MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION

PERMIT APPLICATION FOR WASTEWATER SYSTEMS

Construction - Alteration - Addition or Improvement as Described Herein
Required under the Authority of Part 41, Sewerage Systems, of 1994 PA 451, as amended (Act 451)

This application becomes a Part 41 Construction Permit only when signed and issued by authorized DEQ staff.

INSTRUCTIONS: Complete items 1 through 32 on this form and complete the Project Basis of Design (attached form EQP-4600A) or provide same information. Print or type all information except for signatures. Complete the Streamlined Checklist (EQP5937) for sewer projects that qualify; checklist available at www.michigan.gov/deq (select Water; then select Wastewater Construction). Complete the Non-Governmental Ownership Checklist (attached form EQP-4600C) for non-governmentally owned projects. Deliver complete application, plans and specifications, and attachments to the DEQ district office having jurisdiction for the project.

PROCESSING TIME FRAME: Part 13, Permits, of Act 451 allows 150 days for processing of an administratively complete Part 41 permit application, with extensions available when requested by the applicant. However, permits are generally processed within 45 days or less for routine projects. For information regarding recent permit processing time frames, refer to the WRD Metrics Web page (refer to metric B-9). For a fee, an expedited permit review process is available for applicants seeking quicker review time frames; information about this process is available at www.michigan.gov/deq (select Water; then select Wastewater Construction) or click here.

REQUIRED NOTIFICATIONS: The permittee shall provide Startup Notification (just prior to excavation) including permit number and date of issuance and Completion Notification (upon completion of the project) including permit number and date of issuance to the DEQ district office having jurisdiction for the project (attached form EQP-4600B).

PERMIT NUMBER (DEQ USE ONLY)	**DATE OF ISSUANCE** (DEQ USE ONLY)
P41002051	MAY 21, 2019

1. **Municipality or Organization Name and Address** that will own the wastewater facilities to be constructed. This permit is to be issued to:
   City of Muskegon
   PO Box 536
   933 Terrace Street
   Muskegon, Michigan 49440

2. **Owner's Contact Person** (provide name for questions)
   Contact: Dave Baker
   Phone: 231-724-4184

Permit Stamp Area (DEQ use only)
DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMIT NUMBER
P4 1 0 0 2 0 5 1 MAY 21 2019
AUTHORIZING SEWERAGE SYSTEM CONSTRUCTION
IN ACCORDANCE WITH ACT 451 PA 1994, PART 41

3. **Project Name** (Provide phase number if project is segmented)	4. **Project Location**	5. **County** (location of project)
Beidler Sanitary Sewer Replacement	City of Muskegon	Muskegon

ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF THE DEPARTMENT OF ENVIRONMENTAL QUALITY

cc: Muskegon County Health Department
cc/enc: Mr. Matthew Hulst, P.E., Prein & Newhof, Inc.

Issued by: KRZ PE

Reviewed by: KRZ PE

☐ **If this box is marked see special conditions attached to this permit.**

GENERAL PERMIT CONDITIONS

a. This **PERMIT** only authorizes the construction, alteration, addition, or improvement of the wastewater system as described herein and is issued solely under the authority of Part 41 of Act 451.
b. Issuance of this **PERMIT** does not authorize any violation of federal, state, or local laws or regulations, nor does it obviate the need to obtain other permits or approvals from the DEQ or other units of government as may be required by law.
c. This **PERMIT** expires two (2) years after the above date of issuance unless construction starts prior to the expiration date in accordance with R 299.2939(2) of the Part 41 Administrative Rules.
d. Any portion of the herein described facilities constructed prior to the date of issuance is not authorized by this **PERMIT** and is a violation of Act 451.
e. No sewer shall be placed into service unless and until the outlet sewer has been constructed, tested, and placed into service.
f. Failure to meet any condition of this **PERMIT** or any requirement of Act 451 constitutes a violation of Act 451.
g. The applicant must provide notice of impending construction to public utilities and comply with the requirements of the Protection of Underground Facilities Act, 1974 PA 53, as amended (MISS DIG).
h. All earth changing activities must be conducted in accordance with Part 91, Soil Erosion and Sedimentation Control, of Act 451.
i. All construction activity impacting wetlands shall be conducted in accordance with Part 303, Wetlands Protection, of Act 451.
j. Intentionally providing false information in this application constitutes a violation of Section 249 of the Michigan Penal Code, 1931 PA 328, as amended.

6. **Facilities Description** In the space below, provide a detailed description of the proposed project in the format shown in the examples at the bottom of this page. Applications with inadequate facilities descriptions **will be returned**. Use additional sheets if needed.

