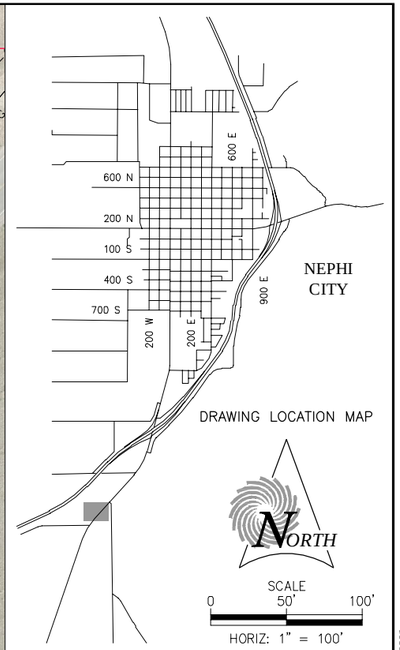
MATCH DWG P-26E

MATCH DWG P-27D

MATCH DWG P-27F

MATCH DWG P-28E

SR-28



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

NO WORK ON THIS SHEET

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No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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CULINARY WATER IMPROVEMENTS PROJECT
2018
PLAN SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	158	P-27E

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\nphi-P sheets.DWG Jun 27, 2018 11:28am cchristensen

MATCH DWG P-26F

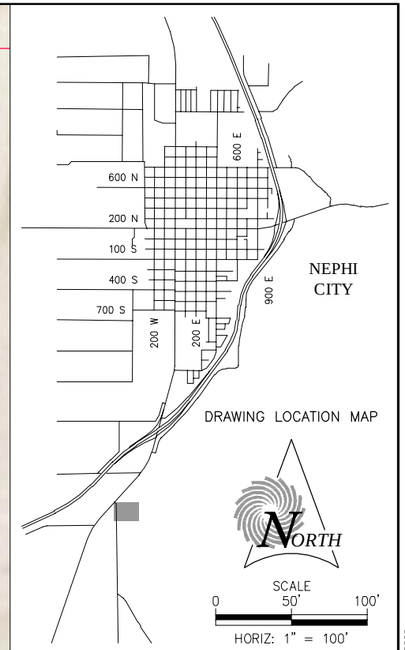
SR-28

INSTALL 16" BEND W/REQ'D

Four Mile Rd

MATCH DWG P-27E

MATCH DWG P-28F



DRAWING LOCATION MAP

LEGEND

NEW CULINARY WATER PIPELINE x"w

EXIST. CULINARY WATER PIPELINE x"w

EXIST. CULINARY WATER PIPELINE TO BE ABANDONED x"w

NEW METER SETTER ASSEMBLY (E D2)

REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)

RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)

NEW FIRE HYDRANT (F D1)

REPLACE EXIST. FIRE HYDRANT (F D1)

RECONNECT EXIST. FIRE HYDRANT (G D1)

NEW GATE VALVE (F D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	JCI	CJC	RWW	159

P-27F

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\nphi-P sheets.DWG Jun 27, 2018 11:29am cchristensen

MATCH DWG P-27D

12"W

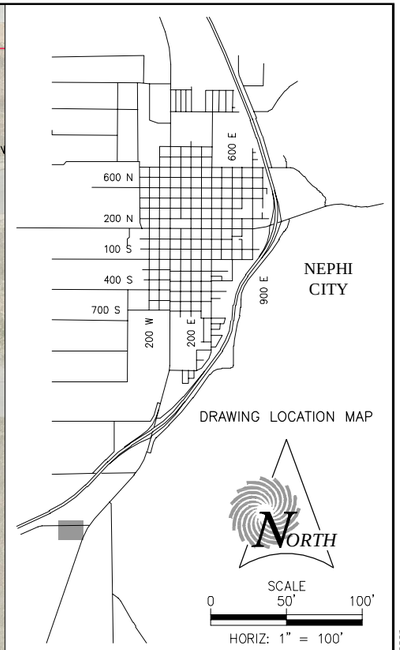
S

Elevator Rd

MATCH DWG P-28E

G

SR-28



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

NO WORK ON THIS SHEET

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2018
PLAN SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	160	P-28D

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\nphi-P sheets.DWG Jun 27, 2018 11:35am cchristensen

MATCH DWG P-27E

MATCH DWG P-28D

MATCH DWG P-28F

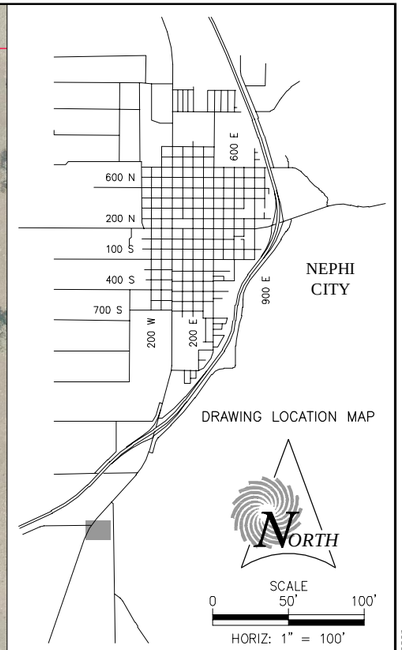
MATCH DWG P-29E

Elevator Rd

SR-28

12"W

G



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

NO WORK ON THIS SHEET

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SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	161	P-28E

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\nphi-P sheets.DWG Jun 27, 2018 11:35am cchristensen

MATCH DWG P-27F

MATCH DWG P-28E

Four Mile Rd

16"W

16"W

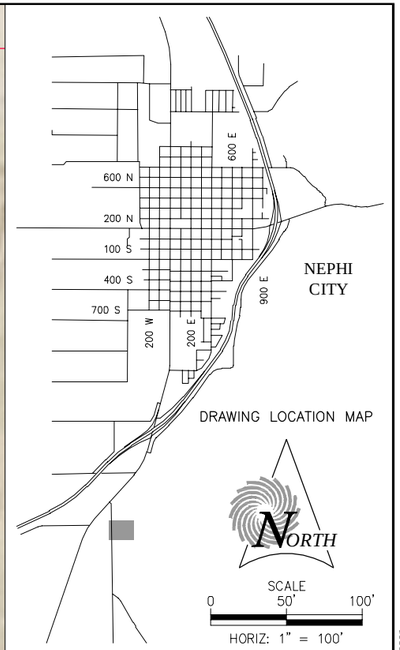
16"W

16"W

16"W

16"W

MATCH DWG P-29F



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE x"w
EXIST. CULINARY WATER PIPELINE x"w
EXIST. CULINARY WATER PIPELINE TO BE ABANDONED x"w
NEW METER SETTER ASSEMBLY (E D2)
REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)
RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)
NEW FIRE HYDRANT (F D1)
REPLACE EXIST. FIRE HYDRANT (F D1)
RECONNECT EXIST. FIRE HYDRANT (G D1)
NEW GATE VALVE (F D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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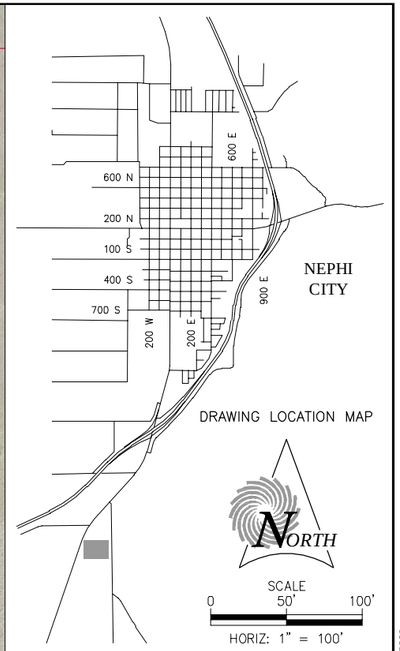
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	162	P-28F

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MATCH DWG P-28E

MATCH DWG P-29F

MATCH DWG P-30E



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

NO WORK ON THIS SHEET

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2018
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SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	163	P-29E

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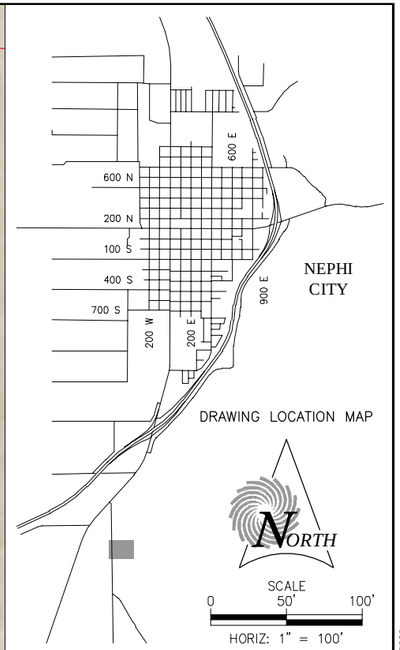
MATCH DWG P-28F

MATCH DWG P-29E

Four Mile Rd

16"W

MATCH DWG P-30F



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

- NEW CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE TO BE ABANDONED — — — x"w — — —
- NEW METER SETTER ASSEMBLY (E D2)
- REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)
- RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)
- NEW FIRE HYDRANT (F D1)
- REPLACE EXIST. FIRE HYDRANT (F D1)
- RECONNECT EXIST. FIRE HYDRANT (G D1)
- NEW GATE VALVE (F D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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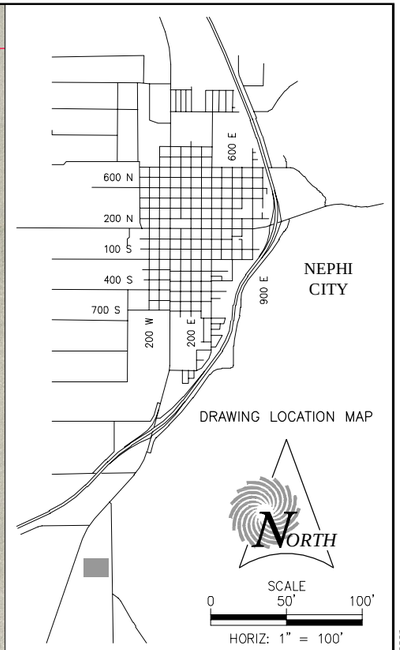
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	164	P-29F

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MATCH DWG P-29E

MATCH DWG P-30F

MATCH DWG P-31E



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

NO WORK ON THIS SHEET

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06/27/2018
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2018
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SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	165	P-30E

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MATCH DWG P-29F

MATCH DWG P-30E

Four Mile Rd

16"W

16"W

16"W

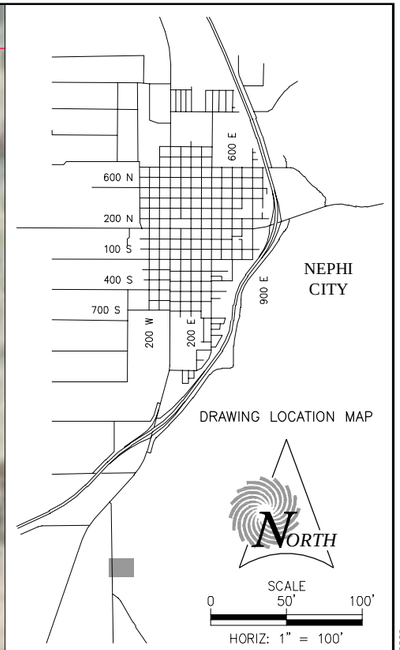
16"W

16"W

16"W

NORTH QUARTER CORNER OF SECTION 29,
TOWNSHIP 13 SOUTH, RANGE 1 EAST,
SALT LAKE MERIDIAN

MATCH DWG P-31F



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE	x"W
EXIST. CULINARY WATER PIPELINE	x"W
EXIST. CULINARY WATER PIPELINE TO BE ABANDONED	x"W
NEW METER SETTER ASSEMBLY (E D2)	
REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)	
RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)	
NEW FIRE HYDRANT (F D1)	
REPLACE EXIST. FIRE HYDRANT (F D1)	
RECONNECT EXIST. FIRE HYDRANT (G D1)	
NEW GATE VALVE (F D2)	

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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06/27/2018
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STATE OF UTAH

REV NO.	COMMENT	DATE
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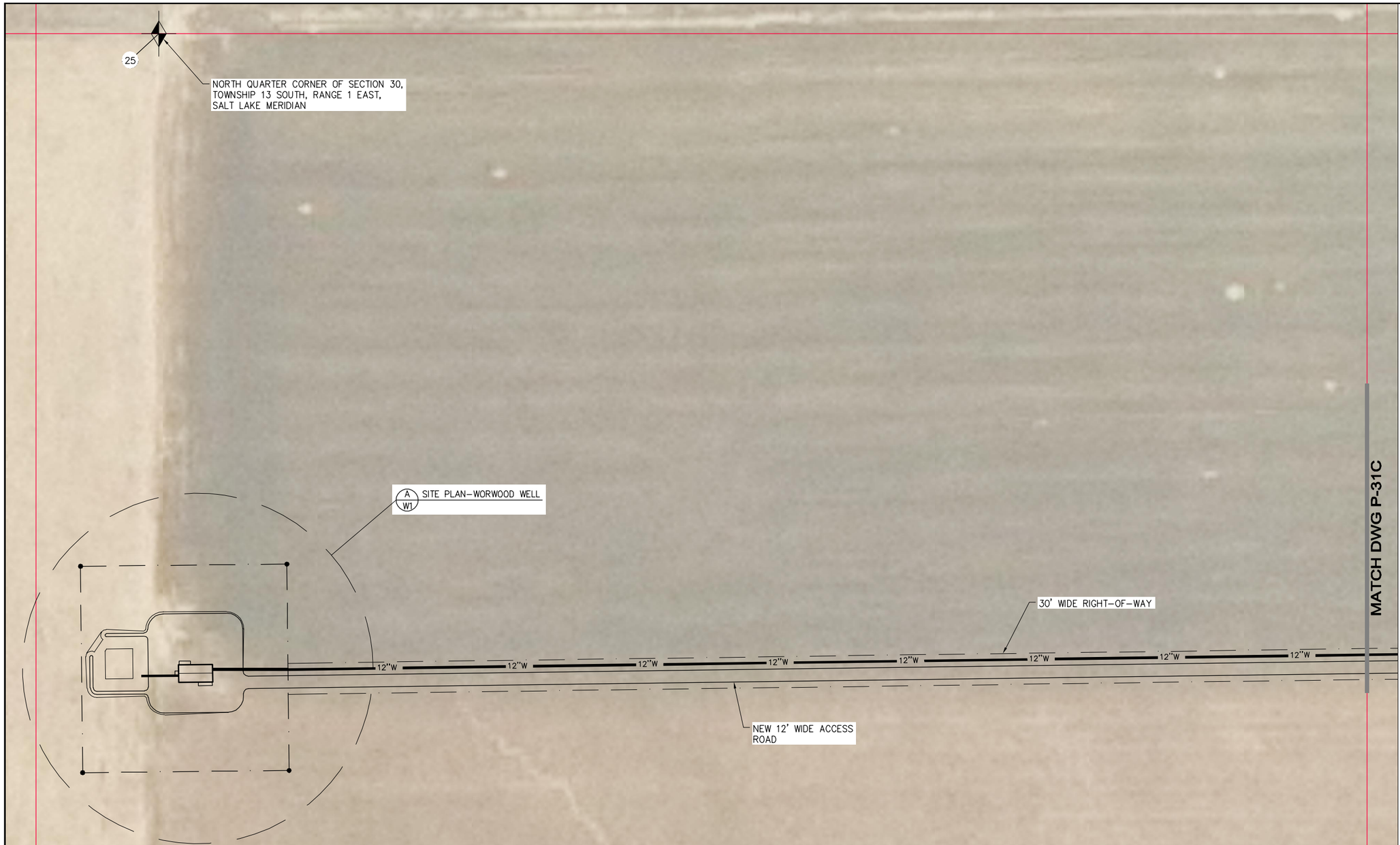
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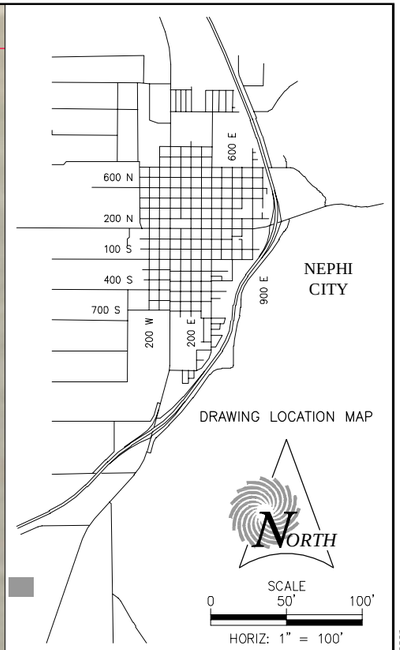
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CULINARY WATER IMPROVEMENTS PROJECT
2018
PLAN SHEET

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05884	JCI	CJC	RWW	166	P-30F

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LEGEND

- NEW CULINARY WATER PIPELINE — x"w
- EXIST. CULINARY WATER PIPELINE — x"w
- EXIST. CULINARY WATER PIPELINE TO BE ABANDONED — x"w
- NEW METER SETTER ASSEMBLY (E D2)
- REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)
- RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)
- NEW FIRE HYDRANT (F D1)
- REPLACE EXIST. FIRE HYDRANT (F D1)
- RECONNECT EXIST. FIRE HYDRANT (G D1)
- NEW GATE VALVE (F D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
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CULINARY WATER IMPROVEMENTS PROJECT
2018
PLAN SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	167	P-31B

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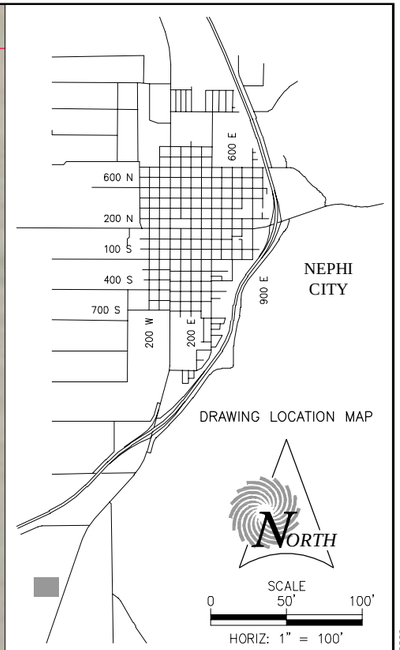
MATCH DWG P-31B

MATCH DWG P-31D

12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W

30' WIDE RIGHT-OF-WAY

NEW 12' WIDE ACCESS ROAD



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE TO BE ABANDONED	x"w
NEW METER SETTER ASSEMBLY (E D2)	
REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)	
RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)	
NEW FIRE HYDRANT (F D1)	
REPLACE EXIST. FIRE HYDRANT (F D1)	
RECONNECT EXIST. FIRE HYDRANT (G D1)	
NEW GATE VALVE (F D2)	

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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2018
PLAN SHEET

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05884	JCI	CJC	RWW	168	P-31C

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NORTHWEST CORNER OF SECTION 29,
TOWNSHIP 13 SOUTH, RANGE 1 EAST,
SALT LAKE MERIDIAN

MATCH DWG P-31C

MATCH DWG P-31E

SR-28

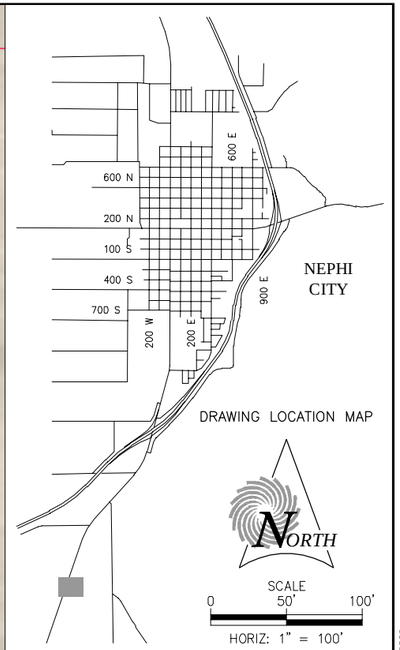
30' WIDE RIGHT-OF-WAY

NEW 12' WIDE ACCESS ROAD

12"W

INSTALL 12' BEND W/REQ'D

20' WIDE RIGHT-OF-WAY



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

- NEW CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE TO BE ABANDONED — — — x"w — — —
- NEW METER SETTER ASSEMBLY (E D2)
- REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)
- RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)
- NEW FIRE HYDRANT (F D1)
- REPLACE EXIST. FIRE HYDRANT (F D1)
- RECONNECT EXIST. FIRE HYDRANT (G D1)
- NEW GATE VALVE (F D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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05884	JCI	CJC	RWW	169	P-31D

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\nphi-P sheets.DWG Jun 27, 2018 11:36am cchristensen

MATCH DWG P-30E

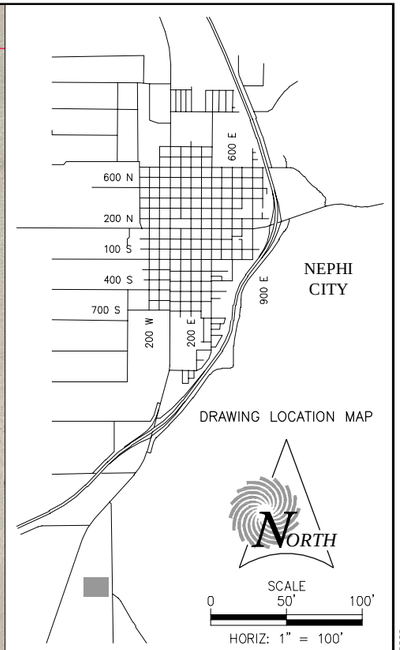
MATCH DWG P-31D

MATCH DWG P-31F

20' WIDE RIGHT-OF-WAY

12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W 12"W

MATCH DWG P-32E



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE TO BE ABANDONED	x"w
NEW METER SETTER ASSEMBLY (E D2)	
REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)	
RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)	
NEW FIRE HYDRANT (F D1)	
REPLACE EXIST. FIRE HYDRANT (F D1)	
RECONNECT EXIST. FIRE HYDRANT (G D1)	
NEW GATE VALVE (F D2)	

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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05884	JCI	CJC	RWW	170	P-31E

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MATCH DWG P-30F

MATCH DWG P-31E

Four Mile Rd

16"W

16"W

16"W

16"W

16"W

16"W

12"W

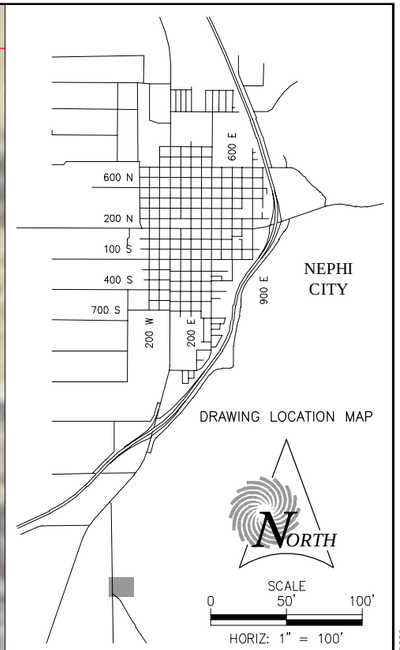
12"W

12"W

INSTALL 12' BEND W/REQ'D

20' WIDE RIGHT-OF-WAY

MATCH DWG P-32F



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE	x"w
EXIST. CULINARY WATER PIPELINE TO BE ABANDONED	x"w
NEW METER SETTER ASSEMBLY (E D2)	
REPLACE EXIST. SERVICE CONNECTION (C D2) (D D2)	
RECONNECT EXIST. SERVICE CONNECTION (A D2) (B D2)	
NEW FIRE HYDRANT (F D1)	
REPLACE EXIST. FIRE HYDRANT (F D1)	
RECONNECT EXIST. FIRE HYDRANT (G D1)	
NEW GATE VALVE (F D2)	

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2018
PLAN SHEET

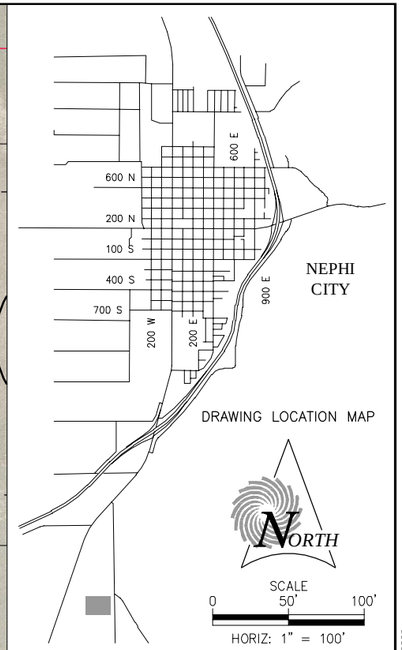
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	171	P-31F

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MATCH DWG P-31E

SITE PLAN– SOUTH TANK (A / SSP1)

MATCH DWG P-32F



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

- NEW CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE — x"w —
- EXIST. CULINARY WATER PIPELINE TO BE ABANDONED — — — x"w — — —
- NEW METER SETTER ASSEMBLY (E / D2)
- REPLACE EXIST. SERVICE CONNECTION (C / D2) (D / D2)
- RECONNECT EXIST. SERVICE CONNECTION (A / D2) (B / D2)
- NEW FIRE HYDRANT (F / D1)
- REPLACE EXIST. FIRE HYDRANT (F / D1)
- RECONNECT EXIST. FIRE HYDRANT (G / D1)
- NEW GATE VALVE (F / D2)

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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2018
PLAN SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	172	P-32E

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MATCH DWG P-31F

20' WIDE RIGHT-OF-WAY

12"W

16"W

16"W

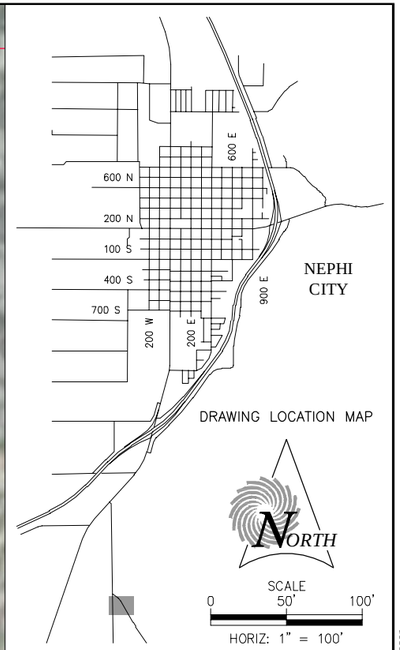
16"W

A TSSP1 SITE PLAN- SOUTH TANK

Four Mile Rd

Old Pinery Rd

MATCH DWG P-32E



DRAWING LOCATION MAP

NORTH

SCALE
0 50' 100'
HORIZ: 1" = 100'

LEGEND

NEW CULINARY WATER PIPELINE x"w

EXIST. CULINARY WATER PIPELINE x"w

EXIST. CULINARY WATER PIPELINE TO BE ABANDONED x"w

NEW METER SETTER ASSEMBLY E D2

REPLACE EXIST. SERVICE CONNECTION C D2 D D2

RECONNECT EXIST. SERVICE CONNECTION A D2 B D2

NEW FIRE HYDRANT F D1

REPLACE EXIST. FIRE HYDRANT F D1

RECONNECT EXIST. FIRE HYDRANT G D1

NEW GATE VALVE F D2

NOTE: SEE DWG G3 FOR COMPLETE LEGEND

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CULINARY WATER IMPROVEMENTS PROJECT
2018
PLAN SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	173	P-32F

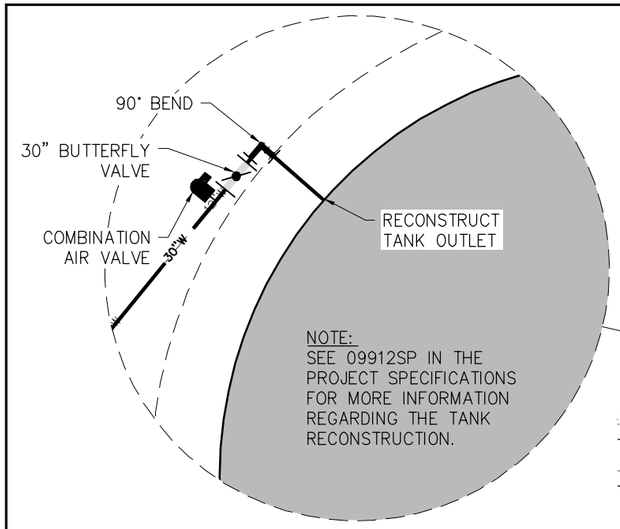
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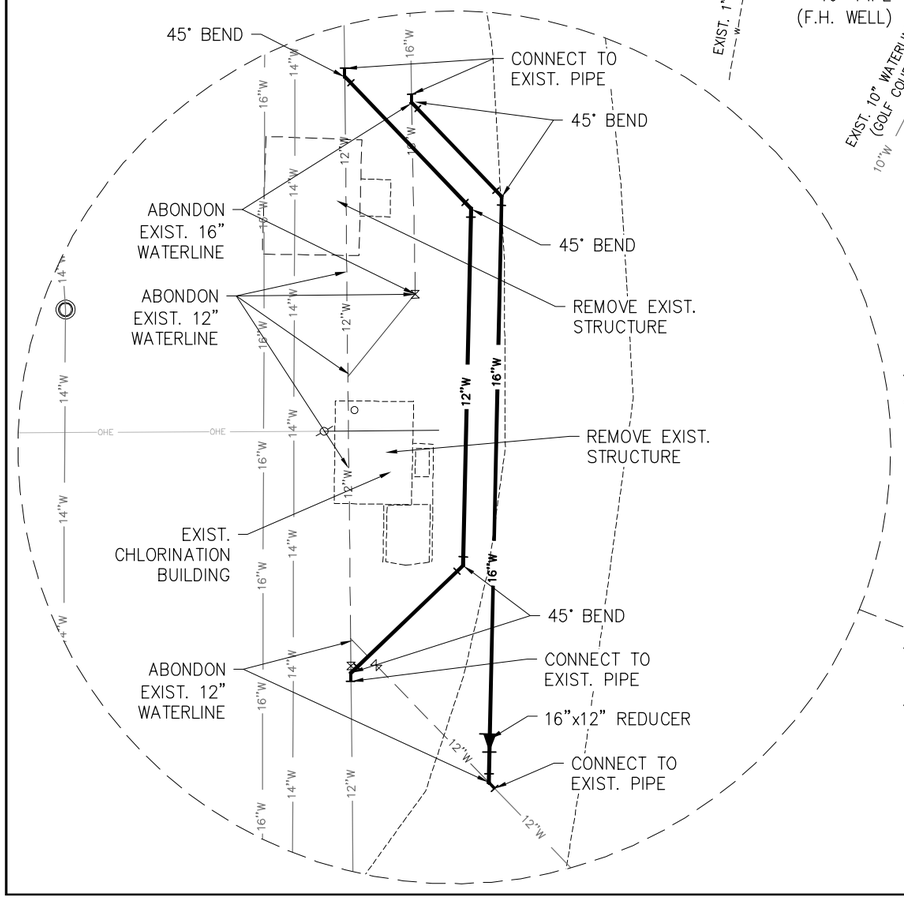
SEE DWG P-10N FOR CONTINUED PIPELINE ARRANGEMENT

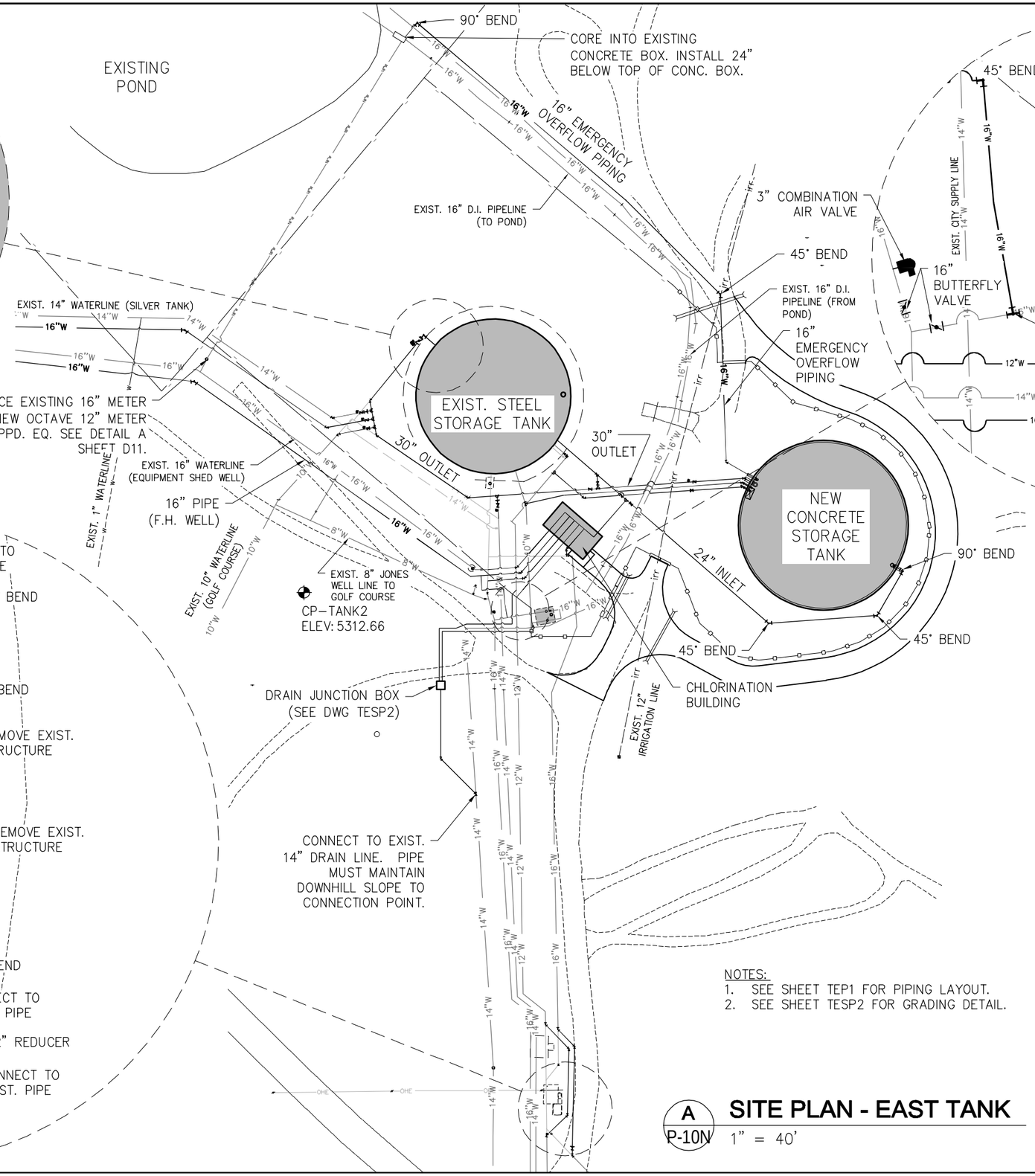
EXIST. STEEL STORAGE TANK

NEW 1.5 MILLION GAL. EAST TANK

12"W 10"W 12"W 10"W 12"W 10"W







NOTES:
1. SEE SHEET TEP1 FOR PIPING LAYOUT.
2. SEE SHEET TESP2 FOR GRADING DETAIL.

A P-10N SITE PLAN - EAST TANK

1" = 40'

NORTH

SCALE
0 40' 80'
HORIZ: 1" = 80'

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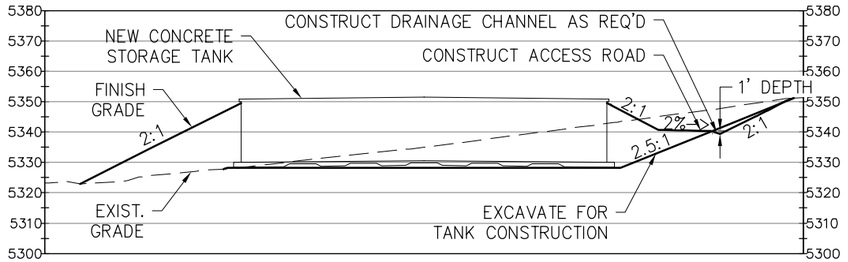
CULINARY WATER IMPROVEMENTS – 2017
EAST 1.5 MILLION GALLON TANK
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	175	TESP1

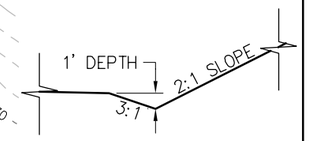
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NORTH

SCALE
0 20' 40'
HORIZ: 1" = 40'



SECTION A–A



SECTION B–B

EXIST. STEEL STORAGE TANK

NEW CONCRETE STORAGE TANK (EFFECTIVE VOLUME 1,506,000 GALLONS) SEE SHEET TE1

50 L.F. OF 15" CULVERT @ 2.0% SLOPE w/ METAL END SECTIONS

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

75 L.F. OF CHAIN LINK FENCE

16' CHAIN LINK GATE

REMOVE 255 L.F. OF CHAIN LINK FENCE

185 L.F. OF CHAIN LINK FENCE

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

CUT 2:1 TYP

REMOVE EXIST. TANK INLET

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

CHLORINATION BUILDING FF ELEV: 5322.0

16' DOUBLE LEAF CHAIN LINK GATE

14' WIDE ACCESS ROAD

20' DOUBLE LEAF CHAIN LINK GATE

4' CHAIN LINK GATE

34 L.F. OF 15" CULVERT w/ METAL END SECTIONS

4' CHAIN LINK GATE

16' WIDE ACCESS ROAD. SEE DETAIL A ON SHEET TE4

CP–TANK2
ELEV: 5312.66

90 L.F. OF CHAIN LINK FENCE

CHAIN LINK FENCE TYP (A D9)

FILL 2:1 TYP

325 L.F. OF CHAIN LINK FENCE

GRADE FINISH GROUND DOWNHILL AWAY FROM BOX

DRAIN JUNCTION BOX (A D10)

40 L.F. OF 15" CULVERT w/ METAL END SECTIONS

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

NOTES:
1. EXCAVATION, BACKFILL, AND COMPACTION FOR THE AREA BENEATH AND ADJACENT TO THE ACCESS ROAD SHALL BE IN ACCORDANCE WITH PROJECT STANDARD SPECIFICATIONS 02200 AND 02202.
2. THE ACCESS ROADS TO THE CHLORINATOR BUILDING AND AROUND THE TANK SHALL BE TREATED WITH 6" OF COMPACTED UNTREATED BASE COURSE, IN ACCORDANCE WITH THE PROJECT STANDARD SPECIFICATIONS.

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CULINARY WATER IMPROVEMENTS – 2017
EAST 1.5 MILLION GALLON TANK
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	176

TESP2

A ~ DETAIL/SECTION - TITLE
NOT TO SCALE

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EQUIPMENT SCHEDULE

NO.	DESCRIPTION	SIZE	REMARKS
1	TEE (MJxMJ)	16"x16"	
2	45° BEND (MJxMJ)	30"	
3	TEE (MJxMJ)	30"x24"	
4	TEE (MJxMJ)	30"x16"	
5	TEE (MJxMJ)	30"x10"	
6	GATE VALVE	10"	
7	TEE (MJxMJ)	24"	
8	WYE (MJxMJ)	24"	
9	COMBINATION AIR VALVE	3"	
10	90° BEND	10"	
11	90° BEND (MJxMJ)	16"	
12	45° BEND (MJxMJ)	16"	
13	GATE VALVE	10"	
14	90° BEND (MJxMJ) & 12"x10" REDUCER	12"	
15	45° BEND (MJxMJ)	14"	
16	45° BEND (MJxMJ)	12"	
17	BUTTERFLY VALVE	14"	
18	BUTTERFLY VALVE	30"	
19	BUTTERFLY VALVE	24"	
20	BUTTERFLY VALVE	16"	
21	TEE (MJxMJ)	10"x10"	
22	45° BEND (MJxMJ)	10"	
23	CONNECT TO EXIST. PIPE		VERIFY EXIST. PIPE SIZE AND TYPE
24	90° BEND	12"	
25	22.5° BEND	12"	

NORTH

SCALE
0 10' 20'
HORIZ: 1" = 20'

EXIST. STEEL STORAGE TANK

NOTE:
SEE 09912SP IN THE PROJECT SPECIFICATIONS FOR MORE INFORMATION REGARDING THE TANK RECONSTRUCTION.

ABANDON EXIST. 12" WATERLINE
ABANDON EXIST. 14" WATERLINE
10" WATER PIPE
EXIST. 10" WATERLINE (GOLF COURSE)
ABANDON OR REMOVE EXIST. 14" WATERLINE
ABANDON EXIST. 14" WATERLINE (SILVER TANK)
30" OUTLET
CONSTRUCT NEW TANK INLET
EXISTING 10" TANK DRAIN
ABANDON TANK INLET
EXISTING TANK OVERFLOW
REMOVE EXIST. TANK INLET
EXIST. 12" TANK DRAIN LINE
16" EMERGENCY OVERFLOW PIPING
30" OUTLET
10" OVERFLOW PIPING
10" DRAIN PIPING
EXIST. 8" EQUIPMENT SHED WELL LINE TO GOLF COURSE
EXIST. 16" WATERLINE (EQUIPMENT SHED WELL)
EXIST. GRAVEL ROAD
16" WATER PIPE (F.H. WELL)
EXIST. 8" JONES WELL LINE TO GOLF COURSE
EQUIP. SHED
FIRE HOUSE
JONES WELL
MARSH SPRINGS
BRADLEY SPRINGS
24" INLET
NEW CONCRETE STORAGE TANK
CHLORINATION BUILDING (SEE SHEET C1)
EXIST. 16" D.I. PIPELINE (TO POND)
EXIST. 16" D.I. PIPELINE (FROM POND)
EXIST. 12" IRRIGATION LINE
ABANDON EXIST. 16" WATERLINE
ABANDON EXIST. 10" WATERLINE
EXIST. AIR VENT
EXIST. METER VAULT
BYPASS & CAP CONNECTION
REPLACE METER AND CHECK VALVE ON 16" LINE. REPLACE METER ON 10" LINE. SEE DETAIL B SHEET D11.
EXIST. DRAIN LINE TO CREEK
EXIST. 16" W.L. (JONES WELL)
EX. 14" W.L. (CITY SUPPLY)
EX. 12" W.L. (MARSH SPRING)
EX. 16" WATERLINE (BRADLEY SPRING)
ABANDON EXIST. 16" WATERLINE
EXIST. 10" OVERFLOW LINE

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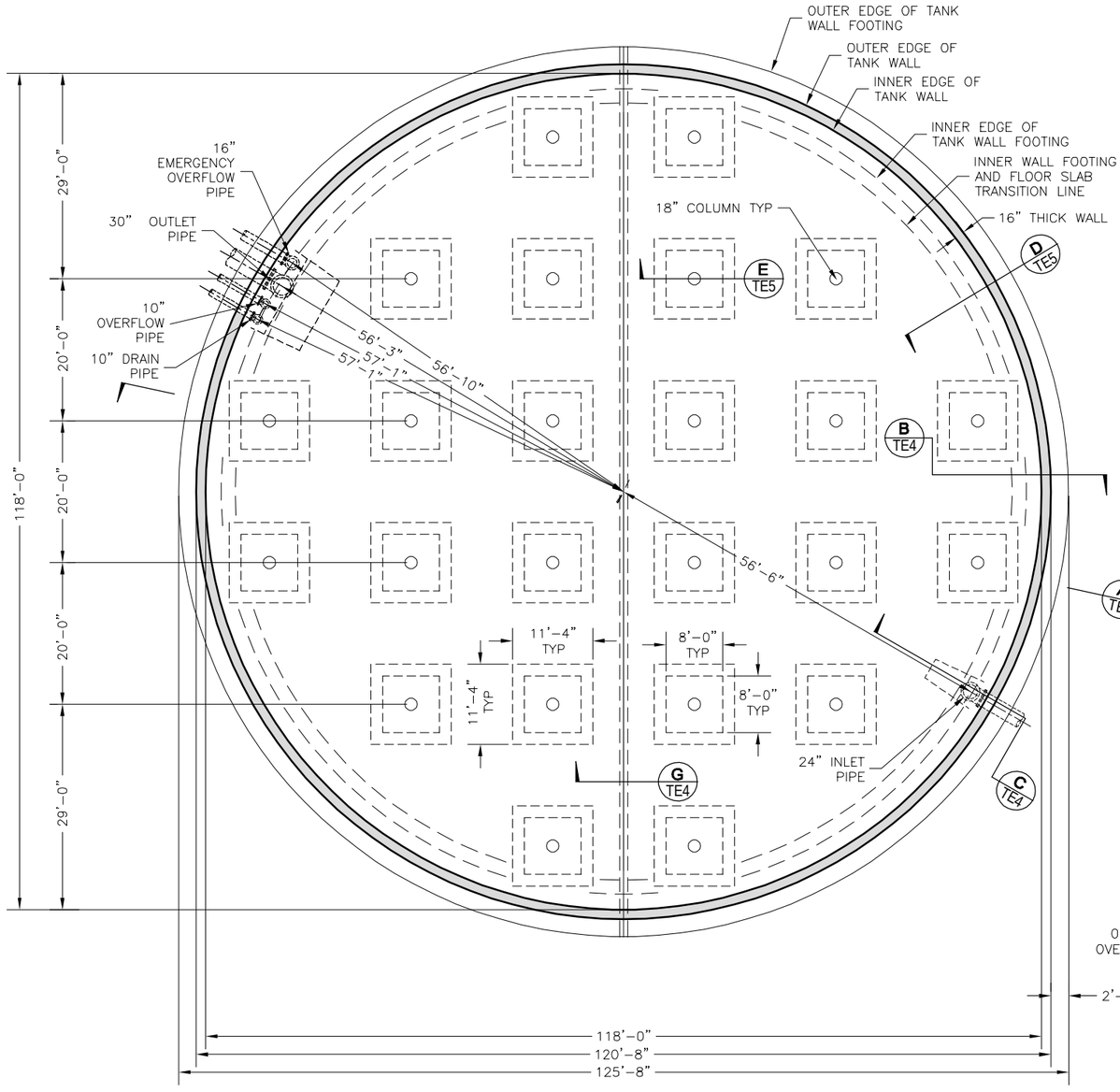
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CULINARY WATER IMPROVEMENTS – 2017
EAST 1.5 MILLION GALLON TANK
PIPING LAYOUT

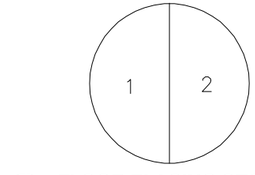
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	177	TEP1

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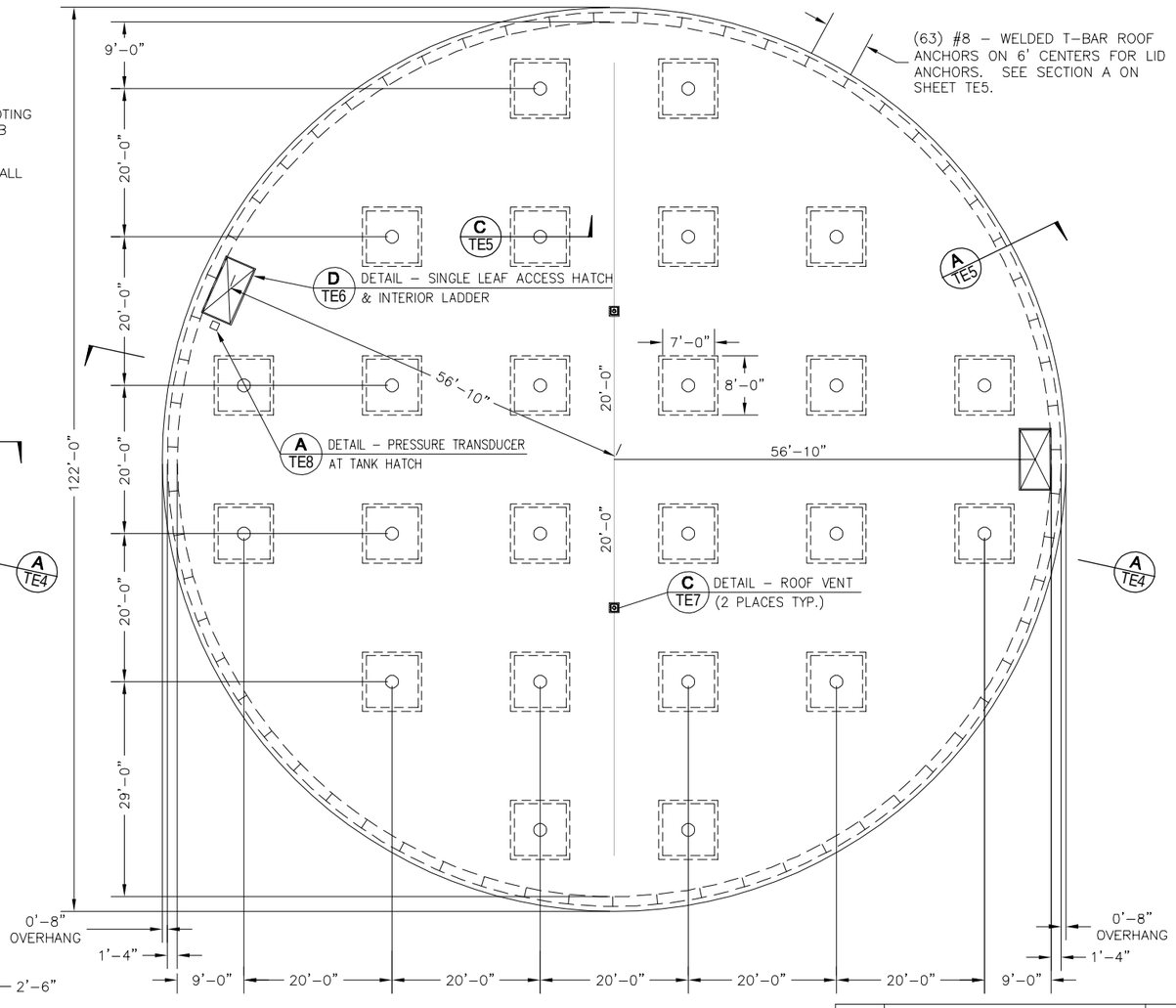


A PLAN - TANK FLOOR
NOT TO SCALE

NOTE:
TANK FLOOR MAY BE CONSTRUCTED IN 1 OR 2 SEPARATE SECTIONS. IF POURED IN 2 SECTIONS USE DETAIL G/TE4.



C FLOOR PLACING SEQUENCE



B PLAN - TANK ROOF
NOT TO SCALE

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6/27/18
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STEVEN M. HANSEN
STATE OF UTAH

REV NO.	COMMENT	DATE
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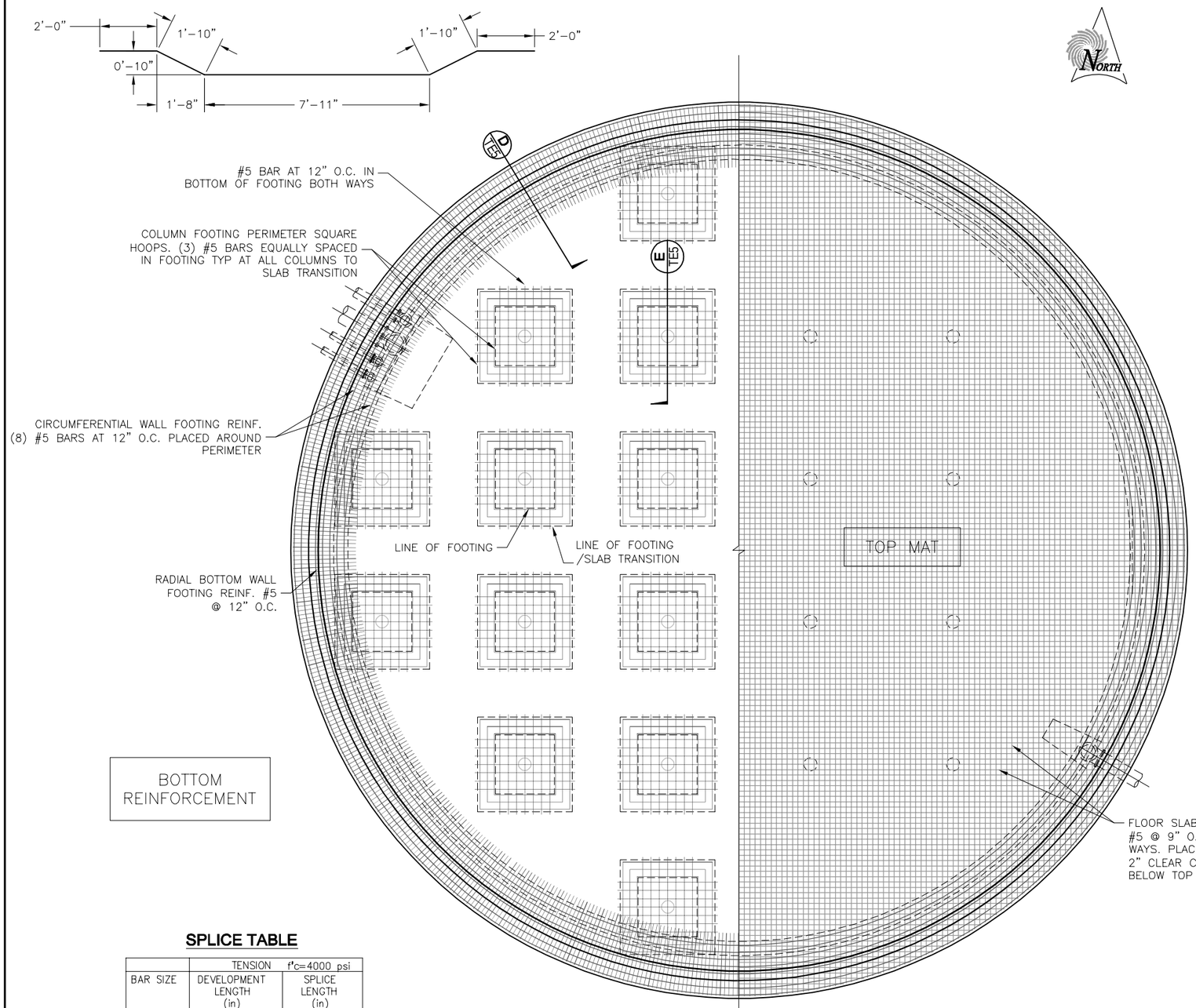
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CULINARY WATER IMPROVEMENTS – 2017
EAST 1.5 MILLION GALLON TANK
TANK FLOOR & ROOF PLAN

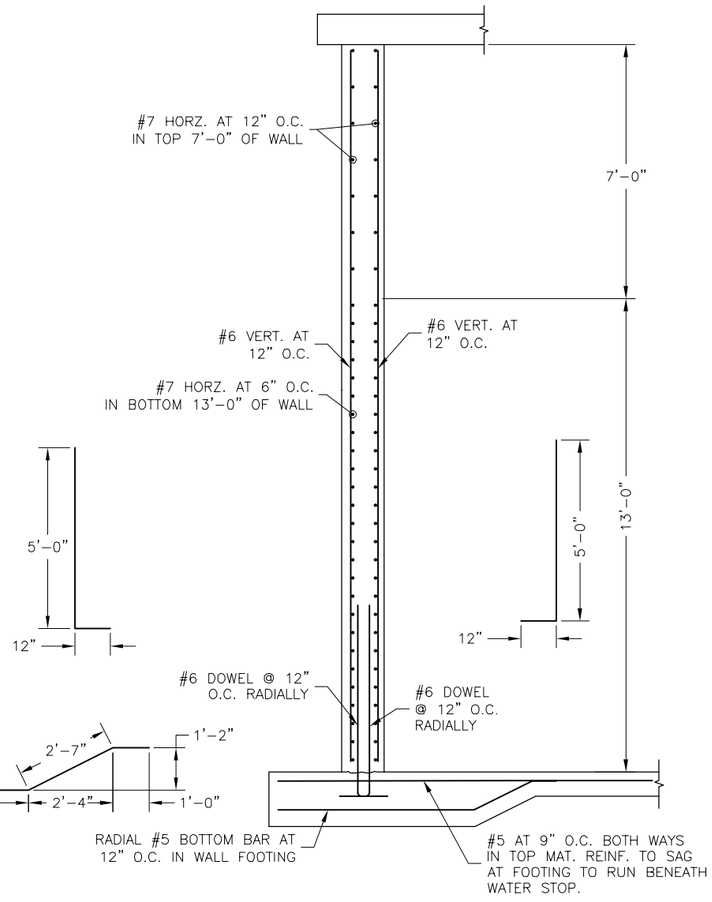
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	178	TE1

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BOTTOM REINFORCEMENT

A ~ PLAN - FLOOR REINFORCEMENT
NOT TO SCALE



B ~ PLAN - WALL REINFORCEMENT SCEMATIC
NOT TO SCALE

SPLICE TABLE

	TENSION	f'c=4000 psi
BAR SIZE	DEVELOPMENT LENGTH (in)	SPLICE LENGTH (in)
4	25	32
5	32	40
6	37	48
7	54	70

SPLICE TABLE NOTES:

1- THE VALUES GIVEN IN THE TABLE ARE MINIMUM ALLOWABLE VALUES AND SHALL GOVERN AS NECESSARY.

2- ALL SPLICES SHALL BE CLASS B SPLICES AND CONFORM TO ACI 318-14

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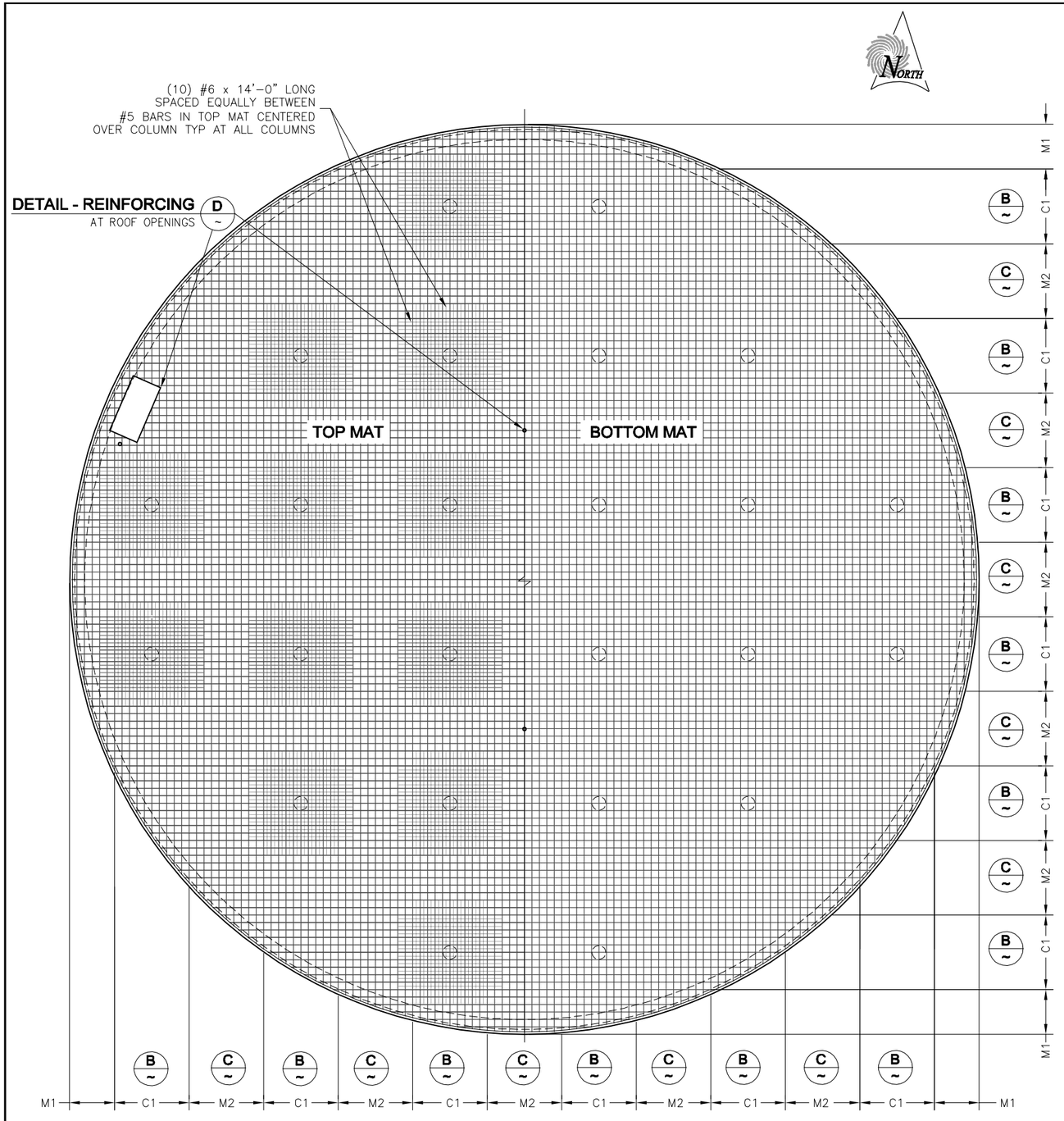
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CULINARY WATER IMPROVEMENTS - 2017
EAST 1.5 MILLION GALLON TANK
TANK FLOOR & WALL REINFORCEMENT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	179	TE2

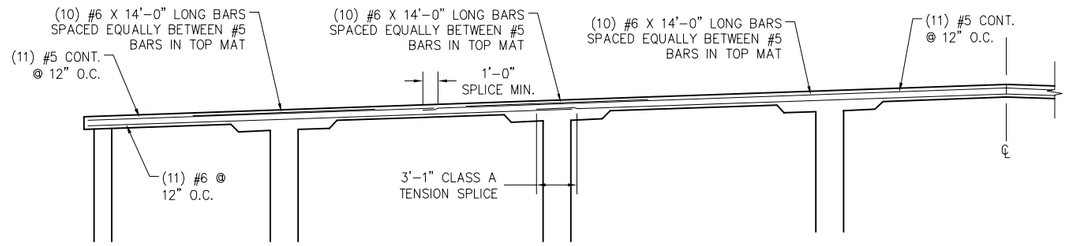
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A PLAN - ROOF REINFORCEMENT LAYOUT
NOT TO SCALE

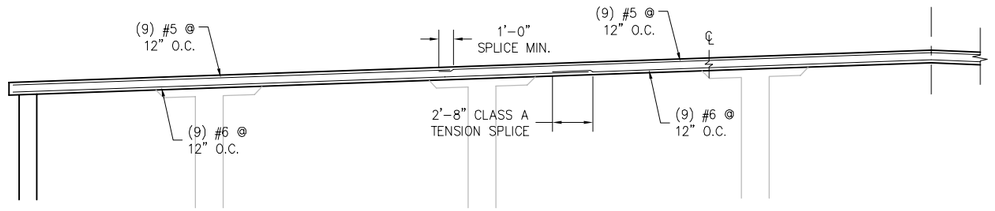
REINFORCEMENT TABLE

SYMBOL	DESIGNATION	WIDTH	TOP MAT REINF.	BOTTOM MAT REINF.
M1	MIDDLE STRIP 1	6'-0"	(7) #5 EVENLY SPACED	(7) #6 EVENLY SPACED
M2	MIDDLE STRIP 2	10'-0"	(9) #5 EVENLY SPACED @ 12" O.C.	(9) #6 @ 12" O.C.
C1	COLUMN STRIP 1	10'-0"	(11) #5 @ 12" O.C. AND (10) #6 X 14'-0" LONG BETWEEN #5 BARS AT COLUMN	(11) #6 @ 12" O.C.



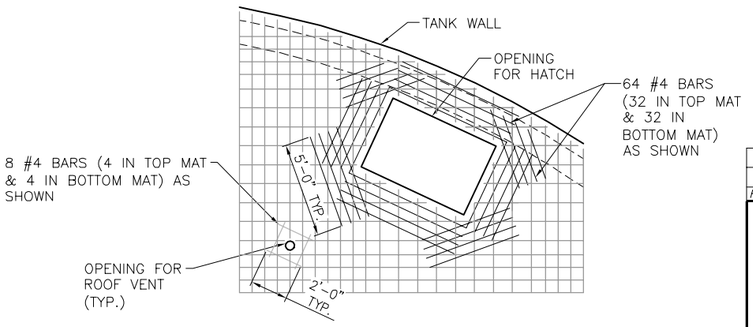
NOTE: SPLICE NOT REQUIRED IF CONTINUOUS BAR IS USED

B SECTION - COLUMN STRIP REINFORCEMENT
NOT TO SCALE



NOTE: SPLICE NOT REQUIRED IF CONTINUOUS BAR IS USED

C SECTION - MIDDLE STRIP REINFORCEMENT
NOT TO SCALE



D DETAIL - REINFORCING AT ROOF OPENINGS
NOT TO SCALE

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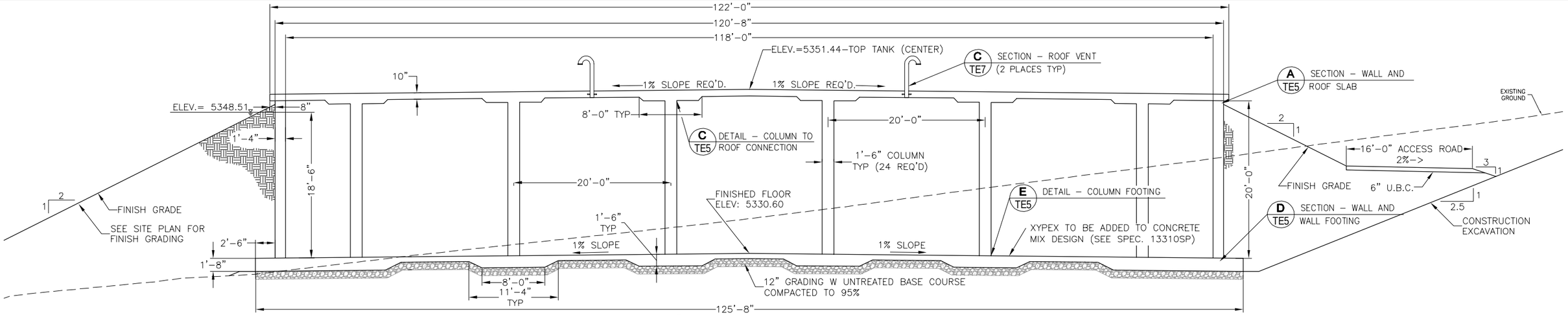
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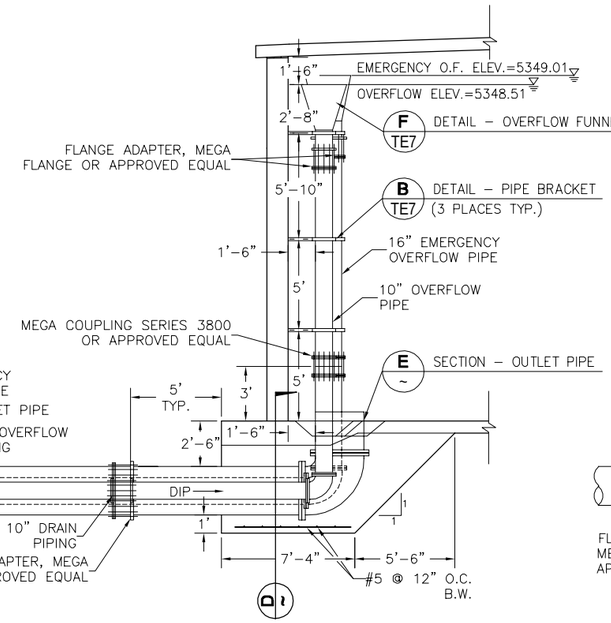
EAST 1.5 MILLION GALLON TANK
TANK ROOF REINFORCEMENT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	180	TE3

P:\Nephi\05884 Nephi Culinary Water Improvements Project - 2017\Design\dwg\WATER TANK\East Tank\NEPHI ETANK-T2-T3 T5 T7.dwg Jun 27, 2018 8:39am cchristensen

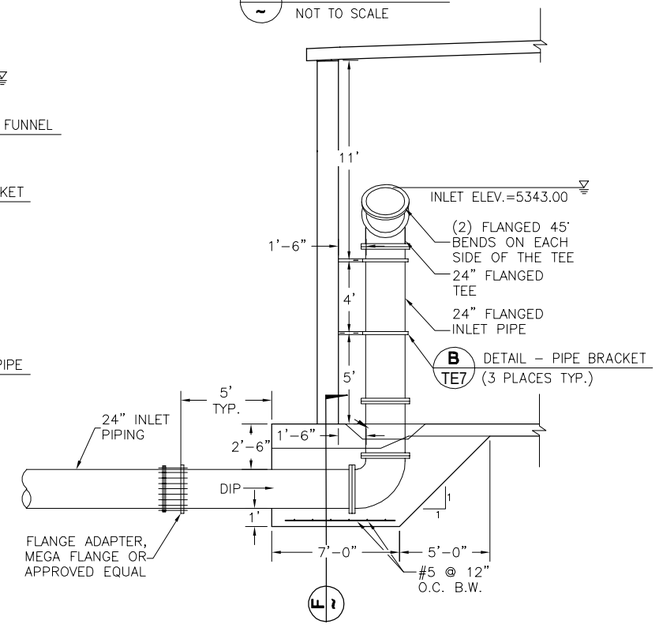


A TANK PROFILE
NOT TO SCALE

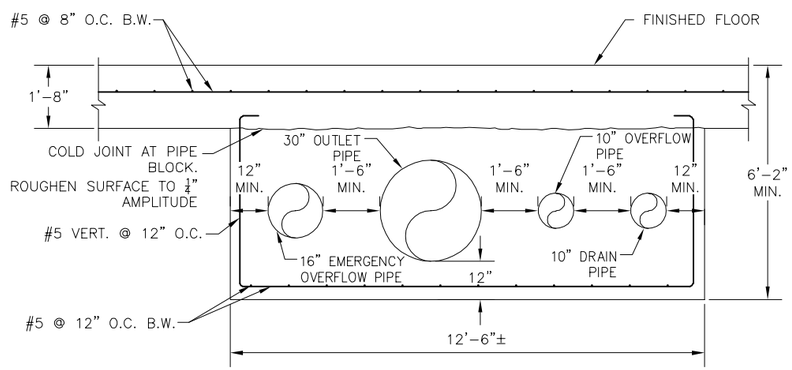


B SECTION - OUTLET OVERFLOW AND DRAIN
NOT TO SCALE (REINFORCING NOT SHOWN FOR CLARITY)

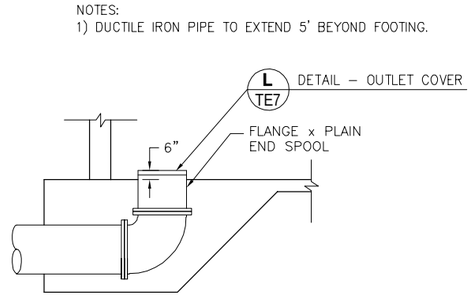
NOTES:
1) DUCTILE IRON PIPE TO EXTEND 5' BEYOND FOOTING.



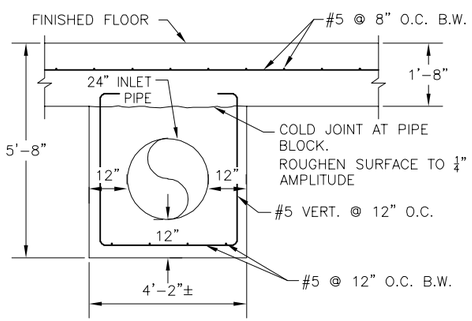
C SECTION - INLET
NOT TO SCALE (REINFORCING NOT SHOWN FOR CLARITY)



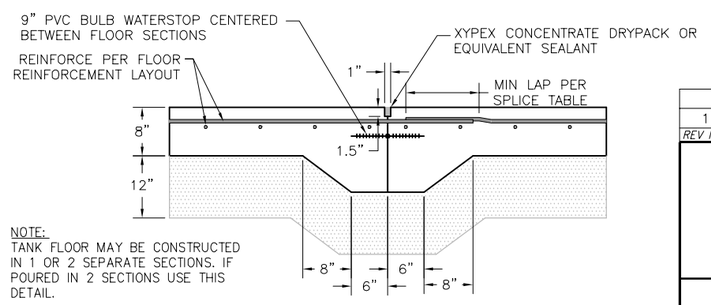
D SECTION - OUTLET DRAIN AND OVERFLOW PIPES
NOT TO SCALE



E SECTION - OUTLET PIPE
NOT TO SCALE



F SECTION - INLET PIPE
NOT TO SCALE



NOTE:
TANK FLOOR MAY BE CONSTRUCTED IN 1 OR 2 SEPARATE SECTIONS. IF POURED IN 2 SECTIONS USE THIS DETAIL.

