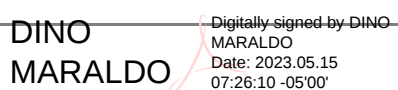
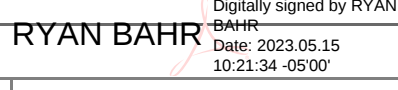


INSPECTION REPORT

Inspection Entry Date/Time	05/04/2023 09:04 AM (CT)	Announced: Yes	
Inspection Exit Date/Time	05/04/2023 02:08 PM (CT)	Access: Granted	
Weather	Day 1 – Sunny and warm		
Media	Water		
Statute(s)/Program(s)	Clean Water Act, NPDES, WWTP		
Type of Inspection	CEI - Compliance Evaluation Inspection, SSO - Sanitary Sewer Overflow Inspection		
Permittee Name	DuPage County Public Works		
Facility or Site Name	DCDPW - Nordic Park STP		
Facility/Site Physical Address	649 Rohlwing Road		
City, State, Zip Code	Itasca, IL 60143		
County/Borough/Parish	DuPage County		
Facility GPS Coordinates	41.963333, -88.025		
Mailing Address (If different)	7900 Il-53		
City, State, Zip Code	Woodridge, Illinois 60517		
FRS ID	110009988059		
Permit Number(s) (If Applicable)	IL0028398		
SIC and/or NAICS	4952		
Regulatory Representatives Participating in Inspection:			
Title	Name	Organization	
Inspector	Cheryl Burdett	EPA Region 5	
Inspector-in-Training	Jennifer Bush	EPA Region 5	
Lead Inspector:			
Dean Maraldo	[Signature]	 DINO MARALDO Date: 2023.05.15 07:26:10 -05'00'	
	EPA Region 5	Maraldo.Dean@epa.gov	(312) 353-2098
Supervisor Review:			
Ryan Bahr	[Signature]	 RYAN BAHR Date: 2023.05.15 10:21:34 -05'00'	
	EPA Region 5	bahr.ryan@epa.gov	

SECTION I – INTRODUCTION**Site Entry and Inspection Objectives**

I, U.S. EPA Region 5 Lead Inspector, Dean Maraldo, arrived at the DuPage County Department of Public Works (DCDPW) facility at 7900 Il-53, in Woodridge, Illinois at 09:04 AM (CT) on 05/04/2023 for an announced inspection of the Nordic Park STP (the “Site” or “Facility”), which is owned and operated by DuPage County and located at 649 Rohlwing Road, Itasca, IL 60143. DCDPW recommended we meet at the DCDPW facility at 7900 Il-53, in Woodridge, to conduct the opening conference and interview portion of the inspection because the Nordic Park STP facility does not have an adequate meeting room. I was joined by U.S. EPA inspector Cheryl Burdett and U.S. EPA Inspector-in-Training Jennifer Bush. We presented our U.S. EPA inspector credentials to Nicholas Kottmeyer, P.E., DCDPW Chief Administrative Officer and Director, and informed them that this was an EPA Region 5 inspection to determine compliance as authorized by Clean Water Act (CWA) Section 308 and implementing regulations. This report is based on information supplied by DCDPW representatives, direct observations made by the U.S. EPA Region 5 inspectors, records and reports maintained by the permittee and other information including: photographs taken by U.S. EPA Region 5 inspectors, physical evidence collected by the U.S. EPA Region 5 inspectors, verbal or written statements made by DCDPW representatives during or subsequent to the on-site Inspection, and materials, processes, data, photographs, or documents shown, demonstrated, or submitted to the U.S. EPA Region 5 inspectors by DCDPW representatives during or subsequent to the on-site Inspection. In addition, information gathered prior to or subsequent to the Inspection from a review of U.S. EPA, state, and/or public records may be included in this report.

Attendees

Organization	Attendee Name	Title	Present in Opening Conf.	Present in Closing Conf.
U.S. EPA Region 5	Dean Maraldo	Lead Inspector	Yes	Yes
U.S. EPA Region 5	Cheryl Burdett	Inspector	Yes	Yes
U.S. EPA Region 5	Jennifer Bush	Inspector-in-Training	Yes	Yes
DuPage County	Jay Dahlberg	Chief Operator	Yes	Yes
DuPage County	Shawn Reese	Operations Manager	Yes	Yes (phone)
Trotter and Associates (consultant for DuPage County)	Aaron Berry, P.E.	Project Manager	No	Yes
DuPage County	David Vogel	Operator	Yes	No
DuPage County	Mary Dressel	Chief Chemist	Yes	Yes
DuPage County	Nick Kottmeyer	Director of PW	Yes	Yes (phone)

Facility/Site Description

I began by reviewing the Facility description provided on the DCDPW’s website:

“Serves portions of the Village of Itasca and the Village of Addison and unincorporated areas in the northern part of the County. The estimated population of this area is 2,000. In 1999, the Nordic Facility operated at 73% of capacity. This facility utilizes a tertiary

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treatment process. This consists of preliminary treatment of bar screening for removal of paper, wood and plastic products. Biological treatment is provided by coarse bubble aeration tanks. Biologically treated waste is directed to clarifiers that separate the biological solids from the treated liquid. This effluent is further processed through sand filters, then disinfected using ultraviolet light prior to discharge to Springbrook Creek. Waste biological solids are stabilized by aerobic digestion."

Nicholas Kottmeyer, P.E ("the Director") corrected the description, stating that the Nordic Park STP serves primarily unincorporated Itasca only, and does not serve the Village of Addison or the Village of Itasca. Jay Dahlberg added that the system serves close to 2,000 residents, and described the former general treatment process, including headworks-bar screen, aeration basins (2), secondary clarification tanks (2), tertiary sand filter(s), then seasonal UV disinfection channel, then to the final outfall. The treatment plant is currently under construction, involving the installation of new aeration basins (2), blowers (4), final clarifiers (2) pumps, and a new UV system. According to Jay Dahlberg, at the time of inspection, the old aeration tanks, clarifiers, and UV system were no longer in service, and one new aeration tank, one new final clarifier, and the new UV system were in operation. Construction of the second aeration tank and second final clarifier is expected to be complete by the end of summer. Jay Dahlberg also confirmed that the new UV disinfection system was online prior to May 1, as required by the Facility's NPDES permit. He added that the new plant, when complete, will treat wet weather up to 3.9 million gallons per day (MGD). The current system, partially complete, is estimated to treat up to 1.5 MGD in wet weather.

I received copy of the Basis of Design for the new system, system hydraulic profile, and the new plant schematic (see Appendix 2 – Inspection Documents).

Facility/Site Information

Next, I asked some background questions. Unless noted otherwise, the Director provided the responses in the table below.

Is there currently any portion of the treatment train that is non-operational?	One aeration tank and one secondary clarifier currently in construction and not yet operational.
Do you accept waste from septage haulers?	No
Do you use in-house or contract out for laboratory analyses?	Mary Dressel: all in-house
Operation schedule?	Facility is fully remote, DCDPW operators are there daily for routine maintenance.
Outfalls:	Just one, Outfall 001
Responsible official	The Director
WWTP Design Capacity & Average Daily Flow	Old system 0.5 mgd, ~1.7 MGD wet weather; new system (partially operating) 0.5 MGD, 3 MGD wet weather
WWTP Approx. # of residents served	2,000
Contributing (or shared) Jurisdictions	just unincorporated Itasca
Are there any plans for renovation or additional equipment to allow for increased wastewater flow?	As described above under "Facility/Site Description"
Any Confidential Business Information concerns?	No

Inspection Focus Areas and Locations

Inspection Area	Location
Interview	Meeting room at DCDPW facility at 7900 IL-53, in Woodridge, Illinois
Reporting	
Operations and Maintenance	
Self Monitoring	
Flow Measurement	
Sanitary Sewer Overflows	
Physical Inspection	
Laboratory	Laboratory at DCDPW facility at 7900 IL-53, in Woodridge, Illinois
Nordic Park STP	649 Rohlwing Road, Itasca, IL
Sanitary Sewer Collection System	Residential areas served by Nordic Park STP, including DCDPW sewer main easement along east border of the Golf Club at Eaglewood.

SECTION II – OBSERVATIONS

Location: Interview/Reporting		
Observation #: DM1-OB-001	Date: 05/04/2023	Weather: Sunny and warm
I provided a list of permit effluent limit exceedances to the operator and other County representatives (see Appendix 2 – Inspection Documents) and asked for an explanation for the recent total suspended solids (TSS) and carbonaceous biochemical oxygen demand (CBOD) exceedances in January 2023. Mr. Dahlberg attributed the exceedances to an “elevated flow event” on January 3, 2023. They resampled on January 5th to show compliance. At that time, the Facility was running on the old plant, with one clarifier, one aeration basin and one sand filter not working. According to Mr. Dahlberg, older fecal coliform exceedances in summer 2022 and 2021 were due to old UV equipment. The Director added that the decision to upgrade the Facility was made around five years ago. I asked if all noncompliance which may endanger health or the environment, including all violations of daily limits, have been orally reported within 24 hours and followed up with a letter to Illinois EPA within 5 days. The Director said they do not report effluent limit violations to Illinois EPA in general, just record violations on Discharge Monitoring Reports (DMRs). Records are kept for more than three years, and Lab files are kept at the 7900 IL 53 facility and electronic. O&M records kept at the plant or maintenance garage.		

Location: Interview/O&M		
Observation #: DM1-OB-002	Date: 05/04/2023	Weather: Sunny and warm
I asked for a copy of the County's Organizational Plan (chart) for operation and maintenance. The Director provided a copy (see Appendix 2 – Inspection Documents). We then discussed maintenance records and systems used to track work. Mr. Dahlberg confirmed that as-built drawings, both paper and electronic, are maintained at the Nordic Park STP and the DCDPW facility at 7900 IL-53. The maintenance record system includes a monthly log in excel spreadsheet, repair history, instruction files for operation and maintenance of each item of major equipment, and hardcopy manuals at the Nordic Park STP and electronic copies. They will create daily round standard operating procedures for new Nordic Park STP plant. I asked about certifications for operating staff at the Facility (Permit requires Class 2 or Class 1 operator). The Director said the Nordic Park STP is run remotely. The County operates three wastewater plants and operators are used interchangeably among the three treatment plants. He confirmed that the County has five class 1 operators and one operator working toward certification. The County also has two operators with Illinois voluntary collection systems certification. I asked about routine monitoring of key operating parameters (mixed liquor suspended solids MLSS, mixed liquor, volatile suspended solids, and sludge age). Mr. Dahlberg said operators test for MLSS once a week. They also have a continuous mixed liquor probe (90-95% accurate, according to Mr. Dahlberg), and conduct routine sampling for microscope analysis, according to Mr. Vogel. I moved on to discuss bypasses. Under the old plant, they bypassed half of the flow around sand filters during elevated flow events (0.5 MGD); today they are only operating on one aeration basin and clarifier, because they are not built yet. I asked if the Facility has an alarm system for all essential equipment. Mr. Dahlberg said right now they have alarms for high levels at the influent, blower failure, RAS pump, high level aeration tank, and high temp UV reactor. They will have a power failure alarm and an onsite backup generator. Alarms notify the on-call operator. I brought up written procedures for responding to emergencies such as power failures, floods, fires, and other natural disasters. The Director said they have a portable emergency generator and will soon have a permanent generator once upgrades are complete, but there is no written emergency plan. Last, I asked if a logbook is kept which documents all Facility activities on a daily basis. Mr. Vogel said they use personal notebooks and log updates into an electronic system at the 7900 IL-53 facility.		

