

**Notice:** In accordance with s. NR. 108.04(2)(a), Wis. Adm. Code, this form is authorized to accompany final plans and specifications for any reviewable lift station project that is submitted to the Department of Natural Resources (Department) pursuant to s. 281.41, Wis. Stats and s. NR 108.03, Wis. Adm. Code. Completion of this form is required by the Department for any lift station plan submittal to evaluate conformance with requirements in chs. NR 108 and NR 110, Wis. Adm. Code. Manufacturer's drawings and/or specifications reproduced from manufacturer's data and bearing the manufacturer's labels will not be accepted.

**All necessary information must be provided on this form. Failure to complete this form correctly may result in rejection of this form by the Department.** Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Public Records law (ss. 19.31 - 19.39, Wis. Stats.).

**Please complete this form for each lift station that will be installed as part of the project. The applicant shall answer all questions listed below unless otherwise indicated. Questions specific to each type of lift station are listed in items 13 to 16.**

**Please type or clearly print your answers to all questions.**

**1. Type of Lift Station** (s. NR 110.14(3)(a), Wis. Adm. Code)

A. Lift Station Name or Identification:

B. Please specify the type of lift station proposed for this project (select one):

- Wet well/ Dry well  
 Submersible  
 Septic Tank Effluent Pump  
 Simplex Grinder Pump:     Submersible     Non-Submersible  
 Duplex Grinder Pump:     Submersible     Non-Submersible  
 Pneumatic Ejector  
 Primed Suction lift         Self                 Vacuum  
 Screw Pump  
 Other (specify) \_\_\_\_\_

**2. Design Report** (s. NR 110.14(1)(b), Wis. Adm. Code)

A. Will the project involve the installation of a new lift station or major rehabilitation of an existing lift station (i.e. replacing pumps with larger units or changing the type of lift stations)?     Yes     No

**If you answered "Yes" to A, please include a design report (including detailed design calculations) consistent with s. NR 110.11, Wis. Adm. Code with the plans and specifications.**

**3. Location** (s. NR 110.14(2)(a), Wis. Adm. Code)

A. Is the lift station located outside of the floodplain? **If you answered "No" this question, please answer the sub-questions under A.**     Yes     No

i. Is the lift station flood-proofed (two feet above the 100-year flood elevation or provided with solid watertight covers)?     Yes     No

ii. Does the project conform to the requirements in ch. NR 116, Wis. Adm. Code?     Yes     No

B. Will the lift station be located out of the traffic way of streets and alleys? **If you answered "No" this question, please answer the sub-question under B.**     Yes     No

i. Please explain why the lift station must be located in the traffic way

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C. Is the lift station located at least 200 feet from public water system wells (s. [NR 811.12\(5\)\(d\)3.](#), Wis. Adm. Code)?     Yes     No

