ERIE COUNTY WATER AUTHORITY

INTEROFFICE MEMORANDUM

July 10, 2025

To: Terrence D. McCracken, Secretary to the Authority

From: Michael J. Quinn, PE, Senior Distribution Engineer

Subject: Contract MP-090
Sturgeon Point WTP Filtration Piping, Valve, and Underdrain System Improvements
Change Order No. 2 for MP-090-E and MP-090-G
Change Order No. 1 for MP-090-H and MP-090-P
ECWA Project No. 202200014

Attached are the following Change Orders:

- **Change Order No. 2 for Contract MP-090-E (Electrical)**
- Change Order No. 2 for Contract MP-090-G (General Construction)
- Change Order No. 1 for Contract MP-090-H (HVAC)
- Change Order No. 1 for Contract MP-090-P (Plumbing)

Above-referenced Change Orders include the following revisions:

- Specification Section 01 13 13 - Milestones - modifications to Paragraph 1.2 Milestone Requirements;
- Specification Section 01 14 16 – Coordination with Owner's Operations – Modifications to Paragraph 1.4 Sequence of Work;
- Project Milestones 1, 2 and 3 and;
- Substantial and final completion dates.

The executed contract for the project included detailed requirements for work contemplated for a series of project milestones as well as a specific sequence of work. During construction, these items have been modified to better incorporate existing plant operations and prevent the opportunity for plant disruptions in future phases of the work. In addition, the work has been delayed by unforeseen conditions encountered due to conflicts with the construction of a new Washwater Tank constructed under Contract MP-088 and in particular the installation of the filter to waste and wash water supply piping to be completed under Contract MP-090-G. This delay also precluded the completion of a significant amount of other work not only for Contract MP-09-G but work under all other Prime Contracts.

Therefore, the Authority's Engineering Department and consultant, Arcadis, are recommending that the milestone tasks and sequence of work be revised through reissuing both specification sections in their entirety and the dates for milestone completion and substantial and final completion be revised as follows:

To: Terrence D. McCracken
Secretary to the Authority

July 10, 2025

- Milestone 1 - Changed from August 30, 2024 to April 9, 2025.
- Milestone 2 – Changed from May 30, 2025 to August 17, 2026
- Milestone 3 - Changed from April 24, 2026 to March 27, 2027
- Substantial Completion - Changed from April 30, 2027 to January 18, 2028
- Final Completion - Changed from June 4, 2027 to February 22, 2028

These changes apply to all Prime Contracts.

Budget Information:
No change to final contract amount.

MJQ:jmf
Attachments
cc: L.Kowalski, PE
CONT-MP-090-2201-X-14

ERIE COUNTY WATER AUTHORITY
AUTHORIZATION FORM
For Approval/Execution of Board Meeting Documents

Document Name: MP-090 **Project No.:** 202200014

Description: Sturgeon Point WTP Filtration Piping, Valve, and Underdrain System Improvements

Item Description:

Choose one: Change Order

Other:

Action Requested:

Choose one: Board Authorization to Execute

Other: Execution by the Chairman

Approvals Required:

APPROVED AS TO CONTENT:

☑	Chief Financial Officer	Date:	07/10/2025
☑	Chief Operating Officer	Date:	07/10/2025
☑	Claims Rep. – Risk Manager	Date:	7/11/2025
☐	Comptroller	Date:	
☑	Director of Administration	Date:	07/10/2025
☑	Director of Distribution	Date:	7/10/2025
☐	Director of Human Resources	Date:	
☐	Director of IT	Date:	
☐	Director of Production	Date:	
☐	Director of Water Quality	Date:	
☑	Executive Engineer	Date:	7/10/2025
☑	General Counsel (Legal)	Date:	7/14/2025
☐	Other:	Date:	

APPROVED FOR BOARD RESOLUTION:

Secretary to the Authority Date: 7/14/25

Remarks: Change Order #2 for MP-090-E & MP-090-G, Change Order #1 for MP-090-H & MP-090-P

Resolution Date: **Item No:**

CHANGE ORDER NO.: E-02

Owner:	Erie County Water Authority	Owner's Project No.:	202200014
Engineer:	Arcadis of New York, Inc.	Engineer's Project No.:	30164370
Contractor:	O'Connell Electric Company	Contractor's Project No.:	87427
Project:	Sturgeon Point Water Treatment Plant Filtration Piping, Valve, and Underdrain System Improvements		
Contract Name:	MP-090-E-Electrical		
Date Issued:	6/6/2025	Effective Date of Change Order:	7/17/2025

The Contract is modified as follows upon execution of this Change Order:

Description:

This Change Order is necessary to account for the delays experienced by O'Connell Electric Company (OCE) for Contract No. MP-090-E – Electrical due to the overlapping Project Areas for Contract No. MP-090-G-General and Contract No. MP-088. This delay is acknowledged per 00 72 13 General Conditions Article 4.05. This Change Order also includes revisions to the sequence of work and work associated with each milestone to provide flexibility to the Contractor in executing the work within revised Contract Time of this Change Order. The scope of this Change Order does not include a change in Contract Price. Contractor will separately submit claim documentation concerning the proposed change in Contract Price associated with these delays and sequence revisions, and its rights to such additional compensation are expressly reserved and will be addressed either in a future change order or via the disputes process in the parties' Contract.

This Change Order includes the following:

- REMOVE Section 01 13 13 in its entirety and REPLACE with Section 01 13 13 (REV1) dated May 6, 2025.
- REMOVE Section 01 14 16 in its entirety and REPLACE with Section 01 14 16 (REV1) dated May 27, 2025.
- Section 00 52 13-G – Agreement MP-090-G-General, Page 00 52 13-G-2: REMOVE paragraph 4.02.A. in its entirety and REPLACE with the following:

  A. The Work will be substantially complete on or before **January 18, 2028**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **February 22, 2028**.

- Section 00 52 13-G – Agreement MP-090-G-General, Page 00 52 13-G-2: REMOVE paragraph 4.03.A.1. in its entirety and REPLACE with the following:

  1. Milestone 1 –The work associated with Milestone 1 as defined in Section 01 13 13 (REV1) shall be completed by **April 9, 2025.** Owner agrees the work associated with Milestone 1 was completed as of April 9, 2025.

- Section 00 52 13-G – Agreement MP-090-G-General, Page 00 52 13-G-2: REMOVE paragraph 4.03.A.2. in its entirety and REPLACE with the following:

2. Milestone 2 –The work associated with Milestone 2 as defined in Section 01 13 13 (REV1) shall be completed by **August 17, 2026.**

- Section 00 52 13-G – Agreement MP-090-G-General, Page 00 52 13-G-2: REMOVE paragraph 4.03.A.3. in its entirety and REPLACE with the following:

3. Milestone 3 –The work associated with Milestone 3 as defined in Section 01 13 13 (REV1) shall be completed by **March 27, 2027.**

Attachments:

- O'Connell RFI 11 – Arcadis response, dated 2/18/2025
- O'Connell Submittal 01 32 16-003-A, dated 2/19/2025
- Section 01 13 13 (REV1)
- Section 01 14 16 (REV1)

CHANGE ORDER NO.: E-02

Change in Contract Price	Change in Contract Times
Original Contract Price: $ 4,719,00.00	Original Contract Times: Substantial Completion: 4/30/2027 Ready for final payment: 6/4/2027
Increase from previously approved Change Orders No. 01 to No. 1: $ 0.00	Increase from previously approved Change Orders No. 01 to No. 01: Substantial Completion: 0 Calendar Days Ready for final payment: 0 Calendar Days
Contract Price prior to this Change Order: $ 4,719,000.00	Contract Times prior to this Change Order: Substantial Completion: 4/30/2027 Ready for final payment: 6/4/2027
Increase this Change Order: $ 0.00	Increase this Change Order: Substantial Completion: 263 Calendar Days Ready for final payment: 263 Calendar Days
Contract Price incorporating this Change Order: $ 4,719,000.00	Contract Times with all approved Change Orders: Substantial Completion: 1/18/2028 Ready for final payment: 2/22/2028

Recommended by Engineer (if required)

By: _____

Title: Principal Engineer

Date: 6/6/2025

Accepted by Contractor

_____

Timothy D. Boldt, Chief Administrative Officer

06/24/2025

Authorized by Owner

By: _____

Title: _____

Date: _____

REQUEST FOR INFORMATION

OWNER/PROJECT
Erie County Water Authority

CONTRACT GROUP
Sturgeon Point Water Treatment Plant Filtration Piping, Valve, and Underdrain System Improvements - MP-090-E-Electrical

Contractor
MP-090-E-Electrical Contractor

DATE INITIATED	DATE REQUIRED	DATE RETURNED
12/31/2024	1/6/2025	2/18/2025

RFI No.
RFI-MP-090-E-Electrical-011

SUBJECT
Milestone 1 work

SPECIFICATION SECTION(S)

DRAWING(S) / DETAIL(S)

AREA NUMBER(S)

INFORMATION REQUESTED:

Due to there not being a schedule of completion of electrical tasks within the specifications and drawings for Milestone 1, we had a meeting with Arcadis , ECWA and O'Connell Electric. We have determined that the attached drawings reflect work that will not be a part of the Milestone 1 completion. Some of these items are not needed for M1 and were found acceptable to complete after M1. Please advise if this plan is acceptable as we move toward Milestone one.

By: Labiak, Eric

Title: Contractor

ENGINEER'S RESPONSE:

Arcadis takes no exception to the proposed Schedule of Completion for electrical work included under Milestone 1. O'Connell to submit updated schedule of completion for work included under Milestone 1 to reflect the new Milestone 1 completion date of 4/1/2025.

By: Daley, Cameron

Title: Arcadis, Inc.

ATTACHMENTS:

ECWA MILESTONE 1 letter.pdf

MILESTONE 1.pdf

O'Connell Electric Company, Inc.

Industrial & Commercial Construction · Power Line & Substation · Vegetation Management Communications · Transportation · Renewable Energy · Service & Maintenance · Technical Services

Since 1911

December 31, 2024

Matt Czora
Arcadis of New York, Inc.
50 Fountain Plaza, Suite 600
Buffalo, NY 14202

Ref: Sturgeon Point WTP #MP-090-E Milestone 1 Electrical work

Matt,
On December 5th, we held a meeting with Arcadis, ECWA and O'Connell Electric to do a page turn of the drawings and differentiate what electrical work was to be completed for Milestone 1. This was due to there not being a clear timeline for the electrical work in the specifications. As a result of this meeting, we all came up with the attached marked drawings and notes below for work NOT to be completed for Milestone 1. Please review and make comments about this plan moving forward. Also, note that there will need to be changes (dates) as we move to the next milestone considering the desires of ECWA.

1. Breakers 5-B-2-7 and 5-A-1-7 in the Substation building are due for a June 30th, 2025, ship. We plan to use the temporary breakers until we have the brand-new breakers.
2. Kirk key and breakers in panel HP-1-B-11 will be planned for a shutdown after M1. This work will be planned around ECWA for spring of 2025.
3. Redundant feeder in panel DP-1-B-7 will be during the spring of 2025.
4. Kirk keys and feeder connection in panel DP-1-B-3B will be done over the spring of 2025.
5. The existing generator and control will remain until spring of 2025.
6. The blower building GTC will be after we receive the correct DP-1-A-25 in the summer of 2025
7. Panel DP-1-A-25 will be delivered in early summer/spring of 2025. A new temporary panel will be used until we receive the new panel. A shutdown will be needed to replace the correct panel.

8. Panel DP-1-B-3A work will remain as existing until 2025 after milestone 1. Work with ECWA on dates.
9. Panel DP-1-B-4A, feeders to new filter valve panels will be completed as we move along with filter redo's after milestone 1.
10. Panel DP-1-B-4B, feeders to new filter valve panels will be completed as we move along with filter redo's after milestone 1.
11. MCC BUS-1-A-23, see highlighted feeders that will be completed post M1 and others will be completed for M1.
12. MCC BUS-1-B-1, see highlighted feeders that will be completed post M1 and others will be completed for M1.
13. Security work for blower building will be as needed by ECWA after M1.
14. Any work associated with the incomplete work from ACE's contract with the blower extension i.e. stairwell areas. This work will be: lighting, fire alarm, and outlets.

Please review the above notes and attached highlighted drawings. Advise if this plan is acceptable as we approach the Milestone 1 work and move to the next milestones.

With regards,

Eric Labiak
Project Manager

Office: 716.391.5526
Cell: 716.343.3438

O'CONNELL
ELECTRIC COMPANY
Since 1911

GENERAL NOTES:

A. REFER TO CONDUIT AND CONDUCTOR SCHEDULE - POWER ON DRAWING E-38.

KEYED NOTES: (#)

1. PROVIDE NEW VACUUM CIRCUIT BREAKER IN EXISTING PREPARED SPACE. (TYPICAL OF 2)
2. REPLACE KIRK-KEY AND MODIFY INTERLOCK SCHEME AS SHOWN.
3. PROVIDE NEW KIRK-KEY ON EXISTING BREAKER AND INTERLOCK AS SHOWN.
4. REMOVE TIE CONDUCTORS AND PLUG-ON LUG MODULE IN DP-1-B-3B. CONDUIT TO REMAIN. TURN OVER ALL MATERIAL TO OWNER. PROVIDE CIRCUIT BREAKER FOR FEED FROM SWITCHGEAR CIRCUIT BREAKER 1-B-21-3, UTILIZING EXISTING SPACES AS REQRUIED.

WORK AFTER MILESTONE 1

FROM BUS 5-B-TS-1 (5KV ATS)

FROM T-A-1

SUBSTATION BUILDING

SWGR BUS 5-B-2, 4160V, 1200A

TEMPORARY BREAKER till June 30 2025

5-B-2-7 52 1200/250

5-B-2-6 52 1200/256

5-B-2-5 52 1200/1200

5-B-2-4 52 1200/1200

5-B-2-3 52 1200/480

5-B-2-2 52 1200/448

5-B-2-1 52 1200/-

5-BT-1 52 1200/-

5-A-1-1 52 1200/-

5-A-1-2 52 1200/448

5-A-1-3 52 1200/480

5-A-1-4 52 -/- PREPARED SPACE

5-A-1-5 52 1200/1200

5-A-1-6 52 -/- PREPARED SPACE

SWGR BUS 5-A-1, 4160V, 1200A

TEMPORARY BREAKER till June 30 2025

5-A-1-7 52 1200/250

1200:5 MR SET 800:5 C200 3 50 51 50G 51G SEL-351A TRIP

P-2

P-1

BUS 5-B-5B DELIVERED WATER

BUS 5-B-5C DELIVERED WATER

BUS 5-B-6B-1 RAW WATER

BUS 5-A-6A-1 RAW WATER

BUS 5-A-5A DELIVERED WATER

T-B-3 1000KVA 4160-480Y/277V %Z=5.96

T-B-10 1500/2000KVA AA/FA 4160-480Y/277V %Z=5.57

T-A-9 1500/2000KVA AA/FA 4160-480Y/277V %Z=5.56

300E

LOCATED IN BLOWER BUILDING

DS-B-21 200E

T-B-21 1000KVA 4160-480Y/277V %Z=5.75

BLOWER BUILDING

1-B-21-1 1600/1600

SWGR BUS 1-B-21 480/277V, 1600A (PARTIAL SHOWN)

1-B-21-4 800/600

1-B-21-3 800/600

1-B-21-2 N.O. 1600/1600 K1

P-7

P-6

P-3

DS-A-22 200E

T-A-22 1000KVA 4160-480Y/277V %Z=5.75

BLOWER BUILDING

1-A-22-1 1600/1600

SWGR BUS 1-A-22 480/277V, 1600A (PARTIAL SHOWN)

1-A-22-2 N.O. 1600/1600

1-A-22-3 1200/1200

1-A-22-4 1200/1200

P-4

P-5

SUBSTATION BUILDING

PNL BUS DP-1-B-5 480V, 1200A (PARTIAL SHOWN)

S S T CB1 1200/1200

CB3 600/600

CB2 600/600 K5

OUTSIDE DELIVERED WATER

SWGR BUS 1-B-16 480V, 3200A

1-B-16-1 3200/3040

1-BT-16 2000/2000 N.O.

1-A-16-1 3200/3040

SWGR BUS 1-A-16 480V, 3200A

1-B-16-4 800/800

1-B-16-3 800/800

1-B-16-2 1600/1120

1-A-16-2 1600/1120

1-A-16-3 800/400

1-A-16-4 800/800

T-B-11

BUS 1-B-18

BUS 1-A-18

BUS 1-A-2 WWTF

DS-B-16 300A

T-B-16 225KVA 480-208Y/120V %Z=7.78

MAIN CONTROL BUILDING

PNL BUS HP-1-B-11 208/120V, 600A (PARTIAL SHOWN)

CB49-61 600/600 N.C. A03

CB50-54 100/100

CB1-13 400/400

CB15-27 600/600 N.O. A03

PNL BUS DP-1-B-7 480Y/277V, 600A (PARTIAL SHOWN)

CB45-61 600/600 N.O. A01

CB33-43 400/400

CB79-97 600/600 N.C.

