH BASIN END DETAIL

MO-FLEX BREEDING & GESTATION BUILDING PLAN COOPERATIVE EXTENSION SERVICE AGRICULTURAL ENGINEERING DEPARTMENT-UNIVERSITY OF MISSOURI-COLUMBIA UNIVERSITY EXTENSION - COMMERCIAL AGRICULTURE PROGRAM UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING	DESIGNED BY: JMZ	DRAWN BY: JMZ	CHECKED BY: JMZ
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	SCALE: 1/4"=1'-0"	SHEET: P9 : 11 OF 20	



D CATCH BASIN CROSS SECTION

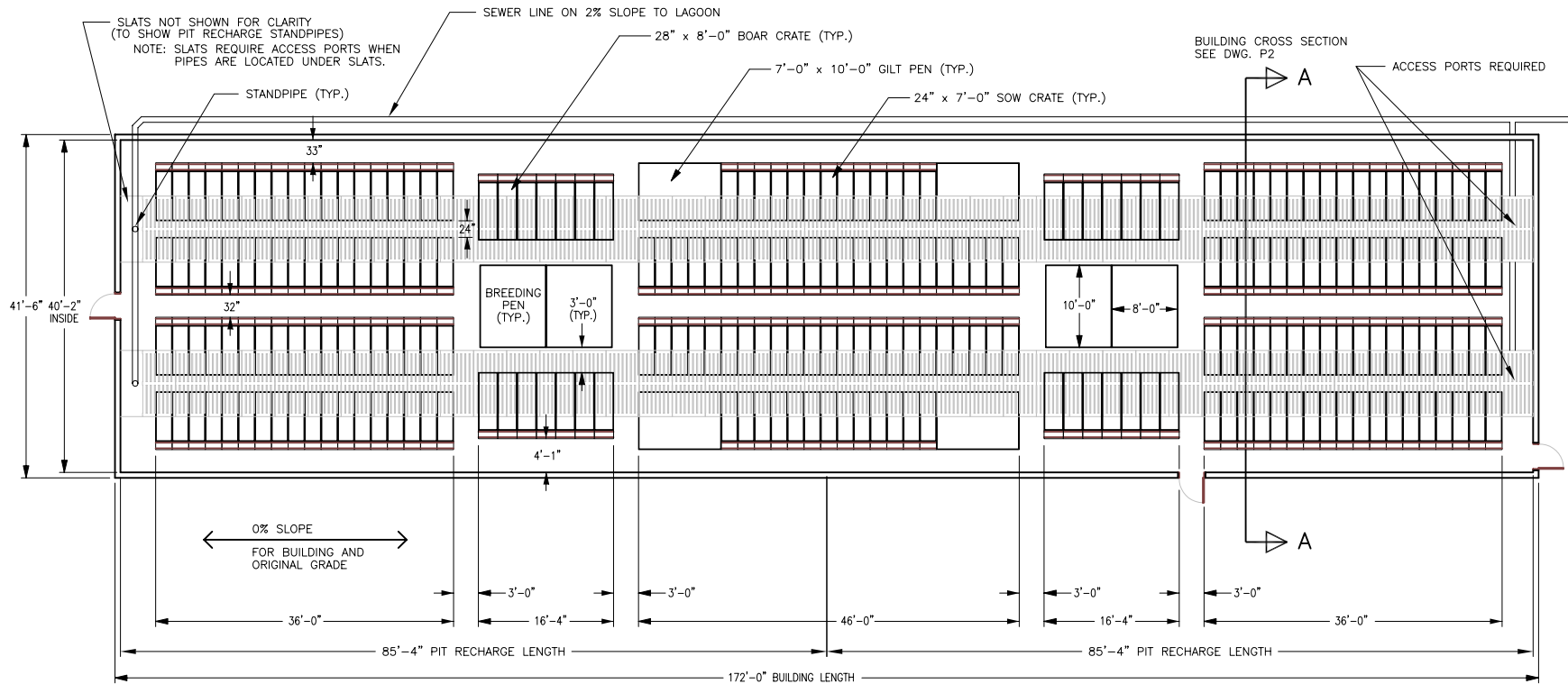
SCALE: 1" = 1'-0"

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CATCH BASIN CROSS SECTION		DESIGNED BY: JMZ	DRAWN BY: JMZ	CHECKED BY: JMZ
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MO-FLEX BREEDING & GESTATION BUILDING PIT RECHARGE MANURE SYSTEM

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCORPORATE DIFFERENT BREEDING LAYOUTS



PIT RECHARGE BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

- 4 - 8'-0" x 10'-0" BREEDING PENS
- 28 - 28" x 8'-0" BOAR CRATES
- 4 - 7'-0" x 10'-0" GILT PENS
- 216 - 24" x 7'-0" SOW CRATES

SITE SELECTION AND PREPARATION INFORMATION

1. SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
2. NO SLOPE ACROSS WIDTH OR LENGTH OF SOIL BUILDING PAD SHOULD EXIST.
3. BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.
4. IF NATURAL VENTILATION IS DESIRED, BUILDING LENGTH SHOULD RUN EAST AND WEST IN MISSOURI, AND AREA 100' TO THE SOUTH AND NORTH SHOULD BE CLEAR.

