



June 26, 2024

Indiana Department of Environmental Management  
Attn: Kraig Whitman  
Office of Land Quality  
Confined Feeding Program  
100 N Senate Ave  
Indianapolis, IN 46206

Dear Kraig:

This letter is regarding the Oak Basin Dairy, LLC application, Farm ID 6083; Notice of Deficiency dated June 11, 2024.

**IDEM Comment 1:** The property owner listed in Section 1 of the application is not the current owner per the Jasper County GIS records. Please update the property owner information.

**Answer:** Please see the updated Section 1 property owner information.

**IDEM Comment 2:** The Facility Detail Sheet notes P1 as storing solid manure, but it seems that it should be marked as liquid. Please update this information.

**Answer:** Please see the attached updated Facility Detail Sheet.

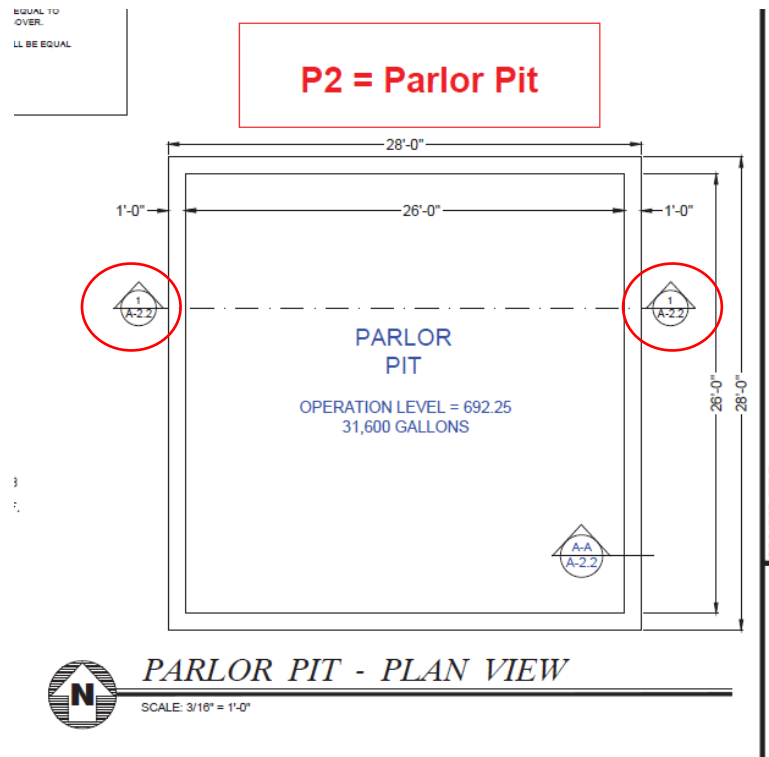
**IDEM Comment 3:** Fibermesh is mentioned throughout the application, but it is unclear if it will be used in construction. Please clarify whether fibermesh will be used. Please note that use of fibermesh (Tuf-Strand or equivalent) will require an ACA. See "Notes on ACA Requirements" below for further details.

**Answer:** Fibermesh was not and will not be used. Please see the attached updated drawings.

**IDEM Comment 4:** The "Parlor Pit – Plan View" on sheet A-2.2 references detail 1 on sheet A-2.1, but this detail is labeled as being associated with the RDB Digester application only and not this CFO application. Please confirm if this is the correct detail.

**Answer:** The originally submitted sheet A-2.2 "Parlor Pit-Plan View" references detail 1 on sheet A2.2. Review the screen shot of the area below and the attached sheets to confirm. Please contact me if I have misunderstood the sheet/view being discussed.

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June 27, 2024  
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**IDEM Comment 5:** The Notification Affidavit submitted by the applicant was not correctly notarized. Please resubmit the Notification Affidavit with the notary's official seal.

**Answer:** The updated affidavit will be provided to IDEM by July 1, 2024.

**IDEM Comment 6:** It is unclear from the application if P1 meets the required 300 feet setback from Griggs Ditch. Please confirm that P1 will meet the setback requirement from Griggs Ditch or supply an ACA to address this issue.

**Answer:** P1 is shown at 300' from Griggs Ditch. The contractor is aware of the setback distance and will ensure the South West corner of P1 is constructed 300' from Griggs Ditch. Please see the attached updated drawings.

**IDEM Comment 7:** Based on its usage in this application, please add "Adapted" to the Indiana NRCS Concrete Construction Specification.

**Answer:** Please see the attached updated Concrete Construction Specifications.

**IDEM Comment 8:** Any drainage system to lower a seasonal water table needs an observation/sampling pipe within 50 feet of the structure. Include an observation/sampling pipe within 50' of P2 or provide an ACA. If the "Perimeter Tile Observation Port" to the northeast of E23 will be used, provide clarification as to whether any other drainage systems use this observation/sampling pipe. If they do, describe how the flows from each unit are isolated to sample one unit at a time.

**Answer:** Please see the attached updated drawings.

**IDEM Comment 9:** The disclosure section of the application does not include the 2024 enforcement case involving the applicant. Please update the disclosure section to include this case as well as its current status.

**Answer:** Please see the attached updated disclosure documents.

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Thank you in advance for your time and feel free to contact me at 765-825-0495 with any questions you may have.

Sincerely,

A handwritten signature in blue ink that reads "Kari Simpkins". The signature is written in a cursive style with a large initial "K" and a long, sweeping underline.

Kari Simpkins  
Ag Environmental Systems, LLC

Enclosures

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**3. PROPERTY OWNER (At the Time of Application Submittal)**

Same as Applicant Listed in Section 2; if not, please complete below.

Name:	Oak Basin Dairy, LLC		
Mailing Address:	6180 W 1100 N		
City:	DeMotte		
State:	IN	ZIP Code:	46310
Telephone (Home):	219-863-7415		
Telephone (Business):			
Telephone (Cell):			
Facsimile:		E-mail Address:	

**4. OPERATION MANAGER, OPERATOR, AND/OR LESSEE (If Different than Applicant or manager and/or authorized agent for Entity)**

Same as Applicant Listed in Section 2 OR Person listed below is:  Manager  Operator  Lessee

Name:	Gerrit den Dulk		
Mailing Address:	6180 W 1100 N		
City:	DeMotte		
State:	IN	ZIP Code:	46310
Telephone (Home):	219-863-7415		
Telephone (Business):			
Telephone (Cell):			
Facsimile:		E-mail Address:	gerrit@ddfarming.com

**5. CURRENT OPERATION PERMIT INFORMATION**

**Current** Permit/Approval Type (check one):

- CFO Approval  None - Expired Approval or Expired Permit
- NPDES CAFO Individual Permit
- None - New Facility

\_\_\_\_\_ **6083** \_\_\_\_\_ **6982** \_\_\_\_\_  
 Farm ID (Log ID) Number (Current or expired) Current/Last Approval (Animal Waste) Number

**6. ADJACENT OR CONTIGUOUS ANIMAL FEEDING OPERATIONS (AFOs)**

Are there any AFOs adjacent to or contiguous with the CFO that are under common ownership or control of the applicant?  Yes  No

If yes, provide a statement identifying the AFOs and describing the common ownership. The response to this item will determine whether the AFOs will have to be incorporated into the CFO approval. Attach additional sheets as necessary.

\_\_\_\_\_

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 June 27, 2024



**D. FACILITY DETAIL INFORMATION**

Label on Farmstead Plan	Animal Type	Number of Approved Animals	Solid or Liquid	Date Constructed <i>(for existing buildings)</i>	Water Uses <i>(gallons/unit of time)</i>	Brief Description
E1	Dairy Cow	500	Liquid	2000	N/A	Existing freestall barn originally approved on 12/28/1999 AW# 4880
E2	Dairy Cow	1250	Liquid	2000	N/A	Existing freestall barn originally approved on 12/28/1999 AW# 4880
E3	Dairy Cow	1250	Liquid	2000	N/A	Existing freestall barn originally approved on 12/28/1999 AW# 4880
E4	Dairy Cow	N/A	Liquid	2000	4,800 Gallons a day	Existing freestall barn/holding pen/milking parlor. Originally approved on 12/28/1999 AW# 4880
E5	N/A	N/A	Liquid	2000	N/A	Existing concrete sand separation device. Originally approved on 12/28/1999 AW# 4880
E6	N/A	N/A	Liquid	2001	N/A	Existing concrete manure storage pond with flexible liner. Originally approved on 12/15/2000 AW# 4993
E7	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit Originally approved on 12/28/1999 AW# 4880
E8	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pt. Originally approved on 12/28/1999 AW# 4880
E9	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E10	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880

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**D. FACILITY DETAIL INFORMATION**

Label on Farmstead Plan	Animal Type	Number of Approved Animals	Solid or Liquid	Date Constructed <i>(for existing buildings)</i>	Water Uses <i>(gallons/unit of time)</i>	Brief Description
E11	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E12	N/A	N/A	Liquid	2000	N/A	Existing concrete e manure storage pit. Originally approved on 12/28/1999 AW#4880
E13	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E14	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E15	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E16	N/A	N/A	Liquid	2000	N/A	Existing concrete manure storage pit. Originally approved on 12/28/1999 AW#4880
E17	N/A	N/A	Solid	2000	N/A	Existing concrete silage pad. Originally approved on 12/28/1999 AW#4880
E18	N/A	N/A	Solid	2000	N/A	Existing concrete compost pad. Originally approved on 12/28/1999 AW#4880

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 June 27, 2024

**D. FACILITY DETAIL INFORMATION**

Label on Farmstead Plan	Animal Type	Number of Approved Animals	Solid or Liquid	Date Constructed <i>(for existing buildings)</i>	Water Uses <i>(gallons/unit of time)</i>	Brief Description
E19	N/A	N/A	Liquid	2000	N/A	Existing concrete silage leachate pit. Originally approved on 12/28/1999 AW#4880
E20	N/A	N/A	Liquid	2007	N/A	Existing hybrid (concrete and synthetic) waste water storage pond. Originally approved on 9/14/2006 AW# 6596
E21	Dairy Calves	30	Solid	N/A	N/A	Existing calf hutch area for newborn calves. Originally approved on 8/23/2016 AW# 6596
E22	N/A	N/A	Liquid	2020	N/A	Existing synthetic storm water pond. Originally approved on 8/10/2020 AW# 6904
E23	N/A	N/A	Liquid	2023	N/A	Existing synthetic lined manure storage pond. Originally approved on 12/20/2022 AW# 6982
P1	Dairy Cows	1500	Liquid	N/A	N/A	Proposed freestall barn.
P2	N/A	N/A	Liquid	2022	N/A	Previously unapproved, existing concrete manure transfer pit.
P3	N/A	N/A	Solid	2022	N/A	Previously unapproved, existing concrete solid manure storage structure.

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**Section C. Determining responsible parties who must provide a disclosure statement:**

Indiana’s Confined Feeding Control Law requires a Disclosure Statement for alleged violations of environmental law that meet the criteria noted in IC 13-18-10-1.4(a) & (b). This section helps applicants determine whether the responsible parties have violations that meet these criteria.

You may group responsible parties who have identical responses to the questions in this section by listing multiple names or responsible party numbers in the space provided. Provide additional copies of this page as needed to complete this section for all responsible parties listed in Section A.

Responsible Party Name(s) or Number(s) Oak Basin Dairy, LLC; Gerrit Den Dulk  
from Section A (type or print)

*Note: This section applies to material violations alleged in any state of the United States and in any other country.*

1. Answer both questions a) and b) below:
- a) Have any state or federal officials at **any time** alleged that the responsible party or parties committed acts or omissions that constitute a material violation of state or federal environmental law?  
 **Yes**  **No**
- b) Have foreign officials at any time alleged that the responsible party or parties committed acts or omissions that constituted a material violation of foreign environmental law and that would have constituted a material violation of state or federal environmental law if the act or omission had occurred in the United States?  
 **Yes**  **No**
- If the answer to both questions is “No,” a disclosure statement is not required. Skip to item 4 below.

2. Indiana’s Confined Feeding Control Law requires the responsible party or parties to submit the disclosure statement required by IC 13-18-10-1.4(c) only if the alleged acts or omissions acknowledged by a “Yes” answer to questions 1 a) or 1 b) above presented a substantial endangerment to human health or the environment.
- If the alleged acts or omissions presented a substantial endangerment to human health or the environment, skip to Section III to prepare and submit the disclosure statement.
- Otherwise, proceed to item 3. on this page.