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- D. Is the associated force main at least 50 feet from public water system wells and does it meet the material, joint, and testing requirements of s. [NR 811.12\(5\)\(d\)2.](#), Wis. Adm. Code, OR is the associated force main at least 200 feet from public water system wells (s. [NR 811.12\(5\)\(d\)3.](#), Wis. Adm. Code)?  Yes  No
- E. **If you answered “no” to any of the above questions (C-D), please answer all sub-questions under E.** The below are required for sewers that do not meet the separation requirements from new or existing public water system infrastructure.
- i. Has the public water system owner given written approval or no-objection to the lift station plans?  Yes  No
- ii. Has a plan submittal with a request for review been sent to the DNR Public Drinking Water Engineering Section?  Yes  No
- iii. Is a copy of the written no-objection/approval(s) from the public water system owner and DNR Public Water Engineering Section attached to this plan submittal?  Yes  No
- F. Is the lift station located at least 100 feet from all existing private and non-community wells (s. [NR 812.08\(4\)](#) Table A, Wis. Adm. Code)?  Yes  No
- G. Is the associated force main at least 25 feet from all existing private and non-community wells (s. [NR 812.08\(4\)](#) Table A., Wis. Adm. Code)?  Yes  No
- H. **If you answered “No” to any of the above questions (F-G), please answer all sub-questions under H.**
- i. Has [Form 3300-208](#) (Application for Sewer/Existing Private Well Separation) and/or [Form 3300-210](#) (Application for Variance) been submitted to the DNR Drinking Water and Groundwater Program to request a variance to the 25-foot separation distance and/or 100-foot separation distance, respectively?  Yes  No
- ii. Is a copy of the approved variance to the 25-foot separation distance and/or 100-foot separation distance attached to this plan submittal?  Yes  No
4. **Structural Features** (s. NR 110.14(3)(b), Wis. Adm. Code)
- A. Is the dry well, including the superstructure, completely separated from the wet well?  Yes  No  N/A
- B. Are provisions made to facilitate removal of pumps, motors, and other mechanical and electrical equipment without entry into the wet well?  Yes  No
- C. Are any permeant ladders or steps provided in the wet well? **If you answered “Yes” this question, please answer the sub-questions under C.**  Yes  No
- i. Are the stairways in a wet well of a built-in-place lift station?  Yes  No  N/A
- ii. Please explain the special maintenance needs or physical conditions that prevent the provision of necessary access by any other reasonable means
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- D. If a permanent ladder is provided for access to the dry well, is the depth of the dry well less than or equal to 20 feet? **If you answered “No” this question, please answer the sub-questions under D.**  Yes  No  N/A
- i. If the dry well more than 20 feet in depth, is an offset made in the entrance ladder with an intermediate landing at approximately mid-depth?  Yes  No  N/A
- ii. Is the diameter of the intermediate landing area at least 5 feet?  Yes  No  N/A
- iii. Is the landing area provided with suitable barrier to prevent an individual from falling past the intermediate landing to the lower level?  Yes  No  N/A
- iv. If an equivalent landing area is provided, please explain the design below:
- v. If a man lift or elevator is provided in lieu of the landing area requirements, has an emergency access been included in the design?  Yes  No  N/A

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- E. Is a caution sign proposed at the top of the entrance to the wet well that warns of the potential for hazardous gases in a confined space and indicates that there shall be no entry without proper equipment and supervision?  Yes  No
- F. Is a sump pump provided in the dry well to remove leakage or drainage?  Yes  No  N/A
- G. Will the sump pump or valve vault discharge line be equipped with a check valve and discharge above the maximum high-water level of the wet well?  Yes  No  N/A
- H. Is siphon break provided when the sump pump discharge line enters at the high-water level in the wet well?  Yes  No  N/A
- I. Will the pump seal water leakage be piped or channeled directly to the sump pit?  Yes  No  N/A
- J. Will all floors and walkways be sloped to a point of drainage?  Yes  No  N/A
- K. Is the pump cycle (from on to off and then back to on) with any combination of influent flows and pumping rate at least 5 minutes or more?  Yes  No
- L. Is the total fill time between pump on and off elevations in the wet well at average design flow 30 minutes or less to prevent septicity?  Yes  No
- M. Will the wet well floor have a minimum slope of 1:1 to the hopper bottom?  Yes  No
- N. Will the horizontal area of the hopper bottom be sized for proper installation and function of suction pipe intake and pump inlet?  Yes  No
- O. Will the exteriors of steel factory-built lift stations be provided with cathodic protection against corrosion?  Yes  No
- P. Will the interior of steel wet wells shall be coated with a suitable waterproof epoxy coating or waterproof painting system or other appropriate methods to protect against corrosion?  Yes  No
5. **Ventilation** (s. NR 110.14(3)(c), Wis. Adm. Code)
- A. Will the wet well be vented to the atmosphere using an inverted "j" tube or other means?  Yes  No
- B. Is a permanent mechanical ventilation system provided in the wet well where routine entrance is required to inspect or maintain equipment? **If you answered "Yes" this question, please answer the sub-questions under B.**  Yes  No  N/A
- i. Please specify the air changes per hour (select one):
- At least 12 complete air changes per hour if ventilation is continuous
- At least 30 complete air changes per hour if ventilation is intermittent
- ii. Will the air be forced in the wet well by mechanical means not exhausted from the wet well?  Yes  No
- C. If routine entrance is not required to inspect or maintain equipment in the wet well, will a portable mechanical ventilation equipment be available for entry to a confined space?  Yes  No
- D. If the dry well is installed below the ground surface, is a permanent mechanical ventilation system proposed? **If you answered "Yes" this question, please answer the sub-questions under D.**  Yes  No  N/A
- i. Please specify the air changes per hour (select one):
- At least 6 complete air changes per hour if ventilation is continuous
- At least 30 complete air changes per hour if ventilation is intermittent
- At least 30 complete air changes per hour for the first ten minutes and then automatically switch over to six complete air changes per hour if ventilation is intermittent
- At least six complete air changes per hour when dry well is occupied and at least two complete air changes per hour when not occupied if ventilation is continuous
- E. Are the wet well and dry well ventilation systems entirely separated?  Yes  No
- F. Will the switches for operation of ventilation equipment be marked and conveniently located?  Yes  No
- G. Will all intermittently operated ventilating equipment be interconnected with the respective wet well or dry well lighting system?  Yes  No
- H. Will the manual lighting and ventilation switches override the automatic controls?  Yes  No
- I. Will the fan wheel for ventilating hazardous areas be fabricated from non-sparking material?  Yes  No