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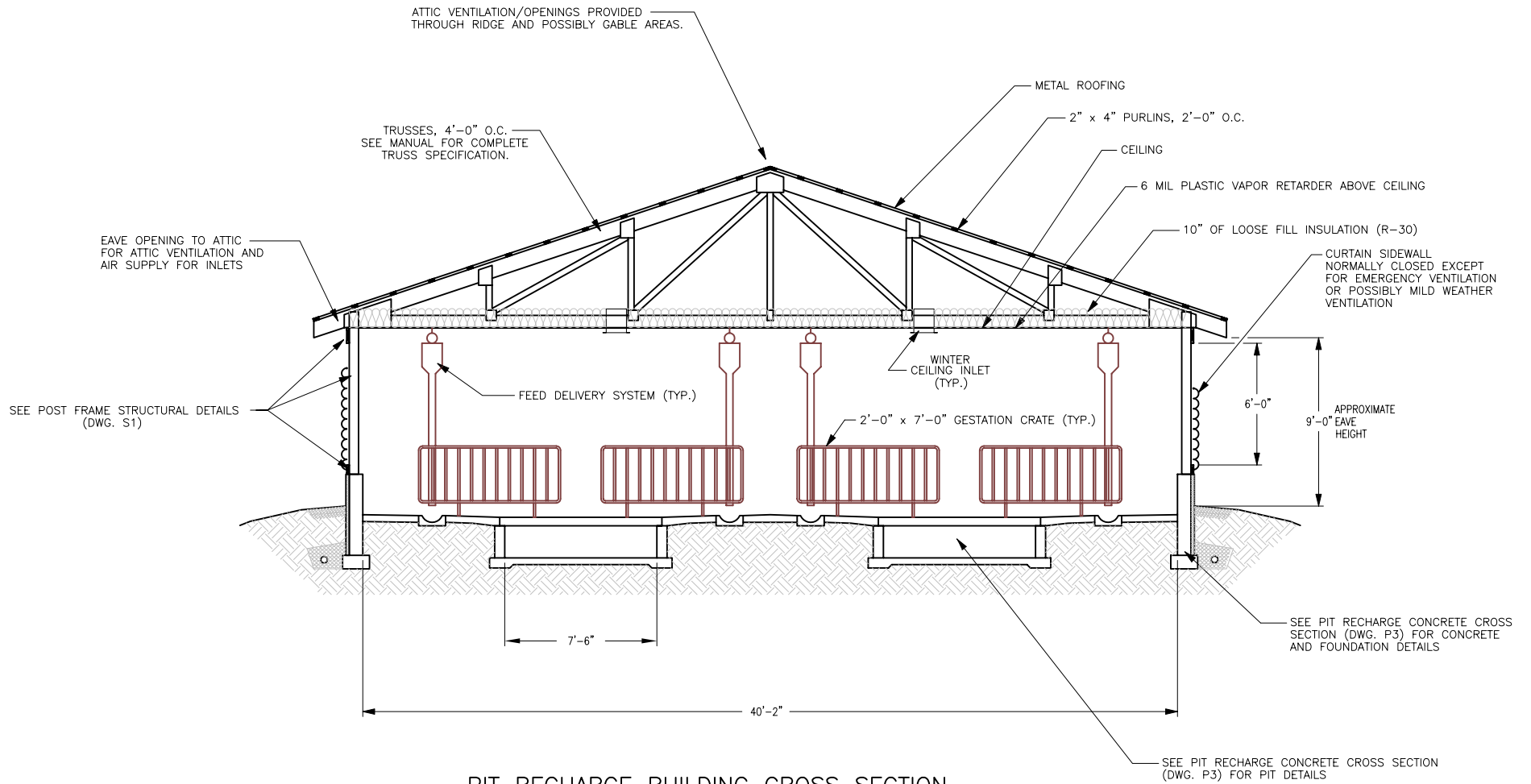
FLOOR PLAN USING PIT RECHARGE MANURE SYSTEM

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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SCALE: 1"=10'-0"	SHEET P1	OF 20