3. If the alleged acts or omissions acknowledged by a “Yes” answer to questions A 1) or A 2) above **did not** present a substantial endangerment to human health or the environment, the responsible party or parties do not have to submit a disclosure statement in Section C. However, consistent with IDEM’s authority to conduct an inquiry or investigation under IC 13-18-10-2.1(a)(2), the responsible party or parties **must** attach the following information:
- a) The name and address of the government entity that alleged the acts or omissions.
- b) A description of the information relied upon in determining that the alleged acts or omissions did not present a substantial endangerment to human health or the environment. This description should include any Agreed Orders or other similar information. Provide the name and qualifications of the person(s) who made the determination.
- Proceed to item 4. on this page.

4. If directed here by items 1 or 3, the responsible party or parties listed on this page are not required to complete Section C, the disclosure statement required by IC 13-18-10-1.4(c). The applicant or responsible party must attach the information required in item 3, if applicable, and sign and date below. Their disclosure submittal is complete.

**Per IC 13-18-10-2.1(e) (1) (A), the commissioner may deny an application if a responsible party intentionally misrepresents or conceals any material fact in an application for approval under IC 13-18-10.**

*I swear or affirm, under penalty of perjury as specified by IC 35-44.1-2-1 and other penalties specified by IC 13-30-10, IC 13-18-10-1.4, IC 13-18-10-2.2, and IC 13-15-7-1(3), that the statements and representations in this application and the accompanying forms and application materials are true, accurate, and complete.*

Applicant or Responsible Party Signature: \_\_\_\_\_

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Date Signed: \_\_\_\_\_  
(month, day, year)

Printed Name: \_\_\_\_\_

**Section D. Disclosure Statement:**

1. Name (type or print): Oak Basin Dairy, LLC & Gerrit Den Dulk  
*(Name of Responsible Party providing this Disclosure Statement)*

2. Business Address: 6180 W 1100 N  
City: DeMotte State: IN ZIP Code: 46130

3. A description of the responsible party's experience in managing the environmental aspects of the type of facility that will be managed under the permit. Include the name and business address for employers, the State Permit number for the facility, the type of work experience and the length of time employed.  
 Not Applicable  Description Provided

4. A description of all pending administrative, civil, or criminal enforcement actions filed in the United States against the responsible party alleging any acts or omissions that: constitute a material violation of state or federal environmental law; and present a substantial endangerment to human health or the environment.  
 Not Applicable  Description Provided (Including the five (5) factors described in the instructions.)

5. A description of all pending administrative, civil, or criminal enforcement actions filed in a foreign country against the responsible party alleging any acts or omissions that: constitute a material violation of foreign environmental law; would have constituted a material violation of state or federal environmental law if the act or omission on which the action is based had occurred in the United States; and present a substantial endangerment to human health or the environment.  
 Not Applicable  Description Provided (Including the five (5) factors described in the instructions.)

6. A description of all finally adjudicated or settled administrative, civil, or criminal enforcement actions in the United States resolved against the responsible party within the five (5) years that immediately precede the date of the application involving acts or omissions that: constitute a material violation of federal or state environmental law; and present a substantial endangerment to human health or the environment.  
 Not Applicable  Description Provided (Including the five (5) factors described in the instructions.)

7. A description of all finally adjudicated or settled administrative, civil, or criminal enforcement actions in a foreign country resolved against the responsible party within the five (5) years that immediately precede the date of the application involving acts or omissions that: constitute a material violation of foreign environmental law; would have constituted a material violation of state or federal environmental law if the act or omission on which the action is based had occurred in the United States; and present a substantial endangerment to human health or the environment.  
 Not Applicable  Description Provided (Including the five (5) factors described in the instructions.)

8. Identification of all state, federal, or foreign environmental permit applied for by the responsible party that were denied or previously held by the responsible party that were revoked.  
 Not Applicable  Description Provided

9. This disclosure statement must be executed under oath or affirmation and is subject to perjury under IC 35-44-2-1.

**Per IC 13-18-10-2.1(e) (1) (B), the commissioner may deny an application if a responsible party intentionally misrepresents or conceals any material fact in a disclosure statement.**

*I swear or affirm, under penalty of perjury as specified by IC 35-44.1-2-1 and other penalties specified by IC 13-30-10, IC 13-18-10-1.4, IC 13-18-10-2.2, and IC 13-15-7-1(3), that the statements and representations in this application and the accompanying forms and application materials are true, accurate, and complete.*

Responsible Party Signature: x \_\_\_\_\_ Date Signed: \_\_\_\_\_  
*(month, day, year)*

Printed Name: \_\_\_\_\_

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June 27, 2024

**Section D. – Disclosure Statement**  
Farm ID 6083 – Oak Basin Dairy, LLC

Oak Basin Dairy, LLC & Gerrit den Dulk

**Section D., 3.** A description of the responsible party’s experience in managing the environmental aspects of the type of facility that will be managed under the permit. Include the name and business address for employers, the State Permit number for the facility, the type of work experience and the length of time employed.

Response: Gerrit den Dulk has +5 years of direct experience in livestock management, dairy operation and handling manure applications. He is the responsible party for:

IDEM Farm ID	Farm Name	Farm Location	Mailing Address
6083	Oak Basin Dairy, LLC	4618 N 200 W Rensselaer, IN 47978	6180 W 1100 DeMotte, IN 46310

**Section D., 4.** A description of all pending administrative, civil, or criminal enforcement actions filed in the United States against the responsible party alleging any acts or omissions that: constitute a material violation of state or federal environmental law; and present a substantial endangerment to human health or the environment.

Response:

1. The nature and details of the acts attributed to the responsible party -  
Manure management structures constructed without prior approval, a violation of IC 13-18-10-1(a). Please see the attached IDEM Notice of Violation dated May 20, 2024 issued to Oak Basin Dairy and Gerrit den Dulk.
2. The degree of culpability of the responsible party -  
The unapproved construction was an unintentional error and will not be repeated.
3. The responsible party's cooperation with the state, federal, or foreign agencies –  
The facility is fully cooperating with IDEM to address the issue. This application and a quick resolution of the pending Agreed Order will resolve the matter.
4. The responsible party's dissociation from any other persons or entities convicted in a criminal enforcement action –  
N/A
5. Prior or subsequent self-policing or internal education programs established by the responsible party to prevent acts, omissions, or violations –  
The structures were built without approval due to a misinterpretation of regulations associated with an adjacent, but separate, biomass digester. The circumstances were unique and the facility has a clear understanding of the regulations. Going forward, no structures will be built without prior approval.

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# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • [www.idem.IN.gov](http://www.idem.IN.gov)

**Eric J. Holcomb**  
Governor

**Brian C. Rockensuess**  
Commissioner

## **NOTICE OF VIOLATION**

Gilbert den Dulk, Member and Registered  
Agent  
Oak Basin Dairy LLC & GD Land, LLC  
6180 W. 1100 N.  
De Motte, IN 46310  
[gerrit@ddfarming.com](mailto:gerrit@ddfarming.com)

Case No. 2024-29957-C

Pursuant to Indiana Code (“IC”) 13-30-3-3, the Indiana Department of Environmental Management (“IDEM”) issues this Notice of Violation. Based on an investigation including an inspection conducted on January 30, 2024 by an IDEM representative, IDEM has reason to believe Oak Street Dairy LLC & GD Land, LLC (“Respondents”) violated an environmental statute, rules, and permit condition. The violations are based on the following:

1. Respondents are Oak Basin Dairy LLC & GD Land, LLC, which own and operate the Confined Feeding Operation (“CFO”), with Farm ID No. 6083, located at 4618 N. 200 W., in Rensselaer, Jasper County, Indiana (“Site”).
2. Respondents’ CFO meets the definition of a Concentrated Animal Feeding Operation (“CAFO”) per 40 CFR 122.23(b)(2).
3. Respondents’ CFO Approval is for total capacity of 3,000 dairy cows and 30 dairy calves. The CFO Approval Effective Date is August 4, 2023, and the Expiration Date is December 20, 2027.
4. Respondents submitted a CFO Permit Application which included the unapproved manure structures P2 (concrete transfer pit) and P3 (concrete solid manure storage) which was received by IDEM on November 10, 2023. As agreed, Respondents via email on March 28, 2024, requested to withdraw the CFO Permit Application. IDEM sent a Withdrawal of Confined Feeding Operation Construction Permit Application letter to Respondent dated April 1, 2024.
5. Pursuant to 327 IAC 19-4-1(b)(1), the owner/operator must comply with all terms and conditions of the CFO approval and this article, 327 IAC 19.

As noted during the inspection, Respondents constructed manure management structures P2

and P3 without obtaining prior approval from the department as required by General Approval Condition 5 and 327 IAC 19-1-2(b).

According to the Respondents' consultant, the construction start date was July 15, 2022. Construction was completed, and operations began in these structures on July 1, 2023.

6. Pursuant to General Approval Condition 5., you may not start construction of a CFO, or expansion of a CFO that increases animal capacity and/or manure containment capacity, without obtaining prior approval from IDEM as required by 327 IAC 19-1-2(b).

As noted during the inspection, Respondents constructed manure management structures P2 and P3 without obtaining prior approval from the department as required by 327 IAC 19-1-2(b).

According to the Respondents' consultant, the construction start date was July 15, 2022. Construction was completed, and operations began in these structures on July 1, 2023.

7. Pursuant to 327 IAC 19-1-2(b), under this article a person may not start: (1) construction of a CFO; or (2) expansion of a CFO that increases animal capacity or manure containment capacity, or both; without obtaining the prior approval of the department.

As noted during the inspection, Respondents constructed manure management structures P2 and P3 without obtaining prior approval from the department as required by 327 IAC 19-1-2(b).

According to the Respondents' consultant, the construction start date was July 15, 2022. Construction was completed, and operations began in these structures on July 1, 2023.

8. Pursuant IC 13-18-10-1(a), a person may not start construction of a confined feeding operation or expansion of a confined feeding operation that increases animal capacity or manure containment capacity or both without obtaining the prior approval of the department.

As noted during the inspection, Respondents constructed manure management structures P2 and P3 without obtaining prior approval from the department as required by IC 13-18-10-1(a).

According to the Respondents' consultant, the construction start date was July 15, 2022. Construction was completed, and operations began in these structures on July 1, 2023.

Pursuant to IC 13-30-3-3, the Commissioner herein provides notice that the violations may exist and offers an opportunity to enter into an Agreed Order providing for the actions required to correct the violations and, as necessary and appropriate, for the payment of a civil penalty. The Commissioner is not required to extend this offer for more than sixty (60) days.

Pursuant to IC 13-30-3-3, an alleged violator may enter into an Agreed Order without admitting the violations occurred. IDEM encourages settlement by Agreed Order, thereby resulting in quicker correction of the environmental violation and avoidance of extensive litigation. Timely settlement by Agreed Order may result in a reduced civil penalty. Also, settlement discussions



will allow Respondents the opportunity to present any mitigating factors that may be relevant to the violation.

If an Agreed Order is not entered into within sixty (60) days of receipt of this Notice of Violation, the Commissioner may issue a Notice and Order under IC 13-30-3-4 containing the actions that must be taken to correct the violations and requiring the payment of an appropriate civil penalty. Pursuant to IC 13-30-4-1, the Commissioner may assess penalties of up to \$25,000 per day for each violation.

Please contact Christina Halloran at (317) 233-5546 or [CHallora@idem.IN.gov](mailto:CHallora@idem.IN.gov) within fifteen (15) days of receipt of this Notice to discuss resolution of this matter.