G SECTION - CONSTRUCTION JOINT AT FLOOR
NOT TO SCALE

PROFESSIONAL STRUCTURAL ENGINEER
6/27/18
No. 5048199-2203
STEVEN M. HANSEN
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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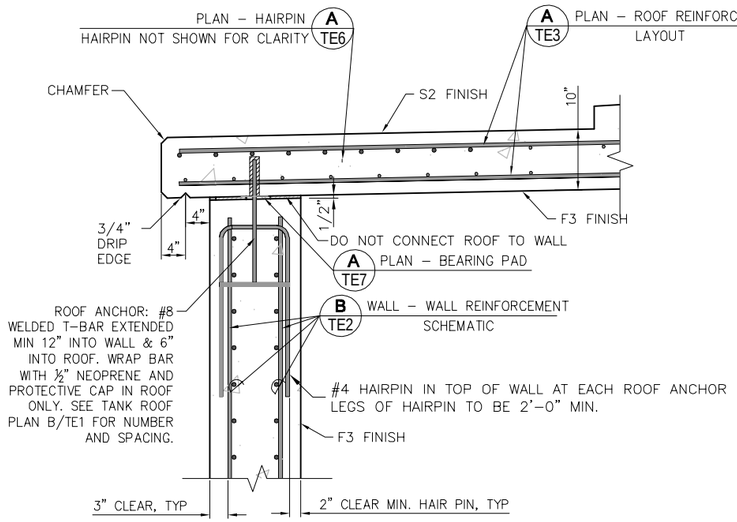
CULINARY WATER IMPROVEMENTS - 2017

EAST 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

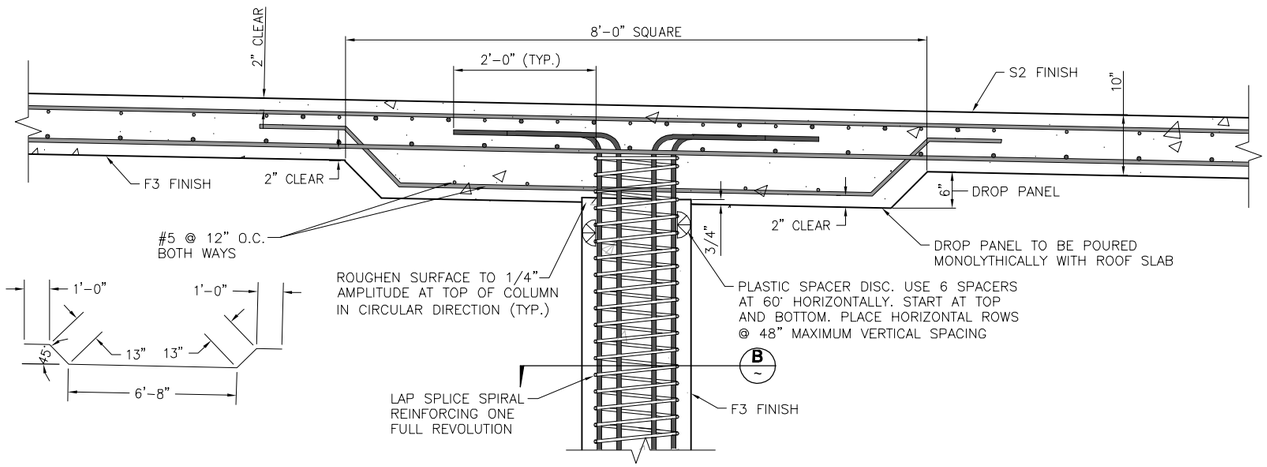
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	181

TE4

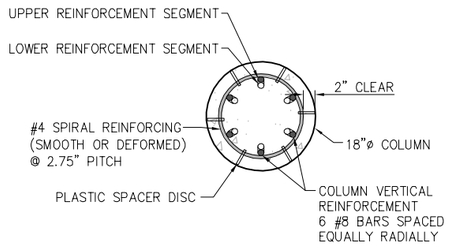
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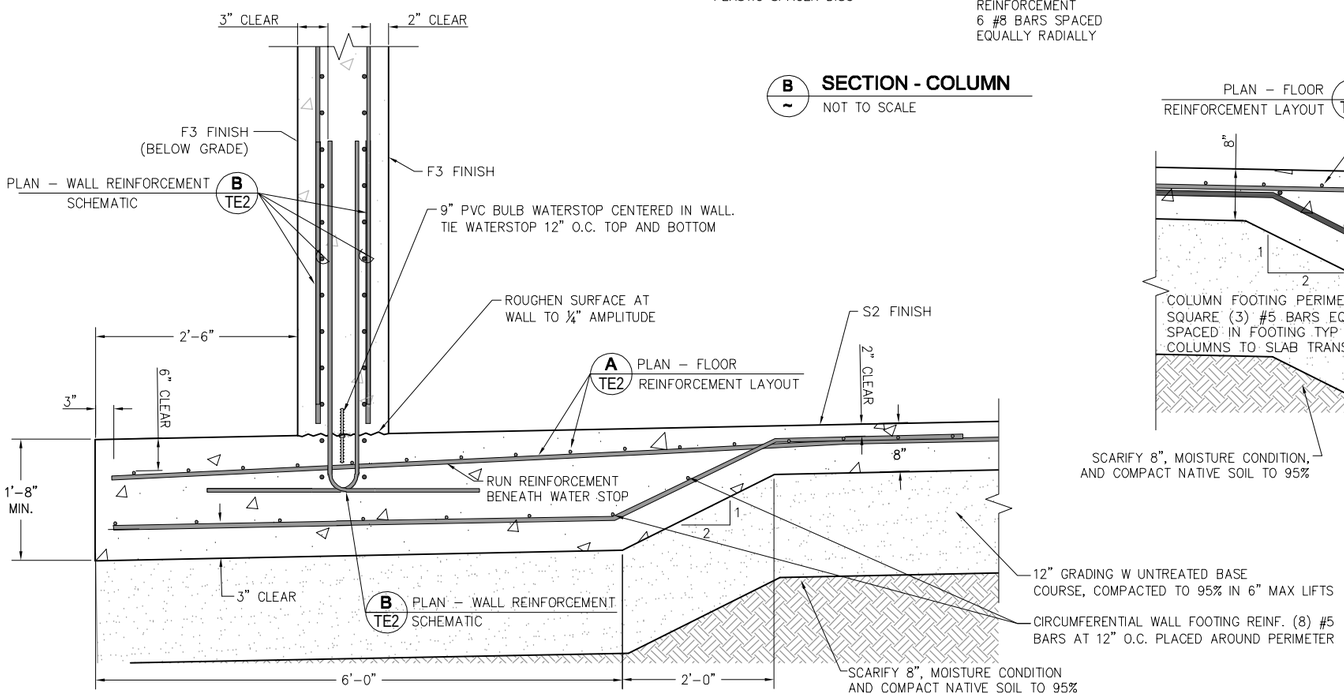
A ~ SECTION - WALL & ROOF SLAB
NOT TO SCALE



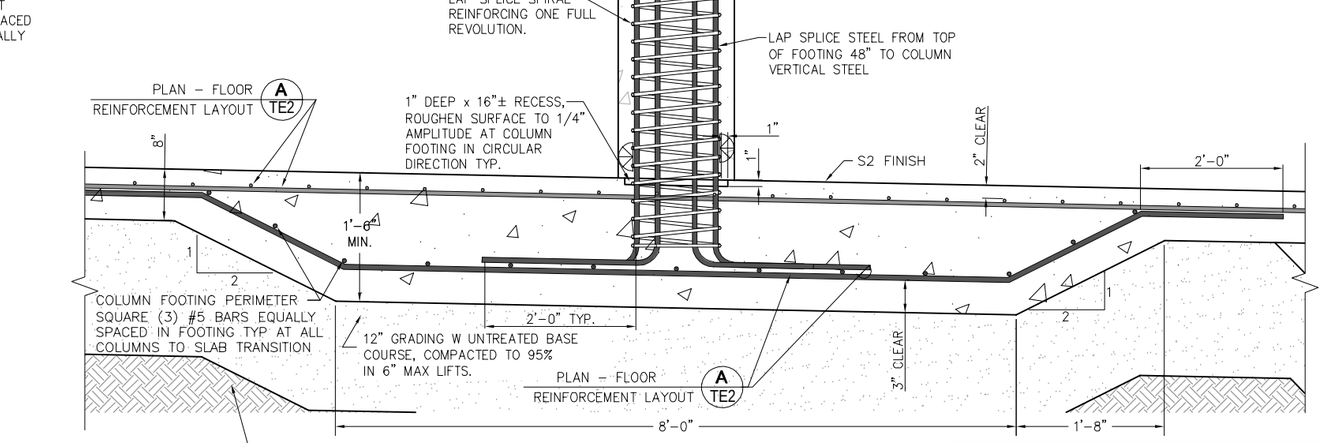
C ~ SECTION - COLUMN TO ROOF CONNECTION
NOT TO SCALE



B ~ SECTION - COLUMN
NOT TO SCALE



D ~ SECTION - WALL & WALL FOOTING
NOT TO SCALE



E ~ SECTION - COLUMN FOOTING
NOT TO SCALE

REV NO.	COMMENT	DATE
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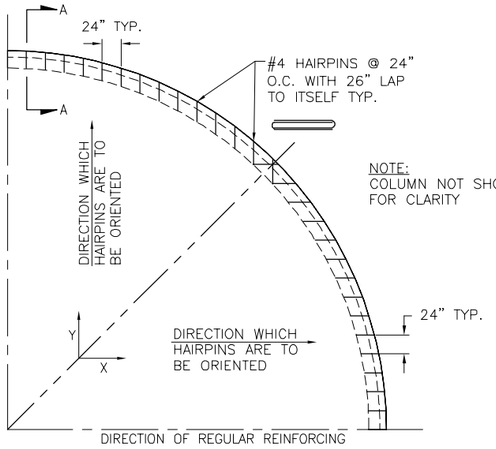
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CULINARY WATER IMPROVEMENTS – 2017

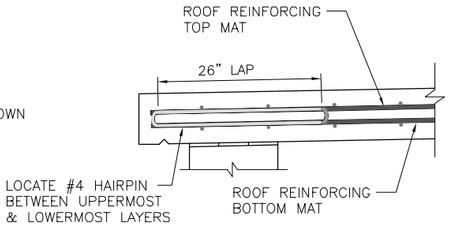
EAST 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	182	TE5

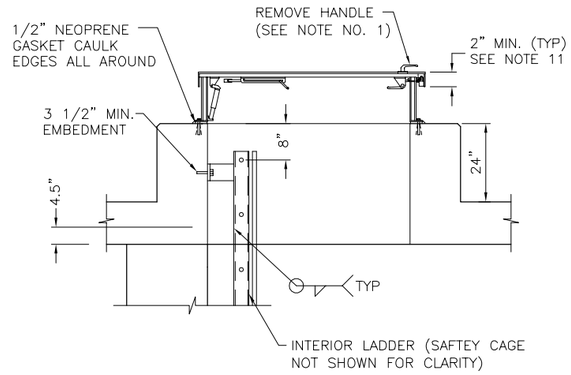
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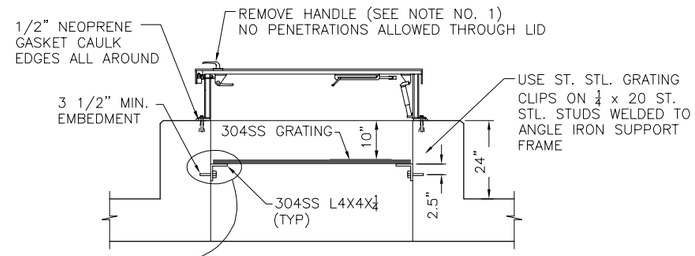
A ~ **PLAN - HAIRPIN ORIENTATION**
NOT TO SCALE



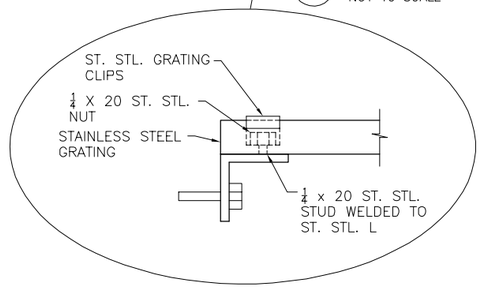
SECTION-AA

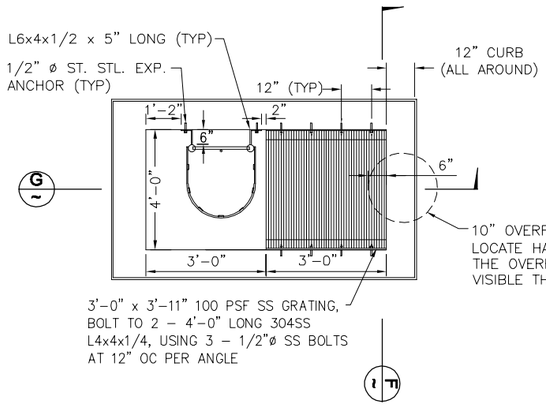


B ~ **SECTION - SINGLE LEAF ACCESS HATCH**
NOT TO SCALE

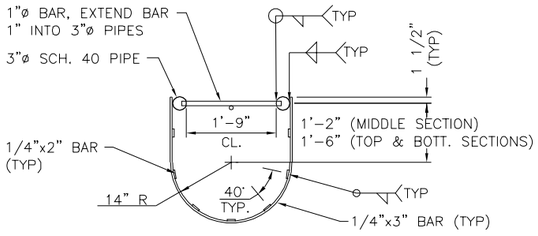


C ~ **SECTION - ACCESS HATCH GRATING**
NOT TO SCALE

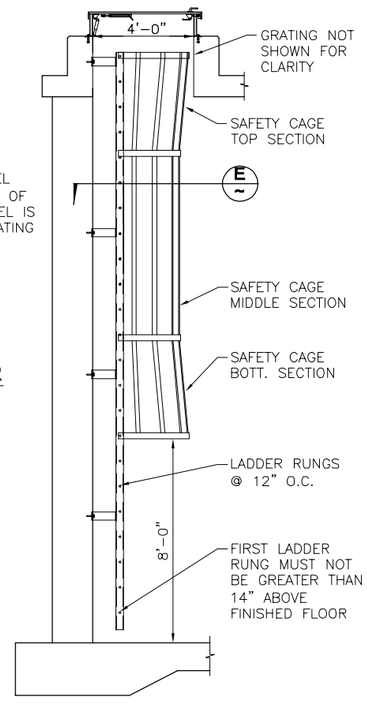




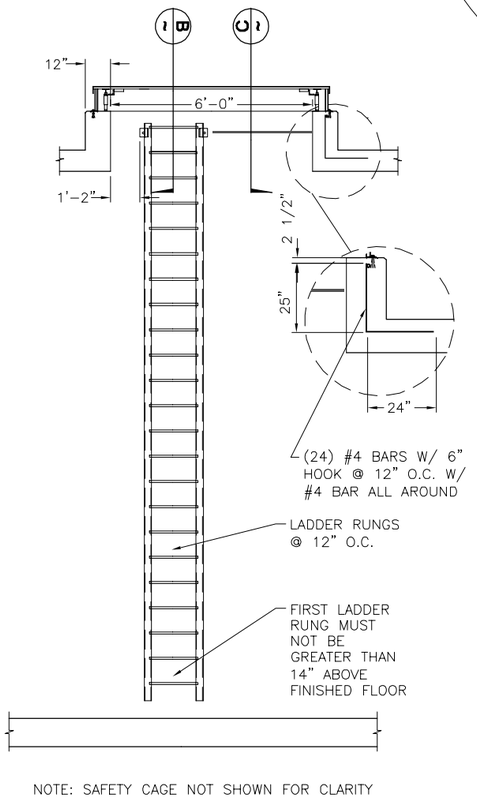
D ~ **DETAIL-SINGLE LEAF ACCESS HATCH & INTERIOR LADDER**
NO SCALE



E ~ **SECTION - SAFETY CAGE**
NOT TO SCALE



F ~ **SECTION - INTERIOR LADDER**
NOT TO SCALE



NOTE: SAFETY CAGE NOT SHOWN FOR CLARITY

G ~ **SECTION - INTERIOR LADDER**
NOT TO SCALE

ROOF HATCH & LADDER NOTES:

1. ROOF HATCH SHALL BE 6'x4' 'BILCO' HATCH OR APPD. EQ. HINGED ON THE 6'-0" SIDE, MODIFIED TO OMIT INTERIOR AND EXTERIOR HANDLES, AND PROVIDED W/ CONCEALED PADLOCK HASP. ALL ST. STL. HARDWARE AND FULLY ENCLOSED CURB.
2. ROOF HATCH TO BE MANUFACTURED OF ALUMINUM.
3. ALL LADDER MATERIAL FOR PIPE SIDE RAILS, RUNGS, BRACKETS, AND BASE PLATES TO BE 304 STAINLESS STEEL.
4. LADDER RUNGS TO BE SOLID RODS.
5. ALL WELDS TO BE 1/4" MIN.
6. ALL ALUM. IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING OR EPOXY PAINT. (NSF)
7. USE ST. STL. 316 FOR ALL BOLTS UNLESS NOTED OTHERWISE.
8. WHERE ST. STL. BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
9. GRATING SHALL BE 304 STAINLESS STEEL.
10. GRATING SHALL BE REMOVABLE TO ALLOW DIVER ACCESS.
11. DOWN TURN ON HATCH LID SHALL BE 2" MINIMUM ALL AROUND.

PROFESSIONAL STRUCTURAL ENGINEER
6/27/18
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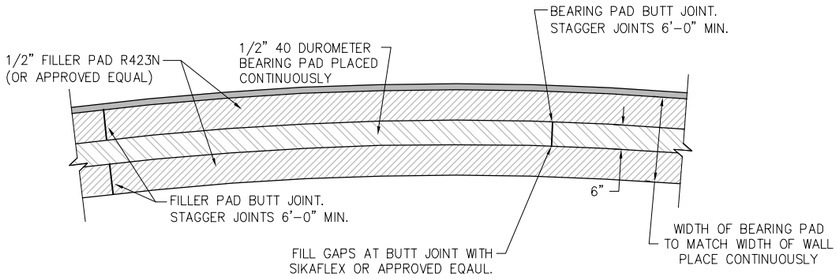
CULINARY WATER IMPROVEMENTS - 2017

EAST 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

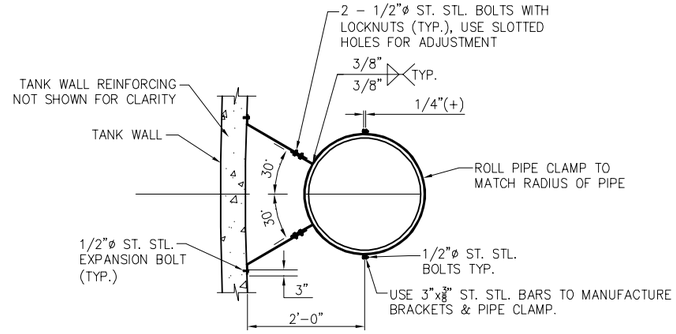
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	183

TE6

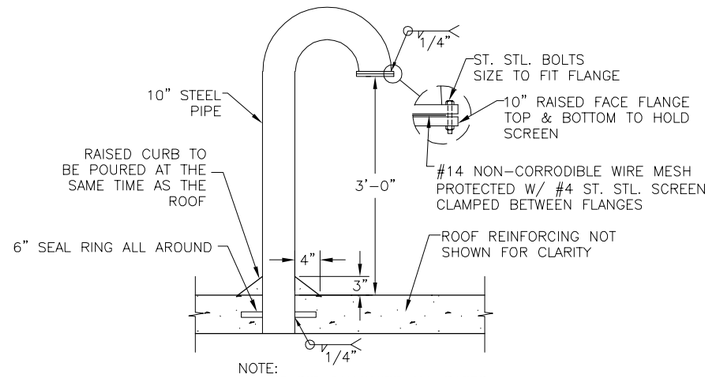
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A DETAIL - BEARING PAD
NOT TO SCALE

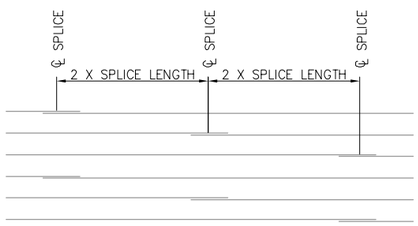


B DETAIL - PIPE BRACKET
NOT TO SCALE



NOTE:
1. HOT DIP GALVANIZE ALL PARTS EXCEPT SCREEN & BOLTS AFTER WELDING COMPLETED.

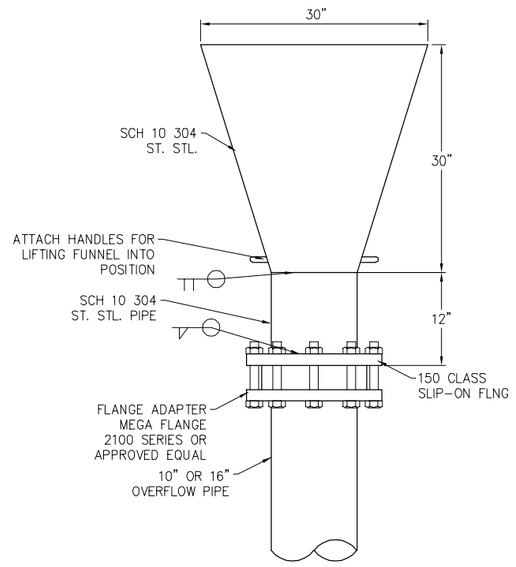
C DETAIL-ROOF VENT
NOT TO SCALE



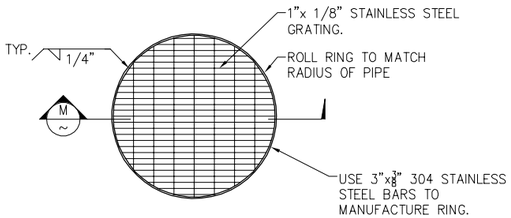
E DETAIL - STAGGERING OF BAR SPLICES
NOT TO SCALE

BAR SPLICE NOTE:

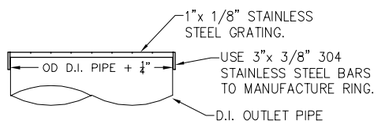
1– BAR SPLICES IN THE TANK WALLS & FLOOR SHALL BE STAGGERED ACCORDING TO THE SEPARATION SHOWN.



F DETAIL - OVERFLOW FUNNEL
NOT TO SCALE



L DETAIL - OUTLET COVER
NOT TO SCALE



M SECTION - OUTLET COVER
NOT TO SCALE

PROFESSIONAL STRUCTURAL ENGINEER
6/27/18
No. 5048199-2203
STEVEN M.
HANSEN
STATE OF UTAH

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CULINARY WATER IMPROVEMENTS – 2017

EAST 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	184	TE7

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NOTE:
SEE PLAN SHEET P-32F.

COUNTY ROAD

10 L.F. OF CHAIN LINK FENCE

4' CHAIN LINK GATE

6" OF U.B.C.

20' DOUBLE LEAF CHAIN LINK GATE

RP-TANK1
ELEV: 5349.99
MAG NAIL

4' CHAIN LINK GATE

10 L.F. OF CHAIN LINK FENCE

16" OUTLET

156 L.F. OF CHAIN LINK FENCE

12" INLET

12" INLET

FL ELEV=5331.10

FL ELEV=5331.58

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

12" INLET

16" OUTLET

CONSTRUCT WITH CONTINUAL DOWN HILL SLOPE

FL ELEV=5331.80

16" OVERFLOW

8" DRAIN

NEW CONCRETE STORAGE TANK (EFFECTIVE VOLUME 1,506,000 GALLONS)

300 L.F. OF CHAIN LINK FENCE

CONSTRUCT DRAINAGE CHANNEL AS REQ'D

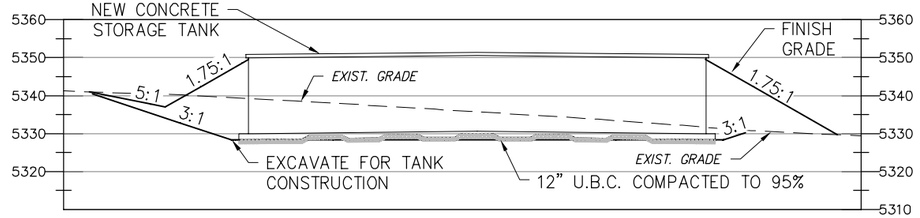
300 L.F. OF CHAIN LINK FENCE

CHAIN LINK FENCE TYP (A D9)

B D4 OVERFLOW DISCHARGE TYP

FILL 1.75:1 TYP

200 L.F. OF CHAIN LINK FENCE



EQUIPMENT SCHEDULE

NO.	DESCRIPTION	SIZE	REMARKS
1	GATE VALVE	8"	
2	90° BEND (MJxMJ)	8"	
3	TEE (MJxMJ)	16"x8"	
4	BUTTERFLY VALVE	12"	
5	COMBINATION AIR VALVE	3"	
6	45° BEND (MJxMJ)	16"	
7	90° BEND (MJxMJ)	16"	
8	45° BEND (MJxMJ)	8"	
9	BUTTERFLY VALVE	16"	
10	90° BEND (MJxMJ)	12"	
11	TEE (MJxMJ)	12"x12"	
12	TEE (MJxMJ)	16"x12"	

NORTH

SCALE
0 15' 30'
HORIZ: 1" = 30'

A P-32F SITE PLAN - SOUTH TANK
1" = 30'

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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No. 375477
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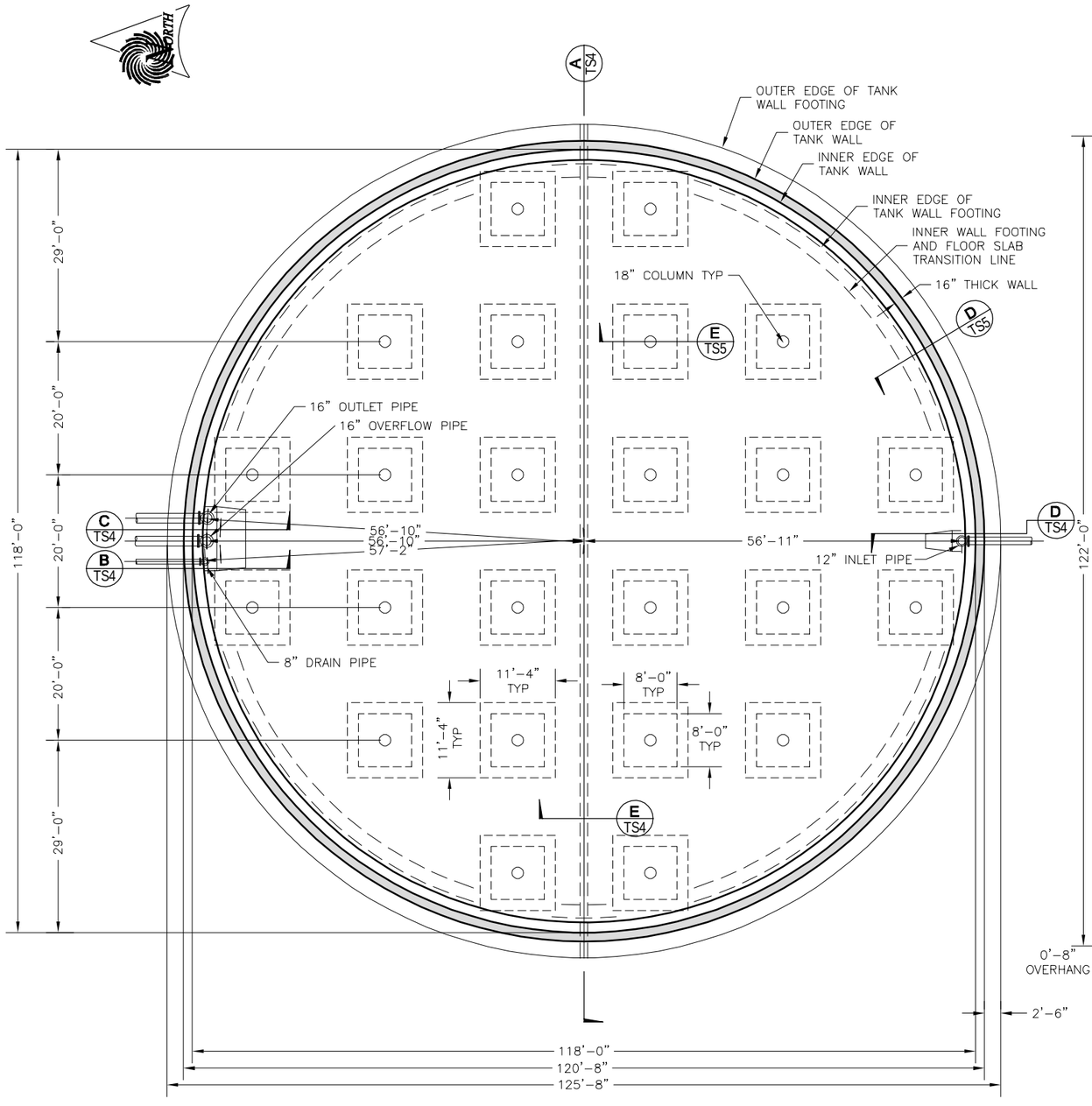
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CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	185

TSSP1

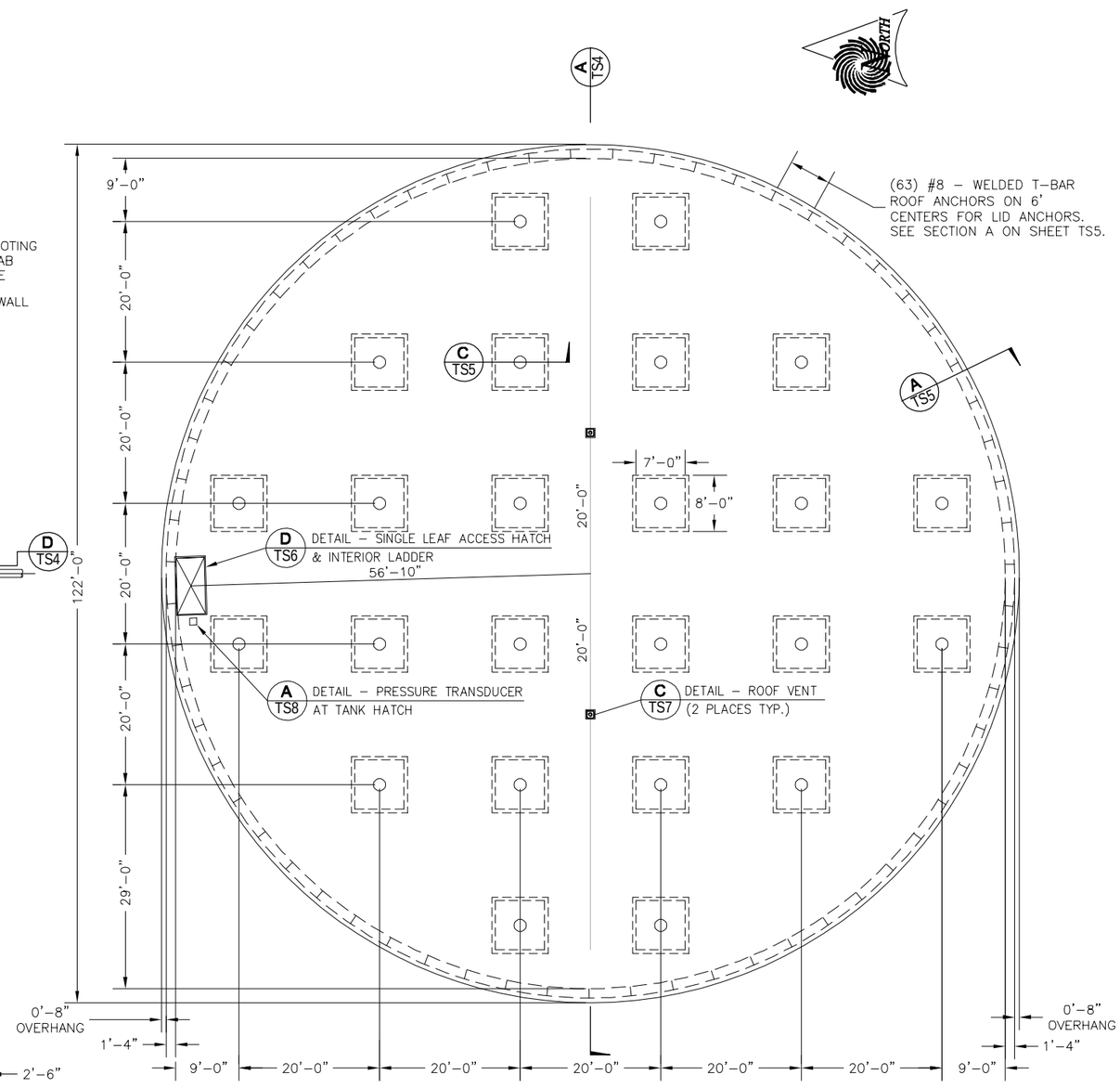
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C ~ FLOOR PLACING SEQUENCE

A ~ PLAN - TANK FLOOR
NOT TO SCALE

NOTE:
TANK FLOOR MAY BE CONSTRUCTED IN 1 OR 2 SEPARATE SECTIONS. IF POURED IN 2 SECTIONS USE DETAIL H/TS4.



B ~ PLAN - TANK ROOF
NOT TO SCALE

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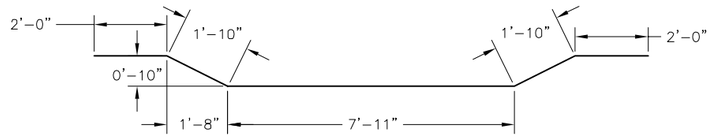
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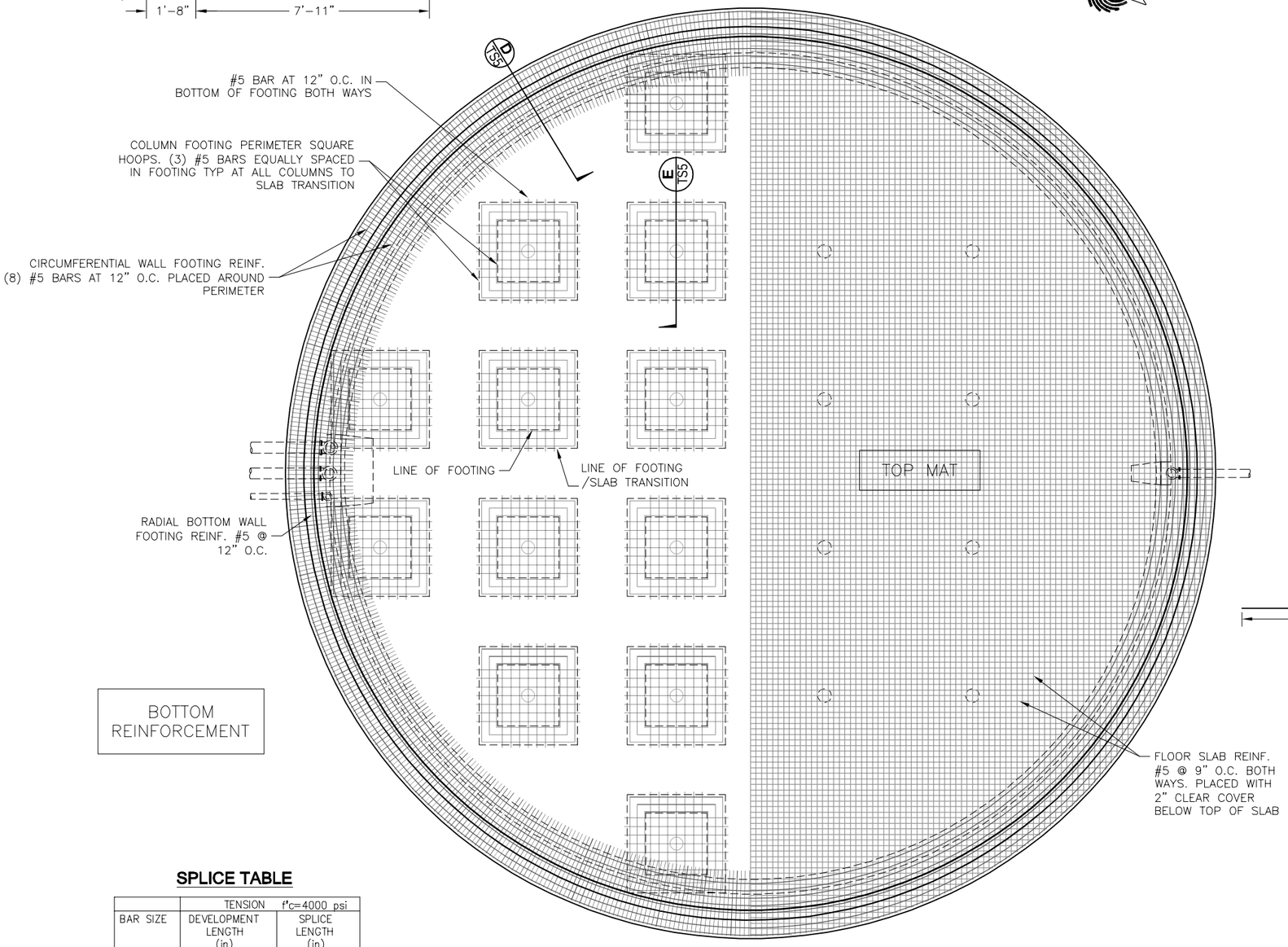
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CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK FLOOR & ROOF PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	186	TS1

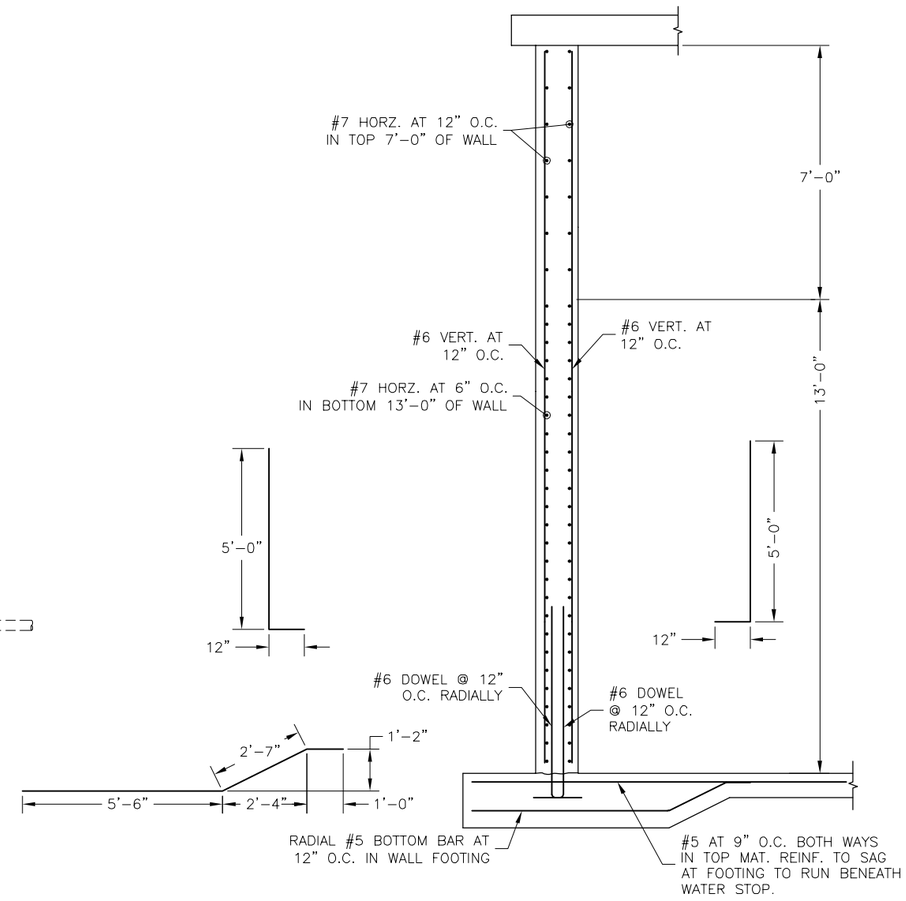
P:\Nephi\05884 Nephi Culinary Water Improvements Project – 2017\Design\dwg\WATER TANK\South Tank\NEPHI STANK-T1.dwg Jun 27, 2018 8:51am cchristensen





BOTTOM REINFORCEMENT

A ~ PLAN - FLOOR REINFORCEMENT
NOT TO SCALE



B ~ PLAN - WALL REINFORCEMENT SCEMATIC
NOT TO SCALE

SPLICE TABLE

BAR SIZE	TENSION f'c=4000 psi DEVELOPMENT LENGTH (in)	SPLICE LENGTH (in)
4	25	32
5	32	40
6	37	48
7	54	70

SPLICE TABLE NOTES:

1– THE VALUES GIVEN IN THE TABLE ARE MINIMUM ALLOWABLE VALUES AND SHALL GOVERN AS NECESSARY.

2– ALL SPLICES SHALL BE CLASS B SPLICES AND CONFORM TO ACI 318–14

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6–21–18

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6/27/18
No. 5048199-2203
STEVEN M. HANSEN
STATE OF UTAH

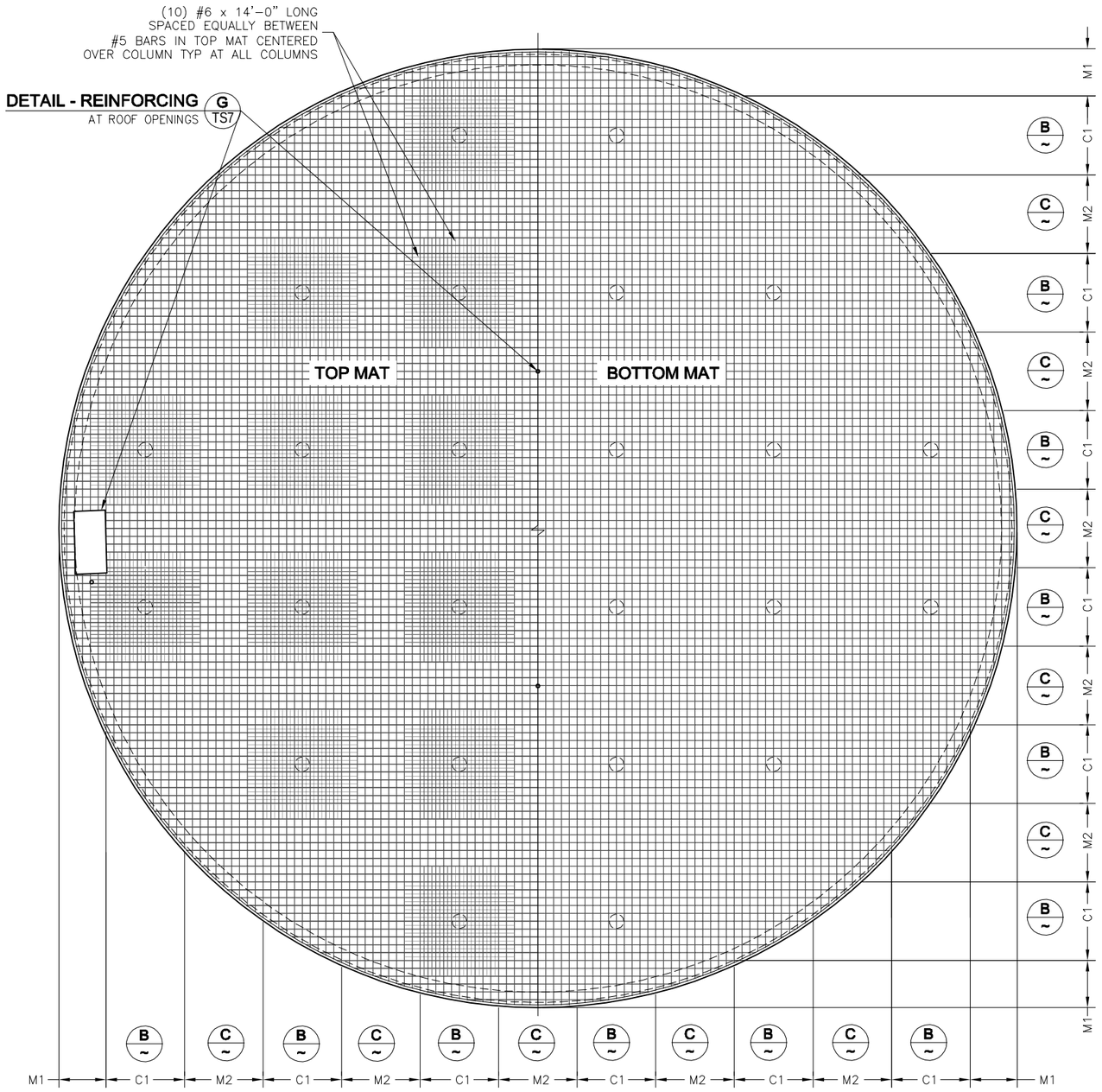
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CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK FLOOR & WALL REINFORCEMENT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	187	TS2

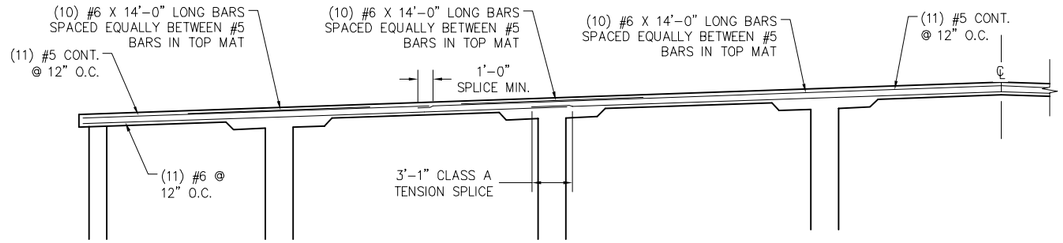
P:\Nephi\05884 Nephi Culinary Water Improvements Project – 2017\Design\dwg\WATER TANK\South Tank\NEPHI STANK-T2-13 T5 T7.dwg Jun 27, 2018 8:52am christensen



A ~ PLAN - ROOF REINFORCEMENT LAYOUT
NOT TO SCALE

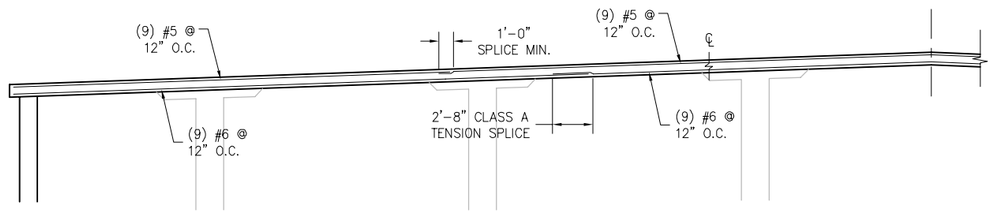
REINFORCEMENT TABLE

SYMBOL	DESIGNATION	WIDTH	TOP MAT REINF.	BOTTOM MAT REINF.
M1	MIDDLE STRIP 1	6'-0"	(7) #5 EVENLY SPACED	(7) #6 EVENLY SPACED
M2	MIDDLE STRIP 2	10'-0"	(9) #5 EVENLY SPACED @ 12" O.C.	(9) #6 @ 12" O.C.
C1	COLUMN STRIP 1	10'-0"	(11) #5 @ 12" O.C. AND (10) #6 X 14'-0" LONG BETWEEN #5 BARS AT COLUMN	(11) #6 @ 12" O.C.



NOTE: SPLICE NOT REQUIRED IF CONTINUOUS BAR IS USED

B ~ SECTION - COLUMN STRIP REINFORCEMENT
NOT TO SCALE



NOTE: SPLICE NOT REQUIRED IF CONTINUOUS BAR IS USED

C ~ SECTION - MIDDLE STRIP REINFORCEMENT
NOT TO SCALE

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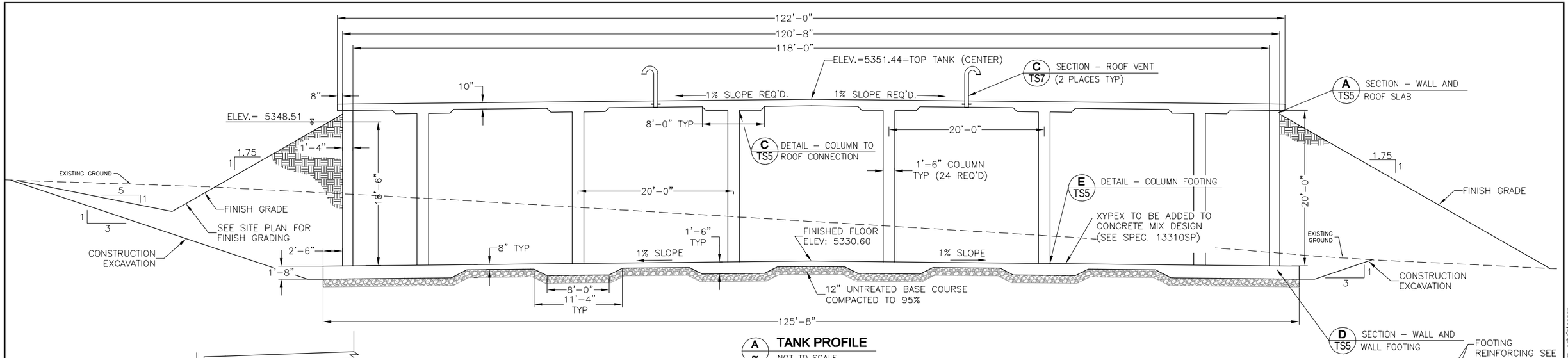
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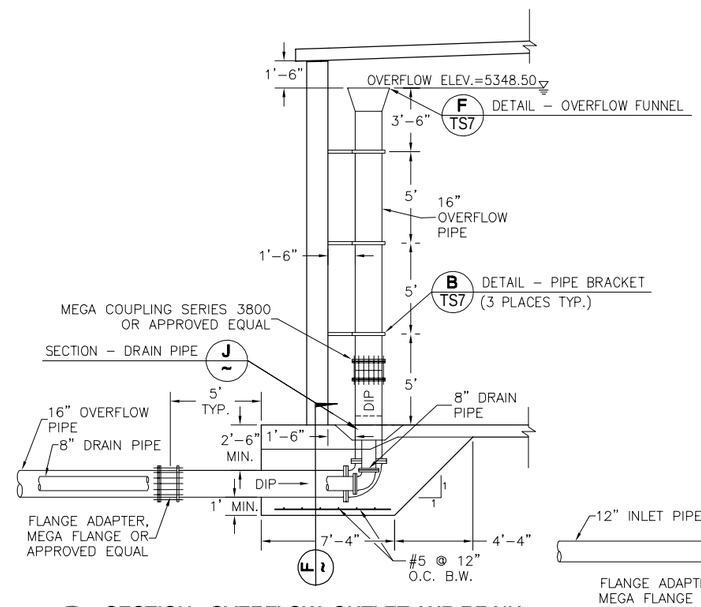
CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK ROOF REINFORCEMENT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	188	TS3

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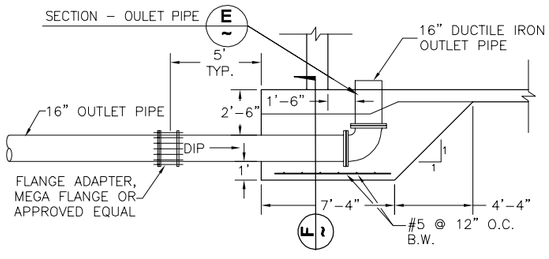


A ~ **TANK PROFILE**
NOT TO SCALE



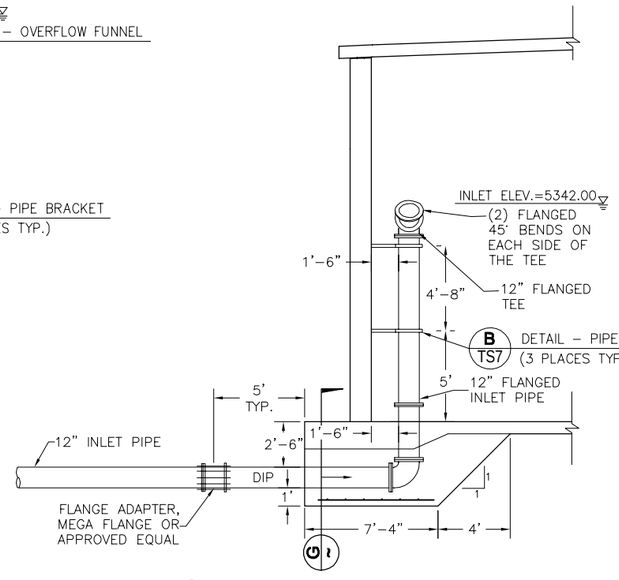
B ~ **SECTION - OVERFLOW, OUTLET AND DRAIN**
NOT TO SCALE (REINFORCING NOT SHOWN FOR CLARITY)

NOTES:
1) DUCTILE IRON PIPE TO EXTEND 5' BEYOND FOOTING.



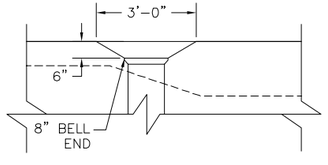
C ~ **SECTION - OUTLET**
NOT TO SCALE (REINFORCING NOT SHOWN FOR CLARITY)

NOTES:
1) DUCTILE IRON PIPE TO EXTEND 5' BEYOND FOOTING.

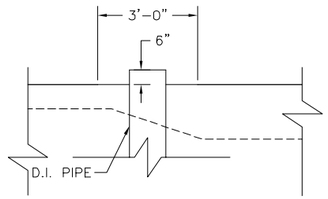


D ~ **SECTION - INLET**
NOT TO SCALE (REINFORCING NOT SHOWN FOR CLARITY)

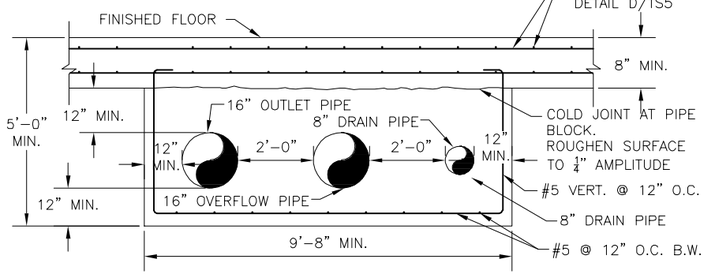
NOTES:
1) DUCTILE IRON PIPE TO EXTEND 5' BEYOND FOOTING.



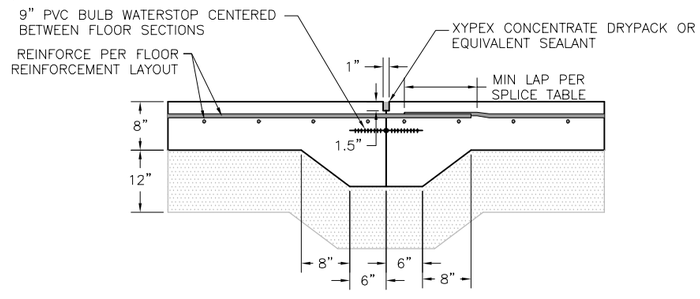
J ~ **SECTION - DRAIN PIPE**
NOT TO SCALE



E ~ **SECTION - OUTLET PIPE**
NOT TO SCALE

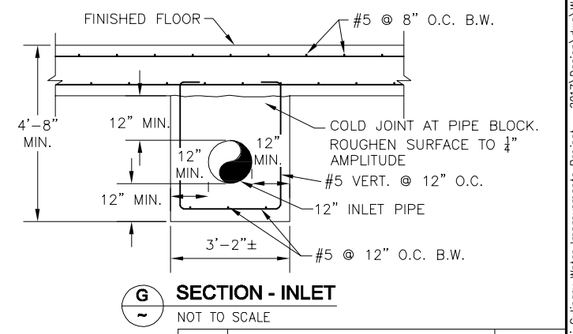


F ~ **SECTION - OUTLET, OVERFLOW AND DRAIN**
NOT TO SCALE



H ~ **SECTION - CONSTRUCTION JOINT AT FLOOR**
NOT TO SCALE

NOTE:
TANK FLOOR MAY BE CONSTRUCTED IN 1 OR 2 SEPARATE SECTIONS. IF POURED IN 2 SECTIONS USE THIS DETAIL.



G ~ **SECTION - INLET**
NOT TO SCALE

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STATE OF UTAH

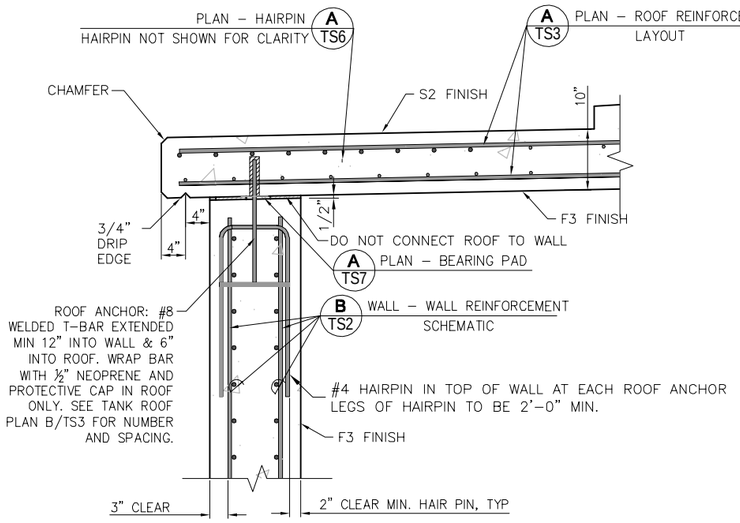
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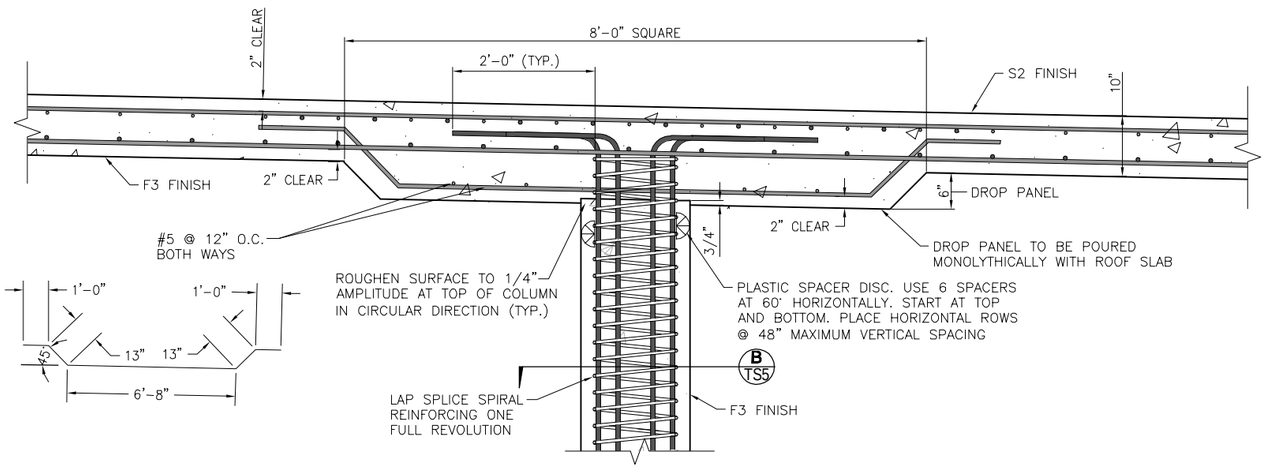
CULINARY WATER IMPROVEMENTS - 2017
SOUTH 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	189	TS4

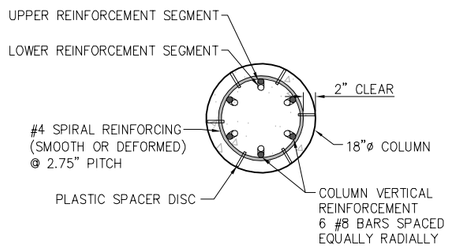
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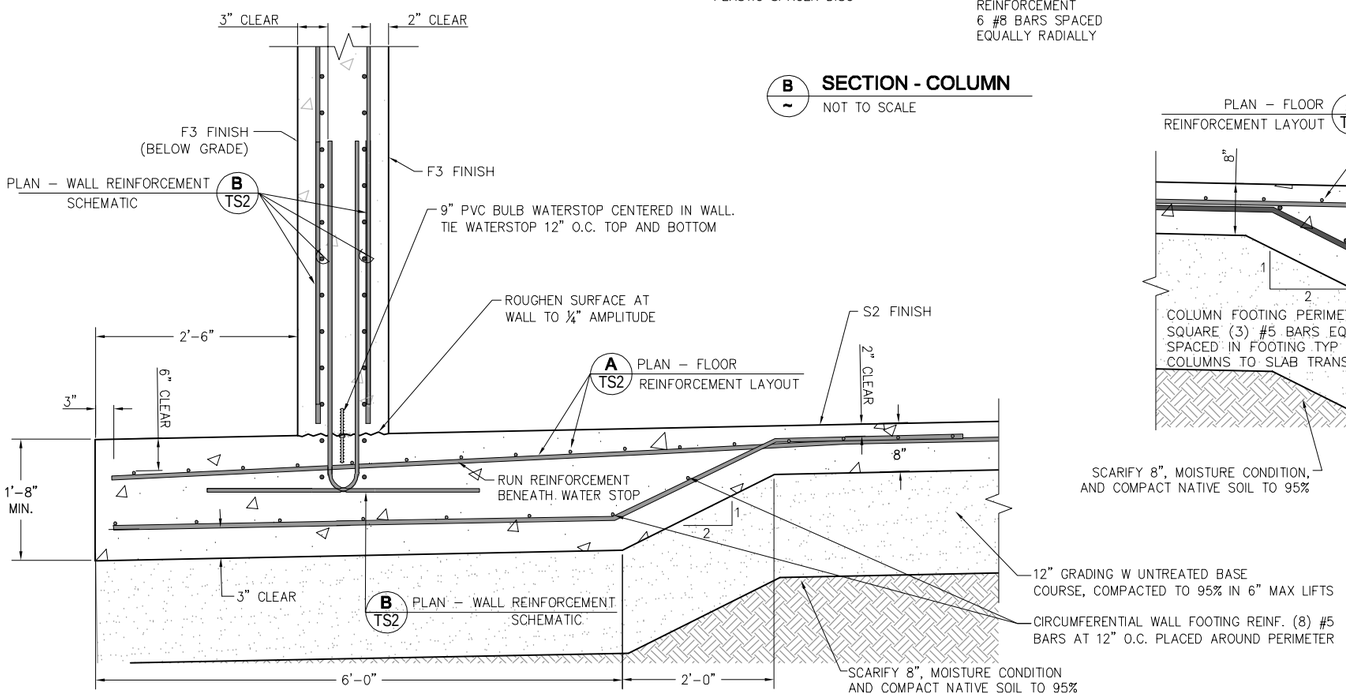
A SECTION - WALL & ROOF SLAB
NOT TO SCALE



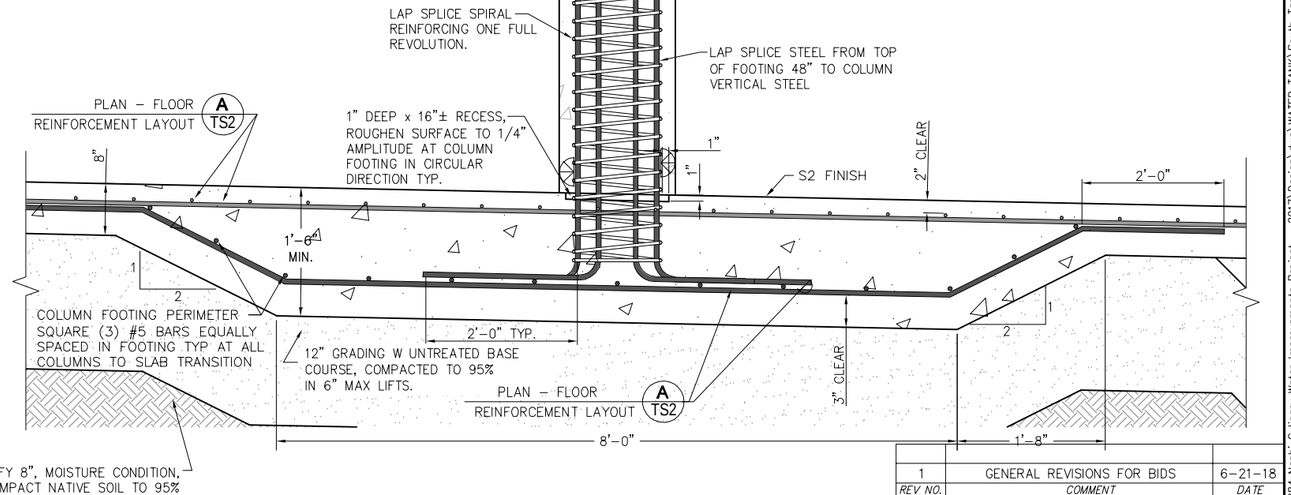
C SECTION - COLUMN TO ROOF CONNECTION
NOT TO SCALE



B SECTION - COLUMN
NOT TO SCALE



D SECTION - WALL & WALL FOOTING
NOT TO SCALE



E SECTION - COLUMN FOOTING
NOT TO SCALE

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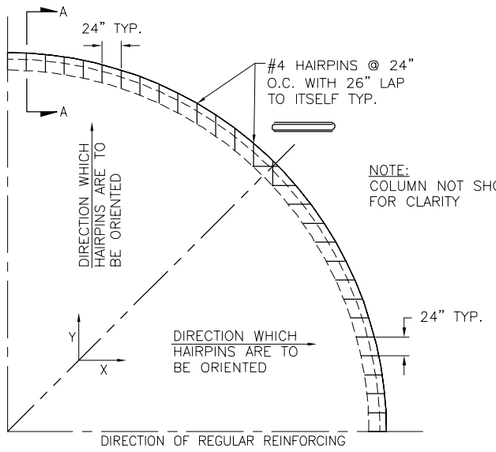
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CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

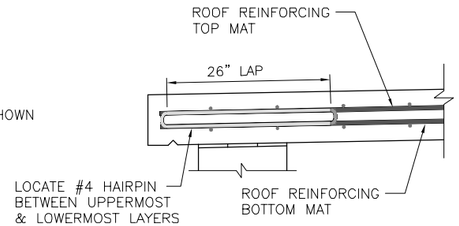
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
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TS5

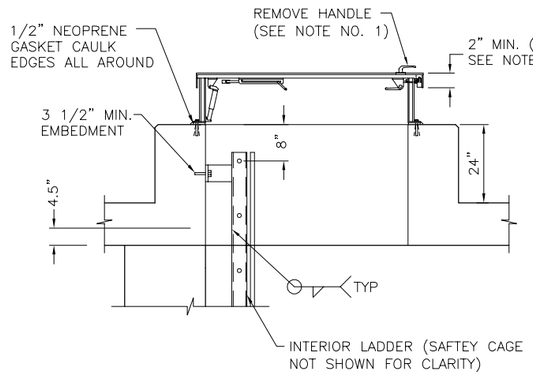
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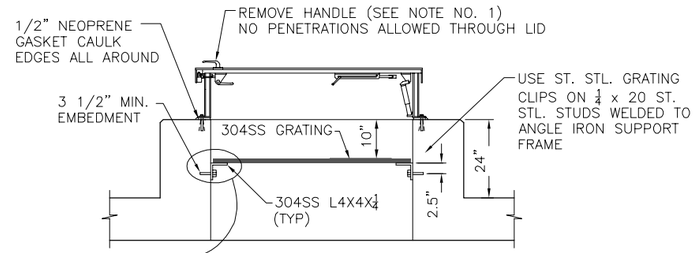
A ~ PLAN - HAIRPIN ORIENTATION
NOT TO SCALE



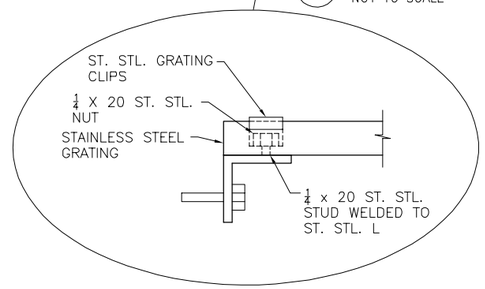
SECTION-AA



B ~ SECTION - SINGLE LEAF ACCESS HATCH
NOT TO SCALE

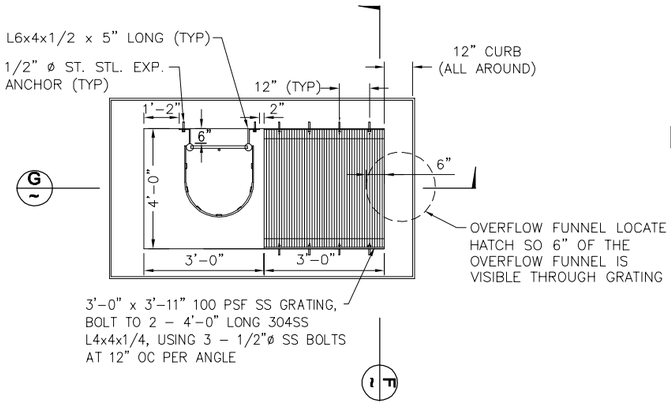


C ~ SECTION - ACCESS HATCH GRATING
NOT TO SCALE

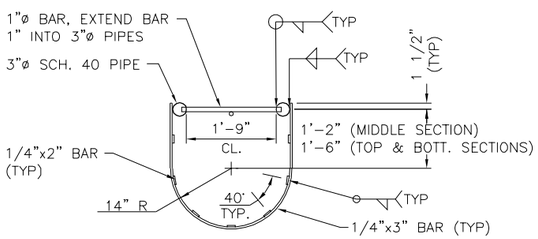


ROOF HATCH & LADDER NOTES:

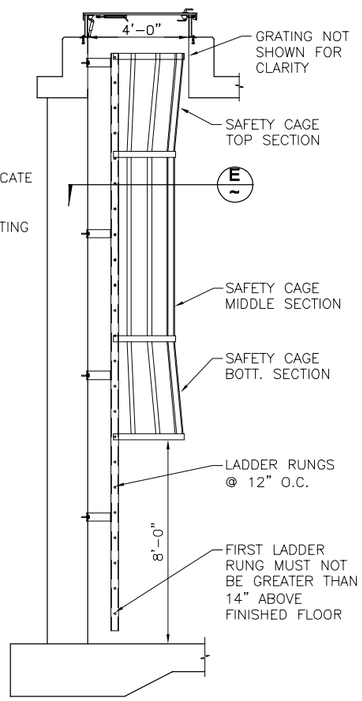
1. ROOF HATCH SHALL BE 6'x4' 'BILCO' HATCH OR APPD. EQ. HINGED ON THE 6'–0" SIDE, MODIFIED TO OMIT INTERIOR AND EXTERIOR HANDLES, AND PROVIDED W/ CONCEALED PADLOCK HASP. ALL ST. STL. HARDWARE AND FULLY ENCLOSED CURB.
2. ROOF HATCH TO BE MANUFACTURED OF ALUMINUM.
3. ALL LADDER MATERIAL FOR PIPE SIDE RAILS, RUNGS, BRACKETS, AND BASE PLATES TO BE 304 STAINLESS STEEL.
4. LADDER RUNGS TO BE SOLID RODS.
5. ALL WELDS TO BE 1/4" MIN.
6. ALL ALUM. IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING OR EPOXY PAINT. (NSF)
7. USE ST. STL. 316 FOR ALL BOLTS UNLESS NOTED OTHERWISE.
8. WHERE ST. STL. BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
9. GRATING SHALL BE 304 STAINLESS STEEL.
10. GRATING SHALL BE REMOVABLE TO ALLOW DIVER ACCESS.
11. DOWN TURN ON HATCH LID SHALL BE 2" MINIMUM ALL AROUND.



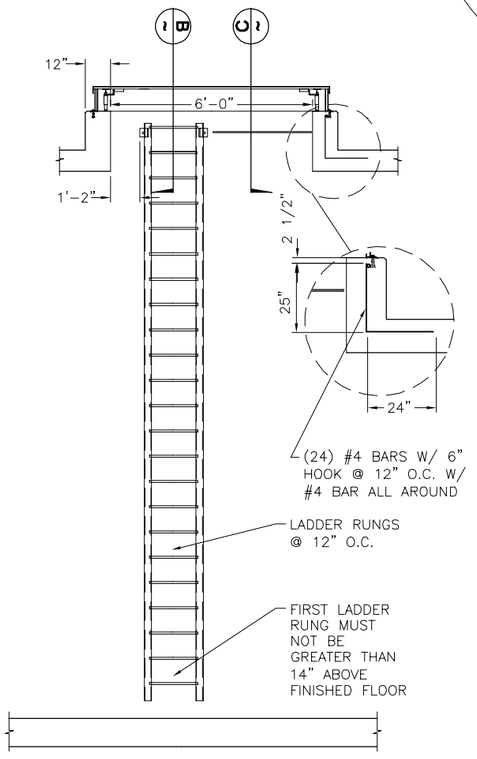
D ~ DETAIL-SINGLE LEAF ACCESS HATCH & INTERIOR LADDER
NO SCALE



E ~ SECTION - SAFETY CAGE
NOT TO SCALE



F ~ SECTION - INTERIOR LADDER
NOT TO SCALE



NOTE: SAFETY CAGE NOT SHOWN FOR CLARITY

G ~ SECTION - INTERIOR LADDER
NOT TO SCALE

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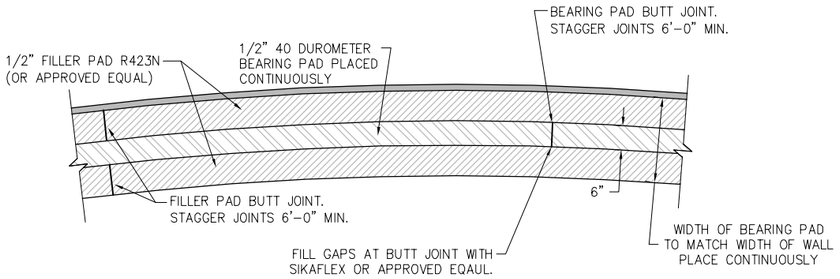
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6/27/18
No. 5048199-2203
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STATE OF UTAH

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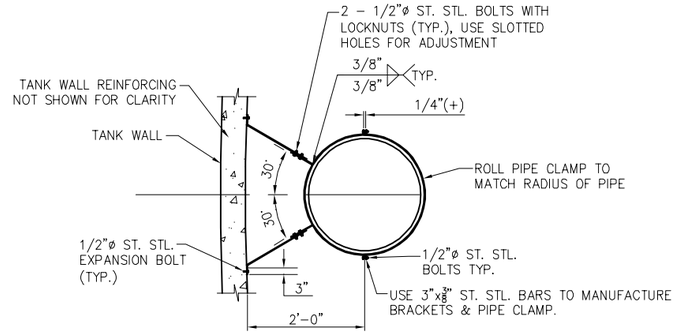
CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	191	TS6

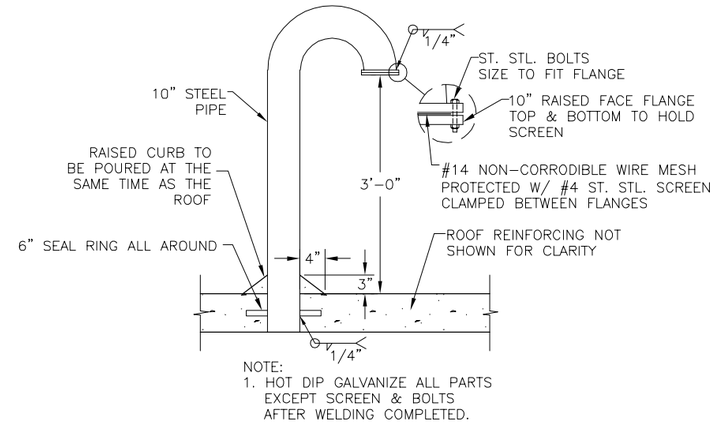
P: \Nephi\05884 Nephi Culinary Water Improvements Project – 2017\Design\dwg\WATER TANK\South Tank\NEPHI STANK–TS TS.dwg Jun 27, 2018 8:53am cchristensen



A ~ DETAIL - BEARING PAD
NOT TO SCALE

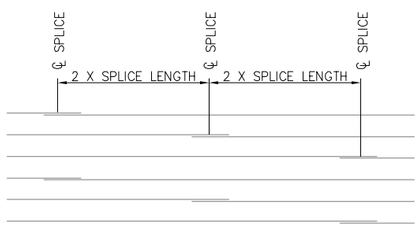


B ~ DETAIL - PIPE BRACKET
NOT TO SCALE



NOTE:
1. HOT DIP GALVANIZE ALL PARTS EXCEPT SCREEN & BOLTS AFTER WELDING COMPLETED.

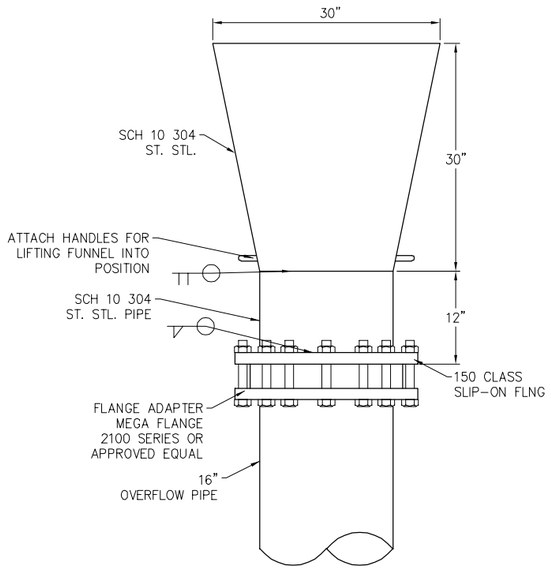
C ~ DETAIL-ROOF VENT
NOT TO SCALE



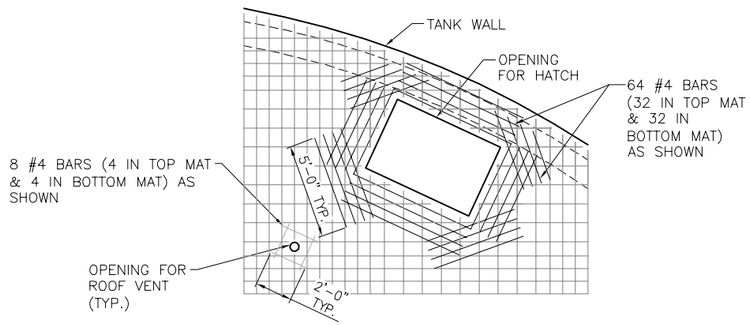
E ~ DETAIL - STAGGERING OF BAR SPLICES
NOT TO SCALE

BAR SPLICE NOTE:

1– BAR SPLICES IN THE TANK WALLS & FLOOR SHALL BE STAGGERED ACCORDING TO THE SEPARATION SHOWN.