PIT RECHARGE BUILDING

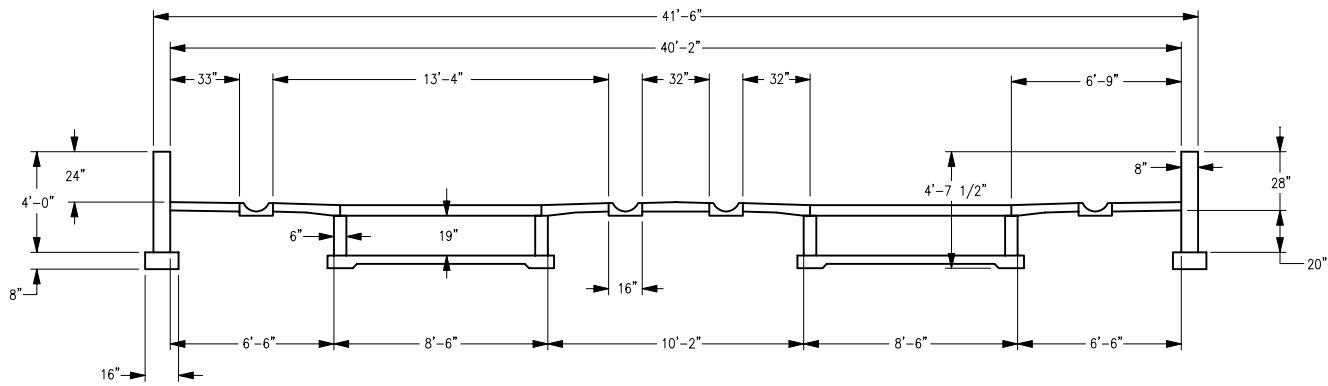


PIT RECHARGE BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

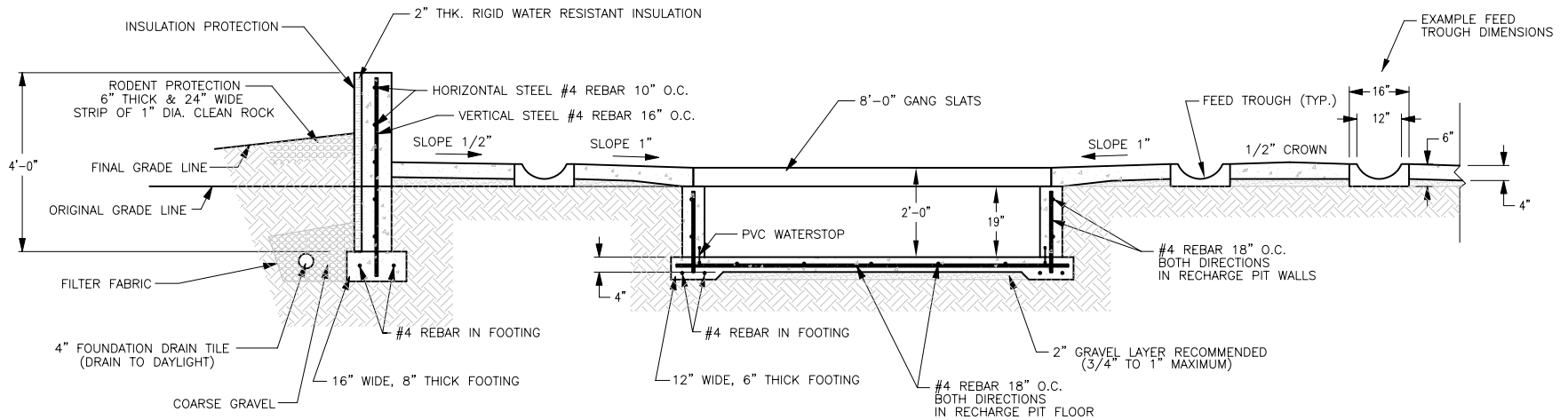
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PIT RECHARGE BUILDING CROSS SECTION			
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		SCALE: 1/4"=1'-0"	SHEET P2 : 14 OF 20



PIT RECHARGE CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"



SIDEWALL & RECHARGE PIT DETAILS

SCALE: 1/2" = 1'-0"

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PIT RECHARGE CONCRETE CROSS SECTION