For the Commissioner:

Date: May 20, 2024



Lori Freeman, Chief  
Compliance Branch  
Office of Land Quality

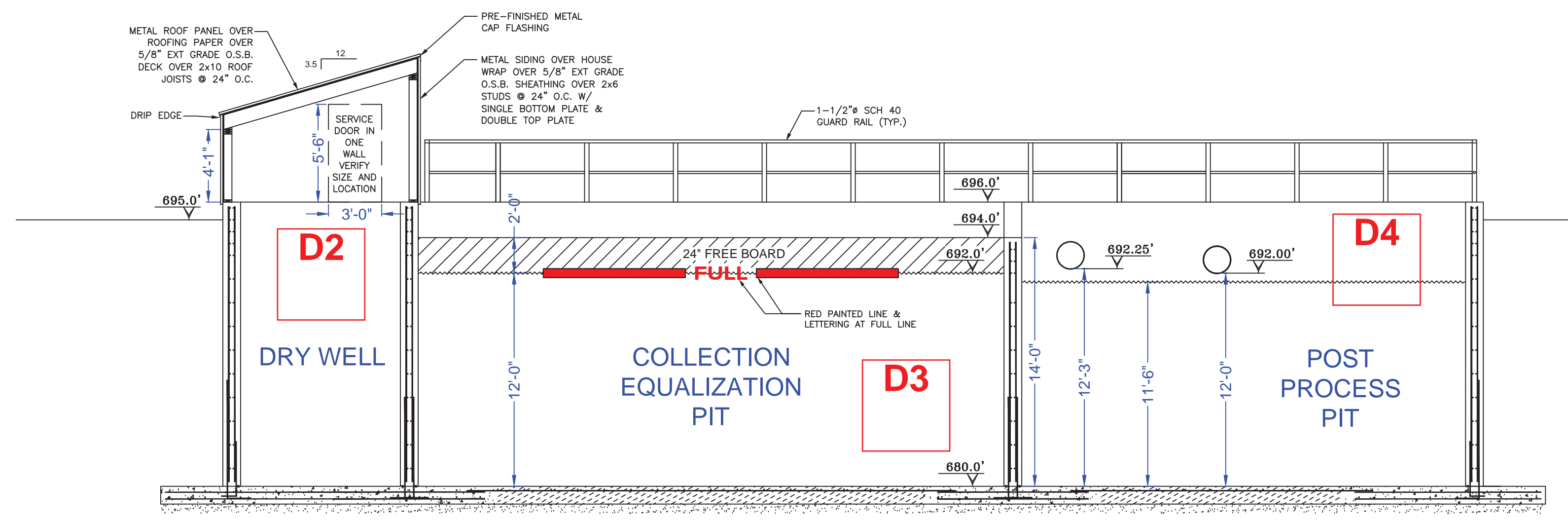
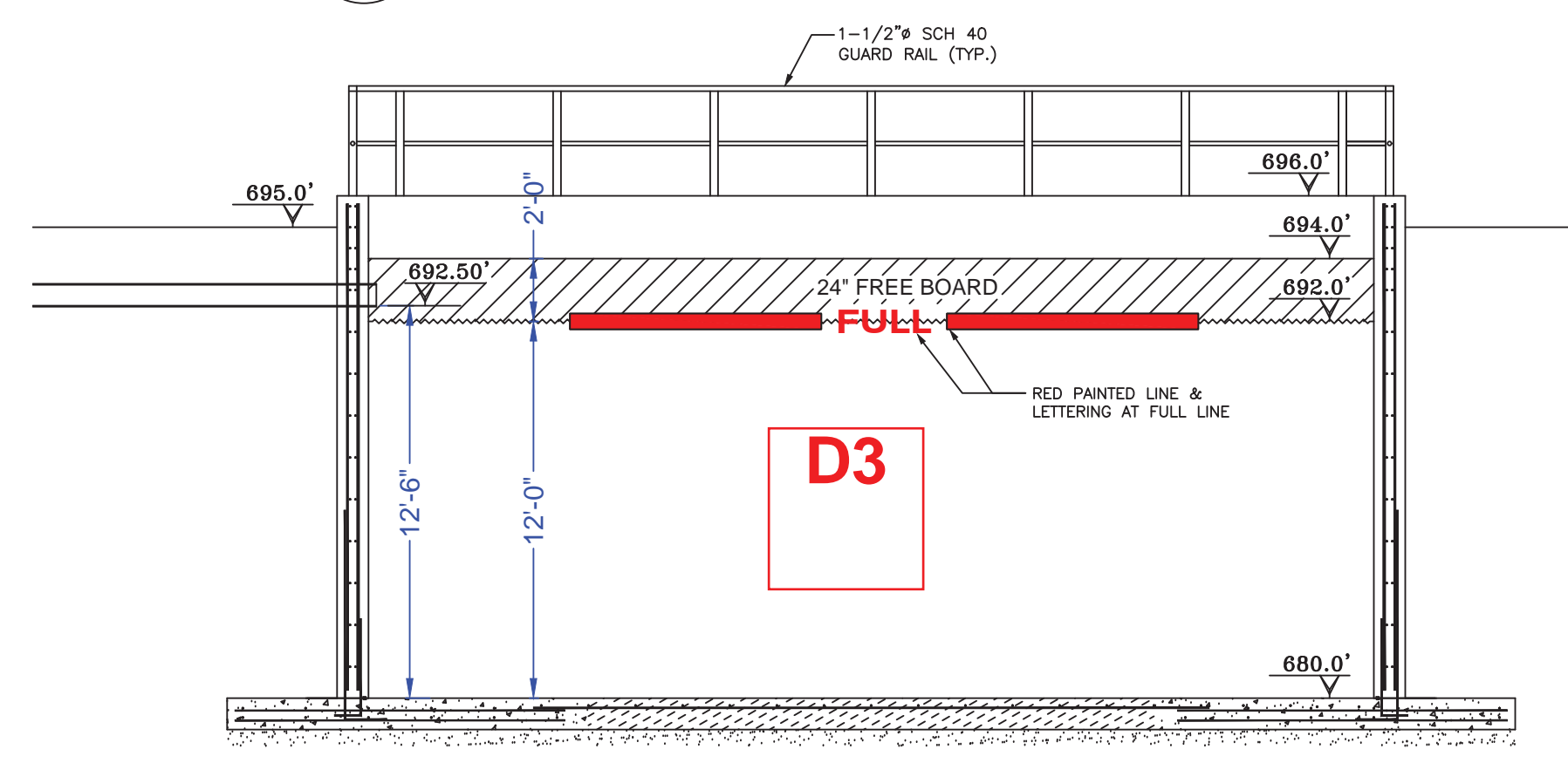
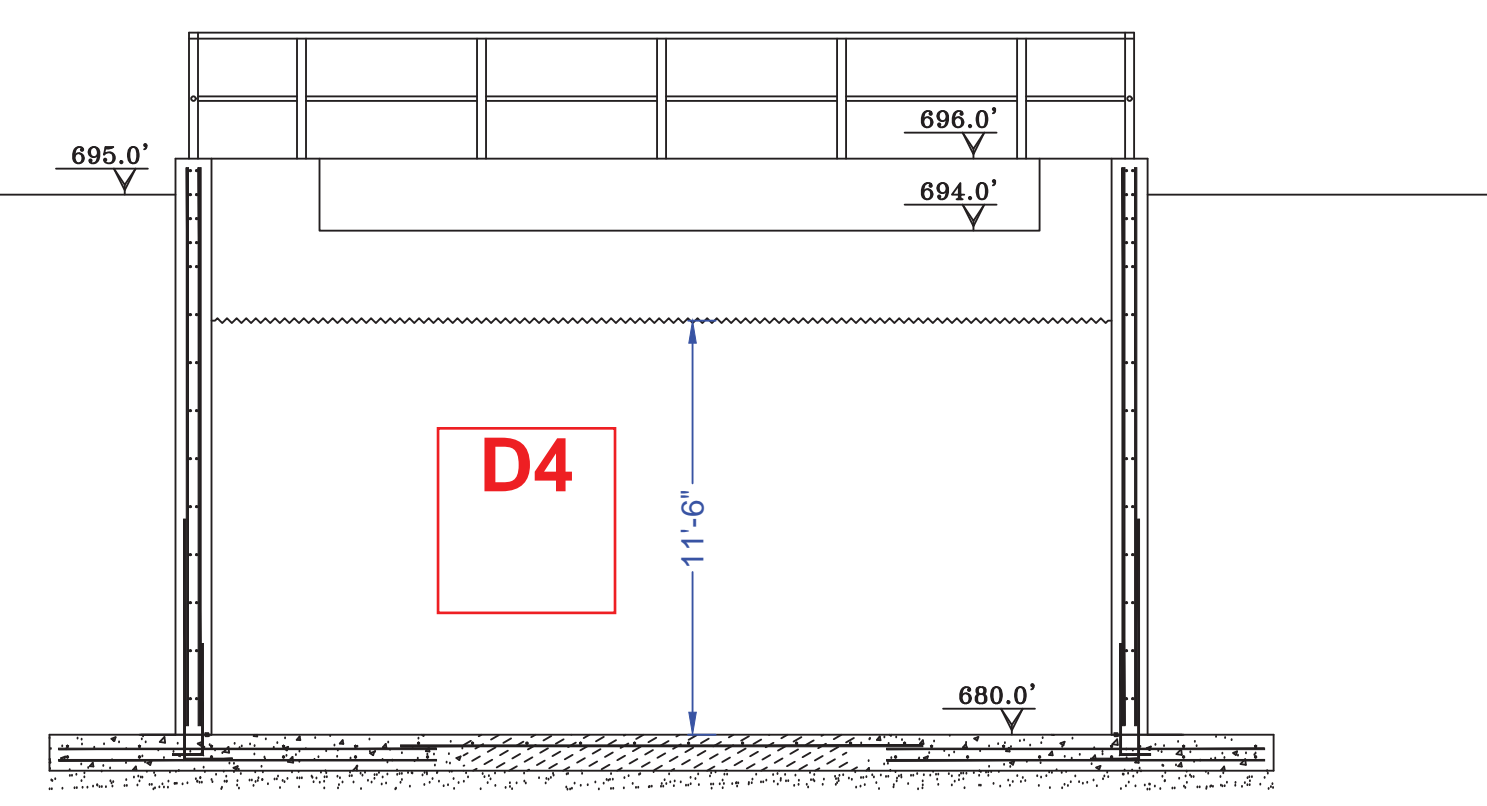
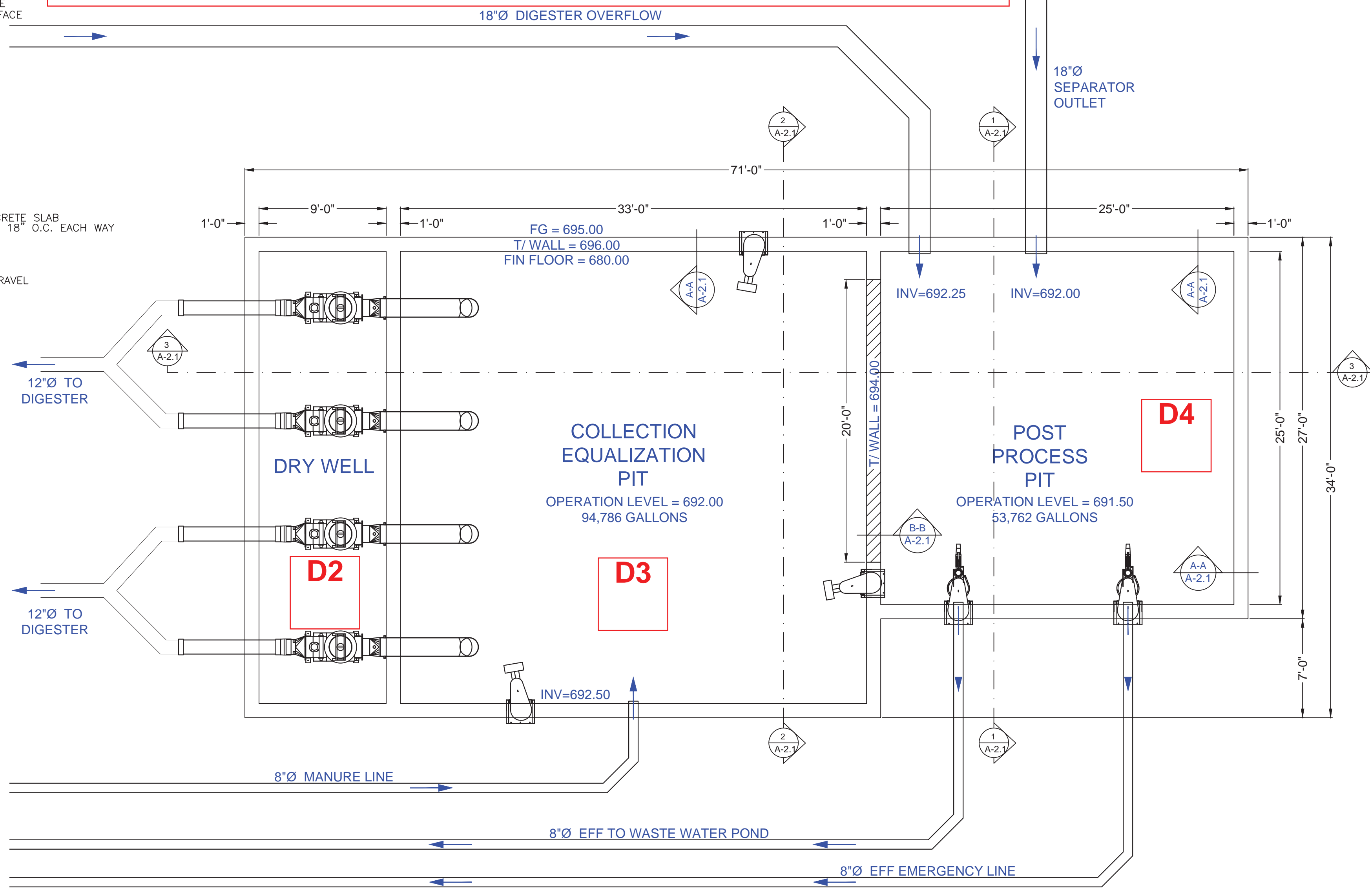
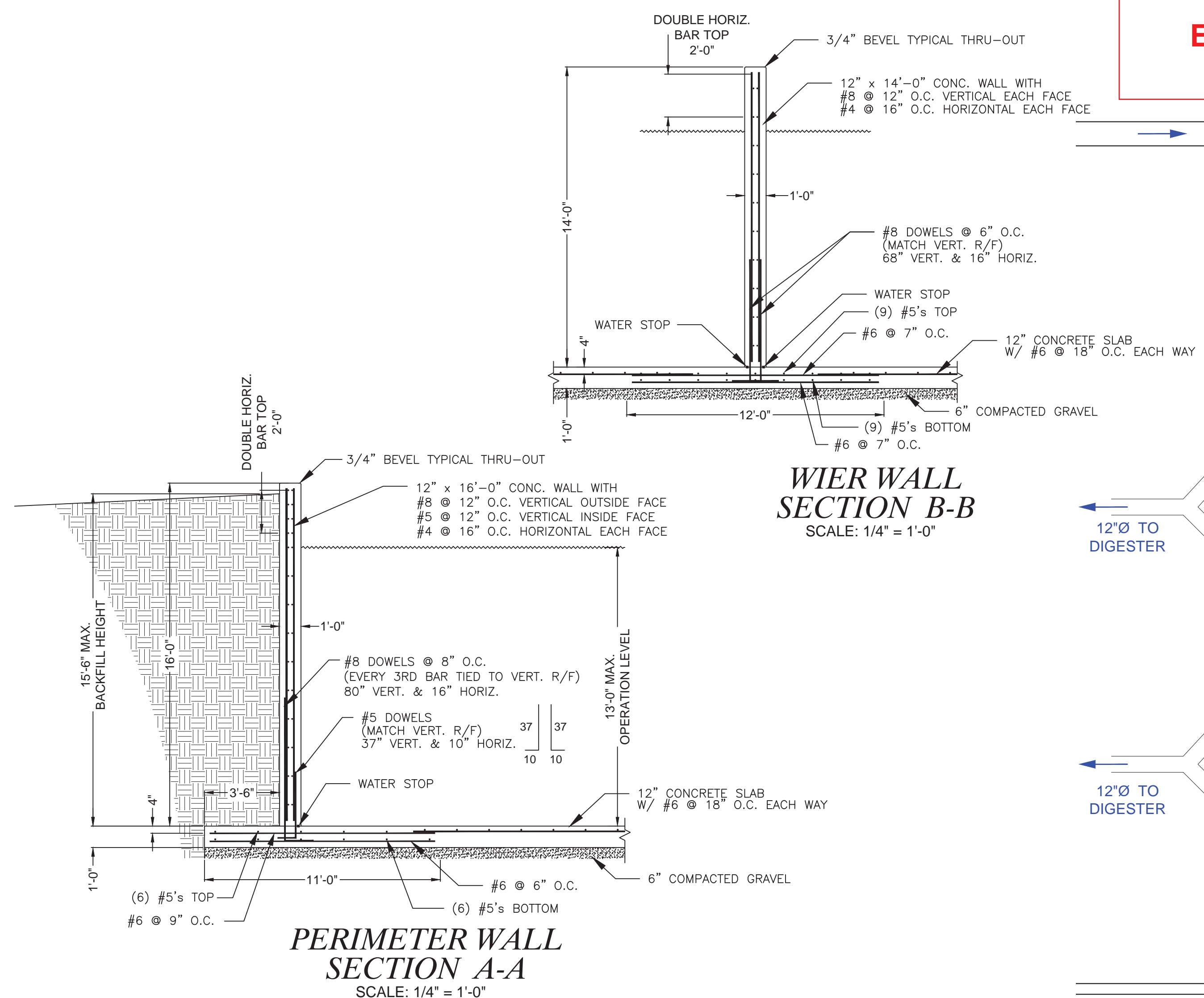