CB81-97 600/600 N.O. A02

PNL BUS DP-1-B-3B 480Y/277V, 600A (PARTIAL SHOWN)

CB33-43 400/400

CB45-67 600/600 N.C. A02

CB15-21 250/150

3

2

4

P-27

P-25

P-24

DS-T-A-23 800/600

T-A-23 225KVA 480-208Y/120V %Z=5.75

MCC BUS 1-B-11

MCC BUS 1-B-7 480V, 600A (PARTIAL SHOWN)

MCC BUS 1-B-3B 480V, 600A (PARTIAL SHOWN)

480W, 3PH GENERATOR SPGEN004-DEMO

ATS-3A

PNL BUS DP-1-B-3A 480V, 150A (PARTIAL SHOWN)

REFER TO DRAWING E-04 FOR RECONNECTION REQUIREMENTS FOR THIS PANEL.

P-13 FROM DP-1-B-4

80KW 480/277V, 3PH GENERATOR SPGEN004

250/150

P-10

ATS-3B 480V 400A, 3P

BLOWER BUILDING

PNL BUS DP-1-A-25 480/277V, 1200A (PARTIAL SHOWN)

K2 S S T 1200/1200 N.O. LSIG

P-14 GTC LSIG

MAIN CONTROL BUILDING

PNL BUS DP-1-A-23 480Y/277V, 1200A (PARTIAL SHOWN)

S S T 1200/1200 LSIG

S S T 600/450 LSI

S S T 250/150 LSI

P-23

P-26

MCC BUS 1-A-23 480V, 300A (PARTIAL SHOWN)

MIGHT PULL BUT NO TERMINATIONS

ARCADIS

LEGAL ENTITY:
ARCADIS OF NEW YORK, INC.

CONSULTANTS

SEALS

LICENSED PROFESSIONAL ENGINEER STATE OF NEW YORK JOHN J. DOMANSKI 081623

5/5/2023

BUFFALO, NEW YORK

ERIE COUNTY WATER AUTHORITY

STURGEON POINT WATER TREATMENT PLANT FILTRATION PIPING, VALVE, AND UNDERDRAIN SYSTEM IMPROVEMENTS

E.C.W.A. PROJECT NO. 202200014

CONTRACT NO. MP-090

ARCADIS PROJECT NO. 30103038

NO.	DATE	ISSUED FOR	BY

DATE: MAY 2023
PROJECT NO.: 30103038
FILE NAME: E-02
DESIGNED BY: J. DOMANSKI
DRAWN BY: K. STEHLE
CHECKED BY: M. CHIRICO

SHEET TITLE

ELECTRICAL

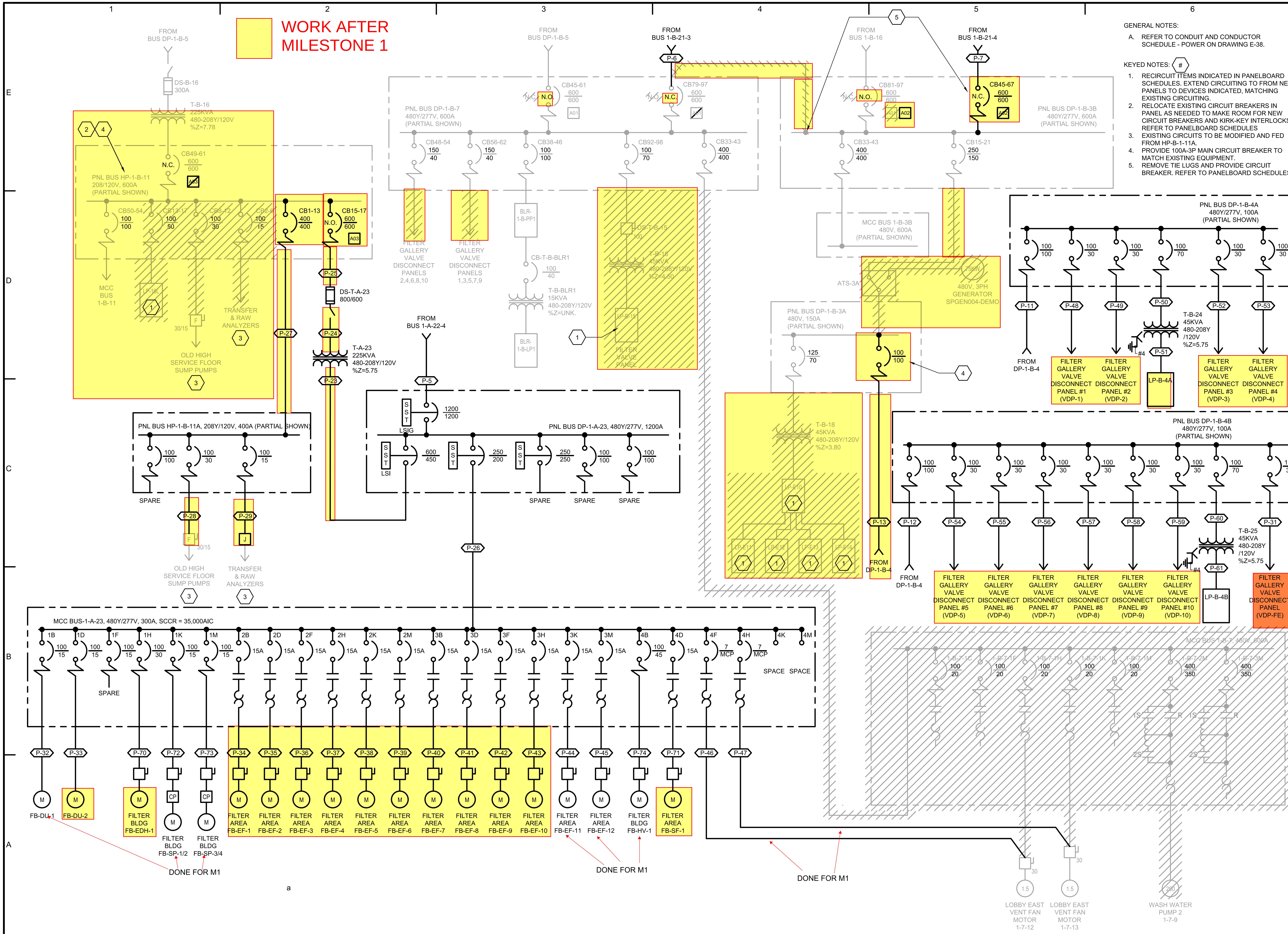
OVERALL ONE LINE DIAGRAM

SCALE: NOT TO SCALE

E-02

SHEET 195 OF 233

User:KSTEHLE Spec:AUS-NCSMOD File:C:\USERS\KSTEHLE\ACCDOCS\ARCADIS\AUS-30103038-MP-090_STURGEON POINT FILTER GALLERY PIPING IMPROVEMENTS\PROJECT FILES\01 - WIP\ELEC\E-02.DWG Scale:1:1 SavedDate:3/17/2023 Time:15:33 Plot Date: Stehle, Kenny; 5/17/2023; 17:42 ; Layout:195


WORK AFTER MILESTONE 1
FROM BUS DP-1-B-5
DS-B-16 300A
T-B-16 225KVA 480-208Y/120V %Z=7.78
PNL BUS HP-1-B-11 208/120V, 600A (PARTIAL SHOWN)
CB49-61 600 600 N.C.
CB1-13 400 400
CB15-17 600 600 N.O.
DS-T-A-23 800/600
T-A-23 225KVA 480-208Y/120V %Z=5.75
MCC BUS 1-B-11
OLD HIGH SERVICE FLOOR SUMP PUMPS
TRANSFER & RAW ANALYZERS
FROM BUS DP-1-B-5
CB45-61 600 600
PNL BUS DP-1-B-7 480Y/277V, 600A (PARTIAL SHOWN)
CB48-54 150 40
CB56-62 150 40
CB38-46 100 100
CB92-98 100 70
CB33-43 400 400
FILTER GALLERY VALVE DISCONNECT PANELS 2,4,6,8,10
FILTER GALLERY VALVE DISCONNECT PANELS 1,3,5,7,9
CB-T-B-BLR1 100 40
T-B-BLR1 15KVA 480-208Y/120V %Z=UNK.
FROM BUS 1-B-21-3
CB79-97 600 600
FROM BUS 1-A-22-4
FROM BUS 1-B-16
CB81-97 600 600
FROM BUS 1-B-21-4
CB45-67 600 600
PNL BUS DP-1-B-3B 480Y/277V, 600A (PARTIAL SHOWN)
CB33-43 400 400
CB15-21 250 150
MCC BUS 1-B-3B 480V, 600A (PARTIAL SHOWN)
ATS-3A
480V, 3PH GENERATOR SPGEN004-DEMO
PNL BUS DP-1-B-3A 480V, 150A (PARTIAL SHOWN)
T-B-18 45KVA 480-208Y/120V %Z=3.80
PNL BUS DP-1-B-4A 480Y/277V, 100A (PARTIAL SHOWN)
T-B-24 45KVA 480-208Y /120V %Z=5.75
FROM DP-1-B-4
FILTER GALLERY VALVE DISCONNECT PANEL #1 (VDP-1)
FILTER GALLERY VALVE DISCONNECT PANEL #2 (VDP-2)
LP-B-4A
FILTER GALLERY VALVE DISCONNECT PANEL #3 (VDP-3)
FILTER GALLERY VALVE DISCONNECT PANEL #4 (VDP-4)
PNL BUS HP-1-B-11A, 208Y/120V, 400A (PARTIAL SHOWN)
PNL BUS DP-1-A-23, 480Y/277V, 1200A
PNL BUS DP-1-B-4B 480Y/277V, 100A (PARTIAL SHOWN)
T-B-25 45KVA 480-208Y /120V %Z=5.75
SPARE
FILTER GALLERY VALVE DISCONNECT PANEL #5 (VDP-5)
FILTER GALLERY VALVE DISCONNECT PANEL #6 (VDP-6)
FILTER GALLERY VALVE DISCONNECT PANEL #7 (VDP-7)
FILTER GALLERY VALVE DISCONNECT PANEL #8 (VDP-8)
FILTER GALLERY VALVE DISCONNECT PANEL #9 (VDP-9)
FILTER GALLERY VALVE DISCONNECT PANEL #10 (VDP-10)
LP-B-4B
FILTER GALLERY VALVE DISCONNECT PANEL (VDP-FE)
NEED TO BE RELOCATED AND NEEDED FOR M1
MCC BUS-1-A-23, 480Y/277V, 300A, SCCR = 35,000AIC
SPACE
MCC BUS 1-B-7, 480V, 600A
FB-DU-1
FB-DU-2
FILTER BLDG FB-EDH-1
FILTER BLDG FB-SP-1/2
FILTER BLDG FB-SP-3/4
FILTER AREA FB-EF-1
FILTER AREA FB-EF-2
FILTER AREA FB-EF-3
FILTER AREA FB-EF-4
FILTER AREA FB-EF-5
FILTER AREA FB-EF-6
FILTER AREA FB-EF-7
FILTER AREA FB-EF-8
FILTER AREA FB-EF-9
FILTER AREA FB-EF-10
FILTER AREA FB-EF-11
FILTER AREA FB-EF-12
FILTER BLDG FB-HV-1
FILTER AREA FB-SF-1
DONE FOR M1
LOBBY EAST VENT FAN MOTOR 1-7-12
LOBBY EAST VENT FAN MOTOR 1-7-13
WASH WATER PUMP 2 1-7-9

GENERAL NOTES:

A. REFER TO CONDUIT AND CONDUCTOR SCHEDULE - POWER ON DRAWING E-38.

KEYED NOTES: #

1. RECIRCUIT ITEMS INDICATED IN PANELBOARD SCHEDULES. EXTEND CIRCUITING TO FROM NEW PANELS TO DEVICES INDICATED, MATCHING EXISTING CIRCUITING.
2. RELOCATE EXISTING CIRCUIT BREAKERS IN PANEL AS NEEDED TO MAKE ROOM FOR NEW CIRCUIT BREAKERS AND KIRK-KEY INTERLOCKS. REFER TO PANELBOARD SCHEDULES.
3. EXISTING CIRCUITS TO BE MODIFIED AND FED FROM HP-B-1-11A.
4. PROVIDE 100A-3P MAIN CIRCUIT BREAKER TO MATCH EXISTING EQUIPMENT.
5. REMOVE TIE LUGS AND PROVIDE CIRCUIT BREAKER. REFER TO PANELBOARD SCHEDULES.

ARCADIS

LEGAL ENTITY: ARCADIS OF NEW YORK, INC.

CONSULTANTS

SEALS

STATE OF NEW YORK — JOHN J. DOMANSKI — 081623 — LICENSED PROFESSIONAL ENGINEER — 5/5/2023

WARNING - IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145, SECTION 7209, FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK LAW, SECTION 7209.

BUFFALO, NEW YORK

ERIE COUNTY WATER AUTHORITY

STURGEON POINT WATER TREATMENT PLANT FILTRATION PIPING, VALVE, AND UNDERDRAIN SYSTEM IMPROVEMENTS

E.C.W.A. PROJECT NO. 202200014

CONTRACT NO. MP-090

ARCADIS PROJECT NO. 30103038

NO.	DATE	ISSUED FOR	BY

DATE:	MAY 2023
PROJECT NO.:	30103038
FILE NAME:	E-03
DESIGNED BY:	J. DOMANSKI
DRAWN BY:	K. STEHLE
CHECKED BY:	M. CHIRICO

SHEET TITLE

ELECTRICAL

CONTROL BUILDING ONE LINE DIAGRAM

SCALE: NOT TO SCALE

E-03

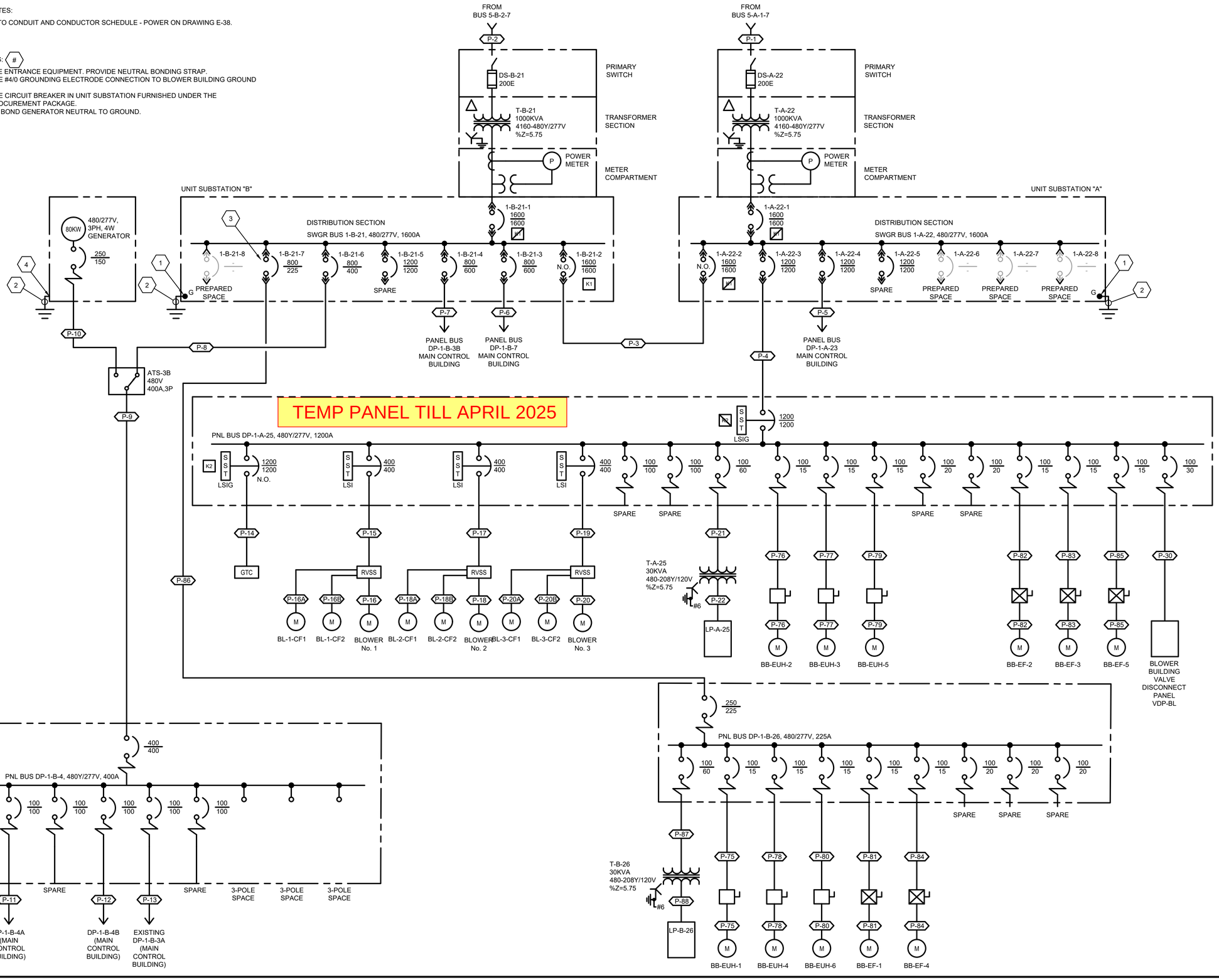
SHEET 196 OF 233

GENERAL NOTES:

A. REFER TO CONDUIT AND CONDUCTOR SCHEDULE - POWER ON DRAWING E-38.

KEYED NOTES: (#)

1. SERVICE ENTRANCE EQUIPMENT. PROVIDE NEUTRAL BONDING STRAP.
2. PROVIDE #4/0 GROUNDING ELECTRODE CONNECTION TO BLOWER BUILDING GROUND GRID.
3. PROVIDE CIRCUIT BREAKER IN UNIT SUBSTATION FURNISHED UNDER THE PRE-PROCUREMENT PACKAGE.
4. DO NOT BOND GENERATOR NEUTRAL TO GROUND.