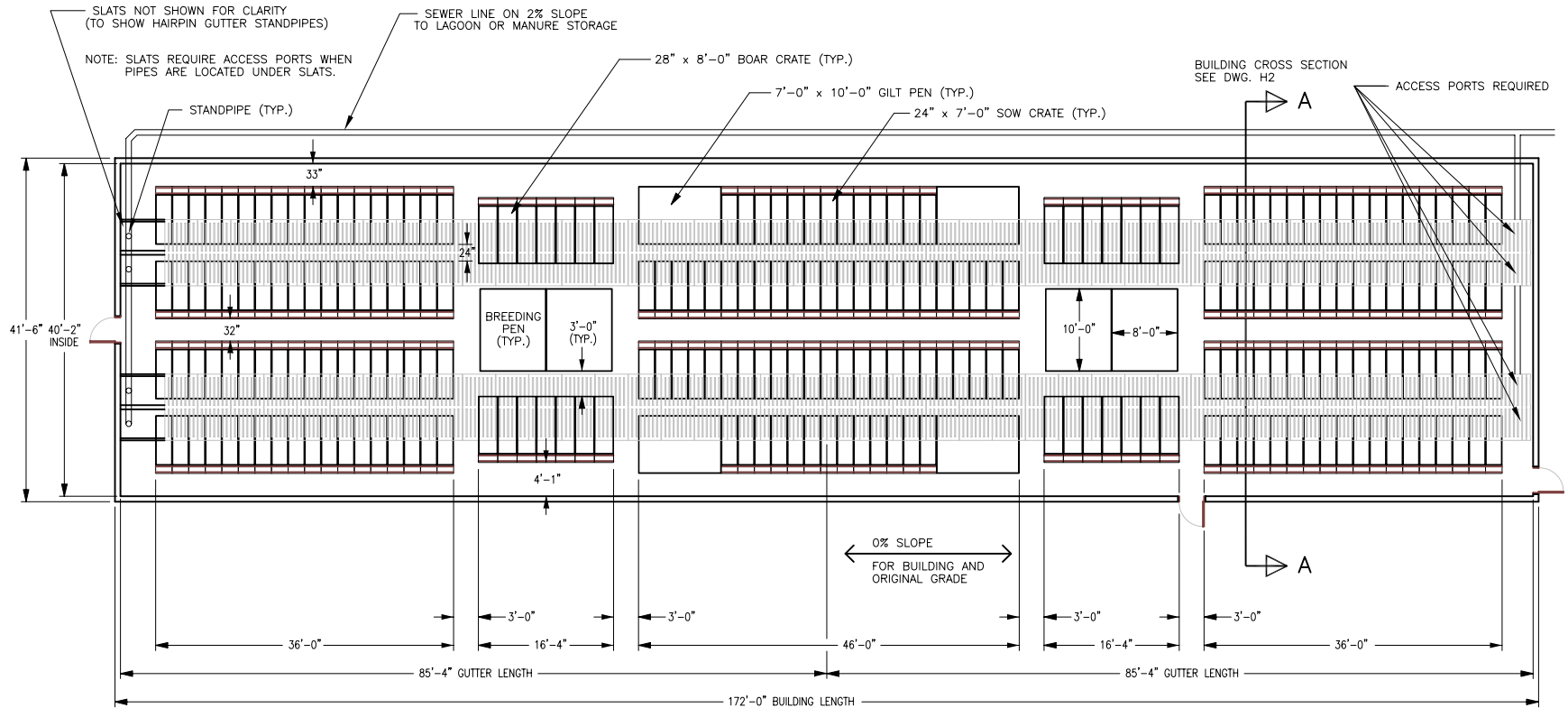
MO-FLEX BREEDING & GESTATION BUILDING PLAN

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SCALE: AS SHOWN	SHEET P3 : 15 OF 20	

MO-FLEX BREEDING & GESTATION BUILDING HAIRPIN GUTTER MANURE SYSTEM

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCORPORATE DIFFERENT BREEDING LAYOUTS



HAIRPIN GUTTER BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

- 4 - 8'-0" x 10'-0" BREEDING PENS
- 28 - 28" x 8'-0" BOAR CRATES
- 4 - 7'-0" x 10'-0" GILT PENS
- 216 - 24" x 7'-0" SOW CRATES

SITE SELECTION AND PREPARATION INFORMATION

1. SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
2. NO SLOPE ACROSS WIDTH OR LENGTH OF SOIL BUILDING PAD SHOULD EXIST.
3. BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.
4. IF NATURAL VENTILATION IS DESIRED, BUILDING LENGTH SHOULD RUN EAST AND WEST IN MISSOURI, AND AREA 100' TO THE SOUTH AND NORTH SHOULD BE CLEAR.

