



Wastewater Treatment Facilities Plan Amendment Lincoln Wastewater Treatment Facility

Lincoln, North Dakota

LINND 141680 | January 18, 2021



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January 18, 2021

RE: Lincoln Wastewater Treatment Facility
Wastewater Treatment Facilities Plan Amendment
Lincoln, North Dakota
SEH No. LINND 141680 4.00

Mr. Gerarld Wise
Mayor
City of Lincoln
74 Santee Road
Lincoln, ND 58504

Dear Mr. Mayor:

Enclosed is the City of Lincoln's Wastewater Treatment Facilities Plan Amendment in regards to the future planning of the wastewater treatment system. This amendment replaces chapters 6, 7, and 8 of the Wastewater Treatment Facilities Plan, submitted March 25, 2020.

The existing wastewater system is inadequate for future flows and loads and is in need of upgrades or replacement. Flow data collected and population projections were used to size four alternatives. The Do Nothing alternative is not being considered due to future failure of the system if not addressed. Other alternatives were developed for expansion of the existing lagoon system, regionalization with Bismarck, or mechanical treatment options. All options were evaluated based on cost, City input, public comments, and site requirements.

Alternatives 5.1, 5.2, and 5.3.1. were presented to the City of Lincoln council on March 7, 2019, where the council decided to include a fourth alternate, a BNR mechanical system. The revised Facility Plan was forwarded to the City council members for preliminary review. A public meeting was held on May 14, 2019 to include public input on project selection. Two of the main comments by the public were 1) there is a desired to eliminate odor from the pond system, and 2) the next improvement should not result in larger expansion of ponds.

Alternative 5.3.2 Continuous Discharge BNR Mechanical Facility was selected by the City Council on June 6, 2019 as the recommended alternative. After a review of the completed Wastewater Treatment Facilities Plan, the City chose to change to the Regionalization with Bismarck alternative in June 4, 2020 council meeting. This alternate was selected due to the reduced capital cost and the compliance with the public comments noted above regarding pond size and odors.

Mr. Gerarld Wise
January 18, 2021
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The cost of the project is estimated at \$7.2 million for all construction, engineering, permitting and other soft costs. To finance this project, a North Dakota Clean Water State Revolving Fund loan is anticipated to be used. Financing this project at current 2.5% interest rates, along with operation and maintenance costs is estimated to increase user monthly fees initially. The monthly user fee is predicted to reduce as the population increases and more users contribute to paying of the capital investment.

Solicitation for review letters for were sent out to federal, state, and local agencies in preparation for start of design for this project. Per the responses, environmental studies and documents will need to be completed for this project prior to construction bidding. The current system is experiencing maximum loading, stressing the system for discharge requirements.

Upon approval of this amendment, the next steps are to submit this document to funding agencies for review and processing. After the funding agencies have reviewed and provided comment, the City will authorize final design. The environmental documents and design can then be initiated to complete the new City of Lincoln wastewater pumping system.

On behalf of the SEH team, thank you for the opportunity to work alongside the City's staff and Council in completing this report. We believe the steps taken in conducting this report will benefit the City in improvements to health and sanitation and will allow continued growth in the community for years to come.

Sincerely,



Colin Marcusen, PE
Project Manager

ejm/mrb

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Wastewater Treatment Facilities Plan Amendment

Lincoln Wastewater Treatment Facility
Lincoln, North Dakota

SEH No. LINND 141680

January 18, 2021

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of North Dakota.



Colin Marcusen, PE

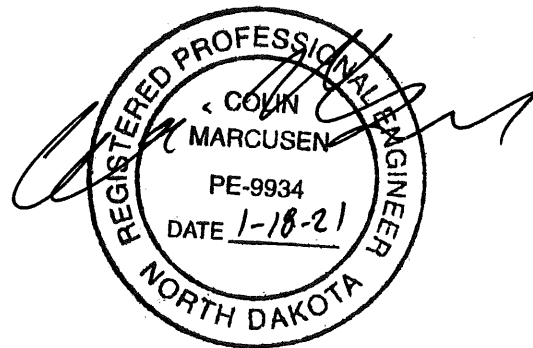
Date: January 18, 2021

License No.: PE-9934

Reviewed By: Matt Schaible, PE

Date: January 18, 2021

Short Elliott Hendrickson Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503-5677
701.354.7121



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Wastewater Treatment Facilities Plan Amendment

Lincoln Wastewater Treatment Facility

Prepared for City of Lincoln, North Dakota

6 Selection of an Alternate

The selection of an alternative can be accomplished by evaluating the construction cost, ongoing operation and maintenance, and lowest overall cost during the service life of the project. Operations and Maintenance associated with the wastewater treatment alternatives varies by alternative. In order to compare the alternatives, an annual cost was calculated for each of the proposed alternatives. The annual cost was used to develop a 20 year net present value for each alternative which allows for a cost comparison for both initial capital expense and ongoing operation and maintenance costs. Table 20 shows the present worth analysis.

Table 1 – Probable Cost for Evaluated Alternatives

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
5.1 - Expansion of Stabilization Pond System	960	\$10,270,000	\$106,000	\$11,847,000
5.2 - Regionalization with Bismarck	730	\$7,212,000	\$547,000 ⁴	\$15,338,000
5.3.1 - Continuous Discharge Aerated Pond Mechanical Facility	1,630	\$12,420,000	\$210,000	\$15,539,000
5.3.2 - Continuous Discharge BNR Mechanical Facility	2,290	\$17,260,000	\$224,000	\$20,589,000

1 Includes the following:

30% construction contingency

16% for engineering design, construction administration, and construction field services.

2 Assumes operator total compensation labor rate of \$35.00 per hour for 5.1, 5.3.1, and 5.3.2 and \$25/hour for 5.2.

3 20 year period at 3.0% rate.

4 Wastewater user fee paid to Bismarck is \$522,145 per year at year one, increasing by 3% per year due to inflation.

Assumes current flow and population for annual O&M costs.

Alternatives 5.1, 5.2, and 5.3.1 were presented to the City of Lincoln council at the March 7, 2019 council meeting, where it was decided to include a fourth option of a BNR mechanical system. This fourth option was added, and the revised Facility Plan was forwarded to the City council members for preliminary review. Due to the cost of the alternatives, a public meeting was also held on May 14, 2019 to include public input on project selection. Two of the main comments by the public were 1) that wastewater ponds odor was unpleasant at certain times of the year , and there was desired to eliminate these odors and 2) that the next improvement should not result in larger expansion of ponds.

Once public input meeting was completed, the City council members reviewed the alternatives once again, and at the June 6, 2019 City council meeting it was motioned and carried to move forward with Alternative 5.3.2, Continuous Discharge BNR Mechanical Facility. The original Facilities Plan was submitted to the State with this being the recommended alternative.

After reviewing the costs of the BNR Mechanical Facility, the City chose to change to the Regionalization with Bismarck alternative at the June 4, 2020 council meeting. This alternate was selected due to the reduced capital cost and the compliance with the public comments noted above regarding pond size and odors. The following sections outline the preliminary project design and cost associated with the Regionalization with Bismarck alternative.

7 Proposed Project

7.1 Project Design

The City of Lincoln has selected Alternate 5.2, regionalization with the Bismarck WWTP. The Bismarck WWTP is located approximately 4.7 miles west of the Lincoln wastewater pond system. The Bismarck facility has an average day flow treatment capacity of 9.25 MGD with 11 plant operators. The plant was recently upgraded in 2009 and has additional upgrades scheduled in 2021 to increase the BOD capacity. The Bismarck WWTP will be available for City of Lincoln flows starting in 2022.

In order to discharge to Bismarck's sanitary sewer, Lincoln will need to meet Title 11.1 Pretreatment Program Ordinance Bismarck uses to manage wastewater. Lincoln does not have categorical industrial users or significant industrial users and is not anticipated to need additional treatment prior to discharging to the Bismarck collection system. A sampling program is planned to further characterize Lincoln's wastewater characteristics as it pertains to pretreatment.

The proposed project is a conversion of the existing lagoon system to a regionalization system with City of Bismarck. The proposed system will decommission cells 1, 3 and 4 and re-purpose cell 2 as an equalization basin. A regionalization lift station would be constructed to pump wastewater to Bismarck's Hay Creek lift station utilizing a duplex submersible station in a precast concrete structure. Prior to entering the lift station, the influent will pass through a basket screen and grease trap to reduce ragging and grease buildup.

7.1.1 Flow Projections

A flow study was completed based on 2018 flows and a linear population projection (4,152 persons in 2020, 6,772 persons in 2040). The flow study produced the following 20 year design flows presented in Table 2.

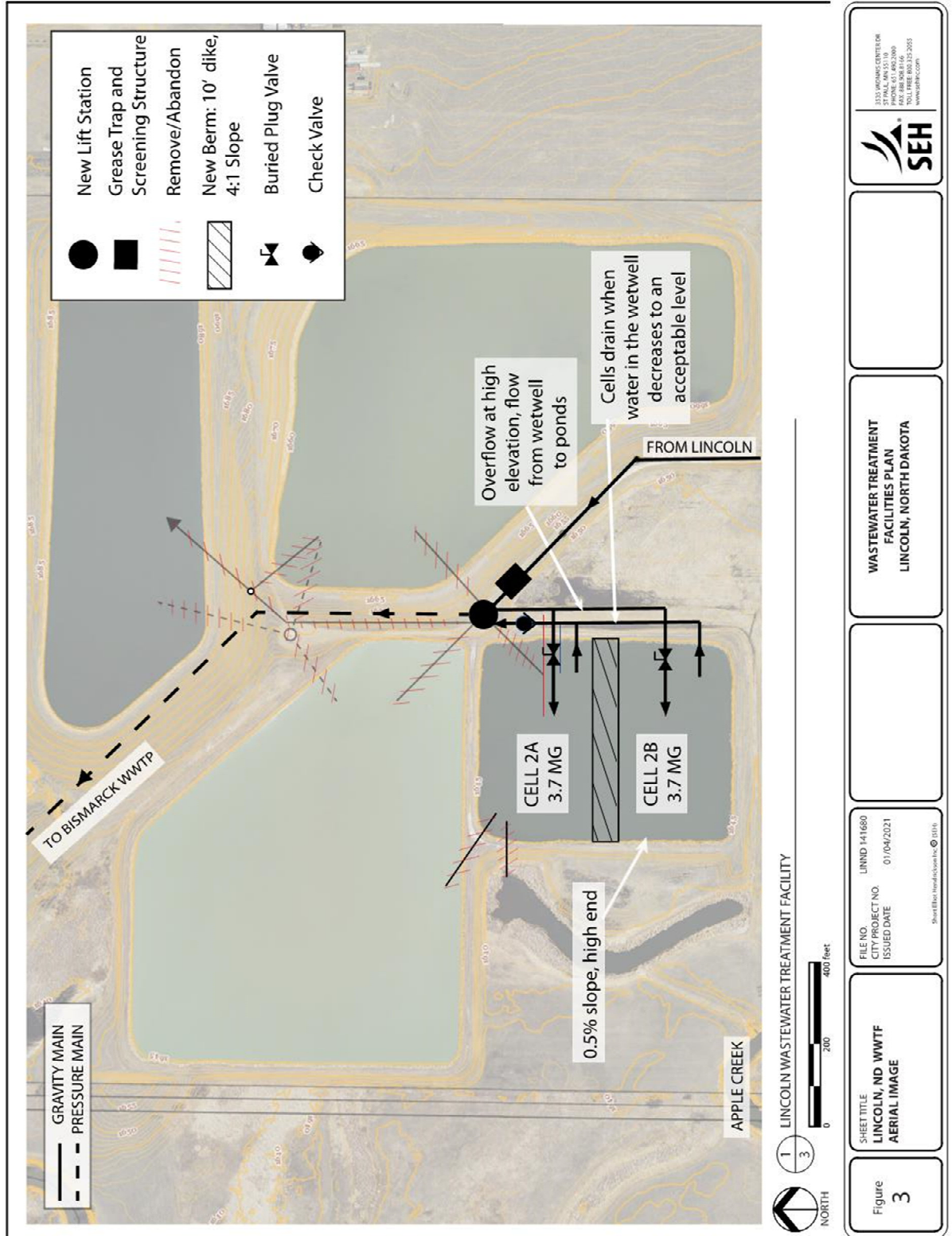
Table 2 – Projected Flows

Parameter		Units	Value
Flow Design Demand	Average Dry Weather Flow	gpd	313,000
	Average Wet Weather Flow	gpd	355,000
	Peak Hour Wet Weather Flow	gpm	589
	Peak Instantaneous Wet Weather Flow	gpd	848,000

7.1.2 Cell 2 Design

Cell 2 will be converted to an equalization basin to hold excess wastewater during high flow events. The cell will be divided by a berm, which will allow for one half to be taken offline for maintenance as needed. The cell will be filled and drained by gravity along the east side of the cells based on the water elevation in the wetwell: during peak flow conditions the water in the wetwell will back up into the pond cells by gravity. A manual valve on each EQ cell will control which cell is filled. When the wetwell has emptied to a low enough level, wastewater from the EQ cell will drain into the wetwell also by gravity. A check valve on the drainpipe will prevent backflow from the wetwell to the drain pipes. A 0.5% slope will be added to the floor of the cells to aid in gravity draining of the pond (Slopes west to east). Figure 1 presents the proposed layout of the EQ basins and lift station.

Figure 1 – Equalization Pond Design



7.1.3 Lift Station Design

The duplex lift station is designed to meet the current peak flows of 421 gpm with one pump running, and the other as a backup. The wetwell is sized large enough to allow for future pump upsizing and for a potential third pump in the future.

The city indicated the need for both screening and grease removal. A basket screen with a railing system and a 20,000-gallon septic tank grease trap are recommended. Operators will need to empty the basket screen at least once per day, which will increase the required operation cost.

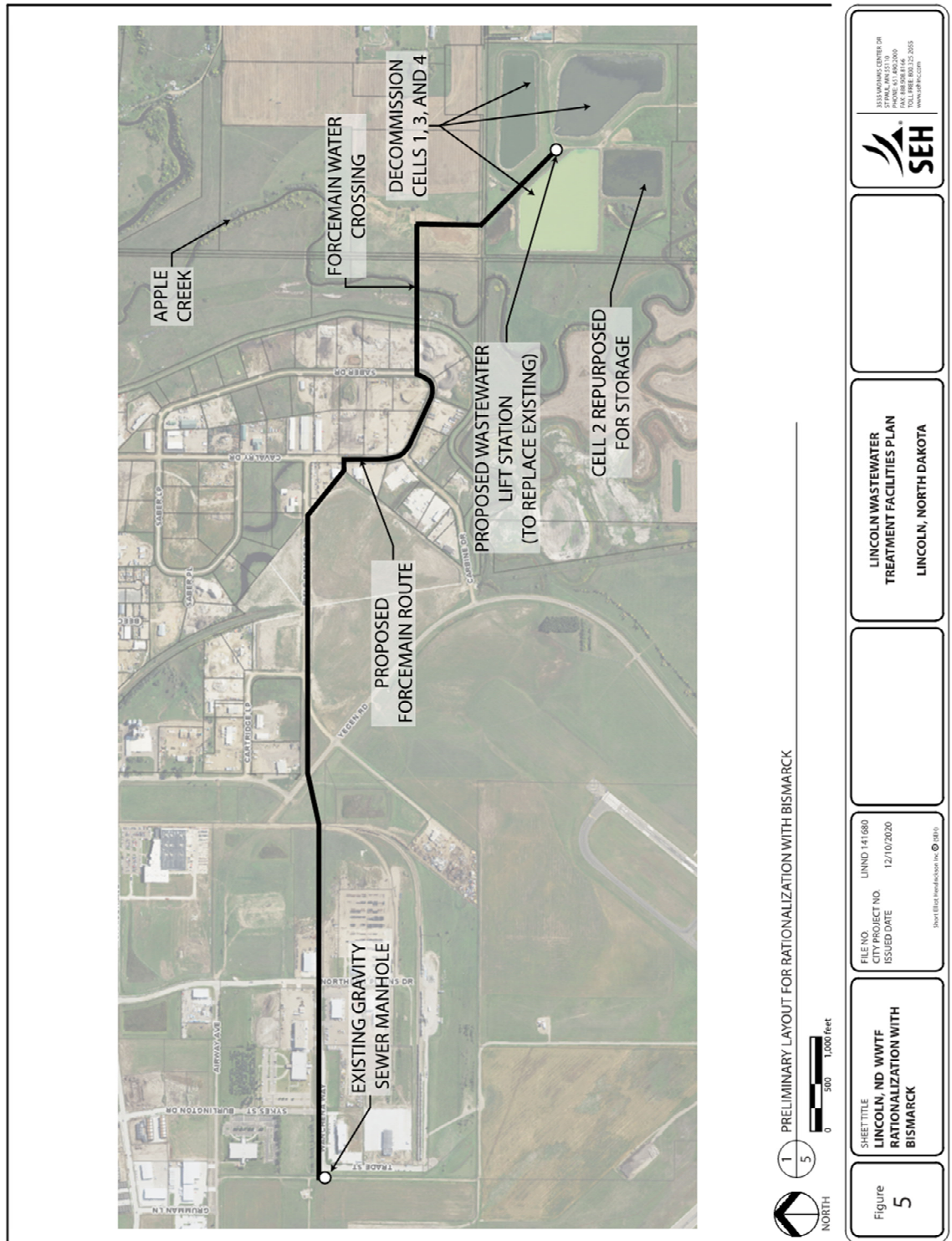
A chemical addition station and composite sampling station will be placed the lift station to monitor wastewater parameters and allow for chemical addition as required by the City of Bismarck.

7.1.4 Forcemain Route

The selected route for Regionalization is shown in Figure 2 and is approximately 12,500 linear feet. The route passes under Apple Creek and through residential, commercial, and city property. The route proposed in Figure 2 is longer than the presented route in Section 5.2 in order to minimize the length of forcemain under Apple Creek. The route may be altered during the design process based on the responses to the solicitation of views letters. The option of dual lines was also discussed in Section 5.2 in order to increase the capacity of the forcemain. After discussions with the City of Lincoln, it was determined that dual lines are not required for the flows at the current population, and therefore is not cost effective at this time. However, planning for the parallel forcemain will be considered in the design of the first forcemain to allow for simpler installation of the second line down the road.

A single 8" HDPE forcemain is proposed. The pipe can be installed open cut or directionally drilled based on the location characteristics. A jack and bore casing is required for the crossing under Apple Creek. The casing will add extra protection for the forcemain and will significantly reduce future maintenance costs in the event of a failure. Although only one forcemain is being constructed at this time, the City may install a parallel line in the future for added pumping capacity. In order to reduce future costs and construction complications, a parallel section of forcemain will be installed in the casing section and will be temporarily capped until future use.

Figure 2 – Preliminary Layout for Rationalization with Bismarck Alternative



7.1.5 Supplemental Parameter Monitoring

The Bismarck WWTP requires incoming wastewater to meet specific requirements. The City of Bismarck Title 11.1 Pretreatment Program ordinance states the maximum concentrations of parameters and potentially hazardous compounds. Table 2 lists the maximum concentrations of certain parameters that can be discharged to the sanitary sewer system, based on the Pretreatment Program.

Table 3 – Maximum Concentrations

Parameter	Limit
pH	Must not be less than 6.0
Total BOD	250 mg/L
TSS	250 mg/L
Benzene	0.05
BETX	0.75
Cadmium	0.09
Chromium (Total)	4.39
Chromium (IV)	4.39
Copper	2.5
Lead	0.94
Mercury	0.06
Nickel	0.79
Selenium	0.20
Silver	0.94
Zinc	7.93

On November 28, 2018, SEH met with the City of Bismarck regarding the potential connection of the Lincoln WWTF to the Bismarck sanitary sewer. Bismarck WWTP staff indicated that the TSS and ammonia levels were slightly above normal, and that additional testing may be required prior to connection. In addition, Bismarck may require a permanently will require flow metering of the pumped wastewater that enters their system. Therefore, the lift station will also have a metering vault with a magnetic flow meter downstream of the wetwell and valve vault.

Bismarck officials also noted that Lincoln may be required to conduct regular inspections (bi-annual or quarterly) on restaurant grease/sand traps to ensure traps are properly maintained.

7.1.6 Total Cost Summary

The proposed project requires new construction in addition to decommissioning and updating existing facilities. The costs associated with this alternative are estimated in Table 4.

Table 4 – Preliminary Opinion of Probable Cost

Total Cost Summary	Estimate of Probable Capital Cost
Duplex submersible lift station, controls, generator, grease removal, basket screen, chemical addition station, sampling station	\$803,000
8-inch forcemain, cleanouts, air release and cleanout manholes, and river crossing	\$2,106,400
Decommission and dredging of cells 1, 3, and 4	\$890,000
Repair cell 2 and conversion to equalization	\$625,000
Subtotal	\$4,424,000
Engineering	\$995,000
Material Testing	\$106,000
Land/Easement Acquisition	\$50,000
Mobilization, Bonding, Insurance	\$221,000
Contract, Permitting, etc.	\$88,000
Contingency	\$1,318,000
Total Capital Cost	\$7,212,000
¹ All values provided in 2020 dollar amounts	

The cost estimate is in terms of 2020 dollar amounts. Inflation should be considering when estimating the project cost in the future.

7.1.7 City Annual Operating Budget

As shown in Table 5 below, sewer charges account for over 99% of the City's sewer budget revenue with the remaining collected via penalties and late fees. Neglecting late fees, the City's annual sewer revenue for sewer charges in 2017 was \$231,197 and 2018 was \$262,053. 2019 and 2020 have similar and steadily increasing projections of \$279,740 and \$294,066 respectively. After expenses, the City consistently maintains revenue overages from \$27,402 in 2017, \$124,964 in 2018, and projected overages in 2019/2020 of \$49,170 and \$56,946 respectively. These budget numbers do not include hookup fees revenue.

Table 5 – Annual Sewer Budget

Category	2016	2017	2018	2019	2020
Sewer Charges	\$220,634	\$231,197	\$262,053	\$279,740	\$294,066
Late Fees/Misc.	\$2,267	\$489	\$728	\$700	\$7,000
Total Revenue	\$222,901	\$231,686	\$262,781	\$280,440	\$301,066
Total Expenses	\$188,278	\$204,284	\$137,817	\$231,270	\$244,120
Net Revenue	\$34,623	\$27,402	\$124,964	\$49,170	\$56,946

7.1.8 City Operations and Maintenance

Below, Table 6 details the total expenses in the annual sewer budget for the City. Costs vary from year to year, but repairs, maintenance, and employee costs all play a large factor in the overall costs.

Table 6 – Past Operation & Maintenance Costs

Category	2016	2017	2018	2019
Staff	\$36,965	\$62,766	\$60,610	\$90,770
Contractual Services	\$0	\$219	\$0	\$0
Training	\$0	\$0	\$138	\$1,000
Engineering Services	\$13,612	\$0	\$27,505	\$0
Utilities	\$3,521	\$4,130	\$4,679	\$4,300
Repairs and Maintenance	\$110,220	\$72,332	\$30,969	\$100,000
Supplies	\$8,717	\$7,835	\$4,361	\$10,000
Parts/Fuel	\$15,000	\$57,000	\$9,555	\$21,200
Miscellaneous expenses	\$242	\$1	\$0	\$4,000
Total Annual O&M	\$188,278	\$204,284	\$137,817	\$231,270

The annual operation and maintenance costs will likely change as a result of the proposed upgrades. While in past years the operation and maintenance cost was comprised of directly operating and maintaining equipment owned by the City of Lincoln, the proposed plan splits the operation and maintenance cost into two categories: the operation and maintenance cost associated with the City of Lincoln equipment and the sewer rate paid to the City of Bismarck. Table 7 presents the preliminary cost estimate for the annual operation and maintenance for the City of Lincoln WWTF, not including the sewer rate charge from the City of Bismarck.

Table 7 – Future Operation & Maintenance Costs

Category	Hours/Year	Yearly Cost
Operation		
Equalization Pond	24	\$600
Basket Screen	365	\$9,125
Maintenance		
Pumps (2)	24	\$1,200
Air Relief Valves (4)	2	\$200
Lift Station	26	\$700
Basket Screen	12	\$300
Grease Tank	12	\$300
Site Work		
Snow Removal	60	\$1,500
Mowing	100	\$2,500
Vehicle Maintenance	25	\$625
Utilities		
Pumps (45 hp, 5 hr/day)	1825	\$5,000
Total Annual O&M		\$23,950
1. Labor is assumed at \$25/hr		
2. Electricity costs assumed 0.0773 \$/kWhr		

The sewer rate charged by the City of Bismarck is based on the volume of flow sent to the plant and was estimate at \$4.44 per 100 cubic feet in 2020. The annual operation and maintenance value will increase annually based on the sewer rate (estimated to increase approximately 3% per year) and as the population increases. However, even as the total annual operation and maintenance cost will increase with population, the number of users to share the cost increases, therefore maintaining a relatively stable user fee. The City of Lincoln should have a more detailed rate study performed to accurately estimate the user fees over the 20-year design life.

7.1.9 City Debt Repayment

The City currently has no debt associated with the sanitary sewer system, however it does collect roughly \$20,000 annually through sewer improvement district 2004, and will continue to do so for the next few years. Ideally, the City could qualify for grants to pay for a portion of the project and obtain a loan via the Clean Water State Revolving Fund (CWSRF) to finance the remainder. However, since grants are not a guaranteed source of revenue, this section will discuss financing for both scenarios, using a grant estimate of 40% of project costs, and financing 100% strictly through the CWSRF.

Loans provided through the CWSRF have an effective interest rate of 2.5% for up to 30 years currently. Table 7 below summarizes a few different financing options and outcomes, showing the differences between 20 and 30 year loans and with or without a 40% grant contribution. Examples of this financing have been listed for the straight line projected growth through 2040.

The preliminary cost estimate for the suggested capital improvements was \$7,212,000. Considering the loan period and interest rate, possible monthly payment rates and project total interests are shown in Table 8.

Table 8 – Preliminary Estimate of Loan Financing for Capital Improvements

Financed	Amount Financed	Years	Total Interest ¹	Monthly Payment	Annual Cost	Total Cost
100%	\$7,212,000	30	\$3,046,603	\$28,496	\$341,953	\$10,258,603
60%	\$4,327,200	30	\$1,827,962	\$17,098	\$205,172	\$6,155,162
100%	\$7,212,000	20	\$6,545,975	\$38,217	\$458,599	\$9,171,983
60%	\$4,327,200	20	\$3,927,585	\$22,930	\$275,159	\$5,503,190

¹ Interest calculated at 2.5% over life of loan

Adding the annual cost of the financing provided in Table 8 with the annual operations and maintenance budget (both the sewer rate and City of Lincoln expenses) yields an estimated 20 Year Present Value of the regionalization alternative, shown in Table 9. The annual O&M cost includes both the costs of operating and maintenance City of Lincoln owned equipment in addition to the sewer fee charged by the City of Bismarck. The 2020 sewer fee is based on the estimated current average flow of 241,000 gpd and the 2020 population.

Table 9 – Additional Sewer Budget Expenses

Financed	Amount Financed	Years	Annual Loan Repayment	Annual O&M ¹	Present Value ²
100%	\$7,212,000	30	\$341,953	\$546,950	\$17,877,647
60%	\$4,327,200	30	\$205,172	\$546,950	\$15,014,773
100%	\$7,212,000	20	\$458,599	\$546,950	\$15,286,412
60%	\$4,327,200	20	\$275,159	\$546,950	\$12,426,741

¹ Assumes operator total compensation labor rate of \$25.00 per hour. Calculations based on 2020 population and flows. This value will increase as population increases; however the user fees will cover the cost difference. Includes both City of Lincoln equipment costs and the City of Bismarck sewer fee.

² O&M costs evaluated yearly at a 3.0% rate increase (3% inflation for City of Lincoln OM and 3% increase in costs in City of Bismarck sewer fee)

The additional revenue needed to finance the project and to cover the sewer service fee will need to be generated in the monthly sewer account fees. The City of Lincoln currently charges a user fee of \$15.50 per month per user which provides a steady flow of funds that has been consistently net positive balance in the sewer budget each year. The City of Bismarck plans to charge \$4.44 per 100 cubic feet of wastewater from the City of Lincoln, and plans for a 3% increase in that rate per year. The estimated sewer service fee charged by the City of Bismarck will be \$522,145 (in 2020 dollars), based on the estimated average flow of 241,000 gpd. This value will increase yearly by both the sewer rate increase and as the population, and therefore total flow, increases. An estimate of the Monthly user costs assuming the 2020 population and flows is presented in Table 10.

Table 10 – Estimated Monthly User Account Fees to Meet Loan Repayment and Annual Operating Costs

Year	Population	# of Accounts	100% 30 years	60% 30 years	100% 20 years	60% 20 years
2020	4152	1585	\$46.70	\$39.51	\$52.83	\$43.19
2021	4152	1635	\$47.56	\$40.37	\$53.69	\$44.05
2022	4152	1685	\$48.45	\$41.25	\$54.58	\$44.93
2023	4152	1735	\$49.36	\$42.17	\$55.49	\$45.85
2024	4152	1785	\$50.30	\$43.11	\$56.44	\$46.79
2025	4152	1835	\$51.27	\$44.08	\$57.41	\$47.76
2026	4152	1885	\$52.27	\$45.08	\$58.40	\$48.76
2027	4152	1935	\$53.30	\$46.11	\$59.43	\$49.79
2028	4152	1985	\$54.36	\$47.17	\$60.49	\$50.85
2029	4152	2035	\$55.45	\$48.26	\$61.58	\$51.94
2030	4152	2085	\$56.57	\$49.38	\$62.71	\$53.06
2031	4152	2135	\$57.73	\$50.54	\$63.87	\$54.22
2032	4152	2185	\$58.92	\$51.73	\$65.06	\$55.41
2033	4152	2235	\$60.15	\$52.96	\$66.29	\$56.64
2034	4152	2285	\$61.42	\$54.23	\$67.55	\$57.91
2035	4152	2335	\$62.72	\$55.53	\$68.85	\$59.21
2036	4152	2385	\$64.06	\$56.87	\$70.20	\$60.55
2037	4152	2435	\$65.45	\$58.25	\$71.58	\$61.93
2038	4152	2485	\$66.87	\$59.68	\$73.00	\$63.36
2039	4152	2535	\$68.34	\$61.14	\$74.47	\$64.82
2040	4152	2585	\$69.85	\$62.65	\$75.98	\$66.33

Table 11 shows a user fee estimate considering a linear population increase as presented in the Facility Plan. The sewer rate charged by the City of Bismarck in 2020 is \$4.44 per 100 cubic feet and is predicted to increase by 3% each year. The sewer fees presented in the table below cover the loans for the capital improvements, including interest, and the yearly operation and maintenance of the City of Lincoln Facility and Bismarck sewer charge.

Table 11 – Estimated Monthly User Account Fees to Meet Loan Repayment and Annual Operating Costs

Year	Population	# of Accounts	100% 30 years	60% 30 years	100% 20 years	60% 20 years
2020	4152	1585	\$46.70	\$39.51	\$52.83	\$43.19
2021	4283	1635	\$46.97	\$40.00	\$52.92	\$43.57
2022	4414	1685	\$47.30	\$40.53	\$53.07	\$44.00
2023	4545	1735	\$47.69	\$41.12	\$53.29	\$44.48
2024	4676	1785	\$48.13	\$41.74	\$53.57	\$45.01
2025	4807	1835	\$48.62	\$42.41	\$53.92	\$45.59
2026	4938	1885	\$49.17	\$43.12	\$54.33	\$46.22
2027	5069	1935	\$49.77	\$43.87	\$54.79	\$46.89
2028	5200	1985	\$50.41	\$44.67	\$55.31	\$47.61
2029	5331	2035	\$51.11	\$45.51	\$55.89	\$48.37
2030	5462	2085	\$51.86	\$46.39	\$56.52	\$49.19
2031	5593	2135	\$52.65	\$47.31	\$57.20	\$50.04
2032	5724	2185	\$53.49	\$48.28	\$57.94	\$50.95
2033	5855	2235	\$54.38	\$49.28	\$58.73	\$51.89
2034	5986	2285	\$55.32	\$50.34	\$59.58	\$52.89
2035	6117	2335	\$56.31	\$51.43	\$60.48	\$53.93
2036	6248	2385	\$57.35	\$52.57	\$61.43	\$55.02
2037	6379	2435	\$58.44	\$53.76	\$62.43	\$56.16
2038	6510	2485	\$59.58	\$54.99	\$63.49	\$57.34
2039	6641	2535	\$60.77	\$56.27	\$64.60	\$58.57
2040	6772	2585	\$62.01	\$57.60	\$65.77	\$59.86

A more detailed rate study should be performed to determine the most cost-effective way to pay back the loans for the capital improvements and the annual operation and maintenance costs. This study should consider:

- Rates based on several predictions of population growth.
- The impact of adding additional capital improvements within the 20-year design life, such as installing a parallel forcemain if the population demands increase significantly.
- Distributing the initial capital costs across the 20-year service life (to avoid the current population overpaying for the system which could serve a much higher future population)

The user fees required to pay back the loan and cover the O&M costs would be affected by a number of items as the project planning takes place. Factors that would affect the total loan requirements and user fees include, but are not limited to: actual construction and engineering costs, industry pricing, inflation, population growth, and City funding amounts. It is advised that the City review the anticipated final user fee rates at multiple points through the project phases.

7.1.10 Discharge Permit Requirements

No discharge permits are required for this alternative.

7.1.11 Project Schedule

Knowing the City of Lincoln would like to move forward to improve their sanitary sewer capacity as quickly as possible an aggressive schedule is shown below. Project delays may occur for several different reasons, including environmental and regulatory reviews and permitting, cost considerations, discussions or negotiations with the City of Bismarck.

Table 12 – Preliminary Project Schedule

Task	Date
Completion of Facilities Plan and Submittal to ND DEQ	January 2021
City of Lincoln Public Hearing to Discuss Findings of Report	January 2021
ND DEQ Approval of Facility Plan	February 2021
Discussion with Bismarck City Commission to Gain Approval of Regionalization	February – March 2021
Submit Updated Intended Use Plan Request for State CWRP	March 2021
Design of Improvements for the Recommended Alternative	April – June 2021
Preparation, Submittal, Agency Review Time for Corps of Engineers Section 404 Permit	April – September 2021
Project Bidding	June/July 2021
Award of Project and Issuance of Notice to Proceed	July/August 2021
Construction Substantial Completion	September 2022
Construction Final Completion	October 2022

7.2 Solicitation Letter Responses

As discussed in Section 1 of this report, letters of solicitation were sent to major agencies and authorities relevant to the project and/or location to help identify any potential environmental impacts related to construction and operations of the proposed forcemain, lift station, and equalization basin. Letters were sent to The North Dakota Department of Health, Game and Fish Department, State Historical Society, State Water Commission, the US Fish and Wildlife Service, Army Corps of Engineers, and Department of Agriculture National Resource Conservation Service. The following is a summary of their responses to the letters of solicitation, which are also included in Appendix A.

7.2.1 ND Department of Environmental Quality

The North Dakota Department of Environmental Quality provided no comments to the proposed project.

7.2.2 ND Game and Fish Department

The U.S. Game and Fish Department have no objection to the proposed project.

7.2.3 ND State Historical Society

The State Historical Society of North Dakota indicated that if consulted by a federal agency, they would concur with the need for a Class III Cultural Resource Inventory of the Area of Potential Effects (APE).

7.2.4 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service have no objection to the proposed project.

7.2.5 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers Regulatory Office administers Section 404 of the Clean Water Act, and noted that a Section 404 permit would be required for the discharge of dredge or fill material (temporary or permanently) to waters in the U.S., including wastewater stabilization ponds. This permit will be required for dredging the pond cells and for adding additional fill material to Cell 2.

7.2.6 ND State Water Commission

The State Water Commission commented on the following items:

- Areas of the proposed project fall within a Zone AE floodplain. As North Dakota does not have a permitting authority at the state level regarding floodplains, they indicated to work closely with the local Floodplain Administrator regarding permitting for the project.
- Construction involving or modifying the existing City of Lincoln Lagoon cells may require a construction permit from the Office of the State Engineer.
- Initial review indicates that a conditional or temporary permit for water appropriation is not required. If surface water or groundwater will be diverted for the construction project, a water permit will be required per North Dakota Century Code Section 61-04-02.

7.2.7 U.S. Department of Agriculture

The U.S. Department of Agriculture provided no comments to the proposed project.

7.2.8 Federal Aviation Administration

The Federal Aviation Administration (FAA) noted that the proposed project appears not to increase hazardous wildlife attractants. However, they also noted that FAA Advisory Circular 150/5200-33B advises that a 10,000 foot separation distance be maintained between airports and hazardous wildlife attractant. As Cell 2 falls within the 10,000 foot radius, the FAA recommends a wildlife biologist consult on the final design of the project.

7.2.8.1 Bismarck Airport

The Bismarck Airport was forwarded the SOV by the FAA for comment. The Bismarck Airport commented that the routing of the sewer line should follow the road to stay within road easements.

7.2.9 City of Bismarck

The City of Bismarck offered no comments to the solicitation of views letter. However, the City indicated that the completed facility plan should be presented to the Bismarck City Commission soon after completion so the City of Bismarck can begin drafting a contract for providing sewer services to the City of Lincoln. The initial support of the City of Bismarck on record will provide security for the City of Lincoln as they enter the project planning stage.

8 Conclusions and Recommendations

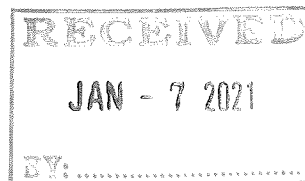
After establishing the project need and reviewing multiple alternatives, we believe the proposed project is in the best interest of the City of Lincoln. The proposed project is necessary, comparably modest in scope and cost, and should be considered for funding. Following construction, the City will have a sanitary sewer and wastewater treatment system that will serve them well for the 20 year planning period.

Appendix A

Solicitation Response Letters



January 4, 2021



Mr. Mattew Schaible
Short Elliott Hendrickson, Inc.
4719 Shelbourne St, Ste 6
Bismarck, ND 58503-5677

ND SHPO Ref.: 21-5299 City of Lincoln construction and operation of a new forcemain and converted treatment pond to equalization basin

Dear Mr. Schaible,

We reviewed ND SHPO Ref.: 21-5299 City of Lincoln construction and operation of a new forcemain and converted treatment pond to equalization basin and if consulted by a federal agency we would concur with the need for a Class III Cultural Resource Inventory of the APE and look forward to reading the report.

Thank you for the opportunity to review this project. If you have any questions please contact Lisa Steckler, Historic Preservation Specialist at (701) 328-3577, e-mail lsteckler@nd.gov

Sincerely,

for William D. Peterson PhD
State Historic Preservation Officer
(North Dakota)

21-5299



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for All of Us®

This Constitutes a report of the Department of the Interior prepared in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq). We have reviewed and have NO OBJECTION to this proposed project.

Field Supervisor

December 15, 2020

Drew Becker
Ecological Services
U.S. Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501

Dear Mr. Becker:

The City of Lincoln is in the process of performing a Preliminary Environmental Review pursuant to the National Environmental Policy Act in order that it may assess the environmental impacts due to construction and operation of a new forcemain and converted treatment pond to equalization basin that will replace the City's existing lagoon system.

The funding for this project consists of State Revolving Fund through the ND Department of Health and City of Lincoln funds.

This project will involve construction of a new forcemain and the conversion of one existing lagoon to an equalization basin to increase the city's capacity. The wastewater will be pumped to the City of Bismarck sanitary sewer and be treated by the Bismarck WWTP. No effluent will be discharged to waterbodies by the City of Lincoln. The forcemain will be routed under public and private land, including underneath Apple Creek. See attached exhibits for the proposed forcemain route and the proposed changes to the existing lagoon system.

To ensure that all social, economic, and environmental effects are considered in the development of this project, we are soliciting your views and comments on the proposed project pursuant to Section 102(2) (D) (VI) of the National Environmental Policy Act of 1969, as amended. We are particularly interested in any comments in regards to the decommissioning and reclamation of the lagoon pond area.

It is requested that any comments be forwarded to our office on or before January 12, 2021. If no reply is received by this date, it will be assumed that you have no comments on this project.

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 4719 Shelburne Street, Suite 6, Bismarck, ND 58503-5677
SEH is 100% employee-owned | sehinc.com | 701.354.7121 | 888.908.8166 fax

Letter of Solicitation
December 15, 2020
Page 2

Responses can be mailed to:

ATT: Matthew Schaible, PE
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503

If further information is desired regarding the proposed water regionalization and lagoon decommissioning project, you may call me at (701) 354-7121.

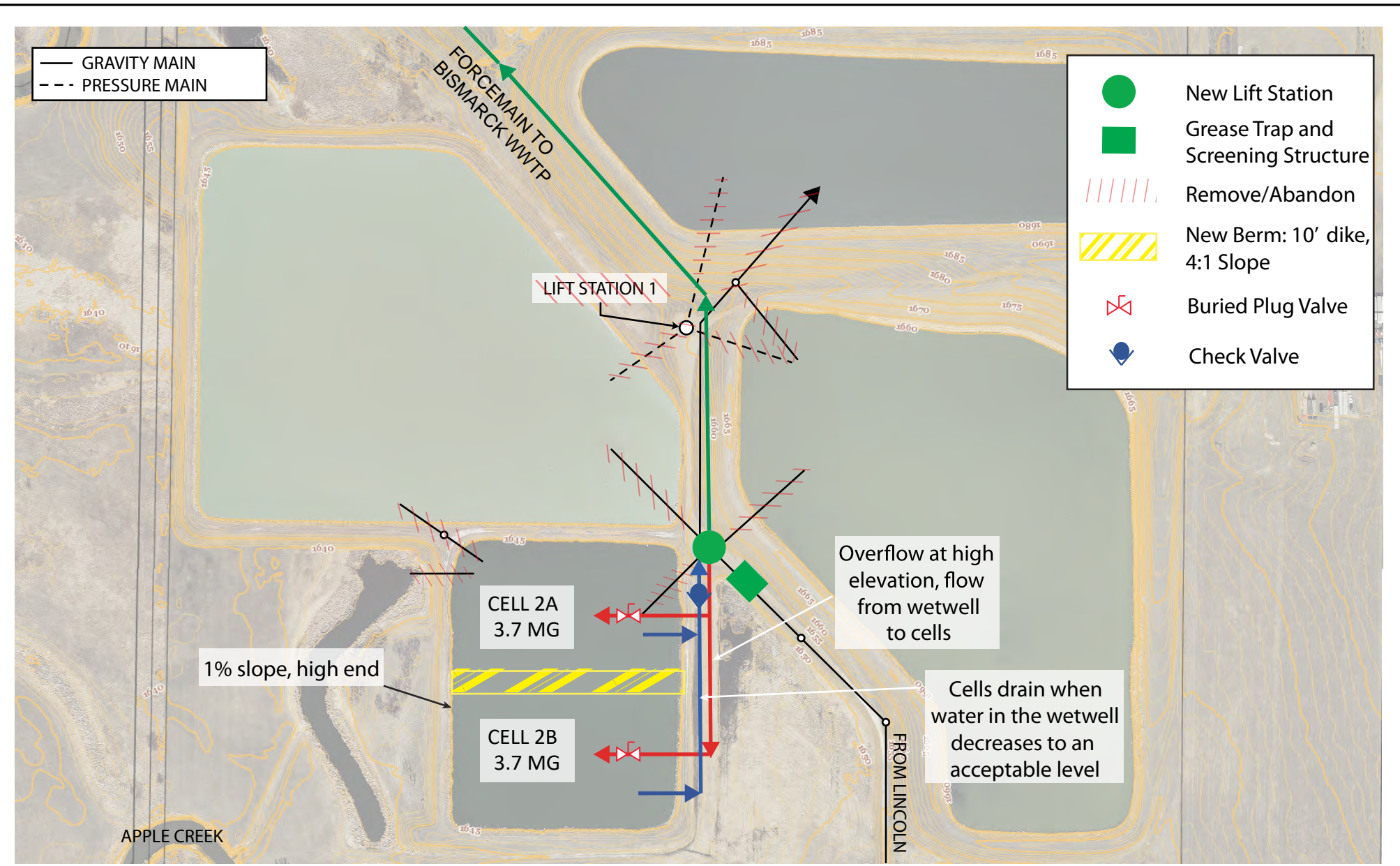
Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

A handwritten signature in black ink that reads "Matthew Schaible". The signature is written in a cursive style with a horizontal line extending from the end.

Matthew Schaible
Project Engineer

CLH
Attachments:
Proposed Lincoln Wastewater Treatment Facility Map
Proposed Forcemain Route Map



1
3

LINCOLN WASTEWATER TREATMENT FACILITY

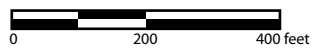


Figure
3

SHEET TITLE
**LINCOLN, ND WWTF
AERIAL IMAGE**

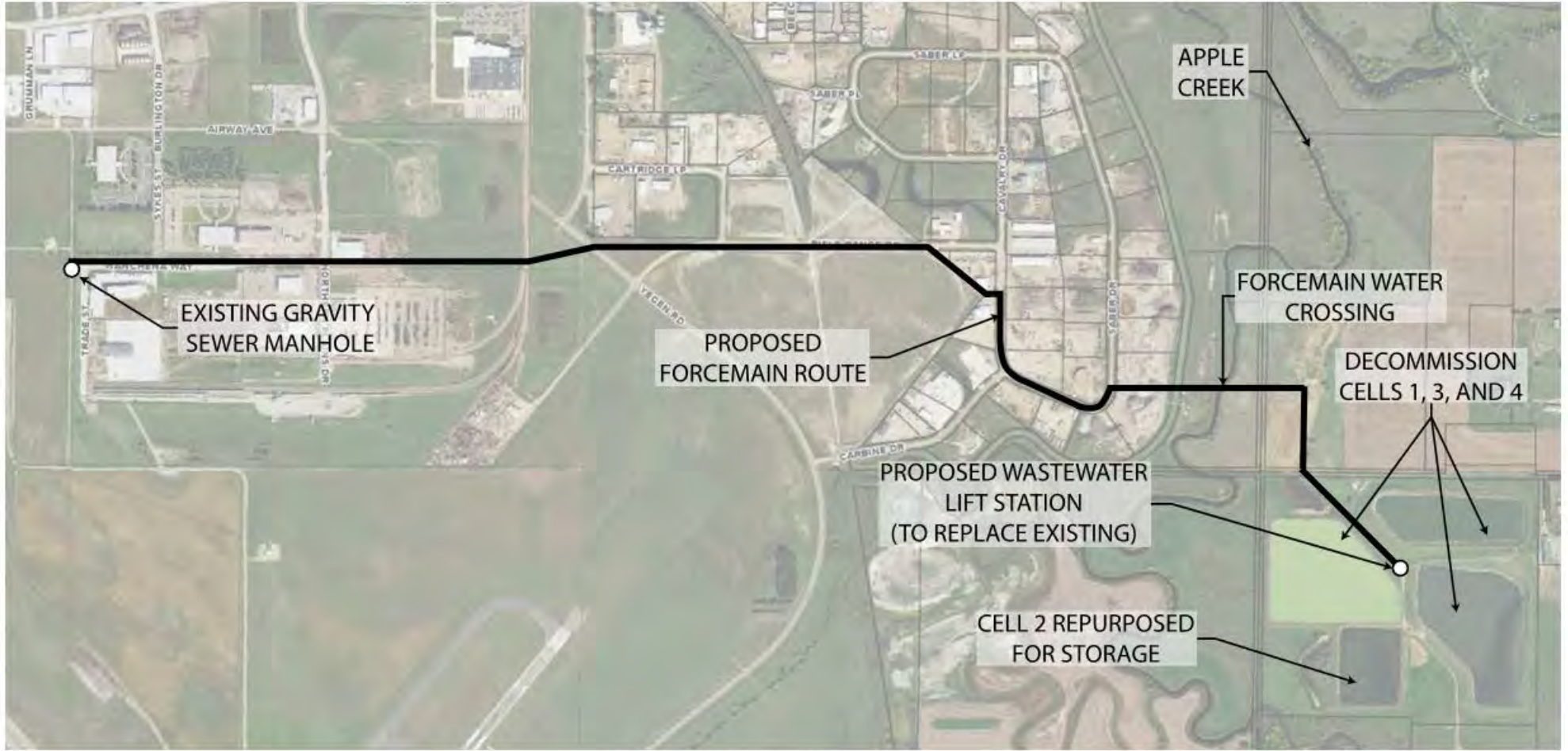
FILE NO. LINND 141680
CITY PROJECT NO.
ISSUED DATE 12/03/2018

Short Elliott Hendrickson Inc. © (SEH)

**WASTEWATER TREATMENT
FACILITIES PLAN
LINCOLN, NORTH DAKOTA**



3535 VADNAIS CENTER DR
ST PAUL, MN 55110
PHONE: 651.490.2000
FAX: 888.908.8166
TOLL FREE: 800.325.2055
www.sehinc.com



NORTH

1
5

PRELIMINARY LAYOUT FOR RATIONALIZATION WITH BISMARCK



Figure
5

SHEET TITLE
**LINCOLN, ND WWTF
RATIONALIZATION WITH
BISMARCK**

FILE NO. LINND 141680
CITY PROJECT NO.
ISSUED DATE 12/10/2020

Short Elliot Hendrickson Inc. (SEH)

**LINCOLN WASTEWATER
TREATMENT FACILITIES PLAN**

LINCOLN, NORTH DAKOTA



3535 WADSWAS CENTER DR
ST PAUL, MN 55110
PHONE: 651.490.2000
FAX: 888.906.8166
TOLL FREE: 800.325.2055
www.sehinc.com



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
3319 UNIVERSITY DRIVE
BISMARCK, NORTH DAKOTA 58504-7565

December 28, 2020

NWO-2004-60385-BIS

Short Elliott Hendrickson, Inc.
Attn: Mr. Matthew Schaible
4719 Shelburne Street, Suite 6
Bismarck, North Dakota 58503

Dear Mr. Schaible:

This is in response to information received on December 15, 2020 regarding the proposed City of Lincoln construction of a new forcemain and the conversion of one existing lagoon to an equalization basin. The project is located in Sections 11 and 12, Township 138 North, Range 80 West and Sections 7 and 18, Township 138 North, Range 79 West, Burleigh County, North Dakota.