Location: Interview/Self Monitoring		
Observation #: DM1-OB-003	Date: 05/04/2023	Weather: Sunny and warm
I asked about influent and effluent sampling locations and procedures. Mr. Vogel described the sampling procedures which were consistent with permit requirements. I followed up with a question about the schedule they use to collect the twice monthly samples required for a number of pollutants. Mr. Vogel said they try to collect both of the twice monthly samples in the first week of the month (including the week of the inspection). Mr. Dahlberg added that when the old plant was online, they tried to avoid sampling during wet weather, but with the new plant they will collect samples regardless if wet weather is occurring.		

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I asked about preservation of samples. Mr. Vogel confirmed that composite samples are cooled to $<4^{\circ}\text{C}$ to properly preserve them during the compositing period, and that composite samplers have thermometers that are checked, recorded, and calibrated routinely. Mary Dressel confirmed that they also measure and log the Lab refrigerator temperature daily. Mary Dressel provides operators with pre-preserved bottles for sampling and sterilizes and prepares fecal sample bottles for the operators.

Location: Interview/Flow Measurement**Observation #:** DM1-OB-004**Date:** 05/04/2023**Weather:** Sunny and warm

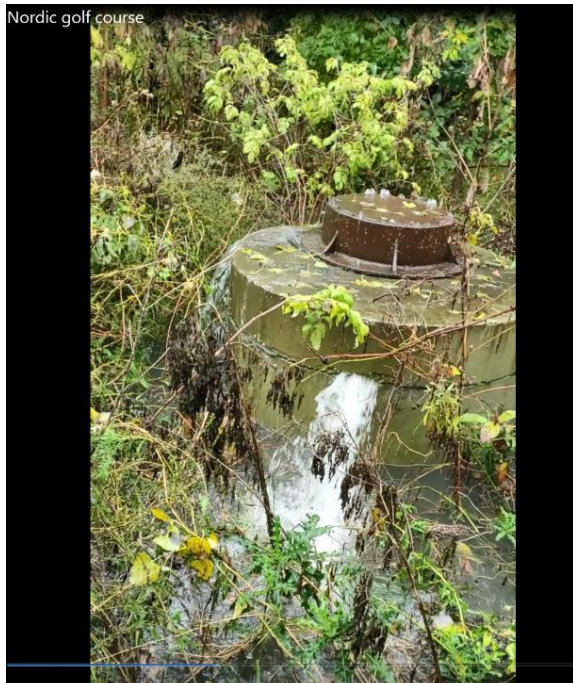
I asked how influent and effluent flow was measured. Mr. Dahlberg said that the current system has a mag meter on the influent raw line. The effluent flow is now measured with three mag meters, one at each UV row, and one at the final effluent. This will allow for flow measurement across all three flow scenarios (one UV, two UV, and bypass UV offseason). The County maintains an annual contract for calibration of flow meters and they keep calibration records. There are no flumes or weirs at the Facility.

Location: Interview/Sanitary Sewer Overflows**Observation #:** DM1-OB-005**Date:** 05/04/2023**Weather:** Sunny and warm

I began the sanitary sewer overflow (SSO) discussion by asking if there have been any backups or overflows in the sanitary sewer collection system, including manholes and piping over the last three years. The Director said they do maintain SSO records but was not aware of any SSOs in recent times.

I asked if they've received any SSO-related complaint over last two years. The Director said they were not aware of any recent complaints, but there were previous concerns about the golf course more than 3 years ago.

Next, I connected my laptop to the video screen and showed videos and pictures of SSOs U.S. EPA received as a complaint and believed to have occurred on October 25, 2021 (rained 2.5" over two days), and May 3, 2022 (rained 1.31" that day). The photos are included in the Photo Log in Appendix 1.



Mr. Dahlberg and the Director acknowledged that the SSOs captured in the photos and videos occurred at locations in the Nordic Park STP collection system and brought us to these locations later during the physical inspection. The SSO occurring on October 25, 2021, at manhole 130, was captured in the video (file name Nordic Golf Course.mp4, image of the video captured below) presented to the DuPage County representatives.

Image of video file name Nordic Golf Course.mp4 – SSO at Manhole 130 on October 25, 2021

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The SSO occurring on May 3, 2022, was captured in the video (file name 20220503_101405.mp4, image of the video captured below) presented to the DuPage County representatives. The SSO occurred at a manhole on Eagle Terrace, believe to be manhole 163 or 164 (see Photo Log, Photos NPST12-13), DuPage County representatives were not sure, and said they would confirm.

Image of video file name 20220503_101405.mp4 – SSO on Eagle Terrace on May 3, 2022



I asked if the new Facility upgrades would include flow or level monitoring in the collection system. The County representatives confirmed that the new system was not designed to include flow or level monitoring for manholes.

Location: Physical Inspection/Laboratory

Observation #: DM1-OB-006

Date: 05/04/2023

Weather: Sunny and warm

Mary Dressel led the tour of the laboratory, located at the County facility at 7900 IL-53. I did not conduct a laboratory audit. Ms. Dressel walked us through the various laboratory procedures, including fecal coliform, TSS, and CBOD. I asked for a copy of the laboratory sample log sheet (see Appendix 2 – Inspection Documents). I confirmed that the lab refrigerator contained a thermometer, and Ms. Dressel said that the thermometer is calibrated against a NIST thermometer every six months. She also confirmed that analysis of fecal samples begins within six hours of sample collection. She also confirmed that DO/pH probes are calibrated by operators daily at the Nordic Park STP facility. Before departing the office for lunch, Ms. Dressel provided copies of lab bench sheets, as requested (see Appendix 2 – Inspection Documents).

Location: Physical Inspection/Nordic Park STP		
Observation #: DM1-OB-007	Date: 05/04/2023	Weather: Sunny and warm
The EPA team departed the DuPage County office at 7900 IL-53, in Woodridge, Illinois at 11:05 AM and broke for lunch. We agreed to meet with Jay Dahlberg and Mary Dressel at the Nordic Park STP after lunch at 12:30 PM to conduct the physical inspection. We met Jay Dahlberg and Mary Dressel at the Nordic Park STP at 12:30 PM to conduct the physical inspection. We began at the last manhole prior to the headworks (captured in Photo Log, Photo NPST01). Then we walked to the treatment plant which was under major construction as part of the plant upgrades. As a result, we had limited access to some of the treatment components, for safety reasons. Below, I summarize the observations made during the physical inspection of the plant and the collection system. Some observations are documented in the Photo Log as noted below. Headworks: Our first stop at the plant was the headworks building. The currently operating bar screen is one of the few existing treatment components that will remain in service once the newly upgraded treatment plant is fully online later this summer, according to Jay Dahlberg. See Photo Log, Photos NPST02 and NPST03 (Photo NPST02 was not included in the report because it was blurry due to low light conditions). We also observed the old ISCO composite sampler (Photo Log, Photo NPST04), which will be replaced as part of system upgrades. Control Building: Next, we walked to the Control Building where we observed the control panel (see Photo Log, Photo NPST05). Jay Dahlberg confirmed that the new aeration basin #1 and clarifier #1 were now online, and that aeration basin #2 and clarifier #2 are under construction and not yet online. I also asked about how sludge decant water is handled. Mr. Dahlberg said the sludge decant, approximately 4,000 gallons per day, is conveyed back to the headworks, at the last manhole before the plant. I explained that they were then double counting the decant flow in the influent flow readings provided by the influent flow meter, located after the last manhole before the plant. We also observed the new aeration blowers (4) now online, captured in Photo Log, Photo NPST06. Operator Calibration Station: I asked the Facility representatives if they could demonstrate how they calibrate pH and DO probes and if they would be willing to collect effluent samples and measure pH and DO using the calibrated probes. Dave Vogel agreed and began calibrating the probes, beginning with the pH probe (see Photo Log, Photo NPST07, which captures the operator's calibration station and Mettler pH Probe). At this point, I asked the County representatives if they secured a construction stormwater permit for the ongoing plant upgrades. They asked Aaron Berry, an employee of Trotter Associated (consultant for DuPage County involved with the ongoing plant construction) to respond. He said that they had permit coverage. I asked for records of the last quarter of construction stormwater inspections required under the state construction stormwater permit. Mr. Berry said he would provide them via email. Mr. Vogel then collected an effluent sample from the nearby effluent tap (see Photo Log, Photo NPST08). Using the calibrated pH probe, he recorded a result of 7.05, measured at 12:57 PM. I took a photo of the pH calibration log (see Photo Log, Photo NPST09). Before leaving this area, I observed the new twin UV banks, now online, captured in Photo Log, Photo NPST10. Mr. Dahlberg explained that the new UV system was configured to so they can operate single banks or both, as needed. He added that they intend to alternate the UV banks during normal operation. Due to active construction, visiting the new aeration basin and final clarifier would disrupt construction activities and require climbing temporary ladders and special harnessing. As a result, I decided to forego observing these locations. Final Outfall 001: I observed the final outfall and effluent discharge. The flow appeared clear and free of debris or foam (see Photo Log, Photo NPST11). Per my request, Dave Vogel used a YSI DO meter to measure DO at the		

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final outfall. He measured DO at 10.53 (measured at 1:05 PM).

We concluded the physical inspection of the wastewater treatment system, then departed to observe manholes in the collection system.

Photo(s)

1. [NPST01.JPG](#)
2. [NPST03.JPG](#)
3. [NPST04.JPG](#)
4. [NPST05.JPG](#)
5. [NPST06.JPG](#)
6. [NPST07.JPG](#)
7. [NPST08.JPG](#)
8. [NPST09.JPG](#)
9. [NPST10.JPG](#)
10. [NPST11.JPG](#)
11. [NPST12.JPG](#)

Location: Physical Inspection/Sanitary Sewer Collection System

Observation #: DM1-OB-008

Date: 05/04/2023

Weather: Sunny and warm

Jay Dahlberg, Mary Dressel, and Aaron Berry led the tour of specific points in the sanitary sewer collection system, beginning with the manhole on Eagle Terrace believed to be manhole 163 or 164 (see Photo Log, Photos NPST12-13), DuPage County representatives were not sure. I noted that the cover was not bolted and unsecured. This was the manhole captured in the video (file name 20220503_101405.mp4) presented to the DuPage County representatives earlier during the interview portion of the inspection showing a flowing sanitary sewer overflow from this manhole on May 3, 2022. We then drove to the golf course and parked along the north side of Nordic Road, just west of N. Rohlwing Road. Mr. Dahlberg said the County has an easement along the golf course providing access to the sewer main running parallel to the golf course property. I observed manholes 129, 130, 131, 132, 133, and 134. Manhole 130 was the manhole captured in the video (file name Nordic Golf Course.mp4) presented to the DuPage County representatives earlier during the interview portion of the inspection, showing a flowing sanitary sewer overflow from this manhole on October 25, 2021. Other observations of manholes are described in the Photo Log, Photos 12-19.

