

# **ROCK CREEK WRRF PRIMARY CLARIFIER No. 4 TREATMENT EXPANSION CLEAN WATER SERVICES**

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APRIL 2024

## **SECTION 17050**

**BASIC MEASUREMENT AND CONTROL INSTRUMENTATION  
MATERIALS AND METHODS**

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RESPONSE TO SUBMITTAL COMMENTS

LOOP AND CONTROL WIRING DRAWINGS



**OPTIMAL CONTROL SYSTEMS, INC.**

2324 Three Lakes Road SE

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Project No. 0523-23SSE

# ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION CLEAN WATER SERVICES

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APRIL 2024

## SECTION 17050 BASIC MEASUREMENT AND CONTROL INSTRUMENTATION MATERIALS AND METHODS

### RESPONSE TO SUBMITTAL COMMENTS

A&R...see Kurts comments

*Acknowledged.*

MCN-NR – There are peculiar shapes located just outside of the title block on pdf sheets 2 through 21. Make sure the final submittal does not include these irregularities.

*Amended.*

MCN-PR – Missing Loop Diagram for Clarifier Drive Limit Switch, 300ZS4603. Make sure that this is included in the final submittal.

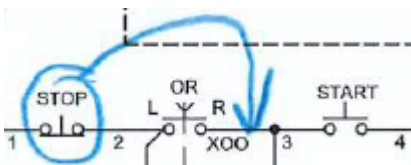
*Amended.*

MCN-PR – The Loop Diagrams for Primary Sludge Pump 5 VFD and Primary Sludge Pump 6 VFD (350P01105, 350P01106) are different. It is my understanding that they should be the same. Explain if the differences are intentional. If the differences are accidental, resubmit the corrected Loop Diagram.

*Amended.*

MCN-PR – The STOP pushbutton was moved from being located before the LOR switch as shown in the design drawings to being after the LOCAL cam switch of the LOR. Confirm with CWS that this modification is acceptable.

*Change was made in response to Kurt's initial comments: "Each Stop pushbutton needs to be located directly after the switch label XOO. Otherwise, between XOO symbol and the start lock in circuit that routes to CR1 contact and Start pushbutton" and is in accordance to Kurt's latest drawing markups, see example below.*



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APRIL 2024

## SECTION 17050 BASIC MEASUREMENT AND CONTROL INSTRUMENTATION MATERIALS AND METHODS

### RESPONSE TO SUBMITTAL COMMENTS CONT.

Best to get KR's review.

*Acknowledged.*

Sheet 18: label all LCS terminals (missing one NSHH terminal)

*Amended.*

See marked up drawings in file "17050-1.0 marked up drawing comments.

*Amended.*

Add a loop drawing index/ table of contents in table format to include sheet number, drawing number, description.

*Amended.*

Located ORT1 Checkout block as shown on marked up drawings.

*Amended.*

Sheet titles: Revise descriptions and add loop, wiring or control diagrams as shown.

*Amended.*

Each sheet numbered 1 of 20(?), 2 of 20(?)....

*Amended.*

Add terminal numbers

*Amended.*

Add conductor numbers.

*Amended.*



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APRIL 2024

## SECTION 17050 BASIC MEASUREMENT AND CONTROL INSTRUMENTATION MATERIALS AND METHODS

### RESPONSE TO SUBMITTAL COMMENTS CONT.

Some of the MCC references do not match.

*Amended. Drawings match the latest information we have received from the Contractor.*

Circuit numbers for 480VAC need to be verified and revised.

*Amended. Circuit numbers verified against contract documents.*

Do not omit "U" from FU11 (for example) to fit in terminal. Increase terminal size.

*Amended.*

Revise PLC circuits as shown for PLC 17, Rack 3, Slot 1.

*Amended.*

Fix the units and verify ranges shown in contract documents.

*Amended.*

Revise VFD drawings to match latest Eaton VFD drawings, such as location of the stop push button.

*Amended. Drawings match the latest information we have received from the Contractor.*

Add labels on conductors and CAT6 cables.

*Amended.*

Add wire labels and terminal numbers on 900LCP6201.

*Amended.*

Kurt added my comments to his.

*Acknowledged.*



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Project No. 0523-23SSE

## LOOP DRAWING INDEX

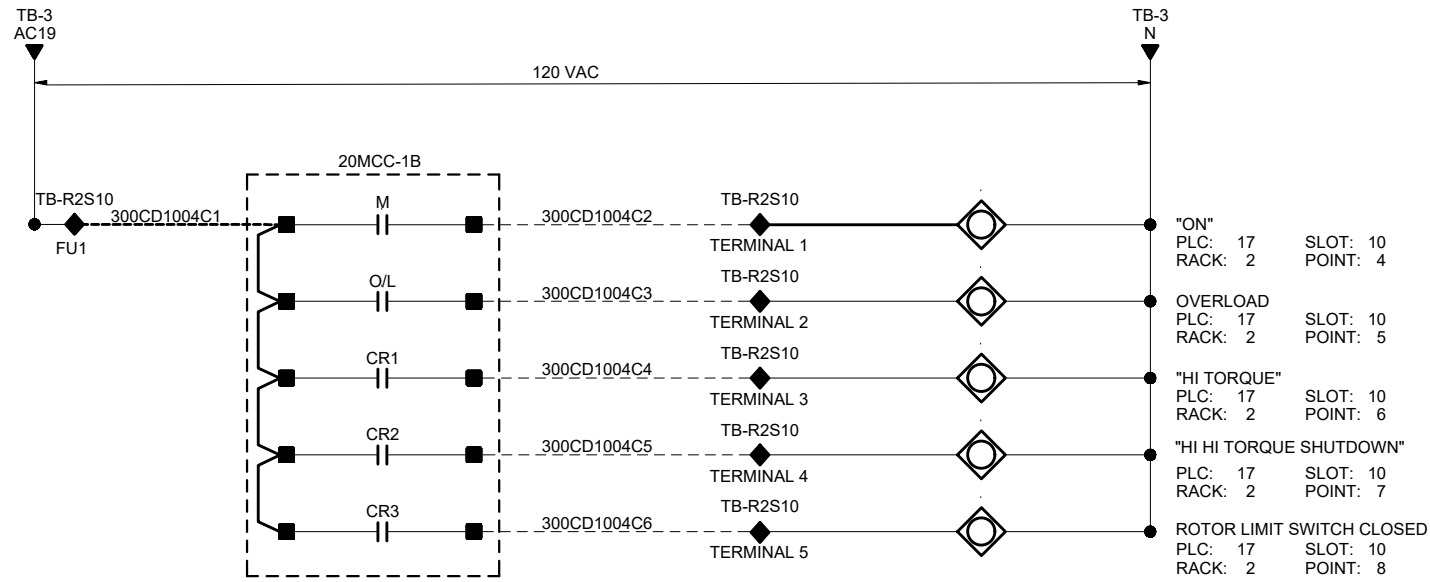
SHEET #	DRAWING NUMBER	DESCRIPTION
1	0523-23SSE-DWG INDEX	LOOP DRAWING INDEX
2	0523-23SSE-CD1004	PRIMARY CLARIFIER 4 DRIVE
3	0523-23SSE-ZS4603	CLARIFIER DRIVE LIMIT SWITCH
4	0523-23SSE-PIT1105	PRIMARY SLUDGE PUMP 5
5	0523-23SSE-PIT1106	PRIMARY SLUDGE PUMP 6
6	0523-23SSE-PIT1203	PRIMARY SCUM PUMP 3
7	0523-23SSE-LT1204	PRIMARY SCUM PUMP PIT LEVEL
8	0523-23SSE-FIT1105	PRIMARY SLUDGE PUMP 5
9	0523-23SSE-FIT1106	PRIMARY SLUDGE PUMP 6
10	0523-23SSE-FV4601	PRIMARY CLARIFIER 4, FLUSHING WATER VALVE 1
11	0523-23SSE-FV4602	PRIMARY CLARIFIER 4, FLUSHING WATER VALVE 2
12	0523-23SSE-FV4603	PRIMARY CLARIFIER 4, FLUSHING WATER VALVE 3
13	0523-23SSE-FV4604	PRIMARY CLARIFIER 4, FLUSHING WATER VALVE 4
14	0523-23SSE-SL5011	PRIMARY CLARIFIER 4 MAU LOW DIFFERENTIAL PRESSURE
15	0523-23SSE-SL5001	PRIMARY GALLERY EXHAUST FAN LOW DIFFERENTIAL PRESSURE
16	0523-23SSE-SL5002	PRIMARY UTILIDOR EXHAUST FAN LOW DIFFERENTIAL PRESSURE
17	0523-23SSE-ZS1203A	PRIMARY SCUM PUMP 3 TOP COUNTER
18	0523-23SSE-ZS1203B	PRIMARY SCUM PUMP 3 BOTTOM COUNTER
19	0523-23SSE-P1105	PRIMARY SLUDGE PUMP 5 VFD
20	0523-23SSE-P1106	PRIMARY SLUDGE PUMP 6 VFD
21	0523-23SSE-SHH4603	PRIMARY GALLERY SUMP PUMP FAULT
22	0523-23SSE-LCP6201	IRRIGATION BOOSTER PUMP

DRN: KCED	ORIG DATE: 2023.12.21	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.						Clean Water Services 2550 SW Hillsboro Hwy. Hillsboro, Oregon 97123-9379	PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION	SHEET TITLE: INSTRUMENTATION	SHEET: 1 OF: 22	INDEX
DSN: HAD	DWG #: RC300ZS4603		PLOT DATE: 4/19/24									
CHK: HAD	CAD FILE #: 0523-23SSE-INDEX		PLC #: N/A									
APPD:	SCALE: AS NOTED		CWS PROJ #: 7012									
									LOOP DRAWING INDEX			