**ALL ITEMS LABELED "D" ARE ASSOCIATED WITH RBD ENVIRONMENTAL BIOMASS DIGESTER APPLICATION NOT THE OAK BASIN DAIRY LLC CFO APPLICATION**



NO.	DATE	BY	DESCRIPTION

DATE: 04/30/2024

PROJECT TITLE:  
**Biogas to Energy Expansion  
Newberry / Oak Basin Dairy  
4618 North 200 West  
Rensselaer, IN 47978**

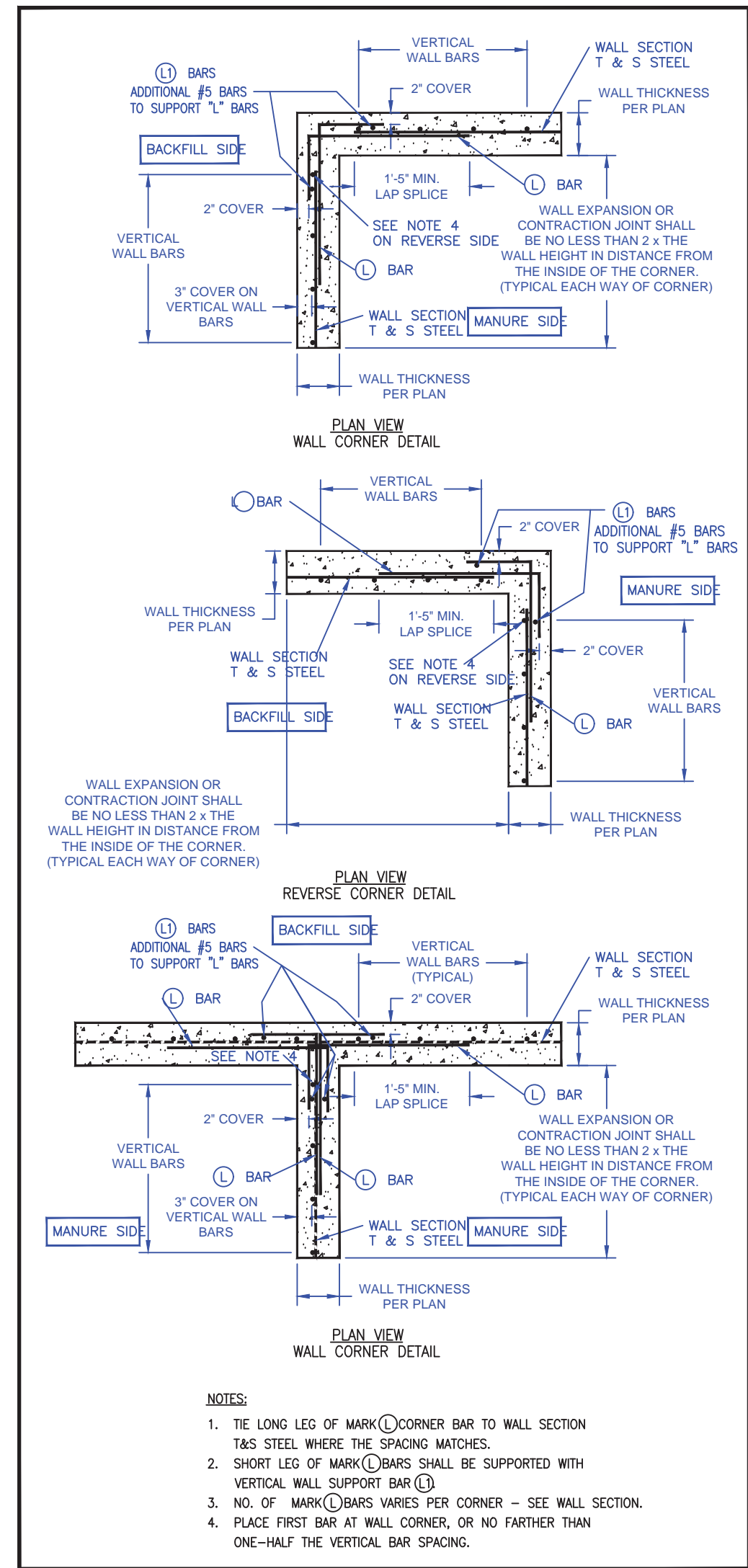
SHEET:  
**COLLECTION EQUALIZATION & POST PROCESS PITS**

**HAMSTRA BUILDERS, INC.**  
CONTRACTORS & DEVELOPERS  
12028 NORTH 200 WEST - WHEATFIELD, INDIANA 46392  
PHONE: (219) 866-3111 - FAX: (219) 866-3870  
WEB SITE: <http://www.hamstragroup.com>

PROJECT NO.	22-609
SCALE:	AS SHOWN
DRAWN BY:	r.e.
CHECKED BY:	

SHEET #  
**A-2.1**





NOTES: ALL WASTE LINES SHALL HAVE A SLOPE BETWEEN 0.5% MINIMUM AND 1.0% MAXIMUM.

ALL HORIZONTAL REINFORCEMENT SHALL HAVE A MINIMUM LAP OF 40 DIAMETERS, ie

- #4 BAR LAP = 20" MINIMUM
- #5 BAR LAP = 25" MINIMUM
- #6 BAR LAP = 29" MINIMUM

**STRUCTURAL NOTES**

**A. MATERIAL STRENGTHS**

1. POURED-IN-PLACE CONCRETE, F<sub>c</sub>.....4000 PSI @ 28 DAYS, TYPE 2
2. REINFORCING STEEL.....ASTM A615, GRADE 60
3. ALLOWABLE SOIL BEARING PRESSURE.....3000 PSI

**B. FOUNDATIONS**

1. ACTUAL SOIL BEARING CONDITIONS SHALL BE CONFIRMED PRIOR TO CONSTRUCTION.
2. PROVIDE SUFFICIENT TEMPORARY PROTECTION TO PREVENT ALL EXPOSED SUBGRADE FROM FREEZING. DO NOT PLACE CONCRETE OR BACKFILL OVER FROZEN SOIL.
3. KEEP ACCUMULATED RAIN WATER AND SURFACE RUNOFF AWAY FROM BEARING STRUTUM. DO NOT ALLOW WATER TO STAND IN THE EXCAVATION AND SOFTEN THE SOILS AT OR BELOW BEARING LEVEL.
4. BASE SLAB MUST BEAR ON 6" OF COMPACTED SAND OR GRAVEL OVER UNDISTURBED VIRGIN SOIL.
5. ALL FILL UNDER FOOTINGS AND SLABS TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.
6. ALL BACKFILL MATERIAL SHALL BE CLEAN NATIVE FILL; BACKFILL HEIGHT TO ONE FOOT (1'-0") BELOW THE TOP OF TANK WALLS

**C. CONCRETE REINFORCING STEEL**

1. CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:  
2" CLEAR FROM ALL INSIDE AND OUTSIDE FACES  
3" CLEARANCE FOR FOOTINGS
2. ALL BENT AND STRAIGHT REINFORCING BARS SHALL BE GRADE 60 STEEL. ALL STEEL SIZES ARE IMPERIAL SIZES. REINFORCING BAR HOOKS TO BE ACI STANDARD - HORIZONTAL BAR LAPPING SHALL BE AS FOLLOWS: #4-20", #5-25", #6 29", EXCEPT IN THE FLOOR WHERE THE #4 BAR LAP IS 16".
3. PROVIDE CORNER BARS TO MATCH ALL HORIZONTAL BARS WITH A 24" LAP. ADD ADDITIONAL HORIZONTAL CORNER BARS AT THE TOP OF ALL WALL INTERSECTIONS SO THAT THE TOP 2" HAS CORNER BARS EVERY 6".