F ~ DETAIL - OVERFLOW FUNNEL
NOT TO SCALE



G ~ DETAIL - REINFORCING AT ROOF OPENINGS
NOT TO SCALE

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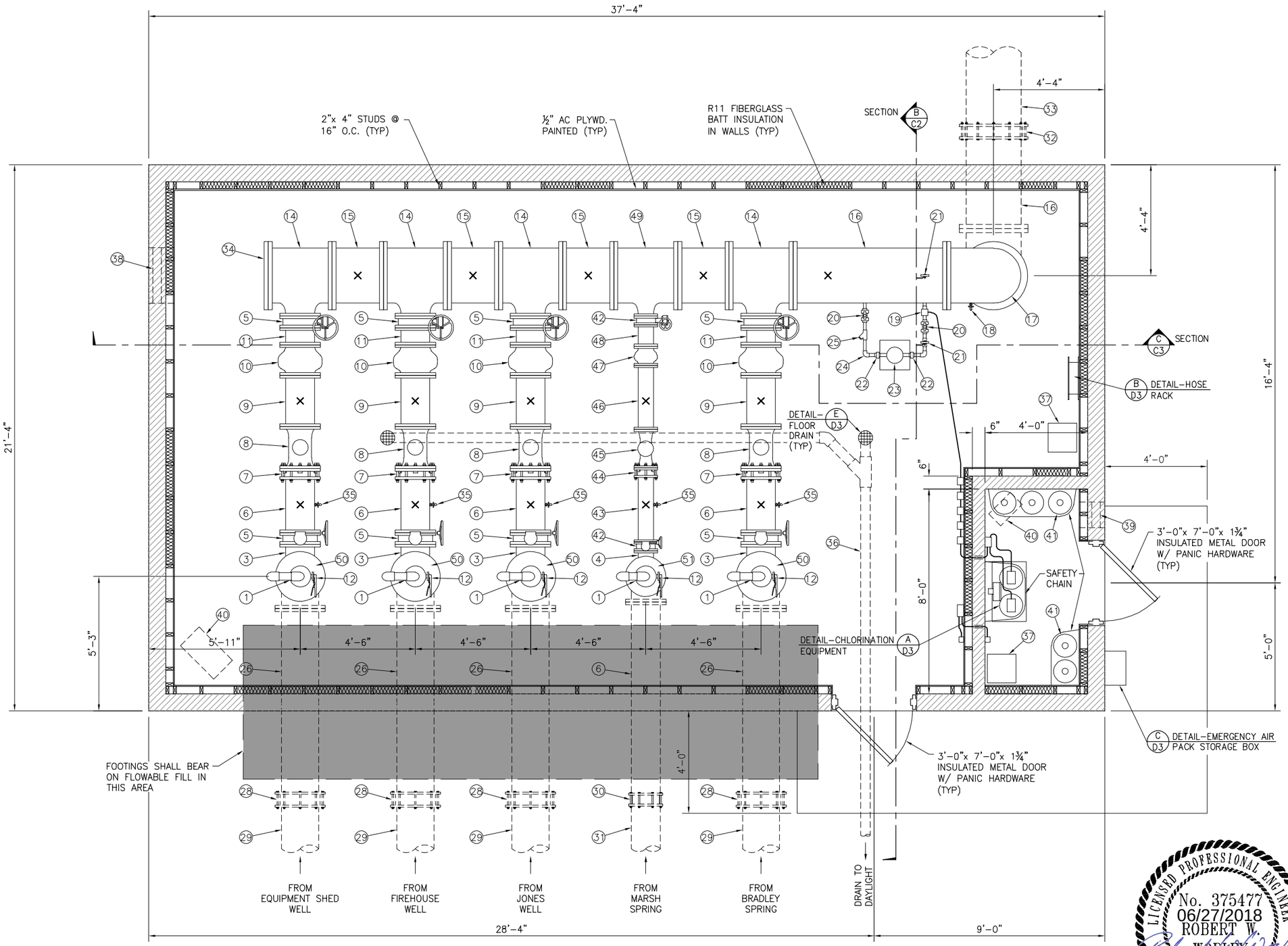
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CULINARY WATER IMPROVEMENTS – 2017
SOUTH 1.5 MILLION GALLON TANK
TANK SECTIONS AND DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	192

TS7

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A ~ **PLAN - CHLORINATOR BUILDING**
1/4" = 1'-0"

NOTES:

1. SEE DWG C2 FOR EQUIPMENT SCHEDULE
2. SLOPE FLOOR TOWARDS FLOOR DRAINS AT ⅛" PER FOOT MIN. SLOPE.

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

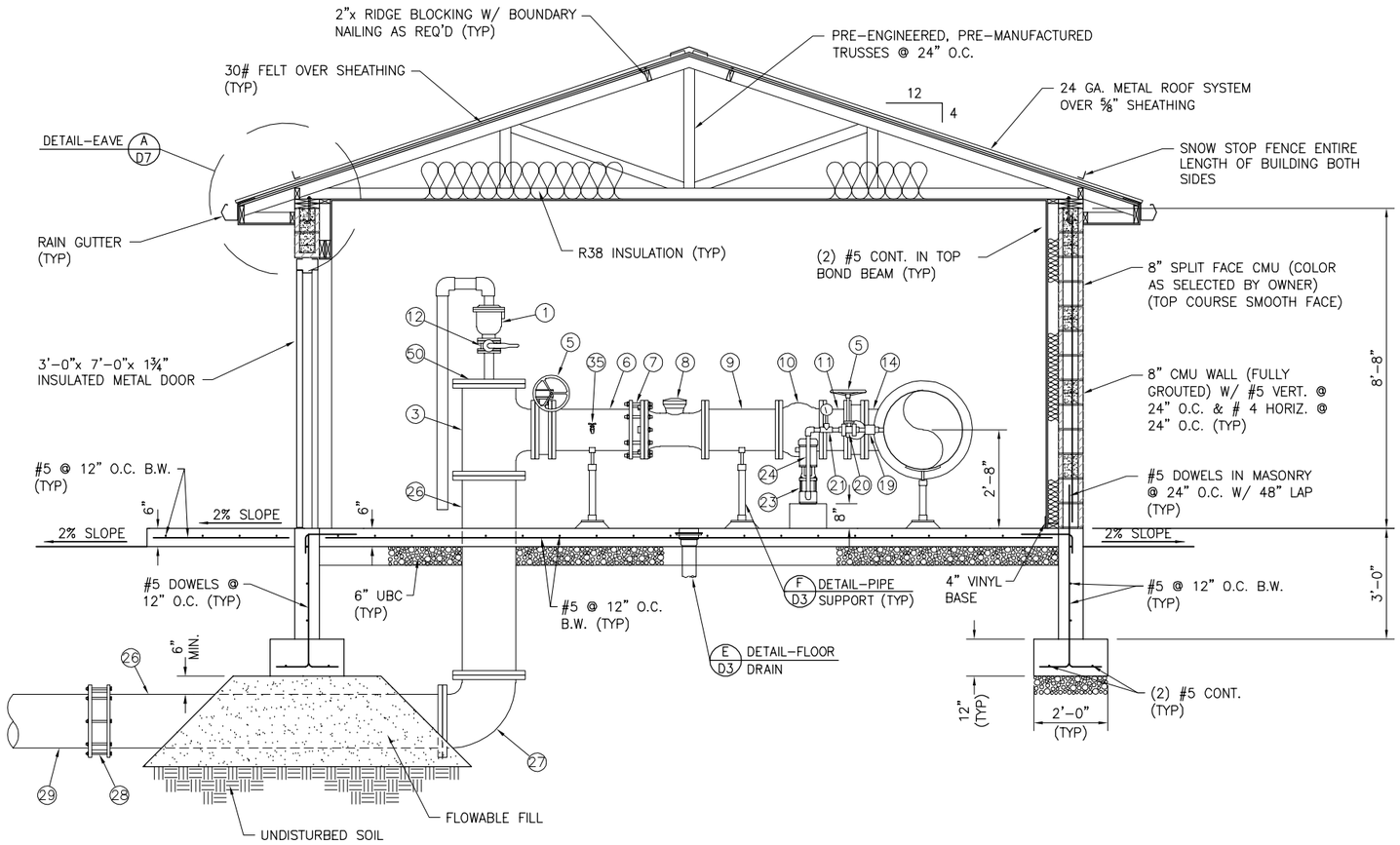
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CULINARY WATER IMPROVEMENTS PROJECT
2018
CL2 BUILDING PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	193	C1

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B C1 SECTION - CHLORINATOR BUILDING
1/4" = 1'-0"

EQUIPMENT SCHEDULE

MK.NO.	DESCRIPTION	SIZE	REMARKS
1	COMBINATION AIR RELEASE VALVE	3"	SEE DETAIL F/D4
2	NOT USED		
3	DIP TEE	16"x12"	
4	DIP TEE	12"x6"	
5	BUTTERFLY VALVE	12"	
6	DIP	12"	
7	RESTRAINED FLNG. CPLG. ADAPTER	12"	
8	FLOWMETER	12"	"MASTER METER" OCTAVE ULTRASONIC OR APPROVED EQUAL
9	DIP SPOOL	12"	24" LONG
10	CHECK VALVE	12"	"CLA-VAL" SERIES 581 SILENT GLOBE OR APPROVED EQUAL
11	DIP SPOOL	12"	8" LONG
12	BUTTERFLY VALVE	3"	
13	NOT USED		
14	DIP TEE	24"x12"	
15	DIP SPOOL	24"	24"± LONG (PER FIELD CONDITIONS)
16	DIP	24"	
17	DIP 90° BEND	24"	
18	HOSE BIB	3/4"	
19	CHLORINE EJECTOR	–	
20	BALL VALVE	1"	
21	PRESSURE GAUGE	–	SEE DETAIL C/D4
22	UNION	1"	
23	BOOSTER PUMP		SEE SPECIAL PROVISION 11230SP
24	SCH 80 PVC PIPE & FITTINGS	1"	
25	STRAINER	1"	
26	DIP	16"	
27	DIP 90° BEND	16"	
28	FLEX. CPLG.	16"	
29	INLET PIPE	16"	
30	FLEX. CPLG.	12"	
31	INLET PIPE	12"	
32	FLEX. CPLG.	24"	
33	PVC PIPE	24"	
34	BLIND FLNG.	24"	
35	SAMPLE TAP	3/4"	CHROMED BRONZE W/ SMOOTH NOSE
36	ABS SCH 40 PIPE	4"	
37	EXHAUST FAN & DUCTING	–	ROOF MOUNTED (SEE MECH. PLANS)
38	AIR SUPPLY LOUVER	–	(SEE MECH. PLANS)
39	AIR SUPPLY LOUVER	–	(SEE MECH. PLANS)
40	HEATER	–	CEILING MOUNTED (SEE MECH. PLANS)
41	CHLORINE GAS BOTTLES	–	BY OTHERS
42	BUTTERFLY VALVE	6"	
43	DIP	6"	
44	RESTRAINED FLNG. CPLG. ADAPTER	6"	
45	FLOWMETER	6"	"MASTER METER" OCTAVE ULTRASONIC OR APPROVED EQUAL
46	DIP SPOOL	6"	30" LONG
47	CHECK VALVE	6"	"CLA-VAL" SERIES 581 SILENT GLOBE OR APPROVED EQUAL
48	DIP SPOOL	6"	10" LONG
49	DIP TEE	24"x6"	
50	BLIND FLNG.	16"	
51	BLIND FLNG.	12"	
×	LOCATION OF PIPE SUPPORT		SEE DETAIL F/D3

REV NO.	COMMENT	DATE
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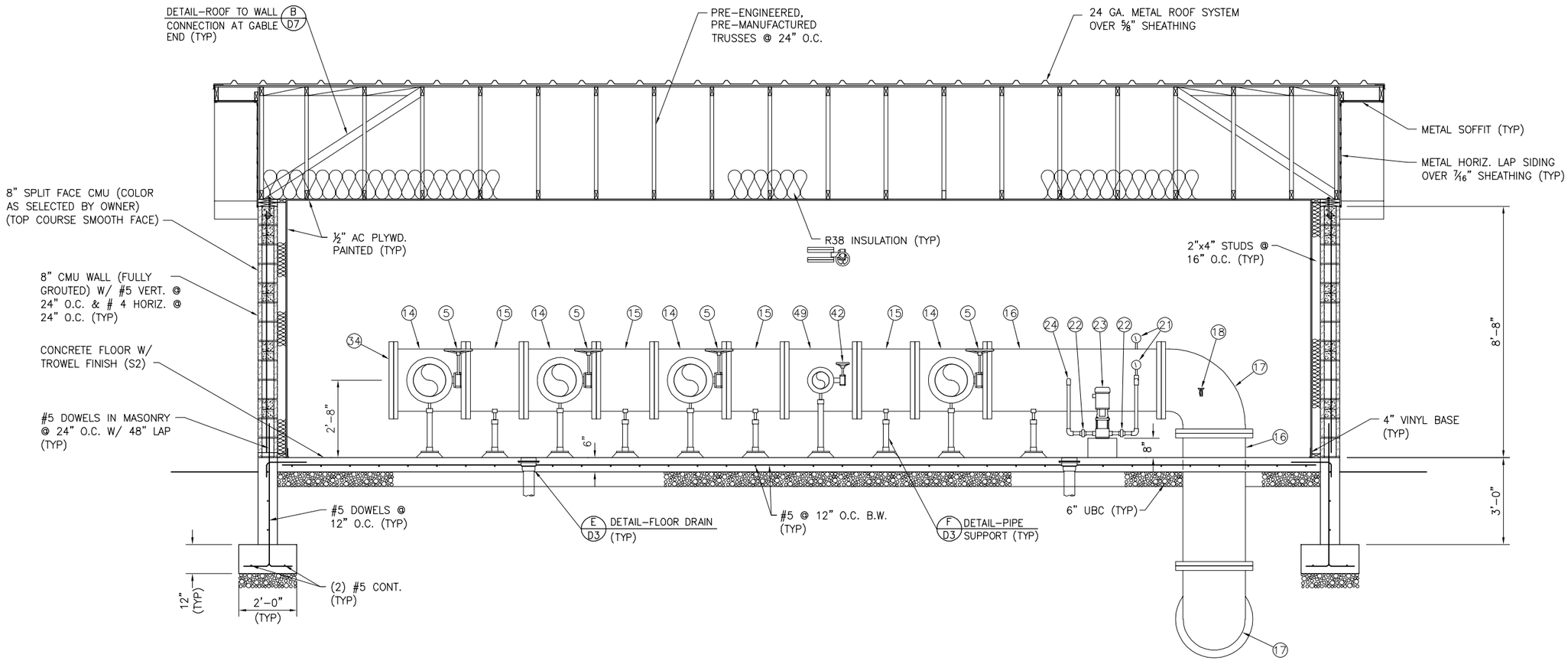
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CULINARY WATER IMPROVEMENTS PROJECT
2018

CL2 BUILDING SECTION & EQUIP. SCH.

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	194	C2

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C / C1 SECTION - CHLORINATOR BUILDING

1/4" = 1'-0"

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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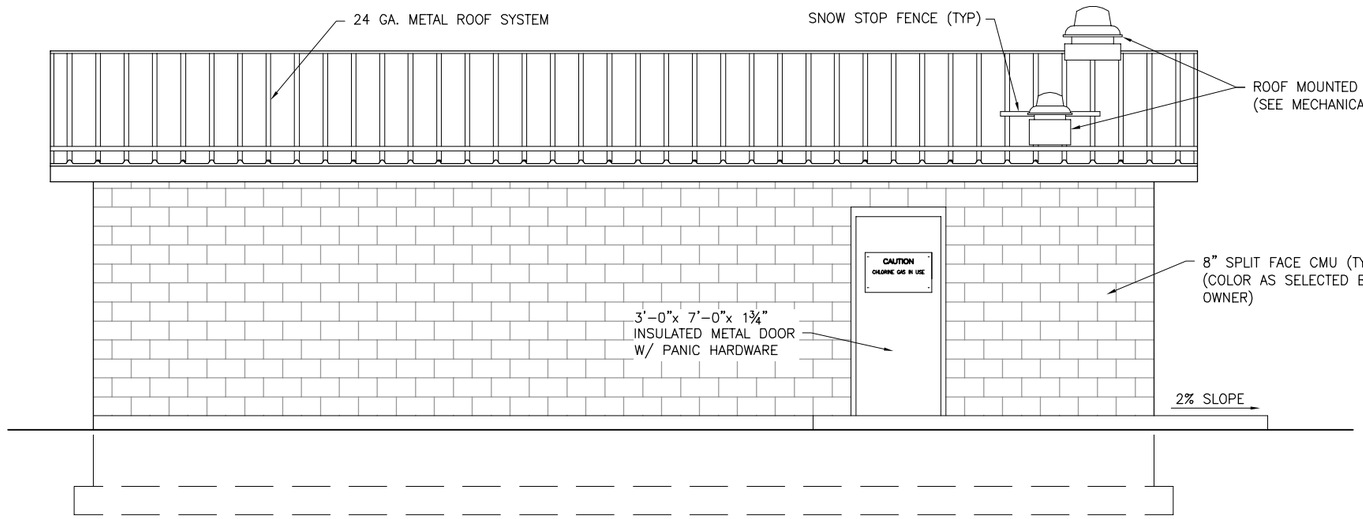
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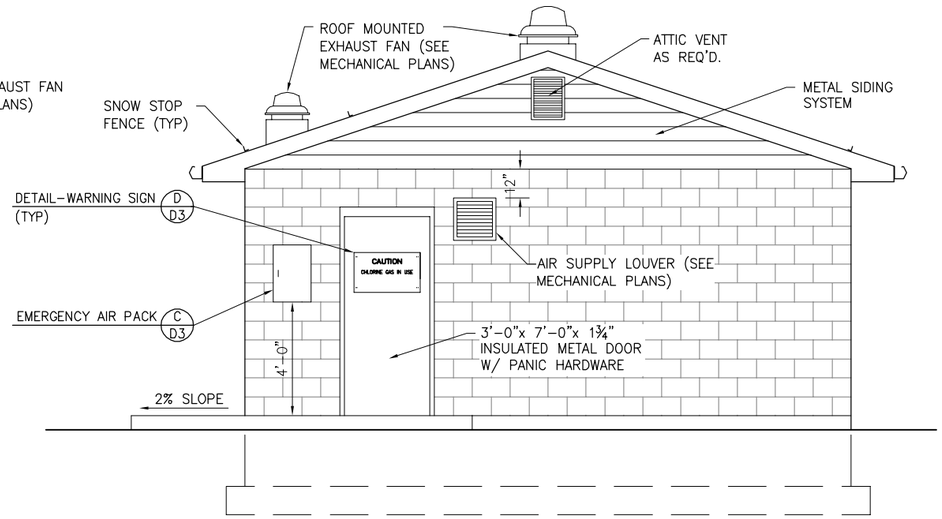
CULINARY WATER IMPROVEMENTS PROJECT
2018
CL2 BUILDING SECTION

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	195	C3

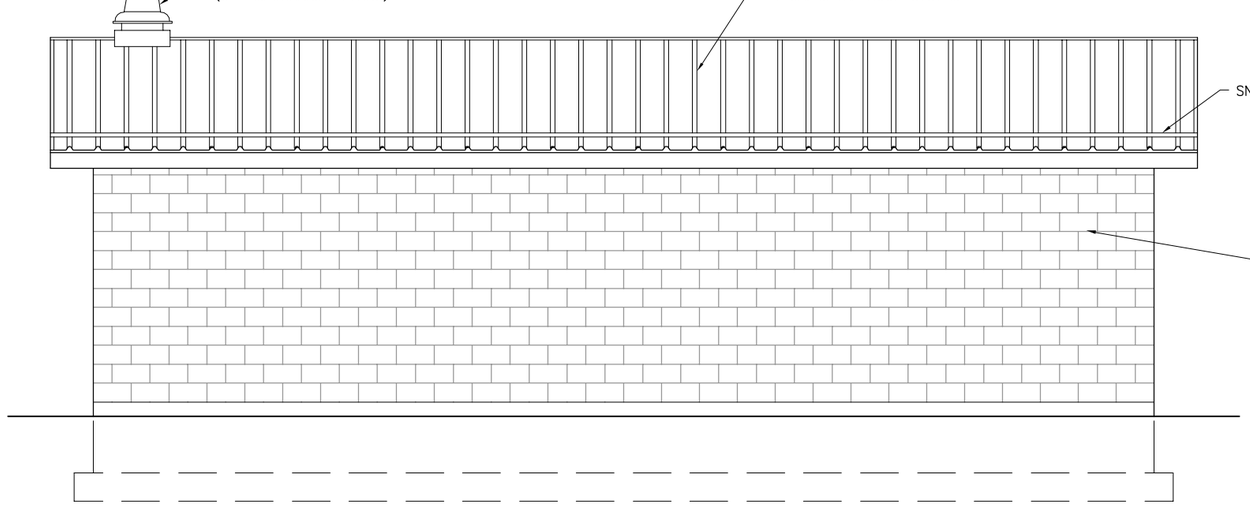
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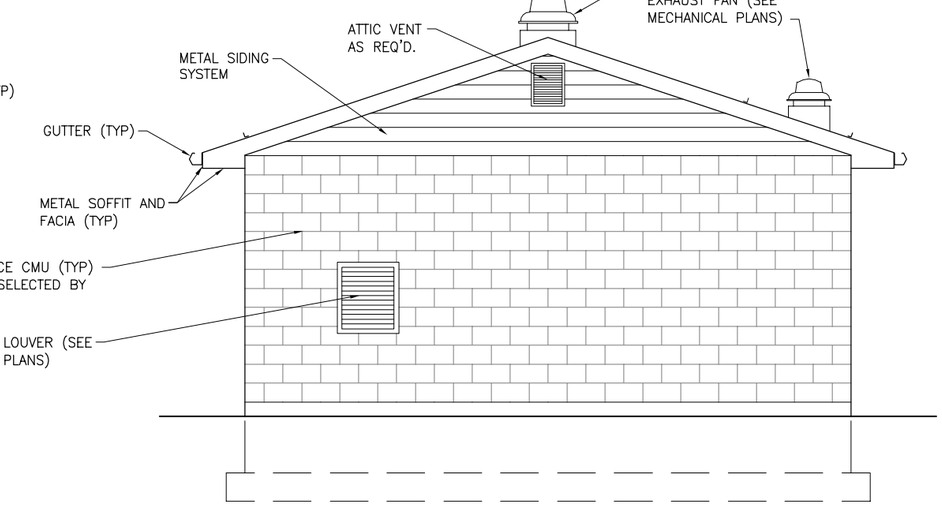
SOUTH EXTERIOR ELEVATION



EAST EXTERIOR ELEVATION



NORTH EXTERIOR ELEVATION



WEST EXTERIOR ELEVATION

D / C4 CHLORINATOR BUILDING EXTERIOR ELEVATIONS
3/16" = 1'-0"

REV NO.	COMMENT	DATE
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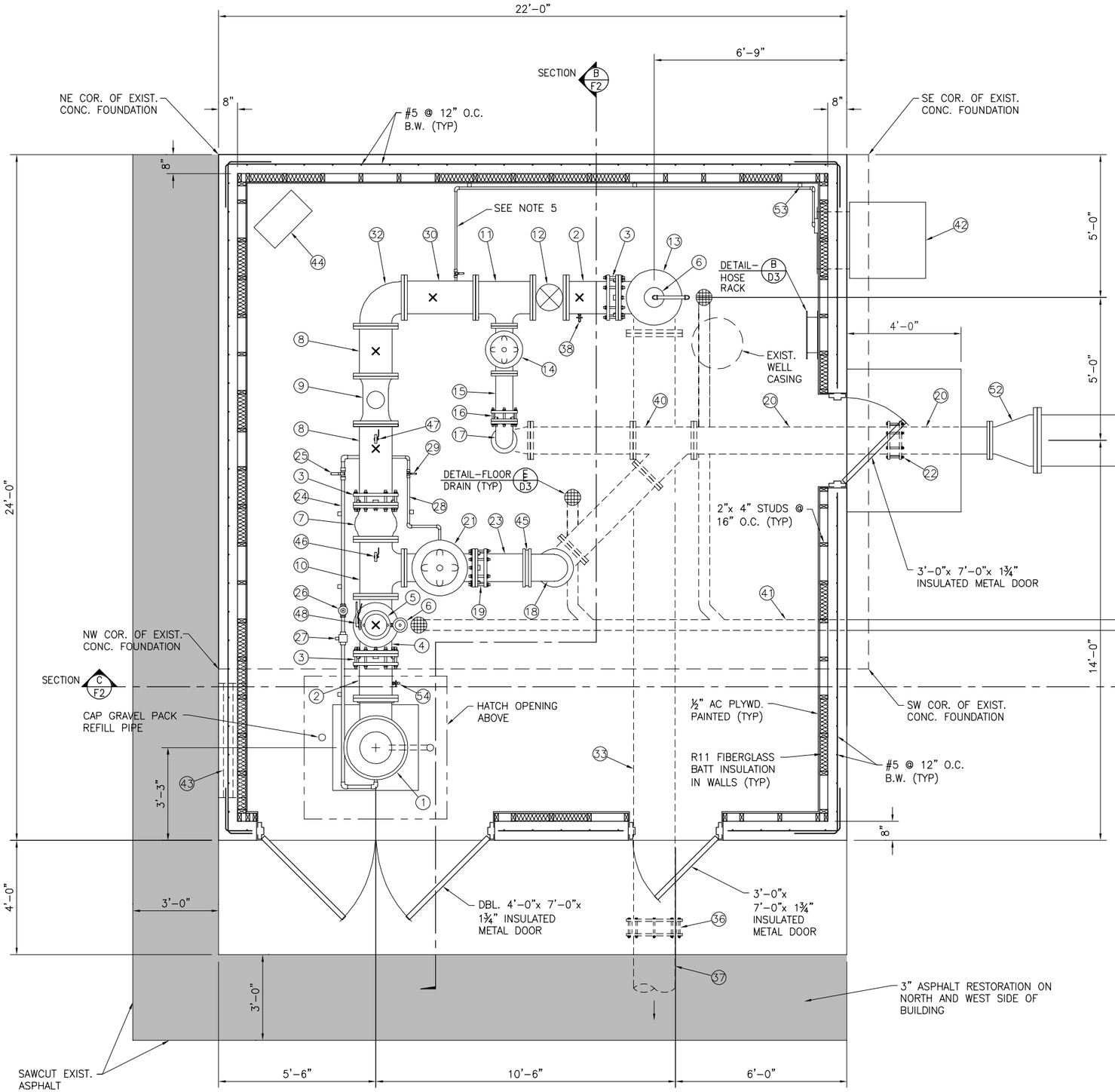
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CULINARY WATER IMPROVEMENTS PROJECT
2018
CL2 BUILDING SECTION & EQUIP. SCH.

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	196	C4

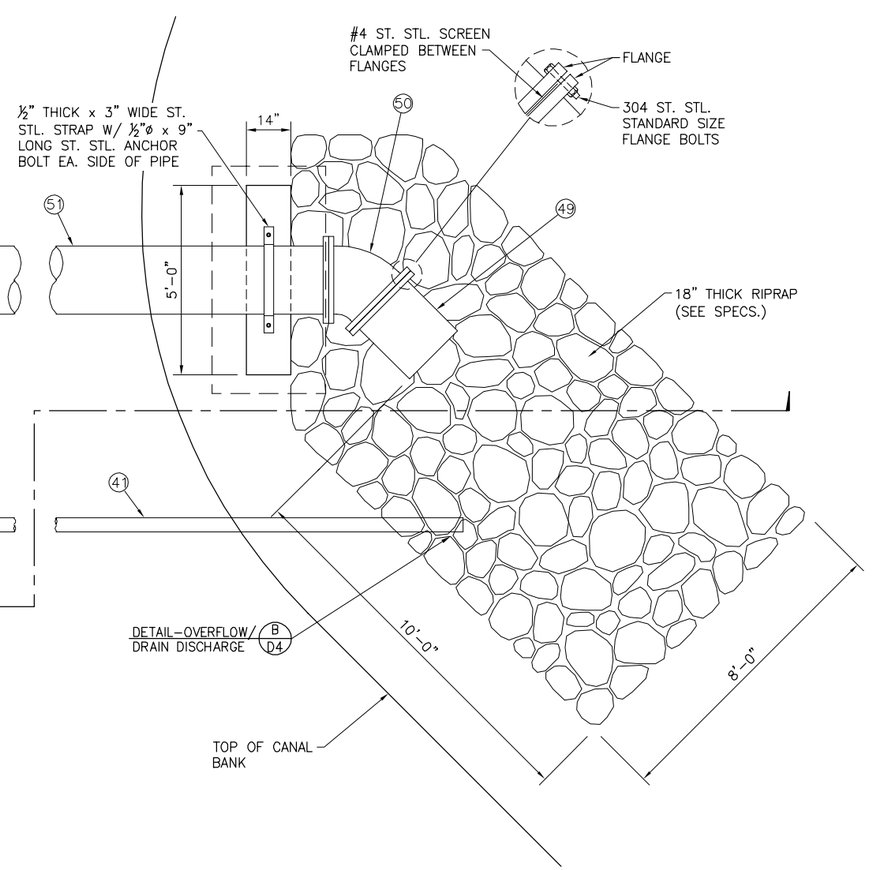
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A P13H **PLAN - FIREHOUSE WELL**
1/4" = 1'-0"

NOTES:

1. SEE DWG F2 FOR EQUIPMENT SCHEDULE
2. ALL PIPING 2"ø AND UNDER IS DRAWN AS SHOWN FOR CLARITY. THE CONTRACTOR SHALL CONSULT ENGINEER FOR THE MOST CONVENIENT ROUTING OF PIPING.
3. SLOPE FLOOR TOWARDS FLOOR DRAINS AT ⅛" PER FOOT MIN. SLOPE.
4. THE FINISH FLOOR ELEVATION SHALL BE 6" ABOVE ASPHALT ELEVATION ON NORTH SIDE OF STRUCTURE.
5. PROVIDE ½" RIGID PIPE WATER SUPPLY TO EVAPORATIVE COOLER. ATTACH TO WALL AND CEILING AS REQ'D. (SEE SCHEMATIC ON DWG W2)



REV NO.	COMMENT	DATE
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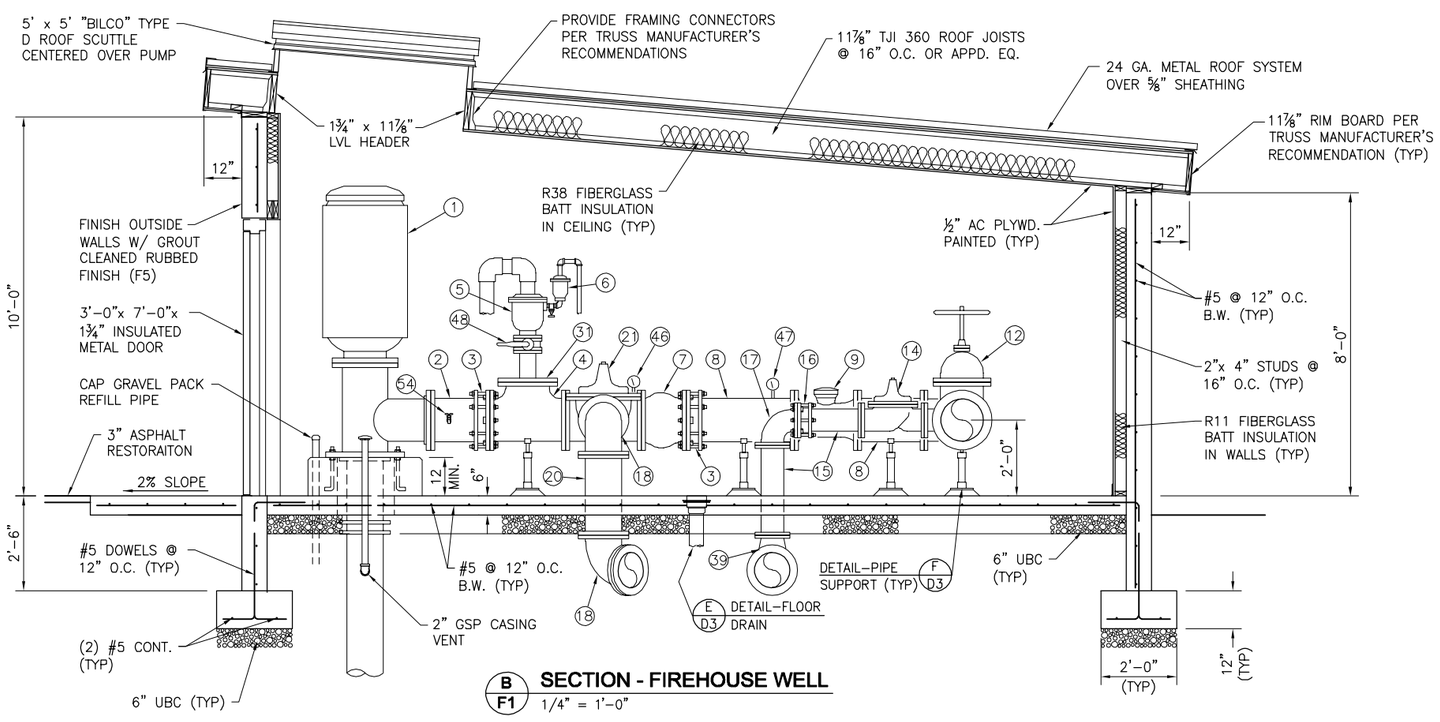
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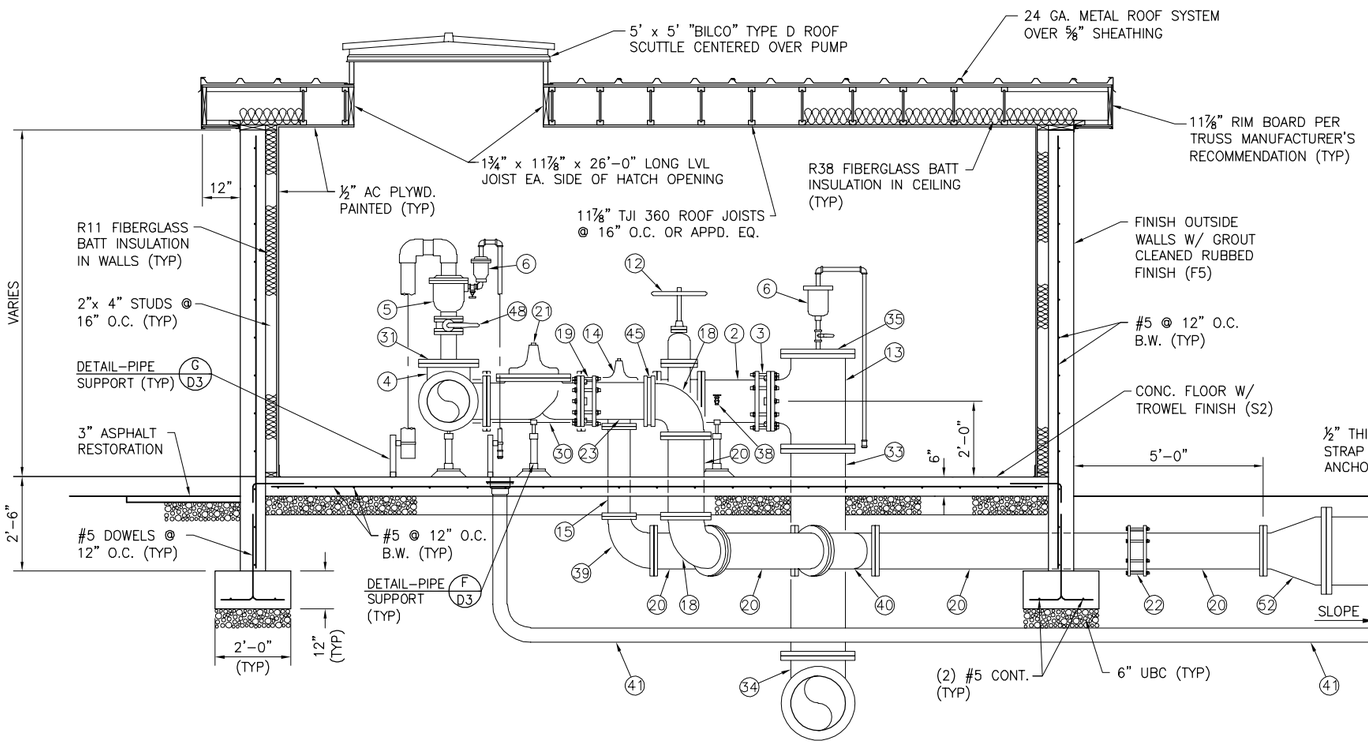
CULINARY WATER IMPROVEMENTS PROJECT
2018
FIREHOUSE WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	197	F1

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B F1 SECTION - FIREHOUSE WELL
1/4" = 1'-0"



C F1 SECTION - FIREHOUSE WELL
1/4" = 1'-0"

EQUIPMENT SCHEDULE

MK.NO.	DESCRIPTION	SIZE	REMARKS
1	VERTICAL TURBINE PUMP	–	
2	DIP	12"	
3	RESTRAINED FLNG. CPLG. ADAPTER	12"	
4	TEE	12"	
5	COMBINATION AIR VALVE	3"	"APCO" 146DAT OR APPD. EQ. (SEE DETAIL F/D4)
6	COMBINATION AIR VALVE	1"	SEE DETAIL E/D4
7	CHECK VALVE	12"	"CLA-VAL" SERIES 581 SILENT GLOBE OR APPD. EQ.
8	DIP SPOOL	12"	
9	FLOWMETER	12"	"MASTER METER" OCTAVE ULTRASONIC OR APPD. EQ.
10	DIP TEE	12"x10"	
11	DIP TEE	12"x6"	
12	GATE VALVE	12"	
13	DIP TEE	16"x12"	
14	PRESSURE RELIEF VALVE	6"	"CLA-VAL" MODEL 50-01 BKC OR APPD. EQ.
15	DIP	6"	
16	RESTRAINED FLNG. CPLG. ADAPTER	6"	
17	DIP 90° BEND	6"	
18	DIP 90° BEND	10"	
19	RESTRAINED FLNG. CPLG. ADAPTER	10"	
20	DIP	10"	
21	PUMP CONTROL VALVE	10"	"CLA-VAL" MODEL 61-02 YBKC OR APPD. EQ.
22	FLEX. CPLG.	10"	
23	DIP SPOOL	10"	
24	RIDGID PIPE	1"	
25	BALL VALVE	1"	
26	SOLENOID VALVE	1"	
27	PRESSURE REGULATOR	1"	
28	RIDGID PIPE	3/4"	
29	BALL VALVE	3/4"	
30	DIP SPOOL	12"	30" LONG
31	BLIND FLNG.	12"	
32	DIP 90° BEND	12"	
33	DIP	16"	
34	DIP 90° BEND	16"	
35	BLIND FLNG.	16"	
36	FLEX. CPLG. (RESTRAINED)	16"	
37	TRANSMISSION PIPE	16"	
38	HOSE BIBB	3/4"	
39	DIP 90° BEND	10"x6"	
40	DIP WYE	10"	
41	SCH 40 DRAIN PIPE	4"	
42	EVAPORATIVE COOLER	–	(SEE MECH. PLANS)
43	AIR EXHAUST LOUVER	–	(SEE MECH. PLANS)
44	HEATER	–	CEILING MOUNTED (SEE MECH. PLANS)
45	½" ST. STL. ORIFACE PLATE	10"	OPENING TO BE SIZED BY ENGINEER
46	PRESSURE GUAGE	–	SEE DETAIL C/D4
47	PRESSURE GUAGE & PRESSURE SWITCH	–	SEE DETAIL C/D4
48	BUTTERFLY VALVE	4"	
49	DIP SPOOL	20"	FLANGE x PLAIN END
50	DIP 45° BEND	20"	
51	DIP	20"	
52	DIP REDUCER	20"x10"	
53	PIPE SUPPORT	–	SEE DETAIL G/D3
54	SAMPLE TAP	1/2"	
X	LOCATION OF PIPE SUPPORT	–	SEE DETAIL F/D3

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/28/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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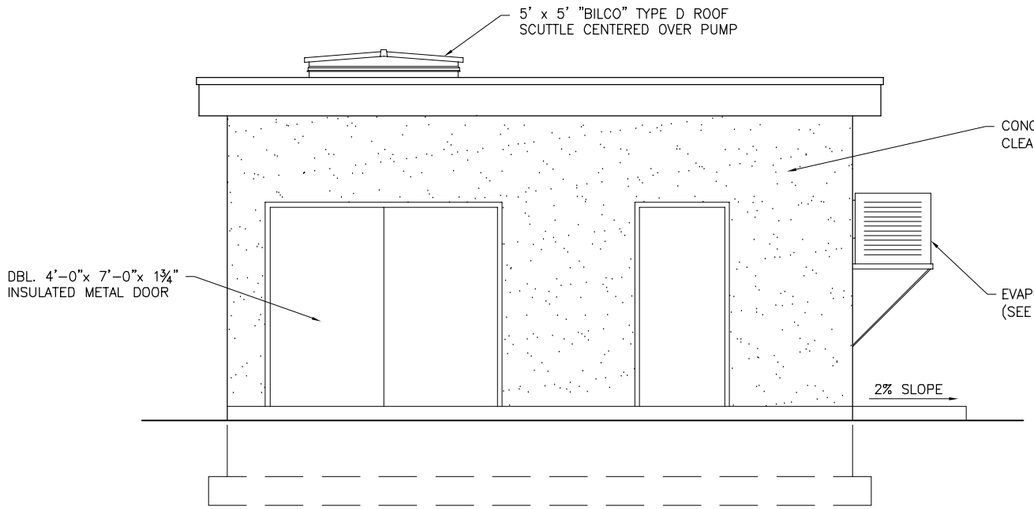
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CULINARY WATER IMPROVEMENTS PROJECT
2018

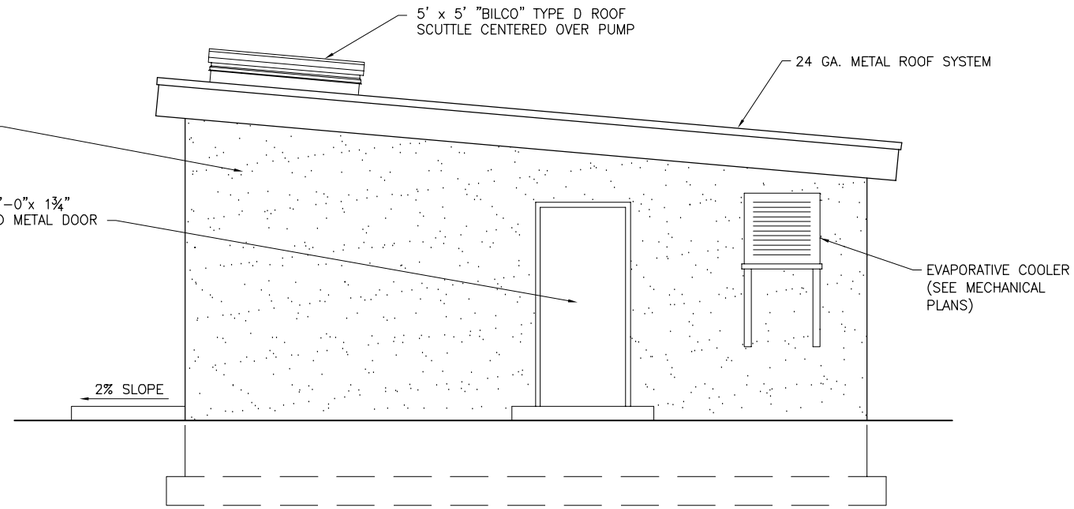
FIREHOUSE WELL SECTIONS & EQUIP. SCH.

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	198	F2

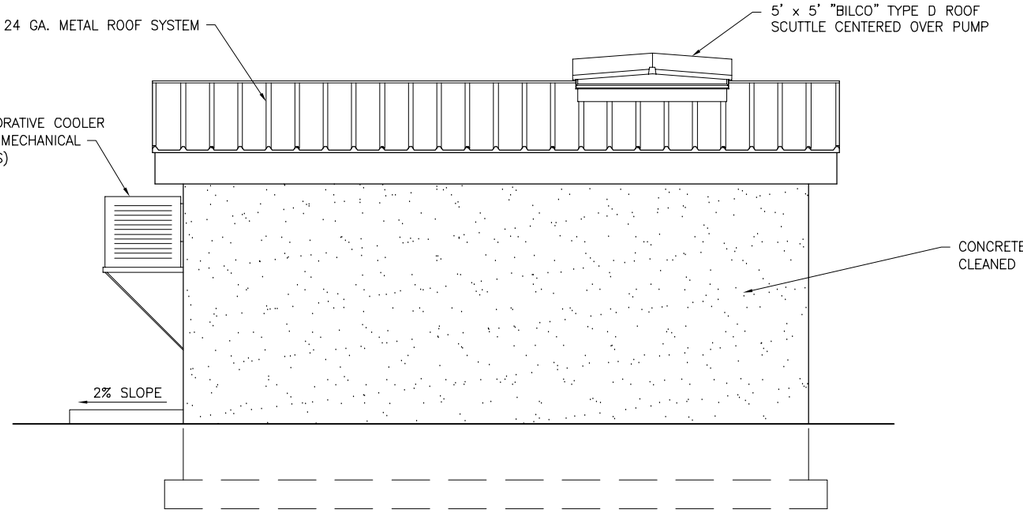
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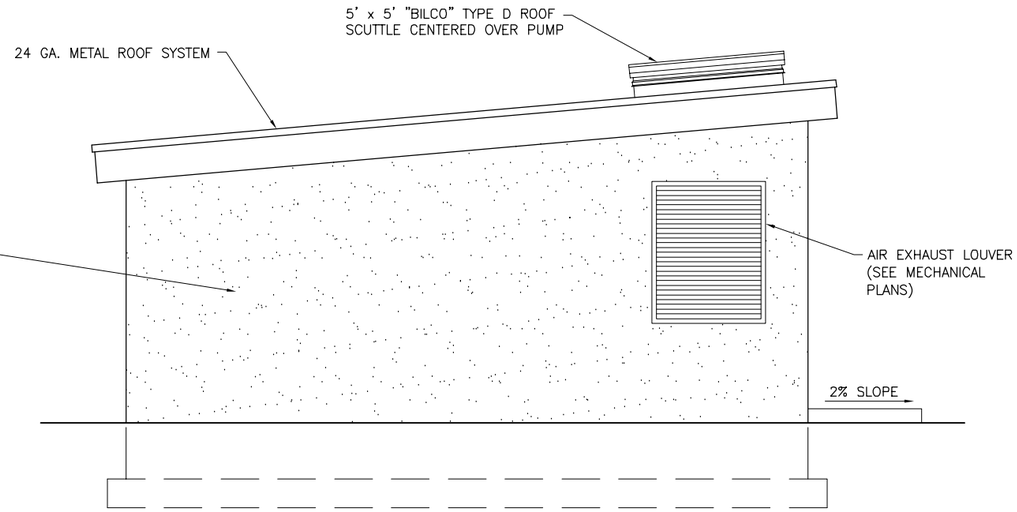
WEST EXTERIOR ELEVATION



SOUTH EXTERIOR ELEVATION



EAST EXTERIOR ELEVATION



NORTH EXTERIOR ELEVATION

D / F3 **FIREHOUSE WELL EXTERIOR ELEVATIONS**
3/16" = 1'-0"

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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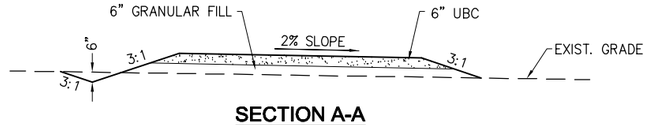
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CULINARY WATER IMPROVEMENTS PROJECT
2018
FIREHOUSE WELL EXTERIOR ELEVATIONS

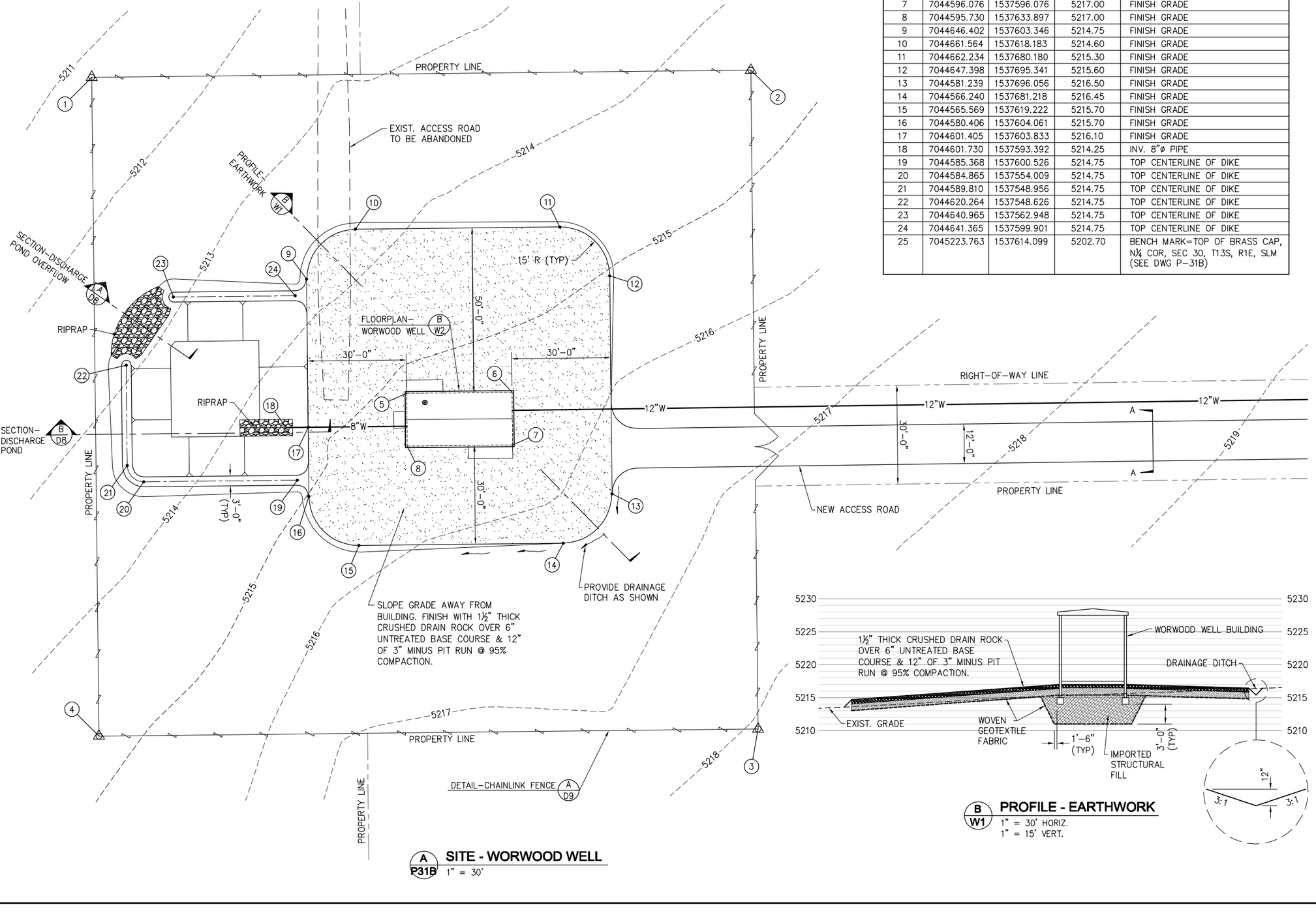
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	JCI	CJC	RWW	199

F3

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SECTION A-A



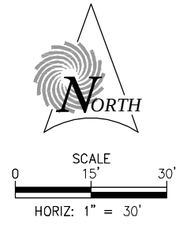
A P31B SITE - WORWOOD WELL

1" = 30'

MK. NO.	NORTHING	EASTING	ELEVATION	REMARKS
1	7044707.661	1537538.189	–	PROPERTY CORNER
2	7044709.826	1537738.177	–	PROPERTY CORNER
3	7044509.837	1537740.342	–	PROPERTY CORNER
4	7044507.673	1537540.353	–	PROPERTY CORNER
5	7044611.729	1537633.723	5217.00	FINISH GRADE
6	7044612.075	1537665.722	5217.00	FINISH GRADE
7	7044596.076	1537596.076	5217.00	FINISH GRADE
8	7044595.730	1537633.897	5217.00	FINISH GRADE
9	7044646.402	1537603.346	5214.75	FINISH GRADE
10	7044661.564	1537618.183	5214.60	FINISH GRADE
11	7044662.234	1537680.180	5215.30	FINISH GRADE
12	7044647.398	1537695.341	5215.60	FINISH GRADE
13	7044581.239	1537696.056	5216.50	FINISH GRADE
14	7044566.240	1537681.218	5216.45	FINISH GRADE
15	7044565.569	1537619.222	5215.70	FINISH GRADE
16	7044580.406	1537604.061	5215.70	FINISH GRADE
17	7044601.405	1537603.833	5216.10	FINISH GRADE
18	7044601.730	1537593.392	5214.25	INV. 8"ø PIPE
19	7044585.368	1537600.526	5214.75	TOP CENTERLINE OF DIKE
20	7044584.865	1537554.009	5214.75	TOP CENTERLINE OF DIKE
21	7044589.810	1537548.956	5214.75	TOP CENTERLINE OF DIKE
22	7044620.264	1537548.626	5214.75	TOP CENTERLINE OF DIKE
23	7044640.965	1537562.948	5214.75	TOP CENTERLINE OF DIKE
24	7044641.365	1537599.901	5214.75	TOP CENTERLINE OF DIKE
25	7045223.763	1537614.099	5202.70	BENCH MARK=TOP OF BRASS CAP, N¼ COR, SEC 30, T13S, R1E, SLM (SEE DWG P-31B)

B W1 PROFILE - EARTHWORK

1" = 30' HORIZ.
1" = 15' VERT.





REV NO.	COMMENT	DATE
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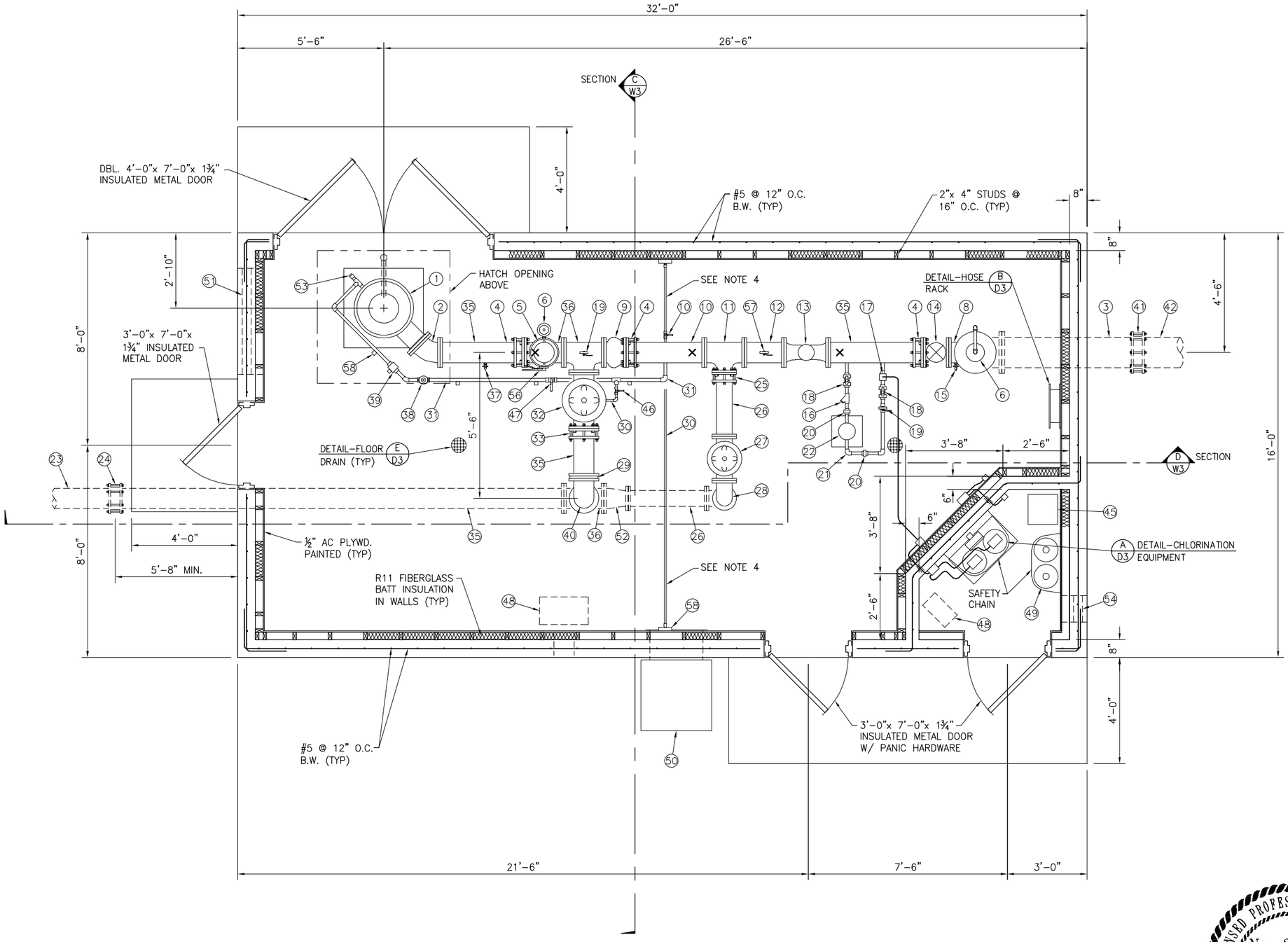
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CULINARY WATER IMPROVEMENTS PROJECT
2018
WORWOOD WELL SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	200	W1

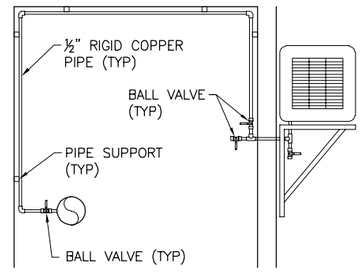
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B W1 PLAN - WORWOOD WELL
1/4" = 1'-0"

NOTES:

1. SEE DWG W3 FOR EQUIPMENT SCHEDULE
2. ALL PIPING 2"ø AND UNDER IS DRAWN AS SHOWN FOR CLARITY. THE CONTRACTOR SHALL CONSULT ENGINEER FOR THE MOST CONVENIENT ROUTING OF PIPING.
3. SLOPE FLOOR TOWARDS FLOOR DRAINS AT ⅛" PER FOOT MIN. SLOPE.
4. PROVIDE ½" RIGID PIPE WATER SUPPLY TO EVAPORATIVE COOLER. ATTACH TO WALL AND CEILING AS REQ'D. (SEE SCHEMATIC BELOW)



SCHEMATIC

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STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

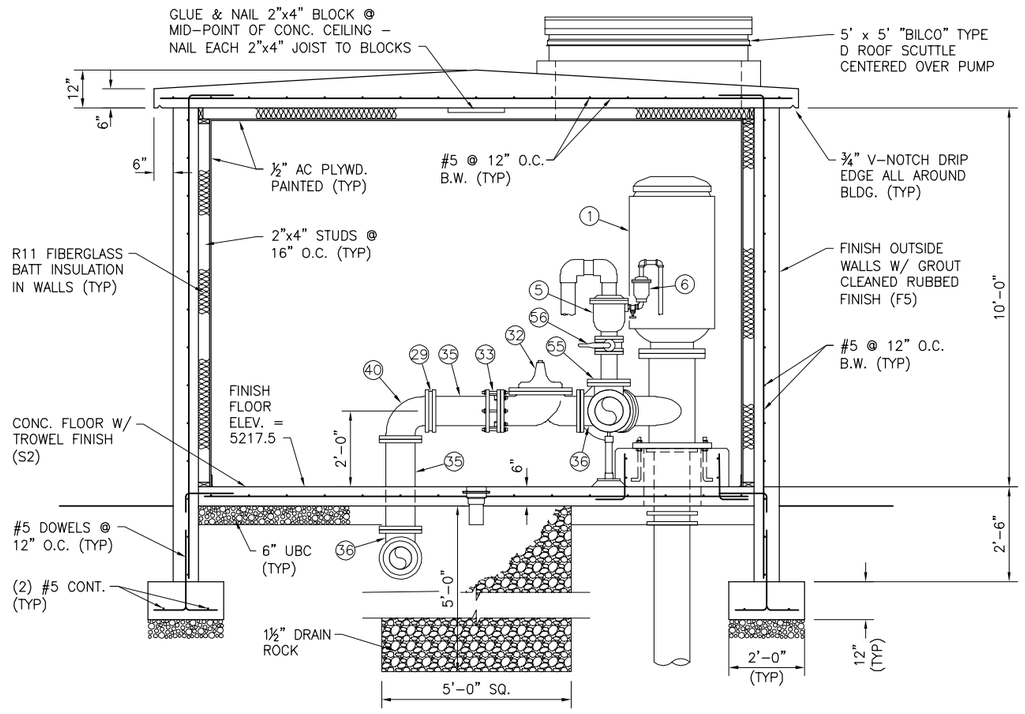
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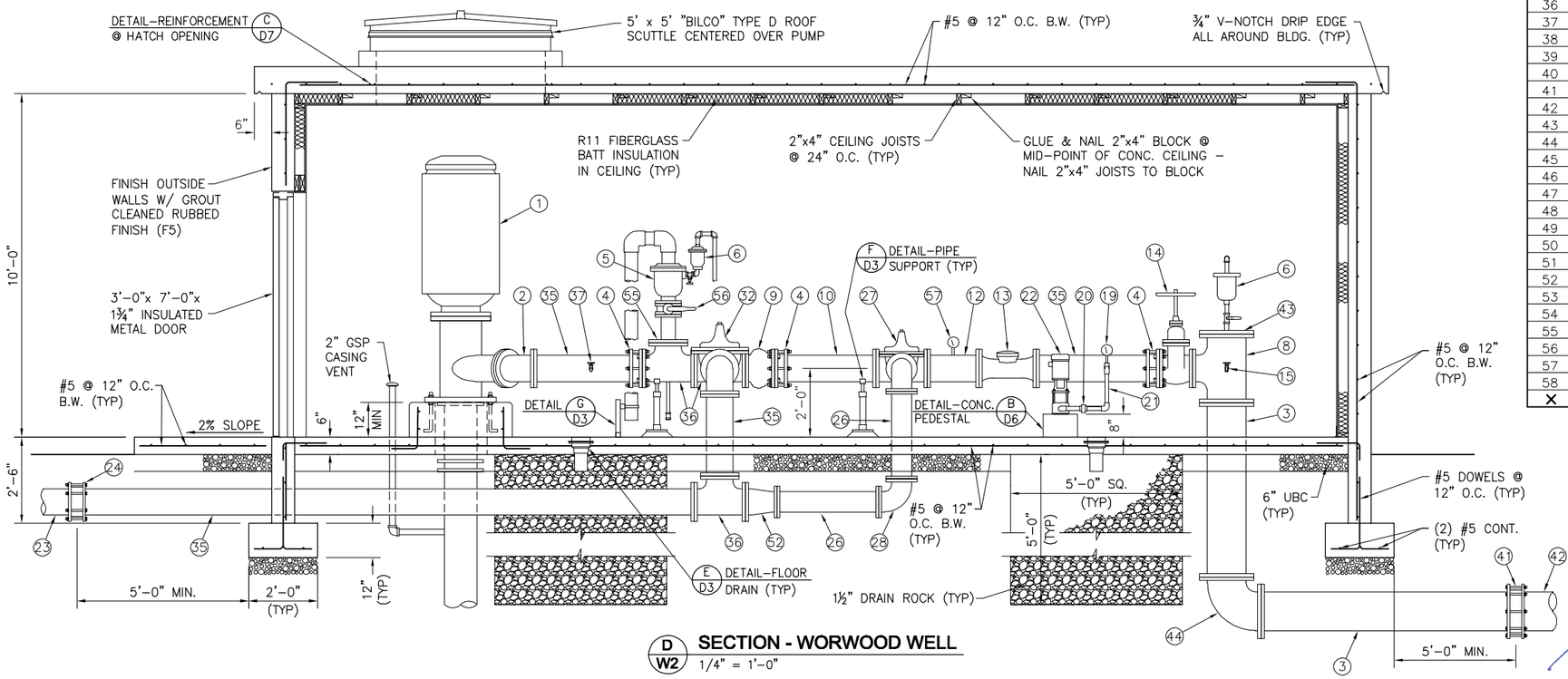
CULINARY WATER IMPROVEMENTS PROJECT
2018
WORWOOD WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	201	W2

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C W2 **SECTION - WORWOOD WELL**
1/4" = 1'-0"



D W2 **SECTION - WORWOOD WELL**
1/4" = 1'-0"

EQUIPMENT SCHEDULE

MK.NO.	DESCRIPTION	SIZE	REMARKS
1	VERTICAL TURBINE PUMP	–	
2	DIP 45° BEND	8"	
3	DIP	12"	
4	RESTRAINED FLNG. CPLG. ADAPTER	8"	
5	COMBINATION AIR VALVE	3"	SEE DETAIL F/D4
6	COMBINATION AIR VALVE	1"	SEE DETAIL E/D4
7	NOT USED		
8	DIP TEE	12"x8"	
9	CHECK VALVE	8"	"CLA-VAL" SERIES 581 SILENT GLOBE OR APPROVED EQUAL
10	DIP SPOOL	8"	36" LONG
11	DIP TEE	8"x6"	
12	DIP SPOOL	8"	18" LONG
13	FLOWMETER	8"	"MASTER METER" OCTAVE ULTRASONIC OR APPROVED EQUAL
14	GATE VALVE	8"	
15	HOSE BIBB	3/4"	
16	STRAINER	1"	
17	CHLORINE INJECTOR	–	
18	TRUE UNION BALL VALVE	1"	
19	PRESSURE GUAGE	–	SEE DETAIL C/D4
20	UNION	1"	
21	SCH 80 PVC PIPE & FITTINGS	1"	
22	BOOSTER PUMP	–	SEE 11230 SP
23	PVC PIPE	8"	
24	FLEX. CPLG.	8"	
25	RESTRAINED FLNG. CPLG. ADAPTER	6"	
26	DIP	6"	
27	PRESSURE RELIEF VALVE	6"	"CLA-VAL" MODEL 52-01 BKC OR APPROVED EQUAL
28	DIP 90° BEND	6"	
29	ORIFACE PLATE	8"	OPENING TO BE SIZED BY ENGINEER
30	RIGID PIPE	1/2"	
31	RIGID PIPE	1"	
32	PUMP CONTROL VALVE	8"	"CLA-VAL" MODEL 61-02 YBKC OR APPROVED EQUAL
33	RESTRAINED FLNG. CPLG. ADAPTER	8"	
34	DIP SPOOL	8"	18" LONG
35	DIP	8"	
36	DIP TEE	8"	
37	SAMPLE TAP	1/2"	
38	SOLENOID VALVE	1"	
39	PRESSURE REGULATOR	1"	
40	DIP 90° BEND	8"	
41	FLEX. CPLG. (RESTRAINED)	12"	
42	TRANSMISSION PIPE	12"	
43	BLIND FLNG.	12"	
44	DIP 90° BEND	12"	
45	EXHAUST FAN & DUCTING	–	ROOF MOUNTED (SEE MECH. PLANS)
46	BALL VALVE	1/2"	
47	BALL VALVE	1"	
48	HEATER	–	CEILING MOUNTED (SEE MECH. PLANS)
49	CHLORINE GAS BOTTLES	–	BY OTHERS
50	EVAPORATIVE COOLER	–	(SEE MECH. PLANS)
51	AIR EXHAUST LOUVER	–	(SEE MECH. PLANS)
52	DIP REDUCER	8"x6"	
53	THREADED PLUG	1"	
54	AIR SUPPLY LOUVER	–	(SEE MECH. PLANS)
55	BLIND FLNG.	8"	
56	BUTTERFLY VALVE	4"	
57	PRESSURE GUAGE & PRESSURE SWITCH	–	SEE DETAIL C/D4
58	PIPE SUPPORT	–	SEE DETAIL G/D3
X	LOCATION OF PIPE SUPPORT	–	SEE DETAIL F/D3

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

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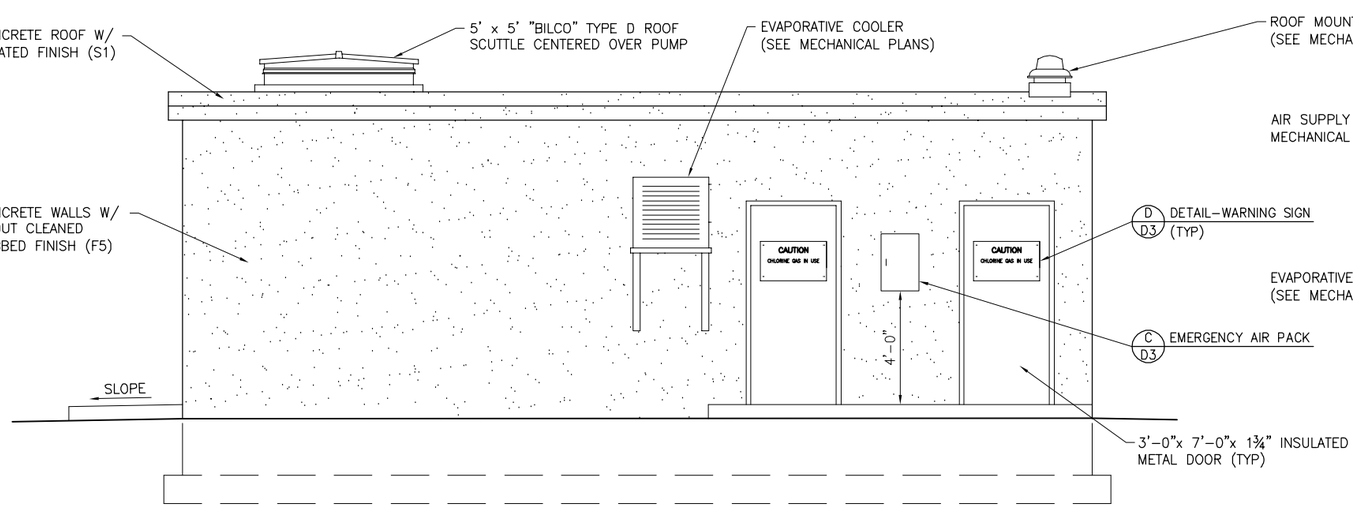
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CULINARY WATER IMPROVEMENTS PROJECT
2018

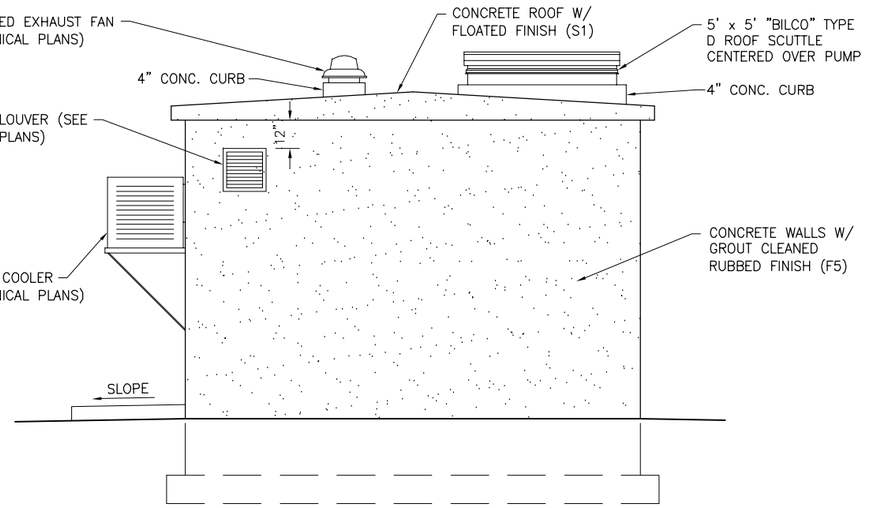
WORWOOD WELL SECTIONS & EQUIP. SCH.

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	202	W3

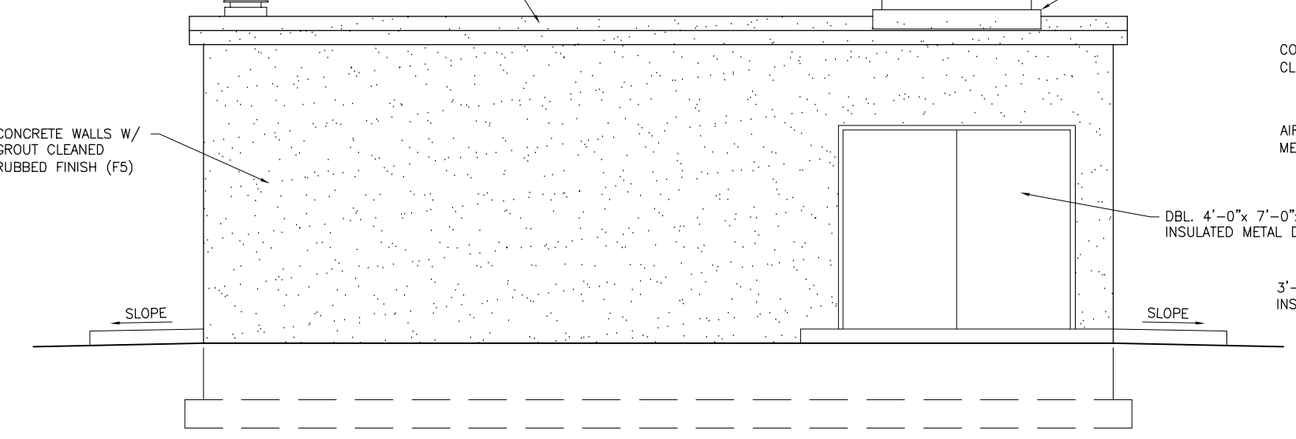
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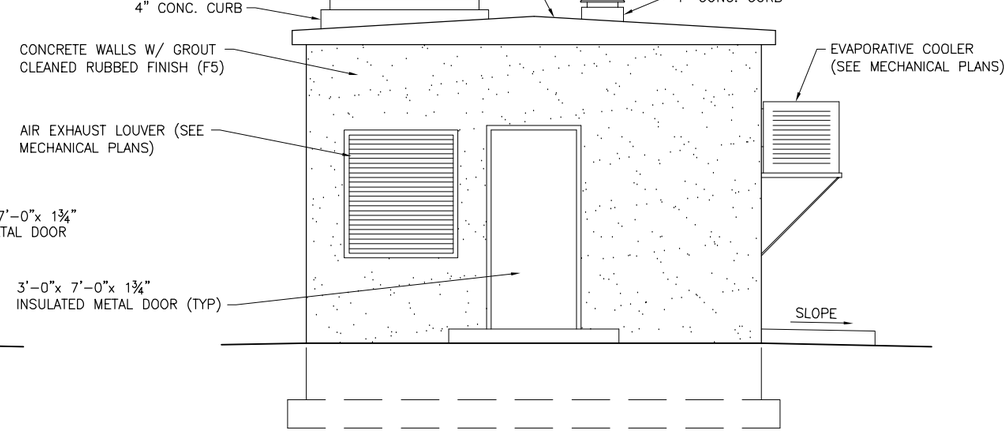
SOUTH EXTERIOR ELEVATION



EAST EXTERIOR ELEVATION



NORTH EXTERIOR ELEVATION



WEST EXTERIOR ELEVATION

E W4 WORWOOD WELL EXTERIOR ELEVATIONS
3/16" = 1'-0"

REV NO.	COMMENT	DATE
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CULINARY WATER IMPROVEMENTS PROJECT
2018
WORWOOD WELL EXTERIOR ELEVATIONS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	203	W4

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GRADE DITCH TO NATURAL GRADE REQ'D

APPROX. 50 L.F. OF 24" OVERFLOW LINE @ 0.5% SLOPE

OVERFLOW DISCHARGE E SD5

10" OVERFLOW LINE @ 8.0% SLOPE

APPROX. 60 L.F. OF 24" OVERFLOW LINE @ 0.5% SLOPE

REMOVE EXISTING STOCK FENCE

DRAIN LINE

REMOVE EXIST. LOWER BRADLEY SPRING COLLECTION BOX

CONNECT TO EXIST. 10" CMP SPRING COLLECTION LINE. SEE DETAIL A SHEET SD2

DETAIL–STOCK FENCE D D6

ABANDON EXIST. OVERFLOW BOX, OUTLET & OVERFLOW PIPES

10" WATERLINE @ 6.7% SLOPE

OVERFLOW LINE

DETAIL–HEAD BOX A SD3

DRAIN LINE

CONNECT TO EXIST. 2" PVC WATERLINE. SLOPE PIPE TO INCREASE BURY DEPTH TO 30" MIN.

EXIST. 2" PVC WATERLINE

NEW LOWER BRADLEY SPRING COLLECTION BOX

DETAIL–COLLECTION BOX A SD1

24" WATERLINE

EXIST. 16" D.I. PIPE

CONNECT TO EXIST. 16" D.I. UPPER BRADLEY SPRING LINE

18" WATERLINE @ 0.5% SLOPE MIN.