U. S. Army Corps of Engineers Regulatory Offices administer Section 404 of the Clean Water Act (Section 404). A Section 404 permit would be required for the discharge of dredge or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material includes, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in waters of the United States.

Based on the information contained in your letter, the Corps has determined that your proposed project may need a Clean Water Act Section 404 permit. The permit application and instructions for completing the application are enclosed and may also be found at: <http://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit>. Be sure to accurately describe all proposed work and construction methodology. Once the application is complete, mail it to the letterhead address or to the email address (preferred) below.

Due to precautions taken in response to the COVID-19 pandemic, The North Dakota Regulatory office prefers that all submissions are sent electronically to the following email address: CENWO-OD-RND@usace.army.mil instead of a hard copy by mail. Please split large attachments (>25 MB) into multiple emails if needed.

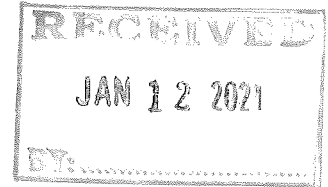
Please refer to identification number NWO-2004-60385-BIS in any correspondence concerning this project. If you have any questions, please contact Jeremy Nygard at U.S. Army Corps of Engineers, North Dakota Regulatory Office, 3319 University Drive, Bismarck, North Dakota 58504-7565, by email at *Jeremy.S.Nygard@usace.army.mil*, or telephone at (701) 255-0015 X 2006. For more information regarding our program, please visit our website at <http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/NorthDakota.aspx>.

Sincerely,



Patricia L. McQueary
State Program Manager
North Dakota

Enclosure
ENG 6082 Form



January 11, 2021

Matthew Schaible, PE
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, STE 6
Bismarck, ND 58503

Dear Mr. Schaible:

This is in response to your request for a review of the environmental impacts associated with the City of Lincoln's Sewage Lagoon project.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- There are floodplains identified and/or mapped where this proposed project is to take place. Areas are designated to be in Zone AE. North Dakota has no formal 'permitting' authority as a state entity in NFIP identified floodplain areas. The permitting is always done by the local entity, which has jurisdiction in the area in question. Please work closely with the local Floodplain Administrator.
- Construction involving or modifications to the City of Lincoln Lagoon cells may require a construction permit from the Office of the State Engineer. Please contact the OSE Regulatory Division at 701-328-2752 if you have any questions.
- Initial review indicates the project does not require a conditional or temporary permit for water appropriation. However, if surface water or groundwater will be diverted for construction of the project, a water permit will be required per North Dakota Century Code § 61-04-02. Please consult with the Water Appropriations Division of the Office of the State Engineer if you have any questions at (701) 328-2754 or appropinfo@nd.gov.

Thank you for the opportunity to provide review comments. Should you have further questions, please contact me at 701-328-4970 or stevebest@nd.gov.

Sincerely,

A handwritten signature in black ink that reads "Steven Best".

Steven Best
Planner III

SB:dm/1570

Celina Tragesser

From: Colin Marcusen
Sent: Monday, December 28, 2020 4:04 PM
To: Celina Tragesser
Subject: FW: Solicitation of Views - City of Lincoln
Attachments: Solicitation of Views - City of Lincoln

FYI

Colin Marcusen, PE (licensed in MN, ND, SD, IA)
Senior Professional Engineer
SEH
1200 25th Avenue South, St. Cloud, MN 56302
320.229.4359 direct
320.290.3610 cell
www.sehinc.com
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From: Holzer, Mark (FAA) <Mark.Holzer@faa.gov>
Sent: Monday, December 28, 2020 2:22 PM
To: Pam Kennedy-Schneider <pschneider@sehinc.com>
Cc: Matt Schaible <mschaible@sehinc.com>; Colin Marcusen <cmarcusen@sehinc.com>; Kevin Nelson <knelson@mtnplains.com>; 'tthorsen@bismarcknd.gov' <tthorsen@bismarcknd.gov>; Lares, Sheri (FAA) <sheri.lares@faa.gov>; Anderson, David P (FAA) <David.P.Anderson@faa.gov>
Subject: Solicitation of Views - City of Lincoln

Pam

You have provided to FAA the attached solicitation of views for the City of Lincoln in performing a Preliminary Environmental Review pursuant to the National Environmental Policy Act in order to assess the environmental impacts due to construction and operation of a new force main and converted treatment pond to equalization basin that will replace the City's existing lagoon system. This project will involve construction of a new force main and the conversion of one existing lagoon to an equalization basin to increase the city's capacity. The force main will be routed under public and private land, including underneath Apple Creek per sketch pasted below from your letter. The ponds being impacted appear to be about 5500 feet east of Runway 21 end. The projects appears to be decommissioning cells 1, 3 and 4 and repurposed Cell 2 for storage.



1
5

PRELIMINARY LAYOUT FOR RATIONALIZATION WITH BISMARCK



<p>Figure 5</p>	<p>SHEET TITLE LINCOLN, ND WWTF RATIONALIZATION WITH BISMARCK</p>	<p>FILE NO. LINND 141680 CITY PROJECT NO. ISSUED DATE 12/10/2020</p>		<p>LINCOLN WASTEWATER TREATMENT FACILITIES PLAN LINCOLN, NORTH DAKOTA</p>	
---------------------	--	--	--	--	--

The City of Lincoln project appears to not increase hazardous wildlife attractants due to the decommissioning of cells near the Bismarck Municipal Airport. Please be advised FAA Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants On or Near Airports, advises that a 10,000-foot separation distance between airports (the airport) and a hazardous wildlife attractant. A copy of the advisory circular may be obtained at www.faa.gov.

If you or the proponents are uncertain if the proposed development in Cell 2 repurposed for storage will cause a wildlife hazard for your airport or other airports in the area, we recommend you or the proponent consult with the United States Department of Agriculture, APHIS, Wildlife Services or another qualified wildlife biologist. We recommend any wildlife biologist consulting on a matter such as this, meet the qualifications identified in FAA Advisory Circular

150/5200-36, "Qualifications for wildlife biologist conducting wildlife hazard assessments and training curriculums for airport personnel involved in controlling wildlife hazards on airports".

Thank you for the opportunity to review the proposed project.

Mark J. Holzer
Program Manager
Federal Aviation Administration
Dakota Minnesota Airports District Office
2301 University Drive, Bldg 23B
Bismarck, ND 58504
701.323.7393 w
701-214-2057 c

From: Pam Kennedy-Schneider <pschneider@sehinc.com>
Sent: Tuesday, December 15, 2020 2:20 PM
To: Holzer, Mark (FAA) <Mark.Holzer@faa.gov>
Cc: Matt Schaible <mschaible@sehinc.com>; Colin L. Marcusen <cmarcusen@sehinc.com>; Kevin Nelson <knelson@mtnplains.com>
Subject: Solicitation of Views - City of Lincoln

Mr. Holzer,

The City of Lincoln is in the process of performing a Preliminary Engineering Review and we are soliciting your views and comments on the proposed project.

Attached is a Solicitation of Views (SOV) letter for your review.

If you prefer a hard copy of the SOV mailed to your office, please let us know.

We ask that you please reply to this email to confirm receipt.

Pam Schneider, Sr. Administrative Assistant
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503-5677
701.354.7121 direct | 888.908.8166 fax
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Appendix B

Public Input Meeting

Customer Ad Proof

60009837 CITY OF LINCOLN

Order Nbr 23120

Publication	Bismarck Tribune		
Contact	CITY OF LINCOLN	PO Number	Kristina Vincent
Address 1	74 SANTEE RD	Rate	Legal
Address 2		Order Price	124.20
City St Zip	LINCOLN ND 58504	Amount Paid	0.00
Phone	7012587969	Amount Due	124.20
Fax			
Section	Legals	Start/End Dates	02/25/2021 - 03/25/2021
SubSection		Insertions	3
Category	5380 Public Notices	Size	20
Ad Key	23120-1	Salesperson(s)	Jill Lindsay
Keywords	March 29, 2021 - Wastewater Facility	Taken By	Jill Lindsay
Notes			

Ad Proof

NOTICE OF PUBLIC MEETING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN:
Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on March 29, 2021 at the Lincoln City Hall at 6:00 PM, to consider wastewater facility improvements. This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and potential funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.
2/25, 3/11 & 25 - 23120



City of Lincoln North Dakota

Published by Kris Vincent · March 26 at 2:39 PM

LINCOLN PLANNING AND ZONING

Regular Meeting

Tuesday, March 30, 2021

at 7:00 PM

Zoom... [See More](#)

US02WEB ZOOM.US

Join our Cloud HD Video Meeting

217

People Reached

3

Engagements

[Boost Post](#)

Like

Comment

Share



Comment as City of Lincoln North Dakota



City of Lincoln North Dakota

Published by Kris Vincent · March 24 at 11:28 AM

NOTICE OF PUBLIC MEETING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN:

Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on March 29, 2021 at the Lincoln City Hall at 6:00 PM, to consider wastewater facility improvements.

This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and potential funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.

1,115

People Reached

50

Engagements

[Boost Post](#)

2

5 Shares

Like

Comment

Share



Comment as City of Lincoln North Dakota



City of Lincoln North Dakota

Published by Kris Vincent · March 22 at 2:02 PM

Economic Development Committee

Special Meeting

Monday, March 22, 2021

at 6:00 pm

City of Lincoln... [See More](#)

NOTICE OF PUBLIC MEETING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN:

Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on March 29, 2021 at the Lincoln City Hall at 6:00 PM, to consider wastewater facility improvements.

This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and potential funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.



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MINUTES

Public Input Meeting
Wastewater Treatment Facility Plan
March 29, 2021
6:00 p.m.
City of Lincoln Town Hall

Meeting Chair: Colin Marcusen
Minutes by: Matthew Schaible
Present: See attached sign in sheet
Copies to: Wastewater Treatment Facility Plan
City of Lincoln

- I. City engineer Kevin Nelson, Mountain Plains LLC., opened the meeting with a brief description stating the purpose of the meeting as being an informational meeting to the public and to answer questions regarding the project and residents potential costs.
- II. Colin Marcusen, SEH Inc. Wastewater Facility Plan lead, presented a power point slide show that walked through the history of the current city wastewater treatment facility, the study of flows and alternatives, and the selected alternative.
 - A. Selected Alternative – Regionalization with Bismarck
 1. Alternative includes an approximate 12,500 LF force main, pump station, retrofit of Cell # 2 for an equalization pond, and decommissioning and repurposing lands of Cells #1,3, and 4.
- III. Question and Answer Section

Q: For the BNR Facility (Alternative 5.3b), is sludge/solids land application included in the Operation & Maintenance annual cost?

A: Yes, all sludge/solid treatment and land application is included in the O&M costs. Disposal at the landfill was considered but was not found to be economic and land application was assumed.

Q: For the Regionalization alternative does Cell #2 act as a dry cell? If the goal is to get rid of the surface water, it would be ideal get rid of all surface water.

A: Yes, Cell #3 will act as an equalization basin to handle peak flows that the pump station housing cannot hold. It will be graded to drain back into the pump station housing to be pumped to Bismarck. These will act as a dry cell. It is not expected that they would be used often in the early life of this project due to the current flow rate being less than the proposed pump capacity but would be a safety factor and required for the later portion of the design life.

Public Input Meeting

Wastewater Treatment Facility Plan
March 29, 2021
Page 2

Q: Can an agreement be established with Bismarck to agree to a 3% annual increase to ensure residents don't have fluctuating prices?

A: A legal agreement for a certain term of years absolutely needs to be developed and entered by both Lincoln and Bismarck. Within that agreement is where the negotiation on items such as contract years, increases in user fees, and effluent limit standards would be set.

Q: Can Bismarck shut off the flow at any time?

A: This would be described in the agreement and would have statutes regarding this. In short, no, Bismarck would not be able to just shut off the line at any time if the agreement is correctly written.

Q: Does Bismarck have capacity currently? What is their capacity outlook to make sure they can handle Lincoln's load?

A: Bismarck recently updated their plant in 2019 for higher flow/loads. They are also currently working to increase the capacity and will likely always be working on the system. Bismarck has indicated they would be able to handle the loads for the given flow rates over the 20-year design review period presented.

Q: How do you switch over to the new system? Will it require a restriction on the users for a period of time?

A: The existing lagoon system would be left in-place and functioning until the infrastructure for the regionalization is installed and tested. Once the regionalization system is approved, the system would be switched over to ensure no disruption to users.

IV. Discussion Topics after Presentation and Q & A Session

- A. Funding options
- B. Special Assessments
- C. Decommissioned cell land use
- D. Opportunity for phasing work

Meeting was adjourned at 7:15 pm.

SEH believes that this document accurately reflects the business transacted during the meeting. If any attendee believes that there are any inconsistencies, omissions or errors in the minutes, they should notify the writer at once. Unless objections are raised within seven (7) days, we will consider this account accurate and acceptable to all.

If there are errors contained in this document, or if relevant information has been omitted, please contact Colin Marcusen at 320.229.4359.

MRS

p:\ko\linnd\141680\1-gen\16-meet\public meeting\public input meeting minutes 3.29.2021.docx



PROJECT

BY:

DATE:

WO#:

CHK:

DATE:

PAGE

OF

NAME	ADDRESS	PHONE	EMAIL
KEVIN G. ALBISON	5004 CORDICE RD.	701-333-8164	KAlbison@MtnPlains.com
Toni Haider	Barr	701-866-1018	THaider@barr.com
CHRISTOPHER C. LEIER	16 GILBERT DR.	701-220-3395	
Cammie Schack	2959 Majestic St Linde	701-202-5847	CammieSchack@gmail.com
Roy SENSEL	1208 APPLE WAY	701-390-2079	
Brian Day	3 Santee Road	701-946-8811	
Karen Daly	3 Santee Rd	701-751-1442	
Melissa Moran	146 Sturgis Loop	701-751-1073	
Gerard L. Wise	11 Benton Drive	701-214-9620	
Tom Volk	43 Carlin Dr		thovolk@mtmail.com
Jane Lingsang	9 Santee RD	701-400-2487	
Colin Marcusen	SELF	320.290.3610	cmarcusen@schinc.com



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We're confident in our ability to balance these requirements.





Wastewater Treatment Facilities Plan

Lincoln Wastewater Treatment Facility

Lincoln, North Dakota

LINND 141680 | March 25, 2020



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for All of Us®

Engineers | Architects | Planners | Scientists



Building a Better World
for All of Us®

March 25, 2020

RE: Lincoln Wastewater Treatment Facility
Wastewater Treatment Facilities Plan
Lincoln, North Dakota
SEH No. LINND 141680 4.00

Mr. Gerarld Wise
Mayor
City of Lincoln
74 Santee Road
Lincoln, ND 58504

Dear Mr. Mayor:

Enclosed is the City of Lincoln's Wastewater Treatment Facilities Plan report in regards to the future planning of the wastewater treatment system. This report reviews existing conditions of the system, alternatives considered for improvements, and identifies a proposed project and steps to be taken for the proposed project. This report was conducted using a 20 year planning period for the City, and will serve as a tool for planning any projects for the wastewater treatment facility.

The existing wastewater system is inadequate for future population loading, and is in need of upgrades or replacement. Flow data collected and population projections were used to size four alternatives. The Do Nothing alternative is not being considered due to future failure of the system if not addressed. Other alternatives were developed for expansion of the existing lagoon system, regionalization with Bismarck, or mechanical treatment options. All options were weighed by cost, pros and cons, and site requirements.

A public meeting was held on May 14, 2019 to include public input on project selection. Two of the main comments by the public were 1) there is a desired to eliminate odor from the pond system, and 2) the next improvement should not result in larger expansion of ponds.

Alternative 5.3.2 Continuous Discharge BNR Mechanical Facility was selected by the City Council on June 6, 2019 as the recommended alternative. This alternative includes decommissioning of all four existing lagoon cells, and the construction of the BNR Mechanical Facility. This facility is planned for construction in two phases. Phase I will include all lagoon cell decommissioning, site construction, utility needs, and facility construction for a design flow related to a population of approximately 6,800 persons.

The cost of Phase I is estimated at \$14.35 million for all construction, engineering, permitting and other soft costs. To finance this project, the North Dakota Clean Water State Revolving Fund loan is anticipated to be used. Financing this project at current 2.0% interest rates, along with operation and maintenance costs is estimated to increase user monthly fees. User fees were calculated for capital debt service and future O&M costs as being \$55.79 at year 1 of the loan.

Mr. Gerarld Wise
March 25, 2020
Page 2

Solicitation for review letters for were sent out to federal, state and local agencies in preparation for start of design for this project. Per the responses, environmental studies and documents will need to be completed for this project prior to construction bidding. The current system is experiencing maximum loading, stressing the system for discharge requirements.

Upon approval of this report, the next steps are to submit this document to funding agencies for review and processing. After the funding agencies have reviewed and provided comment, the City will authorize final design. The environmental documents and design can then be initiated to complete the new City of Lincoln wastewater treatment system.

On behalf of the SEH team, thank you for the opportunity to work alongside the City's staff and Council in completing this report. We believe the steps taken in conducting this report will benefit the City in improvements to health and sanitation, and will allow continued growth in the community for years to come.

Sincerely,

A handwritten signature in black ink that reads "Colin Marcusen". The signature is written in a cursive, flowing style.

Colin Marcusen, PE
Project Manager

ejm/mrb

\\sehb1\projects\kol\linnd\141680\4-prelim-dsgn-rpts\wastewater treatment facilities plan - 2020.03.25.docx

Wastewater Treatment Facilities Plan

Lincoln Wastewater Treatment Facility
Lincoln, North Dakota

SEH No. LINND 141680

March 25, 2020

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of North Dakota.



Colin Marcusen, PE

Date: March 25, 2020

License No.: PE-9934

Reviewed By: Matt Schaible, PE

Date: March 25, 2020

Short Elliott Hendrickson Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503-5677
701.354.7121





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Letter of Transmittal
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Wastewater Treatment Facilities Plan

Lincoln Wastewater Treatment Facility

Prepared for City of Lincoln, North Dakota

1 General

The City of Lincoln has ordered the preparation of this report to review the current condition of its wastewater treatment facility and collection system, analyze alternatives to correct any deficiencies noted, and to recommend a course of action. In addition to the recommendations, the report will identify any potential environmental impacts. Potential impacts, if any, will be identified using available resources and comments solicited from:

- North Dakota State Water Commission
- North Dakota Game and Fish Department
- North Dakota State Historic Preservation Officer
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Army Corps of Engineers (local and district offices)
- North Dakota Department of Health
- Local planning authorities

Guidance from the North Dakota State Revolving Fund (SRF) Outline for Facilities Planning prepared by the North Dakota Department of Health (NDDOH) and SRF Program Project Manual also prepared by the NDDOH were also referenced for the preparation of this report.

2 Project Planning Area

2.1 Location

Lincoln is located approximately one mile southeast of Bismarck in Burleigh County, North Dakota. The City operates its own sanitary sewer collection system and wastewater treatment facility which consists of four (4) stabilization ponds. Apple Creek flows along the western edge of Lincoln, between Lincoln and Bismarck, and is the receiving waters for discharge from the Lincoln Wastewater Treatment Facility. Figure 1 is a location map of the municipal limits (City), extra territorial limits (E.T.L.), and wastewater treatment facility location.

The North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90, Waste Stabilization Ponds recommends a 1/4 mile setback be maintained between residential development and stabilization ponds. Figure 1 illustrates the encroachment of residential development to the southeast of the pond system.

Figure 1 – Lincoln Municipal Boundary and Wastewater Treatment Facility



SEAS WASTEWATER CENTER DR
STPAUL, MN 55118
PHONE: 651-480-2000
FAX: 651-480-2001
TOLL FREE: 800.325.2025
www.seahinc.com

WASTEWATER TREATMENT FACILITIES PLAN
LINCOLN, NORTH DAKOTA

FILE NO. LINND 141680
CITY PROJECT NO. 12/03/2018
ISSUED DATE

SHEET TITLE
LINCOLN, ND WWTF
AERIAL IMAGE

Figure
1

Shawn Eiler, Head of Sales, Inc. © 2018

2.2 Environmental Resources Present

If improvements are constructed, projects may involve: increasing wastewater discharge flow rate to Apple Creek, relocating wastewater discharge from Apple Creek to a new discharge location at the Missouri River, or relocating the wastewater discharge to be combined with discharge from the Bismarck wastewater treatment facility. For all alternatives, ground disturbance is required to varying degrees. Relocation of effluent discharge will require a forcemain crossing under Apple Creek. Following are potential environmental issues that could be encountered and how to address the issues.

2.2.1 Land Use / Formally Classified Lands

Depending on project selection, work may consist of:

- Construction of a new lift station and forcemain, which would include work taking place within current easements, City owned property, or within public right-of-way.
- If a new wastewater pond is constructed, large portions of the project would be out of City property or public right-of-way and require acquisition of private property currently used for residences and agricultural land. New easements would be required with Burleigh County and the City of Bismarck depending on the orientation of the project.
- If a new mechanical plant option is constructed, all work will be within the existing city owned lands, with potential discharge location alterations. Easements for discharge may be required if location changes.

2.2.2 Flood Plains

A current floodplain map is included in Figure 2 of this report. The 100 year and 500 year Floodplain elevations are 1641-1644 feet and 1644-1646 feet, respectively. The range in Elevations is due to the upstream flood elevations being slightly higher than the downstream. The proposed projects would not affect the floodplains in any significant way due to all construction in the floodplain being located underground. Any improvements above grade or requiring grade changes would be located outside of the floodplain. If project(s) are constructed, minimal permanent disturbances would result from the project being located within these floodplains.

2.2.3 Wetlands, Including Stream Crossings

The proposed project(s) will likely require construction activities within wetland habitat and crossing streams. A Level 1 wetland delineation (Appendix A) was completed for the project area and its alternative routes outside of current wastewater facility lands to determine activities that could minimize wetland impacts and stream crossing.

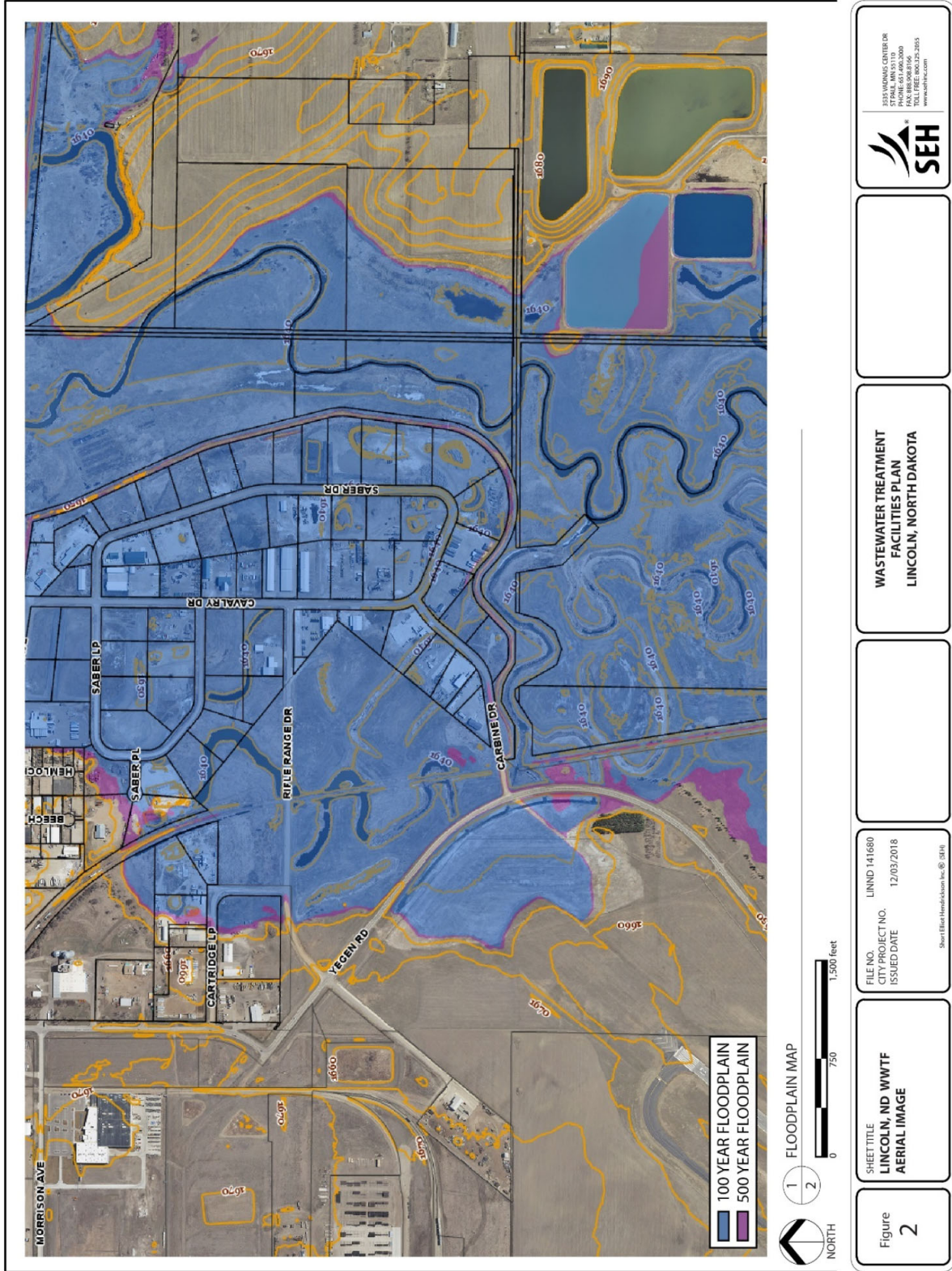
The U.S. Army of Corps will be contacted for any permitting concerns. The project(s) is proposing the use of directional drilling for stream and wetland crossings when feasible. Temporary wetland impacts may occur with the placement of directional drilling pits or open cut trenches for the placement of the utilities. Soils will be replaced to pre-construction elevations and the areas seeded for stabilization.

2.3 Community Engagement

The City of Lincoln conducted a public meeting held on May 14, 2019. This meeting was held after the City was able to review the project alternatives and make comments on the Facility Plan and proposed alternatives. The public meeting was held to present the project consideration to the residents, and to open a working discussion for concerns and opinions.

The public meeting was advertised through the Bismarck Tribune with publish dates of April 15, 2019, April 22, 2019 and April 29, 2019. The public meeting was also advertised on the Cities Facebook page on May 14th, and a notice letter was posted at the city hall for three weeks leading up to the meeting. See Appendix E for copies of the advertisement.

Figure 2 – Lincoln, ND Floodplain Map



2.4 Population Trends

A comprehensive growth plan was developed by the City of Lincoln in 2018 to act as a planning document for future growth in the community. As part of the planning document, a population growth projection was developed. The estimated population of Lincoln was 3,497 in 2015, which serves as the base year for the population projection.

Lincoln's population has seen steady growth over the past several decades, with significant growth between the years of 2010 – 2017. This has led to the expansion and construction of community facilities and infrastructure such as expansion of the wastewater treatment facility, a City Hall, an elementary school, and several new businesses. This rapid growth is showing evidence of continuing over upcoming years due to the number of housing developments being submitted for approval, and the City's plans of annexation. By 2030, it is projected that Lincoln's population will be nearly 8,388. This represents nearly a 240% increase from 2015 and an average year growth of 5.5%.

The typical design life for wastewater treatment equipment is 20 years. With an anticipated service start of approximately 2020, the comprehensive plan population growth rate can be extended from 2030 to 2040. The 5.5% annual growth rate projected to 2040 results in a projected service population of 11,930. Table 1 represents the estimated service population and projected service population during the planning period.

Table 1 – Estimated Service Population

Year	Population
2000	1,730
2010	2,406
2015	3,497
2018	4,138
2020	<i>4,846</i>
2030	<i>8,388</i>
2040	<i>11,930</i>

2000-2010 based on actual census data.
2011-2017 are estimates from US Census Bureau.
2020-2030 projections from 2018 Comprehensive Plan.
Values in italics are estimates and not measurements.

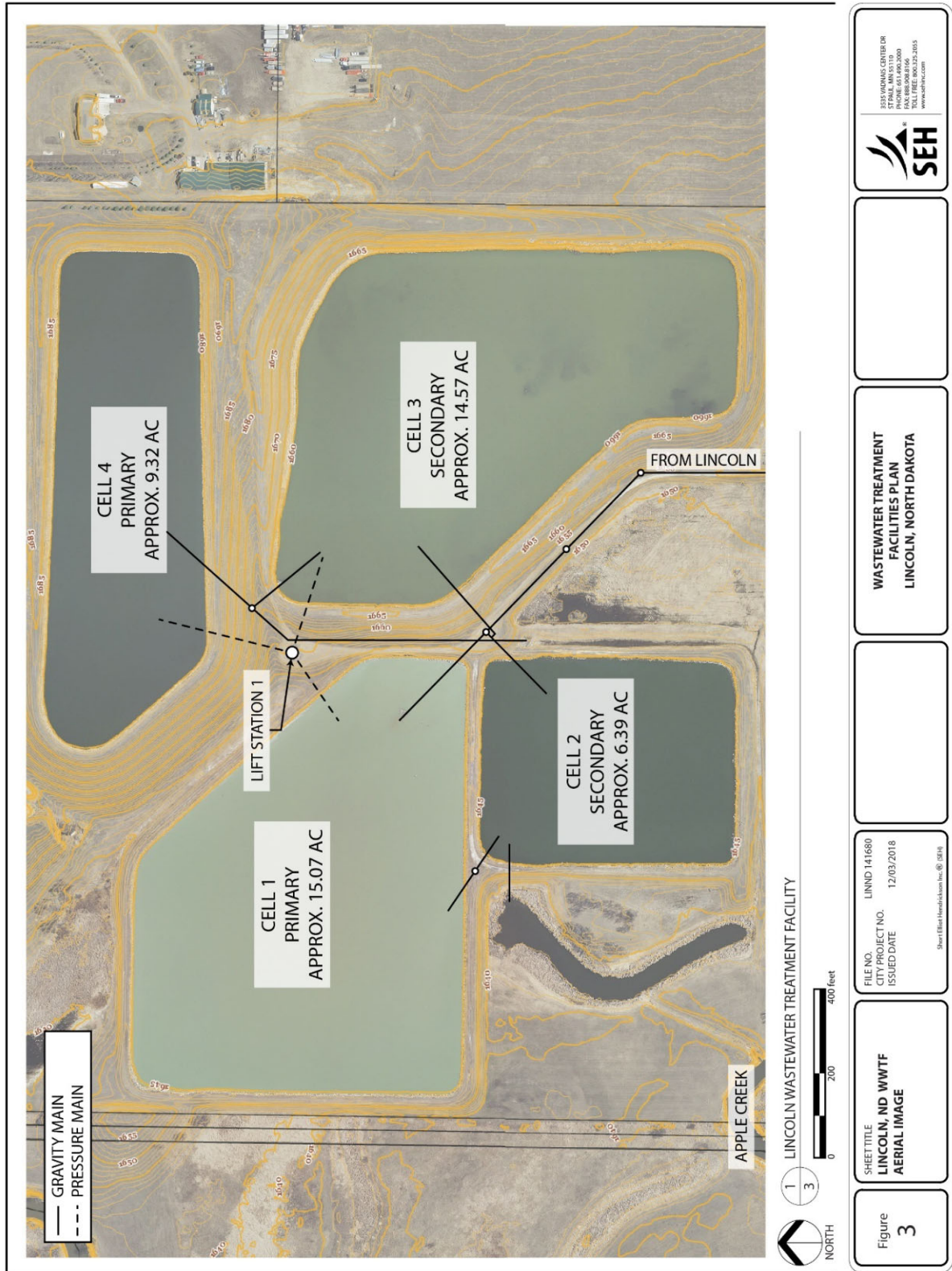
There are currently no significant industrial users (SIUs) which discharge to the municipal wastewater treatment facility in Lincoln. The City anticipates light industrial users (zone I1) to be connected within the planning period, but at this time no SIUs are anticipated.

3 Existing Facilities

3.1 Location Map

Figure 3 contains exhibits that show the location and size of the existing wastewater treatment facilities.

Figure 3 – Lincoln Wastewater Treatment Facility



3.2 History

The City of Lincoln is served by a separate (no storm water) wastewater collection system and a four cell pond system. The collection system has been primarily constructed after the 1970s. As a result, the collection system is constructed of PVC sewer mains and service lines to every user. Maintenance of the system is possible through 303 precast concrete manholes generally placed within the road rights of way for the City streets. Pipe sizes for the sewer mains range from 8" for most of the collection system to 15" for the major trunk lines.

Currently, the entire City is able to gravity flow their wastewater to the City pond system located northwest of town. The system therefore does not require use of lift stations for the transmission of the wastewater to the lagoon system. A pump is required to transfer wastewater from the older ponds (Cell #1 and #2) to the newer ponds (Cells #3 and #4). The ponds are sized for 180 days storage and of sufficient surface area to allow treatment of the wastewater to take place. The ponds are discharged to Apple Creek in the spring and fall in accordance with discharge criteria established by the North Dakota State Department of Health.

The City has recently conducted a Preliminary Engineering Report on the potable water system determining the projected water uses over the next 20 years. This resulted in recommendations for improvements to the water system to increase available water by addition of a secondary water main. These improvements are planned for construction in 2019. As a result of these improvements, it can be expected that growth will take place by new development and annexation. This will increase the wastewater flow rates and stress the existing system due to storage capacity.

The wastewater treatment facility consists of four stabilization ponds, two primary and two secondary cells. The four cells constitute two treatment trains with Cell 1 and 2 being a primary and secondary treatment cell respectively and Cell 3 and 4 being a secondary and primary cell respectively. Cells 1 and 2 were constructed in 1984. Around the year 2000 - 2001, sludge in Cell 1 was pushed from the southeast side of the cell to the northwest, but was not removed.

Cell 1 receives all the influent from the City of Lincoln via the 12 inch PVC gravity flow main that enters the cell in the southeast corner. The influent pipe from the City is a 15 inch PVC pipe which flows through a gate valve and is reduced to a 12 inch PVC Pipe, which flows into Cell 1. The 15 inch pipe splits to 12 inch pipes to either Cell 1 or 2 at the last drop manhole located within the premises of the stabilization ponds. There is a 6 foot by 6 foot concrete pad and headwall at the end of the pipe in both cells. Due to the size and configuration of Cell 1, much of the sludge accumulates near the influent pipe end before spreading throughout the cell.

No monthly testing has been reported for Primary Cell 1. All testing is performed in Cells 2 & 3 prior to effluent discharge. Once a week, the City of Lincoln maintenance personnel add 3lbs of a microorganism supplement to promote bacteria growth for solids breakdown and assist with the high organic loading to Primary Cell 1. This supplement is produced by Team Lab and is called "195 Mega Bugs Plus".

The sludge depth was evaluated in Cell 1 during March 2016. The sludge depth testing at the forty locations resulted in an average sludge depth of 10.35 inches. It was confirmed that the sludge depths along the western side of the cell were greatest, with an average depth of 12 inches and the greatest depth being 16 inches. The sludge depths around the influent pipe were on average 9.4 inches, which shows no large build up occurring. Modeling all the test points as a surface in AutoCAD verse the floor elevation of 1639.0 feet, the volume of sludge was found to be 18,841 cubic yards.

Cell 3 was constructed in 1996 along with the transfer lift station between the treatment cells. Cell 4 is the newest treatment cell and was added in 2005. Currently, Cell 3 operates as a secondary treatment cell and Cell 4 operates as a primary treatment cell. Cell 4 receives influent from Cell 1 via an in plant lift station.

It has been found by observation that Cell 1 has recently shown signs of stress such as turning red in color at times throughout the year and the formation of floating black/gray scum mats. These indicate that sludge build up is a possible issue, which is shown with the following calculations.

The North Dakota Department of Health has noted bank erosion which has occurred on the embankment for Cell 2. The erosion effects both inner and outside slope of the treatment cell and will need to be addressed in any alternative which reuses the treatment cell. Currently Cell 2 is not used unless necessary due to the erosion on the banks. Cell 3 has also shown signs of minor bank erosion on the west side of the cell. This erosion may be due to the size of riprap used, which is mostly boulder sized rocks and old pieces of concrete slab. The minor presence of smaller riprap pieces allows wave action to slowly erode the banks in these locations of oversized riprap. Minor riprap work may need performed on Cell 3 in any alternative that continues the use of this cell.

3.3 Condition of Existing Facilities

The condition of the existing wastewater collection system is good. The oldest collection system piping is approximately 40 years with an anticipated service life of between 50 and 70 years.

The current wastewater treatment system is permitted for intermittent discharge from a waste stabilization pond to a Class I or IA water. The receiving stream for Lincoln is Apple Creek. The current National Pollutant Discharge Elimination System (NPDES) permit for the Lincoln Wastewater Treatment Facility is valid through September 30, 2023. A copy of the current NPDES discharge permit is included in Appendix B of this report. The current National Pollutant Discharge Elimination System (NPDES) discharge permit limits are summarized in Table 2.

Table 2 – Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitation			Monitoring Requirements	
	Average Monthly Limit	Weekly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
5-day Biochemical Oxygen Demand, (cBOD ₅) ^a	25 mg/L	*	45 mg/L	1/week	Grab
pH ^a	Shall remain between 7.0 to 9.0 s.u.			1/week	Grab
Total Suspended Solids, (TSS) ^a	30 mg/L	*	45 mg/L	1/week	Grab
<i>Escherichia coli</i> , (<i>E. coli</i>) ^{a,b}	126 organisms/100ml	*	409 organisms/100ml	1/week	Grab
Oil and Grease ^c	*	*	10 mg/L	Daily/Conditional	Visual
Effluent Flow, mgd	*	Report Monthly Average	*	1/day	Calculated
Total Flow, mgal ^d	*	*	Total	1/month	Calculated
Effluent Flow, cfs ^d			Report	1/week	Grab
Temperature, deg C ^d			Report	1/week	Grab
Ammonia as Nitrogen ^{a,d}			Report	1/week	Grab

* This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.

a A pre-discharge sample must be analyzed and reported to the department prior to the start of any discharge. A pre-discharge grab sample shall be tested for BOD₅, TSS, pH, E. coli, and Ammonia as N. This pre-discharge sample shall represent the first week discharge sample. An additional grab sample of the actual discharge shall be taken and analyzed on a weekly basis for the duration of the discharge.

b *E. coli* shall not exceed 126 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall samples exceed 409 organisms per 100 ml for any one day. This limit applies from April 1 through October 31.

c If a visible sheen or floating oil is observed at the discharge point, an oil & grease sample shall be collected to determine compliance with 10 mg/l concentration limit.

d Permittee must use one of two options to comply with the ammonia as N limitation.

- Option 1 - Applicable (Temperature, pH, Ammonia as N, and receiving-stream flow) receiving water parameters are collected to calculate (refer to formula below) the real-time water quality standard for ammonia – this option allows 10% of the receiving water flow for dilution. This calculated limit will be compared to facility effluent data on ammonia and if the effluent value is greater than the calculated limit, the permittee will report a violation.
- Option 2 – Permittee collects ammonia as N and temperature samples from the lagoon cell to be discharged and complies with the ammonia as N limit at the end-of-pipe forgoing any receiving water dilution.

The current discharge limits are authorized for stabilization ponds which service a population of less than 5,000 people, not to be considered a major discharge facility by the Department of Health, and have no significant industrial user contributions as determined by the Department of Health. The design year population of 11,962 exceeds the 5,000 limit set forth in the current NPDES permit limit requirements. A discussion with the North Dakota Department of Health has indicated it is likely that under the projected population growth the facility will need to comply with future nutrient limits, while the current organic and solids limits are likely to remain. For the purpose of this evaluation, it is assumed the future pond alternative which exceeds a design service population of 5,000 will need to meet a total phosphorus limit in addition to those in their current permit. Additional treatment required for pond expansion would increase the present worth of the alternative. If pond expansion is the preferred alternative, additional evaluation will be required for the actual cost to meet any changes that may occur by potential new discharge limits.

The existing wastewater treatment facility consists of a stabilization pond system containing:

- Primary Cell 1, approximately 15.07 acres at mean water depth, 3.0 ft of active volume depth.
- Secondary Cell 2, approximately 6.39 acres at mean water depth, 4.0 ft of active volume depth.
- Secondary Cell 3, approximately 14.57 acres at mean water depth, 4.0 ft of active volume depth.
- Primary Cell 4, approximately 9.32 acres at mean water depth, 3.0 ft of active volume depth.

The recommended design organic loading for stabilization ponds based on the North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90, Waste Stabilization Ponds is 30 pounds per day of cBOD₅ per acre of primary treatment cell and 20 pounds per day of cBOD₅ for the entire pond system. Chapter 90 also provides guidance for active volume depths of primary cells. Primary cells shall have a minimum water depth of 3 feet, and maximum water depth of 5 feet unless special conditions are present. Cells 1 and 4 combined provide 24.4 acres of pond surface, which corresponds to maximum recommended daily load of 731.70 pounds per day of cBOD₅. For operational flexibility, it is recommended that at least two primary cells are provided for stabilization pond system, and Chapter 90 recommends at least three total cells operating in series (two primary and one secondary). The two primary cells at Lincoln have the ability to operate in either series or parallel. Operation in series requires flow to be pumped from one cell to the other.

The recommended design standard for stabilization ponds indicates that the sizing of the secondary treatment cell shall be based on the greater volume of the following:

- 180 days based on Chapter 90 recommendations of hydraulic storage for the entire pond system.
- Approximately 50% of the pond hydraulic capacity.

The total storage volume of the Cells 1 through 4 is about 51 million gallons. The current pond system is sized for a design hydraulic retention time of 180 days. At 180 days, the pond system can hydraulically handle 284,200 gallons per day of flow. Secondary treatment Cells 2 and 3 are 46% of the treatment storage volume.

To determine if the facility has adequate hydraulic capacity for the 20-year planning period, influent flow to the wastewater treatment facility has been metered from November 20, 2017 through November 27, 2018. Population projections were used to determine a future design flow conditions. The flow monitoring information is included in Appendix C of this report. Table 3 summarizes the monthly average daily flow for these metering period.

Table 3 – Monthly Average Wastewater Flows

Year	Month	Count (sample)	Day Minimum (gpd)	Day Average (gpd)	Day Maximum (gpd)	Cumulative Flow (gal)
2017	November	10	193,531	206,343	240,530	*
2017	December	31	184,425	206,980	243,683	6,416,388
2018	January	31	191,696	213,170	248,047	6,608,263
2018	February	19	184,103	204,726	257,801	*
2018	March	31	179,359	201,744	246,327	6,254,053
2018	April	30	178,647	206,767	252,644	6,203,021
2018	May	31	176,180	195,197	227,650	6,051,106
2018	June	30	182,341	200,578	238,146	6,017,337
2018	July	31	185,339	210,645	260,488	6,529,988
2018	August	31	187,170	203,378	241,913	6,304,703
2018	September	17	171,583	192,643	228,745	*
2018	November	31	180,631	206,421	259,447	6,399,052

* Indicates incomplete data set for parameter.

Overall average daily flow (during the metering period) is 202,606 gallons per day (gpd), so on average flows are below the current lagoon hydraulic capacity of 284,000 gpd. The minimum month cumulative flow was 6.017 mgd and occurred in June of 2018. The maximum month cumulative flow was 6.608 mgd and occurred in January of 2018. The largest cumulative storage volume between November and May can be used in determining the required storage volume based on seasonal discharge dates. For Lincoln, the required storage volume corresponds to total storage volume of 36.68 million gallons, at an average of 203,802 gpd.

Infiltration and inflow (I/I) is essentially clean water that enters the collection system as a result of rainfall or elevated groundwater levels. The guidelines may assist in evaluating the extent of both infiltration and inflow by comparing average flows during periods of high groundwater levels with and without precipitation events to established threshold values. If either inflow or infiltration is found to be excessive, it is recommended to analyze the feasibility of removing I/I through collection system improvements.

Rainfall data was not collected at the wastewater treatment facility to evaluate inflow from storm events. Instantaneous flow data collected during the metering period does not indicate excessive flow events, which may be the result of inflow from storm events. As rainfall amounts are unavailable a desktop comparison of the largest monthly flow (200,275 gpd in November 2018) compared to the smallest monthly flow (176,180 gpd in May 2018) indicate a potential 24,095 gpd variability in flow. This corresponds to approximately 5.8 gpcd per resident at the estimated 2018 population of 4,138 residents. The maximum monthly flow of 200,275 in November 2018 corresponds to 48.40 gpcd at the 2018 service population, well below the typical wastewater contribution per capita, which indicates little infiltration and inflow.

The influent flow data does not indicate excess inflow during storm events, and no notable inflow and infiltration has been observed in the collection system manholes or piping.

A transfer lift station is primarily used to pump flow to Cells 4 from Primary Cell 1. Lift station 1 was constructed in 1996 when cell 3 was constructed to pump flow from Cells 1 into Cell 3. During construction of Cell 4 in 2004, piping at the lift station was altered to allow pumping from Primary Cell 1 to either Cell 3 or 4. Valves were added into the pipe system to also allow flow from Cell 3 back into the lift station if needed. The lift station is a single transfer pump with vertical check valves located in the wetwell and contains buried flow control valves.

3.4 Financial Status of Existing Facilities

The City does not have significant reserves related to its utilities. The wastewater fund had approximately \$231,700 in the fund for operation and maintenance costs as of December 31, 2017. Total expenses related to the sewer fund were approximately \$204,300, leaving \$27,400 in revenue. Funding for any improvements to the wastewater system require funds from the general fund, assessments, user fees, and/or outside assistance through grant or loan programs. Table 4 summarizes the utility rates.

Table 4 – Current Utility Rates

Utility	Year	Base Charge	Usage Charge
Water	2017	\$21.00	\$4.70 per 1,000 gal
Sewer	2017	\$13.50	n/a
Water	2018	\$21.00	\$5.60 per 1,000 gal
Sewer	2018	\$14.50	n/a
Water	2019	\$21.50	\$6.96 per 1,000 gal
Sewer	2019	\$15.50	n/a

The City has been steadily growing in population size, subsequently resulting in new housing development during recent years. These developments have resulted in a City revenue from connection fees. Table 5 shows connection fees to connect to the City’s sanitary sewer wastewater system. These charges are a one-time connection fee.