BUFFALO, NEW YORK

ERIE COUNTY WATER AUTHORITY

STURGEON POINT WATER TREATMENT PLANT
FILTRATION PIPING, VALVE, AND UNDERDRAIN SYSTEM IMPROVEMENTS

E.C.W.A. PROJECT NO. 202200014

CONTRACT NO. MP-090

ARCADIS PROJECT NO. 30103038

NO.	DATE	ISSUED FOR	BY

DATE:	MAY 2023
PROJECT NO.:	30103038
FILE NAME:	E-04
DESIGNED BY:	J. DOMANSKI
DRAWN BY:	K. STEHLE
CHECKED BY:	M. CHIRICO

SHEET TITLE

ELECTRICAL

BLOWER BUILDING ONE LINE DIAGRAM

SCALE: NOT TO SCALE

E-04

SHEET 197 OF 233

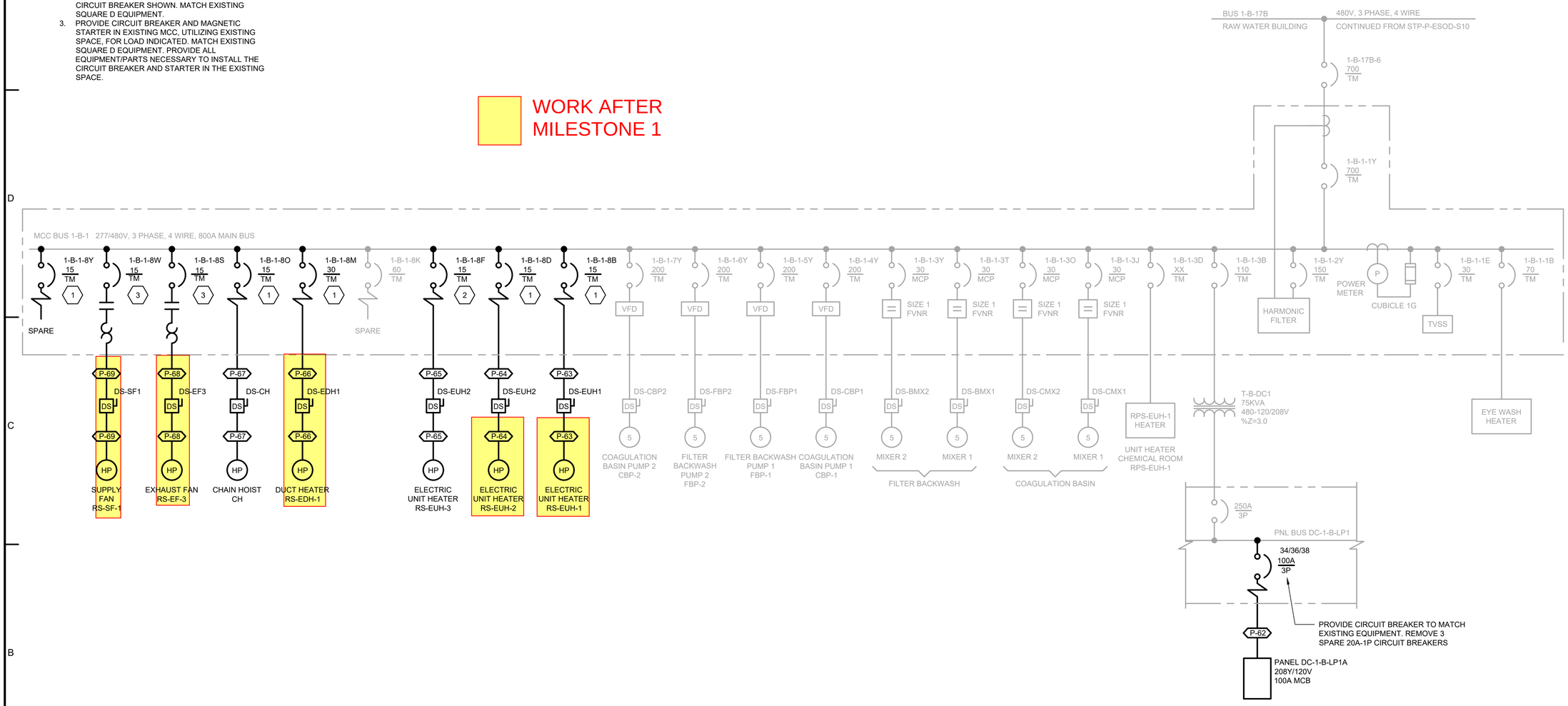
GENERAL NOTES:

A. REFER TO CONDUIT AND CONDUCTOR SCHEDULE - POWER ON DRAWING E-38.

KEYED NOTES: (#)

1. PROVIDE CIRCUIT BREAKER IN EXISTING MCC, UTILIZE EXISTING SPACE, FOR LOAD INDICATED. MATCH EXISTING SQUARE D EQUIPMENT. PROVIDE ALL EQUIPMENT/PARTS NECESSARY TO INSTALL THE CIRCUIT BREAKER IN THE EXISTING SPACE.
2. REPLACE EXISTING 125A CIRCUIT BREAKER WITH CIRCUIT BREAKER SHOWN. MATCH EXISTING SQUARE D EQUIPMENT.
3. PROVIDE CIRCUIT BREAKER AND MAGNETIC STARTER IN EXISTING MCC, UTILIZING EXISTING SPACE, FOR LOAD INDICATED. MATCH EXISTING SQUARE D EQUIPMENT. PROVIDE ALL EQUIPMENT/PARTS NECESSARY TO INSTALL THE CIRCUIT BREAKER AND STARTER IN THE EXISTING SPACE.

WORK AFTER MILESTONE 1



ARCADIS

LEGAL ENTITY:
ARCADIS OF NEW YORK, INC.

CONSULTANTS

SEALS

5/5/2023

BUFFALO, NEW YORK

ERIE COUNTY WATER AUTHORITY

STURGEON POINT WATER TREATMENT PLANT FILTRATION PIPING, VALVE, AND UNDERDRAIN SYSTEM IMPROVEMENTS

E.C.W.A. PROJECT NO. 202200014

CONTRACT NO. MP-090

ARCADIS PROJECT NO. 30103038

NO.	DATE	ISSUED FOR	BY

DATE: MAY 2023
PROJECT NO.: 30103038
FILE NAME: E-05
DESIGNED BY: J. DOMANSKI
DRAWN BY: K. STEHLE
CHECKED BY: M. CHIRICO

SHEET TITLE

ELECTRICAL

RESIDUALS PUMP STATION ONE LINE DIAGRAM

SCALE: NOT TO SCALE

E-05

SHEET 198 OF 233

O'Connell Electric Company, Inc.

Industrial & Commercial Construction · Power Line & Substation · Communications
Transportation · Renewable Energy · Service & Maintenance · Technical Services

Since 1911

SUBMITTAL COVER SHEET

SPECIFICATION SECTION NO. – 01 32 16-003-A

Project Name: ECWA Sturgeon Point
Project No.: 202200014

TYPE OF SUBMITTAL:

____	**PRODUCT DATA**	____	TEST REPORT	____	MFGR DWG	____	RECORD DOCUMENT
____	SAMPLE	____	CERTIFICATION	____	SHOP DRAWING	____	CLOSEOUT DOCUMENT
____	COLOR SELECTION	____	AS-BUILT DWGS	____	MFGR COMPLIANCE CERT	____	O & M Manual
____	**LEED Documentation**	____	**LEED** Credit	____		__X__	Other – Progress Schedule

SUBMITTAL DESCRIPTION **Progress Schedule (Rev 12)**

SUPPLIER/MANUFACTURER N/A

SPEC SECTION NUMBER & TITLE **01 32 16 003-A**

SUB-PARAGRAPH ____ DRAWING NO ____ **1ST TIME SUBMISSION** ____ REVISION # 12

APPROVED FOR SUBMISSION
O'CONNELL ELECTRIC COMPANY
830 PHILLIPS RD. VICTOR, NY 14564

DATE: 2/19/2025

CHECKED BY: Eric Labiak

COMMENTS:

ARCHITECT/ENGINEER REVIEW STAMP:

Corporate Headquarters 830 Phillips Road | Victor, NY 14564 | Phone 585.924.2176 | Fax 585.924.4973

Albany 2360 Maxon Road Ext | Schenectady, NY 12308 | Phone 518.346.0077 | Fax 518.346.0728
Buffalo 20 Lancaster Parkway | Lancaster, NY 14086 | Phone 716.675.9010 | Fax 716.686.0586
Rochester 390 Systems Road | Rochester, NY 14623 | Phone 585.424.3472 | Fax 585.424.3486
Syracuse Hancock Airpark 7001 Performance Drive |North Syracuse, NY 13212 Phone 315.437.1453 | Fax 315.437.7431

www.oconnellelectric.com

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
1		ECWA SCHEDULE 02/18/25 REV 12	1 day?	Fri 10/27/23	Fri 10/27/23		0%
2		**Project Schedule**	**270 days?**	**Thu 8/17/23**	**Wed 8/28/24**		**0%**
3		**Project Office Start-up**	**75 days?**	**Thu 8/17/23**	**Wed 11/29/23**		**0%**
4		Letter of award	0 days	Thu 8/17/23	Thu 8/17/23		100%
5		Contract Signed	18 days?	Mon 8/28/23	Wed 9/20/23		100%
6		Purchase Order for Electrical Equipment released	11 days?	Mon 10/16/23	Mon 10/30/23		100%
7		**EMAIL SENT TO ARCADIS EXPLAINING THE LONG LEAD TI**	**1 day?**	**Wed 11/29/23**	**Wed 11/29/23**		**100%**
8		Purchase Order for Generator	1 day?	Mon 10/16/23	Mon 10/16/23		100%
9		Purchase Order for Civil work	1 day?	Mon 10/23/23	Mon 10/23/23		100%
10		**Submittals**	**225 days?**	**Thu 10/19/23**	**Wed 8/28/24**	**4**	**0%**
11		Panelboards Submitted	22 days	Mon 12/4/23	Tue 1/2/24		100%
12		Panelboards REV 1 Submitted	22 days?	Mon 1/8/24	Tue 2/6/24		100%
13		*Actual retuned Panelboard submittal release date*	0 days	Mon 1/8/24	Mon 1/8/24		100%
14		PNL BUS DP-1-A-25 Lead time- TEMPORARY IN PLACE	156 days?	Wed 1/10/24	Wed 8/14/24		100%
15		PNL BUS HP-1-B-11A Lead time (BACKBOX3/1/24)	225 days	Thu 10/19/23	Wed 8/28/24		100%
16		PNL BUS DP-1-B-4 Lead time	158 days	Mon 1/8/24	Wed 8/14/24		100%
17		PNL BUS HP-1-B-11A Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
18		PNL BUS DP-1-B-4B Lead time (BACKBOX3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
19		PNL BUS DP-1-B-4A Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
20		PNL BUS DP-1-B-26 Lead time (BACKBOX 3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
21		PNL BUS DP-1-A-23 Lead time	168 days	Mon 1/8/24	Wed 8/28/24		100%
22		PNL BUS LP-B-4B Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
23		PNL BUS LP-B-4A Lead time (BACKBOX3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
24		PNL BUS LP-A-25 (BACKBOX 3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
25		PNL BUS LP-B-26 (BACKBOX 3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
26		PHL BUS DC-1-B-LP1A Lead time(BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
27		MCC BUS 1-A-23 Submitted	9 days	Mon 1/22/24	Thu 2/1/24		100%
28		MCC Lead time	38.8 wks	Mon 2/5/24	Thu 10/31/24		100%
29		Loose 480 Volt Breakers Submitted	15 days	Mon 12/4/23	Fri 12/22/23		100%
30		***Actual returned submittal for release date***	1 day	Mon 12/25/23	Mon 12/25/23	29	100%
31		Loose 480 Volt Breakers Lead time	180 days	Tue 12/26/23	Mon 9/2/24	30	100%
32		Low Voltage starters lead time	8 wks	Mon 9/2/24	Fri 10/25/24		100%
33		Transformers Submitted	41 days	Fri 10/27/23	Fri 12/22/23		100%
34		***Actual retuned Transformers submittal release date***	1 day	Mon 12/25/23	Mon 12/25/23	33	100%
35		Transformers Lead time	47 days	Wed 12/27/23	Thu 2/29/24	34	100%
36		Generator Submitted	12 days	Fri 10/27/23	Mon 11/13/23		100%
37		***Generator/ATS/Tap box submittal approved for release date***	0 days	Mon 11/13/23	Mon 11/13/23	36	100%
38		Generator Lead time	180 days	Mon 12/4/23	Fri 8/9/24	37	100%
39		MV Breakers Submitted	11 days	Fri 2/9/24	Fri 2/23/24		100%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
40		***Actual returned MV Breakers submittal release date***	1 day?	Mon 2/26/24	Mon 2/26/24	39	100%
41		MV Breakers Lead time- TEMPORARY IN PLACE	4 wks	Fri 10/4/24	Thu 10/31/24		100%
42		Mobilization	5 days	Fri 10/27/23	Thu 11/2/23		100%
43		Setup trailer and Connex boxes	1 day	Fri 10/27/23	Fri 10/27/23		100%
44		Temp power	4 days	Fri 10/27/23	Wed 11/1/23		100%
45		**Site work**	**70 days?**	**Mon 2/19/24**	**Fri 5/24/24**		**0%**
46		Site ready for UG Ductbanks	5 days	Mon 2/19/24	Fri 2/23/24		100%
47		**Primary Service (North)**	**31 days**	**Mon 3/18/24**	**Mon 4/29/24**		**0%**
48		Site survey of underground	3 days	Mon 2/19/24	Wed 2/21/24		100%
49		Mobilize Site Contractor	3 days	Wed 3/13/24	Fri 3/15/24		100%
50		Saw cutting and trenching from existing HH to HH16A	9 days	Mon 4/1/24	Thu 4/11/24		100%
51		Trenching from Substation building to HH-16A	3 days	Mon 4/22/24	Wed 4/24/24		100%
52		Set HH-16A	3 days	Tue 4/2/24	Thu 4/4/24		100%
53		Saw Cutting and trenching HH-16 to HH-16B	2 days	Fri 4/12/24	Mon 4/15/24	50	100%
54		Set HH-16B	1 day	Thu 4/25/24	Thu 4/25/24	51	100%
55		Trenching from HH-16B to Blower building	2 days	Fri 4/26/24	Mon 4/29/24	54	100%
56		Coredrill Blower building	1 day	Mon 3/18/24	Mon 3/18/24		100%
57		**Primary service (South)**	**11 days**	**Mon 3/18/24**	**Mon 4/1/24**		**0%**
58		Trenching from Existing HH-20 to HH-21	5 days	Mon 3/18/24	Fri 3/22/24		100%
59		Set HH-21	1 day	Mon 3/25/24	Mon 3/25/24	58FS-1 day	100%
60		Trenching from HH-21 to Blower building	2 days	Fri 3/29/24	Mon 4/1/24	59	100%
61		**Generator Underground**	**5 days**	**Mon 2/26/24**	**Fri 3/1/24**		**0%**
62		Underground	2 days	Mon 2/26/24	Tue 2/27/24		100%
63		**Secondary Service**	**87 days?**	**Tue 4/2/24**	**Wed 7/31/24**		**0%**
64		Conduit install for garage area to basement	14 days?	Mon 10/14/24	Thu 10/31/24		100%
65		Under ground duct bank from blower to control building	5 days	Mon 11/4/24	Fri 11/8/24		100%
66		**Ground Grid**	**3 days**	**Mon 1/8/24**	**Wed 1/10/24**		**0%**
67		Grounding Grid	3 days	Mon 1/8/24	Wed 1/10/24		100%
68		Site work complete	0 days	Fri 11/8/24	Fri 11/8/24	65	100%
69		**FILTER BUILDING START**	**125 days**	**Mon 4/1/24**	**Fri 9/20/24**		**0%**
70		Demo work	5 days	Mon 4/1/24	Fri 4/5/24		100%
71		FILTER EXTENTION COMPLETE BUILDING DRY DATE	1 day	Tue 10/15/24	Tue 10/15/24		0%
72		Installing Lights	30 days	Thu 10/31/24	Wed 12/11/24	71	100%
73		Equipment connection- HVAC, sump pumps ex fans	45 days	Mon 11/6/23	Fri 1/5/24		90%
74		Fire alarm	45 days	Mon 11/18/24	Fri 1/17/25		50%
75		Install (3) duct bank conduits blower to FEB	5 days	Mon 11/4/24	Fri 11/8/24		100%
76		Install panels	16 days	Tue 10/29/24	Tue 11/19/24		100%
77		BACK BOXES ON SITE AND TRANSFORMER	5 days	Wed 11/20/24	Tue 11/26/24	76	100%
78		Pull Feeders	5 days	Thu 12/12/24	Wed 12/18/24		100%
79		Terminations	2 days	Fri 12/27/24	Mon 12/30/24		100%
80		Instrument wiring	45 days	Mon 11/18/24	Fri 1/17/25	71	90%
81		Filtering Extention building Power on	0 days	Thu 1/2/25	Thu 1/2/25		99%
82		**BLOWER BUILDING START**	**139 days**	**Mon 4/1/24**	**Thu 10/10/24**		**0%**

