

Facility Plan

DRAFT

Wastewater Treatment Facility

City of Medora, ND

Facility Plan

DRAFT

Wastewater Treatment Facility

City of Medora, North Dakota

Apex Project Number 25.717.0213

Certification

I hereby certify that this plan, specification or 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.

_____	Susan Hazelett
Signature	**Typed or Printed Name**
_____	PE-7539
Date	**License Number**

October 2026

Apex Engineering Group, Inc.
4733 Amber Valley Parkway South
Fargo, ND 58104

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1.0 Problem Definition and Background Data

The following section provides a brief history of Medora's wastewater treatment system, describes current treatment processes, and outlines the reference documents used to complete this Facility Plan. This Facility Plan fulfills the requirements of the North Dakota Department of Environmental Quality (NDDEQ), as the City of Medora intends to pursue a Clean Water State Revolving Fund (SRF) loan to finance the recommended improvements.

1.1 Background Facility Information

The City of Medora is in Billings County, North Dakota. Wastewater discharged by domestic and commercial users in the City of Medora is collected and conveyed to the existing wastewater lagoons via the municipal sanitary collection system. Constructed in multiple phases beginning in 1974, the facility now consists of one aeration lagoon and three facultative lagoons.

The hydraulic and organic capacity of a lagoon system are generally based on the wastewater flows for the peak half of the year and the average organic loading rate. However, Medora wastewater flows vary greatly depending on the time of year. The current population of Medora is approximately 150 full time residents. The population of Medora skyrockets in the summer with temporary employees, volunteers and tourists to several thousand people. With such a seasonal variation in population, utilizing typical textbook values for residential flow and loading rates can be misleading.

The current system has a hydraulic capacity of approximately 135,000 gallons per day (gpd). The average daily flow is approximately 18,500 gpd during the non-tourist season (September - May) and 121,400 gpd during the tourist season (June – August). The peak daily flow in the summer of 2026 was 147,680 gpd. Following treatment, effluent is discharged directly to the Little Missouri River.

Figure 1 City of Medora Need photo city limits



The current permanent population of Medora is approximately 150 residents. During the summer months, Medora's population increases by thousands of people who are not permanent residents. Hundreds of seasonal employees move into town to work at the various tourist attractions. Thousands of tourists visit the town daily, staying in the local hotels, eating in the restaurants, and visiting the local attractions. This seasonal population creates the vast majority of the summer wastewater flows. Developments, existing and planned, both inside and outside of the city limits wish to connect to the city's wastewater collection and treatment system.

1.2 Problem Definition

The City of Medora is wanting to increase the hydraulic and organic capacity of the city's wastewater treatment system to accommodate the existing and planned developments in the area. The primary objectives of this Facility Plan are to:

- Document future wastewater flow estimates
- Establish design flow and loading to the wastewater treatment facility
- Identify alternatives to meet the projected flows and loads
- Alternative analysis based on monetary and non-monetary factors
- Recommendation of an alternative to meet the wastewater treatment needs for the projected demands

1.3 Regulatory, Public Health, Environmental and Safety Issues

The selected alternative must address several environmental and regulatory constraints. Construction activities may require formal permitting from the BNSF Railroad and other state and local authorities. Any physical alterations or infrastructure modifications involving the Little Missouri River may require a Section 404 permit from the U.S. Army Corps of Engineers. Additionally. Transitioning the facility configuration may require a new individual NDPDES permit to govern continuous discharge operations and enforce future nitrogen and phosphorus removal limits.

Floodplain management is a critical design factor for the project. Based on the Flood Insurance Rate Map for the City of Medora, most of the city is in the flood zone of the Little Missouri River. Any structures that may influence the flood zone will need additional consideration during design and possible permitting. Those structures will also need to be constructed with flooding in mind. The FIRM is in Appendix E.

Public health considerations include localized odor control. Facultative lagoons are typically mandated to maintain a minimum quarter-mile buffer from the nearest residential development. Current local development is already within this buffer zone, making seasonal odors—particularly during spring turnover—a significant community concern. The physical expansion of the open lagoon cells could intensify these odor issues. The aeration cell construction in 2018 has decreased odors from the system significantly, but any improvements would need to keep odors in mind.