ABANDON 8" D.I. PIPE

EXIST. 16" D.I. UPPER BRADLEY SPRING LINE

REMOVE EXISTING STOCK FENCE

EXIST. ACCESS ROAD

DETAIL–STOCK FENCE D D6

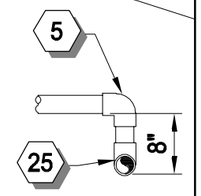
CONNECT TO EXIST. 16" D.I. UPPER BRADLEY SPRING LINE

CONNECT TO EXIST. 16" D.I. UPPER BRADLEY SPRING LINE

EXIST. 16" D.I. UPPER BRADLEY SPRING LINE

EXIST. PRIVATE WATER STORAGE TANK TO BE BROUGHT UP TO STATE STANDARDS BY OTHERS

SCALE
0 20' 40'
HORIZ: 1" = 20'



SECTION A-A

EQUIPMENT SCHEDULE

NO.	DESCRIPTION	SIZE	REMARKS
1	45° BEND (MJxMJ)	10"	
2	TEE (MJxMJ)	10"x10"	
3	90° BEND (MJxMJ)	10"	
4	GATE VALVE	10"	
5	90° BEND	2"	
6	GOOSE NECK AIR VENT	4"	
7	TEE (MJxMJ)	16"x16"	
8	BUTTERFLY VALVE	16"	
9	90° BEND (MJxMJ)	24"	
10	REDUCER (MJxMJ)	24"x16"	
11	REDUCER (MJxMJ)	16"x10"	
12	WYE (MJxMJ)	24"x24"	
13	TEE (MJxMJ)	24"x12"	
14	90° BEND (MJxMJ)	8"	
15	GATE VALVE	8"	
16	(2) 90° BENDS (MJxMJ)	8"	VERTICAL INSTALLATION
17	ECCENTRIC REDUCER (MJxMJ)	12"x8"	ALIGN REDUCER AT THE BOTTOM
18	TEE (MJxMJ)	8"x8"	
19	REDUCER (MJxMJ)	18"x16"	
20	REDUCER (MJxMJ)	24x18"	
21	GOOSE NECK AIR VENT	10"	SEE DETAIL E/SD5
22	45° BEND (MJXMJ)	16"	
23	WYE (MJXMJ)	16"	
24	45° BEND (MJXMJ)	24"	
25	TEE	2"	SEE SECTION A–A ON THIS SHEET
26	GATE VALVE	2"	
27	BUTTERFLY VALVE	24"	

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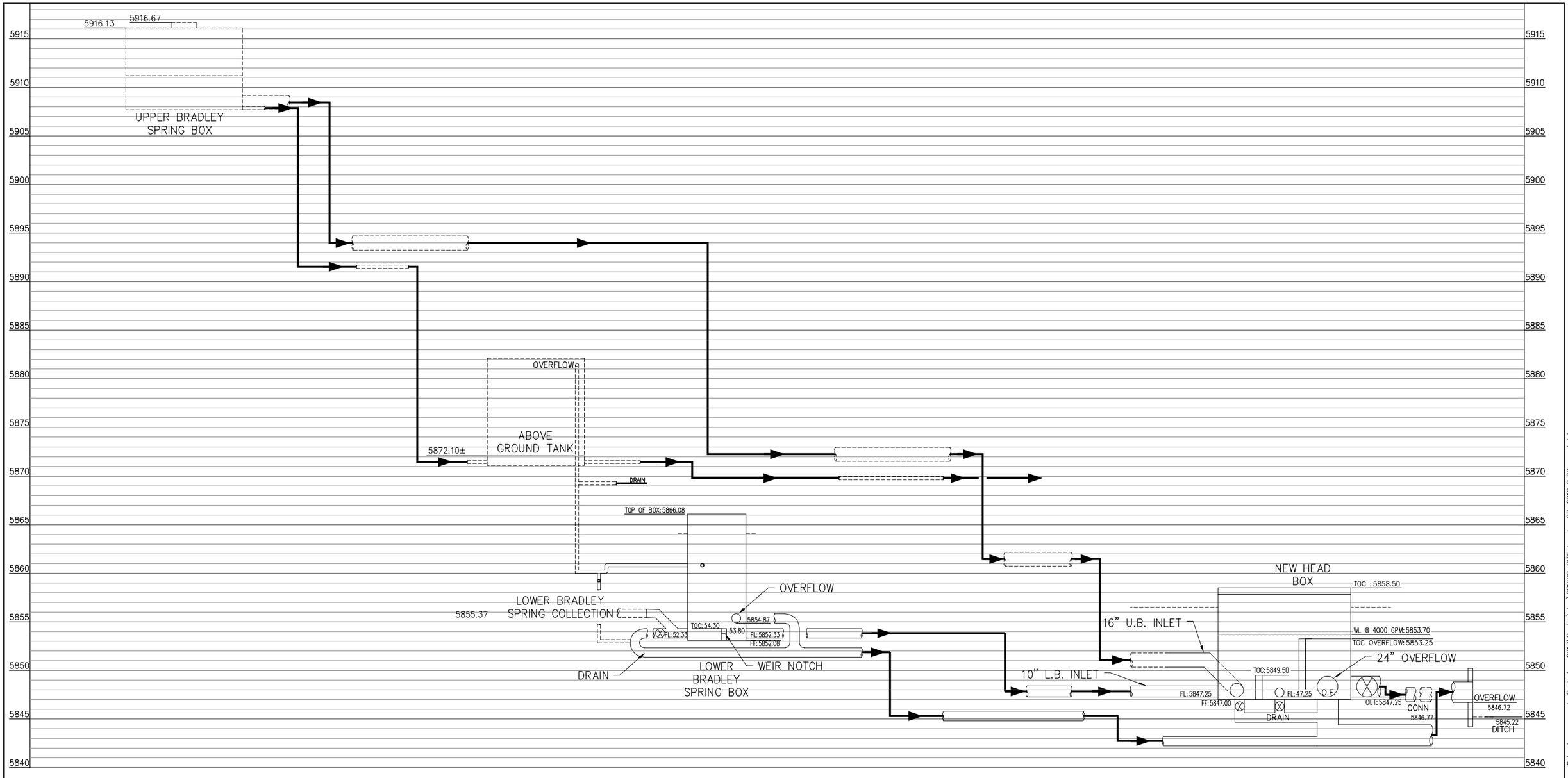
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
LOWER BRADLEY SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO	
05884	TRB	TRB	JI	204	SSP1

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REV NO.	COMMENT	DATE
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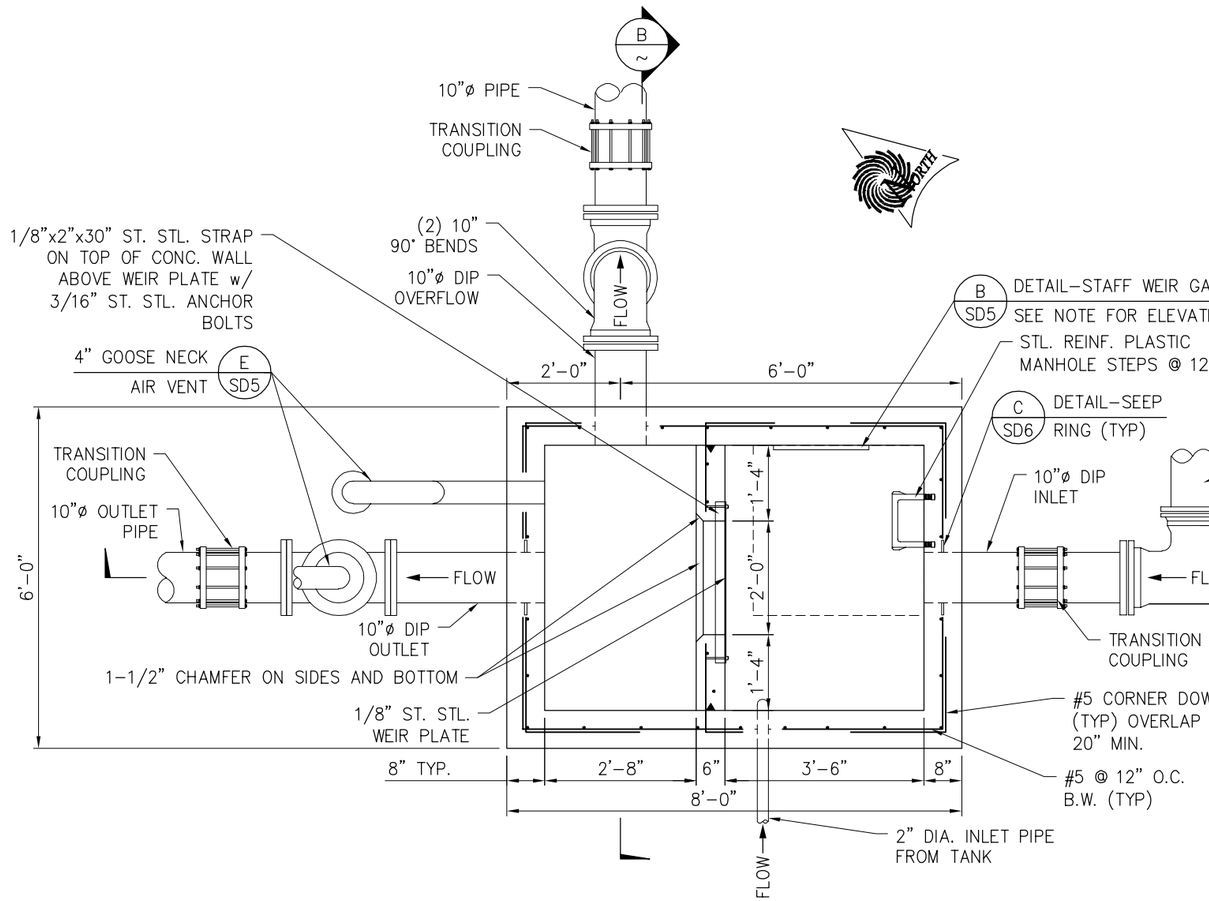
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
HYDRAULIC PROFILE

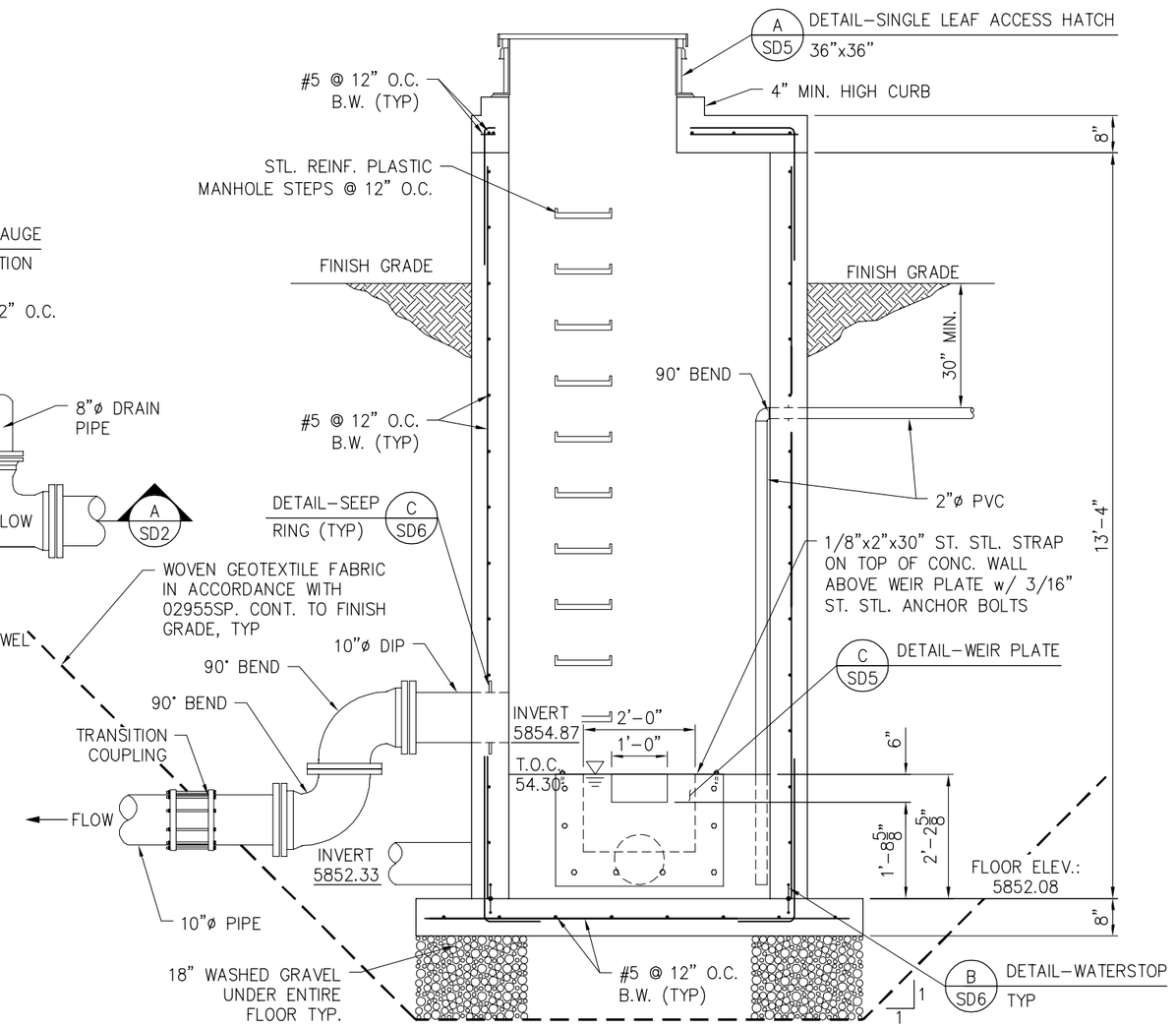
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	205

SSP2

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A ~ **PLAN - COLLECTION BOX**
NOT TO SCALE



B ~ **SECTION - COLLECTION BOX**
NOT TO SCALE

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6–21–18

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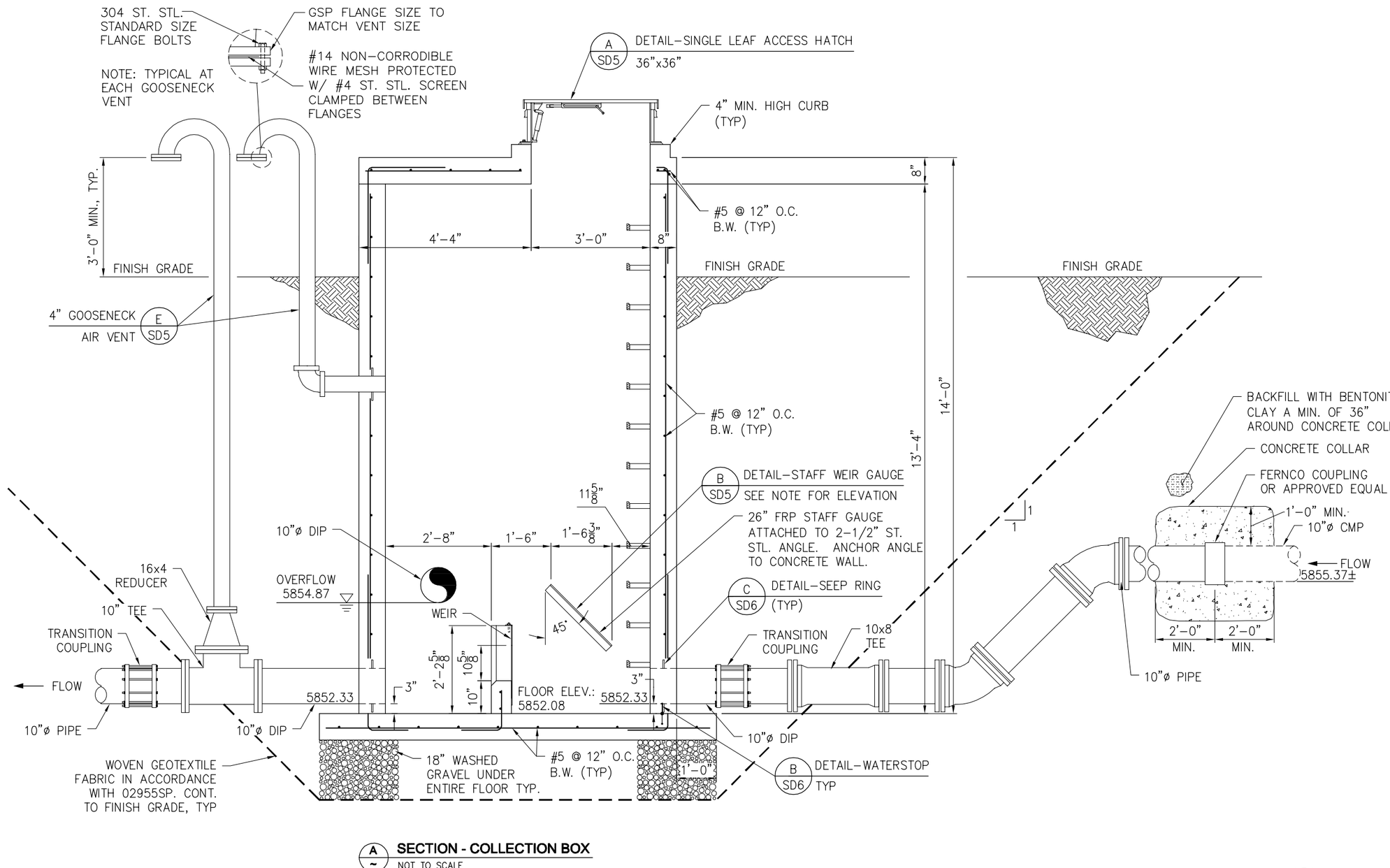
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
DETAIL SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	206	SD1

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A SECTION - COLLECTION BOX
NOT TO SCALE

REV NO.	COMMENT	DATE
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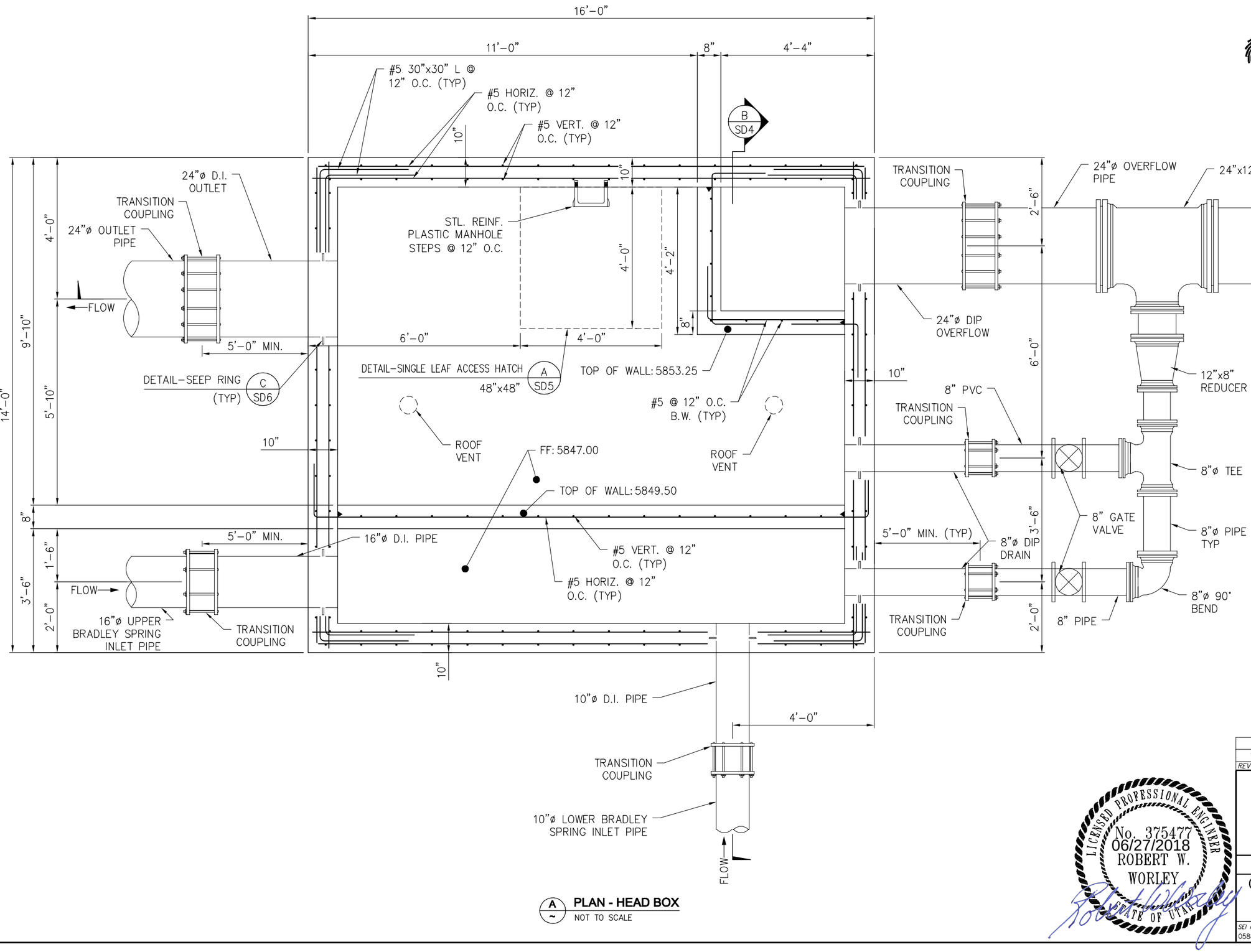
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CULINARY WATER IMPROVEMENTS - 2017
BRADLEY SPRINGS
DETAIL SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	207	SD2

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A PLAN - HEAD BOX
NOT TO SCALE

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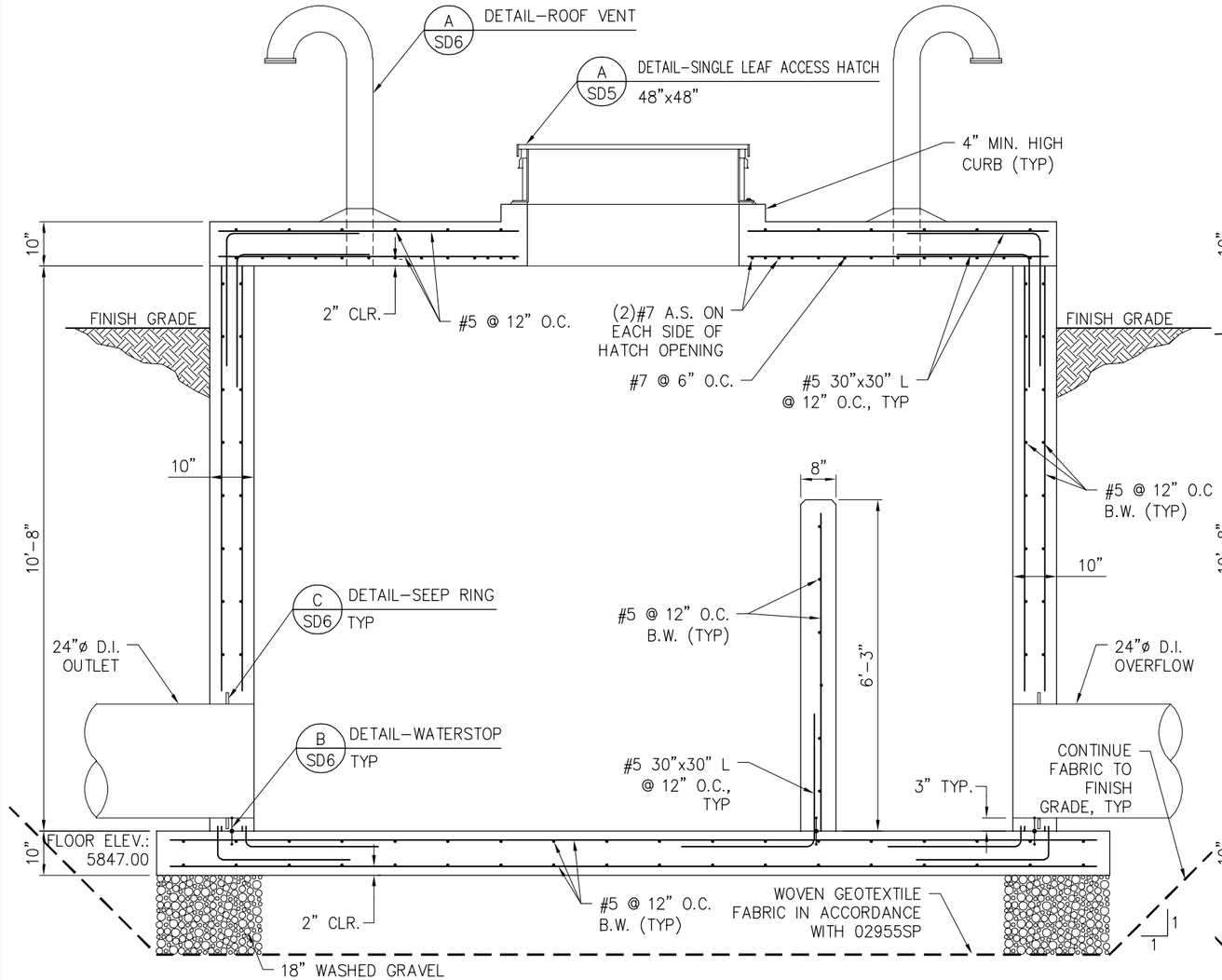
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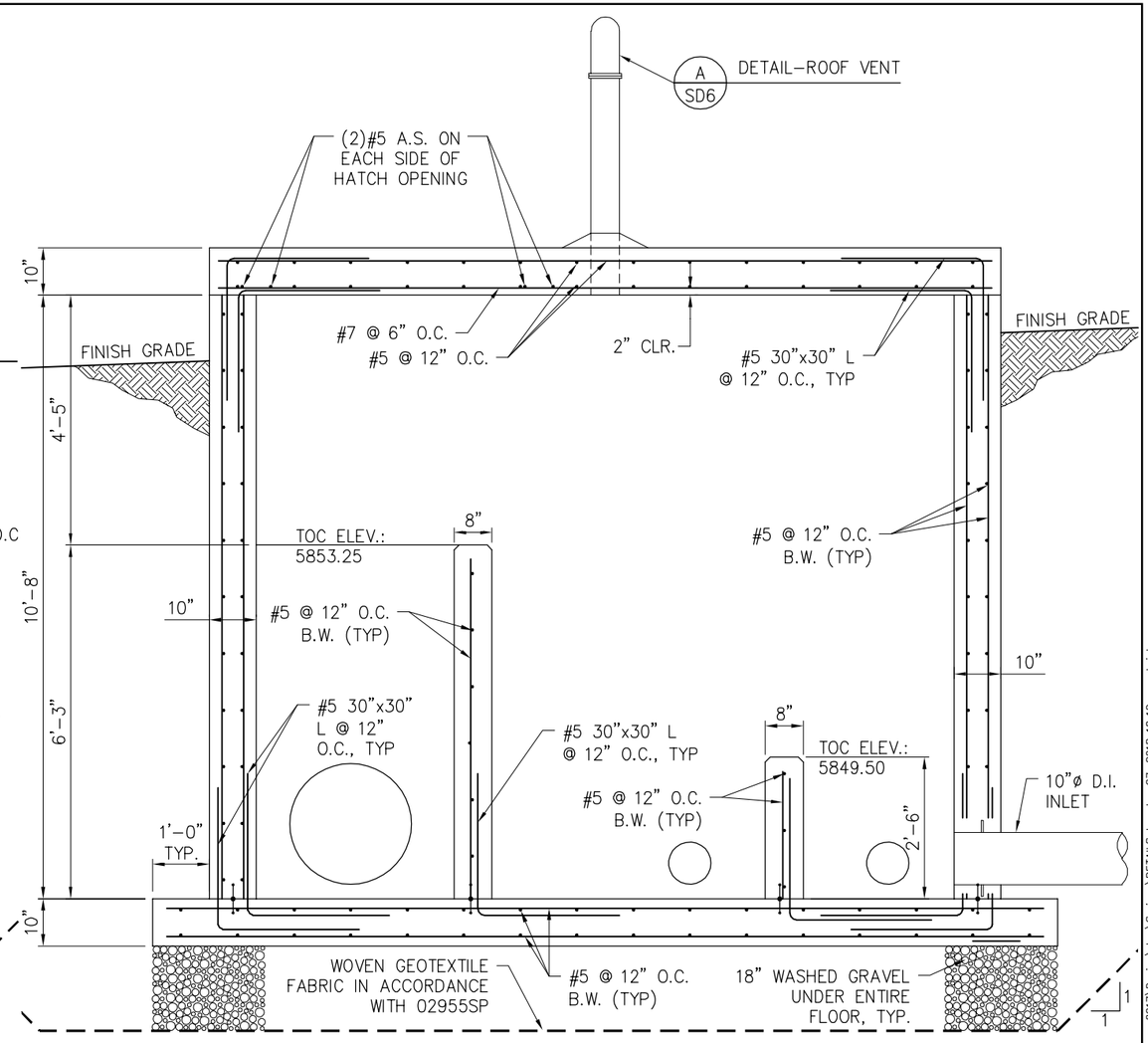
CULINARY WATER IMPROVEMENTS - 2017
BRADLEY SPRINGS
DETAIL SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	208	SD3

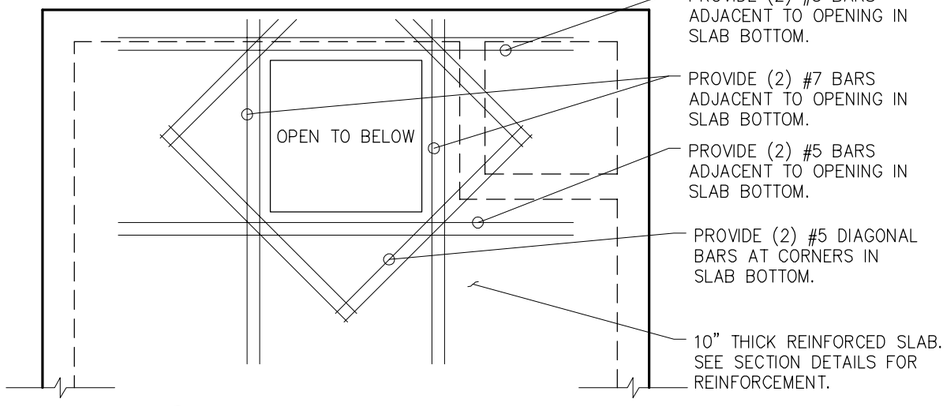
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A ~ **SECTION - HEAD BOX**
NOT TO SCALE



B ~ **SECTION - HEAD BOX**
NOT TO SCALE



C ~ **DETAIL - REINF. @ ROOF OPENING**
NOT TO SCALE

REV NO.	COMMENT	DATE
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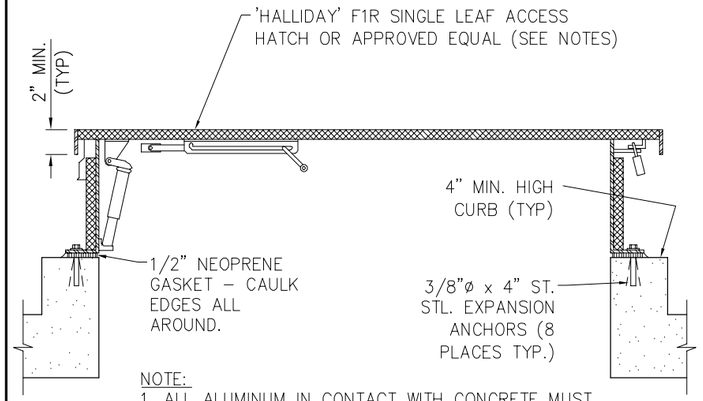
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
DETAIL SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	TRB	TRB	JI	209

SD4

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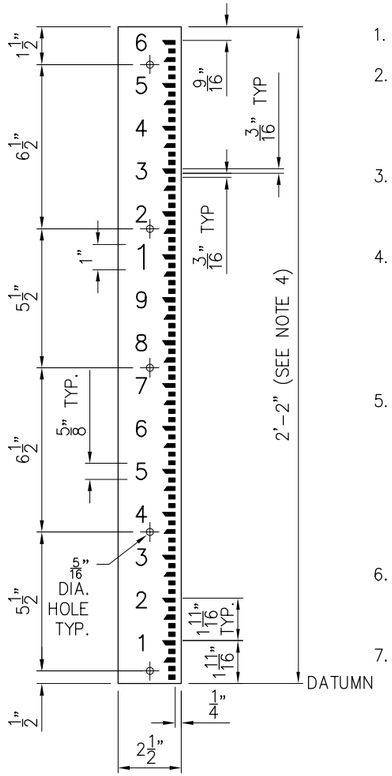


NOTE:
1. ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING OR EPOXY PAINT.

2. HATCH SIZE DETERMINED PER PLAN

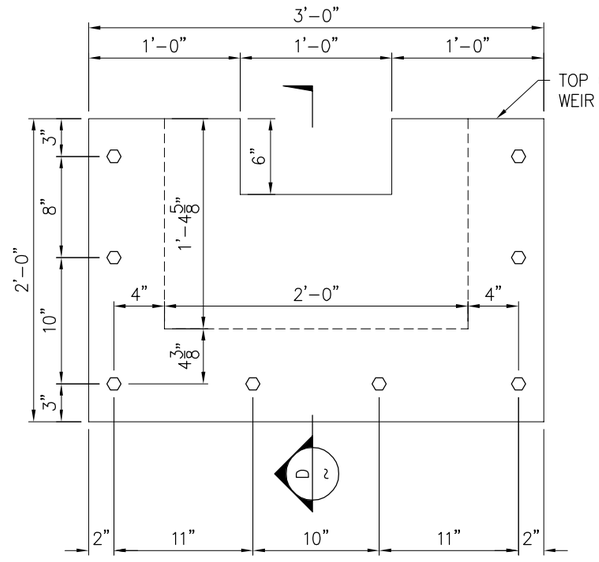
3. SEE SPECIFICATION SECTION 08215SP

A ~ DETAIL-SINGLE LEAF ACCESS HATCH
NOT TO SCALE

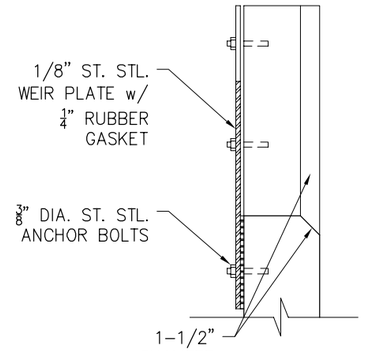


1. GAUGES SHALL BE FRP.
2. THE FACE OF THE GAUGE SHALL BE WHITE AND ALL NUMBERS AND GRADUATIONS SHALL BE BLACK.
3. GRADUATIONS SHALL BE SHARP AND ACCURATE TO THE DIMENSIONS SHOWN.
4. THE LENGTH SHALL BE AS GIVEN FOR THE STRUCTURE. IN CASE A GREATER LENGTH IS REQ'D THE DETAILS SHALL BE SIMILAR TO THE DETAILS SHOWN.
5. GAUGES SHALL BE ATTACHED TO 2-1/2" ST. STL. ANGLE w/ ¼" DIA. ST. STL. BOLTS. THE ANGLE SHALL BE ANCHORED TO THE CONC. WALL w/ ½" DIA. ST. STL. ANCHOR BOLTS @ 12" O.C.
6. GAUGE DATUMN SHALL BE SET EXACTLY LEVEL WITH THE BOTTOM EDGE OF THE WEIR.
7. THE GAUGE SHALL BE SET EXACTLY 45° DEGREES FROM LEVEL.

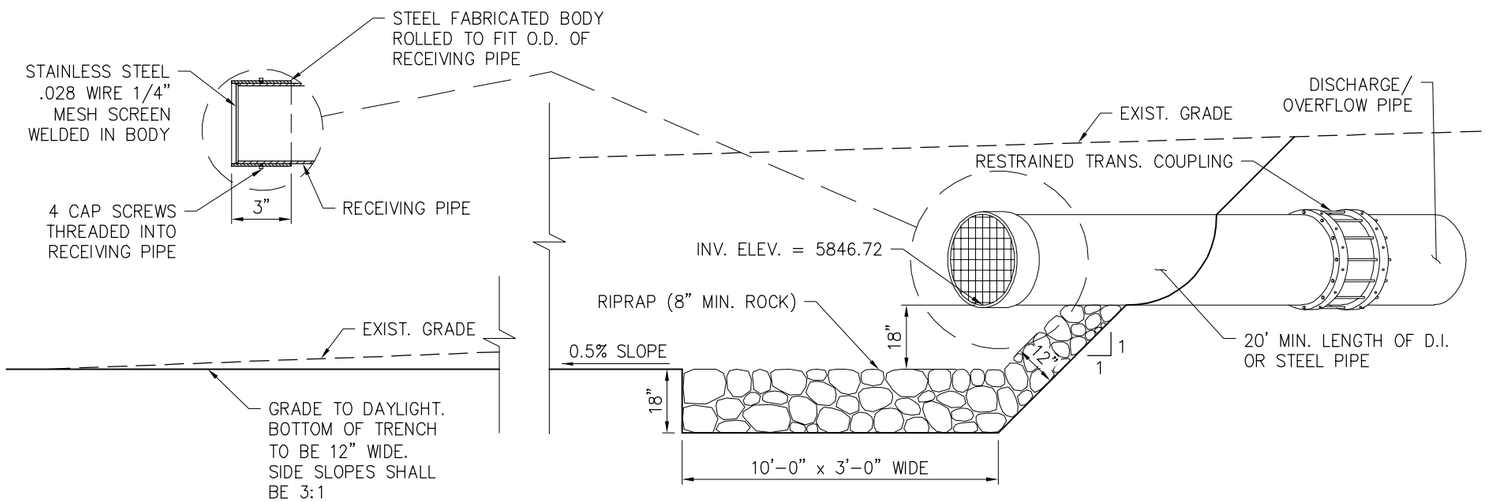
B ~ DETAIL-STAFF WEIR GAUGE
NOT TO SCALE



C ~ DETAIL-WEIR PLATE
NOT TO SCALE



D ~ SECTION-WEIR PLAT
NOT TO SCALE



E ~ SECTION-OVEFLOW DISCHARGE
NOT TO SCALE

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06/27/2018
ROBERT W. WORLEY
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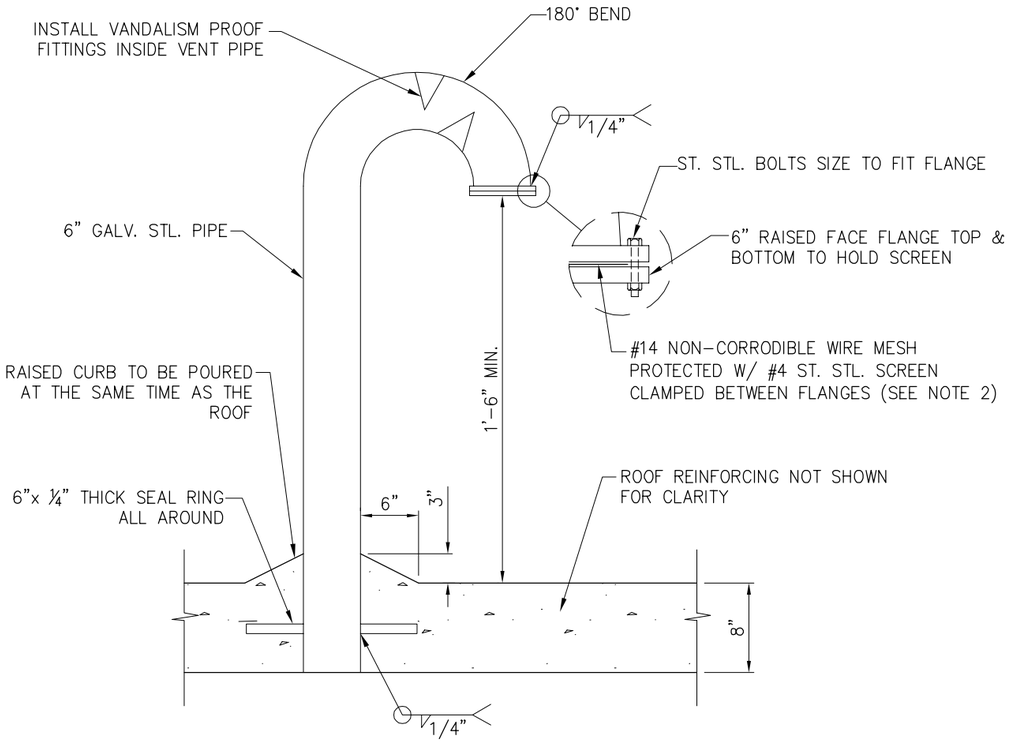
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
DETAIL SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	210	SD5

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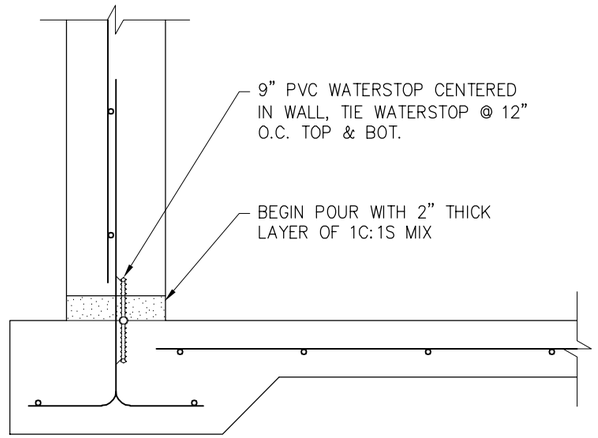


NOTE:

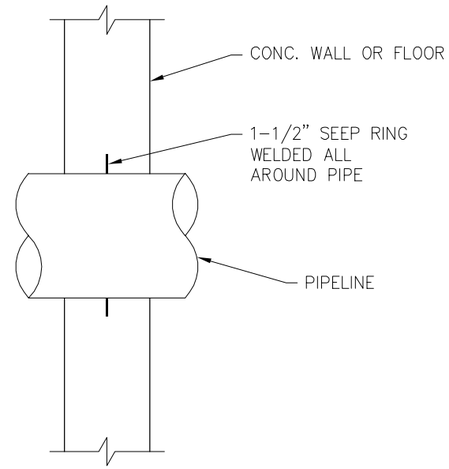
1. HOT DIP GALVANIZE ALL PARTS EXCEPT SCREEN & BOLTS AFTER WELDING COMPLETED.

2. CONTRACTOR SHALL INSTALL THE #14 WIRE MESH ON THE INSIDE TOWARDS THE PIPE BEND AND THE #4 SCREEN ON THE OUTSIDE TOWARDS ATMOSPHERE.

A ~ **DETAIL - ROOF VENT**
NOT TO SCALE



B ~ **DETAIL - WATERSTOP**
NOT TO SCALE



C ~ **DETAIL - SEEP RING**
NOT TO SCALE

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

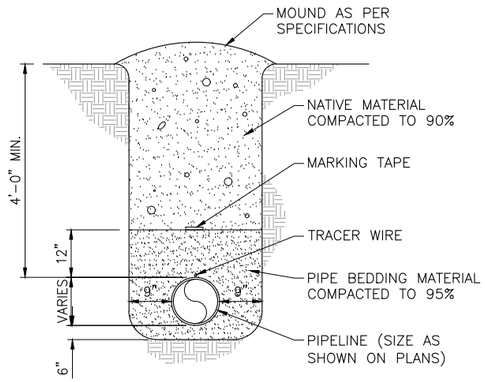
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CULINARY WATER IMPROVEMENTS – 2017
BRADLEY SPRINGS
DETAIL SHEET

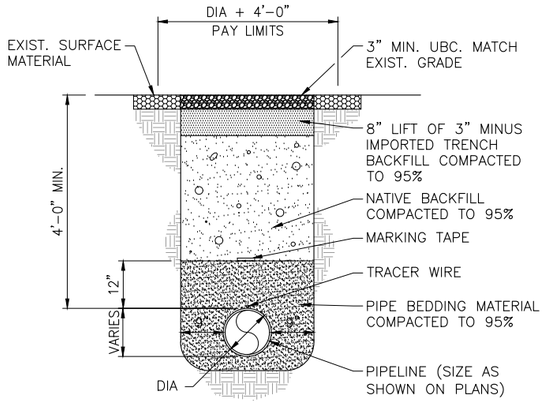
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	TRB	TRB	JI	211	SD6

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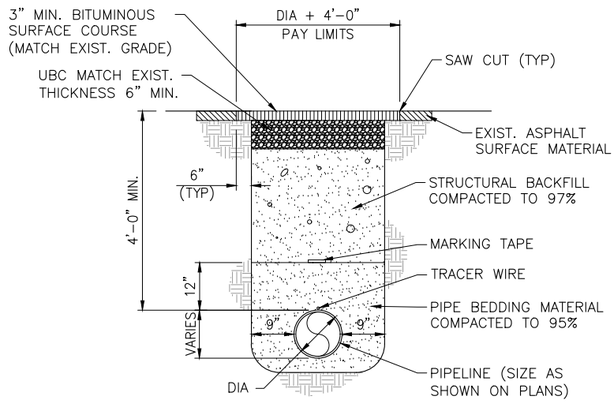
NOTE:
TRENCH DETAIL OUTSIDE OF DESIGNATED ROAD RIGHT-OF-WAY.

A TYP DETAIL - CITY/COUNTY TRENCH
NTS



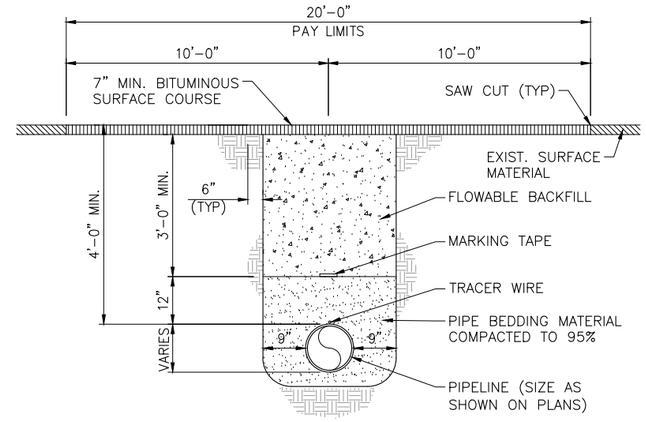
NOTE:
TRENCH DETAIL INSIDE OF GRAVEL ROADWAYS OR DESIGNATED ROAD RIGHT-OF-WAY

B TYP DETAIL - CITY/COUNTY UNPAVED ROADWAY TRENCH
NTS



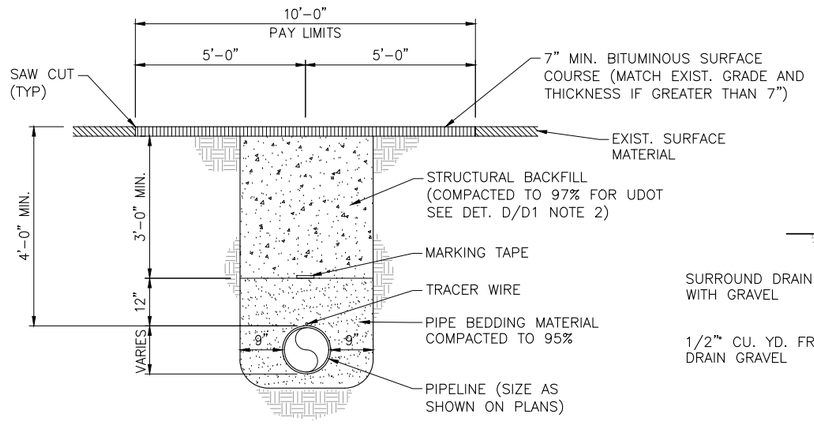
NOTES:
1. TRENCH DETAILS INSIDE OF ASPHALT ROADS.
2. ASPHALT ROADS SHALL BE SAW CUT.

C TYP DETAIL - CITY/COUNTY PAVED ROADWAY TRENCH
NTS



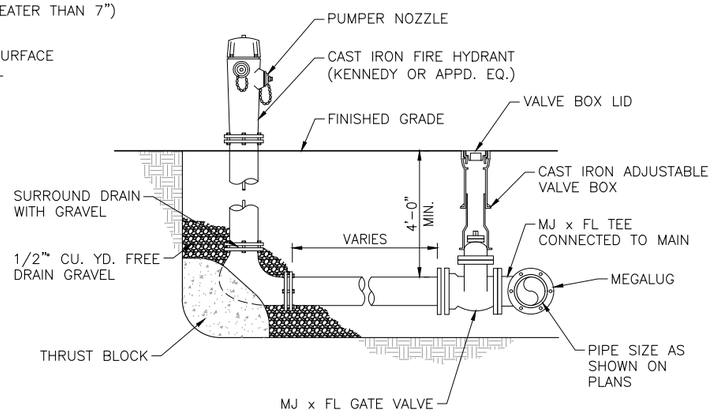
NOTE:
1. THIS SHALL BE USED ON ALL TRENCHES CROSSING STATE HIGHWAYS AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL REFER TO SPECIFICATION 02501SP FOR DESCRIPTION OF TRENCHING REQUIREMENTS.
2. REPAIRS OF BORE PITS OR OTHER NON-TRENCHING EXCAVATIONS ENCROACHING INTO TRAFFIC LANES SHALL COMPLY WITH THIS DETAIL UNLESS OTHERWISE APPROVED BY UDOT AND THE PROJECT ENGINEER.

D TYP DETAIL - UDOT TRENCH W/ FLOWABLE BACKFILL
NTS



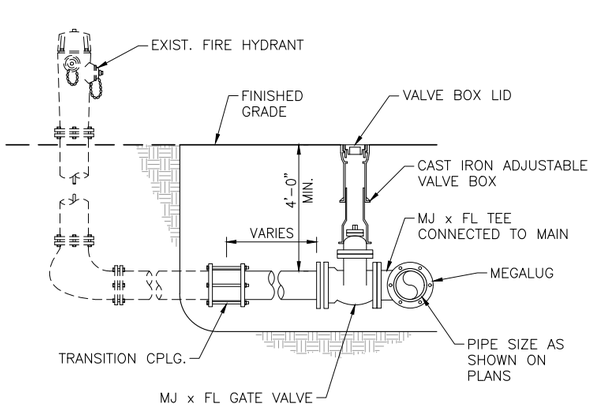
NOTE:
1. THIS DETAIL SHALL BE USED ON ALL TRENCHES WITHIN STATE HIGHWAY PARKING LANES RUNNING PARALLEL TO TRAFFIC LANES AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL REFER TO SPECIFICATION 02501SP FOR DESCRIPTION OF TRENCHING REQUIREMENTS.
2. REPAIRS OF BORE PITS OR OTHER NON-TRENCHING EXCAVATIONS NOT ENCROACHING INTO TRAFFIC LANES SHALL COMPLY WITH THIS DETAIL UNLESS OTHERWISE REQUIRED BY UDOT OR THE PROJECT ENGINEER.
3. WHERE TRENCHES IN THE PARKING LANES CROSS CITY STREETS ENTERING THE STATE HIGHWAY, DETAIL D IS REQUIRED AT THE CROSSING.

E TYP DETAIL - UDOT TRENCH PARALLEL TO TRAFFIC LANES
NTS



NOTE:
FIRE HYDRANT BREAKAWAY FLANGE SHALL BE NO GREATER THAN 5in. ABOVE FINISHED GRADE OR 1in. BELOW FINISHED/EXISTING GRADE

F TYP DETAIL - NEW FIRE HYDRANT ASSEMBLY
NTS



G TYP DETAIL - RECONNECT EXIST. FIRE HYDRANT
NTS

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
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STATE OF UTAH

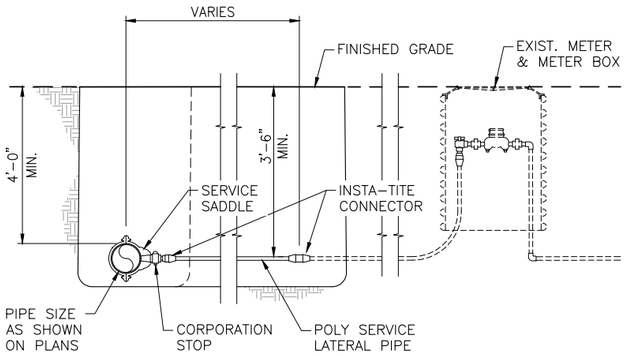
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1	GENERAL REVISIONS FOR BIDS	6-21-18

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CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

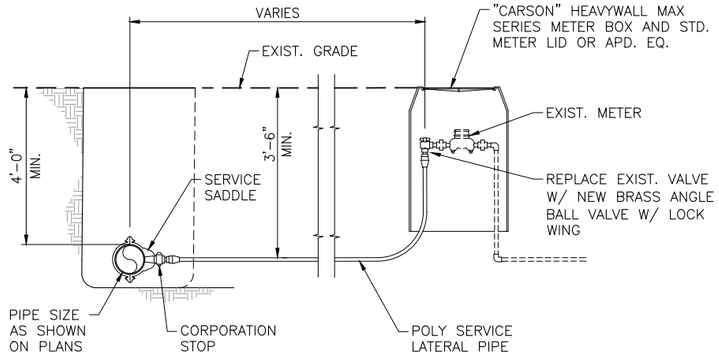
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	212	D1



NOTES:

1. INSTA-TITE CONNECTIONS TO EXISTING SERVICE LATERAL TUBING MAY REQUIRE ADAPTERS.

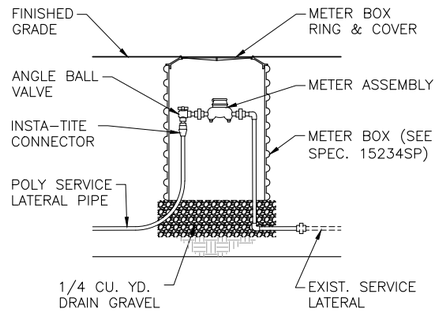
A TYP DETAIL - RECONNECT EXIST. SERVICE FOR CONNECTIONS 1½" AND SMALLER
NTS



NOTES:

1. ALL SERVICE LATERALS CONNECTING TO MAIN LINES ON OPPOSITE SIDE OF ROAD MUST BE INSTALLED BY PULLING UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. INSTA-TITE CONNECTIONS TO EXISTING METER ASSEMBLY MAY REQUIRE ADAPTERS.

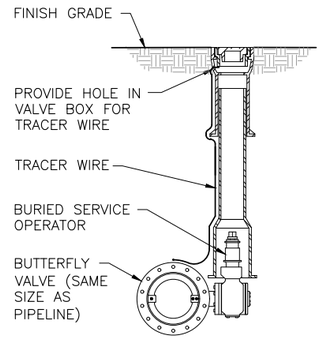
C TYP DETAIL - REPLACE EXIST. SERVICE FOR CONNECTIONS 1½" AND SMALLER
NTS



NOTES:

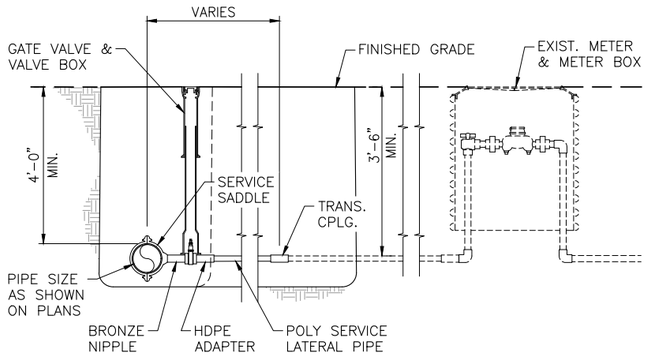
1. FOR NEW 2" AND LARGER METER SETTER ASSEMBLIES SEE DETAIL D/D2 FOR CONNECTION AND METER BOX ASSEMBLY.

E TYP DETAIL - NEW METER SETTER ASSEMBLY
NTS



NOTES AS PER TYPICAL GATE VALVE DETAIL F/D2 ARE APPLICABLE.

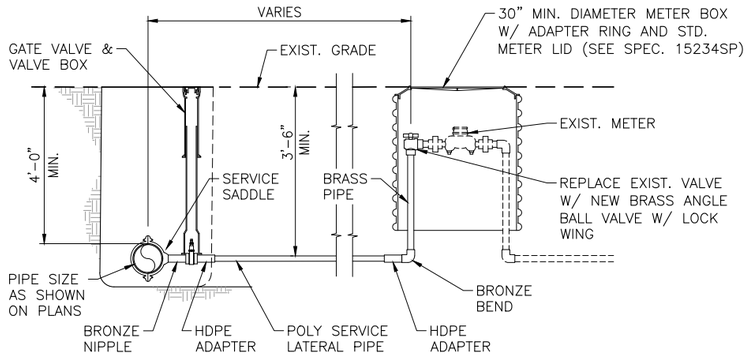
G TYP DETAIL - BURIED BUTTERFLY VALVE
NTS



NOTES:

1. CONNECTIONS TO EXISTING SERVICE LATERALS MAY REQUIRE ADAPTERS OR TRANSITION COUPLINGS.
2. SERVICE ASSEMBLY SHALL INCLUDE ALL COMPONENTS EXCEPT GATE VALVE AND VALVE BOX WHICH ARE COUNTED SEPARATELY.
3. SEE NOTE 38 OF CONSTRUCTION NOTES ON DWG G5.

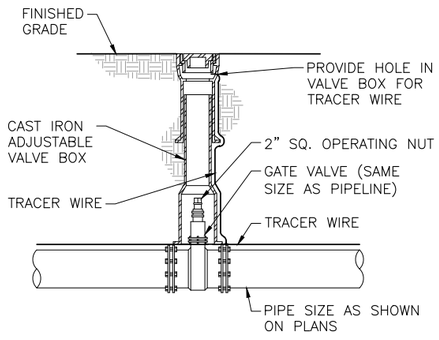
B TYP DETAIL - RECONNECT EXIST. SERVICE FOR CONNECTIONS 2" AND LARGER
NTS



NOTES:

1. ALL SERVICE LATERALS CONNECTING TO MAIN LINES ON OPPOSITE SIDE OF ROAD MUST BE INSTALLED BY PULLING UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. SERVICE ASSEMBLY SHALL INCLUDE ALL COMPONENTS EXCEPT GATE VALVE AND VALVE BOX WHICH ARE COUNTED SEPARATELY.
3. SEE NOTE 38 ON CONSTRUCTION NOTES ON DWG G5.

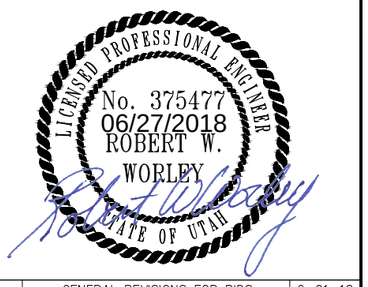
D TYP DETAIL - REPLACE EXIST. SERVICE FOR CONNECTIONS 2" AND LARGER
NTS



NOTES:

1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DRAWING D15 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
3. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.

F TYP DETAIL - TYPICAL GATE VALVE
NTS



REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6-21-18

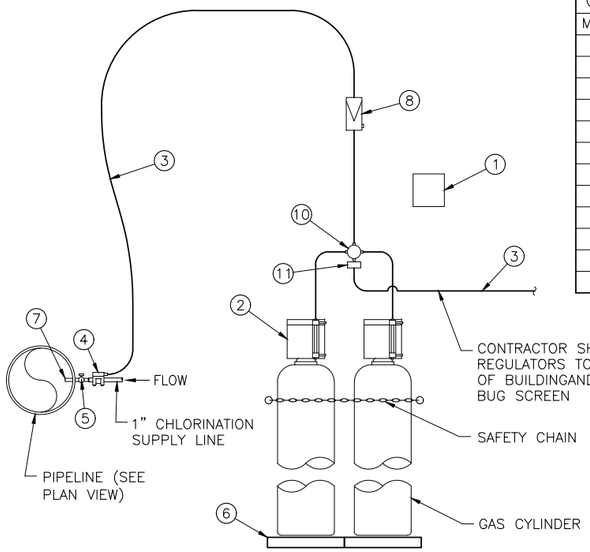
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CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

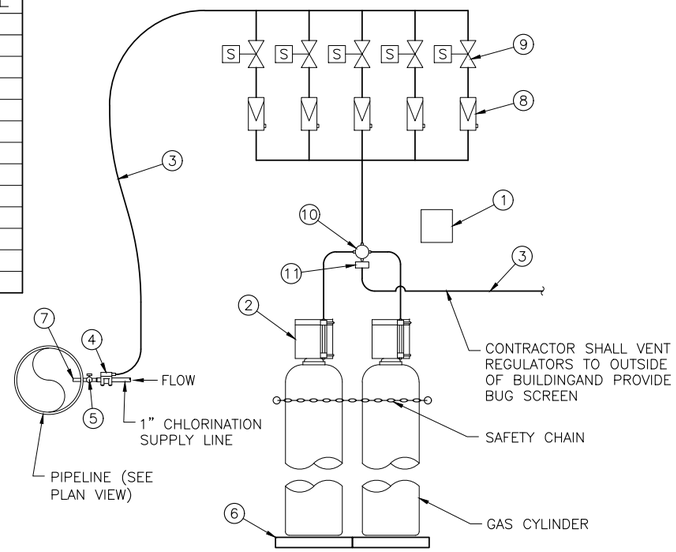
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	213	D2

CHLORINATION EQUIPMENT SCHEDULE	
MK. NO.	DESCRIPTION
1	SCALE INDICATOR
2	VACUUM REGULATOR
3	3/8" VACUUM TUBING
4	EJECTOR ASSEMBLY
5	BALL VALVE
6	SCALES
7	E265 DIFFUSER
8	RATE METER (SEE SPEC 11230SP)
9	SOLENOID VALVE
10	SWITCHOVER RFEGULATOR
11	PRESSURE RELIEF VENT



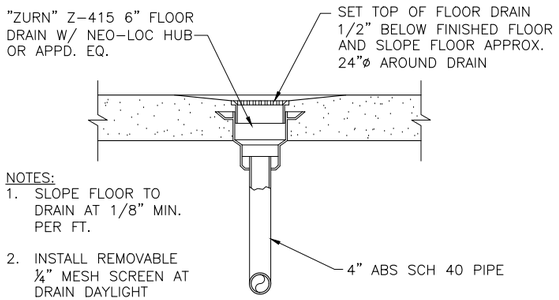
WORWOOD WELL

NOTE:
CONTRACTOR SHALL PROVIDE A BOTTLE OF AQUEOUS AMMONIA FOR DETECTING CHLORINE LEAKS AND A FULL SPARE PARTS KIT



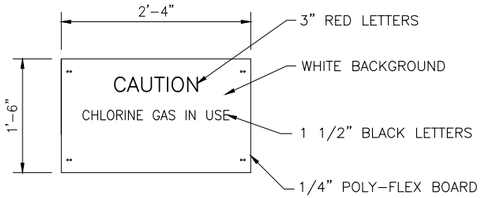
CHLORINATOR BUILDING

(A TYP) DETAIL - CHLORINATION EQUIPMENT
NTS



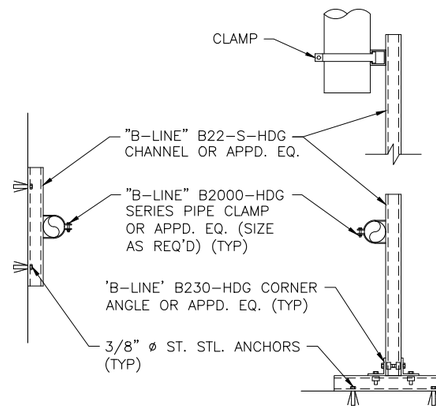
NOTES:
1. SLOPE FLOOR TO DRAIN AT 1/8" MIN. PER FT.
2. INSTALL REMOVABLE ¼" MESH SCREEN AT DRAIN DAYLIGHT OUTLET

(E TYP) DETAIL - FLOOR DRAIN
NTS

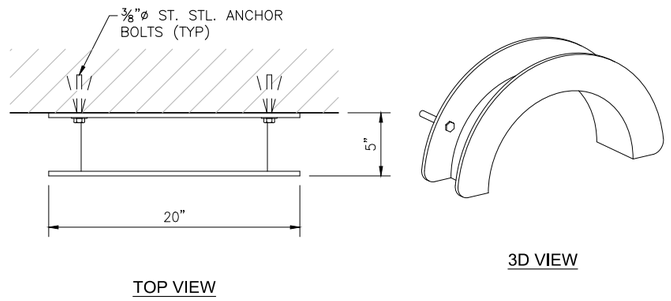


NOTE:
LOCATE ON EACH DOOR OF CHLORINATOR BUILDING (2 TOTAL REQ'D.)

(D TYP) DETAIL - WARNING SIGN
NTS

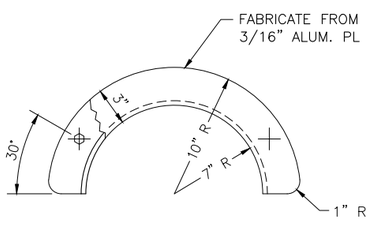


(G TYP) DETAIL - PIPE SUPPORT
NTS

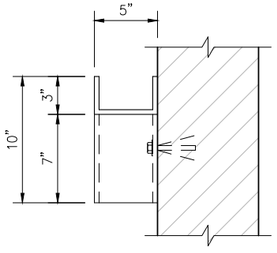


TOP VIEW

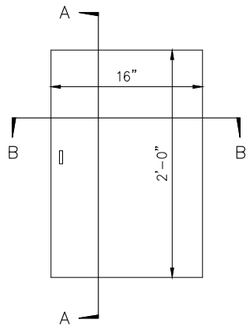
3D VIEW



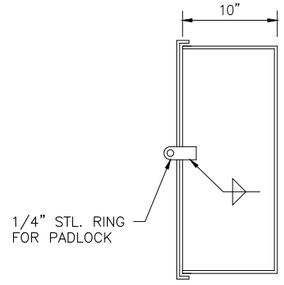
FRONT VIEW



SECTION VIEW

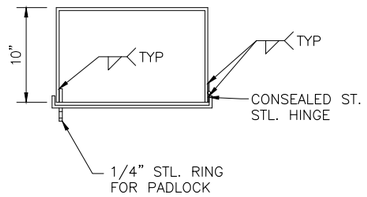


ELEVATION

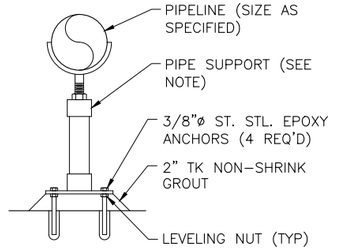


SECTION A-A

NOTES:
1. FABRICATE BOX FROM ¼" THK. A-36 STL. PL.
2. FINISHED BOX SHALL BE PROVIDED WITH A PROFESSIONALLY APPLIED BAKED ON GRAY POWDER COATED FINISH INSIDE AND OUT



SECTION B-B



NOTES:
1. PLACE PIPE SUPPORTS AS SHOWN ON PLANS AND/OR AS DIRECTED BY THE ENGINEER.
2. STANDON MODEL S92 SADDLE SUPPORT AS MANUFACTURED BY MATERIAL RESOURCES INC. OR APPD. EQ.

(F TYP) DETAIL - PIPE SUPPORT
NTS

(B TYP) DETAIL - HOSE RACK
NTS

(C TYP) DETAIL - EMERGENCY AIR PACK STROAGE BOX
NTS

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

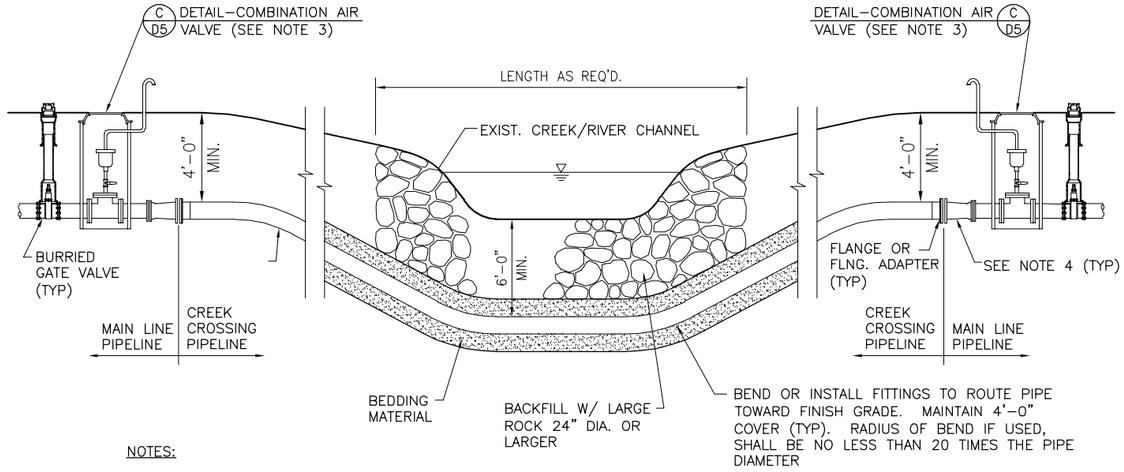
REV NO.	COMMENT	DATE
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CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

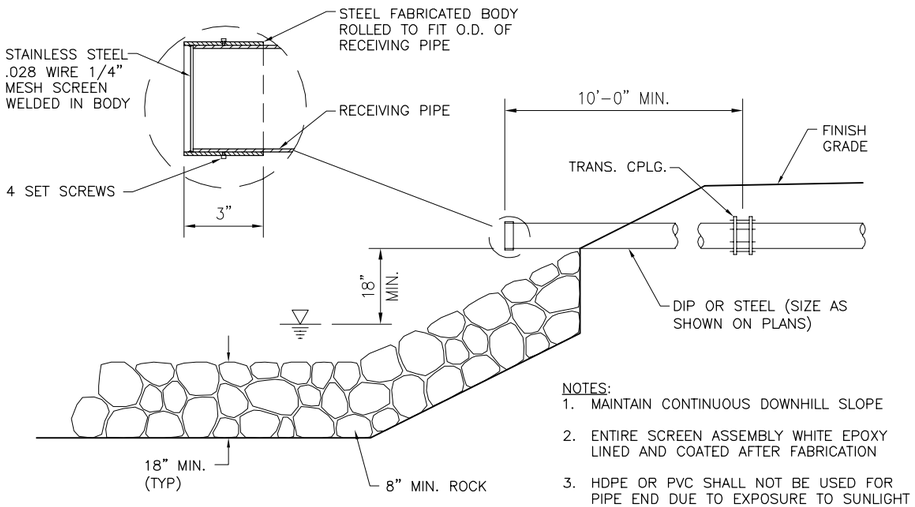
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	214	D3



NOTES:

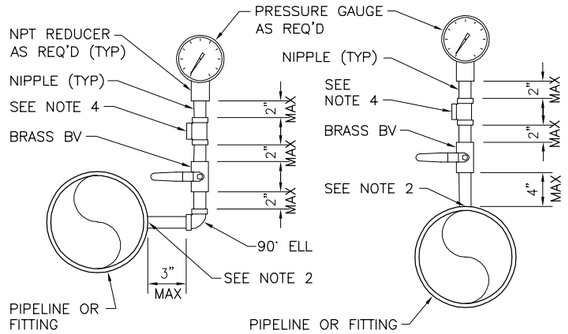
1. GATE VALVE SIZE TO MATCH LINE SIZE.
2. RESTORE SURFACE TO ORIGINAL CONDITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. HIGH SIDE OF RIVER CROSSING COMBINATION AIR VALVE ASSEMBLY SHALL HAVE PRESSURE GAUGE AND SAMPLE TAP (SEE DETAIL D/D4).
4. CONNECTION OF CREEK CROSSING PIPE TO MAIN LINE PIPE SHALL BE MADE USING MEGALUG RESTRAINED MJ x FLANGED REDUCER TO FLANGE OR FLANGED ADAPTERS, UNLESS APPROVED OTHERWISE BY THE ENGINEER. STEEL PIPE CONNECTIONS SHALL BE FLANGED.
5. PIPELINE SIZE THROUGH CREEK/RIVER CROSSING SHALL BE ONE STANDARD PIPE SIZE LARGER IN DIAMETER THAN THE PIPE SIZE CONNECTING TO IT. FOR EXAMPLE A 6" MAIN PIPELINE WOULD REQUIRE AN 8" PIPELINE UNDER THE CHANNEL AND AN 8" MAIN PIPELINE WOULD REQUIRE A 10" PIPELINE UNDER THE CHANNEL, ETC.

A TYP DETAIL - CREEK / RIVER CROSSING
NTS



NOTES:
1. MAINTAIN CONTINUOUS DOWNHILL SLOPE
2. ENTIRE SCREEN ASSEMBLY WHITE EPOXY LINED AND COATED AFTER FABRICATION
3. HDPE OR PVC SHALL NOT BE USED FOR PIPE END DUE TO EXPOSURE TO SUNLIGHT

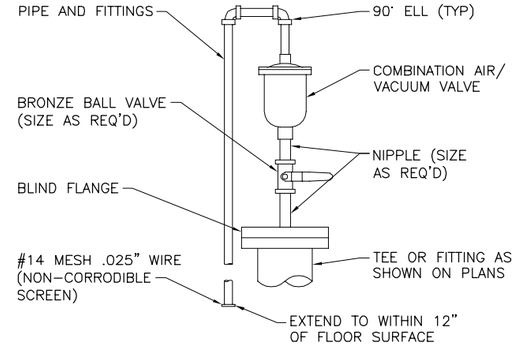
B TYP DETAIL - OVERFLOW / DRAIN DISCHARGE
NTS



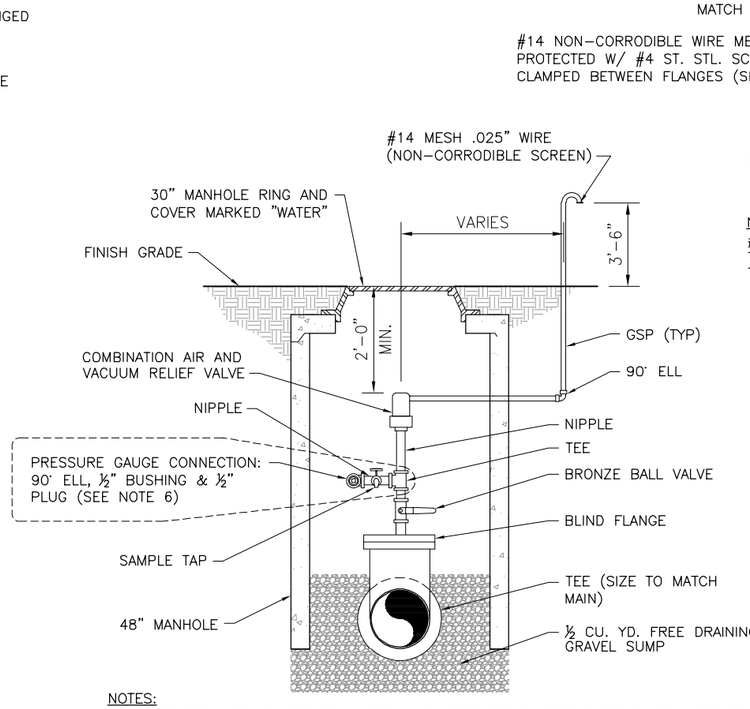
NOTES:

1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.
4. INSTALL TEE FOR PRESSURE TRANSDUCER OR PRESSURE SWITCH WHEN REQ'D.

C TYP DETAIL - PRESSURE GUAGE
NTS

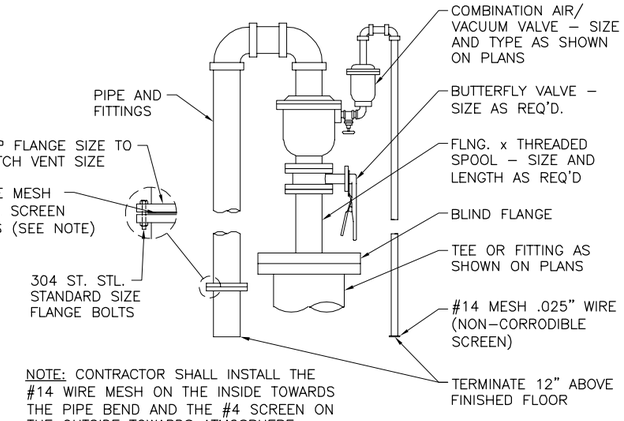


E TYP DETAIL - COMBINATION AIR VALVE
NTS



NOTES:
1. COMBINATION AIR VALVES SHALL BE 1" UNLESS SHOWN OTHERWISE ON THE DRAWING.
2. ALL PIPE FITTINGS SHALL BE GALVANIZED STEEL 300lb. CLASS THREADED.
3. ALL AIR VALVE COMPONENT CONNECTING NIPPLES SHALL BE GSP SCHEDULE 40.
4. ALL PIPE PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.
5. PIPE NIPPLES, FITTINGS, GOOSENECK, & GATE VALVE SHALL BE SIZED TO MATCH SIZE OF AIR VALVE.
6. CREEK CROSSING LOCATION ONLY: PRESSURE GAUGE & SAMPLE TAP REQUIRED AT HIGH–SIDE AIR VALVE ASSEMBLY. (ONE LOCATION)

D TYP DETAIL - COMBINATION AIR VALVE
NTS



NOTE: CONTRACTOR SHALL INSTALL THE #14 WIRE MESH ON THE INSIDE TOWARDS THE PIPE BEND AND THE #4 SCREEN ON THE OUTSIDE TOWARDS ATMOSPHERE.