Table 5 – Connection Fees

Year	Commercial Hook-up Fee	Residential Hook-up Fee
2016	\$800.00	\$800.00
2017	\$800.00	\$800.00
2018	\$800.00	\$800.00

Table 6 summarizes the connections to the water system as of December 2018. The commercial connections account for approximately 597 equivalent dwelling units (EDU). The top five largest commercial users in the City are Lincoln Elementary School, South 40 Apartments, Dakota Line Contractors, and Two Track Malting Company. These five account for approximately 3.41% of total water usage in the City.

Table 6 – Water System Connections

Customer Type	Number of Connections	Total Flow (12 months)	Portion of Total Flow
Residential	1,271	91,064,670	93.9%
Commercial and Institutional	34	4,321,433	4.5%
Sold/Closed Accounts	437	1,580,837	1.6%
Total		96,966,940	100%

As can be seen in Table 6, the majority of water connections are residential with minimum water users being commercial or institutional. This data on the water users gives an understanding of the wastewater effluents that can be expected. The wastewater collection system currently has additional connections over the potable water system. The majority of these additional connections are from the Apple Creek Mobile Home Park located to the east of the city. This mobile home park is currently not within the city limits, but is expected to be annexed within the planning period. Table 7 summarizes the existing waste water connections by user types.

Table 7 – Wastewater System Connections

Customer Type	Number of Connections	Portion of Total Flow
Residential	1,666	94%
Commercial – Restaurant	3	0.1%
Commercial – Business	12	0.7%
Commercial – Apartment	78	4.5%
Commercial – Other	12	0.7%
Total	1,771	100%

Table 8 summarizes the annual Operation and Maintenance (O&M) costs for years 2015-2017. The O&M costs fluctuate in some areas, but are fairly constant in others. The largest fluctuation is seen in the Parts section. This is due to repairs within the collection system and lift station at the pond site. These expenses are typically unpredictable due to system being underground. Overall, cost increases in line items such as Staff and Utilities is typical with inflation and cost of living increase in the economy.

Table 8 – Operation and Maintenance Costs

Cost Category	2015	2016	2017
Staff	\$41,712	\$36,965	\$62,766
Contractual Services	\$0	\$1,340.50	\$0
Training	\$0	\$0	\$0
Engineering Services	\$0	\$13,612	\$0
Utilities	\$2,801	\$3,521	\$4,130
Repairs and Maintenance	\$72,437	\$110,220	\$72,332
Supplies	\$7,818	\$2,915	\$2,868
Parts	\$0	\$15,000	\$57,000
Miscellaneous Expenses	\$320	\$242	\$1
Total O&M	\$125,088	\$183,817	\$199,097

4 Need for Project

4.1 Health Sanitation and Security

The City of Lincoln has been experiencing sustained growth for more than 25 consecutive years, with an exception in 2010. The increase in population has contributed to an increase in flow and load to the wastewater treatment facility. The projected population during the service life of the facility plan is expected to exceed the provisional 5,000 person limit which is part of the current effluent limit determination.

Recent site inspections by the North Dakota Department of Health have also noted erosion concerns on the impoundment for Cell 2 which will need to be addressed. The existing ponds were constructed with a low permeability compacted clay liner. Modifications to treatment cells may require leak testing to ensure the integrity of the pond liners. If issues are identified during leak testing, the pond cell will have to be drained so that the deposited solids may be removed prior to lining repair.

If the City is to continue to meet the demand for housing in the community, an improvements project will need to address the additional flow and load demand.

4.2 Operation and Maintenance

The City of Lincoln employs two full time maintenance personnel and a Public Works Director to run its wastewater treatment facility and oversee maintenance of the wastewater collection system. The two full time employees are currently Direct Responsible Charge personnel and will be taking the Level 1 and 2 Operator classification for wastewater systems. The Public Works Director is currently the only classified Operator at this time holding a Level 2 Operator certificate. Current operation and maintenance costs are covered by an enterprise fund, but as the wastewater treatment facility ages and capacity demand increases costs are expected to increase. Additional organic and hydraulic demand will increase the operator time, electricity requirement for pumping between cells, and eventually the potential for future constituent limits. Each proposed alternative will incorporate a discussion regarding the effects of operation and maintenance and will be presented later in this report.

4.3 Growth

Significant population growth is expected during the planning period of this report. The service population of Lincoln is expected to increase from 4,138 to 11,962 over the planning, construction, and service life of the treatment facility. Burleigh County, where Lincoln is located, has also experienced consistent population growth and is anticipated to increase over the planning period. The projected annual rate of population increase for Lincoln is approximately 5.5%. The population increase is anticipated to coincide with an expansion of City limits and extraterritorial development. Municipal facilities such as schools and city hall have been constructed in recent years, and further development is planned. The further development and increase in users is accounted for in the City of Lincoln's 2018 Comprehensive Plan projected population numbers, and therefore accounted in the projected numbers within this report. At the time of this report, the only significant industrial users or large water consuming industries planned are two car washes.

5 Alternatives Considered

Four alternatives were considered for improvements to the wastewater treatment facility. The alternatives were: expansion of the existing stabilization pond system, regionalization with Bismarck, modification of the existing facility to create a continuous discharge aerated pond mechanical facility, and decommission of the current pond system and construction of a mechanical treatment facility. After initial discussion with the North Dakota Department of Health, conversion to a continuous discharge facility for the mechanical treatment option is feasible as the Apple Creek has sufficient seasonal flow. The increase in population and conversion to continuous discharge will likely involve the addition of a total nitrogen and total phosphorus limit to the facility's NPDES permit.

A "do nothing" alternative in this case is not feasible as the City is near its current pond capacity. The projected population increase will far exceed any feasible operational improvements to the pond system and require improvements.

A 20 year design life was used in developing the alternatives. This design life was used due to the option for grant or funding by state or federal agencies. It is desired by funding agencies that a minimum of 20 year design life is proposed in all alternatives considered to ensure that future need for funding is limited, and a community is provided with a working system for the 20 year future.

The wastewater collection system does not require substantial improvements at this time. Since wastewater flows by gravity to the current wastewater treatment facility, alternatives evaluated will be located at or near the current facility site to minimize capital expenditure modifying the current collection system.

The treatment alternatives are discussed in greater detail below.

5.1 Expansion of Stabilization Pond System

5.1.1 Description

The expansion of stabilization pond system alternative includes construction of two additional stabilization pond cells, one primary (cell 5) and one secondary (cell 6). The additional cells provide the capacity needs for the future organic and hydraulic loads associated with the projected population. Table 9 summarizes the projected flows and loads the new cells are designed for.

Table 9 – Stabilization Pond Expansion Basis of Design

Parameter	Current Demand	Current Capacity	Future Demand	Additional Capacity Required
Day Average Flow (gpd) ¹	206,000	284,000	594,000	310,000
cBOD ₅ , pounds per day ²	704	732	2,028	1,296
1 Average day determined based on 180 day consecutive flow between May 1 and November 1.				
2 Pounds per day based on the recommended design minimum of 0.17 ppcd from 10 States Standards.				

In addition to organic loading, it is assumed that the future pond system will need to meet a total phosphorus effluent limit of 1 mg/L. This assumption is based on discussions with the North Dakota Department of Health which has recently issued a nutrient narrative standard as the initial stages of a nutrient reduction program. Over time it is the goal of the Department to develop river and stream total maximum daily loads for nutrients to assist in the development of numerical limits. The Department has indicated that a total phosphorus limit of 1 mg/L is appropriate for the purpose of long term planning. The total phosphorus limit would be treatment by coagulant addition from a duck boat. This method allows for simplified implementation if and when a total phosphorus limit is implemented as part of the facility's NPDES permit.

The recommended design organic loading for stabilization ponds based on the North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90, Waste Stabilization Ponds is 30 pounds per day of cBOD₅ per acre of primary treatment cell and 20 pounds per day of cBOD₅ for the entire pond system. Chapter 90 also provides guidance for active volume depths of primary cells. Primary cells shall have a minimum water depth of 3 feet, and maximum water depth of 5 feet unless special conditions are present.

The additional primary cell area is based on 1,296 ppd of cBOD₅. This corresponds to a total primary cell area of 43.2 acres. A three foot active depth provides an additional 5.65 million gallons of storage. With the volume of the existing cells and proposed primary cell there is sufficient volume for 180 days of storage in the pond system. Operationally, it is recommended the facility maintain approximately 50% of the pond surface area as secondary treatment cells. This allows for a sufficient portion of flow to be seasonally discharged so that the primary cells can be transferred to the secondary and begin filling once again. For proportionality, a 46.6 acre secondary cell is proposed. With the proposed primary and secondary cells, the total pond system organic loading is 15 pounds per acre per day.

To facilitate operation of the new treatment cells, a second in-plant lift station is proposed. The second station provides flexibility in distributing influent from Primary Cell 1 to either Primary Cell 4 or proposed Primary Cell 5.

An additional outfall pipe is also proposed. The gravity pipe would be used to transfer flow from proposed Primary Cell 5 to proposed Secondary cell 6 or Secondary Cell 3 to provide operational flexibility for storage. The outfall pipe would continue along the east and south side of existing Secondary Cell 3 to discharge into the drainage ditch Secondary Cell 3 currently discharges to and proceed to facility outfall at Apple Creek.

5.1.2 Design Criteria

Basis of design for wastewater stabilization ponds will follow the recommended design parameters of North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90 and Recommended Standards for Water Works (Ten States Standards). The following design standards are used to determine a preliminary Engineer's opinion of probable cost:

- System Design Capacity:
 - 30 pounds per day of cBOD₅ per acre of primary treatment cell,
 - 20 pounds per day of cBOD₅ for the entire pond system,
 - 3 foot active volume depth in primary cells,
 - 4 foot active volume depth in secondary cells,
 - 180 days of wastewater storage capacity,
 - Minimum secondary cell treatment volume 50% of system capacity,
 - 0.17 pounds per capita per day of five-day biochemical oxygen demand,
 - 0.20 pounds per capita per day of total suspended solids.
- Environmental Review: No significant environmental consequences are anticipated with this alternative. A complete level 1 wetlands analysis as well as comments from State regulator agencies are summarized within this report.
- Architectural Barriers: No Americans with Disabilities Act of 1990 (ADA) compliance issues are anticipated with this alternative.
- Energy / Environment: Existing lift station pumps will not be replaced as part of this project. A new lift station will be required to pump influent from Primary Cell 1 to the new primary cell. Pump selection will allow the pumps to operate within the most energy efficient point on the pump curve, which will save energy. An additional in-plant lift station maintains a gravity system to the wastewater treatment facility to reduce the total flows of wastewater pumped at the WWTF.
- Growth Capacity: The alternate creates sufficient capacity for the expected system growth. Collection system expansion is not performed with this alternative.
- Conformity with State Drinking Water Standards: No sanitary sewer facilities will be placed in close proximity to drinking water facilities with this alternative.
- Combined Sewers: No known combined sewers are included in the project alternative.
- Pipe: PVC and ductile pipe materials, including mainline pipe and fittings, shall conform to all ASTM standards.
- Economical Service: The alternative creates an economical solution to the project need.

5.1.3 Alternative Location

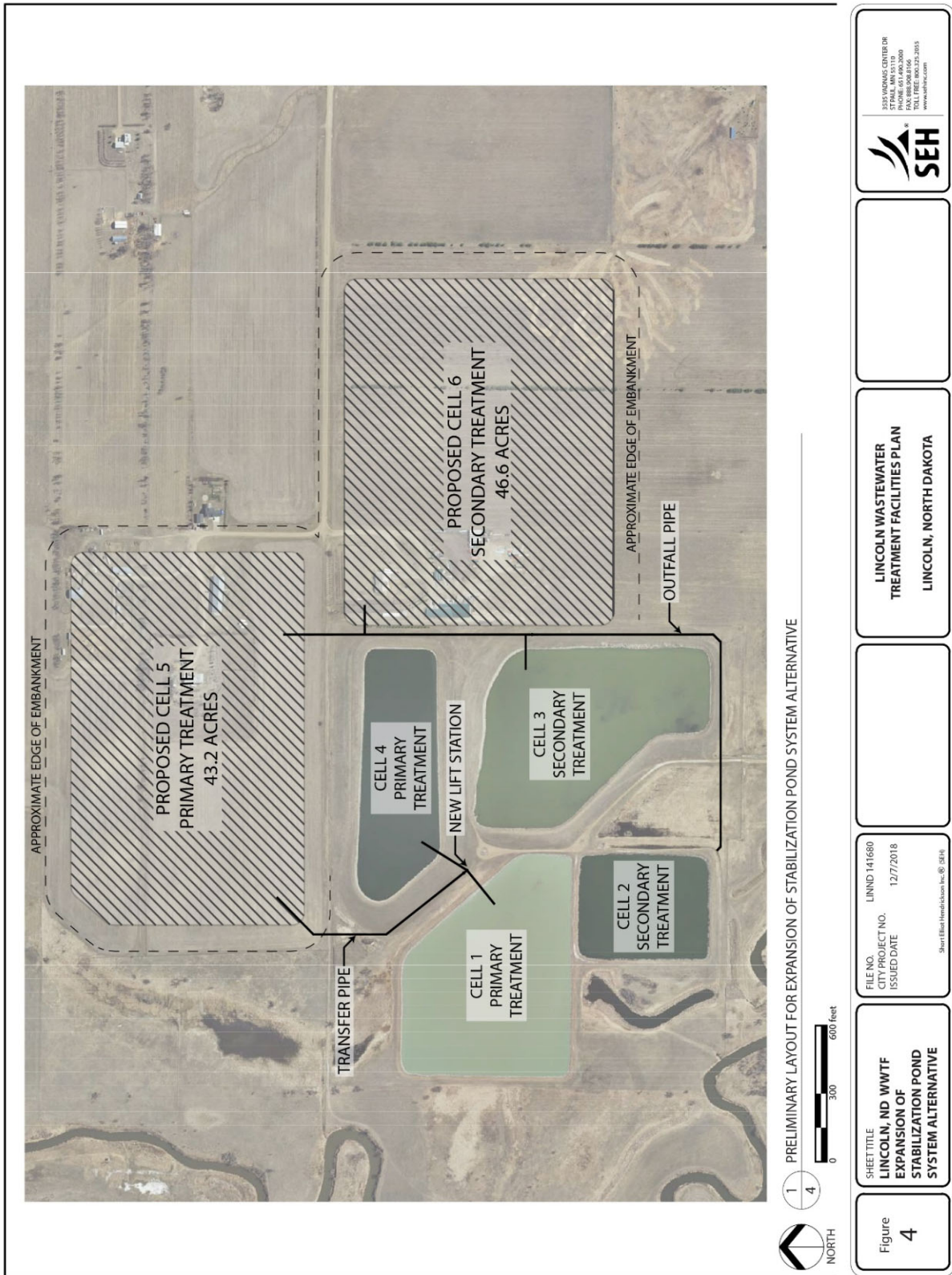
Figure 4 illustrates the modifications to the existing wastewater treatment facility associated with expansion of the stabilization pond system. The alternative is illustrated as a single additional primary cell and secondary cell. Construction of the additional ponds may be subdivided into smaller cells, however subdivision increases capital costs for construction and increases the land requirement due to addition embankment construction.

5.1.4 Potential Environmental Impacts

Environmental impacts are based on the finding of the level 1 wetlands delineation (Appendix A) and feedback received by the solicitation to state and federal organizations identifies in part 1 of this report. Approximately one-half acre of wetland would need to be relocated for construction of the two treatment cells. The identified wetlands are likely Type 1 (PEM1A) seasonally flooded basins, and exist as drainage swales and shallow depressions where water tends to pond early in the growing season. These areas may not meet hydrology, vegetation, and soils characteristics required to meet wetland criteria, and further delineation is recommended prior to design is recommended. Construction activities are not anticipated to effect the 100 year or 500 year flood plains along Apple Creek nor wetlands adjacent to the Creek.

Soil in the vicinity of the proposed stabilization ponds is not suitable for construction of a clay liner. A borrow site would need to be identified north of the community for construction of the liner. Site restoration of the borrow site would be included with construction of the stabilization pond system.

Figure 4 – Preliminary Layout for Expansion of Stabilization Pond System Alternative



5.1.5 Land Requirements

The expansion of the pond system would require impoundment on approximately an additional 118.5 acres. Construction is contingent on the ability of the City to acquire property with reasonable proximity to the existing wastewater treatment facility. The proposed layout would require the acquisition of four adjacent parcels in their entirety with an addition portion of four parcels. The land acquisition would also include the purchasing and removal of three residences.

If adjacent property is unavailable an alternative location may be determined for construction of a separate stabilization pond system. This alternative would likely require a more robust lift station at the wastewater treatment facility to divert flow over a greater distance. The alternative is also contingent on the City's ability to acquire an additional discharge location for their NPDES permit.

5.1.6 Constructability

The largest challenge associate with construction of stabilization ponds of this size is the availability of suitable construction material. This includes sourcing suitable clay for the liner, as well as liner subgrade and pond embankments. In general, it is anticipated that the pond elevation can be determined to balance cut and fill on site. Suitable liner material was sourced for the existing ponds from borrows north of the community.

Prior to design geotechnical investigations will need to be conducted to establish ground water elevation at the site, as well as suitability of in-situ soils for construction. Construction of new transfer and outfall piping may require dewatering and/or ground support, both of which may be further identified during geotechnical investigations. Geotechnical investigation will also assist in the identification of potential bedrock which may impact construction, though historically bedrock has not been an issue in this area.

5.1.7 Preliminary Engineer's Opinion of Probable Cost

Construction costs include: pipe and valve installation, discharge control structures, transfer control structures, in-plant lift station, additional pond liners and embankment, site fencing, drain tiles, and restoration. All costs shown in the construction cost estimate are assumed to be eligible. Non-eligible features have not been added to this alternative. Non-construction costs such as easements, legal, engineering, testing, and other indirect costs are included in the estimate.

Table 10 – Probable Cost for Expansion of Stabilization Pond System

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
Construction of new stabilization ponds	*	\$7,150,000	*	\$7,150,000
Land Acquisition	*	\$1,980,000	*	\$1,980,000
Dredge existing pond cells. Repair Cell 2	*	\$1,140,000	*	\$1,140,000
Operation and Maintenance ⁴	960	*	\$106,000	\$1,577,000
Total for Alternative	960	\$10,270,000	\$106,000	\$11,847,000
<p>1 Includes the following: 30% construction contingency 16% for engineering design, construction administration, and construction field services.</p> <p>2 Assumes operator total compensation labor rate of \$35.00 per hour. Represents year one O&M rate.</p> <p>3 20 year period at 3.0% rate.</p> <p>4 Includes Nitrogen and Phosphorus removal for anticipated future regulations</p>				

5.1.8 Operation and Maintenance

This alternative is not expected to make major changes to the type of operation and maintenance activities associated with the current facility. An additional in-plant lift station requires a second pump and instrumentation to be maintained. Piping and valves between cells require additional maintenance similar to those already in place. The additional cell embankments require significantly more turf and weed maintenance than the existing system. The addition of another secondary treatment cell requires sample collection to determine suitability prior to discharge, as well as addition time associated with transfer flow between additional cells. The anticipated operations and maintenance costs associated with this alternative, as presented in Table 10, can be found in Table 11.

Table 11 – Operations and Maintenance Cost for Expansion of Stabilization Pond System

Activity	Cost per Year ¹
Sampling	\$895
Pond Cell Operation	\$9,100
Pump Maintenance	\$10,500
Lift Station Instrumentation Maintenance	\$2,730
Snow Removal	\$2,100
Mowing	\$14,000
Vehicle Maintenance	\$875
Rust Removal	\$2,100
Pump Operation	\$3,400
Phosphorous Removal, Operation	\$4,600
Phosphorus Removal, Maintenance	\$900
Phosphorous Removal, Chemical Cost	\$54,800
Total	\$106,000
<p>¹ Cost per year assumes an hourly labor rate of \$35.00 and an electrical utility rate of \$0.0773 per kWhr. Estimated labor hours based on <i>The Northeast Guide for Estimating Staffing at Publicly and Privately Owned Wastewater Treatment Plants</i>. Represents year one O&M rate.</p>	

5.1.9 Advantages and Disadvantages

This alternative meets the City's need to increase hydraulic and organic treatment capacity in the current wastewater treatment system. The alternative has a significant land requirement which may be complicated by the presence of residences which will need to be demolished or moved for construction.

The alternative meets the requirements of state standards and the recommendations of the 10 States Standards. By complying with these standards, the project helps to eliminate potential environmental concerns related to the treatment of wastewater.

- Advantages:
 - Similar operation to existing wastewater treatment system.
 - Simple to operate.
 - Low maintenance requirements.
- Disadvantages:
 - Large land requirement.
 - Odor potential during turnover, particularly in spring.
 - Difficult to modify if low effluent cBOD₅, TSS, or total phosphorus limits are implemented.

5.2 Regionalization with Bismarck

5.2.1 Description

The Bismarck wastewater treatment facility is located approximately 4.7 miles west of the Lincoln wastewater pond system. The Bismarck facility has an average day flow treatment capacity of 9.25 MGD with 11 plant operators. The plant was recently upgraded in 2009 and has sufficient capacity to regionalize with Lincoln. Under this alternative, Lincoln would be required to meet the Title 11.1 Pretreatment Program Ordinance Bismarck uses to manage wastewater being discharged to its sanitary sewer collection system. Lincoln does not have categorical industrial users or significant industrial users and is not anticipated to need additional treatment prior to discharging to the Bismarck collection system. A sampling program is planned to further characterize Lincoln's wastewater characteristics as it pertains to pretreatment.

Four routes for the forcemain alignment are under considerations. The preferred route is illustrated in Figure 5 and all four potential alternatives can be seen in Appendix D. The preferred route is the shortest at approximately 11,340 linear feet and requires a crossing under Apple Creek.

Regionalization would allow for the decommissioning of Cells 1, 3, and 4. Decommissioning would alleviate the need to repair the embankment of treatment cell 2. Cell 2, the smallest treatment cell, would be repurposed as storage to act as equalization during high flow events or during periods the forcemain needs to be taken offline. Cell 2 is ideal as flow can enter the cell by gravity. The suction pipe would need to be lowered to allow the cell to be completely drained rather than maintaining a two foot minimum water level.

The regionalization lift station would be constructed at the existing wastewater treatment facility near the current in-plant lift station. The existing wetwell would be converted to a transfer structure where influent from the community would flow to the new lift station. If flow exceeds the pump capacity of the lift station, wastewater would back up into the transfer structure and into Cell 2. As wastewater flow decreases from the community, flow from Cell 2 would flow into the transfer structure and to the new lift station.

The new lift station consists of a duplex submersible station inside a precast concrete structure. Additional precast structures include a valve vault and meter vault. The discharge forcemain is two 8-inch forcemains. Forcemains are cement lined ductile iron in structures, and fused end HDPE with ductile fittings outside of structures. The lift station also include a fiberglass prefabricated structure with unit heater and automatic composite sampler refrigerator to monitor wastewater characteristics.

The City of Bismarck has indicated that it will not assess a connection fee associated with regionalization with the City of Lincoln. Lincoln will be required to meter the flow discharged to the Bismarck system and be assessed a user fee based on a non-residential land use with an additional 10% surcharge for being a discharged outside of the Bismarck city limits.

5.2.2 Design Criteria

Basis of design for regionalization with Bismarck will follow the recommended design parameters of North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90 and Recommended Standards for Water Works (Ten States Standards). The following design standards are used to determine a preliminary Engineer's opinion of probable cost:

- System Design Capacity:
 - Minimum day flow, current: 30 gpm.
 - Minimum day flow, future: 85 gpm.
 - Average day flow, current: 143 gpm.
 - Average day flow, future: 412 gpm.
 - Peak instantaneous flow, current: 421 gpm.
 - Peak instantaneous flow, future: 1,038 gpm.
 - 0.17 pounds per capita per day of five-day biochemical oxygen demand.
 - 0.20 pounds per capita per day of total suspended solids.
- Environmental Review: No significant environmental consequences are anticipated with this alternative. A complete level 1 wetlands analysis as well as comments from State regulator agencies are summarized within this report.
- Architectural Barriers: No Americans with Disabilities Act of 1990 (ADA) compliance issues are anticipated with this alternative.
- Energy / Environment: Existing lift station pumps will be demolished as part of this project. A new lift station will be required to pump influent from Secondary Cell 2 (equalization) to a Manhole near Morrison Ave and Yegen Rd. Pump selection will allow the pumps to operate within the most energy efficient point on the pump curve, which will save energy. An additional in-plant lift station maintains a gravity system to the wastewater treatment facility to reduce the total flows of wastewater pumped at the WWTF.

- Growth Capacity: The alternate creates sufficient capacity for the expected system growth. Collection system expansion is not performed with this alternative.
- Conformity with State Drinking Water Standards: No sanitary sewer facilities will be placed in close proximity to drinking water facilities with this alternative.
- Combined Sewers: No known combined sewers are included in the project alternative.
- Pipe: PVC and ductile pipe materials, including mainline pipe and fittings, shall conform to all ASTM standards.
- Economical Service: The alternative creates an economical solution to the project need.

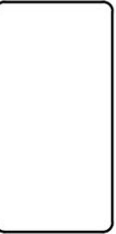
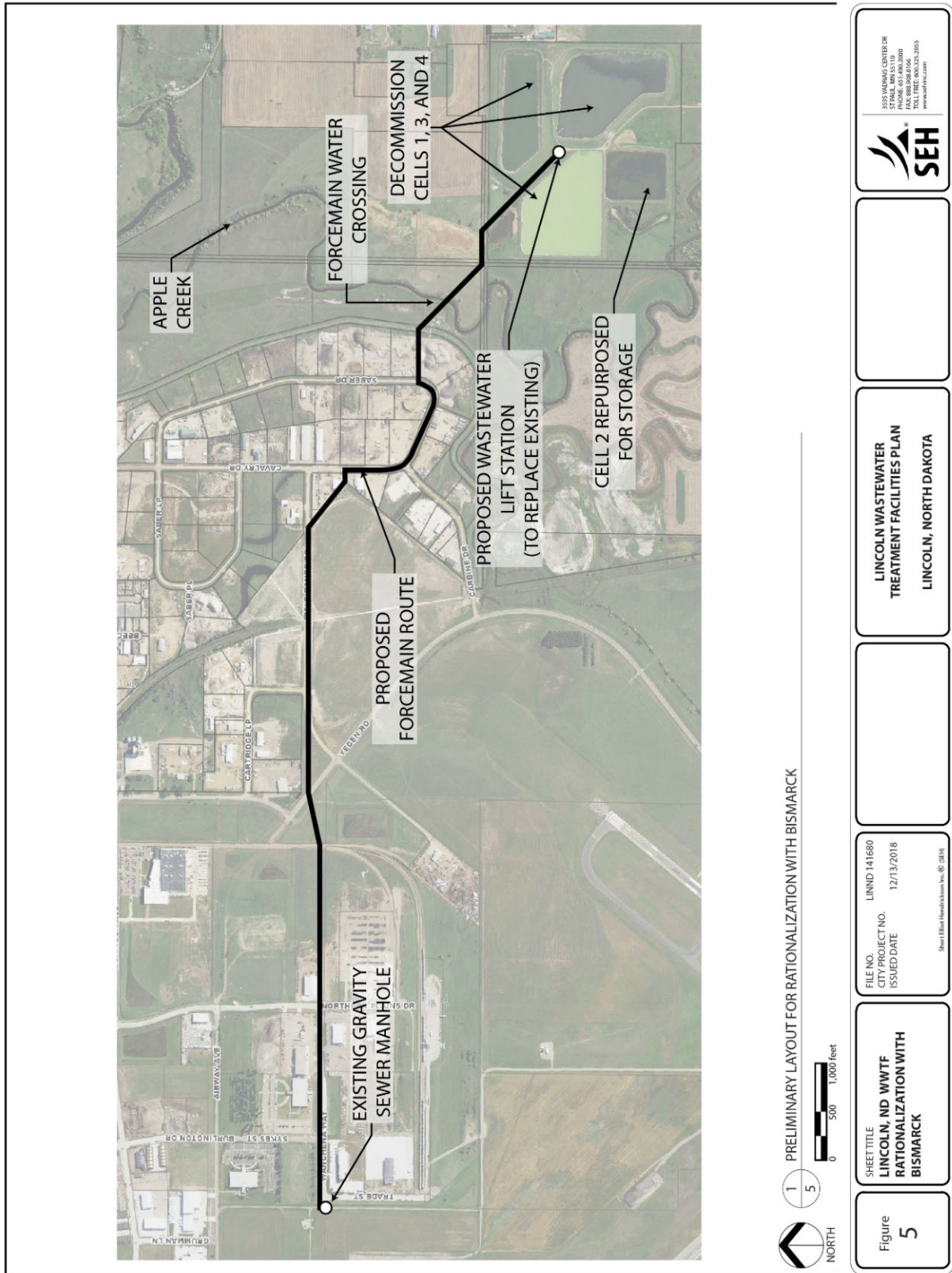
5.2.3 Alternative Location

Figure 5 illustrates the modifications to the existing wastewater treatment facility and preliminary forcemain layout associated with regionalization with Bismarck.

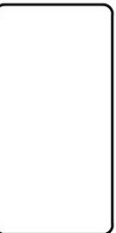
5.2.4 Potential Environmental Impacts

Environmental impacts are based on the finding of the level 1 wetlands delineation (Appendix A) and feedback received the solicitation of state and federal organizations identifies in part 1 of this report. There are a number of potential wetland delineation areas along road ditches for the forcemain route. These areas may not meet hydrology, vegetation, and soils characteristics required to meet wetland criteria, and further delineation is recommended prior to design is recommended. If the areas are identified as wetlands, location of the forcemain may be adjusted to minimize impact. Areas which cannot be avoided may have soils stockpiled separately from non-wetland areas so they can be restored after construction.

Figure 5 – Preliminary Layout for Rationalization with Bismarck Alternative



LINCOLN WASTEWATER TREATMENT FACILITIES PLAN
LINCOLN, NORTH DAKOTA



FILE NO. LINND 141680
CITY PROJECT NO. 12/13/2018
ISSUED DATE

SHEET TITLE
LINCOLN, ND WWTF RATIONALIZATION WITH BISMARCK

Figure
5

The crossing under Apple Creek is located in a likely wetland area. The crossing is anticipated to be horizontally directional drilled fused-end HDPE pipe to minimize the potential for leaks and disturbances to the wetland area. Due to the proximity to the Creek, dewatering is likely required for the drilling and receiving direction drilling pits. Construction activities are not anticipated to effect the wither the 100 year or 500 year flood plains along Apple Creek nor wetlands adjacent to the Creek.

5.2.5 Land Requirements

The wastewater lift station is located on property already owned by the City of Lincoln. The majority of the forcemain route runs along existing right-of-way owned by the City of Bismarck. The section between the Saber Drive in Bismarck and the Lincoln Wastewater Treatment Facility as well as between Airway Avenue and Wanchena Way would require easements to be obtained for the forcemain route. The major land use for the properties requiring easements are sand and gravel stockpiling, agriculture, and a rail terminal. Any of the land uses do not have long term impacts from the construction of a sanitary forcemain.

5.2.6 Constructability

Crossing Apple Creek is anticipated to be the largest constructability issue. Dewatering for the direction drilling and receiving pits is likely going to be required and may be incidental to the forcemain installation through the Bismarck right-of-ways. Horizontal directional drilling will minimize issues associated with attempting to construct the forcemain through the wetlands associated with Apple Creek, as well as the river crossing. Geotechnical investigation will need to be conducted prior to design to determine an appropriate pipe depth from crossing Apple Creek.

Additional constructability issues include the potential presence of small wetlands along the forcemain route in Bismarck. Organic soils in areas identified as wetlands may be stockpiled along the forcemain route and used to restore and areas which cannot be avoided by realignment of the forcemain route.

5.2.7 Preliminary Engineer's Opinion of Probable Cost

Construction costs include: pipe and valve installation, lift station, Apple Creek crossing, anticipated air relief and cleanout structures, and restoration. All costs shown in the construction cost estimate are assumed to be eligible. Non-eligible features have not been added to this alternative. Non-construction costs such as easements, legal, engineering, testing, and other indirect costs are included in the estimate.

Table 12 – Probable Cost for Regionalization with Bismarck

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
Lift station and forcemain	*	\$4,933,000	*	\$4,940,000
Decommission Cells 1, 3, and 4	*	\$1,394,000	*	\$1,400,000
Dredge and repair Cell 2	*	\$156,000	*	\$160,000
Sewer Rate Charge ⁴	*	*	\$405,000 ⁵	\$10,864,000
Operation and Maintenance	730	*	\$35,000	\$517,000
Total for Alternative	730	\$6,483,000	\$440,000	\$17,864,000
<p>1 Includes the following: 30% construction contingency 16% for engineering design, construction administration, and construction field services.</p> <p>2 Assumes operator total compensation labor rate of \$35.00 per hour. Represents year one O&M rate.</p> <p>3 20 year period at 3.0% rate.</p> <p>4 Sewer rate of \$4.03 per 100 CF starting at 206,000 gpd currently to 594,000 gpd at design year.</p> <p>5 Wastewater user fee is \$405,000 per year at year one, increasing to \$1,168,000 at design year flow.</p>				

5.2.8 Operation and Maintenance

This alternative is not expected to make major changes to the type of operation and maintenance activities associated with the current facility. The proposed lift station will operate two larger submersible pumps rather than the single submersible pump in the current in-plant lift station. Piping and valves between cells will be removed other than those used for equalization with Cell 2. Decommissioning Cells 1, 3, and 4 significantly reduces the amount of turf and weed maintenance compared to the existing system. Regionalization will increase influent sampling used for compliance and billing from Bismarck. The anticipated operations and maintenance costs associated with this alternative, as presented in Table 12, can be found in Table 13.

Table 13 – Operations and Maintenance Cost for Regionalization with Bismarck

Activity	Cost per Year ¹
Sampling	\$2,600
Equalization Pond Cell Operation	\$9,100
Pump Maintenance	\$7,000
Air Relief Valves Operation and Maintenance	\$3,025
Lift Station Instrumentation Maintenance	\$900
Snow Removal	\$2,100
Mowing	\$3,500
Vehicle Maintenance	\$875
Rust Removal	\$2,100
Pump Operation	\$3,800
Sewer Rate Charge ²	\$368,000
Total	\$403,000

1 Cost per year assumes an hourly labor rate of \$35.00 and an electrical utility rate of \$0.0773 per kWhr. Estimated labor hours based on *The Northeast Guide for Estimating Staffing at Publicly and Privately Owned Wastewater Treatment Plants*. Represents year one O&M rate.

2 Sewer rate of \$3.66 per 100 CF starting at 206,000 gpd currently to 594,000 gpd at design year.

5.2.9 Advantages and Disadvantages

This alternative meets the City's need to increase hydraulic and organic treatment capacity by replacing the current wastewater treatment system. The alternative has a relatively small footprint but still requires the acquisition of utility easements and an underground forcemain crossing at Apple Creek. The City of Bismarck has indicated there would not be a connection fee, however there would be a user service rate assessed based on the flow discharged to their collection system.

The alternative meets the requirements of state standards and the recommendations of the 10 States Standards. By complying with these standards, the project helps to eliminate potential environmental concerns related to the treatment of wastewater.

- Advantages:
 - Regionalizing with Bismarck eliminates the outfall and NPDES permit.
 - Regionalization takes advantage of the existing treatment capacity at the Bismarck facility.
 - Reduces the potential of more stringent future nutrient limits.
- Disadvantages:
 - City is subject to Title 11.1 Pretreatment Program Ordinance from Bismarck.
 - Future increase in flow and load subject to available capacity of the Bismarck Wastewater Treatment Facility.

5.3 Continuous Discharge Mechanical Facility

Mechanical treatment facilities embody a variety of treatment processes ranging from mechanically aerated ponds to package treatment plants and large membrane treatment facilities. The complexity of a mechanical treatment facility is typically a response to the limits the facility is designed to achieve. Difficult to remove parameters such as fine suspended solids may require more complex tertiary treatment processes such as rapid mix, coagulation, flocculation, and filtration. Very low treatment limits can also add to the complexity of a treatment process. In general, selecting a mechanical alternative which minimizes complexity based on treatment requirements results in lower capital, operation, and maintenance expenses.

Two continuous discharge mechanical facilities will be evaluated to meet the future flow and load demands projected for the community and the discharge effluent limits anticipated to be included in the facility's discharge permit. A continuous discharge aerated pond, and an integrated fixed film activated sludge (IFAS) mechanical facility.

5.3.1 Continuous Discharge Aerated Pond Mechanical Facility

5.3.1.1 Description

Lincoln currently operates a stabilization pond system. The operation staff are familiar with operation and maintenance of these facilities. The potential future effluent limits the City may need to meet are achievable through a modified aerated pond. The aerated pond alternative is attractive to a community such as Lincoln because:

- The City currently operates a stabilization pond system which shares many operation and maintenance similarities to the existing facility,
- The pond cells are already constructed and can be reused as aerated pond cells,
- Aerated ponds do not require separate solids treatment including stabilization, thickening/dewatering, storage, and disposal (land application will require additional operator certification),
- Due to the volume of the treatment cells, aerated ponds are simpler to operate and may be more difficult to upset than other mechanical treatment technologies.

The effluent total nitrogen limit would require the addition of a tertiary treatment in the form of a nitrification filter and recirculation to an anoxic zone ahead of aeration. Total nitrogen includes all species of nitrogen, specific to the evaluated design is ammonia, nitrites, and nitrates. The filter is flow through, similar to the aerate pond, however the footprint is much smaller. The filter aerates wastewater, and since a majority of the organics have been treated in the aerated pond cell the air assists in converting ammonia and nitrites in the wastewater to nitrates. A portion of the nitrification filter is recycled back to the aerated pond, where incoming carbon from organics is consumed with the nitrates and is converted to nitrogen gas.

The continuous discharge aerated pond mechanical facility alternative includes converting cells 2 and 3 to aerated cells. Influent would flow into Cell 1 which is combined with the recirculation flow and acts as an anoxic cell for denitrification. Chemical addition for phosphorus removal is also added to the recirculation stream to allow solids to settle prior to entering the mixed aeration cells. From Cell 1, flow is pumped to Cell 4 and then flows by gravity to aerated Cells 3 and finally 2. From Cell 2, flow enters a splitter structure and is divided between treatment cells for the SAGR system. The SAGR provide tertiary aeration for nitrification.

After the SAGR system, flow combines and enters the recirculation lift station. A portion of the flow is pumped back to Cell 1 and the remainder flows through UV disinfection and is discharged through the existing outfall structure. The aerated pond system and SAGR filters would require a control building to house electrical equipment, blowers, and chemical feed for phosphorus removal. A backup generator is also located at the control building.

Both the recirculation lift station and in-plant lift station between Cells 1 and 2 would be replaced by duplex submersible lift stations. Table 14 summarizes the projected flows and loads the new cells are designed for.

Table 14 – Continuous Discharge Aerated Pond Mechanical Facility Basis of Design

Parameter	Current Flow or Load	Design Flow or Load
Average Dry Weather Flow, gallons per day ¹	191,000	551,000
Average Wet Weather Flow, gallons per day ²	217,000	626,000
Peak Hour Wet Weather Flow, gallons per day ³		
Peak Instantaneous Wet Weather Flow, gallons per day ⁴	518,000	1,493,000
cBOD ₅ , pounds per day ⁵	703	2,028
TSS, pounds per day ⁶	828	2,386
TKN, pounds per day ⁷	69	198
TP, pounds per day ⁸	25	72

1 Average dry weather flow determined based on the minimum 30 consecutive day flow expressed as day average during the flow monitoring period and projected to design year based on anticipated population increase.

2 Average wet weather flow determined based on the maximum 30 consecutive day flow expressed as day average during the flow monitoring period and projected to design year based on anticipated population increase.

3 Peak hour wet weather flow determined based on the maximum hour flow during the flow monitoring period and projected to design year based on anticipated population increase.

4 Peak instantaneous wet weather flow determined based on the maximum 15 minute duration flow during the flow monitoring period and projected to design year based on anticipated population increase.

5 Pounds per day of 5-day carbonaceous biochemical oxygen demand based on the recommended design minimum of 0.17 ppbd from 10 States Standards.

6 Pounds per day of total suspended solids based on the recommended design minimum of 0.17 ppbd from 10 States Standards.

7 Pounds per day of total Kjeldahl nitrogen based on the recommended design minimum of 40 mg/L from Metcalf and Eddy, 4th edition.

8 Pounds per day of total phosphorus based on the recommended design minimum of 0.17 ppbd from Metcalf and Eddy, 4th edition.

In addition to organic loading, it is assumed that the future continuous discharge aerated pond mechanical system will need to meet a total nitrogen limit of 10 mg/L and a total phosphorus effluent limit of 1 mg/L. This assumption is based on discussions with the North Dakota Department of Health which has recently issued a nutrient narrative standard as the initial stages of a nutrient reduction program. Over time it is the goal of the Department to develop river and stream total maximum daily loads for nutrients to assist in the development of numerical limits. The Department has indicated that these nutrient limits are appropriate for the purpose of long term planning. The total nitrogen limit would be achieved by recycling a portion of the facility's effluent ahead of the aeration zone, thereby creating the anoxic environment required for denitrification. The total phosphorus limit would be achieved by coagulant addition added between pond transfer structures. These methods allows for simplified implementation if and when a total nitrogen and/or a total phosphorus limit are implemented as part of the facility's NPDES permit.

5.3.1.2 Design Criteria

Basis of design for aerated wastewater ponds will follow the recommended design parameters of North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90 and Recommended Standards for Water Works (Ten States Standards). The following design standards are used to determine a preliminary Engineer's opinion of probable cost:

- Aerated Pond System Design Capacity:
 - Utilization of 3 foot active volume depth in primary cells,
 - Utilization of 4 foot active volume depth in secondary cells,
 - 0.12 per day reaction coefficient at 68 degrees Fahrenheit,
 - The effect of return flow for total nitrogen removal is considered when determining hydraulic detention time,
 - 2.0 mg/L minimum dissolved oxygen in system,
 - Polishing cell with a minimum 30% volume of aerated cells.
- Ultraviolet Disinfection System Design Capacity
 - Minimum Number of Units: 2
 - Minimum UVT: 65%
 - Redundancy: 1 bank shall treat flow at average annual flow with 2 banks able to treat peak instantaneous flow.
 - Effluent *E. coli*: 126/100 ml Average Month
- Environmental Review: No significant environmental consequences are anticipated with this alternative. A complete level 1 wetlands analysis as well as comments from State regulator agencies are summarized within this report.
- Architectural Barriers: No Americans with Disabilities Act of 1990 (ADA) compliance issues are anticipated with this alternative.
- Energy / Environment: Existing lift station pumps will not be replaced as part of this project. A new lift station will be required to pump influent from Primary Cell 1 to the new primary cell. Pump selection will allow the pumps to operate within the most energy efficient point on the pump curve, which will save energy. An additional in-plant lift station maintains a gravity system to the wastewater treatment facility to reduce the total flows of wastewater pumped at the WWTF.
- Growth Capacity: The alternate creates sufficient capacity for the expected system growth. Collection system expansion is not performed with this alternative.
- Conformity with State Drinking Water Standards: No sanitary sewer facilities will be placed in close proximity to drinking water facilities with this alternative.
- Combined Sewers: No known combined sewers are included in the project alternative.
- Pipe: PVC and ductile pipe materials, including mainline pipe and fittings, shall conform to all ASTM standards.
- Economical Service: The alternative creates an economical solution to the project need.

5.3.1.3 Alternative Location

Figure 6 illustrates the modifications to the existing wastewater treatment facility for conversion to a continuous discharge aerated pond mechanical facility.

Figure 6 – Preliminary Layout for Continuous Discharge Aerated Pond Mechanical Facility Alternative

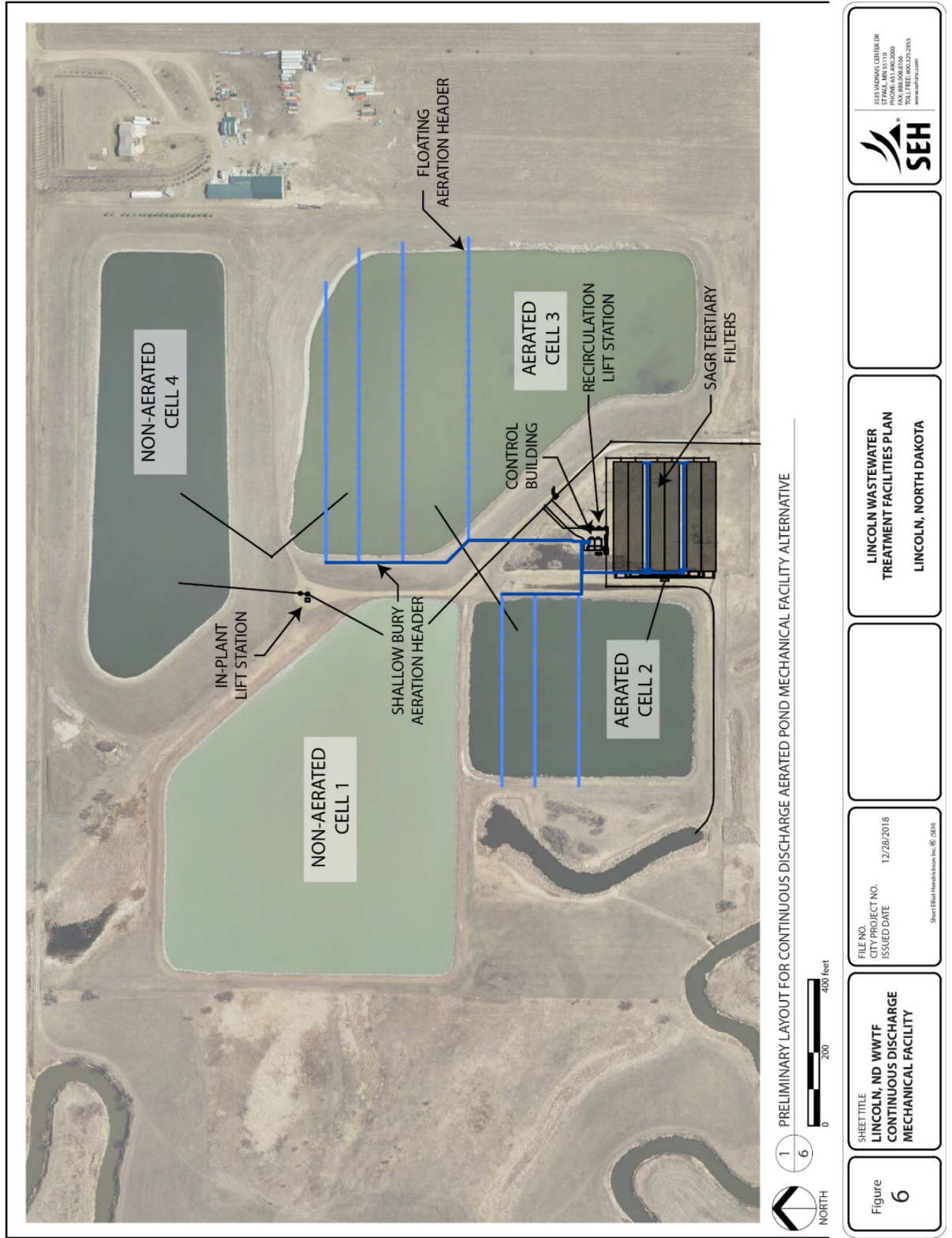
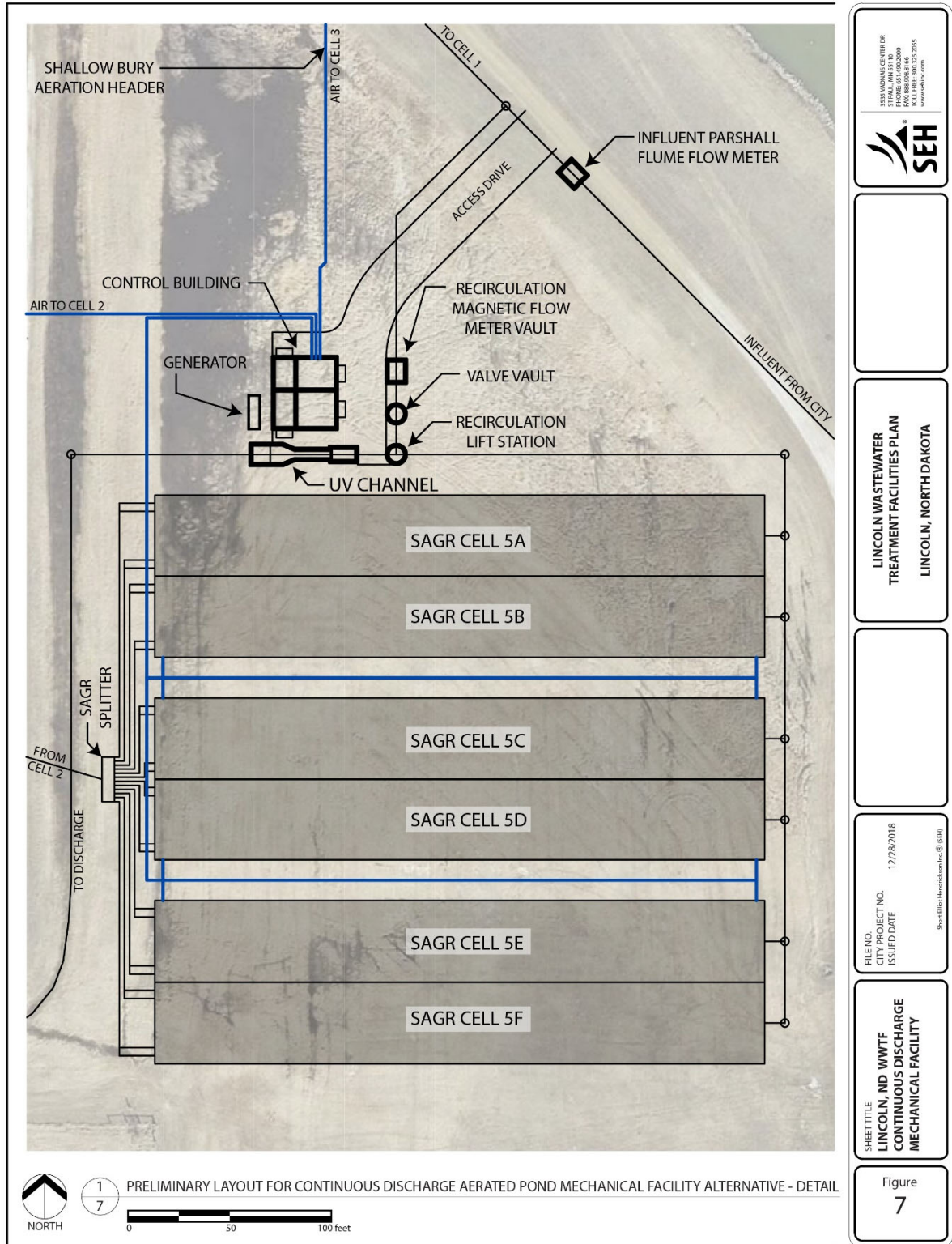


Figure 7 – Preliminary Layout for Continuous Discharge Aerated Pond Mechanical Facility Alternative - Detail



5.3.1.4 Potential Environmental Impacts

Environmental impacts are based on the finding of the level 1 wetlands delineation (Appendix A) and feedback received the solicitation of state and federal organizations identifies in part 1 of this report. There are no delineated wetlands identified for conversion of the existing stabilization pond cells to aerated pond cells. Construction for the evaluated improvements would be limited to the existing facility property and within the current facility fence line. Construction activities are not anticipated to be effected whether the 100 year or 500 year flood plains along Apple Creek nor wetlands adjacent to the Creek.