THE BEIDLER SANITARY SEWER REPLACEMENT PROJECT INVOLVES REROUTING THE SEWER TO FLOW BY GRAVITY FROM SOUTH TO NORTH INSTEAD OF NORTH TO SOUTH, FROM APPROXIMATELY HENRY STREET AND SHERMAN BOULEVARD, TO YOUNG AVENUE AND BEIDLER STREET. THE PROJECT REQUIRES A NEW SANITARY PUMP STATION AT THE NORTHWEST CORNER OF YOUNG AVENUE AND BEIDLER STREET. THE FORCEMAIN WILL DISCHARGE INTO THE EXISTING 24-INCH GRAVITY SEWER AT THE INTERSECTION OF SOUTHERN AVENUE AND DIVISION STREET.

THE PROJECT INCLUDES THE FOLLOWING APPROXIMATE QUANTITIES:

- A GRINDER PUMPING STATION RATED FOR 12 GPM AT A TDH OF 19 FEET LOCATED AT THE NORTHWEST CORNER OF THE 2500 HENRY STREET PROPERTY IN A PERMENANT EASEMENT. THE STATION WILL BE EQUIPPED WITH 2 PUMPS, A GENERATOR RECEPTACLE, AND ALL OTHER EQUIPMENT AS REQUIRED FOR PROPER OPERATION.
- 60 FEET OF 1.25" SANITARY FORCE MAIN IN A PERMANENT EASEMENT IN THE NORTHWEST CORNER OF THE PARKING LOT AT 2500 HENRY STREET.
- 390 FEET OF 6" AND 1035 FEET OF 8" SANITARY SEWER IN AN EASEMENT FROM HENRY STREET TO THE WEST, NORTH OF SHERMAN BOULEVARD.
- 915 FEET OF 12" SANTIARY SEWER IN AN EASEMENT FROM THE INTERSECTION OF PULASKI AVENUE AND HENRY STREET TO THE SOUTH ALONG HENRY STREET.
- 900 FEET OF 10" SANITARY SEWER ON PULASKI AVENUE FROM THE ALLEY BETWEEN DOWD STREET AND HUDSON STREET TO THE ALLEY BETWEEN CROWLEY STREET AND HENRY STREET.
- 650 FEET OF 12" SANITARY SEWER ON PULASKI AVENUE BETWEEN CROWLEY STREET AND HENRY STREET, TO BEIDLER STREET.
- 835 FEET OF 12" SANITARY SEWER ON BEIDLER STREET FROM PULASKI AVENUE NORTH TO ALLEY.
- 145 FEET OF 12" SANITARY SEWER IN THE ALLEY FROM BEIDLER STREET TO POLISKI DRIVE.
- 325 FEET OF 8" SANITARY SEWER ON BEIDLER STREET FROM HACKLEY AVENUE SOUTH TO THE DEAD END.
- 155 FEET OF 8" SANITARY SEWER IN THE ALLEY FROM POLISKI DRIVE TO THE WEST.
- 2,035 FEET OF 12" SANITARY SEWER ON POLISKI DRIVE FROM THE ALLEY TO HACKLEY AVENUE, ON HACKLEY AVENUE FROM POLISKI DRIVE TO BEIDLER STREET, AND ON BEDILER STREET FROM HACKLEY AVENUE TO YOUNG AVENUE.
- 35 FEET OF 15" SANITARY SEWER ON BEIDLER STREET FROM YOUNG AVENUE NORTH TO THE PROPOSED PUMP STATION.
- A SUBMERSIBLE PUMPING STATION RATED FOR 875 GPM AT A TDH OF 58 FEET LOCATED AT THE NORTHWEST CORNER OF YOUNG AVENUE AND BEIDLER STREET. THE STATION WILL BE EQUIPPED WITH 3 PUMPS, A GENERATOR RECEPTACLE, PUMP AROUND AND FLOW METERING CAPABILITY, AND ALL OTHER EQUIPMENT AS REQUIRED FOR PROPER OPERATION.
- 3,735 FEET OF 10" SANITARY FORCE MAIN AND 3 AIR RELEASE MANHOLES FROM THE LIFT STATION ON YOUNG AVENUE TO CROWLEY STREET, ON CROWLEY STREET FROM YOUNG AVENUE TO LAKETON AVENUE, IN AN ALLEY FROM LAKETON AVENUE TO INSERSECTION OF THE ALLEY AND DIVISION STREET, ON DIVISION STREET FROM THE ALLEY BETWEEN IRELAND AVENUE AND FOREST AVENUE TO SOUTHERN AVENUE WHERE IT DISCHARGES INTO 29 FEET OF 15" SANITARY SEWER AND 50 FEET OF 24" SANITARY SEWER.
- 265 FEET OF 24" SANITARY SEWER REPLACEMENT ON DIVISION ST. FROM GRAND AVE. TO NORTH.