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### 6. Auxiliary Equipment (s. NR 110.14(3)(d), Wis. Adm. Code)

- A. Will the dry well be equipped with automatic heaters? **If you answered “No” this question, please answer the sub-question under A.**  Yes  No  N/A
- i. Is justification provided that demonstrates that the heat output from the pump motors or controls is sufficient to keep equipment in the dry well from freezing?  Yes  No
- B. Will a dehumidifier be installed where the dry well is installed below the ground surface?  Yes  No  N/A
- C. Will a running time meter be installed for each pump in the lift station?  Yes  No
- D. Will a flow meter be installed?  Yes  No

### 7. Electrical Equipment (s. NR 110.14(3)(e), Wis. Adm. Code)

- A. Will all electrical systems and components (i.e. motors, lights, cables, conduits, switchboxes, and control circuits) located in wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present conform to NEC requirements for explosion proof seals?  Yes  No
- B. Will equipment located in the wet well be suitable for use under corrosive conditions?  Yes  No
- C. Will each flexible cable shall be provided with a watertight seal and separate strain relief?  Yes  No
- D. Will a fused disconnect switch or equivalent circuit breaker located above ground be provided for the main power feed for the lift station?  Yes  No
- E. Where equipment is exposed to weather, will the equipment be weatherproofed?  Yes  No  N/A
- F. Will the electrical supply, control, and alarm circuits be designed to provide strain relief appurtenances?  Yes  No
- G. Will all junction boxes containing terminals and connectors be protected from corrosion by being located outside the wet well or through the use of a watertight seal?  Yes  No
- H. Will the explosion proof seals for electrical cables that enter the wet well be located so that the equipment within the wet well such as pump motor and the level control float switches or transducers can be removed and electrically disconnected at the respective junction box without destroying the seal?  Yes  No

### 8. Duplicate Units (s. NR 110.14(3)(f), Wis. Adm. Code)

- A. Will the combined pump capacity meet or exceed the design peak hour pumping rate with the largest unit out of service?  Yes  No
- B. Where the lift station will serve less than or equal to 25 residential units with a single pump or ejector, will the lift station be designed to allow for the installation of a future duplicate pump or ejector with no structural changes?  Yes  No  N/A