Soil in the vicinity of the proposed stabilization ponds is not suitable for insolated repair of the existing clay liner. A borrow site would need to be identified north of the community for construction of the liner. Site restoration of the borrow site would be included with modifications of the stabilization pond system.

5.3.1.5 Land requirements

The continuous discharge aerated pond mechanical facility alternative utilizes the existing wastewater treatment facility site and does not require additional land acquisition. The current facultative stabilization pond cells are modified with floating aeration headers with the addition of a control building on site to house blowers, controls, chemical equipment, and disinfection processes.

The tertiary treatment SAGR filters can be located in the space between the access road and treatment Cell 2. The Control building is best located centrally between Cells 2, 3, and SAGR system to reduce the aeration piping requirement.

5.3.1.6 Constructability

The largest challenge associate with construction of a continuous discharge aerated pond is construction of the SAGR filters. The filters require an approximate footprint of 280 feet by 300 ft without the influent splitter structure or discharge manholes. The structures themselves are constructed using temporary wooden support walls and an impermeable liner. Appropriate material would need to be sourced for construction of the liner subgrade and embankments.

Prior to design geotechnical investigations will need to be conducted to establish ground water elevation at the site, as well as suitability of in-situ soils for construction. Construction of new structures, piping, and tertiary treatment cells may require dewatering and/or ground support, both of which may be further identified during geotechnical investigations. Geotechnical investigation will also assist in the identification of potential bedrock which may impact construction, though historically bedrock has not been an issue in this area.

5.3.1.7 Preliminary Engineer’s Opinion of Probable Cost

Construction costs include: conversion of the existing stabilization pond system to a continuous discharge aerated pond system, tertiary treatment SAGR cells, UV disinfection, chemical phosphorus removal, and restoration in accordance with RUS MN 1780 Guide 43. All costs shown in the construction cost estimate are assumed to be eligible. Non-eligible features have not been added to this alternative. Non-construction costs such as easements, legal, engineering, testing, and other indirect costs are included in the estimate.

Table 15 – Probable Cost for Continuous Discharge Aerated Pond Mechanical Facility

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
Construction of aerated pond equipment, SAGR, and disinfection ⁴	*	\$11,160,000	*	\$11,160,000
Dredge existing pond cells and repair Cell 2	*	\$1,260,000	*	\$1,260,000
Operation and Maintenance	1660	*	\$210,000	\$3,119,000
Total for Alternative	1660	\$12,420,000	\$210,000	\$15,539,000

1 Includes the following:

30% construction contingency

16% for engineering design, construction administration, and construction field services.

2 Assumes operator total compensation labor rate of \$35.00 per hour. Represents year one O&M rate.

3 20 year period at 3.0% rate.

4 Includes cost for Nitrogen and Phosphorus removal to meet anticipated future regulations.

5.3.1.8 Operation and Maintenance

This alternative is similar is operation requirements for the existing system, with the addition of disinfection and aeration equipment. The plant currently operates a simplex, in-plant lift station which would be replaced with a duplex station and require a second duplex recirculation lift station. Both the existing and proposed stations are submersible type pump station. Piping and valves between cells require additional maintenance similar to those already in place, while the additional shallow-bury aeration pipe control valves are unburied and accessible. This alternative does not increase the total area of the treatment system.

The anticipated operations and maintenance costs associated with this alternative, as presented in Table 15, can be found in Table 16.

Table 16 – Operations and Maintenance Cost for Continuous Discharge Aerated Pond Mechanical Facility

Activity	Cost per Year ¹
Sampling	\$3,700
Aerated Pond Cell Operation	\$13,975
Nitrification/Denitrification Operation	\$4,550
Phosphorous Removal, Operation	\$4,500
UV Disinfection Operation	\$4,550
Phosphorus Removal, Maintenance	\$900
Pump Maintenance	\$14,000
Aeration Blower Maintenance	\$7,300
Probes/Instrumentation/Calibration	\$4,550
UV Disinfection, Maintenance	\$7,300
Snow Removal	\$2,100
Mowing	\$14,000
Vehicle Maintenance	\$875
Rust Removal	\$2,100
Pump, Utility	\$3,600
Aeration Blower, Utility	\$64,000
Phosphorous Removal, Utility	\$55,000
UV Disinfection, Utility	\$3,000
Total	\$210,000

1 Cost per year assumes an hourly labor rate of \$35.00 and an electrical utility rate of \$0.0773 per kWhr. Estimated labor hours based on *The Northeast Guide for Estimating Staffing at Publicly and Privately Owned Wastewater Treatment Plants*. Represents year one O&M rate.

5.3.1.9 Advantages and Disadvantages

This alternative meets the City's need to increase hydraulic and organic treatment capacity by replacing the current wastewater treatment system. The alternative has a smaller footprint than the existing system but still requires significantly more power and operator time. With this alternative.

The alternative meets the requirements of state standards and the recommendations of the 10 States Standards. By complying with these standards, the project helps to eliminate potential environmental concerns related to the treatment of wastewater.

- Advantages:
 - The alternative utilizes the existing permitted wastewater discharge location.
 - The alternative is capable of meeting any likely future wastewater effluent limit while being constructed for likely current discharge limits.
 - The City maintains treatment of their own sewage.
- Disadvantages:
 - The alternative likely requires a higher operator license level than what is currently maintained.
 - The alternative requires more power than other treatment alternatives, specifically blower and disinfection operation.
 - The alternative requires more operator attention and time than other treatment alternatives to control recirculation flow, distribution of flow through the SAGR system, and disinfection.

5.3.2 Continuous Discharge BNR Mechanical Facility

5.3.2.1 Description

A fully mechanical treatment facility provides the opportunity for a more refined process control schema which can utilize biological treatment to meet both total nitrogen and total phosphorus effluent limitations. The operating schema proposed is referred to as a Biological Nutrient Removal (BNR) system. The BNR system consists of a series of anaerobic, anoxic, and aerobic tanks which employ biological processes present in the wastewater to reduce the use of chemical addition for total phosphorus removal. The more managed secondary treatment process also reduces the tank volume as compared to an aerated pond system saving of aeration demand and blower operating costs. The BNR treatment alternative is attractive to a community such as Lincoln because:

- The managed BNR process has the potential to meet more strict future limits than an aerated pond system,
- The pond cells may be utilized for equalization during peak flow events to reduce the size of the mechanical facility,
- As a result of the reduced tank size and biological nutrient removal, annual operating costs may be equivalent to or less than aerated pond options (largely due to reduced chemical addition for chemical phosphorus removal and lower oxygen requirements).

A BNR mechanical plant requires pretreatment to remove trash, large solids, and inorganic grit prior to treatment. Trash and solids may plug process piping, become entrapped on diffusers and weirs, and accumulate in tankage. Grit damages process piping and valve, pump volutes, impellers, and seals, and accumulates in tanks reducing treatment volume. The proposed alternative includes preliminary treatment with a 1/4-inch screen, 2-inch manual bypass screen, and grit removal system.

Influent flow to the facility enters the anaerobic selectors. The feed location utilizes the near anaerobic condition of aged sewage in a gravity system to facilitate phosphorus accumulating organisms (POAs) to uptake phosphorus from the wastewater. When entering the aerobic zone, the POAs release phosphorus in the form of polyphosphate that can be removed by wasting solids to the digesters. The aerobic zone also provides oxygen required for nitrification where nitrifying organisms convert ammonia to nitrate. After aerobic treatment, wastewater enters a clarifier where solids can be collected and clarified effluent can continue to disinfection. A portion of the collected solids are returned upstream as return activated sludge (RAS) and the remainder is wasted to digesters as waste activated sludge (WAS). A recirculation system returns activated sludge to an anoxic tank located between the anaerobic and aerobic tanks. In the anoxic tank denitrifying bacteria convert organic carbon and nitrate to nitrogen gas, which is released to the atmosphere. A backup chemical feed system would still be provided for polishing and to meet effluent requirements in the event of a process upset.

Solids stabilization occurs in aerobic digesters. Aerobic digesters do not require heating and management of biogas generated by anaerobic processes. Aerobic digestion also does not have the same potential for phosphorus re-release as anaerobic digestion when stabilizing solids from a BNR treatment process. The aerobic digester provides air needed for mixing and volatile solids destruction in accordance with EPA CWA Section 405 and 40 CFR Part 503. Once digested, solids are referred to as biosolids. Biosolids are dewatered with a belt filter press and stored as a cake in a covered storage pad for land application.

Clarified effluent from the clarifiers flows to an ultraviolet disinfection system which provides seasonal disinfection in accordance with effluent limitations. A control building is required to house RAS/WAS pumps, blowers, electrical equipment, chemical feed equipment, and a process control laboratory for the BNR treatment system. A backup generator is also located at the control building.

Both the recirculation lift station and in-plant lift station between Cells 1 and 2 would be replaced by duplex submersible lift stations. Table 17 summarizes the projected flows and loads the new cells are designed for.

Table 17 – Influent Design Conditions for Continuous Discharge BNR Mechanical Facility

Parameter	Current Flow or Load	Design Flow or Load
Average Dry Weather Flow, gallons per day ¹	191,000	551,000
Average Wet Weather Flow, gallons per day ²	217,000	626,000
Peak Hour Wet Weather Flow, gallons per minute ³		1,100
Peak Instantaneous Wet Weather Flow, gallons per day ⁴	518,000	1,493,000
cBOD ₅ , pounds per day ⁵	703	2,028
TSS, pounds per day ⁶	828	2,386
TKN, pounds per day ⁷	69	198
TP, pounds per day ⁸	25	72

- 1 Average dry weather flow determined based on the minimum 30 consecutive day flow expressed as day average during the flow monitoring period and projected to design year based on anticipated population increase.
- 2 Average wet weather flow determined based on the maximum 30 consecutive day flow expressed as day average during the flow monitoring period and projected to design year based on anticipated population increase.
- 3 Peak hour wet weather flow determined based on the maximum hour flow during the flow monitoring period and projected to design year based on anticipated population increase.
- 4 Peak instantaneous wet weather flow determined based on the maximum 15 minute duration flow during the flow monitoring period and projected to design year based on anticipated population increase.
- 5 Pounds per day of 5-day carbonaceous biochemical oxygen demand based on the recommended design minimum of 0.17 ppcd from 10 States Standards.
- 6 Pounds per day of total suspended solids based on the recommended design minimum of 0.17 ppcd from 10 States Standards.
- 7 Pounds per day of total Kjeldahl nitrogen based on the recommended design minimum of 40 mg/L from Metcalf and Eddy, 4th edition.
- 8 Pounds per day of total phosphorus based on the recommended design minimum of 0.006 ppcd from Metcalf and Eddy, 4th edition.

5.3.2.2 Design Criteria

Basis of design for a BNR mechanical facility will follow the recommended design parameters of North Dakota Department of Health Plans and Specifications review for Drinking Water and Wastewater Chapter 90 and Recommended Standards for Water Works (Ten States Standards). The following design standards are used to determine a preliminary Engineer's opinion of probable cost:

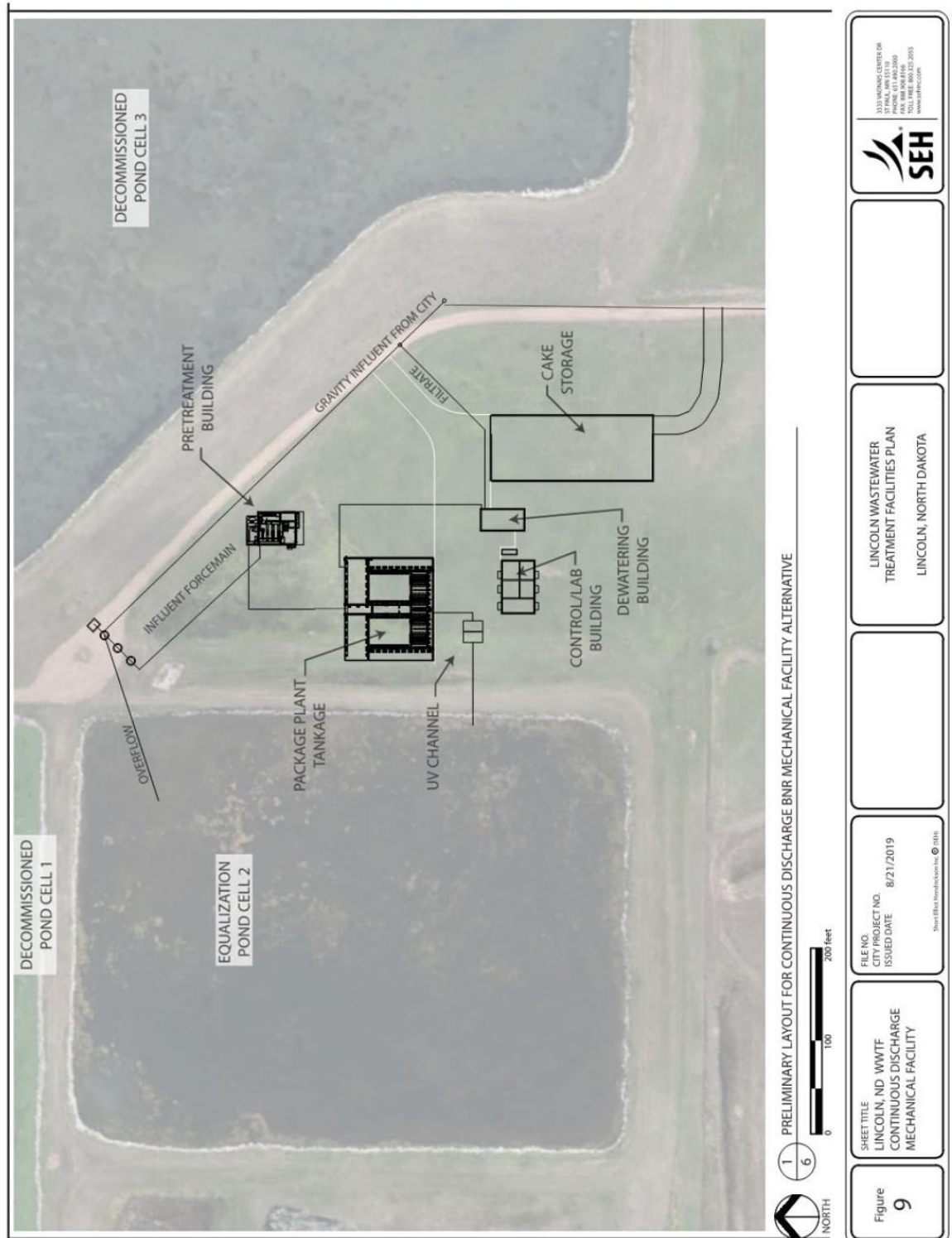
- System Design Capacity:
 - Influent Lift Station
 - Duplex submersible lift station integrated to facility SCADA,
 - Backup power from plant generator and control building,
 - Preliminary Treatment
 - Parshall flume flow meter,
 - Automatically cleaned perforated plate primary screen with washing and compacting,
 - Manually cleaned bypass screen,
 - Grit removal with grit slurry pump and washer/classifier.
 - Secondary Treatment
 - Biological Nutrient Recovery Activated Sludge Process consisting of a multi-stage anaerobic/anoxic/aerobic treatment for total nitrogen removal designed for influent conditions described in Table 17. Includes submersible mixers, RAS/WAS pumping, rectangular final clarifiers, and aeration equipment.
 - Aeration System Design Capacity:
 - Mean Cell Residence Time: 18 days
 - Minimum Wastewater Temperature: 40 deg F
 - F/M Ratio: 0.09 lbs. cBOD₅ per lb MVSS
 - Organic Loading Rate: 20 lbs cBOD₅ per 1,000 cuft of aeration tank
 - Carbonaceous Oxygen Requirement: 1.50 lb O₂ per lb cBOD₅ (at maximum month load)
 - Nitrogenous Oxygen requirement: 4.60 lb O₂ per lb TKN (at maximum month load)
 - Clarifier System Design Capacity:
 - Minimum Number of Units: 2
 - Design RAS Return Rate: 150% of influent flow
 - Maximum Surface Overflow Rate: 1,000 gpd/ft² (at peak hourly flow)
 - Maximum Weir Loading Rate: 20,000 gpd/lnft (at peak hourly flow)
 - Maximum Solids Loading Rate: 40 lb/day/ft² (at peak hourly flow including RAS)
 - Ultraviolet Disinfection
 - Minimum Number of Units: 2
 - Minimum UVT: 65%
 - Redundancy: 1 bank shall treat flow at average annual flow with 2 banks able to treat peak instantaneous flow.
 - Effluent *E. coli*: 126/100 ml average month (seasonal)

- Solids Stabilization
 - Aerobic digestion for solids stabilization to meet EPA CWA Section 405 requirements for volatile solids and pathogen destruction for land application in accordance with 40 CFR Part 503. Dewatering utilizing a belt filter press to 16% total solids. 180 days of cake storage provided to take advantage of freeze/thaw thickening for land application.
 - Aerobic Digester System Design Capacity:
 - Design Solids Concentration: 15,000 mg/L
 - Minimum Mixing Aeration: 30 scfm per 1,000 cuft
 - Belt Press System Design Capacity:
 - Design Solids Concentration: 15,000 mg/L
 - Design Dewatered Solids Concentration: 160,000
 - Number of Units: 1
 - Design Feed Rate: 500 lbs/hr/min
 - Anticipated Polymer Consumption: 62 gal/month
- Environmental Review: No significant environmental consequences are anticipated with this alternative. A complete level 1 wetlands analysis as well as comments from State regulator agencies are summarized within this report.
- Architectural Barriers: No Americans with Disabilities Act of 1990 (ADA) compliance issues are anticipated with this alternative.
- Energy / Environment: Existing lift station pumps will not be replaced as part of this project. A new lift station will be required to pump influent from Primary Cell 1 to the new primary cell. Pump selection will allow the pumps to operate within the most energy efficient point on the pump curve, which will save energy. An additional in-plant lift station maintains a gravity system to the wastewater treatment facility to reduce the total flows of wastewater pumped at the WWTF.
- Growth Capacity: The alternate creates sufficient capacity for the expected system growth. Collection system expansion is not performed with this alternative.
- Conformity with State Drinking Water Standards: No sanitary sewer facilities will be placed in close proximity to drinking water facilities with this alternative.
- Combined Sewers: No known combined sewers are included in the project alternative.
- Pipe: PVC and ductile pipe materials, including mainline pipe and fittings, shall conform to all ASTM standards.
- Economical Service: The alternative creates an economical solution to the project need.

5.3.2.3 Alternative Location

Figure 8 illustrates the modifications to the existing wastewater treatment facility for conversion to a continuous discharge BNR mechanical facility.

Figure 8 – Preliminary Layout for Continuous Discharge Aerated Pond Mechanical Facility Alternative



5.3.2.4 Land Requirements

The proposed mechanical treatment facility will be located on property already owned by the City of Lincoln. The proposed influent lift station, control/laboratory building, preliminary treatment building, package plant tankage, dewatering building, and cake storage will be located on the south side of the existing pond system. The existing wastewater discharge location will be utilized as a continuous discharge location.

Easement may be required for extension of utilities to the treatment site. Further evaluation of the alternative's suitability for utility service should occur prior to design.

5.3.2.5 Constructability

The largest challenge associated with construction of a BNR treatment facility is the construction of the basins. The basins are a shared wall design to minimize material costs and contain the selector tanks, aeration tanks, final clarifiers, and aerobic digesters. The basins are roughly 109 feet long and 94 feet wide. Additional geotechnical investigation will need to be conducted for final design of the tanks including site suitability, wall thickness, and base slab.

Prior to design geotechnical investigations will need to be conducted to establish ground water elevation at the site, as well as suitability of in-situ soils for construction. Construction of new piping and structures may require dewatering and/or ground support, both of which may be further identified during geotechnical investigations. Geotechnical investigation will also assist in the identification of potential bedrock which may impact construction, though historically bedrock has not been an issue in this area.

5.3.2.6 Preliminary Engineer's Opinion of Probable Cost

Construction costs include: decommissioning of treatment cells 1, 3 and 4, conversion of treatment cell 2 to an equalization basin, construction of a preliminary treatment building, package plant tankage, control building, dewatering building, cake storage, ultraviolet disinfection channels, and restoration in accordance with RUS MN 1780 Guide 43. All costs shown in the construction cost estimate are assumed to be eligible. Non-eligible features have not been added to this alternative. Non-construction costs such as easements, legal, engineering, testing, and other indirect costs are included in the estimate.

Table 18 – Probable Cost for Continuous Discharge BNR Mechanical Facility

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
Construction of packaged plant, preliminary treatment, disinfection, laboratory, and solids handling ⁴	*	\$15,530,000	*	\$15,530,000
Decommission Cells 1, 3, and 4.	*	\$1,480,000	*	\$1,480,000
Dredge and repair Cell 2	*	\$250,000	*	\$250,000
Operation and Maintenance	2290	*	\$224,000	\$3,329,000
Total for Alternative	2290	\$17,260,000	\$224,000	\$20,589,000

1 Includes the following:
 30% construction contingency
 16% for engineering design, construction administration, and construction field services.
 2 Assumes operator total compensation labor rate of \$35.00 per hour. Represents year one O&M rate.
 3 20 year period at 3.0% rate.
 4 Includes cost for Nitrogen and Phosphorus removal to meet anticipated future regulations.

Table 18 above depicts the preliminary engineer’s opinion of probable cost to build a single-train BNR to treat the current flow and load.

5.3.2.7 Operation and Maintenance

This alternative would be a complete reconstruction of the existing treatment facility with a managed BNR mechanical facility. Mechanical treatment facilities commonly have dedicated staff which staff the wastewater treatment facility during the week and either have dedicated overnight/weekend staff or on-call staff which are available to answer alarms through and integrated SCADA system. The system still requires an influent lift station which would replace the existing simplex station.

The anticipated operations and maintenance costs associated with this alternative, as presented in Table 18, can be found in Table 19.

Table 19 – Operations and Maintenance Cost for Continuous Discharge BNR Mechanical Facility

Activity	Cost per Year ¹
Sampling	\$3,700
Preliminary Treatment Operation	\$4,500
Activated Sludge with BNR Operation	\$34,125
UV Disinfection Operation	\$4,550
Belt Filter Press, Operation	\$9,100
Aerobic Digester Operation	\$4,550
Land Application, Operation	\$2,275
Preliminary Treatment, Maintenance	\$5,460
Chemical Addition Backup, Maintenance	\$990
Package Plant Tankage and Mixers, Maintenance	\$13,650
Aeration Blowers, Maintenance	\$10,900
Belt Filter Press, Maintenance	\$1,395
UV Disinfection, Maintenance	\$7,280
Probes/Instrumentation/Calibration	\$4,550
Pump Maintenance	\$24,500
Snow Removal	\$2,100
Mowing	\$14,000
Vehicle Maintenance	\$875
Rust Removal	\$2,100
Phosphorous Removal, Utility	\$11,000
Aeration Blower, Utility	\$46,200
Mixers and Mechanisms, Utility	\$4,300
Dewatering, Utility	\$3,250
UV Disinfection, Utility	\$3,500
Pump, Utility	\$5,100
Total	\$224,000
<p>¹ Cost per year assumes an hourly labor rate of \$35.00 and an electrical utility rate of \$0.0773 per kWhr. Estimated labor hours based on <i>The Northeast Guide for Estimating Staffing at Publicly and Privately Owned Wastewater Treatment Plants</i>. Represents year one O&M rate.</p>	

5.3.2.8 Advantages and Disadvantages

This alternative meets the City's need to increase hydraulic and organic treatment capacity by replacing the current wastewater treatment system. The alternative has a smaller footprint than the existing system but still requires significantly more power and operator time.

The alternative meets the requirements of state standards and the recommendations of the 10 States Standards. By complying with these standards, the project helps to eliminate potential environmental concerns related to the treatment of wastewater.

- Advantages:
 - A more managed treatment system allows for biological nutrient removal rather than chemical addition.
 - The more managed aeration basin has a much smaller volume and requires less oxygen for treatment.
 - Treatment alternative may not require intermediate pumping.
 - Aerobic digestion for sludge stabilization does not require gas handling.
 - BNR facilities has a greater potential for meeting potential more stringent future effluent limitations.
- Disadvantages:
 - A fully mechanical treatment plant requires preliminary treatment.
 - An on-site laboratory is generally required for process control. The smaller treatment volume results in a treatment process which needs to be more closely monitored and controlled.
 - There is a greater per capita cost associated with construction of a more managed mechanical plant.
 - The treatment alternative requirement biosolids management and solids stabilization. The additional requirement results in digestion, dewatering, and storage. A biosolids program would need to be developed to land application, tracked, and reported as part of the facility's permit requirements. An operator with a specific biosolids licensed is required to manage this program.

6 Selection of an Alternative

The selection of an alternative can be chosen by evaluating the construction cost, ongoing operation and maintenance, and lowest overall cost during the service life of the project. Operations and Maintenance associated with the wastewater treatment alternative varies by alternative. In order to compare the alternatives, an annual cost was calculated for each of the proposed alternatives. The annual cost was used to develop a 20 year net present value for each alternative which allows for a cost comparison for both initial capital expense and ongoing operation and maintenance costs. Table 20 shows the present worth analysis.

Table 20 – Probable Cost for Evaluated Alternatives

Alternative	Anticipated Annual Operator Labor Hours	Preliminary Opinion of Probable Cost		
		Capital Cost ¹	Annual O&M Cost ²	20 Year Present Value ³
Expansion of Stabilization Pond System	960	\$10,270,000	\$106,000	\$11,847,000
Regionalization with Bismarck	730	\$6,483,000	\$440,000 ⁴	\$17,864,000
Continuous Discharge Aerated Pond Mechanical Facility	1,630	\$12,420,000	\$210,000	\$15,539,000
Continuous Discharge BNR Mechanical Facility	2,290	\$17,260,000	\$224,000	\$20,589,000

1 Includes the following:
 30% construction contingency
 16% for engineering design, construction administration, and construction field services.

2 Assumes operator total compensation labor rate of \$35.00 per hour.

3 20 year period at 3.0% rate.

4 Wastewater user fee is \$405,000 per year at year one, increasing to \$1,168,000 at design year flow.

Alternatives 5.1, 5.2, and 5.3.1 were presented to the City of Lincoln council at the March 7, 2019 council meeting, where it was decided to include a fourth option of a BNR mechanical system. This fourth option was added, and the revised Facility Plan was forwarded to the city council members for preliminary review. Due to the cost of any alternatives, a public meeting was also held on May 14, 2019 to include public input on project selection. Two of the main comments by the public were 1) that wastewater ponds odor at times of year were disliked, and was desired to eliminate odors and 2) that next improvement should not result in larger expansion of ponds.

Once public input meeting was completed, the city council members reviewed the alternatives once again, and at the June 6, 2019 city council meeting it was motioned and carried to move forward with Alternative 5.3.2, Continuous Discharge BNR Mechanical Facility. Public notices of the public input meeting are included under Appendix E.

Alternative 5.3.2 was chosen based on public input, the elimination of existing ponds to reclaim the land for retail or park space, and the ability for the City to remain autonomous for wastewater treatment and provide job opportunities locally.

When evaluating Alternative 5.1 expansion of the stabilization ponds, this alternative was rejected due to the land requirements and need to remove existing homes and building structures. This was determined as negative public support due to condemnation of homes and established farms and farmland, increase in open waters for odor, and reduction in available lands for community growth. Alternative 5.2 regionalization with Bismarck, the city decided that the entering into contract for rates could result in higher costs than predicted, and that city tax dollars would not stay within the community. Alternative 5.3 continuous discharge aerated ponds system was not chosen due to the continued presence of odors and potential for increased pond size in future.

7 Proposed Project

7.1 Project Design

The City of Lincoln has selected a continuous discharge BNR Mechanical Facility to be constructed in two phases responding to population increases. The new BNR Facility will replace the existing lagoon system.

7.1.1 Supplemental Parameter Monitoring

A successful BNR facility responds to the levels of specific parameters present in the city's wastewater. The parameters must be characterized on a consistent basis. It is recommended that the facility test the parameters in Table 21 on the periodic basis specified by each parameter.

Table 21 – Parameter Monitoring

Sampling Location	Parameter	Frequency
Aeration Basin Influent	pH	Daily
	BOD	Weekly
	TSS	Weekly
	TKN	Monthly
	Ammonia	Monthly
	Alkalinity	Monthly
Aeration Basin	Dissolved Oxygen	Daily (continuous)
	Temperature	Daily (continuous)
Aeration Basin Effluent	TSS	Daily
	Settleability	Daily
	pH	Weekly
	Microscopic	Weekly
Return Activated Sludge	TSS	Daily
	Flow	Daily
Waste Activated Sludge	TSS	Daily
	Flow	Daily
Secondary Clarifier Effluent	BOD	Weekly
	TSS	Weekly
	Ammonia	Monthly
	Nitrate	Monthly
	Nitrite	Monthly
	Total Phosphorus	Monthly
	pH	Daily
Plant Effluent	Turbidity	Daily
	Fecal Coliform	Daily
	Chlorine residual	Daily

Source: WEF, 2012

It is recommended that the parameters listed under “Aeration basin Influent” be measured weekly prior to design. The concentration of each parameter will be used to design the BNR system to the current loadings.

7.1.2 Phasing Approach

The City of Lincoln is projecting significant population growth by 2040. The cost of building a facility to the loading demands of the population presented in Table 1 is substantial, and may not be feasible for the city at this time. The BNR Facility can be constructed in two phases in order to reduce the initial cost. The selected approach improves the Wastewater Treatment Facility in two phases, Phase 1 and Phase 2.

Phase 1 is designed for a linear growth 2040 population projection (Table 22), and Phase 2 is designed for the growth projection provided by the city (Table 1). Phase 2 will be implemented when the population is likely to exceed the capacity of the Phase 1 improvements.

7.1.2.1 Existing Wastewater Treatment Facility

The existing wastewater treatment facility is a lagoon system, with two primary and two secondary ponds. New developments and annexations are projected for 2019, which will stress the existing system's storage capacity.

7.1.2.1.1 Decommissioning of Current Treatment Cells

The selected option of a continuous discharge BNR Mechanical Facility does not utilize three of the four existing lagoons. Treatment cells 1, 3, and 4 will be decommissioned, and cell 2 will be converted to an equalization basin.

7.1.2.1.2 ND Department of Health for Sludge Disposal

All sludge shall be disposed in compliance with the Code of Federal Regulations Title 40, Part 503, Subpart C.

7.1.2.1.3 Repurpose of Ponds

Use of the current treatment ponds in the new BNR facility may be evaluated during the design process. Using some existing lagoons may reduce the necessary equipment for the equalization process. If the current cells are utilized, this may require additional or repurposed riprap from other treatment cells.

7.1.2.2 Proposed Wastewater Treatment Facility – Phase I

A continuous discharge Biological Nutrient Removal (BNR) Mechanical Facility is proposed for the City of Lincoln in order to meet current and projected loading demands. This facility will utilize biological treatment to meet total nitrogen and total phosphorus effluent limitations. The biological processes will occur through three tanks, an anaerobic, anoxic, and aerobic tank, which limit the need for chemical phosphorus removal. Refer to Figure 8 for Phase 1 layout.

7.1.2.2.1 Phase 1 Design Condition

Phase 1 is designed for the flow demand in 2040 based on a linear population growth, shown in Table 22. The Phase 1 system is designed to serve the projected population. The design demands for Phase 1 are in Table 23.

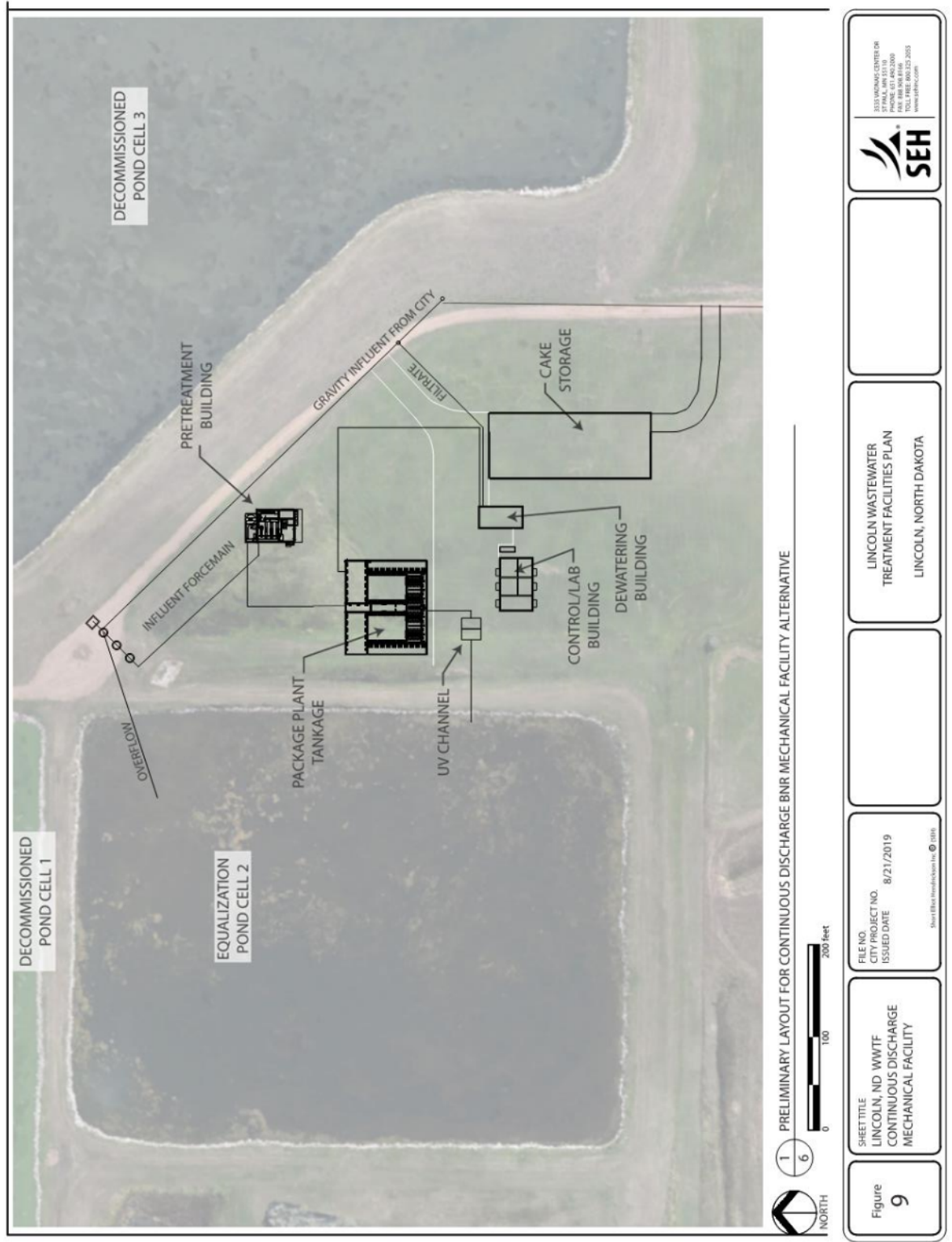
Table 22 – Linear Population Growth

Year	Population
2000	1,730
2010	2,406
2015	3,497
2018	4,138
2020	4,152
2030	5,461
2040	6,771

Table 23 – Phase 1 System Design Demand

Parameter		Units	Value
Flow Design Demand	Average Dry Weather Flow	gpd	313,000
	Average Wet Weather Flow	gpd	355,000
	Peak Hour Wet Weather Flow	gpm	589
	Peak Instantaneous Wet Weather Flow	gpd	848,000
Load Design Demand	Biochemical Oxygen Demand, 5-day	ppd	1,151
	Suspended Solids, Total	ppd	1,354
	Total Phosphorus	ppd	41
	Total Nitrogen	ppd	112

Figure 9 – Preliminary Layout for Continuous Discharge BNR Mechanical Facility, Phase 1



7.1.2.2.2 Preliminary Treatment

Before wastewater can begin secondary treatment, it must undergo preliminary treatment. Large trash, solids, and inorganic grit must be removed. The proposed preliminary treatment train for this facility includes a 1/4-inch screen, 2-inch manual bypass screen, and a grit removal system.

7.1.2.2.3 Secondary Treatment

Secondary Treatment starts with the anaerobic selectors, where phosphorus accumulating organisms are recycled into the wastewater to begin the phosphorus removal process. The wastewater continues to the aerobic tank, followed the clarifier and anoxic tanks. The specific treatment process is described in section 5.2.3.1.

The secondary treatment process includes a control building, RAS and WAS pumps, blowers, electrical equipment, chemical feed equipment, and a laboratory for conducting tests for the BNR system. While this system is designed for biological phosphorus removal, operations can also be modified in the future when the system needs to remove total Nitrogen to meet anticipated limits.

7.1.2.2.4 Tertiary Treatment

Finally, the wastewater is further sanitized through Ultraviolet disinfection system. One channel will be installed connected directly to the secondary treatment tank. Space for a second Phase 2 UV channel will be accounted for. The UV system shall be designed for the characteristics listed in section 5.3.2.2.

7.1.2.2.5 Solids Handling

Solids handling will include an aerobic digester and a belt press system.

7.1.2.2.6 Phase 1 Cost Estimate

Phase 1 includes the construction of the preliminary treatment building, secondary treatment tank (Aero-Mod package), control building with laboratory, dewatering building, and cake storage. The estimate below is the cost for Phase 1 only. Note that the cost of Phase 1 and 2 are not evenly split, as most of the infrastructure must be built in Phase 1, even though it will serve both phases.

These costs also include capital cost for anaerobic selector tankage and mixing to perform biological phosphorus removal. If these limits are not imposed on the plant and the City decides to leave these components out of the Phase 1 project, initial capital cost will be reduced from that shown below.

Table 24 – Phase 1 Cost Estimate

Project Element		Preliminary Engineer Estimate of Probable Capital Cost
1	Preliminary Treatment, Secondary Treatment Tanks, UV Disinfection, Cake Storage, Dewatering, Control building ¹	\$7,610,000
2	Wastewater Pond Improvements (Cell Decommissioning)	\$890,000
3	Pond Cell 2 (Cleaning and lining)	\$150,000
Subtotal		\$8,650,000
Contingency ¹		\$2,595,000
Material Testing		\$259,500
Mobilization, Bonding, Insurance		\$432,500
Contract, Permitting, etc.		\$432,500
Engineering		\$1,979,200
Total Cost Phase ²		\$14,350,000
¹ Includes cost for Nitrogen and Phosphorus removal to meet anticipated future regulations. ² 30% construction contingency		

7.1.2.3 Proposed Wastewater Treatment Facility – Phase 2

In the event that the population of the City of Lincoln grows, yielding larger flows, a second phase may be added to the plant. The completed layout of Phases 1 and 2 is shown in Figure 9 for reference.

7.1.2.3.1 Phase 2 Design Condition

Phase 2 is an expansion to Phase 1, which can be completed at any time in the future when the demand exceeds the capacity of the WWTP. Phase 2 design parameters presented in Table 25 were determined using the population growth estimate in Table 1.

Table 25 – Phase 2 System Design Demand

Parameter		Units	Value
Flow Design Demand	Average Dry Weather Flow	gpd	551,000
	Average Wet Weather Flow	gpd	626,000
	Peak Hour Wet Weather Flow	gpm	1,038
	Peak Instantaneous Wet Weather Flow	gpd	1,493,000
Load Design Demand	Biochemical Oxygen Demand, 5-day	ppd	2,028
	Suspended Solids, Total	ppd	2,386
	Total Phosphorus	ppd	72
	Total Nitrogen	ppd	198

7.1.2.3.2 Preliminary Treatment

The preliminary treatment building from Phase 1 will be designed to accommodate Phase 2 loadings. No changes to the preliminary treatment building are projected for Phase 2.

7.1.2.3.3 Secondary Treatment

A second Aero-Mod tank, adjacent to the Phase I Aeromod Tank, will be installed to accommodate Phase 2 loadings. A diversion structure upstream of the Aero-Mod tanks will be added in-between the preliminary treatment building and secondary treatment tanks to equally split flow between the two tanks. The new tank will be identical to the first and will have an anaerobic selector tank to begin the biological Phosphorus removal process. As discussed earlier in this report, the operations of the facility can be modified to meet future Nitrogen limits. Because of the anticipation of nutrient limits, the Preliminary Opinion of Probable Costs for the Phase 1 and Phase 2 Aero-Mod options reflect capital and operational costs to address these limits. These are additions that could easily be made in the future, so if the City decides to leave these treatment components out of the original construction, Phase 1 costs will be lower than those shown in the estimates.

7.1.2.3.4 Tertiary Treatment

A second UV channel will be added for Phase 2. There will be two separate trains. The new UV channel will connect directly to the Phase 2 secondary treatment tank, and the old channel will remain unaffected.

7.1.2.3.5 Phase 2 Cost Estimate

A complete cost estimate can be found in Table 26. The table includes a detailed construction cost estimate in 2019 dollar amount. Inflation and other factors shall be considered for future cost estimate. Also included are costs for 30% contingency, 16% engineering to include design and construction administration. The estimate below reflects the additional costs needed to construct Phase 2 additions.

Table 26 – Phase 2 Cost Estimate

Project Element	Estimate of Probable Capital Cost
New Phase 2 Equipment and construction	
Lift station and vaults	\$55,000
New Aero-Mod Package System, excavation, tank concrete, process piping, electrical/mechanical, dewatering	\$2,503,000
Additional UV Channel	\$25,200
New diversion structure, additional civil	\$92,900
Subtotal Additional Phase 2 costs	\$2,670,000
Contingency ¹	\$801,000
Material Testing	\$80,100
Mobilization, Bonding, Insurance	\$133,500
Contract, Permitting, etc.	\$133,500
Engineering	\$611,000
Total Cost Phase 2²	\$4,430,000

¹ Includes 30% construction contingency

² All values provided in 2019 dollar amount

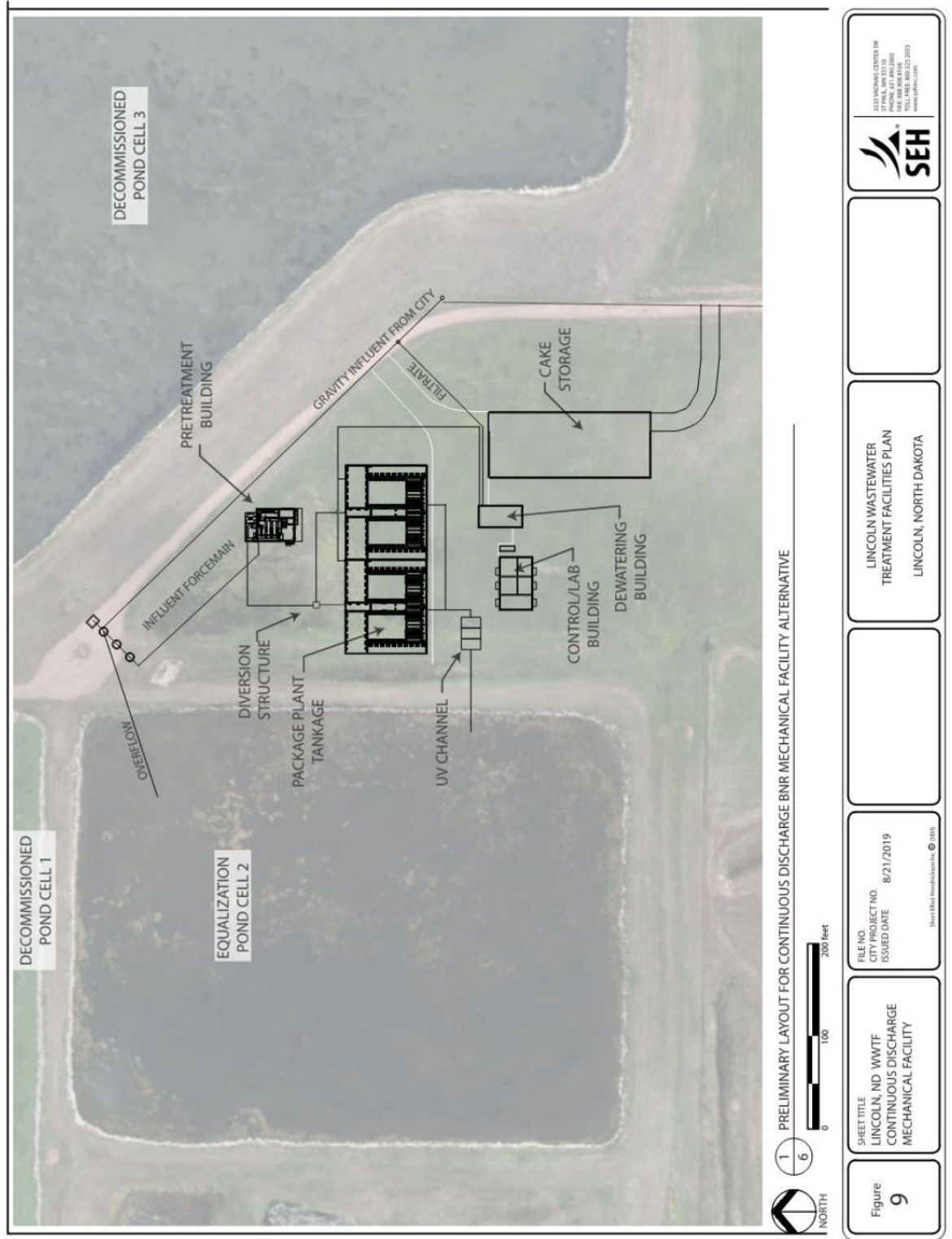
The total cost of the plant, in 2019 dollar amount, is the cost of Phase 1 and Phase 2 combined. As can be seen, the summarized total costs in table 27 do not include operation and maintenance costs over the design period.