GENERAL PROJECT INFORMATION – Complete All Boxes Below

7. Design engineer's name, engineering firm, address, phone no., and e-mail address: Matthew Hulst, P.E. Prein&Newhof, Inc. 4910 Stariha Drive, Muskegon, MI 49441 (231) 798-0101, mhulst@preinnewhof.com	8. Indicate who will prepare "as-built" plans for this project: ☒ Design Engineer in Box 7 ☐ Other - name, organization, address, and phone no.:
9. Indicate who will provide project construction inspection: ☒ Engineering firm listed in Box 7 ☐ Other - name, organization, address, and phone no.:	10. Is groundwater dewatering expected for this project? ☒ YES ☐ NO If YES, provide dewatering specifications. If YES, will water wells or water bodies be impacted? ☐ YES ☒ NO NOTE: If groundwater dewatering is expected, and especially if it may result in a large quantity withdrawal (greater than 70 gallons per minute), registration with the DEQ is required and a permit may be necessary. For more information, please contact the Water Use Program staff. If a Part 327 permit is required, it may cause delay in issuance of a Part 41 permit, and/or result in project design revisions.
11. To which wastewater collection system will the project connect? City of Muskegon	12. To which wastewater treatment system will the project connect? Muskegon County Final discharge is to: ☒ Groundwater ☐ Surface Water
13. Will this project be within 50 ft. of a private water well? ☐ YES ☒ NO If YES, locate on plans.	14. Will this project be within 200 ft. of a public water well? ☐ YES ☒ NO If YES, locate on plans.
15. Is the project construction activity within a wetland (as defined by Section 30301(p) of Part 303 of Act 451)? ☐ YES ☒ NO If YES, has application been made for a wetland permit? ☐ YES ☐ NO	16. Is the project construction activity within a 100-year floodplain (as defined by Section 3101 of Part 31, Water Resources Protection, of Act 451, and the associated Administrative Rules)? ☐ YES ☒ NO If YES, has application been made for a floodplain permit? ☐ YES ☐ NO
17. Is the project construction activity below the ordinary high water mark of an inland lake or stream (as defined by Section 30101(f) of Part 301 of Act 451)? ☐ YES ☒ NO If YES, has application been made for an inland lakes and streams permit? ☐ YES ☐ NO	18. Is the project construction activity within 500 ft. of a lake, reservoir, or stream? ☒ YES ☐ NO If YES, has application been made for a Soil Erosion and Sedimentation Control Permit? ☒ YES ☐ NO Is owner listed in box 2 of this application an Authorized Public Agency (Section 9110 of Part 91 of Act 451)? ☐ YES ☐ NO
19. Will the proposed construction activity be part of a project involving the disturbance of five (5) or more acres of land? ☐ YES ☒ NO Please contact 517-284-5592 with questions regarding the storm water regulations. If YES, is project regulated by the National Pollutant Discharge Elimination System (NPDES) storm water regulations? ☐ YES: Attach copy of application or NPDES authorization to discharge storm water from construction activities. ☐ NO: Describe why activity is not regulated:	
20. Is the project in or adjacent to a site of known soil or groundwater contamination? ☒ YES ☐ NO If YES, attach a copy of a plan acceptable to the DEQ for handling contaminated soils and/or groundwater disturbed during construction. Contact the local DEQ office for listings of Michigan sites of environmental contamination.	

SEWER SYSTEM CAPACITY

		Flow Rate	Units
21. Are there any known capacity concerns in the collection system downstream of the proposed project? ☐ YES ☒ NO If YES, **include a full explanation with the application.**			
22. Proposed project peak design flow rate:		875	GPM
23. Total capacity of the existing outlet sewer:		4,174	GPM
24. Current peak hour flow into the existing outlet sewer:		575	GPM
25. Design capacity of nearest downstream pumping station (largest pump out of service):	N.A. ☐	38,500	GPM
26. Current peak hour flow into nearest downstream pump station:	N.A. ☐	12,800	GPM

OVERFLOWS AND BASEMENT FLOODING – For Proposed Sewer Projects, Mark All Boxes That Apply

27. Has the downstream collection system overflowed or flooded basements in the past five years? ☐ YES ☒ NO
If YES, attach a listing of events in the past five years including date, location, cause, and corrective action.

