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Strand Associates, Inc.®

Regional Wastewater Treatment Plant High Level Planning and Budget Development

City of East Moline

November 4, 2024

CITY OF EAST MOLINE

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Presentation Outline

- High Level Plan Goals
- WWTP History
- WWTP Needs and Project Drivers
- Key Considerations
- High Level Plan and Costs
- Next Steps and Schedule

Aerial Source: Google Earth

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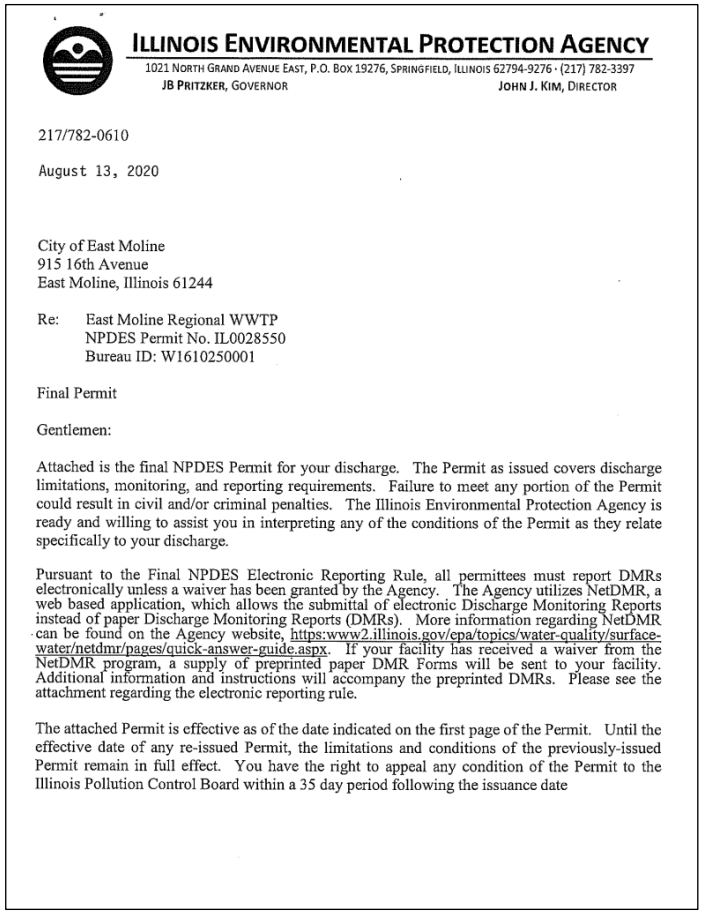
Goals of WWTP High Level Plan

- Implement processes to meet regulatory requirements (phosphorus removal)
- Improve efficiencies and reliability by replacing aging equipment and processes.
- Modernize facility to meet current design and code standards.
- Provide confident direction for the next several decades.
- Maintain room and flexibility for future upgrades.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 · (217) 782-3397
JB Pritzker, Governor John J. Kim, Director

217/782-0610

August 13, 2020

City of East Moline
915 16th Avenue
East Moline, Illinois 61244

Re: East Moline Regional WWTP
NPDES Permit No. IL0028550
Bureau ID: W1610250001

Final Permit

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

Pursuant to the Final NPDES Electronic Reporting Rule, all permittees must report DMRs electronically unless a waiver has been granted by the Agency. The Agency utilizes NetDMR, a web based application, which allows the submittal of electronic Discharge Monitoring Reports instead of paper Discharge Monitoring Reports (DMRs). More information regarding NetDMR can be found on the Agency website, https:www2.illinois.gov/epa/topics/water-quality/surface-water/netdmr/pages/quick-answer-guide.aspx. If your facility has received a waiver from the NetDMR program, a supply of preprinted paper DMR Forms will be sent to your facility. Additional information and instructions will accompany the preprinted DMRs. Please see the attachment regarding the electronic reporting rule.

The attached Permit is effective as of the date indicated on the first page of the Permit. Until the effective date of any re-issued Permit, the limitations and conditions of the previously-issued Permit remain in full effect. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date

NPDES Permit Requires Compliance with Effluent TP Limit of 0.5 mg/L by 2030

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WWTP History of Construction

Original WWTP is 65 years old.