As mentioned throughout the report and this section, these costs include the addition of equipment to treat future anticipated Phosphorus limits, and operation modifications can be made to address Nitrogen limits. These limits are currently not in place in North Dakota, and if construction occurs prior to notice of limits being defined, these parameters would need not be included. By eliminating the biological nutrient removal aspect, the capital cost would be reduced. Future inclusion of this equipment has potential for greater costs due to need of modification of the system and cost of the equipment.

Table 27 – Total Cost Summary (Phases 1 and 2)

Total Cost Summary	Estimate of Probable Capital Cost
Phase 1 Cost ¹	\$14,350,000
Total Phase 2 Cost ¹	\$4,430,000
Total Cost of Plant (Phases 1 and 2) ¹	\$18,780,000
¹ All values provided in 2019 dollar amount	

Figure 10 – Preliminary Layout for Continuous Discharge BNR Mechanical Facility, Phases 1 and 2



7.1.3 City Annual Operating Budget

As shown in Table 28 below, sewer charges account for over 99% of the City's sewer budget revenue with the remaining collected via penalties and late fees. Neglecting late fees, the City's annual sewer revenue for sewer charges in 2017 was \$231,197 and 2018 was \$262,053. 2019 and 2020 have similar and steadily increasing projections of \$279,740 and \$294,066 respectively. After expenses, the City consistently maintains revenue overages from \$27,402 in 2017, \$124,964 in 2018, and projected overages in 2019/2020 of \$49,170 and \$56,946 respectively. These budget numbers do not include hookup fees revenue.

Table 28 – Annual Sewer Budget

Category	2016	2017	2018	2019	2020
Sewer Charges	\$220,634	\$231,197	\$262,053	\$279,740	\$294,066
Late Fees/Misc.	\$2,267	\$489	\$728	\$700	\$7,000
Total Revenue	\$222,901	\$231,686	\$262,781	\$280,440	\$301,066
Total Expenses	\$188,278	\$204,284	\$137,817	\$231,270	\$244,120
Net Revenue	\$34,623	\$27,402	\$124,964	\$49,170	\$56,946

7.1.4 City Operations and Maintenance

Below, Table 29 details the total expenses in the annual sewer budget for the City. Costs vary from year to year but are heavily influenced by the repairs and maintenance factor. The employee costs also play a significant role, and in order to operate and maintain the mechanical treatment plant the City may need to hire an additional employee which needs to be considered.

Table 29 – Operation & Maintenance Costs

Category	2016	2017	2018	2019	2020
Staff	\$36,965	\$62,766	\$60,610	\$90,770	\$96,020
Contractual Services	\$0	\$219	\$0	\$0	\$0
Training	\$0	\$0	\$138	\$1,000	\$1,000
Engineering Services	\$13,612	\$0	\$27,505	\$0	\$0
Utilities	\$3,521	\$4,130	\$4,679	\$4,300	\$5,700
Repairs and Maintenance	\$110,220	\$72,332	\$30,969	\$100,000	\$100,000
Supplies	\$8,717	\$7,835	\$4,361	\$10,000	\$10,500
Parts/Fuel	\$15,000	\$57,000	\$9,555	\$21,200	\$26,900
Miscellaneous expenses	\$242	\$1	\$0	\$4,000	\$4,000
Total Annual O&M	\$188,278	\$204,284	\$137,817	\$231,270	\$244,120

7.1.5 City Debt Repayment

The City currently has no debt associated with the sanitary sewer system, however it does collect roughly \$20,000 annually through sewer improvement district 2004, and will continue to do so for the next few years. Ideally, the City could qualify for grants to pay for a portion of the project and obtain a loan via the Clean Water State Revolving Fund (CWSRF) to finance the remainder. However since grants are not a guaranteed source of revenue, this section will discuss financing for both scenarios, using a grant estimate of 40% of project costs, and financing 100% strictly through the CWSRF.

Loans provided through the CWSRF have an effective interest rate of 2.0% for up to 30 years currently. Table 30 below summarizes a few different financing options and outcomes, showing the differences between 20 and 30 year loans and with or without a 40% grant contribution. Examples of this financing have been listed for the straight line projected growth through 2040 of Phase 1 of the mechanical treatment plant. The cost of this is estimated at \$14,350,000, financing the entirety of the project for 30 years would make the City's monthly payments \$53,040, or \$636,480 annually and a total interest paid of \$4,744,542.

Table 30 – Loan Financing Examples

Financed	Amount Financed	Years	Total Interest ¹	Monthly Payment	Annual Cost	Total Cost
100%	\$14,350,000	30	\$4,744,542	\$53,040	\$636,485	\$19,094,542
60%	\$8,610,000	30	\$2,846,725	\$31,824	\$381,891	\$11,456,725
100%	\$14,350,000	20	\$3,072,622	\$72,594	\$871,131	\$17,422,622
60%	\$8,610,000	20	\$1,843,573	\$43,557	\$522,679	\$10,453,573
1 interest calculated at 2.0% over life of loan						

Adding the annual cost of the financing provided in Table 30 with the annual operations and maintenance budget of the BNR Facility and sewer system provides a total annual increase in the sewer budget for the four different options.

Table 31 – Additional Sewer Budget Expenses

Financed	Amount Financed	Years	Annual Cost	Annual O&M ¹	20 Year Present Value ²
100%	\$14,350,000	30	\$636,485	\$224,000	\$22,424,000
60%	\$8,610,000	30	\$381,891	\$224,000	\$14,786,000
100%	\$14,350,000	20	\$871,131	\$224,000	\$20,752,000
60%	\$8,610,000	20	\$522,679	\$224,000	\$13,783,000
1 Assumes operator total compensation labor rate of \$35.00 per hour.					
2 O&M costs evaluated yearly at 3.0% rate (20 year O&M PV = \$3,329,000)					

The additional revenue needed to finance the project will need to be generated in the monthly sewer account fees. Currently, the sewer user fee is \$15.50 per month per user which provides a steady flow of funds that has been consistently net positive balance in the sewer budget each year. Table 32 shows the required user fees in 2019 dollars for the estimated loan repayment and O&M costs for each loan financing situation shown above. The estimated fees in Table 32 were calculated using a linear population growth of an additional 131 people per year, and a constant ratio of 2.62 people per sewer account. Because the monthly loan is fixed and the O&M costs are calculated for inflation, the overall trend shows that as population increases, the required minimum monthly user fee will decrease.

Table 32 – Estimated Monthly User Account Fees to Meet Operating Costs

Year	Population	# of Accounts	100% 30 years	60% 30 years	100% 20 years	60% 20 years
2020	4152	1585	\$55.79	\$42.40	\$68.13	\$49.81
2021	4283	1635	\$54.73	\$41.76	\$66.70	\$48.93
2022	4414	1685	\$53.76	\$41.17	\$65.37	\$48.13
2023	4545	1735	\$52.86	\$40.63	\$64.13	\$47.39
2024	4676	1785	\$52.03	\$40.14	\$62.98	\$46.71
2025	4807	1835	\$51.26	\$39.70	\$61.92	\$46.09
2026	4938	1885	\$50.55	\$39.30	\$60.93	\$45.52
2027	5069	1935	\$49.90	\$38.94	\$60.01	\$45.00
2028	5200	1985	\$49.30	\$38.61	\$59.15	\$44.52
2029	5331	2035	\$48.75	\$38.32	\$58.36	\$44.09
2030	5462	2085	\$48.25	\$38.07	\$57.63	\$43.70
2031	5593	2135	\$47.78	\$37.85	\$56.94	\$43.34
2032	5724	2185	\$47.36	\$37.65	\$56.31	\$43.02
2033	5855	2235	\$46.98	\$37.49	\$55.73	\$42.74
2034	5986	2285	\$46.63	\$37.35	\$55.19	\$42.48
2035	6117	2335	\$46.32	\$37.24	\$54.70	\$42.26
2036	6248	2385	\$46.05	\$37.15	\$54.25	\$42.07
2037	6379	2435	\$45.80	\$37.09	\$53.83	\$41.90
2038	6510	2485	\$45.58	\$37.05	\$53.45	\$41.77
2039	6641	2535	\$45.40	\$37.03	\$53.11	\$41.66
2040	6772	2585	\$45.24	\$37.03	\$52.80	\$41.57
2041	6903	2635	\$45.11	\$37.06	\$52.49	\$41.49
2042	7034	2685	\$45.00	\$37.10	\$52.20	\$41.42
2043	7165	2735	\$44.92	\$37.17	\$51.93	\$41.36
2044	7296	2785	\$44.87	\$37.25	\$51.68	\$41.31
2045	7427	2835	\$44.84	\$37.36	\$51.45	\$41.27
2046	7558	2885	\$44.83	\$37.48	\$51.24	\$41.24
2047	7689	2935	\$44.85	\$37.62	\$51.05	\$41.21
2048	7820	2985	\$44.89	\$37.78	\$50.88	\$41.19
2049	7951	3035	\$44.95	\$37.96	\$50.73	\$41.17
2050	8082	3085	\$45.03	\$38.15	\$50.60	\$41.16
2020	8213	3135	\$28.21	\$28.21	\$28.21	\$28.21

It should be noted that this table is for Phase I loan and O&M costs only, and does not include Phase II. Per the design of Phase I, if population increases at a linear rate Phase II will need to be constructed in 2040 to accommodate a population over 6,771.

As can be seen in Table 32, if the project were to begin in 2020 with a population of 4,152, the estimated number of sewer user accounts would be 1585. If no grant was obtained, and 100% of the BNR Facility construction cost was financed for 30 years, then the resulting required monthly sewer account fee would be \$55.79 during the first year. Following the column downwards, each year the monthly rate would decrease due to the population increase. In this example, a 30 year loan would be paid off by 2051, and the new sewer account monthly rate would only reflect the standard \$28.21 for O&M costs of the BNR Facility and sewer system at 2051 dollar.

Although effective, following Table 32's monthly rates may not be the most prudent way of recouping the costs of construction of the BNR Facility. In order to not create a spike in the monthly user fees, the City could choose to charge an average rate. This average rate may be lower than the required user fees in the initial years, resulting in the City having to absorb those first year costs (a loss in the account). At a certain point within the life of the loan, the revenue generated would be greater than expenditures. If this rate remained constant, it would also then result in revenue for the sewer funds for future project savings.

If the City is unable to provide capital cost payments at start of project, the user rates will need to be set such that the loan repayment and O&M costs are covered. This is to say that the user rate needs set at the highest rate to cover the costs of initial loan payment and O&M costs. As the project moves forward, it is recommended that the topic of user rates be reviewed for planned increase to meet required costs.

The user fees required to pay back the loan and cover the O&M costs would be affected by a number of items as the project planning takes place. Factors that would affect the total loan requirements and user fees include, but are not limited to: actual construction and engineering costs, industry pricing, inflation, population growth, and City funding amounts. It is advised that the City review the anticipated final user fee rates at multiple points through the project phases.

7.2 Solicitation Letter Responses

As discussed in Section 1 of this report, letters of solicitation were sent to major agencies and authorities relevant to the project and/or location to help identify any potential environmental impacts related to construction and operations of a BNR Mechanical Treatment Plant. Letters were sent to The North Dakota Department of Health, Game and Fish Department, State Historical Society, State Water Commission, the US Fish and Wildlife Service, Army Corps of Engineers, and Department of Agriculture National Resource Conservation Service. The following is a summary of their responses to the letters of solicitation, which are also included in Appendix E.

7.2.1 ND Department of Environmental Quality

The NDDEQ believes the environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. Their concerns include:

- Limiting dust emissions
- Minimizing disturbance of stream beds and banks, replacing disturbed vegetation, prevention of oil and grease spills that may reach receiving waters
- Obtaining the proper NDPDES permit(s) and reporting changes, proper sludge removal
- Reporting any spills that may have an adverse effect on groundwater quality
- Minimize the disturbance of any asbestos containing material, follow regulations pertaining to the removal or demolition of any structure containing asbestos
- Limit construction noise pollution and working hours to daytime
- Solid waste materials managed and transported in accordance with state regulations

7.2.2 ND Game and Fish Department

The NDGFD recognizes the projects location could impact wetlands. They recommend:

- A wetland delineation be conducted to determine exact acreage of disturbance
- Mitigation plan be submitted to show a net loss of zero wetlands with necessary permit applications

7.2.3 ND State Historical Society

The NDSHS concluded the proposed site has not yet been disturbed by construction activities and recommends:

- A class III (pedestrian survey) of archaeological resources in the proposed area

7.2.4 US Fish and Wildlife Service

The USFWS expects no significant impact on fish and wildlife resources.

7.2.5 US Army Corps of Engineers

The USACOE determined the proposed project may need:

- Clean Water Act Section 404 Permit

7.2.6 ND State Water Commission

The NDSWC acknowledges they have no authority to issue permits in areas identified as NFIP floodplains, and:

- Ask that the City works closely with the City Floodplain Administrator.
- Requires if surface water or groundwater will be diverted for construction of the project, a water permit will be required.

7.2.7 US Department of Agriculture

The USDA recommends decommissioning and reclamation activities should consider surface as well as ground water quality with respect to the removal of the lagoon sludge. With this, Federal Regulations be followed for the disposal of sewage sludge, and:

- That surface sludge disposal is not allowed in a wetland.
- With high conductivity and shallow groundwater, that the existing liners in the decommissioned ponds will be protected or to ensure full removal of sludge's and contaminated soils.
- To consider NRCS conservation practice standard 360 "Waste Facility Closure" which includes obtaining permits from the USACE, sludge removal, maintaining pond liners, wetland mitigation, removal of sludge to the maximum extent practicable, conducting pre-closure soil and water testing to establish base line data surrounding the site, minimizing agitation of wastes, not taking borrowed soils from important farmlands, and minimizing site erosion and pollution of downstream water resources.

They also point out that pond cell 1 is located in the Apple Creek 1`% Annual Chance floodplain, and recommend while decommissioning pond cell 1:

- The area be graded to allow for natural floodplain function and maintain sheet flow conditions over a vegetated area.
- The area be capped with very low hydraulic conductivity soil and testing of onsite soils.

8 Conclusions and Recommendations

After establishing the project need and reviewing multiple alternatives, we believe the proposed project is in the best interest of the City of Lincoln. The proposed project is necessary, comparably modest in scope and cost, and should be considered for funding. Following construction, the City will have a sanitary sewer and wastewater treatment system that will serve them well for the 20 year planning period, and is able to handle additional expansions over the Phase I and II planned.

Appendix A

Level 1 Wetlands Delineation



Building a Better World
for All of Us®

TECHINCAL MEMORANDUM

TO: Gerald Wise, City of Lincoln

FROM: Erin Budrow, SEH Wetland Biologist

DATE: December 19, 2018

RE: Preliminary Engineering Report - Lincoln Wastewater Treatment Facility
Level 1 Wetland Delineation
SEH No. LINND 141680

Introduction

This memorandum describes the methodology and results of a Level 1 Wetland Delineation completed within the vicinity of potential wastewater treatment facility improvements in Burleigh County, North Dakota. The area of investigation traverses the Cities of Bismarck and Lincoln, Apple Creek Township, and the unorganized territory of Lincoln-Fort Rice. The area includes land north and east of the existing Lincoln Wastewater Treatment Facility and a linear corridor associated with prospective wastewater piping. This Level-1 Wetland Delineation was performed to identify potential wetland areas that may be impacted by the proposed upgrades. These results are not based on field assessment and do not constitute a field wetland delineation, but rather should be viewed as an estimate of potential wetland areas for use in project planning and alternatives analysis.

Methods

Wetlands were evaluated in the vicinity of the proposed project alignment as shown on **Figure 1**. Various data sets were collected in order to aid in the identification of wetland areas including:

Aerial Photography

- Farm Service Agency (FSA) National Aerial Imagery Program (NAIP) summer aerial photographs in natural color (2005, 2009, 2010, 2012, 2014, 2015, 2016, and 2017) with a 1-meter spatial resolution

Elevation Data:

- LiDAR data for North Dakota, flown in spring 2015. Includes digital elevation model with a 1-meter spatial resolution
- LiDAR based slope model

Ancillary Data Sets:

- U.S. Fish & Wildlife Service National Wetlands Inventory (NWI)
- Natural Resources Conservation Service Soil Survey Geographic Maps (SSURGO)

The general process involved identifying areas that are potential wetland and then determining a boundary for those wetlands. Areas of potential wetland were identified for further investigation primarily using the digital elevation model (DEM) and various years of aerial photography. Prior land classification data such as the NWI and SSURGO mapping were also reviewed to ensure areas previously identified as wetland or

hydric soils were also investigated. All of these resources are available upon request. Once an area was identified as wetland, the DEM, slope, and aerial photographs were used to aid in boundary determination. Because of the agricultural land use throughout the project area, the variety of aerial photographs flown over the previous decade were utilized to determine the best location of the wetland boundary.

Results

Several wetland areas were identified within the area of investigation. The boundaries of the Level 1 Wetland Delineation, completed as a remote sensing assessment, are shown in **Figure 1** and **Figure 2**. A few larger wetlands are associated with Apple Creek and the adjacent floodplain. Three basins are located within an agricultural field in the northeast portion of the area of investigation. These wetlands are likely Type 1 (PEM1A) seasonally flooded basins, and exist as drainage swales and shallow depressions where water tends to pond early in the growing season. There are also numerous wet roadside or drainage ditches present throughout the area, likely classified as Type 2 (PEM1B) fresh (wet) meadow habitat. The farmed and ditched areas may or may not meet hydrology, vegetation, and soils characteristics required to meet wetland criteria, and the wetland boundaries shown in the attached figures should be viewed as a conservative estimate. Wetland delineations are recommended during the growing season to determine whether or not these areas meet technical wetland criteria in the field. Additionally, a crop slide review and analysis may be necessary due to the agricultural nature of the project area. Wetland impacts may require permits and compensatory mitigation under local, state, and/or federal regulatory requirements.

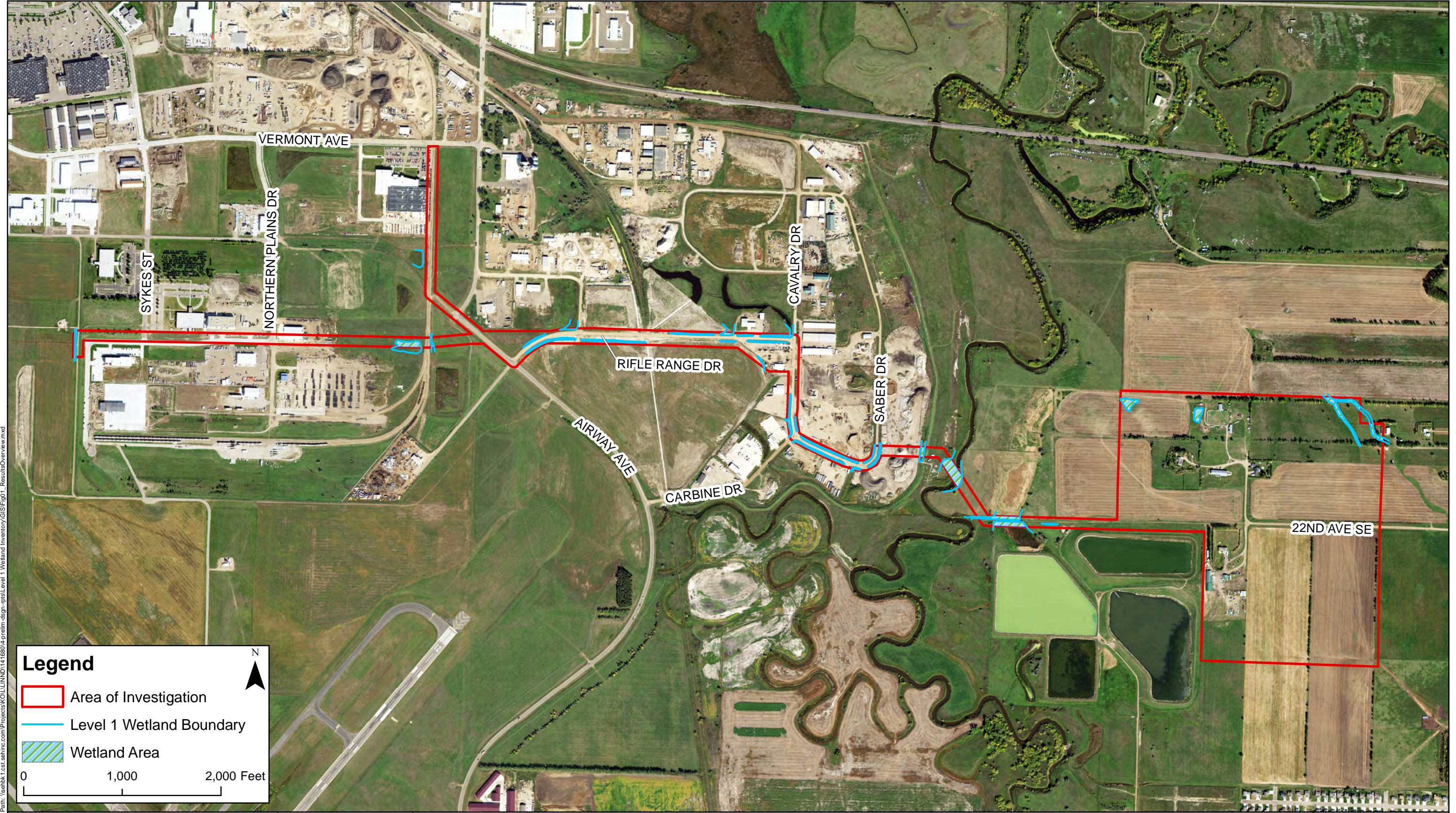
Contact

Please contact Erin Budrow, SEH Wetland Biologist, at 218.322.4519 or via e-mail at ebudrow@sehinc.com for any questions or comments relating to this Level 1 Wetland Delineation.

Attachments

Figure 1 – Level 1 Wetland Delineation Results – Overview

Figure 2 – Level 1 Wetland Delineation Results – Detailed



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Legend

- Area of Investigation
- Level 1 Wetland Boundary
- Wetland Area

0 1,000 2,000 Feet



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ST. PAUL, MN 55110
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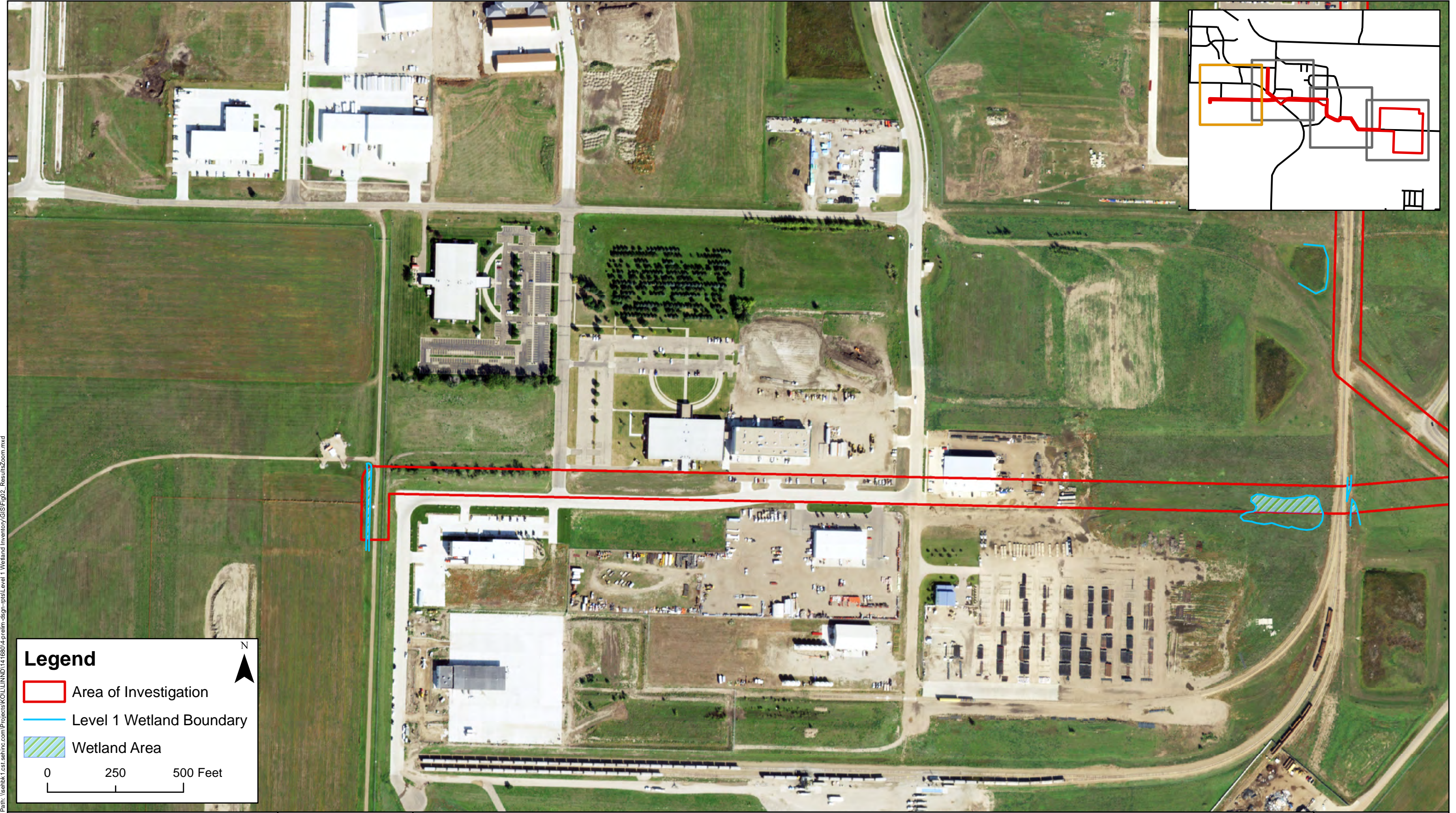
Project: LINND 141680
Print Date: 12/19/2018

User Name: ebudrow
Projection: NAD 1983 UTM Zone 14N
Source: SEHinc, ND GIS Hub, USDA, NRCS, USFWS
Background: 2017 Aerial Photograph

LEVEL 1 WETLAND DELINEATION RESULTS - OVERVIEW
LINCOLN WASTEWATER TREATMENT FACILITY IMPROVEMENTS
Burleigh County, North Dakota

Figure
1

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Legend

- Area of Investigation
- Level 1 Wetland Boundary
- Wetland Area

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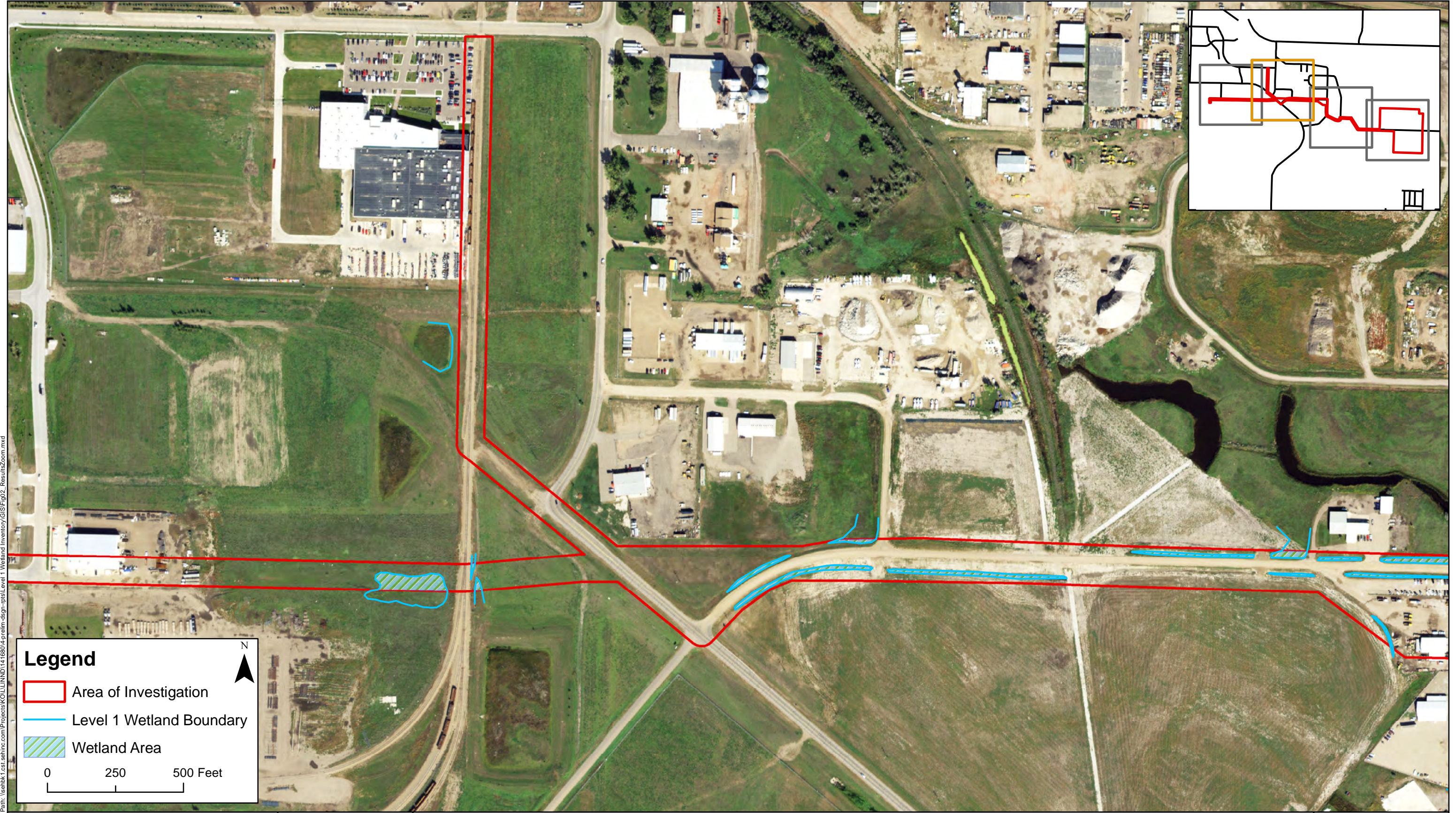
Project: LINND 141680
Print Date: 12/19/2018

User Name: ebudrow
Projection: NAD 1983 UTM Zone 14N
Source: SEHinc, ND GIS Hub, USDA, NRCS, USFWS
Background: 2017 Aerial Photograph

LEVEL 1 WETLAND DELINEATION RESULTS
LINCOLN WASTEWATER TREATMENT FACILITY IMPROVEMENTS
Burleigh County, North Dakota

Figure
2-1

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Legend

- Area of Investigation
- Level 1 Wetland Boundary
- Wetland Area

0 250 500 Feet

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Source: SEHinc, ND GIS Hub, USDA, NRCS, USFWS
Background: 2017 Aerial Photograph

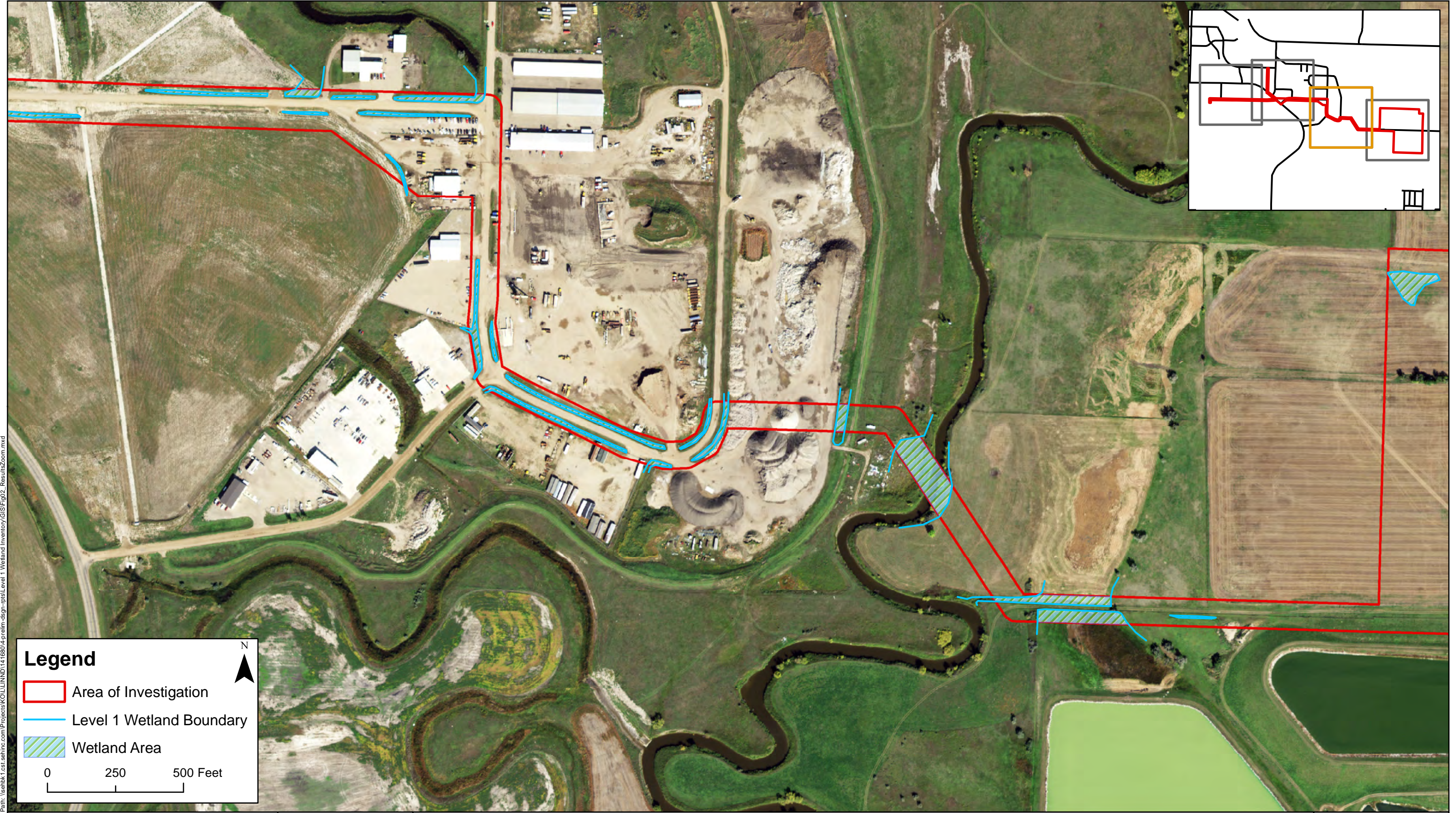
LEVEL 1 WETLAND DELINEATION RESULTS

LINCOLN WASTEWATER TREATMENT FACILITY IMPROVEMENTS

Burleigh County, North Dakota

Figure
2-2

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Legend

- Area of Investigation
- Level 1 Wetland Boundary
- Wetland Area

0 250 500 Feet

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Background: 2017 Aerial Photograph

LEVEL 1 WETLAND DELINEATION RESULTS
LINCOLN WASTEWATER TREATMENT FACILITY IMPROVEMENTS
Burleigh County, North Dakota

Figure
2-3

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Legend

- Area of Investigation
- Level 1 Wetland Boundary
- Wetland Area

0 250 500 Feet

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Background: 2017 Aerial Photograph

LEVEL 1 WETLAND DELINEATION RESULTS
LINCOLN WASTEWATER TREATMENT FACILITY IMPROVEMENTS
Burleigh County, North Dakota

Figure
2-4

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Appendix B

National Pollutant Discharge Elimination System (NPDES) Permit



October 1, 2018

RECEIVED

OCT 02 2018

Lincoln City Of
Shawn Surface
74 Santee Rd
Lincoln, ND 58504-9180

Notice of Coverage and Issuance of an NDPDES Permit

NDPDES Facility No: NDG124341 Name: Lincoln City Of

NDPDES General Permit NDG120000

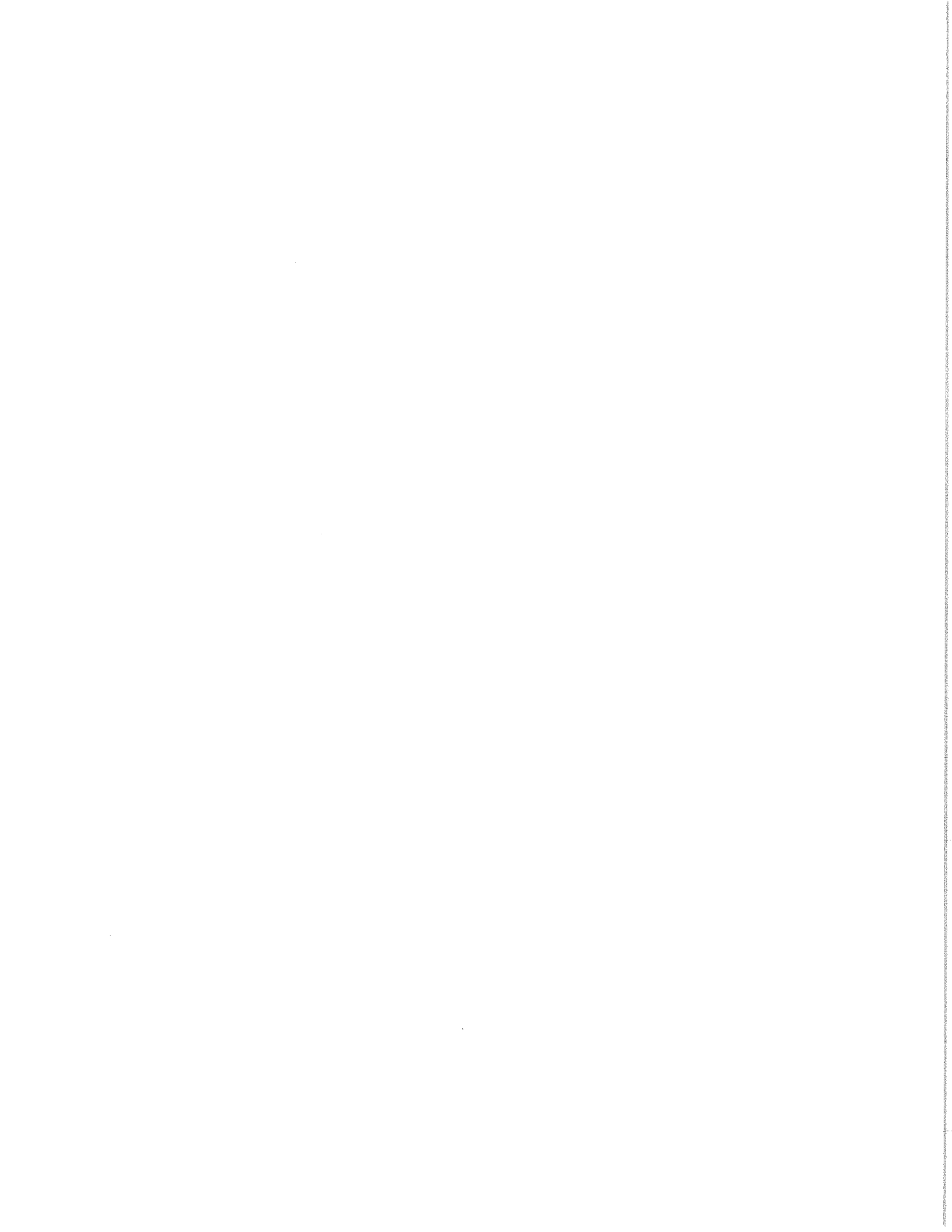
This letter shall serve as notice that the above-referenced facility is covered under General Permit No. NDG120000. A general discharge permit is valid only when accompanied by this notice of coverage letter. This general permit will be in effect from October 01 2018 and will expire on September 30 2023. With coverage under a general discharge permit, the NDPDES number for your facility is NDG124341. Please refer to this number on all permit related correspondence.

Should you have any questions, please contact Sarah Waldron Feld at 701.328.5237 or the Division of Water Quality-NDPDES Permits Program at 701.328.5210. Note that enclosures are not being sent to carbon copy recipients.

Sincerely,

Marty Haroldson
NDPDES Program Manager
Division of Water Quality

Enc.



Permit No: NDG120000
Effective Date: October 1, 2018
Expiration Date: September 30, 2023

AUTHORIZATION TO DISCHARGE UNDER THE
NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33-16-01 of the North Dakota Department of Health rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

domestic wastewater treatment facilities satisfying the requirements of this permit

is authorized to discharge from waste stabilization ponds

to Class I or IA waters of the State

provided all the conditions of this permit are met.

This permit and the authorization to discharge shall expire at midnight,

September 30, 2023.

Signed this 27 day of September, 2018.



Karl H. Rockeman, P.E.
Director
Division of Water Quality

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DEFINITIONS Standard Permit BP 2013.12.31

1. "**Act**" means the Clean Water Act.
2. "**Average monthly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.
3. "**Average weekly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.
4. "**Best management practices**" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
5. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.
6. "**Composite**" sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24-hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
7. "**Daily discharge**" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
8. "**Department**" means the North Dakota Department of Health, Division of Water Quality.
9. "**DMR**" means discharge monitoring report.
10. "**EPA**" means the United States Environmental Protection Agency.
11. "**Geometric mean**" means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.
12. "**Grab**" for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.

13. "**Instantaneous**" for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
14. "**Maximum daily discharge limitation**" means the highest allowable "daily discharge."
15. "**Salmonid**" means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.
16. "**Sanitary Sewer Overflows (SSO)**" means untreated or partially treated sewage overflows from a sanitary sewer collection system.
17. "**Severe property damage**" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. "**Total drain**" means the total volume of effluent discharged.
19. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

OUTFALL DESCRIPTION

Outfall “Cell Name” – Active. Final Outfall. Wastewater Stabilization Ponds Discharge. The wastewater stabilization pond system received domestic wastewater for treatment.

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Frequency	First Submittal Date
“Cell Name”	Discharge Monitoring Report	Semiannually	April 30, 2019
Application Renewal	NPDES Application Renewal	1/permit cycle	April 1, 2023

SPECIAL CONDITIONS

A. Alternate Permits

When an individual North Dakota Pollutant Discharge Elimination System (NDPDES) permit is issued to a facility otherwise subject to this permit, coverage under General Permit NDG120000 is automatically terminated upon the effective date of the individual permit. When a facility is approved for coverage under an alternative NDPDES general permit, the authorization under this permit is automatically terminated on the date of approval for coverage under the alternative general permit. When an individual NDPDES permit or coverage under an alternative general permit is denied to a facility/POTW otherwise subject to this permit, the applicability of this permit remains in effect, unless otherwise specified by the department.

B. Facility Permit Coverage

1. To obtain coverage under this permit, the owner, operator, or authorized agent of the facility must submit a Short Form A, NDPDES Permit Notice of Intent (NOI).
2. Within thirty (30) days after receiving an application, the department will authorize coverage under this discharge permit, deny coverage, or request additional information. Coverage under this General Permit will begin when the applicant receives a written notice of coverage from the department.
3. A request to be issued an individual permit may be made by the owner, operator, or authorized agent of any facility that is eligible for coverage under this General Permit. Such requests shall provide the reasons for issuing an individual permit to the facility. If the reasons are adequate to support the request, the department may issue an individual permit.
4. Facilities covered by an individual permit, which are also eligible for coverage under this permit, shall remain covered by the individual permit until it expires. The reapplication submitted under the provisions of the existing individual permit will be processed as an application for authorization under this permit.

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

1. During the effective period of this permit, the permittee is authorized to discharge wastewater pollutants provided the discharge meets the limitations and monitoring requirements outlined in this permit. Permittees discharging wastewater that does not comply with the permit conditions may be subject to civil and/or criminal penalties under the North Dakota statutes. This permit identifies the requirements for discharges from waste stabilization ponds in North Dakota to Class I or IA waters of the State.
2. To be eligible for authorization to discharge under this general permit, the stabilization ponds must service a population of less than 5,000 people, not be considered a major discharge facility by the department and have no significant industrial user contributions as determined by the department. Additionally, it must be demonstrated that the system can meet secondary treatment limitation through compliance with a previously issued discharge permit for the facility or engineering design criteria and data.

This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

B. Effluent Limitations and Monitoring

The permittee must notify the department prior to any lagoon discharge. Approximately two (2) weeks prior to any planned discharge, a representative pre-discharge grab sample must be collected from the lagoon cell and analyzed for the parameters listed in the table below. The pre-discharge sample results must be provided when notifying the department of a planned discharge. The permittee must limit and monitor all discharges as specified below:

Table 1: Effluent Limitations and Monitoring Requirements – Wastewater Stabilization Ponds					
Parameter	Effluent Limitations			Monitoring Requirements	
	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD ₅) ^a	25 mg/l	*	45 mg/l	Weekly	Grab
pH ^a	Shall remain between 7.0 to 9.0 s.u.			Weekly	Grab
Total Suspended Solids (TSS) ^a	30 mg/l	*	45 mg/l	Weekly	Grab
Escherichia coli (<i>E. coli</i>) ^{a, b}	126/100 ml	*	409/100 ml	Weekly	Grab
Total Ammonia as N, mg/l ^{a, c}	Refer to Ammonia Table below (Table 2)			Weekly	Grab
Effluent Flow, MGD	Report	*	*	Daily	Calculated
Total Drain, Mgal	*	*	Total	Semiannually	Calculated
Ammonia as N (Option 1) – Receiving Water Parameters – Collected same days as effluent compliance sample.					
Flow (cfs)	*		Report	Weekly	Grab
pH (s.u.)	*		Report	Weekly	Grab
Temperature (°C)	*		Report	Weekly	Grab
Ammonia as N (mg/l)	*		Report	Weekly	Grab
Ammonia as N (Option 2) – Receiving Water Parameters – Collected same days as effluent compliance sample.					
Temperature (°C)	*		Report	Weekly	Grab
Notes:					
* This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.					
a. A pre-discharge sample must be analyzed and reported to the department prior to the start of any discharge. A pre-discharge grab sample shall be tested for BOD ₅ , TSS, pH, <i>E. coli</i> , and Ammonia as N. This pre-discharge sample shall represent the first week discharge sample. An additional grab sample of the actual discharge shall be taken and analyzed on a weekly basis for the duration of the discharge.					

Table 1: Effluent Limitations and Monitoring Requirements – Wastewater Stabilization Ponds

Parameter	Effluent Limitations			Monitoring Requirements	
	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type

- b. *E. coli* shall not exceed 126 organisms per 100 ml as a geometric mean of representative sample collected during any 30-day consecutive period, nor shall sample exceed 409 organisms per 100 ml for any one day. This limit applies from April 1 through October 31.
- c. Permittee must use one of two options to comply with the ammonia as N limitation:
 - Option 1 – Applicable (temperature, pH, ammonia as N, and receiving-stream flow) receiving water parameters are collected to calculate (refer to formula in Table 2) the real-time water quality standard for ammonia. This option allows 10% of the receiving stream flow for dilution. This calculated limit will be compared to the facility effluent data on ammonia and if the effluent value is greater than the calculated limit, the permittee shall report a violation.
 - Option 2 – Permittee collects ammonia as N and temperature samples from the lagoon cell to be discharged and complies with the ammonia as N limit at the end-of-pipe forgoing any receiving water dilution.

