

Alternative 5.1 – Expansion of Stabilization Pond System



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	960	*	\$106,000	\$1,577,000
Total for Alternative	960	\$10,270,000	\$106,000	\$11,847,000

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.

Advantages:

- Similar operation to existing
- Existing operator class stays the same
- Low maintenance requirements

Disadvantages:

- Large land requirement
- Purchase of existing home/ buildings
- Odor potential during turnover (spring & fall)
- Difficult to modify if effluent limits are implemented by NDDOH

Alternative 5.2 – Regionalization with Bismarck

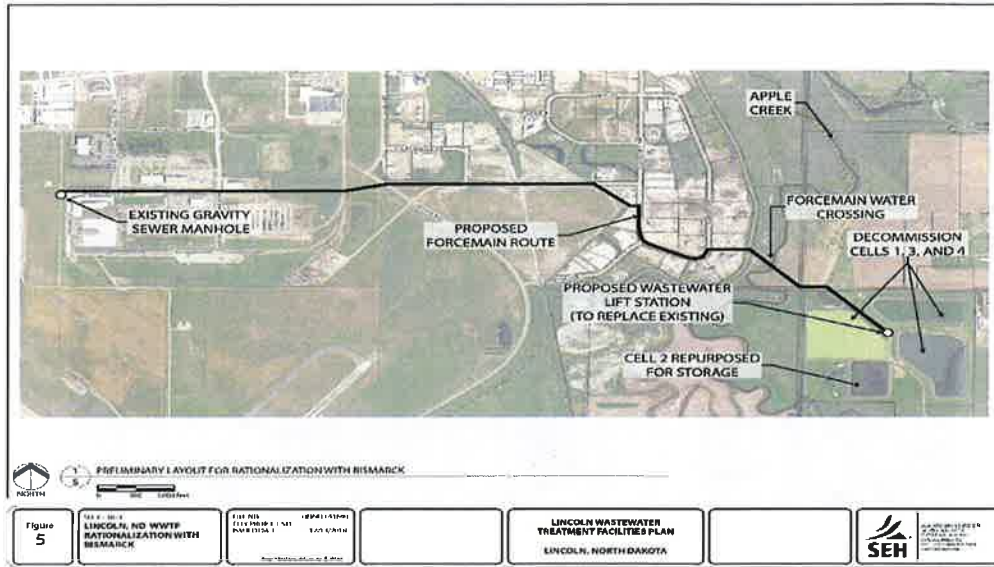


Table 12 – Probable Cost for Regionalization with Bismarck

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

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 Sewer rate of \$4.03 per 100 CF starting at 206,000 gpd currently to 594,000 gpd at design year.
 5 Wastewater user fee is \$405,000 per year at year one, increasing to \$1,168,000 at design year flow.

Advantages

- Eliminates outfall and NPDES permit
- Reduces potential of more stringent future nutrient limits
- Limits Lincoln's risk in the system
- Salvage Riprap
- Increased usable land and potential revenue
- No smell

Disadvantages

- Title 11.1 pretreatment ordinances
- Potential for rate increase
- Future capacity limits