28. Has the downstream collection system owner entered into an agreement satisfactory to the DEQ to address sanitary sewer overflows and flooding of basements? ☐ YES ☒ NO
If YES, enter agreement name and number: .

29. **TREATED WASTEWATER DISCHARGE AUTHORIZATION** – Mark Boxes As Appropriate

A. Does project include a new treatment facility or expansion, a change in discharge method, or a new discharge location?
☐ YES – Complete B below ☒ NO – skip to item 30

B. If A is marked YES, indicate discharge authorization and provide the requested information:
1. NPDES or Groundwater Discharge Permit No: _____ Permit Authorized Flow Rate: _____ Units: _____
2. Local health department approval. **Include a copy of the approval with this application.**

30. **OWNERSHIP** – Mark A or B as Appropriate Below

☒ A. Ownership will be by a governmental entity **before the sewer is placed in service**.

☐ B. Ownership will be by a non-governmental entity, and a **completed Non-Governmental Ownership Checklist is included with this application.**

Note: A completed **Non-Governmental Ownership Checklist** (EQP-4600C) must be included with the application for **non-governmentally owned projects**. The checklist is attached to this application and the supporting information is available at www.michigan.gov/deq (select Water; then select Wastewater Construction).

31. **COMPLETE APPLICATION CHECKLIST** – Please confirm that this application is complete by using this checklist. Mark the box if the condition is met. This will help reduce DEQ review time and speed permit issuance.

☒ A. Items 1 to 30 of the application are completed.	☒ E. Owner's certification signed and complete (item 32).
☒ B. A contamination management plan is included for sites with known contamination (item 20). ☐ N.A.	☒ F. A detailed basis of design is included with the application. Form EQP-4600A (attached) or similar form is completed providing information required by Rule 35(3) of the Part 41 Administrative Rules of Act 451.
☐ C. For projects with local health department discharge authorization, a copy of the health department authorization is included (item 29). ☒ N.A.	
☐ D. For non-governmentally owned projects, provide the Non-Governmental Ownership Checklist and all documents required by the checklist (item 30). ☒ N.A.	☒ G. Final plans and specifications sealed and signed by a Michigan licensed professional engineer are provided.

32. **OWNER'S CERTIFICATION** – The owner of the proposed facilities or the owner's authorized representative shall complete the following owner's certification:

I, Dave Baker (name), acting as the Public Utilities Superintendent (title/position) for the City of Muskegon (entity owning proposed facilities) certify that the information provided in and with this application is true and accurate to the best of my knowledge, and I certify that the plans and specifications and other documents submitted to the DEQ with the Part 41 Permit Application accurately represent what I intend to construct under the terms of the Part 41 Permit, once issued. Also, I certify that this proposed project as detailed in the plans and specifications submitted under this application is in compliance with the requirement of Rule 41(a) of the Part 41 Administrative Rules of Act 451, which states that "Proper devices are or will be available and are in satisfactory operation for the collection, transportation and treatment before discharge into any public watercourse, lake, drain, ditch or groundwater, of the sewage or wastes collected or conveyed by such systems, or a definite program or agreement satisfactory to the department leading to the construction and operation of such collection, transportation or treatment devices shall have been officially adopted by the applicant for such permit and filed in the offices of the department." Further, I hereby acknowledge the requirement to provide Startup Notification (just prior to excavation) with the permit number and date of issuance and Completion Notification (upon completion of the project) with the permit number and date of issuance to the DEQ district office having jurisdiction for the project.

SIGNATURE: Dave Baker RECEIVED DATE: 5/7/19

NAME (TYPED): DAVE BAKER PHONE: 231-724-4184 MAY 13 2019

DEQ
WATER RESOURCES DIVISION
GRAND RAPIDS

CITY OF MUSKEGON
WASTEWATER SYSTEM IMPROVEMENTS
CONTRACT No. 1
BEIDLER SANITARY SEWER REPLACEMENT
BASIS OF DESIGN

BACKGROUND

The Beidler Sanitary Sewer is a 12-inch diameter trunk sewer which begins at the intersection of Beidler Street and Young Avenue and flows south and east before discharging into the 15-inch diameter Ruddiman Creek Sanitary Sewer north of Sherman Boulevard and east of Barclay Street. The Beidler Sewer was installed with clay pipe material in the 1930's. Inspections have shown cracks, fractures, sags and holes in various locations throughout the sewer, as well as segments of sewer installed at slopes less than the recommended minimum. In addition, it has been determined through metering and modeling that the sewer has capacity issues during wet weather storm events. The sewer varies in depth from approximately 20 feet deep at the upstream end, to over 30 feet deep near the downstream end. The current depth and location of the sewer make it extremely difficult to access for maintenance or repairs.

