Office of the Vice President
and Chief Financial Officer
Procurement Services
https://procurement.ufl.edu/

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July 25, 2022

ADDENDUM NUMBER 1 ON INVITATION TO BID ITB23KO-102

TITLE: Pre-engineered Metal Building at IFAS Dairy Unit in Hague, FL

Mandatory Pre-Bid Meeting was held July 14, 2022 at 9:00AM. **Bid opening** has been rescheduled for August 2, 2022 at 3:00PM in UF Procurement Services, 971 Elmore Drive, Gainesville, FL 32611.

This addendum shall be considered part of the Contract Documents for the above-mentioned project as though it had been issued at the same time and incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original Contract documents, this addendum shall govern and take precedence. Bidders are hereby notified that they shall acknowledge receipt of the addendum.

This addendum consists of:

- Change in Schedule: Bid opening has been rescheduled for August 2, 2022 at 3:00PM.
- Include lead time for Pre-engineered Metal Building in your bid. Lead time can be included on your completed Bid Form. Lead time is for information purposes only. Award will be made to the responsible and responsive bidder who has proposed the lowest bid as described in 1.10 Award or Rejection of Bids on Page 7 of the ITB Document.
- Change 1.14 Time of Completion on Page 7 of the ITB Document to "…Substantial Completion of entire Project by April 14, 2023 and shall be finally completed no later than April 28, 2023."
- Answers to Contractor questions received by July 19, 2022.
- Revised Construction Specification - Pre-engineering Metal Building dated July 25, 2022.
- Construction Specification - Structure Concrete and Steel Reinforcement.
- Revised Drawings dated July 22, 2022.

Karen Olitsky
Procurement Agent III

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM 1 AND RETURN WITH YOUR BID. FAILURE TO ACKNOWLEDGE THIS ADDENDUM COULD CONSTITUTE REJECTION OF YOUR BID.

_____
VENDOR NAME

_____
VENDOR ADDRESS

_____
SIGNATURE

Contractor Questions & Answers

Q1. Please confirm if Bid Bond is required as part of the proposal.

A1. No Bid Bond is required.

Q2. Regarding "Section 1.6 - Proof of Competency & Qualification of Bidder" (Page 6 of 22 of the ITB) – our company is not yet prequalified with UF Procurement Services. So please advise what are the documents required for us to submit along with our bid, in order to be considered for this ITB.

A2. If the low bidder has not been pre-qualified, submittal of the information listed in Section 1.6 may be required prior to award.

Q3. Please advise if there is a "Checklist" of Mandatory documents that are required to be included in our bid submission package.

A3. There is no checklist. Bid submittal requirements can be found on Page 5 of the ITB Document, Section 00100-Instruction to Bidders, 1.4 Bid Form.

Q4. Page 602 on the drawings, Notes for reactions call for a 90 mph wind load. Page 604, design loads calls for 144 mph. If this was classified as an Ag. Building risk Cat. 1 the wind load would be 113 mph. If this was classified as an Ag. Building risk Cat. 2 the wind load would be 123 mph. This is according to FBC 2020 ATC Hazards by location. Please clarify.

A4. This should be a Business Occupancy (Group B), Risk Category I, 120mph wind load, Exposure C.

Q5. Wind load at 90MPH is low. Low hazard would typically 110MPH Vult. Sheet 604 shows a 144MPH wind speed. Please advise.

A5. This should be a Business Occupancy (Group B), Risk Category I, 120mph wind load, Exposure C.

Q6. Drawings show ‘straight’ columns, specifications allow for tapered per 2.2-A-6. Are we allowed to design and price the most economical option (FYI - Looks like the column pedestal is designed at 14” x 14”. A straight column depth may exceed that depth, or we might need to limit the depth if needed)?

A6. Design per most economical option. Tapered or straight columns are acceptable. Engineer will modify design of concrete footings to fit column bases of successful bidder.

Q7. Do columns need to be straight as shown?

A7. Design per most economical option. Tapered or straight columns are acceptable

Q8. Will there be a collateral load?

A8. No

Q9. Will the panels have special finish requirements?

A9. The gable endwall panels should be the same as the roof panels: 26ga painted Galvalume sheets.

Q10. Both end walls are to be designed as ‘Expandable’. Are we to design for a ‘future’ 25’-0 bay?

A10. Yes

Q11. The drawings state 1% grade. Will the building be on a 1% grade of land, or the actual building needs to be a 1% slope?

A11. Both the building and grade will both be 1% grade, but the building columns must be vertical.

Q12. What material would you like the soffits to be?

A12. There are no soffits. Underside of overhangs are to be exposed

CONSTRUCTION SPECIFICATION
PRE-ENGINEERED METAL BUILDING

Revised 7/25/2022 – Addendum 1

SECTION 1 - GENERAL

1.1 SCOPE

The work included in this section includes furnishing all labor, materials, and equipment necessary for the design, fabrication, delivery, and erection of the pre-engineered galvanized metal building, as shown on the drawings and described herein.

1.2 STANDARDS

All work shall be done in accordance with the latest Metal Building Manufacturer's Association (MBMA) "Design Practices Manual" and "Code of Standard Practices".

1.3 ACCEPTABLE MANUFACTURERS/SUPPLIERS

Dean Steel Buildings Inc., Nisly Steel LLC., Prime Building Components, Southern Structures Inc., or approved equal.

1.4 SUBSTITUTIONS

A. Names of manufacturers or catalog numbers are mentioned in the plans and specifications to establish a standard of design and quality. Other products similar in design and of equal or better quality may be used if submitted to the Owner's Representative and found acceptable by him. Refer to General Conditions for additional information.

B. Where alternate equipment manufacturers named as acceptable are proposed for use by the Contractor, he shall be responsible to coordinate the change with all trades affected.

1.5 SUBMITTALS

A. Prior to fabrication and erection of the metal building, the Contractor shall submit to the Owner for approval a Structural Analysis including stresses and design data on each building structural member signed and stamped by a professional engineer registered in the State of Florida.

B. Drawings composed of roof and wall erection plans and section plans through the building shall be furnished by the metal building system manufacturer for approval. These drawings shall include the building size, design loads, type of construction, material, and gauge of covering and the type, quantity, and location of accessories.

C. An anchor bolt setting plan containing horizontal and vertical column reactions shall be furnished in duplicate by the metal building system manufacturer and will be used to determine the exact dimensions for forming the foundation and setting the anchor bolts by others. DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS ARE NOMINAL AND SHALL NOT BE USED FOR CONCRETE FORMING.

D. Final erection plans shall be furnished by the metal building manufacturer to the Owner's Representative once all drawings have been approved.

1.6 DESIGN REQUIREMENTS

A. The building shall be designed by the manufacturer as a complete system. All components shall be supplied or specified by the same manufacturer.

B. The metal building shall be designed to the *latest adopted edition of the Florida Building Code for Alachua County, Florida*. Provisions of shape factors for overhangs and open sides shall be considered in the design loads. Refer to loads on drawings.

1.7 PROTECTION OF CONSTRUCTION MATERIALS

All materials shall be stored or protected on the site in such a manner that deterioration of building materials or damage to protective coatings shall not result.

SECTION 2 – PRODUCTS

2.1 BUILDING DESCRIPTION

A. The **Pre-engineered calf barn shell** shall be a pre-engineered metal building as shown on the drawings with the following requirements:

1) Overall nominal length: 220ft
2) Nominal width: 60ft (outside-to-outside of columns);
3) 4:12 double-slope roof slope;
4) Four (4) 25 ft bays; four (4) 30ft bays; all clear-span as shown on drawings
5) 15ft eave height at column line;
6) Endwall frames to be same as inner frames to facilitate future expansion;
7) All column bases to sit on top of concrete footings
8) Both endwalls to be open with closed gables;
9) All bays shall have open sides;
10) ***Additive Alternate No. 1***: sidewall gutters and downspouts on both sidewalls;
11) All sidewalls and endwalls to have 6ft overhangs as shown on the drawings
12) Building to be installed on 1.0% slope along entire length with vertical columns
13) Furnish 12” wide continuous ridge ventilator as shown on drawings
14) Install diagonal-rod or cable wind bracing on all sidewalls as required by design;
15) Hot-dip galvanized primary steel frames;
16) Zinc-aluminum (Galvalume) purlins and secondary framing;
17) Stainless steel roof panel fasteners (Atlas Ultra-Z 410 drilling fasteners or equal);
18) Metal Roof Panels shall be pre-painted 26-gauge Zinc-aluminum (Galvalume) sheets;
19) All roof sheet end lap sealants should be omitted

2.2 MATERIALS

A. Structural Framing

Primary and secondary structural members shall be shop fabricated and field bolted. Some standard and nonstandard components and accessories of a metal building system such as field-located openings, special framing, covering panels, flashing, trim, etc., require minor field fabrication and fitting which shall be included in erection work.