F TYP DETAIL - COMBINATION AIR VALVE
NTS

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6–21–18

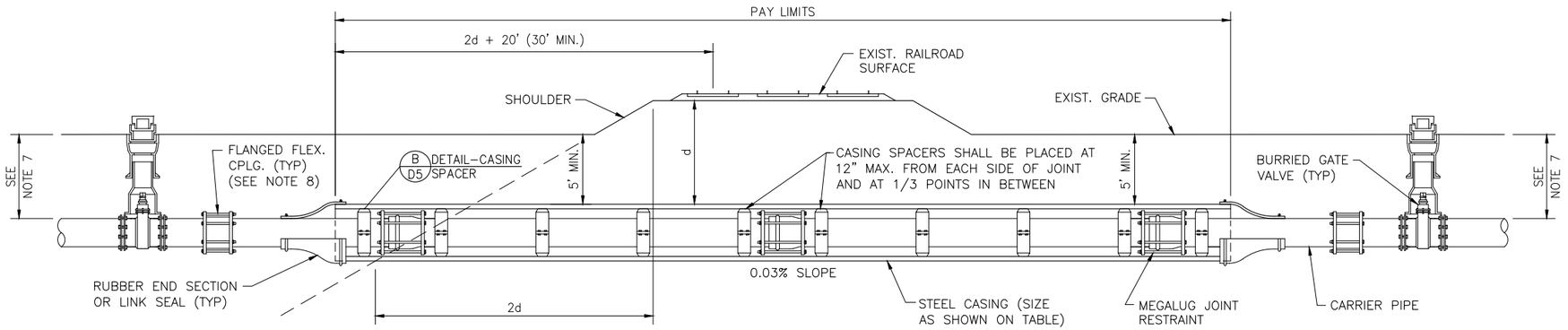
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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	215	D4

P:\Nephi\05884 Nephi Culinary Water Improvements Project – 2017\Design\dwg\nphi-D01–09 D15.dwg Jun 27, 2018 4:28pm cchristensen

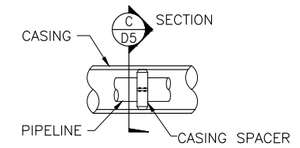


PIPELINE DIA.	CASING DIA.	CASING WALL THICKNESS
4"	14"	0.3125"
6"	18"	0.375"
8"	20"	0.50"
10"	22"	0.50"
12"	24"	0.50"

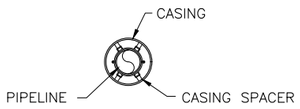
NOTES:

1. INSTALL CASING LEVEL AND STRAIGHT WITH NO DENTS OR BENDS. WALL THICKNESS AND MATERIAL SHALL MEET SPECIFICATIONS.
2. ALL PIPE JOINTS WITHIN CASING SHALL BE RESTRAINED.
3. ALL HORIZONTAL DISTANCES TO BE MEASURED AT RIGHT ANGLES FROM ℄ OF TRACK.
4. CASING TO EXTEND BEYOND THE ℄ OF TRACK AT RIGHT ANGLES THE GREATER OF 2d + 20 FT., OR 30 FT., AND BEYOND LIMIT OF RAILROAD RIGHT–OF–WAY IF NECESSARY TO PROVIDE PROPER LENGTH OUTSIDE OF TRACK.
5. CONTRACTOR TO EXPOSE FIBER OPTIC CABLE AND ADJUST DEPTH OF PIPE AND LENGTH OF CASING ACCORDINGLY. THIS SHALL BE INCLUDED IN THE COST OF THE BORING AND JACKING AND WILL NOT BE PAID SEPARATELY.
6. SIGNAL REPRESENTATIVE MUST BE PRESENT DURING INSTALLATION IF RAILROAD SIGNALS ARE IN THE VICINITY OF CROSSING. (TO BE SCHEDULED AND PAID BY CONTRACTOR)
7. CASING AND CARRIER PIPE MUST BE PLACED A MINIMUM OF 2 FT. BELOW ANY EXISTING FIBER OPTIC CABLE. EXCAVATION REQUIRED WITHIN 5 FT. OF EXISTING FIBER OPTIC CABLE MUST BE HAND DUG.
8. CARRIER PIPE SHALL BE ONE SIZE LARGER THAN THE MAIN LINE PIPING ON EITHER SIDE OF THE CASING PIPE. CONNECTION TO HDPE CARRIER PIPE, IF USED, SHALL BE FLANGED. STEEL PIPE MEETING REQUIREMENTS OF 15110SP, IF USED AS CARRIER PIPE, SHALL HAVE FLANGED JOINTS.

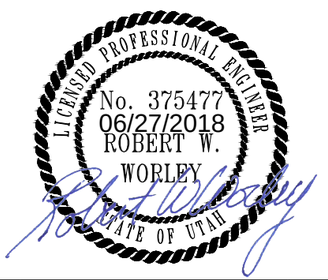
A TYP DETAIL - BORING UNDER RAILROAD
NTS



B D5 DETAIL - CASING SPACER
NTS



C D5 SECTION - CASING SPACER
NTS



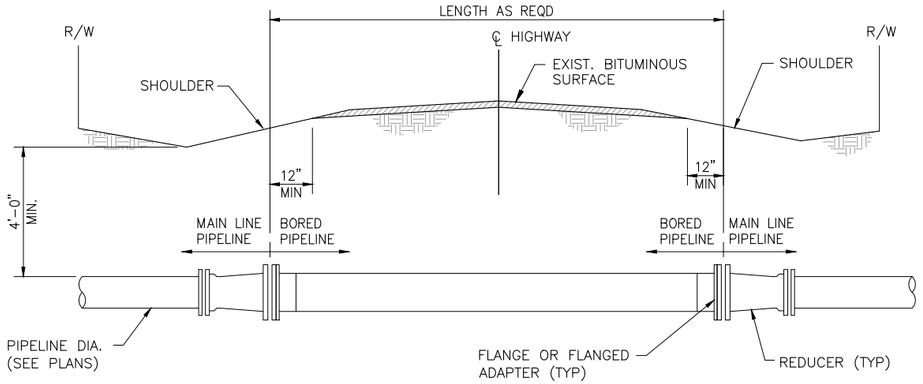
REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6–21–18

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CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

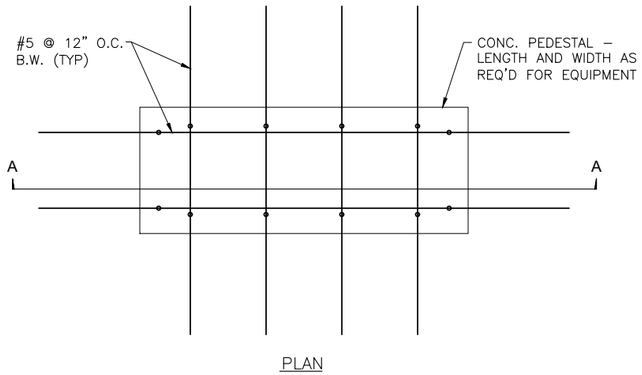
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	216	D5



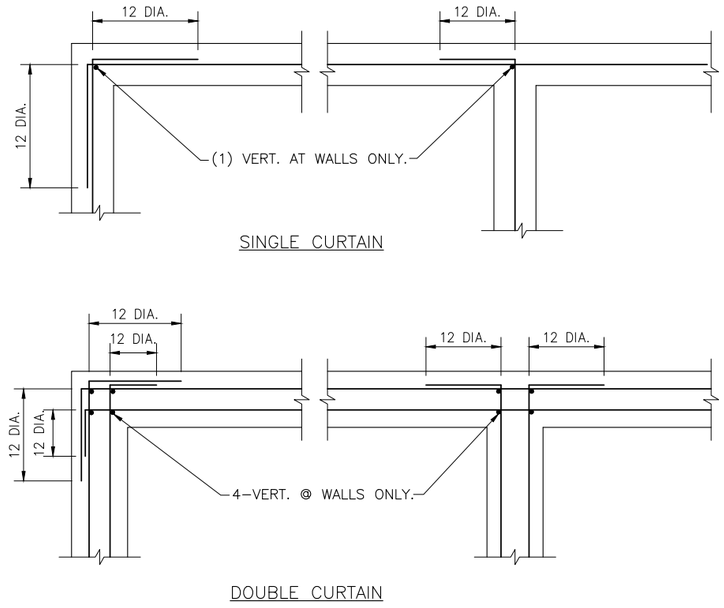
NOTES:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS FOR CONSTRUCTION ON STATE HIGHWAYS.
2. CONTRACTOR SHALL OBTAIN ENCROACHMENT PERMIT PRIOR TO CONSTRUCTION.
3. CONNECTION OF BORED PIPELINE TO MAIN PIPELINE SHALL BE MADE USING MEGALUG RESTRAINED MJ x FLANGED REDUCER TO FLANGE OR FLANGED ADAPTERS, UNLESS APPROVED OTHERWISE BY THE ENGINEER.
4. THE CONTRACTOR SHALL RESTRAIN ALL JOINTS OF THE BORED PIPELINE AND ALL JOINTS OF THE MAIN LINE 40 FEET EACH SIDE OF THE BORED PIPELINE CONNECTION.
5. BORED PIPELINE SIZE SHALL BE ONE STANDARD PIPE SIZE LARGER IN DIAMETER THAN THE PIPE SIZE CONNECTING TO IT. FOR EXAMPLE A 6" MAIN PIPELINE WOULD REQUIRE AN 8" PIPELINE UNDER THE ROAD AND AN 8" MAIN PIPELINE WOULD REQUIRE A 10" PIPELINE UNDER THE ROAD, ETC.

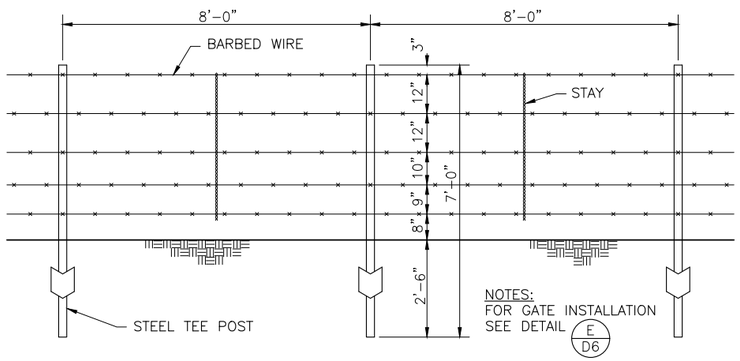
A TYP — DETAIL - BORING UNDER HIGHWAY
NTS



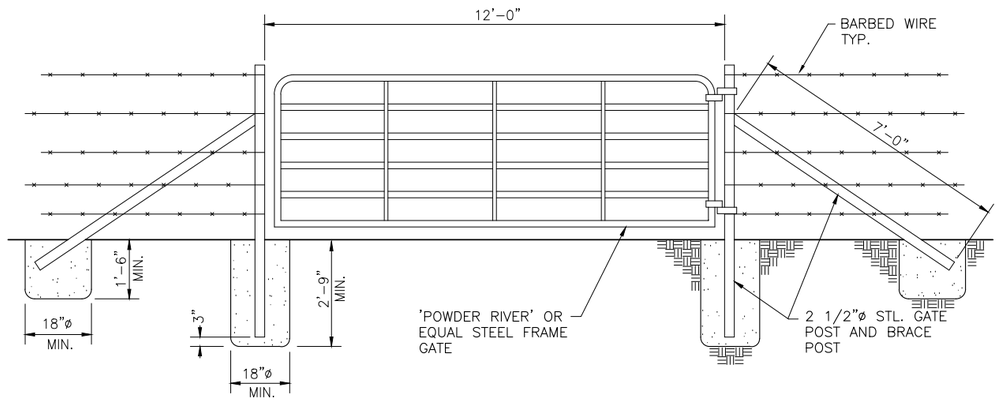
B TYP — DETAIL - CONC. PEDESTAL
NTS



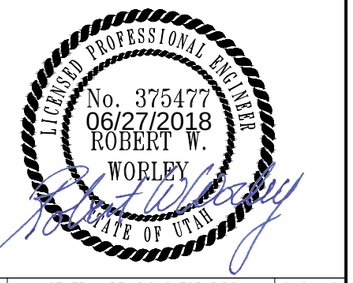
C TYP — DETAIL - REINF. @ INTERSECTIONS
NTS



D TYP — DETAIL - STOCK FENCE
NTS



E TYP — DETAIL - GATE STOCK FENCE
NTS



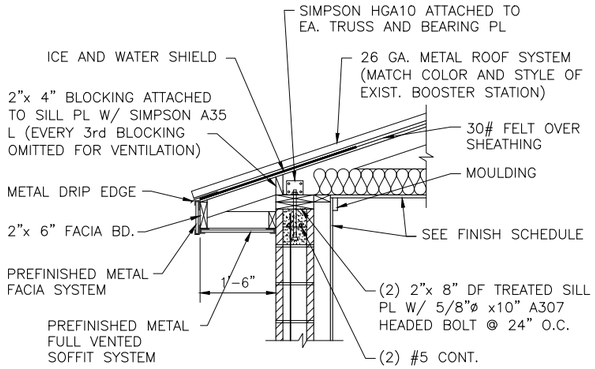
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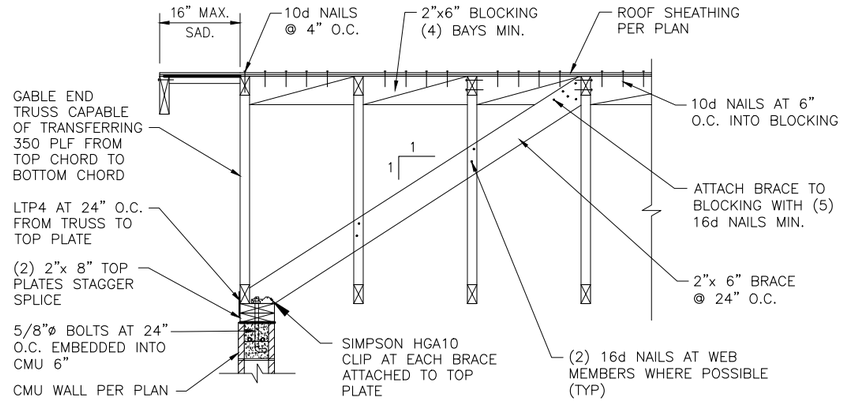
CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	217	D6

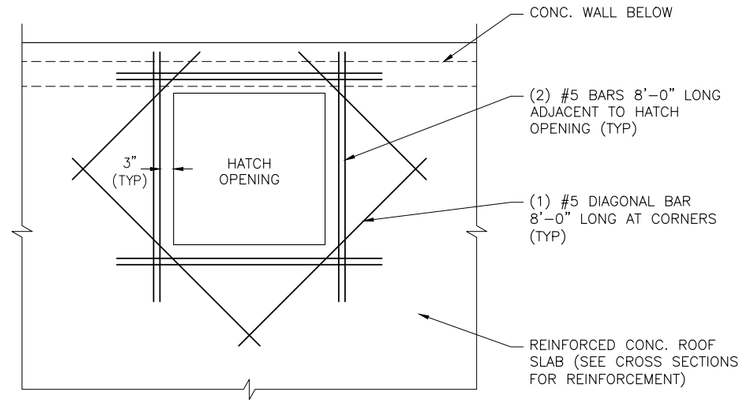


NOTE: INSTALL RAFTER BAFFLES WHERE BLOCKING IS OMITTED FOR VENTILATION

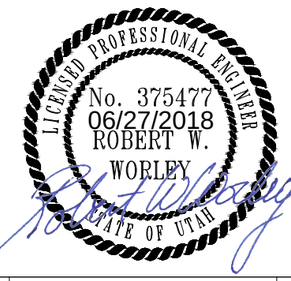
A / C2 DETAIL - EAVE
3/4" = 1'-0"



B / C3 DETAIL - ROOF TO WALL CONNECTION AT GABLE END
NTS



C / W3 DETAIL - REINF. @ HATCH OPENING
NTS



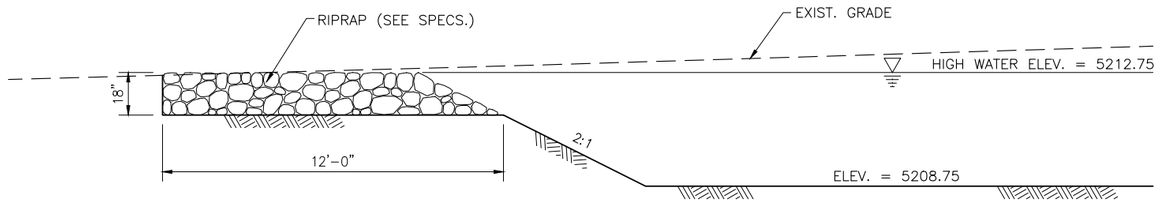
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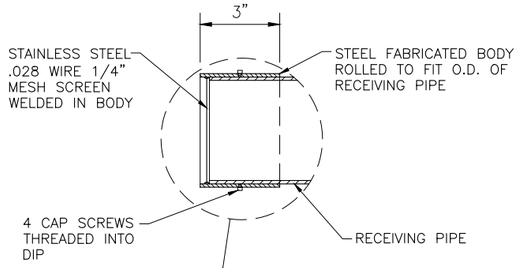
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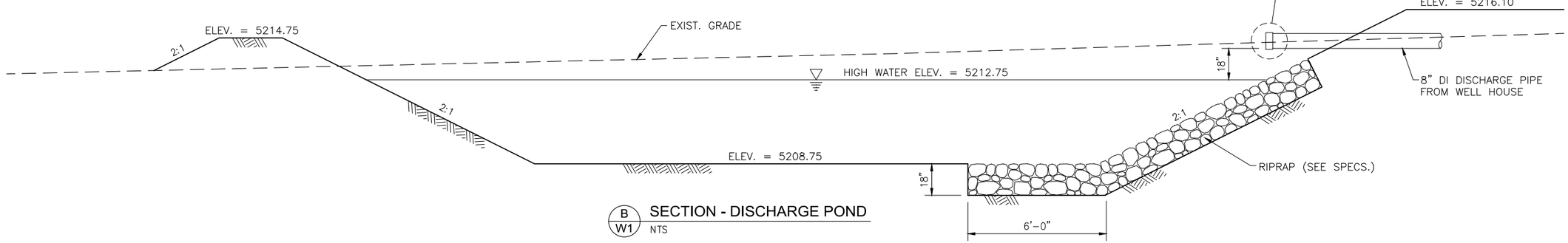
CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	218	D7

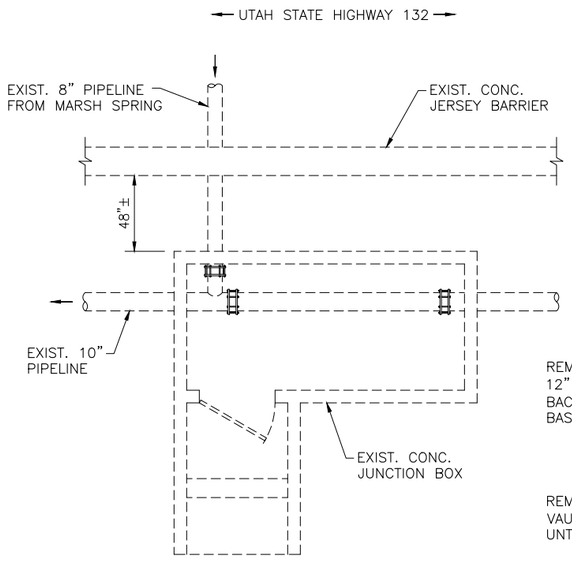


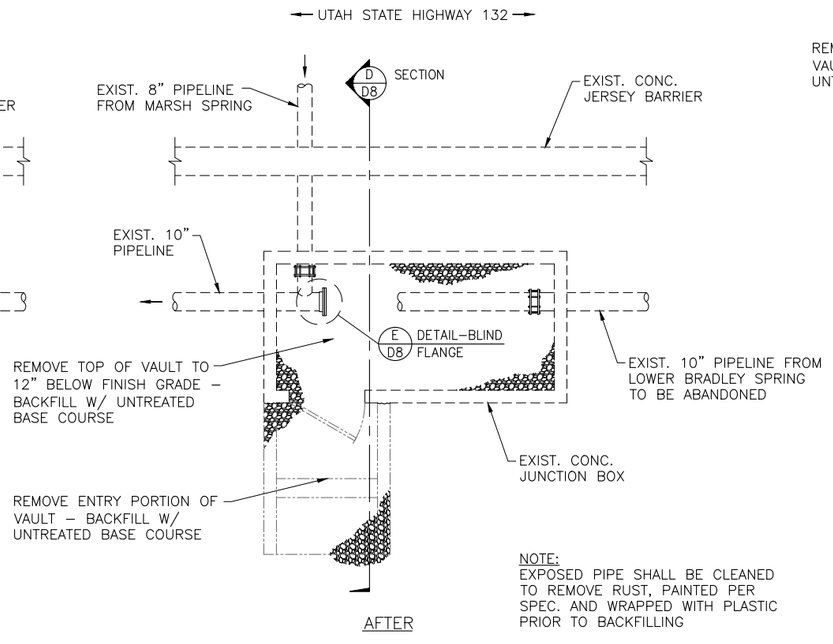
A W1 SECTION - DISCHARGE POND OVERFLOW
NTS





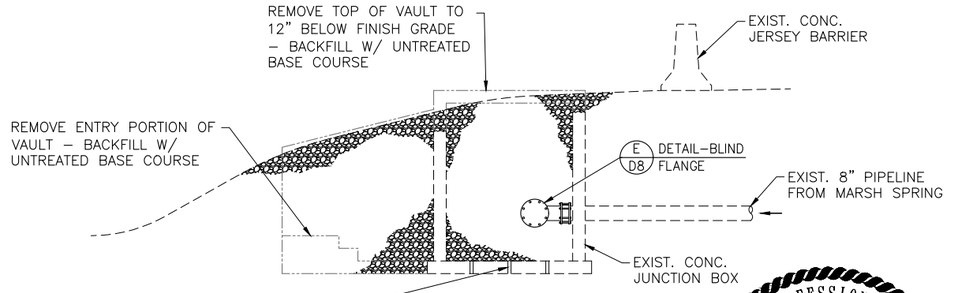
B W1 SECTION - DISCHARGE POND
NTS



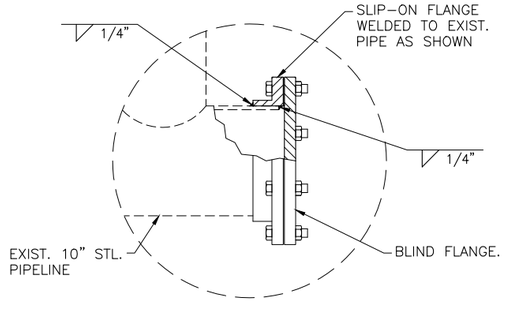


NOTE:
EXPOSED PIPE SHALL BE CLEANED TO REMOVE RUST, PAINTED PER SPEC. AND WRAPPED WITH PLASTIC PRIOR TO BACKFILLING

C PMS PLAN - LOWER BRADLEY SPRING / MARSH SPRING JUNCTION VAULT
NTS



D D8 SECTION -
NTS



E D8 DETAIL - BLIND FLANGE
NTS

LICENSED PROFESSIONAL ENGINEER
No. 375477
06/27/2018
ROBERT W. WORLEY
STATE OF UTAH

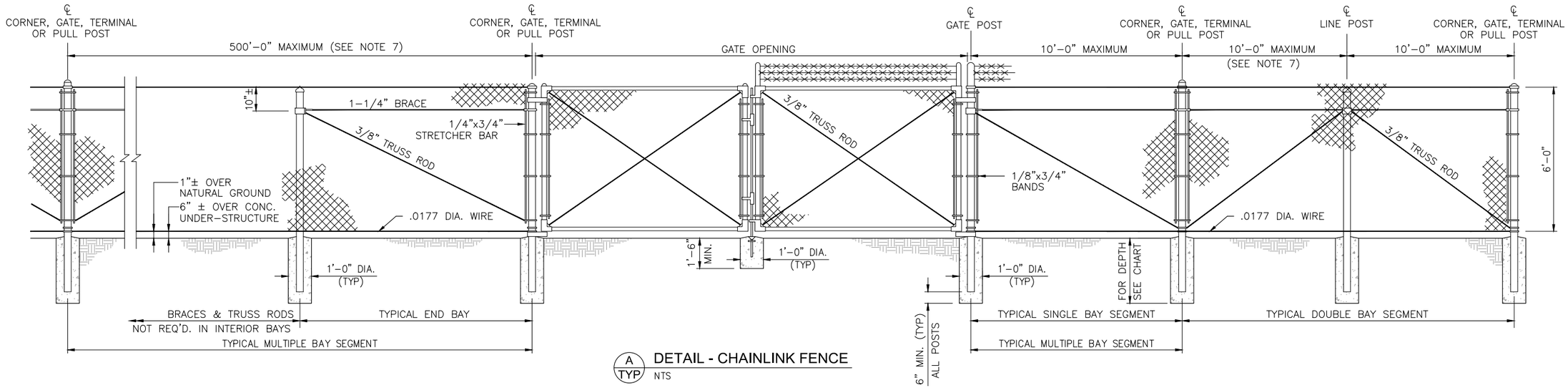
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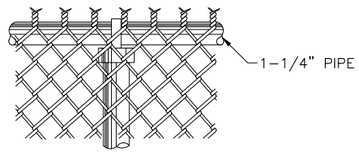
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CULINARY WATER IMPROVEMENTS PROJECT
2018
TYPICAL DETAILS

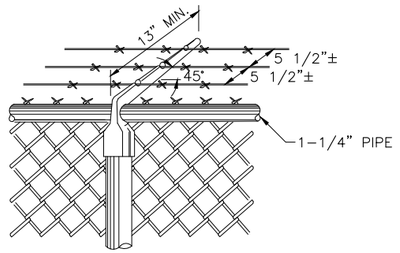
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05884	JCI	CJC	RWW	219	D8



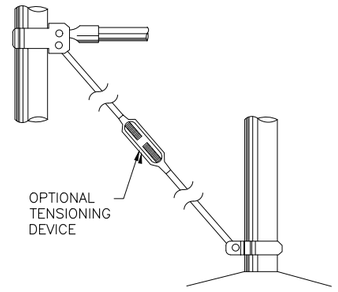
A TYP DETAIL - CHAINLINK FENCE
NTS



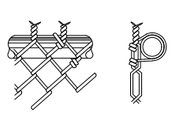
TWISTED & BARBED SELVAGE



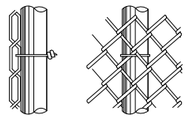
BARBED WIRE ARM



BRACE & TRUSS CONNECTIONS

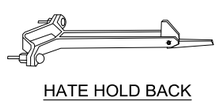


RAIL TIE

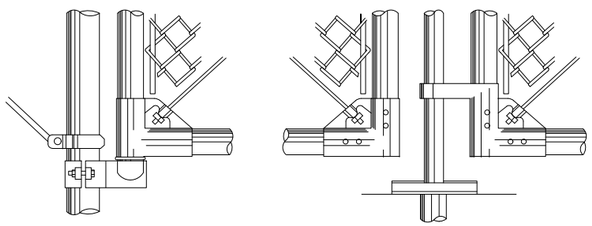


PIPE POST TIE

TYPICAL TIE DETAILS



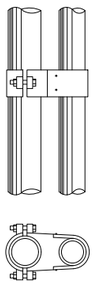
HATE HOLD BACK



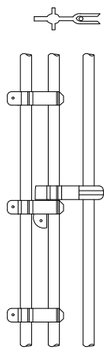
(NOTE: OPTIONAL WELDED OR RIVETED CONSTRUCTION)

BOTTOM GATE HINGE & GATE DETAILS

CENTER GATE STOP & GATE DETAILS



TOP GATE HINGE



DROP ROD ASSEMBLY

NOTES:
1. MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE WRITTEN SPECIFICATIONS.
2. THE TOP SUPPORT SHALL BE TUBULAR RAIL.
3. BARBED WIRE SHALL BE USED. THE EXSTENSION ARM SHALL EXTEND TO THE OUTSIDE OF FENCE.
4. TWISTED AND BARBED SELVAGE, TOP AND BOTTOM, SHALL BE USED.
5. ALL STEEL PIPE MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A–120, SCHEDULE 40, HOT DIPPED ZINC COATED STEEL PIPE.
6. OPTIONS EXERCISED SHALL BE UNIFORM THROUGHOUT THE PROJECT.
7. LINE POSTS SHALL BE LOCATED AT EQUAL SPACINGS FOR EACH SEGMENT WITH MAXIMUM SPACING AS FOLLOWS: A) TANGENT SECTIONS TO 500 FEET RADIUS–NOT MORE THAN 10 FEET. B) UNDER 500 FEET RADIUS TO 200 FEET RADIUS–NOT MORE THAN 8 FEET. C) UNDER 200 FEET RADIUS TO 100 FEET RADIUS–NOT MORE THAN 6 FEET. D) UNDER 100 FEET RADIUS–NOT MORE THAN 5 FEET.
8. THE MINIMUM HEIGHT OF FABRIC ON FENCES AND GATES SHALL BE 6 FEET.
9. ALL CONCRETE SHALL HAVE A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD.
10. FASTEN FABRIC TO TOP RAIL AND BOTTOM TENSION CABLE AT 24 INCH INTERVALS. FASTEN TO LINE POSTS AT 14 INCH INTERVALS.

GATES

GATE POSTS AND GATE FRAMES

HEIGHT	GATE OPENING	GATE POST	GATE FRAME
UNDER 6 FEET	SINGLE TO 6' OR DOUBLE TO 12'	2"	1"
	SINGLE OVER 6' TO 8' OR DOUBLE OVER 12' TO 16'	2–1/2"	1–1/2"
	SINGLE OVER 8' TO 12' OR DOUBLE 16' TO 24'	3–1/2"	
6 FEET AND OVER	SINGLE TO 6' OR DOUBLE TO 12'	2–1/2"	1–1/2"
	SINGLE OVER 6' TO 13' OR DOUBLE OVER 12' TO 24'	3–1/2"	
	SINGLE OVER 13' TO 18' OR DOUBLE OVER 24' TO 36'	6"	
	SINGLE OVER 18' OR DOUBLE OVER 36'	8"	

GAGE OF FABRIC	HEIGHT OF FABRIC	DEPTH OF POSTS	LENGTH OF END, CORNER OR PULL POSTS	LENGTH OF LINE POSTS	SIZE OF POSTS				GATE POST
					END,CORNER & PULL		LINE POSTS(MIN SIZE)		
					PIPE OPTION	RECTANGULAR OPTION	PIPE OPTION	H POST OPTION	
	7'	3'	10'	9'–8"	2–1/2"	3–1/2"	2"	1–7/8"x1–5/8"	SEE GATE POST TABLE
	6'	3'	9'	8'–8"	2–1/2"	3–1/2"	2"	1–7/8"x1–5/8"	
	5'	3'	8'	7'–8"	2"	3–1/2"	1–1/2"	1–5/16"x1–1/2"	
	4'	2'	6'	5'–8"	2"	3–1/2"	1–1/2"	1–5/16"x1–1/2"	
	3'	2'	5'	4'–8"	2"	3–1/2"	1–1/2"	1–5/16"x1–1/2"	



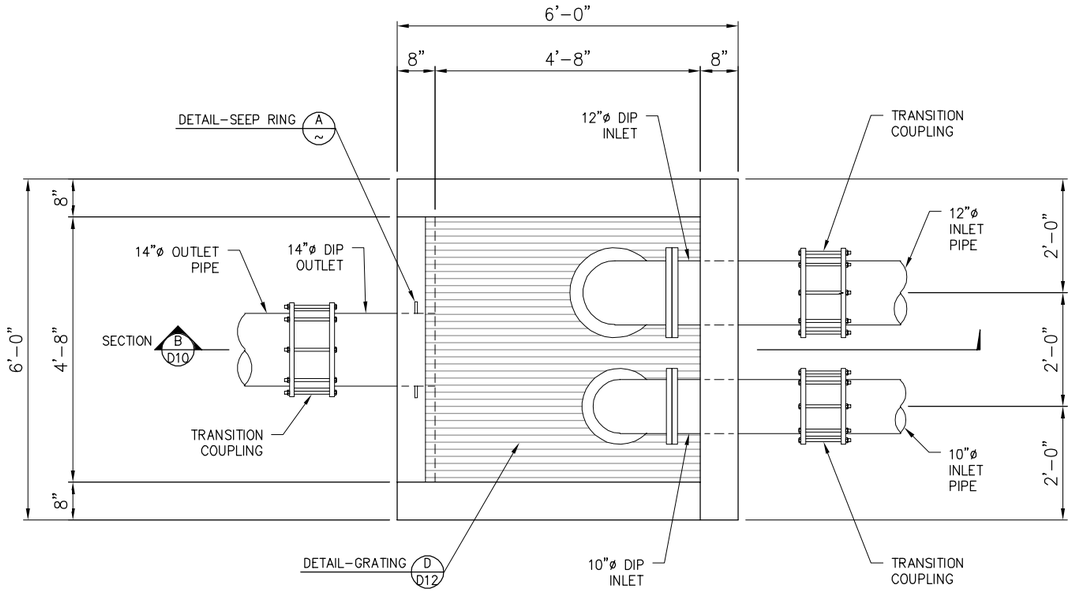
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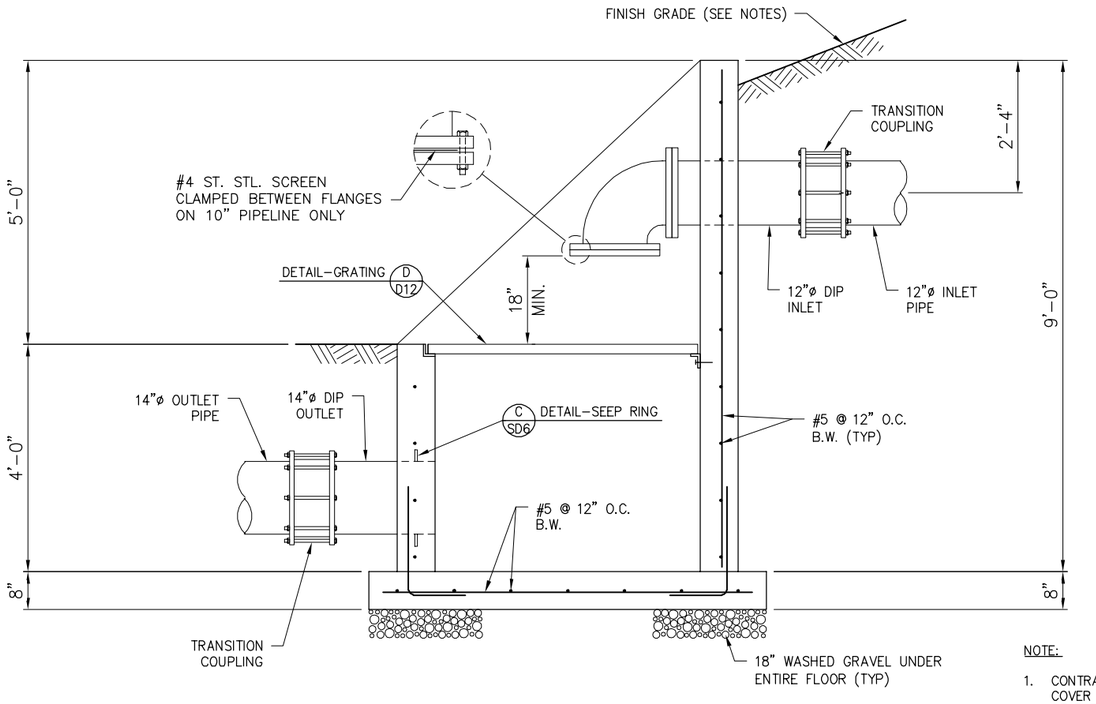
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CULINARY WATER IMPROVEMENTS PROJECT
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05884	JCI	CJC	RWW	220	D9



A TESP2 PLAN - DRAIN JUNCTION BOX
3/8" = 1'-0"



B D10 SECTION - DRAIN JUNCTION BOX
3/8" = 1'-0"

NOTE:

1. CONTRACTOR SHALL MOUND OVER INLET PIPES TO PROVIDE COVER OVER PIPELINE TO MATCH THE AMOUNT OF COVER AT THE POINT OF CONNECTION TO EXISTING INLET PIPELINES.
2. OUTLET PIPE SHALL SLOPE AS REQUIRED TO ALLOW ON PLANE CONNECTION TO EXISTING PIPELINE DOWN SLOPE FROM JUNCTION BOX

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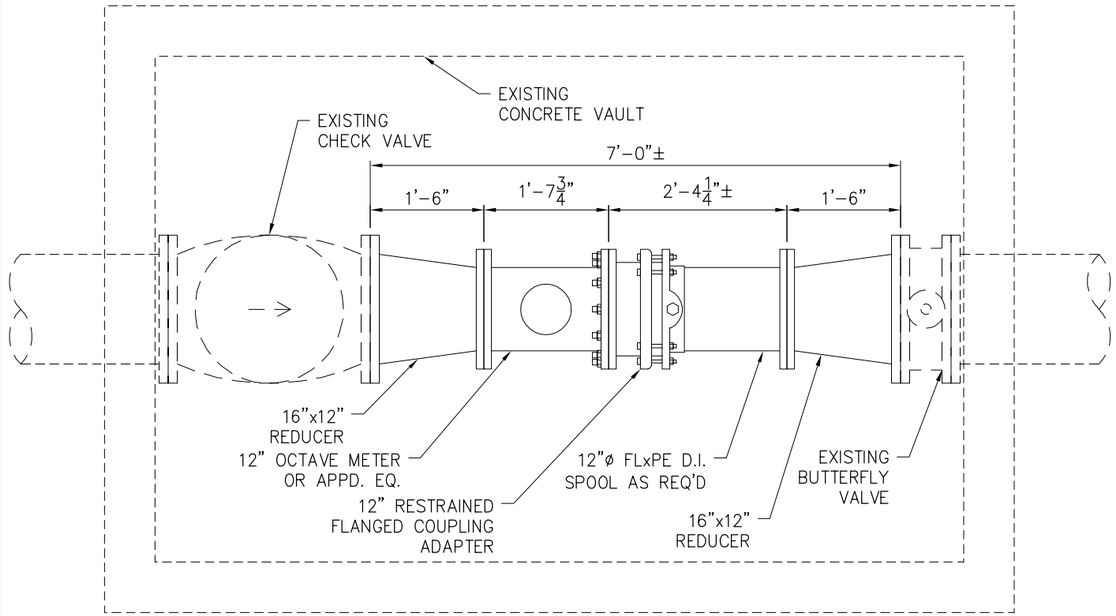
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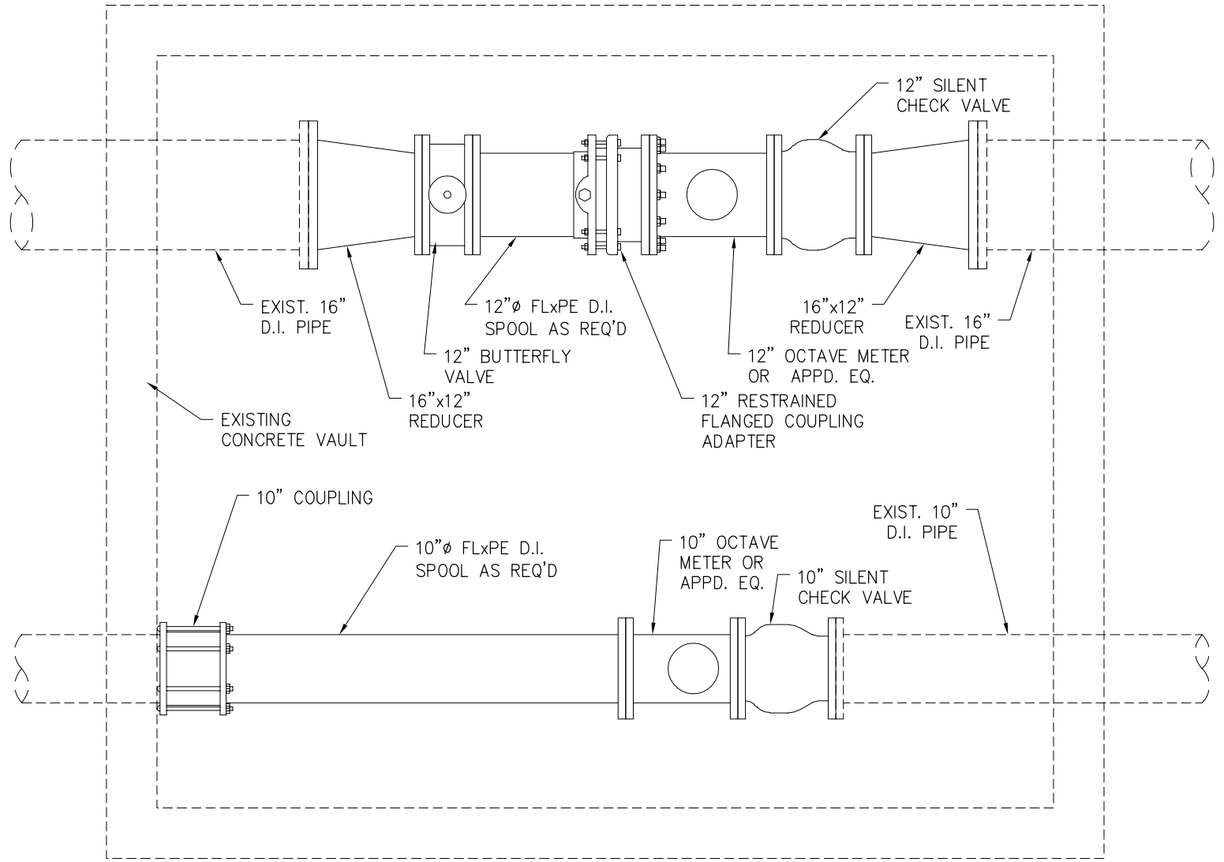
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D10

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A **DETAIL - EQUIPMENT SHED METER VAULT**
NOT TO SCALE



B **DETAIL - JONES WELL METER VAULT**
NOT TO SCALE

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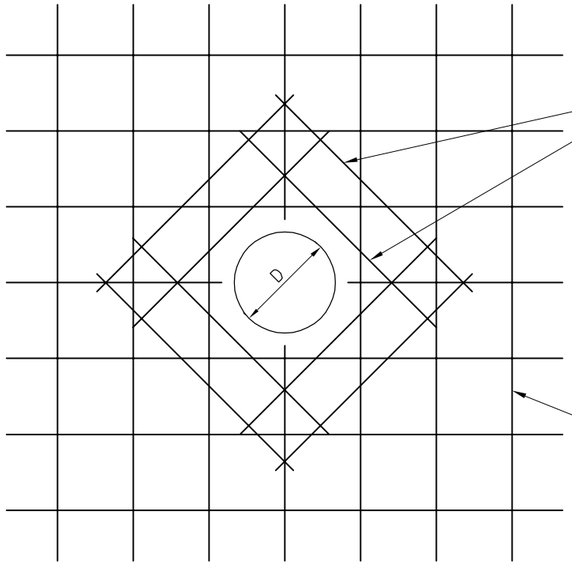
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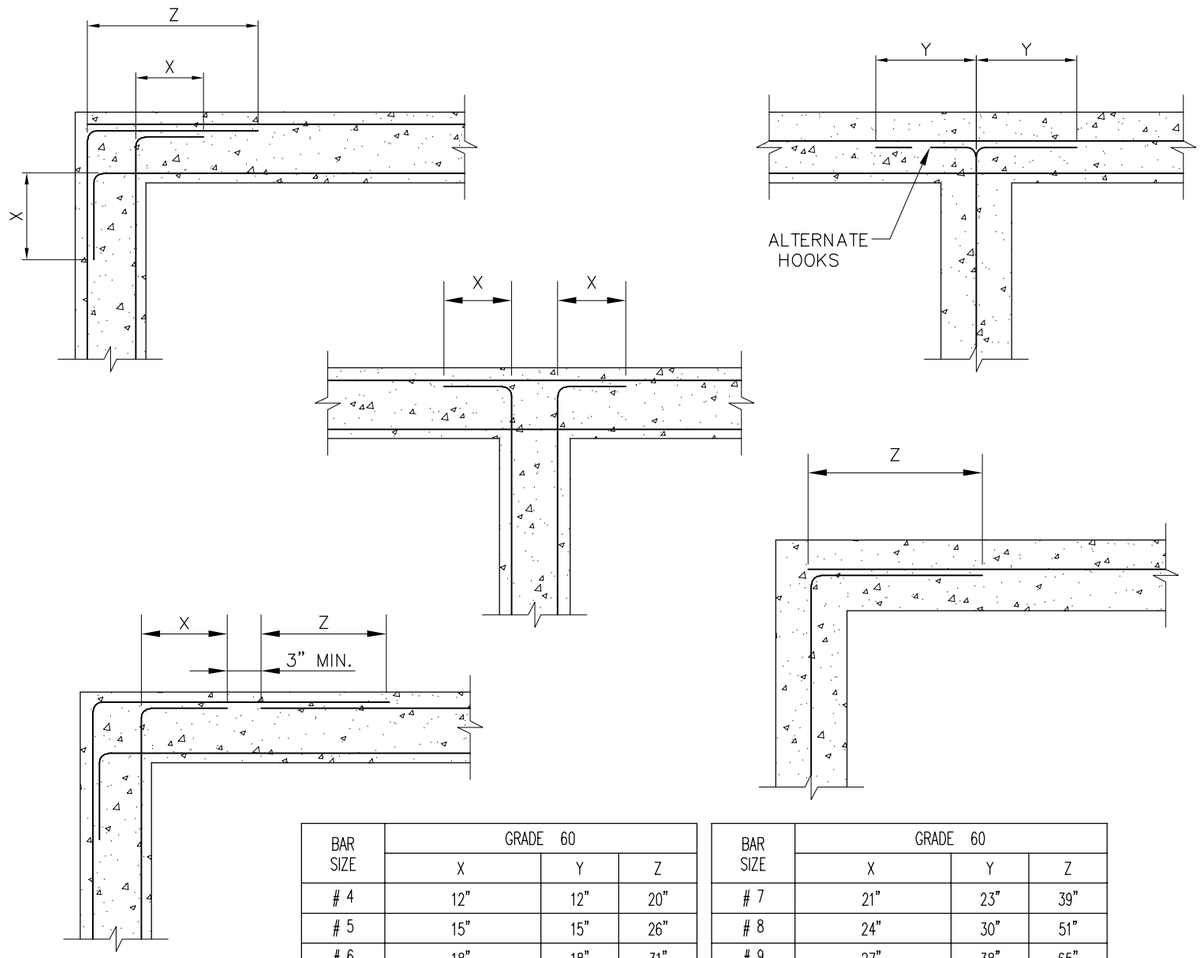


WHEN D=12" OR LESS:
2 CORNER BARS–SIZE TO MATCH STEEL D+2'–0" LONG EA. LAYER OF STEEL

WHEN D=12" OR MORE:
2 CORNER BARS–SIZE TO MATCH STEEL D+4'–0" LONG EA. LAYER OF STEEL

REGULAR REINFORCING

A TYP — DETAIL-EXTRA REINFORCING AT PIPE WALL AND FLOOR PENETRATIONS
NOT TO SCALE

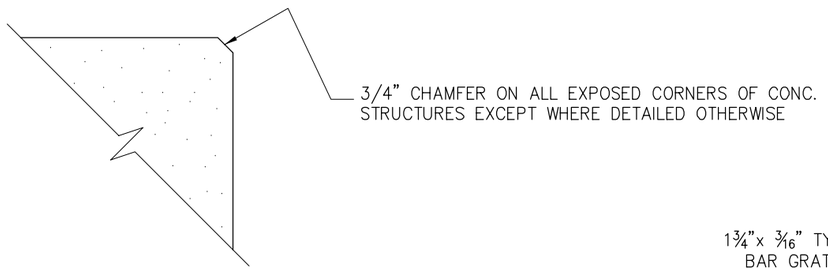


BAR SIZE	GRADE 60		
	X	Y	Z
# 4	12"	12"	20"
# 5	15"	15"	26"
# 6	18"	18"	31"

BAR SIZE	GRADE 60		
	X	Y	Z
# 7	21"	23"	39"
# 8	24"	30"	51"
# 9	27"	38"	65"

THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS

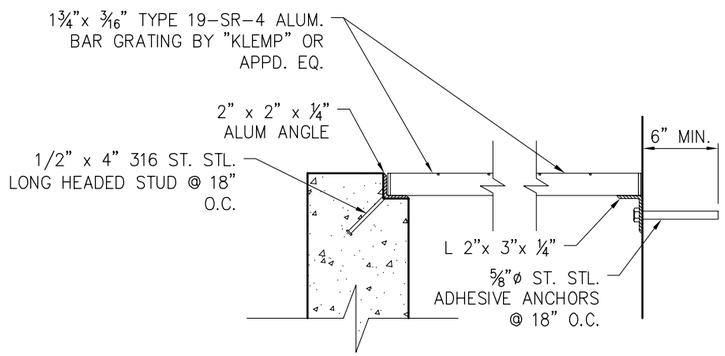
B TYP — HORIZONTAL REINFORCING AT WALL INTERSECTIONS
NOT TO SCALE



3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONC. STRUCTURES EXCEPT WHERE DETAILED OTHERWISE

CONCRETE COVER FOR REINFORCEMENT	
CONDITION	MIN. COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER (#6 THRU #18 BARS)	2"
CONCRETE EXPOSED TO EARTH OR WEATHER (#5 BARS AND SMALLER)	1–1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER	1–1/2"

C TYP — DETAIL - CHAMFER
NOT TO SCALE



D TYP — DETAIL - GRADING
NOT TO SCALE

GRATING NOTES:
1. ALL ENDS AND OPENINGS SHALL BE BANDED
2. ALL GRATINGS SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS
3. WEIGHT OF EA. GRATING SECTION SHALL NOT EXCEED 65 LBS.
4. WIDTH OF EA. GRATING SECTION SHALL NOT EXCEED 30"
5. ALL ALUM. SURFACES IN CONTACT WITH STL. OR CONC. SHALL BE COATED PER SPECS.
6. GRATING BARS MAY INTERFERE W/ BOLT HEADS OVER COLUMN – NOTCH GRATING TO INSURE FLUSH FIT



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CONCRETE LAP AND DEVELOPMENT SCHEDULE

F'c = 2500 PSI						
	COMPRESSION		TENSION			
BAR SIZE #	LCE	LCS	LTE TOP ⟨1⟩	LTE OTHER	LTS TOP ⟨1⟩	LTS OTHER
#3	8	15	19	15	25	19
#4	9	20	25	20	33	25
#5	12	25	32	24	41	32
#6	14	30	38	29	49	28
#7	16	35	69	53	89	69
#8	18	40	78	60	102	78

F'c = 4000 PSI						
	COMPRESSION		TENSION			
BAR SIZE #	LCE	LCS	LTE TOP ⟨1⟩	LTE OTHER	LTS TOP ⟨1⟩	LTS OTHER
#3	8	12	15	12	20	15
#4	8	16	20	16	26	20
#5	9	19	25	19	32	25
#6	11	23	30	23	39	30
#7	13	27	54	42	71	54
#8	15	30	62	48	81	62

F'c = 4500 PSI						
	COMPRESSION		TENSION			
BAR SIZE #	LCE	LCS	LTE TOP ⟨1⟩	LTE OTHER	LTS TOP ⟨1⟩	LTS OTHER
#3	8	12	14	12	19	14
#4	8	19	19	15	25	19
#5	9	19	24	18	31	24
#6	11	23	28	22	37	28
#7	12	27	51	40	67	51
#8	14	30	59	45	76	59

A. ALL TABULATED VALUES ARE IN UNITS OF INCHES U.N.O.

B. AT CONTRACTOR'S OPTION, MECHANICAL SPLICE COUPLERS PER G.S.N. MAY BE USED IN LIEU OF LAP SPLICES

C. SEE GENERAL STRUCTRUAL NOTES FOR ACTUAL CONCRETE SPECIFICATIONS AND MIN. CLR. COVER / CLR. SPACING REQUIREMENTS

D. SCHEDULED VALUES ARE BASED ON CLASS "B" TENSION LAP SPLICES U.N.O., NORMAL WT. CONCRETE, AND UNCOATED GRADE 60 REINF. FOR OTHER CONDITIONS NOTED BELOW, MODIFY TABULATED VALUES AS INDICATED:

E. E.1 FOR DEVELOPMENT LENGTH AND CLASS "A" LAP SPLICES, WHERE SPECIFICALLY NOTED ON PLANS OR DETAILS, DIVIDE TABULATED VALUES BY 1. 3. CLASS "A" SPLICES SHALL BE LOCATED SUCH THAT NO MORE THAN 1/2 OF THE TOTAL REINF. IS LAPPED WITHIN THE REQUIRED LAP LENGTH
E.2 FOR LIGHTWEIGHT CONCRETE, MULTIPLY TABULATED VALUES BY 1. 3
E.3 FOR EPOXY COATED REBAR, MULTIPLY TABULATED VALUES BY 1. 5
E.4 FOR GRADE 75 REINF., MULTIPLY TABULATED VALUES BY 1. 25

F. LCE = COMPRESSION EMBEDMENT LENGTH
LCS = COMPRESSION LAP SPLICE LENGTH
LTE = TENSION EMBEDMENT LENGTH
LTS = TENSION LAP SPLICE LENGTH

G. "TOP" BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 IN. OF FRESH CONCRETE IS CAST BELOW BAR. ALL BARS THAT ARE NOT "TOP" BARS ARE "OTHER" BARS UNLESS NOTED OTHERWISE ALL HOOKS SHALL EXTEND TO THE FAR FACE (LESS 2" COVER)

CONCRETE LAP AND DEVELOPMENT NOTES

⟨1⟩ TOP BARS ARE HORIZ. BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN MEMBER BELOW SPLICE

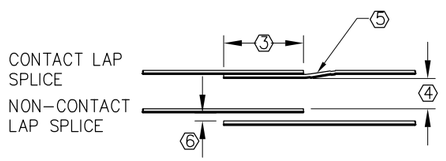
⟨2⟩ WHERE BARS OF UNEQUAL SIZE LAP ONE ANOTHER, USE TABULATED LAP LENGTH FOR SMALLER BAR U.N.O.

⟨3⟩ LAP SPLICE LENGTH PER SCHEDULE

⟨4⟩ CLEAR DISTANCE BETWEEN ADJACENT BARS OR SPLICES TO BE USED IN DETERMINING APPLICABLE LAP LENGTH FROM SCHEDULE

⟨5⟩ OPTIONAL OFFSET. SEE STANDARD REBAR BEND DETAILS FOR OFFSET REQUIREMENTS

⟨6⟩ FOR NON-CONTACT LAP SPLICES, MIN. CLEAR DISTANCE BETWEEN SPLICED BARS SHALL BE PER GENERAL STRUCTURAL NOTES. MAX. CLEAR DISTANCE SHALL BE 1/5 THE TABULATED LAP LENGTH OR (6"- "DB"), WHICHEVER IS LESS, WHERE "DB" = BAR DIA.



A ~ **CONCRETE LAP/DEVELOPMENT SCHEDULE**
NOT TO SCALE

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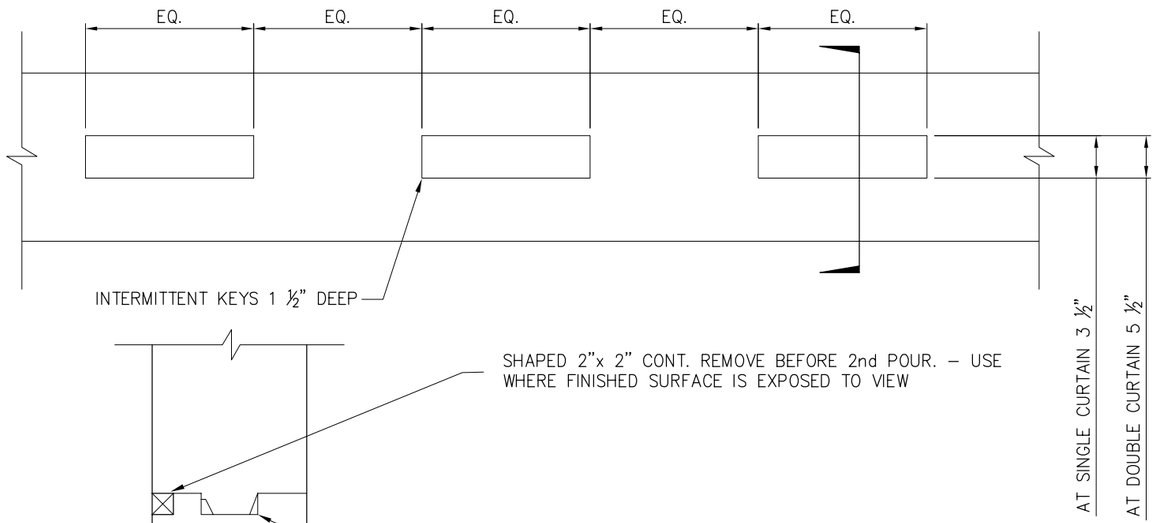
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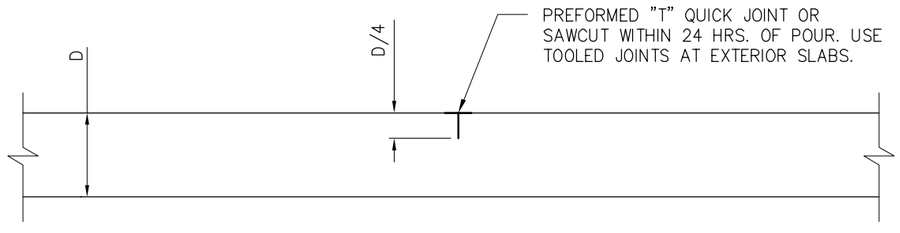
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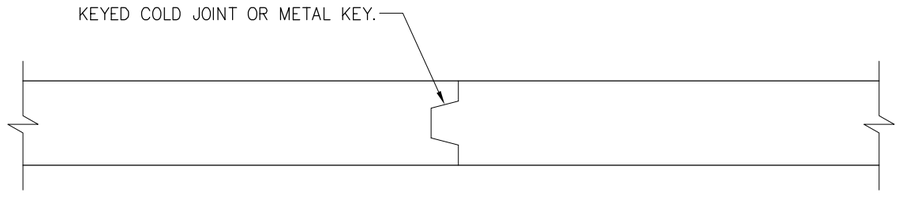


A TYP DETAIL - CONST. JOINT IN WALL OR FOOTING
NOT TO SCALE **(APPLIES TO BOTH VERT. AND HORIZ. JOINTS)**



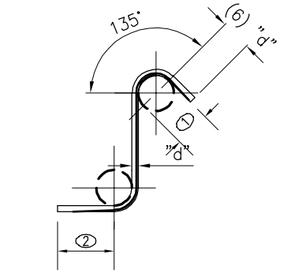
CONTROL JOINT

NOTE:
SPACE CONTROL & OR CONSTRUCTION JOINTS @ 25'–0" O.C. MAX. EA. WAY U.N.O. ON PLANS.

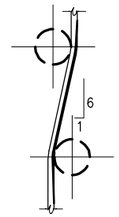


CONSTRUCTION JOINT

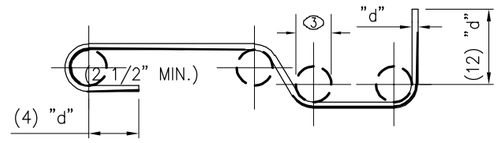
C TYP DETAIL - SLAB ON GRADE JOINT
NOT TO SCALE



STIRRUP AND TIE HOOK



OFFSET BAR



ALL OTHER REINFORCING

(1) MINIMUM FINISHED BEND DIA. FOR STIRRUPS AND TIES ONLY
(4) "d" FOR #5 BAR AND SMALLER,
(6) "d" FOR #6 THRU #8. TYPICAL

(2) (6) "d" FOR #5 AND SMALLER (12) "d" FOR #6 THRU #8

(3) MINIMUM FINISHED BEND DIA. FOR ALL REINFORCING EXCEPT STIRRUPS AND TIES (6) "d" UP TO #8 BAR, (8) "d" FOR #9 THRU #11, (12) "d" FOR #14 AND #18.

A. "d" = BAR DIA.

B. ALL REINFORCEMENT SHALL BE BENT COLD UNLESS NOTED OTHERWISE ON PLANS OR DETAILS

C. REINFORCING PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS SPECIFICALLY NOTED ON PLANS OR DETAILS

B TYP DETAIL - REINF BENDS, HOOKS, AND OFFSETS
NOT TO SCALE

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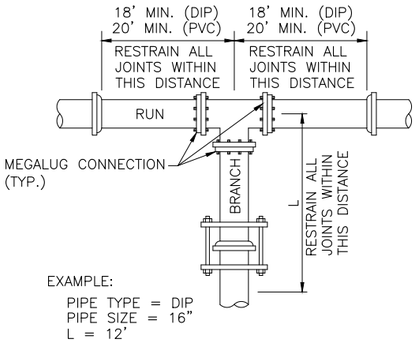
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MEGALUG
THRUST RESTRAINING SYSTEM DETAILS

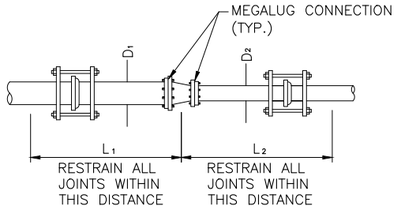
NOTE:
CONTRACTOR SHALL USE MEGALUG FOR THE ENTIRE PROJECT.

BASED ON:
TEST PRESSURE 200 PSI
SOIL TYPE: GM – SILTY GRAVEL, GRAVEL–SAND–SILT MIXTURE
BURIAL DEPTH: 4 FT.
TRENCH TYPE: 5 – PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO
THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE. (APPROX. 90% STANDARD PROCTOR, AASHTO T–99)
SAFETY FACTOR: 1.5

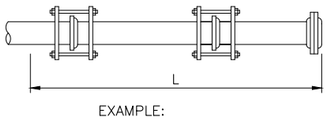


EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 16"
L = 12'

PLAN



EXAMPLE:
PIPE TYPE = PVC
D_1 = 8"
D_2 = 6"
L_1 = 31'
L_2 = 40'



EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 10"
L = 57'

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC VERTICLE BEND RESTRAINED LENGTHS IN FT.
(L_1,–BEFORE CONNECTION/L_2, AFTER CONNECTION)

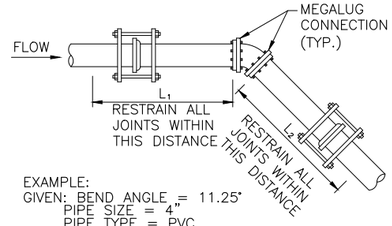
BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	68/21	79/25

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND.
FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE L' ON BOTH SIDES OF FITTING.

DIP VERTICLE BEND RESTRAINED LENGTHS IN FT.
(L_1, BEFORE CONNECTION/L_2,–AFTER CONNECTION)

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	2/1	4/2	5/2	6/2	7/3	8/3	8/4	9/4	10/4	12/5
22.5	5/2	7/3	9/4	11/5	13/6	15/6	17/7	19/8	21/9	24/10
45	11/5	15/6	20/8	23/10	28/12	32/13	36/15	40/17	43/18	51/21

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND.



EXAMPLE:
GIVEN: BEND ANGLE = 11.25°
PIPE SIZE = 4"
PIPE TYPE = PVC
L_2 = 4'
L = 1'

ELEVATION

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	2	3	3	4	4	4	5
22.5	2	3	4	5	6	6	7	8	9	10
45	5	6	8	10	12	13	15	17	18	21
90	11	15	20	24	28	32	36	40	44	51

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	–	*	*	*	*	*	*	*	*	*
8	–	–	*	*	*	*	*	*	*	*
10	–	–	–	*	*	*	*	*	*	*
12	–	–	–	–	*	*	*	*	*	*
14	–	–	–	–	–	*	*	*	*	*
16	–	–	–	–	–	–	7	*	*	*
18	–	–	–	–	–	–	–	20	4	*
20	–	–	–	–	–	–	–	–	34	3
24	–	–	–	–	–	–	–	–	–	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

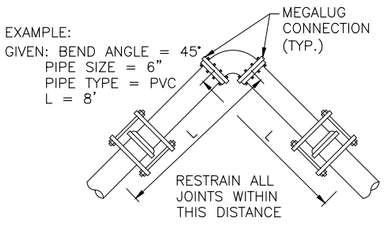
NOTES:
1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.

DIP TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	–	*	*	*	*	*	*	*	*	*
8	–	–	*	*	*	*	*	*	*	*
10	–	–	–	*	*	*	*	*	*	*
12	–	–	–	–	*	*	*	*	*	*
14	–	–	–	–	–	*	*	*	*	*
16	–	–	–	–	–	–	12	2	*	*
18	–	–	–	–	–	–	–	21	12	*
20	–	–	–	–	–	–	–	–	30	12
24	–	–	–	–	–	–	–	–	–	47

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

NOTES:
1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.



PLAN

PVC REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D2 \ D1	6	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	258/90	–	–	–	–	–
6	–	40/31	88/54	147/75	217/95	297/113	–	–	–
8	–	–	37/29	82/55	135/77	197/98	266/117	–	–
10	–	–	–	36/30	79/56	128/80	183/100	244/120	–
12	–	–	–	–	36/30	77/57	123/80	174/102	293/142
14	–	–	–	–	–	35/30	74/57	118/81	219/124
16	–	–	–	–	–	–	34/30	73/57	161/104
18	–	–	–	–	–	–	–	34/30	111/82
20	–	–	–	–	–	–	–	–	70/57

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D2 \ D1	6	8	10	12	14	16	18	20	24
4	27/18	65/34	110/46	166/58	–	–	–	–	–
6	–	26/20	57/35	95/48	140/61	192/73	–	–	–
8	–	–	24/19	53/35	87/50	127/63	171/75	–	–
10	–	–	–	23/20	51/36	82/51	118/64	158/77	–
12	–	–	–	–	23/20	49/37	79/52	112/66	188/91
14	–	–	–	–	–	22/20	48/37	76/52	141/80
16	–	–	–	–	–	–	22/19	47/37	103/67
18	–	–	–	–	–	–	–	22/19	72/53
20	–	–	–	–	–	–	–	–	45/37

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC DEAD END RESTRAINED LENGTHS L, IN FT.

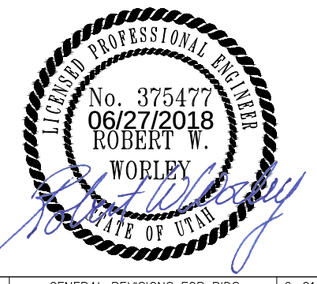
PIPE SIZE									
4	6	8	10	12	14	16	18	20	24
39	55	73	88	104	119	134	149	163	192

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE									
4	6	8	10	12	14	16	18	20	24
25	36	47	57	67	76	86	95	105	123

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED



REV NO.	COMMENT	DATE
1	GENERAL REVISIONS FOR BIDS	6–21–18

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2018
THRUST RESTRAINT DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	JCI	CJC	RWW	226	D15

MECHANICAL SYMBOL LEGEND

SINGLE LINE	DOUBLE LINE	
	W R	R/W=1. ROUND DUCT SIMILAR TO RECTNGULAR
12/12 8/8	12/12 8/8	RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE
9/9 9ø	9/9 9ø	RECTANGULAR TO ROUND DUCT TRANSFORMATION
	B R	BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL
RECT. TO Ø RECT. ROUND	45°	TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
		MANUAL VOLUME DAMPER
ø FD	ø FD	FIRE DAMPER IN DUCT W/ACCESS PANEL REQD.
ø FSD	ø FSD	COMBINATION DUCT FIRE/SMOKE DAMPER W/ACCESS PANEL REQUIRED
		FLEXIBLE DUCT CONNECTION
		FLEXIBLE DUCT
12/8	12/8	RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
12ø	12ø	ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
UP	UP	DUCT INCLINED RISE
DN	DN	DUCT INCLINED DROP

WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS= DEPTH OF DUCT

SINGLE LINE	DOUBLE LINE	
		POSITIVE PRESSURE DUCT – RISE
		POSITIVE PRESSURE DUCT – DROP
		NEGATIVE PRESSURE DUCT – RISE
		NEGATIVE PRESSURE DUCT – DROP
		ROUND DUCT – RISE
		ROUND DUCT – DROP
		DUCT TURNING VANES
	12X12 / 200	CEILING SUPPLY DIFFUSER (BALANCE TO CFM SHOWN)
	20X20 / 200	CEILING RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 / 200	CEILING EXHAUST REGISTER (BALANCE TO CFM SHOWN)
	24X10 / 200	SIDEWALL SUPPLY REGISTER (BALANCE TO CFM SHOWN)
	24X10 / 200	SIDEWALL EXHAUST OR RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 / 200	CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT (BALANCE TO CFM SHOWN)
	24X24 / –	CEILING RETURN AIR GRILLE WITH SOUND BOOT

TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.

	SUPPLY DIFFUSER – 4–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 3–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 1–WAY BLOW PATTERN
FD FSD	SUPPLY DIFFUSER W/ FD – FIRE DAMPER FSD – FIRE SMOKE DAMPER
EF 1	EQUIPMENT IDENTIFICATION
RTU1 060	EXAMPLE : RTU – ACRONYM USED FOR A PIECE OF EQUIPMENT. 1 – # IDENTIFYING THE UNIT AND DISTINGUISHING IT FROM OTHERS THE SAME SIZE. 060 – SYMBOL USED TO IDENTIFY THE EQUIPMENT ON THE PLANS WITH THAT IN THE SCHEDULES.
1	KEYED NOTE IDENTIFICATION
T	THERMOSTAT
S	SENSOR
SD	DUCT SMOKE DETECTOR
U.T.R.	UP THROUGH ROOF
	ELECTRICAL PANEL
$	SWITCH
	POINT OF CONNECTION TO EXISTING AND NEW
(E)	EXISTING

EXHAUST FAN SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	TYPE	FAN TOTAL AIR FLOW RATE (CFM)	FAN TOT. STATIC PRESSURE DROP (IN H20)	FAN OUTLET VELOCITY (FPM)	FAN SPEED (RPM)	MOTOR HP	MOTOR SPEED (RPM)	MOTOR VOLT/PH	WEIGHT (LBS)	REMARKS
EF-1	COOK 70 ACEB	ROOF MOUNTED	300	0.25	458	1666	1/6	1750	120/1	45	1,2,3,4,5
EF-2	COOK 120 ACEB	ROOF MOUNTED	1,350	0.25	1422	1421	1/4	1750	120/1	55	1,2,3,4,5

1. INTERLOCK EXHAUST FAN WITH WALL SWITCH.
2. WALL SWITCH AND WIRING BY ELECTRICAL.
3. DISCONNECT BY ELECTRICAL.
4. LOUVER TO FULL OPEN WHEN FAN IS ON.
5. WITH ROOF CURB AND BACKDRAFT DAMPER.

COMBINATION LOUVER SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	SERVICE	MIN FREE AREA (FT^2)	WIDTH/ HEIGHT (IN)	REMARKS
L-1	AIROLITE K8206E	INLET	1.75	16X16	1,2,3
L-2	AIROLITE K8206E	RELIEF	5.4	26X30	1,2,3

1. WITH BIRD AND INSECT SCREEN.
2. WITH ELECTRIC MOTOR ACTUATOR IN THE SILL.
3. LOUVER TO BE INTERLOCKED WITH THE EXHAUST FAN. FULL OPEN WHEN EXHAUST FAN IS ON.

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL	CFM	ELECTRICAL KW	VOLTS	PHASE	AMP	WEIGHT	REMARKS
EUH-1	MARLEY MUH0521	350	5	240	1	21	27	1,2
EUH-2	MARLEY MUH0521	350	5	240	1	21	27	1,2

1. DISCONNECT BY ELECTRICAL.
2. UNIT HEATER TO BE HUNG FROM THE CEILING. FIELD VERIFY CONDITIONS.

GENERAL EQUIPMENT NOTE:

REFERENCES TO SPECIFIC MANUFACTURER'S EQUIPMENT AND COMPONENTS ARE PROVIDED TO ESTABLISH THE MINIMUM DESIGN QUALITY STANDARDS FOR THIS PROJECT. CONTRACTORS MAY SUBMIT EQUIPMENT AND COMPONENTS BY OTHER MANUFACTURERS THAT MEET THE SAME DESIGN QUALITY STANDARDS AND PARAMETERS, OR BETTER, FOR "AS EQUAL" CONSIDERATION.

LICENSED PROFESSIONAL ENGINEER No. 353492 LADD M. BIRCH 06-01-18 STATE OF UTAH

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VBFA Project Number: 17517

REV NO.	COMMENT	DATE

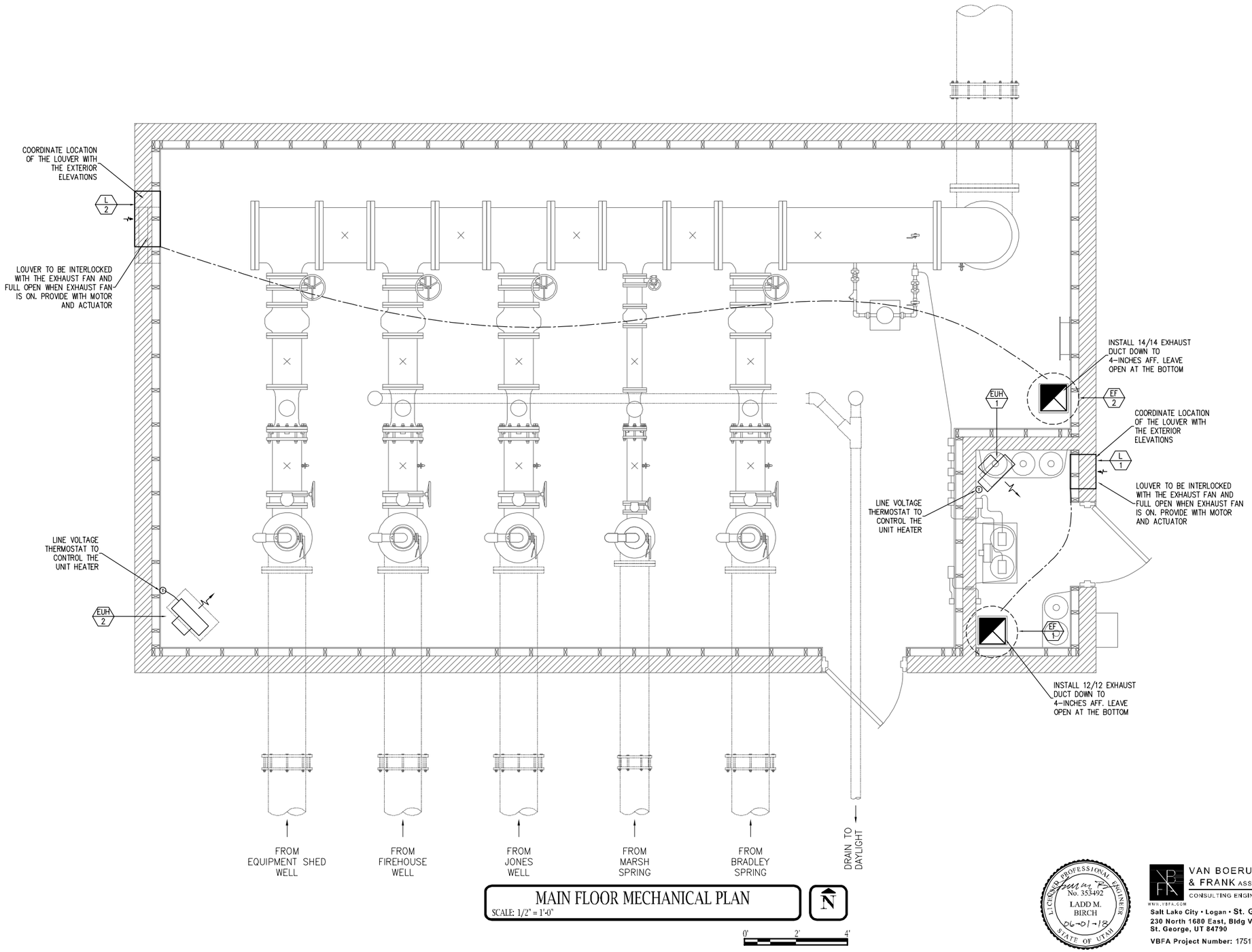
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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017

CL2 BUILDING PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	227	M001



MAIN FLOOR MECHANICAL PLAN

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

LICENSED PROFESSIONAL ENGINEER
No. 353492
LADD M. BIRCH
06-01-18
STATE OF UTAH

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REV NO.	COMMENT	DATE

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2017
CL2 BUILDING PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	228	M101

DIVISION 15 MECHANICAL

PART 1 – GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING, VENTILATION AND AIR CONDITIONING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

1. AIR CONDITIONING AND HEATING TO EXISTING A/C UNITS AS INDICATED ON PLANS COMPLETE WITH DUCTWORK, AND CONTROLS.

B. RELATED WORK INCLUDED IN THIS SECTION:

1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.

2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.

3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.

4. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION.

C. RELATED WORK IN OTHER SECTIONS:

1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:

D. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

E. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

F. PROVIDING DISCONNECT SWITCHES.

G. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND, WHEN INDICATED, FURNISHING ALL SUCH DEVICES.

H. CODES AND STANDARDS:

1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

A. 2015 INTERNATIONAL MECHANICAL CODE.
B. 2015 INTERNATIONAL BUILDING CODE.
C. 2015 INTERNATIONAL PLUMBING CODE.
D. 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
E. 2015 INTERNATIONAL FUEL AND GAS CODE.
F. ASHRAE 90.1–2010.

I. ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE–CALIBRATED FOR THE ALTITUDE WHEREIN THE PROJECT IS TO BE LOCATED. THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE–CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR USE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

1.02 PRODUCT HANDLING

A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.

B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.03 JOB CONDITIONS

A. EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.

1.04 MISCELLANEOUS

A. PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.

B. LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.

C. SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.

D. DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF DUCTWORK, EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.

E. ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE: IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.

1.05 SUBMITTALS

A. SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABERICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.

B. PRODUCT DATA:

1. SUBMIT SIX (6) COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.

2. PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.

3. MANUFACTURERS AND SUPPLIERS OF EQUIPMENT SHALL PROVIDE ALL DATA NECESSARY FOR COMPLIANCE WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. COMPLIANCE CERTIFICATION FOR ALL EQUIPMENT SHALL BE INCLUDED IN EQUIPMENT SUBMITTALS.

C. RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.

D. OPERATING MANUALS AND MAINTENANCE MANUALS:

1. SUBMIT FOUR (4) COPIES OF ALL OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS.

2. FULLY INSTRUCT OWNER'S OPERATING PERSONNEL AND DEMONSTRATE PERFORMANCE, OPERATION AND MAINTENANCE OF EQUIPMENT. AMOUNT OF TIME ALLOCATED FOR SAID INSTRUCTION AND DEMONSTRATION OF EQUIPMENT AND SYSTEMS SHALL BE PART OF THESE OBLIGATIONS. SUBMIT TO ENGINEER A LETTER SIGNED BY OWNER'S REPRESENTATIVE WHO WILL OPERATE SYSTEM STATING THAT HE HAS BEEN FULLY INSTRUCTED BY CONTRACTOR ABOUT OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM.

3. SUBMIT ONE (1) ADDITIONAL SET OF APPROVED INSTRUCTIONS AND ONE (1) ADDITIONAL SET OF APPROVED CONTROL DIAGRAMS.

E. GUARANTEES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.

PART 2 – PRODUCTS

2.01 DUCTS AND SHEET METAL WORK

A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.

B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.

C. FLAT DUCT SURFACES SHALL BE CRIMPED DIAGONALLY REGARDLESS OF SIZE. LONGITUDINAL JOINTS IN ALL DUCT SIZES MAY BE FLAT LOCK JOINTS. TRANSVERSE JOINTS AND INTERMEDIATE BRACING SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL OR GALVANIZED STRUCTURAL ANGLES IN ACCORDANCE WITH REQUIREMENTS OF ASHRAE GUIDE AND PUBLIC AUTHORITIES HAVING JURISDICTION.

D. TRANSVERSE JOINTS ON ALL DUCTS SHALL BE SEALED WITH MASTIC OR TAPE.

E. LONGITUDINAL JOINTS ON DUCTS WITH INTERNAL STATIC PRESSURES IN EXCESS OF 0.75 INCHES OF WATER PRESSURE SHALL BE SEALED WITH MASTIC OR TAPE.

F. LOCK JOINTS SHALL BE HAMMERED TO MAKE THEM AIRTIGHT. INSIDE OF DUCT SHALL PRESENT A SMOOTH SURFACE TO FLOW AIR.

G. CHANGES IN SIZE OF DUCTS SHALL INCREASE GRADUALLY WITH A SLOPE OF NOT MORE THAN 12 INCHES IN 5 FEET WHERE POSSIBLE, BUT NOT MORE THAN 12 INCHES IN 3 FEET IN ANY EVENT.

H. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.

2.02 EVAPORATIVE COOLER (SIDE DISCHARGE)

A. FURNISH AND INSTALL ROOF MOUNTED SIDE DISCHARGE EVAPORATIVE COOLER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. UNIT SHALL BE PRE–WIRED AND PRE–PIPED COMPLETE WITH CENTRIFUGAL FAN, V–BELT DRIVE, MOTOR, EVAPORATIVE PADS, SUMP, WATER DISTRIBUTION AND RECIRCULATION SYSTEM, FLOAT OPERATED VALVE, SPRAY ASSEMBLY, OVERFLOW AND DRAIN ASSEMBLY. THE CABINET SHALL BE CONSTRUCTED OF EITHER STAINLESS STEEL, HOT DIPPED GALVANIZED STEEL WITH POLYBOND FINISH, COMPLETE WITH NECESSARY GALVANIZED SUPPORTS AND BRACES. PROVIDE BLEED OFF KIT AND PIPE TO NEAREST ROOF DRAIN WITH 1/4" COPPER TUBING.

B. EVAPORATIVE COOLERS SHALL BE ARCTIC CIRCLE, MASTER COOL, CHAMPION, OR ESSICK AIR PRODUCTS.

2.03 ALUMINUM LOUVERS

A. LOUVERS ARE TO BE FURNISHED BY THIS CONTRACTOR. CONNECTIONS TO LOUVERS SHALL BE MADE BY THIS CONTRACTOR. LOUVERS SHALL BE FIXED DRAINABLE TYPE 6 INCHES THICK OF 12–GUAGE EXTRUDED ALUMINUM. LOUVER SHALL BE AMCA CERTIFIED RATED FOR NO WATER CARRY–OVER AT FREE AREA VELOCITIES LESS THAN 100 FPM. IN NO CASE SHALL FREE AREA BE LESS THAN 50% OF THE FACE AREA. FRAMES SHALL BE BOX CHANNEL OR FLANGE TYPE AS SELECTED BY ARCHITECT FOR MOUNTING IN A WALL. A 1/4–INCH GALVANIZED MESH INSECT SCREEN SHALL BE PROVIDED BEHIND LOUVER. ALUMINUM LOUVERS SHALL BE ANODIZED IN COLOR SELECTED BY ARCHITECT. LOUVERS TO BE AIROLITE (K6776), VENCO, RUSKIN, CESCO, AMERICAN WARMING AND VENTILATING, AIR BALANCE, GREENHECK, OR LOUVERS AND DAMPERS.

2.04 ELECTRIC UNIT HEATER

A. FURNISH AND INSTALL INDOOR ELECTRIC HEATER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. THESE UNITS SHALL BE COMPLETE WITH SPIRAL–FINNED ENCLOSED HEATING ELEMENT, PERMANENTLY LUBRICATED AND THERMALLY PROTECTED FAN MOTOR, AUTOMATIC HIGH LIMIT, CONTROL CIRCUIT, ADJUSTABLE HORIZONTAL LOUVERS, BAKED ENAMEL FINISH AND SINGLE STAGE UNIT MOUNTED THERMOSTAT. UNIT MUST BE UL LISTED. UNIT SHALL BE REZNOR, HASTING, OR MODINE.

2.05 ROOF MOUNTED CENTRIFUGAL DOMED EXHAUST FAN

A. ROOF MOUNTED EXHAUST FANS OF THE CAPACITY SHOWN ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED. FANS SHALL BE DRIVEN BY A MOTOR WITH ADJUSTABLE PITCH V–BELT OR BY A DIRECT DRIVEN MOTOR COMPLETE WITH BACKDRAFT DAMPERS AND SPUN ALUMINUM DOMED HOUSING. BLOWER SHALL BE NON–OVERLOADING BACKWARD INCLINED. THE MOTOR AND BEARING SHALL NOT COME INTO CONTACT WITH THE DISCHARGE AIR AND SHALL BE READILY ACCESSIBLE WITHOUT REMOVAL OF FAN OR HOUSING FROM LOCATION. A DISCONNECT SWITCH AND SELF FLASHING PREFABRICATED CURB SHALL BE SUPPLIED WITH THE FAN. FAN SHALL BE COMPLETE WITH INSECT SCREEN. FANS SHALL BE GREENHECK, PENN, COOK, ACME OR SOLER & PALAU.

PART 3 – EXECUTION

1.06 EQUIPMENT IDENTIFICATION

A. EXCEPT FOR INDIVIDUAL ROOM HEATING UNITS AND ITEMS FURNISHED UNDER TEMPERATURE CONTROL, ALL ITEMS OF MECHANICAL EQUIPMENT, INCLUDING FANS, PUMPS, BOILERS, AND ELECTRICAL SWITCHES AND STARTERS FOR MECHANICAL EQUIPMENT AND GAUGES SHALL BE LABELED.

B. INFORMATION ON LABELS SHALL INCLUDE THE FOLLOWING:

1. IDENTIFICATION NUMBER AND NAME. GENERALLY, THIS NUMBER AND NAME SHALL BE THE SAME AS THAT SHOWN ON THE DRAWINGS OR IN THE SPECS.

2. IF THE ITEM IS A FAN OR PUMP, THE FLOW AND HEAD SHALL BE INDICATED.

3. IF THE ITEM IS PART OF A UNIT, THE LABEL SHALL HAVE, IN ADDITION TO ITS ITEM NUMBER, THE NUMBER OF THE MAIN ITEM IT IS SERVING.

4. VALVES SHALL BE TAGGED WITH THE AREA SERVED AND THEIR NORMAL OPERATING POSITIONS SHALL BE INDICATED.

5. WHERE THE MAIN UNIT IS SERVED BY THE VALVE IS APPARENT, ONLY THE VALVE FUNCTION NEEDS TO BE INCLUDED ON THE NAMEPLATE.

C. THE TYPES OF NAMEPLATES SHALL BE AS FOLLOWS:

1. VALVE TAGS SHALL BE 1/2" EMBOSSED ALUMINUM TAPES WITH IDENTIFICATION ON ONE SIDE FOR VALVES. TAGS FOR MAGNETIC STARTERS SHALL BE SCREWED TO THE METAL STARTER COVER. TAGS SHALL BE ADDRESSOGRAPH NO. B–5300.

2. EQUIPMENT NAMEPLATES SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16" HIGH.

D. VALVE TAGS SHALL BE CONNECTED TO VALVE STEMS BY STEEL RINGS OR CHAINS. SCREWS SHALL BE USED FOR EQUIPMENT LABELS. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE LIST OF ALL VALVES AND EACH ITEM OF EQUIPMENT TO BE IDENTIFIED WITH THE PROPER IDENTIFICATION.

3.01 DISCREPANCIES

A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.

B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.02 EQUIPMENT IDENTIFICATION

A. ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

3.03 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

A. BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

3.04 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

A. BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

3.05 EQUIPMENT AND MATERIAL

A. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.06 ACCESSIBILITY

A. INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

3.07 SYSTEM BALANCING

A. BALANCING WORK INCLUDED:

1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.

B. VERIFICTION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.

C. PROTECTION: AS SPECIFIED HEREIN.

D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.

E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.

F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.

G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

H. AIR DISTRIBUTION TESTING AND BALANCING:

1. TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.

2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.

3. ADJUST ALL SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.

4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.

I. WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER,S REPRESENTATIVE WILL WITNESS THE TESTS.

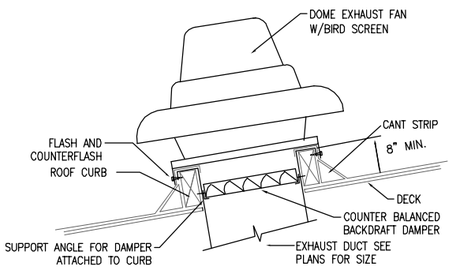
3.08 OPERATION

A. PLACE SYSTEM IN OPERATION AND REGULATE AND ADJUST TO OWNER'S SATISFACTION. SYSTEMS SHALL OPERATE QUIETLY AND WITHOUT VIBRATION OR NOISE.

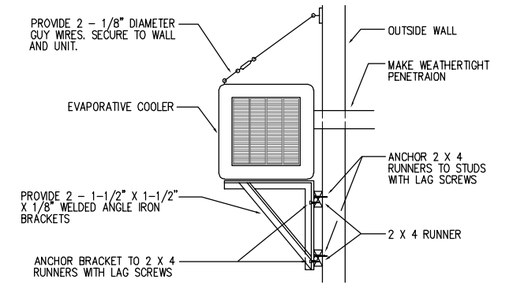
3.09 CERTIFICATION

A. UPON COMPLETION, THE CONTRACTOR SHALL INSPECT WORK OF THIS SECTION AND DELIVER TO OWNER A WRITTEN CERTIFICATION THAT INSTALLED MATERIALS AND WORKMANSHIP CONFORM TO SPECIFICATIONS.

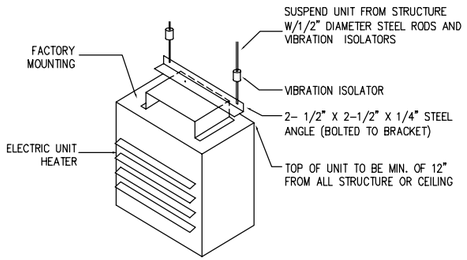
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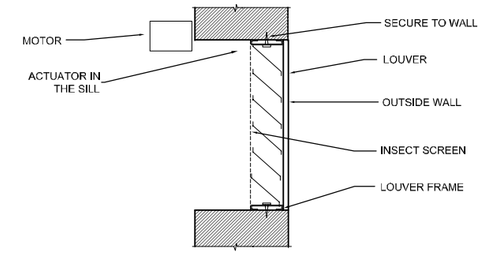
4 / M501 EXHAUST FAN DETAIL
NO SCALE



1 / M501 EVAPORATIVE COOLER SUPPORT DETAIL
NO SCALE



2 / M501 ELECTRIC UNIT HEATER MOUNTING DETAIL
NO SCALE



3 / M501 COMBINATION WALL LOUVER SECTION
NO SCALE

LICENSED PROFESSIONAL ENGINEER
No. 353492
LADD M. BIRCH
06-01-18
STATE OF UTAH

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2017
CL2 BUILDING PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	229	M501

MECHANICAL SYMBOL LEGEND

SINGLE LINE	DOUBLE LINE	
	W R	R/W=1. ROUND DUCT SIMILAR TO RECTNGULAR
12/12 8/8	12/12 8/8	RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE
9/9 9ø	9/9 9ø	RECTANGULAR TO ROUND DUCT TRANSFORMATION
	R	BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL
RECT. TO Ø 45°		TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
F	F	MANUAL VOLUME DAMPER
FD	FD	FIRE DAMPER IN DUCT W/ACCESS PANEL REQD.
FSD	FSD	COMBINATION DUCT FIRE/SMOKE DAMPER W/ACCESS PANEL REQUIRED
		FLEXIBLE DUCT CONNECTION
		FLEXIBLE DUCT
12/8	12/8	RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
12ø	12ø	ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
UP	UP	DUCT INCLINED RISE
DN	DN	DUCT INCLINED DROP

WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS= DEPTH OF DUCT

SINGLE LINE	DOUBLE LINE	
		POSITIVE PRESSURE DUCT – RISE
		POSITIVE PRESSURE DUCT – DROP
		NEGATIVE PRESSURE DUCT – RISE
		NEGATIVE PRESSURE DUCT – DROP
		ROUND DUCT – RISE
		ROUND DUCT – DROP
		DUCT TURNING VANES
	12X12 200	CEILING SUPPLY DIFFUSER (BALANCE TO CFM SHOWN)
	20X20 200	CEILING RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 200	CEILING EXHAUST REGISTER (BALANCE TO CFM SHOWN)
	24X10 200	SIDEWALL SUPPLY REGISTER (BALANCE TO CFM SHOWN)
	24X10 200	SIDEWALL EXHAUST OR RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 200	CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT (BALANCE TO CFM SHOWN)
	24X24 –	CEILING RETURN AIR GRILLE WITH SOUND BOOT

TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.

	SUPPLY DIFFUSER – 4–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 3–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 1–WAY BLOW PATTERN
FD FSD	SUPPLY DIFFUSER W/ FD – FIRE DAMPER FSD – FIRE SMOKE DAMPER
EF 1	EQUIPMENT IDENTIFICATION
RTU1 060	EXAMPLE : RTU – ACRONYM USED FOR A PIECE OF EQUIPMENT. 1 – # IDENTIFYING THE UNIT AND DISTINGUISHING IT FROM OTHERS THE SAME SIZE. 060 – SYMBOL USED TO IDENTIFY THE EQUIPMENT ON THE PLANS WITH THAT IN THE SCHEDULES.
1	KEYED NOTE IDENTIFICATION
T	THERMOSTAT
S	SENSOR
SD	DUCT SMOKE DETECTOR
U.T.R.	UP THROUGH ROOF
	ELECTRICAL PANEL
$	SWITCH
	POINT OF CONNECTION TO EXISTING AND NEW
(E)	EXISTING

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL	CFM	ELECTRICAL KW	VOLTS	PHASE	AMP	WEIGHT	REMARKS
EUH-1	MARLEY MUH0541	350	5	480	3	6	27	1,2

1. DISCONNECT BY ELECTRICAL.
2. UNIT HEATER TO BE HUNG FROM THE CEILING. FIELD VERIFY CONDITIONS.

EVAPORATIVE COOLER SCHEDULE

SYMBOL	MANUFACTURER & MODEL	TYPE	CFM	STATIC PRESSURE (IN W.C.)	BLOWER HP	BLOWER V-PH-HZ	PUMP V-PH-1	PUMP AMPS	PUMP WATTS	PUMP GPM	WEIGHT (LBS)	REMARKS
EC-1	CHAMPION 10/12 SD	SIDE DISCHARGE	9994	0.2	2	115-1-60	115-1-60	1.0	73	4.6	666	1,2

1. CONTROLLED BY A MULTIPOSITION WALL SWITCH. SWITCH BY MANUFACTURER. FIELD INSTALLED.
2. EVAPORATIVE COOLER TO BE INTERLOCKED WITH THE LOUVER. LOUVER TO FULL OPEN WITH EVAPORATIVE COOLER IS ON.

COMBINATION LOUVER SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	SERVICE	MIN FREE AREA (FT^2)	WIDTH/ HEIGHT (IN)	REMARKS
L-1	AIROLITE K8206E	RELIEF	19.98	48X60	1,2,3

1. WITH BIRD AND INSECT SCREEN.
2. WITH ELECTRIC MOTOR ACTUATOR IN THE SILL.
3. LOUVER TO BE INTERLOCKED WITH THE EVAPORATIVE COOLER. FULL OPEN WHEN EVAPORATIVE COOLER IS ON.

GENERAL EQUIPMENT NOTE:

REFERENCES TO SPECIFIC MANUFACTURER'S EQUIPMENT AND COMPONENTS ARE PROVIDED TO ESTABLISH THE MINIMUM DESIGN QUALITY STANDARDS FOR THIS PROJECT. CONTRACTORS MAY SUBMIT EQUIPMENT AND COMPONENTS BY OTHER MANUFACTURERS THAT MEET THE SAME DESIGN QUALITY STANDARDS AND PARAMETERS, OR BETTER, FOR "AS EQUAL" CONSIDERATION.

LICENSED PROFESSIONAL ENGINEER — No. 353492 — LADD M. BIRCH — 06-01-18 — STATE OF UTAH

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VBFA Project Number: 17515

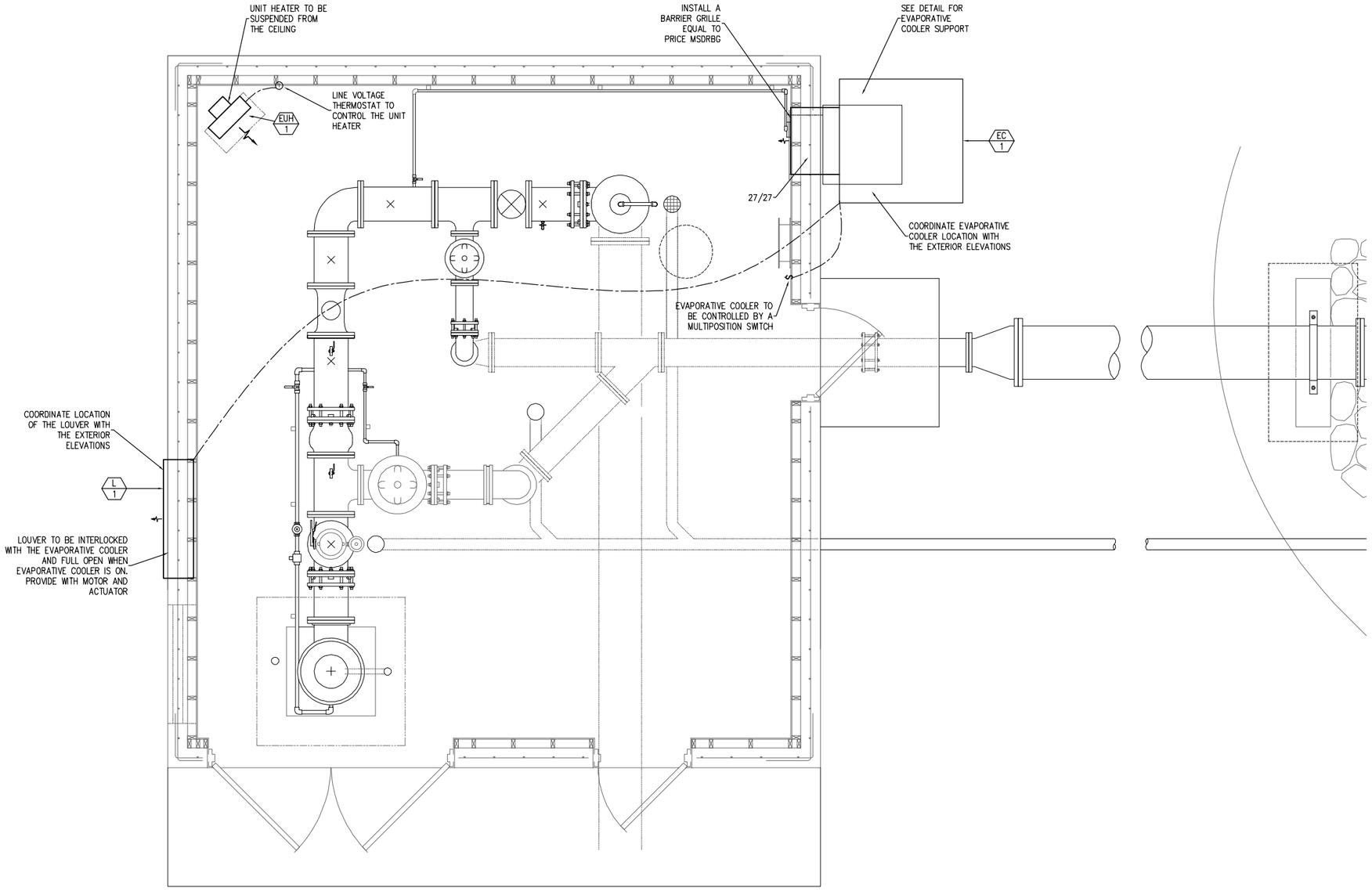
REV NO.	COMMENT	DATE
1	REVISIONS PER WHO?	10-29-05

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2017
FIREHOUSE WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	230	M001



MAIN FLOOR MECHANICAL PLAN

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

0' 2' 4'

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05884	L.B.	K.B.	L.B.	231	M101

DIVISION 15 MECHANICAL

PART 1 – GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING, VENTILATION AND AIR CONDITIONING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

1. AIR CONDITIONING AND HEATING TO EXISTING A/C UNITS AS INDICATED ON PLANS COMPLETE WITH DUCTWORK, AND CONTROLS.

B. RELATED WORK INCLUDED IN THIS SECTION:

1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.

2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.

3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.

4. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION.

C. RELATED WORK IN OTHER SECTIONS:

1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:

D. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

E. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

F. PROVIDING DISCONNECT SWITCHES.

G. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND, WHEN INDICATED, FURNISHING ALL SUCH DEVICES.

H. CODES AND STANDARDS:

1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

A. 2015 INTERNATIONAL MECHANICAL CODE.
B. 2015 INTERNATIONAL BUILDING CODE.
C. 2015 INTERNATIONAL PLUMBING CODE.
D. 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
E. 2015 INTERNATIONAL FUEL AND GAS CODE.
F. ASHRAE 90.1–2010.

I. ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE–CALIBRATED FOR THE ALTITUDE WHEREIN THE PROJECT IS TO BE LOCATED. THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE–CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR USE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

1.02 PRODUCT HANDLING

A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.

B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.03 JOB CONDITIONS

A. EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.

1.04 MISCELLANEOUS

A. PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.

B. LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.

C. SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.

D. DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF DUCTWORK, EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.

E. ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE: IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.

1.05 SUBMITTALS

A. SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABERICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.

B. PRODUCT DATA:

1. SUBMIT SIX (6) COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.

2. PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.

3. MANUFACTURERS AND SUPPLIERS OF EQUIPMENT SHALL PROVIDE ALL DATA NECESSARY FOR COMPLIANCE WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. COMPLIANCE CERTIFICATION FOR ALL EQUIPMENT SHALL BE INCLUDED IN EQUIPMENT SUBMITTALS.

C. RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.

D. OPERATING MANUALS AND MAINTENANCE MANUALS:

1. SUBMIT FOUR (4) COPIES OF ALL OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS.

2. FULLY INSTRUCT OWNER'S OPERATING PERSONNEL AND DEMONSTRATE PERFORMANCE, OPERATION AND MAINTENANCE OF EQUIPMENT. AMOUNT OF TIME ALLOCATED FOR SAID INSTRUCTION AND DEMONSTRATION OF EQUIPMENT AND SYSTEMS SHALL BE PART OF THESE OBLIGATIONS. SUBMIT TO ENGINEER A LETTER SIGNED BY OWNER'S REPRESENTATIVE WHO WILL OPERATE SYSTEM STATING THAT HE HAS BEEN FULLY INSTRUCTED BY CONTRACTOR ABOUT OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM.

3. SUBMIT ONE (1) ADDITIONAL SET OF APPROVED INSTRUCTIONS AND ONE (1) ADDITIONAL SET OF APPROVED CONTROL DIAGRAMS.

E. GUARANTEES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.

PART 2 – PRODUCTS

2.01 DUCTS AND SHEET METAL WORK

A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.

B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.

C. FLAT DUCT SURFACES SHALL BE CRIMPED DIAGONALLY REGARDLESS OF SIZE. LONGITUDINAL JOINTS IN ALL DUCT SIZES MAY BE FLAT LOCK JOINTS. TRANSVERSE JOINTS AND INTERMEDIATE BRACING SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL OR GALVANIZED STRUCTURAL ANGLES IN ACCORDANCE WITH REQUIREMENTS OF ASHRAE GUIDE AND PUBLIC AUTHORITIES HAVING JURISDICTION.

D. TRANSVERSE JOINTS ON ALL DUCTS SHALL BE SEALED WITH MASTIC OR TAPE.

E. LONGITUDINAL JOINTS ON DUCTS WITH INTERNAL STATIC PRESSURES IN EXCESS OF 0.75 INCHES OF WATER PRESSURE SHALL BE SEALED WITH MASTIC OR TAPE.

F. LOCK JOINTS SHALL BE HAMMERED TO MAKE THEM AIRTIGHT. INSIDE OF DUCT SHALL PRESENT A SMOOTH SURFACE TO FLOW AIR.

G. CHANGES IN SIZE OF DUCTS SHALL INCREASE GRADUALLY WITH A SLOPE OF NOT MORE THAN 12 INCHES IN 5 FEET WHERE POSSIBLE, BUT NOT MORE THAN 12 INCHES IN 3 FEET IN ANY EVENT.

H. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.

2.02 EVAPORATIVE COOLER (SIDE DISCHARGE)

A. FURNISH AND INSTALL ROOF MOUNTED SIDE DISCHARGE EVAPORATIVE COOLER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. UNIT SHALL BE PRE–WIRED AND PRE–PIPED COMPLETE WITH CENTRIFUGAL FAN, V–BELT DRIVE, MOTOR, EVAPORATIVE PADS, SUMP, WATER DISTRIBUTION AND RECIRCULATION SYSTEM, FLOAT OPERATED VALVE, SPRAY ASSEMBLY, OVERFLOW AND DRAIN ASSEMBLY. THE CABINET SHALL BE CONSTRUCTED OF EITHER STAINLESS STEEL, HOT DIPPED GALVANIZED STEEL WITH POLYBOND FINISH, COMPLETE WITH NECESSARY GALVANIZED SUPPORTS AND BRACES. PROVIDE BLEED OFF KIT AND PIPE TO NEAREST ROOF DRAIN WITH 1/4" COPPER TUBING.

B. EVAPORATIVE COOLERS SHALL BE ARCTIC CIRCLE, MASTER COOL, CHAMPION, OR ESSICK AIR PRODUCTS.

2.03 ALUMINUM LOUVERS

A. LOUVERS ARE TO BE FURNISHED BY THIS CONTRACTOR. CONNECTIONS TO LOUVERS SHALL BE MADE BY THIS CONTRACTOR. LOUVERS SHALL BE FIXED DRAINABLE TYPE 6 INCHES THICK OF 12–GUAGE EXTRUDED ALUMINUM. LOUVER SHALL BE AMCA CERTIFIED RATED FOR NO WATER CARRY–OVER AT FREE AREA VELOCITIES LESS THAN 100 FPM. IN NO CASE SHALL FREE AREA BE LESS THAN 50% OF THE FACE AREA. FRAMES SHALL BE BOX CHANNEL OR FLANGE TYPE AS SELECTED BY ARCHITECT FOR MOUNTING IN A WALL. A 1/4–INCH GALVANIZED MESH INSECT SCREEN SHALL BE PROVIDED BEHIND LOUVER. ALUMINUM LOUVERS SHALL BE ANODIZED IN COLOR SELECTED BY ARCHITECT. LOUVERS TO BE AIROLITE (K6776), VENCO, RUSKIN, CESCO, AMERICAN WARMING AND VENTILATING, AIR BALANCE, GREENHECK, OR LOUVERS AND DAMPERS.

2.04 ELECTRIC UNIT HEATER

A. FURNISH AND INSTALL INDOOR ELECTRIC HEATER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. THESE UNITS SHALL BE COMPLETE WITH SPIRAL–FINNED ENCLOSED HEATING ELEMENT, PERMANENTLY LUBRICATED AND TERMALLY PROTECTED FAN MOTOR, AUTOMATIC HIGH LIMIT, CONTROL CIRCUIT, ADJUSTABLE HORIZONTAL LOUVERS. BAKED ENAMEL FINISH AND SINGLE STAGE UNIT MOUNTED THERMOSTAT. UNIT MUST BE UL LISTED. UNIT SHALL BE REZNOR, HASTING, OR MODINE.

PART 3 – EXECUTION

1.06 EQUIPMENT IDENTIFICATION

A. EXCEPT FOR INDIVIDUAL ROOM HEATING UNITS AND ITEMS FURNISHED UNDER TEMPERATURE CONTROL, ALL ITEMS OF MECHANICAL EQUIPMENT, INCLUDING FANS, PUMPS, BOILERS, AND ELECTRICAL SWITCHES AND STARTERS FOR MECHANICAL EQUIPMENT AND GAUGES SHALL BE LABELED.

B. INFORMATION ON LABELS SHALL INCLUDE THE FOLLOWING:

1. IDENTIFICATION NUMBER AND NAME. GENERALLY, THIS NUMBER AND NAME SHALL BE THE SAME AS THAT SHOWN ON THE DRAWINGS OR IN THE SPECS.

2. IF THE ITEM IS A FAN OR PUMP, THE FLOW AND HEAD SHALL BE INDICATED.

3. IF THE ITEM IS PART OF A UNIT, THE LABEL SHALL HAVE, IN ADDITION TO ITS ITEM NUMBER, THE NUMBER OF THE MAIN ITEM IT IS SERVING.

4. VALVES SHALL BE TAGGED WITH THE AREA SERVED AND THEIR NORMAL OPERATING POSITIONS SHALL BE INDICATED.

5. WHERE THE MAIN UNIT IS SERVED BY THE VALVE IS APPARENT, ONLY THE VALVE FUNCTION NEEDS TO BE INCLUDED ON THE NAMEPLATE.

C. THE TYPES OF NAMEPLATES SHALL BE AS FOLLOWS:

1. VALVE TAGS SHALL BE 1/2" EMBOSSED ALUMINUM TAPES WITH IDENTIFICATION ON ONE SIDE FOR VALVES. TAGS FOR MAGNETIC STARTERS SHALL BE SCREWED TO THE METAL STARTER COVER. TAGS SHALL BE ADDRESSOGRAPH NO. B–5300.

2. EQUIPMENT NAMEPLATES SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16" HIGH.

D. VALVE TAGS SHALL BE CONNECTED TO VALVE STEMS BY STEEL RINGS OR CHAINS. SCREWS SHALL BE USED FOR EQUIPMENT LABELS. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE LIST OF ALL VALVES AND EACH ITEM OF EQUIPMENT TO BE IDENTIFIED WITH THE PROPER IDENTIFICATION.

3.01 DISCREPANCIES

A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.

B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.02 EQUIPMENT IDENTIFICATION

A. ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

3.03 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

A. BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

3.04 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

A. BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

3.05 EQUIPMENT AND MATERIAL

A. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.06 ACCESSIBILITY

A. INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

3.07 SYSTEM BALANCING

A. BALANCING WORK INCLUDED:

1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.

B. VERIFICTION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.

C. PROTECTION: AS SPECIFIED HEREIN.

D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.

E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.

F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.

G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

H. AIR DISTRIBUTION TESTING AND BALANCING:

1. TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.

2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.

3. ADJUST ALL SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.

4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.

I. WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER,S REPRESENTATIVE WILL WITNESS THE TESTS.

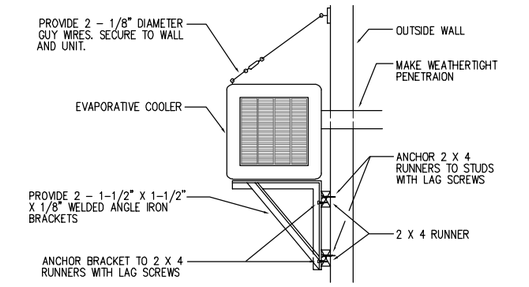
3.08 OPERATION

A. PLACE SYSTEM IN OPERATION AND REGULATE AND ADJUST TO OWNER'S SATISFACTION. SYSTEMS SHALL OPERATE QUIETLY AND WITHOUT VIBRATION OR NOISE.

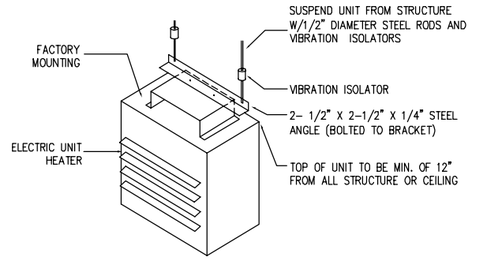
3.09 CERTIFICATION

A. UPON COMPLETION, THE CONTRACTOR SHALL INSPECT WORK OF THIS SECTION AND DELIVER TO OWNER A WRITTEN CERTIFICATION THAT INSTALLED MATERIALS AND WORKMANSHIP CONFORM TO SPECIFICATIONS.

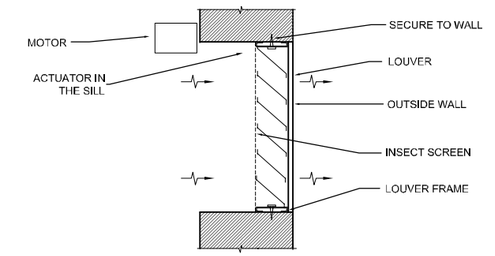
– END –



1 / M501 EVAPORATIVE COOLER SUPPORT DETAIL
NO SCALE



2 / M501 ELECTRIC UNIT HEATER MOUNTING DETAIL
NO SCALE



3 / M501 COMBINATION WALL LOUVER SECTION
NO SCALE

LICENSED PROFESSIONAL ENGINEER
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REV NO.	COMMENT	DATE
1	REVISIONS PER WHO?	10–29–05

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017

FIREHOUSE WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
05884	L.B.	K.B.	L.B.	232

M501

MECHANICAL SYMBOL LEGEND

SINGLE LINE	DOUBLE LINE	
	W R	R/W=1. ROUND DUCT SIMILAR TO RECTNGULAR
12/12 8/8	12/12 8/8	RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE
9/9 9ø	9/9 9ø	RECTANGULAR TO ROUND DUCT TRANSFORMATION
	R	BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL
RECT. TO ø 45°		TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
F	F	MANUAL VOLUME DAMPER
ø FD	ø FD	FIRE DAMPER IN DUCT W/ACCESS PANEL REQD.
ø FSD	ø FSD	COMBINATION DUCT FIRE/SMOKE DAMPER W/ACCESS PANEL REQUIRED
		FLEXIBLE DUCT CONNECTION
		FLEXIBLE DUCT
12/8	12/8	RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
12ø	12ø	ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES
UP ►	UP ►	DUCT INCLINED RISE
DN ►	DN ►	DUCT INCLINED DROP

WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS= DEPTH OF DUCT

SINGLE LINE	DOUBLE LINE	
		POSITIVE PRESSURE DUCT – RISE
		POSITIVE PRESSURE DUCT – DROP
		NEGATIVE PRESSURE DUCT – RISE
		NEGATIVE PRESSURE DUCT – DROP
		ROUND DUCT – RISE
		ROUND DUCT – DROP
		DUCT TURNING VANES
	12X12 200	CEILING SUPPLY DIFFUSER (BALANCE TO CFM SHOWN)
	20X20 200	CEILING RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 200	CEILING EXHAUST REGISTER (BALANCE TO CFM SHOWN)
	24X10 200	SIDEWALL SUPPLY REGISTER (BALANCE TO CFM SHOWN)
	24X10 200	SIDEWALL EXHAUST OR RETURN REGISTER (BALANCE TO CFM SHOWN)
	12X12 200	CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT (BALANCE TO CFM SHOWN)
	24X24 –	CEILING RETURN AIR GRILLE WITH SOUND BOOT

TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.

	SUPPLY DIFFUSER – 4–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 3–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 2–WAY BLOW PATTERN
	SUPPLY DIFFUSER – 1–WAY BLOW PATTERN
FD FSD	SUPPLY DIFFUSER W/ FD – FIRE DAMPER FSD – FIRE SMOKE DAMPER
EF 1	EQUIPMENT IDENTIFICATION
RTU1 060	EXAMPLE : RTU – ACRONYM USED FOR A PIECE OF EQUIPMENT. 1 – # IDENTIFYING THE UNIT AND DISTINGUISHING IT FROM OTHERS THE SAME SIZE. 060 – SYMBOL USED TO IDENTIFY THE EQUIPMENT ON THE PLANS WITH THAT IN THE SCHEDULES.
1	KEYED NOTE IDENTIFICATION
T	THERMOSTAT
S	SENSOR
SD	DUCT SMOKE DETECTOR
U.T.R.	UP THROUGH ROOF
	ELECTRICAL PANEL
$	SWITCH
	POINT OF CONNECTION TO EXISTING AND NEW
(E)	EXISTING

EXHAUST FAN SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	TYPE	FAN TOTAL AIR FLOW RATE (CFM)	FAN TOT. STATIC PRESSURE DROP (IN H20)	FAN OUTLET VELOCITY (FPM)	MOTOR FAN SPEED (RPM)	MOTOR HP	MOTOR SPEED (RPM)	MOTOR VOLT/PH	WEIGHT (LBS)	REMARKS
EF-1	COOK 70 ACEB	ROOF MOUNTED	320	0.25	535	1862	1/4	1750	120/1	45	1,2,3,4,5

1. INTERLOCK EXHAUST FAN WITH WALL SWITCH.
2. WALL SWITCH AND WIRING BY ELECTRICAL.
3. DISCONNECT BY ELECTRICAL.
4. LOUVER TO FULL OPEN WHEN FAN IS ON.
5. WITH ROOF CURB AND BACKDRAFT DAMPER.

COMBINATION LOUVER SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	SERVICE	MIN FREE AREA (FT^2)	WIDTH/ HEIGHT (IN)	REMARKS
L-1	AIROLITE K8206E	INLET	1.75	16X16	1,2,3
L-2	AIROLITE K8206E	RELIEF	17.878	48X54	1,2,4

1. WITH BIRD AND INSECT SCREEN.
2. WITH ELECTRIC MOTOR ACTUATOR IN THE SILL.
3. LOUVER TO BE INTERLOCKED WITH THE EXHAUST FANL FULL OPEN WHEN EXHAUST FAN IS ON.
4. LOUVER TO BE INTERLOCKED WITH THE EVAPORATIVE COOLER. FULL OPEN WHEN EVAPORATIVE COOLER IS ON.

EVAPORATIVE COOLER SCHEDULE

SYMBOL	MANUFACTURER & MODEL	TYPE	CFM	STATIC PRESSURE (IN W.C.)	BLOWER HP	BLOWER V-PH-HZ	PUMP V-PH-1	PUMP AMPS	PUMP WATTS	PUMP GPM	WEIGHT (LBS)	REMARKS
EC-1	CHAMPION 10/12 SD	SIDE DISCHARGE	8939	0.2	1-1/2	115-1-60	115-1-60	1.0	73	4.6	666	1,2

1. CONTROLLED BY A MULTIPOSITION WALL SWITCH. SWITCH BY MANUFACTURER. FIELD INSTALLED.
2. EVAPORATIVE COOLER TO BE INTERLOCKED WITH THE LOUVER. LOUVER TO FULL OPEN WITH EVAPORATIVE COOLER IS ON.

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL	CFM	ELECTRICAL KW	VOLTS	PHASE	AMP	WEIGHT	REMARKS
EUH-1	MARLEY MUH0541	350	5	480	3	6	27	1,2
EUH-2	MARLEY MUH0541	350	5	480	3	6	27	1,2

1. DISCONNECT BY ELECTRICAL.
2. UNIT HEATER TO BE HUNG FROM THE CEILING. FIELD VERIFY CONDITIONS.

GENERAL EQUIPMENT NOTE:

REFERENCES TO SPECIFIC MANUFACTURER'S EQUIPMENT AND COMPONENTS ARE PROVIDED TO ESTABLISH THE MINIMUM DESIGN QUALITY STANDARDS FOR THIS PROJECT. CONTRACTORS MAY SUBMIT EQUIPMENT AND COMPONENTS BY OTHER MANUFACTURERS THAT MEET THE SAME DESIGN QUALITY STANDARDS AND PARAMETERS, OR BETTER, FOR "AS EQUAL" CONSIDERATION.

LICENSED PROFESSIONAL ENGINEER — No. 353492 — LADD M. BIRCH — 05-02-18 — STATE OF UTAH

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VBFA Project Number: 17516

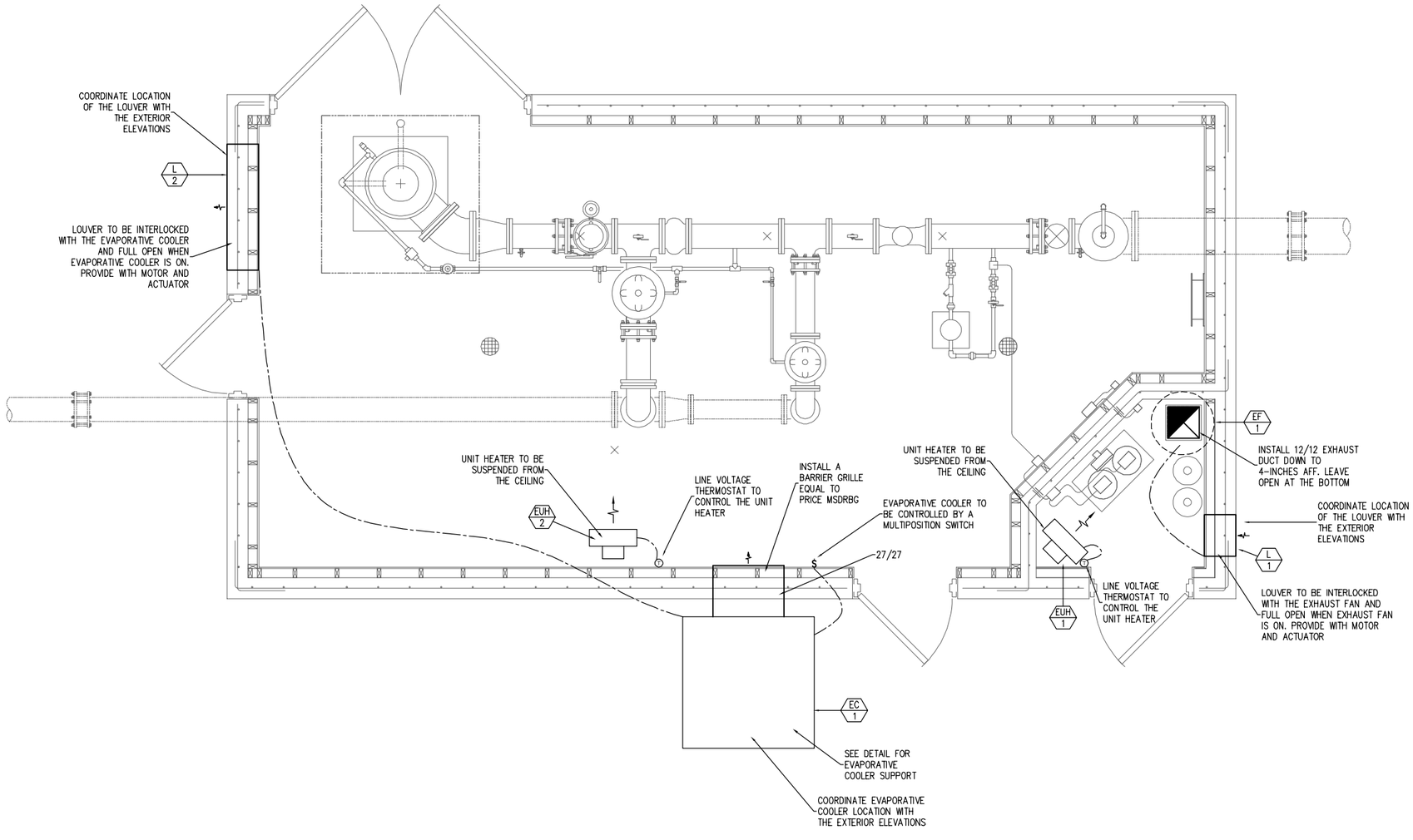
REV NO.	COMMENT	DATE

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	M001
05884	L.B.	K.B.	L.B.	233	



MAIN FLOOR MECHANICAL PLAN

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

0' 2' 4'

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CULINARY WATER IMPROVEMENTS PROJECT
2017
WORWOOD WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	234	M101

DIVISION 15 MECHANICAL

PART 1 – GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING, VENTILATION AND AIR CONDITIONING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

1. AIR CONDITIONING AND HEATING TO EXISTING A/C UNITS AS INDICATED ON PLANS COMPLETE WITH DUCTWORK, AND CONTROLS.

B. RELATED WORK INCLUDED IN THIS SECTION:

1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.

2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.

3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.

4. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION.

C. RELATED WORK IN OTHER SECTIONS:

1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:

D. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

E. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

F. PROVIDING DISCONNECT SWITCHES.

G. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND, WHEN INDICATED, FURNISHING ALL SUCH DEVICES.

H. CODES AND STANDARDS:

1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

A. 2015 INTERNATIONAL MECHANICAL CODE.
B. 2015 INTERNATIONAL BUILDING CODE.
C. 2015 INTERNATIONAL PLUMBING CODE.
D. 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
E. 2015 INTERNATIONAL FUEL AND GAS CODE.
F. ASHRAE 90.1–2010.

I. ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE ALTITUDE WHEREIN THE PROJECT IS TO BE LOCATED. THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR USE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

1.02 PRODUCT HANDLING

A. **PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.**

B. **REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.**

1.03 JOB CONDITIONS

A. **EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.**

1.04 MISCELLANEOUS

A. **PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.**

B. **LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.**

C. **SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.**

D. **DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF DUCTWORK, EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.**

E. **ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE: IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.**

1.05 SUBMITTALS

A. **SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABERICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.**

B. **PRODUCT DATA:**

1. **SUBMIT SIX (6) COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.**

2. **PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.**

3. **MANUFACTURERS AND SUPPLIERS OF EQUIPMENT SHALL PROVIDE ALL DATA NECESSARY FOR COMPLIANCE WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. COMPLIANCE CERTIFICATION FOR ALL EQUIPMENT SHALL BE INCLUDED IN EQUIPMENT SUBMITTALS.**

C. **RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.**

D. **OPERATING MANUALS AND MAINTENANCE MANUALS:**

1. **SUBMIT FOUR (4) COPIES OF ALL OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS.**

2. **FULLY INSTRUCT OWNER'S OPERATING PERSONNEL AND DEMONSTRATE PERFORMANCE, OPERATION AND MAINTENANCE OF EQUIPMENT. AMOUNT OF TIME ALLOCATED FOR SAID INSTRUCTION AND DEMONSTRATION OF EQUIPMENT AND SYSTEMS SHALL BE PART OF THESE OBLIGATIONS. SUBMIT TO ENGINEER A LETTER SIGNED BY OWNER'S REPRESENTATIVE WHO WILL OPERATE SYSTEM STATING THAT HE HAS BEEN FULLY INSTRUCTED BY CONTRACTOR ABOUT OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM.**

3. **SUBMIT ONE (1) ADDITIONAL SET OF APPROVED INSTRUCTIONS AND ONE (1) ADDITIONAL SET OF APPROVED CONTROL DIAGRAMS.**

E. **GUARANTEES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.**

PART 2 – PRODUCTS

2.01 DUCTS AND SHEET METAL WORK

A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.

B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.

C. FLAT DUCT SURFACES SHALL BE CRIMPED DIAGONALLY REGARDLESS OF SIZE. LONGITUDINAL JOINTS IN ALL DUCT SIZES MAY BE FLAT LOCK JOINTS. TRANSVERSE JOINTS AND INTERMEDIATE BRACING SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL OR GALVANIZED STRUCTURAL ANGLES IN ACCORDANCE WITH REQUIREMENTS OF ASHRAE GUIDE AND PUBLIC AUTHORITIES HAVING JURISDICTION.

D. TRANSVERSE JOINTS ON ALL DUCTS SHALL BE SEALED WITH MASTIC OR TAPE.

E. LONGITUDINAL JOINTS ON DUCTS WITH INTERNAL STATIC PRESSURES IN EXCESS OF 0.75 INCHES OF WATER PRESSURE SHALL BE SEALED WITH MASTIC OR TAPE.

F. LOCK JOINTS SHALL BE HAMMERED TO MAKE THEM AIRTIGHT. INSIDE OF DUCT SHALL PRESENT A SMOOTH SURFACE TO FLOW AIR.

G. CHANGES IN SIZE OF DUCTS SHALL INCREASE GRADUALLY WITH A SLOPE OF NOT MORE THAN 12 INCHES IN 5 FEET WHERE POSSIBLE, BUT NOT MORE THAN 12 INCHES IN 3 FEET IN ANY EVENT.

H. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.

2.02 EVAPORATIVE COOLER (SIDE DISCHARGE)

A. FURNISH AND INSTALL ROOF MOUNTED SIDE DISCHARGE EVAPORATIVE COOLER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. UNIT SHALL BE PRE-WIRED AND PRE-PIPED COMPLETE WITH CENTRIFUGAL FAN, V-BELT DRIVE, MOTOR, EVAPORATIVE PADS, SUMP, WATER DISTRIBUTION AND RECIRCULATION SYSTEM, FLOAT OPERATED VALVE, SPRAY ASSEMBLY, OVERFLOW AND DRAIN ASSEMBLY. THE CABINET SHALL BE CONSTRUCTED OF EITHER STAINLESS STEEL, HOT DIPPED GALVANIZED STEEL WITH POLYBOND FINISH, COMPLETE WITH NECESSARY GALVANIZED SUPPORTS AND BRACES. PROVIDE BLEED OFF KIT AND PIPE TO NEAREST ROOF DRAIN WITH 1/4" COPPER TUBING.

B. EVAPORATIVE COOLERS SHALL BE ARCTIC CIRCLE, MASTER COOL, CHAMPION, OR ESSICK AIR PRODUCTS.

2.03 ALUMINUM LOUVERS

A. LOUVERS ARE TO BE FURNISHED BY THIS CONTRACTOR. CONNECTIONS TO LOUVERS SHALL BE MADE BY THIS CONTRACTOR. LOUVERS SHALL BE FIXED DRAINABLE TYPE 6 INCHES THICK OF 12-GUAGE EXTRUDED ALUMINUM. LOUVER SHALL BE AMCA CERTIFIED RATED FOR NO WATER CARRY-OVER AT FREE AREA VELOCITIES LESS THAN 100 FPM. IN NO CASE SHALL FREE AREA BE LESS THAN 50% OF THE FACE AREA. FRAMES SHALL BE BOX CHANNEL OR FLANGE TYPE AS SELECTED BY ARCHITECT FOR MOUNTING IN A WALL. A 1/4-INCH GALVANIZED MESH INSECT SCREEN SHALL BE PROVIDED BEHIND LOUVER. ALUMINUM LOUVERS SHALL BE ANODIZED IN COLOR SELECTED BY ARCHITECT. LOUVERS TO BE AIROLITE (K6776), VENCO, RUSKIN, CESCO, AMERICAN WARMING AND VENTILATING, AIR BALANCE, GREENHECK, OR LOUVERS AND DAMPERS.

2.04 ELECTRIC UNIT HEATER

A. FURNISH AND INSTALL INDOOR ELECTRIC HEATER OF SIZE AND CAPACITY SHOWN ON THE DRAWINGS. THESE UNITS SHALL BE COMPLETE WITH SPIRAL-FINNED ENCLOSED HEATING ELEMENT, PERMANENTLY LUBRICATED AND THERMALLY PROTECTED FAN MOTOR, AUTOMATIC HIGH LIMIT, CONTROL CIRCUIT, ADJUSTABLE HORIZONTAL LOUVERS, BAKED-ENAMEL FINISH AND SINGLE STAGE UNIT MOUNTED THERMOSTAT. UNIT MUST BE UL LISTED. UNIT SHALL BE REZNOR, HASTING, OR MODINE.

2.05 ROOF MOUNTED CENTRIFUGAL DOMED EXHAUST FAN

A. ROOF MOUNTED EXHAUST FANS OF THE CAPACITY SHOWN ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED. FANS SHALL BE DRIVEN BY A MOTOR WITH ADJUSTABLE PITCH V-BELT OR BY A DIRECT DRIVEN MOTOR COMPLETE WITH BACKDRAFT DAMPERS AND SPUN ALUMINUM DOMED HOUSING. BLOWER SHALL BE NON-OVERLOADING BACKWARD INCLINED. THE MOTOR AND BEARING SHALL NOT COME INTO CONTACT WITH THE DISCHARGE AIR AND SHALL BE READILY ACCESSIBLE WITHOUT REMOVAL OF FAN OR HOUSING FROM LOCATION. A DISCONNECT SWITCH AND SELF FLASHING PREFABRICATED CURB SHALL BE SUPPLIED WITH THE FAN. FAN SHALL BE COMPLETE WITH INSECT SCREEN. FANS SHALL BE GREENHECK, PENN, COOK, ACME OR SOLER & PALAU.

PART 3 – EXECUTION

1.06 EQUIPMENT IDENTIFICATION

A. **EXCEPT FOR INDIVIDUAL ROOM HEATING UNITS AND ITEMS FURNISHED UNDER TEMPERATURE CONTROL, ALL ITEMS OF MECHANICAL EQUIPMENT, INCLUDING FANS, PUMPS, BOILERS, AND ELECTRICAL SWITCHES AND STARTERS FOR MECHANICAL EQUIPMENT AND GAUGES SHALL BE LABELED.**

B. **INFORMATION ON LABELS SHALL INCLUDE THE FOLLOWING:**

1. **IDENTIFICATION NUMBER AND NAME. GENERALLY, THIS NUMBER AND NAME SHALL BE THE SAME AS THAT SHOWN ON THE DRAWINGS OR IN THE SPECS.**

2. **IF THE ITEM IS A FAN OR PUMP, THE FLOW AND HEAD SHALL BE INDICATED.**

3. **IF THE ITEM IS PART OF A UNIT, THE LABEL SHALL HAVE, IN ADDITION TO ITS ITEM NUMBER, THE NUMBER OF THE MAIN ITEM IT IS SERVING.**

4. **VALVES SHALL BE TAGGED WITH THE AREA SERVED AND THEIR NORMAL OPERATING POSITIONS SHALL BE INDICATED.**

5. **WHERE THE MAIN UNIT IS SERVED BY THE VALVE IS APPARENT, ONLY THE VALVE FUNCTION NEEDS TO BE INCLUDED ON THE NAMEPLATE.**

C. **THE TYPES OF NAMEPLATES SHALL BE AS FOLLOWS:**

1. **VALVE TAGS SHALL BE 1/2" EMBOSSED ALUMINUM TAPES WITH IDENTIFICATION ON ONE SIDE FOR VALVES. TAGS FOR MAGNETIC STARTERS SHALL BE SCREWED TO THE METAL STARTER COVER. TAGS SHALL BE ADDRESSOGRAPH NO. B–5300.**

2. **EQUIPMENT NAMEPLATES SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16" HIGH.**

D. **VALVE TAGS SHALL BE CONNECTED TO VALVE STEMS BY STEEL RINGS OR CHAINS. SCREWS SHALL BE USED FOR EQUIPMENT LABELS. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE LIST OF ALL VALVES AND EACH ITEM OF EQUIPMENT TO BE IDENTIFIED WITH THE PROPER IDENTIFICATION.**

3.01 DISCREPANCIES

A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.

B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.02 EQUIPMENT IDENTIFICATION

A. ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

3.03 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

A. BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

3.04 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

A. BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

3.05 EQUIPMENT AND MATERIAL

A. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.06 ACCESSIBILITY

A. INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR. PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

3.07 SYSTEM BALANCING

A. BALANCING WORK INCLUDED:

1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.

B. VERIFICTION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.

C. PROTECTION: AS SPECIFIED HEREIN.

D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.

E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.

F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.

G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

H. AIR DISTRIBUTION TESTING AND BALANCING:

1. TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.

2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.

3. ADJUST ALL SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.

4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.

I. WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER,S REPRESENTATIVE WILL WITNESS THE TESTS.

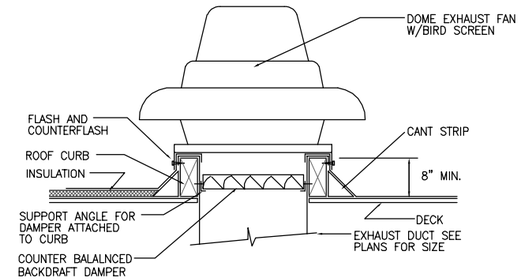
3.08 OPERATION

A. PLACE SYSTEM IN OPERATION AND REGULATE AND ADJUST TO OWNER'S SATISFACTION. SYSTEMS SHALL OPERATE QUIETLY AND WITHOUT VIBRATION OR NOISE.

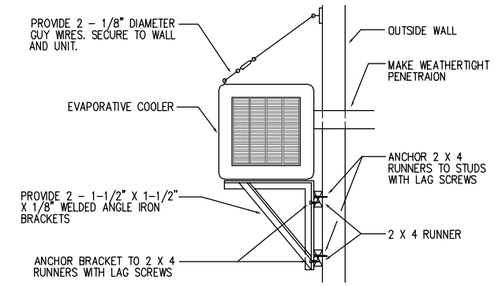
3.09 CERTIFICATION

A. UPON COMPLETION, THE CONTRACTOR SHALL INSPECT WORK OF THIS SECTION AND DELIVER TO OWNER A WRITTEN CERTIFICATION THAT INSTALLED MATERIALS AND WORKMANSHIP CONFORM TO SPECIFICATIONS.

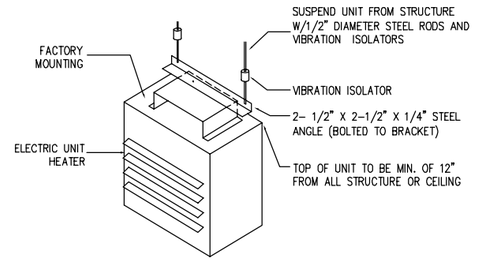
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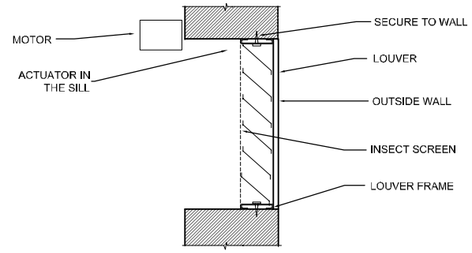
4 / M501 EXHAUST FAN DETAIL
NO SCALE



1 / M501 EVAPORATIVE COOLER SUPPORT DETAIL
NO SCALE



2 / M501 ELECTRIC UNIT HEATER MOUNTING DETAIL
NO SCALE



3 / M501 COMBINATION WALL LOUVER SECTION
NO SCALE

LICENSED PROFESSIONAL ENGINEER
No. 353492
LADD M. BIRCH
05-02-18
STATE OF UTAH

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REV NO.	COMMENT	DATE

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT
2017
WORWOOD WELL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
05884	L.B.	K.B.	L.B.	235	M501

ELECTRICAL STANDARDS LEGEND

(ALL SYMBOLS MAY NOT BE USED IN DRAWINGS)

- DIRECT BURIED OR CONCRETE EMBEDDED CONDUIT
- CONDUIT RUN EXPOSED
- PROCESS FLOW
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL
- PANEL OR ENCLOSURE
- STAND–BY GENERATOR (???KW, G, XXXA) ??? DENOTES SIZE
- GENERATOR MAIN BREAKER XXX DENOTES BREAKER SIZE
- WALL PACK FIXTURE. MOUNTING HEIGHT AS INDICATED IN DRAWINGS (WP)
- FLOOD LIGHT (FL) 7'–2" ABOVE FLOOR
- EMERGENCY EXIT SIGN (EXIT) 7'–2" ABOVE FLOOR
- EMERGENCY LIGHTING PACK (EM) 7'–2" ABOVE FLOOR
- HIGH/LOW BAY LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- 1' X 4' LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- (G) INDICATOR LAMP – LETTER INDICATES COLOR
- (R) FLASHING BEACON – LETTER INDICATES COLOR
- (MS) MOTION SENSOR
- EXHAUST FAN
- OTHER LIGHT FIXTURE AS INDICATED IN DRAWINGS.
- AUDIBLE ALARM OR HORN
- (JB) UNDERGROUND JUNCTION/PULLBOX – SIZE 5 UNLESS OTHERWISE INDICATED
- (J) STEEL JUNCTION/PULLBOX
- (E) ELECTRIC MANHOLE
- (XX) FUSE; XX – DENOTES AMPERAGE
- GFCI 120 V GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
- WP 120 V DUPLEX RECEPTACLE, WP (WEATHERPROOF)

- 240 V RECEPTACLE
- DISCONNECT SWITCH
- CIRCUIT BREAKER (20A, 3P)
  - UPPER NUMBER INDICATES AMP TRIP RATING
  - LOWER NUMBER INDICATES POLES
- MOTOR OVERLOAD
- EQUIPMENT GROUND
- LIGHT SWITCH, SINGLE POLE, MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL
- LIGHT SWITCH, SINGLE POINT MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL, WEATHER PROOF (WP)
- (R) RELAY
- (TR1) TIMING RELAY
- (TDR) TIMING DELAY RELAY
- (CR) CONTROL RELAY COIL
- (M) MAGNETIC RELAY
- MOMENTARY PUSH–BUTTON SWITCH
- HAND–OFF–AUTO SELECTOR SWITCH
- NORMALLY CLOSED PUSHBUTTON
- NORMALLY OPEN PUSHBUTTON
- (RTM) RUNNING TIME METER
- MOTOR STARTER – NUMBER INDICATES SIZE
- NORMALLY CLOSED CONTACTS
- NORMALLY OPEN CONTACTS
- CONTACTOR OR STARTER, NUMBER DENOTES NEMA SIZE
- (10) MOTOR – NUMBER INDICATES HORSEPOWER RATING

- (FM) FLOW METER
- (ETM) ELAPSED TIME METER
- LIMIT SWITCH
- INSTRUMENT TRANSFORMER
- (CT) CURRENT TRANSFORMER
- POWER TRANSFORMER
- (T) THERMOSTAT
- G.F.I. GROUND FAULT INTERRUPTER
- AUXILIARY CONTACT
- INTERLOCK
- PUMP
- (S) OR (S) SOLENOID VALVE
- VALVE WITH MANUAL OPERATOR
- (M) ELECTRIC MOTOR OPERATED VALVE (MODULATING OR NON–MODULATING)
- (M) MOTOR OPERATED VALVE WITH LIMIT SWITCH ASSEMBLY
- (I) COMPUTER/CONTROL INPUT
- (O) COMPUTER/CONTROL OUTPUT
- LP1–XX CIRCUIT LABEL:
  - LP1 – PANEL NAME
  - XX – CIRCUIT NUMBER
- EXPLOSION PROOF SEAL OFF
- (X–YYY) CONDUIT IDENTIFICATION, REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR QUANTITY AND FILL:
  - X = CONDUIT TYPE
    - P–POWER
    - C–CONTROL
    - F–FIBER OPTIC CABLE
    - X–OTHER
  - YYY = ID
- --- OTHER SYMBOLS AS SHOWN ON DRAWINGS

GENERAL ELECTRICAL REQUIREMENTS

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. ALL WORK SHALL BE DONE IN A NEAT, PROFESSIONAL, FINISHED AND SAFE MANNER, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AND ALL ELECTRICAL WORK AS REQUIRED BY THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS WELL AS ANY OTHER APPLICABLE CODES.
2. MATERIAL, EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT.
3. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER BEFORE ORDERING.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS PROJECT AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITIONS WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.
7. ALL CONDUCTORS SHALL BE THHN/THWN COPPER, STRANDED RATED AT 600 VOLTS UNLESS OTHERWISE NOTED. ALUMINUM WIRE WILL NOT BE ALLOWED.
8. ALL CONDUCTORS SHALL BE INSTALLED IN A CONDUIT SYSTEM EXCEPT WHERE NOTED IN DRAWINGS. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR CONDUIT TYPE AND SIZE. WHERE CONDUIT SIZE IS NOT CALLED OUT, CONDUIT SHALL BE INSTALLED PER SPECIFICATION 16010 AND SIZED PER LATEST ADOPTED EDITION OF THE NEC.
9. ALL UNDERGROUND CONDUIT TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30", MINIMUM SIZE 3/4" EXCEPT AS NOTED IN DRAWINGS AND SPECIFICATIONS. ALL UNDERGROUND ELBOWS SHALL BE RIGID LONG SWEEP WRAPPED WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL EXCEPT FOR COMMUNICATIONS CABLE AND CONDUIT WHEN SPECIFIED DIFFERENTLY ON THE DETAILED ELECTRICAL DRAWINGS.
10. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHALL BE RATED FOR HEAVY DUTY SERVICE.
11. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE GROUNDED BODY TYPE DEVICES.
12. THE CONTRACTOR SHALL INSTALL ALL INSTRUMENTS AND CONTROLS, INCLUDING HVAC AND CONTROL PANELS. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL INSTRUMENT, CONTROL AND HVAC DRAWINGS FOR TOTAL SCOPE OF WORK.
13. ALL PANELS, DISCONNECTS AND SWITCHGEAR ON THE OUTSIDE OF THE BUILDING SHALL BE NEMA 3R TYPE ENCLOSURES UNLESS OTHERWISE SPECIFIED. CT CABINET AND METER BASE SHALL BE OUTSIDE THE BUILDING.
14. SURGE PROTECTIVE DEVICES (SPD) SHALL BE SIZED FOR 160KA UNLESS OTHERWISE NOTED.
15. ALL CONDUIT FOR ALL EQUIPMENT, INCLUDING EQUIPMENT FURNISHED BY OTHERS, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
16. ALL CONDUIT, WHERE LEAVING ELECTRICAL EQUIPMENT TO GO UNDERGROUND, MUST BE ANCHORED TO THE FOUNDATION WITH STAND–OFF BRACKETS TO ALLOW FOR SUFFICIENT CLEARANCE FOR FOOTINGS AND WALL STUDS ON THE WALLS IN THE BUILDING. ALL RMC CONDUIT AND ELBOWS USED UNDERGROUND WILL BE WRAPPED WITH AN APPROVED PIPE WRAP. (TYP. FOR ALL BUILDINGS)

GENERAL ELECTRICAL ABBREVIATIONS

MCP	MOTOR CIRCUIT PROTECTOR	CB	CIRCUIT BREAKER	EMH	ELECTRICAL MANHOLE	RTU	REMOTE TERMINAL UNIT
NC	NORMALLY CLOSED	CNTL	CONTROL	MTU	MASTER TERMINAL UNIT	SPD	SURGE PROTECTIVE DEVICE
NO	NORMALLY OPEN	IC	INSTRUMENTATION CONDUIT	TSP	TWISTED SHIELDED PAIRS	PP	POWER PANEL
SPC	SPARE CONDUIT	INST	INSTRUMENT	VFD	VARIABLE FREQUENCY DRIVE	PCP	PUMP CONTROL PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER	HMI	HUMAN MACHINE INTERFACE	SPIC	SPARE INSTRUMENT CONDUIT		
ATS	AUTOMATIC TRANSFER SWITCH	SSSS	SOLID STATE SOFT START	WP	WEATHERPROOF		
LCP	LOCAL CONTROL PANEL	ACB	AIR CIRCUIT BREAKER	OL	MOTOR OVERLOAD		
C	CONDUIT	AFF	ABOVE FINISHED FLOOR	LP	LIGHTING PANEL		
		AFG	ABOVE FINISHED GRADE				

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER – STATE OF UTAH – 25-May-2018 – No. 362066 – J. RANDALL KNAPP

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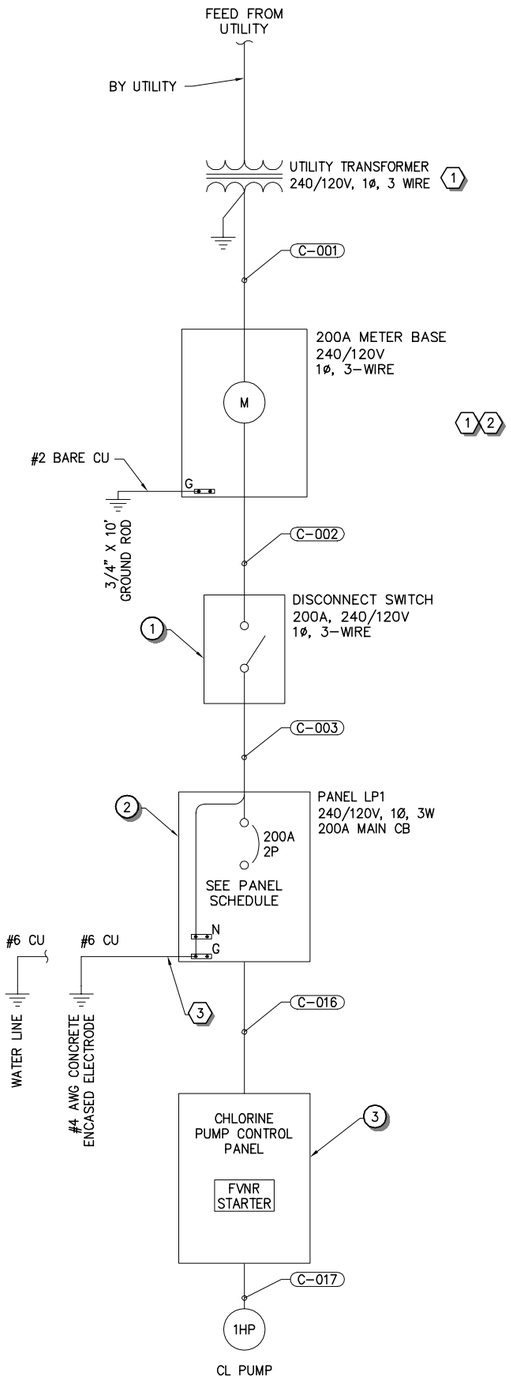
NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017

ELECTRICAL NOTES AND SYMBOLS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	236 .	E100

P:\Nephi\05884 culinary water improvements\tech department\dwg\Electrical Notes & Symbols.dwg May 25, 2018 10:03am rknapp



A ONE-LINE DIAGRAM
NTS

PANEL LP1 CHLORINATION BUILDING																CU Bus 22 KA SC Rating (RMS)			
VOLTAGE	PH	WIRE																	
240/120	1	3 -WIRE	PANEL SCHEDULE CIRCUIT													200 AMP MAIN CB			
CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA)			AMPS						LOAD (VA)			DESCRIPTION	POLE	AMPS	CKT NO.
				LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT				
1	30	2	ELECTRIC UNIT HEATER EUH-1	0	0	5000	20.8	2.1					0	0	253	LIGHTING	1	20	2
3	–	–	' '	0	0	0					20.8	4.5	0	540	0	RECEPTACLES MAIN ROOM	1	20	4
5	30	2	ELECTRIC UNIT HEATER EUH-2	0	0	5000	20.8	1.7					180	0	19	RECEPTACLES CL ROOM	1	20	6
7	–	–	' '	0	0	0					20.8	4.2	500	0	0	FLOW METER FM-1	1	15	8
9	20	1	EF-1 / L-1 CL ROOM	0	0	250	2.1	4.2					500	0	0	FLOW METER FM-2	1	15	10
11	20	1	EF-2 / L-2	0	0	315					2.6	4.2	500	0	0	FLOW METER FM-3	1	15	12
13	20	2	CHLORINE BOOSTER PUMP	0	0	1625	6.8	4.2					500	0	0	FLOW METER FM-4	1	15	14
15	–	–	' '	0	0	0					6.8	4.2	500	0	0	FLOW METER FM-5	1	15	16
17	20	1	RECEPTACLES CL ROOM	0	360	0	3.0	0.0					0	0	0	SPARE	1	20	18
19	20	1	CHLORINE PANEL	0	0	500					4.2	0.0	0	0	0	SPARE	1	20	20
21	20	1	RTU	0	0	1200	10.0	0.0					0	0	0	SPARE	1	20	22
23		–		0	0	0					0.0	0.0	0	0	0		–		24
25		–		0	0	0	0.0	0.0					0	0	0		–		26
27		–		0	0	0					0.0	0.0	0	0	0		–		28
29		–		0	0	0	0.0	0.0					0	0	0		–		30
				0	360	13890	76		0		72		2680	540	272		Total AMPS		
			Subtotal Watts			13890									3492	Subtotal Watts			
			Total Watts			17382									74	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS — PANEL NAME: PP1

LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.3 kVA	Lighting Total kVA:	0.3
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.9 kVA	Receptacles Total kVA:	0.9
ALL OTHER LOADS @ 100% MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	16.6 kVA	Other Loads Total kVA:	17.8
		DIVERSIFIED TOTAL kVA	19.1
		AVERAGE AMPS PER PHASE	79.4

SHEET NOTES:

1. ONE-LINE DIAGRAM SHOWS PROPOSED CONFIGURATION. CONTRACTOR SHALL CONFIRM ACTUAL CONFIGURATION WITH UTILITY PRIOR TO CONSTRUCTION AND PROVIDE ALL NECESSARY EQUIPMENT PADS, PULL BOXES OR OTHER ITEMS REQUIRED BY UTILITY.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
4. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
5. REFER TO DRAWING E202 FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. REFER TO DRAWING E202 FOR EQUIPMENT SCHEDULE.

KEY NOTES

1. COORDINATE ALL SERVICE ENTRANCE WORK WITH NEPHI CITY POWER PRIOR TO CONSTRUCTION TO CONFIRM EXACT LOCATION, CONDUIT SIZE AND OTHER REQUIREMENTS AND UTILITY STANDARDS.
2. METER BASE PROVIDED BY UTILITY AND INSTALLED BY CONTRACTOR. COORDINATE EXACT PLACEMENT WITH OWNER AND UTILITY PRIOR TO CONSTRUCTION.
3. BOND TO ALL ELECTRODES PRESENT PER NEC 250.