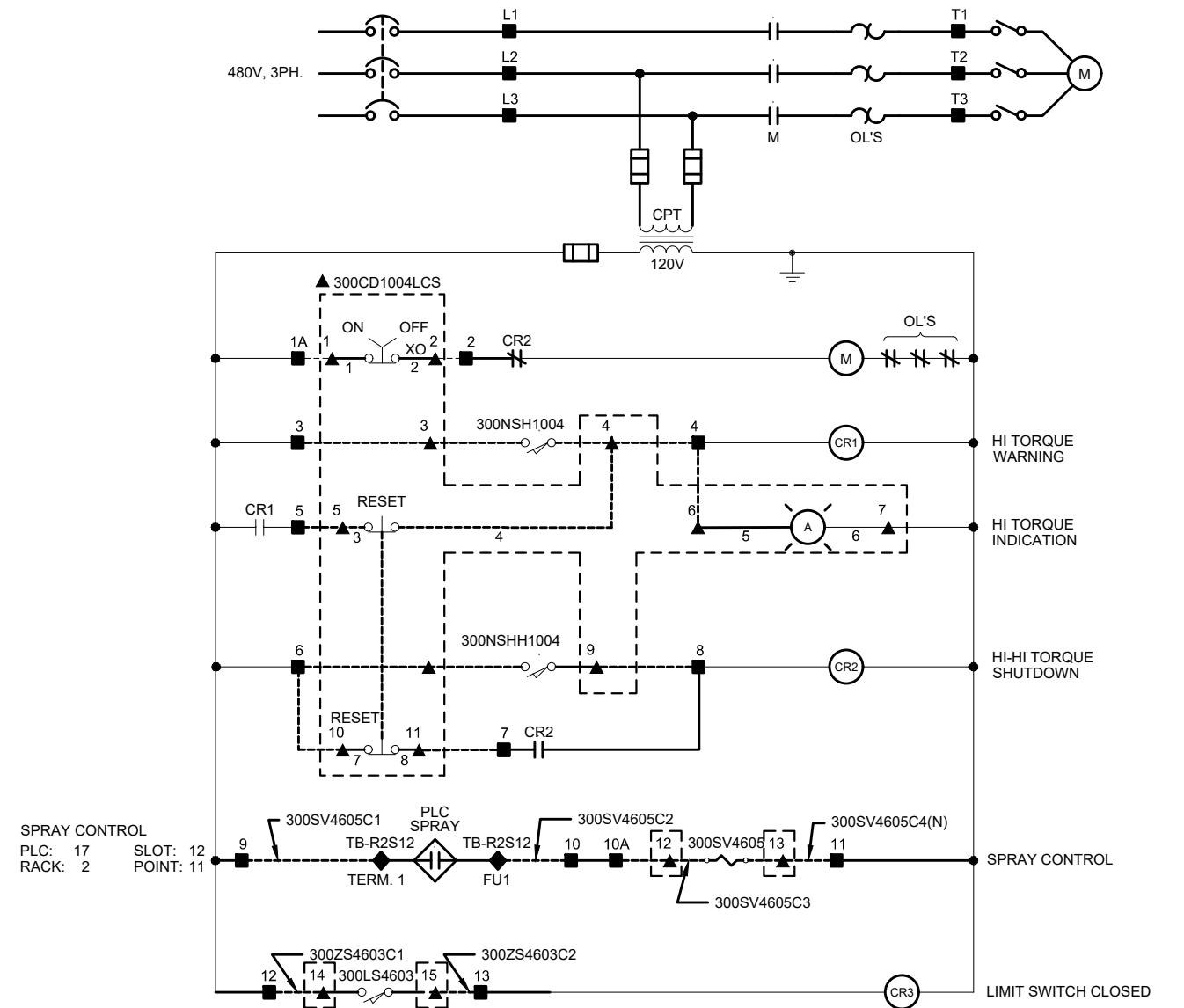
ENGR STAMP:

ROCK CREEK WRRF

PLC CABINET: 200LCP0401  
HEADWORKS BUILDING



MCC: 20MCC-1B



NOTE:  
CONDUCTOR NUMBERS PROVIDED BY INSTALLER

LEGEND

- AT MCC/VFD
- AT DEVICE
- ◇ AT PLC(350LCP9601)
- ◆ KNIFE DISCONNECT TERMINAL BLOCK AT LCP 350LCP9601
- ▲ AT LOCAL CONTROL STATION

ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
ELECTRICAL: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 300CD1004
CHK: HAD	CAD FILE #: 0523-23SSE-CD1004
APPD:	SCALE: AS NOTED

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WHEN DRAWING IS FULL  
SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.18	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME:  
ROCK CREEK WRRF  
PRIMARY CLARIFIER NO. 4  
TREATMENT EXPANSION

SHEET TITLE:  
INSTRUMENTATION  
PRIMARY CLARIFIER 4  
DRIVE  
CONTROL DIAGRAM

SHEET: 2 OF 22  
PLOT DATE: 4/19/24  
PLC #: N/A  
CWS PROJ #: 7012

DWG #:  
RC300CD1004

ENGR STAMP:

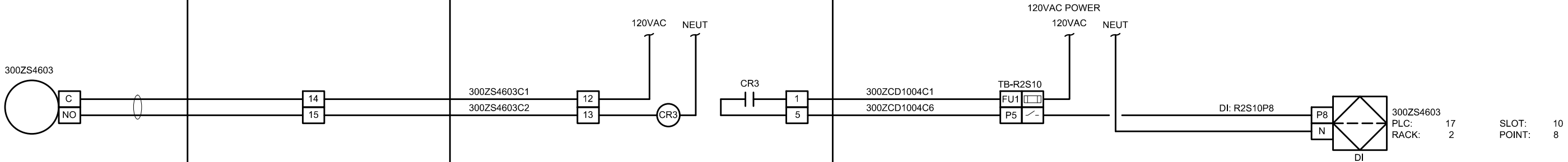
ROCK CREEK WRRF

FIELD

300CD1004LCS

20MCC1B

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC300ZS4603
CHK: HAD	CAD FILE #: 0523-23SSE-ZS4603
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
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B	2024.3.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION CLARIFIER DRIVE LIMIT SWITCH LOOP DRAWING

SHEET: 3 OF: 22  
PLOT DATE: 4/19/24  
PLC #: N/A  
CWS PROJ #: 7012

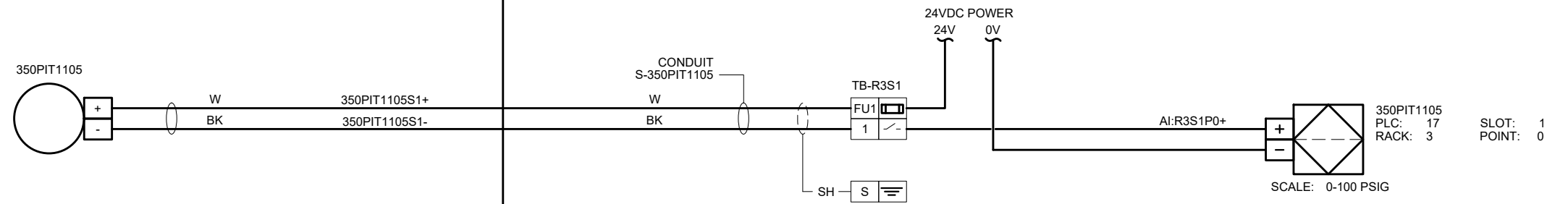
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ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
 ELECTRICAL: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 350PIT1105
CHK: HAD	CAD FILE #: 0523-23SSE-PIT1105
APPD:	SCALE: NTS

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



2550 SW Hillsboro Hwy. Hillsboro, Oregon 97123-9379

PROJ NAME: ROCK CREEK WRRF  
 PRIMARY CLARIFIER NO. 4  
 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION  
 PRIMARY SLUDGE PUMP 5  
 DISCHARGE PRESSURE  
 LOOP DRAWING

SHEET: 4 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #:  
 CWS PROJ #: 7012

DWG #: RC350PIT1105

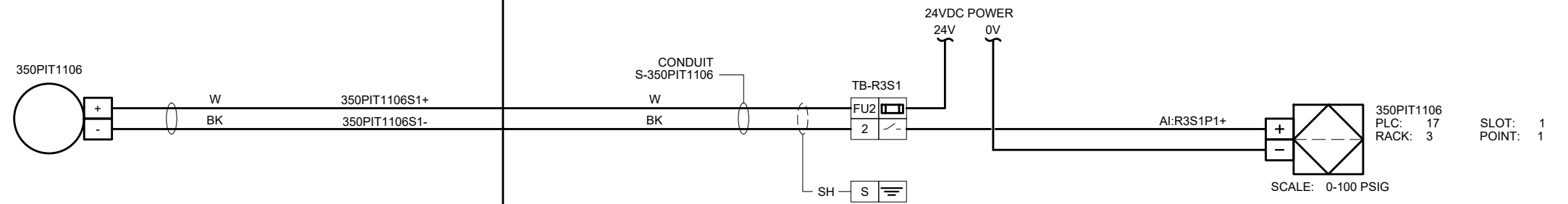
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ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 350PIT1106
CHK: HAD	CAD FILE #: 0523-23SSE-PIT1106
APPD:	SCALE: NTS

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



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PROJ NAME: ROCK CREEK WRRF  
PRIMARY CLARIFIER NO. 4  
TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION  
PRIMARY SLUDGE PUMP 6  
DISCHARGE PRESSURE  
LOOP DRAWING