We concluded the physical inspection of the sanitary sewer collection system at 1:47 PM and returned to the parking lot near the treatment plant to conduct the closing conference.

Photo(s)

12. [NPST13.JPG](#)
13. [NPST14.JPG](#)
14. [NPST15.JPG](#)
15. [NPST16.JPG](#)

16. [NPST17.JPG](#)17. [NPST18.JPG](#)18. [NPST19.JPG](#)**SECTION III – SAMPLING ACTIVITIES AND ANALYTICAL RESULTS****No sampling was conducted by U.S. EPA.****SECTION IV - AREA OF CONCERN**

Area(s) of Concern may not be in sequential order.

The presentation of Area(s) of Concern does not constitute a formal compliance determination or violation.

AOC Reference #: DM1-OB-001	Location: Interview/Reporting
Regulation and/or Permit Requirement NPDES permit effluent limit exceedances – NPDES Permit, Page 2 Violation Reporting – NPDES Permit, Attachment H (12)(f)(3). The following shall be included as information which must be reported within 24-hour: Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit.	
AOC: • 17 permit effluent limitation exceedances since April 2019, including exceedances of TSS, and CBOD in January 2023, and fecal coliform in May, June, and August 2022. • Facility does not report effluent limit violations to Illinois EPA in general, just record violations on DMRs.	

AOC Reference #: DM1-OB-002	Location: Interview/O&M
Regulation and/or Permit Requirement Prohibition of Bypass - NPDES Permit, Attachment H (13)(d)(1).	
AOC: Under the old plant, Facility bypassed half flow around sand filters during elevated flow events (0.5 MGD); at the time of inspection, Facility was only operating on one aeration basin and clarifier, because the second aeration basin and clarifier are not built yet.	

AOC Reference #: DM1-OB-001	Location: Interview/O&M
Regulation and/or Permit Requirement Proper Operations and Maintenance – NPDES Permit, Attachment H (5). The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of the permit.	
AOC: Fecal coliform exceedances in summer 2022 and 2021 were due to “old UV equipment”.	

AOC Reference #: DM1-OB-003	Location: Interview/Self Monitoring
Regulation and/or Permit Requirement	
Representative Sampling - NPDES Permit, Attachment H (10)(a). Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.	
AOC: The Facility avoids sampling during wet weather, but with the new plant they will collect samples regardless of wet weather is occurring.	

AOC Reference #: DM1-OB-005	Location: Interview/Sanitary Sewer Overflows
Regulation and/or Permit Requirement	
Sanitary Sewer Overflows – Unauthorized Discharge of Pollutants - Section 301(a) of the CWA, 33 U.S.C. § 1311.	
AOC: Facility representatives acknowledged that the SSOs captured in the photos and videos on October 25, 2021, and May 3, 2022, occurred at locations in the Nordic Park STP collection system, including manhole 130, and at a manhole on Eagle Terrace, believe to be manhole 163 or 164. Facility representatives stated they were not aware of the SSOs before viewing the videos during the inspection.	

AOC Reference #: DM1-OB-007	Location: Physical Inspection/Nordic Park STP
Regulation and/or Permit Requirement	
Self Monitoring, Representative Sampling - NPDES Permit, Attachment H (10)(a).	
AOC: Facility returns approximately 4,000 gallons per day back to the headworks, at the last manhole before the plant. As a result, the Facility is double counting the sludge decant return flow in the influent flow readings provided by the influent flow meter.	

AOC Reference #: DM1-OB-008	Location: Physical Inspection/Nordic Park STP Collection System
Regulation and/or Permit Requirement	
Proper Operations and Maintenance – NPDES Permit, Attachment H (5)	
AOC: EPA inspectors observed an unsecured sanitary sewer manhole cover on Eagle Terrace, believed to be manhole 163 or 164 (see Photo Log, Photos NPST12-13). The cover was not bolted.	

SECTION V – CLOSING CONFERENCE

Closing Conference

I began the close out conference at 1:55 PM, on May 4, 2023. Nick Kottmeyer and Shawn Reese joined by phone. I began by reviewing items collected and then provided an estimated timeframe for finalizing an inspection report. I also reviewed preliminary areas of concern, emphasizing the SSO issues, and noted that additional areas of concern may be identified based on review of documents obtained during the inspection and with further review of inspection notes. I was asked about next steps to resolve issues. I said that I could not discuss any potential next steps in the process to resolve any areas of concern at this Facility but provided a general overview of EPA's various informal and formal enforcement responses. Before concluding, I mentioned that I would be interested in returning to observe manholes in the collection system during wet weather events

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and asked for the best contacts at DuPage County. Jay Dahlberg provided his contact information along with Shawn Reese's contact information. With no further questions, we concluded the closing conference and the inspection at 2:08 PM, on May 4, 2023.

Post-Inspection Communications

I received an electronic copy of the Nordic Park STP Collection System Map from Mary Dressel via email on May 5, 2023.

SECTION VII – LIST OF APPENDICES

1. Photo Log
2. Document Log

APPENDIX 1: PHOTO LOG



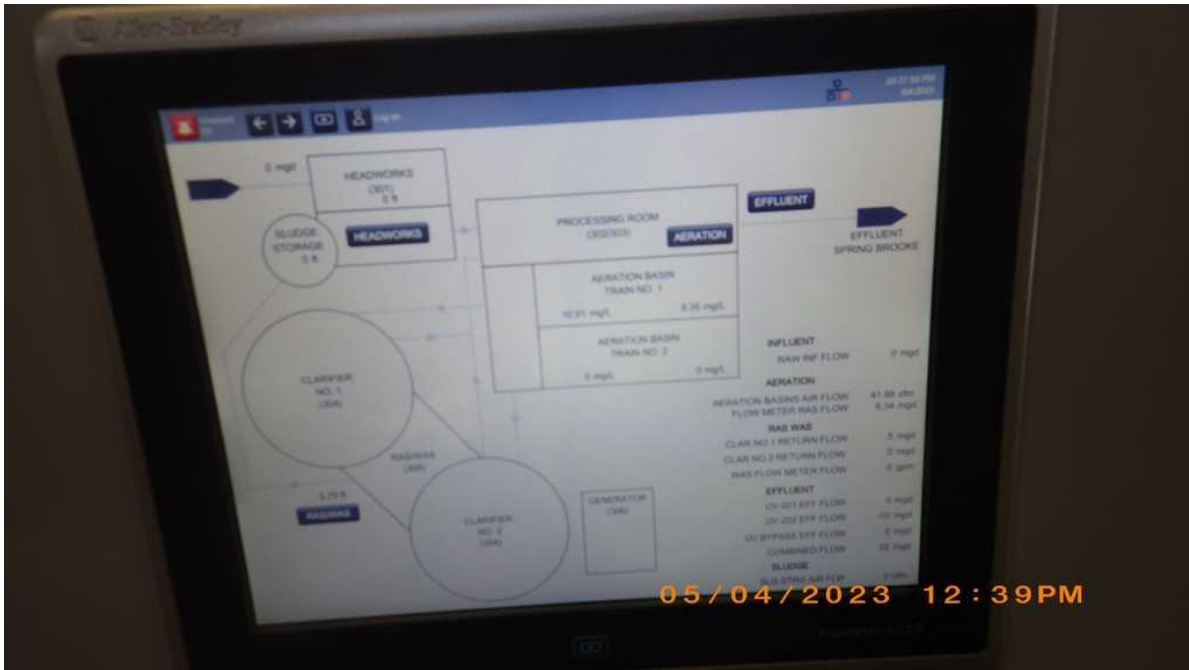
Influent Manhole	NPST01.JPG	
05/04/2023 12:33 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Last manhole before headworks.		



Headworks – Bar screen	NPST03.JPG	
05/04/2023 12:35 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII



ISCO Composite sampler (Influent)	NPST04.JPG	
05/04/2023 12:37 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Note thermometer in ISCO refrigerated sample chamber.		



Picture of control panel screen	NPST05.JPG	
05/04/2023 12:39 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Screen shows status of treatment components. At the time of inspection, aeration basin 1 and clarifier 1 were online. Aeration basin 2 and clarifier 2 are under construction with expected completion by the end of summer 2023.		



New aeration blowers (4)	NPST06.JPG	
05/04/2023 12:43 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
New blowers are online.		



Operator's pH/DO calibration station	NPST07.JPG	
05/04/2023 12:45 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII



Final effluent sample port	NPST08.JPG	
05/04/2023 12:53 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Dave Vogel collected sample from effluent port and measured for pH using calibrated pH probe (result 7.05, at 12:57 PM).		



pH calibration log sheet at Operator's calibration station	NPST09.JPG	
05/04/2023 01:00 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII

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New Twin UV banks (now online)	NPST10.JPG	
05/04/2023 01:01 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII



Final Outfall 001	NPST11.JPG	
05/04/2023 01:03 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Discharge appeared clear and free of debris or foam. Dave Vogel measure DO at this location using calibrated YSI probe (result 10.53, at 1:05 PM).		



Sanitary sewer collection system manhole on Eagle Terrace	NPST12.JPG	
05/04/2023 01:18 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Believed to be manhole 163 or 164, DuPage County representatives were not sure. Note the cover is not bolted and unsecured. This was the manhole captured in the video (file name 20220503_101405.mp4) presented to the DuPage County representatives earlier during the interview portion of the inspection showing a flowing sanitary sewer overflow from this manhole on May 3, 2022.		



Sanitary sewer collection system manhole on Eagle Terrace	NPST13.JPG	
05/04/2023 01:22 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Believed to be manhole 163 or 164, DuPage County representatives were not sure. Same manhole captured in Photo NPST12. Flow level low.		



Sanitary sewer collection system manhole on Eagle Terrace	NPST14.JPG	
05/04/2023 01:28 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Believed to be manhole 163 or 164, DuPage County representatives were not sure. Across the street (to the north) of the manholes captured in Photos NPST12-13.		



Sanitary sewer collection system manhole in easement east of the golf course.	NPST15.JPG	
05/04/2023 01:34 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Manhole 134. Flow low.		



Sanitary sewer collection system manhole in easement east of the golf course.	NPST16.JPG	
05/04/2023 01:36 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Manhole 133. Bolted closed.		



Sanitary sewer collection system manhole in easement east of golf course.		NPST17.JPG	
05/04/2023 01:37 PM		Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP		No CBI	No PII
Manhole 132 in foreground, manhole 131 in background.			