REV NO.	COMMENT	DATE

25-May-2018 No. 362066 J. RANDALL KNAPP STATE OF UTAH REGISTERED PROFESSIONAL ENGINEER
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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
CHLORINE BUILDING
ELECTRICAL ONE-LINE DIAGRAM

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	237 .	E201

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	APPROX.	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		LEN (FT.)	
C-001	UTILITY SERVICE	UTILITY TRANSFORMER	METER BASE	1	3"			240		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-002	BUILDING SERVICE CONNECTION	METER BASE	DISCONNECT SWITCH	1	2"	(3) #3/0 AWG	#6	240		
C-003	FEEDER TO PANEL LP1	DISCONNECT	PANEL LP1	1	2"	(3) #3/0 AWG	#6	240		
C-004	POWER TO UNIT HEATER EUH-1	PANEL LP1-1,3	EUH-1 THERMOSTAT	1	3/4"	(2) #10 AWG	#10	240		
C-005	POWER TO UNIT HEATER EUH-1	EUH-1 THERMOSTAT	EUH-1	1	3/4"	(2) #10 AWG	#10	240		
C-006	POWER TO UNIT HEATER EUH-2	PANEL LP1-5,7	EUH-2 THERMOSTAT	1	3/4"	(2) #10 AWG	#10	240		
C-007	POWER TO UNIT HEATER EUH-2	EUH-2 THERMOSTAT	EUH-2	1	3/4"	(2) #10 AWG	#10	240		
C-008	POWER TO EF-1, L-1, CL ROOM LIGHTING	PANEL LP1-9	CL ROOM SWITCH	1	3/4"	(2) #12 AWG	#12	120		
C-009	POWER TO EF-2, L-2	PANEL LP1-11	MAIN ROOM EX. FAN SWITCH	1	3/4"	(2) #12 AWG	#12	120		
C-010	CONTROL TO L-2	MAIN ROOM EX. FAN SWITCH	L-2	1	3/4"	(2) #12 AWG	#12	120		
C-011	POWER TO FLOW METER 1	PANEL LP1 - 8	FM-1	1	3/4"	(2) #12 AWG	#12	120		
C-012	POWER TO FLOW METER 2	PANEL LP1 - 10	FM-2	1	3/4"	(2) #12 AWG	#12	120		
C-013	POWER TO FLOW METER 3	PANEL LP1 - 12	FM-3	1	3/4"	(2) #12 AWG	#12	120		
C-014	POWER TO FLOW METER 4	PANEL LP1 - 14	FM-4	1	3/4"	(2) #12 AWG	#12	120		
C-015	POWER TO FLOW METER 5	PANEL LP1 - 16	FM-5	1	3/4"	(2) #12 AWG	#12	120		
C-016	POWER TO CHLORINE BOOSTER PUMP STARTER	PANEL LP1 - 13,15	BOOSTER PUMP STARTER	1	3/4"	(2) #12 AWG	#12	240		
C-017	POWER TO CHLORINE BOOSTER PUMP	BOOSTER PUMP STARTER	CHLORINE BOOSTER PUMP	1	3/4"	(2) #12 AWG	#12	240		
C-018	CONTROL TO FLOW METER 1	SCADA RTU	FM-1	1	3/4"	(1) #16 AWG TSP		CTRL		
C-019	CONTROL TO FLOW METER 2	SCADA RTU	FM-2	1	3/4"	(1) #16 AWG TSP		CTRL		
C-020	CONTROL TO FLOW METER 3	SCADA RTU	FM-3	1	3/4"	(1) #16 AWG TSP		CTRL		
C-021	CONTROL TO FLOW METER 4	SCADA RTU	FM-4	1	3/4"	(1) #16 AWG TSP		CTRL		
C-022	CONTROL TO FLOW METER 5	SCADA RTU	FM-5	1	3/4"	(1) #16 AWG TSP		CTRL		
C-023	CONTROL FOR CHLORINE BOOSTER PUMP STARTER	SCADA RTU	BOOSTER PUMP STARTER	1	3/4"	(2) #14 AWG	#14	CTRL		
C-024	SOUTHWEST DOOR INTRUSION SENSOR	SCADA RTU	SOUTHWEST DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-025	SOUTHEAST DOOR INTRUSION SENSOR	SCADA RTU	EAST DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-026	POWER TO CHLORINE SYSTEM CONTROLLER	PANEL LP1-19	CL SYSTEM CONTROL PNL	1	3/4"	(2) #12 AWG	#12	120		
C-027	CHLORINE SYSTEM ALARM	SCADA RTU	CL SYSTEM CONTROL PNL	1	3/4"	(8) #14 AWG	#14	CTRL		MAIN RM ALM, CL RM ALM, SPARE
C-028	EAST TANK CONTROL	SCADA RTU	EAST TANK SENSORS	1	1"	(1) #16 TSP (8) #14 AWG	#14	CTRL		LEVEL, LSL, LSH, (2) INTRUSION
C-029	WEST TANK CONTROL	SCADA RTU	WEST TANK SENSORS	1	1"	(1) #16 TSP (6) #14 AWG	#14	CTRL		LEVEL, LSL, LSH, INTRUSION
C-030	EAST TANK INTRUSION	WEST SIDE HATCH	EAST SIDE HATCH	1	3/4"	(2) #14 AWG	#14	CTRL		INTRUSION
C-031	CL SYSTEM SOLENOID CONTROL VALVES	RTU	CL SOLENOID VALVE LOCATION	1	3/4"	(10) #14 AWG	#14	120		120 VAC FOR SOLENOID VALVES PROVIDED IN RTU
C-032	CHLORINE TANK WEIGHT	RTU	CL SCALE	1	3/4"	(1) #16 TSP		CTRL		
C-033	POWER TO RTU	LP1-21	RTU	1	3/4"	(2) #12 AWG	#12	120		

* CONDUITS TO LIGHTING AND RECEPTACLE CIRCUITS TYPICALY NOT SHOWN.

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	DISCONNECT SWITCH. 200A, 240V, 2-POLE, NON-FUSIBLE, HEAVY DUTY	1	16400	SQUARE D OR APPROVED EQUAL	
2	PANEL LP1, 120/240V, 1ø, 3-WIRE, 200A BUS, 200A MAIN BREAKER, NEMA3R	1	16400	SQUARE D OR APPROVED EQUAL	
3	CHLORINE PUMP CONTROL PANEL, FVNR STARTER, 1 HP, NEMA 4 ENCLOSURE	1	16150	SQUARE D OR APPROVED EQUAL	
4	DOOR SWITCH	2	SR-2505 / 16960	GE SECURITY OR APPROVED EQUAL	
5	LIQUID LEVEL SWITCH	4	CFS-D-N-A-P-N-40 / 17315	DWYER OR APPROVED EQUAL	PROVIDE N.O. SWITCHES FOR LOW LEVEL AND N.C. SWITCHES FOR HIGH LEVEL
6	SUBMERSIBLE PRESSURE TRANSMITTER	2	613-xxx-1-1-XX-DC / 17310SP	NOSHOK SERIES 613 OR APPROVED EQUAL	SELECT PRESSURE RANGE BASED ON WELL DEPTH DETERMINED PRIOR TO PROCUREMENT OF EQUIPMENT.
7	ELECTRICAL PULL BOX	NA	CHRISTY N09, WITH R-SERIES COVER	OLDCASTLE OR APPROVED EQUAL	PROVIDE PULL BOXES AS SHOWN IN PLANS AND AS NEEDED TO REDUCE CONDUIT BENDS AS REQUIRED BY NEC.
8	INTRUSION SWITCH	3	SR-2505A / 17960	GE SECURITY OR APPROVED EQUAL	PROVIDE ONE SENSOR FOR EACH TANK HATCH DOOR

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

KEY NOTES

(1) ALL SERVICE ENTRANCE WORK SHALL BE COORDINATED WITH OWNER AND NEPHI CITY POWER (NCP), PRIOR TO CONSTRUCTION. SERVICE ENTRANCE WORK SHALL BE PER UTILITY REQUIREMENTS.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH — 25-May-2018 — No. 362066 — J. RANDALL KNAPP

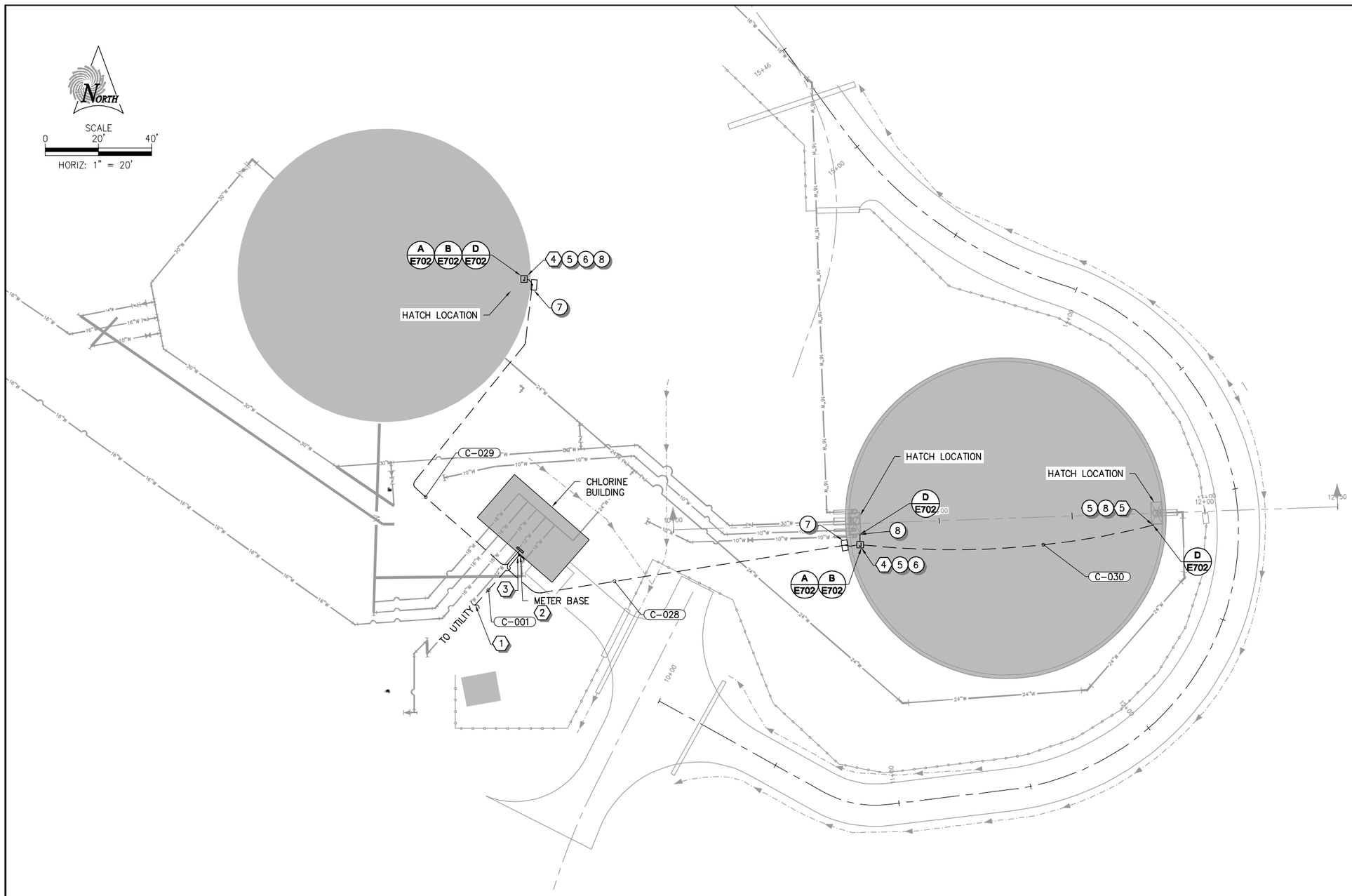
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CULINARY WATER IMPROVEMENTS PROJECT 2017
CHLORINE BUILDING
CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	238 .	E202

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A ELECTRICAL SITE PLAN
SCALE: 1" = 20'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E202 FOR CONDUIT IDENTIFICATION.
4. REFER TO DRAWING E202 FOR EQUIPMENT SCHEDULE.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG-SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS. PROVIDE AND INSTALL PULL BOX IF DIRECTED BY UTILITY.
2. CONTRACTOR INSTALL UTILITY PROVIDED METERBASE, AND PROVIDE AND INSTALL CONDUIT, FITTINGS, MOUNTING HARDWARE, AND ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION OF SERVICE ENTRANCE EQUIPMENT.
3. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M-50 10 MIL PIPE WRAP OR APPROVED EQUAL.
4. PROVIDE AND INSTALL TWO LEVEL SWITCHES, ONE SUBMERSIBLE PRESSURE TRANSDUCER IN TANK AND INTALL ONE INTRUSION SWITCH FOR EACH TANK HATCH. INSTALL INTRUSION SWITCH IN HATCH PER SWITCH MANUFACTURER'S RECOMMENDATIONS. INSTALL JUNCTION BOX FOR LEVEL SWITCHES AND DEPTH SENSOR NEAR HATCH. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
5. EXTEND CIRCUIT TO HATCH FOR INTRUSION SWITCH. MOUNT SWITCH TO HATCH PER SWITCH MANUFACTURERS RECOMMENDATIONS.

REV NO.	COMMENT	DATE

25-May-2018
No. 362066
J. RANDALL KNAPP
REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH

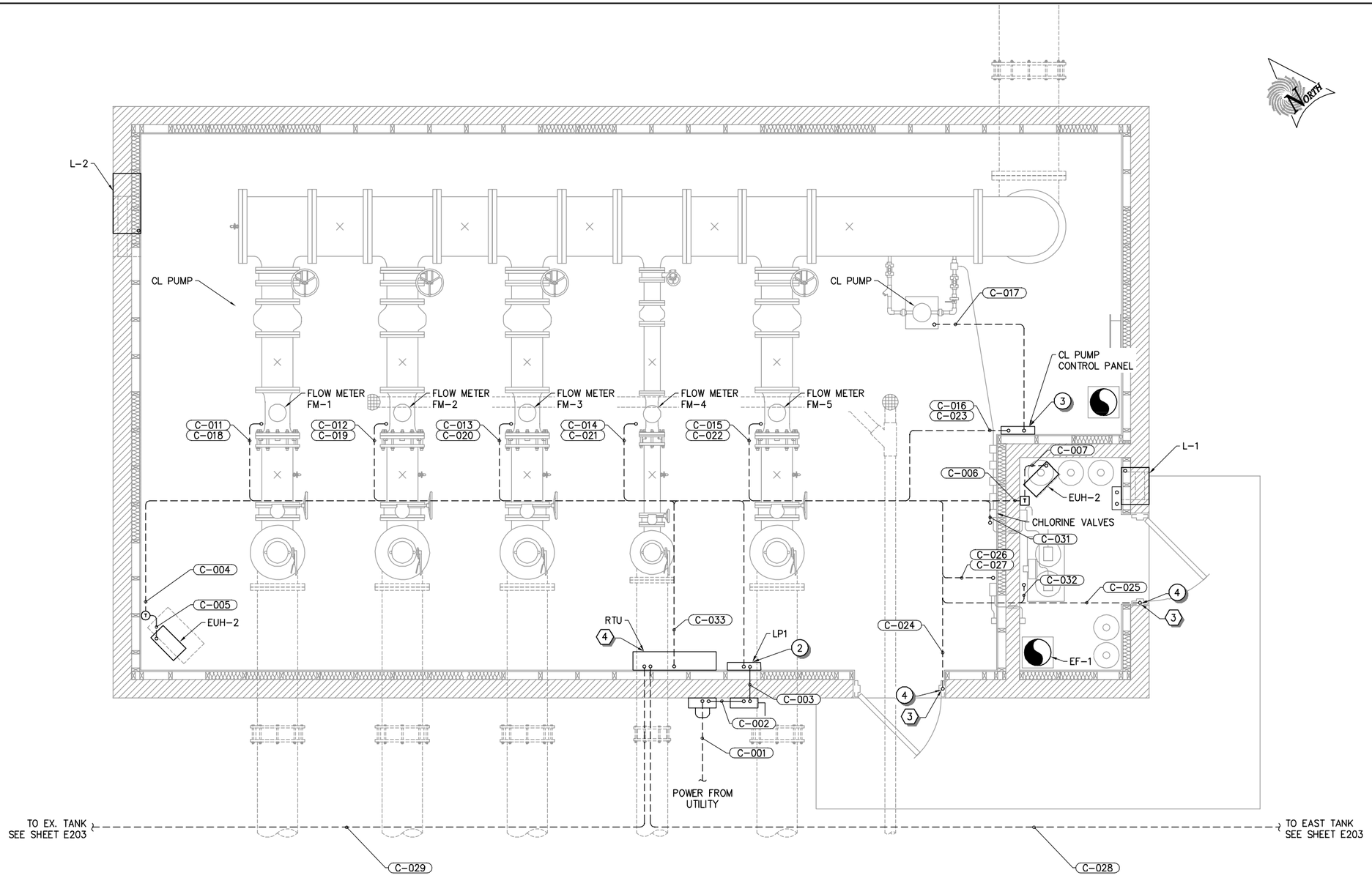
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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
CHLORINE BUILDING / TANKS
ELECTRICAL SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	239 .	E203

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GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E202 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E202 FOR EQUIPMENT SCHEDULE AND DETAILS.
6. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS.

KEY NOTES

1. COORDINATE SERVICE ENTRANCE WORK WITH UTILITY. COORDINATE EXACT LOCATION WITH UTILITY AND OWNER PRIOR TO CONSTRUCTION.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR TO INSTALL CONDUIT TO STUB DIRECTLY INTO TOP OF DOOR FRAME. CONDUIT TO BE CONCEALED IN WALLS AND CEILINGS FOR ZERO VISIBILITY. CONTRACTOR TO COORDINATE STUB LOCATIONS WITH SCADA SYSTEM INTEGRATOR AND ACCESS CONTROL PROVIDER.
4. RTU PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. COORDINATE ALL WORK WITH SCADA CONTRACTOR.
5. UTILITY PROVIDED METER BASE TO BE INSTALLED BY CONTRACTOR.

A ELECTRICAL POWER AND CONTROL PLAN

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

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
25-May-2018
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

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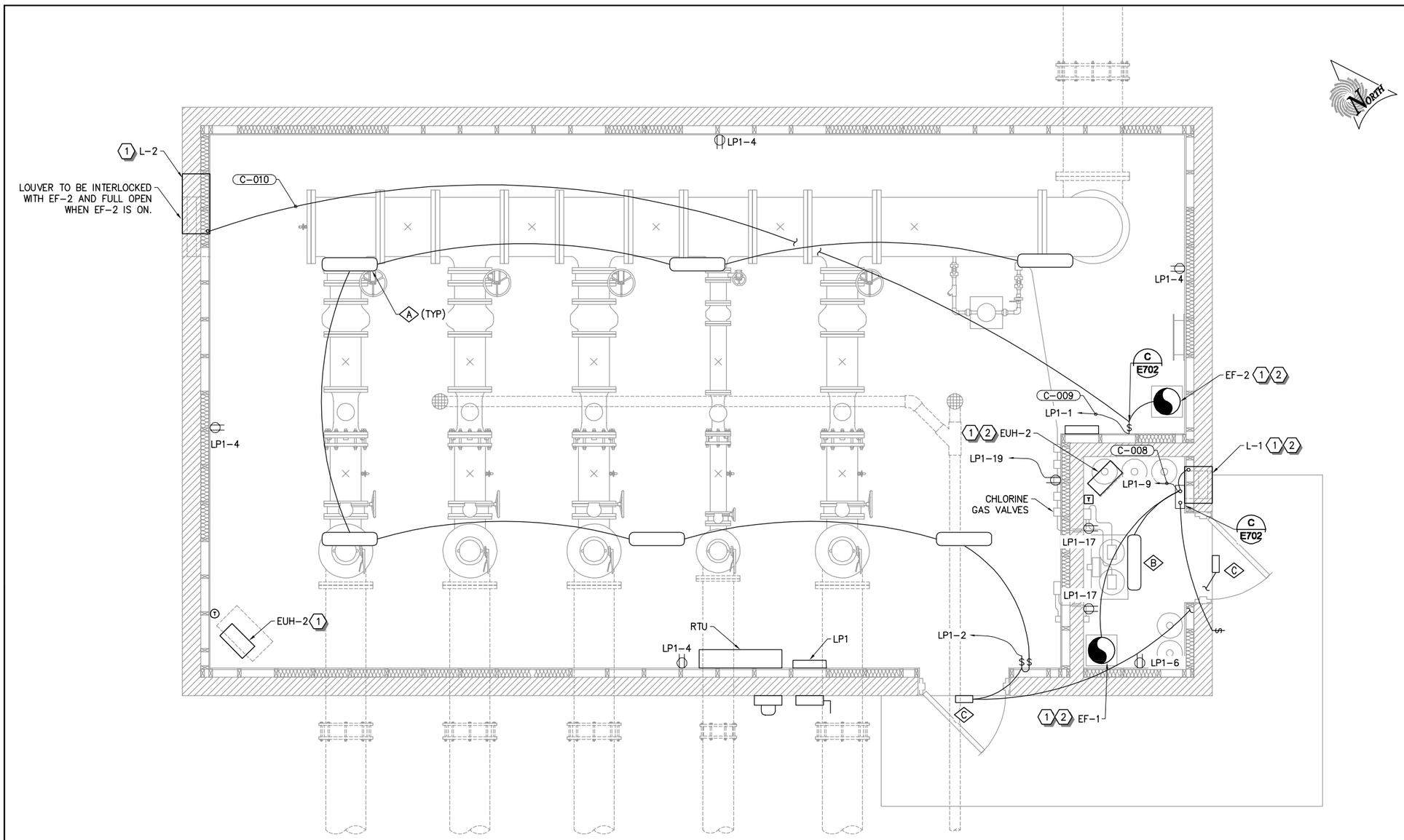
CULINARY WATER IMPROVEMENTS PROJECT 2017

CHLORINE BUILDING

ELECTRICAL POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	240 .	E204

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GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E202 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E202 FOR EQUIPMENT SCHEDULE AND DETAILS.
6. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS.

KEY NOTES

1. REFER TO SHEETS E201 AND E202 FOR ADDITIONAL ELECTRICAL REQUIREMENTS.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

ELECTRICAL LIGHTING FIXTURE SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
A	DMW2 3000 LUMEN SURFACE MOUNT LIGHT FIXTURE	6	DMW2 3000LM WD PCL MVOLT 40K 80CRI	LITHONIA OR APPROVED EQUAL	
B	DMW2 2000 LUMEN SURFACE MOUNT LIGHT FIXTURE	1	DMW2 2000LM WD PCL MVOLT 40K 80CRI	LITHONIA OR APPROVED EQUAL	
C	OLWX1 LED EXTERIOR WALL PACK LIGHTING FIXTURE	2	OLWX1 LED 13W 40K 120 PE DDB	LITHONIA OR APPROVED EQUAL	OPTIONAL PHOTOCELL (PE) TO BE PROVIDED WITH LIGHTING FIXTURE

A ELECTRICAL LIGHTING AND RECEPTACLE PLAN

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

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH — No. 362066 — 25-May-2018 — J. RANDALL KNAPP

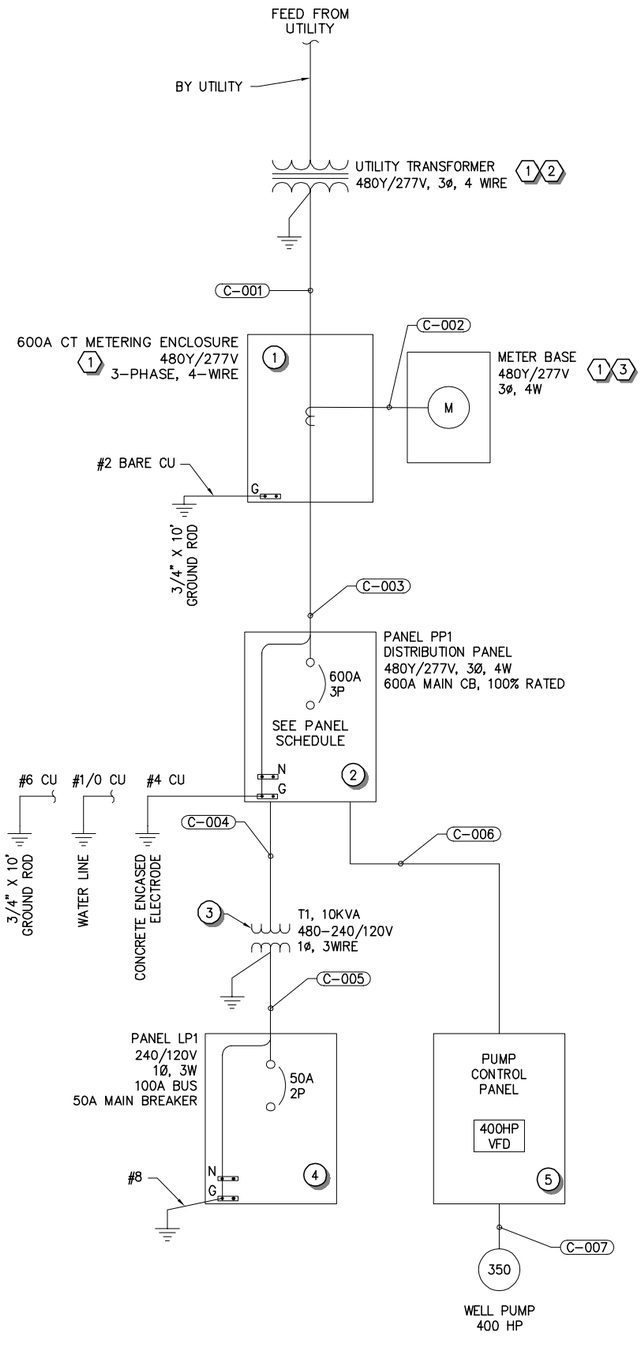
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CULINARY WATER IMPROVEMENTS PROJECT 2017
CHLORINE BUILDING
LIGHTING AND RECEPTACLE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	241 .	E205

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PANEL PP1 FIREHOUSE WELL BUILDING																	800A CU Bus		
VOLTAGE		PH	WIRE														35 KA SC Rating (RMS)		
480/277		3	4 – WIRE	PANEL SCHEDULE CIRCUIT													30 CIRCUIT PANEL		
				LOAD (VA)			AMPS						LOAD (VA)				600 AMP MAIN CB (100%)		
CKT NO.	AMPS	POLE	DESCRIPTION	LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.
1	20	2	TRANSFORMER T1 (10kVA)	0	0	10000	20.8	421.2					350000	0	0	WELL PUMP CONTROL PANEL	3	600	2
3	–	–	' '	0	0	0			20.8	421.2			0	0	0	' '	–	–	4
5	15	3	ELECTRIC UNIT HEATER EUH-1	0	0	5000					6.0	421.2	0	0	0	' '	–	–	6
7	–	–	' '	0	0	0	6.0	0.0					0	0	0		–		8
9	–	–	' '	0	0	0			6.0	0.0			0	0	0		–		10
11		–		0	0	0					0.0	0.0	0	0	0		–		12
		–		0	0	0					0.0	0.0	0	0	0		–		
25		–		0	0	0	0.0	0.0					0	0	0		–		26
27		–		0	0	0			0.0	0.0			0	0	0		–		28
29		–		0	0	0					0.0	0.0	0	0	0		–		30
				0	0	15000	448		448		427		350000	0	0		Total AMPS		
			Subtotal Watts			15000									350000	Subtotal Watts			
			Total Watts			365000									441	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS		PANEL NAME: PP1	
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.0 kVA	Lighting Total Calculated kVA:	0.0
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total Calculated kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	365.0 kVA	Other Loads Total Calculated kVA:	452.5
		DIVERSIFIED TOTAL kVA	452.5
		AVERAGE AMPS PER PHASE	544.5

PANEL LP1 FIREHOUSE WELL BUILDING																	100A CU Bus			
VOLTAGE		PH	WIRE														10 KA SC Rating (RMS)			
240/120		1	3 –WIRE	PANEL SCHEDULE CIRCUIT													50 AMP MAIN CB			
				LOAD (VA)			AMPS						LOAD (VA)							
CKT NO.	AMPS	POLE	DESCRIPTION	LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.	
1	20	1	EVAP. COOLER EC-1	0	0	1800	15.0	12.5					0	0	1500	LIGHTING	1	20	2	
3	20	1	RTU	0	0	500					4.2	3.0	0	360	0	RECEPTACLES	1	20	4	4
5	20	1	FLOW METER	0	0	250	2.1	3.0					0	360	0	RECEPTACLES	1	20	6	4
7		–		0	0	0					0.0	0.0	0	0	0	SPARE	1	20	8	
9		–		0	0	0	0.0	0.0					0	0	0	SPARE	1	20	10	
11		–		0	0	0					0.0	0.0	0	0	0	SPARE	1	20	12	
13		–		0	0	0	0.0	0.0					0	0	0		–		14	
15		–		0	0	0					0.0	0.0	0	0	0		–		16	
17		–		0	0	0	0.0	0.0					0	0	0		–		18	
				0	0	2550	33		0		7		0	720	1500		Total AMPS			
			Subtotal Watts			2550									2220	Subtotal Watts				
			Total Watts			4770									20	Average Amps				

NEC DIVERSIFIED LOAD CALCULATIONS		PANEL NAME: LP1	
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	1.5 kVA	Lighting Total kVA:	1.9
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.7 kVA	Receptacles Total kVA:	0.7
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	2.6 kVA	Other Loads Total kVA:	3.0
		DIVERSIFIED TOTAL kVA	5.6
		AVERAGE AMPS PER PHASE	23.3

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

KEY NOTES

1. ALL SERVICE ENTRANCE WORK SHALL BE COORDIANTED WITH NEPHI CITY POWER (NCP), PRIOR TO CONSTRUCTION. SERVICE ENTRANCE WORK SHALL BE PER UTILITY REQUIREMENTS.
2. TRANSFORMER AND PAD BY UTILITY. CONTRACTOR SHALL COORDINATE WITH UTILITY TO DETERMINE LOCATION AND EXACT LOCATION OF METERING EQUIPMENT.
3. UTILITY PROVIDED METER BASE TO BE INSTALLED BY CONTRACTOR. COORDINATE EXACT PLACEMENT WITH UTILITY AND OWNER PRIOR TO CONSTRUCTION.
4. PROVIDE GFCI BREAKER FOR ALL RECEPTACLE CIRCUITS.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH
25-May-2018
No. 362066
J. RANDALL KNAPP

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
FIREHOUSE WELL
ELECTRICAL ONE-LINE DIAGRAM

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	242 . E301

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	APPROX.	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		LEN (FT.)	
C-001	UTILITY SERVICE	UTILITY TRANSFORMER	CT METERING ENCLOSURE	3	3"			480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-002	METER CT LEADS	CT METERING ENCLOSURE	METER BASE	1	1"			CTRL		CONDUIT ONLY FOR UTILITY USE
C-003	SERVICE TO PANEL PP1	CT METERING ENCLOSURE	PANEL PP1	3	3"	(4) #300 KCMIL	#2/0	480		
C-004	POWER TO T1	PANEL PP1-1,3	TRANSFORMER T-1	1	3/4"	(2) #12 AWG	#12	480		
C-005	POWER TO PANEL LP1	TRANSFORMER T-1	PANEL LP1	1	3/4"	(3) #8 AWG	#10	240		
C-006	POWER TO PUMP CONTROL PANEL (PCP)	PANEL PP1-2,4,6	PUMP CONTROL PANEL	2	3"	(3) #500 AWG	#2/0	480		
C-007	FEEDER TO WELL PUMP	PUMP CONTROL PANEL	WELL PUMP #1	2	3"	(3) #500 AWG	#2/0	480		
C-008	FEEDER TO ELECTRIC UNIT HEATER 1	PANEL PP1-5,7,9	EUH-1 THERMOSTAT	1	3/4"	(3) #12 AWG	#12	240		
C-009	FEEDER TO ELECTRIC UNIT HEATER 1	EUH-1 THERMOSTAT	EUH-1	1	3/4"	(3) #12 AWG	#12	240		
C-010	POWER TO RTU	PANEL LP1-3	RTU	1	3/4"	(2) #12 AWG	#12	120		
C-011	POWER TO FLOW METER	PANEL LP1-5	FLOW METER	1	3/4"	(2) #12 AWG	#12	120		
C-012	POWER TO EVAPORATIVE COOLER EC-1	PANEL LP1-1	EC-1	1	3/4"	(2) #12 AWG	#12	120		
C-013	LOUVER CONTROL	EC-1 MULTI-POSITION SWITCH	LOUVER L-1	1	3/4"	(2) #12 AWG	#12	120		
C-014	PUMP TO WASTE CONTROL	PCP	CONTROL VALVE	1	3/4"	(2) #14 AWG	#14	CTRL		
C-015	LUBE VALVE CONTROL	PCP	LUBE VALVE	1	3/4"	(2) #14 AWG	#14	CTRL		
C-016	WELL DRAW DOWN LEVEL	RTU	WELL PUMP #1	1	3/4"	(1) #16 AWG TSP		CTRL		
C-017	FLOW METER SIGNAL	RTU	FLOW METER	1	3/4"	(1) #16 AWG TSP		CTRL		
C-018	SYSTEM PRESSURE SIGNAL	RTU	PRESSURE SENSOR PT-1	1	3/4"	(1) #16 AWG TSP		CTRL		
C-019	SYSTEM PRESSURE SWITCH	PCP	PRESSURE SWITCH PSH-1	1	3/4"	(2) #14 AWG	#14	CTRL		
C-020	INTRUSION SENSOR - SOUTH MAN DOOR	RTU	SOUTH DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-021	INTRUSION SENSOR - WEST DOUBLE DOOR	RTU	SOUTH DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-022	INTRUSION SENSOR - WEST MAN DOOR	RTU	SOUTH DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		

* CONDUITS TO LIGHTING AND RECEPTACLE CIRCUITS TYPICALY NOT SHOWN.

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	600A CT ENCLOSURE WITH TERMINALS	1	PER UTILITY REQUIREMENTS	N/A	COORDINATE SERVICE WORK WITH UTILITY
2	PANEL PP1, 480Y/277V, 3Ø, 4-WIRE, 800A BUS, 600A MAIN CB, CU BUS, 35KAIC	1	16400	SQUARE D OR APPROVED EQUAL	
3	TRANSFORMER T-1, 10 KVA, DRY-TYPE, 480-120/240V, 1Ø, 3-WIRE	1	16400	SQUARE D OR APPROVED EQUAL	
4	PANEL LP1, 120/240V, 1Ø, 3-WIRE, 100A BUS, 50A MAIN BREAKER, NEMA1	1	16400	SQUARE D OR APPROVED EQUAL	
5	PUMP CONTROL PANEL "PCP", 400HP VFD, 480V, 3P, 3W, NEMA1	1	16484	N/A	REFER TO DRAWING E303 FOR TYPICAL PCP REQUIREMENTS
6	PRESSURE TRANSMITTER	1	100-200-1-1-2-7 / 17410	NOSHOK SERIES 100 OR APPROVED EQUAL	
7	PRESSURE SWITCH	1	300-1-2-7/115-8 / 17416	NOSHOK SERIES 300 OR APPROVED EQUAL	REFER TO DRAWING E503 FOR TYPICAL PCP REQUIREMENTS
8	SUBMERSIBLE PRESSURE TRANSMITTER	1	613-xxx-1-1-XX-DC / 17310SP	NOSHOK SERIES 613 OR APPROVED EQUAL	SELECT PRESSURE RANGE BASED ON WELL DEPTH DETERMINED DURING COMMISSIONING

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER - STATE OF UTAH - 25-May-2018 - No. 362066 - J. RANDALL KNAPP

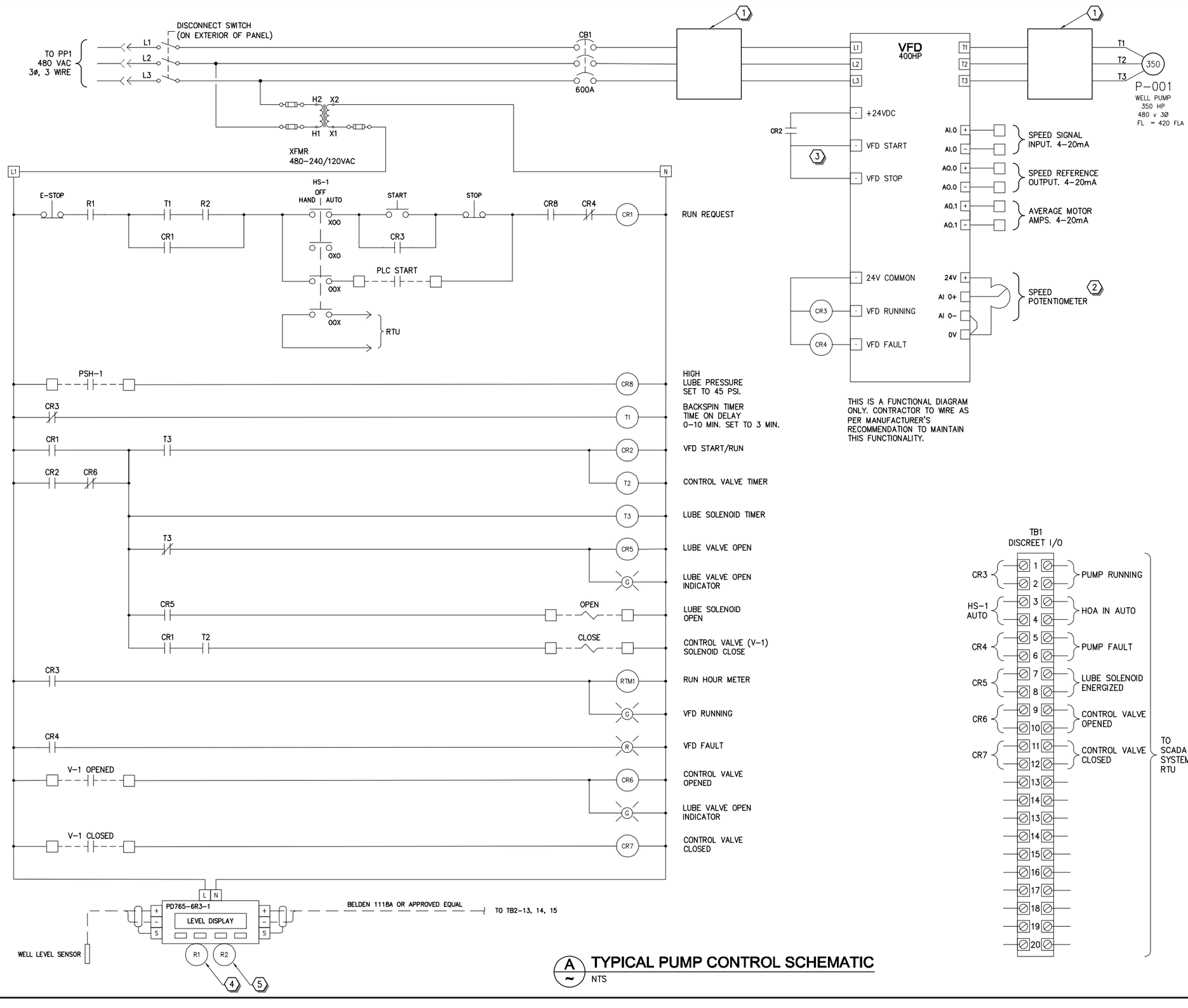
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CULINARY WATER IMPROVEMENTS PROJECT 2017
FIREHOUSE WELL
ELECTRICAL SCHEDULES

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	243 .	E302

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TYPICAL PUMP CONTROL SCHEMATIC

NTS

SHEET NOTES:

1. THIS SCHEMATIC IS A FUNCTIONAL DIAGRAM ONLY AND MAY VARY BY MANUFACTURER. CONTRACTOR SHALL PROVIDE FUNCTIONALITY SHOWN.
2. PROVIDE AUXILIARY STATUS CONTACTS FOR: PUMP IN AUTO, PUMP RUN, PUMP FAULT, EMERGENCY STOP, HIGH WELL LEVEL, AND LOW WELL LEVEL.
3. STATUS LIGHTS SHALL BE 'PUSH TO TEST' TYPE.

KEY NOTES

1. PROVIDE HARMONIC MITIGATION PER SPECIFICATION 16484.
2. PROVIDE MANUAL SPEED CONTROL FOR USE IN HAND MODE.
3. CONFIGURE VFD TO RUN WITH A SINGLE INPUT. VFD SHOULD STOP WHEN RUN COMMAND, CR2, IS RELEASED.
4. CONFIGURE THE N.O. RELAY CONTACT FOR R1 TO CLOSE WHEN WATER IS ABOVE THE WELL SHUTOFF LEVEL.
5. CONFIGURE THE N.O. RELAY CONTACT FOR R2 TO CLOSE ABOVE THE PRE–DETERMINED MINIMUM START LEVEL.

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CULINARY WATER IMPROVEMENTS PROJECT 2017

FIREHOUSE WELL

PUMP CONTROL SCHEMATIC

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	244 .

E303

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A ELECTRICAL SITE PLAN
SCALE: 1" = 10'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E301 FOR ONE-LINE DIAGRAM.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG-SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS. PROVIDE AND INSTALL PULL BOX IF DIRECTED BY UTILITY.
2. CONTRACTOR INSTALL UTILITY PROVIDED METERBASE, AND PROVIDE AND INSTALL CONDUIT, FITTINGS, MOUNTING HARDWARE, AND ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION OF SERVICE ENTRANCE EQUIPMENT. METER AND CT WIRING BY UTILITY.
3. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M-50 10 MIL PIPE WRAP OR APPROVED EQUAL.

REV NO.	COMMENT	DATE

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STATE OF UTAH

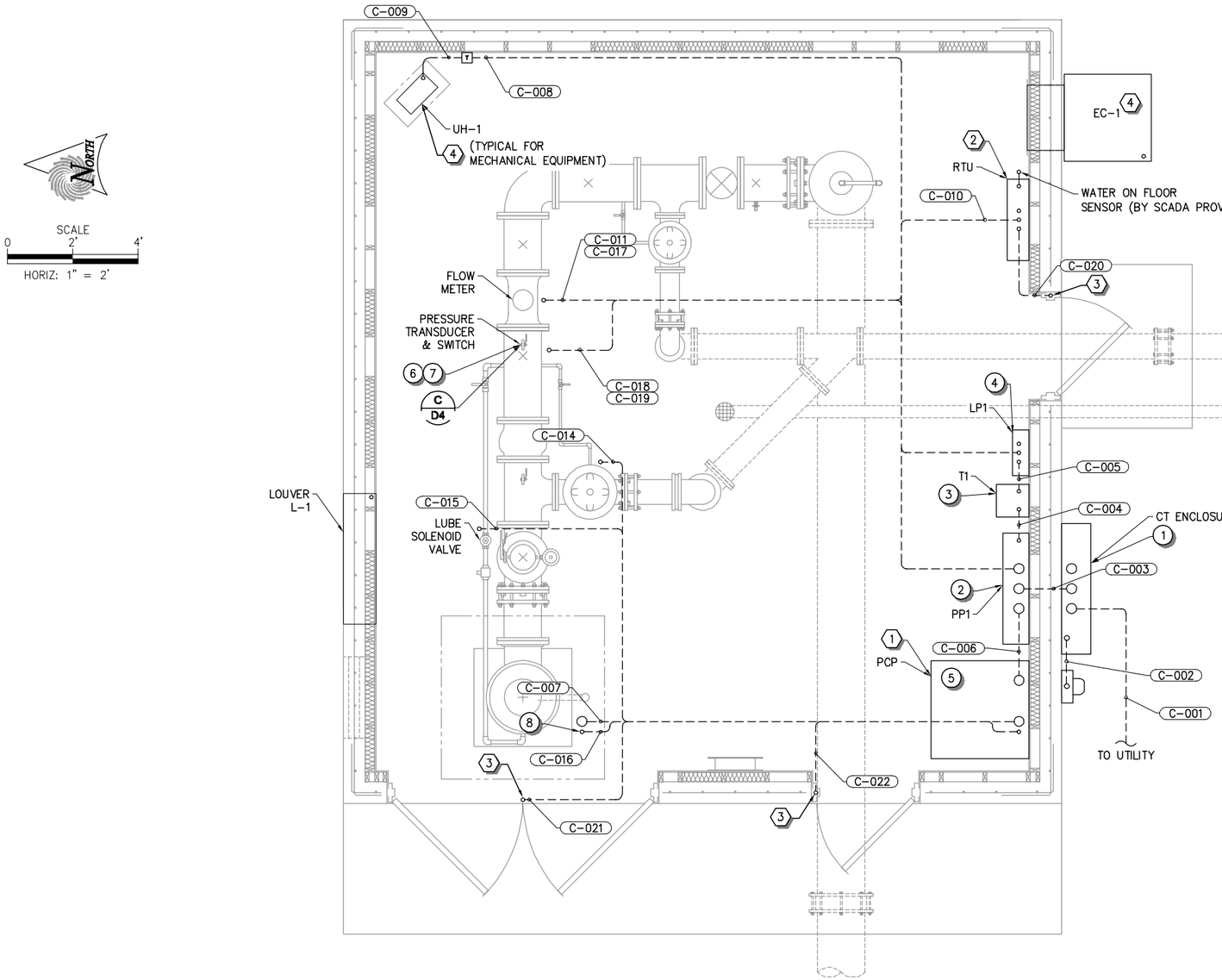
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CULINARY WATER IMPROVEMENTS PROJECT 2017
FIREHOUSE WELL
ELECTRICAL SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	245 .	E304

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SCALE
0 2' 4'
HORIZ: 1" = 2'

A ELECTRICAL POWER AND CONTROL PLAN
SCALE: 1" = 2'

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E302 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E302 FOR EQUIPMENT SCHEDULE AND DETAILS.

KEY NOTES

1. REFER TO DRAWING E303 FOR PUMP CONTROL PANEL SCHEMATIC DIAGRAM.
2. RTU PROVIDED BY OWNER. CONTRACTOR SHALL ROUTE CONDUIT TO RTU LOCATION AND STUB FOR FUTURE CONNECTION. COORDINATE EXACT LOCATION OF RTU WITH OWNER PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO INSTALL CONDUIT TO STUB DIRECTLY INTO TOP OF DOOR FRAME. CONDUIT TO BE CONCEALED IN WALLS AND CEILINGS FOR ZERO VISIBILITY. CONTRACTOR TO COORDINATE STUB LOCATIONS WITH SCADA SYSTEM INTEGRATOR AND ACCESS CONTROL PROVIDER.
4. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS. REFER TO DRAWING E306 FOR ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
25-May-2018
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

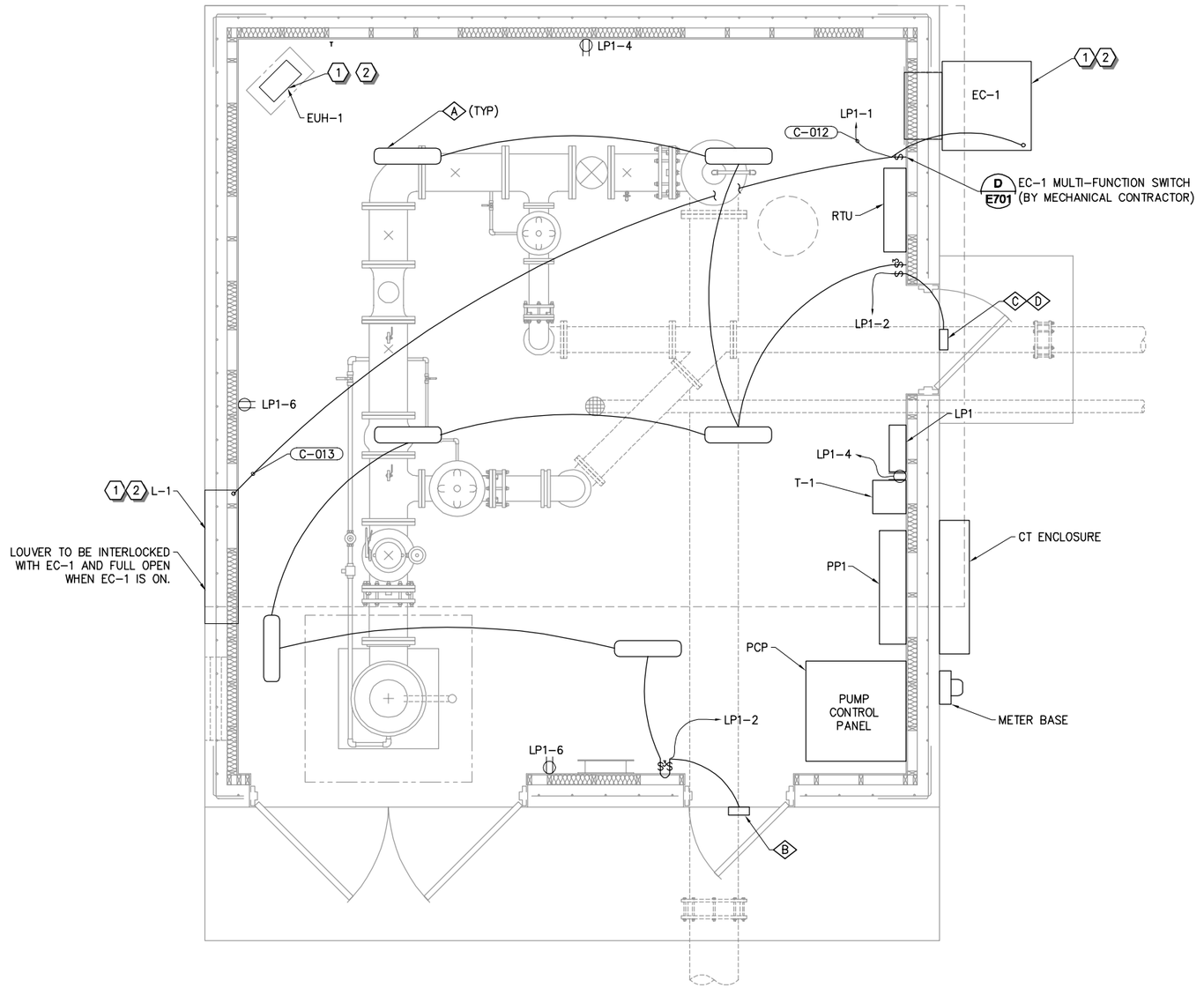
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CULINARY WATER IMPROVEMENTS PROJECT 2017
FIREHOUSE WELL
ELECTRICAL POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	246 .	E305

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ELECTRICAL LIGHTING FIXTURE SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
A	DMW2 3000 LUMEN SURFACE MOUNT LIGHT FIXTURE	6	DMW2 3000LM WD PCL MVOLT 40K 80CRI	LITHONIA OR APPROVED EQUAL	
B	OLWX1 LED EXTERIOR WALL PACK LIGHTING FIXTURE	1	OLWX1 LED 13W 40K 120 PE DDB	LITHONIA OR APPROVED EQUAL	OPTIONAL PHOTOCELL (PE) TO BE PROVIDED WITH LIGHTING FIXTURE
C	OLWX1 LED EXTERIOR WALL PACK LIGHTING FIXTURE	1	OLWX1 LED 13W 40K 120 DDB	LITHONIA OR APPROVED EQUAL	
D	EXTERIOR 180 DEGREE MOTION SENSOR	1	OMS 1000 120 DDB M6	LITHONIA OR APPROVED EQUAL	

A ELECTRICAL LIGHTING AND RECEPTACLE PLAN

SCALE: 1/2" = 1'

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E302 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E302 FOR EQUIPMENT SCHEDULE AND DETAILS.
6. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS.

KEY NOTES

1. REFER TO SHEETS E301 AND E302 FOR ELECTRICAL REQUIREMENTS.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

REV NO.	COMMENT	DATE

25-May-2018
No. 362066
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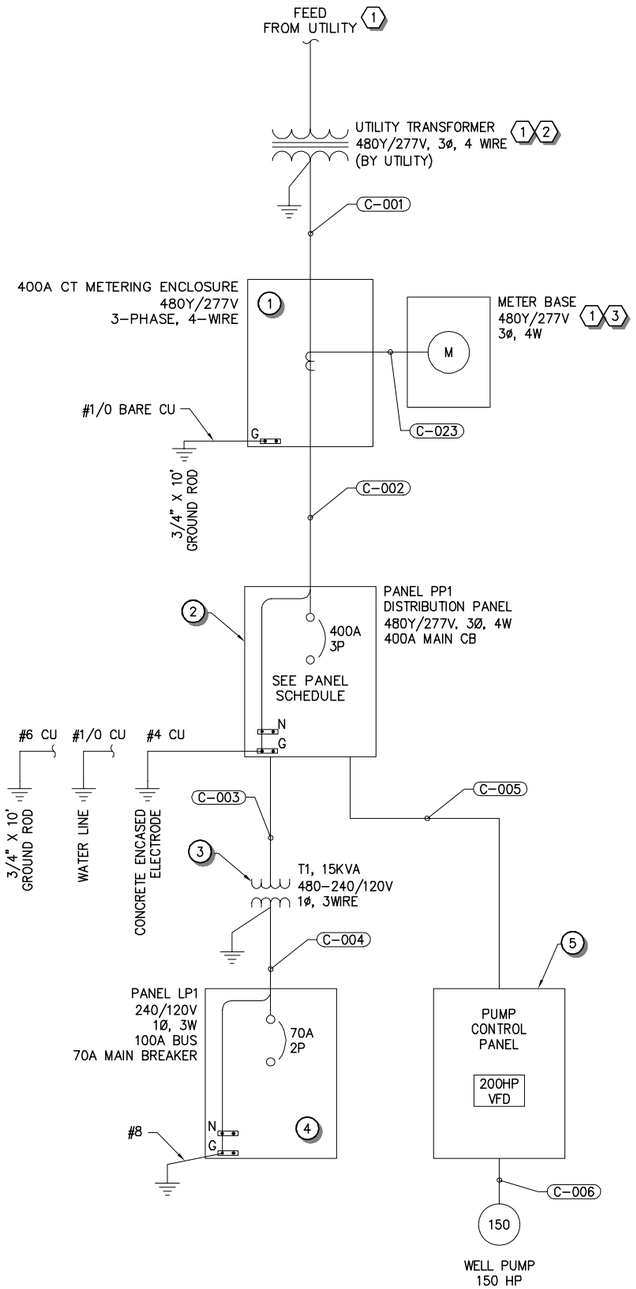
CULINARY WATER IMPROVEMENTS PROJECT 2017

FIREHOUSE WELL

LIGHTING AND RECEPTACLE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	247 .	E306

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PANEL PP1 WORWOOD WELL BUILDING																	600A CU Bus		
																	35 KA SC Rating (RMS)		
VOLTAGE		PH	WIRE														30 CIRCUIT PANEL		
480/277		3	4 – WIRE	PANEL SCHEDULE CIRCUIT													400 AMP MAIN CB		
CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA)			AMPS						LOAD (VA)			DESCRIPTION	POLE	AMPS	CKT NO.
				LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT				
1	90	2	TRANSFORMER T1 (15kVA)	0	0	10000	20.8	180.5					150000	0	0	WELL PUMP CONTROL PANEL	3	250	2
3	–	–	' '	0	0	0			20.8	180.5			0	0	0	' '	–	–	4
5		–		0	0	0					0.0	180.5	0	0	0	' '	–	–	6
7	20	3	UNIT HEATER 1	0	0	5000	6.0	6.0					5000	0	0	UNIT HEATER 2	3	20	8
9	–	–	' '	0	0	0			6.0	6.0			0	0	0	' '	–	–	10
11	–	–	' '	0	0	0					6.0	6.0	0	0	0	' '	–	–	12
		–		0	0	0					0.0	0.0	0	0	0		–		
25		–		0	0	0	0.0	0.0					0	0	0		–		26
27		–		0	0	0			0.0	0.0			0	0	0		–		28
29		–		0	0	0					0.0	0.0	0	0	0		–		30
				0	0	15000	213		213		193		155000	0	0		Total AMPS		
			Subtotal Watts			15000									155000	Subtotal Watts			
			Total Watts			170000									206	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS			
		PANEL NAME:	PP1
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.0 kVA	Lighting Total Calculated kVA:	0.0
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total Calculated kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	170.0 kVA	Other Loads Total Calculated kVA:	207.5
		DIVERSIFIED TOTAL kVA	207.5
		AVERAGE AMPS PER PHASE	249.7

PANEL LP1 WORWOOD WELL BUILDING																	100A CU Bus		
																	10 KA SC Rating (RMS)		
VOLTAGE		PH	WIRE																
240/120		1	3 –WIRE	PANEL SCHEDULE CIRCUIT													70 AMP MAIN CB		
CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA)			AMPS						LOAD (VA)			DESCRIPTION	POLE	AMPS	CKT NO.
				LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT				
1	20	1	EXHAUST FAN EF-1	0	0	187	1.6	12.5					0	0	1500	LIGHTING	1	20	2
3	20	1	EVAP COOLER EC-1	0	0	1600					13.3	3.0	0	360	0	RECEPTACLES	1	20	4 4
5	20	1	FLOW METER FM-1	0	0	500	4.2	1.5					0	180	0	RECEPTACLES	1	20	6 4
7	20	2	BOOSTER PUMP	0	0	2160					9.0	4.1	470	0	20	CHLORINE ROOM LIGHT/FAN/LOUV.	1	20	8
9	–	–	' '	0	0	0	9.0	3.0					0	360	0	CHLORINE ROOM OUTLETS	1	20	10
11	20	1	CHLORINE PANEL	0	0	500					4.2	4.5	0	540	0	CHLORINE INJECTORS	1	20	12
13		–		0	0	0	0.0	0.0					0	0	0		–		14
15		–		0	0	0					0.0	0.0	0	0	0		–		16
17		–		0	0	0	0.0	0.0					0	0	0		–		18
				0	0	4947	32		0		38		470	1440	1520		Total AMPS		
			Subtotal Watts			4947									3430	Subtotal Watts			
			Total Watts			8377									35	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS			
		PANEL NAME:	LP1
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	1.5 kVA	Lighting Total kVA:	1.9
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	1.4 kVA	Receptacles Total kVA:	1.4
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	5.4 kVA	Other Loads Total kVA:	6.0
		DIVERSIFIED TOTAL kVA	9.3
		AVERAGE AMPS PER PHASE	38.7

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

KEY NOTES

1. ALL SERVICE ENTRANCE WORK SHALL BE COORDIANTED WITH NEPHI CITY POWER (NCP), PRIOR TO CONSTRUCTION. SERVICE ENTRANCE WORK SHALL BE PER UTILITY REQUIREMENTS.
2. TRANSFORMER AND PAD BY UTILITY. CONTRACTOR SHALL COORDINATE WITH UTILITY TO DETERMINE LOCATION AND EXACT LOCATION OF METERING EQUIPMENT.
3. UTILITY PROVIDED METER BASE TO BE INSTALLED BY CONTRACTOR. COORDINATE EXACT PLACEMENT WITH UTILITY AND OWNER PRIOR TO CONSTRUCTION.
4. PROVIDE GFCI BREAKERS FOR RECEPTACLE CIRCUITS.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH — 25-May-2018 — No. 362066 — J. RANDALL KNAPP

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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
ELECTRICAL ONE-LINE DIAGRAM

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	248 208	E401

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	APPROX.	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		LEN (FT.)	
C-001	UTILITY SERVICE	UTILITY TRANSFORMER	CT METERING ENCLOSURE	2	2-1/2"			480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-002	SERVICE TO PANEL PP1	CT METERING ENCLOSURE	PANEL PP1	2	2-1/2"	(4) #3/0 AWG	#1/0	480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-003	POWER TO TRANSFORMER T-1	PANEL PP1 - 1,3	TRANSFORMER T-1	1	3/4"	(2) #10 AWG	#10	480		
C-004	FEEDER TO PANEL LP1	TRANSFORMER T-1	PANEL LP1	1	1-1/4"	(3) #4 AWG	#8	240		
C-005	FEEDER TO PUMP CONTROL PANEL	PANEL PP1 - 2,4,6	PUMP CONTROL PANEL	1	2"	(3) #4/0 KCM	#1/0	480		
C-006	FEEDER TO WELL PUMP	PUMP CONTROL PANEL	WELL PUMP #1	1	2"	(3) #4/0 KCM	#1/0	480		
C-007	FEEDER TO ELECTRIC UNIT HEATER 1 THERMOSTAT	PANEL PP1 - 7,9,11	EF-1 THERMOSTAT	1	3/4"	(2) #12 AWG	#12	120		
C-008	FEEDER TO ELECTRIC UNIT HEATER 1	EF-1 THERMOSTAT	EUH-1	1	3/4"	(4) #12 AWG	#12	480		
C-009	FEEDER TO ELECTRIC UNIT HEATER 2 THERMOSTAT	PANEL PP1 - 8,10,12	EF-2 THERMOSTAT	1	3/4"	(2) #12 AWG	#12	120		
C-010	FEEDER TO ELECTRIC UNIT HEATER 2	EF-2 THERMOSTAT	EUH-2	1	3/4"	(4) #12 AWG	#12	480		
C-011	NORTH DOORS INTRUSION SENSORS	SCADA RTU	NORTH DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-012	WEST DOOR INTRUSTION SENSOR	SCADA RTU	WEST DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-013	SOUTH DOOR INTRUSTION SENSOR	SCADA RTU	SOUTH DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-014	CHLORINE ROOM INTRUSTION SENSOR	SCADA RTU	CHLORINE ROOM DOOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-015	POWER TO FLOW METER	PANEL LP1 - 5	FLOW METER	1	3/4"	(2) #12 AWG	#12	120		
C-016	CONTROL TO FLOW METER	SCADA RTU	FLOW METER	1	3/4"	(1) #16 TSP		CTRL		
C-017	CONTROL TO LUBE SOLENOID	SCADA RTU	LUBE SOLENOID	1	3/4"	(1) #16 TSP		CTRL		
C-018	CONTROL FOR PUMP TO WASTE	SCADA RTU	PUMP TO WASTE VALVE	1	3/4"	(1) #16 TSP		CTRL		
C-019	POWER TO BOOSTER PUMP STARTER	PANEL LP1 - 7,9	BOOSTER PUMP STARTER	1	3/4"	(2) #12 AWG	#12	120		
C-020	POWER TO BOOSTER PUMP	BOOSTER PUMP STARTER	BOOSTER PUMP	1	3/4"	(2) #12 AWG	#12	120		
C-021	CONTROL TO BOOSTER PUMP PANEL	SCADA RTU	BOOSTER PUMP STARTER	1	3/4"	(2) #14 AWG	#14	CTRL		
C-022	CONTROL TO PRESSURE SWITCH	SCADA RTU	PRESSURE SWITCH	1	3/4"	(2) #14 AWG	#14	CTRL		
C-023	CT METERING LEADS	CT METERING ENCLOSURE	METER BASE	1	1"			480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-024	POWER TO CHLORINE SYSTEM CONTROLLER	PANEL LP1-11	CHLORINE CONTROL PANEL	1	3/4"	(2) #12 AWG	#12	120		
C-025	CHLORINE SYSTEM CONTROL	RTU	CHLORINE CONTROL PANEL	1	3/4"			CTRL		TO BE DETERMINED BY CL SYSTEM REQUIREMENTS
C-026	CHLORINE SYSTEM INJECTOR CONTROL	RTU	CHLORINE INJECTOR SOLENOID	1	3/4"	(2) #14 AWG	#14	120		120 VAC FOR CL SOLENOID FROM RTU PANEL
C-027	CHLORINE SCALE WEIGHT SIGNAL	RTU	CHLORINE SCALE	1	3/4"	(1) #16 TSP		CTRL		
C-028	CHLORINE SYSTEM ALARM	RTU	CHLORINE LEAK SENSOR	1	3/4"	(2) #14 AWG	#14	CTRL		

* CONDUITS TO LIGHTING AND RECEPTACLE CIRCUITS TYPICALY NOT SHOWN.

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	400A CT ENCLOSURE WITH TERMINALS	1	PER UTILITY REQUIREMENTS	N/A	COORDINATE SERVICE WORK WITH UTILITY
2	PANEL PP1, 480Y/277V, 3ø, 4-WIRE, 600A BUS, 400A MAIN CB, CU BUS, 35KAIC	1	16400	SQUARE D OR APPROVED EQUAL	
3	TRANSFORMER T-1, 15 KVA, DRY-TYPE, 480-120/240V, 1ø, 3-WIRE	1	16400	SQUARE D OR APPROVED EQUAL	
4	PANEL LP1, 120/240V, 1ø, 3-WIRE, 100A BUS, 70A MAIN BREAKER, NEMA1	1	16400	SQUARE D OR APPROVED EQUAL	
5	PUMP CONTROL PANEL "PCP", 200HP VFD, 480V, 3P, 3W, NEMA1	1	16484	N/A	REFER TO DRAWING E403 FOR TYPICAL PCP REQUIREMENTS
6	PRESSURE TRANSMITTER	1	100-200-1-1-2-7 / 17410	NOSHOK SERIES 100 OR APPROVED EQUAL	
7	PRESSURE SWITCH	1	300-1-2-7/115-8 / 17416	NOSHOK SERIES 300 OR APPROVED EQUAL	REFER TO DRAWING E503 FOR TYPICAL PCP REQUIREMENTS
8	SUBMERSIBLE PRESSURE TRANSMITTER	1	17310SP / 613-1-1-XX-DC	NOSHOK SERIES 613 OR APPROVED EQUAL	
9	LIQUID LEVEL SWITCH	2	17315 / CF-D-N-A-P-N-40	DWYER OR APPROVED EQUAL	PROVIDE N.O. SWITCH CONFIGURATION FOR LOW LEVEL AND N.C. SWITCH CONFIGURATION FOR HIGH LEVEL
10	INTRUSION SWTICH	1	17960 / SR-2505A	GE SECURITY OR APPROVED EQUAL	PROVIDE ONE (1) SENSOR FOR EACH HATCH LOCATION
11	CHLORINE PUMP CONTROL PANEL, FVNR STARTER, 1HP, NEMA 4 ENCLOSURE	1	NA	SQUARE D OR APPROVED EQUAL	REFER TO PROJECT DESIGN CRITERIA FOR OPERATIONAL REQUIREMENTS

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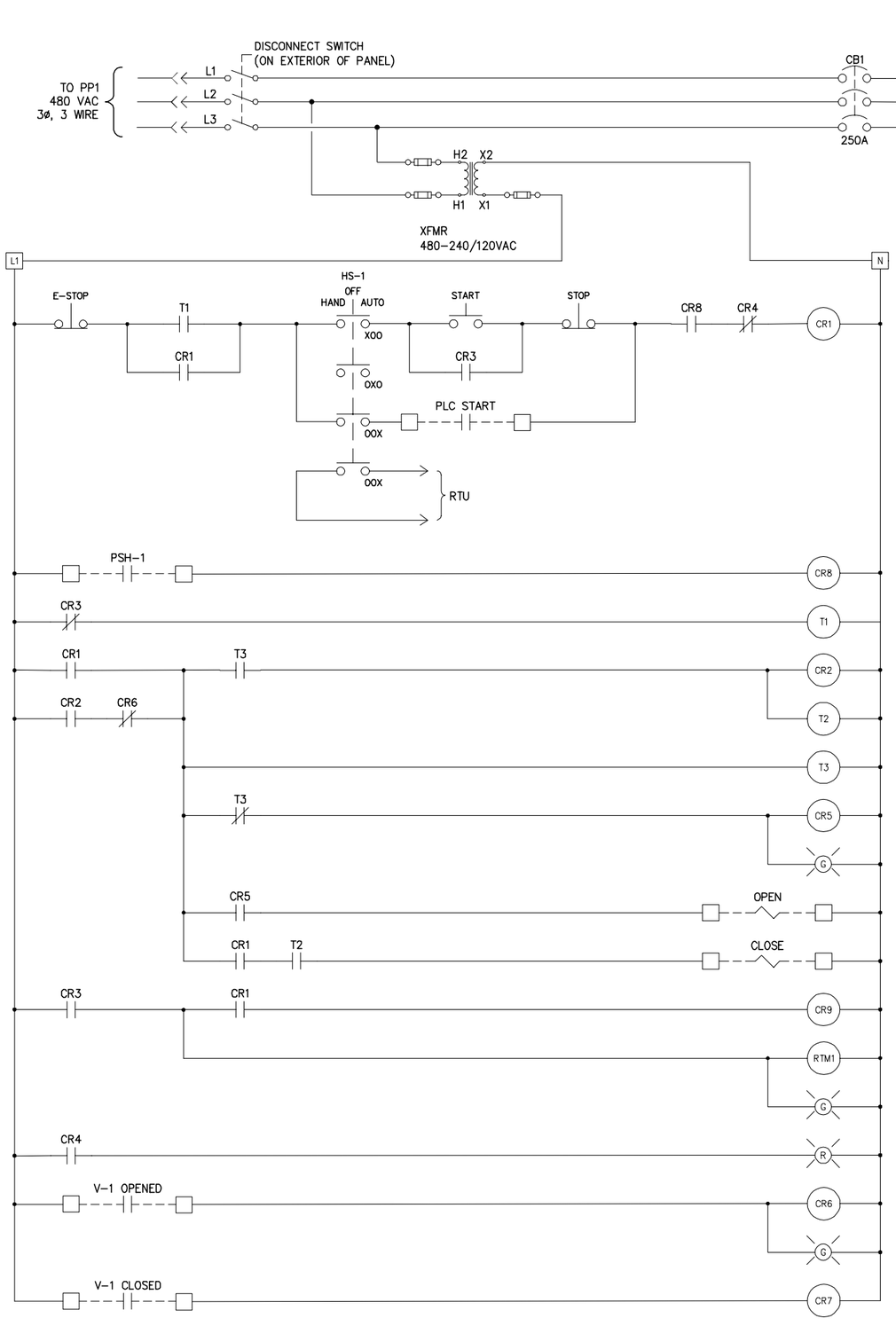
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
CONDUIT AND CONDUCTOR SCHEDULE

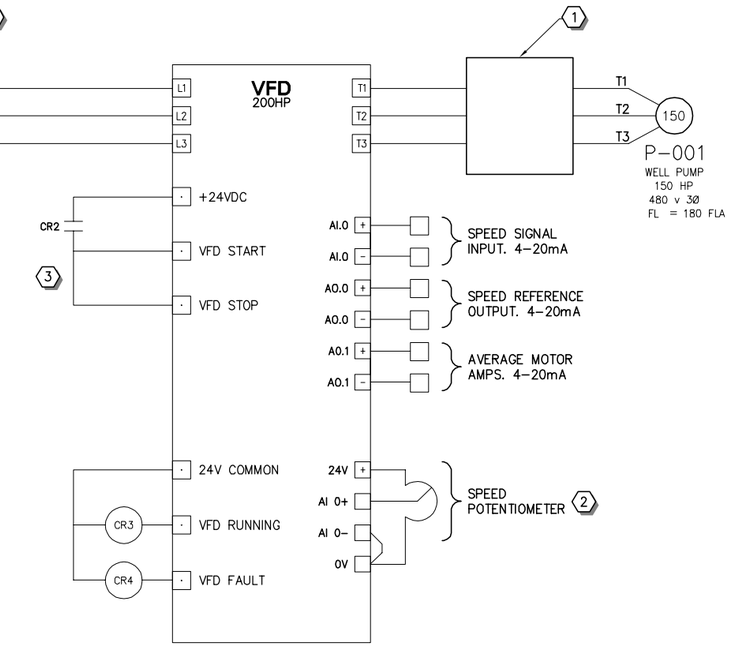
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	249 .	E402

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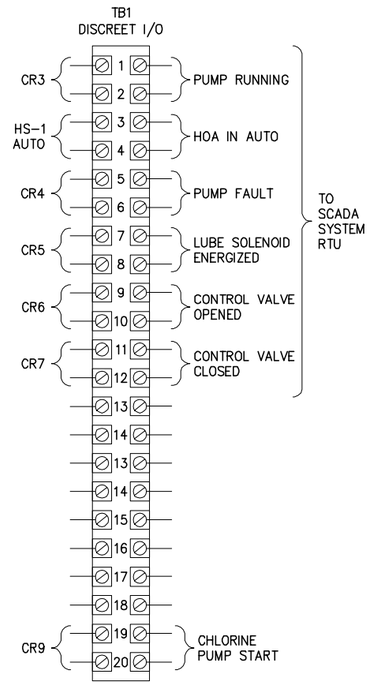


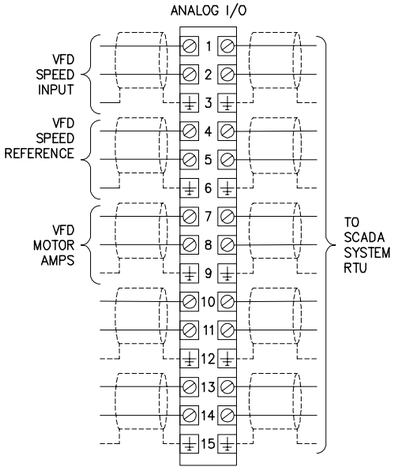
A TYPICAL PUMP CONTROL SCHEMATIC

SCALE: N.T.S.



THIS IS A FUNCTIONAL DIAGRAM ONLY. CONTRACTOR TO WIRE AS PER MANUFACTURER'S RECOMMENDATION TO MAINTAIN THIS FUNCTIONALITY.





SHEET NOTES:

1. THIS SCHEMATIC IS A FUNCTIONAL DIAGRAM ONLY AND MAY VARY BY MANUFACTURER. CONTRACTOR SHALL PROVIDE FUNCTIONALITY SHOWN.
2. PROVIDE AUXILIARY STATUS CONTACTS FOR: PUMP IN AUTO, PUMP RUN, PUMP FAULT, EMERGENCY STOP, HIGH WELL LEVEL, AND LOW WELL LEVEL.
3. STATUS LIGHTS SHALL BE 'PUSH TO TEST' TYPE.

KEY NOTES

1. PROVIDE HARMONIC MITIGATION PER SPECIFICATION 16484.
2. PROVIDE MANUAL SPEED CONTROL FOR USE IN HAND MODE.
3. CONFIGURE VFD TO RUN WITH A SINGLE INPUT. VFD SHOULD STOP WHEN RUN COMMAND, CR2, IS RELEASED.

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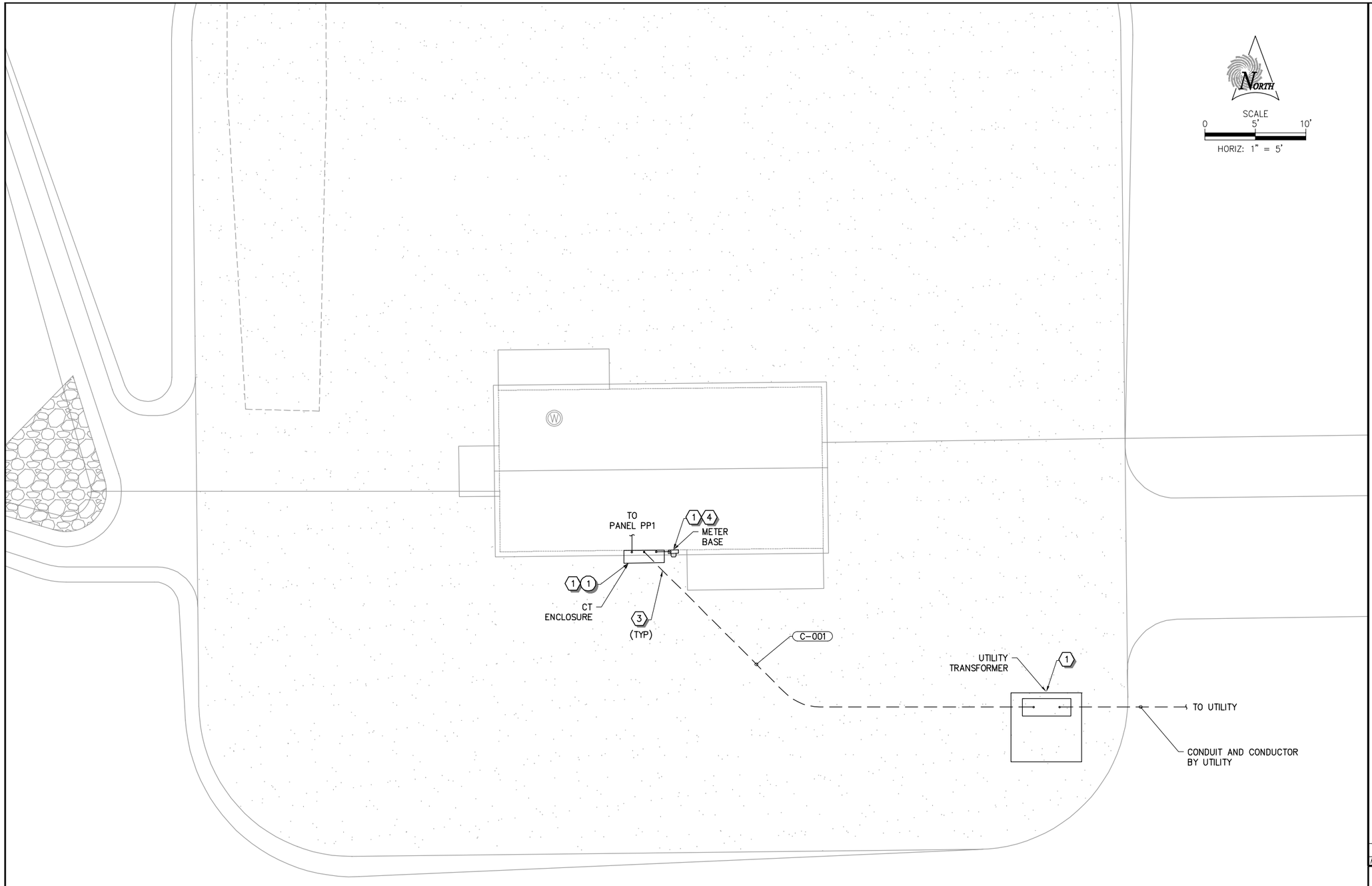
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
PUMP CONTROL SCHEMATIC

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	250 .