SHEET: 5 OF: 22  
PLOT DATE: 4/19/24  
PLC #:  
CWS PROJ #: 7012

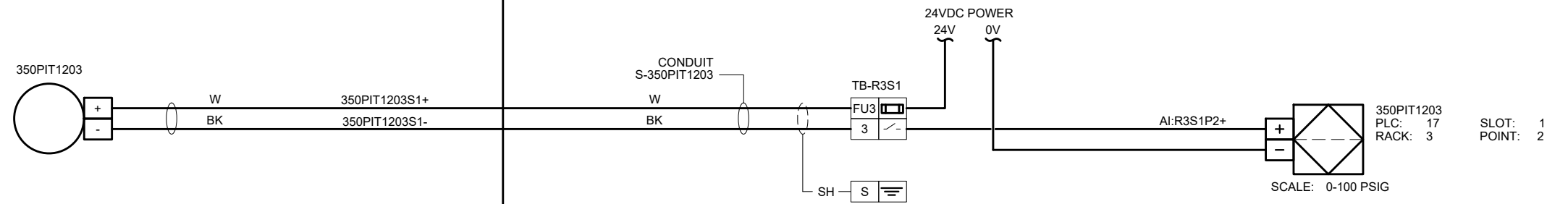
DWG #:  
RC350PIT1106

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 350PIT1203
CHK: HAD	CAD FILE #: 0523-23SSE-PIT1203
APPD:	SCALE: NTS

THIS BAR IS ONE INCH  
WHEN DRAWING IS FULL  
SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



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PROJ NAME:  
ROCK CREEK WRRF  
PRIMARY CLARIFIER NO. 4  
TREATMENT EXPANSION

SHEET TITLE:  
INSTRUMENTATION  
PRIMARY SCUM PUMP 3  
DISCHARGE PRESSURE  
LOOP DRAWING

SHEET: 6 OF: 22  
PLOT DATE: 4/19/24  
PLC #:  
CWS PROJ #: 7012

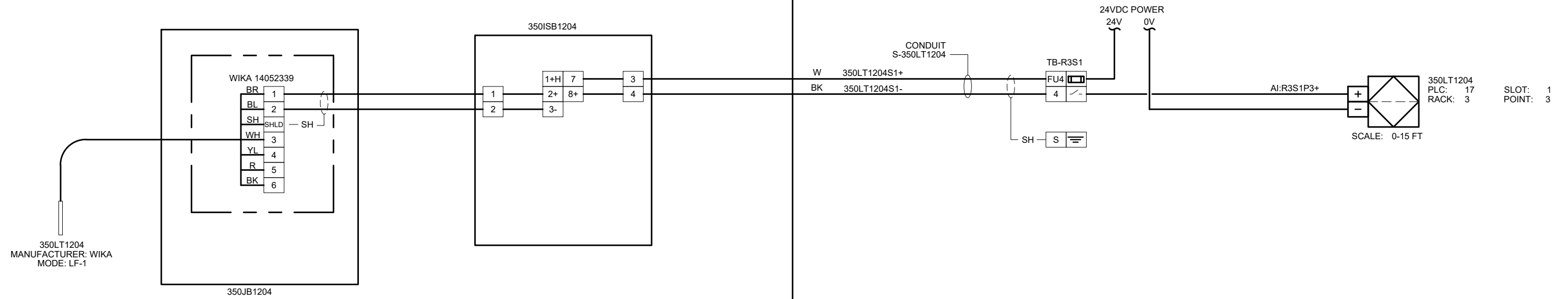
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RC350PIT1203

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

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ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350LT1204
CHK: HAD	CAD FILE #: 0523-23SSE-LT1204
APPD:	SCALE: NTS

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WHEN DRAWING IS FULL  
SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



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PROJ NAME:  
ROCK CREEK WRRF  
PRIMARY CLARIFIER NO. 4  
TREATMENT EXPANSION

SHEET TITLE:  
INSTRUMENTATION  
PRIMARY SCUM PIT LEVEL  
LOOP DRAWING

SHEET: 7 OF: 20  
PLOT DATE: 4/19/24  
PLC #:  
CWS PROJ #: 7012

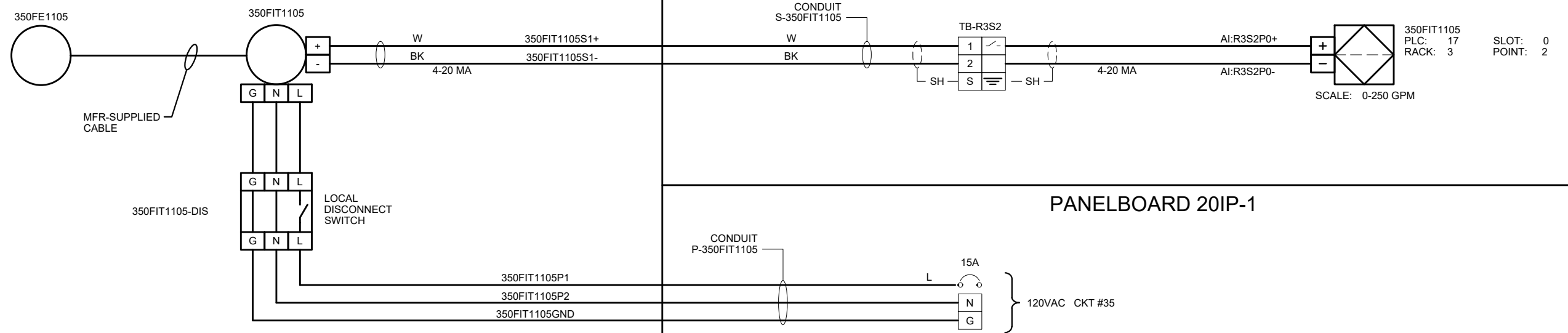
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ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
 ELECTRICAL: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRN:	KCED	ORIG DATE:	2023.12.21
DSN:	HAD	DWG #:	350FIT1105
CHK:	HAD	CAD FILE #:	0523-23SSE-FIT1105
APPD:		SCALE:	NTS

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
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B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



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PROJ NAME:  
 ROCK CREEK WRRF  
 PRIMARY CLARIFIER NO. 4  
 TREATMENT EXPANSION

SHEET TITLE:  
 INSTRUMENTATION  
 PRIMARY SLUDGE PUMP 5  
 DISCHARGE FLOW  
 LOOP DRAWING

SHEET: 8 OF 22  
 PLOT DATE: 4/19/24  
 PLC #:  
 CWS PROJ #: 7012

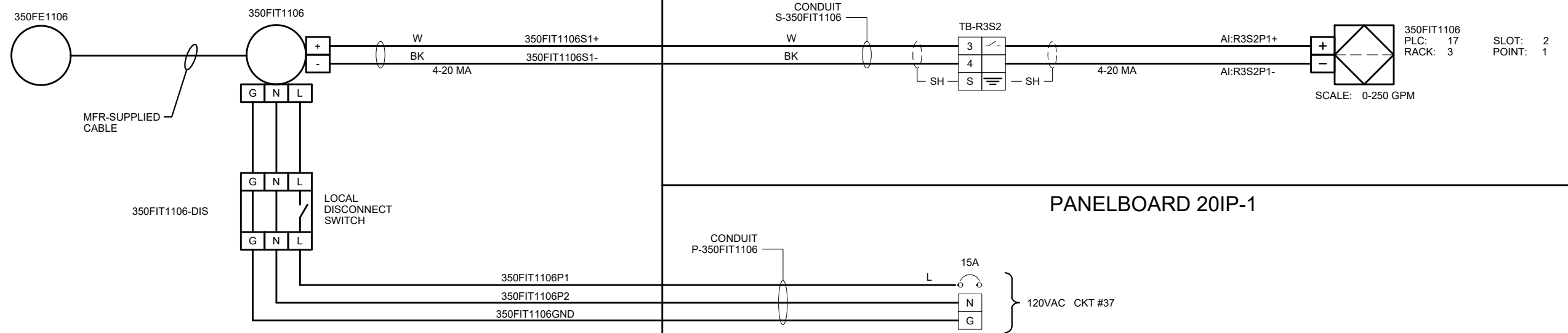
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 RC350FIT1105

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



PANELBOARD 20IP-1

ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
 ELECTRICAL: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 350FIT1106
CHK: HAD	CAD FILE #: 0523-23SSE-FIT1106
APPD:	SCALE: NTS

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.02.01	KCED	HAD	SIZING CORRECTION
A	2023.12.28	KCED	HAD	ORIGINAL DRAFT



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PROJ NAME: ROCK CREEK WRRF  
 PRIMARY CLARIFIER NO. 4  
 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION  
 PRIMARY SLUDGE PUMP 6  
 DISCHARGE FLOW  
 LOOP DRAWING

SHEET: 9 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #:  
 CWS PROJ #: 7012