Sanitary sewer collection system manhole in easement east of the golf course.	NPST18.JPG	
05/04/2023 01:39 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Manhole 130. This was the manhole captured in the video presented to the DuPage County representatives earlier during the interview portion of the inspection, showing a flowing sanitary sewer overflow from this manhole on October 25, 2021.		



Sanitary sewer collection system manhole in easement east of golf course.	NPST19.JPG	
05/04/2023 01:42 PM	Photographer: Dean Maraldo	
Physical Inspection/Nordic Park STP	No CBI	No PII
Manhole 129. Note cover is unseated.		

APPENDIX 2: DOCUMENT LOG

Document Name	Contains CBI or PII	Date Received	Pages	Attached to Report Below?
IL0028398_Nordic Park STP_Permit.pdf	No	05/04/2023	10	No
Summary of Permit Effluent Limit Exceedances	No	Provided by EPA	1	Yes
DuPage County Public Works General Information	No	05/04/2023	1	Yes
Basis of Design for WTF Upgrades	No	05/04/2023	5	Yes
DPCDPW Org Chart	No	05/04/2023	1	Yes
Facility Plans for WTF Upgrades	No	05/04/2023	2	Yes
Woodridge Laboratory Sample Logbook – 5/31/23	No	05/04/2023	1	Yes
Nordic Park STP – pH/DO logsheets	No	05/04/2023	8	Yes
Lab Bench Sheets – fecal coliform, CBOD, TSS, ions	No	05/04/2023	114	No
Nordic Park STP Collection System Map	No	05/05/2023	1	No
DMRs (5/2022-3/2023)	No	05/04/2023	44	No

Effluent Limit Exceedances Report

IL0028398: DCDPW - NORDIC PARK STP, ITASCA, IL 60143

Monitoring Period Date Range: 05/01/2018 to 05/31/2023

Exceedance Details - Outfall 001

			DMR		DMR	Limit		
Monitoring			DMR	dmr_value	Value	Limit	Limit	
Period Date	Parameter Description	Limit Type	Value	_qualifier	Unit	Value	Value	% Exceedance
4/30/2019	Solids, total suspended	DAILY MX	148.8	=	kg/d	90.7	<=	64
7/31/2019	Oxygen, dissolved (DO)	DAILY MN	4.9	=	mg/L	5	>=	2
7/31/2019	Oxygen, dissolved (DO)	MN WK AV	5.5	=	mg/L	6	>=	8
8/31/2019	Nitrogen, ammonia total (as N)	MO AVG	1.8	=	mg/L	1.5	<=	20
6/30/2020	Coliform, fecal general	DAILY MX	2420	>	#/100mL	400	<=	Limit Violation
8/31/2020	Coliform, fecal general	DAILY MX	488	=	#/100mL	400	<=	22
9/30/2020	Coliform, fecal general	DAILY MX	980	=	#/100mL	400	<=	145
8/31/2021	Coliform, fecal general	DAILY MX	517	=	#/100mL	400	<=	29
5/31/2022	Coliform, fecal general	DAILY MX	2420	>	#/100mL	400	<=	Limit Violation
6/30/2022	Coliform, fecal general	DAILY MX	1553	=	#/100mL	400	<=	288
8/31/2022	Coliform, fecal general	DAILY MX	517	=	#/100mL	400	<=	29
1/31/2023	Solids, total suspended	DAILY MX	95.1	=	kg/d	90.7	<=	5
1/31/2023	Solids, total suspended	DAILY MX	99	=	mg/L	24	<=	313
1/31/2023	Solids, total suspended	MO AVG	52.1	=	mg/L	12	<=	334
1/31/2023	Solids, total suspended	MO AVG	51.1	=	kg/d	45.4	<=	13
1/31/2023	BOD, carbonaceous, 05 day, 20 C	MO AVG	17.5	=	mg/L	10	<=	75
1/31/2023	BOD, carbonaceous, 05 day, 20 C	DAILY MX	29.9	=	mg/L	20	<=	50

DuPage County Public Works General Information

Responsible Officials:

Nick Kottmeyer, County Board Chief of Staff	
Nick Kottmeyer, Director of Public Works	630/407-6818
Sean Reese, Operations Manager	630/985-7400
Jay Dahlberg, Manager Maintenance & Operations/Chief Operator	630/985-7400
Mary Dressel, Chief Chemist	630/985-7400

Plant Personnel:

Jay Dahlberg, Chief Operator	Class 1
David Vogel, Principal Operator	Class 1
Cody Culjan, Principal Operator	Class 1
Jon Gende, Operator	Class 1
Mark Streich, Operator	Class 1
Matt Olijar, Operator	Class 4
Joe Richardson	Uncertified

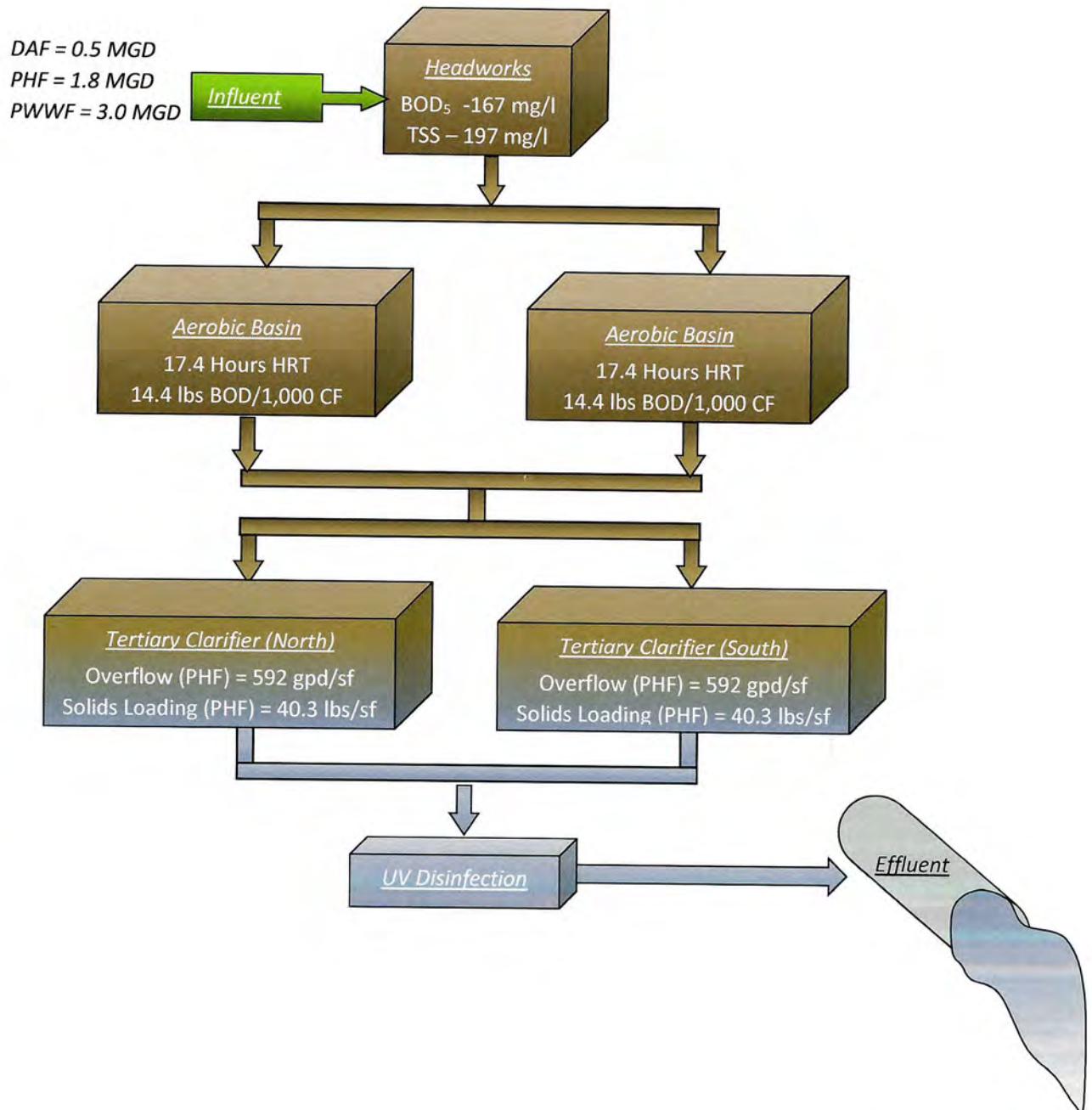


APPENDIX A BASIS OF DESIGN



A. BASIS OF DESIGN

NORDIC WASTEWATER TREATMENT FACILITY 2018 REHABILITATION BASIS OF DESIGN





INFLUENT FLOWS & LOADINGS

Design Flows

Design Average Flow (DAF), MGD	0.50
Peak Hourly Dry Weather Flow (PHF), MGD	1.80
Peak Wet Weather Flow (PWWF), MGD	3.00

Design Loading

Current loading shall be utilized for existing Daily Average Flow (0.25 MGD) and IEPA standards shall be utilized for additional loading to Design Average Flow (0.25 MGD) for conservative design values of BOD and TSS.

Illinois EPA standards are:

0.17 lb. BOD/PE/day, or 204 mg/L BOD₅

0.20 lb. TSS/PE/day, or 240 mg/L TSS

BOD ₅ = (0.25 MGD x 129 mg/L BOD ₅ x 8.34 lb/gal) + (0.25 MGD x 204 mg/L BOD ₅ x 8.34 lb/gal)	695 lb BOD ₅ /day
TSS = (0.25 MGD x 153 mg/L TSS x 8.34 lb/gal) + (0.25 MGD x 240 mg/L TSS x 8.34 lb/gal)	820 lb TSS/day
NH ₃ = 0.50 MGD x 26 mg/L NH ₃ x 8.34 lb/gal =	109 lb NH ₃ /day
TKN = 26 mg/L NH ₃ x 1.529 = 40 mg/L =	167 lb TKN/day

PROCESS OVERVIEW

Screening

Number of Channels	2
Number of Mechanical Climber Screens	1
Number of Manual Screen	1
Width, ft.	2
Clear Space, sf/sf screen	0.5
Velocity through Screens at PWWF	2.34
Maximum Capacity Each, MGD	3.0

Raw Sewage Pumping

Number of Pumps	3
Type	Self-Priming Centrifugal
Capacity Each, gpm	1,200
Capacity Each, MGD	1.73
Station Capacity (w/ one out of service), gpm	2,400
Station Capacity (w/ one out of service), MGD	3.46
Variable Frequency Drives	Yes