In order to alleviate the structural failures, accessibility problems, and capacity concerns, the proposed project includes replacing and rerouting the Beidler Sanitary Sewer to flow by gravity from the south to the north instead of north to south. This will also allow the City to abandon a portion of the Ruddiman Creek Sanitary Sewer east of Barclay Street, which has capacity concerns and accessibility issues near the creek. The Beidler Sewer will be replaced with sewer at a shallower depth, with proper slope, and in locations which are accessible by the City for emergency response. The sewer will be rerouted to flow north to the intersection of Young Avenue and Beidler Street where a new submersible lift station will be located. Wastewater will be pumped through a new forcemain and discharge into an existing sewer at the intersection of Division Street and Southern Avenue. See Exhibit 1 for a map of the service area.

WASTEWATER FLOWS

The existing sewer receives flow from the South Clay Hill Neighborhood which is roughly bounded by Barclay Street to the west, Park Street to the east, Sherman Boulevard to the south, and Laketon Avenue to the north, within the City of Muskegon. The service area is primarily residential, with some industrial customers east of Seaway Drive, and some commercial users in the business district near Henry Street and Sherman Boulevard. The service area is considered fully developed. In 2015 Prein&Newhof completed a flow metering and modeling study of the collection system and determined the following flow information.

Current REUs	405
Flow per REU	355 gpd
Current Average Daily Flow	100 gpm
Current Peak Hourly Flow	755 gpm

The proposed Beidler Lift Station will maintain the same service area as the existing outlet at Barclay Street. Therefore, the wastewater flows will also remain the same.

COLLECTION TRUNK SEWER

1. Existing

Size	12 inch
Slope	0.19%
Manning's "n"	0.015
Capacity	604 gpm (includes entire existing service area)

2. Proposed 12-inch Trunk Sewer (Along Beidler Sewer Route)

Size	12 inch
Slope	0.22%
Manning's "n"	0.013
Capacity	750 gpm
Required Capacity	295 gpm (includes only Service Area 1)

3. Proposed 15-inch Sewer (Discharging into Beidler Lift Station)

Size	15 inch
Slope	0.15%
Manning's "n"	0.013
Capacity	1,123 gpm
Required Capacity	755 gpm (includes entire existing service area)

BEIDLER LIFT STATION

Beidler Lift Station will be a triplex submersible lift station located at the northwest corner of the intersection at Young Avenue and Beidler Street.

Firm Capacity	850 gpm at 58 ft TDH
Individual Pump Capacity	650 gpm at 45 ft TDH
Number of Pumps	3
Motors	5.5 hp w/ VFDs
Force Main:	
Size	10 inch HDPE IPS DR 11
Length	3,735 lf

The system and pump curves for Beidler Lift Station are provided in Exhibit 2.

The station will have a radar level sensor with backup float level switches. The station will be equipped with a cellular based remote telemetry unit to allow for remote alarm monitoring. The station will include a generator receptacle to allow the station to operate on a portable generator in case of power loss.

HENRY STREET GRINDER STATION

Henry Street Grinder Station will be a duplex packaged grinder station located in a permanent easement at 2500 Henry Street. The firm capacity for the grinder station is based on actual water records of the proposed service area, which is a strip mall located along Henry Street. Average daily water flows from records total 3,350 gpd, or 2.4 gpm. An estimated peaking factor of 5 was applied to determine the peak flow rate of 12 gpm.

Firm Capacity	12 gpm at 19 ft TDH
Number of Pumps	2, semi-positive displacement type
Motors	1 hp
Force Main:	
Size	1.25 inch
Length	60 lf

The pumps will operate on built-in pressure switches. The station will include a generator receptacle to allow the station to operate on a portable generator in case of power loss.

RECEIVING SEWER

The Beidler Lift Station force main will discharge into an existing trunk sewer at the intersection of Division Street and Southern Avenue.

Size	24 inch
Slope	0.08%
Manning's "n"	0.013
Capacity	4,174 gpm
Required Capacity	1,450 gpm
Beidler Lift Station	875 gpm
Existing Service Area	575 gpm (fully developed)

The receiving sewer ultimately conveys wastewater flow to the Muskegon County Wastewater Management System Pump Station C.

Firm Capacity	38,500 gpm
Current Peak Flow	12,800 gpm