### 9. Pumps (s. NR 110.14(3)(g), Wis. Adm. Code)

- A. Will all pumps, except grinder and effluent pumps, be capable of passing spheres of at least 3 inches in diameter, and have pump suction and discharge piping with a diameter of at least 4 inches? **If you answered “No” this question, please answer the sub-question under A.**  Yes  No
- i. Please specify how the pump will be protected (select one):
- Comminutor
  - Mechanical Screen
  - Other specify:
- B. Will each pump, except self-priming or vacuum primed pumps with adequate suction lift capability, be located so that under normal operating conditions it will operate under a positive suction head?  Yes  No  N/A

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### 10. Piping (s. NR 110.14(3)(h), Wis. Adm. Code)

- A. Will each pump, except submersible, screw, grinder and effluent pumps, be equipped with individual suction piping that is straight as possible?  Yes  No  N/A
- B. When suction elbows are used, will the bell be placed above the floor of the wet well at a distance which is not greater than 1/2 nor less than 1/3 the diameter of the bell?  Yes  No  N/A
- C. Will a suitable shutoff valve be placed on each discharge line, except for screw pumps?  Yes  No  N/A
- D. Will a shutoff valve be placed on each suction line of the dry well pump?  Yes  No  N/A
- E. Will a check valve be placed on each discharge line between the shutoff valve and the pump, except for screw pumps?  Yes  No  N/A
- F. Will check valves be placed in horizontal sections of the discharge pipe or will ball check valves be placed in the vertical run?  Yes  No
- G. Will all valves be located outside of the wet well?  Yes  No

### 11. Controls (s. NR 110.14(3)(i), Wis. Adm. Code)

- A. Please specify the type of liquid control system that will be provided (select one):
- Air bubbler       Encapsulated Float       Displacement switch  
 Ultrasonic       Pressure transducer       Capacitance probe
- B. Will the control system be located away from the turbulence of incoming flow and pump suction?  Yes  No
- C. Will provisions be made to automatically alternate the pumps in use where multiple equivalent capacity pumps are installed?  Yes  No  N/A
- D. Will the lift station be equipped with an alarm system?  Yes  No
- E. Will the alarm system include audible and visual signals?  Yes  No
- F. Will the alarm system be activated in cases of power failure, pump failure, and at a predesignated high-water level?  Yes  No
- G. Will the alarm system be activated in the event of unauthorized entry or other lift station malfunction?  Yes  No  N/A
- H. Please specify how the alarm system will alert the responsible authority (select one):
- A radio conveyed system       Automatic telephone dialer system  
 Telemetered       Other specify: \_\_\_\_\_

### 12. Emergency Operation (s. NR 110.14(12), Wis. Adm. Code)

- A. Please specify one of the following emergency options that will be provided to ensure continued operation of the lift station during an emergency (select all that apply):
- On-site generator
- On-site gasoline or diesel engine driven pump
- Portable generator
- Portable pump
- Two independent electrical transmission routes
- Capacity to hold the average design flow for a minimum period of 24 hours
- N/A - Duplex grinder pump or effluent pump lift station which serve less than 3 residential units
- B. For an on-site generator or pump, will automatic switching and starting equipment be installed?  Yes  No