E403

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A ELECTRICAL SITE PLAN
~ SCALE: 1" = 5'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E402 FOR CONDUIT IDENTIFICATION.
4. REFER TO DRAWING E402 FOR EQUIPMENT SCHEDULE.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG-SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS. PROVIDE AND INSTALL PULL BOX IF DIRECTED BY UTILITY.
2. CONTRACTOR SHALL PROVIDE AND INSTALL CT ENCLOSURE, CONDUIT, FITTINGS, MOUNTING HARDWARE, AND ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION OF SERVICE ENTRANCE EQUIPMENT.
3. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M-50 10 MIL PIPE WRAP OR APPROVED EQUAL.
4. METER BASE PROVIDED BY UTILITY AND INSTALLED BY CONTRACTOR. COORDINATE ALL WORK WITH OWNER AND UTILITY PRIOR TO CONSTRUCTION.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER - STATE OF UTAH
25-May-2018
No. 362066
J. RANDALL KNAPP

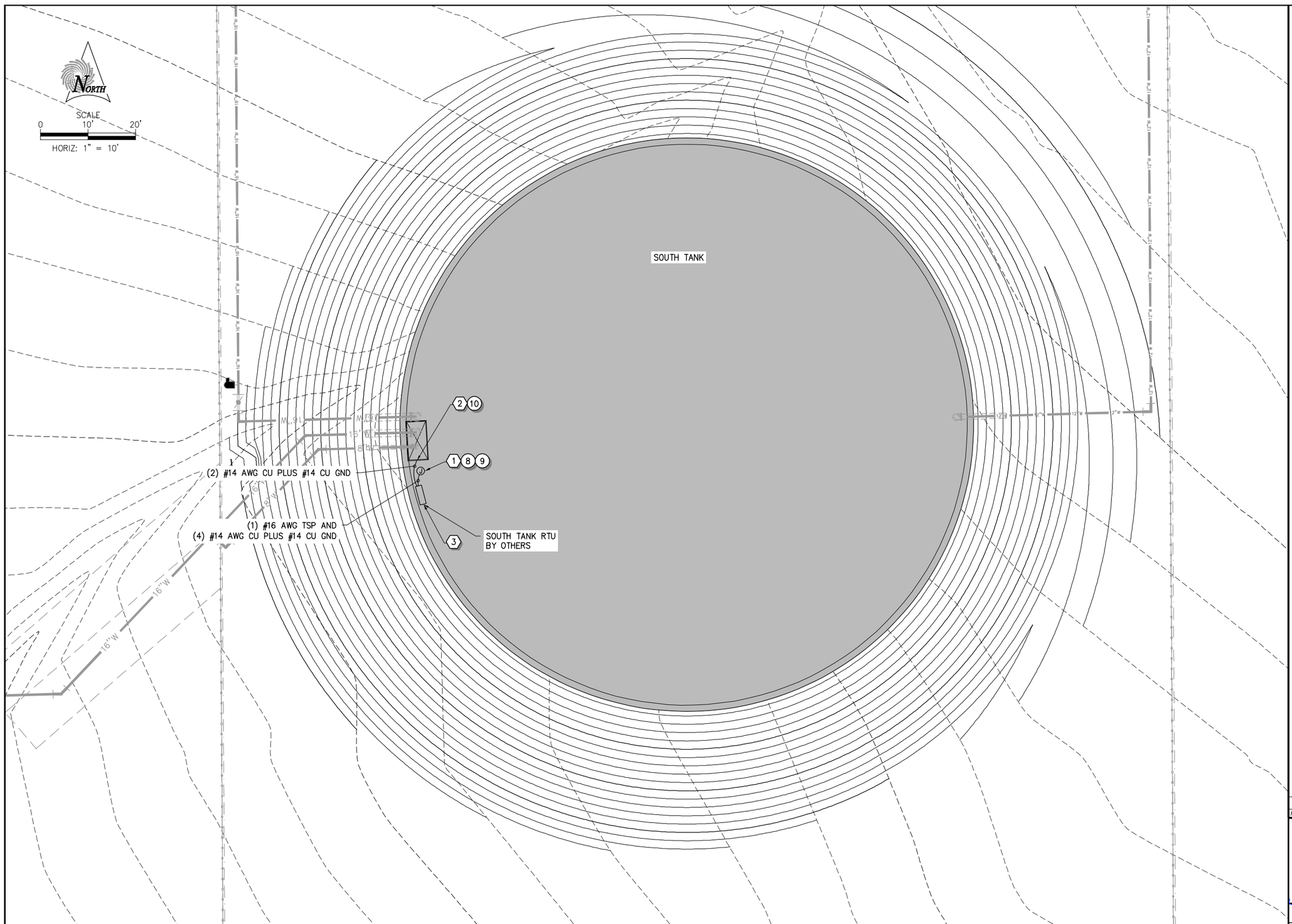
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
ELECTRICAL SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	251 .	E404

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A ELECTRICAL SITE PLAN
SCALE: 1" = 10'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E402 FOR CONDUIT IDENTIFICATION.
4. REFER TO DRAWING E402 FOR EQUIPMENT SCHEDULE.

KEY NOTES

1. PROVIDE AND INSTALL TWO LEVEL SWITCHES, ONE SUBMERSIBLE PRESSURE TRANSDUCER IN TANK AND INTALL ONE INTRUSION SWITCH FOR EACH TANK HATCH. INSTALL INTRUSION SWITCH IN HATCH PER SWITCH MANUFACTURER'S RECOMMENDATIONS. INSTALL JUNCTION BOX FOR LEVEL SWITCHES AND DEPTH SENSOR NEAR HATCH. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
2. EXTEND CIRCUIT TO HATCH FOR INTRUSION SWITCH. MOUNT SWITCH TO HATCH PER SWITCH MANUFACTURERS RECOMMENDATIONS.
3. RTU IS BY OTHERS AND WILL PROVIDE A POWER SOURCE AND RADIO COMMUNICATIONS TO THE WORWOOD WELL. COMMUNICATIONS WILL ENABLE THE WORWOOD WELL TO FUNCTION BASED ON TANK LEVEL. COORDINATE EXACT LOCATION WITH INSTRUMENTATION CONTRACTOR.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
25-May-2018
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

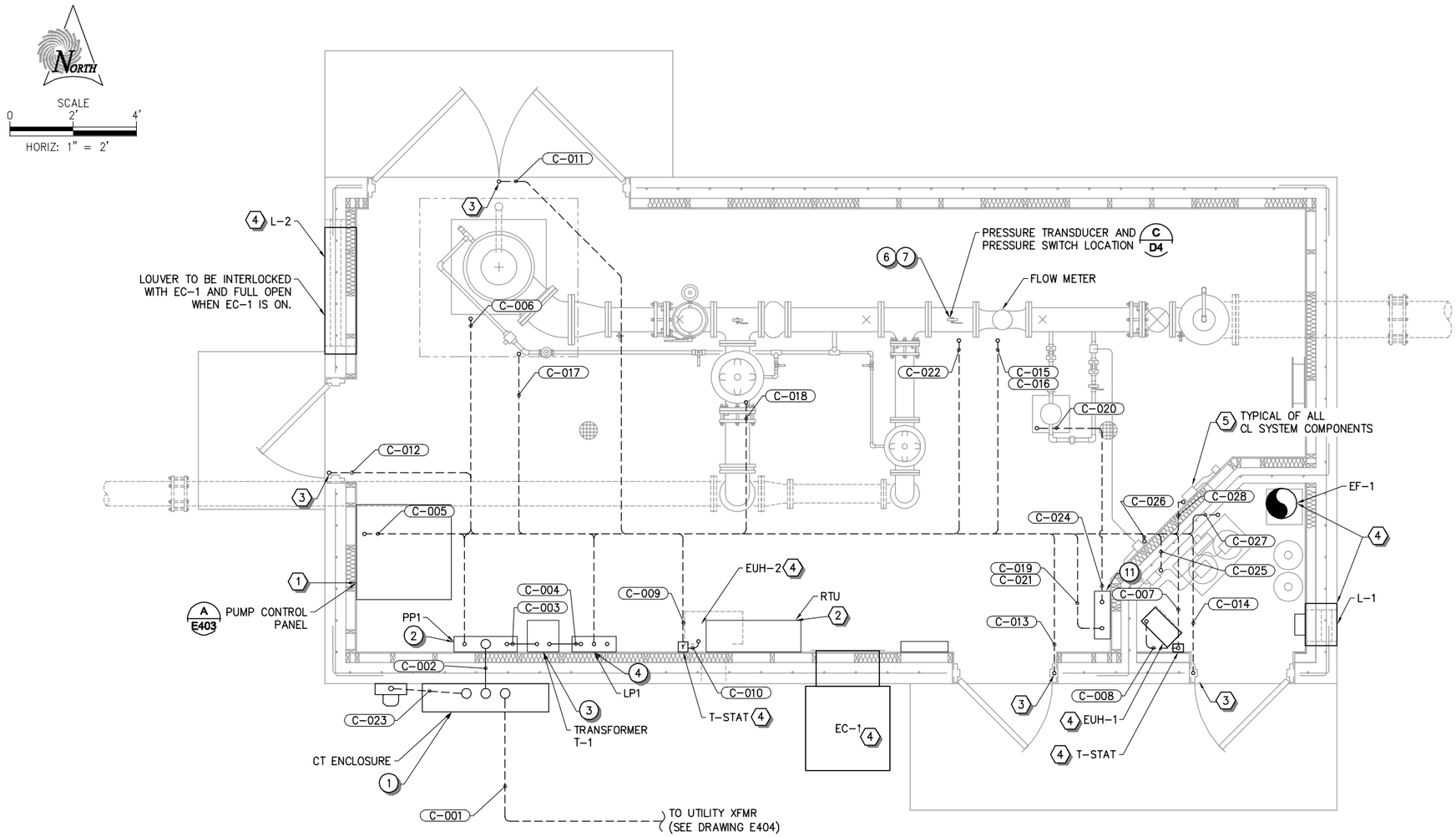
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
SOUTH TANK SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	252 yy	E405

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A ELECTRICAL POWER AND CONTROL PLAN

SCALE: 1" = 2'-0"

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E402 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E402 FOR EQUIPMENT SCHEDULE AND DETAILS.

KEY NOTES

1. REFER TO DRAWING E403 FOR PUMP CONTROL PANEL SCHEMATIC DIAGRAM.
2. RTU PROVIDED BY OWNER. CONTRACTOR SHALL ROUTE CONDUIT TO RTU LOCATION AND STUB FOR FUTURE CONNECTION. COORDINATE EXACT LOCATION OF RTU WITH OWNER PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO INSTALL CONDUIT TO STUB DIRECTLY INTO TOP OF DOOR FRAME. CONDUIT TO BE CONCEALED IN WALLS AND CEILINGS FOR ZERO VISIBILITY. CONTRACTOR TO COORDINATE STUB LOCATIONS WITH SCADA SYSTEM INTEGRATOR AND ACCESS CONTROL PROVIDER.
4. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS.
5. 6. COORDINATE WITH CL SYSTEM SUPPLIER FOR EXACT LOCATION OF ALL CHLORINE SYSTEM EQUIPMENT. VERIFY ALL CONDUIT STUB-UP LOCATIONS PRIOR TO CONSTRUCTION.

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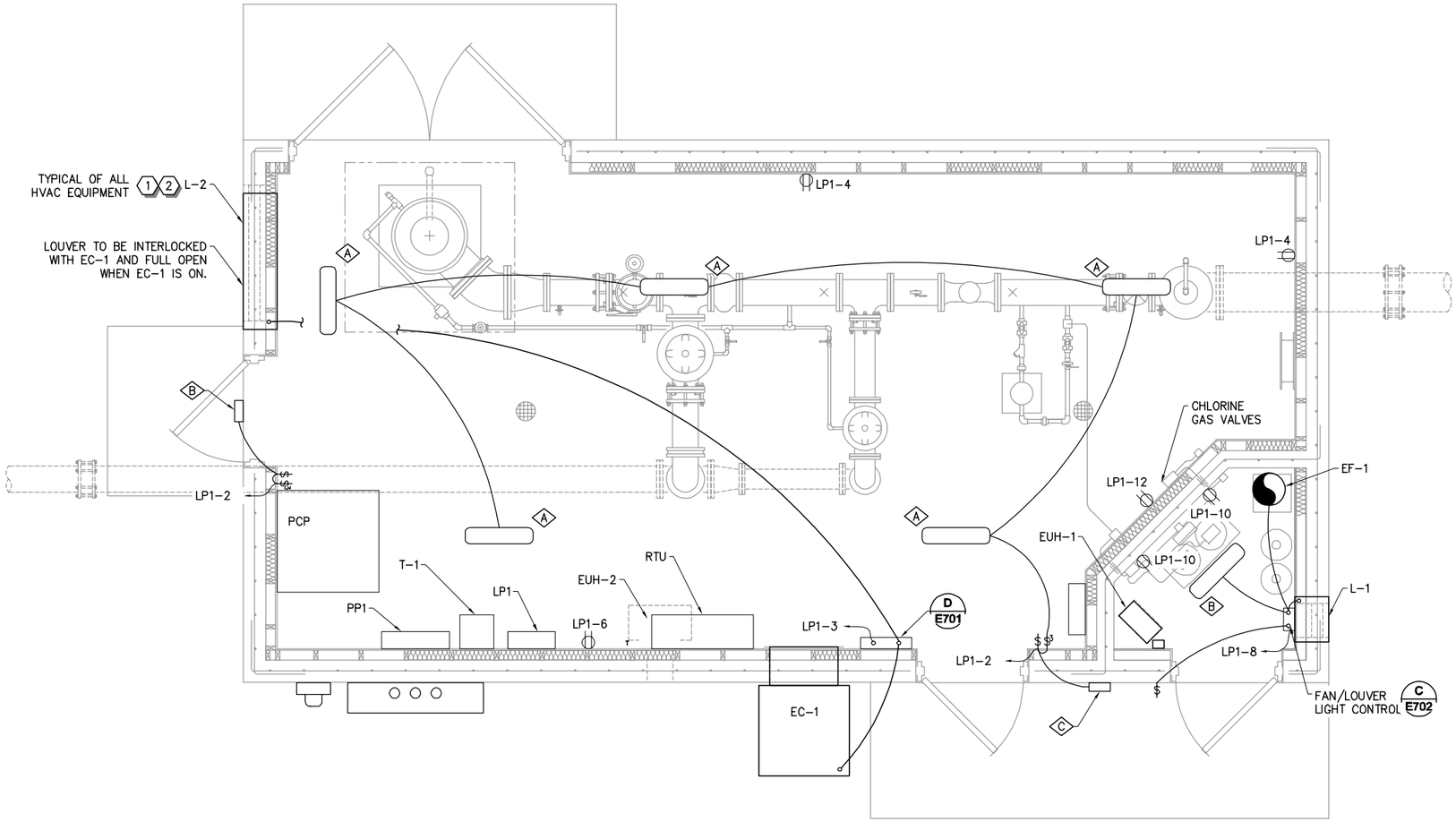
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
ELECTRICAL POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	253 .

E406

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ELECTRICAL LIGHTING FIXTURE SCHEDULE					
ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
A	DMW2 3000 LUMEN SURFACE MOUNT LIGHT FIXTURE	5	DMW2 3000LM WD PCL MVOLT 40K 80CRI	LITHONIA OR APPROVED EQUAL	
B	DMW2 2000 LUMEN SURFACE MOUNT LIGHT FIXTURE	1	DMW2 2000LM WD PCL MVOLT 40K 80CRI	LITHONIA OR APPROVED EQUAL	
C	OLWX1 LED EXTERIOR WALL PACK LIGHTING FIXTURE	2	OLWX1 LED 13W 40K 120 PE DDB	LITHONIA OR APPROVED EQUAL	OPTIONAL PHOTOCELL (PE) TO BE PROVIDED WITH LIGHTING FIXTURE

A ELECTRICAL LIGHTING AND RECEPTACLE PLAN

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

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E402 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. SEE DRAWING E402 FOR EQUIPMENT SCHEDULE AND DETAILS.
6. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT DETAILS.

KEY NOTES

1. REFER TO SHEETS E401 AND E402 FOR ADDITIONAL ELECTRICAL REQUIREMENTS.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

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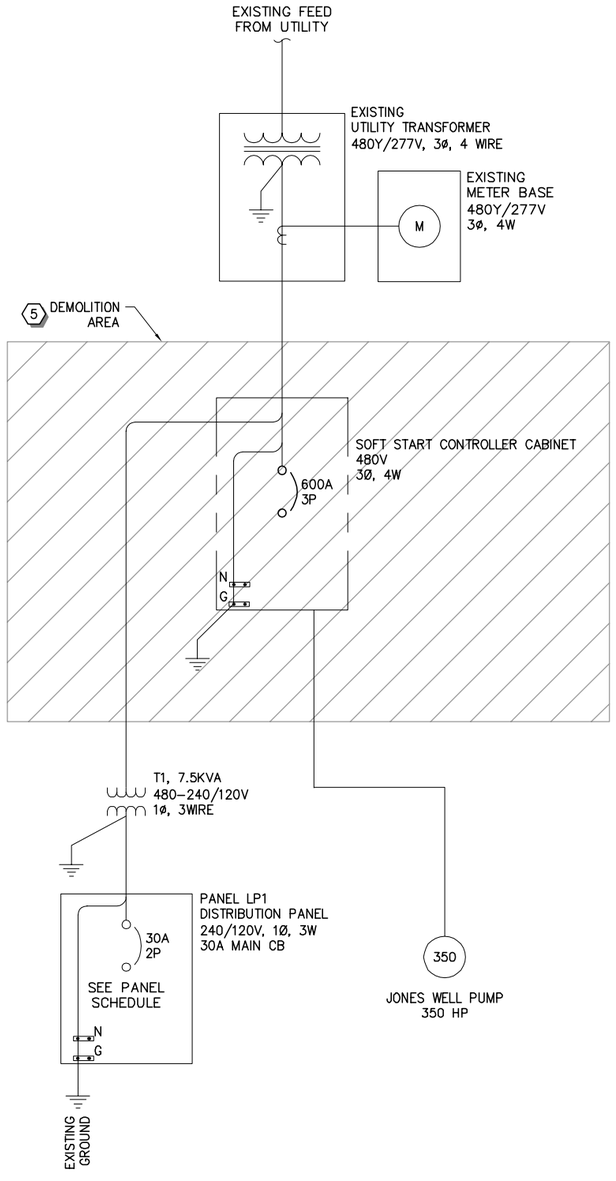
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CULINARY WATER IMPROVEMENTS PROJECT 2017
WORWOOD WELL
LIGHTING AND RECEPTACLE PLAN

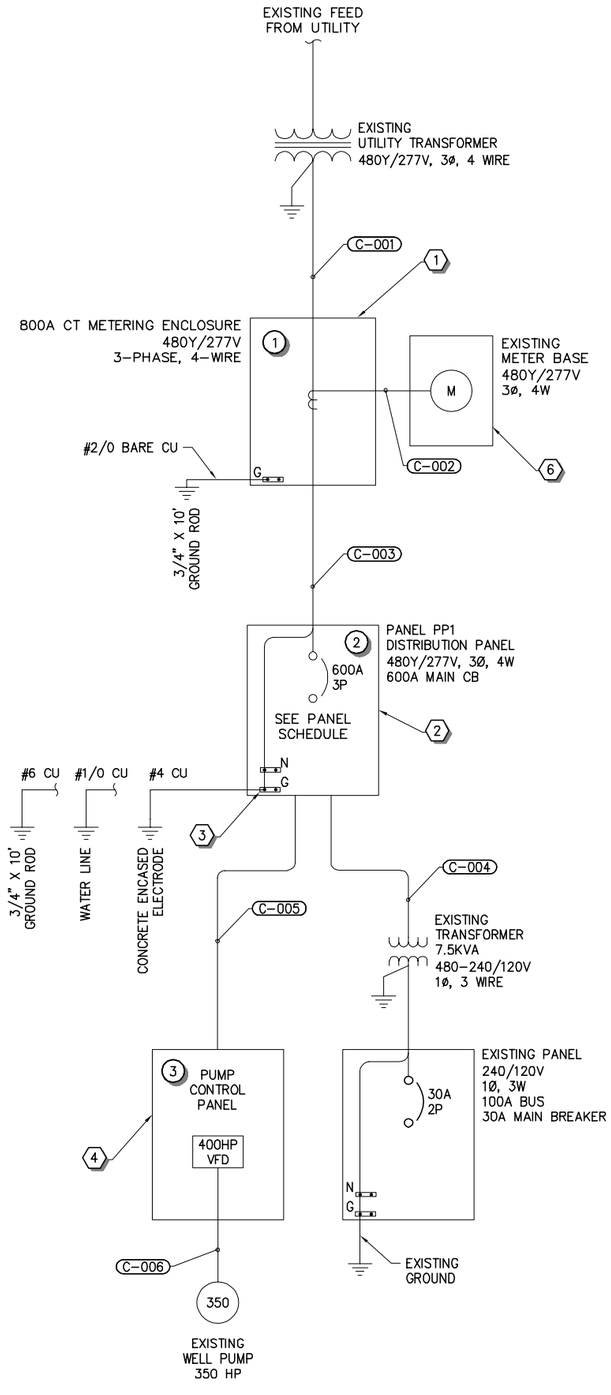
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	254 .

E407

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A ONE-LINE DEMOLITION DIAGRAM
NTS



B ONE-LINE DIAGRAM
NTS

SHEET NOTES:

1. ONE-LINE DIAGRAM SHOWS PROPOSED CONFIGURATION. CONTRACTOR SHALL CONFIRM ACTUAL CONFIGURATION WITH UTILITY PRIOR TO CONSTRUCTION AND PROVIDE ALL NECESSARY EQUIPMENT PADS, PULL BOXES OR OTHER ITEMS REQUIRED BY UTILITY.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, CONCRETE CUTTING, CONCRETE REPAIR AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
4. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
5. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL. LIGHTING AND RECEPTACLE CIRCUITS GENERALLY NOT SHOWN IN CONDUIT AND CONDUCTOR SCHEDULE.
6. REFER TO DRAWING E502 FOR CONDUIT AND CONDUCTOR SCHEDULE.
7. REFER TO DRAWING E502 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. COORDINATE ALL SERVICE ENTRANCE WORK WITH NEPHI CITY POWER PRIOR TO CONSTRUCTION TO CONFIRM EXACT LOCATION, CONDUIT SIZE AND OTHER REQUIREMENTS AND UTILITY STANDARDS.
2. TRANSFORMER BY UTILITY, PAD BY CONTRACTOR POWER UTILITY STANDARDS. COORDINATE WITH UTILITY FOR DIMENSIONS AND CONDUIT STUB UP LOCATIONS.
3. BOND TO ALL GROUNDING ELECTRODES PRESENT PER NEC.
4. REFER TO DRAWING E503 FOR PUMP CONTROL SCHEMATIC.
5. REMOVE EXISTING SOFT START CONTROLLER AND RENDER EQUIPMENT TO OWNER.
6. CONTRACTOR SHALL RECONNECT EXISTING METER BASE TO NEW CT CABINET. CONTRACTOR SHALL INSPECT EXISTING METER BASE PRIOR TO CONSTRUCTION AND REPLACE IF WITH OWNER PROVIDED METER BASE IF DIRECTED TO DO SO.

REV NO.	COMMENT	DATE

25-May-2018 No. 362066 J. RANDALL KNAPP REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH

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NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
JONES WELL
ELECTRICAL ONE-LINE DIAGRAMS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	255 .	E501

P:\Nephi\05884 culinary water improvements\tech department\dwg\Jones Well\Electrical One-line Diagram & Schedules.dwg May 25, 2018 10:07am kknapp

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	APPROX.	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		LEN (FT.)	
C-001	UTILITY SERVICE	UTILITY TRANSFORMER	CT ENCLOSURE	2	3-1/2"			480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-002	CT METERING LEADS	CT ENCLOSURE	METER BASE	1	1"			240		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-003	SERVICE TO PANEL PP1	CT ENCLOSURE	PANEL PP1	2	3-1/2"	(4) #350 kcmil	#2/0	480		
C-004	POWER TO TRANSFORMER T-1 / PANEL LP-1	PANEL PP1 - 1,3	TRANSFORMER T-1	1	3/4"	(2) #12 AWG	#12	480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-005	FEEDER TO PUMP CONTROL PANEL	PANEL PP1 - 2,4,6	PUMP CONTROL PANEL	2	2-1/2"	(3) #300 kcmil	#1/0	480		
C-006	FEEDER TO WELL PUMP	PUMP CONTROL PANEL	WELL PUMP #1	2	2-1/2"	(3) #300 kcmil	#1/0	480		
C-007	POWER TO RTU	LP1 - 5	RTU	1	3/4"	(2) #12 AWG	#12	120		
C-008	PUMP CONTROL PANEL I/O	RTU	PCP	1	1-1/4"	(x) #14 AWG (y) #16 AWG TSP	#14	CTRL		
C-009	FLOW METER SIGNAL	RTU	FLOW METER DISPLAY	1	3/4"	(1) #16 AWG TSP		CTRL		
C-010	LINE PRESSURE SIGNAL	RTU	PT-1	1	3/4"	(1) #16 AWG TSP		CTRL		
C-011	INTRUSION SIGNAL	RTU	INTRUSION SENSOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-012	FLOW METER POWER (EXISTING CONDUIT)	LP1	FLOW METER DISPLAY	1	3/4"	(2) #12 AWG	#12	120		INSTALL CONDUCTOR IN EXISTING CONDUIT

* CONDUITS TO LIGHTING AND RECEPTACLE CIRCUITS TYPICALY NOT SHOWN.

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	800A CT ENCLOSURE WITH TERMINALS	1	PER UTILITY REQUIREMENTS	N/A	COORDINATE SERVICE WORK WITH UTILITY
2	PANEL PP1, 480Y/277V, 3ø, 4-WIRE, 800A BUS, 600A MAIN CB, CU BUS, 35KAIC	1	16400	SQUARE D OR APPROVED EQUAL	
3	PUMP CONTROL PANEL "PCP", 400HP VFD, 480V, 3P, 3W, NEMA1	1	16484	N/A	REFER TO DRAWING E503 FOR TYPICAL PCP REQUIREMENTS
4	PRESSURE TRANSMITTER	1	100-200-1-1-2-7 / 17410	NOSHOK SERIES 100 OR APPROVED EQUAL	

PANEL PP1 — JONES WELL BUILDING — 800A CU Bus, 35 KA SC Rating (RMS), 30 CIRCUIT PANEL, 600 AMP MAIN CB

VOLTAGE: 480/277 | PH: 3 | WIRE: 4 - WIRE | PANEL SCHEDULE CIRCUIT

CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA) LIGHT	LOAD (VA) RECEP	LOAD (VA) OTHER	AMPS A	AMPS A	AMPS B	AMPS B	AMPS C	AMPS C	LOAD (VA) OTHER	LOAD (VA) RECEP	LOAD (VA) LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.
1	20	2	TRANSFORMER T1 (15kVA)	0	0	7500	15.6	430.8					358000	0	0	WELL PUMP CONTROL PANEL	3	600	2
3	-	-	"	0	0	0			15.6	430.8			0	0	0	"	-	-	4
5		-		0	0	0					0.0	430.8	0	0	0	"	-	-	6
7		-		0	0	0	0.0	0.0					0	0	0		-		8
9		-		0	0	0			0.0	0.0			0	0	0		-		10
11		-		0	0	0					0.0	0.0	0	0	0		-		12
		-		0	0	0					0.0	0.0	0	0	0		-		
25		-		0	0	0	0.0	0.0					0	0	0		-		26
27		-		0	0	0			0.0	0.0			0	0	0		-		28
29		-		0	0	0					0.0	0.0	0	0	0		-		30
				0	0	7500	446		446		431		358000	0	0		Total AMPS		
			Subtotal Watts			7500									358000	Subtotal Watts			
			Total Watts			365500									441	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS — PANEL NAME: PP1

LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.0 kVA	Lighting Total Calculated kVA:	0.0
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total Calculated kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	365.5 kVA	Other Loads Total Calculated kVA:	455.0
		DIVERSIFIED TOTAL kVA	455.0
		AVERAGE AMPS PER PHASE	547.5

PANEL LP1 — JONES WELL BUILDING — CU Bus, 10 KA SC Rating (RMS), 40 AMP MAIN CB

VOLTAGE: 240/120 | PH: 1 | WIRE: 3 -WIRE | PANEL SCHEDULE CIRCUIT

CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA) LIGHT	LOAD (VA) RECEP	LOAD (VA) OTHER	AMPS A	AMPS A	AMPS B	AMPS B	AMPS C	AMPS C	LOAD (VA) OTHER	LOAD (VA) RECEP	LOAD (VA) LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.
1	20	1	LIGHTS	300	0	0	2.5	0.0					0	0	0	MAIN BREAKER	2	40	2
3	20	1	FLOW METER	0	0	300					2.5	0.0	0	0	0	"	-	-	4
5	15	1	RTU	0	0	1200	10.0	0.0					0	0	0		-		6
7	20	1	SPARE	0	0	0					0.0	0.0	0	0	0		-		8
9	20	1	SPARE	0	0	0	0.0	0.0					0	0	0		-		10
11		-		0	0	0					0.0	0.0	0	0	0		-		12
13		-		0	0	0	0.0	0.0					0	0	0		-		14
15		-		0	0	0					0.0	0.0	0	0	0		-		16
17		-		0	0	0	0.0	0.0					0	0	0		-		18
				300	0	1500	13		0		3		0	0	0		Total AMPS		
			Subtotal Watts			1500									0	Subtotal Watts			
			Total Watts			1500									8	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS — PANEL NAME: LP1

LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.3 kVA	Lighting Total kVA:	0.4
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	1.5 kVA	Other Loads Total kVA:	1.8
		DIVERSIFIED TOTAL kVA	2.2
		AVERAGE AMPS PER PHASE	9.1

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER — 25-May-2018 — No. 362066 — J. RANDALL KNAPP — STATE OF UTAH

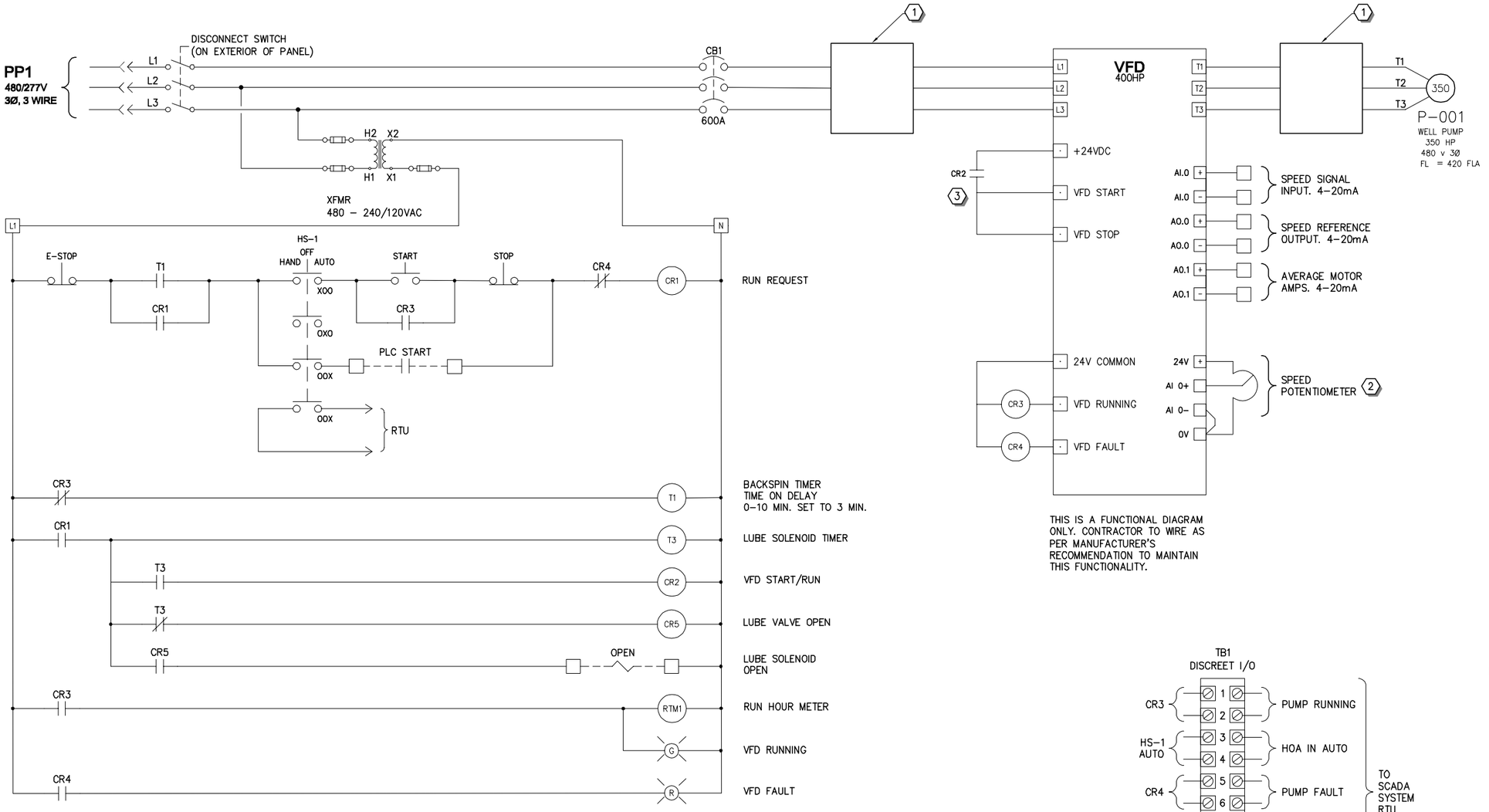
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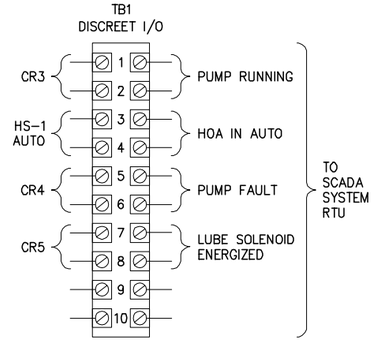
CULINARY WATER IMPROVEMENTS PROJECT 2017
JONES WELL
ELECTRICAL SCHEDULES

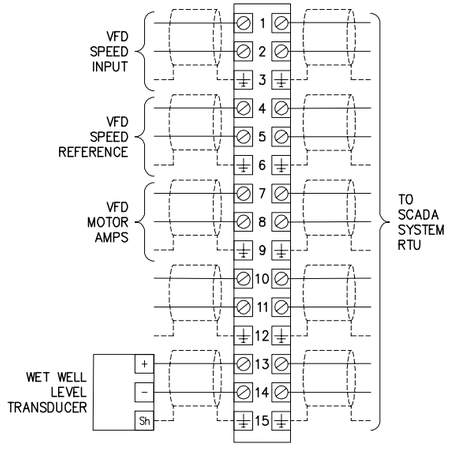
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	256 .	E502

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THIS IS A FUNCTIONAL DIAGRAM ONLY. CONTRACTOR TO WIRE AS PER MANUFACTURER'S RECOMMENDATION TO MAINTAIN THIS FUNCTIONALITY.





SHEET NOTES:

1. THIS SCHEMATIC IS A FUNCTIONAL DIAGRAM ONLY AND MAY VARY BY MANUFACTURER. CONTRACTOR SHALL PROVIDE FUNCTIONALITY SHOWN.
2. PROVIDE AUXILIARY STATUS CONTACTS FOR: PUMP IN AUTO, PUMP RUN, PUMP FAULT, EMERGENCY STOP, HIGH WELL LEVEL, AND LOW WELL LEVEL.
3. STATUS LIGHTS SHALL BE 'PUSH TO TEST' TYPE.

KEY NOTES

1. PROVIDE HARMONIC MITIGATION PER SPECIFICATION 16484.
2. PROVIDE MANUAL SPEED CONTROL FOR USE IN HAND MODE.
3. CONFIGURE VFD TO RUN WITH A SINGLE INPUT. VFD SHOULD STOP WHEN RUN COMMAND, CR2, IS RELEASED.

A ~ TYPICAL PUMP CONTROL SCHEMATIC

NTS

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER – STATE OF UTAH
25-May-2018
No. 362066
J. RANDALL KNAPP

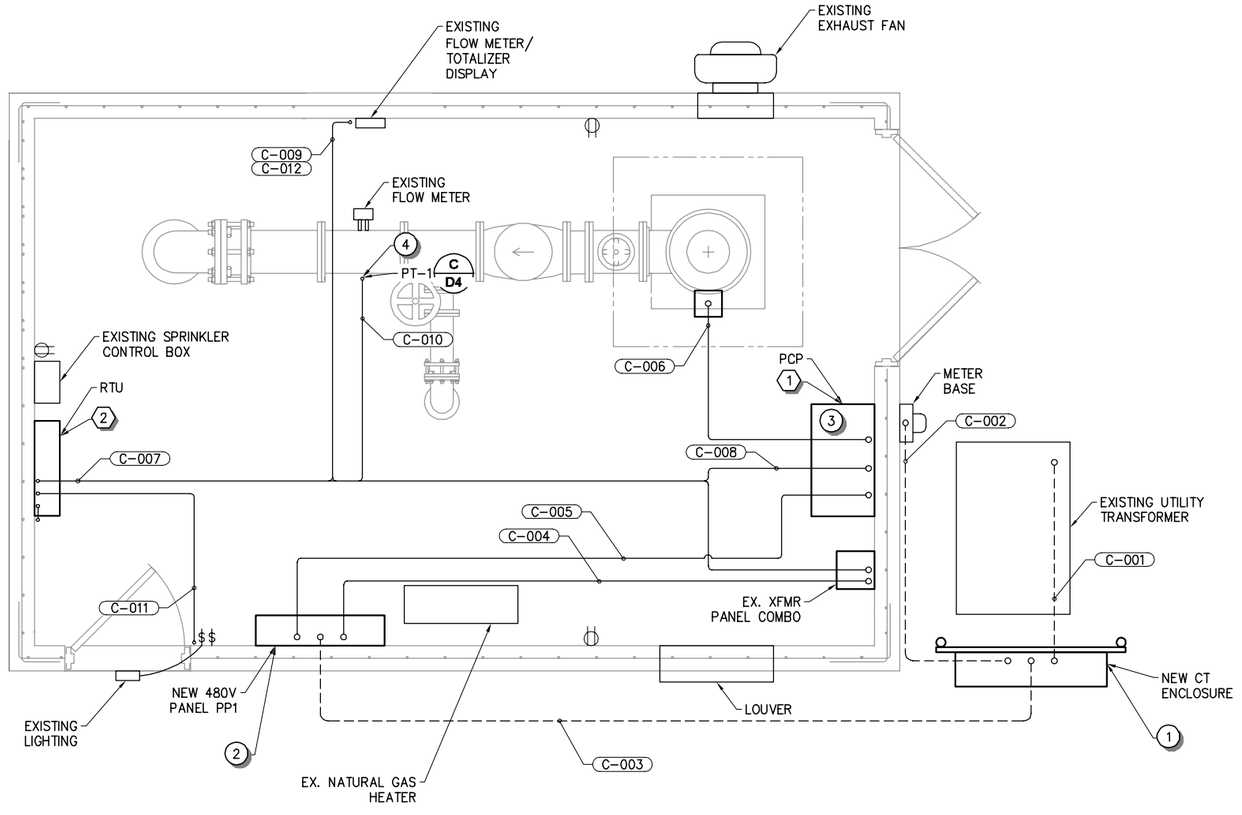
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CULINARY WATER IMPROVEMENTS PROJECT 2017
JONES WELL
PUMP CONTROL SCHEMATIC

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	257 .	E503

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A NEW ELECTRICAL CONSTRUCTION PLAN
SCALE: 1/2"= 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E-1.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. CONTRACTOR SHALL SURFACE MOUNT CONDUIT TO WALLS AND CEILING AS NECESSARY. WHERE CONDUIT MUST BE INSTALLED UNDER SLAB, CONTRACTOR SHALL SAW-CUT THE CONCRETE FLOOR AND REPAIR AFTER CONDUIT INSTALLATION. COORDINATE ALL CONCRETE CUTS WITH OWNER PRIOR TO CONSTRUCTION.
4. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
5. SEE DRAWING E502 FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. SEE DRAWING E502 FOR EQUIPMENT SCHEDULE AND DETAILS.

KEY NOTES

1. REFER TO DRAWING E503 FOR PUMP CONTROL PANEL SCHEMATIC DIAGRAM.
2. RTU PROVIDED BY OWNER. CONTRACTOR SHALL ROUTE CONDUIT TO RTU LOCATION AND STUB FOR FUTURE CONNECTION. COORDINATE EXACT LOCATION OF RTU WITH OWNER PRIOR TO CONSTRUCTION.

REV NO.	COMMENT	DATE

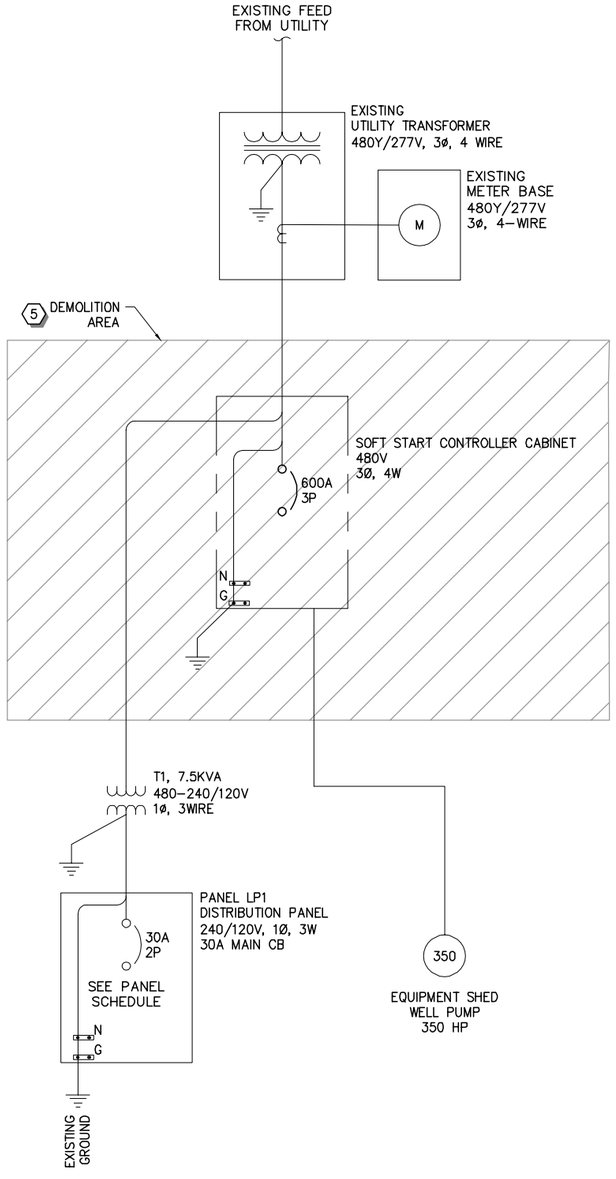
25-May-2018
No. 362066
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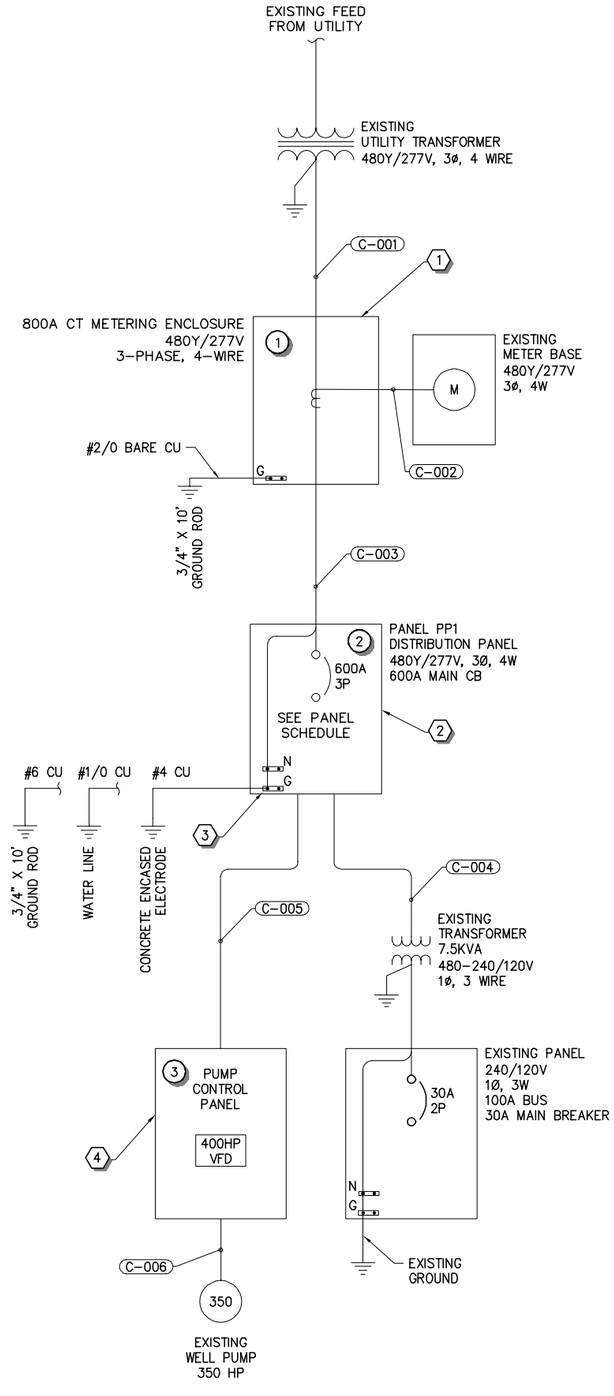
CULINARY WATER IMPROVEMENTS PROJECT 2017
JONES WELL
ELECTRICAL NOTES AND SYMBOLS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	258 .	E504

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A ONE-LINE DEMOLITION DIAGRAM
NTS



B ONE-LINE DIAGRAM
NTS

SHEET NOTES:

1. ONE–LINE DIAGRAM SHOWS PROPOSED CONFIGURATION. CONTRACTOR SHALL CONFIRM ACTUAL CONFIGURATION WITH UTILITY PRIOR TO CONSTRUCTION AND PROVIDE ALL NECESSARY EQUIPMENT PADS, PULL BOXES OR OTHER ITEMS REQUIRED BY UTILITY.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, CONCRETE CUTTING, CONCRETE REPAIR AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
4. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
5. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL. LIGHTING AND RECEPTACLE CIRCUITS GENERALLY NOT SHOWN IN CONDUIT AND CONDUCTOR SCHEDULE.
6. REFER TO DRAWING E602 FOR CONDUIT AND CONDUCTOR SCHEDULE.
7. REFER TO DRAWING E602 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. COORDINATE ALL SERVICE ENTRANCE WORK WITH NEPHI CITY POWER PRIOR TO CONSTRUCTION TO CONFIRM EXACT LOCATION, CONDUIT SIZE AND OTHER REQUIREMENTS AND UTILITY STANDARDS.
2. TRANSFORMER BY UTILITY, PAD BY CONTRACTOR POWER UTILITY STANDARDS. COORDINATE WITH UTILITY FOR DIMENSIONS AND CONDUIT STUB UP LOCATIONS.
3. BOND TO ALL GROUNDING ELECTRODES PRESENT PER NEC.
4. REFER TO DRAWING E603 FOR PUMP CONTROL SCHEMATIC.
5. REMOVE EXISTING SOFT START CONTROLLER AND RENDER EQUIPMENT TO OWNER.
6. CONTRACTOR SHALL RECONNECT EXISTING METER BASE TO NEW CT CABINET. CONTRACTOR SHALL INSPECT EXISTING METER BASE PRIOR TO CONSTRUCTION AND REPLACE IF WITH OWNER PROVIDED METER BASE IF DIRECTED TO DO SO.

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REGISTERED PROFESSIONAL ENGINEER – STATE OF UTAH – 25-May-2018 – No. 362066 – J. RANDALL KNAPP

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CULINARY WATER IMPROVEMENTS PROJECT 2017
EQUIPMENT SHED WELL
ELECTRICAL ONE–LINE DIAGRAMS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	259 .	E601

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	APPROX.	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		LEN (FT.)	
C-001	UTILITY SERVICE	UTILITY TRANSFORMER	CT ENCLOSURE	2	3-1/2"			480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-002	CT METERING LEADS	CT ENCLOSURE	METER BASE	1	1"			240		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-003	SERVICE TO PANEL PP1	CT ENCLOSURE	PANEL PP1	2	3-1/2"	(4) #350 kcmil	#2/0	480		
C-004	POWER TO TRANSFORMER T-1 / PANEL LP-1	PANEL PP1-1,3	TRANSFORMER T-1	1	3/4"	(2) #12 AWG	#12	480		CONDUIT ONLY, CONDUCTOR BY UTILITY
C-005	FEEDER TO PUMP CONTROL PANEL	PANEL PP1-2,4,6	PUMP CONTROL PANEL	2	2-1/2"	(3) #300 kcmil	#1/0	480		
C-006	FEEDER TO WELL PUMP	PUMP CONTROL PANEL	WELL PUMP #1	2	2-1/2"	(3) #300 kcmil	#1/0	480		
C-007	POWER TO RTU	LP1-5	RTU	1	3/4"	(2) #12 AWG	#12	120		
C-008	PUMP CONTROL PANEL I/O	RTU	PCP	1	1-1/4"	(x) #14 AWG (y) #16 AWG TSP	#14	CTRL		
C-009	FLOW METER SIGNAL	RTU	FLOW METER DISPLAY	1	3/4"	(1) #16 AWG TSP		CTRL		
C-010	LINE PRESSURE SIGNAL	RTU	PT-1	1	3/4"	(1) #16 AWG TSP		CTRL		
C-011	INTRUSION SIGNAL	RTU	INTRUSION SENSOR	1	3/4"	(2) #14 AWG	#14	CTRL		
C-012	CONTROL VALVE (EXISTING CONDUIT)	PUMP CONTROL PANEL	CONTROL VALVE	1	3/4"	(4) #14 AWG	#14	CTRL		INSTALL CONDUCTOR IN EXISTING CONDUIT
C-013	FLOW METER POWER (EXISTING CONDUIT)	LP1-3	FLOW METER DISPLAY	1	3/4"	(2) #12 AWG	#12	120		INSTALL CONDUCTOR IN EXISTING CONDUIT

* CONDUITS TO LIGHTING AND RECEPTACLE CIRCUITS TYPICALY NOT SHOWN.

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	800A CT ENCLOSURE WITH TERMINALS	1	PER UTILITY REQUIREMENTS	N/A	COORDINATE SERVICE WORK WITH UTILITY
2	PANEL PP1, 480Y/277V, 3ø, 4-WIRE, 800A BUS, 600A MAIN CB, CU BUS, 35KAIC	1	16400	SQUARE D OR APPROVED EQUAL	
3	PUMP CONTROL PANEL "PCP", 400HP VFD, 480V, 3P, 3W, NEMA1	1	16484	N/A	REFER TO DRAWING E503 FOR TYPICAL PCP REQUIREMENTS
4	PRESSURE TRANSMITTER	1	100-200-1-1-2-7 / 17410	NOSHOK SERIES 100 OR APPROVED EQUAL	

PANEL PP1 — EQUIMENT SHED WELL BUILDING

800A CU Bus; 35 KA SC Rating (RMS); 30 CIRCUIT PANEL; 600 AMP MAIN CB

VOLTAGE: 480/277 | PH: 3 | WIRE: 4 – WIRE

CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA) LIGHT	LOAD (VA) RECEP	LOAD (VA) OTHER	AMPS A	AMPS A	AMPS B	AMPS B	AMPS C	AMPS C	LOAD (VA) OTHER	LOAD (VA) RECEP	LOAD (VA) LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.
1	90	2	TRANSFORMER T1 (15kVA)	0	0	7500	15.6	430.8					358000	0	0	WELL PUMP CONTROL PANEL	3	600	2
3	–	–	' '	0	0	0			15.6	430.8			0	0	0	' '	–	–	4
5		–		0	0	0					0.0	430.8	0	0	0	' '	–	–	6
7		–		0	0	0	0.0	0.0					0	0	0		–		8
9		–		0	0	0			0.0	0.0			0	0	0		–		10
11		–		0	0	0					0.0	0.0	0	0	0		–		12
		–		0	0	0					0.0	0.0	0	0	0		–		
25		–		0	0	0	0.0	0.0					0	0	0		–		26
27		–		0	0	0			0.0	0.0			0	0	0		–		28
29		–		0	0	0					0.0	0.0	0	0	0		–		30
				0	0	7500	446		446		431		358000	0	0		Total AMPS		
			Subtotal Watts			7500									358000	Subtotal Watts			
			Total Watts			365500									441	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS — PANEL NAME: PP1

LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.0 kVA	Lighting Total Calculated kVA:	0.0
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total Calculated kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	365.5 kVA	Other Loads Total Calculated kVA:	455.0
		DIVERSIFIED TOTAL kVA	455.0
		AVERAGE AMPS PER PHASE	547.5

PANEL LP1 — EQUIPMENT SHED WELL BUILDING

CU Bus; 10 KA SC Rating (RMS); 40 AMP MAIN CB

VOLTAGE: 240/120 | PH: 1 | WIRE: 3 – WIRE

CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA) LIGHT	LOAD (VA) RECEP	LOAD (VA) OTHER	AMPS A	AMPS A	AMPS B	AMPS B	AMPS C	AMPS C	LOAD (VA) OTHER	LOAD (VA) RECEP	LOAD (VA) LIGHT	DESCRIPTION	POLE	AMPS	CKT NO.
1	20	1	LIGHTS	300	0	0	2.5	0.0					0	0	0	MAIN BREAKER	2	40	2
3	20	1	FLOW METER	0	0	300					2.5	0.0	0	0	0	' '	–	–	4
5	15	1	RTU	0	0	1000	8.3	0.0					0	0	0		–		6
7	20	1	SPARE	0	0	0					0.0	0.0	0	0	0		–		8
9	20	1	SPARE	0	0	0	0.0	0.0					0	0	0		–		10
11		–		0	0	0					0.0	0.0	0	0	0		–		12
13		–		0	0	0	0.0	0.0					0	0	0		–		14
15		–		0	0	0					0.0	0.0	0	0	0		–		16
17		–		0	0	0	0.0	0.0					0	0	0		–		18
				300	0	1300	11		0		3		0	0	0		Total AMPS		
			Subtotal Watts			1300									0	Subtotal Watts			
			Total Watts			1300									7	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS — PANEL NAME: LP1

LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.3 kVA	Lighting Total kVA:	0.4
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	1.3 kVA	Other Loads Total kVA:	1.6
		DIVERSIFIED TOTAL kVA	1.9
		AVERAGE AMPS PER PHASE	8.0

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER — 25-May-2018 — No. 362066 — J. RANDALL KNAPP — STATE OF UTAH

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SALT LAKE CITY, UTAH 84047
TEL 801.523.0100 FAX 801.523.0990
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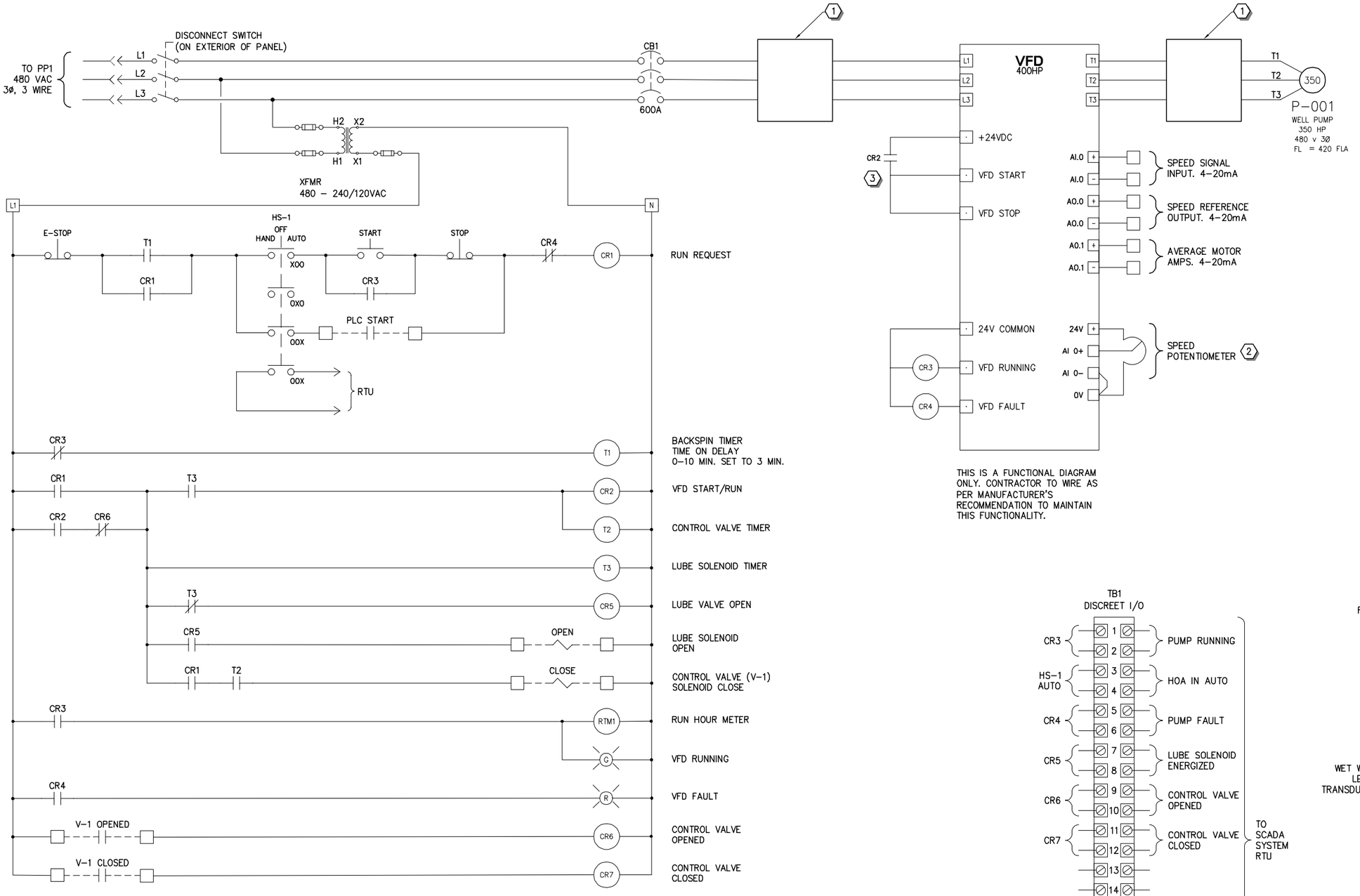
NEPHI CITY

CULINARY WATER IMPROVEMENTS PROJECT 2017
EQUIPMENT SHED WELL
ELECTRICAL SCHEDULES

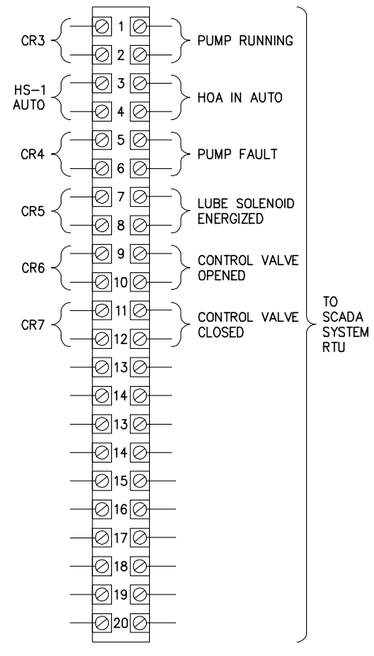
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S05884	JRK	JEH	JRK	260 .

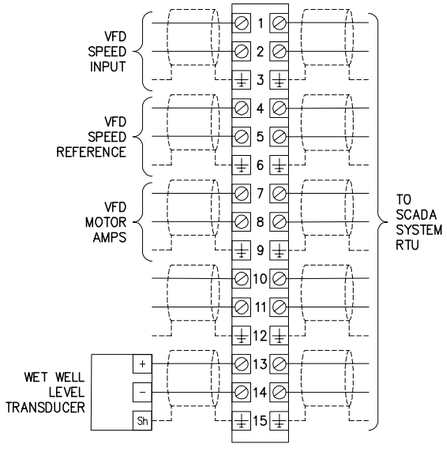
E602

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THIS IS A FUNCTIONAL DIAGRAM ONLY. CONTRACTOR TO WIRE AS PER MANUFACTURER'S RECOMMENDATION TO MAINTAIN THIS FUNCTIONALITY.





SHEET NOTES:

1. THIS SCHEMATIC IS A FUNCTIONAL DIAGRAM ONLY AND MAY VARY BY MANUFACTURER. CONTRACTOR SHALL PROVIDE FUNCTIONALITY SHOWN.
2. PROVIDE AUXILIARY STATUS CONTACTS FOR: PUMP IN AUTO, PUMP RUN, PUMP FAULT, EMERGENCY STOP, HIGH WELL LEVEL, AND LOW WELL LEVEL.
3. STATUS LIGHTS SHALL BE 'PUSH TO TEST' TYPE.

KEY NOTES

1. PROVIDE HARMONIC MITIGATION PER SPECIFICATION 16484.
2. PROVIDE MANUAL SPEED CONTROL FOR USE IN HAND MODE.
3. CONFIGURE VFD TO RUN WITH A SINGLE INPUT. VFD SHOULD STOP WHEN RUN COMMAND, CR2, IS RELEASED.

A ~ TYPICAL PUMP CONTROL SCHEMATIC

NTS

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25-May-2018
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

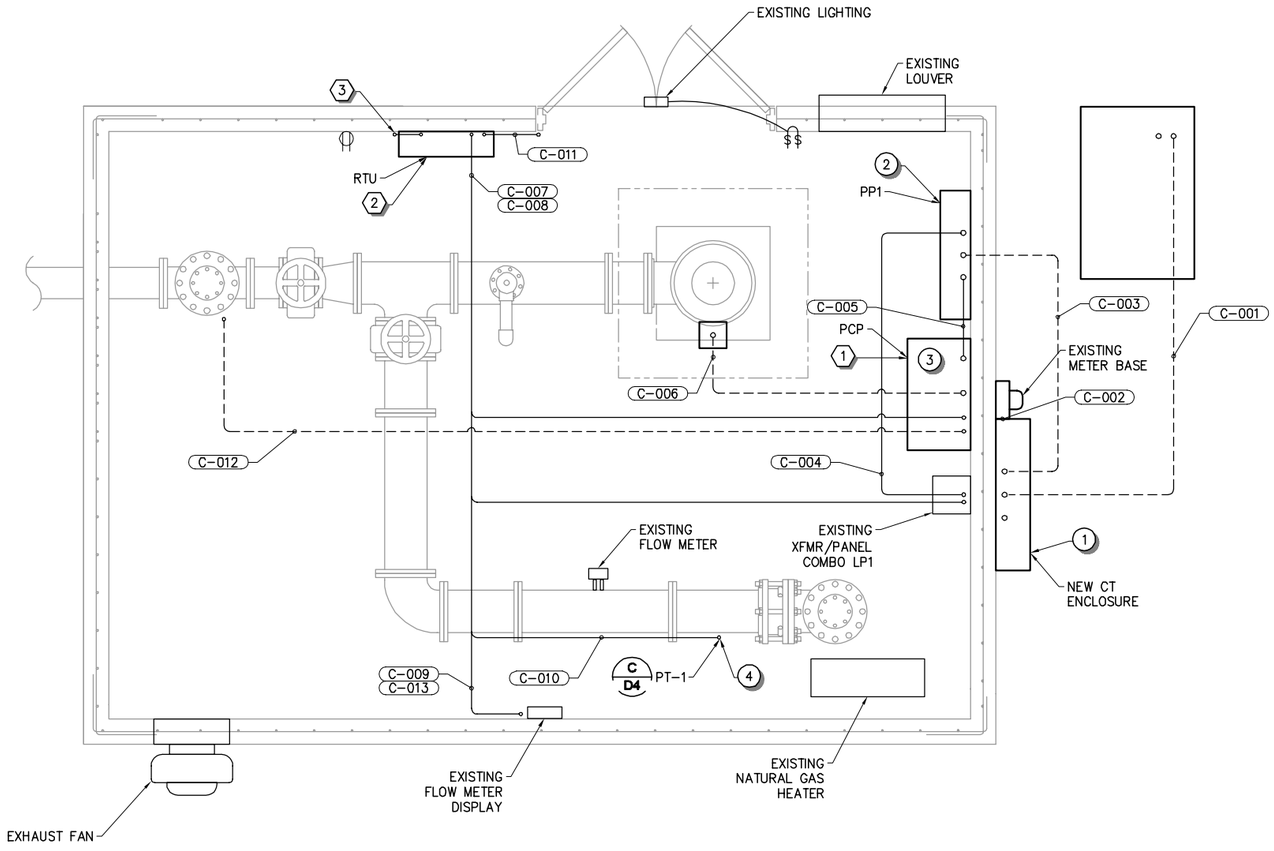
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CULINARY WATER IMPROVEMENTS PROJECT 2017
EQUIPMENT SHED WELL
PUMP CONTROL SCHEMATIC

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	261 .	E603

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A NEW CONSTRUCTION PLAN

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

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. CONTRACTOR SHALL SURFACE MOUNT CONDUIT TO WALLS AND CEILING AS NECESSARY. WHERE CONDUIT MUST BE INSTALLED UNDER SLAB, CONTRACTOR SHALL SAW-CUT THE CONCRETE FLOOR AND REPAIR AFTER CONDUIT INSTALLATION. COORDINATE ALL CONCRETE CUTS WITH OWNER PRIOR TO CONSTRUCTION.
4. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
5. SEE DRAWING E602 FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. SEE DRAWING E602 FOR EQUIPMENT SCHEDULE AND DETAILS.

KEY NOTES

1. REFER TO DRAWING E603 FOR PUMP CONTROL PANEL SCHEMATIC DIAGRAM.
2. RTU PROVIDED BY OWNER. CONTRACTOR SHALL ROUTE CONDUIT TO RTU LOCATION AND STUB FOR FUTURE CONNECTION. COORDINATE EXACT LOCATION OF RTU WITH OWNER PRIOR TO CONSTRUCTION.
3. WATER ON FLOOR SENSOR. (BY INSTRUMENTATION CONTRACTOR)

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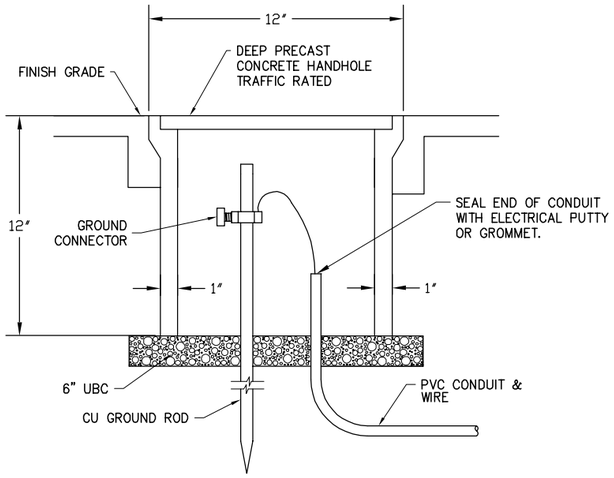
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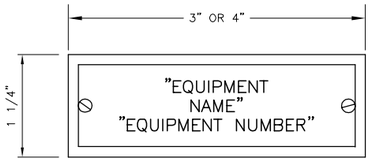
CULINARY WATER IMPROVEMENTS PROJECT 2017
EQUIPMENT SHED WELL
ELECTRICAL POWER PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S05884	JRK	JEH	JRK	262 .	E604

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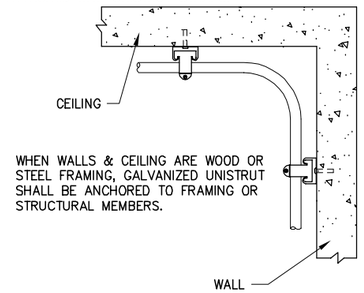
A DETAIL - GROUND WELL
N.T.S.



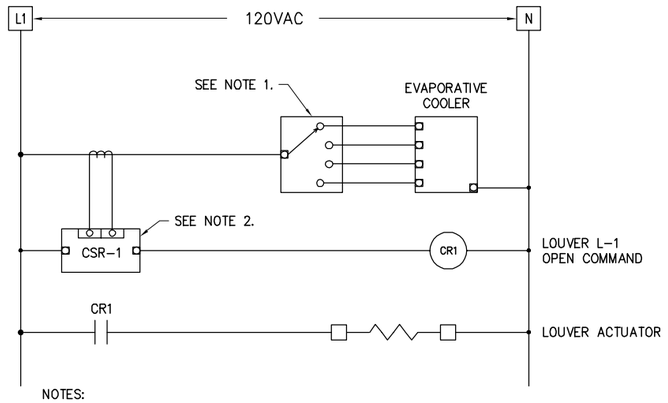
1. ALL LETTERS TO BE WHITE 1/4" HIGH, ON A BLACK BACKGROUND UNLESS NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTER LINE OF THE CUBICLE OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND AN ADDITIONAL TEN PERCENT FOR FUTURE DEVICES.

B DETAIL - NAMEPLATE
N.T.S.

7/8" GALVENIZED UNISTRUT TO BE ANCHORED TO THE WALL & CEILING, THEN CONDUIT SHALL BE RUN AND ATTACHED WITH UNISTRUT STRAPS.

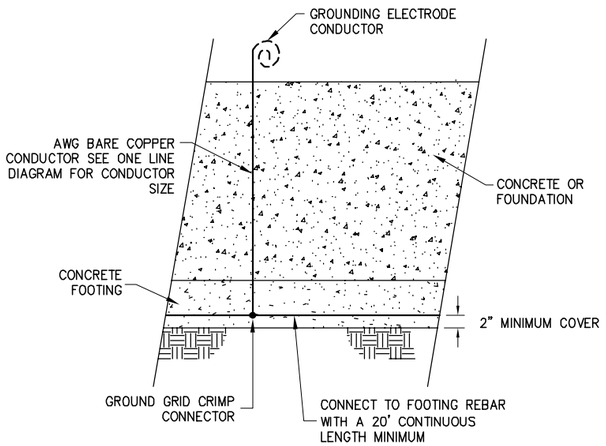


C DETAIL - CONDUIT MOUNT
N.T.S.

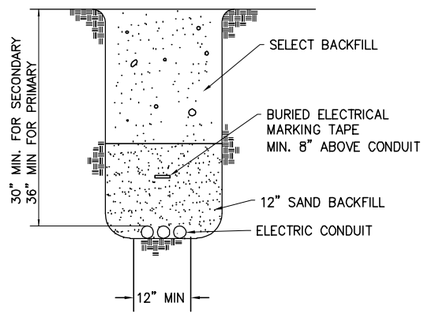


NOTES:
1. MULTIFUNCTION SWITCH TO BE PROVIDED BY MANUFACTURER.
2. CURRENT SENSING RELAY CSR-1 (OR APPROVED EQUAL). DWYER INSTRUMENTS MCS-111050 OR EQUAL WITH ADJUSTABLE CURRENT PICKUP LEVEL FROM 0.5 TO 50 AMPS.

D HVAC CONTROL SCHEMATIC
NTS

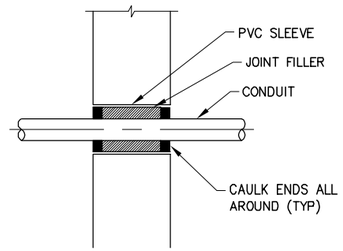


E DETAIL - UFER CONCRETE ENCASED
N.T.S.



1. WARNING TAPE MUST BE PLACED ON TOP OF CONDUIT (5 MILS THICKNESS)
2. ALL TRENCHES MUST BE INSPECTED PRIOR TO BACKFILLING
3. TRENCHES SHOULD BE SPOT BACKFILLED TO PREVENT MOVEMENT OF TAPE DURING BACKFILL.
4. SELECT BACKFILL MUST BE COMPACTED IN 1 FOOT LIFTS TO PREVENT SETTLING.

F DETAIL - UNDERGROUND CONDUIT POWER CABLE TRENCH
N.T.S.



G CONDUIT PENETRATION
N.T.S.

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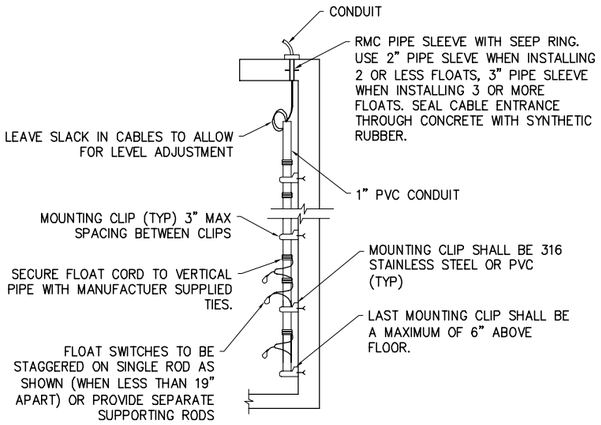
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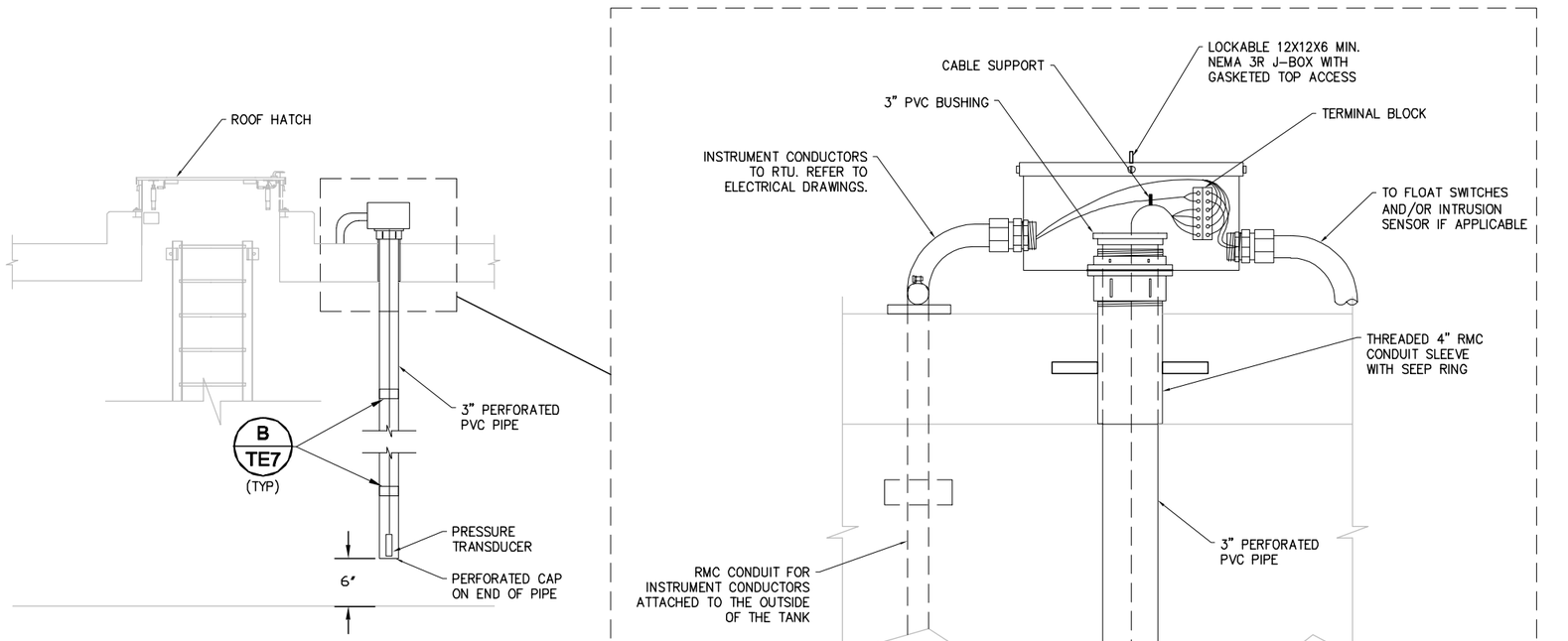
ELECTRICAL DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
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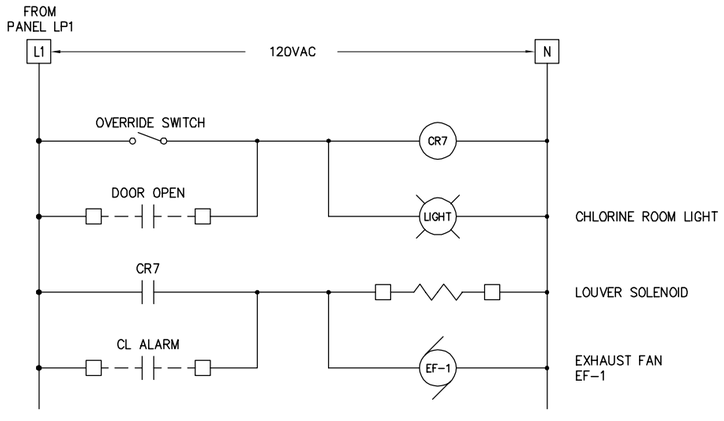
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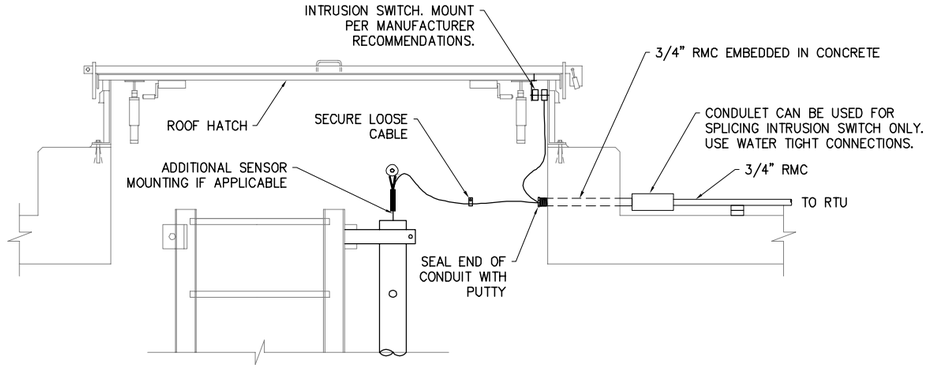
A DETAIL - FLOAT SWITCH MOUNTING
N.T.S.



B DETAIL - INSTRUMENT MOUNTING (TOP OF TANK)
N.T.S.



C CHLORINE ROOM LIGHT & EX. FAN CONTROL
N.T.S.



D DETAIL - HATCH INTRUSION SWITCH
N.T.S.

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ELECTRICAL DETAILS

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S05884	JRK	JEH	JRK	264 .	E702

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