1.4 Planning Area

The City of Medora is basically landlocked. There is not much developable land within the City Limits. However, local businesses, hotels, and the National Park Service are trying to expand and encourage more tourism. Additional hotels, attractions, and other facilities are planned. The National Park Service is working on increasing educational opportunities within the Theodore Roosevelt National Park. The Theodore Roosevelt Presidential Library has recently opened. The Medora Area Plan is in Appendix A.

1.5 Population/Flow Projections

The design flow and organic load projections for the City of Medora have been calculated.

1.5.1 Historical Flow and Load Demand

The City's facultative lagoon system was originally constructed in 1974 and has been upgraded multiple times. The current system has a capacity of 135,000 gallons per day and is composed of an aeration cell and three facultative cells operated in series prior to discharge to the Little Missouri River. Cell 4 was upgraded in 2026. The wastewater system is shown in Figure 2.

Figure 2 City of Medora WWTF



The pump run times from the city's SCADA system were pulled to determine the current flows over the peak tourist times. A flow meter was also installed at the lift station to verify the flows from the city's SCADA system. We found the lift station flow data is properly calibrated and is represented well by the pump run times from the city's SCADA system.

Table 1 Wastewater Flows

Month	Minimum Day (gpd)	Average Day (gpd)	Maximum Day (gpd)
June 2026	86,037	94,594	103,650
July 2026	90,298	114,960	147,680
August 2026	107,834	123,778	140,050

Influent sampling was also done at the lift station, and the effluent from Cell 2 was also sampled. The analytical results are summarized in Table 2 alongside typical medium-strength domestic wastewater concentrations derived from Metcalf & Eddy's *Wastewater Engineering: Treatment and Resource Recovery* reference standards.

Table 2 Influent Wastewater Concentrations

Parameter	Typical Range[1]	Average Measurement	Units
5-Day Biochemical Oxygen Demand (BOD)	110 – 350 200 Typical	316	mg/L
Total Suspended Solids (TSS)	120 – 400 195 Typical	110	mg/L
Ammonia, as Nitrogen	12 – 45 20 Typical	55	mg/L
Total Phosphorus, as Phosphorus (TP)	4 – 12 5.6 Typical	6.7	mg/L
pH	-	7.5	SU

1 The typical range of medium strength untreated wastewater based on Wastewater Engineering Treatment and Resource Recovery by Medcalf and Eddy without ground up kitchen waste.

The City of Medora does not have significant industrial contributors but does have many restaurants and hotels. As shown in Table 2, the measured concentrations of standard parameters fall within typical ranges for domestic municipal wastewater, but BOD and ammonia are higher than typical. BOD ranged from 330 mg/L to 230 mg/L. The aeration system was designed on an average BOD value of 310 mg/L.

1.5.2 Design Flows and Demands

The design flows and demands vary greatly from the tourist season to the off season. For the purposes of this plan, the tourist season is June through August and the off season is from October to March. During the off season, there are approximately 150 residents in Medora. During the tourist season, the number of people in Medora can be in the thousands. Flows and demands are therefore based on a combination of measured existing flows, water use records provided by Southwest Water Authority and textbook design criteria as available. Future demands on the Medora system are based on the existing facilities on the west side of the Little Missouri River that will connect to it, planned future development in the city, and future developments planned on the west side of the river. Future developments include, but are not limited to, the following:

- Community Growth
- Tourism Growth
- New hotels and upgraded existing hotels
- Apartment units
- Riding stables
- Rodeo Arena and future Western Heritage Growth

Flow projections are summarized in Table 3.