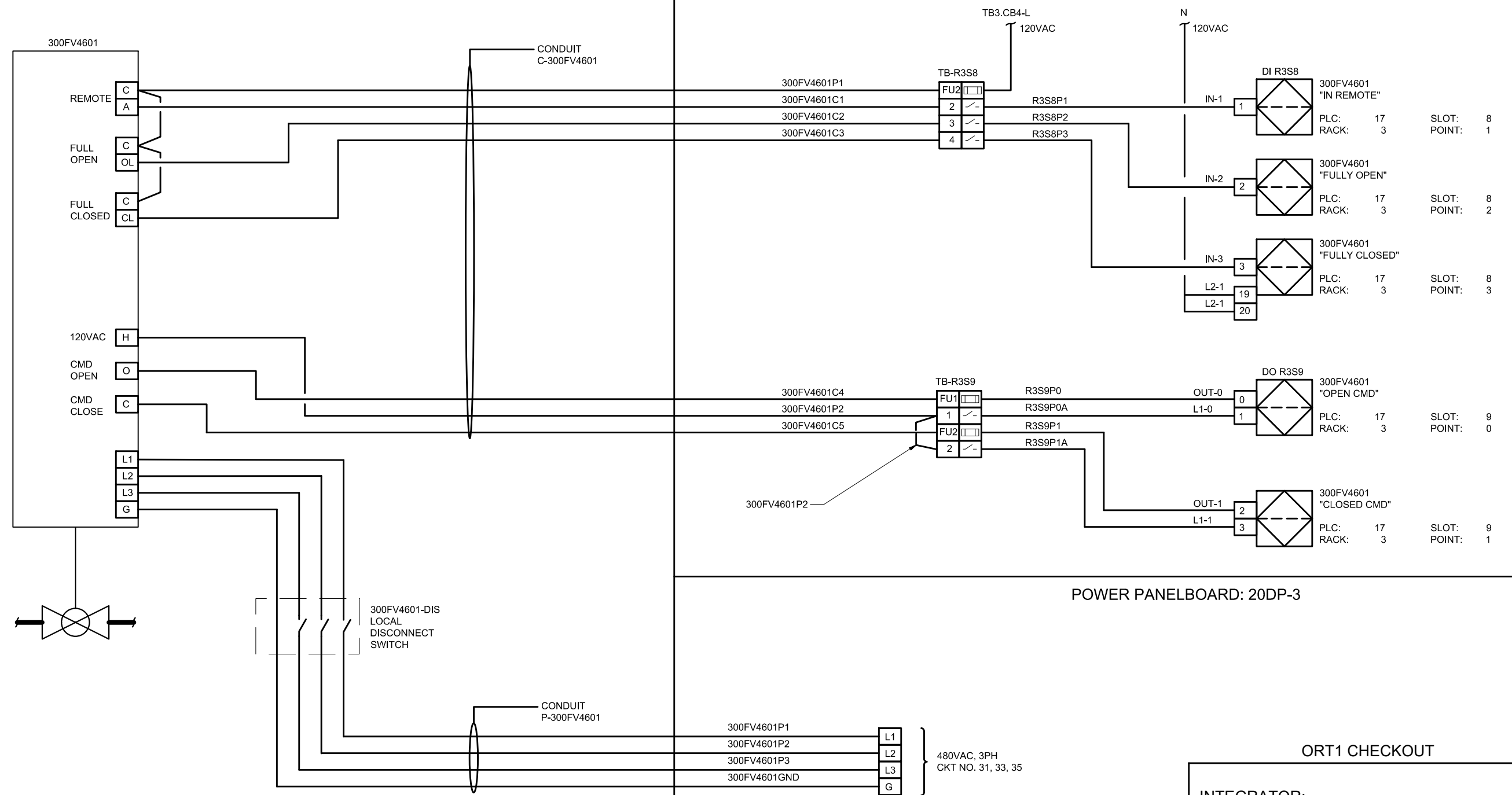
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ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC300FV4602
CHK: HAD	CAD FILE #: 0523-23SSE-FV4601
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	TERMINALS
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY CLARIFIER 4 FLUSHING WATER VALVE 1 LOOP DRAWING

SHEET: 10 OF: 22  
PLOT DATE: 4/19/24  
PLC #: N/A  
CWS PROJ #: 7012

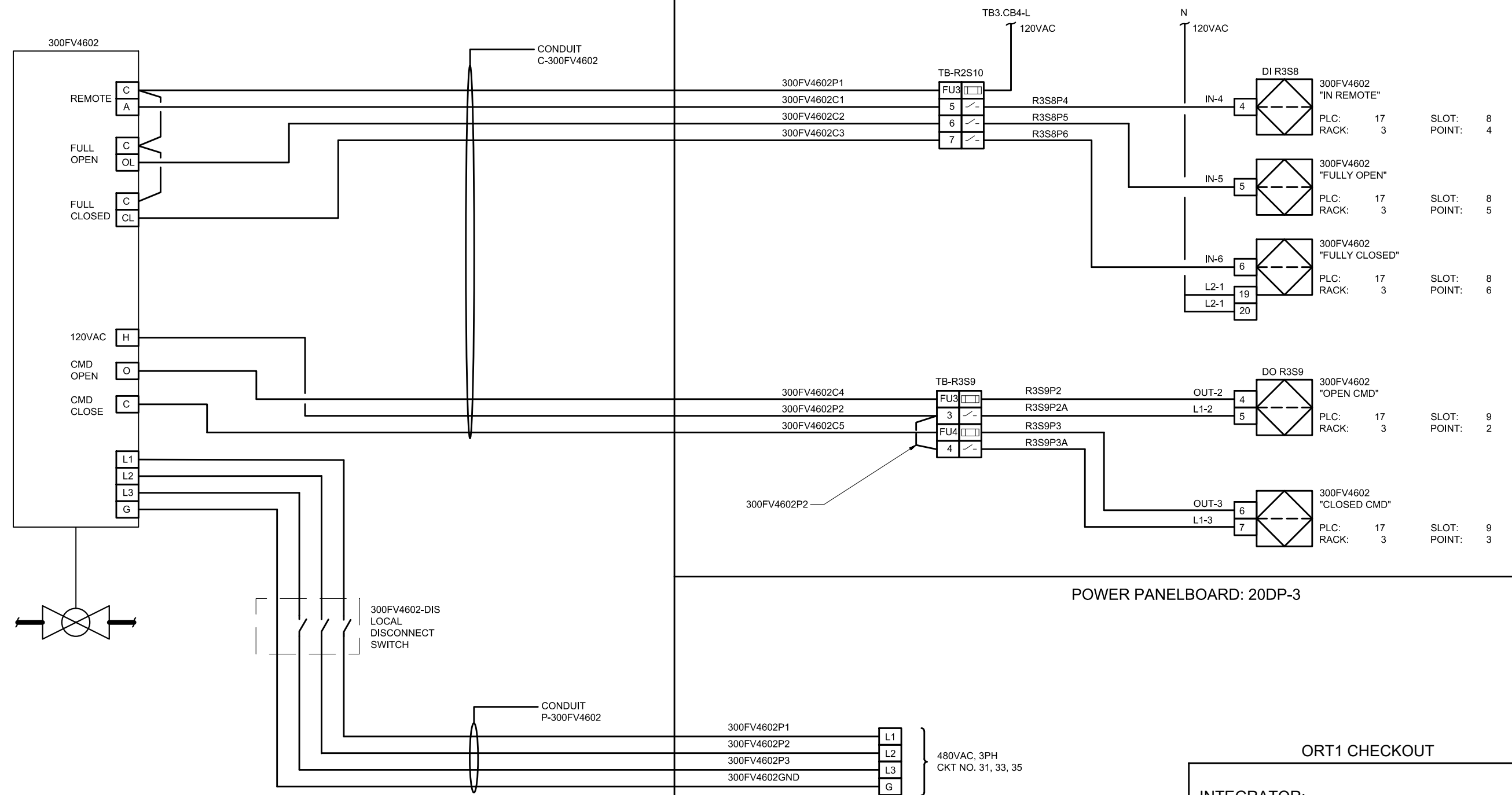
DWG #: RC300FV4601

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21.
DSN: HAD	DWG #: RC300FV4602
CHK: HAD	CAD FILE #: 0523-23SSE-FV4602
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	TERMINALS
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY CLARIFIER 4 FLUSHING WATER VALVE 2 LOOP DRAWING