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
83		Site work ready for underground	51 days	Mon 11/6/23	Mon 1/15/24		100%
84		Under slab work	5 days	Tue 1/16/24	Mon 1/22/24	83	100%
85		**BLOWER BUILDING COMPLETED DRY DATE**	**1 day**	**Thu 6/20/24**	**Thu 6/20/24**		**0%**
86		Install panel boxes and conduit stubs	5 days	Fri 6/21/24	Thu 6/27/24	85	100%
87		Install panels interior guts	5 days	Thu 8/29/24	Wed 9/4/24	19,20,14,89	100%
88		INSTALL UNIT SUBSTATIONS and secondary	6 days	Tue 7/23/24	Tue 7/30/24	85	100%
89		PULL PRIMARY FEEDERS AND TERMINATE	6 days	Fri 7/12/24	Fri 7/19/24		100%
90		INSTALL MV BREAKERS AND COMMISH SUB	29 days	Tue 10/29/24	Fri 12/6/24		100%
91		Install lighting	45 days	Mon 9/2/24	Fri 11/1/24		100%
92		Install control wiring	45 days	Mon 8/19/24	Fri 10/18/24		100%
93		Terminations	16 days	Wed 9/4/24	Wed 9/25/24		100%
94		Branch conduit and lighting	85 days	Mon 6/17/24	Fri 10/11/24		100%
95		Blower building Power on M1 NEW	0 days	Mon 12/23/24	Mon 12/23/24		100%
96		CHEMICAL BUILDING START	71 days?	Wed 5/1/24	Wed 8/7/24		0%
97		CHEMICAL BUILDING READY DRY DATE	1 day	Mon 7/8/24	Mon 7/8/24		0%
98		Install conduits to MCC	20 days	Mon 8/5/24	Fri 8/30/24	97	90%
99		Wire pulling	100 days	Mon 9/30/24	Fri 2/14/25		90%
100		Install MCC BUS 1-B-1 buckets	35 days	Mon 11/25/24	Fri 1/10/25		50%
101		Branch conduit and lighting	80 days	Mon 10/28/24	Fri 2/14/25		90%
102		Chemical building Power on	0 days	Fri 1/10/25	Fri 1/10/25	100	0%
103		**Generator**	**401 days?**	**Fri 10/27/23**	**Fri 5/9/25**		**0%**
104		Set ATS	4 days?	Mon 8/5/24	Thu 8/8/24		100%
105		Set Generator	5 days	Mon 8/12/24	Fri 8/16/24	38	100%
106		Pull Feeders	45 days	Mon 10/21/24	Fri 12/20/24		100%
107		Startup	20 days	Mon 12/16/24	Fri 1/10/25		100%
108		Ready for service	0 days	Fri 1/10/25	Fri 1/10/25	107	100%
109		CONTROL BUILDING BASEMENT ELECTRICAL ROOM	1 day?	Mon 9/9/24	Mon 9/9/24		0%
110		INSTALL DP-1-A-23 PANEL BACKBOX	5 days	Tue 9/10/24	Mon 9/16/24	109	100%
111		INSTALL TRANSFORMERS AND MISC BACKBOXES	25 days	Mon 10/28/24	Fri 11/29/24	109	100%
112		INSTALL CONDUITS AND PULL FEEDERS	20 days	Mon 12/9/24	Fri 1/3/25	111	100%
113		INSTALL CONDUITS FROM MCC TO FILTER VALUE BOXES	47 days	Tue 9/24/24	Wed 11/27/24	109	90%
114		POWER ON CONTROL BUILDING ELECTRICAL PANELS	0 days	Fri 2/28/25	Fri 2/28/25	112	0%
115		**7 WEEK LOOK AHEAD 2/17/25 through 4/**	35 days?	Mon 2/17/	Fri 4/4/25		0%
116		*Pull wires to PLC*	5 days	Fri 2/14/25	Thu 2/20/25		50%
117		*Terminate HV-1*	5 days	Thu 2/20/25	Wed 2/26/25		50%
118		*Mount valve panel in filter extention*	5 days	Mon 2/24/25	Fri 2/28/25		10%
119		*Terminate valves, PIT. FIT Misc. instruments in filter extention for MOTION AI testing 3/11*	10 days	Thu 2/20/25	Wed 3/5/25		35%
120		*Sample pump and sump controller (Chemical building) 2/25 Fluid*	1 day	Mon 2/24/25	Mon 2/24/25		80%
121		*Chemical Scales and Chlorine analyzer*	5 days	Mon 2/24/25	Fri 2/28/25		50%
122		*Ex. Fan connections filter building 11/12*	5 days	Wed 3/19/25	Tue 3/25/25		60%
123		*Ex. Fans blower*	2 days	Mon 3/24/25	Tue 3/25/25		95%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
124		*Wire DU-1*	2 days	Mon 3/17/25	Tue 3/18/25		95%
125		NOT PART OF O'CONNELL M1 (but part of 7 weeek look ahead)	1 day?	Fri 10/27/23	Fri 10/27/23		0%
126		*Chemical transfer pump??*	10 days	Mon 3/10/25	Fri 3/21/25		0%
127		*Filter extention lights/fire alarm*	5 days	Fri 3/28/25	Thu 4/3/25		10%
128		*Run fiber conduits in filter gallery*	15 days?	Mon 4/7/25	Fri 4/25/25		10%
129		*Fiber to blower building*	15 days	Mon 4/7/25	Fri 4/25/25		0%
130		*Install conduits on operation level for filters (all)*	30 days	Mon 3/31/25	Fri 5/9/25		0%
131		*6-10 Valve panel conduits*	30 days	Mon 3/31/25	Fri 5/9/25		0%
132		*Chemical heat trace (ACE and JWD)??*	10 days	Mon 3/24/25	Fri 4/4/25		0%
133		*Misc. instruments in pipe gallery*	20 days	Mon 3/31/25	Fri 4/25/25		0%
134		*Security in chemical?*	2 days	Thu 4/3/25	Fri 4/4/25		95%
135		*Chemnical fire alarm??? Not part of OCE M1*	10 days?	Mon 3/24/25	Fri 4/4/25		0%
136		DU-2??? Not part of OCE M1	8 days	Mon 4/7/25	Wed 4/16/25		0%
137		*DU-3 &DU-4?? Not part of OCE M1*	10 days	Mon 4/7/25	Fri 4/18/25		0%
138		**M1 MILESTONE**	**370 days**	**Wed 11/1/23**	**Tue 4/1/25**		**0%**
139		**Filter #10**	**53 days**	**Tue 4/1/25**	**Thu 6/12/25**		**0%**
140		Demo work	5 days	Tue 4/1/25	Mon 4/7/25		5%
141		Install Overhead conduits for power and control	30 days	Tue 4/8/25	Mon 5/19/25	140	20%
142		Pullind wiring for power and control	30 days	Tue 4/29/25	Mon 6/9/25	141FS-15 days	0%
143		Terminations	10 days	Fri 5/23/25	Thu 6/5/25	142FS-12 days	0%
144		Testing	5 days	Fri 6/6/25	Thu 6/12/25	143,81	0%
145		**Filter #9**	**43 days**	**Fri 6/13/25**	**Tue 8/12/25**	**144**	**0%**
146		Demo work	5 days	Fri 6/13/25	Thu 6/19/25	144	0%
147		Install Overhead conduits for power and control	30 days	Fri 6/20/25	Thu 7/31/25	146	20%
148		Pullind wiring for power and control	20 days	Fri 7/11/25	Thu 8/7/25	147FS-15 days	0%
149		Terminations	10 days	Wed 7/23/25	Tue 8/5/25	148FS-12 days	0%
150		Testing	5 days	Wed 8/6/25	Tue 8/12/25	149,81	0%
151		**Filter #8**	**30 days**	**Wed 8/13/25**	**Tue 9/23/25**	**150**	**0%**
152		Demo work	5 days	Wed 8/13/25	Tue 8/19/25	150	0%
153		Install Overhead conduits for power and control	20 days	Wed 8/20/25	Tue 9/16/25	152	20%
154		Pullind wiring for power and control	20 days	Wed 8/27/25	Tue 9/23/25	153FS-15 days	0%
155		Terminations	10 days	Wed 9/3/25	Tue 9/16/25	154FS-15 days	0%
156		Testing	5 days	Wed 9/17/25	Tue 9/23/25	155	0%
157		ACTUAL M2 COMPLETION DATE	1 day?	Mon 9/8/25	Mon 9/8/25	156FS-12 days	0%
158		**M2 MILESTONE**	**195 days**	**Mon 9/2/24**	**Fri 5/30/25**	**138**	**0%**
159		**Filter #7**	**45 days**	**Wed 9/24/25**	**Tue 11/25/25**	**156**	**0%**
160		Demo work	5 days	Wed 9/24/25	Tue 9/30/25	156	0%
161		Install Overhead conduits for power and control	30 days	Wed 10/1/25	Tue 11/11/25	160	20%
162		Pullind wiring for power and control	30 days	Wed 10/15/25	Tue 11/25/25	161FS-20 days	0%
163		Terminations	10 days	Fri 10/31/25	Thu 11/13/25	162FS-18 days	0%
164		Testing	5 days	Fri 11/14/25	Thu 11/20/25	163,81	0%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
165		**Filter #6**	**45 days**	**Tue 12/2/25**	**Mon 2/2/26**	**164FS+7 days**	**0%**
166		Demo work	5 days	Tue 12/2/25	Mon 12/8/25	164FS+7 days	0%
167		Install Overhead conduits for power and control	30 days	Tue 12/9/25	Mon 1/19/26	166	20%
168		Pullind wiring for power and control	30 days	Tue 12/23/25	Mon 2/2/26	167FS-20 days	0%
169		Terminations	10 days	Tue 1/6/26	Mon 1/19/26	168FS-20 days	0%
170		Testing	5 days	Tue 1/20/26	Mon 1/26/26	169	0%
171		**Filter #5**	**45 days**	**Tue 1/27/26**	**Mon 3/30/26**	**170,81**	**0%**
172		Demo work	5 days	Tue 1/27/26	Mon 2/2/26	170	0%
173		Install Overhead conduits for power and control	30 days	Tue 2/3/26	Mon 3/16/26	172	0%
174		Pullind wiring for power and control	30 days	Tue 2/17/26	Mon 3/30/26	173FS-20 days	0%
175		Terminations	10 days	Tue 3/3/26	Mon 3/16/26	174FS-20 days	0%
176		Testing	5 days	Tue 3/17/26	Mon 3/23/26	175,81	0%
177		**Filter #4**	**70 days**	**Tue 3/31/26**	**Mon 7/6/26**	**176FS+5 days**	**0%**
178		**Demo work**	**70 days**	**Tue 3/31/26**	**Mon 7/6/26**		**0%**
179		Install Overhead conduits for power and control	30 days	Tue 3/31/26	Mon 5/11/26		20%
180		Pullind wiring for power and control	30 days	Thu 5/7/26	Wed 6/17/26	179FS-3 days	0%
181		Terminations	10 days	Tue 6/16/26	Mon 6/29/26	180FS-2 days	0%
182		Testing	5 days	Tue 6/30/26	Mon 7/6/26	181,81	0%
183		ACTUAL M3 COMPLETION DATE	1 day?	Tue 6/9/26	Tue 6/9/26	182FS-20 days	0%
184		**M3 MILESTONE**	**235 days?**	**Mon 6/2/25**	**Fri 4/24/26**	**158**	**0%**
185		**Filter #3**	**60 days**	**Tue 7/7/26**	**Mon 9/28/26**	**182**	**0%**
186		Demo work	5 days	Tue 7/7/26	Mon 7/13/26	182	0%
187		Install Overhead conduits for power and control	30 days	Tue 7/14/26	Mon 8/24/26	186	20%
188		Pullind wiring for power and control	30 days	Tue 8/11/26	Mon 9/21/26	187FS-10 days	0%
189		Terminations	10 days	Tue 9/8/26	Mon 9/21/26	188FS-10 days	0%
190		Testing	5 days	Tue 9/22/26	Mon 9/28/26	189	0%
191		**Filter #2**	**59 days**	**Tue 9/29/26**	**Fri 12/18/26**	**190**	**0%**
192		Demo work	5 days	Tue 9/29/26	Mon 10/5/26	190	0%
193		Install Overhead conduits for power and control	30 days	Tue 10/6/26	Mon 11/16/26	192	20%
194		Pullind wiring for power and control	30 days	Mon 11/2/26	Fri 12/11/26	193FS-11 days	0%
195		Terminations	10 days	Mon 11/30/26	Fri 12/11/26	194FS-10 days	0%
196		Testing	5 days	Mon 12/14/26	Fri 12/18/26	195,81	0%
197		**Filter #1**	**55 days**	**Mon 12/21/26**	**Fri 3/5/27**	**196**	**0%**
198		Demo work	5 days	Mon 12/21/26	Fri 12/25/26	196	0%
199		Install Overhead conduits for power and control	30 days	Mon 12/28/26	Fri 2/5/27	198	20%
200		Pullind wiring for power and control	25 days	Mon 1/25/27	Fri 2/26/27	199FS-10 days	0%
201		Terminations	10 days	Mon 2/15/27	Fri 2/26/27	200FS-10 days	0%
202		Testing	5 days	Mon 3/1/27	Fri 3/5/27	201	0%
203		ACTUAL SUBSTANTION COMPLETION DATE	1 day?	Mon 3/8/27	Mon 3/8/27	202	0%
204		SUBSTANTIAL COMPLETION	265 days	Mon 4/27/26	Fri 4/30/27	184	0%

O'Connell Electric Company, Inc.

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SUBMITTAL COVER SHEET

SPECIFICATION SECTION NO. – 01 32 16-003-A

Project Name: ECWA Sturgeon Point
Project No.: 202200014

TYPE OF SUBMITTAL:

____	**PRODUCT DATA**	____	TEST REPORT	____	MFGR DWG	____	RECORD DOCUMENT
____	SAMPLE	____	CERTIFICATION	____	SHOP DRAWING	____	CLOSEOUT DOCUMENT
____	COLOR SELECTION	____	AS-BUILT DWGS	____	MFGR COMPLIANCE CERT	____	O & M Manual
____	**LEED Documentation**	____	**LEED** Credit	____		__X__	Other – Progress Schedule

SUBMITTAL DESCRIPTION **Progress Schedule (Rev 12)**

SUPPLIER/MANUFACTURER N/A

SPEC SECTION NUMBER & TITLE **01 32 16 003-A**

SUB-PARAGRAPH ____ DRAWING NO ____ **1ST TIME SUBMISSION** ____ REVISION # 12

APPROVED FOR SUBMISSION
O'CONNELL ELECTRIC COMPANY
830 PHILLIPS RD. VICTOR, NY 14564

DATE: 2/19/2025

CHECKED BY: Eric Labiak

COMMENTS:

ARCHITECT/ENGINEER REVIEW STAMP:

Corporate Headquarters 830 Phillips Road | Victor, NY 14564 | Phone 585.924.2176 | Fax 585.924.4973

Albany 2360 Maxon Road Ext | Schenectady, NY 12308 | Phone 518.346.0077 | Fax 518.346.0728
Buffalo 20 Lancaster Parkway | Lancaster, NY 14086 | Phone 716.675.9010 | Fax 716.686.0586
Rochester 390 Systems Road | Rochester, NY 14623 | Phone 585.424.3472 | Fax 585.424.3486
Syracuse Hancock Airpark 7001 Performance Drive |North Syracuse, NY 13212 Phone 315.437.1453 | Fax 315.437.7431