Stipulations:

There is to be no floating oil or visible sheen present in the discharge. The discharge shall not contain, in sufficient amounts to be unsightly or deleterious, any floating debris, oil, scum, and other floating materials attributable to domestic wastewater operations. If floating oil or a visible sheen is observed at the discharge point, the department shall be contacted.

The limitations for BOD₅, TSS, and *E. coli* are based on the average of all samples taken to monitor the discharge from a cell. If only one sample is collected, that one value shall be used as the average. The limitation for pH applies to each sample taken. The department may allow discharge when the pH is outside the stated range if it suspects that the variation is due to natural biological processes, and the discharger confirms that chemicals were not added to the cell or contributions from industrial sources did not cause the pH to exceed the permitted range of 7.0-9.0 s.u.

All discharges shall be made in such a manner to minimize any possible adverse impacts on the receiving stream and downstream landowners.

At a minimum, one (1) grab sample shall be taken each week of the discharge and analyzed for BOD₅, TSS, *E. coli*, pH, ammonia as N, and all parameters associated with ammonia as N – Option 1 or 2. The pre-discharge sample may be used for the sample required for the first week of the discharge. The start and end dates of the discharge shall also be recorded. The total amount of water discharged shall be determined either by using a flow-measuring device or by recording the water-level drop in the pond. All samples and measurements taken shall be representative of the discharge.

Table 1: Effluent Limitations and Monitoring Requirements – Wastewater Stabilization Ponds					
Parameter	Effluent Limitations			Monitoring Requirements	
	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
<p>The department may require the permittee to provide additional sampling and monitoring as deemed necessary to assure adequate operation of the treatment system and the water quality standards are met during the discharge period.</p> <p>Compliance samples meeting the monitoring requirements specified in this permit shall be taken prior to leaving the wastewater stabilization pond system or entering the receiving stream.</p>					

Table 2: Ammonia as N Effluent Limitations Calculations (Chapter 33-16-02.1)
<p>Chronic Standard (Average Monthly Limit)</p> <p>The 30-day average concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula; and the highest 4-day average concentration of total ammonia within the 30-day averaging period does not exceed 2.5 times the numerical value given by the following formula:</p> $\frac{(0.0577}{(1+10^{7.688-pH})} + \frac{2.487}{1+10^{pH-7.688}}) \cdot CV;$ <p>where CV = 2.85, when T ≤ 14°C; or CV = 1.45 * 10^{0.028*(25-T)}, when T > 14°C. Receiving stream pH is used for the calculation</p>

<p>Acute Standard (Daily Maximum Limit)</p> <p>The one-hour average concentration of total ammonia (expressed as N in mg/l) does not exceed the numerical value given by the following formula:</p> $\frac{(0.411}{(1+10^{7.204-pH})} + \frac{58.4}{1+10^{pH-7.204}})$ <p>where salmonids are absent; or</p> $\frac{(0.275}{(1+10^{7.204-pH})} + \frac{39.0}{1+10^{pH-7.204}})$ <p>Where salmonids are present.</p>
--

Note – For the above calculations, the permittee receives ten percent of stream flow for dilution (refer to Option 1) at time of discharge based on the flow of the receiving stream. In- stream concentration will be calculated on a mass-balance basis using the following formula:

In-stream concentration= (Q_u*C_u + Q_e*C_e)/(Q_u+ Q_e) where
 Q_u = 10% of the receiving stream flow parameter
 C_u = Receiving stream ammonia parameter
 Q_e = Effluent flow parameter

C_e = Ammonia as N parameter

Outfall discharge will be regulated accordingly to avoid exceeding the water quality standard for ammonia as N at any time during the discharge period.

II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2017.08.21

A. Representative Sampling (Routine and Non-Routine Discharges)

All samples and measurements taken shall be representative of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited under **Part I Effluent Limitations and Monitoring** requirements of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with B. Test Procedures. The permittee must report all additional monitoring in accordance with D. Additional Monitoring.

B. Test Procedures

The collection and transportation of all samples shall conform with EPA preservation techniques and holding times found in 40 CFR 136. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

C. Recording of Results

Records of monitoring information shall include:

1. the date, exact place and time of sampling or measurements;
2. the name(s) of the individual(s) who performed the sampling or measurements;
3. the name of the laboratory;
4. the date(s) and time(s) analyses were performed;
5. the name(s) of the individual(s) who performed the analyses;
6. the analytical techniques or methods used; and
7. the results of such analyses.

D. Additional Monitoring

If the discharge is monitored more frequently than this permit requires, all additional results, if in compliance with B. Test Procedures, shall be included in the summary on the Discharge Monitoring Report.

E. Reporting of Monitoring Results

1. Monitoring results shall be summarized and reported to the department using Discharge Monitoring Reports (DMRs). If no discharge occurs during a reporting period, "No Discharge" shall be reported. The permittee must submit DMRs electronically using the electronic information reporting system unless requirements in subsection 3 are met.
2. Prior to December 21, 2020, the permittee may elect to electronically submit the following compliance monitoring data and reports instead of mailing paper forms. Beginning December 21, 2020, the permittee must report the following using the electronic reporting system:
 - a. General permit reports [e.g., notices of intent (NOI); notices of termination (NOT); no exposure certifications (NOE)];
 - b. Municipal separate storm sewer system program reports;
 - c. Pretreatment program reports;
 - d. Sewer overflow/bypass event reports; and
 - e. Clean Water Act 316(b) annual reports
3. The permittee may seek a waiver from electronic reporting. To obtain a waiver, the permittee must complete and submit an Application for Temporary Electronic Reporting Waiver form (SFN 60992) to the department. The department will have 120 days to approve or deny the waiver request. Once the waiver is approved, the permittee may submit paper versions of monitoring data and reports to the department.
 - a. One of the following criteria must be met in order to obtain a waiver. The department reserves the right to deny any waiver request, even if they meet one of the criteria below.
 1. No internet access,
 2. No computer access,
 3. Annual DMRs (upon approval of the department),
 4. Employee turnover (3-month periods only), or

5. Short duration permits (upon approval of the department)

All reports must be postmarked by the last day of the month following the end of each reporting period. All original documents and reports required herein shall be signed and submitted to the department at the following address:

ND Department of Health
Division of Water Quality
918 East Divide Ave
Bismarck ND 58501-1947

F. Records Retention

All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the department or EPA.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

B. Proper Operation and Maintenance

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

C. Planned Changes

The department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

D. Duty to Provide Information

The permittee shall furnish to the department, within a reasonable time, any information which the department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

E. Signatory Requirements

All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the department; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under E. Signatory Requirements is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:
 - a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under G. Bypass of Treatment Facilities;
 - b. Any upset which exceeds any effluent limitation in the permit under H. Upset Conditions; or
 - c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit
2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;

- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

Reports shall be submitted to the address in **Part II.E. Reporting of Monitoring Results.** The department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the department at 701.328.5210 as identified above.

All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

G. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.
2. Bypass exceeding limitations-notification requirements.
 - a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of bypass.
 - b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required under F. Twenty-four Hour Notice of Noncompliance Reporting.
3. Prohibition of Bypass. Bypass is prohibited, and the department may take enforcement action against a permittee for bypass, unless:
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - c. The permittee submitted notices as required under the 1. Anticipated Bypass subsection of this section.

The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three (3) conditions listed above.

H. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and the permittee can identify its cause(s);
2. The permitted facility was, at the time being, properly operated;
3. The permittee submitted notice of the upset as required under F. Twenty-four Hour Notice of Noncompliance Reporting and
4. The permittee complied with any remedial measures required under I. Duty to Mitigate.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

J. Removed Materials

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the state. The permit issuing authority shall be contacted prior to the disposal of any sewage sludges. At that time, concentration limitations and/or self-monitoring requirements may be established.

K. Duty to Reapply

Any request to have this permit renewed should be made six months prior to its expiration date.

IV. GENERAL PROVISIONS

A. Inspection and Entry

The permittee shall allow department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the wastewater treatment facilities and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

B. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

C. Transfers

This permit is not transferable except upon the filing of a Statement of Acceptance by the new party and subsequent department approval. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the department of the possible change.

D. New Limitations or Prohibitions

The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

E. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

F. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

G. State Laws

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

H. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

J. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

**V. INDUSTRIAL WASTE MANAGEMENT BP 2009.09.10
Minor POTWs Non-Approved Pretreatment Program Requirements**

A. General Responsibilities

The permittee has the responsibility to protect the Publicly-Owned Treatment Works (POTW) from pollutants which would inhibit, interfere, or otherwise be incompatible with operation of the treatment works including interference with the use or disposal of municipal sludge.

B. Pollutant Restrictions

Pretreatment Standards (40 CFR Section 403.5) developed pursuant to Section 307 of the Federal Clean Water Act (the Act) require that the permittee shall not allow, under any circumstances, the introduction of the following pollutants to the POTW from any source of nondomestic discharge:

1. Any other pollutant which may cause Pass Through or Interference;
2. Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, waste streams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in 40 CFR Section 261.21;
3. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with a pH of lower than 5.0 s.u., unless the treatment facilities are specifically designed to accommodate such discharges;
4. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, or other interference with the operation of the POTW;
5. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with any treatment process at the POTW;
6. Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits;

7. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through at the POTW;
8. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
9. Any trucked or hauled pollutants, except at discharge points designated by the POTW; and
10. Any specific pollutant which exceeds a local limitation established by the permittee in accordance with the requirements of 40 CFR Section 403.5 (c) and (d).

C. Approval Authority

North Dakota was delegated the Industrial Pretreatment Program in September of 2005. The North Dakota Department of Health, Division of Water Quality shall be the Approval Authority and the mailing address for all reporting and notifications to the Approval Authority shall be:

**ND Department of Health
Division of Water Quality
918 East Divide Ave
Bismarck ND 58501-1947**

D. Industrial Categories

In addition to the general limitations expressed above, more specific Pretreatment Standards have been and will be promulgated for specific industrial categories under Section 307 of the Act (40 CFR Part 405 et. Seq.).

E. Notification Requirements

The permittee must notify the Approval Authority, of any new introductions by new or existing industrial users or any substantial change in pollutants from any industrial user within sixty (60) days following the introduction or change. Such notice must identify:

1. Any new introduction of pollutants into the POTW from an industrial user which would be subject to Sections, 301, 306, and 307 of the Act if it were directly discharging those pollutants; or
2. Any substantial change in the volume or character of pollutants being introduced into the POTW by any industrial user;
3. For the purposes of this section, adequate notice shall include information on:
 - a. The identity of the industrial user;
 - b. The nature and concentration of pollutants in the discharge and the average and maximum flow of the discharge to be introduced into the POTW; and
 - c. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from or biosolids produced at such POTW,

4. For the purposes of this section, a significant industrial user shall include:
 - a. Any discharger subject to Categorical Pretreatment Standards under Section 307 of the Act and 40 CFR chapter I, subchapter N;
 - b. Any discharger which has a process wastewater flow of 25,000 gallons or more per day;
 - c. Any discharger contributing five percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
 - d. Any discharger who is designated by the Approval Authority as having a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standards or requirements.

F. Approval Authority Options

At such time as a specific Pretreatment Standard or requirement becomes applicable to an industrial user of the permittee, the Approval Authority may, as appropriate:

1. Amend the permittee's North Dakota Pollutant Discharge Elimination System (NDPDES) discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national Pretreatment Standards;
2. Require the permittee to specify, by ordinance, order, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's POTW for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the General Pretreatment Regulations at 40 CFR Part 403; and/or,
3. Require the permittee to monitor its discharge for any pollutant which may likely be discharged from the permittee's POTW, should the industrial user fail to properly pre-treat its waste.

G. Enforcement Authority

The Approval Authority retains, at all times, the right to take legal action against any source of nondomestic discharge, whether directly or indirectly controlled by the permittee, for violations of a permit, order or similar enforceable mechanism issued by the permittee, violations of any Pretreatment Standard or requirement, or for failure to discharge at an acceptable level under national standards issued by EPA under 40 CFR, chapter I, subchapter N. In those cases where a North Dakota Pollutant Discharge Elimination System (NDPDES) permit violation has occurred because of requirements as necessary to protect the POTW, the North Dakota Department of Health and/or Approval Authority shall hold the permittee and/or industrial user responsible and may take legal action against the permittee as well as the industrial user(s) contributing to the permit violation.

VI. ACCEPTING HAULED WASTE

- A. The permittee may only accept waste from licensed septic haulers unless the permittee has written approval from the department.
- B. The permittee may not accept production wastewater from oil and gas operations (i.e., produced water).
- C. A monitoring plan shall be developed to ensure accepted hauled waste meets the requirements of part **VI. Industrial Waste Management**.
- D. The permittee shall maintain records indicating the hauler transporting the load, the source of the wastewater, the date and time the waste was accepted, the volume of waste accepted and any sample results from these loads.

VII. BENEFICIAL REUSES BP 2015.09.03

A. Irrigation

Only wastewater that has received secondary or tertiary treatment may be used for irrigation provided soil and water compatibility testing confirms the water is suitable for irrigation. Wastewater used for irrigation shall be applied at a rate which would allow complete infiltration and not result in ponding or runoff from the irrigated area.

Agricultural land may be irrigated provided the crop is not used for human consumption. Forage crops used for livestock consumption or pastures irrigated with wastewater shall not be harvested or grazed within 30 days of a wastewater application.

Public properties such as golf courses or parks may be irrigated provided the treated wastewater meets the following quality criteria.

Parameter	Discharge Limitations	Monitoring Frequency	
		Measurement Frequency	Sample Type
	Daily Max		
BOD ₅ (mg/l)	30.0	1 per 14 days	Grab
TSS (mg/l)	45.0	1 per 14 days	Grab
<i>E. Coli</i> (number/100 ml)	126	Weekly	Grab

Whenever possible, irrigation shall take place during hours when the public does not have access to the area being irrigated. If the public has constant access to an area, signs must be posted in visible areas during irrigation and for two hours after irrigation is completed. The signs must advise people that the water could pose a health concern and to avoid the irrigated area.

Worker and public contact with treated wastewater should be minimized. Where frequent contact is likely, a higher level of disinfection should be provided such as achieving *E. coli* counts less than 14 colonies per 100 ml.

Avoid application within 100 feet of areas which have unlimited access (i.e., yards) or within 300 feet of potable water supply wells.

Runoff that occurs from irrigated areas shall be monitored at the frequencies and with the types of measurements described in Part I(B).

The permittee shall maintain monitoring records indicating the location and usage (e.g., park or agricultural) of the land being irrigated, the dates irrigation occurred, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

B. Construction

Treated domestic wastewater may be used for construction purposes such as soil compaction, dust suppression and washing aggregate, provided the following conditions are met.

The wastewater intended for use in construction, must at a minimum, receive secondary treatment.

Prior to using treated wastewater, a sample from the prospective source must be tested and meet the criteria set below. In addition, the test results for *E. coli* must be provided to the department prior to use. Results from samples up to two (2) weeks old will be considered valid. The water quality limitations and minimum sampling frequencies recommended for wastewater used in construction are provided in the following table.

Parameter	Limitations (Maximum)	Measurement Frequency	Sample Type
BOD ₅ (mg/l)	30	Monthly	Grab
TSS (mg/l)	100	Monthly	Grab
<i>E. Coli</i> (number/100 ml)	126	Weekly	Grab

In some systems chlorination is available. Chlorination is particularly desirable when frequent worker contact with the treated wastewater is likely or when the public may have constant access to areas where the wastewater is being used. Maintaining a chlorine residual of at least 0.1 mg/l is recommended.

While the conventional methods for treating domestic wastewater are generally effective in reducing infectious agents (bacteria, viruses, parasites) to acceptable levels, direct reuse of treated wastewater can pose a health concern. Additional precautions to consider are:

1. Worker and public contact with treated wastewater should be minimized.
2. Where frequent worker contact is likely a higher level of disinfection should be provided, such as achieving *E. coli* counts less than 14/100 ml.

3. Work closely with the treatment system operator to ensure treated wastewater quality is suitable when it is drawn for construction purposes.
4. Apply the treated wastewater in a manner that does not result in runoff or ponding.

Runoff that occurs from application areas shall be monitored at the frequencies and with the types of measurements described in Part I(B).

The permittee shall maintain monitoring records indicating the location and usage of the land where application occurs, the dates application occurred, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

C. Oil and Gas Production (including Hydraulic Fracturing)

The specific user of the wastewater may determine the specific treatment requirements for receiving wastewater.

The permittee shall maintain monitoring records indicating the specific user, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

D. Other Uses as Approved

The permittee must consult with the department before beneficially reusing wastewater for purposes not identified in this permit.

Appendix C

Flow Monitoring and Sampling

Parameter	Corresponding		
	Concentration, mg/L	Flow, gpd	Load, ppd
pH	7.5	209,601	*
5-day Biochemical Oxygen Demand, cBOD ₅	209	209,601	365
Total Suspended Solids, TSS	70	209,601	122
Ammonia-Nitrogen as N, NH ₃	44.2	209,601	77.3
Total Phosphorus as P, TP	5.46	209,601	9.5
Notes:			
Sample values based on 24-hour composite taken November 15, 2018			



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvttl.com



November 16, 2018

RECEIVED NOV 26 2018

SEH
Matt Schaible
4719 Shelburne St, Suite 6
Bismarck, ND 58503

RE: City of Lincoln, ND inflow 24hr composite

Dear Mr. Schaible:

From November 14-15, 2018, MVTL Laboratories Inc., Field Services division, conducted a wastewater survey of the influent for the City of Lincoln lagoon System.

Sampling was performed using automatic wastewater sampler. The samplers collected a composite of the influent over a 24-hour period. Grab samples were collected for pH and temperature.

Samples collected were stored on ice and transported back to MVTL in Bismarck, ND for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer
MVTL Field Services



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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www.mvtl.com



Page: 1 of 1

RECEIVED NOV 26 2018

Matt Schaible
SEH, Inc.
4719 Shelburne Street, Suite 6
Bismarck ND 58503

Report Date: 21 Nov 18
Lab Number: 18-D4107
Work Order #: 82-3061
Account #: 038644
Date Sampled: 15 Nov 18 9:00
Date Received: 15 Nov 18 9:14
Sampled By: MVTl Field Services

Project Name: SEH
Sample Description: Lincoln

Temp at Receipt: 10.9C ROI

	As Received Result	Method	Method Reference	Date Analyzed	Analyst
pH	* 7.5 units	N/A	SM4500 H+ B	15 Nov 18 17:00	SVS
Biochemical Oxygen Demand	209 mg/l	2	SM 5210-B	15 Nov 18 12:30	BJ
Total Suspended Solids	70 mg/l	2	I3765-85	15 Nov 18 15:45	SVS
Ammonia-Nitrogen as N	44.2 mg/l	0.20	EPA 350.1	20 Nov 18 13:10	EMS
Phosphorus as P - Total	5.46 mg/l	0.10	EPA 365.1	19 Nov 18 10:59	EV

* Holding time exceeded

All methods used for these analyses are compliant with 40CFR Part 136 or Region 8 EPA approved guidance.

Approved by: Claudette K. Carroll ^{SL} 21 Nov 18

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit


The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016



Laboratories, Inc.
 2616 E. Broadway
 Bismarck, ND 58501
 Phone (701) 258-9720

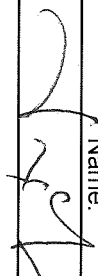

Chain of Custody Record

Project Name: SEH	Event:	Work Order Number: 82-3061
Report To: SEH Attn: RH Scheible Address: 4719 Shellburn St. Site 6 Bismarck ND 58503 phone: email: wschalke@sehinc.com	Carbon Copy: Attn:	Name of Sampler(s): 

Lab Number	Sample ID	Date	Time	Sample Type	Sample Location	Bottle Type							Analysis Required			
						1 liter	500mL Nitric	250mL Sulfuric	2 VOA HCl	1L Amber New	1L Amber HCl	1L NaOH				
D4107	Lincoln	15 Nov 18	0900	WW		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>								BOD, TSS, pH phosphorus, Ammonia-Nitrogen

Comments: **24 hr composite sample from City of Lincoln**

Field Grabs	Date	Time	Temp (°C)	pH	Flow Meter
1	14 Nov 18	0855	13.52	8.30	—
2	14 Nov 18	1445	15.33	7.71	—
3	15 Nov 18	0900	11.97	7.96	—
4	—	—	—	—	—

Relinquished By:		Sample Condition:	
Name: 	Date/Time: 15 Nov 18	Location: 100 In Walk In #2	Temp (°C): 10.9 TM62/TM805
Received by:		Date/Time	
		15 Nov 2018 0914	

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
Minimum	115	0	201	80,768
Average	143	54	272	204,906
Maximum	183	107	360	263,552
St. Dev.	12.55	13.90	28.88	19,168.76
Count	350	350	350	350

11/21/2017	143	45	294	206,617
11/22/2017	140	38	257	201,419
11/23/2017	153	64	343	219,960
11/24/2017	141	64	226	203,062
11/25/2017	141	56	264	203,652
11/26/2017	167	56	285	240,530
11/27/2017	139	53	258	199,441
11/28/2017	136	55	254	195,755
11/29/2017	134	46	284	193,531
11/30/2017	139	67	302	199,465
12/1/2017	128	62	270	184,425
12/2/2017	146	43	255	210,909
12/3/2017	164	41	315	235,801
12/4/2017	138	50	292	198,611
12/5/2017	135	50	278	194,460
12/6/2017	133	52	264	190,842
12/7/2017	144	74	267	207,890
12/8/2017	134	58	278	193,283
12/9/2017	147	56	273	211,582
12/10/2017	169	62	322	243,415
12/11/2017	134	58	269	192,713
12/12/2017	134	37	291	192,437
12/13/2017	140	62	292	200,903
12/14/2017	136	63	288	195,760
12/15/2017	135	70	282	192,556
12/16/2017	152	60	262	219,366
12/17/2017	169	46	289	243,683
12/18/2017	137	64	247	197,098
12/19/2017	129	33	280	185,301
12/20/2017	138	47	277	198,760
12/21/2017	135	58	278	194,492
12/22/2017	134	0	219	192,638
12/23/2017	144	45	308	207,668
12/24/2017	140	58	273	201,482
12/25/2017	144	50	255	206,642
12/26/2017	155	42	259	221,050

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
12/27/2017	152	74	293	219,525
12/28/2017	154	77	243	221,299
12/29/2017	144	69	214	206,691
12/30/2017	155	53	308	223,640
12/31/2017	161	68	328	231,466
1/1/2018	168	52	282	242,042
1/2/2018	144	64	266	207,949
1/3/2018	145	66	319	208,682
1/4/2018	145	60	300	208,528
1/5/2018	134	54	271	193,416
1/6/2018	156	75	260	225,237
1/7/2018	172	50	309	247,985
1/8/2018	137	59	272	197,430
1/9/2018	145	51	319	208,792
1/10/2018	145	74	285	209,492
1/11/2018	144	61	275	206,959
1/12/2018	138	56	267	198,403
1/13/2018	161	63	314	232,246
1/14/2018	172	73	308	248,047
1/15/2018	164	76	289	235,555
1/16/2018	151	87	281	216,837
1/17/2018	145	62	314	208,321
1/18/2018	142	62	333	205,034
1/19/2018	133	61	272	191,696
1/20/2018	156	69	282	224,227
1/21/2018	167	51	313	240,176
1/22/2018	139	62	275	200,724
1/23/2018	136	57	304	196,155
1/24/2018	142	63	304	204,725
1/25/2018	142	69	267	204,463
1/26/2018	135	63	246	194,583
1/27/2018	142	44	278	204,623
1/28/2018	166	52	305	238,612
1/29/2018	141	72	251	202,885
1/30/2018	137	56	327	197,547
1/31/2018	144	59	288	206,892
2/1/2018	141	62	263	202,608
2/2/2018	135	66	276	194,496
2/3/2018	157	51	278	225,489
2/4/2018	179	87	279	257,801
2/15/2018	134	49	284	193,445
2/16/2018	130	53	259	187,621
2/17/2018	141	50	275	202,414

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
2/18/2018	157	47	266	225,796
2/19/2018	146	55	306	210,198
2/20/2018	141	50	256	202,543
2/21/2018	135	0	279	194,592
2/22/2018	130	47	244	187,572
2/23/2018	134	58	250	193,101
2/24/2018	147	58	264	211,788
2/25/2018	163	45	360	234,641
2/26/2018	131	51	267	188,853
2/27/2018	128	59	256	184,103
2/28/2018	131	43	267	188,044
3/1/2018	132	45	278	189,414
3/2/2018	132	48	313	190,004
3/3/2018	145	46	256	208,745
3/4/2018	166	61	289	238,963
3/5/2018	141	57	242	203,295
3/6/2018	130	51	256	187,630
3/7/2018	126	44	275	181,220
3/8/2018	133	61	273	190,910
3/9/2018	125	58	269	180,130
3/10/2018	146	59	247	209,738
3/11/2018	162	46	326	233,676
3/12/2018	135	74	250	194,430
3/13/2018	134	50	321	193,167
3/14/2018	132	42	264	190,560
3/15/2018	135	52	250	194,358
3/16/2018	130	42	260	186,840
3/17/2018	147	60	320	211,209
3/18/2018	171	64	304	246,327
3/19/2018	140	46	311	201,787
3/20/2018	131	50	279	189,076
3/21/2018	125	45	238	179,359
3/22/2018	138	47	290	198,096
3/23/2018	147	81	310	211,302
3/24/2018	155	56	271	223,605
3/25/2018	167	53	300	240,716
3/26/2018	132	50	257	189,757
3/27/2018	135	55	274	194,671
3/28/2018	137	57	264	188,226
3/29/2018	130	45	262	187,618
3/30/2018	142	64	266	204,663
3/31/2018	149	60	252	214,561
4/1/2018	150	50	274	216,491

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
4/2/2018	143	51	274	205,192
4/3/2018	140	52	313	201,187
4/4/2018	143	53	288	206,042
4/5/2018	139	57	272	200,142
4/6/2018	135	56	240	194,976
4/7/2018	152	54	294	218,846
4/8/2018	175	61	292	252,644
4/9/2018	137	59	267	197,113
4/10/2018	138	58	321	199,266
4/11/2018	142	72	277	204,260
4/12/2018	138	59	277	199,057
4/13/2018	135	43	342	193,976
4/14/2018	149	55	251	214,838
4/15/2018	168	49	315	242,451
4/16/2018	137	47	297	197,839
4/17/2018	137	55	267	197,783
4/18/2018	145	0	286	208,761
4/19/2018	137	52	272	197,248
4/20/2018	139	69	253	200,174
4/21/2018	147	54	259	212,360
4/22/2018	164	54	298	236,260
4/23/2018	134	37	269	192,747
4/24/2018	133	50	287	192,086
4/25/2018	135	48	274	194,452
4/26/2018	124	58	248	178,647
4/27/2018	138	68	270	198,532
4/28/2018	148	68	252	212,493
4/29/2018	166	57	296	239,729
4/30/2018	137	55	303	197,429
5/1/2018	135	56	258	194,543
5/2/2018	138	58	293	198,606
5/3/2018	136	72	261	196,263
5/4/2018	131	0	241	188,292
5/5/2018	142	54	248	204,195
5/6/2018	157	44	281	226,750
5/7/2018	134	38	263	193,060
5/8/2018	130	53	295	186,625
5/9/2018	133	47	308	191,877
5/10/2018	131	55	256	188,360
5/11/2018	122	38	271	176,180
5/12/2018	139	61	244	200,053
5/13/2018	147	49	249	211,117
5/14/2018	133	44	284	191,946

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
5/15/2018	132	57	253	190,368
5/16/2018	133	60	256	191,371
5/17/2018	130	38	258	187,890
5/18/2018	125	36	272	178,955
5/19/2018	137	49	229	197,128
5/20/2018	158	53	292	227,650
5/21/2018	133	48	276	191,923
5/22/2018	132	41	263	189,871
5/23/2018	134	53	260	192,461
5/24/2018	135	47	246	194,394
5/25/2018	132	53	225	189,816
5/26/2018	128	49	216	184,188
5/27/2018	132	51	224	190,114
5/28/2018	155	56	273	223,207
5/29/2018	132	55	251	190,124
5/30/2018	136	57	255	196,230
5/31/2018	130	66	220	187,549
6/1/2018	133	67	205	191,902
6/2/2018	140	60	230	202,007
6/3/2018	160	44	290	230,962
6/4/2018	133	44	267	191,950
6/5/2018	138	61	278	199,158
6/6/2018	137	61	258	197,291
6/7/2018	137	44	240	196,581
6/8/2018	128	54	215	184,049
6/9/2018	133	50	219	191,955
6/10/2018	161	48	307	232,115
6/11/2018	140	46	272	202,276
6/12/2018	135	50	257	193,971
6/13/2018	141	64	271	203,102
6/14/2018	146	61	276	210,342
6/15/2018	142	89	212	204,685
6/16/2018	135	0	219	194,072
6/17/2018	155	62	260	223,426
6/18/2018	136	58	254	195,358
6/19/2018	130	53	242	187,172
6/20/2018	127	36	227	182,471
6/21/2018	127	52	228	182,341
6/22/2018	128	46	201	184,943
6/23/2018	137	63	219	196,915
6/24/2018	154	41	263	221,683
6/25/2018	136	62	228	196,395
6/26/2018	132	52	237	189,731

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
6/27/2018	127	44	234	183,334
6/28/2018	139	57	289	200,709
6/29/2018	165	80	241	238,146
6/30/2018	145	66	238	208,295
7/1/2018	157	50	286	226,038
7/2/2018	131	56	229	189,123
7/3/2018	145	46	294	208,855
7/4/2018	153	67	241	220,221
7/5/2018	153	73	280	220,367
7/6/2018	147	76	211	211,149
7/7/2018	148	69	244	212,910
7/8/2018	167	47	284	239,844
7/9/2018	146	57	262	210,213
7/10/2018	165	78	291	237,960
7/11/2018	181	107	293	260,488
7/12/2018	159	76	287	228,401
7/13/2018	141	69	224	203,204
7/14/2018	138	47	274	198,646
7/15/2018	154	44	269	221,661
7/16/2018	133	69	228	191,821
7/17/2018	135	46	252	194,979
7/18/2018	136	65	263	195,152
7/19/2018	141	43	268	201,594
7/20/2018	142	75	219	205,007
7/21/2018	135	56	221	194,024
7/22/2018	161	64	303	231,150
7/23/2018	133	44	239	191,054
7/24/2018	131	57	239	188,933
7/25/2018	135	56	267	194,362
7/26/2018	129	54	260	185,339
7/27/2018	130	53	217	186,961
7/28/2018	153	56	278	220,621
7/29/2018	172	46	324	247,477
7/30/2018	146	61	258	210,048
7/31/2018	141	74	233	202,386
8/1/2018	138	60	247	198,111
8/2/2018	130	48	228	187,841
8/3/2018	133	45	224	191,995
8/4/2018	137	52	222	197,425
8/5/2018	156	57	282	223,951
8/6/2018	137	47	242	197,185
8/7/2018	136	54	240	195,182
8/8/2018	135	38	290	194,946

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
8/9/2018	133	48	259	191,956
8/10/2018	130	53	212	187,478
8/11/2018	132	0	218	190,058
8/12/2018	162	64	292	233,035
8/13/2018	132	48	253	190,156
8/14/2018	130	41	267	187,170
8/15/2018	138	58	258	198,347
8/16/2018	140	60	284	201,090
8/17/2018	142	0	255	204,342
8/18/2018	157	43	270	225,625
8/19/2018	168	58	270	241,913
8/20/2018	135	47	273	194,349
8/21/2018	137	42	267	196,689
8/22/2018	142	41	339	204,890
8/23/2018	142	64	303	204,876
8/24/2018	130	44	248	187,253
8/25/2018	141	63	232	202,926
8/26/2018	166	58	297	239,144
8/27/2018	135	62	292	194,869
8/28/2018	135	38	287	193,886
8/29/2018	134	51	302	193,216
8/30/2018	153	59	338	220,476
8/31/2018	163	84	316	234,323
9/17/2018	126	44	272	181,893
9/18/2018	127	36	324	182,905
9/19/2018	128	49	343	184,294
9/20/2018	131	0	258	188,964
9/21/2018	119	51	241	171,583
9/22/2018	131	45	237	188,880
9/23/2018	153	45	304	219,896
9/24/2018	130	39	274	187,227
9/25/2018	130	57	265	186,680
9/26/2018	123	41	308	176,649
9/27/2018	124	35	275	178,695
9/28/2018	123	48	287	177,465
9/29/2018	134	48	260	193,523
9/30/2018	158	34	283	227,305
10/1/2018	130	53	286	187,393
10/2/2018	125	53	301	180,631
10/3/2018	134	56	269	192,962
10/4/2018	134	58	263	192,610
10/5/2018	133	64	258	191,998
10/6/2018	152	52	283	218,184

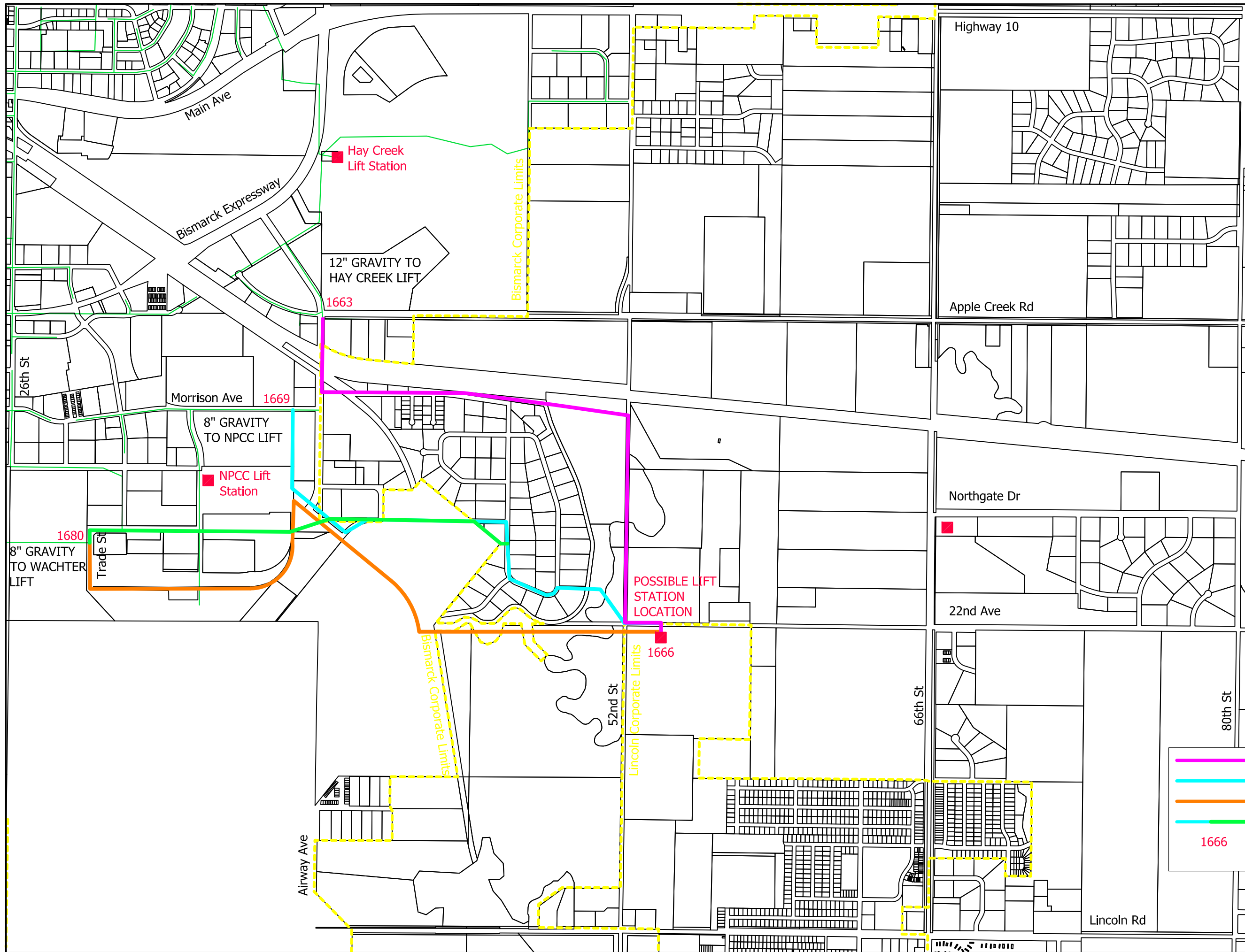
Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
10/7/2018	180	55	344	259,447
10/8/2018	146	65	312	209,885
10/9/2018	144	54	314	206,947
10/10/2018	144	58	323	206,831
10/11/2018	138	0	294	197,037
10/12/2018	142	50	264	204,219
10/13/2018	151	66	263	217,512
10/14/2018	161	48	294	231,661
10/15/2018	132	61	288	190,477
10/16/2018	131	61	276	187,989
10/17/2018	129	47	260	185,655
10/18/2018	143	73	263	206,303
10/19/2018	141	67	280	202,334
10/20/2018	152	70	296	218,932
10/21/2018	167	53	308	239,892
10/22/2018	150	66	309	216,217
10/23/2018	141	46	301	202,711
10/24/2018	146	56	277	210,440
10/25/2018	139	52	267	200,598
10/26/2018	132	71	271	189,679
10/27/2018	161	68	248	232,011
10/28/2018	173	71	324	249,776
10/29/2018	133	50	283	191,782
10/30/2018	132	0	274	189,704
10/31/2018	131	58	258	187,235
11/1/2018	141	55	297	203,258
11/2/2018	140	73	264	201,657
11/3/2018	162	70	299	233,766
11/4/2018	183	66	309	263,552
11/5/2018	141	60	296	202,844
11/6/2018	142	72	286	204,496
11/7/2018	139	52	299	200,275
11/8/2018	135	52	261	194,195
11/9/2018	134	52	294	192,913
11/11/2018	160	57	272	229,734
11/12/2018	156	60	270	225,200
11/13/2018	150	48	268	216,258
11/14/2018	144	55	300	208,049
11/15/2018	146	68	272	209,601
11/16/2018	142	53	261	204,732
11/17/2018	155	49	267	223,097
11/18/2018	182	66	295	261,816
11/19/2018	155	50	312	223,677

Site Name	Lincoln Lagoon Flow Monitoring			
Label (Units)	Day Average Flow Rate (gpm)	Day Minimum Flow Rate (gpm)	Day Maximum Flow Rate (gpm)	Day Total Flow (gpm)
11/20/2018	149	63	294	215,279
11/21/2018	155	56	301	223,542
11/22/2018	167	58	323	241,092
11/23/2018	137	62	204	197,719
11/24/2018	142	58	245	204,388
11/25/2018	163	61	283	234,525
11/26/2018	137	50	279	196,826
11/27/2018	115	58	297	80,768

Appendix D

Forcemain Proposed Routes

CITY OF LINCOLN SEWER OPTIONS



LEGEND:

	Route 1	10,890 LF
	Route 2	9,360 LF
	Route 3	12,800 LF
	Route 4	11,340 LF
	1666	Surface Elevation



PHONE: 701.354.7121
4719 SHELburnE ST, SUITE 6
BISMARCK, ND 58503-5677
www.sehinc.com

Date: 12/17/18

Appendix E

Public Meeting Advertisement



City of Lincoln
North Dakota

@CityOfLincolnND

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City of Lincoln North Dakota

April 2 · 🌐

LINCOLN CITY COUNCIL

Regular Meeting

Thursday, April 4, 2019

at 7:00pm

City of Lincoln

74 Santee Road

Lincoln, ND 58504

1. Call to order by the mayor

2. Attendance – Roll Call

3. Agenda Approval

4. Approval of Minutes

• Regular Meeting – March 28, 2019

5. Old Business

NEW BUSINESS

6. Burleigh County Tax Equalization

7. Drainage at McDougall & 28th Avenue

8. Rusch Addition

• Reconsider the Revised Rusch Addition

o Motion for Possible Approval of Final Plat, Zoning Change, Storm Water Management Plan and Annexation

9. S.E.H. Report

• Public Works Building

o In Contracting Phase with Contractors

• Waste Water PER

o Possibility of Public Meeting

o Meeting Date

• Water Transmission Line 19-01 – (12" Water Main Project)

o Project is Publicly Advertised as of April 1st

o Public Bid Opening – April 25th at 2 PM at Lincoln City Hall



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📅 Page created - October 17, 2010

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PUBLIC NOTICE

TAX EQUALIZATION MEETING

Driscoll Township will be holding their Tax Equalization Meeting on Thursday, April 25, 2019 at 5:30 PM at the old Driscoll Cafe. Carol Gear - Township Clerk
4/15 - 20968136

NOTICE OF PUBLIC MEETING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN:

Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on May 14, 2019 at the Lincoln City Hall at 7:00 PM, to consider wastewater facility improvements.

This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and potential funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.

4/15, 22 & 29 - 20967999

Public Notice

The City of Lincoln will hold a public meeting to address the Storm Water Pollution Prevention Program annual report that is filed with the North Dakota Department of Health (NDDOH) on May 9, 2019 at 6:30 to 7:00 PM at Lincoln City Hall. The public will have the opportunity to review the annual report for Municipal Separate Storm Sewer Systems (MS4) and discuss upcoming storm water management in 2019. This public meeting will include an overview and the impacts of the recently adopted Ordinance 217, which covers penalties for non-compliance to Chapter 10 Storm Water Management of the City of Lincoln's Code of Ordinances.

4/8 & 15 - 20965705

PUBLIC NOTICE OF ZONING CHANGE

Notice is hereby given that the Bismarck City Commission, on Tuesday, September 26, 2017, approved an ordinance rezoning from the RM15-Residential zoning district to the R10-Residential zoning district on South Meadows Addition Second Replat.

This ordinance is available for copying and inspection during normal working hours in the office of the City Administrator.

By K.J. Hunke, City Administrator
Dated this 10th day of April, 2019.

4/15 - 20968321

OIL & GAS LEASE ONLINE AUCTION

The Board of University and School Lands will conduct an online oil and gas lease auction for two-hundred-fifty-nine (259) tracts in Billings, Burke, Divide, Dunn, Golden Valley, McKenzie, McLean, Mountrail, Slope, Stark, Ward, and Williams Counties, ND. Bidding will commence April 30, 2019 at 9:00 a.m. CST and end May 7, 2019. The

representative of the above estate. All persons having claims against the said deceased are required to present their claims within three months after the date of the first publication or mailing of this notice or said claims will be forever barred. Claims must either be presented to Kevin Schmidt, personal representative of the estate at P.O. Box 1266, Mandan, North Dakota 58554-7266 or filed with the Court. Dated this 3rd day of April, 2019.

/s/ Kevin Schmidt
Kevin Schmidt
Personal Representative
First Publication on the 8th day of April, 2019.

4/8, 15 & 22 - 20967583

STATE OF NORTH DAKOTA

COUNTY OF BURLEIGH

IN JUVENILE COURT

SOUTH CENTRAL JUDICIAL DISTRICT IN THE INTEREST OF M.S.J., A CHILD

State of North Dakota,)

Petitioner,)

vs.)

M.S.J., Child;)

Kiana Starr, Mother;)

Arrow St. John, Father,)

Barb Olinger, Guardian ad Litem;)

and the Executive Director of)

Human Services Department,)

State of North Dakota;)

Respondents.)

File No. 08-2019-JV-00005

SUMMONS

THE STATE OF NORTH DAKOTA TO THE ABOVE-NAMED RESPONDENTS:

You are hereby summoned to appear personally at the Juvenile Court in the Burleigh County Courthouse, North Dakota, on the 10th day of May, 2019, at 9:00 a.m. for the purpose of hearing the Petition made and filed with this Court. The Petition claims the child is alleged to be a deprived child, as more fully appears from the Petition. A copy of the Petition can be obtained at the Clerk of Court's office.

RIGHT TO HEARING BEFORE JUDGE

You are entitled to have the Petition heard by a Judge of the Juvenile Court, instead of by a Referee, by filing a written request for a Judge with the Clerk of this Court within seven (7) days after receiving this Summons.

RIGHT TO COUNSEL

If you desire the assistance of an attorney, and are unable without undue financial hardship to employ one, the Court, upon your request, will appoint an attorney for you.

Dated this 10th day of April, 2019

/s/

Judicial Referee

4/15, 22 & 29 - 20968271

ADVERTISEMENT FOR BIDS BISMARCK PUBLIC WORKS CITY/COUNTY BUILDING SANITARY MODIFICATIONS, BISMARCK, NORTH DAKOTA

The City of Bismarck is accepting proposals for the City/County Building Sanitary Modifi-

RIGHT TO

If you desire the assistance of an attorney, and are unable without undue financial hardship to employ one, the Court, upon your request, will appoint an attorney for you.

Dated this 10th day of April, 2019

/s/

Judicial Referee

4/15, 22 & 29

REQUEST FOR PROPOSALS FOR ARCHITECTURAL SERVICES FOR THE BISMARCK PUBLIC WORKS LIBRARY HVAC

The City of Bismarck is accepting proposals from qualified professional engineering firms for services for the following: Provide consulting contract documents and contract administration services for the Bismarck Public Works Library HVAC project. The project includes up to 100 units, space conditioning, and humidifiers. This is a competitive bidding and complete contract project.

Submittal requirements and project instructions available at the City of Bismarck, 700 Bismarck Blvd., Bismarck, ND 58506.

Contacting Kim Bohrer, Project Manager, at kim.bohrer@bismarcknd.gov or 701.255.1111. Written proposals should be submitted to the City of Bismarck, 700 Bismarck Blvd., Bismarck, ND 58506. Experience and ability to provide services in a timely manner for construction projects limited to, the firm's:

1. Technical capabilities to propose project team
2. Experience and performance of proposed project team
3. Understanding of project work approach
4. Knowledge of regulatory requirements
5. Project personnel qualifications

6. Ability to respond to requests for information. The architect will be providing Statements of Qualifications. A selection committee will recommend a single firm to the City Commissioners. A contract will be developed and awarded to the selected firm. An agreement accepted by the City of Bismarck will result in a contract and most qualified firm will be awarded the project.

All inquiries shall be directed to Kim Bohrer at kim.bohrer@bismarcknd.gov or 701.255.1111.

Qualifications Statement and **Request for Proposal** forms will be accepted on Monday, April 22, 2019, at 10:00 a.m.

Submit six (6) copies of the Request for Proposal to Kim Bohrer, Project Manager, at PO Box 5503 (Mailroom), Bismarck, ND 58506-0503. Bids will be opened on Monday, April 22, 2019, at 10:00 a.m. at the City of Bismarck, 700 Bismarck Blvd., Bismarck, ND 58506.

4/1, 8 & 15

PUBLIC NOTICE

Bismarck U-Haul Moving and Storage, 1453 Interstate Loop Bismarck, ND 58503 will be having a silent auction on May 7, 2019 at 9:00AM.

Units - Tenants: 2223-25 - Marshall, 0073 - Ferguson, 0081 - Gruver, 020 - Coleman, 1074 - Baird, 2015 - Lee, 1076 - Baird, 1079 - Baker, 0175 - Spoon, 1152 - Kuntz 424 & 29 - 20967995

PUBLIC NOTICE OF ZONING CHANGE

Notice is hereby given that the Bismarck City Commission, on Tuesday, April 23, 2019, approved an order amending the Conditional RT-Residential zoning district to the RT-Residential zoning district on Lot 1, Block 2, Good Shepherd North on the 1st Ordinance is available for copying and inspection during normal working hours in the office of the City Administrator.

By K.J. Hunkle, City Administrator
Dated this 25th day of April, 2019.
4/23 - 20969764

NOTICE OF PUBLIC HEARING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN: Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on May 14, 2019 at the Lincoln City Hall at 7:00 PM, to consider wastewater facility improvements.

This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and possible funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.

4/15, 22 & 29 - 20967999

ADVERTISEMENT

The Board of City Commissioners of the City of Bismarck will receive sealed bids for the construction of sidewalk, curb and gutter, driveways, repairs and related items for the 2019 construction season in Part B-3, Repairs - Miscellaneous.

All bids will be submitted to the City Administrator by 3:00 p.m., Monday, May 13, 2019. Schedule work to be completed according to the schedule, plans and specifications on file in the Office of the City Administrator. Bids will be opened at 4:00 p.m., Monday, May 13, 2019, in the Office of City Administration.

Proposals must be mailed to or deposited with the City Administrator and shall be sealed and enclosed "Proposal for Construction of Part B-3, Repairs - Miscellaneous."