1. The following materials shall conform to minimum strength required by design:
   a) Hot rolled sheet and plate for welded primary structural members.
   b) Hot rolled sheet for cold formed secondary structural members.
   c) Tubing and hot rolled sections for miscellaneous framing.
2. The minimum thicknesses of materials used shall conform to MBMA "Design Practices Manual".
3. Cold-formed sections shall be manufactured by roll or brake forming.
4. Shop connections shall be welded in accordance with the "Structural Welding Code" of the American Welding Society.
5. Field connections shall be bolted. High strength bolts shall be tightened by the turn-of-the-nut method. Bolts shall be:
   a) Primary connections--high strength bolts ASTM A-325.
   b) Secondary connections--machine bolts ASTM A-307.
6. Interior primary structural members shall be either welded sections or structural mill shapes, either constant or tapered section.
7. Endwall structural members shall be a full primary frame, the same as an interior frame, and capable of carrying full bay loading and shall be either cold formed, structural mill shapes or welded section.
8. Secondary structural members such as purlins, girts and eave struts shall be either cold formed, structural mill shapes or bar joist.
9. Wind bracing shall consist of diagonal rod or angle bracing in both roof and walls. Unless otherwise specified, diagonal portal bracing may be used in the interior and exterior column lines (where applicable). Where the diaphragm action of the covering panels provides the required wind bracing, wind bracing need not be furnished. If required in the drawings, frames shall be used for diagonal wall bracing.
11. Flange bracing shall be cold formed and shall laterally brace the inside flange of primary structural members as required by the design.

    Base angles for attaching the bottom of the wall panels will be continuous and anchored to the concrete foundation.
12. Framed openings (where applicable) shall be structural frames as required by the design loads.

13. Shop painting shall be such that all structural members, not fabricated of corrosion resistant material nor protected by a corrosion resistant coating shall be cleaned of loose rust, loose mill scale and receive one (1) shop coat of oxide metal primer.

B. Roof and Wall Covering

1. The roof and wall covering shall be pre-painted 26 gauge zinc-aluminum alloy (Galvalume or equal) sheets. The sheets shall conform to the strength required by design.
2. The panels shall have a 1-1/4" deep tapered major ribs spaced 12" on centers. One (1) minor stiffening rib shall be centered between the major ribs. Each panel shall provide 36" net coverage. All panels shall have an anti-capillary groove in the lapped edge or other approved anti-capillary system.
3. Roof panel end laps, where required by panel length, will be 8" minimum. Note: *omit endlap sealant on open buildings.*
4. Die formed ridge panels, matching the slope and profile of adjoining roof panels, shall be provided.
5. If required, wall panels shall be continuous from 1-1/2" below the column base to the roofline except where the required length would exceed 25'. Wall panels over 25' shall be end lapped a minimum of 6" at a girt. Uninsulated wall panels shall be cement grouted into the recess in the concrete foundation.
6. Roof and wall panels shall be secured to the framing members with fasteners at a maximum spacing of 12". At end laps, base angles, roof eave struts, and ridge panels, the maximum spacing of fasteners shall be 6".
7. Side laps of roof panels shall be stitched through the major rib with fasteners at a maximum spacing of 64" and centered between purlins. Side laps of wall panels shall be stitched through the major rib with fasteners at a maximum spacing of 52" dividing the wall height into equal spaces.
8. Fasteners for metal roof and wall panels shall be No. 14 x 3/4" self-tapping 300-series stainless steel with color coated heads and 5/8" stainless steel backed neoprene washers (cadmium and electroplated zinc fasteners are *not* acceptable).

C. Bolts

1. Bolts for the connection of primary members shall be square or hex head machine bolts with hex nuts conforming to ASTM A-307 or ASTM A-325.
2. Bolts for the connection of secondary framing members shall conform to ASTM A-307. Flat washers shall be installed under head and nut for all bolts 3/4" in diameter or greater.
3. Field connections shall be bolted. High strength bolts shall be tightened by the turn-of-the-nut method or by a properly calibrated torque wrench.
4. All bolts shall be galvanized.

D. Panel Rib Closures

Panel rib closures shall be closed cell, synthetic rubber conforming to ASTM D-1056 with a density of 12 to 16 pcf, preformed to match the contours of the panels and shall be installed between roof panels and eave strut, at rake trim, wall panels and eave strut, door headers and window heads, sills, and at the base of all panels.

E. Eave Gutters, Downspouts, Trim and Flashing

1. When required, galvanized steel for eave gutters, downspouts, trim, flashing and other miscellaneous uses shall be zinc-aluminum (Galvalume) and 26-gauge or heavier.
2. ***Additive Alternate No. 1***: eave gutters, 4 1/2" x 6" shall be formed to match the sculptured profile of the rake trim and equipped with heavy gauge, galvanized, adjustable supports on 24" centers. Square downspouts shall be equipped with wall attachments and 45° elbows at the floor line.
3. Trim or flashing shall be furnished at corners, rakes, and accessory openings.
4. When required, provide concrete splash blocks at each downspout not discharging on concrete.

F. Color Finish

The galvanized roof and wall panels, fascia, soffit and liner panels, flashing, trim, ventilators, and louvers shall be color finished as follows:

1. The galvanized steel sheet shall be mechanically and chemically cleaned and chemically converted to provide superior adhesion and corrosion resistance. Prior to forming, enamel shall be roller coat applied to the finished side and backside using precision controlled, continuous coil coating equipment to provide exceptional protection against failures, such as checking, cracking, loss of adhesion, chalking or fading.
2. Finished Side: 1.0 mil enamel (including 0.2 mil primer).
3. Back Side: 0.5 mil off-white backing enamel (including 0.2mil primer).

Color to be selected by the Owner's Representative from standard charts supplied by building manufacturer.

2.3 GALVANIZATION OF MEMBERS

A. Prior to assembly, all primary and secondary structural members shall receive a zinc (hot galvanizing) coating.

B. Galvanization of products fabricated from roller, pressed and forged steel shapes, plates, bars and strips, 1/8" thick and heavier shall conform to ASTM Designation A-123.

C. Galvanization of iron and steel hardware shall conform to ASTM Designation A-123 and A-153.

D. Members formed from galvanized sheets shall conform to ASTM Designation A-525, A-446, and/or relevant ASTM designations.

E. Steel should not exceed 0.25% carbon where sever cold-forming operations preceded galvanization.

F. Cold-forming operations shall not cause failure of zinc coating at extreme bends.

G. The following criteria shall be properly controlled and shall meet standards satisfactory to the Owner for the galvanizing process:

1) Defects arising from fabrication, thickness and uniformity of coating, adherence of coating, appearance, and embrittlement.

2) Galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating shall be repaired by thoroughly wire brushing the damage areas and removing all loose and cracked coating, after which the cleaned areas shall be repaired by the application of a low temperature galvanizing repair compound, in the shape of a bar or rod, to the repair surface preheated to 600F.

3) The melted repair material shall be brushed over the bare surface with a wire brush.

4) Zinc coating by the metallizing process may be allowed when approved by the Owner.

H. The handling, stacking, transporting, and erecting of the galvanized parts shall be done in such a manner as to protect the coating and coating appearance.

I. Galvanized parts shall be assembled with non-abrasive equipment.

J. When it is necessary to straighten any sections after galvanizing, such work shall be performed without damage to the zinc coating. Safeguards against warping and distortion due to the galvanizing process shall conform to ASTM Designation A-384.

K. It is the intention of these specifications that all parts of the metal building structure be protected from corrosion by an approved zinc coating as described herein.

SECTION 3 – EXECUTION

3.1 ERECTION - GENERAL

A. Verify site conditions under provisions of Section 1.

B. Structural loads and column footing designs shown on drawings have been provided by Nisly Steel, LLC dated 05/07/2022 and are used as a basis for bidding. This contractor shall provide to Engineer the actual loads of metal building proposed to be used; Engineer will modify design as/if necessary to accommodate actual loads.