Alternative 5.3a – Continuous Discharge Aerated Pond Mechanical Facility

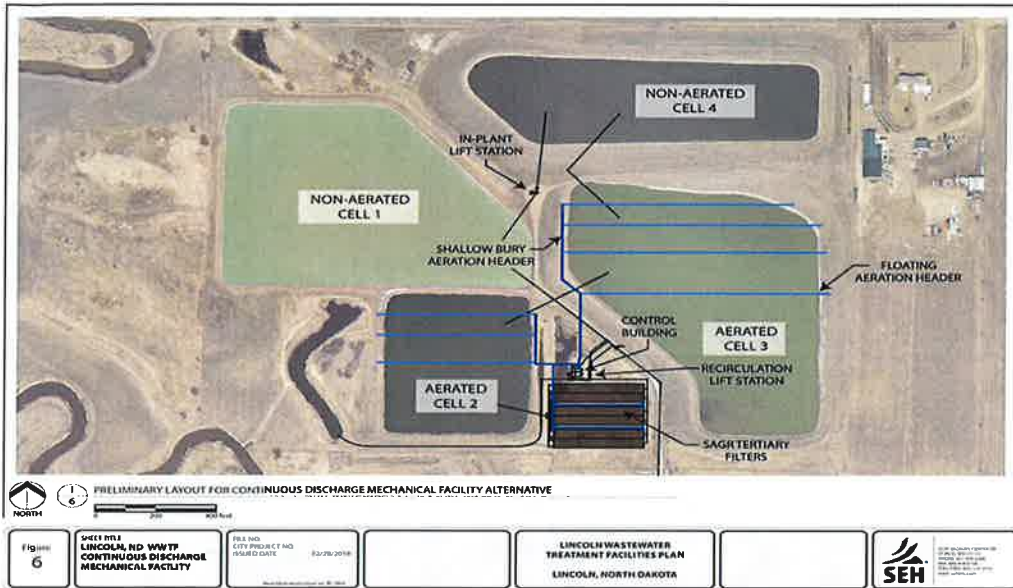


Table 15 – Probable Cost for Continuous Discharge Aerated Pond Mechanical Facility

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	*	\$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.

Advantages

- Utilizes existing discharge location
- Capability to meet changing effluent limits
- Minimal changes to existing system
- Capability of being built in segments = spread out cost

Disadvantages

- Higher operator certification required
- Increase in maintenance and utility costs
- Still have odor from cells, minimal in secondary cells due to aeration
- Power outages = generator costs

Alternative 5.3b – Continuous Discharge BNR Mechanical Facility

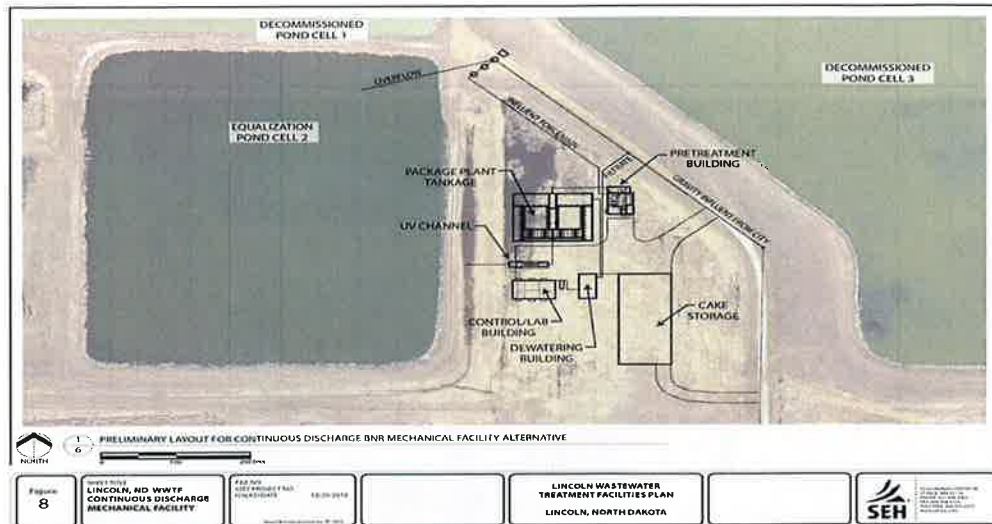


Table 18 – Probable Cost for Continuous Discharge BNR Mechanical Facility

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	*	\$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.				

Advantages

- Managed system allows for limited chemical addition
- Can increase incrementally = spread out cost
- No odor from ponds
- Ability to meet stringent effluent limits
- Increase usable land and potential revenue

Disadvantages

- Higher operator certification required
- Highest O & M costs (building and laboratory on-site)
- Preliminary treatment
- Highest per capita cost
- Biosolids management (sludge storage & land application)
- Power outages