SHEET: 11 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

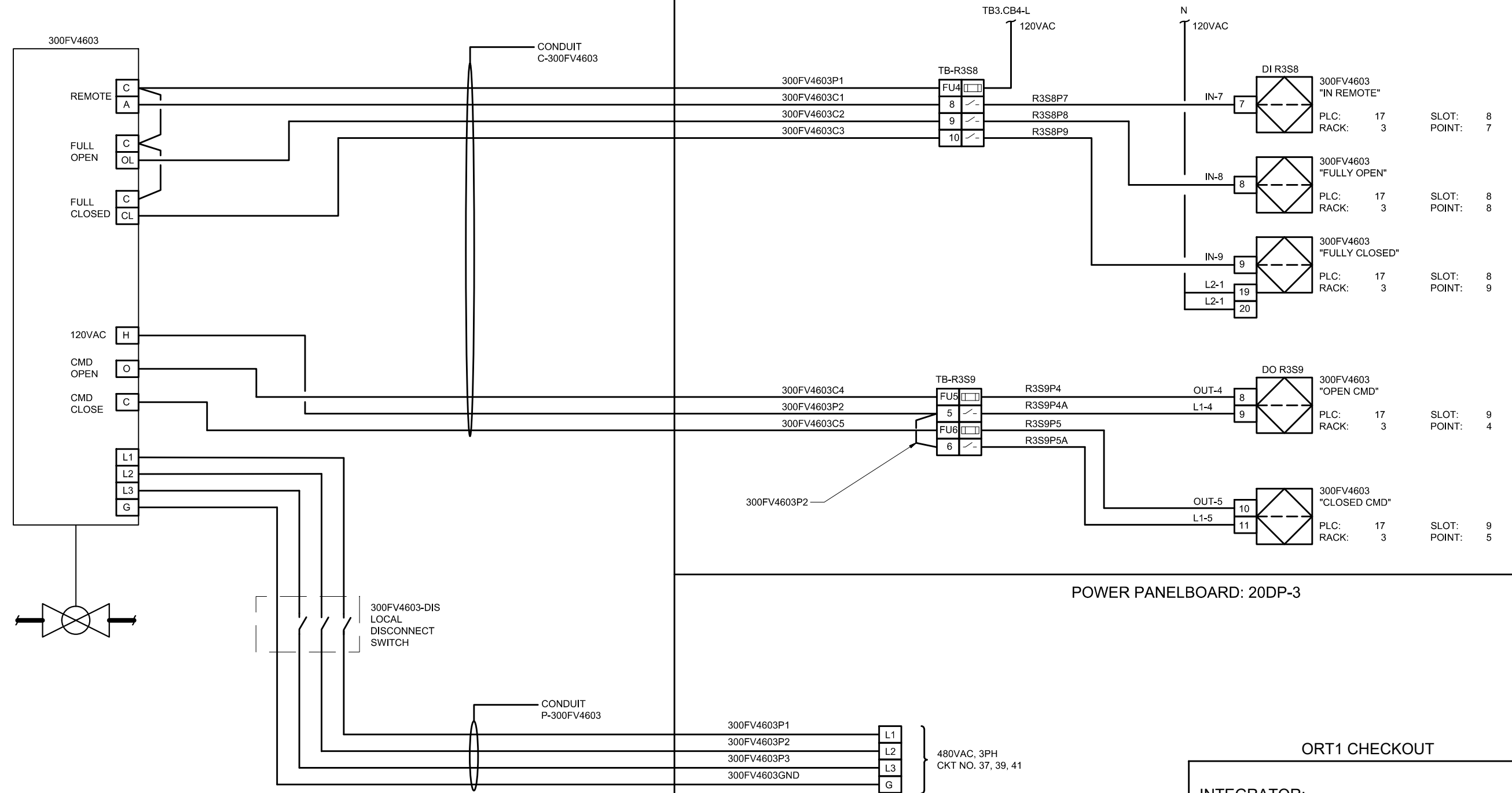
DWG #: RC300FV4602

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC300FV4603
CHK: HAD	CAD FILE #: 0523-23SSE-FV4603
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	TERMINALS
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY CLARIFIER 4 FLUSHING WATER VALVE 3 LOOP DRAWING

SHEET: 12 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

DWG #: RC300FV4603

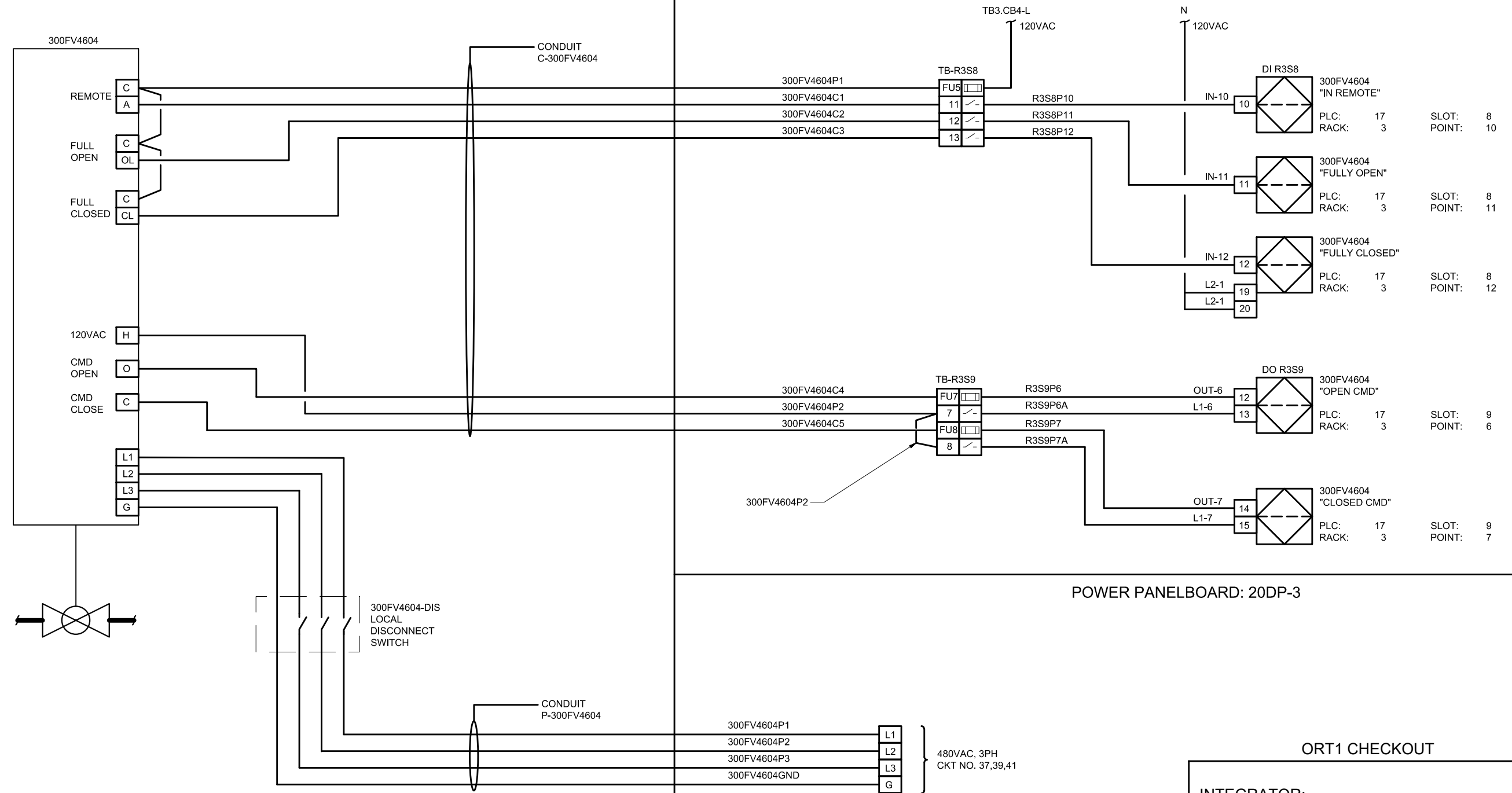
ENGR STAMP:



ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC300FV4604
CHK: HAD	CAD FILE #: 0523-23SSE-FV4604
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	TERMINALS
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY CLARIFIER 4 FLUSHING WATER VALVE 4 LOOP DRAWING

SHEET: 13 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

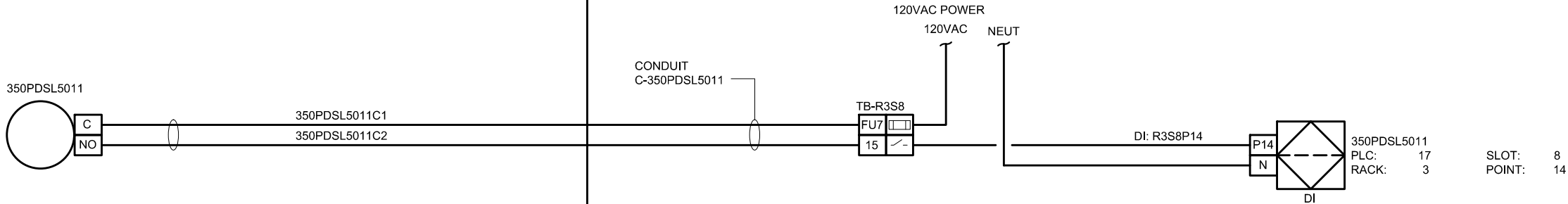
DWG #: RC300FV4604

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350PDSL5011
CHK: HAD	CAD FILE #: 0523-23SSE-SL5011
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY CLARIFIER 4 MAU LOW DIFF. PRESSURE LOOP DRAWING

SHEET: 14 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

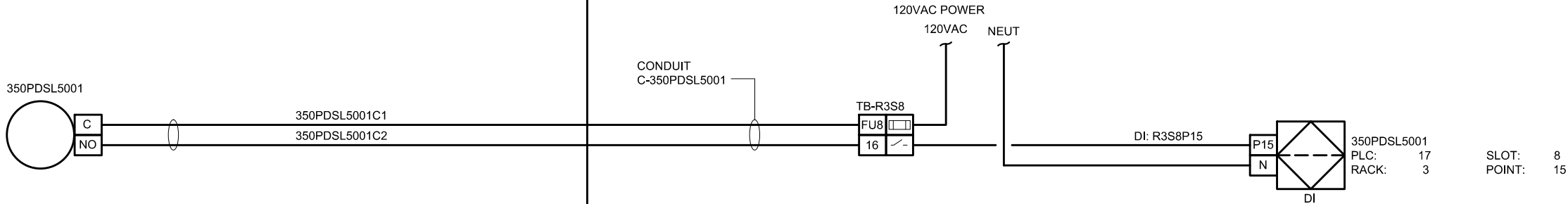
DWG #: RC350PDSL5011

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350PDSL5001
CHK: HAD	CAD FILE #: 0523-23SSE-SL5001
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY GALLERY EXHAUST FAN LOW DIFFERENTIAL PRESSURE LOOP DRAWING

SHEET: 15 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

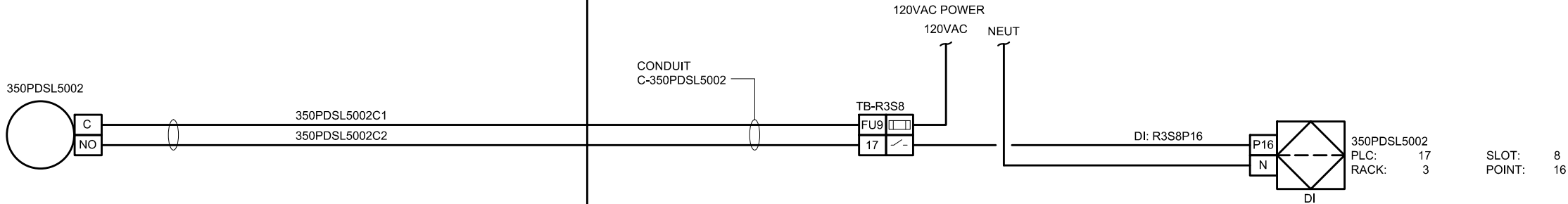
DWG #: RC350PDSL5001

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350PDSL5002
CHK: HAD	CAD FILE #: 0523-23SSE-SL5002
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.18	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY UTILIDOR EXHAUST FAN LOW DIFFERENTIAL PRESSURE LOOP DRAWING