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FLOOR PLAN USING HAIRPIN GUTTER LIQUID MANURE SYSTEM

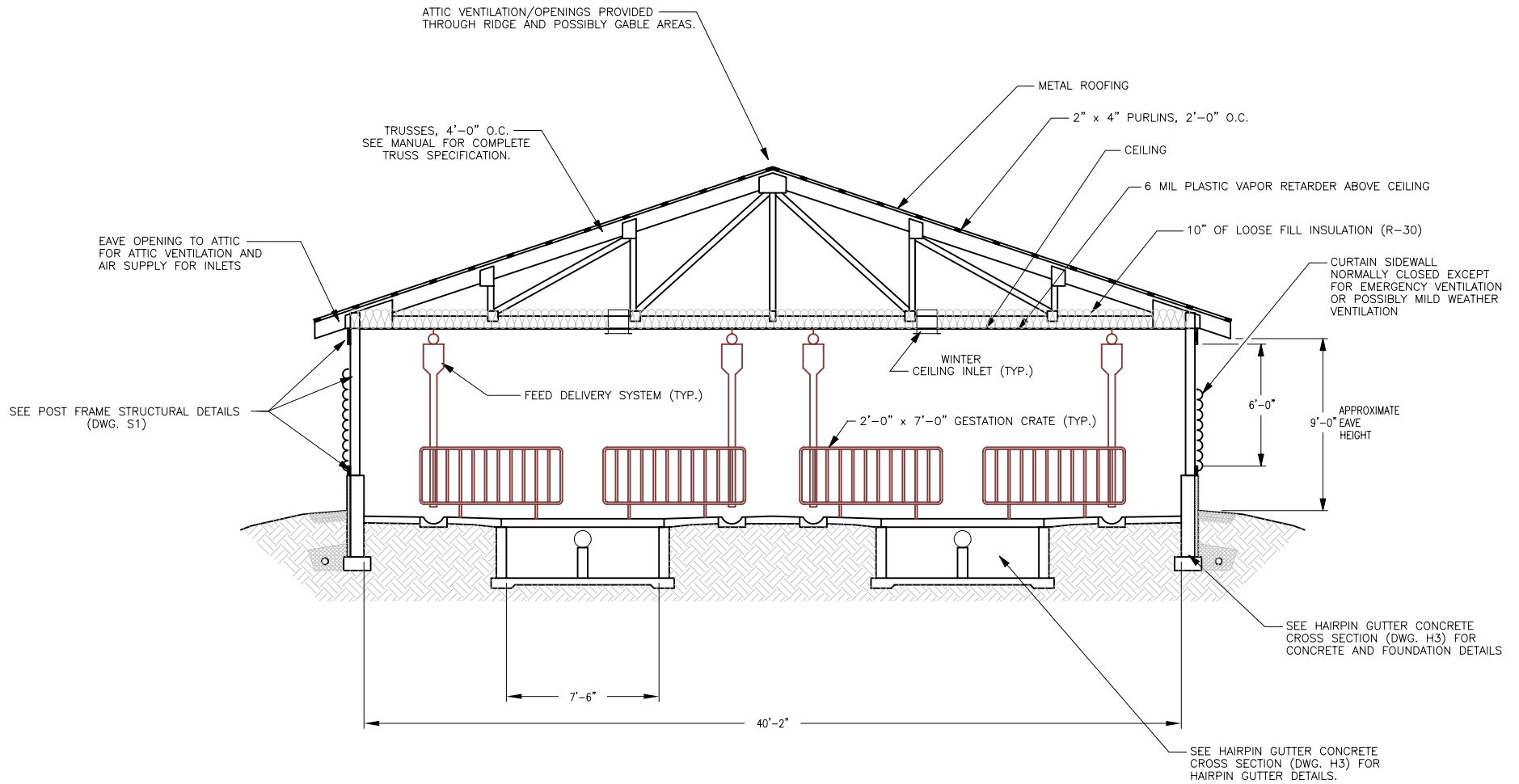
MO-FLEX BREEDING & GESTATION BUILDING PLAN

DESIGNED BY: **JMZ** DRAWN BY: **CMA/TDT** CHECKED BY: **JMZ**

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PLAN NO.: **M02-726-94C1** DATE: **9/94**
SCALE: **1"=10'-0"** SHEET: **H1 : 16 OF 20**