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ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
1		ECWA SCHEDULE 02/18/25 REV 12	1 day?	Fri 10/27/23	Fri 10/27/23		0%
2		**Project Schedule**	**270 days?**	**Thu 8/17/23**	**Wed 8/28/24**		**0%**
3		**Project Office Start-up**	**75 days?**	**Thu 8/17/23**	**Wed 11/29/23**		**0%**
4		Letter of award	0 days	Thu 8/17/23	Thu 8/17/23		100%
5		Contract Signed	18 days?	Mon 8/28/23	Wed 9/20/23		100%
6		Purchase Order for Electrical Equipment released	11 days?	Mon 10/16/23	Mon 10/30/23		100%
7		**EMAIL SENT TO ARCADIS EXPLAINING THE LONG LEAD TI**	**1 day?**	**Wed 11/29/23**	**Wed 11/29/23**		**100%**
8		Purchase Order for Generator	1 day?	Mon 10/16/23	Mon 10/16/23		100%
9		Purchase Order for Civil work	1 day?	Mon 10/23/23	Mon 10/23/23		100%
10		**Submittals**	**225 days?**	**Thu 10/19/23**	**Wed 8/28/24**	**4**	**0%**
11		Panelboards Submitted	22 days	Mon 12/4/23	Tue 1/2/24		100%
12		Panelboards REV 1 Submitted	22 days?	Mon 1/8/24	Tue 2/6/24		100%
13		*Actual retuned Panelboard submittal release date*	0 days	Mon 1/8/24	Mon 1/8/24		100%
14		PNL BUS DP-1-A-25 Lead time- TEMPORARY IN PLACE	156 days?	Wed 1/10/24	Wed 8/14/24		100%
15		PNL BUS HP-1-B-11A Lead time (BACKBOX3/1/24)	225 days	Thu 10/19/23	Wed 8/28/24		100%
16		PNL BUS DP-1-B-4 Lead time	158 days	Mon 1/8/24	Wed 8/14/24		100%
17		PNL BUS HP-1-B-11A Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
18		PNL BUS DP-1-B-4B Lead time (BACKBOX3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
19		PNL BUS DP-1-B-4A Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
20		PNL BUS DP-1-B-26 Lead time (BACKBOX 3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
21		PNL BUS DP-1-A-23 Lead time	168 days	Mon 1/8/24	Wed 8/28/24		100%
22		PNL BUS LP-B-4B Lead time (BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
23		PNL BUS LP-B-4A Lead time (BACKBOX3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
24		PNL BUS LP-A-25 (BACKBOX 3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
25		PNL BUS LP-B-26 (BACKBOX 3/1/24)	168 days?	Mon 1/8/24	Wed 8/28/24	13	100%
26		PHL BUS DC-1-B-LP1A Lead time(BACKBOX3/1/24)	168 days	Mon 1/8/24	Wed 8/28/24	13	100%
27		MCC BUS 1-A-23 Submitted	9 days	Mon 1/22/24	Thu 2/1/24		100%
28		MCC Lead time	38.8 wks	Mon 2/5/24	Thu 10/31/24		100%
29		Loose 480 Volt Breakers Submitted	15 days	Mon 12/4/23	Fri 12/22/23		100%
30		***Actual returned submittal for release date***	1 day	Mon 12/25/23	Mon 12/25/23	29	100%
31		Loose 480 Volt Breakers Lead time	180 days	Tue 12/26/23	Mon 9/2/24	30	100%
32		Low Voltage starters lead time	8 wks	Mon 9/2/24	Fri 10/25/24		100%
33		Transformers Submitted	41 days	Fri 10/27/23	Fri 12/22/23		100%
34		***Actual retuned Transformers submittal release date***	1 day	Mon 12/25/23	Mon 12/25/23	33	100%
35		Transformers Lead time	47 days	Wed 12/27/23	Thu 2/29/24	34	100%
36		Generator Submitted	12 days	Fri 10/27/23	Mon 11/13/23		100%
37		***Generator/ATS/Tap box submittal approved for release date***	0 days	Mon 11/13/23	Mon 11/13/23	36	100%
38		Generator Lead time	180 days	Mon 12/4/23	Fri 8/9/24	37	100%
39		MV Breakers Submitted	11 days	Fri 2/9/24	Fri 2/23/24		100%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
40		***Actual returned MV Breakers submittal release date***	1 day?	Mon 2/26/24	Mon 2/26/24	39	100%
41		MV Breakers Lead time- TEMPORARY IN PLACE	4 wks	Fri 10/4/24	Thu 10/31/24		100%
42		Mobilization	5 days	Fri 10/27/23	Thu 11/2/23		100%
43		Setup trailer and Connex boxes	1 day	Fri 10/27/23	Fri 10/27/23		100%
44		Temp power	4 days	Fri 10/27/23	Wed 11/1/23		100%
45		**Site work**	**70 days?**	**Mon 2/19/24**	**Fri 5/24/24**		**0%**
46		Site ready for UG Ductbanks	5 days	Mon 2/19/24	Fri 2/23/24		100%
47		**Primary Service (North)**	**31 days**	**Mon 3/18/24**	**Mon 4/29/24**		**0%**
48		Site survey of underground	3 days	Mon 2/19/24	Wed 2/21/24		100%
49		Mobilize Site Contractor	3 days	Wed 3/13/24	Fri 3/15/24		100%
50		Saw cutting and trenching from existing HH to HH16A	9 days	Mon 4/1/24	Thu 4/11/24		100%
51		Trenching from Substation building to HH-16A	3 days	Mon 4/22/24	Wed 4/24/24		100%
52		Set HH-16A	3 days	Tue 4/2/24	Thu 4/4/24		100%
53		Saw Cutting and trenching HH-16 to HH-16B	2 days	Fri 4/12/24	Mon 4/15/24	50	100%
54		Set HH-16B	1 day	Thu 4/25/24	Thu 4/25/24	51	100%
55		Trenching from HH-16B to Blower building	2 days	Fri 4/26/24	Mon 4/29/24	54	100%
56		Coredrill Blower building	1 day	Mon 3/18/24	Mon 3/18/24		100%
57		**Primary service (South)**	**11 days**	**Mon 3/18/24**	**Mon 4/1/24**		**0%**
58		Trenching from Existing HH-20 to HH-21	5 days	Mon 3/18/24	Fri 3/22/24		100%
59		Set HH-21	1 day	Mon 3/25/24	Mon 3/25/24	58FS-1 day	100%
60		Trenching from HH-21 to Blower building	2 days	Fri 3/29/24	Mon 4/1/24	59	100%
61		**Generator Underground**	**5 days**	**Mon 2/26/24**	**Fri 3/1/24**		**0%**
62		Underground	2 days	Mon 2/26/24	Tue 2/27/24		100%
63		**Secondary Service**	**87 days?**	**Tue 4/2/24**	**Wed 7/31/24**		**0%**
64		Conduit install for garage area to basement	14 days?	Mon 10/14/24	Thu 10/31/24		100%
65		Under ground duct bank from blower to control building	5 days	Mon 11/4/24	Fri 11/8/24		100%
66		**Ground Grid**	**3 days**	**Mon 1/8/24**	**Wed 1/10/24**		**0%**
67		Grounding Grid	3 days	Mon 1/8/24	Wed 1/10/24		100%
68		Site work complete	0 days	Fri 11/8/24	Fri 11/8/24	65	100%
69		**FILTER BUILDING START**	**125 days**	**Mon 4/1/24**	**Fri 9/20/24**		**0%**
70		Demo work	5 days	Mon 4/1/24	Fri 4/5/24		100%
71		FILTER EXTENTION COMPLETE BUILDING DRY DATE	1 day	Tue 10/15/24	Tue 10/15/24		0%
72		Installing Lights	30 days	Thu 10/31/24	Wed 12/11/24	71	100%
73		Equipment connection- HVAC, sump pumps ex fans	45 days	Mon 11/6/23	Fri 1/5/24		90%
74		Fire alarm	45 days	Mon 11/18/24	Fri 1/17/25		50%
75		Install (3) duct bank conduits blower to FEB	5 days	Mon 11/4/24	Fri 11/8/24		100%
76		Install panels	16 days	Tue 10/29/24	Tue 11/19/24		100%
77		BACK BOXES ON SITE AND TRANSFORMER	5 days	Wed 11/20/24	Tue 11/26/24	76	100%
78		Pull Feeders	5 days	Thu 12/12/24	Wed 12/18/24		100%
79		Terminations	2 days	Fri 12/27/24	Mon 12/30/24		100%
80		Instrument wiring	45 days	Mon 11/18/24	Fri 1/17/25	71	90%
81		Filtering Extention building Power on	0 days	Thu 1/2/25	Thu 1/2/25		99%
82		**BLOWER BUILDING START**	**139 days**	**Mon 4/1/24**	**Thu 10/10/24**		**0%**

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
83		Site work ready for underground	51 days	Mon 11/6/23	Mon 1/15/24		100%
84		Under slab work	5 days	Tue 1/16/24	Mon 1/22/24	83	100%
85		**BLOWER BUILDING COMPLETED DRY DATE**	**1 day**	**Thu 6/20/24**	**Thu 6/20/24**		**0%**
86		Install panel boxes and conduit stubs	5 days	Fri 6/21/24	Thu 6/27/24	85	100%
87		Install panels interior guts	5 days	Thu 8/29/24	Wed 9/4/24	19,20,14,89	100%
88		INSTALL UNIT SUBSTATIONS and secondary	6 days	Tue 7/23/24	Tue 7/30/24	85	100%
89		PULL PRIMARY FEEDERS AND TERMINATE	6 days	Fri 7/12/24	Fri 7/19/24		100%
90		INSTALL MV BREAKERS AND COMMISH SUB	29 days	Tue 10/29/24	Fri 12/6/24		100%
91		Install lighting	45 days	Mon 9/2/24	Fri 11/1/24		100%
92		Install control wiring	45 days	Mon 8/19/24	Fri 10/18/24		100%
93		Terminations	16 days	Wed 9/4/24	Wed 9/25/24		100%
94		Branch conduit and lighting	85 days	Mon 6/17/24	Fri 10/11/24		100%
95		Blower building Power on M1 NEW	0 days	Mon 12/23/24	Mon 12/23/24		100%
96		CHEMICAL BUILDING START	71 days?	Wed 5/1/24	Wed 8/7/24		0%
97		CHEMICAL BUILDING READY DRY DATE	1 day	Mon 7/8/24	Mon 7/8/24		0%
98		Install conduits to MCC	20 days	Mon 8/5/24	Fri 8/30/24	97	90%
99		Wire pulling	100 days	Mon 9/30/24	Fri 2/14/25		90%
100		Install MCC BUS 1-B-1 buckets	35 days	Mon 11/25/24	Fri 1/10/25		50%
101		Branch conduit and lighting	80 days	Mon 10/28/24	Fri 2/14/25		90%
102		Chemical building Power on	0 days	Fri 1/10/25	Fri 1/10/25	100	0%
103		**Generator**	**401 days?**	**Fri 10/27/23**	**Fri 5/9/25**		**0%**
104		Set ATS	4 days?	Mon 8/5/24	Thu 8/8/24		100%
105		Set Generator	5 days	Mon 8/12/24	Fri 8/16/24	38	100%
106		Pull Feeders	45 days	Mon 10/21/24	Fri 12/20/24		100%
107		Startup	20 days	Mon 12/16/24	Fri 1/10/25		100%
108		Ready for service	0 days	Fri 1/10/25	Fri 1/10/25	107	100%
109		CONTROL BUILDING BASEMENT ELECTRICAL ROOM	1 day?	Mon 9/9/24	Mon 9/9/24		0%
110		INSTALL DP-1-A-23 PANEL BACKBOX	5 days	Tue 9/10/24	Mon 9/16/24	109	100%
111		INSTALL TRANSFORMERS AND MISC BACKBOXES	25 days	Mon 10/28/24	Fri 11/29/24	109	100%
112		INSTALL CONDUITS AND PULL FEEDERS	20 days	Mon 12/9/24	Fri 1/3/25	111	100%
113		INSTALL CONDUITS FROM MCC TO FILTER VALUE BOXES	47 days	Tue 9/24/24	Wed 11/27/24	109	90%
114		POWER ON CONTROL BUILDING ELECTRICAL PANELS	0 days	Fri 2/28/25	Fri 2/28/25	112	0%
115		**7 WEEK LOOK AHEAD 2/17/25 through 4/**	35 days?	Mon 2/17/	Fri 4/4/25		0%
116		*Pull wires to PLC*	5 days	Fri 2/14/25	Thu 2/20/25		50%
117		*Terminate HV-1*	5 days	Thu 2/20/25	Wed 2/26/25		50%
118		*Mount valve panel in filter extention*	5 days	Mon 2/24/25	Fri 2/28/25		10%
119		*Terminate valves, PIT. FIT Misc. instruments in filter extention for MOTION AI testing 3/11*	10 days	Thu 2/20/25	Wed 3/5/25		35%
120		*Sample pump and sump controller (Chemical building) 2/25 Fluid*	1 day	Mon 2/24/25	Mon 2/24/25		80%
121		*Chemical Scales and Chlorine analyzer*	5 days	Mon 2/24/25	Fri 2/28/25		50%
122		*Ex. Fan connections filter building 11/12*	5 days	Wed 3/19/25	Tue 3/25/25		60%
123		*Ex. Fans blower*	2 days	Mon 3/24/25	Tue 3/25/25		95%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
124		*Wire DU-1*	2 days	Mon 3/17/25	Tue 3/18/25		95%
125		NOT PART OF O'CONNELL M1 (but part of 7 weeek look ahead)	1 day?	Fri 10/27/23	Fri 10/27/23		0%
126		*Chemical transfer pump??*	10 days	Mon 3/10/25	Fri 3/21/25		0%
127		*Filter extention lights/fire alarm*	5 days	Fri 3/28/25	Thu 4/3/25		10%
128		*Run fiber conduits in filter gallery*	15 days?	Mon 4/7/25	Fri 4/25/25		10%
129		*Fiber to blower building*	15 days	Mon 4/7/25	Fri 4/25/25		0%
130		*Install conduits on operation level for filters (all)*	30 days	Mon 3/31/25	Fri 5/9/25		0%
131		*6-10 Valve panel conduits*	30 days	Mon 3/31/25	Fri 5/9/25		0%
132		*Chemical heat trace (ACE and JWD)??*	10 days	Mon 3/24/25	Fri 4/4/25		0%
133		*Misc. instruments in pipe gallery*	20 days	Mon 3/31/25	Fri 4/25/25		0%
134		*Security in chemical?*	2 days	Thu 4/3/25	Fri 4/4/25		95%
135		*Chemnical fire alarm??? Not part of OCE M1*	10 days?	Mon 3/24/25	Fri 4/4/25		0%
136		DU-2??? Not part of OCE M1	8 days	Mon 4/7/25	Wed 4/16/25		0%
137		*DU-3 &DU-4?? Not part of OCE M1*	10 days	Mon 4/7/25	Fri 4/18/25		0%
138		**M1 MILESTONE**	**370 days**	**Wed 11/1/23**	**Tue 4/1/25**		**0%**
139		**Filter #10**	**53 days**	**Tue 4/1/25**	**Thu 6/12/25**		**0%**
140		Demo work	5 days	Tue 4/1/25	Mon 4/7/25		5%
141		Install Overhead conduits for power and control	30 days	Tue 4/8/25	Mon 5/19/25	140	20%
142		Pullind wiring for power and control	30 days	Tue 4/29/25	Mon 6/9/25	141FS-15 days	0%
143		Terminations	10 days	Fri 5/23/25	Thu 6/5/25	142FS-12 days	0%
144		Testing	5 days	Fri 6/6/25	Thu 6/12/25	143,81	0%
145		**Filter #9**	**43 days**	**Fri 6/13/25**	**Tue 8/12/25**	**144**	**0%**
146		Demo work	5 days	Fri 6/13/25	Thu 6/19/25	144	0%
147		Install Overhead conduits for power and control	30 days	Fri 6/20/25	Thu 7/31/25	146	20%
148		Pullind wiring for power and control	20 days	Fri 7/11/25	Thu 8/7/25	147FS-15 days	0%
149		Terminations	10 days	Wed 7/23/25	Tue 8/5/25	148FS-12 days	0%
150		Testing	5 days	Wed 8/6/25	Tue 8/12/25	149,81	0%
151		**Filter #8**	**30 days**	**Wed 8/13/25**	**Tue 9/23/25**	**150**	**0%**
152		Demo work	5 days	Wed 8/13/25	Tue 8/19/25	150	0%
153		Install Overhead conduits for power and control	20 days	Wed 8/20/25	Tue 9/16/25	152	20%
154		Pullind wiring for power and control	20 days	Wed 8/27/25	Tue 9/23/25	153FS-15 days	0%
155		Terminations	10 days	Wed 9/3/25	Tue 9/16/25	154FS-15 days	0%
156		Testing	5 days	Wed 9/17/25	Tue 9/23/25	155	0%
157		ACTUAL M2 COMPLETION DATE	1 day?	Mon 9/8/25	Mon 9/8/25	156FS-12 days	0%
158		**M2 MILESTONE**	**195 days**	**Mon 9/2/24**	**Fri 5/30/25**	**138**	**0%**
159		**Filter #7**	**45 days**	**Wed 9/24/25**	**Tue 11/25/25**	**156**	**0%**
160		Demo work	5 days	Wed 9/24/25	Tue 9/30/25	156	0%
161		Install Overhead conduits for power and control	30 days	Wed 10/1/25	Tue 11/11/25	160	20%
162		Pullind wiring for power and control	30 days	Wed 10/15/25	Tue 11/25/25	161FS-20 days	0%
163		Terminations	10 days	Fri 10/31/25	Thu 11/13/25	162FS-18 days	0%
164		Testing	5 days	Fri 11/14/25	Thu 11/20/25	163,81	0%