SHEET: 16 OF: 22
PLOT DATE: 4/19/24
PLC #: N/A
CWS PROJ #: 7012

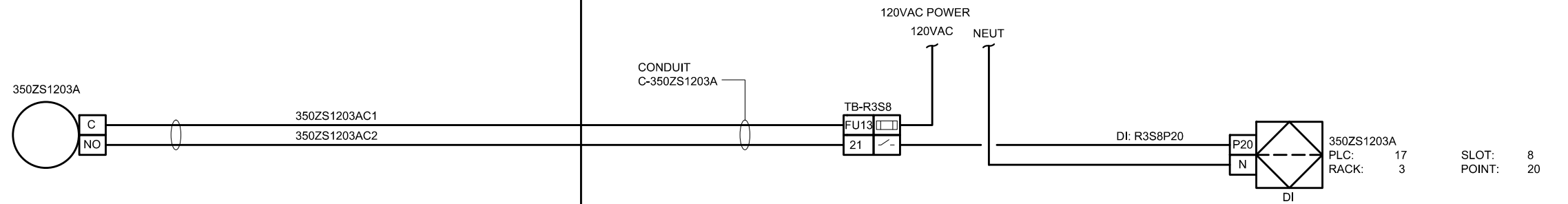
DWG #: RC350PDSL5002

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 350ZS1203A
CHK: HAD	CAD FILE #: 0523-23SSE-ZS1203A
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY SCUM PUMP 3 TOP COUNTER LOOP DRAWING

SHEET: 17 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

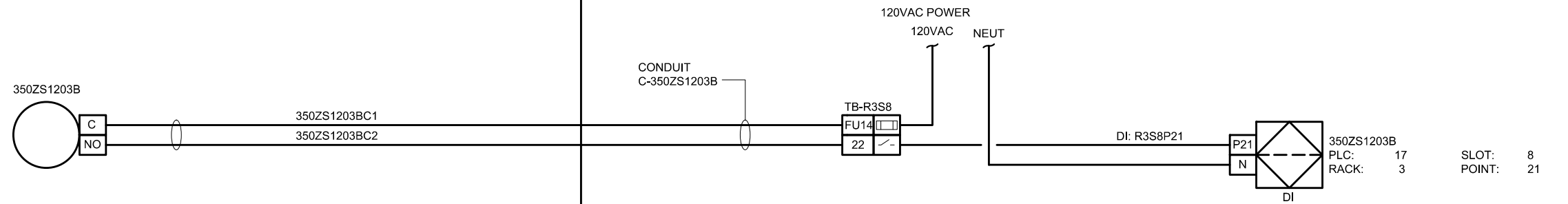
DWG #: RC350ZS1203A

ENGR STAMP:

ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350ZS1203B
CHK: HAD	CAD FILE #: 0523-23SSE-ZS1203B
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF  
PRIMARY CLARIFIER NO. 4  
TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION  
PRIMARY SCUM PUMP 3  
BOTTOM COUNTER  
LOOP DRAWING

SHEET: 18 OF: 22  
PLOT DATE: 4/19/24  
PLC #: N/A  
CWS PROJ #: 7012

DWG #: RC350ZS1203B

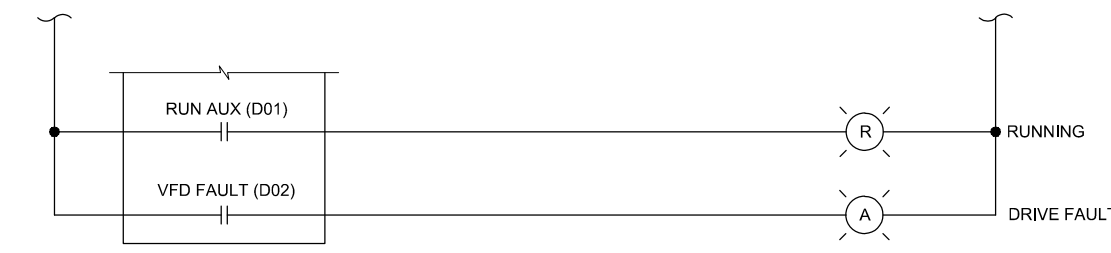
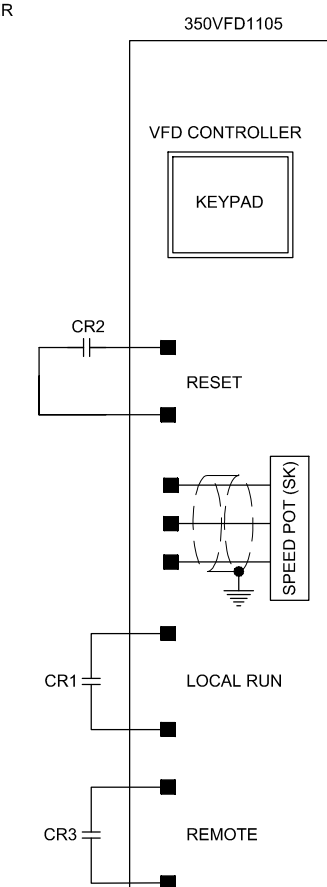
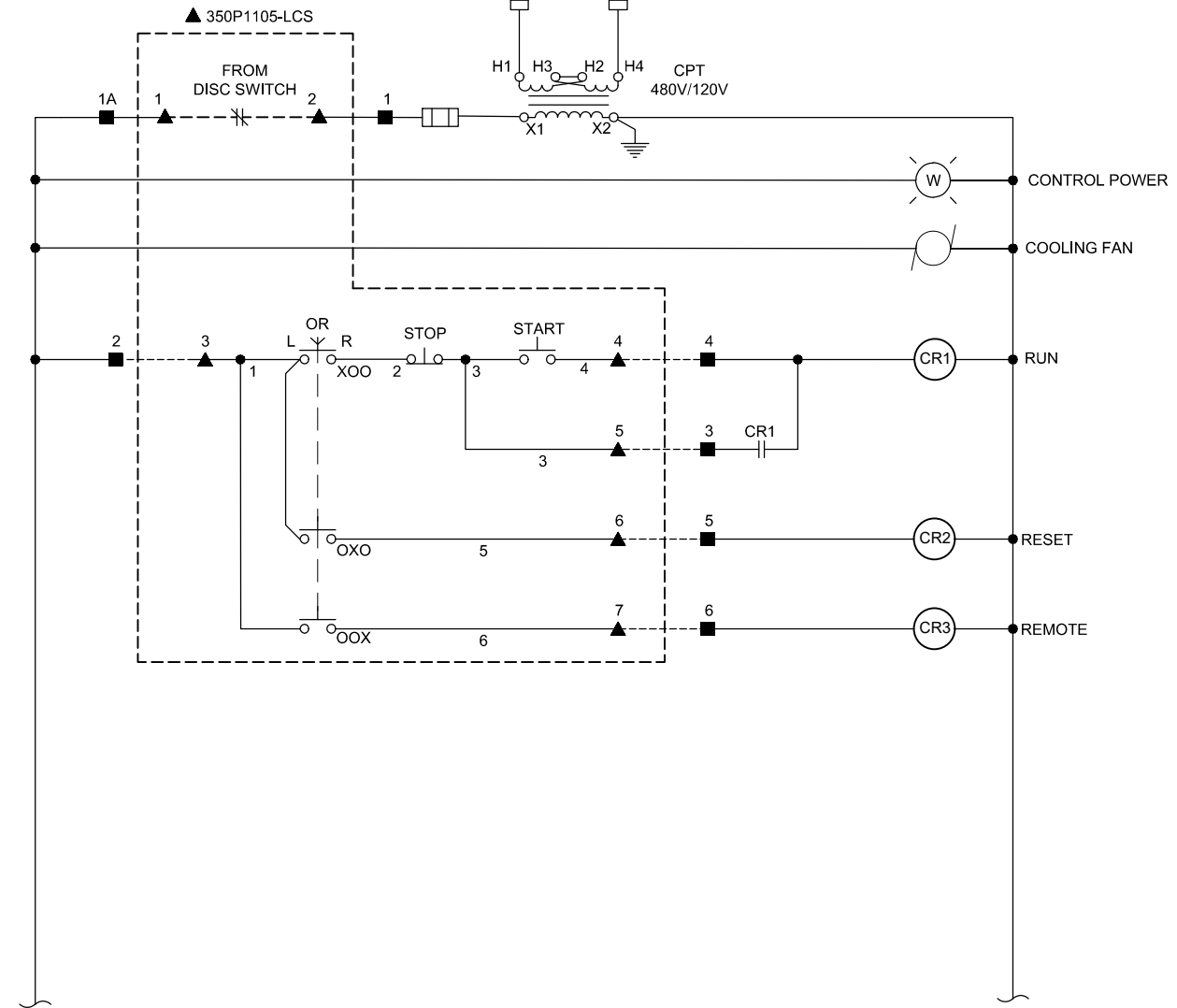
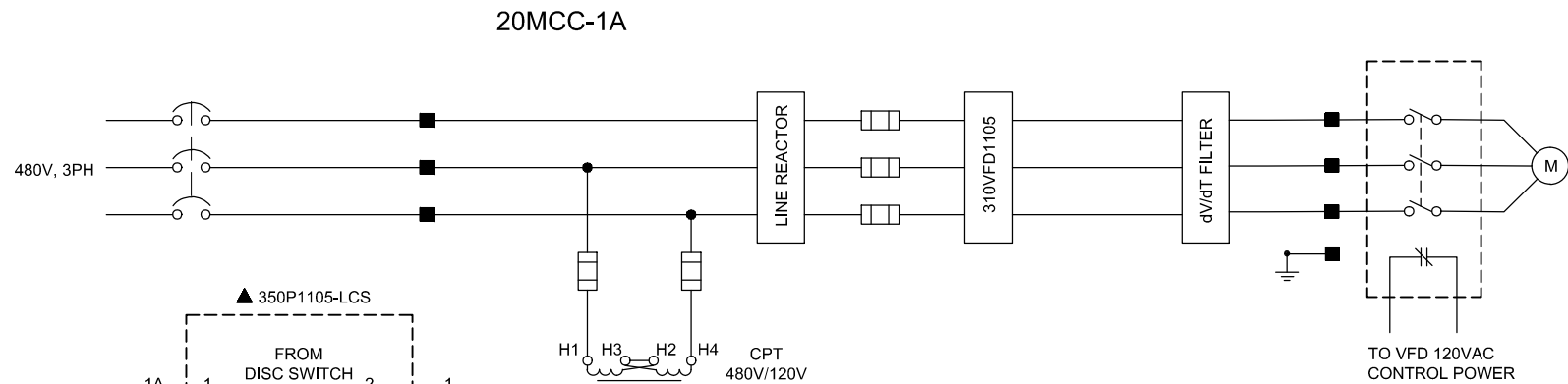
ENGR STAMP:

**GENERAL NOTES**

1. ALL INDICATOR LIGHTS ARE PUSH TO TEST WITH TEST CONTACTS WIRED TO 120VAC HOT.

**LEGEND**

- AT MCC
- AT DEVICE
- ◇ AT PLC
- ◆ KNIFE DISCONNECT TERMINAL BLOCK
- ▲ AT LOCAL CONTROL STATION



NOTE: CONDUCTOR NUMBERS ARE TO BE PROVIDED BY INSTALLER

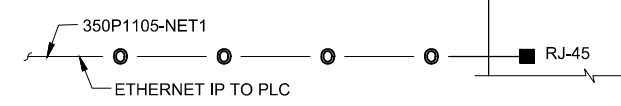
**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_



DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350P01105
CHK: HAD	CAD FILE #: 0523-23SSE-P1105
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.18	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY SLUDGE PUMP 5 VFD CONTROL DIAGRAM

SHEET: 19 OF 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

DWG #: RC350P1105

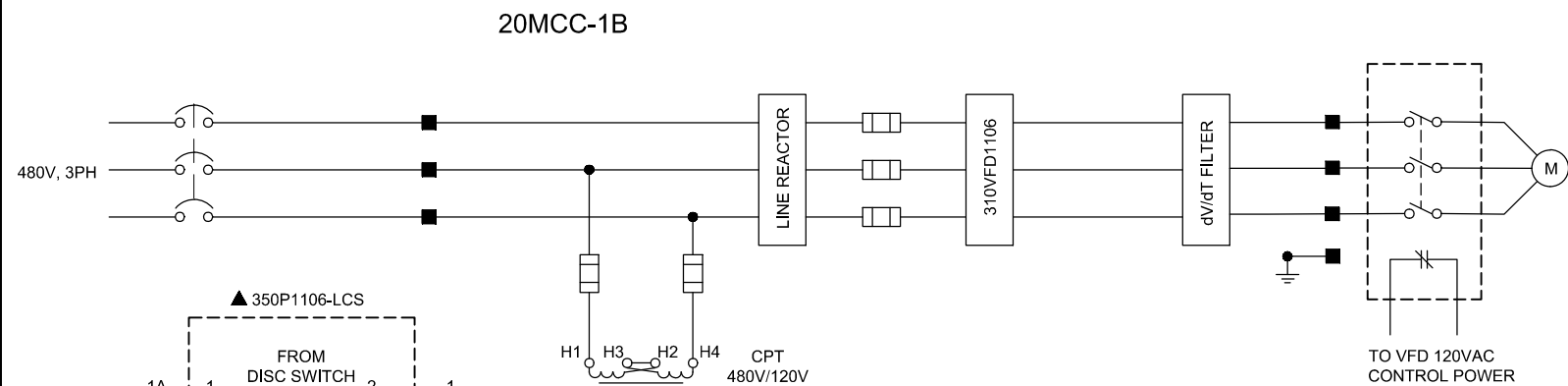
ENGR STAMP:

**GENERAL NOTES**

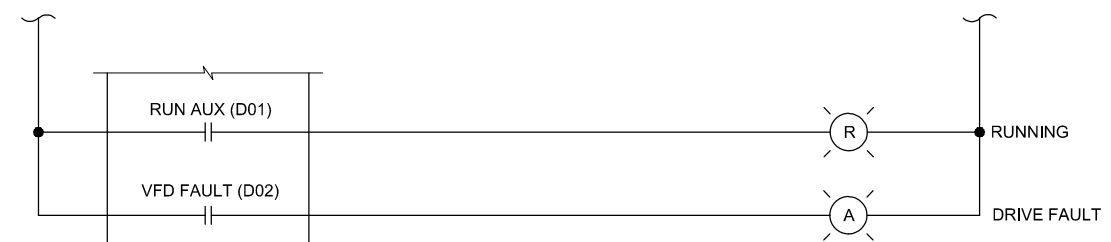
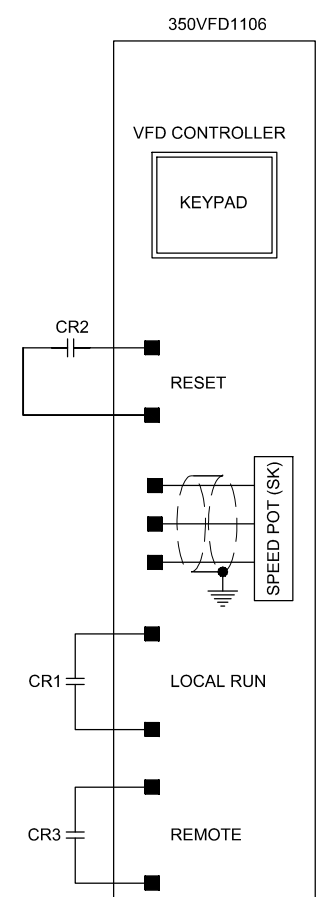
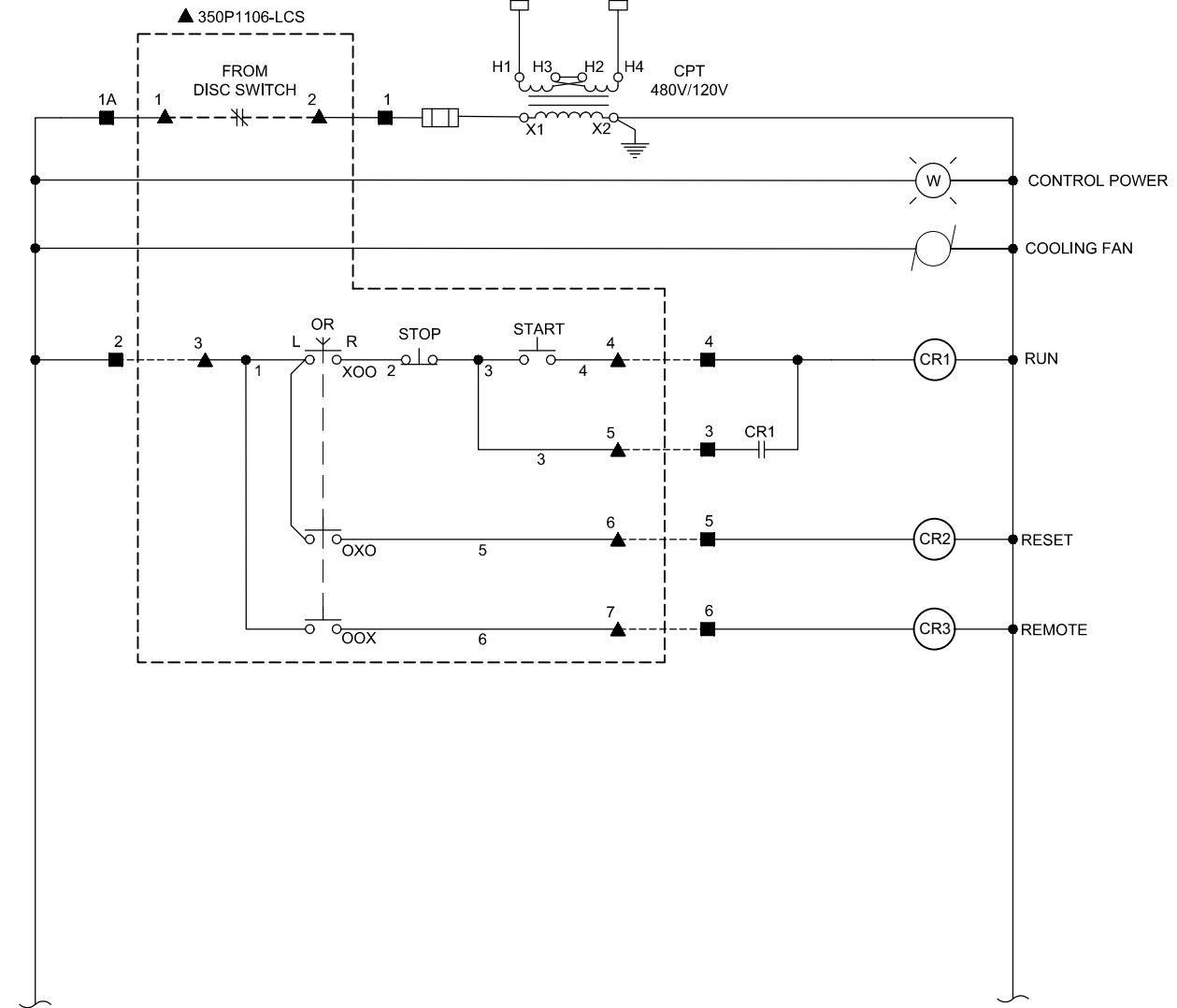
1. ALL INDICATOR LIGHTS ARE PUSH TO TEST WITH TEST CONTACTS WIRED TO 120VAC HOT.