HAIRPIN GUTTER BUILDING

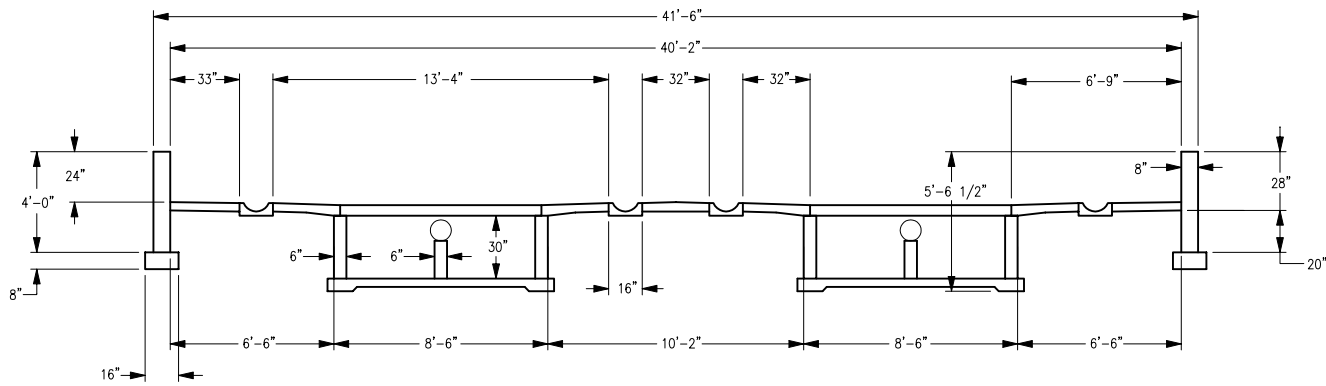


HAIRPIN GUTTER BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

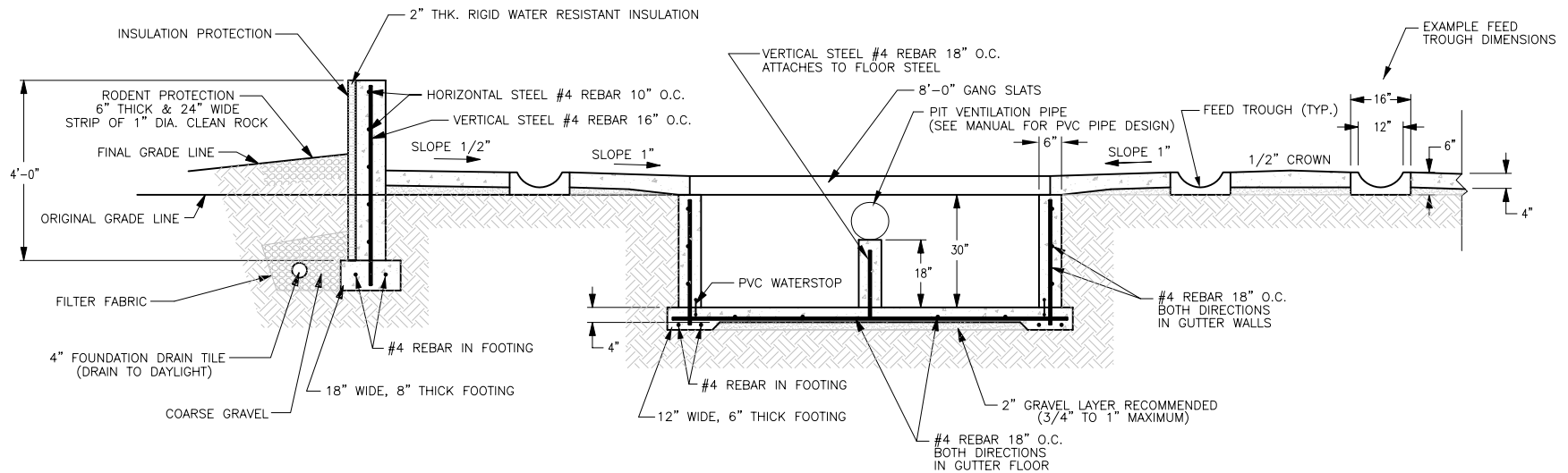
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HAIRPIN GUTTER BUILDING CROSS SECTION			
MO-FLEX BREEDING & GESTATION BUILDING PLAN			
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HAIRPIN GUTTER CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"

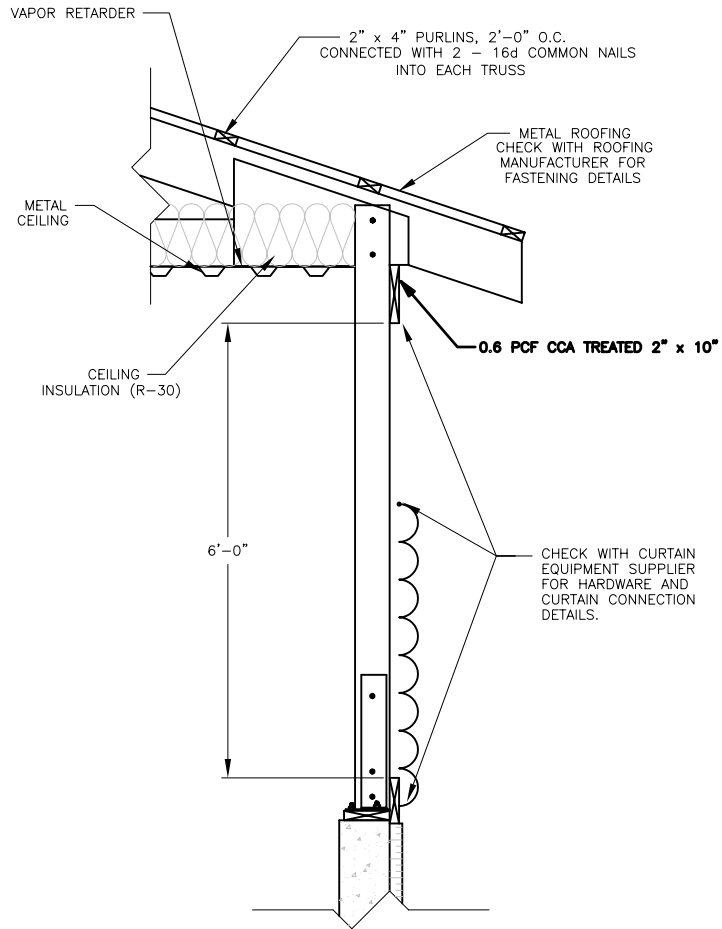


SIDEWALL AND HAIRPIN GUTTER DETAILS

SCALE: 1/2" = 1'-0"