Many structures are over 50 years old

Aerial Source: Google Earth

Structures

1959

1974

2011

Equipment Replacement

1997 2008 2011

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Project Need and Drivers

- Regulatory Requirements (Phosphorus Removal)
- Plant Age and Deficiencies
- Improve Accessibility, Operability, and Reliability
- Energy Efficiency and Sustainability

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The WWTP is Showing Its Age

Influent Pump Station

Primary Clarifier Equipment,
Weirs and Baffles

RAS Sludge Pumps and Piping

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The WWTP is Showing Its Age

Aeration Tanks

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Final Clarifiers Do Not Meet Illinois Administrative Code Title 35 Requirements

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Key Consideration: Improve Accessibility, Operability, and Reliability

Aeration Tank Walkways and Handrails

Influent Screening Room

Backup Generators, Electrical & SCADA

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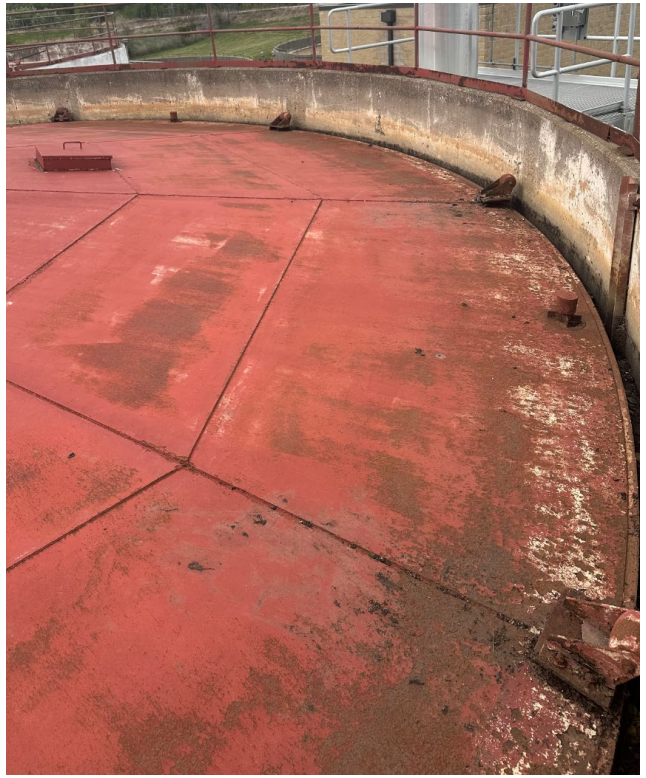
Key Consideration: Improve Energy Efficiency and Sustainability



Anaerobic Digester Covers

Biogas Holding Sphere

Boilers for Anaerobic Digesters
(biogas is currently flared)