The contractor shall include a copy of his license or renewal thereof enclosed in the required bid Section 43-07-12 of the North Dakota Century Code, as amended.

Complete digital project documents are available at www.bismarcknd.gov or www.question.com. You may download the digital plan documents for \$50.00 by inquiring "Quest" project #1541463 on the website's Project Search page. Contact questnd.com at 954-233-1632 or info@questnd.com for assistance in free membership registration, downloading, and working with this digital project information.

An optional paper set of project documents is also available for a nonrefundable price of \$100.00 per set, which includes applicable sales tax and shipping. Please make your check for a paper set payable to the City of Bismarck and send it to the City of Bismarck Engineering Department, P.O. Box 5503, Bismarck, North Dakota 58506-5503, stating the project number and if you want to pick it up or to be mailed. Please contact us at 701-355-1505 if you have any questions.

If the project involves more than one unit or contains alternatives, the basis of award shall be the lowest and best bid for the units or alternatives selected by the City. Units or alternatives not selected shall not be included in forming the basis of determining the lowest bid. Bidders shall state that there is no guarantee that all units or alternatives will be awarded and balance their bids accordingly.

Bids shall be made on the basis of cash payment for the work to be done. All work under this advertisement shall be started on a date to be specified in a written order from the Board of City Commissioners.

Work shall consist of approximately 3500 SF of 4-inch, 2500 SF of 6-inch, and 800 SF of 8-inch concrete; 700 LF of curb and gutter; various concrete removals; valve box, manhole, and various sized inlet adjustments and related items.

Each bid shall be accompanied by a separate envelope containing a bidder's bond in the amount of five percent (5%) of the amount of the bid to be required by Section 43-01-12, North Dakota Century Code, as amended, and executed as provided by law.

The Board of City Commissioners reserves the right to hold all bids open for a period of thirty (30) days after the date fixed for the opening thereof and reject any or all bids and to waive irregularities whenever it is for the best interest of the City of Bismarck.

The City of Bismarck is committed to providing non-discriminatory service. No person shall, on the basis of a person's national origin, race, color, disability, sex, age and/or income status, be discriminated against in participation or be subjected to discrimination or harassment by the City of Bismarck or any of its locations.

The City of Bismarck will consider every request for reasonable accommodation to provide:

* an accessible meeting facility or other accommodation for people with disabilities, including language interpretation services with limited English proficiency (LEP); and

* translations of written material necessary to access City of Bismarck programs and information.

Appropriate provisions will be considered when the City of Bismarck is notified at least 10 days prior to the meeting date or the date the written material translation is needed.

To request accommodations, contact Robert McConnell, City of Bismarck, at 701-355-1333 or r.mcconnell@bismarcknd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

CITY OF BISMARCK
Keith J. Hunkle
City Administrator
Dated this 24th day of April, 2019.
4/29 & 5 - 20969888

To Place a Local Advertisement
Call 355-8816, Fax 250-0195, or email: leals@bismarcktribune.com

STATE OF NORTH DAKOTA
COUNTY OF BURLINGHAM
IN JUVENILE COURT
SOUTH CENTRAL JUDICIAL DISTRICT
IN THE INTEREST OF M.S.J., A CHILD
State of North Dakota, v.
Petitioner, s/
Kiana Starr, Child;
Vs. S.S.J., Sheriff;
Kiana Starr, Mother;
Barb Oliver, Guardian ad Litem;
(Or. 5487, 03-14-06; Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)

13-03-04, Eradication, Cutting or Control of Weeds, Tall Grasses and Unhealthy Vegetation by the City Forester. At a minimum, all property shall be mowed by June 1, mowed again by July 1, mowed again by August 1 and, if necessary, mowed again by September 1 of each year in compliance with the provisions of this chapter. The City Forester may order more frequent cuttings, gradations or controlling of weeds, tall grasses and unhealthy vegetation if necessary. Such notice may be given in person, via telephone or by letter.

1. Whenever any person, firm or corporation owning, occupying or in charge of any premises, lot, or parcel of land within the city, shall fail, neglect or refuse to mow the property at least once by June 1, again by July 1 and again by August 1 of each year in compliance with the provisions of this section or shall fail to eradicate, cut or control weeds, tall grasses or unhealthy vegetation within 7 days of receipt of notice from the City Forester, the City Forester shall remove the nuisance to be abated by eradicating, cutting or controlling the weeds, tall grasses or unhealthy vegetation in a manner as specified by the City Forester, if the City Forester is unable to comply with the requirements of this Section and Section 13-03-03.

A person, firm or corporation notified of impending City action may cause the eradication, cutting or control of the weeds, tall grasses or unhealthy vegetation at its own expense before the City Forester acts, or may request that the City Forester be notified in writing to the Office of City Administration within five (5) days of receipt of notice or posting of notice from the City Forester to eradicate, cut or control the weeds, tall grasses or unhealthy vegetation. The appeal shall be heard by the Board of City Commissioners at their next scheduled meeting.

(Ord. 5487, 03-14-06; Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
13-03-04. Exemptions From Cutting or Mowing. A property may be exempt from the cutting or controlling of weeds, tall grasses or unhealthy vegetation listed in this Chapter if such exemption is approved by the City Forester based upon his/her conclusion that an exemption is warranted due to safety concerns, environmental concerns, aesthetic benefits or economic efficiency. Conditions or situations in which such an exemption may be granted shall include but not be limited to property that:

1. Cannot be safely mowed.
2. Is highly ornamental.
3. Is undevelopable.
4. Is located in an undisturbed natural area.
5. Is densely wooded.
6. Is to be used for a marsh, wetland or storm water drainage, pond, or feature, either natural or man-made.
7. Is zoned agricultural or is legally used for bona-fide agricultural practices.

(Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
13-03-05. Costs Assessed Against Property. When the City has affected the eradication, cutting or control of weeds, tall grasses or unhealthy vegetation, or has contracted for and paid for the eradication, cutting or control of the weeds, tall grasses or unhealthy vegetation, the actual cost thereof, including an administrative fee, shall be assessed against each lot or tract to be assessed shall be prepared as are other separate assessment lists shall be approved by the Board of City Commissioners. All procedures under state law for certification of assessed, payment and collection of special assessments shall apply.

(Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
4/29, 5/13, 6/13 & 27 - 20969820

STATE OF NORTH DAKOTA
COUNTY OF BURLINGHAM
IN JUVENILE COURT
SOUTH CENTRAL JUDICIAL DISTRICT
IN THE INTEREST OF S.A.S.J., A CHILD
State of North Dakota, v.
Petitioner, s/
Kiana Starr, Child;
Vs. S.S.J., Sheriff;
Kiana Starr, Mother;
Barb Oliver, Guardian ad Litem;
and the Executive Director of
Human Services Department,)
State of North Dakota,)
Respondent.)
File No. 08-2019-JV-00006
JUVENILE

THE STATE OF NORTH DAKOTA TO THE ABOVE-NAMED RESPONDENTS: You are hereby summoned to appear personally at the Juvenile Court in the Burlington County Courthouse, North Dakota, on the 10th day of May, 2019, at 9:00 a.m. for the purpose of hearing the Petition made and filed with this Court. The Petition claims the child is alleged to be a deprived child, as more fully appears from the Petition. A copy of the Petition can be obtained at the Clerk of Court's Office.

RIGHT TO HEARING BEFORE JUDGE
You are entitled to have the Petition heard by a Judge of the Juvenile Court, instead of by the Juvenile Court, on the 10th day of May, 2019, at 9:00 a.m. (7) days after receiving this Summons.

RIGHT TO COUNSEL
If you desire the assistance of an attorney, and are unable without undue financial hardship to employ one, the Court, upon your request, will appoint an attorney for you. Dated this 10th day of April, 2019
s/ Judicial Referee
4/15, 22 & 29 - 20968274

CHAPTER 13-03 (WEEK CONTINUED)
13-03-01. Authority. 1. The City Forester shall have the duties and authority as provided by this section.

2. If weeds, tall grasses or unhealthy vegetation exceeding eight (8) inches in height, and unhealthy vegetation exceeding eight (8) inches in height growing within the limits of the city are hereby declared to be a public nuisance, it shall be the duty of every person owning, occupying, or in charge of any premises, lot, or parcel of land in the city to keep that premises, parcel or lot, including the adjacent right-of-way, neat, and boulevard-free from all weeds, long grasses and unhealthy vegetation by cutting or destroying them at all times during the growing season.

3. "Weeds" as used in this chapter shall include all weeds contained in North Dakota Administrative Code Section 7-06-01-02 that is defined "noxious weeds."

4. "Tall grasses" shall mean all weeds not contained in North Dakota Administrative Code Section 7-06-01-02 in excess of eight (8) inches in height, and unhealthy vegetation in excess of eight (8) inches in height, tall grasses may be used for ornamental plantings subject to the following conditions:

- a. Tall grasses may not be used as lawn cover.
- b. Tall grasses may not be planted on the public right-of-way without the written permission of the city traffic engineer.
- c. Tall grasses may be planted or maintained within a sight triangle, as defined by Section 14-02-03, in excess of thirty-six (36) inches in height above the adjacent curb level.
- d. Plantings of tall grasses must be maintained in a weed free condition.
- e. "Unhealthy vegetation" shall include, but not be limited to the following:
 - (1) Areas capable of being cut with mowing equipment;
 - (2) Ornamental plantings overgrown with weeds.

(Ord. 5487, 03-14-06; Ord. 5715, 04-08-09; Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
13-03-02. Control/ Duty. It is the duty of every person owning, occupying or in charge of any premises, lot or parcel of land to cut, eradicate or control any weeds, tall grasses exceeding (8) eight inches in height, and unhealthy vegetation exceeding eight (8) inches in height, to prevent them from being a public nuisance.

(Ord. 6039, 04-08-14)
13-03-03. Official Publication of Ordinance. It shall be the duty of the City Forester to cause a notice of the contents of this Chapter to be forwarded to the official newspaper of the City once within three days of May 1 and May 15 and once again within three days of June 15 and July 1. These publications shall serve as notice to all landowners, occupants or persons in charge of land of the requirements of this Chapter. These publications shall also

serve as the official notice to property owners to cut weeds, tall grass and unhealthy vegetation. Other methods of notification, such as at the Bismarck and City of Bismarck website may also be used to notify landowner, occupants or persons in charge to control weeds, tall grass and unhealthy vegetation.
(Ord. 5487, 03-14-06; Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
13-03-04, Eradication, Cutting or Control of Weeds, Tall Grasses and Unhealthy Vegetation by the City Forester. At a minimum, all property shall be mowed by June 1, mowed again by July 1, mowed again by August 1 and, if necessary, mowed again by September 1 of each year in compliance with the provisions of this chapter. The City Forester may order more frequent cuttings, gradations or controlling of weeds, tall grasses and unhealthy vegetation if necessary. Such notice may be given in person, via telephone or by letter.

1. Whenever any person, firm or corporation owning, occupying or in charge of any premises, lot, or parcel of land within the city, shall fail, neglect or refuse to mow the property at least once by June 1, again by July 1 and again by August 1 of each year in compliance with the provisions of this section or shall fail to eradicate, cut or control weeds, tall grasses or unhealthy vegetation within 7 days of receipt of notice from the City Forester, the City Forester shall remove the nuisance to be abated by eradicating, cutting or controlling the weeds, tall grasses or unhealthy vegetation in a manner as specified by the City Forester, if the City Forester is unable to comply with the requirements of this Section and Section 13-03-03.

A person, firm or corporation notified of impending City action may cause the eradication, cutting or control of the weeds, tall grasses or unhealthy vegetation at its own expense before the City Forester acts, or may request that the City Forester be notified in writing to the Office of City Administration within five (5) days of receipt of notice or posting of notice from the City Forester to eradicate, cut or control the weeds, tall grasses or unhealthy vegetation. The appeal shall be heard by the Board of City Commissioners at their next scheduled meeting.

(Ord. 5487, 03-14-06; Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
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3. Is undevelopable.
4. Is located in an undisturbed natural area.
5. Is densely wooded.
6. Is to be used for a marsh, wetland or storm water drainage, pond, or feature, either natural or man-made.
7. Is zoned agricultural or is legally used for bona-fide agricultural practices.

(Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
13-03-05. Costs Assessed Against Property. When the City has affected the eradication, cutting or control of weeds, tall grasses or unhealthy vegetation, or has contracted for and paid for the eradication, cutting or control of the weeds, tall grasses or unhealthy vegetation, the actual cost thereof, including an administrative fee, shall be assessed against each lot or tract to be assessed shall be prepared as are other separate assessment lists shall be approved by the Board of City Commissioners. All procedures under state law for certification of assessed, payment and collection of special assessments shall apply.

(Ord. 6039, 04-08-14; Ord. 6156, 10-13-15; Ord. 6202, 04-26-16)
4/29, 5/13, 6/13 & 27 - 20969820

STATE OF NORTH DAKOTA
COUNTY OF BURLINGHAM
IN JUVENILE COURT
SOUTH CENTRAL JUDICIAL DISTRICT
IN THE INTEREST OF M.S.J., A CHILD
State of North Dakota, v.
Petitioner, s/
Kiana Starr, Child;
Vs. S.S.J., Sheriff;
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Barb Oliver, Guardian ad Litem;
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3. Is undevelopable.
4. Is located in an undisturbed natural area.
5. Is densely wooded.
6. Is to be used for a marsh, wetland or storm water drainage, pond, or feature, either natural or man-made.
7. Is zoned agricultural or is legally used for bona-fide agricultural practices.

ERAL STATE OF NORTH DAKOTA. The deposit will be returned to contractors who submit a bona fide bid, and who return the Bid and Deposit to the City of Bismarck. The contractor will have ten (10) days after the opening of bids. All responsive bidders shall forfeit their deposit to the Owner. Copies of the Bid and Deposit documents are limited to one (1) set per bid. Additional sets may be purchased from the Owner at the rate of \$50.00 (non-refundable) per set.

Requests for project documents must be written on the Contractor's own letterhead and must include a copy of their North Dakota Contractor's License or Certificate of Renewal, whichever is current.

Office of the Adjutant General
Contract Management Branch
P.O. Box 5511
Bismarck, North Dakota 58506-5511
Telephone: 701) 333-2068

In addition, copies of the project documents are on file at the Construction Plans Exchange in Bismarck; Builders Exchanges in Fargo, Minot, Grand Forks and Minot, North Dakota; Impact Procurement Technical Assistance Center, Fargo, North Dakota; Minnesota Builders Exchange in Minneapolis, Minnesota, and at the State of North Dakota, Bismarck. Each bid shall be submitted in duplicate copy on the forms provided by the Owner and enclosed in a sealed opaque envelope to the City of Bismarck. Each bid shall also include the necessary information as required by the Supplemental Instructions to Bidders.

Each bid shall be accompanied by a separate sealed opaque envelope containing a copy of the Contractor's Bid and the Adjutant General, State of North Dakota, and executed by the bidder as principle and by a surety company authorized to do business in North Dakota, in a sum equal to five percent (5%) of the total bid amount in combination, including all add alternates to the bid items; conditioned that if bidder's proposal be accepted and the contract awarded to the bidder, the bidder shall execute a contract in accordance with the terms of his bid and a contractor's bond as required by law and the regulations and description of the work to be done under the AIA Order A310, Bid Bond, will be furnished by the Owner and should be used to execute the bid guarantee.

In compliance with Section 43-07-12 of the State of North Dakota Century Code, each contractor submitting a bid must have a copy of their North Dakota Contractor's License or certificate of renewal thereof issued by the Secretary of the State of North Dakota. No bid will be read or considered which does not fully comply with the provisions herein as to bonds and licenses, and any deficient bid submitted will be ressealed and the bid amount will be returned to the contractor. The Owner reserves the right to hold all legitimate bids for a period of forty-five (45) days after the date fixed for the opening of bids, or until the time that the Owner awards a contract to the lowest and best bidder. The Owner further reserves the right to reject any and all bids and to waive irregularities, and shall incur no legal liability for the State of North Dakota if the Owner award the contract is awarded and approved by the proper authorities.

In compliance with Section 48-01-21.10 of the North Dakota Century Code, the successful bidder shall be required to furnish bonds covering the faithful performance of the Contract and the payment of all obligations thereunder, and all additional obligations as set forth in the Contract. The State of North Dakota. Each bond shall be an amount equal to the full contract sum.

DATED: April 29, 2019
OFFICE OF THE ADJUTANT GENERAL
State of North Dakota
By: /s/ ROBERT J. BECKLUND
Brigadier General, NDNG
Deputy Adjutant General
Contracting Officer

4/29, 5/13, 6/13 & 27 - 20969827

NOTICE OF HEARING
N.D. INDUSTRIAL COMMISSION
OIL AND GAS DIVISION
The North Dakota Industrial Commission will hold a public hearing at 9:00 a.m. on May 21, 2019 at the N.D. Oil & Gas Division, 1000 East Calgary Ave., Bismarck, N.D. At the hearing the Commission will receive testimony and exhibits.

Persons with disabilities. If at the hearing you need special facilities or assistance, contact the Oil and Gas Division at 701-328-6909, extension 3019.

STATE OF NORTH DAKOTA TO:
Case No. 27517: Application of Oasis Petroleum North America LLC for an order amending the applicable orders for the West Ambrose-Bakken Pool, ND, to (i) establish two 1920-acre spacing units consisting of Sections 14, 15 and 16 and Sections 21, 22 and 23, T.158N., R.94W., Mountrail County, ND; and (ii) terminate three existing standup 1280-acre spacing units consisting of Sections 20, 21, 22 and Sections 15, 16 and 21, T.158N., R.94W., Mountrail County, ND.

NATIONAL GUARD READINESS CENTER
Fargo, North Dakota
Sealed bids for the National Guard Readiness Center, Fargo, North Dakota will be received by the Adjutant General, State of North Dakota at Fraine Barracks, Building 200, Bismarck, North Dakota, until 2:00 PM CST, May 21, 2019, and will be opened and publicly read that date and time in the presence of all interested parties. Receipt after the scheduled opening time will be returned to the bidders unopened.

Bidders may submit separate bids only for Civil Construction Work (IFB 19-16), General Construction Work (IFB 19-16), Mechanical Construction Work (IFB 19-17) and Electrical Construction Work (IFB 19-18). No other types of bids for other portions of the project or other combinations of the separate bids will be accepted.

IMPORTANT: Davis-Bacon Wage Rates will apply on this project. ATTENTION PERSONS WITH DISABILITIES: You will plan attend the bid opening and you need special facilities or assistance relating to a disability, please contact the National Guard ADA Coordinator at 701-333-2253 ext. 2019. A digital copy of the contract documents are available on the Architect's online project management system (P/P/CORE) and may be viewed or downloaded by potential bidders. For more information on these documents, contact Ashley Demers at the office of Zerr Berg Architects, (701) 280-0187.

Contractors and major subcontractors desiring to submit a bid may obtain a paper copy of the contract documents at the office of the Owner upon deposit of \$50.00 per set (PAYABLE TO: THE ADJUTANT GEN-

eral) for wells in four 1280-acre spaced units for the Toga-Bakken Pool described as Sections 5 and 6, Sections 6 and 7, Sections 17 and 20; and Sections 18 and 19, T.158N., R.94W., Mountrail County, ND, and for such other relief as may be appropriate.

Case No. 27444: (Continued) Application of Hess Bakken Investments II, LLC for an order amending the applicable orders for the Toga-Bakken Pool to establish an overlapping 2560-acre spacing unit described as Sections 5, 6, 7 and 8, T.158N., R.94W., Mountrail County, ND, and authorize one horizontal well to be drilled on such unit, and for such other relief as may be appropriate.

Case No. 27445: (Continued) Application of Hess Bakken Investments II, LLC for an order amending the applicable orders for the Toga-Bakken Pool to establish an overlapping 2560-acre spacing unit described as Sections 5, 6, 7 and 8, T.158N., R.94W., Mountrail County, ND, and authorize one horizontal well to be drilled on such unit, and for such other relief as may be appropriate.

Case No. 27522: Application of True Oil Co for an order amending the applicable orders for the Reel Wing Creek-Wadison Pool to allow the Williston Basin State 42-36-1MH well (File No. 35030) to be drilled and completed in such fashion that portions of the wellbore may be less than 500 feet from the southern and western boundary of the spacing unit consisting of Section 36, T.148N., R.101W. and Section 1, T.147N., R.101W., McKenzie County, ND, as an exception to the applicable well location requirements, or granting such other relief as may be appropriate.

Case No. 27523: Application of Bruin E&P Operating, LLC for an order authorizing trailers to be located closer than 125 feet to a wellhead or wellheads at the Missouri Pad in the SESE of Section 14, T.152N., R.94W., McKenzie County, ND, as allowed by the provisions of the Ordinance 43-02-03-26, or granting such other relief as may be appropriate.

Case No. 27524: Application of Petro-Hunt, LLC for an order amending the applicable orders for the Chatanook-Bakken Pool to establish an overlapping 2560-acre spacing unit consisting of Sections 2, 3, 10 and 11, T.153N., R.95W., McKenzie County, ND, and authorize one horizontal well to be drilled on such unit, and granting such other relief as may be appropriate.

Case No. 27441: (Continued) Application of Petro Harvester Operating Co., LLC for an order amending the applicable orders for the Northeast Foothills-Bakken Pool for an overlapping 2560-acre spacing unit described as Sections 4 and 9, Sections 16 and 21, Sections 17 and 20, and Sections 18 and 19, T.161N., Burke County, ND, with one horizontal well to be drilled on each such unit, and granting such other relief as may be appropriate.

Case No. 27442: (Continued) Application of Petro Harvester Operating Co., LLC for an order amending the applicable orders for the Little Butte-Bakken Pool, Burke County, ND, to (i) extend the outline and amend the applicable orders for the Little Butte Field to include all of Section 31, T.161N., R.91W.; (ii) establish a 1280-acre spacing unit in the Little Butte-Bakken Pool described as Sections 1 and 2, T.161N., R.91W., with one horizontal well to be drilled on the unit; and (iii) granting such other relief as may be appropriate.

Case No. 27525: Application of EnvrnoVault LP for an order amending an indirect flameless tank heating unit to be located within a tank, within a tank farm in ND, as an exception to the requirements of NDACC Section 43-02-03-28, and such other relief as is appropriate.

Case No. 27258: (Continued) On a motion of the Commission to review the authorization and permit under Order ND 26960 for Berg Specialty Fluids-Hooding, LLC to operate a treating plant located in the WNW of Section 12, T.161N., R.93W., Black Sulphur Field, Burke County, ND, known as the FluidTech No. 1 Treating Plant (Facility No. 7001330-1) and such other relief as is appropriate.

Case No. 27450: (Continued) Application of Blue Appalachia, Inc for an order authorizing to construct of a treating plant to be located in the SWNW of Section 1, T.148N., R.95W., Dunn County, ND and such other relief as is appropriate.

Case No. 27526: Application of Petro-Hunt, LLC for an order amending the applicable orders for the West Ambrose-Bakken Pool to authorize up to four horizontal wells to be drilled on a standup 1280-acre spacing unit described as Sections 15, 16 and 21, T.162N., R.100W., Divide County, ND, and granting such other relief as may be appropriate.

Case No. 27527: Application of Petro-Hunt, LLC for an order amending the applicable orders for the Alexander-2019 Pool to authorize up to four horizontal wells to be drilled on two standup 1280-acre spacing units described as Sections 3 and 10; and Sections 4 and 9, T.161N., R.100W., Divide County, ND, and granting such other relief as may be appropriate.

Case No. 27528: Application of Hess Bakken Investments II, LLC pursuant to NDACC § 43-02-03-81 for an order allowing oil and gas produced from the GO-Hauge- 156-97-211H-2 (File No. 36158), GO-Hauge- 156-97-211H-3 (File No. 36159), GO-Hauge-156-97-211H-4 (File No. 36160), and GO-Hauge-156-97-211H-5 (File No. 36161), Sections 16, 17, 20 and 21, T.156N., R.97W., Williams County, ND, wells to be comming

PUBLIC NOTICE

PUBLIC NOTICE OF ZONING CHANGE

Notice is hereby given that the Bismarck City Commission, on Tuesday, February 26, 2019, approved an ordinance rezoning from the RR-Residential zoning district to the RT-Residential and Conditional CG-Commercial zoning districts on Washington Square Addition. This ordinance is available for copying and inspection during normal working hours in the office of the City Administrator. By K.J. Hunke, City Administrator
Dated this 17th day of April, 2019.
4/22 - 20969000

NOTICE OF PUBLIC MEETING FOR IMPROVEMENT

TO WHOM IT MAY CONCERN:
Notice is hereby given that the City of Lincoln will hold a Public Information & Input Meeting on May 14, 2019 at the Lincoln City Hall at 7:00 PM, to consider wastewater facility improvements. This will be an informational meeting to discuss the City wastewater treatment facility improvement alternatives, including the economic and environmental impacts, service areas, and potential funding sources. Selection of alternative will not take place at meeting, rather public information and input will be facilitated. At this time, all residents and property owners within the City of Lincoln are encouraged to attend.
4/15, 22 & 29 - 20967999

Benjamin W. Keup, #07013
PEARCE DURICK PLLC
P.O. Box 400
Bismarck, ND 58502
(701) 223-2890
E-file: fbwkfile@pearce-durick.com
Attorneys for the Personal Representative of the Estate of Carol Anderson
IN THE DISTRICT COURT OF BURLEIGH, STATE OF NORTH DAKOTA
In the Matter of the Estate of Carol Anderson, Deceased.
Probate No. 08-2019-PR-00063

NOTICE TO CREDITORS
NOTICE IS HEREBY GIVEN that the undersigned has been appointed personal representative of the above estate. All persons having claims against the deceased are required to present their claims within three months after the date of the first publication or mailing of this notice or the claims will be forever barred. Claims must be presented to Scott Odegaard, personal representatives of the estate, at P.O. Box 400, Bismarck, ND 58502-0400 or filed with the Court.
Dated this 3rd day of April, 2019.
/s/ Scott Odegaard
Scott Odegaard
c/o PEARCE DURICK PLLC
P.O. Box 400
Bismarck, ND 58502-0400
4/8, 15 & 22 - 20967907

NOTICE OF BIDS

NOTICE IS HEREBY GIVEN that the Burleigh County Board of Commissioners, Burleigh County, North Dakota will accept bids until Monday, April 29, 2019 at 1:30 P.M. (Local Time). Bids will be opened and read at that time in the 1st Floor Conference Room of the City/County Building, located at 221 N. 5th St. in Bismarck, ND. The results and final disposition of the bid opening will be presented to the County Commission on Monday, May 6, 2019, beginning approximately at 5:00 PM (Local Time), in the Tom Baker room of the City/County building, for the following item:

Project No. 0151 SAD 67 VISTA SOUTH ROADWAY IMPROVEMENTS
Project No. 0152 SAD 65 RAYMAR ROADWAY IMPROVEMENTS
Project No. 0153 SAD 66 TWIN BUTTES ROADWAY IMPROVEMENTS
Project No. 0156 SAD 68 RUSTIC ACRES ROADWAY IMPROVEMENTS

Proposed work includes Reshaping Aggregate Base, Hot Mix Asphalt Paving, Seal Coat, and Incidentals on 4 tied Special Assessment District projects within the limits of Burleigh County. All materials and procedures shall be in accordance with the current NDDOT Standard Specifications for Road & Bridge Construction, dated October 2014 and all supplemental material. Bid packets shall consist of two separate envelopes (plainly marked as Project No. 0151, 0152, 0153, & 0156 on the outside), the outside envelope containing a current copy of Contractor's License and 5% Bidder's Bond with the second envelope containing the bid on the County's bid form. The successful bidder must submit evidence of general liability insurance coverage prior to award of bid.

Further information detailed specifications, bidding documents, etc., are available from the Burleigh County Engineer, 8100 43rd Ave NE, Bismarck, ND 58503. Phone 701-204-7748.

Plans are also available at the Burleigh County Project Website: <https://connex.mn.uccs.com>

Bids should be mailed to: **COUNTY AUDITOR/TREASURER, P.O. Box 5518, 221 N. 5TH ST., BISMARCK, NORTH DAKOTA 58506.**

The Board reserves the right to reject any and all bids; to waive technicalities or to accept such as may be determined to be in the best interest of the County.

BY ORDER OF THE BOARD OF COMMISSIONERS
BURLEIGH COUNTY, NORTH DAKOTA
This 18th day of March, 2019

KEVIN J. GLATT,
Burleigh County Auditor/Treasurer
4/8, 15 & 22 - 20967314

To Place a Legal Advertisement

Call 355-8816, Fax 250-0195, or email: leals@bismarcktribune.com

Missouri, Telfer, and Boyd Townships
Zoning Board will have a meeting to discuss R1 zoning regulation on parcels 40-138-78-00-15-810, 40-138-78-00-23-640, 45-137-79-00-18-600, permitting process, and other general zoning business. A meeting will be held on May 9, 2019 at 7:00PM at Menoken School, 412 Bismarck St N, Menoken ND 58558.
Andy Buntrock, clerk Missouri, Telfer, Boyd Township Zoning
4/22 - 20969002

OIL & GAS LEASE ONLINE AUCTION

The Board of University and School Lands will conduct an online oil and gas lease auction for two-hundred-fifty-nine (259) tracts in Williams, Burke, Divide, Dunn, Golden Valley, McKenzie, McLean, Mountrail, Slope, Stark, Ward, and Williams Counties, ND. Bidding will commence April 30, 2019 at 9:00 a.m. CST and end May 7, 2019. The link to view the tract and participate in the auction is:

https://www.energy.net.com/govt_listing.pl

A 2% convenience fee will be assessed. Anyone needing auxiliary aids and services should call Susie at (701) 328-1948 by 04/24/2019.
3/29/2019
/s/ Jodi Smith
Commissioner

4/15 & 22 - 20967919

ADVERTISEMENT FOR BIDS

Notice is hereby given that proposals for Group Self-Funded Dental and Vision Insurance for Bismarck Public Schools in Bismarck, North Dakota will be received electronically until Wednesday, May 8, 2019 at 2:00 PM local time. All proposals received after the scheduled time will be returned unopened.

A copy of the Request for Proposal is available at 3600 American Blvd W, Suite 500, Bloomington, MN 55431, by calling Lori Hayes at 952-356-0712 or emailing Lori_Hayes@ag.com or on our website www.bismarckschools.org.

Each proposal shall be submitted electronically to Gallagher Benefit Services at Lori_Hayes@ag.com.

The Owner reserves the right to hold all legitimate bids for a period of Thirty (30) days after the date fixed for the opening thereof. The Owner further reserves the right to reject any and all bids or portions thereof and to waive irregularities, and the Owner shall incur no legal liability for the payment of any monies until the contract is awarded and approved by the proper authorities.
Dated this 22nd day of April 2019
/s/ Darin Scherr
Darin Scherr, Business and Operations Manager

Bismarck Public School District #1
806 North Washington Street
Bismarck, North Dakota 58501
4/22 - 20968467

NOTICE OF BIDS

NOTICE IS HEREBY GIVEN that the Burleigh County Board of Commissioners, Burleigh County, North Dakota will accept bids until Monday, April 29, 2019 at 1:30 P.M. (Local Time). Bids will be opened and read at that time in the 1st Floor Conference Room of the City/County Building, located at 221 N. 5th St. in Bismarck, ND. The results and final disposition of the bid opening will be presented to the County Commission on Monday, May 6, 2019, beginning approximately at 5:00 PM (Local Time), in the Tom Baker room of the City/County building, for the following item:

Project No. 1004(19)-31 & 1004(19)-38 BURLEIGH COUNTY TOWNSHIP SEAL COAT PACKAGE

Proposed work includes Seal Coat, and Incidentals on Hay Creek and Lincoln Township Roadways within the limits of Burleigh County. All materials and procedures shall be in accordance with the current NDDOT Standard Specifications for Road & Bridge Construction, dated October 2014 and all supplemental material.

Bid packets shall consist of two separate envelopes (plainly marked as Project 1004(19)-31 & 1004(19)-38 Burleigh County Township Seal Coat Package on the outside), the outside envelope containing a current copy of Contractor's License and 5% Bidder's Bond with the second envelope containing the bid on the County's bid form. The successful bidder must submit evidence of general liability insurance coverage prior to award of bid.

Further information detailed specifications, bidding documents, etc., are available from the Burleigh County Engineer, 8100 43rd Ave NE, Bismarck, ND 58503. Phone 701-204-7748.

Plans are also available at the Burleigh County Project Website: <https://connex.mn.uccs.com>

Bids should be mailed to: **COUNTY AUDITOR/TREASURER, P.O. Box 5518, 221 N. 5TH ST., BISMARCK, NORTH DAKOTA 58506.**

The Board reserves the right to reject any and all bids; to waive technicalities or to accept such as may be determined to be in the best interest of the County.

BY ORDER OF THE BOARD OF COMMISSIONERS
BURLEIGH COUNTY, NORTH DAKOTA
This 7th day of January, 2019

KEVIN J. GLATT,
Burleigh County Auditor/Treasurer
4/8, 15 & 22 - 20967325

PUBLIC NOTICE DEADLINES

PUBLISH BY	RECEIVE BY
Mon.	Thurs. 12 Noon
Tues.	Fri. 12 Noon
Wed.	Fri. 5PM
Thurs.	Mon. Noon
Friday	Tues. Noon
Sat.	Wed. 12 Noon

*Early Deadlines For Holidays.

TODD K. KRANDA)
State Bar ID No. 04512)
KELSCH RUFF KRANDA NAGLE & LUD-)
WIG)
103 Collins Avenue, PO Box 1266)
Mandan, ND 58554)
Telephone: (701) 663-9818)
Fax: (701) 663-9810)
Email: kranda@kelschlaw.com)
Attorneys for: Estate)
IN THE DISTRICT COURT OF BURLEIGH)
COUNTY, SOUTH CENTRAL JUDICIAL)
DISTRICT, STATE OF NORTH DAKOTA)
In the Matter of the Estate of)
EDGAR W. SCHMIDT, Deceased)
Probate No. 08-2019-PR-00070

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed personal representative of the above estate. All persons having claims against the said deceased are required to present their claims within three months after the date of the first publication or mailing of this notice or said claims will be forever barred. Claims must either be presented to Kevin Schmidt, personal representative of the estate at P.O. Box 1266, Mandan, North Dakota 58554-7266 or filed with the Court. Dated this 3rd day of April, 2019.
/s/ Kevin Schmidt
Kevin Schmidt
Personal Representative
First Publication on the 8th day of April, 2019.

4/8, 15 & 22 - 20967583

STATE OF NORTH DAKOTA
COUNTY OF BURLEIGH
IN JUVENILE COURT
SOUTH CENTRAL JUDICIAL DISTRICT
IN THE INTEREST OF M.S.J., A CHILD
State of North Dakota,)
Petitioner,)
vs.)
M.S.J., Child;)
Kiana Starr, Mother;)
Arrow St. John, Father;)
Barb Oliger, Guardian ad Litem;)
and the Executive Director of)
Human Services Department,)
State of North Dakota;)
Respondents.)
File No. 08-2019-JV-00005

SUMMONS
THE STATE OF NORTH DAKOTA TO THE ABOVE-NAMED RESPONDENTS:
You are hereby summoned to appear personally at the Juvenile Court in the Burleigh County Courthouse, North Dakota, on the 10th day of May 2019 at 9:00 a.m. for the purpose of hearing the Petition made and filed with this Court. The Petition claims the child is alleged to be a deprived child, as more fully appears from the Petition. A copy of the Petition can be obtained at the Clerk of Court's office.

RIGHT TO HEARING BEFORE JUDGE
You are entitled to have the Petition heard by a Judge of the Juvenile Court, instead of by a Referee, by filing a written request for a Judge with the Clerk of this Court within seven (7) days after receiving this Summons.

RIGHT TO COUNSEL
If you desire the assistance of an attorney, and are unable without undue financial hardship to employ one, the Court, upon your request, will appoint an attorney for you.
Dated this 10th day of April, 2019
/s/
Judicial Referee
4/15, 22 & 29 - 20968271


STATE OF NORTH DAKOTA
COUNTY OF BURLEIGH
IN JUVENILE COURT
SOUTH CENTRAL JUDICIAL DISTRICT
IN THE INTEREST OF S.A.S.J., A CHILD
State of North Dakota,)
Petitioner,)
vs.)
S.A.S.J., Child;)
Kiana Starr, Mother;)
Arrow St. John, Father;)
Barb Oliger, Guardian ad Litem;)
and the Executive Director of)
Human Services Department,)
State of North Dakota;)
Respondents.)
File No. 08-2019-JV-00006

SUMMONS
THE STATE OF NORTH DAKOTA TO THE ABOVE-NAMED RESPONDENTS:
You are hereby summoned to appear personally at the Juvenile Court in the Burleigh County Courthouse, North Dakota, on the 10th day of May 2019 at 9:00 a.m. for the purpose of hearing the Petition made and filed with this Court. The Petition claims the child is alleged to be a deprived child, as more fully appears from the Petition. A copy of the Petition can be obtained at the Clerk of Court's office.

RIGHT TO HEARING BEFORE JUDGE
You are entitled to have the Petition heard by a Judge of the Juvenile Court, instead of by a Referee, by filing a written request for a Judge with the Clerk of this Court within seven (7) days after receiving this Summons.

RIGHT TO COUNSEL
If you desire the assistance of an attorney, and are unable without undue financial hardship to employ one, the Court, upon your request, will appoint an attorney for you.
Dated this 10th day of April, 2019
/s/
Judicial Referee
4/15, 22 & 29 - 20968274

North Dakota newspapers also post public notices that are printed in newspapers on www.ndpublicnotices.com at no additional charge to units of government.




City of Lincoln North Dakota
May 14 ·


Public Input Meeting tonight at City Hall at 7 pm to discuss wastewater options.

1 4 Shares

Like **Comment** **Share**




;



City of Lincoln North Dakota
May 17 ·

The packet that was handed out at the Wastewater informational meeting is linked below on the City of Lincoln Website.
<http://www.cityoflincolnnd.com/>





CITYOFLINCOLNND.COM
Welcome to City of Lincoln, ND

2 1 Comment 1 Share

Like **Comment** **Share**

Most Relevant





Jody Stewart Where? It only takes me to the city of Lincoln page.
Like · Reply · 30w

;

Appendix F

Solicitation Response Letters



Building a Better World
for All of Us®

December 11, 2019

Aaron Wellman
Environmental Engineer
North Dakota Department of Environmental Quality
918 E. Divide Ave., 3rd Floor
Bismarck, ND 58501

Dear Mr. Wellman:

The City of Lincoln is in the process of performing a Preliminary Environmental Review pursuant to the National Environmental Policy Act in order that it may assess the environmental impacts due to construction and operation of a mechanical treatment facility that will replace the City's existing lagoon system.

The funding for this project consists of State Revolving Fund through the ND Department of Health and City of Lincoln funds.

This project will involve construction of a Biological Nutrient Removal (BNR) continuous discharge mechanical wastewater treatment facility in order to increase the City's wastewater treatment capacity. The new facility will be constructed on city property next to the existing lagoon ponds and will consist of an influent lift station, control/laboratory building, preliminary treatment building, package plant tankage, dewatering building, and a cake storage structure, all to be located on the south side of the existing pond system. The existing wastewater discharge location will be utilized for a continuous discharge. Once the facility is operational, lagoon cell 2 will function as an equalization pond, while the other three cells will be decommissioned and reclaimed. An easement may be required for extension of utilities to the treatment site.

To ensure that all social, economic, and environmental effects are considered in the development of this project, we are soliciting your views and comments on the proposed project pursuant to Section 102(2) (D) (VI) of the National Environmental Policy Act of 1969, as amended. We are particularly interested in any comments in regards to the decommissioning and reclamation of the lagoon pond area.

It is requested that any comments be forwarded to our office on or before January 20, 2020. If no reply is received by this date, it will be assumed that you have no comments on this project.

Letter of Solicitation
December 11, 2019
Page 2

Responses can be mailed to:

ATT: Matthew Schaible, PE
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503

If further information is desired regarding the proposed water transmission line project, you may call me at (701) 354-7121.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

A handwritten signature in black ink that reads "Matthew Schaible". The signature is written in a cursive style with a long horizontal stroke extending to the left.

Matthew Schaible
Project Engineer

CLH

Attachments:

Lincoln Municipal Boundary and Existing Wastewater Treatment Facility
Proposed Continuous Discharge BNR Mechanical Facility Location

Wastewater Treatment Facility Location



Sec 18 T138 R79W

City of Lincoln

N Benteen Dr

N Schaan Dr

28th Ave SE

Reilly Rd



1
1

LINCOLN MUNICIPAL BOUNDARY AND WASTEWATER TREATMENT FACILITY



3535 VADNAIS CENTER DR
ST PAUL, MN 55110
PHONE: 651-490-2000
FAX: 651-490-2001
TOLL FREE: 800-374-2055
www.sehinc.com



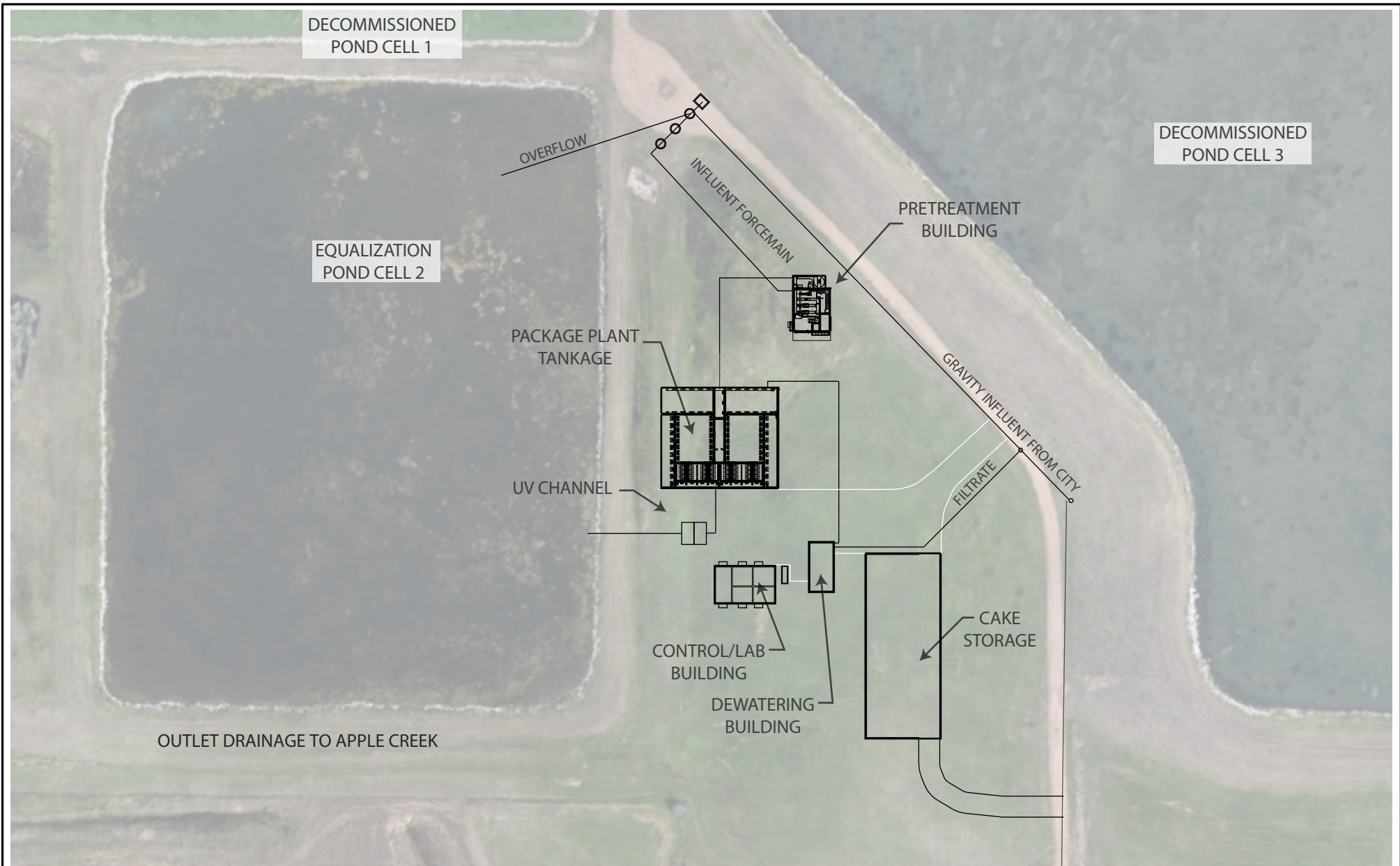
WASTEWATER TREATMENT
FACILITIES PLAN
LINCOLN, NORTH DAKOTA

FILE NO. LINND 141680
CITY PROJECT NO. 12/03/2018
ISSUED DATE

Short Elliot Hendrickson Inc. © (SEH)

SHEET TITLE
LINCOLN, ND WWTF
AERIAL IMAGE

Figure
1



NORTH

1
6

PRELIMINARY LAYOUT FOR CONTINUOUS DISCHARGE BNR MECHANICAL FACILITY ALTERNATIVE



Figure
9

SHEET TITLE
LINCOLN, ND WWTF
CONTINUOUS DISCHARGE
MECHANICAL FACILITY

FILE NO.
CITY PROJECT NO.
ISSUED DATE 8/21/2019

Short Elliot Hendrickson Inc. © (SEH)

LINCOLN WASTEWATER
TREATMENT FACILITIES PLAN

LINCOLN, NORTH DAKOTA



3535 VADNAIS CENTER DR
ST PAUL, MN 55110
PHONE: 651.490.2000
FAX: 888.906.8166
TOLL FREE: 800.325.2055
www.sehinc.com

December 26, 2019

Matthew Schaible
Project Engineer
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503

Re: City of Lincoln Biological Nutrient Removal system to replace city lagoons in
Burleigh County

Dear Mr. Schaible:

The North Dakota Department of Environmental Quality has reviewed the information concerning the above-referenced project received at the department on December 11, 2019, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the department's website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

The city must notify the North Dakota Pollutant Discharge Elimination System program of any planned changes to the waste water facility which may result in discharging new or different pollutants, or an increased amount of pollutants. This includes facility expansions, production increases and process modifications. Changes which result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) must be reported, also.

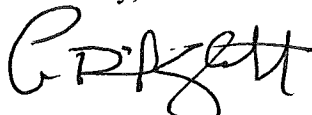
Sludge removal must be handled in accordance with the facility's NDPDES wastewater discharge permit, and applicable state and federal requirements. Further information regarding sludge or biosolids management may be obtained from the US EPA website (www.epa.gov).

4. The proposed construction project overlies the Apple Creek glacial drift aquifer, which is a sensitive groundwater area. Care should be taken to avoid spills of any materials that may have an adverse effect on groundwater quality. All spills must be immediately reported to this department and appropriate remedial actions performed.
5. All necessary measures must be taken to minimize the disturbance of any asbestos-containing material and to prevent any asbestos fiber release episodes. Any facility that is to be renovated or demolished must be inspected for asbestos. Notification of the department's Division of Waste Management (701-328-5166) is required before any demolition. Removal of any friable asbestos-containing material must be accomplished in accordance with section 33-15-13-02 of the North Dakota air pollution control rules.
6. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.
7. All solid waste materials must be managed and transported in accordance with the state's solid and hazardous waste rules. Appropriate efforts to reduce, reuse and/or recycle waste materials are strongly encouraged. As appropriate, segregation of inert waste from non-inert waste can generally reduce the cost of waste management. Further information on waste management and recycling is available from the department's Division of Waste Management at (701) 328-5166.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Director
North Dakota Department of Environmental Quality

LDG:dlp
Attach.

Construction and Environmental Disturbance Requirements

The following are the minimum requirements of the North Dakota Department of Environmental Quality for projects that involve construction or environmental disturbance in or near waters of the State of North Dakota. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect waters of the state. All projects must be constructed to minimize the loss of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

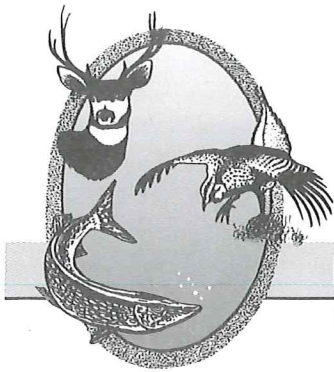
Prevent the erosion of soil and sediment loss using erosion and sediment controls. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, and land resources must be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction must be managed to minimize impacts to aquatic systems. Follow safe storage and handling procedures to prevent the contamination of water from fuel spills, lubricants, and chemicals. Stream bank and stream bed disturbances must be controlled to minimize silt movement, nutrient upsurges, plant dislocations, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near surface waters is allowed under the department's pesticide application permit with notification to the department.