C. Provide access to the work as scheduled for owner provided inspections, if required. The cost of any required inspections is the responsibility of the owner.

D. Do not proceed until unsatisfactory conditions have been corrected.

3.2 ERECTION - FRAMING

A. The building shall be erected by a competent and experienced crew working for or

approved by the metal building manufacturer and/or his authorized representative.

B. Only neat and first-class workmanship will be accepted. No warped, crooked, or otherwise damaged building components will be accepted.

C. The building crew shall have the manufacturer's instructions and erection plans on their possession at all times.

D. The Contractor shall have his project Superintendent on the job at all times while the metal building is being erected.

E. Erection procedures and scheduling shall follow those set down and approved by the metal building manufacturer.

F. Purlin spacing shall be as specified by the Metal Building manufacturer's design.

G. The ridge purlins shall be installed to allow an open space as shown on the drawings to give the full ventilation rate possible for the ridge vents.

H. If required, wall girts and other structural members shown on the contract drawings shall be included by the metal building manufacturer in addition to those structural members required by design.

I. All cuts and holes made by the contractor must be mechanically performed and not burned or cut with a torch.

3.3 ERECTION – WALL AND ROOFING SYSTEMS

A. Install all wall and roofing systems in accordance with manufacturer's instructionsand details.

B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.

C. Fasten cladding system to structural supports, using proper fasteners aligned level and plumb.

D. Set purlins and girts at right angle and bolt to appropriate clips. Attach to clips as required to satisfy design loads and as shown on drawings.

E. Place screw down roof panels at right angle to purlins and girts. When required, attach and plumb wall panels as shown on drawings. Lap panel ends as required by the manufacturer; place end laps over purlins or girts. Apply manufacturer’s roof panel side lap sealant between panel side laps to provide water-tight installation per details furnished. *Do NOT apply lap sealant to panel ends*.

3.4 ERECTION – TOLERANCES

A. All work shall be performed by experienced workmen in a workmanlike mannerto published tolerances.

B. Install framing in accordance with MBMA Metal Building Systems Manual,Chapter IV Common Industry Practices.

END OF SECTION

CONSTRUCTION SPECIFICATION
STRUCTURE CONCRETE AND STEEL REINFORCEMENT

SECTION 1 - GENERAL

1.1 SCOPE

The work shall consist of furnishing, forming, placing, finishing, and curing Portland cement concrete and furnishing and placing steel reinforcement as required to build the structures shown on the drawings.

1.2 MATERIALS

A. Portland cement shall be Type II or Type IIA as specified in ASTM C 150 or as otherwise specified on the plans. Fly ash used a partial substitution of Portland cement shall conform to the requirements of ASTM C 618, Class C or F. Blast furnace slag used as a partial substitution of Portland cement shall conform to ASTM Standard C 989 for ground granulated blast-furnace slag.

B. Water used in mixing and curing concrete shall be clean and free from injurious amounts of oil, salt, acid, alkali, algae, organic matter, or other deleterious substances.

C. Aggregates shall conform to the requirements of ASTM C 33 for fine and coarse aggregate for concrete. Aggregates must be clean, hard, strong, and durable particles free of absorbed chemicals, clay coatings, organic materials, trash, and clay or soil balls. Aggregates are to be handled in a way that minimizes segregation. The maximum size of aggregate particles should not exceed:

   a. 1/5 the narrowest dimension of the member

   b. 3/4 the clear spacing between reinforcing bars and between reinforcing bars and forms

   c. 1/3 the depth of the slab

D. Fiber Reinforcing (when specified) may be used when approved by engineer. Fiber to be added to concrete during batching at a rate of 0.1% to 0.2% by volume.

E. Steel bar reinforcement Reinforcing bars shall be Grade 60 unless otherwise specified on the drawings or approved by the engineer. Reinforcing steel shall conform to ASTM A 614 or ASTM A 996. Dowels shall be plain round bars conforming to the same specifications for deformed steel bars. Epoxy coated bars shall conform to the requirements of ASTM A 775. Welded steel wire fabric reinforcement shall conform to ASTM A 185. Gauges, spacing and arrangement of wires shall be as defined in ACI Standard 315. When placed, reinforcing bars shall be free from loose, flakey rust, mill scale, oil, grease, or paint.

F. Chemical Admixtures
   a. Air-entraining admixtures (when specified) shall conform to the requirements of ASTM C 260. If air-entraining cement is used, any additional air-entraining admixture shall be of the same type as that in the cement.
   b. Water reducing and/or retarding admixtures shall conform to the requirements of ASTM C 494, Types A, B, D, F or G.
   c. Plasticizing admixtures or plasticizing and retarding admixtures shall conform to the requirements of ASTM C 494 Types F or G, or ASTM C 1017 as applicable.
   d. Accelerating and water-reducing and accelerating admixtures shall be noncorrosive and conform to the requirements of ASTM C 494, Types C and E.
   e. Other admixtures such as accelerators or retarders may be used with the approval of the engineer.

G. Curing compound shall conform to the requirements of ASTM C 309 or ASTM C 1315. Curing compounds shall be delivered to the site in the original container. The compound shall be stored on site to prevent damage to the container or freezing.

H. Preformed expansion joint filler shall conform to the requirements of ASTM D 1752, Type I, Type II or, Type III, unless bituminous type is specified. Bituminous type preformed expansion joint filler shall conform to the requirements of ASTM D 994.

I. Waterstops shall conform to the requirements of NRCS, NEH Part 642 Material Specifications 537, Nonmetallic Waterstops, and 538, Metal Waterstops, for the specified kinds or US Army Corps of Engineers Specification CRD c-572.

1.3 CLASS OF CONCRETE

Concrete shall have a minimum design strength of 4,000 psi at 28 days, unless otherwise specified. Fly ash may be used as a partial substitution for Portland cement in an amount of no more than 25 percent (by weight) of the cement in the concrete mix, unless otherwise specified. The contractor is responsible for design and proportioning of the concrete mix to attain the specified compressive strength.

1.4 AIR CONTENT AND CONSISTENCY

If specified on the drawings, the air content (by volume) shall be 5 to 7 percent of the volume of the concrete at the time of placement. Air entrainment admixtures can be added to meet the air content requirements.

Unless otherwise specified, the slump shall be 3 to 5 inches. High range, water reducing agents (plasticizers) may be used to increase workability, reduce water content, and control concrete temperature in hot weather. The maximum slump after adding high range water reducing agents (plasticizers) shall be 7.5 inches. The slump

shall be 3 inches or less prior to the addition of any water reducing agents. When specified, directed, or approved by the engineer, a water-reducing, set-retarding, or other admixture shall be used. Any admixtures used shall meet the requirements in Section 2 unless otherwise approved by the engineer.

1.5 MIXERS AND MIXING

Concrete shall be uniform and thoroughly mixed when delivered to the work site. The proportions of the aggregates shall be such as to produce a concrete mixture that will work readily into corners and angles of the forms and around reinforcement when consolidated, but not segregated or exude free water during consolidation. Variations in slump of more than 1" within a batch are considered evidence of inadequate mixing and shall be corrected by increasing mixing time or other acceptable alternative.

No mixing water in excess of the amount called for by the job mix shall be added to the concrete during mixing or hauling or after arrival at the delivery point.

1.6 FORMS

Forms shall be of wood, plywood, steel, or other approved material and shall be mortar tight. The forms and associated falsework shall be substantial and unyielding and shall be constructed so that the finished concrete will conform to the specified dimensions and contours. Form surfaces shall be smooth and free from holes, dents, sags, or other irregularities. Forms shall be coated with a nonstaining form release agent before being set into place.

For liquid-tight structures metal ties or anchorages within the forms shall be equipped with cones, she-bolts or other devices that permit their removal to a depth of at least 1 inch (unless otherwise specified) without injury to the concrete. Ties designed to break off below the surface of the concrete shall not be used without cones. If approved fiberglass or plastic form ties are used, the tie ends shall be cut flush with the finish concrete and ground smooth.

For structures which are not required to be liquid-tight, form ties shall be removed flush with or below the concrete surface.

All edges that will be exposed to view when the structure is completed shall be chamfered, unless finished with molding tools.