Recommended Plan Includes Latest Treatment Technologies

Existing Centrifugal Aeration Blowers

Energy Efficient High Speed Turbo Blowers

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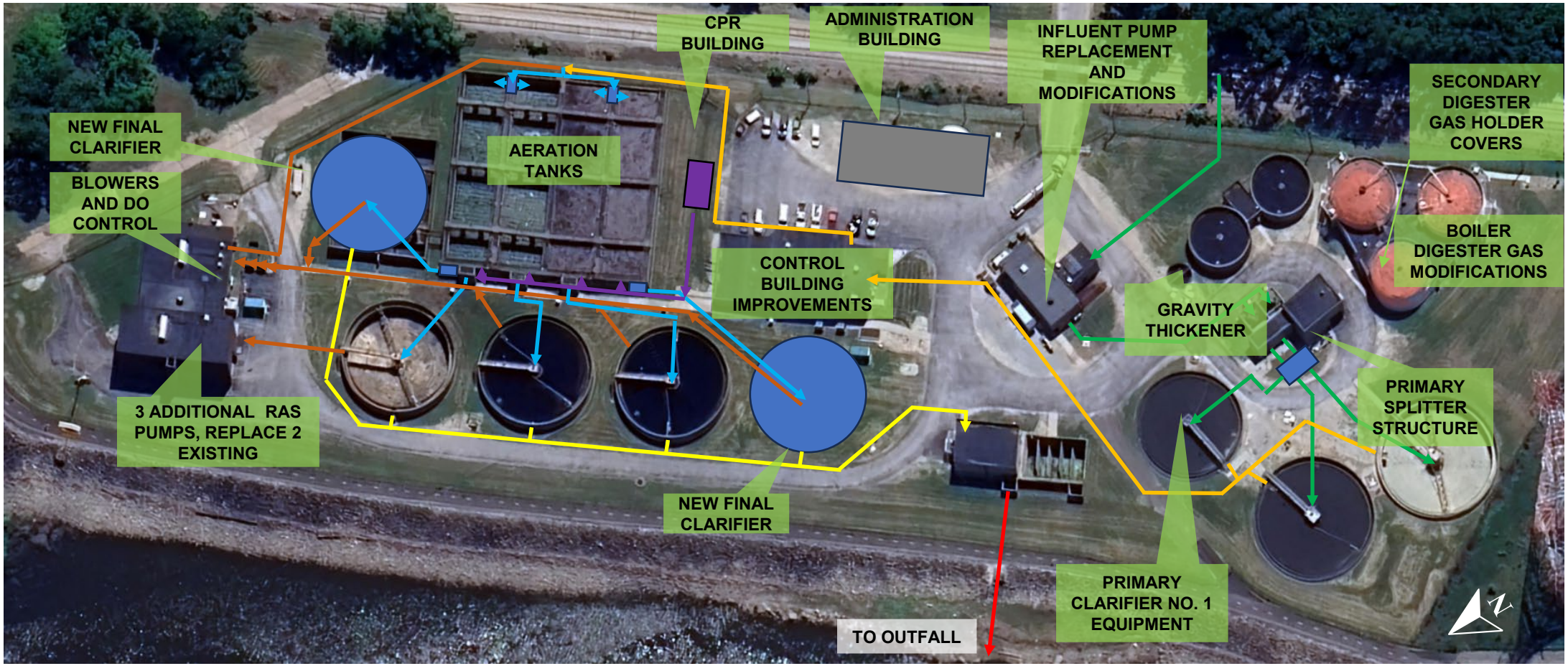
Recommended High Level Plan Prioritizes WWTP Needs That Must be Done

Phase 1 Project Components Generally (critical needs):

- Don’t meet IEPA or Other Code Requirements
- Are needed to meet new NPDES permit limits (Phosphorus Removal)
- Have a Higher Probability of Failure (Age and Condition)
- Have a Higher Consequence of Failure (Could result in treatment permit violations, overflows/basement backups)
- Provide for Energy Efficiency and Increased Monitoring and Automation

Recommended Phase 1 (2030 Completion) Project



Recommended Plan Includes Reuse or Repurpose of Several Structures to Reduce Overall Project Costs

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Opinion of Probable Project Cost