**D. VINYL WATER STOP**

1. WATERSTOPS AT ALL CONSTRUCTION AND CONTROL JOINTS SHALL BE EQUAL TO GREENSTREAK PVC RIBBED CENTER BULB 705 OR 732 OR GREENSTREAK HYDROTITE CJ1030 WITH A 2" MINIMUM CONCRETE COVER.
2. WATERSTOP AT ALL SEAL JOINTS FOR WALL SLAB JOINTS SHALL BE EQUAL TO GREENSTREAK HYDROTITE CJ 1030 WITH A 2" MINIMUM CONCRETE COVER.
3. WATERSTOP AT ALL SEALS FOR SAWED SLAB CONTROL JOINTS SHALL BE EQUAL TO GREENSTREAK HYDROTITE RSS COVERED BY BACKER ROD AND GREENSTREAK LEAKMASTER WATER SWELLING SEALANT.

**E. EXPANDING SEALANT**

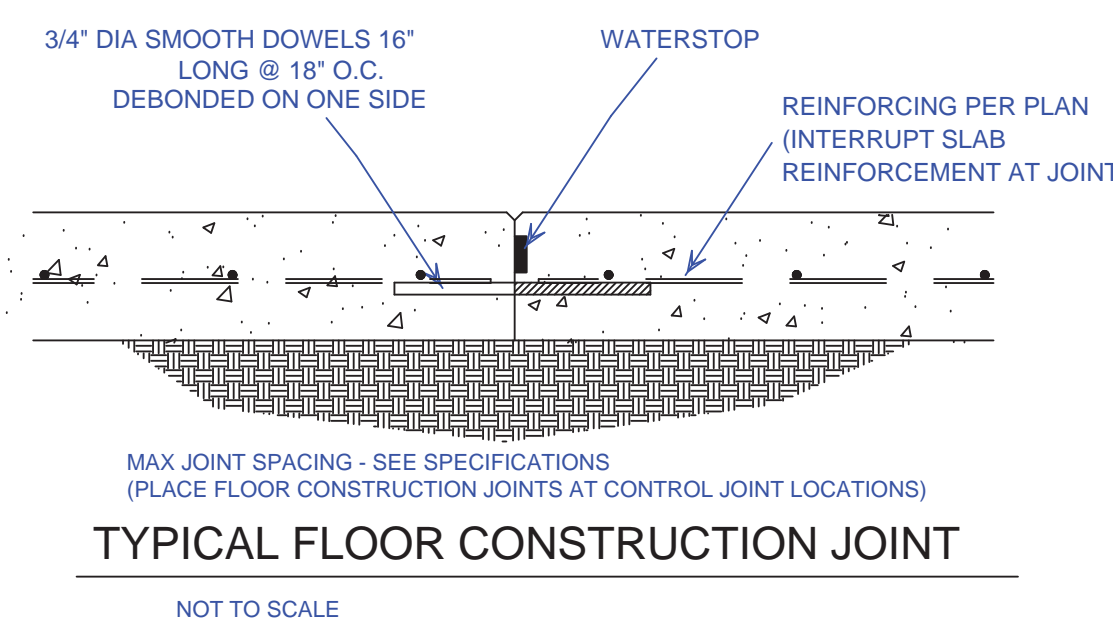
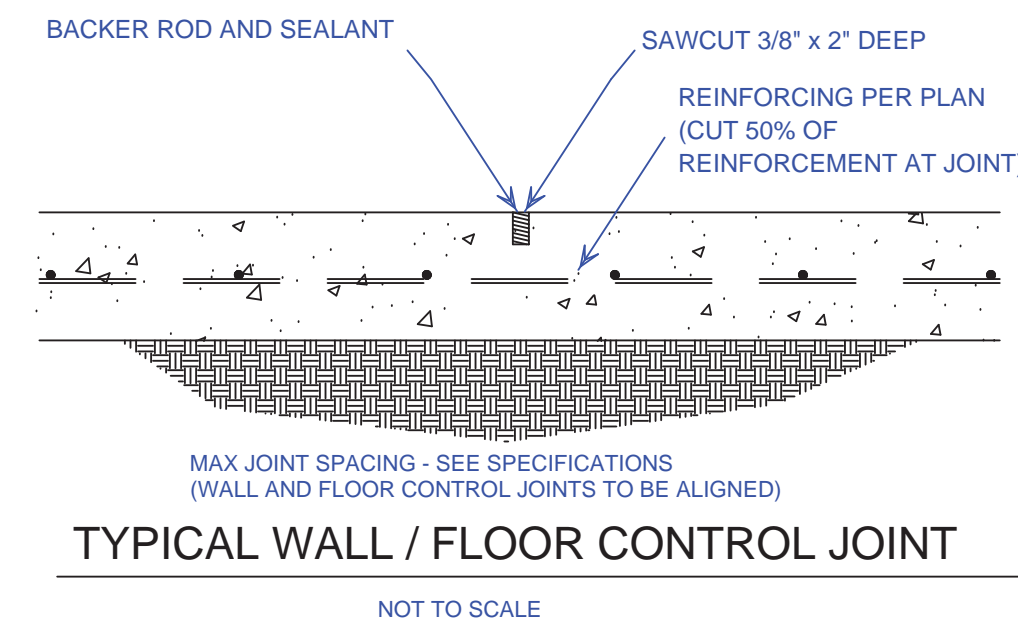
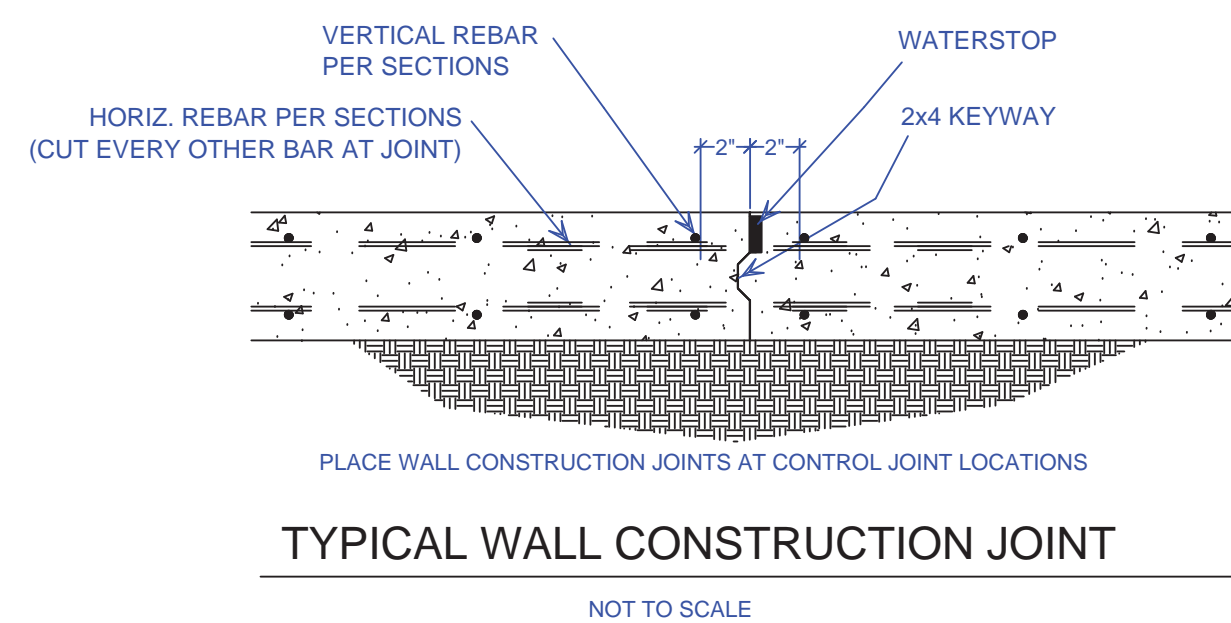
SHALL BE HYDROTILE (GREENSTREAK), ULTRA SEAL MC-2005T (ADEKA), SIKAWELL (SIKA), LEAKMASTER (C.I. KASCI), OR SWELLSEAL (DE NEEF CONCHEM).

**F. LOADING**

1. LATERAL WALL LOADS
  - SOIL UNIT WEIGHT = 125 PCF
  - AT-REST SOIL PRESSURE = 60 PSF/FT.
  - ACTIVE SOIL PRESSURE = 35 PSF/FT.
  - INTERNAL FLUID PRESSURE = 65 PSF/FT. (EXCEPT 60 PSF/FT. FOR STORAGE UNDER ROOF)
2. WIND LOADS
  - DESIGN WIND SPEED = 105 MPH
  - EXPOSURE CLASSIFICATION = C
3. LOADS APPLIED AS PER ASCE 7-10

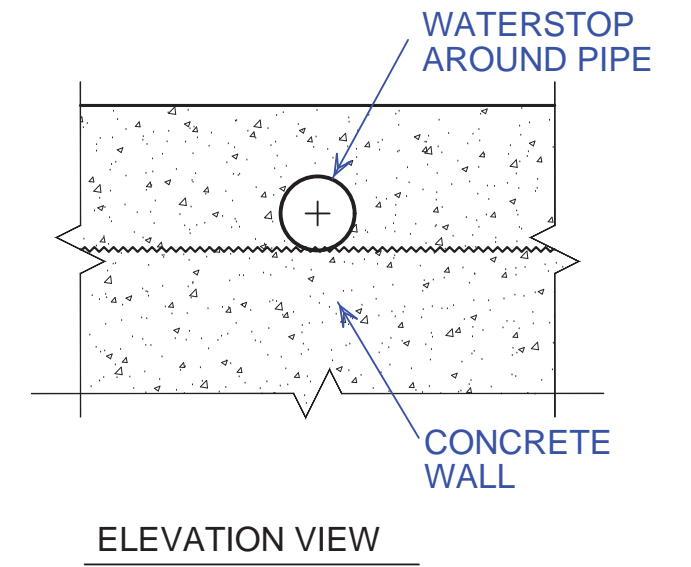
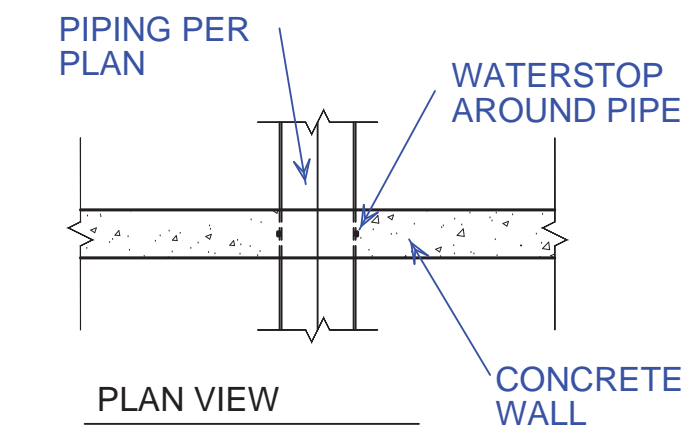
**NOTES:**