Fill Material

Any fill material placed below the ordinary high-water mark must be free of topsoil, decomposable materials, and persistent synthetic organic compounds; including, but not limited to, asphalt, tires, treated lumber, and construction debris. The department may require testing of fill materials. All temporary fill must be removed. Debris and solid wastes must be properly disposed or recycled. Impacted areas must be restored to near original condition.



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

RECEIVED DEC 26 2019

GOVERNOR, Doug Burgum

DIRECTOR, Terry Steinwand

DEPUTY, Scott A. Peterson

December 17, 2019

Matthew Schaible
SEH
4719 Shelburne Street, Suite 6
Bismarck, North Dakota 58503

Dear Mr. Schaible:

Re: Lincoln Mechanical Treatment Facility

The North Dakota Game and Fish Department has received notification of the City of Lincoln's proposed construction of a new mechanical treatment facility that will replace the existing lagoon system. The new facility will be constructed on city property next to the existing lagoon ponds and will consist of an influent lift station, control/laboratory building, preliminary treatment building, package plant tankage, dewatering building and a cake storage structure. The existing wastewater discharge location will be utilized for a continuous discharge. The proposed tract is located in Section 18, Township 138 North, Range 79 West in Burleigh County, North Dakota.

It appears from the solicitation that there are wetlands within the project site. If the wetland is impacted by the construction or if it is utilized as a receiving basin for stormwater runoff, it should be mitigated off-site to maintain a no net loss of wetlands due to this project. A wetland delineation should be conducted to determine exact acreage. The Department recommends a mitigation plan be submitted with any necessary permit applications to facilitate the review process.

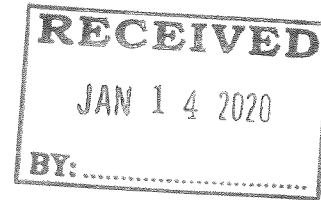
Sincerely,

A handwritten signature in blue ink that reads "Greg Link". The signature is stylized and written over the printed name.

Greg Link
Chief
Conservation & Communication Division

blk

NORTH
Dakota | Water Commission
Be Legendary.™



January 13, 2020

Matthew Schaible
SEH
4719 Shelburne Street, STE 6
Bismarck, ND 58503

Dear Mr. Schaible:

This is in response to your request for a review of the environmental impacts associated with the Lincoln's lagoon system project.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- There are floodplains identified and/or mapped where this proposed project is to take place. Areas are designated to be in Zone AE. North Dakota has no formal 'permitting' authority as a state entity in NFIP identified floodplain areas. The permitting is always done by the local entity, which has jurisdiction in the area in question. Please work closely with the City Floodplain Administrator.
- Initial review indicates the project does not require a conditional or temporary permit for water appropriation. However, if surface water or groundwater will be diverted for construction of the project, a water permit will be required per North Dakota Century Code § 61-04-02. Please consult with the Water Appropriations Division of the Office of the State Engineer if you have any questions at (701) 328-2754 or waterpermits@nd.gov.

Thank you for the opportunity to provide review comments. Should you have further questions, please contact me at 701-328-4970 or stevebest@nd.gov.

Sincerely,

A handwritten signature in black ink that reads "Steven Best".

Steven Best
Planner III

SB:dm/1570



December 30, 2019

Mr. Matthew Schaible
Short Elliott Hendrickson, Inc.
4719 Shelbourne St, Ste 6
Bismarck, ND 58503-5677

ND SHPO Ref.: 20-0150, City of Lincoln Biological Nutrient Removal continuous discharge mechanical wastewater treatment facility in portions of [T138N R79W Section 18] in Burleigh County, North Dakota

Dear Mr. Schaible,

We reviewed ND SHPO Ref.: 20-0150, City of Lincoln Biological Nutrient Removal continuous discharge mechanical wastewater treatment facility in portions of [T138N R79W Section 18] in Burleigh County, North Dakota. We recommend a Class III (pedestrian survey) of archaeological resources in the area that will be disturbed for the facility construction.

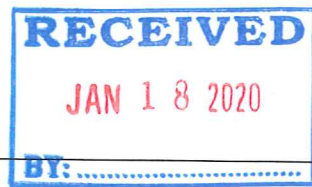
Thank you for the opportunity to review this project to date. We look forward to review of the Class III survey for archaeological resources.

Thank you for the opportunity to review this project. If you have any questions please contact Lorna Meidinger, Historic Preservation Specialist at (701) 328-2089 or lbmeidinger@nd.gov

Sincerely,

for Claudia J. Berg
State Historic Preservation Officer
(North Dakota)

20-0150



Natural Resources
Conservation Service

January 15, 2020

Bismarck State Office
PO Box 1458
Bismarck, ND
58502-1458

ATT: Matthew Schaible, PE
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503

Voice 701.530.2000
Fax 855-813-7556

RE: City of Lincoln Wastewater Treatment Plant Lagoon System Replacement

Dear Mr. Schaible:

Thank you for the opportunity to provide technical input to the City of Lincoln Wastewater Treatment Plant Lagoon System Replacement. Given the limited details provided in the letter and plan map, we are not entirely clear on your specific plans for decommissioning and reclamation, but will provide you with some general recommendations.

- All requirements of 40 Code of Federal Regulations (CFR), Ch. 503 Standards for the Use of Disposal of Sewage Sludge are followed. A notable inclusion is that surface disposal is not allowed in a wetland.
- Decommissioned pond cell 1 is located in the Apple Creek 1% Annual Chance floodplain, according to FEMA FIRM. The BFE 1645 is aligned through the middle of the pond. Therefore, it would be recommended that final grading allow for natural floodplain function, and maintain sheet flow conditions over a vegetated area.
- The proposed decommissioning pond cells are located within the Apple Creek Aquifer delineation. The aquifer appears to be very shallow, a nearby groundwater well (138-79-18 DBC) shows water level range is 1635-1640, which is 8-13 feet below natural ground elevation at cell 1. The natural soils hydraulic conductivity is ~8 micrometers/sec, which with shallow groundwater levels translates to less than a week travel time. Therefore, it would seem critical to either protect existing liner material that may be in place on the ponds, or to ensure full removal of sludges and contaminated soils.
- NRCS Conservation Practice Standard 360- Waste Facility Closure, applies to closure of animal waste ponds, however it likely provides some considerations applicable to your project- see attached.
- The Web Soil Survey Suitabilities and Limitations for Use regarding Sanitary Landfill (Area) is considered "Very Limited" for Pond 1. The reason for this rating is due to flooding, ponding, and shallow depth to saturated zone. All decommissioning should consider these suitabilities and limitations. For example, cap the ponds with very low hydraulic conductivity soil, or testing of onsite soils should be considered.

In summary, decommissioning and reclamation activities should consider surface as well as ground water quality. The nearby Apple Creek, wetlands, and Apple Creek Aquifer should be protected from disposal of sewage or remnant sludge. As you

Helping People Help the Land

Mr. Schaible

Page 2

know, the USDA-NRCS is not a regulatory agency, but we do provide technical input upon request as staff time allows.

Sincerely,

CHRISTI FISHER

State Engineer



Enclosure: Web Soil Survey Suitabilities and Limitations for Use regarding Sanitary Landfill (Area)

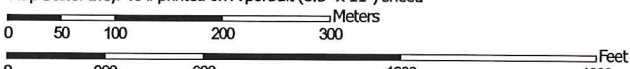
cc: Jonathan Petersen, NRCS State Hydrologist
Wade Bott, NRCS State Soil Scientist

Sanitary Landfill (Area)—Burleigh County, North Dakota























Soil Map may not be valid at this scale.

Map Scale: 1:6,740 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

- Area of Interest (AOI)
 - Area of Interest (AOI) 
 - Background  Aerial Photography
- Soils
 - Soil Rating Polygons
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
 - Soil Rating Lines
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
- Soil Rating Points
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
- Water Features
 - Streams and Canals 
- Transportation
 - Rails 
 - Interstate Highways 
 - US Routes 
 - Major Roads 
 - Local Roads 

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Burleigh County, North Dakota
 Survey Area Data: Version 20, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 19, 2014—Jul 20, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Sanitary Landfill (Area)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
C19A	Magnus silty clay loam, 0 to 1 percent slopes	Very limited	Magnus (80%)	Depth to saturated zone (1.00)	4.0	2.1%
				Dusty (0.05)		
			Straw, rarely flooded (5%)	Depth to saturated zone (1.00)		
				Flooding (0.40)		
				Dusty (0.03)		
			Harriet, occasionally flooded (4%)	Flooding (1.00)		
				Ponding (1.00)		
				Depth to saturated zone (1.00)		
			Ludden, occasionally flooded (4%)	Dusty (0.04)		
				Flooding (1.00)		
				Ponding (1.00)		
			Fluvaquents, channeled, frequently flooded (2%)	Depth to saturated zone (1.00)		
				Dusty (0.05)		
				Flooding (1.00)		
Ponding (1.00)						
Daglum (2%)	Depth to saturated zone (1.00)					
	Dusty (0.01)					
	Dusty (0.05)					
C317B	Lihen-Telfer loamy fine sands, 0 to 6 percent slopes	Very limited	Lihen (50%)	Seepage (1.00)	0.1	0.1%
			Telfer (35%)	Seepage (1.00)		
			Appam (4%)	Seepage (1.00)		
			Flaxton (4%)	Seepage (1.00)		
			Parshall (4%)	Seepage (1.00)		
			Dusty (0.01)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Hamar (3%)	Ponding (1.00) Depth to saturated zone (1.00) Seepage (1.00)		
C457A	Grassna silt loam, 0 to 2 percent slopes	Somewhat limited	Grassna (88%) Wilton (4%) Temvik (3%) Linton (2%) Mandan (2%)	Dusty (0.05) Dusty (0.05) Dusty (0.05) Dusty (0.05) Dusty (0.05)	11.2	5.7%
C490A	Straw loam, 0 to 2 percent slopes	Very limited	Straw, rarely flooded (75%) Velva, rarely flooded (5%) Korchea, occasionally flooded (5%) Daglum (4%) Fluvaquents, channeled, frequently flooded (4%) Lowe, occasionally flooded (4%)	Depth to saturated zone (1.00) Flooding (0.40) Dusty (0.03) Depth to saturated zone (1.00) Seepage (1.00) Flooding (0.40) Dusty (0.00) Flooding (1.00) Depth to saturated zone (1.00) Dusty (0.03) Depth to saturated zone (1.00) Dusty (0.05) Flooding (1.00) Ponding (1.00) Depth to saturated zone (1.00) Seepage (1.00) Dusty (0.01) Flooding (1.00) Ponding (1.00) Depth to saturated zone (1.00) Dusty (0.03)	22.5	11.4%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI		
			Ranslo, occasionally flooded (3%)	Flooding (1.00) Depth to saturated zone (1.00) Dusty (0.04)				
C491A	Straw-Fluvaquents channeled, complex, 0 to 2 percent slopes, frequently flooded	Very limited	Straw, frequently flooded (40%)	Flooding (1.00) Depth to saturated zone (1.00) Dusty (0.03)	13.6	6.9%		
			Fluvaquents, channeled, frequently flooded (30%)	Flooding (1.00) Ponding (1.00) Depth to saturated zone (1.00) Seepage (1.00) Dusty (0.01)				
			Velva, rarely flooded (10%)	Depth to saturated zone (1.00) Seepage (1.00) Flooding (0.40) Dusty (0.00)				
			Ranslo, occasionally flooded (6%)	Flooding (1.00) Depth to saturated zone (1.00) Dusty (0.04)				
			Rhoades (5%)	Depth to saturated zone (1.00) Dusty (0.05)				
			Lallie, frequently flooded (5%)	Flooding (1.00) Ponding (1.00) Depth to saturated zone (1.00) Dusty (0.05)				
			Lehr (4%)	Seepage (1.00) Dusty (0.02)				
C525A	Daglum-Belfield-Harriet occasionally flooded,	Very limited	Daglum (39%)	Depth to saturated zone (1.00)			0.6	0.3%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	complex, 0 to 2 percent slopes		Belfield (30%)	Dusty (0.05)		
Depth to saturated zone (1.00)						
Dusty (0.05)						
Harriet, occasionally flooded (18%)			Flooding (1.00)			
			Ponding (1.00)			
			Depth to saturated zone (1.00)			
			Dusty (0.04)			
Straw, rarely flooded (10%)			Depth to saturated zone (1.00)			
			Flooding (0.40)			
			Dusty (0.03)			
Grail (1%)			Depth to saturated zone (1.00)			
			Dusty (0.05)			
C584A			Harriet loam, 0 to 2 percent slopes	Very limited		
Ponding (1.00)						
Depth to saturated zone (1.00)						
Dusty (0.04)						
Ranslo, occasionally flooded (7%)	Flooding (1.00)					
	Depth to saturated zone (1.00)					
	Dusty (0.04)					
Fluvaquents, channeled, frequently flooded (5%)	Flooding (1.00)					
	Ponding (1.00)					
	Depth to saturated zone (1.00)					
	Seepage (1.00)					
	Dusty (0.01)					
Lowe, occasionally flooded (5%)	Flooding (1.00)					
	Ponding (1.00)					
	Depth to saturated zone (1.00)					

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.04)		
			Marysland (3%)	Ponding (1.00)		
				Seepage (1.00)		
				Depth to saturated zone (1.00)		
				Dusty (0.03)		
			Straw, occasionally flooded (2%)	Flooding (1.00)		
				Depth to saturated zone (1.00)		
				Dusty (0.03)		
			Stirum, occasionally flooded (2%)	Flooding (1.00)		
				Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Seepage (1.00)		
				Dusty (0.01)		
C661A	Niobell-Noonan loams, 0 to 3 percent slopes	Very limited	Niobell (46%)	Depth to saturated zone (1.00)	0.2	0.1%
				Dusty (0.04)		
			Noonan (37%)	Depth to saturated zone (1.00)		
				Dusty (0.04)		
			Hamerly (5%)	Depth to saturated zone (1.00)		
				Dusty (0.04)		
			Bowbells (3%)	Depth to saturated zone (1.00)		
				Dusty (0.04)		
			Hamerly, moderately saline (2%)	Depth to saturated zone (1.00)		
				Dusty (0.04)		
			Miranda (2%)	Depth to saturated zone (1.00)		
				Dusty (0.04)		
			Heil (2%)	Ponding (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Depth to saturated zone (1.00)		
				Dusty (0.05)		
			Parnell (1%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Dusty (0.05)		
C710D	Linton-Mandan silt loams, 9 to 15 percent slopes	Somewhat limited	Linton (47%)	Slope (0.63)	1.6	0.8%
				Dusty (0.05)		
			Mandan (32%)	Slope (0.63)		
				Dusty (0.05)		
			Bryant (3%)	Slope (0.63)		
				Dusty (0.05)		
			Temvik (3%)	Slope (0.63)		
				Dusty (0.05)		
C740A	Temvik silt loam, 0 to 3 percent slopes	Somewhat limited	Temvik (89%)	Dusty (0.05)	53.2	27.0%
			Mandan (3%)	Dusty (0.05)		
			Wilton (3%)	Dusty (0.05)		
			Williams (2%)	Dusty (0.04)		
			Linton (2%)	Dusty (0.05)		
C740B	Temvik silt loam, 3 to 6 percent slopes	Somewhat limited	Temvik (85%)	Dusty (0.05)	19.2	9.7%
			Wilton (5%)	Dusty (0.05)		
			Williams (4%)	Dusty (0.04)		
			Linton (3%)	Dusty (0.05)		
			Mandan (2%)	Dusty (0.05)		
C740C	Temvik silt loam, 6 to 9 percent slopes	Somewhat limited	Temvik (83%)	Dusty (0.05)	16.0	8.1%
			Williams (5%)	Dusty (0.04)		
			Sutley (5%)	Dusty (0.05)		
			Wilton (4%)	Dusty (0.05)		
			Linton (2%)	Dusty (0.05)		
C761A	Parshall-Lihen fine sandy loams, 0 to 2 percent slopes	Very limited	Parshall (65%)	Seepage (1.00)	5.9	3.0%
				Dusty (0.01)		
			Lihen (28%)	Seepage (1.00)		
			Appam (2%)	Seepage (1.00)		
			Flaxton (2%)	Seepage (1.00)		
C964D	Sen-Werner complex, 9 to	Very limited	Sen (40%)	Depth to bedrock (1.00)	0.9	0.5%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	15 percent slopes			Slope (0.63)		
				Dusty (0.04)		
			Werner (35%)	Depth to bedrock (1.00)		
				Slope (0.63)		
			Cohagen (8%)	Dusty (0.03)		
				Depth to bedrock (1.00)		
			Janesburg (4%)	Slope (0.63)		
				Depth to bedrock (1.00)		
			Vebar (5%)	Slope (0.37)		
				Seepage (1.00)		
			Janesburg (4%)	Slope (0.63)		
				Dusty (0.05)		
C996	Water	Not rated	Water (100%)		3.1	1.6%
C998	Water, miscellaneous	Not rated	Water, miscellaneous (100%)		41.1	20.8%
Totals for Area of Interest					197.2	100.0%

Rating	Acres in AOI	Percent of AOI
Somewhat limited	101.1	51.3%
Very limited	51.9	26.3%
Null or Not Rated	44.2	22.4%
Totals for Area of Interest	197.2	100.0%

Description

In an "area sanitary landfill," solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. A landfill must be able to bear heavy vehicular traffic. It can result in the pollution of ground water. Ease of excavation and revegetation should be considered.

The ratings are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, slope, and depth to bedrock or a cemented pan. Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If Ksat is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to

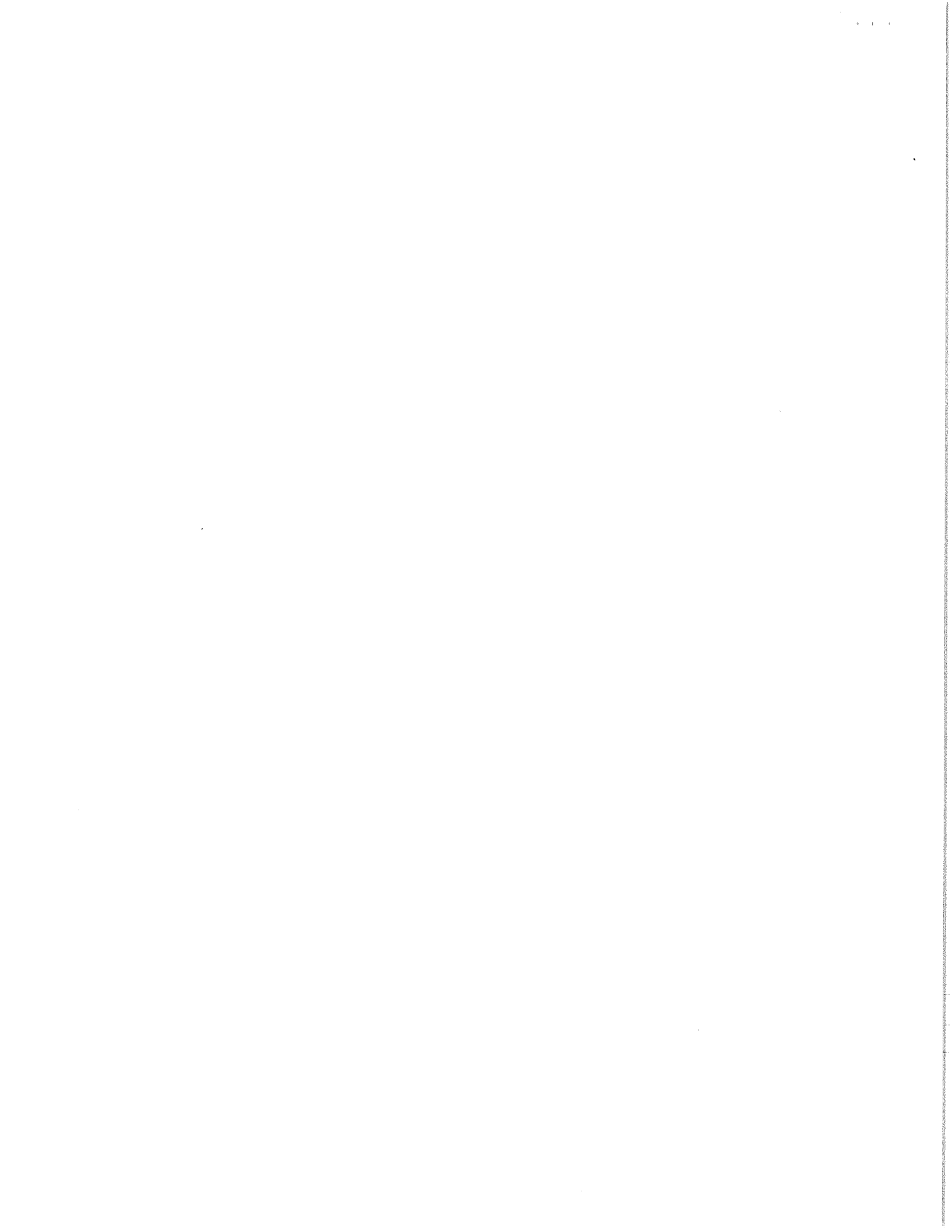
validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



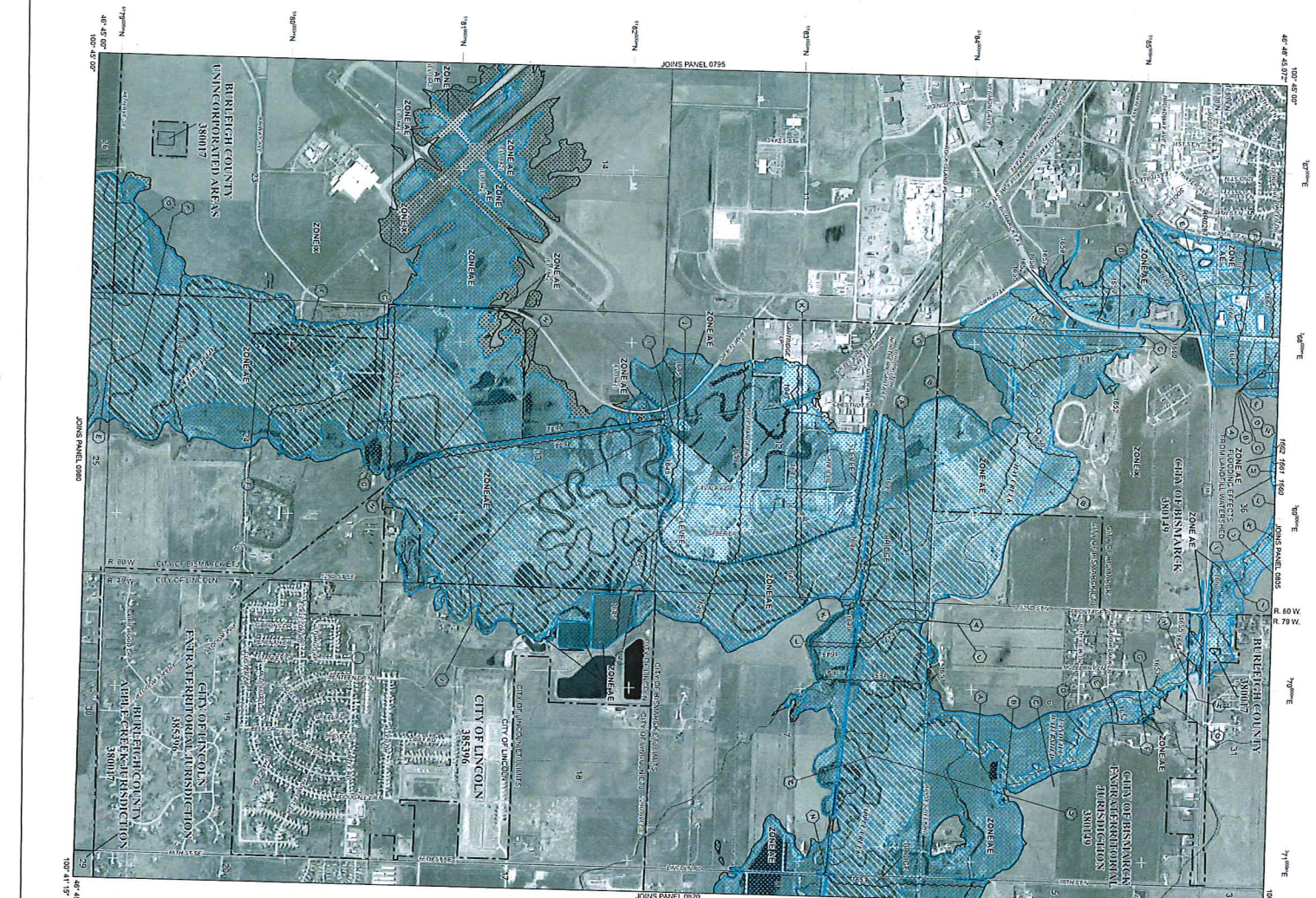
NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not constitute a warranty of accuracy or a guarantee of insurance coverage. It is intended for informational purposes only. The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community. The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community. The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community.

The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community. The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community. The information on this map is derived from the Flood Insurance Study Report and Flood Hazard Data Report for the community.



FIRM PANEL 8150
MAP SCALE = 1:100'
MAP DATE = 12/15/2020



*BFE at
 Lincoln w/d
 Treatment
 1645*

LEGEND

- Special Flood Hazard Area (SFHA) - Zone AE**
 The National Flood Insurance Program (NFIP) provides flood insurance coverage for Zone AE areas. Zone AE areas are subject to a 1% Annual Chance Flood (ACF) and are shown with a wavy blue pattern.
- Special Flood Hazard Area (SFHA) - Zone AH**
 The National Flood Insurance Program (NFIP) provides flood insurance coverage for Zone AH areas. Zone AH areas are subject to a 1% Annual Chance Flood (ACF) and are shown with a wavy blue pattern.
- Special Flood Hazard Area (SFHA) - Zone A99**
 The National Flood Insurance Program (NFIP) provides flood insurance coverage for Zone A99 areas. Zone A99 areas are subject to a 1% Annual Chance Flood (ACF) and are shown with a wavy blue pattern.
- Other Flood Areas**
 Areas that are not subject to the 1% Annual Chance Flood (ACF) are shown with a wavy blue pattern.
- Other Flood Areas**
 Areas that are not subject to the 1% Annual Chance Flood (ACF) are shown with a wavy blue pattern.
- Other Flood Areas**
 Areas that are not subject to the 1% Annual Chance Flood (ACF) are shown with a wavy blue pattern.

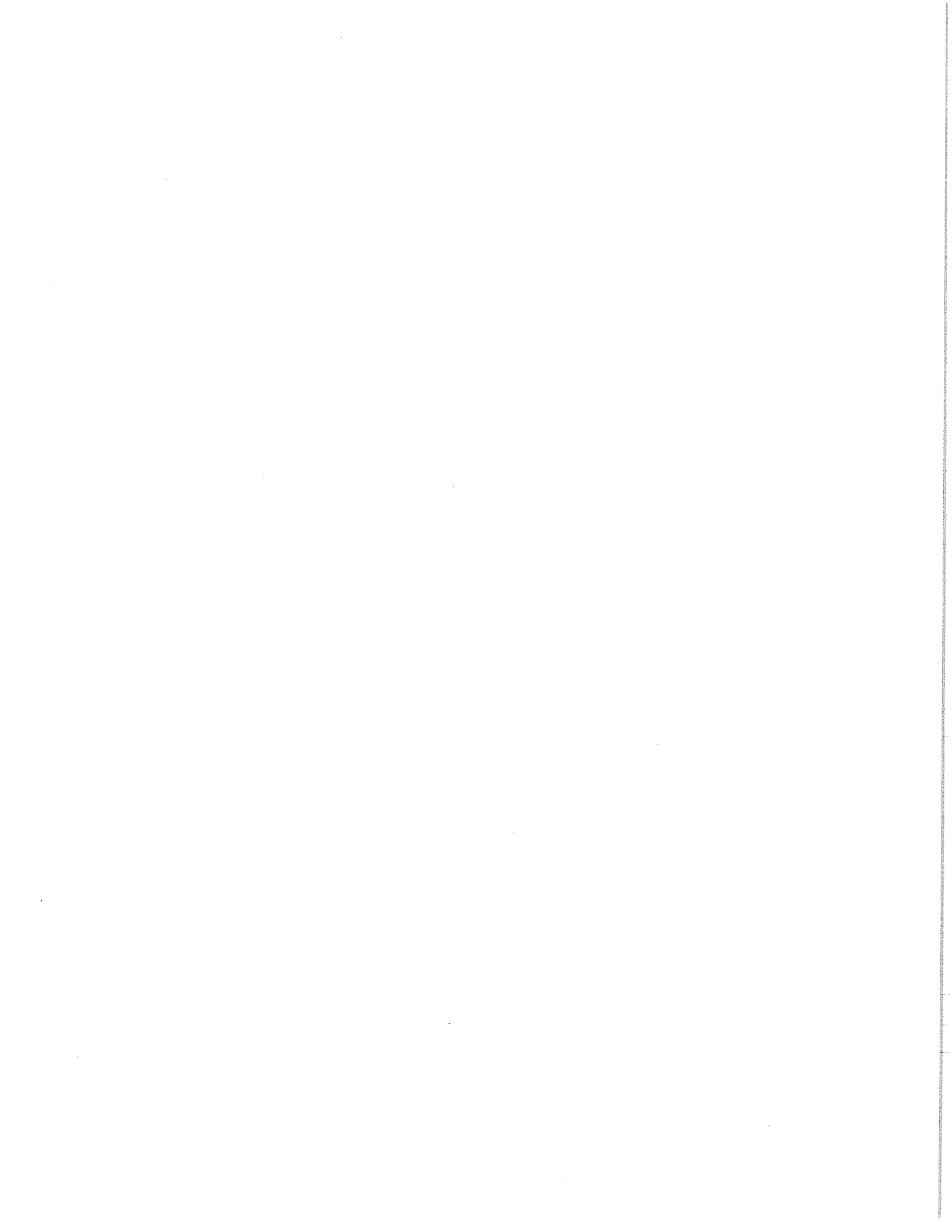
NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
BURLEIGH COUNTY,
NORTH DAKOTA
(AND INCORPORATED AREA)

PANEL 815 OF 1125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

MAP DATE = 12/15/2020
MAP SCALE = 1:100'
MAP REV. = AUGUST 4, 2

Federal Emergency Management Agency





Natural Resources Conservation Service
CONSERVATION PRACTICE STANDARD

WASTE FACILITY CLOSURE

(No.)

CODE 360

I. DEFINITION

The decommissioning of facilities, and/or the rehabilitation of contaminated soil, in an environmentally safe manner, where agricultural waste has been handled, treated, and/or stored and is no longer used for the intended purpose.

II. PURPOSE

- Protect the quality of surface water and groundwater resources.
- Mitigate air emissions.
- Eliminate a safety hazard for humans and livestock.
- Safeguard the public health.

III. CONDITIONS WHERE PRACTICE APPLIES

This practice applies to agricultural waste facilities or livestock production sites that are no longer needed as a part of a waste management system and are to be permanently closed or converted for another use. These facilities include liquid/dry waste storage facilities, confined animal housing, feedlots, livestock yards, or composting facilities.

This practice applies where impoundments that are to be converted to fresh water storage meet current NRCS standards.

Where structures that include agricultural waste storage, such as confined animal housing, are to be decommissioned, this practice will apply to the removal of the waste and rehabilitation of soil within the facility.

This practice applies to remediation of soil contaminated by agricultural wastes that have been stored on-site.

It does not apply to sites contaminated by materials that require the issuance of a hazardous waste permit, such as fuel or pesticides.

IV. CRITERIA

General Criteria Applicable to All Purposes

The closure shall comply with all Federal, State, and local laws, rules, and regulations including national pollutant discharge elimination system (NPDES) requirements.

All necessary local, state, and federal permits shall be obtained by the producer or their designee. Construction specifications and/or drawings will specify that NRCS be provided copies of all required permits prior to construction.

Excavation or embankment work within or near streams and wetlands may require a permit from the U.S. Army Corps of Engineers in accordance with Section 404 of the Clean Water Act (Bismarck Regulatory Office 701-255-0015). Projects that disturb more than 1 acre are required to develop a Stormwater Pollution Prevention Plan, and submit it along with a Notice of Intent to the ND Department of Health (stormwater@nd.gov). Projects within the ordinary high-water mark of navigable lakes and streams require a Sovereign Lands Permit from the ND State Water Commission (sovereignlands@nd.gov). Ensure that proposed embankments and/or overall site gradings involving fill do not increase the Base Flood (100-year recurrence interval) Elevation within Special Flood Hazard Areas (SFHA) by more than the allowable as defined by the local County Floodplain Administrator. Obtain a floodplain development permit through the local County Floodplain Administrator and the ND State Water Commission Floodplain Management Regulatory Program as necessary.

In addressing the National Environmental Policy Act (NEPA) for conservation practices within or near wetlands, sequencing must be conducted as per Executive Order 11990 included in Section G. Wetlands of the NRCS-CPA-052. Sequencing must include avoiding impacts if feasible. If avoidance is not feasible, a determination will be made using the North Dakota Minimal Effect Evaluation Worksheet. If the effects are determined to be minimal, the determination will be included in the NRCS-CPA-052. If the determination is not minimal, wetland mitigation must be completed. Implementation of the conservation practice(s) impacting the wetland(s) may begin upon obtaining all signatures on the wetland mitigation plan and agreement.

Existing waste transfer components that convey to waste facilities or provide drainage from the facility area shall be removed and replaced with compacted earth material or otherwise rendered unable to convey waste.

Remove manure, agricultural waste, and contaminated soil to the maximum extent practicable. All manure and agricultural waste that could negatively impact water and/or air quality or pose a safety hazard shall be removed as deemed practicable. All liquid, slurry, sludge, and solid waste, and soil removed from the facility shall be utilized in accordance with NRCS Conservation Practice Standards, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Precautions (fencing and warning signs) shall be used where necessary to ensure that the facility is not used for purposes incompatible with the facility modification.

Erosion and Pollution Control. All disturbed areas shall be re-vegetated or treated with other suitable measures used to control erosion and restore the aesthetic value of the site. Sites, not suitable for re-vegetation through normal cropping practices, shall be vegetated in accordance with NRCS Conservation Practice Standard, Critical Area Planting, Code 342.

Liquid and Slurry Waste Removal. Liquid and slurry wastes shall be agitated and pumped to the maximum extent practicable. Water shall be added as necessary to facilitate the agitation and pumping. The wastewater shall be utilized in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Sludge Removal. During sludge removal operations, the integrity of the liner, if one is present, shall be maintained. Sludge shall be removed to the maximum extent practicable. **Where manure has infiltrated into earthen storage facilities, sludge and contaminated soil shall be excavated to a depth beyond where manure-caused soil discoloration occurs.**

Sludge shall be hauled to an approved waste disposal site or utilized in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Impoundment Closure. Three options are associated with the decommissioning of liquid waste impoundments. One of the following will be used. **Waste and sludge shall be removed prior to breaching, backfilling, or conversion unless otherwise specified.**

1. Embankment Impoundments (those with a depth of water at the design water level of three feet or more above natural ground) may be breached so that they no longer impound water. The embankment material can then be graded into the impoundment area, and the area vegetated for another use. Or the embankment may remain if the impoundment area surface has been sufficiently cleaned so that runoff leaving the site would not be considered as contaminated by the wastes.
2. Excavated Impoundments may be backfilled so that these areas may be reclaimed for other uses.
3. Impoundments may be converted to fresh water storage.

Embankment Impoundments. Waste and sludge shall be removed from the impoundment before the embankment is breached. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The slopes and bottom of the breach shall be stable for the soil material involved, however the side slopes shall be no steeper than three horizontal to one vertical (3:1). **Excavate sludge can be removed post-breaching.**

Excavated Impoundments. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement. The top one foot of the backfill shall be constructed of the most impervious soil material readily available and mounded to shed rainfall runoff. Incorporate available topsoil where feasible to aid establishment of vegetation.

Conversion to Fresh Water Storage. The converted impoundment shall meet the requirements as set forth in the appropriate NRCS practice standard for the intended purpose. Where the original impoundment was not constructed to meet NRCS standards, the investigation for structural integrity shall be in accordance with National Engineering Manual (NEM) 501.23. When it is not practical to remove the sludge from a waste impoundment that is being converted to fresh water storage, the impoundment shall not be used for fish production, swimming, or livestock watering until the water quality is adequate for these purposes.

Fabricated Liquid Waste Facilities. If fabricated structures are to be demolished, disassembled or otherwise altered, it shall be done to such an extent that no water can be impounded. Disassembled materials such as pieces of metal shall be temporarily stored in such a manner that they do not pose a hazard to animals or humans until their final disposition.

Demolished materials shall be buried on-site or moved off-site to locations designated by state or local officials. If buried on-site, the materials are to be covered with soil to a settled depth of at least one foot. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

Dry Waste Storage or Treatment Facilities. The soil at dry waste facilities such as confined animal housing, feedlots, livestock yards, or composting facilities with earthen floors must be evaluated.

The evaluation shall include laboratory analyses of the soil profile for any nutrients for which specific information is needed to determine the required depth of rehabilitation. Soil samples shall be taken at multiple locations and depths within the facility. One sample per depth interval per acre of the area being decommissioned with a minimum of 3 samples per depth interval shall be taken. Samples taken for each specified sampling depth interval may be consolidated into a single set (e.g., 3 samples taken at the 0 to 6 inch depth interval may be consolidated into a single sample for testing). The samples shall be collected, prepared and tested in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590.

The results of the soil analysis will be used to prepare a plan to recover the site for its intended use. The following site appropriate options shall be utilized, if needed:

1. Adjust pH to restore desired crop growing conditions. **The desired range should be between 4.5 and 8.5 and will ultimately depend upon the planned use of the soil. Refer to NDSU Extension Service [SF-1321](#) "Effectiveness of Gypsum in the North Central Region of the U.S." and UNL Fact Sheet [G-1504](#) "Lime Use for Soil Acidity Management."**
2. Plant salt tolerant plants to restore the site to desired crop conditions. The harvested vegetation quality should be monitored for N, P, and K removal.
3. Select plants and erosion control practices to minimize phosphorus transport from the site and facilitate remediation of excessively high phosphorus levels.

If nutrient or salt stratification is an issue, performing tillage (i.e., plowing ripping, etc.) can be used to mix layers and dilute undesirable levels of nutrients and salts to allow vegetation establishment. Careful consideration must be given to prevent erosion and nutrient sediment loss from the site.

Although in-situ processes are the preferred method for adjusting the soil conditions, removal of a portion of the soil may be necessary. The removed soil shall be land applied in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633. Excavated areas shall be graded and or backfilled to shed rainfall and prevent ponding of runoff. Where feasible, available topsoil should be used to aid the establishment of permanent vegetation.

V. CONSIDERATIONS

Conduct pre-closure soil and water (surface and subsurface) testing to establish base line data surrounding the site at the time of closure. Establishing baseline data can be used in the future to address soil and water issues.

Where the surface is covered by a dense mat of floating vegetation, pumping effort to empty waste impoundments may be reduced by first applying herbicide to the vegetation and then burning the residue. Appropriate permits must be obtained before burning. When burning is conducted, take necessary actions to ensure that smoke is managed to minimize impacts to downwind populations. **Follow NRCS Conservation Practice Standard, Prescribed Burning, Code 338 for applicable criteria regarding a planned burn.**

Alternative methods of sludge removal may be required where the impoundments contain large amounts of bedding, oyster shells, soil, or other debris.

Minimize the impact of odors associated with land applying dry wastes and with agitation, emptying, and land applying wastewater and sludge from a waste impoundment by conducting these operations at a time when the humidity is low, when winds are calm, and when wind direction is away from populated areas. Adding chemical and biological additives to the waste prior to agitation and emptying can reduce odors. Odor impacts from land application can also be mitigated by using an incorporation application method.

Minimize agitation of the wastes to only the amount needed for pumping to reduce the potential for release of air emissions.

Soil to fill excavated areas should not come from important farmlands (prime, statewide, local, and/or unique).

Waste facility closure may improve utilization and aesthetics of the farmstead.

Breached embankments may detract from the overall aesthetics of the operation. Embankments should be removed and the site returned to its original grade.

Disassembled fabricated structures may be suitable for assembly at another site. Care should be taken during closure to minimize damage to the pieces of the facility, particularly coatings that prevent corrosion of metal pieces.

Measures should be taken during contractor's activities to minimize site erosion and pollution of downstream water resources. This may include such items as silt fences, hay bale barriers, temporary vegetation, and mulching.

To minimize potential impacts to livestock, such as nitrate poisoning, initiate a testing and monitoring program of nutrient levels in crop products, particularly livestock feeds, harvested from sites of closed animal confinement facilities.

VI. PLANS AND SPECIFICATIONS

Plans and specifications for the decommissioning of abandoned waste facilities and the rehabilitation of contaminated soil shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum, include the following:

1. A plan view showing the location and extent of the practice.
2. Pertinent elevations of the closed facility and excavation limits.
3. Number, capacity, and quality of facility(ies) and estimate of soil volume to be moved.
4. Location of known utilities.
5. Requirements for salvage and disposal of structural materials.
6. Vegetative requirements.
7. Utilization Plan for animal wastes and soil.
8. Odor management or mitigation requirement.
9. Safety plan requirements. Note: Per Occupational Safety and Health Administration (OSHA) confined space entry protocol, personnel shall not enter confined space of an enclosed waste facility without breathing apparatus or taking other appropriate measures.

VII. OPERATION AND MAINTENANCE

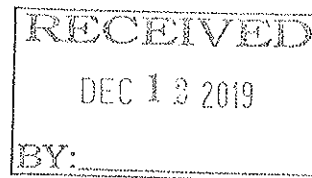
The proper decommissioning and rehabilitation of a waste facility should require little or no operation and maintenance. However, if it is converted to another use, such as a fresh water facility, operation and maintenance shall be in accordance with the needs as set forth in the appropriate NRCS conservation practice standard for the intended purpose.

VIII. REFERENCES

Rice, J.M., D.F. Caldwell, and F.J. Humenik. Ed. 2006. Closure of Earthen Manure Structures in Animal Agriculture and the Environment: National Center for Manure and Animal Waste Management White Papers, pp. 263-282. ASABE. Pub. Number 913C0306.



Building a Better World
for All of Us[®]



December 11, 2019

Scott Larson
Ecological Services
U.S. Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501

Dear Mr. Larson:

The City of Lincoln is in the process of performing a Preliminary Environmental Review pursuant to the National Environmental Policy Act in order that it may assess the environmental impacts due to construction and operation of a mechanical treatment facility that will replace the City's existing lagoon system.

The funding for this project consists of State Revolving Fund through the ND Department of Health and City of Lincoln funds.

This project will involve construction of a Biological Nutrient Removal (BNR) continuous discharge mechanical wastewater treatment facility in order to increase the City's wastewater treatment capacity. The new facility will be constructed on city property next to the existing lagoon ponds and will consist of an influent lift station, control/laboratory building, preliminary treatment building, package plant tankage, dewatering building, and a cake storage structure, all to be located on the south side of the existing pond system. The existing wastewater discharge location will be utilized for a continuous discharge. Once the facility is operational, lagoon cell 2 will function as an equalization pond, while the other three cells will be decommissioned and reclaimed. An easement may be required for extension of utilities to the treatment site.

To ensure that all social, economic, and environmental effects are considered in the development of this project, we are soliciting your views and comments on the proposed project pursuant to Section 102(2) (D) (VI) of the National Environmental Policy Act of 1969, as amended. We are particularly interested in any comments in regards to the decommissioning and reclamation of the lagoon pond area.

It is requested that any comments be forwarded to our office on or before January 20, 2020. If no reply is received by this date, it will be assumed that you have no comments on this project.

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 4719 Shelburne Street, Suite 6, Bismarck, ND 58503-5677
SEH is 100% employee-owned | sehinc.com | 701.354.7121 | 888.908.8166 fax

Letter of Solicitation
December 11, 2019
Page 2

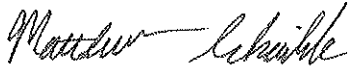
Responses can be mailed to:

ATT: Matthew Schaible, PE
Short Elliott Hendrickson, Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503

If further information is desired regarding the proposed water transmission line project, you may call me at (701) 354-7121.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.



Matthew Schaible
Project Engineer

CLH

Attachments:

Lincoln Municipal Boundary and Existing Wastewater Treatment Facility
Proposed Continuous Discharge BNR Mechanical Facility Location

U.S. FISH AND WILDLIFE SERVICE
ND Ecological Service Field Office

Project as described is not expected to have significant impact on fish and wildlife resources. Contact this office if changes to the project are made or new information becomes available.

12/31/19

Date



North Dakota State Supervisor



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
3319 UNIVERSITY DRIVE
BISMARCK, NORTH DAKOTA 58504-7565

RECEIVED DEC 23 2019

December 20, 2019

NWO-2004-60385-BIS

Short Elliott Hendrickson, Inc.
Attn: Mr. Matthew Schaible
4719 Shelburne Street, Suite 6
Bismarck, North Dakota 58503

Dear Mr. Schaible:

This is in response to your letter dated December 11, 2019, requesting comments on the proposed City of Lincoln; Biological Nutrient Removal (BNR) continuous discharge mechanical wastewater treatment facility construction project. The project is located in the NW ¼ of Section 18, Township 138 North, Range 79 West, Burleigh County, North Dakota.

U. S. Army Corps of Engineers Regulatory Offices administer Section 404 of the Clean Water Act (Section 404). A Section 404 permit would be required for the discharge of dredge or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material includes, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in waters of the United States.

Based on the information contained in your letter, the Corps has determined that your proposed project may need a Clean Water Act Section 404 permit. The permit application and instructions for completing the application are enclosed and may also be found at: <http://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit>. Be sure to accurately describe all proposed work and construction methodology. Once the application is complete, mail it to the letterhead address or to the email address below.

The North Dakota Regulatory office can accept (and prefers) electronic submissions to the following email: CENWO-OD-RND@usace.army.mil.

Please refer to identification number NWO-2004-60385-BIS in any correspondence concerning this project. If you have any questions, please contact Jeremy Nygard at U.S. Army Corps of Engineers, North Dakota Regulatory Office, 3319 University Drive, Bismarck, North Dakota 58504-7565, by email at Jeremy.S.Nygard@usace.army.mil, or telephone at (701) 255-0015 X 2006. For more information regarding our program, please visit our website at <http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/NorthDakota.aspx>.

Sincerely,

MCQUEARY.PATRI
CIA.L.1369971936

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Date: 2019.12.20 11:15:36 -06'00'

Patricia L. McQueary
State Program Manager
North Dakota

Enclosure

- ENG 4345 Permit Application Form
- Permit Application Instructions

U.S. Army Corps of Engineers (USACE)
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
 33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -
 OMB No. 0710-0003
 Expires: 02-28-2022*

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: <http://dpcl.d.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx>

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Middle - Last - Company - E-mail Address -			8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -		
6. APPLICANT'S ADDRESS: Address- City - State - Zip - Country -			9. AGENT'S ADDRESS: Address- City - State - Zip - Country -		
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax			10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax		

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)	
13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable) Address
15. LOCATION OF PROJECT Latitude: °N Longitude: °W	City - State- Zip-
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	

17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

**Instructions for Preparing a
Department of the Army Permit Application**

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reasons for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

Block 23. Description of Avoidance, Minimization, and Compensation. Provide a brief explanation describing how impacts to waters of the United States are being avoided and minimized on the project site. Also provide a brief description of how impacts to waters of the United States will be compensated for, or a brief statement explaining why compensatory mitigation should not be required for those impacts.

Block 24. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identify the authorization, if possible.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

Block 26. Information about Approvals or Denials by Other Agencies. You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 27. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.**



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Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a companywide commitment to act in the best interests of our clients and the world around us.

We're confident in our ability to balance these requirements.