Proposed Biological Process

Number of Tanks	2
Tank Width, feet each	22
Tank Length, feet each	50
Sidewater Depth, ft	22
Volume, 1st train Aerobic cf	24,200
Volume, 2nd train Aerobic cf	24,200
Volume, total cf	48,400
Volume, total, gal.	362,000
Total Detention Time at 0.5 MGD, hrs.	17.4
Organic Loading, lbs/day BOD5	695
Organic Loading Rate, lbs/day BOD5/1,000 cf	14.36
MLSS, mg/l	3,000
Solids Inventory, lbs.	9,057
WAS, lbs/day (@ 100% Yield)	695
WAS Volume at 0.75% TS, gpd	11,111
Oxygen Requirement (NH ₃ based on PHF Diurnal Peak), lbs/day	2,490
Biological Air Requirement, scfm	1,105
Mixing Air Requirement (0.12 scfm/sq.ft.), scfm	264 (not limited)
Centrifugal Blowers (2 Duty + 1 Spare), scfm each	600 @ 7.5 psi
Total Air Provided, scfm	1,800
Sludge Age, days	13.0
F/M Ratio	0.08

Tertiary Clarifiers

Number	2
Diameter, feet	45
Design	Hydraulic Differential
Peak Hourly Flow, MGD	1.80
Peak Wet Weather Flow, MGD	3.00
Surface Area - Total, sf	3,040
Weir Length – Total, lin.ft.	250
Surface Loading Rate at PHF, gpd/sf	592
Surface Loading Rate at PWWF, gpd/sf	987
Solids Loading Rate at PWWF, lbs./day/sf	40.33
Weir Loading Rate at PHF, gpd/lf	7,200
Weir Loading Rate at PWWF, gpd/lf	12,000
Volume of RAS (@ 7,500 mg/L and PWWF), MGD	1.90
Number of RAS Pumps (Submersible)	3
Capacity of RAS Pumps, MGD each	1.30
RAS Station Capacity (w/ one out of service), MGD	2.60





Ultraviolet Disinfection

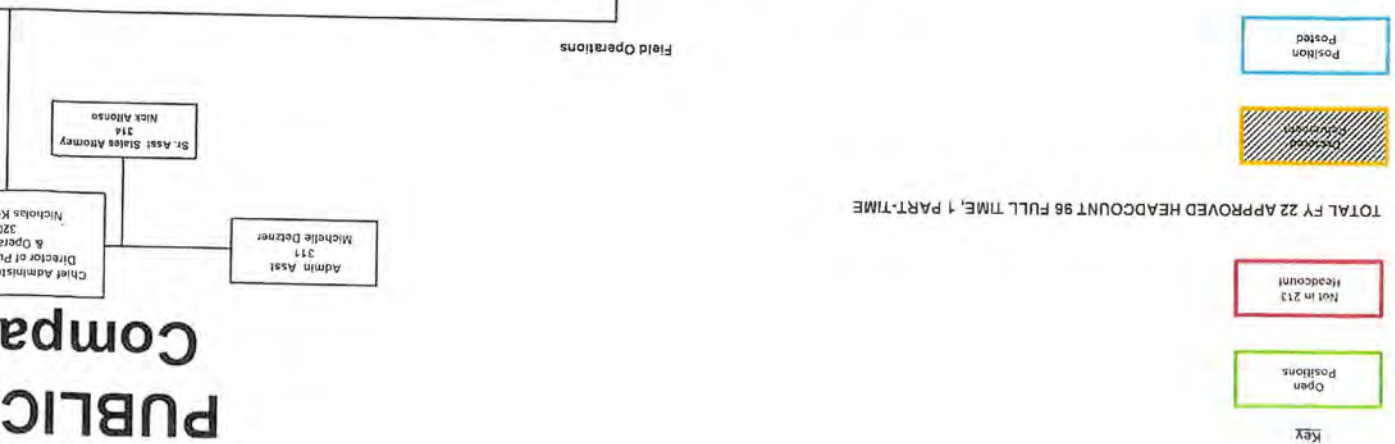
Peak Design Flow, MGD	3.0
UV Transmission, %	65
TSS, mg/l	20
Disinfection Limit, fecal count	400
Design Intensity, mW	40,000
Disinfection Type	Closed Vessel UV
Number of Lines	2
Number of Modules per Line	1
Number of Lamps per Module	6
Automatic Mechanical Cleaning	Yes
Manual Chemical Cleaning	Yes

Sludge Storage

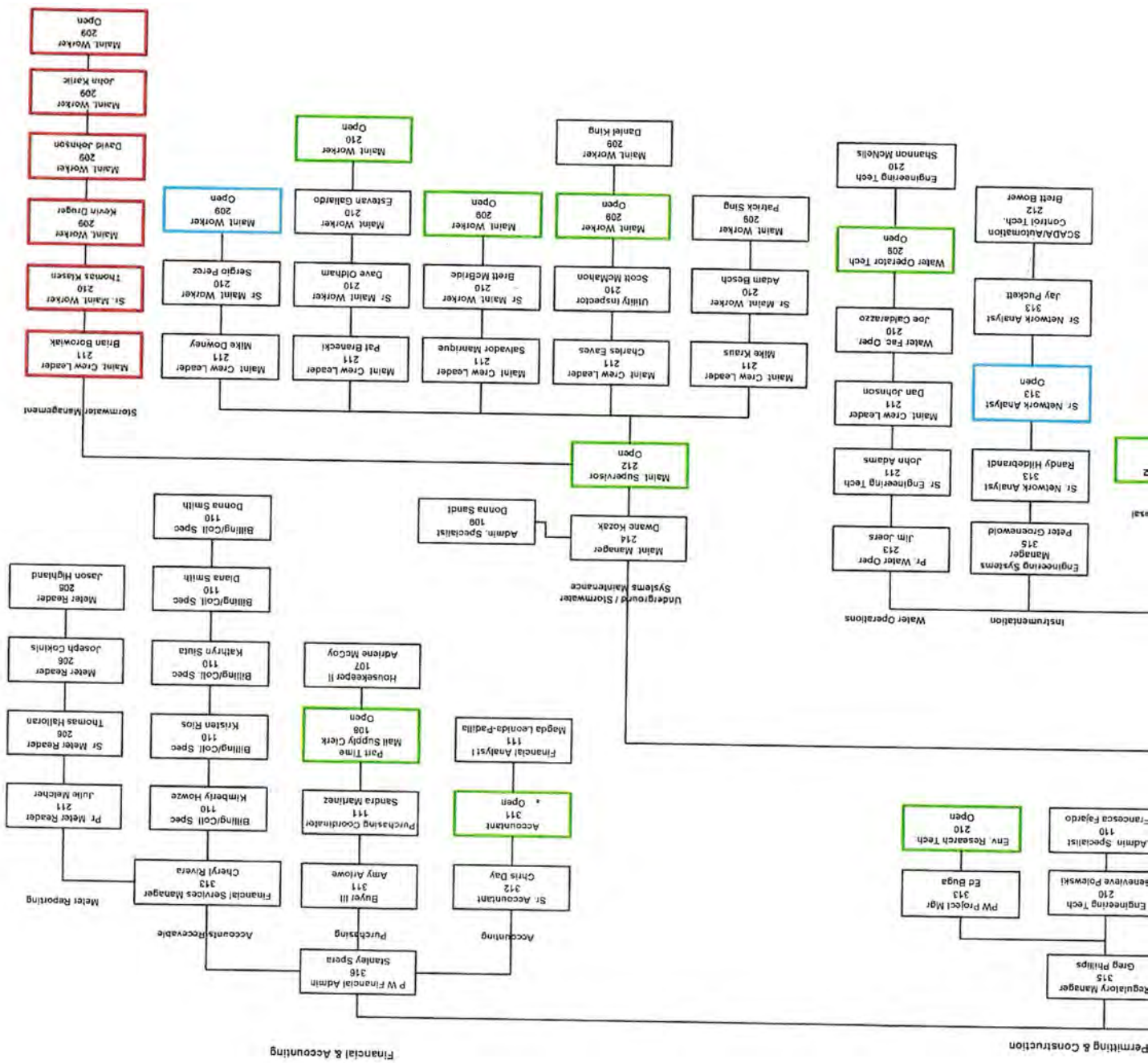
The existing process flow will be maintained, with sludge storage provided at the Nordic WWTP, and sludge hauled for digestion and dewatering at the Woodridge-Greene Valley WWTP located in Woodridge, IL.

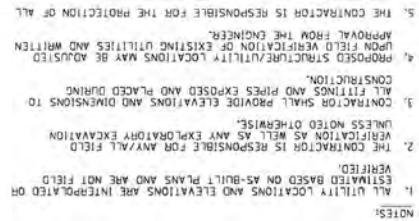
Number of units	1
Diameter, ft	18
SWD, ft	25
Total Sludge Storage Volume, cf	6,358
Total Sludge Storage Volume, gallons	47,561
WAS to Storage, lbs/day	850
WAS to Storage, gallons/day	13,590
Aeration Provided, (@ 30 cfm/1,000 CF)	200
Sludge Volume after Decant, gallons/day	5,096
Days Storage	9.3