1.7 STEEL REINFORCEMENT

Before steel is placed, the surface of the bars shall be cleaned to remove loose rust, mill scale, oil, grease, or other foreign substances. Bars of specified size shall be accurately placed as shown on the drawings and shall be securely tied in position to prevent its displacement during the placement of concrete. If not shown on the drawings, the minimum bar cover for concrete cast in forms or exposed to the weather shall be 1.5 inches (2 inches for #6 bars or larger). The minimum bar cover for concrete cast against earth shall be 3 inches.

Tack welding of bars will not be permitted. Metal chairs, metal hangers, metal spacers, plastic chairs, and concrete chairs may be used to support the reinforcement. Metal hangers, spacers and ties shall be placed in such a manner that they will not be exposed in the finished concrete surface. The legs of metal chairs that may be exposed at the lower face of slabs or beams shall be galvanized. Precast concrete chairs shall be manufactured of the same class of concrete as that specified for the structure. Precast concrete chairs shall be moist at the time concrete is placed. The chairs will be spaced as needed to prevent displacement of the steel. The need and method of supporting the reinforcement will be determined by the engineer and/or inspector or as shown on the drawings.

Reinforcement shall be cut and bent in compliance with the requirements of the American Concrete Institute (ACI) Standard 315. Bars with kinks, cracks or improper bends will be rejected. When not specified in the steel schedule, bars may be cut and bent in the field. Bars shall not be heat bent.

Unless otherwise specified on the drawings, splices of reinforcing bars shall be in accordance with the ACI Building Code Requirements for Reinforced Concrete (ACI 318). Minimum splice lengths shall be as shown below:

Minimum Lap Splice Length (inches)									
Bar Type	Bar Size (mm)								
	#3(10)	#4(13)	#5(16)	#6(19)	#7(22)	#8(25)	#9(29)	#10(32)	#11(36)
Plain	17	22	28	33	48	55	62	68	76
Epoxy Coated	20	27	33	39	58	66	74	83	91

Splice lengths as per ACI 318-05 based on 3,000 psi concrete.

Where specified on the drawings, welded wire fabric shall be spliced by overlapping one full mesh of adjacent sections plus 2 inches and securing the pieces together with wire ties.

Steel reinforcement stored at the site of the work shall be stored above the ground surface on platforms, skids or other supports and shall be protected from mechanical injury and corrosion.

Reinforcement material (such as fiber mesh) other than steel bars or welded wire fabric may be used with the approval of the engineer.

1.8 PREPARATION OF FORMS AND SUBGRADES

Prior to placement of concrete, the forms and subgrade shall be free of chips, sawdust, debris, water, ice, snow, extraneous oil, mortar, or other harmful substances or coatings and the temperature of all surfaces to be in contact with the new concrete shall be not be less than 40 degrees Fahrenheit. Any oil on the reinforcing steel or other surfaces required to be bonded to the concrete shall be removed. Rock surfaces shall be cleaned by air-water cutting, wet sandblasting, or wire brush scrubbing, as necessary, and shall be wetted immediately before placement of concrete. The earth surface shall be firm and damp. Placement of concrete on mud, dried earth, or uncompacted fill or frozen subgrade is not permitted.

Items to be embedded in the concrete shall be positioned accurately and anchored firmly.

Weepholes in walls or slabs shall be formed with nonferrous material.

1.9 CONVEYING

Concrete shall be delivered to the site and discharged into the forms within 1-1/2 hours after the introduction of the cement to the aggregates. In hot weather or under conditions contributing to quick stiffening of the concrete, the time between the introduction of the cement to the aggregates and discharge shall not exceed 45 minutes unless an approved set-retarding admixture is used or the mix remains workable and the temperature does not exceed the requirements stated in Section 20. In any case, concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods that prevent segregation of the aggregates and assure no loss of mortar occurs.

1.10 PLACING

Concrete shall not be placed until the subgrade, forms, steel reinforcement, and embedded items have been inspected and approved. The engineer will determine any required testing needed for the placement of the specified concrete. No concrete shall be placed except in the presence of the engineer or with permission from the engineer. The contractor shall give reasonable notice to the engineer each time concrete is to be placed. Such notice shall provide sufficient time for the engineer to inspect the subgrade, forms, steel reinforcement, and other preparations for compliance with the specifications. Deficiencies are to be corrected before concrete is delivered for placing. The engineer can delegate any or all duties to other qualified personnel.

The concrete shall be deposited as closely as possible to its final position in the forms. It shall be worked into the corners and angles of the forms and around all reinforcement and embedded items in a manner to prevent segregation of aggregates or excessive laitance. Formed concrete shall be placed in horizontal layers not more than 20 inches deep. When a superplasticizer is used the horizontal layer can be increased to 5 ft. deep. Slab concrete shall be placed to design thickness in one continuous layer. Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation. When a superplasticizer used, the

concrete shall not be allowed to drop more than 10 feet. Hoppers and chutes, pipes, or "elephant trunks" shall be used as necessary to prevent segregation and the splashing of mortar on the forms and reinforcing steel above the layer being placed.

Immediately after the concrete is placed in the forms, it shall be consolidated by spading, hand tamping, or vibration as necessary to ensure a smooth surface and dense concrete. Each layer shall be consolidated to ensure monolithic bond with the preceding layer. The use of vibrators shall not be used to transport concrete in the forms, slabs, or conveying equipment. Vibration shall not be applied directly to the reinforcement steel or the forms. If the surface of a layer of concrete in place sets to the degree that it will not flow and merge with the succeeding layer when spaded or vibrated, the contractor shall discontinue placing concrete and shall make a construction joint according to the procedure specified in section 11.

If placing is discontinued when an incomplete horizontal layer is in place, the unfinished end of the layer shall be formed by a vertical bulkhead.

1.11 CONSTRUCTION JOINTS

Construction joints shall be made at the locations shown on the drawings. If construction joints are needed that are not shown on the drawings, they shall be placed in locations approved by the engineer.

Where a feather edge would be produced at a construction joint, as in the top surface of a sloping wall, an insert form shall be used so that the resulting edge thickness on either side of the joint is not less than 6 inches.

In walls and columns, as each lift is completed, the top surface shall be immediately and carefully protected from any condition that might adversely affect the hardening of the concrete.

Steel tying and form construction adjacent to concrete in place shall not be started until the concrete has cured at least 12 hours. Before new concrete is deposited on or against concrete that has hardened, the forms shall be retightened. New concrete shall not be placed until the hardened concrete has cured at least 12 hours.

The surface of construction joints shall be cleaned of all unsatisfactory concrete or other foreign materials by means approved by the engineer. The surface shall be kept moist for at least 1 hour before the new concrete is placed.

1.12 EXPANSION/ISOLATION AND CONTRACTION/CONTROL JOINS

The types and locations of expansion and contraction joints shall be made only at locations shown on the drawings unless otherwise directed by the engineer.

Exposed concrete edges at expansion and contraction joints shall be carefully tooled or chamfered, and the joints shall be free of mortar and concrete. Contraction joints can be constructed using saw cuts to a depth of approximately ¼ of the total thickness between 4 to 12 hours from when the concrete is placed.

Preformed expansion joint filler shall be held firmly in the correct position as the concrete is placed. Joint filler shall be left exposed for its full length with clean and

true edges.

When open joints are specified, they shall be constructed by the insertion and subsequent removal of a wooden strip, metal plate, or other suitable template in such a manner that the corners of the concrete are not chipped or broken. The edges of open joints shall be finished with an edging tool before the joint strips are removed.

1.13 WATERSTOPS

Waterstops shall be held firmly in the correct position as the concrete is placed. Joints in metal waterstops shall be soldered, brazed, or welded. If specified by the engineer joints in rubber or plastic waterstops shall be cemented, welded, or vulcanized as recommended by the manufacturer.

1.14 REMOVAL OF FORMS

Forms shall be removed in such a way as to prevent damage to the concrete. Supports shall be removed in a manner that permits the concrete to take the stresses of its own weight uniformly and gradually. The minimum period from completion of the concrete placement to the removal of the forms shall be based on either strength tests or cumulative times.

- Strength tests – The strength of the in place concrete is determined by testing concrete cylinders specifically cast for this purpose and cured adjacent to the member in accordance with the ASTM C 31 method for determining removal time. Unless otherwise specified, forms supporting the weight of the concrete member may be removed after the concrete strength is 70 percent of that specified for the class of concrete.
- Cumulative time – The total accumulative time, not necessarily continuous, that the air adjacent to the concrete is above 50 degrees Fahrenheit and the specific concrete curing has occurred concurrently will be determined. Forms may be removed after 12 hours.