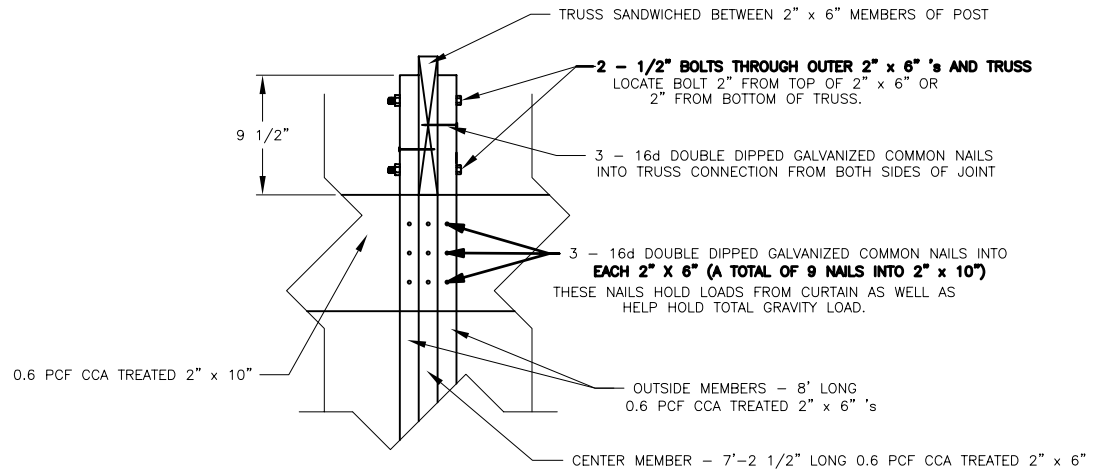
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HAIRPIN GUTTER CONCRETE CROSS SECTION			
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		SCALE: AS SHOWN	SHEET H3 : 18 OF 20



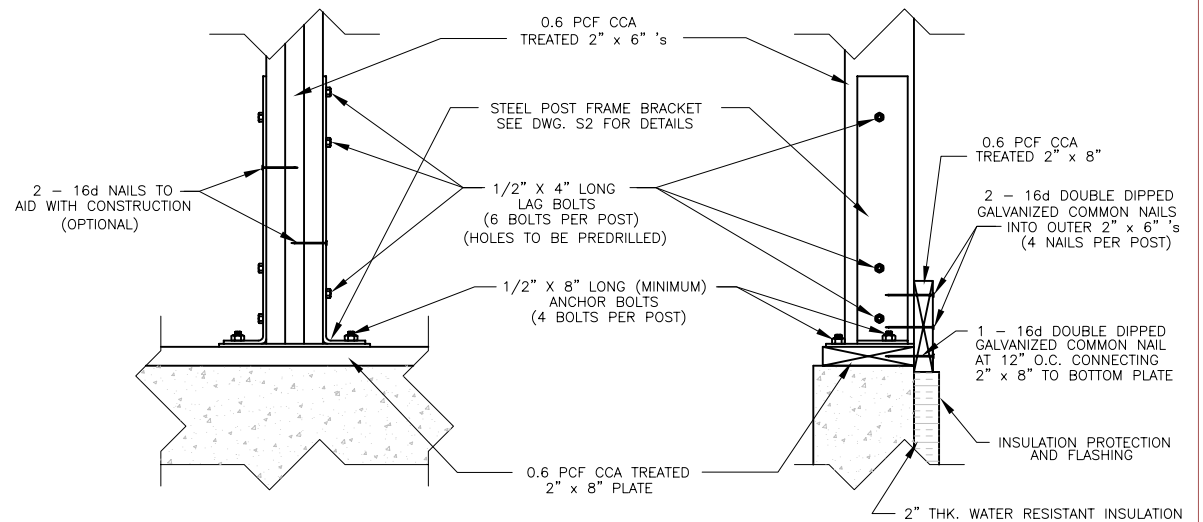
POST FRAME WALL SECTION

SCALE: 3/4" = 1'-0"



TRUSS CONNECTION DETAIL

SCALE: 1 1/2" = 1'-0"



POST BASE CONNECTION DETAILS

SCALE: 1 1/2" = 1'-0"

NOTE: LUMBER QUALITY FOR ALL STRUCTURAL MEMBERS (2" x 6" POST MEMBERS, BOTTOM PLATE, 2" x 8" BOTTOM GIRT, AND 2" x 10" TOP GIRT) IS TO BE NUMBER 2 SOUTHERN PINE OR BETTER.