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- C. For a portable or on-site generator, will the generator have sufficient capacity to meet the total electrical demands of the pumps, controls and auxiliary equipment?  Yes  No  N/A
- D. For an on-site or portable pump, will the pump have a capacity equal to or greater than the lift station peak design pumping rate?  Yes  No  N/A
- E. For a portable generator, will electrical connections be accessible without maintenance personnel having to enter the lift station?  Yes  No  N/A
- F. For a portable pump, will quick disconnect fittings be used to connect the portable pump to the suction and the discharge line and be accessible without maintenance personnel having to enter the lift station?  Yes  No  N/A
- G. For a portable generator or pump, how many lift stations does the unit provide emergency operation for:  N/A
- H. For connection to two independent electrical transmission routes, will the routes receive power from the same electrical grid network which supplies power to the lift station service area?  Yes  No  N/A
13. **Suction Lift Pumps or Wet Well Mounted Lift Stations** (s. NR 110.14(4), Wis. Adm. Code):  Yes  No
- A. Will the total dynamic suction lift be 20 feet or less? **If you answered "No" this question, please answer the sub-question under A.**  Yes  No  N/A
- i. Is justification provided for the higher heads based the certified pump performance curves and detailed calculations?  Yes  No
- B. Will the pump equipment compartment isolated from the wet well in a manner which will prevent the humid and corrosive sewer atmosphere from entering the equipment compartment?  Yes  No
- C. Will wet well access not be provided through the equipment compartment?  Yes  No
- D. Will wet well access be at least 24 inches in diameter or equivalent area?  Yes  No
14. **Submersible Lift Stations (including submersible grinder pumps)** (s. NR 110.14(5), Wis. Adm. Code):  Yes  No
- A. Will submersible pumps be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well?  Yes  No
- B. Will the removal of one submersible pumps from the lift station interrupt the operation of other pumps in the station?  Yes  No
- C. Will junction boxes for motor power cable connections and for intrinsically safe control circuits be weatherproofed?  Yes  No
- D. Will the motor control center be located outside the wet well and be protected by conduit seals or other appropriate measures meeting the requirements of the NEC to prevent the atmosphere of the wet well from gaining access to the control center?  Yes  No
- E. Will pump motor power cables be designed for flexibility and serviceability?  Yes  No
- F. Will ground fault interruption protection be provided in accordance with the NEC requirements?  Yes  No
- G. Will power cord terminal fittings be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, provided with strain relief appurtenances, and designed to facilitate field connecting?  Yes  No
- H. Do the specifications require that the pump motor comply with the NEC explosion proof requirements?  Yes  No
15. **Duplex Grinder Pump Lift Stations and Septic Tank Effluent Pumps:**  Yes  No  
(s. NR 110.14(9), Wis. Adm. Code)
- A. Will each pump have a minimum 1¼-inch pump opening and discharge piping?  Yes  No
- B. Will the total motor horsepower for each pump be 5 horsepower or less?  Yes  No

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### 16. Simplex Grinder Pump Lift Stations and Septic Tank Effluent Pumps:

(s. NR 110.14(10), Wis. Adm. Code)

- Yes  No
- A. Will the pump serve 3 residential units or less?  Yes  No
- B. Will the submersible pump be designed for total submergence during operation?  Yes  No  N/A
- C. Is the location of the pump station and pressure service laterals shown on the plans?  Yes  No
- D. Will the pump be readily removable without entry into the wet well or dewatering the wet well?  Yes  No
- E. Will all valving shall be accessible without entry into the wet well or dewatering the wet well?  Yes  No
- F. If a pump station discharges to a common pressurized sewer, will a redundant check valve be provided?  Yes  No  N/A
- G. Will all valves including redundant check valves be installed at the pump station (except if a pump station discharges to a gravity sewer)?  Yes  No  N/A
- H. Will all pumps have a minimum 1¼-inch pump inlet opening and discharge piping?  Yes  No
- I. Will level controls using float type displacement switches be suspended in the wet well to facilitate maintenance?  Yes  No
- J. For submersible pump lift stations, please specify one of the following below to minimize the potential for ignition of explosive gases (select one):
- The pump motor be rated explosion proof in accordance with NEC requirements
  - The motor shall be listed as safe and appropriate for residential use by the Underwriters Laboratories, Inc.
  - N/A - Non-Submersible pump lift stations
- K. For non-submersible pump lift stations, in order to reduce the potential for ignition of explosive gases with non- explosion proof pump motors, will the pump motor be completely isolated from the wet well atmosphere in a separate gas tight housing?  Yes  No  N/A

### Certification

I certify that this document, to the best of my knowledge and belief, is true, accurate, and complete.

\_\_\_\_\_  
Signature of Consulting or Municipal Engineer Responsible for Preparing This Form

Date Signed \_\_\_\_\_

Wisconsin P.E. Number \_\_\_\_\_