1.15 FINISHING FORMED SURFACES

Immediately after the forms are removed:

a. All fins and irregular projections shall be removed from exposed surfaces.

b. The holes produced on all surfaces by the removal of form ties, cone-bolts, and she-bolts shall be cleaned, wetted, and filled with a dry-pack mortar. The mortar will consist of one part Portland cement, three parts sand that will pass a No. 16 sieve, and just sufficient water to produce a consistency such that the filling is at the point of becoming rubbery when the material is solidly packed. Other proprietary patching material shall be appropriate for the type of repair, used with manufacturer's recommended limits, and applied according to the manufacturer's recommendations.

1.16 FINISHING UNFORMED SURFACES

All exposed surfaces of the concrete shall be accurately screeded to grade and then float finished, unless specified otherwise.

Excessive floating or troweling of surfaces while the concrete is soft is not permitted.

Adding dry cement or water to the surface of the screeded concrete to expedite finishing is not allowed.

Joints and edges on unformed surfaces that will be exposed to view shall be chamfered or finished with molding tools.

1.17 CURING

Concrete shall be prevented from drying for a curing period of at least 7 days after it is placed. All concrete and its surfaces shall be kept from freezing during the curing period. The required curing period may be reduced if a mix is used that will accelerate the curing time. For accelerated mixes the curing time shall not be less than 3 days. Any accelerated mixes and reduced curing times must be approved by the engineer. Exposed surfaces shall be kept continuously moist for the entire period, or until curing compound is applied as specified below. Moisture shall be maintained by sprinkling, flooding, or fog spraying, or by covering with continuously moistened canvas, cloth mats, straw, sand, or other approved material. Wood forms left in place during the curing period shall be kept continuously wet. A formed surface shall be thoroughly wetted immediately after forms are removed and shall be kept wet until patching and repairs are completed. Water or covering shall be applied in such a way that the concrete surface is not eroded or otherwise damaged.

Concrete, except at construction joints, may be coated with the approved curing compound instead of continued application of moisture, except as otherwise specified. The compound shall be sprayed on the moist concrete surface as soon as free water has disappeared but shall not be applied to any surface until patching, repairs, and finishing of that surface are completed. The compound shall be applied at a uniform rate of not less than 1 gallon per 175 square feet of surface and shall form a continuous adherent membrane over the entire surface. Curing compound shall be thoroughly mixed before applying and continuously agitated during application. Curing compound shall not be applied to a surface requiring bond to subsequently placed concrete, such as construction joints, shear plates, reinforcing steel, and other embedded items. If the membrane is damaged during the curing period, the damaged area shall be resprayed at the rate of application specified above. Any surface covered by the membrane shall not be trafficked unless protected from wear.

1.18 REMOVAL AND REPLACEMENT OR REPAIR

When concrete is honeycombed, damaged, or otherwise defective, the contractor shall remove and replace the structure or structural member containing the defective concrete or, where feasible, correct or repair the defective parts. The engineer determines the required extent of removal, replacement, or repair. Before starting repair work, the contractor shall obtain the engineer's approval of the plan for repairs.

The final repair work will result in at least the same structural strength of the original design.

1.19 CONCRETEING IN COLD WEATHER

Concrete shall not be mixed nor placed when the daily minimum atmospheric temperature is less than 40 degrees Fahrenheit unless facilities are provided to prevent the concrete from freezing. The use of accelerators or water reducing admixtures will be approved by the engineer. Concrete shall not be placed on frozen surfaces or forms. The temperature of the concrete at the time of placing shall be within the placement temperature range shown below, unless otherwise specified.

Least dimension of section, inches	Placement temperature, °F
Less than 12	55 – 75
12 to 36	50 – 70
36 to 72	45 – 65
Greater than 72	40 – 60

The minimum temperature of the concrete for the first 72 hours after placement shall not be less than the minimum temperature shown above. If the minimum temperature requirements are not met and the concrete did not freeze, the protection time will be extended a period equal to twice the number of hours the temperature was below the minimum temperature. At the end of the protection period, the concrete shall be allowed to cool gradually. The maximum decrease at the concrete surface in a 24-hour period shall not exceed 40 °F. The contractor shall supply a cold weather concrete plan and monitoring plan to be approved by the engineer.

1.20 CONCRETEING IN HOT WEATHER

The contractor shall apply effective means to maintain the temperature of the concrete below 90 degrees Fahrenheit during mixing, conveying, and placing.

1.21 ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details therefore are:

a. Concrete – Calf Barn Footings;

(1) This item shall consist of the furnishing and placing of concrete and appurtenances for constructing the items listed above to the neat lines and grades as shown on the drawings.

(2) Cement shall be Type II.

(3) Fine aggregate shall conform to the gradation limits as specified in ASTM C 33-82.

(4) Coarse aggregate shall conform to the gradation limits of size number 7 or 57 as specified in ASTM c 33-82.

(5) Concrete shall have a minimum 28-day compressive strength of 4,000 psi.

(6) Concrete shall have a maximum slump of 4 inches before the addition of fibers and water reducing admixtures and a maximum slump of 6 inches after the addition of fibers and water reducing admixtures.

(7) Steel reinforcement shall be used to reinforce the footings as shown on the drawings. After reducing admixtures shall be Type A as defined in ASTM C 494.

b. Steel Reinforcement

(1) This item consists of furnishing and placing all steel reinforcement used in the construction of the **Baby Calf Barn Shell** as shown on the drawings.

BABY CALF BARN SHELL for

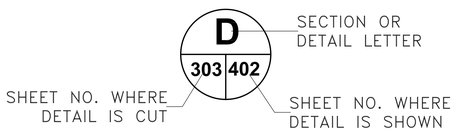
UF IFAS Dairy Research Unit

Hague, Alacuha County, Florida

by

JGM, Inc.
Dairy Design Engineers

SHEET INDEX	
No.	**Title**
000	Title Sheet
101	Overall Facility Site Plan
601	Calf Barn Exterior Elevations
602	Calf Barn Floor Plan & Cross Section
603	Calf Barn Long Section
604	Column Footing Details



SECTION INDICATOR EXPLANATION

**REVISED BID DOCUMENT:
NOT FOR CONSTRUCTION
JULY 22, 2022**

FILE NAME: UF_DRU_CALF_TITLE
SHEET 000
DRAWN BY: J.Martin, R.Kent
PLOT SCALE – 1:1
DESIGN: J.G.Martin III, P.E.

**BABY CALF BARN SHELL
UF IFAS DAIRY RESEARCH UNIT
Hague, Alachua County, Florida**

JGM, Inc.
Dairy Design Engineers
Joseph G. Martin III, P.E. M.S.
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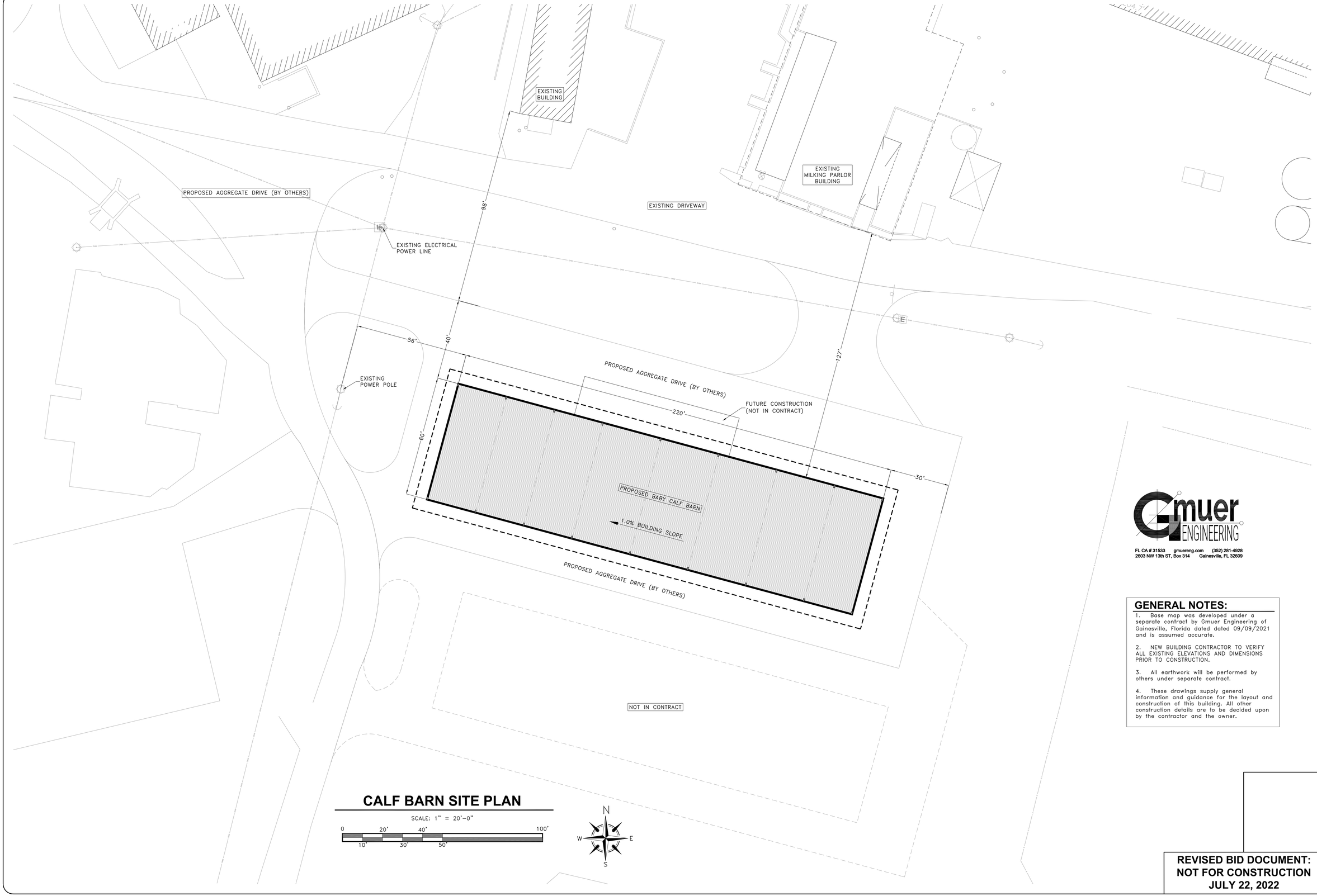
www.dairydesign.com



CALF BARN SITE PLAN

SCALE: 1" = 20'-0"

0 10' 20' 30' 40' 50' 100'

Gmuer ENGINEERING
FL CA # 31533 gmuereng.com (352) 281-4928
2603 NW 13th ST, Box 314 Gainesville, FL 32609

GENERAL NOTES:

1. Base map was developed under a separate contract by Gmuer Engineering of Gainesville, Florida dated dated 09/09/2021 and is assumed accurate.

2. NEW BUILDING CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

3. All earthwork will be performed by others under separate contract.

4. These drawings supply general information and guidance for the layout and construction of this building. All other construction details are to be decided upon by the contractor and the owner.

REVISED BID DOCUMENT:
NOT FOR CONSTRUCTION
JULY 22, 2022

FILE NAME: UF_DRU_CALFBARN_SITEb
SHEET 101
DRAWN BY: J.Martin, R.Kent
PLOT SCALE – 1:1
DESIGN: J.G.Martin III, P.E.

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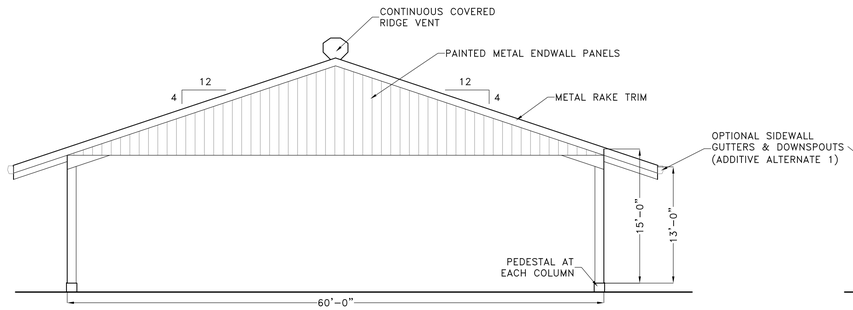
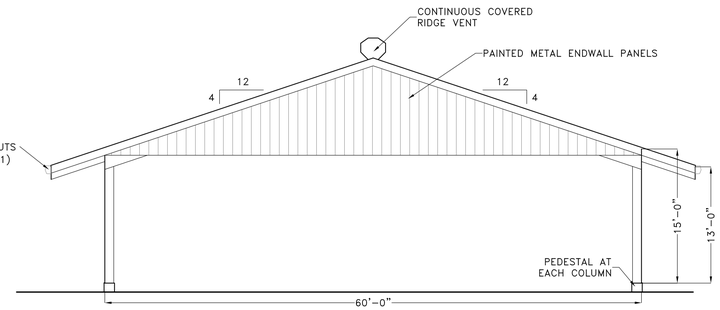


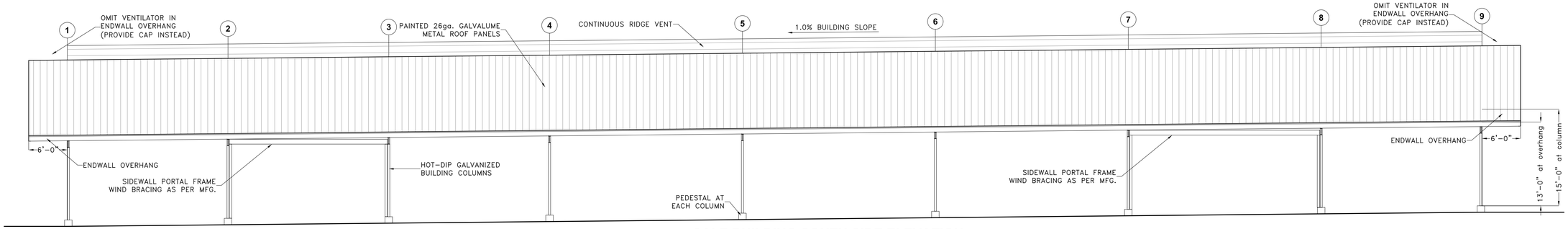
CALF BUILDING EAST END ELEVATION

SCALE: 1/8" = 1'-0"



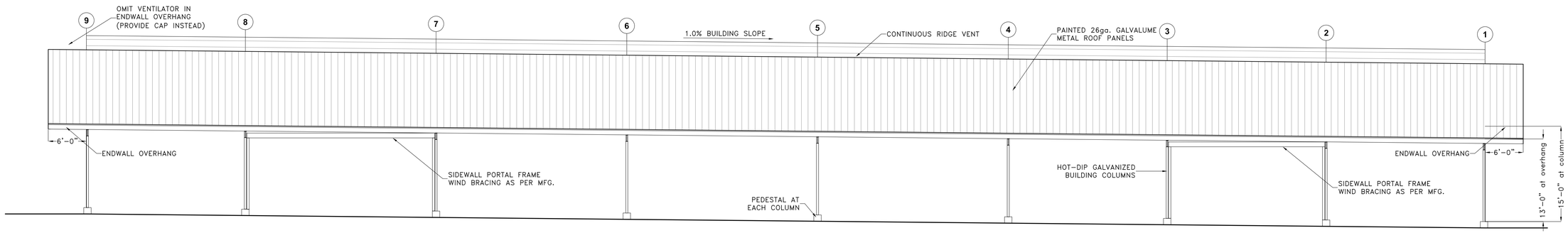
CALF BUILDING WEST END ELEVATION

SCALE: 1/8" = 1'-0"



CALF BUILDING SOUTH SIDE ELEVATION

SCALE: 1/8" = 1'-0"



CALF BUILDING NORTH SIDE ELEVATION

SCALE: 1/8" = 1'-0"

**REVISED BID DOCUMENT:
NOT FOR CONSTRUCTION
JULY 22, 2022**

FILE NAME: UF_DRU_CALF_BARN
SHEET 601
DRAWN BY: J.Martin, R.Kent
PLOT SCALE – 1:1
DESIGN: J.G.Martin III, P.E.