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	% Work Complete
165		**Filter #6**	**45 days**	**Tue 12/2/25**	**Mon 2/2/26**	**164FS+7 days**	**0%**
166		Demo work	5 days	Tue 12/2/25	Mon 12/8/25	164FS+7 days	0%
167		Install Overhead conduits for power and control	30 days	Tue 12/9/25	Mon 1/19/26	166	20%
168		Pullind wiring for power and control	30 days	Tue 12/23/25	Mon 2/2/26	167FS-20 days	0%
169		Terminations	10 days	Tue 1/6/26	Mon 1/19/26	168FS-20 days	0%
170		Testing	5 days	Tue 1/20/26	Mon 1/26/26	169	0%
171		**Filter #5**	**45 days**	**Tue 1/27/26**	**Mon 3/30/26**	**170,81**	**0%**
172		Demo work	5 days	Tue 1/27/26	Mon 2/2/26	170	0%
173		Install Overhead conduits for power and control	30 days	Tue 2/3/26	Mon 3/16/26	172	0%
174		Pullind wiring for power and control	30 days	Tue 2/17/26	Mon 3/30/26	173FS-20 days	0%
175		Terminations	10 days	Tue 3/3/26	Mon 3/16/26	174FS-20 days	0%
176		Testing	5 days	Tue 3/17/26	Mon 3/23/26	175,81	0%
177		**Filter #4**	**70 days**	**Tue 3/31/26**	**Mon 7/6/26**	**176FS+5 days**	**0%**
178		**Demo work**	**70 days**	**Tue 3/31/26**	**Mon 7/6/26**		**0%**
179		Install Overhead conduits for power and control	30 days	Tue 3/31/26	Mon 5/11/26		20%
180		Pullind wiring for power and control	30 days	Thu 5/7/26	Wed 6/17/26	179FS-3 days	0%
181		Terminations	10 days	Tue 6/16/26	Mon 6/29/26	180FS-2 days	0%
182		Testing	5 days	Tue 6/30/26	Mon 7/6/26	181,81	0%
183		ACTUAL M3 COMPLETION DATE	1 day?	Tue 6/9/26	Tue 6/9/26	182FS-20 days	0%
184		**M3 MILESTONE**	**235 days?**	**Mon 6/2/25**	**Fri 4/24/26**	**158**	**0%**
185		**Filter #3**	**60 days**	**Tue 7/7/26**	**Mon 9/28/26**	**182**	**0%**
186		Demo work	5 days	Tue 7/7/26	Mon 7/13/26	182	0%
187		Install Overhead conduits for power and control	30 days	Tue 7/14/26	Mon 8/24/26	186	20%
188		Pullind wiring for power and control	30 days	Tue 8/11/26	Mon 9/21/26	187FS-10 days	0%
189		Terminations	10 days	Tue 9/8/26	Mon 9/21/26	188FS-10 days	0%
190		Testing	5 days	Tue 9/22/26	Mon 9/28/26	189	0%
191		**Filter #2**	**59 days**	**Tue 9/29/26**	**Fri 12/18/26**	**190**	**0%**
192		Demo work	5 days	Tue 9/29/26	Mon 10/5/26	190	0%
193		Install Overhead conduits for power and control	30 days	Tue 10/6/26	Mon 11/16/26	192	20%
194		Pullind wiring for power and control	30 days	Mon 11/2/26	Fri 12/11/26	193FS-11 days	0%
195		Terminations	10 days	Mon 11/30/26	Fri 12/11/26	194FS-10 days	0%
196		Testing	5 days	Mon 12/14/26	Fri 12/18/26	195,81	0%
197		**Filter #1**	**55 days**	**Mon 12/21/26**	**Fri 3/5/27**	**196**	**0%**
198		Demo work	5 days	Mon 12/21/26	Fri 12/25/26	196	0%
199		Install Overhead conduits for power and control	30 days	Mon 12/28/26	Fri 2/5/27	198	20%
200		Pullind wiring for power and control	25 days	Mon 1/25/27	Fri 2/26/27	199FS-10 days	0%
201		Terminations	10 days	Mon 2/15/27	Fri 2/26/27	200FS-10 days	0%
202		Testing	5 days	Mon 3/1/27	Fri 3/5/27	201	0%
203		ACTUAL SUBSTANTION COMPLETION DATE	1 day?	Mon 3/8/27	Mon 3/8/27	202	0%
204		SUBSTANTIAL COMPLETION	265 days	Mon 4/27/26	Fri 4/30/27	184	0%

SECTION 01 13 13

MILESTONES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section describes Work to be substantially completed to comply with Milestones indicated in the Agreement. This Section is not intended to describe all the Work or its constraints, interrelationships, or sequential requirements required.
   2. Prime CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals required to perform the Work in accordance with the Contract Times provisions of the Contract Documents.
   3. To achieve each Milestone indicated in this Section, substantially complete those elements of the Work indicated starting with Article 1.2 of this Section, together with related equipment, systems, and appurtenant Work and activities.
   4. Comply with the General Conditions, as may be modified by the Supplementary Conditions, regarding partial utilization and property insurance.

1.2 MILESTONE REQUIREMENTS (ALL CONTRACTS)

A. Milestone M1:
   1. Contract Time: Refer to 00 52 13, Agreement.
   2. Work associated with the blower building, filter building extension, wash water supply piping from new wash water tank to filter building extension, air scour piping from blower building to the filter building extension, filter to waste piping from filter building extension to chamber S-2, chemical feed piping from residuals pump station to chemical injection manhole shall be completed and placed into continuous, successful operation. Checkout, start-up, field quality control testing, and training of operations and maintenance personnel shall be completed prior to this Milestone.
   3. Work not included with this Milestone is as follows:
      a. Site Work:
         i. Site restoration
         ii. Final paving around blower and chemical buildings.
         iii. Final grading and plantings for bioretention facility.
         iv. Filter Building Extension and Blower Building exterior concrete.
      b. Filter Building Extension:
         i. Interior masonry walls and stairwell at operating floor and pipe gallery extension.
         ii. Double door (F08-1).

c. Filter Building:
    i. Aluminum storefront at Filter Building operating floor.
    ii. Hose bibs and associated piping on the operating floor.
d. Blower Building: Bypass silencer.

4. Contractor shall provide temporary generator in place of SPGEN004 if it is not available before completion of Milestone M1. Temporary generator shall be connected to automatic transfer switch ATS-3B for fully automated control (including SCADA communications) as if the permanent unit is installed.

B. Milestone M2:
1. Contract Time: Refer to 00 52 13, Agreement
2. Work associated with Filter Nos. 5, 6, 7, 8, 9, & 10 improvements completed and placed into continuous, successful operation including but not limited to new filter underdrain system, media placement, new filter piping, valves, actuators, new air scour piping, re-installed analyzers and transmitters, associated plumbing, HVAC, electrical and instrumentation improvements. Checkout, start-up, field quality control testing, and training of operations and maintenance personnel shall be completed prior to this Milestone.
3. Work associated with all site restoration, all final paving, bioretention facility, Blower Building bypass silencer, Filter Building Extension and Blower Building exterior concrete, and Filter Building hose bibs and associated piping.
4. This milestone does not include the filter influent valves which will be completed after Milestone M3.

C. Milestone M3:
1. Contract Time: Refer to 00 52 13, Agreement
2. Work associated with Filter Nos. 3 & 4 improvements completed and placed into continuous, successful operation including but not limited to new filter underdrain system, media placement, new filter piping, valves, actuators, new air scour piping, re-installed analyzers and transmitters, associated electrical and instrumentation improvements. Checkout, start-up, field quality control testing, and training of operations and maintenance personnel shall be completed prior to this Milestone.
3. Work associated with Filter Nos. 5, 6, 7, 8, 9, and 10 washwater header and washwater supply piping.
4. This milestone does not include the filter influent valves which will be completed after Milestone M3.

D. Substantial Completion:
1. Contract Time: Refer to 00 52 13, Agreement
2. Work associated with Filter Nos. 1 & 2 improvements completed and placed into continuous, successful operation including but not limited to new filter underdrain system, media placement, new filter piping, valves, actuators, new air scour piping, re-installed analyzers and transmitters, associated electrical and instrumentation improvements. Checkout, start-up, field quality control

testing, and training of operations and maintenance personnel shall be completed prior to this Milestone.

3. Work associated with Filter Nos. 1, 2, 3 & 4 washwater header and washwater supply piping.
4. Work associated with Filter Building Extension including the masonry wall, stairwell, and double door at hoist.
5. Work associated with Filter Building operating level aluminum storefront.
6. This milestone includes all filter influent valves, and all remaining work not included in previous milestones.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 14 16

COORDINATION WITH OWNER'S OPERATIONS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for coordinating with OWNER's operations during the Work and includes requirements for tie-ins and shutdowns necessary to complete the Work without impact on OWNER's operations except as allowed in this Section.
   2. CONTRACTOR shall provide labor, materials, tools, equipment, and incidentals shown, specified and required to coordinate with OWNER's operations during the Work

B. Coordination:
   1. Review installation procedures under other Specification sections and coordinate Work that must be performed with or before the Work specified in this Section.
   2. Notify other contractors in advance of Work requiring coordination with OWNER's operations, to provide other contractors sufficient time for work included in their contracts that will be performed with or before Work specified in this Section.

C. Related Sections:
   1. Section 01 11 13, Summary of Work.
   2. Section 01 73 24, Connections to Existing Facilities.
   3. Section 01 73 29, Cutting and Patching.

D. Except for shutdowns specified in this Section, perform the Work such that OWNER's facility remains in continuous satisfactory operation during the Project. Schedule and conduct the Work such that the Work does not impede OWNER's production or processes, create potential hazards to operating equipment and personnel, reduce the quality of the facility's products or effluent, or cause odors or other nuisances.

E. Work not specifically covered in this Section or in referenced Sections may, in general, be completed at any time during regular working hours at the Site, as defined below, subject to the requirements in this Section.
   1. Except where otherwise prohibited by Laws or Regulations or by consent of OWNER, regular working hours at the Site are defined as up to eight hours per day, beginning no earlier than 7:00 a.m. and ending no later than 4:00 p.m.

2. Maintenance and cleanup activities may be performed during hours other than regular working hours provided that such activities do not require the startup of construction equipment.
3. If it shall become necessary to perform Work at night or on Saturdays, Sundays, or legal holidays, written notice shall be submitted to OWNER and ENGINEER at least two days in advance of the need for such Work. OWNER will only consider the performance of such Work as can be performed satisfactorily under the conditions. Good lighting and all other necessary facilities for carrying out and observing the Work shall be provided and maintained where such Work is being performed at night.
4. If OWNER authorizes Work during other than regular working hours, CONTRACTOR shall reimburse OWNER for all OWNER's additional costs associated with such Work, including, but not necessarily limited to, the overtime costs for OWNER's and ENGINEER's personnel on the Site and other additional costs assessed against or incurred by the OWNER. At Owner's option, such additional costs may either be deducted from CONTRACTOR's progress payments or deducted from the retained amount prior to release following Substantial Completion.

F. Coordinate shutdowns with OWNER and ENGINEER. When possible, combine multiple tie-ins into a single shutdown to minimize impacts on OWNER's operations and processes.

G. The Sturgeon Point Water Treatment Plant will remain in continuous service during the Work under the Contract including all pumping, treatment, chemical application, residuals conveyance and processing, and operations and maintenance work.

H. CONTRACTOR shall cooperate fully with the OWNER when the production and/or quality of the Treatment Plant is threatened due to the CONTRACTOR's operations or unforeseen conditions beyond the OWNER's control that negatively effect the operation of the water system and therefore may affect the CONTRACTOR's operation. The CONTRACTOR shall cooperate fully with the OWNER including stopping of work to avoid loss of pumping and/or detrimental water quality at no additional cost to OWNER.

I. Do not shut off or disconnect existing operating systems, unless accepted by ENGINEER in writing. Operation of existing equipment will be by OWNER unless otherwise specified or indicated. Where necessary for the Work, CONTRACTOR shall seal or bulkhead OWNER-operated gates and valves to prevent leakage that may affect the Work, OWNER's operations, or both. Provide temporary watertight plugs or bulkheads as required. After completing the Work, remove seals, plugs, and bulkhead to satisfaction of ENGINEER.

1.2 SUBMITTALS

A. Action Submittals: Submit the following:

1. Substitute Sequence Submittal: When deviation from specified sequence or procedures is proposed, furnish submittal explaining in detail the proposed sequence or procedures and associated effects, including evidence that OWNER's operations will not be adversely affected, to an extent greater than originally contemplated in the Contract Documents, by proposed substitution. List benefits of proposed substitution, including benefits to Progress Schedule. Submit in accordance with Section 01 25 00, Substitution Procedures, and other requirements of the Contract Documents regarding substitution requests.

B. Informational Submittals: Submit the following:
   1. Shutdown Planning Submittal:
      a. For each shutdown, submit an inventory of labor, materials, and equipment required to perform the shutdown and tie-in tasks, an estimate of time required to accomplish the complete shutdown including time for OWNER to take down and start up existing equipment, systems, or conduits, and written description of steps required to complete the Work associated with the shutdown.
      b. Furnish submittal to ENGINEER at least thirty days prior to proposed shutdown start date. Do not start shutdown until obtaining ENGINEER's acceptance of shutdown planning submittal.
   2. Shutdown Notification: After ENGINEER's acceptance of shutdown planning submittal and prior to starting the shutdown, submit written notification to OWNER and ENGINEER of date and time each shutdown is to start. Submit notification not less than 72 hours in advance of each shutdown.

1.3 GENERAL CONSTRAINTS

A. Indicated in the Contract Documents are the sequence and shutdown durations, where applicable, for OWNER's equipment, systems, and conduits (including piping and ducting) that are to be taken out of service temporarily for the Work. New materials, equipment, and systems may be used by OWNER after the specified field quality controls and testing are successfully completed and the materials or equipment are substantially complete in accordance with the Contract Documents.

B. The following constraints apply to coordination with OWNER's operations:
   1. Operational Access: OWNER's personnel shall have access to equipment and areas that remain in operation.
   2. Temporary Partitions and Enclosures: CONTRACTOR shall provide temporary partitions and enclosures around each filter cell where demolition is being performed necessary to maintain dust-free, and ventilated spaces in areas that are adjacent to the filters that must be kept operational.
   3. CONTRACTOR shall schedule and perform start-ups for Monday through Thursday. Equipment and systems shall not be placed into operation on Friday, Saturday, Sunday, and OWNER holidays without prior approval of OWNER.

4. Dead End Valves or Conduits: Provide blind flanges, watertight bulkheads, or valves at temporary and permanent terminuses of conduits, including piping and ducting. Blind flanges and bulkheads shall be suitable for the service and braced and blocked, as required, or otherwise restrained as directed by ENGINEER. Temporary valves shall be suitable for their associated service. Where a valve is provided at permanent terminus of conduit, including piping or ducting, also provide on downstream side of valve a blind flange with drain/flushing connection.
5. Removals shall be made with caution to prevent damage to existing facilities.
6. Draining and Cleaning of Conduits, Tanks, and Basins:
    a. Unless otherwise shown or indicated, CONTRACTOR shall dewater process tanks, basins, conduits (including piping) at beginning of each shutdown. Flush, wash down, and clean tanks, basins, conduits (including piping), and other work areas.
    b. CONTRACTOR shall remove solids and dispose of off-site. Unless otherwise specified or indicated, contents of tanks, basins, and conduits (including piping) undergoing modifications shall be transferred to existing process tanks or conduits at the Site with capacity sufficient to accept such discharges, using hoses, temporary piping, temporary pumps, or other means provided by CONTRACTOR. Discharge of fluids across floors is not allowed. Unless otherwise specified or indicated, remaining contents of chemical tanks and chemical piping that could not be transferred to existing tanks or conduits shall be removed and disposed of off-site.
    c. If drainage point is not available on the conduit (including piping) to be drained, provide a wet tap using tapping saddle and valve or other method approved by ENGINEER. Uncontrolled spillage of contents of conduits (including piping) is not allowed.
    d. Spillage shall be brought to ENGINEER's attention immediately, both verbally and in writing, and reported in accordance with Laws and Regulations. CONTRACTOR shall wash down spillage to floor drains or sumps or other appropriate location and flush the system to prevent clogging and odors. If spillage is not suitable for discharge to the drainage system, such as chemical spills, as determined by ENGINEER, CONTRACTOR shall remove spillage by other method, such as vactor truck, sorbents, or other method acceptable to ENGINEER.

1.4 SEQUENCE OF WORK

A. Perform Work in the indicated sequence. Certain phases or stages of the Work may require working 24-hour days or work during hours outside of regular working hours. Work may be accelerated from a later stage to an earlier stage if OWNER's operations are not adversely affected by proposed sequence change, with ENGINEER's acceptance. Stages specified in this Article 1.4 are sequence dependent.

B. Phase Ia: New Blower Building:

1. During this stage, the following Work shall be completed:
    a) Excavation and re-routing of existing buried utilities including, 4" & 6" PW, 2 ½" & 3" gas lines.
    b) Construction of new blower building, including the excavation and installation of the electrical service from the Substation Building.
    c) Installation of new blowers, 18" air piping, valves and appurtenances within blower building.
    d) Installation of HVAC, Plumbing, Electrical, and Instrumentation within blower building.

C. Phase Ib: Filter Building Extension:
    1. During this stage, the following Work shall be completed:
        a) Excavation and re-routing of existing storm sewer lines.
        b) Demolition of existing filter building west wall.
        c) Construction of the filter building extension.
        d) Installation of 42" washwater supply piping, valves, appurtenances, and rate of flow controller, 16" filter to waste piping, valves, appurtenances, and rate of flow controller, 18" air supply piping and appurtenances within the filter building extension.
        e) Installation of HVAC, Plumbing, Electrical, and Instrumentation. Excavation and installation of the electrical feeds from the blower building to the filter building extension and the filter building Electrical Room.