updated 3-3-23

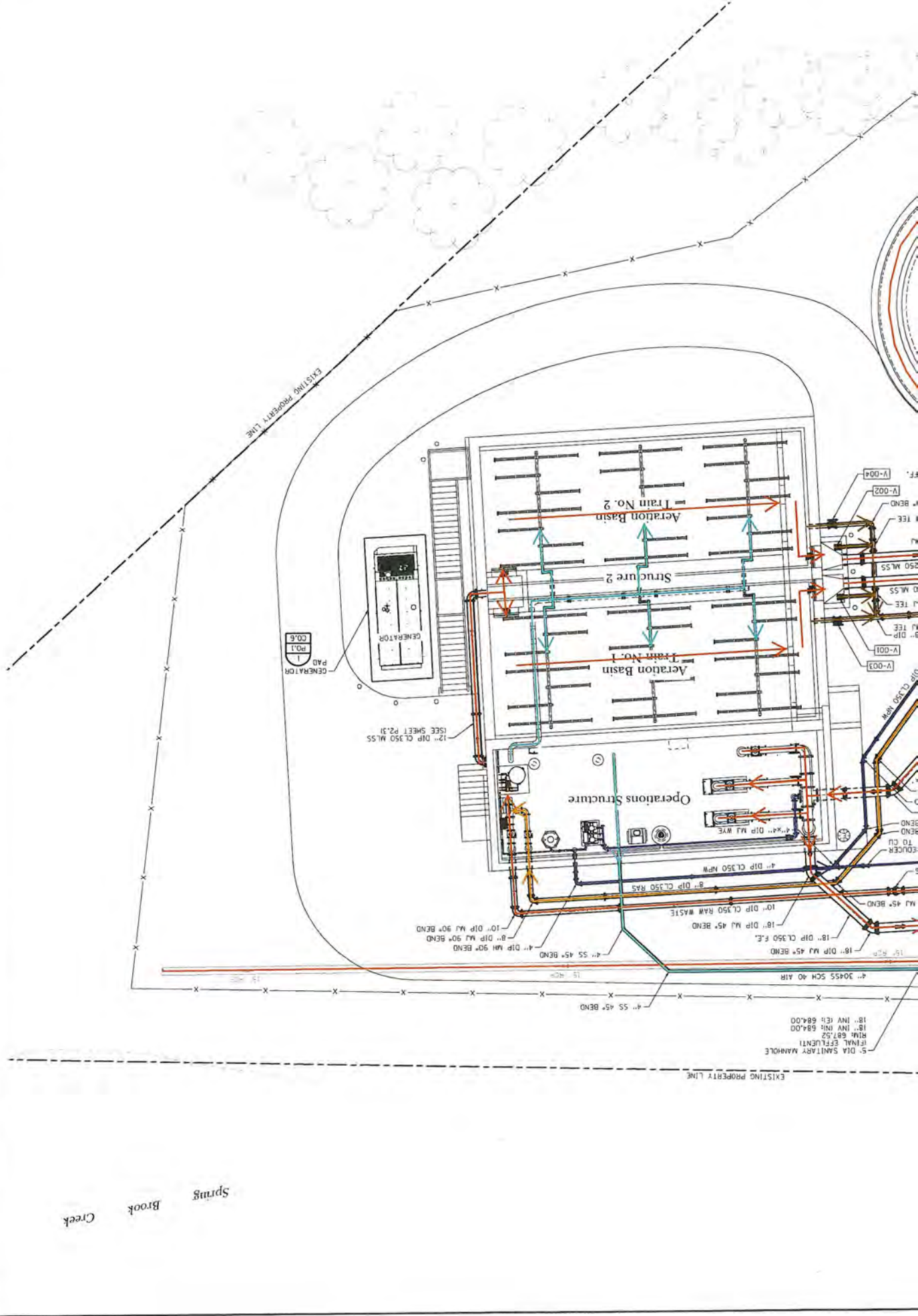


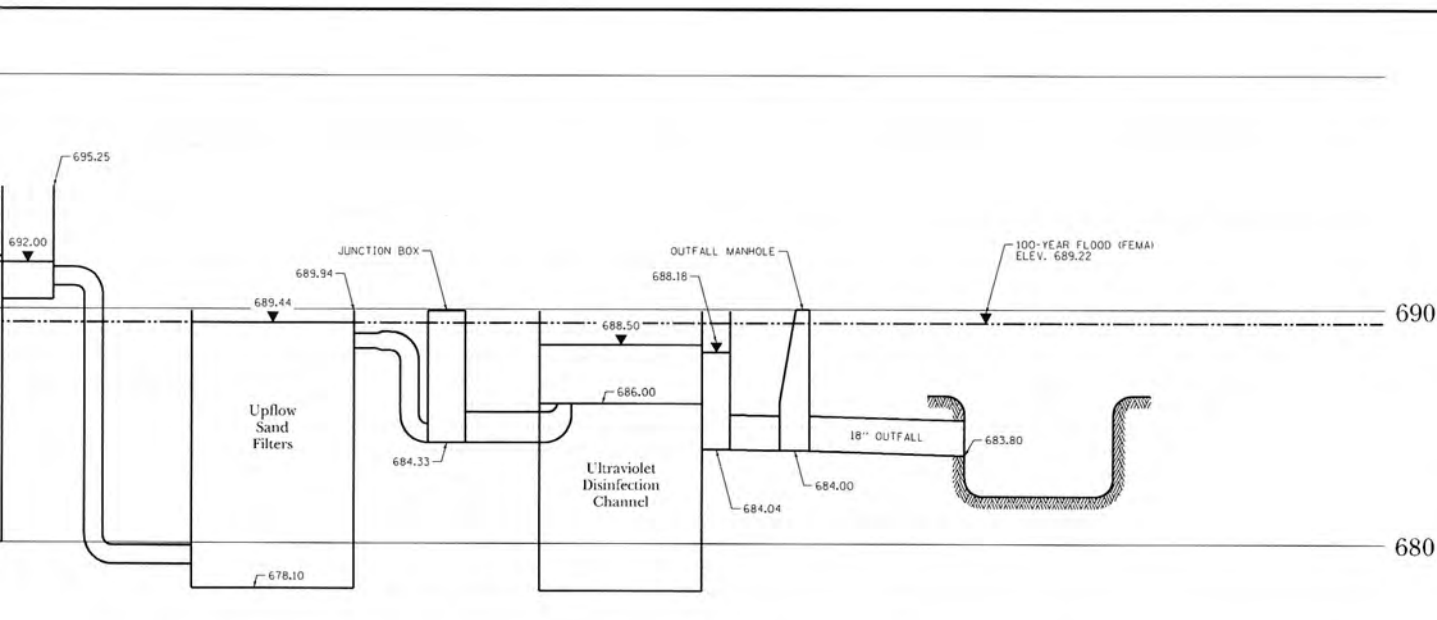


Nordic Wastewater Treatment Plant Rehabilitation Site Piping Plan



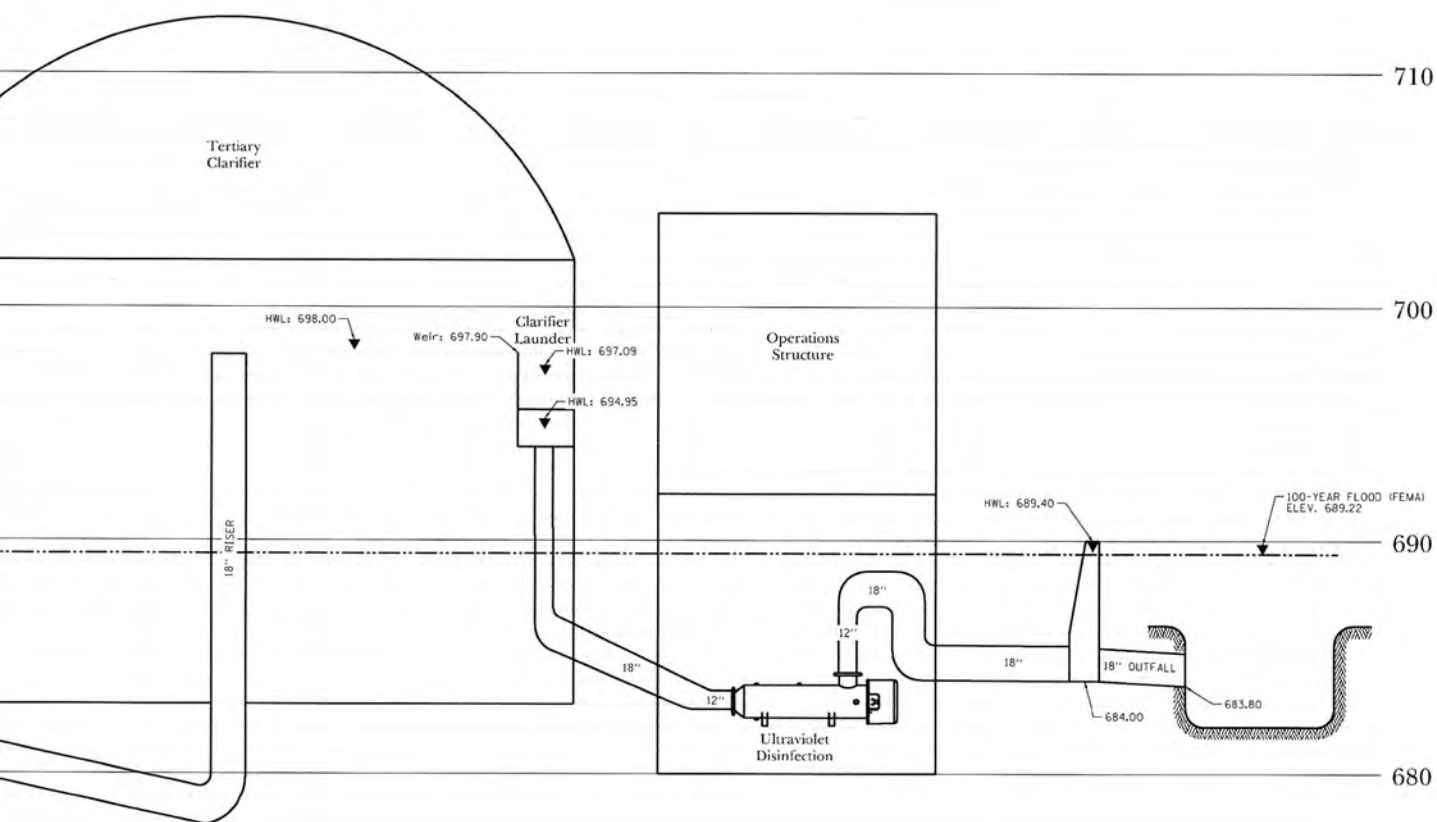
PROJECT NAME		ISSUE		REVISIONS		DATE	
PROJECT MANAGER: CHRIS WARDENBURG, P.E.							
ENGINEER: JAMES BERRY, P.E.							
DESIGNER: TERRY HIGHTOWER, P.E.							
5. ADDENDUM NO. 2							
THIS PROJECT: WASTEWATER							
						9/16/2020	