Table 3 Design Flow Projections

Tourist Season (June-August)	Flow (gal)				Storage (gal)		Average Loading (lb/d)
	ADW	AWW	AD	PHWW (gpm)	90 Day	180 Day	BOD_{AWW}
Medora, Existing (2025)	87,429	114,589	102,922	299	7,868,610	13,050,930	296
Medora, Future Development	14,526	14,526	14,526	42	1,307,340	2,614,680	38
TRMF, Existing (2025)	44,375	44,375	44,375	123	3,993,750	7,987,500	115
TRMF, Future Development	44,572	44,572	44,572	124	4,011,435	8,022,870	115
Total	190,902	218,062	206,395	539	17,181,135	31,675,980	563

Notes:

1. For purposes of the report using lowest month of tourist season day for ADW. Best available data Dec. 2025.
2. For purposes of the report using highest month of tourist season for AWW. Best available data Dec. 2025.

Off Season (Oct.-March)	Flow (gal)				Storage (gal)		Average Loading (lb/d)
	ADW	AWW	AD	PHWW (gpm)	90 Day	180 Day	BOD_{ADW}
Medora, Existing (2025)	13,176	34,792	18,484	98		3,327,060	27
Medora, Future Development[3]	2,189	4,410	2,609	13		469,566	5
TRMF, Existing (2025)[3]	6,688	13,473	7,969	39		1,434,463	14
TRMF, Future Development[3]	6,717	13,533	8,005	40		1,440,815	14
Total	28,770	66,209	37,066	180		6,671,905	60

ADW	Average Dry Weather, average of lowest 30 day flow period in season[1]
AWW	Average Wet Weather, daily average of highest 30 day flow period in season[2]
AD	Average Daily, average day in season
PHWW	Peak Hourly Wet Weather (population based peaking factor)

90 Day Storage	June - August total flow
180 Day Storage	April - September total flow
BOD[4]	ADW BOD, design minimum month

Notes:

1. For purposes of the report using lowest month of off season day for ADW. Best available data Dec. 2025.
2. For purposes of the report using highest month of off season. Best available data Dec. 2025.
3. Assuming future development is consistant with existing development. (Off Season flows)/(Tourist Season flows) = 0.15
4. For purposes of the report using textbook value of 250 mg/l. Best available data Dec. 2025.

1.6 Summary of Geotechnical Investigations

A geotechnical investigation was conducted in 2018 in preparation of the construction of the aeration pond and blower building. Soil borings were conducted on the dike between cells 1 and 2, on the north and south side of cell 2, to the west of cell 2 and to the east of cell 1. The report gave recommendations for construction of Cell 2 as an aeration basin and structural requirements for the blower building. A second investigation may be needed during the design phase of the proposed upgrades to the system.

Figure 3 Location of Previous Soil Borings



AMERICAN ENGINEERING TESTING, INC.	PROJECT: WWTP Medora, North Dakota		PROJ. NO. 37-03688
	SUBJECT: Boring Location Map		DATE: May 8, 2018
	SCALE: Approximate Scale 1"=200'	DRAWN BY: KK	REVIEWED BY: WS

2.0 Effluent Discharge Regulations and Permit Requirements

The City of Medora discharges treated effluent to the Little Missouri River under National Pollutant Discharge Elimination System (NDPDES) Permit Number ND0022799. Authorized by the Clean Water Act, this program regulates point-source discharges into waters of the United States.

The current permit is valid through 2028 and authorizes controlled, seasonal discharges from the existing stabilization ponds to the Little Missouri River, which is classified as a Class IA water body. A complete copy of the current NDPDES permit is provided in the Appendix. The existing seasonal discharge limits are summarized in the following table.

Table 4 Current NPDES Permit Limits

Parameter	Effluent Limitation			Monitoring Requirements	
	Average Monthly Limit	Weekly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
5-day Biochemical Oxygen Demand (BOD_5)[a]	25 mg/L	45 mg/L	NA*	1/week	Grab
pH[a]	Shall remain between 6.0 to 9.0 s.u.			1/week	Grab
Total Suspended Solids, (TSS) [a]	30 mg/L	45 mg/L	NA*	1/week	Grab
Escherichia coli, (E. coli)[a,b]	126 organisms/ 100 mL	NA*	409 organisms/ 100 mL	1/week	Grab
Ammonia as Nitrogen[a,c]			Report	1/week	Grab
Effluent Flow, mgd[d]	Monitor Only			1/week	Calculated
Total Drian, mgal[d]	Monitor Only			1/weed	Calculated

* 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 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.