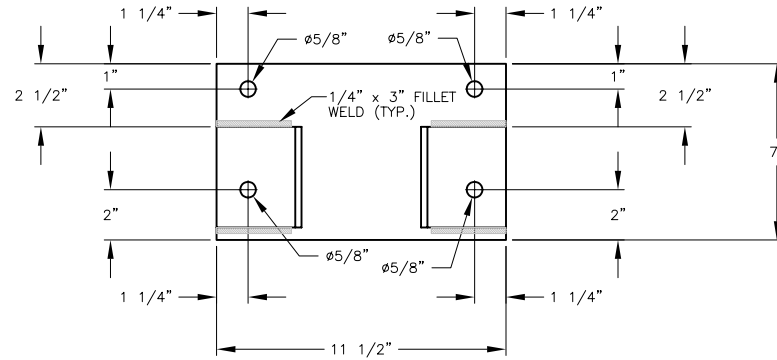
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POST FRAME STRUCTURAL DETAILS

MO-FLEX BREEDING & GESTATION BUILDING PLAN

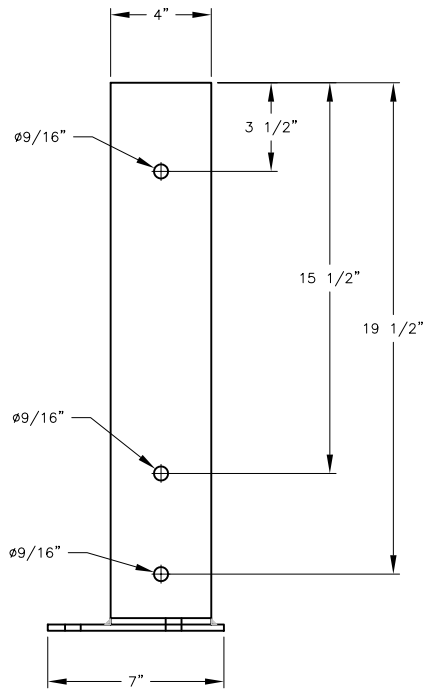
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SCALE: AS SHOWN	SHEET: S1	19 OF 20



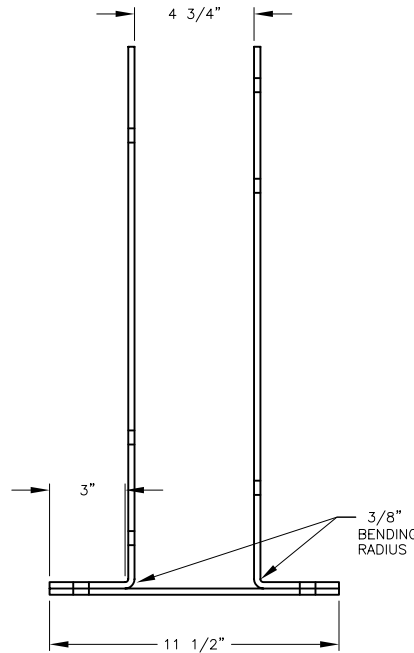
TOP VIEW

SCALE: 3" = 1'-0"



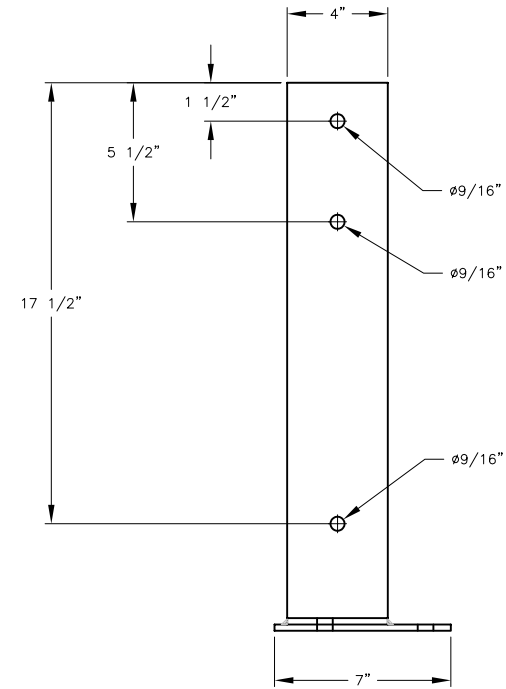
LEFT SIDE VIEW

SCALE: 3" = 1'-0"



FRONT VIEW

SCALE: 3" = 1'-0"



RIGHT SIDE VIEW

SCALE: 3" = 1'-0"

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GENERAL NOTES

1. BOTTOM STEEL PLATE - 1/4" x 7" FLAT PLATE A36 STEEL
2. VERTICAL STEEL PIECES - 1/4" x 4" FLAT PLATE A36 STEEL
3. 1/4" FILLET WELDS USING E 60 XX ELECTRODES

POST FRAME STEEL BRACKET

MO-FLEX BREEDING & GESTATION BUILDING PLAN

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SCALE: 3"=1'-0"	SHEET	S2 : 20 OF 20