Hydraulic Profile

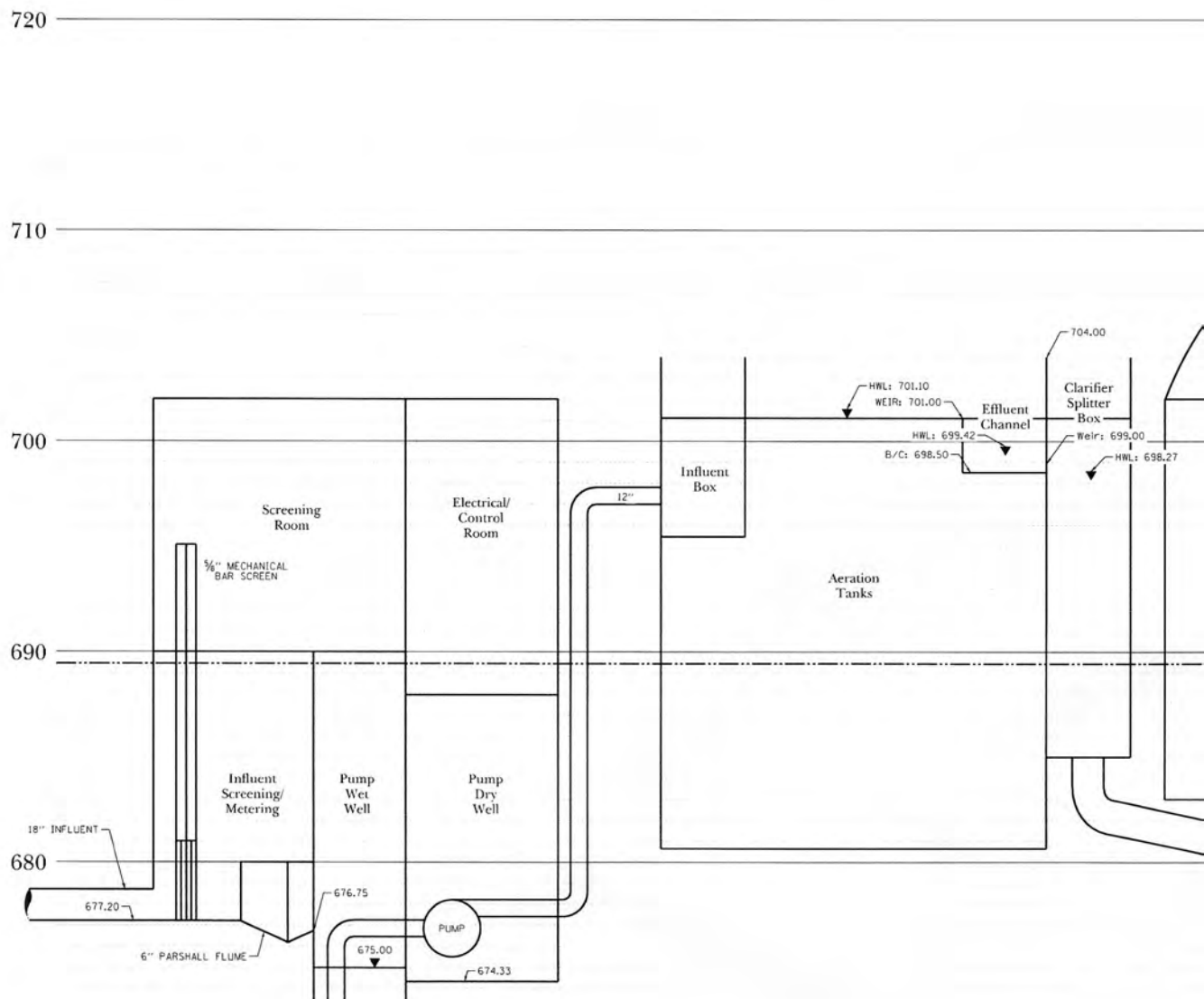
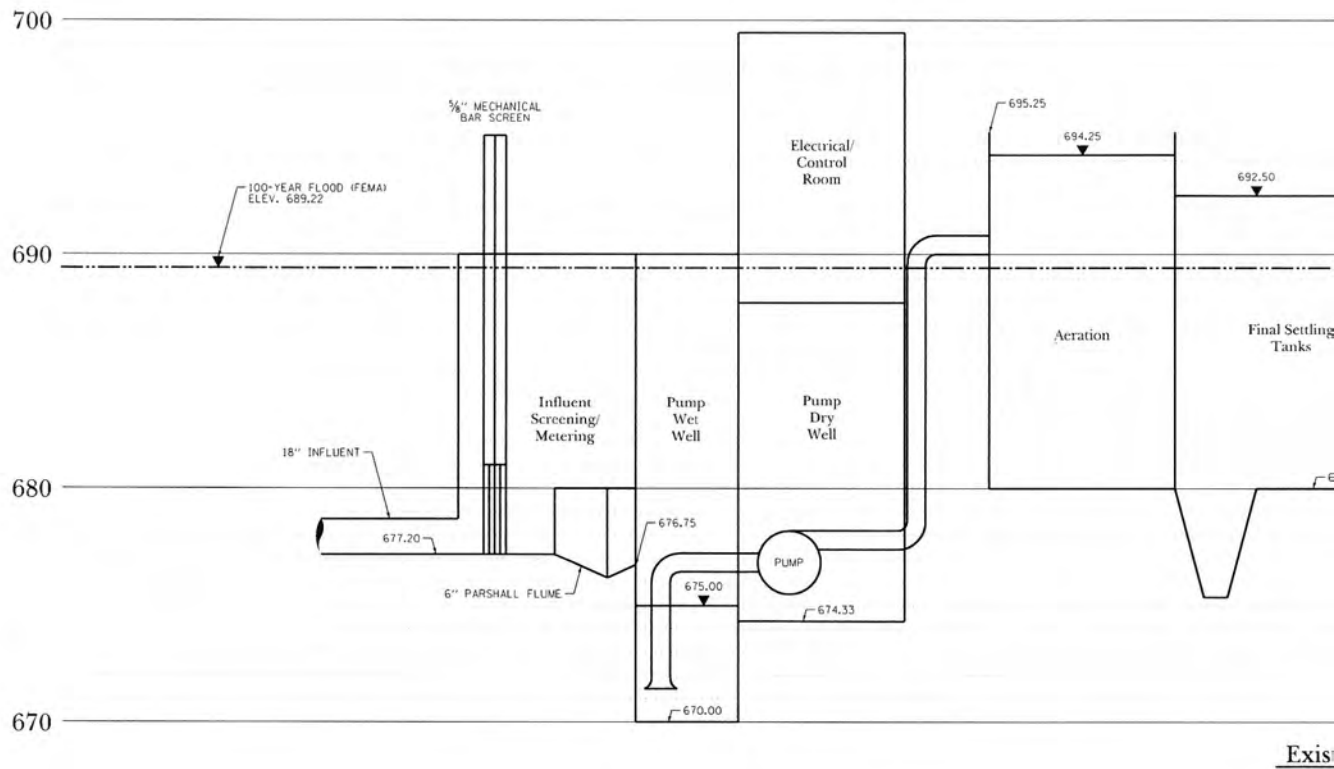
SCALE: NTS



DATE	
REVISIONS	
ISSUE	
PROJECT STAFF	
PROJECT MANAGER: CHRIS MARGHEM, P.E.	
ENGINEER: AMON BERRY, P.E.	
ENGINEER: TERRY HITTAMP, P.E.	



Nordic Wastewater Treatment Plant Rehabilitation



Wednesday, May 31, 2023

RED = acidified sample(s)

WOODRIDGE LABORATORY SAMPLE LOGBOOK

(= NPDES required)

SAMPLE ID (include label ID if NOT a routine sample)	Initials	Bottle No.	Time arrived in laboratory	Grab or Comp.? (G or C)	Sample Start Time*	Sample Collection Time (Comp. = STOP time) (Grab = collection time)	NOTES (include <u>preservation</u> , when applicable)
WOODRIDGE (WGV)							
INFLUENT (RAW)				C			
EFF. (FINAL)				C			
EFF. (ACID)				C			
EFF. (FINAL) : Fecal Coliform				G			
EFF. (FINAL) : (Grab)				G			
INFLUENT : (Grab)				G			
BELT PRESS - # 1							
BELT PRESS - # 2							
BELT PRESS FEED							
SLUDGE: ACID FEED							
SLUDGE: METHANE FEED							
SLUDGE: SECONDARY FEED							
Stewart Sludge Disposal Sheets							QTY: _____
Ammonia Profile for PC:							
Interceptor				G			
OTHER:							
OTHER:							
OTHER:							
OTHER:							
STORM - EFF TSS/ BOD				G			
STORM: Fecal Coliform				G			
STORM: pH				G			
STORM: TRC (Cl ₂)				G			
STORM: D.O.				G			
STORM: Ammonia / P, total				G			
KNOLLWOOD (KWD)							
INFLUENT (RAW)				C		SEE KWD SHEET	
EFF. (FINAL)				C		SEE KWD SHEET	
EFF. (ACID)				C		SEE KWD SHEET	
EFF. (FINAL) : Fecal Coliform				G			
EFF. (FINAL) : (Monthly Grabs)				G		SEE KWD SHEET	# OF SAMPLES: _____
EFF. (FINAL) : TEMP				G			Temp: _____ °C
INF. (Monthly Grab)				G		SEE KWD SHEET	
STORM: 001 BOD/TSS				G			
STORM: 001 Fecal Coliform				G			
STORM: 001 Ammonia/ P, total				G			
STORM: A01 (FDT) BOD/TSS				G			
STORM: A01 (FDT) Ammonia/ P, total				G			
OTHER:							
OTHER:							
DOVE/MARS							
EFF. (FINAL)				C		SEE KWD SHEET	
NORDIC (N)							
INFLUENT (RAW)				C			



NORDIC D.O. LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	1-4-22	1-5-22	1-10-22	1-11-22	1-18-22	1-19-22
OPERATOR	MO	DV	DV	DV	DV	DV
TIME	07:00	6:58	07:15	07:12	7:11	7:13
D.O. READING	10.25	9.68	10.1	10.45	9.92	10.17
TEMP	10.8	11.2	10.17	9.5°	10.3	10.1°

	DATE	DATE	DATE	DATE	DATE	DATE
	1/24-22	1/25-22	1-31-22	2-1-22	2-7-22	2-8-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	07:52	07:43	07:06	06:49	07:23	06:44
D.O. READING	9.85	10.3	9.73	9.38	8.98	8.95
TEMP	9.4°	8.8°	9.9°	10.2°	9.4°	9.1°

	DATE	DATE	DATE	DATE	DATE	DATE
	2-14	2-15	2-22	2-23	2-28	3-1
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:35	10:55	07:49	7:47	07:32	06:50
D.O. READING	10.01	9.26	9.54	10.78	9.6	7.65
TEMP	9.0°	9.6°	10.0°C	7.8°	9.1°	9.8°

	DATE	DATE	DATE	DATE	DATE	DATE
	3/7	3/9	3-14-22	3-15-22	3-21-22	3-22-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:17	7:24	8:05	07:37	07:12	07:17
D.O. READING	9.38	9.64	9.28	9.34	9.30	9.19
TEMP	9.9°	9.7°	10.°C	10.4°C	10.9°C	11.2°C

	DATE	DATE	DATE	DATE	DATE	DATE
	3-29	3-30	4-4-22	4-5-22	4-12	4-12
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:17	7:14	7:12	6:53	7:04	07:16
D.O. READING	9.82	9.4	9.01	9.24	8.78	9.07
TEMP	9.6°	10.2°	10.2°	10.3°	11.1	10.9°



NORDIC D.O. LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	4-18-22	4-19	4-25	4-26	5-2-22	5-3-22
OPERATOR	DV	PV	DV	DV	DV	DV
TIME	7:04	7:18	7:49	7:16	06:57	07:14
D.O. READING	8.41	8.75	8.60	8.99	8.94	9.05
TEMP	11.2°	10.9°	11.8°	11.1°	11.7°	11.8°

	DATE	DATE	DATE	DATE	DATE	DATE
	5/9/22	5-10-22	5-16-22	5-18-22	5-23-22	5-24-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:25	7:04	7:44	07:26	07:34	07:13
D.O. READING	9.22	8.81	8.41	8.54	8.67	8.81
TEMP	12.2	13.3	14.1	13.9	13.7	13.8

	DATE	DATE	DATE	DATE	DATE	DATE
	5-31-22	6-1-22	6-6-22	6-7-	6-13-22	6-14-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	07:17	7:19	07:16	67:00	7:50	6:52
D.O. READING	8.30	8:05	7.68	7.75	07:25	7.12
TEMP	16.1°	16.5°	16.1°	16.2°	16.5°	17.0°

	DATE	DATE	DATE	DATE	DATE	DATE
	6-21	6-22	6-29	6-28	7-5-22	7-7-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:15	07:28	06:51	07:40	7:45	7:16
D.O. READING	6.49	6.04	6.70	6.80	6.04	6.74
TEMP	18.1°	18.9°	18.5°	18.4°	18.8	18.6