1. FOUNDATION DESIGN FOR IDEM PERMITTING CONCEPT ONLY - DESIGN SHALL BE REVIEWED BY STRUCTURAL ENGINEER



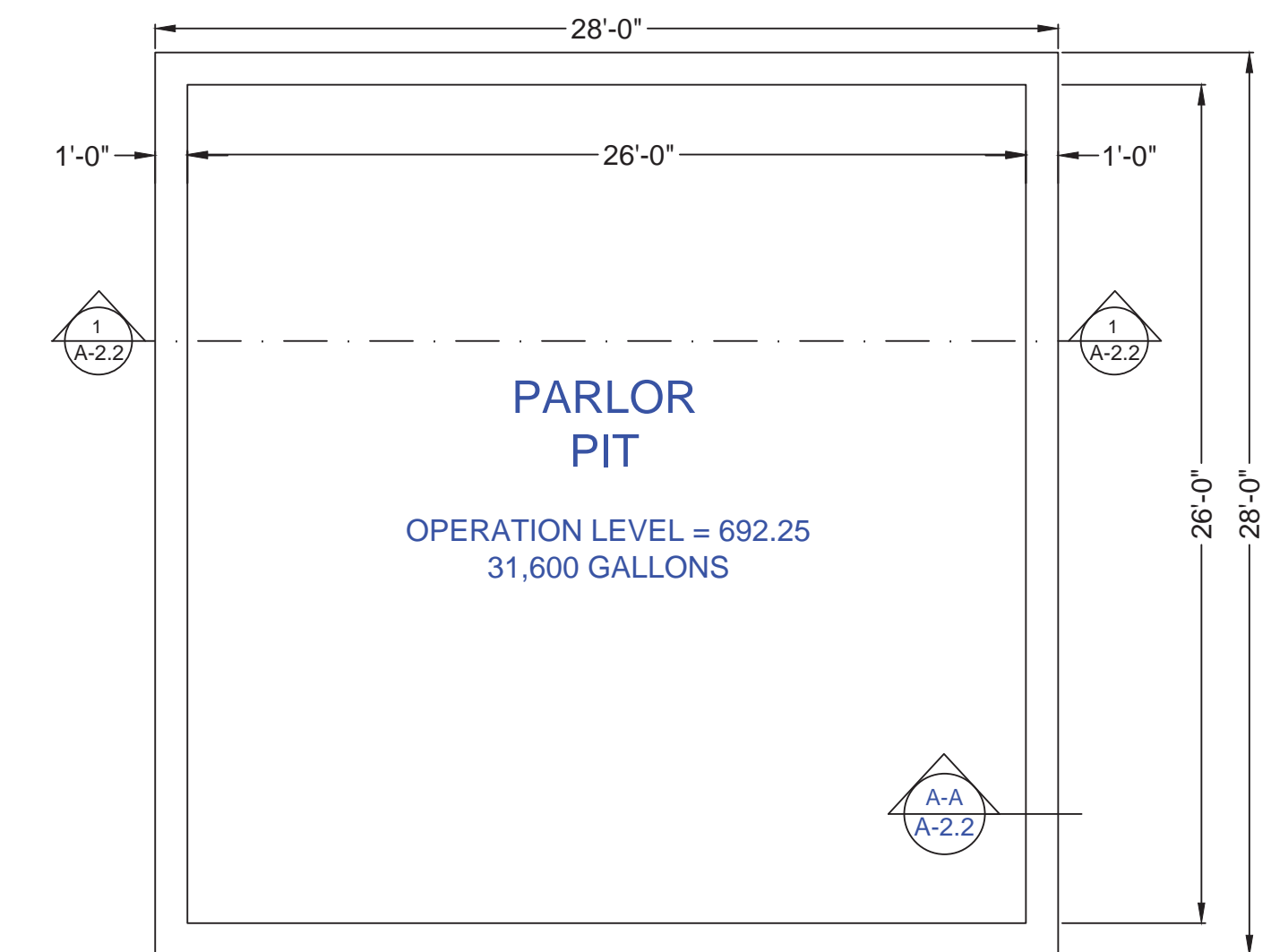
SLAB SCHEDULE		TYPICAL SCHEDULE - SOME MAY NOT BE USED FOR THIS PROJECT				
	CONCRETE	THICKNESS	REINFORCING	CONTROL JOINTS	FINISH	REMARKS
<b>FREESTALLS</b>						
MANURE PITS	B	6"	WELDED WIRE FABRIC	25' MAX.	FLOATED	
GABLE APPROACH	B	8"	#4 BARS @ 12"	25' MAX.	BROOM	
FEED ALLEY	A	10"	#4 BARS @ 12"	20' MAX.	TROWELED/BROOM	3' TROWELED EACH SIDE
FREESTALL CONNECTOR	B	6"	#4 BARS @ 18"	15' MAX.	ROLLED	
SCRAP ALLEY	B	6"	#4 BARS @ 18"	15' MAX.	ROLLED	w/ MONOLITHIC CURB
HOSPITAL	A	6"	NONE	NONE	ROLLED/BROOM	SEE PLAN FOR FINISH
<b>MISC. FLAT WORK</b>						
CISTERN FLOOR	B	8"	#5 BARS @ 12"	NONE	TROWELED	
SILAGE AND COMPOST PADS	B	8"	WELDED WIRE FABRIC	50' MAX.	BROOM	
MANURE STORAGE FLOOR	B	8"	#5 BARS @ 12"	20' MAX.	TROWELED	
SETTLING CHAMBER	B	6"	WELDED WIRE FABRIC	25' MAX.	BROOM	
STORAGE PITS	B	6"	WELDED WIRE FABRIC	25' MAX.	BROOM	
PUMP/WATER HOUSE	B*	4"	NONE	20' MAX.	TROWELED	w/ 8" GENERATOR PAD
STORAGE PIT WALLS	B					PER WALL SECTIONS

<b>CONCRETE:</b>		<b>CEMENT:</b>		TYPE I, ASTM C150
1. CONCRETE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318 'BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE', ACI 301 'SPECIFICATIONS FOR STRUCTURAL CONCRETE' AND INDIANA NRC'S CONCRETE CONSTRUCTION SPECIFICATIONS (MAY 2015).		5. FLY ASH:		TYPE F, ASTM 618
2. ALL REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH ACI 315 'MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES'.		6. ENTRAINING ADMIXTURE:		ASTM C 260
3. CONCRETE:		7. WATER REDUCING ADMIXTURE:		ASTM C494
MIX DESIGN A: (SLABS)		8. FIBER MESH:		1-1/2" LONG FIBERS PER YARD W/ FORCE: FIBER MESH 311C
MIN. COMPRESSIVE STRENGTH (F <sub>c</sub> ): 4000 PSI @ 28 DAYS		9. REINFORCING STEEL:		ASTM 615, GRADE 60, F <sub>y</sub> = 60 KSI
MIN. CEMENT CONTENT: 7.0 SACKS/YARD*		10. WELDED WIRE FABRIC:		ASTM A-496 AND A-497 (6X6 W10XW10)
MAXIMUM WATER RATIO (W/C): 5.0 GAL/SACK (0.44 LBLB)*		11. ANCHOR BOLTS:		ASTM A-307
ENTRAINED AIR: 5-7% (UNLESS NOTED ON SLAB SCH.)		12. ISOLATION JOINT FILLER:		BITUMINOUS TYPE ASTM D1751
FINE AGGREGATE: ASTM C33, AGGREGATE		13. PROVIDE 3/4" BEVELED EDGES ON ALL PERMANENTLY EXPOSED EDGES OF CONCRETE SURFACES.		
COURSE AGGREGATE: ASTM C33, #57.5S		14. FLOOR FINISH SHALL BE PER SLAB SCHEDULE.		
MIX DESIGN B: (SLABS)		15. PROVIDE FLOOR SLAB CONSTRUCTION JOINTS OR SAW CUT CONTROL JOINTS AT SPACING STATED ON SLAB SCHEDULE. CONTROL JOINT SAW CUTTING SHALL BE STARTED AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT AGGREGATES FROM BEING DISLODGED BY THE SAW (USUALLY 4 TO 12 HOURS) AND COMPLETED BEFORE DRYING SHRINKAGE STRESSES CAUSE CRACKING OF THE CONCRETE.		
MIN. COMPRESSIVE STRENGTH (F <sub>c</sub> ): 4000 PSI @ 28 DAYS		16. WATERSTOPS AT ALL CONSTRUCTION AND CONTROL JOINTS SHALL BE EQUAL TO GREENSTREAK PVC RIBBED CENTER BULB 705 OR 732 OR GREENSTREAK HYDROTITE CJ1030 WITH A 2" MINIMUM CONCRETE COVER.		
MIN. CEMENT CONTENT: 6.0 SACKS/YARD*		17. WATERSTOP AT ALL SEAL JOINTS FOR WALL SLAB JOINTS SHALL BE EQUAL TO GREENSTREAK HYDROTITE CJ 1030 WITH A 2" MINIMUM CONCRETE COVER.		
MAXIMUM WATER RATIO (W/C): 5-7% (UNLESS NOTED ON SLAB SCH.)		18. WATERSTOP AT ALL SEALS FOR SAWED SLAB CONTROL JOINTS SHALL BE EQUAL TO GREENSTREAK HYDROTITE RSS COVERED BY BACKER ROD AND GREENSTREAK LEAKMASTER WATER SWELLING SEALANT.		
ENTRAINED AIR: 5-7% (UNLESS NOTED ON SLAB SCH.)				
FINE AGGREGATE: ASTM C33, FINE AGGREGATE				
COURSE AGGREGATE: ASTM C33, #57.5S				
* MINIMUM CEMENT CONTENT RATIO BASED ON MAX. 20% FLY ASH WEIGHT TO TOTAL WEIGHT OF FLY ASH AND CEMENT.				

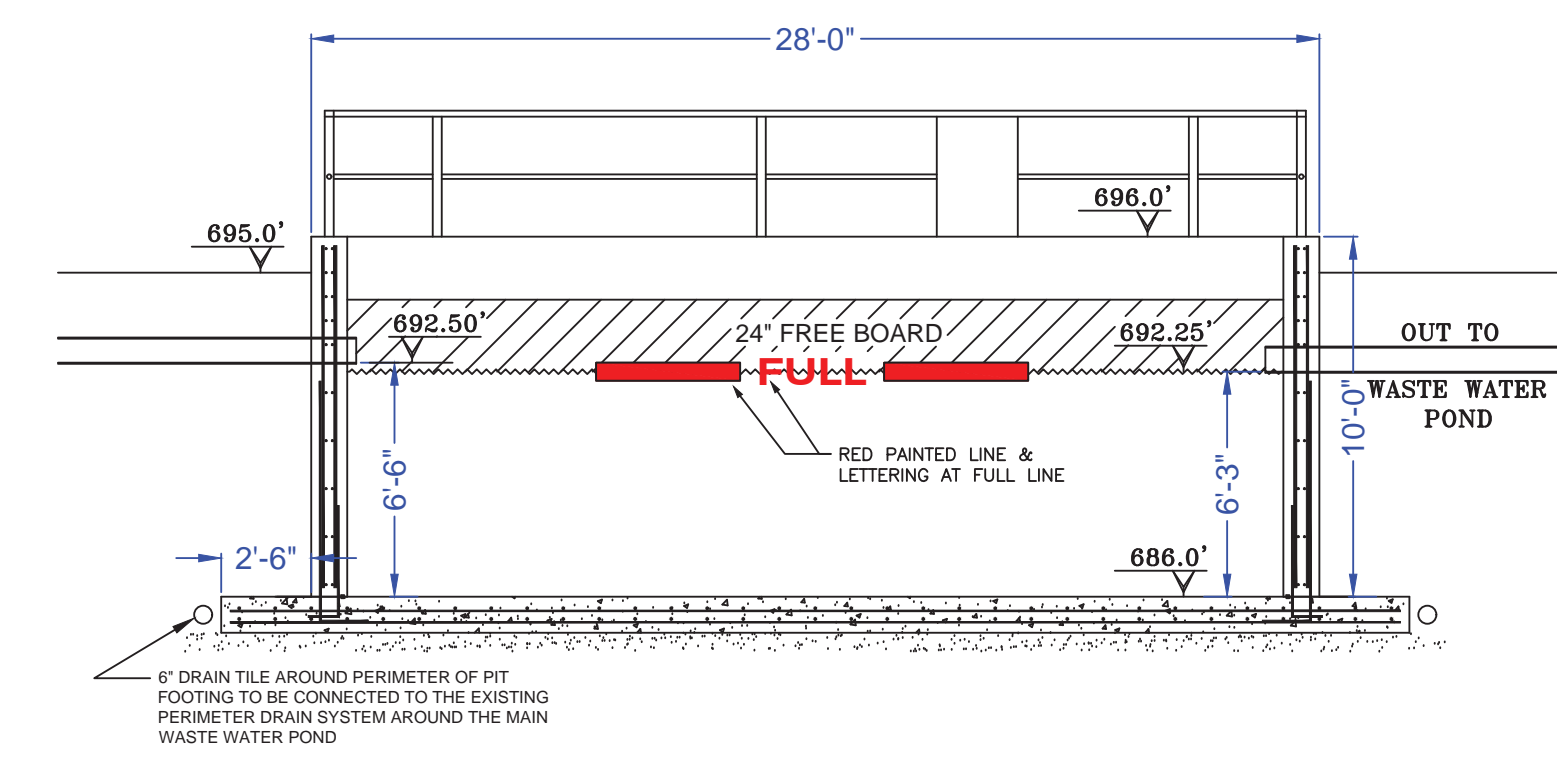


TYPICAL PIPE PENETRATION DETAIL  
NOT TO SCALE

**P2 = Parlor Pit**



PARLOR PIT - PLAN VIEW  
SCALE: 3/16" = 1'-0"



1 PARLOR PIT - SECTION  
SCALE: 3/16" = 1'-0"

NO.	DATE	DESCRIPTION

DATE: 04/30/2024

PROJECT TITLE:  
**Biogas to Energy Expansion  
Newberry / Oak Basin Dairy  
4618 North 200 West  
Rensselaer, IN 47978**