D. Phase Ic: 42" Wash Water Piping:
    1. During this stage, the following Work shall be completed:
        a) Installation of new 42" wash water piping from new wash water tank through the Filter Building Extension to the west end of the existing filter gallery.
        b) Complete cleaning, testing, and disinfection on new wash water piping.

E. Phase Id: 18" Air Supply Piping:
    1. During this stage, the following Work shall be completed:
        a) Installation of new exterior 18" air supply piping and supports from new blower building to the new filter building extension.
        b) Installation of new 18" air supply piping headers from the Filter Building Extension through the Filter Operating Level including the valves at each filter.

F. Phase Ie: 8" Wash Water Supply and Altitude Valve:
    1. During this stage, the following Work shall be completed:
        a) Installation of new 6" wash water tank supply piping from the existing 6" plant waterline to PV-WWS-2 in the Filter Building Extension.
        b) Installation of new 8" wash water supply piping, altitude valve, and appurtenances from west end of the existing filter gallery to tie-in point on new 42" wash water supply pipe in the Filter Building Extension.

c) Complete cleaning, testing, and disinfection on new wash water supply piping.

G. Phase If: Filter to Waste Piping:
1. During this stage, the following Work shall be completed:
   a) Installation of new 24" and 30" filter to waste piping, manholes, and filter to waste air gap chamber from filter building extension to and including the new filter to waste mixing chamber.
   b) Installation of remaining 30" filter to waste piping including filter to waste manholes to existing chamber S-2.
   c) Tie-in existing 20" plant overflow to new filter to waste manhole No.2.

H. Phase Ig: Sodium Bisulfite Chemical Feed Piping:
1. During this stage, the following Work shall be completed:
   a) Demolition of one existing chemical feed tubing, carrier pipe, and heat trace from the existing chemical injection manhole to the Residuals Pump Station.
   b) Installation of one new chemical feed tubing, carrier pipe, and heat trace from chemical injection manhole to Residuals Pump Station.
   c) Complete tie-in of new chemical feed piping to existing sodium bisulfite feed system.

I. Phase Ih: Fiber Optic Network:
1. During this stage, the following Work shall be completed:
   a) Installation of the new fiber optic cable ring between all of the filter control panels, blower control panel, flash mixer room, and control room.

J. Phase Ii: New Chemical Storage Building:
1. During this stage, the following Work shall be completed. Note that this phase does not need to be completed prior to starting any filter rehabilitation work.
   a) Excavation and re-routing of existing buried utilities.
   b) Demolition of existing Residuals Building north wall.
   c) Construction of new chemical storage building.
   d) Installation of equipment, piping, valves, and appurtenances.
   e) Installation of HVAC, Plumbing, Electrical, and Instrumentation.

K. Phase II: Filter No.10:
1. During this stage, the following Work shall be completed.
   a) Isolate Filter No. 10 by closing valves EXV-FI-10, EXV-FE-10, EXV-SWW-10, EXV-WW-10, EXV-FTW-10, EXV-SW-10a, and EXV-SW-10b.
   b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-10, EXV-SW-10a&10b to remain until Phase VIII.

c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-10 and install new spent washwater valve PV-SWW-10.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-10 and EXV-FI-10.
i) Temporarily recircuit valve actuator for EXV-WW-10 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-10 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Install new 16” filter to waste piping from filter building extension past Filter No.10 and install blind flange BF-FTW-10.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-10.
m) Complete disinfection of new washwater tank.
n) Complete cleaning, testing, and disinfection of piping and underdrain system.
o) Complete 2-week performance test.

L. Phase III: Filter No.9:
1. During this stage, the following Work shall be completed.
a) Isolate Filter No.9 by closing valves EXV-FI-9, EXV-FE-9, EXV-SWW-9, EXV-WW-9, EXV-FTW-9, EXV-SW-9a, and EXV-SW-9b.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-9, EXV-SW-9a&9b to remain until Phase VIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-9 and install new spent washwater valve PV-SWW-9.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-9 and EXV-FI-9.
i) Temporarily recircuit valve actuator for EXV-WW-9 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.

j) Temporarily recircuit valve actuator for EXV-FI-9 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Install new 16” filter to waste piping from filter building extension past Filter No.9 and install blind flange BF-FTW-9.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-9.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 2-week performance test.

M. Phase IV: Filter No. 8:
1. During this stage, the following Work shall be completed.
a) Isolate Filter 8 by closing valves EXV-FI-8, EXV-FE-8, EXV-SWW-8, EXV-WW-8, EXV-FTW-8, EXV-SW-8a, and EXV-SW-8b.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-8, EXV-SW-8a&8b to remain until Phase VIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-8 and install new spent washwater valve PV-SWW-8.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-8 and EXV-FI-8.
i) Temporarily recircuit valve actuator for EXV-WW-8 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-8 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-10 and install new 16” filter to waste piping from Filter No.10 past Filter No.8. Install blind flange BF-FTW-8.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-8.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 1-week performance test.

N. Phase V: Filter No.7:
2. During this stage, the following Work shall be completed.

a) Isolate Filter No.7 by closing valves EXV-FI-7, EXV-FE-7, EXV-SWW-7, EXV-WW-7, EXV-FTW-7, EXV-SW-7a, and EXV-SW-7b.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-7, EXV-SW-7a&7b to remain until Phase VIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-7 and install new spent washwater valve PV-SWW-7.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-7 and EXV-FI-7.
i) Temporarily recircuit valve actuator for EXV-WW-7 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-7 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-9 and install new 16” filter to waste piping from Filter No.9 past Filter No.7. Install blind flange BF-FTW-7.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-7.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 1-week performance test.

O. Phase VI: Filter No.6:
1. During this stage, the following Work shall be completed.
a) Isolate Filter No.6 by closing valves EXV-FI-6, EXV-FE-6, EXV-SWW-6, EXV-WW-6, EXV-FTW-6, EXV-SW-6a, and EXV-SW-6b.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-6, EXV-SW-6a&6b to remain until Phase VIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-6 and install new spent washwater valve PV-SWW-6.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.

h) Install new conduit and control wiring to existing valve actuators for EXV-WW-6 and EXV-FI-6.
i) Temporarily recircuit valve actuator for EXV-WW-6 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-6 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-8 and install new 16" filter to waste piping from Filter No.8 past Filter No.6. Install blind flange BF-FTW-6.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-6.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 1-week performance test.

P. Phase VII: Filter No.5:
1. During this stage, the following Work shall be completed.
a) Isolate Filter 5 by closing valves EXV-FI-5, EXV-FE-5, EXV-SWW-5, EXV-WW-5, EXV-FTW-5, EXV-SW-5a, and EXV-SW-5b.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-5, EXV-SW-5a&5b to remain until Phase VIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-5 and install new spent washwater valve PV-SWW-5.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-5 and EXV-FI-5.
i) Temporarily recircuit valve actuator for EXV-WW-5 to a 20A-1P circuit breaker in Panel LP-4B using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-5 to a 15A-3P circuit breaker in Panel LP-4B using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-7 and install new 16" filter to waste piping from Filter No.7 past Filter No.5. Install blind flange BF-FTW-5.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-5.

m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 1-week performance test.

Q. Phase VIII: Filter Nos. 5, 6, 7, 8, 9, and 10 Washwater Header and Washwater Supply Piping:
1. Filter Nos. 9 and 10 washwater header and washwater supply piping - during this stage, the following Work shall be completed.
a) Isolate Filter Nos. 9 and 10 by closing valves EXV-FI-9&10, PV-FE-9&10, PV-SWW-9&10, PV-FTW-9&10, EXV-WW-9&10, PV-AS-9a&9b, and PV-AS-10a&10b.
b) Isolate the existing washwater header by closing valve EXV-ROFC-1. Isolate the new washwater header in the filter building extension by closing valve PV-ROFC-2. Drain the existing and new washwater headers.
c) Isolate the existing surface wash header by closing all existing surface wash valves on Filters 1-8 and EXV-WWS-1. Drain the existing surface wash header.
d) Remove existing washwater header at harnessed connection between Filter Nos. 7,8 and 9,10 and install blind flange on the existing pipe to remain in service. Harness the blind flange to existing pipe lugs and return existing washwater header to service. Remove existing surface wash header at flanged connection between Filters 7/8 and 9/10 and install blind flange BF-WWS-9/10 on the existing header to remain in service. Return existing surface wash header to service.
e) Demolish and remove remaining sections of the existing surface wash header and washwater header, including valves EXV-WW-9, EXV-WW-10, EXV-SW-9a&9b, and EXV-SW-10a&10b.
f) Disconnect temporary power feed and control wiring to valve actuators EXV-WW-9 and EXV-WW-10.
g) Install the new washwater header and valve PV-WWH-9/10.
h) Install new valves PV-WW-9 and PV-WW-10 including permanent power for actuators from Filter Gallery Disconnect Panel 9 (Filter 9) and Filter Gallery Disconnect Panel 10 (Filter No. 10). Reconnect control wiring.
i) Install new washwater supply piping and install dust cover over the end of the new washwater supply piping adjacent to blind flange BF-WWS-9/10. Pipe to remain empty until remaining sections are completed.
j) Complete cleaning, testing, and disinfection of the new washwater header then place Filter Nos. 9 and 10 and new washwater header into service.

2. Filter Nos. 7 and 8 washwater header and washwater supply piping - during this stage, the following Work shall be completed.
a) Isolate Filter Nos. 7 and 8 by closing valves EXV-FI-7&8, PV-FE-7&8, PV-SWW-7&8, PV-FTW-7&8, EXV-WW-7&8, PV-AS-7a&7b, and PV-AS-8a&8b.

b) Isolate the existing washwater header by closing the valve EXV-ROFC-1. Isolate the existing surface wash header by closing all existing surface wash valves on Filter Nos. 1-6 and EXV-WWS-1. Drain the existing washwater header and surface wash header.

c) Remove existing washwater header at harnessed connection between Filter Nos. 7,8 and 5,6 and install blind flange on the existing pipe to remain in service. Harness the blind flange to existing pipe lugs and return existing washwater header to service. Remove existing surface wash header at flanged connection between Filter Nos. 7,8 and 5,6 and install blind flange BF-WWS-7/8 on the existing header to remain in service. Return existing surface wash header to service.

d) Demolish and remove remaining sections of the existing surface wash header and washwater header, including valves EXV-WW-7, EXV-WW-8, EXV-SW-7a&7b, EXV-SW-8a&8b.

e) Disconnect temporary power feed and control wiring to valve actuators EXV-WW-7 and EXV-WW-8.

f) Connect to valve PV-WWH-9/10 and install new washwater header. Install valves PV-WWH-7/8, PV-WW-7, and PV-WW-8.

g) Install permanent power to new valve actuators for PV-WW-7 and PV-WW-8 from Filter Gallery Disconnect Panel 7 (Filter No.7) and Filter Gallery Disconnect Panel 8 (Filter No.8). Reconnect control wiring.

h) Install new washwater supply piping and install dust cover over the end of the new washwater supply piping adjacent to blind flange BF-WWS-7/8. Pipe to remain empty until remaining sections are completed.

i) Complete cleaning, testing, and disinfection of new wash water header.

j) Place Filter Nos. 7 and 8 and new washwater header into service.

3. Filter Nos. 5 and 6 washwater header and washwater supply piping - during this stage, the following Work shall be completed.

a) Isolate Filter Nos. 5 and 6 by closing valves EXV-FI-5&6, PV-FE-5&6, PV-SWW-5&6, PV-FTW-5&6, EXV-WW-5&6, PV-AS-5a&5b, and PV-AS-6a&6b.

b) Isolate the existing washwater header by closing the valve EXV-ROFC-1. Isolate the existing surface wash header by closing all existing surface wash valves on Filter Nos. 1-4 and EXV-WWS-1. Drain the existing washwater header and surface wash piping.

c) Remove existing washwater header at harnessed connection between Filter Nos. 5,6 and 3,4 and install blind flange on the existing pipe to remain in service. Harness the blind flange to existing pipe lugs and return existing washwater header to service. Remove existing surface wash header at flanged connection between Filter Nos. 5,6 and 3,4 and install blind flange BF-WWS-5/6 on the existing header to remain in service. Return existing surface wash piping to service.

d) Demolish and remove remaining sections of the existing surface wash header and washwater header, including valves EXV-WW-5, EXV-WW-6, EXV-SW-5a&5b, EXV-SW-6a&6b.

e) Disconnect temporary power feed and control wiring to valve actuators EXV-WW-5 and EXV-WW-6.
f) Connect to valve PV-WWH-7/8 and install the new washwater header. Install valves PV-WWH-5/6, PV-WW-5, and PV-WW-6.
g) Install permanent power to new valve actuators for PV-WW-5 and PV-WW-6 from Filter Gallery Disconnect Panel 5 (Filter No.5) and Filter Gallery Disconnect Panel 6 (Filter No.6). Reconnect control wiring.
h) Install new washwater supply piping and install dust cover over the end of the new washwater supply piping adjacent to blind flange BF-WWS-5/6. Pipe to remain empty until remaining sections are completed.
i) Complete cleaning, testing, and disinfection of new wash water header.
j) Place Filter Nos. 5 and 6 and new washwater header into service.

R. Phase IX: Filter No.4:

1. During this stage, the following Work shall be completed.
   a) Isolate Filter No.4 by closing valves EXV-FI-4, EXV-FE-4, EXV-SWW-4, EXV-WW-4, EXV-FTW-4, EXV-SW-4.
   b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-4 and EXV-SW-4 to remain until Phase XIII.
   c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
   d) Demolish existing spent washwater valve EXV-SWW-4 and install new spent washwater valve PV-SWW-4.
   e) Install new underdrain system, air scour piping, valve and appurtenances.
   f) Install new filter media.
   g) Install new conduit, power and control wiring to all new valve actuators.
   h) Install new conduit and control wiring to existing valve actuators for EXV-WW-4 and EXV-FI-4.
   i) Temporarily recircuit valve actuator for EXV-WW-4 to a 20A-1P circuit breaker in Panel LP-4A using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
   j) Temporarily recircuit valve actuator for EXV-FI-4 to a 15A-3P circuit breaker in Panel LP-4A using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
   k) Remove blind flange BF-FTW-6 and install new 16” filter to waste piping from Filter No.6 past Filter No.4. Install blind flange BF-FTW-4.
   l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-4.
   m) Complete cleaning, testing, and disinfection of piping and underdrain system.
   n) Complete 1-week performance test.

S. Phase X: Filter No.3:

1. During this stage, the following Work shall be completed.
    a) Isolate Filter No.3 by closing valves EXV-FI-3, EXV-FE-3, EXV-SWW-3, EXV-WW-3, EXV-FTW-3, EXV-SW-3.
    b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-3 and EXV-SW-3 to remain until Phase XIII.
    c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
    d) Demolish existing spent washwater valve EXV-SWW-3 and install new spent washwater valve PV-SWW-3.
    e) Install new underdrain system, air scour piping, valves and appurtenances.
    f) Install new filter media.
    g) Install new conduit, power and control wiring to all new valve actuators.
    h) Install new conduit and control wiring to existing valve actuators for EXV-WW-3 and EXV-FI-3.
    i) Temporarily recircuit valve actuator for EXV-WW-3 to a 20A-1P circuit breaker in Panel LP-4A using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
    j) Temporarily recircuit valve actuator for EXV-FI-3 to a 15A-3P circuit breaker in Panel LP-4A using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
    k) Remove blind flange BF-FTW-5 and install new 16” filter to waste piping from Filter No.5 past Filter No.3. Install blind flange BF-FTW-3.
    l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-3.
    m) Complete cleaning, testing, and disinfection of piping and underdrain system.
    n) Complete 1-week performance test.

T. Phase XI: Filter No.2:
    1. During this stage, the following Work shall be completed.
        a) Isolate Filter No.2 by closing valves EXV-FI-2, EXV-FE-2, EXV-SWW-2, EXV-WW-2, EXV-FTW-2, EXV-SW-2.
        b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-2 and EXV-SW-2 to remain until Phase XIII.
        c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
        d) Demolish existing spent washwater valve EXV-SWW-2 and install new spent washwater valve PV-SWW-2.
        e) Install new underdrain system, air scour piping, valves and appurtenances.
        f) Install new filter media.

g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-2 and EXV-FI-2.
i) Temporarily recircuit valve actuator for EXV-WW-2 to a 20A-1P circuit breaker in Panel LP-4A using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-2 to a 15A-3P circuit breaker in Panel LP-4A using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-4 and install new 16" filter to waste piping to PV-FTW-2.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-2.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.
n) Complete 1-week performance test.