**BABY CALF BARN SHELL
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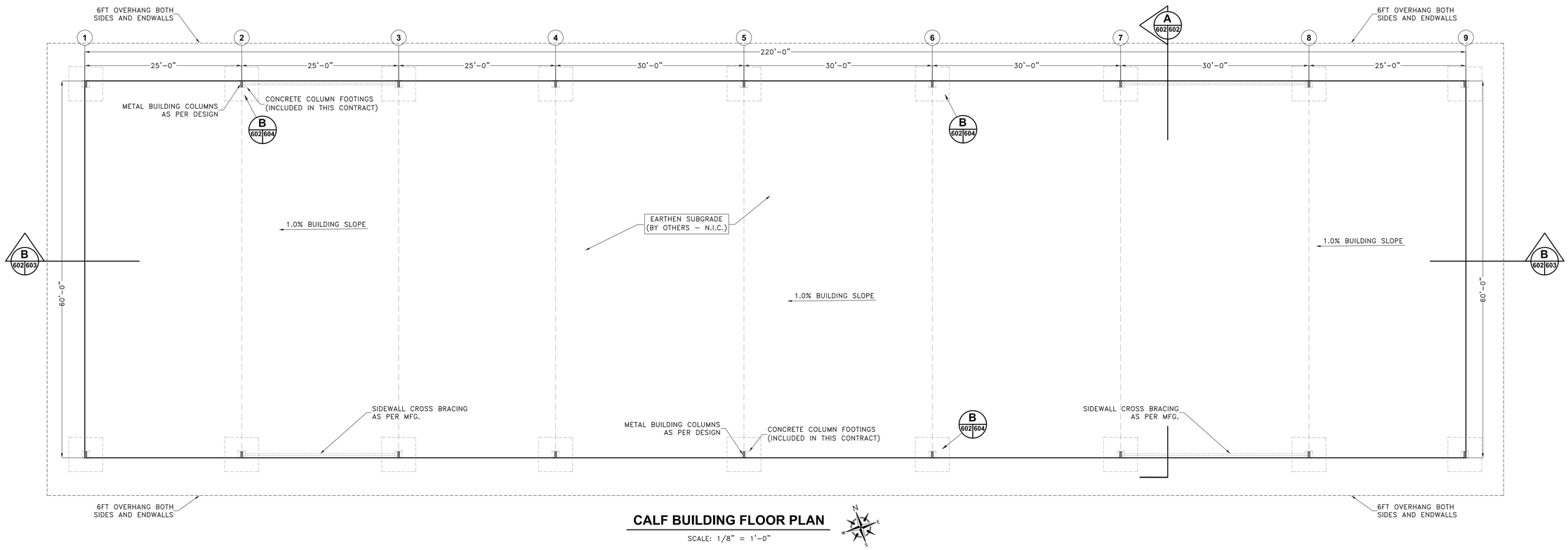
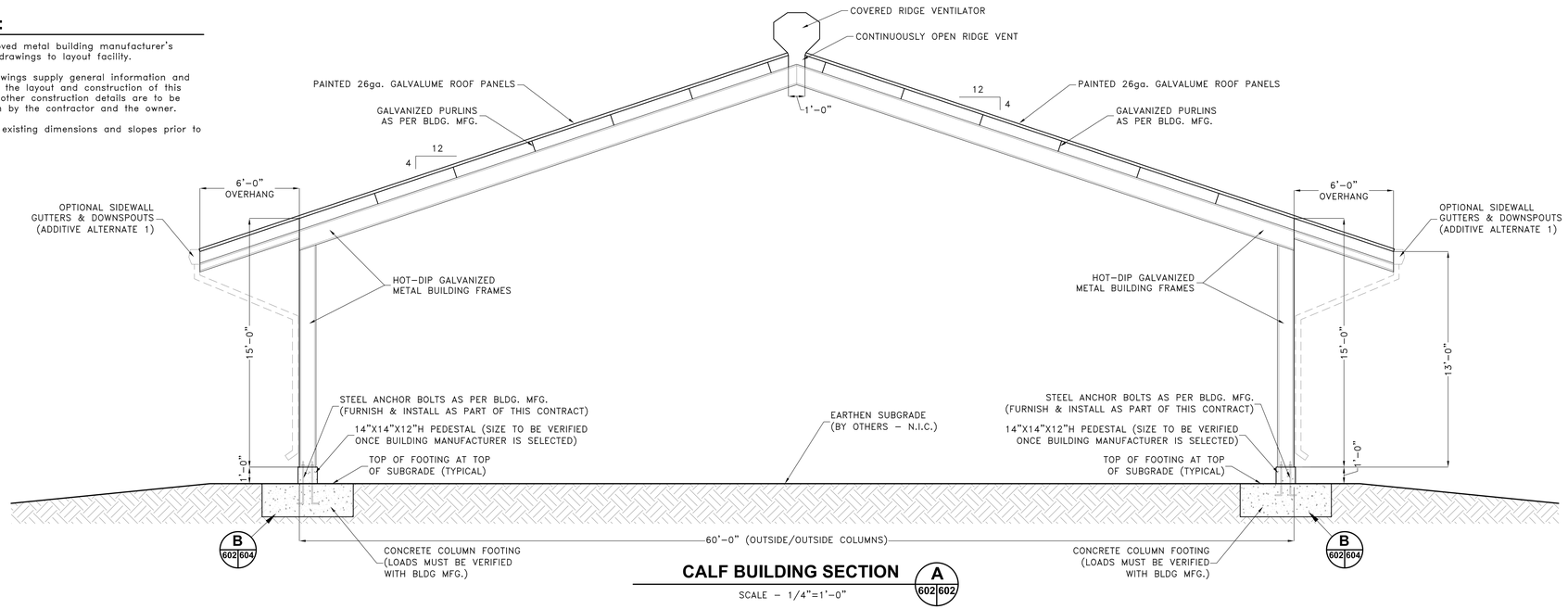


CALF BUILDING FLOOR PLAN

SCALE: 1/8" = 1'-0"



CALF BUILDING SECTION

A 602 602

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

NOTES:

1. Use approved metal building manufacturer's anchor bolt drawings to layout facility.
2. These drawings supply general information and guidance for the layout and construction of this facility. All other construction details are to be decided upon by the contractor and the owner.
3. Verify all existing dimensions and slopes prior to construction.

METAL BUILDING SPECIFICATIONS:

The Freestall Barn shall be a pre-engineered metal building as shown with the following requirements:

1. Nominal dimensions of bldg. frame: 60ft wide x 220ft long x 15ft eave ht. at column;
2. 4:12 roof slope;
3. Total of four (4) 25ft and four (4) 30ft bays;
4. Post-and-beam rigid frames on all frames;
5. Endwall framing to be same as inner frames to facilitate future expansion of building;
6. Install gable endwall panels both ends;
7. Continuous 12" open ridge vent entire length of building;
8. Continuous fixed ridge ventilator entire length of building;
9. 6ft overhangs on sides and ends of building;
10. All bays shall have open sides;
11. Additive Alternate 1: Gutters and downspouts both sidewalls;
12. Portal Frame sidewall wind bracing as required by design;
13. Hot-dip galvanized primary frames;
14. Galvalume purlins and secondary framing;
15. 410 Stainless steel self-drilling roof fasteners;
16. Metal roof panels shall be pre-painted 26ga Galvalume;
17. Design loads shall be as required by Alachua County, FL - see Notes for Reactions below;
18. Metal bldg. mfg. shall submit for approval erection drawings signed/sealed by professional engineer licensed in Florida;
19. Omit end lap sealant on all roof sheet end laps;

Notes for Reactions (verify all):

1.	Building Code:	FBC 7th Ed (2020)
2.	Occupancy Code:	Business Occupancy
3.	Risk Category:	I
4.	Dead load:	1.5psf
5.	Roof live load:	20.0psf
6.	Frame live load:	12.0psf
7.	Wind load:	120mph
8.	Exposure:	C
9.	Closed/Open:	Open
10.	Importance wind:	1.0
11.	Importance Seismic:	1.0
12.	Seismic zone:	C

REVISED BID DOCUMENT:
NOT FOR CONSTRUCTION
JULY 22, 2022

FILE NAME: UF_DRU_CALF_BARN
SHEET 602
DRAWN BY: J.Martin, R.Kent
PLOT SCALE - 1:1
DESIGN: J.G.Martin III, P.E.