CONTRACTORS & DEVELOPERS  
**HAMSTRA BUILDERS, INC.**  
12028 NORTH 200 WEST - WHEATFIELD, INDIANA 46392  
PHONE: (219) 866-3111 - FAX: (219) 866-3870  
WEB SITE: <http://www.hamstragroup.com>

PROJECT NO. 22-609  
SCALE: AS SHOWN  
DRAWN BY: r.e.  
CHECKED BY:  
SHEET #  
**A-2.2**





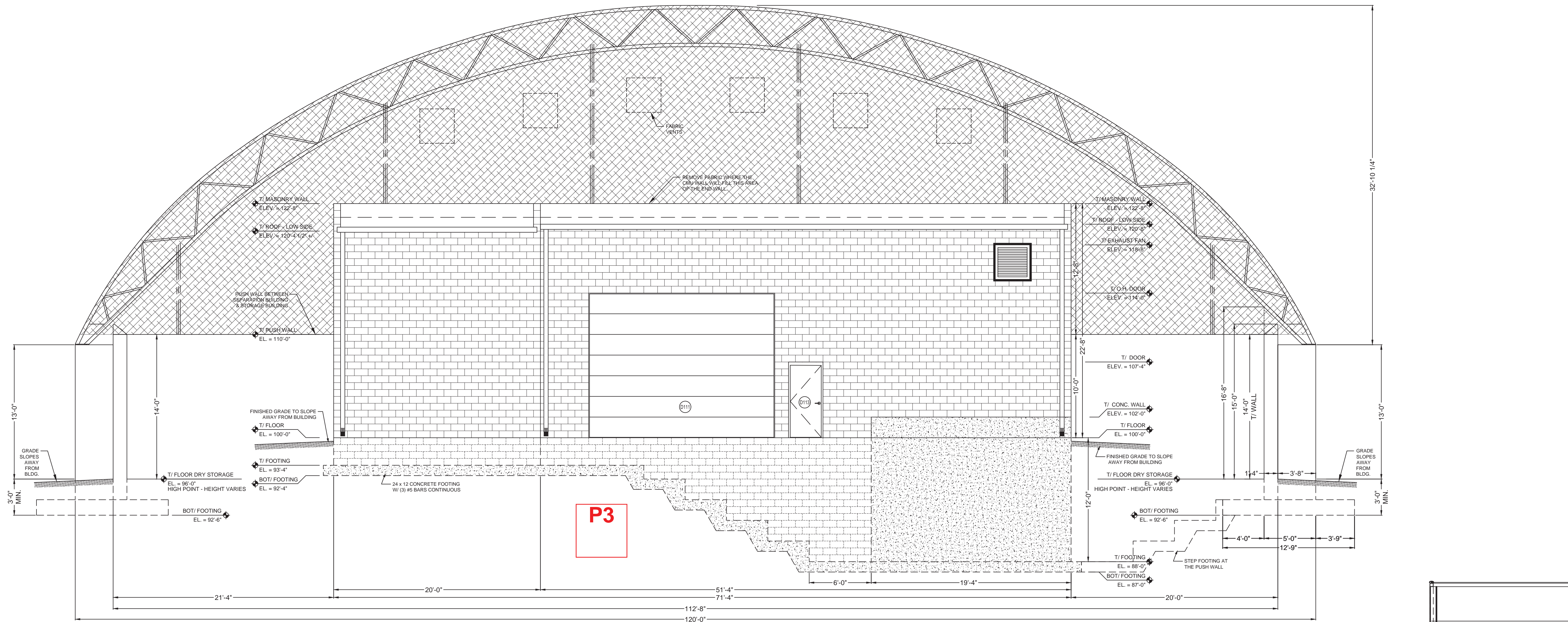






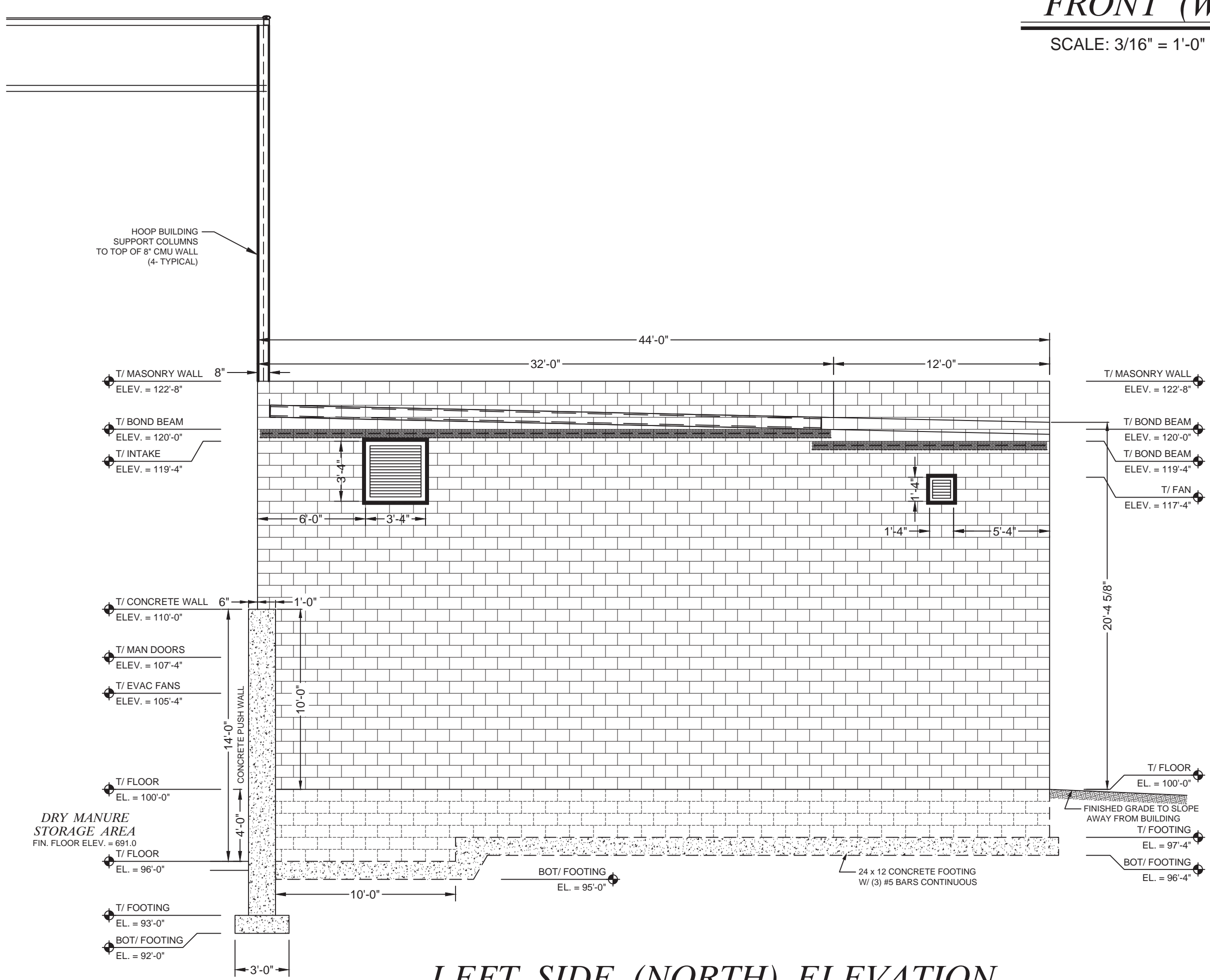






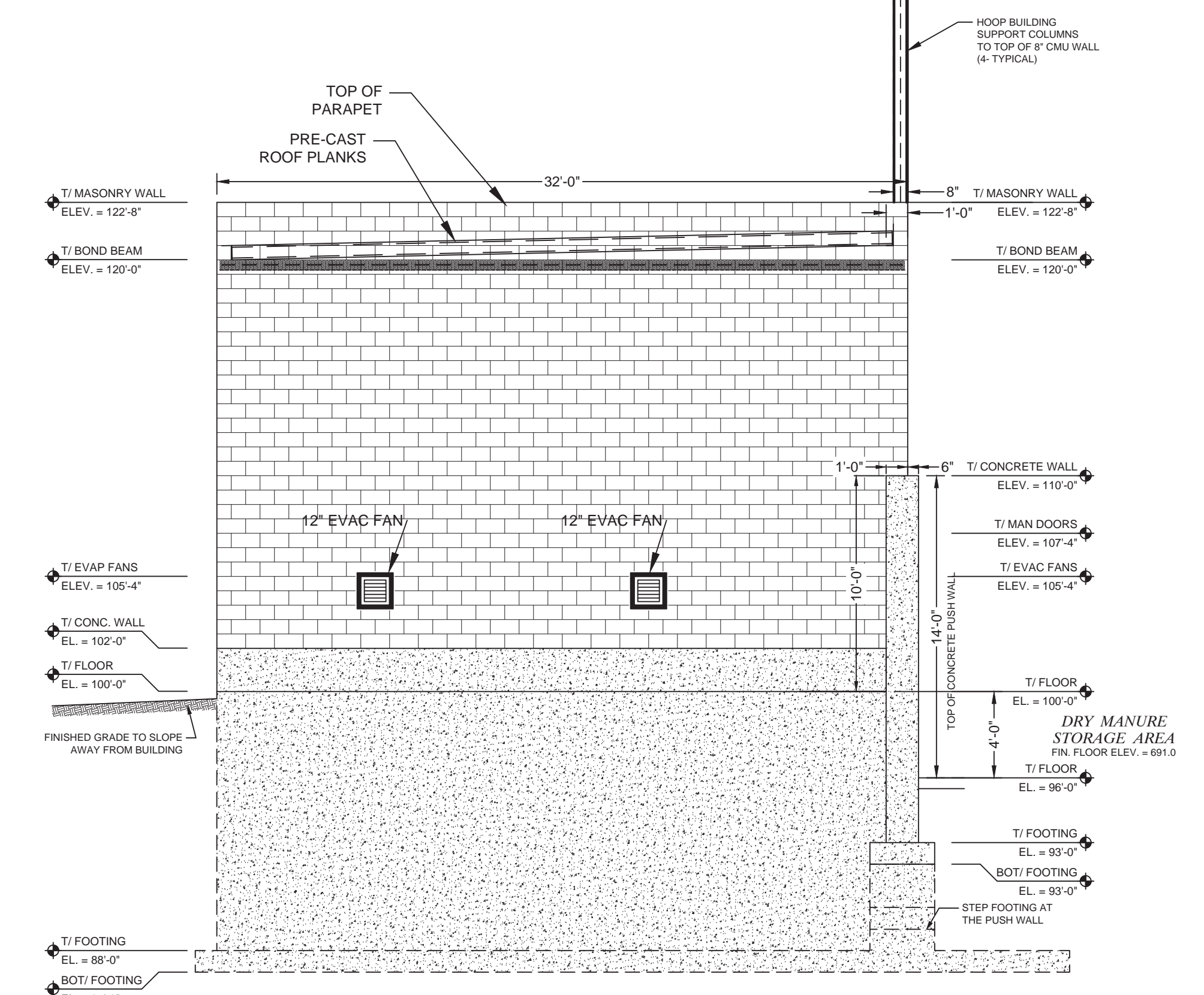
**FRONT (WEST) ELEVATION**

SCALE: 3/16" = 1'-0"



**LEFT SIDE (NORTH) ELEVATION**

SCALE: 3/16" = 1'-0"



**RIGHT SIDE (SOUTH) ELEVATION**

SCALE: 3/16" = 1'-0"

NO.	DATE	BY	DESCRIPTION

DATE: 04/30/2024

**Biogas to Energy Expansion**  
**Newberry / Oak Basin Dairy**  
**4618 North 200 West**  
**Rensselaer, IN 47978**

PROJECT TITLE:  
 SEPARATION BUILDING - EXTERIOR ELEVATIONS

**HAMSTRA BUILDERS, INC.**  
 CONTRACTORS & DEVELOPERS  
 12028 NORTH, 200 WEST - WHEATFIELD, INDIANA 46392  
 PHONE: (219) 866-3111 - FAX: (219) 866-3870  
 WEB SITE: <http://www.hamstragroup.com>

PROJECT NO.	22-609
SCALE:	AS SHOWN
DRAWN BY:	r.e.
CHECKED BY:	

SHEET #  
**A-4.1**



**NATURAL RESOURCES CONSERVATION SERVICE  
CONSTRUCTION SPECIFICATION**

**CONCRETE CONSTRUCTION**

1. SCOPE

This specification covers concrete construction for reinforced structures, plain concrete for waste storage pond liners, and other slabs.