U. Phase XII: Filter No.1:
1. During this stage, the following Work shall be completed.
a) Isolate Filter No.1 by closing valves EXV-FI-1, EXV-FE-1, EXV-SWW-1, EXV-WW-1, EXV-FTW-1, EXV-SW-1.
b) Demolish and remove existing filter effluent piping, surface wash piping, wash water piping, filter to waste piping, valves, and appurtenances in the filter gallery. Valves EXV-WW-1 and EXV-SW-1 to remain until Phase XIII.
c) Demolish and remove existing surface wash system, filter underdrains, and filter media within the filter box.
d) Demolish existing spent washwater valve EXV-SWW-1 and install new spent washwater valve PV-SWW-1.
e) Install new underdrain system, air scour piping, valves and appurtenances.
f) Install new filter media.
g) Install new conduit, power and control wiring to all new valve actuators.
h) Install new conduit and control wiring to existing valve actuators for EXV-WW-1 and EXV-FI-1.
i) Temporarily recircuit valve actuator for EXV-WW-1 to a 20A-1P circuit breaker in Panel LP-4A using 2#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
j) Temporarily recircuit valve actuator for EXV-FI-1 to a 15A-3P circuit breaker in Panel LP-4A using 3#12, 1#12G, ¾"C. Retain existing disconnect switch for temporary reuse.
k) Remove blind flange BF-FTW-3 and install new 16" filter to waste piping from Filter No.3 to PV-FTW-1.
l) Install new filter effluent piping, washwater piping and field instruments. Connect new washwater piping to valve EXV-WW-1.
m) Complete cleaning, testing, and disinfection of piping and underdrain system.

n) Complete 1-week performance test.

V. Phase XIII: Filter Nos. 1, 2, 3, and 4 Washwater Header and Washwater Supply Piping:

1. Filter Nos. 3 and 4 washwater header and washwater supply piping - during this stage, the following Work shall be completed.
   a) Isolate Filter Nos. 3 and 4 by closing valves EXV-FI-3&4, PV-FE-3&4, PV-SWW-3&4, PV-FTW-3&4, EXV-WW-3&4, PV-AS-3a&3b, and PV-AS-4a&4b.
   b) Isolate the existing washwater header by closing the valve EXV-ROFC-1. Isolate the existing surface wash header by closing the existing surface wash valves on Filter Nos. 1-2 and EXV-WWS-1. Drain the existing washwater header and surface wash piping.
   c) Remove existing washwater header at harnessed connection between Filter Nos. 3,4 and 1,2 and install blind flange on the existing pipe to remain in service. Harness the blind flange to existing pipe lugs and return existing washwater header to service. Remove existing surface wash header at flanged connection between Filter Nos. 3,4 and 1,2 and install blind flange BF-WWS-3/4 on the existing header to remain in service. Return existing surface wash piping to service.
   d) Demolish and remove remaining sections of the existing surface wash header and washwater header, including valves EXV-WW-3, EXV-WW4, EXV-SW3, and EXV-SW-4.
   e) Disconnect temporary power feed and control wiring to valve actuators EXV-WW-3 and EXV-WW-4.
   f) Connect to PV-WWH-5/6 and install the new washwater header. Install valves PV-WWH-3/4, PV-WW-3, and PV-WW-4.
   g) Install permanent power to new valve actuators for PV-WW-3 and PV-WW-4 from Filter Gallery Disconnect Panel 3 (Filter No.3) and Filter Gallery Disconnect Panel 4 (Filter No.4). Reconnect control wiring.
   h) Install new washwater supply piping and install dust cover over the end of the new washwater supply piping adjacent to blind flange BF-WWS-3/4. Pipe to remain empty until remaining sections are completed.
   i) Complete cleaning, testing, and disinfection of new wash water header.
   j) Place Filter Nos. 3 and 4 and new washwater header into service.

2. Filter Nos. 1 and 2 washwater header and washwater supply piping - during this stage, the following Work shall be completed.
   a) Isolate Filter Nos. 1 and 2 by closing valves EXV-FI-1&2, PV-FE-1&2, PV-SWW-1&2, PV-FTW-1&2, EXV-WW-1&2, PV-AS-1a&1b, and PV-AS-2a&2b.
   b) Isolate the existing washwater header by closing the valve EXV-WWH-1. Isolate the existing surface wash header by closing EXV-WWS-1 and isolation valve on wash water header/wash water supply line in garage area of the Control Building addition. Drain the existing washwater header and surface wash piping.

c) Demolish and remove remaining sections of the existing surface wash header and washwater header, including valves EXV-WW-1, EXV-WW-2, EXV-SW-1, and EXV-SW-2.
d) Disconnect temporary power feed and control wiring to valve actuators EXV-WW-1 and EXV-WW-2.
e) Connect to PV-WWH-3/4 and install the new washwater header. Install valves PV-WW-1, PV-WW-2, and rate of flow controller PV-ROFC-1.
f) Install permanent power to new valve actuators for PV-WW-1 and PV-WW-2 from Filter Gallery Disconnect Panel 1 (Filter No.1) and Filter Gallery Disconnect Panel 2 (Filter No.2). Reconnect control wiring.
g) Install all remaining washwater supply piping.
h) Complete cleaning, testing, and disinfection of new wash water header and wash water supply piping.
i) Place Filter Nos. 1 and 2, new washwater header, and new washwater supply piping into service.

W. Phase XIV: Filter Influent Valves:
1. Filter Nos. 9 and 10 Influent Valves - during this stage, the following Work shall be completed
a) Isolate Filter Nos. 9 and 10 by closing valves EXV-FI-9, EXV-FI-10, EXV-5, EXV-6, EXV-7, and EXV-8 and isolating sedimentation basins 3,4, and 5 and the north settled water conduit. Install plugs P-1 and P-2 in North and South Settled Water Distribution Chambers. Return sedimentation basins 3, 4, and 5 to service.
b) Open valves PV-SWW-9 and PV-SWW-10 to drain the filter gullets.
c) Remove valves EXV-FI-9 and EXV-FI-10. Disconnect temporary power feed and control wiring.
d) Install new valves PV-FI-9 and PV-FI-10 including permanent power to new actuators from Filter Gallery Disconnect Panel 9 (Filter 9) and Filter Gallery Disconnect Panel 10 (Filter No.10). Reconnect control wiring.
e) Complete testing of influent valves.
f) Isolate Filter Nos. 9 and 10 by closing valves PV-FI-9, PV-FI-10, EXV-5, EXV-6, EXV-7, and EXV-8 and isolating sedimentation basins 3,4, and 5 and the north settled water conduit. Remove plugs P-1 and P-2 in North and South Settled Water Distribution Chambers. Return sedimentation basin Nos. 3, 4, and 5 and Filter Nos. 9 and 10 to service.

2. Filter Nos. 6 and 8 Influent Valves - during this stage, the following Work shall be completed
a) Isolate Filter Nos. 6 and 8 by closing valves EXV-FI-6, EXV-FI-8, EXV-4, EXV-6, and EXV-8.
b) Open valves PV-SWW-6 and PV-SWW-8 to drain the filter gullets.
c) Remove valves EXV-FI-6 and EXV-FI-8. Disconnect temporary power feed and control wiring.
d) Install new valves PV-FI-6 and PV-FI-8 including permanent power to new actuators from Filter Gallery Disconnect Panel 6 (Filter No.6) and

Filter Gallery Disconnect Panel 8 (Filter No.8). Reconnect control wiring.

e) Complete testing of influent valves.
f) Return Filter Nos. 6 and 8 to service.

3. Filter Nos. 2 and 4 Influent Valves - during this stage, the following Work shall be completed
   a) Isolate Filter Nos. 2 and 4 by closing valves EXV-FI-2, EXV-FI-4, EXV-2.
   b) Open valves PV-SWW-2 and PV-SWW-4 to drain the filter gullets.
   c) Remove valves EXV-FI-2 and EXV-FI-4. Disconnect temporary power feed and control wiring.
   d) Install new valves PV-FI-2 and PV-FI-4 including permanent power to new actuators from Filter Gallery Disconnect Panel 2 (Filter No.2) and Filter Gallery Disconnect Panel 4 (Filter No.4). Reconnect control wiring.
   e) Complete testing of influent valves.
   f) Return Filter Nos. 2 and 4 to service.

4. Filter Nos. 5 and 7 Influent Valves - during this stage, the following Work shall be completed
   a) Isolate Filter Nos. 5 and 7 by closing valves EXV-FI-5, EXV-FI-7, EXV-3, EXV-5, and EXV-7.
   b) Open valves PV-SWW-5 and PV-SWW-7 to drain the filter gullets.
   c) Remove valves EXV-FI-5 and EXV-FI-7. Disconnect temporary power feed and control wiring.
   d) Install new valves PV-FI-5 and PV-FI-7 including permanent power to new actuators from Filter Gallery Disconnect Panel 5 (Filter No.5) and Filter Gallery Disconnect Panel 7 (Filter No.7). Reconnect control wiring.
   e) Complete testing of influent valves.
   f) Return Filter Nos. 5 and 7 to service.

5. Filter Nos. 1 and 3 Influent Valves - during this stage, the following Work shall be completed
   a) Isolate Filter Nos. 1 and 3 by closing valves EXV-FI-1, EXV-FI-3, and EXV-1.
   b) Open valves PV-SWW-1 and PV-SWW-3 to drain the filter gullets.
   c) Remove valves EXV-FI-1 and EXV-FI-3. Disconnect temporary power feed and control wiring.
   d) Install new valves PV-FI-1 and PV-FI-3 including permanent power to new actuators from Filter Gallery Disconnect Panel 1 (Filter No.1) and Filter Gallery Disconnect Panel 3 (Filter No.3). Reconnect control wiring.
   e) Complete testing of influent valves.
   f) Return Filter Nos. 1 and 3 to service.

X. Phase XV: Miscellaneous Items to be Completed:
1. During this stage, the following Work shall be completed:
a) Installation, Testing and Start-up of the Dehumidification System.
b) Installation, Testing and Start-up of the new generator.
c) Fill in floor openings in the vestibule of the Filter Building.
d) Complete all remaining HVAC, Electrical and Instrumentation Items in the Filter Building.
e) Complete all Paving, Grading, and Restoration Work.
Complete all remaining items for the new chemical building addition.
f) Complete all remaining contract requirements.

1.5 TIE-INS

A. Table 01 14 16-A in this Section lists connections by CONTRACTOR to existing facilities. Table 01 14 16-A may not include all tie-ins required for the Work; CONTRACTOR shall perform tie-ins required to complete the Work as shown or indicated regardless of whether tie-in is indicated in Table 01 14 16-A. For tie-ins not included in Table 01 14 16-A, obtain requirements for tie-ins from ENGINEER by requesting an interpretation or clarification.

1.6 SHUTDOWNS

A. General:
1. Terminology: A "shutdown" is when a portion of the normal operation of OWNER's facility, whether equipment, systems, piping, or channel, must be temporarily suspended or taken out of service to perform the Work.
2. Work that may interrupt normal operations shall be accomplished at times convenient to OWNER.
3. Furnish at the Site, in close proximity to the shutdown and tie-in work areas, tools, materials, equipment, spare parts, both temporary and permanent, necessary to successfully perform the shutdown. Complete to the extent possible, prefabrication of piping and other assemblies prior to commencing the associated shutdown. Demonstrate to ENGINEER's satisfaction that CONTRACTOR has complied with such requirements before commencing the shutdown.
4. If CONTRACTOR's operations cause an unscheduled interruption of OWNER's operations, immediately re-establish satisfactory operation for OWNER.
5. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of OWNER's facilities that result in fines or penalties by authorities having jurisdiction shall be paid solely by CONTRACTOR if, in ENGINEER's opinion, CONTRACTOR did not conform to the requirements of the Contract Documents, or was negligent in the Work, or did not exercise proper precautions in performing the Work and complying with applicable permits, Laws, and Regulations.

6. Shutdowns shall be in accordance with Table 01 14 16-B of this Section. Work requiring service interruptions for tie-ins shall be performed during scheduled shutdowns.
7. Temporary, short-term shutdowns of smaller conduits (including piping and ducting), equipment, and systems may not be included in Table 01 14 16-B. Coordinate requirements for such shutdowns with ENGINEER and OWNER. Where necessary, obtain ENGINEER's interpretation or clarification before proceeding.

B. Shutdowns of Electrical Systems:
1. Comply with Laws and Regulations, including the National Electric Code.
2. CONTRACTOR shall lock out and tag circuit breakers and switches operated by OWNER and shall verify that affected cables and wires are de-energized to ground potential before shutdown Work is started.
3. Upon completion of shutdown Work, remove the locks and tags and notify ENGINEER that facilities are available for use.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL

A. In addition to requirements of this Section, comply with Section 01 73 29, Cutting and Patching, and Section 01 73 24, Connections to Existing Facilities, and other Contract Documents applicable to Work associated with shutdowns, tie-ins, temporary pumping (where applicable), and similar Work.

3.2 (NOT USED)

3.3 SCHEDULES

A. The schedules indicated below, attached following this Section's "End of Section" designation, are part of this Specification Section:
1. Table 01 14 16-A, Schedule of Tie-ins.
2. Table 01 14 16-B, Schedule of Shutdowns.

+ + END OF SECTION + +

TABLE 01 14 16-A
SCHEDULE OF TIE-INS

Tie-In No.	New Line Size and Service	Existing (Connecting) Line Size & Service	Tie-In Building/Location	Construction Phase	Remarks
1	2 ½” or 3” Gas	2 ½” or 3” Gas	New Blower Building	Ia	
2	6” PW	6” PW	Between New Blower Building and Filter Building Extension	Ia	
3	6” PW	6” PW	Raw Water	Ia	
4	30” FTW	20” FTW	Filter to Waste Manhole No.2	If	
5	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 10	II	
6	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 10	II	
7	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 9	III	
8	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 9	III	
9	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 8	IV	
10	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 8	IV	
11	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 7	V	
12	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 7	V	
13	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 6	VI	
14	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 6	VI	
15	20” Filter Effluent Piping	20” Filter Effluent	Filter Gallery - Filter 5	VII	
16	30” Washwater Supply Piping	30” Washwater Supply	Filter Gallery - Filter 5	VII	
17	20” Filter Effluent Piping	16” Filter Effluent	Filter Gallery - Filter 4	IX	
18	30” Washwater Supply Piping	42” Washwater Supply	Filter Gallery - Filter 4	IX	
19	20” Filter Effluent Piping	16” Filter Effluent	Filter Gallery - Filter 3	X	
20	30” Washwater Supply Piping	42” Washwater Supply	Filter Gallery - Filter 3	X	
21	20” Filter Effluent Piping	16” Filter Effluent	Filter Gallery - Filter 2	XI	
22	30” Washwater Supply Piping	42” Washwater Supply	Filter Gallery - Filter 2	XI	
23	20” Filter Effluent Piping	16” Filter Effluent	Filter Gallery - Filter 1	XII	
24	30” Washwater Supply Piping	42” Washwater Supply	Filter Gallery - Filter 1	XII	
25	42” Washwater Header	42” Washwater Header	Filter Gallery - East	XIII	
26	8” Washwater Supply	12” Surface Wash	Filter Gallery - East	XIII	

TABLE 01 14 16-B
SCHEDULE OF SHUTDOWNS

Phase	Process Equipment and Service Lines Out-of-Service During Shutdown	Process Equipment In Operation During Shutdown	Tie-In Nos.	Maximum Duration	Milestone
Ia	• Raw Water Screens • Raw Water Pumps	-	2,3		M1
II	• Filter 10	• Filters 1-9	5,6	98 days	M2
III	• Filter 9	• Filters 1-8 • Filter 10	7,8	98 days	M2
VIII-1	• Filter 9 • Filter 10	• Filters 1-8	-	7 days	M3
IV	• Filter 8	• Filters 1-7 • Filters 9-10	9,10	84 days	M2
V	• Filter 7	• Filters 1-6 • Filters 8-10	11,12	70 days	M2
VIII-2	• Filter 7 • Filter 8	• Filters 1-6 • Filters 9-10	-	7 days	M3
VI	• Filter 6	• Filters 1-5 • Filters 7-10	13,14	70 days	M2
VII	• Filter 5	• Filters 1-4 • Filters 6-10	15,16	70 days	M2
VIII-3	• Filter 5 • Filter 6	• Filters 1-4 • Filters 7-10	-	7 days	M3
IX	• Filter 4	• Filters 1-3 • Filters 5-10	17,18	98 days	M3
X	• Filter 3	• Filters 1-2 • Filters 4-10	19,20	98 days	M3
XIII-1	• Filter 3 • Filter 4	• Filters 1-2 • Filters 5-10	-	7 days	Substantial Completion
XI	• Filter 2	• Filter 1 • Filters 3-10	21,22	84 days	Substantial Completion
XII	• Filter 1	• Filters 2-10	23, 24	84 days	Substantial Completion
XIII-2	• Filter1 • Filter2	• Filters 3-10	25,26	20 days	Substantial Completion
XIV-1	• Filter 9 • Filter 10	• Filters 1-8	-	14 days	Substantial Completion

XIV-2	• Filter 6 • Filter 8	• Filters 1-5 • Filter 7 • Filters 9-10	-	14 days	Substantial Completion
XIV-3	• Filter 2 • Filter 4	• Filter 1 • Filter 3 • Filters 5-10	-	14 days	Substantial Completion
XIV-4	• Filter 5 • Filter 7	• Filters 1-4 • Filter 6 • Filters 8-10	-	14 days	Substantial Completion
XIV-5	• Filter 1 • Filter 3	• Filter 2 • Filters 4-10	-	14 days	Substantial Completion
--	Each remaining tie-in can be made with either a “minor shutdown” or no shutdown. Tie-ins requiring a “minor shutdown” can be done during one of the major shutdowns. Tie-ins that do not require a shutdown may require re-routing process flow through an alternate line/pipe.		--	--	
Note: 1.					