

Schedule F – Sewer System Lift Station/Force Main

All RRWRD lift stations must be wet well/dry well stations meeting RRWRD requirements. A back-up emergency generator, generally natural gas, with automatic switch-over must be provided. Telemetry must be provided. Two (2) forcemains may be required, one for low flow and one for ultimate flow.

1. Name of Project

The name of the project must be the same as the project name indicated on WPC-PS-1.

2. Design Population

The ultimate area and population to be served must be listed. Provide a service area map of sufficient scale and clarity that displays all lots and parcels being served and detailed flow calculations accounting for each parcel and lot shown.

3. Design Flow

The ultimate flows must be indicated. Determine the maximum flow from Appendix D of the Illinois Recommended Standards for Sewage Works.

4. Lift Station will serve

Check “Yes” or “No” for all categories.

5. Lift Station is designed to serve

Complete as applicable.

6. Force Main

A scouring velocity of at least two (2) feet per second must be maintained. An automatic air relief must be placed in all high points to prevent air locking.

7. Design Head (Total Dynamic Head)

The pipe friction loss must be calculated at both $C = 100$ and $C = 120$.

8. Pumps

All pumps must be able to pass a sphere of at least 3 inches. The lift station must be able to handle the design peak flows with the largest pump out of service.

9. Valves

Complete as applicable

10. Wet Well

Complete as applicable.

11. Buoyancy Calculations

Buoyancy calculations must be submitted.

12. Accessibility

Paved accessibility must be provided.

13. Ventilation

Proper ventilation must be provided in both the wet well and dry well.

14. Emergency Operations

A back-up emergency generator must be provided.

15. Flow Measurement

Flow measurement must be provided.

16. Compliance with Illinois Recommended Standards for Sewage Works

The pump station must remain operational at all times and be protected from physical damage from the 100 year flood event.

Rock River Water Reclamation District
 Engineering Dept.
 3501 Kishwaukee Street
 Rockford, Illinois 61109
Schedule F - Sewer System Lift Station / Force Main

1. Name of Project: _____

2. Design Population:

Area to be served _____ acres. Population to be served _____ P.E.

3. Design Flows:

Design Average Flow _____ gpm. Design Maximum Flow _____ gpm.

4. Lift Station will serve:

Only separate sewers Yes No Domestic waste sewers Yes No
 Industrial waste sewers Yes No Domestic & industrial wastes Yes No

5. Lift Station is designed to serve:

Only the population indicated above An anticipated additional waste contribution of _____ P.E.

6. Force Main:

Size of Force Main (inches) _____ Total Length (feet) _____

Pipe material specifications _____ Joint specifications _____

Are air relief valves provided at high points? Yes No

Are clean-outs (blow-offs) provided at low points? Yes No

7. Design Head (Total Dynamic Head):

Static Head:

Forcemain High Point Elevation: _____

Low Water Elevation : _____

Static Head : (A) _____ Feet

Pipe friction loss:

(Attach calculations)

(B) _____ Feet at "C" = 100 or

_____ Feet at "C" = 120

Minor Losses (Valves, etc.) :

(Attach calculations)

(C) _____ Feet at "C" = 100

Total Dynamic Head (A + B + C) _____ Feet

8. Pumps

Number of Pumps	Type of Pumps	GPM per Pump	at TDH (Feet)	HP of Each Pump	Pass 3" Spheres	
					Yes	No
					Yes	No
					Yes	No
					Yes	No

- a. Rated Capacity of Lift Station _____ gpm at _____ feet of TDH.
- b. Pumping Capacity with Largest Unit Out of Service _____ gpm at _____ feet of TDH.
- c. Are all pumps with positive suction head and/or self priming? ___ Yes ___ No
- d. Have provisions been made to detect shaft seal failure or potential shaft seal failure? ___ Yes ___ No

9. Valves

- a. Discharge Pipe ___ Gate ___ Check ___ Other _____ Other _____
- b. Suction Line (if Applicable) ___ Gate ___ Check ___ Other _____ Other _____

10. Wet Well

- a. Effective capacity (volume between pumps off and pumps on switches) = _____ gallons
- b. Detention time at design flow = _____ minutes
- c. Are there provisions for pump removal? ___ Yes ___ No

11. Buoyancy Calculations

- a. Have buoyancy calculations been submitted? ___ Yes ___ No ___ N/A
- b. Depth of groundwater table: _____ feet below the ground surface.

12. Accessibility

Is the pump station accessible by an all weather road? ___ Yes ___ No

13. Ventilation

- a. Wet Well:
 - Continuous with at least 12 complete air changes per hour? ___ Yes ___ No
 - Intermittent with at least 30 complete air changes per hour? ___ Yes ___ No
- b. Dry Well (if applicable):
 - Continuous with at least 6 complete air changes per hour? ___ Yes ___ No ___ N/A
 - Intermittent with at least 30 complete air changes per hour? ___ Yes ___ No ___ N/A
- c. Is portable ventilation equipment available for use at all times? ___ Yes ___ No

14. Emergency Operations

- a. In case of power failure, is an alternate power supply available? ___ Yes ___ No
If yes, please describe the source of the alternate power supply. _____
- b. Is a portable pump, with adequate pumping capacity, available for use at all times? ___ Yes ___ No
- c. Has a riser from the force main been provided to hook-up portable pumps? ___ Yes ___ No
- d. Length of time between a power failure and commencement of pumping by emergency equipment _____.
- e. Estimated time interval before damage or sewer backup will occur _____.
- f. Type of alarm system proposed: ___ Telemetry System ___ Audio-Visual with self contained power
- g. Are personnel available at all times to operate emergency equipment? ___ Yes ___ No

15. Flow Measurement

a. Type of flow measurement provided: ___ Flow meter ___ Elapsed time meters ___ ITR

16. Compliance with Illinois Recommended Standards for Sewage Works

- a. Can the pump station remain operational during the 25-year flood? ___ Yes ___ No
- b. Is the pump station protected from physical damage during the 100-year flood? ___ Yes ___ No

c. When applicable, will electrical systems and components comply with NEC requirements for Class I, Group D, Division I locations?

Yes No

d. Have provisions been made to automatically alternate the pumps?

Yes No

e. Is the motor control center located outside and protected by a conduit seal?

Yes No

f. Can the motor be electronically disconnected without disturbing the seal?

Yes No

This Agency is authorized to require this information under Illinois Compiled Statutes, 1998, Chapter 415, Title X, Section 5/39 et seq.. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied.

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