	DATE	DATE	DATE	DATE	DATE	DATE
	7-11-22	7-12-22	7-18-22	7-19-22	7-25-22	7-26-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	07:50	7:14	7:26	6:29	7:16	6:41
D.O. READING	6.70	6.65	6.77	6.14	6.91	7.08
TEMP	19.0	19.4	19.1	19.2	19.1	18.9



NORDIC D.O. LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	8-1-22	8-2-22	8-8-22	8-9-22	8-16-22	8-17-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:45	7:17	7:25	7:31	7:19	6:42
D.O. READING	6.45	6.20	5.27	6.16	6.47	6.56
TEMP	19.9	20.0 °	20.8 °	19.9 °	19.7	19.0

	DATE	DATE	DATE	DATE	DATE	DATE
	8-22	8-23-22	8-29-22	8-30-22	9-6-22	9-9-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:13	7:29	7:01	7:15	7:39	7:10
D.O. READING	5.71	6.18	5.06	5.79	5.92	5.69
TEMP	19.8 °	19.9 °	20.3	20.3	19.8	20.0

	DATE	DATE	DATE	DATE	DATE	DATE
	9-12	9-13	9-19-22	9-26-22	9-27-22	10-3-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:12	7:19	7:29	7:53	7:24	7:17
D.O. READING	6.77	6.81	5.23	5.44	6.99	5.62
TEMP	19.0	19.1	20.0	18.3	17.8	17.7

	DATE	DATE	DATE	DATE	DATE	DATE
	10-4-22	10-10-22	10-11-12	10-17-22	10-18-22	10-24-22
OPERATOR	DV	DV	JR	DV	DV	DV
TIME	6:52	06:28	07:41	07:28	7:40	7:41
D.O. READING	6.46	6.24	5.81	7.19	7.88	5.14
TEMP	17.3	16.7	17.0	15.6	14.6	19.3

	DATE	DATE	DATE	DATE	DATE	DATE
	10-25-22	10-31-22	11-2-22	11-7-22	11-8-22	11-14-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:44	7:07	07:24	07:18	7:24	7:26
D.O. READING	5.35	7.20	7.77	8.13	8.43	8.59
TEMP	17.5	16.0	15.7	15.4	14.9	13.3



NORDIC D.O. LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	11-15-22	11-21-22	11-23-22	11-28-22	11-29-22	12-5-22
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:39	7:27	7:41	7:28	7:21	7:34
D.O. READING	8.79	8.42	8.49	6.76	8.01	8.56
TEMP	12.0°	11.1°	11.4°	12.6°	13.1°	11.2°

	DATE	DATE	DATE	DATE	DATE	DATE
	12-6-22	12-13-22	12-14-22	12-20-22	12-21-22	12-26-22
OPERATOR	DV	DV	DV	M.O.	M.O.	DV
TIME	7:31	7:49	7:39	12:49	07:52	08:09
D.O. READING	8.13	8.69	8.44	7.69	7.94	8.15
TEMP	11.8°	12.0°	12.1°	10.4	10.2	9.1

	DATE	DATE	DATE	DATE	DATE	DATE
	12-27-22	01-02-23	1-4-23	1-9-23	1-10-23	1-17-23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	8:22	12:21	7:09	7:43	6:48	7:28
D.O. READING	8.26	7.39	8.01	9.32	9.32	8.62
TEMP	9.1	11.2	11.6	10.5	10.9	11.4°

	DATE	DATE	DATE	DATE	DATE	DATE
	1-18-23	1-23-23	1-24-23	1-30-23	1-31-23	2-6-23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:31	7:47	7:21	7:24	7:51	7:56
D.O. READING	9.16	9.03	10.06	9.90	10.48	9.45
TEMP	10.8°	10.1°	9.9°	9.1°	8.2°	9.3°

	DATE	DATE	DATE	DATE	DATE	DATE
	2-7-23	2-13-23	2-14-23	2-21-23	2-22-23	2-27-23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	06:32	7:33	7:21	7:31	7:27	7:26
D.O. READING	8.97	9.36	9.23	8.88	9.28	7.33
TEMP	10.2°	10.3°	10.2°	10.1°	9.9	10.1



NORDIC D.O. LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	3.2.23	3.3.23	3.6.23	3.7.23	3.13.23	3.14.23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:29	7:29	7:25	7:43	7:39	7:46
D.O. READING	10.65	9.63	8.7	9.14	10.18	10.91
TEMP	9.8	9.6	10.3	10.2	9.7	9.3

	DATE	DATE	DATE	DATE	DATE	DATE
	3.20.23	3.21.23	3.27.23	3.28.23	4.3.23	4.4.23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:42	8:20	7:56	7:32	7:30	7:27
D.O. READING	9.1	8.06	7.76	8.64	10.35	9.2
TEMP	9.6	9.9	9.7	9.7	10.2	10.4

	DATE	DATE	DATE	DATE	DATE	DATE
	4.10.23	4.11.23	4.19.23	4.20.23	4.24.23	4.26.23
OPERATOR	DV	DV	DV	DV	DV	DV
TIME	7:47	7:29	9:35	14:17	8:15	7:40
D.O. READING	8.02	7.97	10.86	10.45	10.47	10.33
TEMP	11.3	11.2	11.7	13.0	12.1	11.9

	DATE	DATE	DATE	DATE	DATE	DATE
	5.1.23	5.2.23				
OPERATOR	DV	DV				
TIME	7:48	10:52				
D.O. READING	9.89	10.36				
TEMP	12.4°	12.7°				

	DATE	DATE	DATE	DATE	DATE	DATE
OPERATOR						
TIME						
D.O. READING						
TEMP						



NORDIC pH LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	3-11-22	4-4-22	4-5-22	5-9-22	5-13-22	6-13-22
OPERATOR	DV	DV	DV	DV	DV	DV
CAL TIME	07:12	7:26	07:02	02:35	06:45	07:44
STD. 1	7.03	7.03	7.03	7.02	7.01	7.02
STD. 2	10.08	10.07	10.08	10.07	10.03	10.07
SLOPE	98%	93%	96%	94%	96%	96%
CAL TEMP	18.0	18.9	18.6	19.4	23.1	18.8
QC BUFFER	4.0	4.0	4.0	4.0	4.0	4.0
QC RESULT	3.98	3.95	3.93	3.93	3.93	3.96
SAMPLE TIME	07:20	7:35	7:12	2:45	6:57	07:56
ANALYSIS TIME	07:29	7:46	7:23	2:57	7:11	8:09
RESULT	7.07	7.05	7.33	7.10	7.07	7.60
TEMP	9.7°	11.6	10.7	16.3	18.5 17.°	17.5°

	DATE	DATE	DATE	DATE	DATE	DATE
	6-17-22	7-11-22	7-15-22	8-1-22	8-5-22	9-8-22
OPERATOR	DV	DV	DV	DV	DV	DV
CAL TIME	7:33	07:59	6:50	07:25	07:21	
STD. 1	7.01	7.01	7.01	7.01	7.01	7.02
STD. 2	10.03	10.04	10.04	10.04	10.04	10.06
SLOPE	96%	94%	94%	95%	94%	92%
CAL TEMP	22.8	21.8	21.7	21.8	21.6	20.2
QC BUFFER	4.0	4.0	4.0	4.0	4.0	4.0
QC RESULT	3.95	3.92	3.95	3.95	3.95	3.82
SAMPLE TIME	7:41	08:12	7:10	07:53	7:41	
ANALYSIS TIME	7:53	08:25	7:23	8:04	7:54	Did not pass Cal.
RESULT	7.56	7.0	7.07	7.01	7.10	
TEMP	19.9	20.8	19.4	20.8	20.9	



NORDIC pH LOG SHEET

	DATE	DATE	DATE	DATE	DATE	DATE
	9-15-22	9-16-22	10-06-22	10-7-22	11-2-22	11-3-22
OPERATOR	DV	DV	DV	DV	DV	DV
CAL TIME	07:23	07:02	07:45	07:35	13:50	14:03
STD. 1	7.03	7.01	7.03	7.03	7.03	7.03
STD. 2	10.08	10.05	10.08	10.08	10.08	10.08
SLOPE	97%	98%	98%	97%	96%	97%
CAL TEMP	18.4	21.4	18.2	18.5	18.9	18.9
QC BUFFER	4.0	4.0	4.0	4.0	4.0	4.0
QC RESULT	3.94	3.98	3.97	4.01	3.98	3.93
SAMPLE TIME	7:30	7:16	07:59	07:46	14:05	14:20
ANALYSIS TIME	7:41	7:27	8:11	07:58	14:18	14:31
RESULT	7.11	7.23	7.08	7.17	7.45	7.28
TEMP	18.1	18.9 DV 18.9	17.8	17.6	17.4	17.9

	DATE	DATE	DATE	DATE	DATE	DATE
	12-5-22	12-7-22	1-9-23	1-11-23	2-13-23	2-14-23
OPERATOR	DV	DV	DV	DV	DV	DV
CAL TIME	7:53	15:35	07:55	8:24	7:56	7:41
STD. 1	7.03	7.02	7.02	7.02	7.02	7.02
STD. 2	10.09	10.06	10.06	10.06	10.06	10.09
SLOPE	97%	98%	98%	97%	97%	97%
CAL TEMP	17.5	20.4	19.8	20.4	20.2	17.9
QC BUFFER	4.0	4.0	4.0	DV 3.9 4.0	4.0	4.0
QC RESULT	3.95	3.98	4.0	3.97	3.95	3.95
SAMPLE TIME	8:01	15:47	8:05	8:38	8:09	7:55
ANALYSIS TIME	8:12	15:59	8:18	8:50	8:21	8:07
RESULT	7.36	7.07	7.46	7.26	7.66	7.48
TEMP	11.9	13.1	11.7	11.3	11.4	9.8



NORDIC pH LOG SHEET

DV

	DATE	DATE	DATE	DATE	DATE	DATE
	3-8-23	3-16-23	3-16-23	3-17-23	4-6-23	4-7-23
OPERATOR	DV	DV	DV	DV	DV	DV
CAL TIME	7:26	7:55	7:55	7:46	8:13	1:13
STD. 1	7.08	7.06	7.06	7.03	7.02	7.02
STD. 2	10.23	10.01	10.01	10.09	10.07	10.07
SLOPE	91%	97%	97%	97%	97%	97.7%
CAL TEMP		9.2°	9.2	11.7	19.2°	19.5
QC BUFFER	DID NOT	4.0	4.0	4.0	4.0	4.0
QC RESULT	PASS	3.96	3.96	3.95	3.97	3.94
SAMPLE TIME	CAL		8:05	8:01	8:24	13:30
ANALYSIS TIME		8:05	8:18	8:13	8:35	13:42
RESULT			7.27	7.04	7.07	7.03
TEMP			12.2	11.1	10.8	12.3

	DATE	DATE	DATE	DATE	DATE	DATE
OPERATOR						
CAL TIME						
STD. 1						
STD. 2						
SLOPE						
CAL TEMP						
QC BUFFER						
QC RESULT						
SAMPLE TIME						
ANALYSIS TIME						
RESULT						
TEMP						