Capital Item	Budget			
	Phase 1 (5 years)	Phase 2 (10 years)	Misc. Equip. Replacement	Total
Deep Fine Screening, Wash presses, Conveyors	$ -	$ 900,000	$ -	**$ 900,000**
Primary Building Expansion and Rehab	$ -	$ 600,000	$ -	**$ 600,000**
Replace Hauled Waste Receiving Pad and Piping Discharge Before Screen	$ 100,000	$ -	$ -	**$ 100,000**
Influent Pump Station	$ 800,000	$ -	$ -	**$ 800,000**
Influent Pumps	$ 1,400,000	$ -	$ -	**$ 1,400,000**
Grit Pump and Grit Handling Equipment Replacement	$ -	$ 400,000	$ -	**$ 400,000**
Primary Clarifier Splitter Box	$ 300,000	$ -	$ -	**$ 300,000**
Primary Clarifier Equipment Replacement	$ 600,000	$ -	$ 1,200,000	**$ 1,800,000**
Primary Clarifier Existing Equipment Painting	$ 400,000	$ -	$ -	**$ 400,000**
Intermediate Pump Station Pumps and Valves	$ -	$ 1,400,000	$ -	**$ 1,400,000**
Aeration Tank Modifications, Diffusers, Mixers	$ 1,900,000	$ -	$ -	**$ 1,900,000**
Aeration Blowers and D.O. Control	$ 1,000,000	$ -	$ -	**$ 1,000,000**
Two New Final Clarifiers, Mechanisms, RAS Pumps	$ 5,100,000	$ -	$ -	**$ 5,100,000**
Add Concrete Troughs to Existing Final Clarifiers, Scum Beach, Weirs, Baffles, Drain	$ 1,100,000	$ -	$ -	**$ 1,100,000**
Replacement RAS Pumps	$ 200,000	$ -	$ -	**$ 200,000**
CPR Backup	$ 600,000	$ -	$ -	**$ 600,000**
Final Clarifiers Mechanisms and Drives	$ -	$ -	$ 2,500,000	**$ 2,500,000**
UV Bypass	$ 100,000	$ -	$ -	**$ 100,000**
UV Disinfection Equipment Replacement	$ -	$ 800,000	$ -	**$ 800,000**
Gravity Thickener Conversion to Fermenter	$ 600,000	$ -	$ -	**$ 600,000**
Anaerobic Digestion One Gas Holder Cover, Two Floating Covers, and Boiler Gas Piping, NFPA	$ 3,600,000	$ -	$ -	**$ 3,600,000**
Anaerobic Digestion Primary Digester Covers	$ -	$ 2,200,000	$ -	**$ 2,200,000**
Anaerobic Digestion Pump Replacement	$ -	$ 300,000	$ -	**$ 300,000**
Dewatering Equipment	$ -	$ 2,500,000	$ -	**$ 2,500,000**
TWAS Thickening Equipment	$ -	$ 2,500,000	$ -	**$ 2,500,000**
Administration Building with Two Maintenance Bays and Existing Building Modifications	$ 1,300,000	$ -	$ -	**$ 1,300,000**
SCADA PCs and Graphics Software	$ 300,000	$ -	$ -	**$ 300,000**
Concrete Repair Allowance (Grit Collector, Misc.)	$ 100,000	$ -	$ -	**$ 100,000**
Building Rehabilitation Allowance (Roofing, Doors, etc.)	$ 100,000	$ 200,000	$ -	**$ 300,000**
Misc. Painting Allowance	$ 200,000	$ -	$ -	**$ 200,000**
Misc. Equipment Allowance (pumps, mixer, etc.)	$ 100,000	$ 300,000	$ 300,000	**$ 700,000**
Subtotal	**$ 19,900,000**	**$ 12,100,000**	**$ 4,000,000**	**$ 36,000,000**
Site @ 5%	$ 1,000,000	$ 600,000	$ 200,000	$ 1,800,000
Mechanical (Piping, Plumbing, and HVAC) @ 25%	$ 5,000,000	$ 3,000,000	$ 1,000,000	$ 9,000,000
Electrical @ 30%	$ 6,000,000	$ 3,600,000	$ 1,200,000	$ 10,800,000
Subtotal	**$ 31,900,000**	**$ 19,300,000**	**$ 6,400,000**	**$ 57,600,000**
GCs @ 15%	$ 4,800,000	$ 2,900,000	$ 1,000,000	$ 8,700,000
Subtotal	**$ 36,700,000**	**$ 22,200,000**	**$ 7,400,000**	**$ 66,300,000**
Cont. + Tech Services @ 40%	$ 14,700,000	$ 8,900,000	$ 3,000,000	$ 26,600,000
Total WWTP Opinion of Cost[a]	**$ 51,400,000**	**$ 31,100,000**	**$ 10,400,000**	**$ 92,900,000**
Pump Station Rehabilitation Allowance (7)	$ -	$ -	$ 5,000,000	**$ 5,000,000**

[a] 3rd Quarter 2024 dollar basis

	Phase 1 (2030 Completion)	Phase 2 (2035 Completion)
WWTP Opinion of Cost	**$ 51,400,000**	**$ 31,100,000**
Lift Station Rehab Allowance	**$500,000/year**	
Notes: Costs are in 2024 Dollars Lift station improvements are a place holder until the study is completed		

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Potential Funding Sources

- Total Phase 1 Project Costs: $51.4 million
- IEPA SRF Loan Funding (2.0% interest rate 25 years) – current rate ~1.87%
  - First P&I Payment Due Around 3rd Quarter 2029
- MidAmerican Energy Efficiency Grants
  - Other Principal Forgiveness and Grants will be explored

Phase 1 Project Schedule

Milestone	Date
Complete Project Plan and Submittal to IEPA	December 2024
IEPA Approval of Project Plan	June 2025
Begin Design	July 2025
Submit Design Documents to IEPA	April 2027
IEPA Loan Application	April 2027
IEPA Approval of Design	July 2027
IEPA Loan Commitment	July 2027
Advertise for Bids	September 2027
Construction Begins	February 2028
BPR and Backup CPR Milestone	September 2029
Construction Completion	December 2030

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