[d] The amount of water discharged shall be determined either by using a flow-measuring device or by recording the water-level drop in the pond.

The current permit allows for two discharges per year, one in the spring and one in the fall. To accommodate a continuous discharge at least in the summer, a new permit would be required. Continuous discharge criteria will likely be more stringent than the existing seasonal pond limits. A strict effluent ammonia limit will like be enforced during seasonal low flow periods in the receiving

waters. Disinfection requirements will also transition to continuous discharge regulations to protect recreational uses along the Little Missouri River.

In addition, the total nitrogen and total phosphorus limits may be implemented during the lifespan of the facility, though the exact regulatory timeline remains undefined. To ensure long term compliance and avoid future structural modifications, design of the selected alternative should consider possible future nitrogen and phosphorus limits. Once the permit for the new system is issued, it can be used to fine-tune the detailed engineering design of the treatment processes.

3.0 Analysis of Alternatives

Five alternatives have been considered in response to projected growth and anticipated nutrient effluent limits. The wastewater collection system is excluded from the scope of this project; modifications to the collection infrastructure will be restricted to the immediate vicinity of the wastewater treatment facility (WWTF) to accommodate the selected alternative.

The five alternatives evaluated include:

Alternative 1: Optimize Cells 3 and 4

Alternative 2: Optimize Cells 1 and 2

Alternative 3: Relocated Cells 3 and 4

Alternative 4: Relocate the entire system

Alternative 5: Partner with a neighboring community system

The preferred alternative will be engineered to fully comply with the Recommended Standards for Wastewater Facilities (Ten States Standards) and North Dakota Department of Environmental Quality (NDDEQ) design criteria. The selected facility will be constructed with flood protection measures ensuring resilience up to a 500-year flood event. Each alternative is evaluated below.

3.1.1 Alternative 1: Optimize Cells 3 and 4

Under this alternative, the City would maintain the existing wastewater treatment system within the existing property boundaries. Cells 3 and 4 would be rehabilitated to address algae and increase storage. Aeration would be added to Cell 1 to increase depth and allow for more storage. As flows increase, mechanical treatment and disinfection would be added for additional summer discharges.

Pros:

- This alternative could be stepped into as the community grows. Not all improvements would need to be made upfront.
- This utilizes the existing infrastructure.
- Operation and maintenance would remain similar to the existing.

Cons:

- Only so much storage can be added within the existing property.
- Requires extensive rehabilitation projects to Cells 1, 3 and 4.
- May require disinfection system to meet full future demands

Approximate Project Cost: $3,500,000

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3.1.2 Alternative 2: Optimize Cells 1 and 2

This alternative would include improvements within Cells 1 and 2. Cells 3 and 4 would eventually be removed, rehabilitated and used for other purposes. A disinfection system would be constructed to allow for continuous discharge throughout the summer. Winter flows would be contained within Cells 1 and 2 and discharged in the spring. The existing aeration blowers are currently operated at 60% capacity. They can be operated at higher rates as flows increase. A third blower can be added for redundancy when flows increase to that point.

Pros

- The city can utilize the land of Cells 3 and 4 for other purposes.
- This would utilize and optimize the existing infrastructure.
- No additional land needs to be acquired.
- This is the least expensive alternative.

Cons

- This will require continuous discharge during the summer months. A new NDPDES permit will be required with different discharge limits, additional testing and reporting.
- More operations and maintenance is required for testing and operation of the disinfection system. Weekly sampling and daily inspection will be necessary during times of continuous discharge.

Approximate Project Cost: $1,314,000

3.1.3 Alternative 3: Relocate Cells 3 and 4

This alternative relocates Cells 3 and 4 outside of the city. Property would be acquired to accommodate the new cells and sufficiently store wastewater throughout the summer months and discharge twice per year. Depending on the location of the new property, a new lift station may be needed to pump the wastewater to the new location. The existing cells would be rehabilitated according to NDDEQ requirements and could be used or sold as the city sees fit.