BABY CALF BARN SHELL
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Hague, Alachua County, Florida

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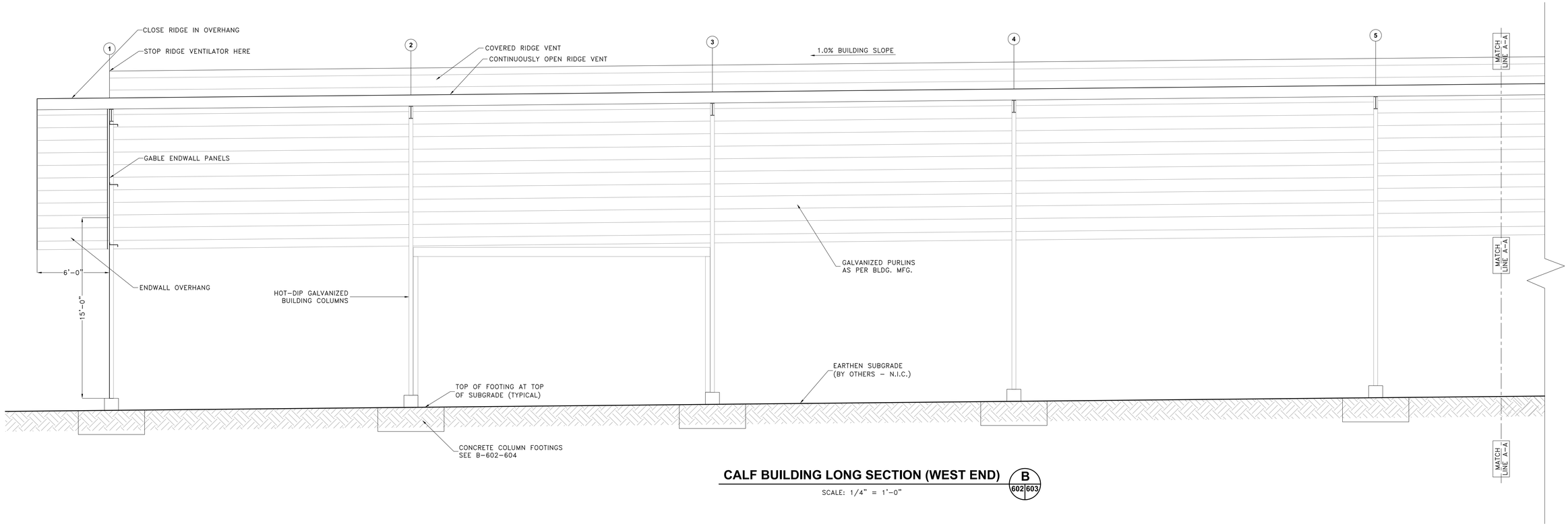
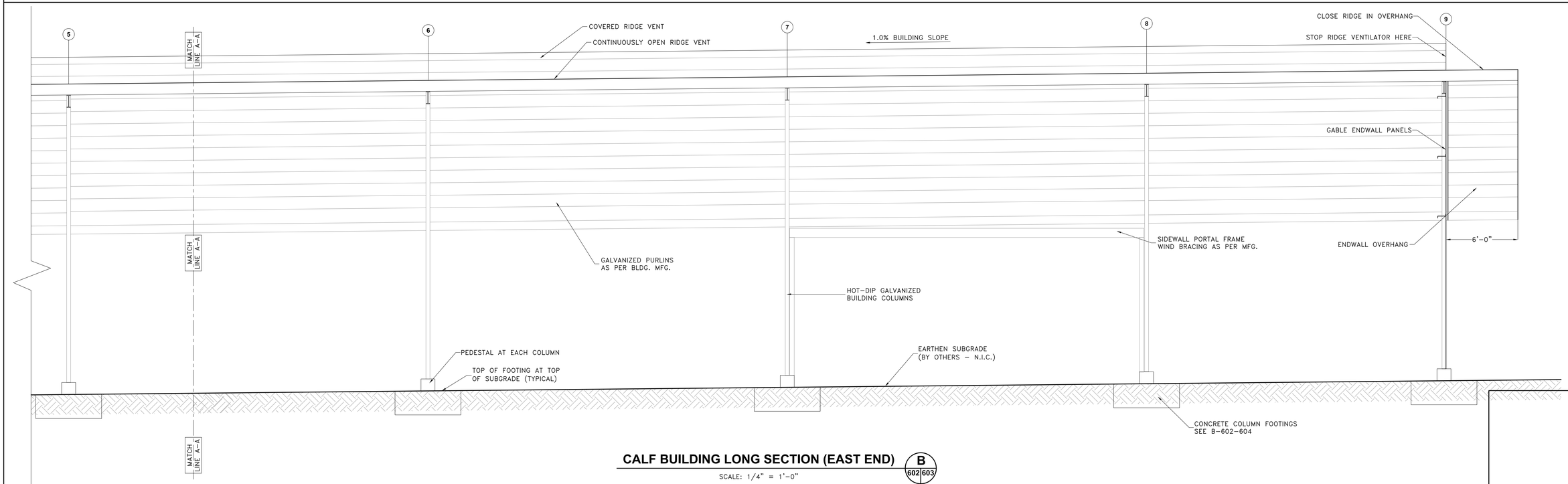
jmartin@jgmdesign.com



CALF BUILDING LONG SECTION (WEST END) B 602|603

SCALE: 1/4" = 1'–0"



CALF BUILDING LONG SECTION (EAST END) B 602|603

SCALE: 1/4" = 1'–0"

REVISED BID DOCUMENT: NOT FOR CONSTRUCTION JULY 22, 2022

FILE NAME: UF_DRU_CALF_BARN
SHEET 603
DRAWN BY: J.Martin, R.Kent
PLOT SCALE – 1:1
DESIGN: J.G.Martin III, P.E.

BABY CALF BARN SHELL
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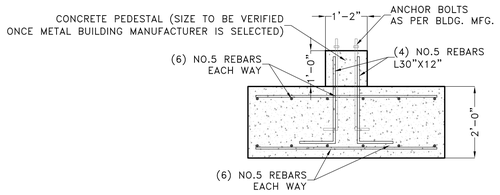
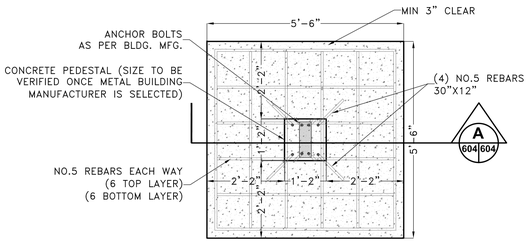


FOOTING SECTION A 604|604

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



FOOTING DETAIL B 602|604

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

FOOTING DESIGN ASSUMPTIONS:

– Assumed soil bearing capacity = 2,500psf;

– Structural loads of building provided by Nisly Steel, LLC. dated 05/07/2022. Contractor to provide Engineer with actual loads of metal building to be used; Engineer will modify design as/if necessary to accommodate actual loads

– Concrete shall be 4,000psi for footings and all rebar shall be 60,000psi yield strength

Footing Design Loads Assumed:
Roof Live Load = 20psf
Dead Load = 1.5psf
Collateral Load = 0.0psf
Frame Live Load = 12psf
Wind Velocity = 120mph (Exposure C)

NOTE: USE METAL BUILDING MANUFACTURER'S APPROVED ANCHOR BOLT DRAWINGS TO LAY OUT FOOTINGS – THIS DRAWING INTENDED TO SHOW LOCATION AND TYPE OF FOOTINGS

STRUCTURAL NOTES:

1. Coordinate these drawings with all others in this set.
2. Where a detail is shown for one condition, it shall also apply for all like or similar conditions unless noted otherwise.
3. The contractor shall be responsible for the temporary bracing of all work during construction.
4. The contractor shall verify all dimensions and conditions in the field prior to commencing work. The engineer shall be notified of any discrepancies which may exist.
5. Construction shall be in accordance with all applicable federal, state, and local ordinances and building codes.
6. All concrete shall be 4,000psi at 28 days unless otherwise noted.
7. All reinforcing bars shall be grade 60.
8. Dimensions shown for metal building columns are nominal dimensions – use metal building manufacturer's anchor bolt drawings to obtain exact dimensions required.

REVISED BID DOCUMENT:
NOT FOR CONSTRUCTION
JULY 22, 2022

FILE NAME: UF_DRU_CALF_BARN | SHEET 604

DRAWN BY: J.Martin, R.Kent

PLOT SCALE – 1:1 | DESIGN: J.G.Martin III, P.E.

BABY CALF BARN SHELL
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