**LEGEND**

- AT MCC
- AT DEVICE
- ◇ AT PLC
- ◆ KNIFE DISCONNECT TERMINAL BLOCK
- ▲ AT LOCAL CONTROL STATION



TO VFD 120VAC CONTROL POWER



NOTE: CONDUCTOR NUMBERS ARE TO BE PROVIDED BY INSTALLER

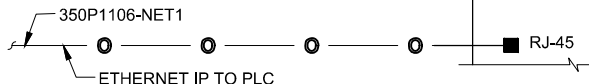
**ORT1 CHECKOUT**

INTEGRATOR: \_\_\_\_\_

ELECTRICAL: \_\_\_\_\_

OWNER: \_\_\_\_\_

DATE: \_\_\_\_\_



DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350P01106
CHK: HAD	CAD FILE #: 0523-23SSE-P1106
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.18	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY SLUDGE PUMP 6 VFD CONTROL DIAGRAM

SHEET: 20 OF 22  
PLOT DATE: 4/19/24  
PLC #: N/A  
CWS PROJ #: 7012

DWG #: RC350P1106

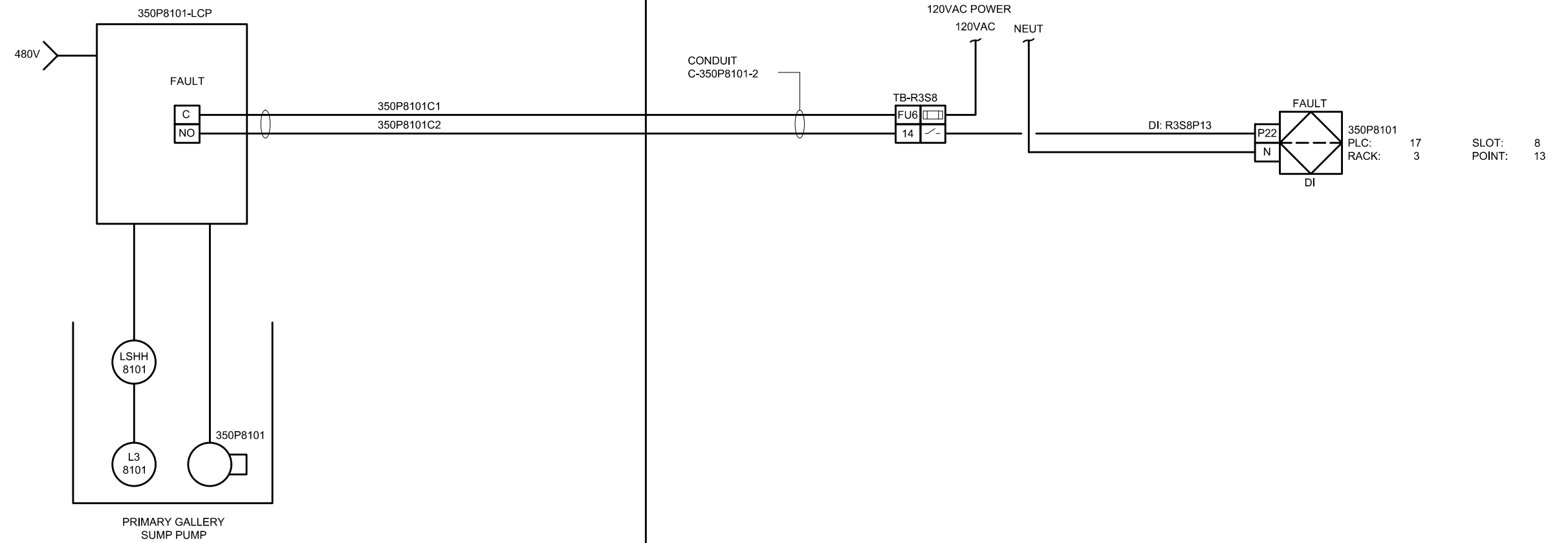
ENGR STAMP:



ROCK CREEK WRRF

FIELD

PLC PANEL 350LCP9601, PLC-17



ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
 ELECTRICAL: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: RC350LSHH4603
CHK: HAD	CAD FILE #: 0523-23SSE-SHH4603
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.18	KCED	HAD	LABELING
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF PRIMARY CLARIFIER NO. 4 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION PRIMARY GALLERY SUMP PUMP FAULT LOOP DRAWING

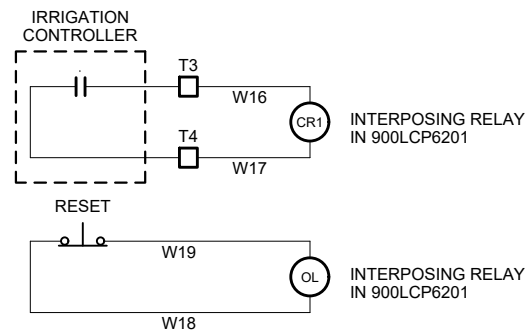
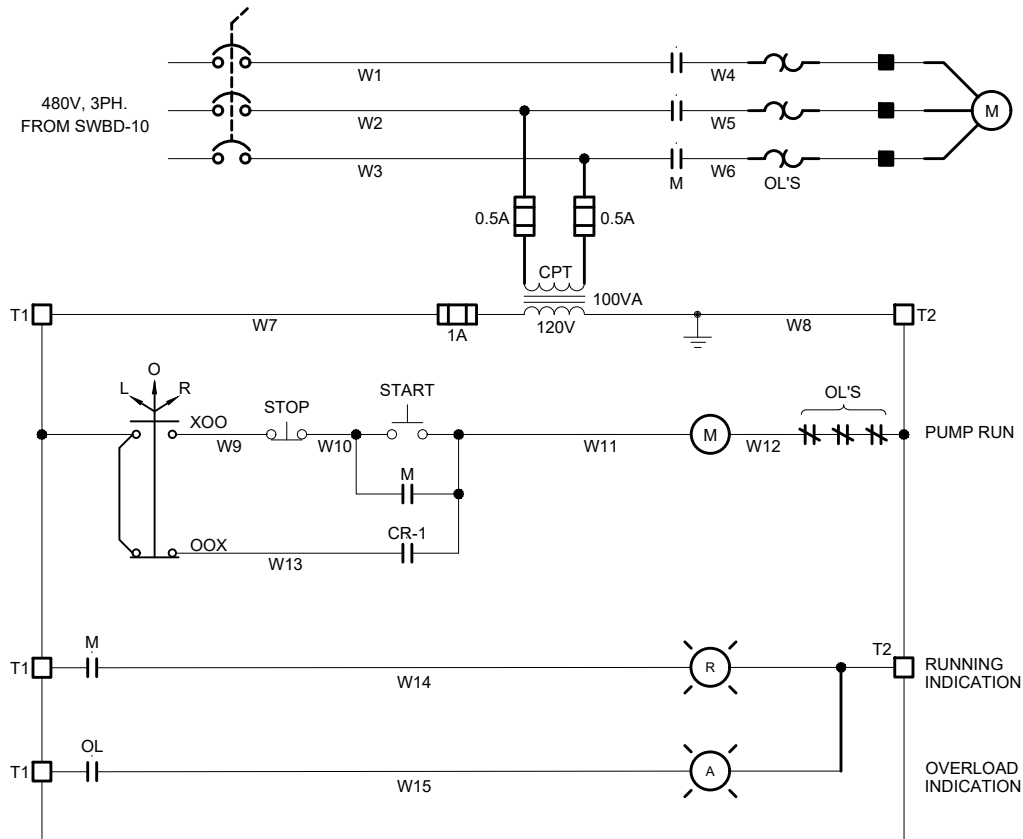
SHEET: 21 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

DWG #: RC350LSHH4603

ENGR STAMP:

ROCK CREEK WRRF

900LCP6201



LEGEND

- AT LCP (900LCP6201)
- AT DEVICE
- ◇ AT PLC(350LCP9601)
- ◆ KNIFE DISCONNECT TERMINAL BLOCK AT LCP 350LCP9601
- ▲ AT LOCAL CONTROL STATION

ORT1 CHECKOUT

INTEGRATOR: \_\_\_\_\_  
 ELECTRICAL: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRN: KCED	ORIG DATE: 2023.12.21
DSN: HAD	DWG #: 900LCP6201
CHK: HAD	CAD FILE #: 0523-23SSE-LCP6201
APPD:	SCALE: AS NOTED

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
C	2024.04.17	KCED	HAD	WIRE NUMBERS
B	2024.03.12	KCED	HAD	SCALING
A	2023.12.21	KCED	HAD	ORIGINAL DRAFT



PROJ NAME: ROCK CREEK WRRF  
 PRIMARY CLARIFIER NO. 4  
 TREATMENT EXPANSION

SHEET TITLE: INSTRUMENTATION  
 IRRIGATION BOOSTER PUMP  
 WIRING DIAGRAM

SHEET: 22 OF: 22  
 PLOT DATE: 4/19/24  
 PLC #: N/A  
 CWS PROJ #: 7012

DWG #: RC900LCP6201

ENGR STAMP: