

**ADDENDUM NO. 1**

July 9, 2018

To the CONTRACT DOCUMENTS of:

**SOLIDS HANDLING IMPROVEMENTS, PHASE 1**

**Kearney, Nebraska**

**M&A Project No. 130-D1-082**

BIDS OPENED: July 17, 2018  
2:00 PM, Local Time

This is to authorize the use of the following information to prepare proposals for the above named work, which will be equally binding upon all parties as if included in the original set of contract documents.

**A. SPECIFICATIONS, Section 01010 – Summary of Work**

**ADD:** Attached Section 01010 (2 pages)

**B. SPECIFICATIONS, Section 13441**

**DELETE:** Page 7 in its entirety

**ADD:** Revised Page 7, as attached to this Addendum

**C. SPECIFICATIONS, Section 13442**

**DELETE:** Page 3 in its entirety

**ADD:** Revised Page 3, as attached to this Addendum

**D. DRAWINGS, Sheet A7.1, Plan Drawings 1 & 2 Mechanical Platforms**

**DELETE:** Fixed vertical access ladder to roof with reference note.

**ADD:** Refer to Lower and Upper Level Floor Plan Sheets A1.1 and A1.2 for Fixed Vertical Access Ladder location.

**E. DRAWINGS, Sheet C6, Sanitary Sewer Service Line, MH2 to MH3 Profile Notes**

**DELETE:** VCP in profile view

**REPLACE:** DIP in profile view

**F. DRAWINGS, Sheet C6, Sanitary Sewer Service Line, Sta. 2+76**

**DELETE:** 6" VCP

**ADD:** 6" PVC SDR35

**G. DRAWINGS, Sheet C9, Sta. 104+87 LT**

**ADD:** 1-Meter Pit with Check Valve (See Sheet C14)

**H. DRAWINGS, Sheets C14, P1, P3, M9, E5, E6, E8, E10, E14**

**DELETE:** Sheets C14, P1, P3, M9, E5, E6, E9, E10 and E14

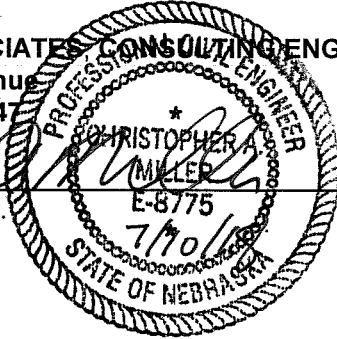
**ADD:** Revised Sheets C14, P1, P3, M9, E5, E6, E9, E10 and E14, as attached to this Addendum.

**I. ACKNOWLEDGEMENT OF ADDENDUM**

As set forth in the Contract Documents, the BIDDER is to acknowledge the receipt of the ADDENDA on Page B-1 of the Bid.

**MILLER & ASSOCIATES CONSULTING ENGINEERS, P.C.**  
1111 Central Avenue  
Kearney, NE 68847

Chris A. Miller, P.E.



**SUMMARY OF WORK****PART 1 - GENERAL****1.01 LOCATION OF WORK**

- A. The work included under this Contract includes facility improvements located at the City of Kearney Wastewater Treatment Plant site. See Drawings.

**1.02 WORK TO BE DONE**

- A. The Work to be performed under this Contract includes:
1. General site work including installation of sediment and erosion control measures, drainage ditches, excavation, embankment, backfill, concrete pavement and rock road, concrete sidewalk, construction of the Dewatering Facility, Biofilter for odor control, utilities, electrical, controls, integration and mechanical systems shown on the contract Drawings and described in the specifications.
- B. Provide all labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by the Contract Documents as shown on the Drawings and specified herein, including work incidental thereto.
- C. Complete the Work, in place, tested, and approved by Engineer. Perform or provide repairs, replacements, and restoration required as a result of damages resulting from construction operations.
- D. Furnish and install all materials, equipment, and incidentals which are reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

**1.03 DRAWINGS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR FOR CONSTRUCTION**

- A. Six (6) sets of full-size prints and six (6) sets of Specifications shall be furnished to the Contractor for construction at no charge. Additional sets may be purchased at the cost of reproduction, if not available.

**1.04 ABBREVIATIONS AND REFERENCES**

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization, or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, even if reference has been made to an earlier standard. Where standards, specifications or codes of the various technical societies, organizations or bodies have been referred to throughout the Specifications, the referenced standard, specification or code is hereby made a part of the Contract the same as if herein repeated in full. In the event of any conflict between any of these specifications, standards, codes or tentative specifications, and the Specifications, the latter shall govern.
- B. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:
1. AASHTO - The American Association of State Highway and Transportation Officials
  2. ANSI - American National Standards Institute
  3. ASCE - American Society of Civil Engineers
  4. ASTM - American Society of Testing Materials
  5. EPA - Environmental Protection Agency
  6. FED.SPEC - Federal Specifications
  7. OSHA - Occupational Safety and Health Administration
- C. When no reference is made to a code, standard, or specification, the standard specifications of the ASTM, or the ANSI shall govern.

**PART 2 - PRODUCTS — NOT USED.**

**PART 3 - EXECUTION — NOT USED**

***END OF SECTION 01010***

- a. Field adjustable switch settings.
  - b. SPDT contact, fixed differential
  - c. 1/4" NPT female connection
  - d. 15amp general purpose dry contact output.
  - e. 0-150 deg F fluid temperature range.
  - f. IP 66 electrical enclosure rating.
  - g. U.L. Listed.
4. Accessories:
- a. \*Provide block and bleed valves, same material as switch diaphragm housing.
  - b. \*\* Provide line size wafer ring type isolator factory mounted and filled, Red Valve Series 40 or equivalent.

5. Schedule:

<u>TAG NO.</u>	<u>SERVICE</u>	<u>RANGE(P.S.I.)</u>
DU1-PSL1*	LOW AIR PRESSURE	100
DU1-PSL2*	LOW WATER PRESSURE	100
DU2-PSL1*	LOW AIR PRESSURE	100
DU2-PSL2*	LOW WATER PRESSURE	100
PSH 1831*	HIGH WATER PRESSURE	100
PSH 1832*	HIGH WATER PRESSURE	100
PSH 1814**	SLUDGE FEED PRESSURE	100
PSH 1824**	SLUDGE FEED PRESSURE	100

**PART 3 EXECUTION**

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

**END OF SECTION 13442**

UNIT1800: SOLIDS HANDLING FACILITIES

CONTROL LOOP TABULATION

Loop No.	Eq. Tag	By	Device Tag	By	Description	Notes	PLC	OIT
1800	CP1800	I	PLC 1800	I	PLC CONTROL PANEL	AB COMPACTLOGIX, ETHERNET		
1801								
1802								
1803								
1804								
1805								
1806								
1807								
1808								
1809								
1810	DFP1				DEWATERING FEED PUMP P-1171-03 CONTROL	PLC 1800 INTERFACE TO DU1-PLC	1	1
1811								
1812								
1813								
1814			PSH 1814	I	SLUDGE FEED PRESSURE TO PRESS #1	INTLK SHUTDOWN P-1171-02, 03 ON HIGH ALARM	2	4
1815	V 1815	V	ZCZT/2S 1815	V	SLUDGE FEED VALVE PRESS #1	MOTORIZED MODULATING ACTUATOR	1	1,2,3
1816								
1817								
1818								
1819								
1820	DFP2				DEWATERING FEED PUMP P-1171-02 CONTROL	PLC 1800 INTERFACE TO DU2-PLC	1	1
1821								
1822								
1823								
1824			PSH 1824	I	SLUDGE FEED PRESSURE TO PRESS #2	INTLK SHUTDOWN P-1171-02, 03 ON HIGH ALARM	2	4
1825	V 1825	V	ZCZT/2S 1825	V	SLUDGE FEED VALVE PRESS #2	MOTORIZED MODULATING ACTUATOR	1	1,2,3
1826								
1827								
1828								
1829								
1830								
1831	DBP1	P	MS 1831	I	WASH WATER BOOSTER PUMP FOR PRESS #1	ENCLOSED COMBINATION FVNR STARTER	1.7	1,3,9
1831a			PSH 1831	I	DBP1 DISCHARGE HIGH PRESSURE SWITCH	HIGH PRESSURE CUTOFF SWITCH	2	4
1832	DBP2	P	MS 1832	I	WASH WATER BOOSTER PUMP FOR PRESS #2	ENCLOSED COMBINATION FVNR STARTER	1.7	1,3,9
1832a			PSH 1832	I	DBP2 DISCHARGE HIGH PRESSURE SWITCH	HIGH PRESSURE CUTOFF SWITCH	2	4
1833								
1834								
1835								
1836								
1837								



REVISIONS	BY
7-9-2018	CAM



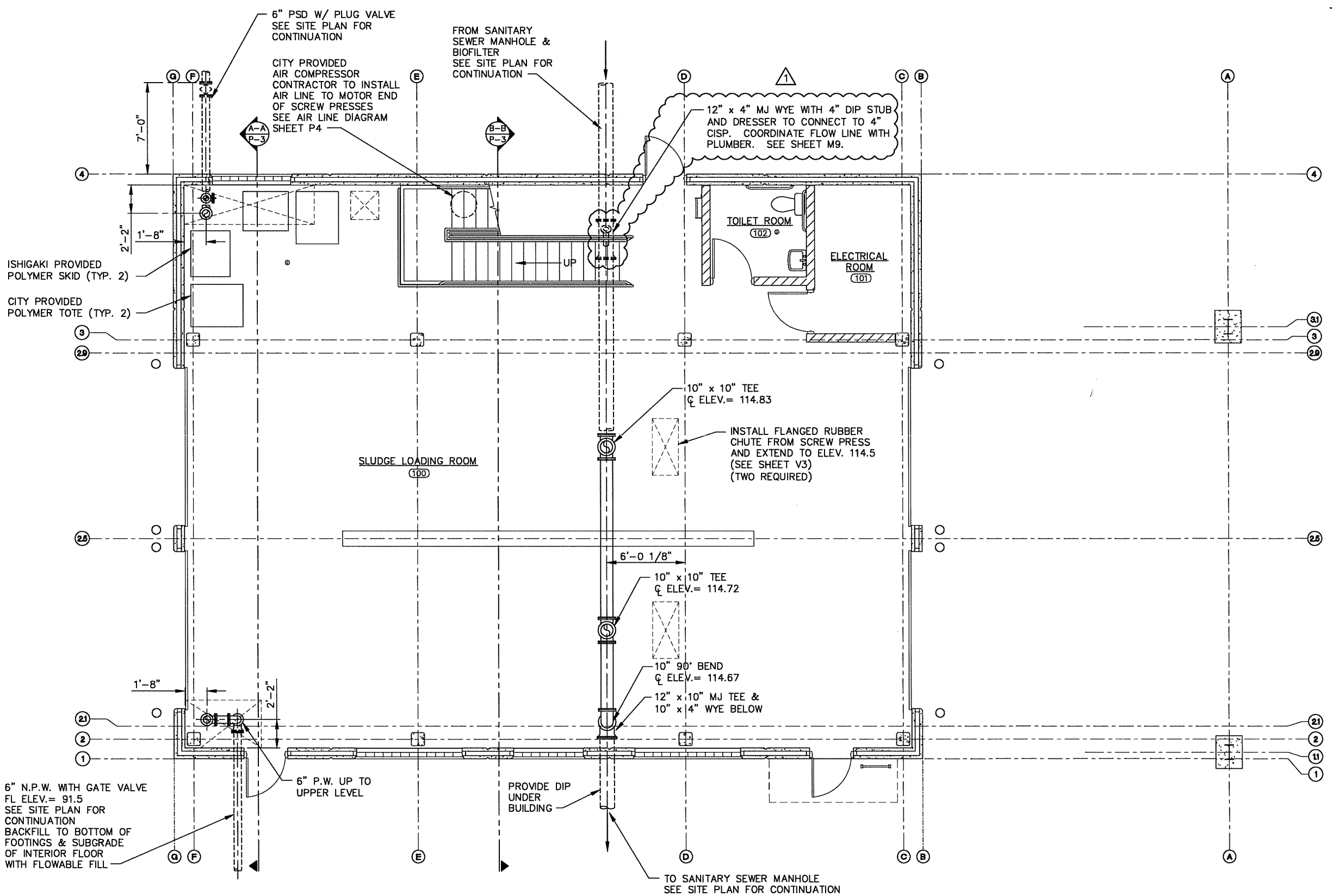
Miller & Associates  
Consulting Engineers, P.C.  
Kearney, NE (308) 234-6456  
McCook, NE (308) 345-3710

SOLIDS HANDLING IMPROVEMENTS - PHASE 1  
**LOWER LEVEL PLAN**  
 KEARNEY, NEBRASKA



VERIFY SCALES	
BAR IS ONE INCH ON ORIGINAL DRAWING	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	
SCALE:	AS SHOWN
PROJECT NO.	130-D1-082
DATE:	JUNE, 2018
FIELD BOOK	M&A DWG NO. 34925
DRAWN BY:	DDM
APRVD BY:	APRVD BY:
SHEET	P1

ARCH ELEV FF=100.00



**LOWER LEVEL FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

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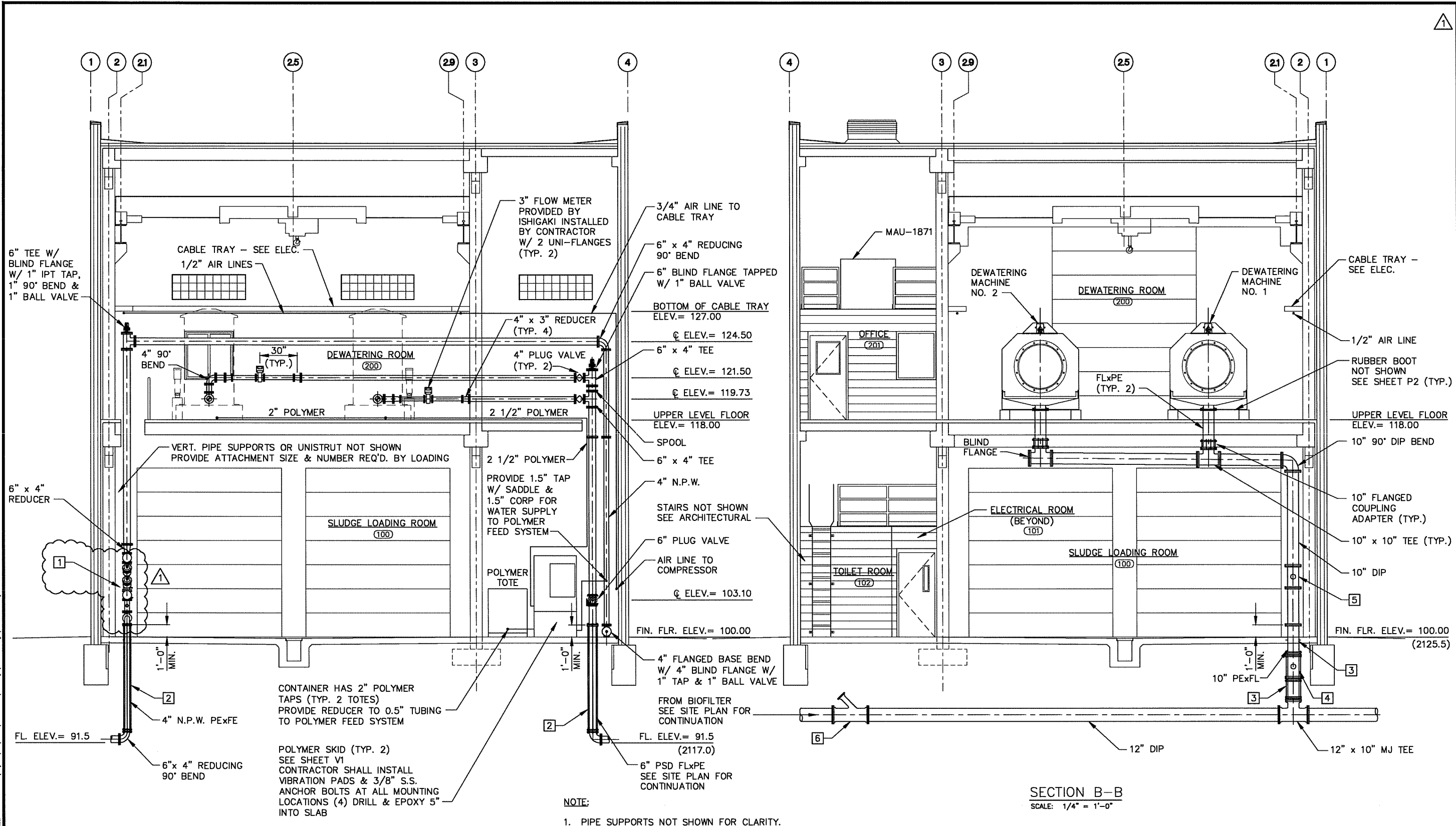
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**SOLIDS HANDLING IMPROVEMENTS - PHASE 1**  
**SECTIONS**  
**KEARNEY, NEBRASKA**

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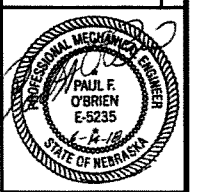
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SHEET	P3

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**SOLIDS HANDLING IMPROVEMENTS - PHASE 1**  
**ISOMETRICS**  
**KEARNEY, NEBRASKA**



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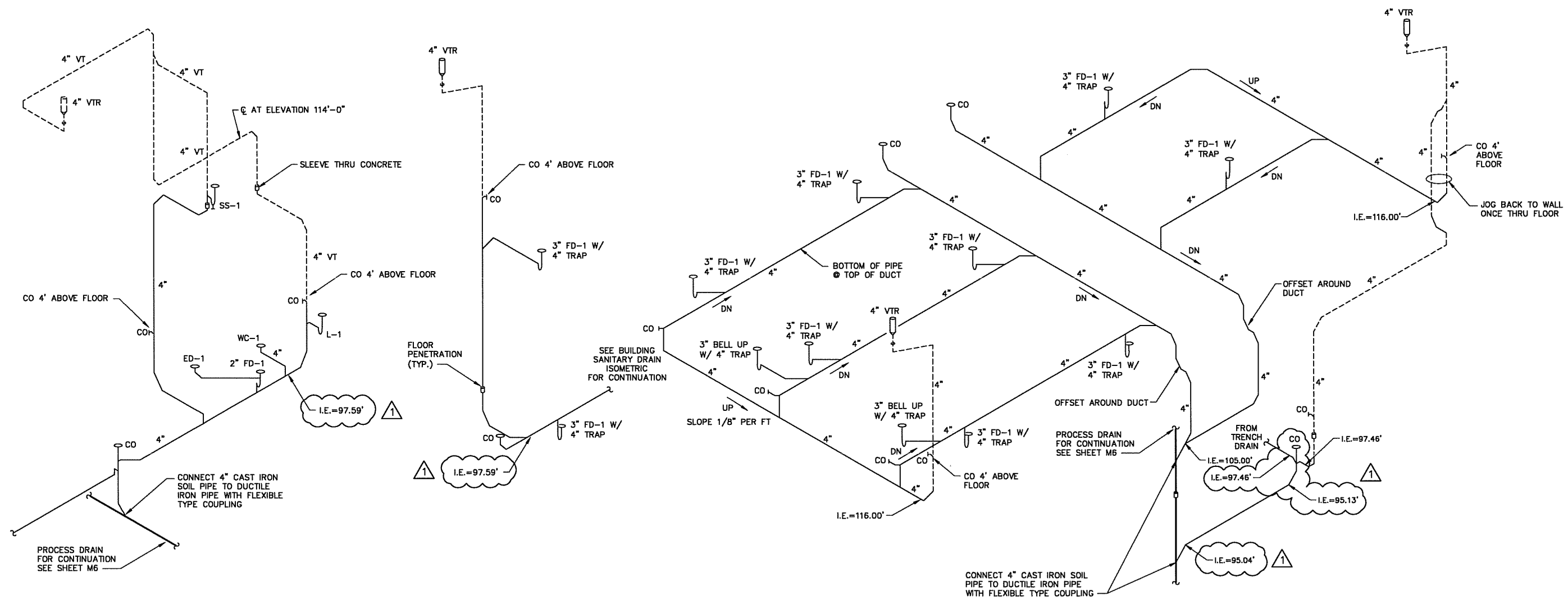
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DATE: JUNE, 2018

FIELD BOOK M&A DWG NO. 34910

DRAWN BY: CBD APRVD BY: PFB

SHEET **M9**



BUILDING SANITARY DRAIN ISOMETRIC

BUILDING DRAIN ISOMETRIC

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**SOLIDS HANDLING IMPROVEMENTS - PHASE 1**  
**LOWER LEVEL POWER PLAN**  
 KEARNEY, NEBRASKA



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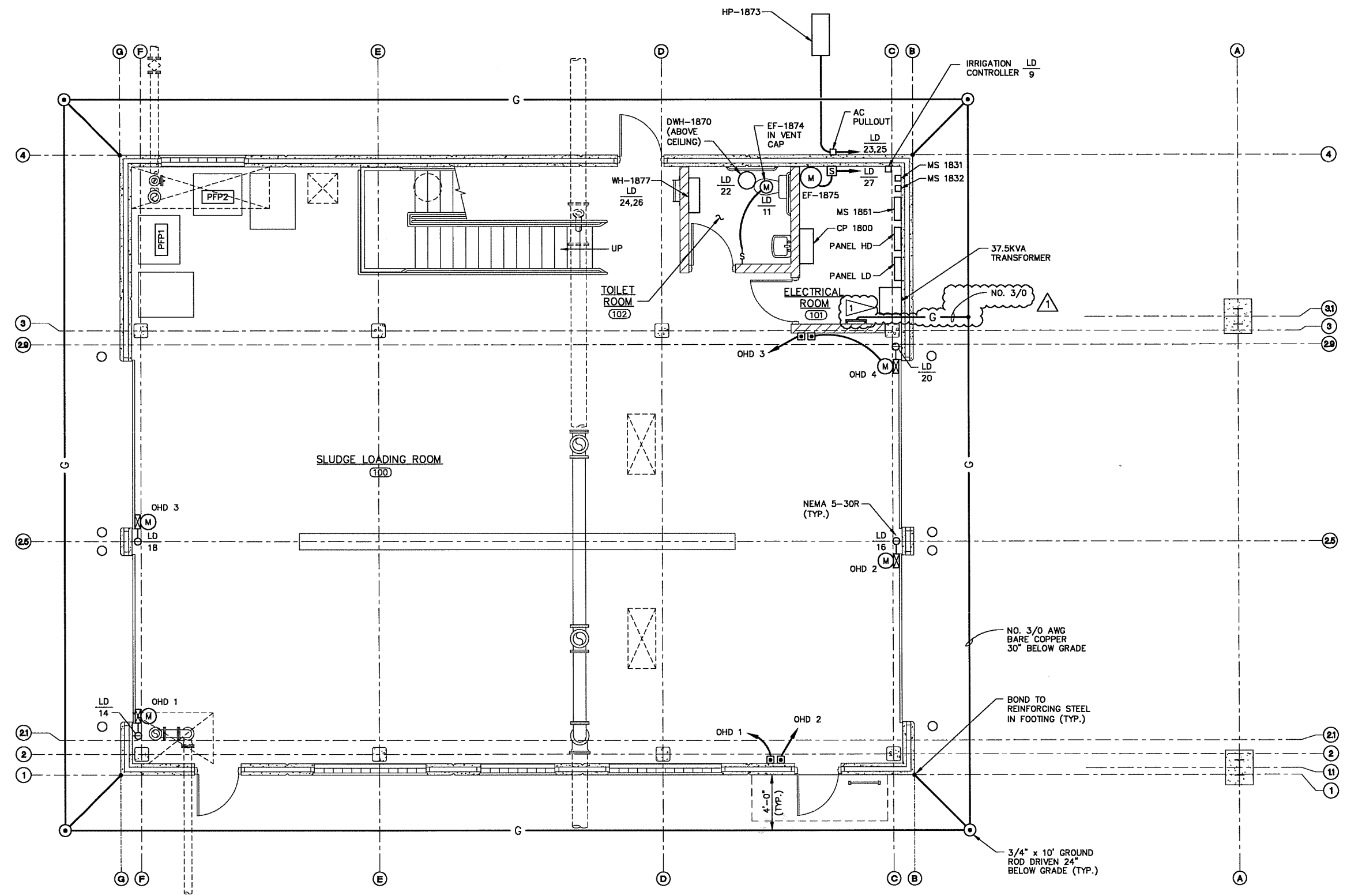
PROJECT NO. 130-D1-082

DATE: JUNE, 2018

FIELD BOOK M&A DWG NO. 34902

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SHEET E5



**LOWER LEVEL FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"

**FLAG NOTES:**

1 U.L. LISTED COPPER MAIN GROUNDING BAR WALL MOUNTED ON INSULATED STANDOFFS, B-LINE SPBMGB12 OR EQUIVALENT. BOND PANEL GROUNDING CONDUCTORS TO MAIN GROUND BAR, EXTEND #3/0 GROUNDING ELECTRODE CONDUCTOR FROM GROUND BAR AND BOND TO PERIMETER GROUND RING.

- NOTES:**
- 1. ROOM 100 CLASSIFIED CORROSIVE NEMA 4X, ROOMS 101 AND 102 UNCLASSIFIED, DRY NEMA 12, UNLESS OTHERWISE NOTED.
  - 2. NOT ALL CONDUITS ARE SHOWN IN PLAN VIEWS, SEE ONE-LINE DIAGRAMS FOR REQUIREMENTS. SINGLE LINES MAY REPRESENT MULTIPLE CONDUITS.

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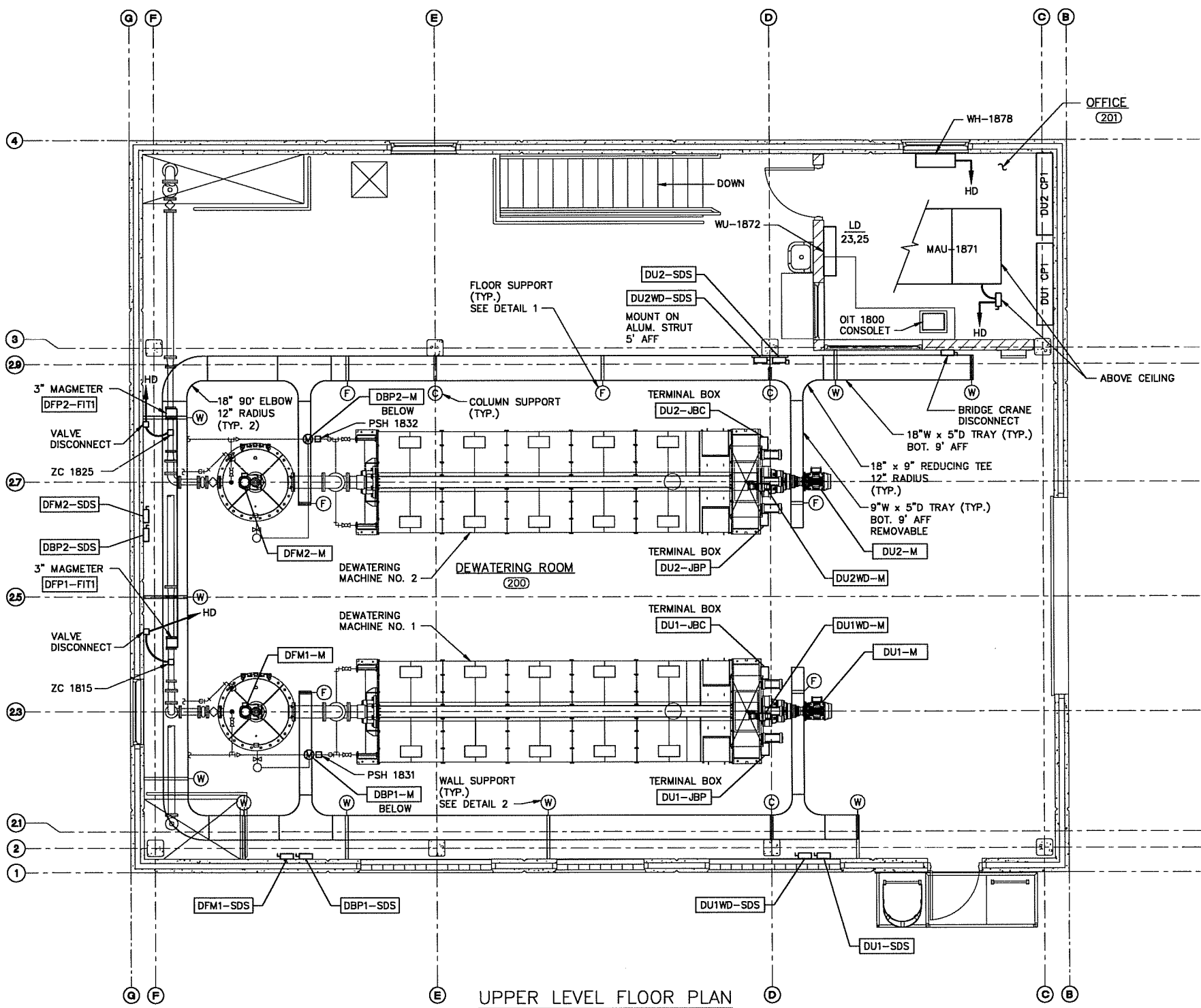
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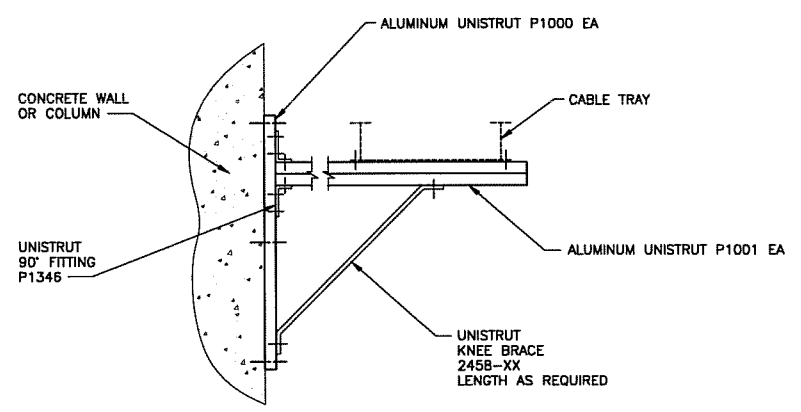
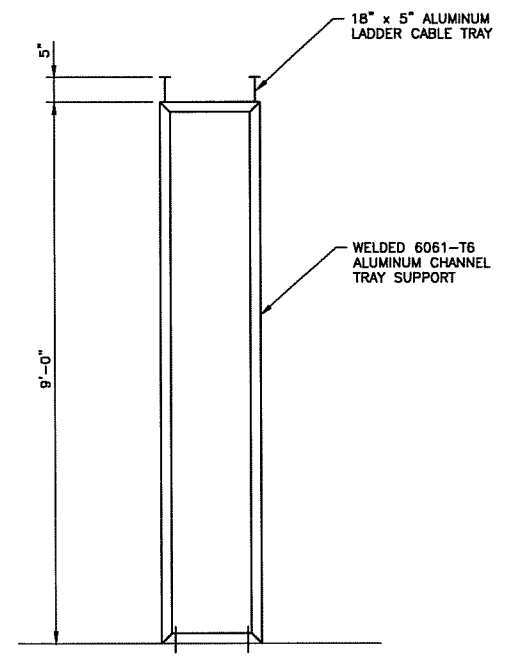
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**SOLIDS HANDLING IMPROVEMENTS - PHASE 1**  
**UPPER LEVEL POWER PLAN**  
**KEARNEY, NEBRASKA**

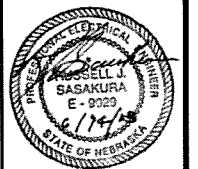
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- NOTES:**
- ROOM 200 CLASSIFIED CORROSIVE NEMA 4X, ROOM 201 UNCLASSIFIED, DRY NEMA 12, UNLESS OTHERWISE NOTED.
  - NOT ALL CONDUITS ARE SHOWN IN PLAN VIEWS, SEE ONE-LINE DIAGRAMS FOR REQUIREMENTS. SINGLE LINES MAY REPRESENT MULTIPLE CONDUITS.
  - TRAY CABLES SHALL BE RATED FOR EXPOSED RUN (ER), DROPS FROM TRAYS SHALL BE MADE WITHOUT CONDUIT AND SUPPORTED AS REQUIRED. ENTRIES INTO PANELS AND DEVICES SHALL BE MADE WITH SUITABLE GLAND FITTINGS SUCH AS CROUSE HINDS TYPE ADE STAINLESS STEEL.
  - TRAY CABLES SHALL BE INSTALLED NEATLY IN A SINGLE LAYER OF PARALLEL RUNS SECURED TO TRAY LADDER RUNGS AT REQUIRED INTERVALS. CROSSING OF CABLES SHALL BE LIMITED TO POINTS OF ENTRY AND EXIT TO THE EXTENT POSSIBLE.



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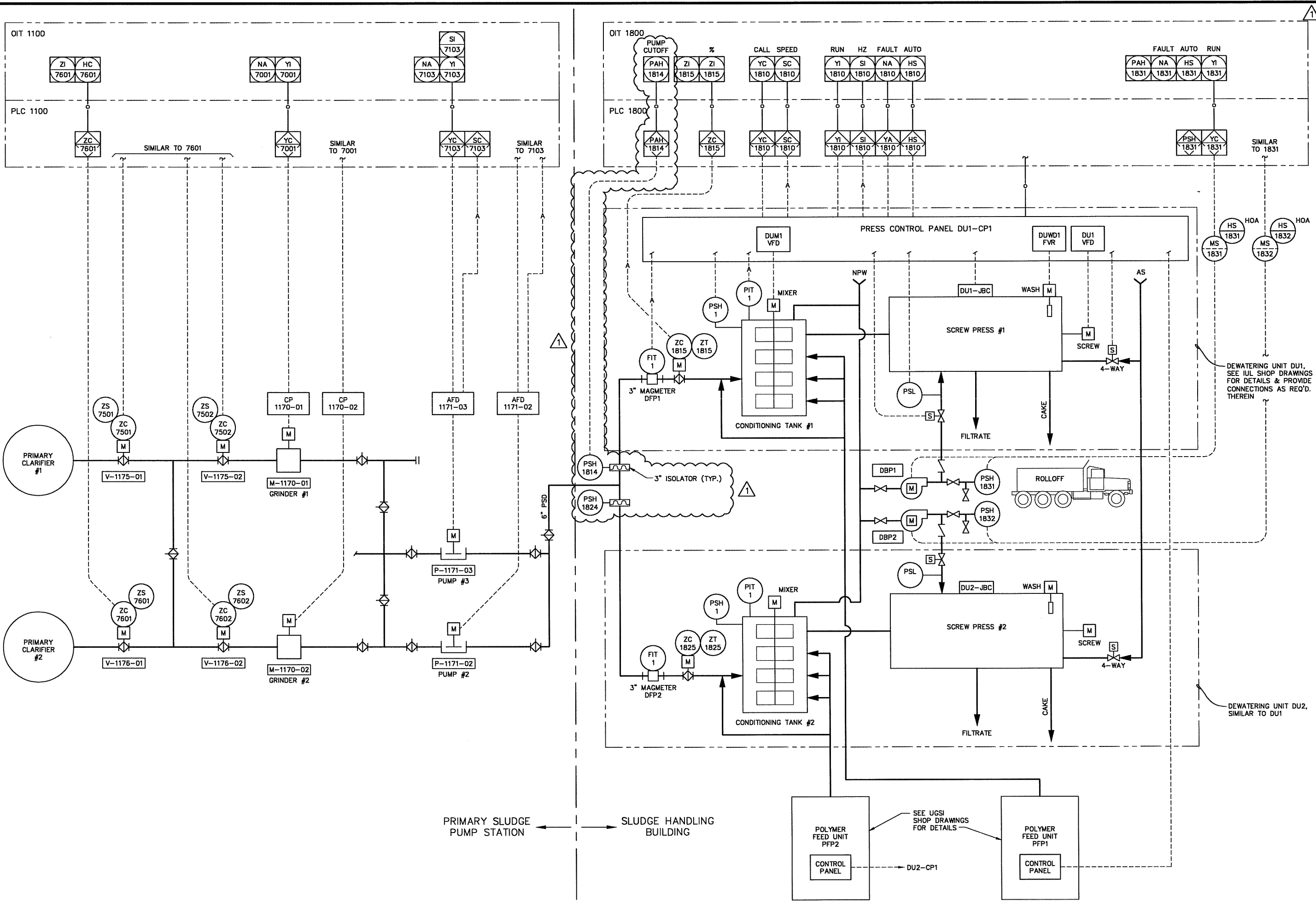
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**SOLIDS HANDLING IMPROVEMENTS - PHASE 1**  
**PROCESS & INSTRUMENTATION DIAGRAM**  
**KEARNEY, NEBRASKA**



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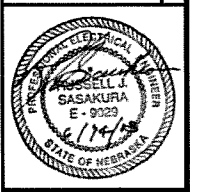
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SOLIDS HANDLING IMPROVEMENTS - PHASE 1  
**SCHEDULES**  
 KEARNEY, NEBRASKA



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 DATE: JUNE, 2018  
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 SHEET

PLC 1800 DIGITAL INPUTS 120VAC				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DI 1800.1	STATUS	UPS	ON BATTERY
2	DI 1800.2	ALARM	UPS	LOW BATTERY
3	DI 1810.1	CONTROL *	DEWATERING FEED PUMP DFP1	CALL TO RUN
4	DI 1820.1	CONTROL **	DEWATERING FEED PUMP DFP2	CALL TO RUN
5	DI 1831.1	STATUS	WASH WATER BOOSTER PUMP DBP1 H-O-A	AUTO
6	DI 1831.2	STATUS	WASH WATER BOOSTER PUMP DBP1	RUNNING
7	DI 1831.2	ALARM	WASH WATER BOOSTER PUMP DBP1 PRESSURE	HIGH
8	DI 1832.1	STATUS	WASH WATER BOOSTER PUMP DBP2 H-O-A	AUTO
9	DI 1832.2	STATUS	WASH WATER BOOSTER PUMP DBP2	RUNNING
10	DI 1832.2	STATUS	WASH WATER BOOSTER PUMP DBP2 PRESSURE	HIGH
11	DI 1861.1	STATUS	ODOR CONTROL FAN H-O-A	AUTO
12	DI 1861.2	STATUS	ODOR CONTROL FAN	RUNNING
13	DI 1861.3	ALARM	ODOR CONTROL FAN	FAULT
14	DI 1871.1	STATUS	MAKE UP AIR UNIT	RUNNING
15	DI 1871.2	ALARM	MAKE UP AIR UNIT	FAULT
16			SPARE	
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DI 1815.1	STATUS	SCREW PRESS 1 SLUDGE FEED VALVE	REMOTE
2	DI 1815.2	STATUS	SCREW PRESS 1 SLUDGE FEED VALVE	FULL CLOSED
3	DI 1815.3	STATUS	SCREW PRESS 1 SLUDGE FEED VALVE	FULL OPEN
4	DI 1825.1	STATUS	SCREW PRESS 2 SLUDGE FEED VALVE	REMOTE
5	DI 1825.2	STATUS	SCREW PRESS 2 SLUDGE FEED VALVE	FULL CLOSED
6	DI 1825.3	STATUS	SCREW PRESS 2 SLUDGE FEED VALVE	FULL OPEN
7	DI 1814.1	ALARM	SLUDGE FEED PRESSURE TO DU1	HIGH
8	DI 1824.1	ALARM	SLUDGE FEED PRESSURE TO DU2	HIGH
9			SPARE	
10			SPARE	
11			SPARE	
12			SPARE	
13			SPARE	
14			SPARE	
15			SPARE	
16			SPARE	

\* DENOTES DIGITAL OUTPUT FROM DU1-PLC IN DU1-CP1  
 \*\* DENOTES DIGITAL OUTPUT FROM DU2-PLC IN DU2-CP1

PLC 1800 DIGITAL RELAY OUTPUTS				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DO 1810.1	STATUS *	DEWATERING FEED PUMP DFP1 H-O-A	AUTO
2	DO 1810.2	STATUS *	DEWATERING FEED PUMP DFP1	RUNNING
3	DO 1810.3	ALARM *	DEWATERING FEED PUMP DFP1	FAULT
4	DO 1810.4	CONTROL *	DEWATERING UNIT DU1	CALL TO RUN
5	DO 1820.1	STATUS **	DEWATERING FEED PUMP DFP2 H-O-A	AUTO
6	DO 1820.2	STATUS **	DEWATERING FEED PUMP DFP2	RUNNING
7	DO 1820.3	ALARM **	DEWATERING FEED PUMP DFP2	FAULT
8	DO 1820.4	CONTROL **	DEWATERING UNIT DU2	CALL TO RUN
9	DO 1831.1	CONTROL	WASH WATER BOOSTER PUMP DBP1	CALL TO RUN
10	DO 1832.1	CONTROL	WASH WATER BOOSTER PUMP DBP2	CALL TO RUN
11	DO 1861.1	CONTROL	ODOR CONTROL FAN	CALL TO RUN
12			SPARE	
13			SPARE	
14			SPARE	
15			SPARE	
16			SPARE	

\* DENOTES DIGITAL INPUT FROM DU1-PLC IN DU1-CP1  
 \*\* DENOTES DIGITAL INPUT FROM DU2-PLC IN DU2-CP1

PLC 1800 ANALOG INPUTS				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	AI 1810.1	4-20 MA *	DEWATERING FEED PUMP DFP1	SPEED REF
2	AI 1820.1	4-20 MA **	DEWATERING FEED PUMP DFP2	SPEED REF
3	AI 1815.1	4-20 MA	SCREW PRESS 1 SLUDGE FEED VALVE	% OPEN
4	AI 1825.1	4-20 MA	SCREW PRESS 2 SLUDGE FEED VALVE	% OPEN
5		4-20 MA	SPARE	
6		4-20 MA	SPARE	
7		4-20 MA	SPARE	
8		4-20 MA	SPARE	