Pros

- The operation and maintenance of the overall system remain the same.
- The existing land for Cells 3 and 4 could be utilized for other purposes.
- Does not require optimization or modification of the existing aeration equipment

Cons

- Requires acquiring more property
- Pumping operation and maintenance costs may increase.

Approximate Project Cost: $6,300,000

3.1.4 Alternative 4: Relocate the entire system

This alternative would relocate the entire wastewater treatment system away from the city. Sufficient property would need to be acquired to provide enough acreage to construct a lagoon system to serve future needs. A new lift station would be constructed to pump wastewater to the new lagoon system. The existing properties would be rehabilitated for other uses.

Pros:

- Existing property could be utilized for other purposes.
- The entire system would be in one area.

Cons:

- Requires acquiring new property sufficient for the system.
- Operation and maintenance costs of the new pumping system would be greater.
- Would not be able to utilize the existing equipment.
- Would require new discharge locations.

Approximate Project Cost: $7,800,000

3.1.5 Alternative 5: Partner with neighboring community system

This alternative would pump all of the wastewater from the area to another neighboring community for treatment and disposal. The nearest locations would be either Belfield or Dickinson. This alternative would require over 21 miles of forcemain and possibly multiple lift stations. The existing properties could be rehabilitated and used for other purposes.

Pros

- The existing property could be utilized for other purposes.
- The treatment system would be operated and maintained by others.

Cons

- This alternative is the most expensive. Operation of the lift station(s) would be on the city.
- Depending on the agreement reached between the city and the neighbor, the city may be charged a high rate for the treatment of their wastewater.
- There will be multiple issues related to permitting, easements, and pipeline installation. The elevation differences between Medora and the neighboring community will make construction difficult.
- Medora would loose control of their wastewater treatment and be dependent upon the neighboring city.

Approximate Project Cost: $15,000,000

3.2 Comparison of Alternatives

3.2.1 Cost Analysis

An initial opinion of probable costs is shown in the following table.

Table 5 Alternative Cost Analysis

Alternative	Capital Cost (2026 $)
Optimize Cells 3 and 4	$3,500,000
Optimize Cells 1 and 2	$1,314,000
Relocate Cells 3 and 4	$6,300,000*
Relocated the entire system	$7,800,000*
Partner with Neighboring System	$15,000,000

*Does NOT include cost of land.

3.2.2 Non-monetary factors

Long-term municipal autonomy and utility control serve as critical non-monetary drivers for the City of Medora. Interconnecting with a neighboring city eliminates local oversight. It places Medora under the jurisdiction of their rate structures, shifting compliance mandates, and possibly requiring Pretreatment Ordinance requirements. Medora would lack direct legislative representation, forcing compliance with external utility tax or fee increases. A regional partnership introduces long-term administrative coordination challenges, as service agreements would need to account for future boundary planning and potential service area expansions.

3.3 Compliance with Regulations and Permit Requirements

Transitioning to a continuous discharge facility requires the City of Medora to secure a new North Dakota Pollutant Discharge Elimination System (NDPDES) permit from the NDDEQ. A formal continuous discharge application must be prepared and submitted prior to construction completion. Securing the continuous discharge permit in advance ensures immediate operational compliance upon facility startup.

3.4 Alternative Selection Process

The alternative selection process integrated comprehensive engineering evaluations, political criteria, and municipal financial constraints. The City of Medora facilitated a transparent selection process through public hearings and workshops. These meetings allowed stakeholders to evaluate the long-term socioeconomic and environmental impacts of each alternative before finalizing the municipal utility path forward.

4.0 Selected Alternative and Recommendations

4.1 Description of Selected Alternative

The selected alternative for the City of Lincoln is **Alternative 2: Optimize Cells 1 and 2**. The

4.2 Public Participation and Civic Engagement

Public engagement was actively maintained throughout the facility planning and amendment process to ensure transparency and community consensus. The selection of the mechanical plant alternative was vetted across multiple open City Council workshops and dedicated public hearings. During these meetings, engineers and city staff presented side-by-side comparisons of the financial lifecycle costs, non-monetary municipal autonomy factors, and environmental impacts of each of the five alternatives. Community feedback heavily favored maintaining local control over utility rates and long-term infrastructure growth, leading to the selection of Alternative 5.

4.3 Recommendations

Based on the engineering evaluation and the selection of Alternative 2, it is recommended that the City of Medora proceed with the following implementation steps to maintain project schedule and ensure regulatory compliance:

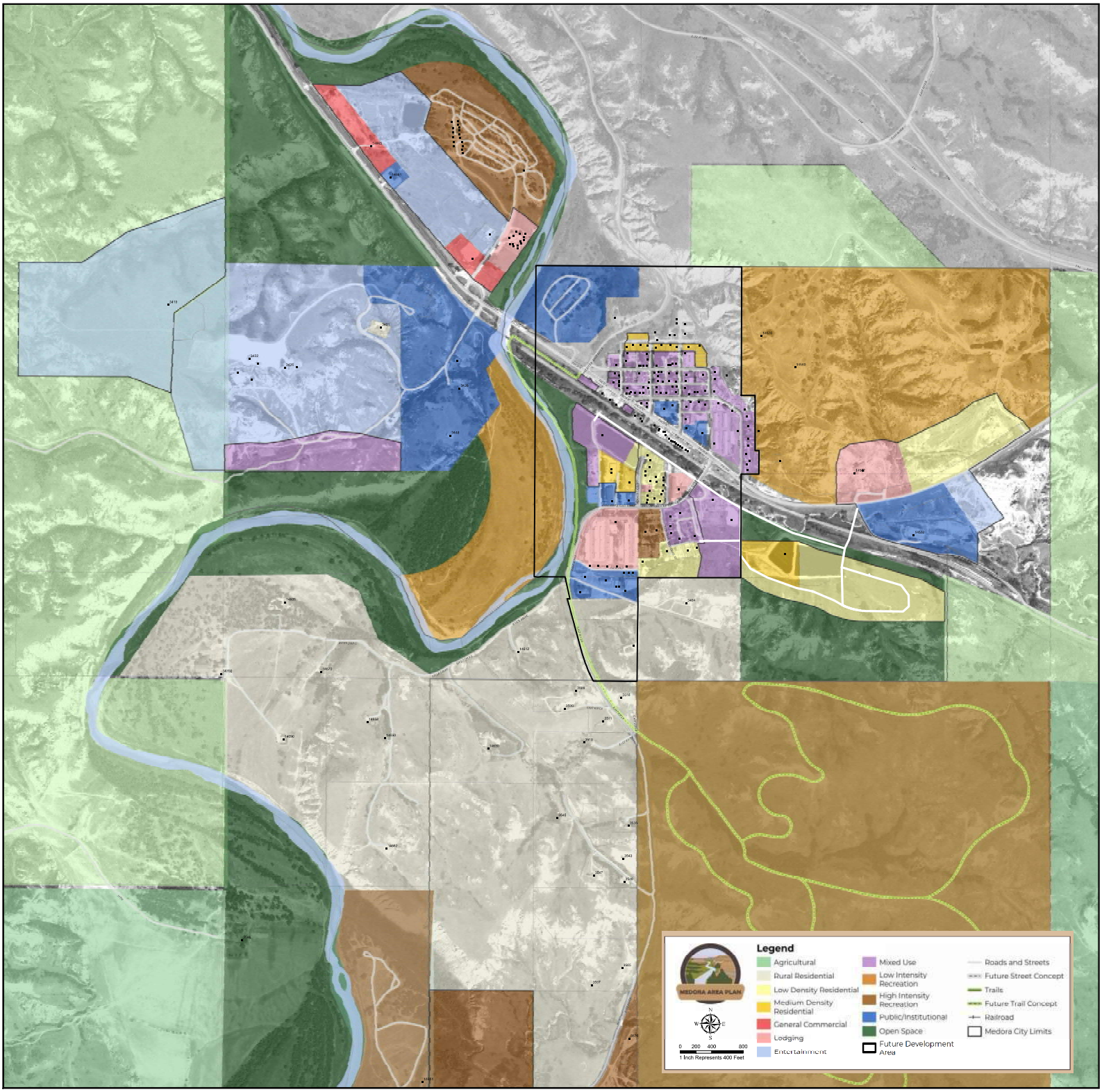
- **Submit Facility Plan:** Finalize and submit this document to the NDDEQ to secure formal approval of the selected alternative and establish the baseline for future permit negotiations.
- **Initiate NDPDES Permit Coordination:** Engage in a pre-application coordination meeting with the NDDEQ regarding the new continuous discharge permit to solidify the target parameters and monitoring expectations well ahead of facility startup.
- **Begin Geotechnical and Site Investigations:** Authorize localized soil borings and hydrological testing at the site to inform the structural design of the disinfection system.
- **Pursue Funding Frameworks:** Finalize the project financing plan by preparing applications for the Clean Water State Revolving Fund (SRF) and other state or federal infrastructure funding.
- **Authorize Final Engineering Design:** Transition the project from the planning and preliminary design phase into final design and engineering, allowing for the development of detailed construction plans, equipment specifications, and contract bidding documents.

The following schedule is proposed.

Table 5 Proposed Schedule

Item	Date
Planning and Preliminary Design	January – March 2027
Environmental Review and Submit Facility Plan	November – December 2026
Final Design	March – May 2027
Submit Plans and Specifications to NDDEQ	May 2027
Advertise for Bids	May 2027
Open Bids and Award Contract	June – July 2027
SRF Loan Application	January 2027
Begin Construction	July 2027
Substantial Completion	December 2027
Final Completion and Loan Closeout	May 2028

Appendices


MEDORA AREA PLAN
N
W
E
S
0 200 400 800
1 Inch Represents 400 Feet
Legend
Agricultural
Rural Residential
Low Density Residential
Medium Density Residential
General Commercial
Lodging
Entertainment
Mixed Use
Low Intensity Recreation
High Intensity Recreation
Public/Institutional
Open Space
Future Development Area
Roads and Streets
Future Street Concept
Trails
Future Trail Concept
Railroad
Medora City Limits

Appendix A Medora Area Plan

Appendix B Environmental Solicitation Letter and Agency Responses

Summary of Responses Received to the Environmental Solicitation Letter	
US Dept. of Agriculture	
US Army Corp of Engineers	
US Fish and Wildlife	
US Dept. of the Interior – Consistency Letter	
ND Dept of Environmental Quality	
State Water Commission/Dept. of Water Resources	
ND Game and Fish	
ND SHPO	

Apex Engineering Group
Water | Transportation| Municipal | Facilities

701.323.3950
600 South 2nd Street
Bismarck, ND 58504

February 23, 2026 DRAFT

Name
Organization
Address

PROJECT NO. City of Medora Wastewater Facility Improvements
Apex No. 25.717.0213
CWSRF Tracking No. 380890-01

The City of Medora, ND is proposing improvements to the City's wastewater lagoon system. This project is located in the City of Medora, Billings County, North Dakota. A site map is enclosed for the project. The City intends to fund this project using the North Dakota Clean Water State Revolving Fund program.

The City of Medora's wastewater treatment system needs to be upgraded to accommodate future growth in the City. The existing wastewater lagoons were constructed in 1974. They have been upgraded several times since then. However, with the growth occurring within area, the lagoon system will not be adequate. The City has decided to optimize the existing system, upgrading the aeration system, adding disinfection, and make improvements that will allow continuous discharging in the summer months. See enclosed map.

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) (IV) of the National Environmental Policy Act of 1969, as amended. We are particularly interested in any property which your department may own or have an interest in, and which would be adjacent to the proposed projects. Any information that might help us in our studies would be appreciated. Information or comments relating to environmental or other matters that you might furnish will be used to determine if this project is a "categorical exclusion" or whether an "Environmental Assessment" or a "Draft Environmental Impact Statement" will be prepared.

It is requested that any comments or information be forwarded to our office on or before November 15, 2024. If further information is desired regarding these proposed projects, please contact Susan Hazelett at 701-224.3101 or susan.hazelett@apexenggroup.com.

Thank you for your time on this project.

Apex Engineering Group, Inc.

Susan Hazelett, PE

Enclosure

Appendix C Public Participation

Appendix D Cost and Effectiveness Analysis Form

CWSRF CERTIFICATION OF COMPLIANCE WITH COST AND EFFECTIVENESS ANALYSIS

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF MUNICIPAL FACILITIES
05-2019

Federal Water Pollution Control Act Section 602(B)(13) of the
Water Resources Reform and Development Act of 2014 (WRRDA)

CWSRF Project No.: _____

Loan Recipient: _____

Project: _____

1) The municipality has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought.

2) To the maximum extent practicable, the municipality has selected a project that maximizes the potential for efficient water use, reuse, and recapture, along with water and energy conservation. Selection also takes into account the cost of:

    - Constructing the project or activity
    - Operating and maintaining the project or activity over its useful life
    - Replacing the project or activity

We certify that the project has completed both requirements (1) and (2) above.

Professional Engineer

Print name: _____

Signature: _____

Date: _____

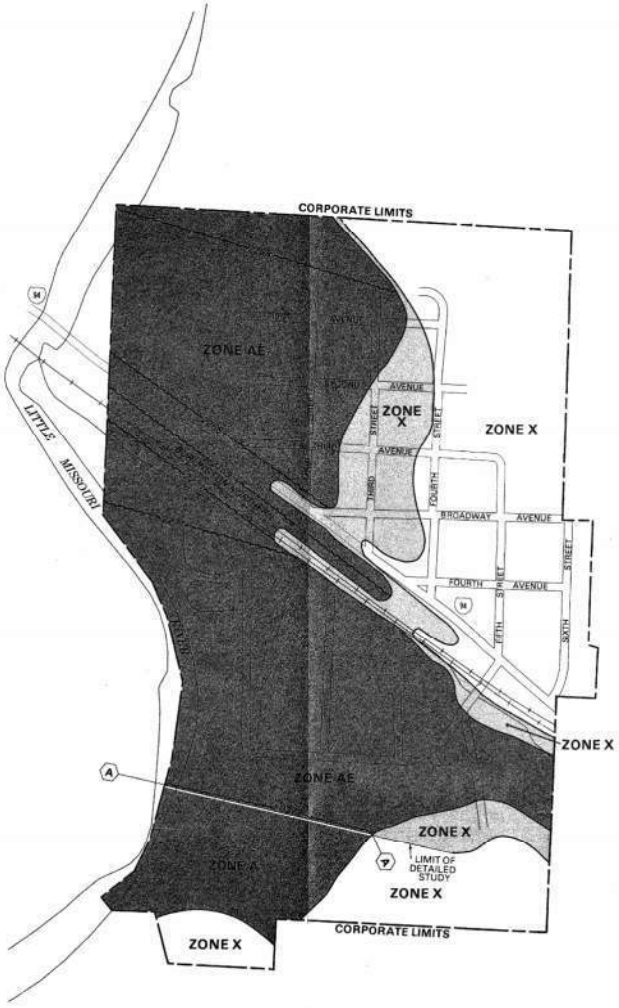
Loan Recipient Representative

Print name: _____

Signature: _____

Date: _____

Appendix E FIRM for Medora, ND



OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year flood plain.

ZONE D Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 Base Flood Elevation Line; Elevation in Feet*

D — D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

$RM7_X$ Elevation Reference Mark

*Refereniced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Elevations reference marks are described in the Flood Insurance Study Report.

MAP REPOSITORY
Office of City Hall
City of Medora
County Courthouse
Medora, North Dakota 58601
(Maps available for reference only, not for distribution.)

INITIAL IDENTIFICATION:
NOVEMBER 29, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
SEPTEMBER 29, 1989

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
MEDORA,
NORTH DAKOTA
BILLINGS COUNTY

ONLY PANEL PRINTED