2. PREPARATION OF FORMS AND SUBGRADE

Unless otherwise indicated on the construction drawings, concrete shall be placed on a smoothly graded soil or sand subgrade compacted, as necessary, to a uniform density throughout. Plain concrete, where vehicle traffic is expected, shall be placed on a minimum 3 inches of gravel. Over-excavation shall be corrected by a procedure approved by the NRCS Engineer or the designated representative.

Concrete shall not be placed until the subgrade, forms and steel reinforcement have been inspected and approved by the NRCS Engineer or the designated representative. The Engineer shall be notified far enough in advance to provide time for the inspection.

Prior to placement of concrete, the forms and subgrade shall be free of chips, sawdust, debris, standing water, ice, snow, extraneous oil, mortar or other harmful substances or coatings.

Surfaces against which concrete is to be placed shall be firm and damp. Placement of concrete on plastic, mud, dried earth, or uncompacted fill or frozen subgrade will not be permitted.

3. 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.

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

Tolerance on formed concrete is + 3/8 inch. Tolerance on concrete formed in earth is – 1 inch to +6 inches.

4. CONCRETE MIX

Portland cement shall be Type I, IA, II or IIA (Type I with an added air entrainment admixture is preferred). If Type IA or IIA cement is used, additional air entrainment admixture shall be the same type that was used in the cement. Cement that is partially hydrated (hardened), or otherwise damaged, shall not be used. Air entrainment shall be 4 to 7 percent.

Air entraining admixtures shall conform to the requirements of ASTM Specification C 260.

Aggregates shall consist of clean, hard, strong and durable particles that are free of silt, clay or any other material that may affect bonding of the cement paste.

Fine aggregate shall meet the requirements of INDOT fine aggregate number 23. Maximum coarse aggregate size shall be 3/4 inch.

Water shall be clean and free of injurious amounts of oil, salt, acid, alkali, organic matter or other deleterious substances.

RECEIVED  
CONFINED FEEDING OPERATIONS  
June 27, 2024  
Dept. of Environmental Mgmt.  
Office of Land Quality  
May 2015

Concrete shall have a minimum 28-day compressive strength of 4,000 psi. In lieu of strength tests, a mix containing an acceptable aggregate, 6 bags of cement per cubic yard and no more than 5.5 gallons or 46 pounds of water per bag of cement (including moisture in the aggregate) may be accepted.

The slump of the concrete shall be 3 to 5 inches.

## 5. MIXING AND PLACING CONCRETE

Concrete shall be uniform and thoroughly mixed when delivered to the job sites.

Concrete shall be discharged into the forms, vibrated and spaded within 90 minutes after the cement has been introduced into the aggregates. When air temperatures are above 85 degrees, this time must be reduced to 45 minutes.

The Inspector may allow a longer time if an approved set retarding admixture is used.

Concrete shall be deposited as close as possible in its final position. It shall not be allowed to drop more than 5 feet in forms and must not be required to flow laterally more than 8 feet.

If concrete must be dropped more than 5 feet, hoppers and chutes, "elephant trunks", etc., shall be used to prevent segregation.

If concrete must be moved laterally more than 8 feet, it shall be moved by shoveling, chutes, conveyors, wheelbarrows or similar equipment. Vibration must not be used to make concrete flow in the forms.

Plasticizing or plasticizing and retarding admixtures used shall conform to ASTM C 494, Types F or G or C 1017 as applicable.

Immediately after placement, concrete shall be consolidated by spading and vibrating, or spading and hand tamping. It shall be worked into corners and angles of the forms and around all reinforcement and embedded items in a manner which prevents segregation or the formation of "honeycomb". Excessive vibration which results in segregation of materials will not be allowed. The vibrator head shall be kept vertical when inserted into the concrete and shall penetrate at least 6" into the previously placed layer.

Slab concrete shall be placed at design thickness in one layer, but walls should be placed in essentially horizontal layers not more than 24 inches high. Successive layers shall be placed and consolidated fast enough to ensure a good bond between layers and to prevent "cold joints".

If the surface of a layer in place will develop its initial set before more concrete is placed on it, a construction joint (of the type shown in the plan) shall be made.

If freshly mixed concrete is to be placed against hardened concrete, the hardened concrete must be clean, sound, fairly level and roughened with some coarse aggregate particles exposed. Any dirt, form oil, wood chips or other foreign material shall be removed.

Concrete surfaces shall be smooth and even. Careful screeding (striking-off) and/or wood or magnesium float finishing are required.

The addition of dry cement or water to the surface of screeded concrete to expedite finishing will not be allowed.

## 6. REINFORCING STEEL

Reinforcing steel shall be deformed bars manufactured specifically for concrete reinforcement and shall be Grade 60 or higher (more details can be found in ASTM-A-615, A-616 or A-617).

Reinforcing steel shall be free from loose rust, concrete, oil, grease, paint or other deleterious coatings.

\*ADAPTED\*

Reinforcement shall be accurately placed and secured in position in a manner that will prevent its displacement during the placement of concrete. This shall be accomplished by tying reinforcing steel or special tie bars to the form "snap ties" or by other methods of tying. No welding of either stress steel or temperature and shrinkage steel will be permitted. Reinforcing steel shall not be heated to facilitate bending.

In slabs, steel shall be supported by precast concrete bricks (not clay bricks), corrosion resistant metal chairs or plastic chairs.

The following tolerances will be allowed in the placement of reinforcing bars.

- a. Where 1.5 inches clear distance is shown between reinforcing bars and forms, allowable clear distance is 1.125 to 1.5 inches.
- b. Where 2 inches clear distance is shown between reinforcing bars and forms, allowable clear distance is 1.625 to 2 inches.
- c. Where 3 inches clear distance is shown between reinforcing bars and earth or forms, allowable clear distance is 2.5 to 3 inches. Over excavation backfilled with concrete shall not count toward clear distance.
- d. Maximum variation from indicated reinforcing bar spacing: 1/12th of indicated spacing, but no reduction in the amount of bars specified.

Unless otherwise indicated on the drawings, splices of reinforcing bars shall provide a lap of not less than 30 diameters of the smaller bar but not less than 12 inches. Bars will not be spliced by welding. Welded wire fabric shall be lapped at least one mesh width.

The ends of all stress or temperature and shrinkage bars shall be covered with at least 2 inches of concrete.

## 7. CURING

Concrete shall be prevented from drying for at least 7 days after it is placed. Exposed surfaces shall be kept continuously moist during this period by covering with moistened canvas, burlap, straw, sand or other approved material, unless they are sprayed with a curing compound or covered with a 4 mil or thicker polyethylene. Forms left in place during the curing period shall be kept wet.

Concrete, except at construction joints, may be coated with a curing compound in lieu of continued application of moisture. The compound shall be sprayed on moist concrete surfaces 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.

Curing compound shall be applied in a uniform layer over all surfaces requiring protection at a rate of not less than 1 gallon per 150 square feet of surface or to manufacturer's recommendation, whichever is greater.

## 8. FORM REMOVAL AND CONCRETE REPAIR

Forms for structure walls shall not be removed until 24 hours or more after concrete placement. When forms are removed in less than 7 days, the concrete shall be sprayed with a curing compound or be kept wet continuously by methods allowed in Section 7 of this specification.

Forms shall be removed in such a way as to prevent damage to the concrete. Forms shall be removed before walls are backfilled.

Where minor areas of the concrete surface are "honeycombed", damaged or otherwise defective, it shall be removed, the area wetted and then filled with a dry-pack mortar.

Dry-pack mortar shall consist of one part Portland cement and three parts sand, with just enough water to produce a workable consistency.

\*ADAPTED\*

9. CONCRETING IN COLD WEATHER

Concrete shall not be mixed nor placed when the daily atmospheric low temperature is less than 40 degrees unless facilities are provided to prevent the concrete from freezing.

Facilities for cold weather concreting shall consist of:

- a. Use of warm concrete with temperatures from 55 degrees F to 65 degrees F.
- b. Adequate protection from the weather, including the use of artificial heat, to prevent the temperature of the concrete from falling below 50 degrees F for a period of 3 days, and the relative humidity of the air near the concrete from falling below 40 percent.
- c. Accelerating or water-reducing and accelerating admixtures shall be noncorrosive and conform to the requirements of ASTM C 494, Types C and E.
- d. The contractor shall furnish to NRCS for approval, a written plan that shows how the contractor will meet the requirements of this specification. The plan must also show how the requirements of ACI Specification 306 will be met.

10. CONCRETING IN HOT WEATHER

Hot weather precautions should be taken when air temperatures are at or above 85 degrees F.

Concrete temperature shall be less than 90 degrees F during mixing, conveying and placing.

Water-reducing and/or retarding admixtures shall conform to the requirements of ASTM Specification C 494, Types A, B, D, F or G.

11. BACKFILLING NEW CONCRETE WALLS

Heavy equipment may not be operated within 3 feet of the new concrete wall.

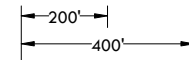
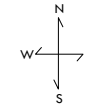
Compaction within 3 feet of the wall will be by means of hand tamping or small hand-held tamping or vibrating equipment.

Backfilling and compaction of fill adjacent to new concrete walls shall not begin in less than 10 days after placement of the concrete or until the concrete strength at the site has been tested to be at least 3,000 psi. Backfill material shall be the type indicated on the drawings and shall be free of large stones or debris.

12. ADDITIONAL ITEMS WHICH APPLY TO THIS JOB

- a. All plans, procedures, or amendments requiring approval prior to implementation shall be presented to the project engineer rather than the NRCS engineer. [change to Section 2,9]
- b. All correspondence and notifications for observation and approval shall be directed to the project engineer rather than the NRCS engineer or representative. [change to Section 2,9]
- c. Plasticizers may be used to increase slump above 5" (slump not to exceed 7 ½"). [change to Section 4]
- d. Non-chloride, water-reducing accelerators may be used to accelerate the hardening of concrete in cold weather conditions [change to Section 9]
- e. Chloride-based accelerators may not be used to accelerate the hardening of concrete. [change to Section 9]
- f. Heavy equipment shall not be operated within 5' of new concrete walls. (in place of the specified 3'). Except where specifically designed for and shown on plans. [change to Section 11]
- g. All compaction within 5' of new concrete walls shall be performed by means of hand tamping or hand-held vibrating equipment (in place of the specified 3'). [change to Section 11]
- h. No more than 5 gallons (or 42 lbs) of water may be used per bag of cement in order to maintain a water/cement ratio of 0.45
- i. Fly ash (Type F ASTM A618) may be used in an amount not greater than 25 percent by weight of the total required cement in the concrete mix. Fly ash, if used, shall be added to the concrete at the ready-mix plant and the batch ticket must include the amount that has been added. Evenly mix fly ash into the concrete mix.
- j. Concrete cylinder tests will be taken every 250 cubic yards to confirm the 28-day strength exceeds 4,000 psi.

Oak Basin Dairy LLC - Farm ID 6083  
Farmstead Map



- |                              |                            |
|------------------------------|----------------------------|
| E1- 500 dairy cows           | E14- Manure Storage        |
| E2- 1,250 dairy cows         | E15- Manure Storage        |
| E3- 1,250 dairy cows         | E16- Manure Storage        |
| E4- Freestall/Milking Parlor | E17- Silage Pad            |
| E5- Sand Separation          | E18- Compost Pad           |
| E6- Manure Storage           | E19- Silage Collection Pit |
| E7- Manure Storage           | E20- Manure Storage        |
| E8- Manure Storage           | E21- 30 Calves             |
| E9- Manure Storage           | E22- Storm Water Pond      |
| E10- Manure Storage          | E23- Manure Storage        |
| E11- Manure Storage          | P1- 1,500 dairy cows       |
| E12- Manure Storage          | P2- Transfer Pit           |
| E13- Manure Storage          | P3- Solid Manure Storage   |

Surface Water Direction →

Well ★

Ditch —

Property Line —

Non-Production Building [Grey Box]

IDNR - Approximate Floodway [Dotted Box]

IDNR - Approximate Fringe [Dashed Box]

This farmstead map depicts, at a minimum, all residences, surface waters of the state, roads, water wells, karst features, drainage patterns, property lines, drainage inlets and outlets and mortality management sites within 500' of the waste management system. This line depicts the 500' boundary.