\* DENOTES ANALOG OUTPUT FROM DU1-CP1  
 \*\* DENOTES ANALOG OUTPUT FROM DU2-CP1

PLC 1800 ANALOG OUTPUTS ISOLATED				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	AO 1810.1	4-20 MA ***	DEWATERING FEED PUMP DFP1	HZ OUTPUT
2	AO 1820.1	4-20 MA ****	DEWATERING FEED PUMP DFP2	HZ OUTPUT
3	AO 1815.1	4-20 MA	SCREW PRESS 1 SLUDGE FEED VALVE	POSITION
4	AO 1825.1	4-20 MA	SCREW PRESS 2 SLUDGE FEED VALVE	POSITION
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1		4-20 MA	SPARE	
2		4-20 MA	SPARE	
3		4-20 MA	SPARE	
4		4-20 MA	SPARE	

\*\*\* DENOTES ANALOG INPUT TO DU1-CP1  
 \*\*\*\* DENOTES ANALOG INPUT TO DU2-CP1

PLC 1100 DIGITAL INPUTS 120VAC				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DI 1100.1	STATUS	UPS	ON BATTERY
2	DI 1100.1	ALARM	UPS	LOW BATTERY
3	DI 117103.1	STATUS	PRIMARY SLUDGE PUMP 3 H-O-A	AUTO
4	DI 117103.2	STATUS	PRIMARY SLUDGE PUMP 3	RUNNING
5	DI 117103.3	ALARM	PRIMARY SLUDGE PUMP 3 VFD	FAULT
6	DI 117102.1	STATUS	PRIMARY SLUDGE PUMP 2 H-O-A	AUTO
7	DI 117102.2	STATUS	PRIMARY SLUDGE PUMP 2	RUNNING
8	DI 117102.3	ALARM	PRIMARY SLUDGE PUMP 2 VFD	FAULT
9	DI 117001.1	STATUS	GRINDER 1 H-O-A	AUTO
10	DI 117001.2	STATUS	GRINDER 1	RUNNING
11	DI 117001.3	ALARM	GRINDER 1	FAULT
12	DI 117002.1	STATUS	GRINDER 2 H-O-A	AUTO
13	DI 117002.2	STATUS	GRINDER 2	RUNNING
14	DI 117002.3	ALARM	GRINDER 2	FAULT
15			SPARE	
16			SPARE	
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DI 117501.1	STATUS	CLARIFIER 1 SLUDGE ISOLATION VALVE	REMOTE
2	DI 117501.2	STATUS	CLARIFIER 1 SLUDGE ISOLATION VALVE	FULL CLOSED
3	DI 117501.3	STATUS	CLARIFIER 1 SLUDGE ISOLATION VALVE	FULL OPEN
4	DI 117502.1	STATUS	GRINDER 1 SLUDGE INLET VALVE	REMOTE
5	DI 117502.2	STATUS	GRINDER 1 SLUDGE INLET VALVE	FULL CLOSED
6	DI 117502.3	STATUS	GRINDER 1 SLUDGE INLET VALVE	FULL OPEN
7	DI 117601.1	STATUS	CLARIFIER 2 SLUDGE ISOLATION VALVE	REMOTE
8	DI 117601.2	STATUS	CLARIFIER 2 SLUDGE ISOLATION VALVE	FULL CLOSED
9	DI 117601.3	STATUS	CLARIFIER 2 SLUDGE ISOLATION VALVE	FULL OPEN
10	DI 117602.1	STATUS	GRINDER 2 SLUDGE INLET VALVE	REMOTE
11	DI 117602.2	STATUS	GRINDER 2 SLUDGE INLET VALVE	FULL CLOSED
12	DI 117602.3	STATUS	GRINDER 2 SLUDGE INLET VALVE	FULL OPEN
13			SPARE	
14			SPARE	
15			SPARE	
16			SPARE	

PLC 1100 DIGITAL RELAY OUTPUTS				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	DO 117103.1	CONTROL	PRIMARY SLUDGE PUMP 3	CALL TO RUN
2	DO 117102.1	CONTROL	PRIMARY SLUDGE PUMP 2	CALL TO RUN
3	DO 117001.1	CONTROL	GRINDER 1	CALL TO RUN
4	DO 117002.1	CONTROL	GRINDER 2	CALL TO RUN
5	DO 117501.1	MOMENTARY	CLARIFIER 1 SLUDGE ISOLATION VALVE	CALL TO OPEN
6	DO 117501.2	MOMENTARY	CLARIFIER 1 SLUDGE ISOLATION VALVE	CALL TO CLOSE
7	DO 117502.1	MOMENTARY	GRINDER 1 SLUDGE INLET VALVE	CALL TO OPEN
8	DO 117502.2	MOMENTARY	GRINDER 1 SLUDGE INLET VALVE	CALL TO CLOSE
9	DO 117601.1	MOMENTARY	CLARIFIER 2 SLUDGE ISOLATION VALVE	CALL TO OPEN
10	DO 117601.2	MOMENTARY	CLARIFIER 2 SLUDGE ISOLATION VALVE	CALL TO CLOSE
11	DO 117602.1	MOMENTARY	GRINDER 2 SLUDGE INLET VALVE	CALL TO OPEN
12	DO 117602.2	MOMENTARY	GRINDER 2 SLUDGE INLET VALVE	CALL TO CLOSE
13			SPARE	
14			SPARE	
15			SPARE	
16			SPARE	

PLC 1100 ANALOG INPUTS ISOLATED				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	AI 117103.1	4-20 MA	PRIMARY SLUDGE PUMP 3 AFD	SPEED
2	AI 117102.1	4-20 MA	PRIMARY SLUDGE PUMP 2 AFD	SPEED
3		4-20 MA	SPARE	
4		4-20 MA	SPARE	
5		4-20 MA	SPARE	
6		4-20 MA	SPARE	
7		4-20 MA	SPARE	
8		4-20 MA	SPARE	

PLC 1100 ANALOG OUTPUTS ISOLATED				
NO.	POINT TAG	TYPE	DESCRIPTION	FUNCTION
1	AO 117103.1	4-20 MA	PRIMARY SLUDGE PUMP 3 AFD	SPEED REF
2	AO 117102.1	4-20 MA	PRIMARY SLUDGE PUMP 2 AFD	SPEED REF
3		4-20 MA	SPARE	
4		4-20 MA	SPARE	

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