

SANITARY SEWER/LIFT STATION SPECIFICATIONS AND CLEARANCES

- _____ 1) Permission for connection to (or for additional capacity of) the utility sanitary sewer must be obtained, in writing, from the proper local authorities and forwarded to this office with the project plans.
- a. Indicate the diameter and location of the utility's sanitary sewer to which the connection is to be made.
- _____ 2) Incorporate the following specifications and details of the sanitary sewers into the plans:
- a. Show the material specification of sanitary sewers and the ASTM and SDR specification if plastic sanitary sewers are to be used in accordance with the "Pre-approved Exterior Water and Sewer Piping" list.
 - b. Sewers throughout the project must be at least 6 inches in diameter.
 - c. Individual connecting sewers must be at least 4 inches in diameter.
 - d. Sanitary sewers shall have a minimum of 2 feet of cover above the pipe.
 - e. Include a summary of the total lineal feet for each diameter of sanitary sewer to be used.
- _____ 3) Submit plan and profile views of the sanitary sewers, showing slopes, top-of-casting elevations, and distances between manholes and cleanouts, including the following:
- a. Show invert elevations at the manholes and cleanouts. Include compass directions (N, S, etc) with each invert.
 - b. Sewers shall have manholes constructed at intervals of not more than 400 feet.
 - c. Manholes shall be installed at changes in alignment or grade of the sewer.
 - d. A cleanout may be installed at the terminus of a sewer provided that a manhole is within 300 feet of this terminus.
 - e. The minimum slope of 6-inch sewer is 0.61 %; 8-inch sewer 0.40%.

- _____ 4) Submit a cross-sectional drawing of the manholes and cleanouts to be used in this project, including the following:
- a. Manholes must be at least 4 feet in diameter. Include frame and lid specifications, and products to ensure water tightness at each joint and pipe penetration.
 - b. Sewer cleanouts must be of the same diameter as the sewer they are to serve.
 - c. Sewer cleanouts must extend to finished grade.
- _____ 5) Provide a dimensioned plan and cross-sectional view of the lift station, including the following on the plans:
- a. The sewage lift station pumps must be easily removable without entering the wet well or be ventilated in accordance with "Recommended Standards for Sewage Works," published by the Great Lakes-Upper Mississippi River Board of State Sanitary Engineers.
 - b. Show elevations of the ground line, wet well bottom, inlet sewer invert, lead and lag pump levels, pump-off level, force main invert, and audiovisual alarm level.
 - c. Show guide rails, lift chains, and break-away flanges. Specify pump GPM, TDH, manufacturer and model, and power requirements on the plans. Include a pump curve for the pumps specified.
 - d. Specify the diameter and material specification of the force main.
 - e. Show shut-off and check valves in the pump discharge in a horizontal position.
 - f. If the force main is designed to drain back to the lift station after each pumping cycle (and contains only effluent), specify that a 3/8-inch hole be drilled in the bottom of the force main adjacent to and downstream of the check valves.
 - g. Show fillets at the sewage lift station wet well base with a minimum slope of 1:1, leaving sufficient room for the pumps
 - h. Sewage lift station pumps must be capable of passing three-inch solids. Include pump specs that indicate this feature. Grinder pumps are exempt from this requirement.

- i. Each sewage lift station pump must have a minimum capacity equal to 4 times the average daily flow in gallons per minute. Include calculations for the discharge and head.
- j. Specify that all electrical controls are weatherproof and located outside the lift station.
- k. Specify automatic pump alternation and a separate circuit to activate the audiovisual alarm with any pump failure.

6) Show a plan and profile of the force main, including the following:

- a. Flow velocity in the force main must be a minimum of 2.0 feet per second.
- b. For effluent force mains, show how they will drain, either to the lift station or to the receiving manhole.
- c. If the force main will not drain, specify a burial depth in accordance with the attached frost penetration chart of frost depths within the State to avoid freezing.
- d. Specify the diameter, material and SDR specification of the force main.

7) Specify the following on the plans:

- a. Where water lines and sewers cross and the minimum 18 inches vertical clearance cannot be maintained, the sewer must be constructed of waterworks grade ductile iron pipe with mechanical joints, PVC ASTM-D2241 SDR 21 or 26 or PVC ASTM-D 3034 SDR 26 sewer pipe with gasketed, compression-type joints within 10 feet of the water line.
- b. Where water lines and sewers run parallel through the project, a minimum separation distance of 10 feet must be maintained. If the 10 feet cannot be maintained, then the sewer must be constructed of waterworks grade ductile iron pipe with mechanical joints, PVC ASTM-D 2241 SDR 21 or 26, or PVC ASTM-D 3034 SDR 26 pipe with gasketed, compression-type joints.

Frost Penetrations in Indiana (in inches)

Adams	60	Franklin	48	Lawrence	48	Rush	54
Allen	60	Fulton	60	Madison	60	St. Joseph	60
Bartholomew	48	Gibson	42	Marion	54	Scott	36
Benton	60	Grant	54	Marshall	60	Shelby	54
Blackford	60	Greene	54	Martin	48	Spencer	36
Boone	54	Hamilton	54	Miami	60	Starke	60
Brown	48	Hancock	54	Monroe	48	Steuben	60
Carroll	60	Harrison	36	Montgomery	60	Sullivan	54
Cass	60	Hendricks	54	Morgan	48	Switzerland	42
Clark	36	Henry	54	Newton	60	Tippecanoe	60
Clay	54	Howard	60	Noble	60	Tipton	60
Clinton	54	Huntington	60	Ohio	42	Union	48
Crawford	36	Jackson	48	Orange	42	Vanderburgh	36
Daviess	48	Jasper	60	Owen	54	Vermillion	60
Dearborn	48	Jay	60	Parke	60	Vigo	60
Decatur	48	Jefferson	42	Perry	36	Wabash	60
Dekalb	60	Jennings	48	Pike	42	Warren	60
Delaware	60	Johnson	54	Porter	60	Warrick	36
Dubois	42	Knox	48	Posey	42	Washington	36
Elkhart	60	Kosciusko	60	Pulaski	60	Wayne	54
Fayette	54	LaGrange	60	Putnam	54	Wells	60
Floyd	36	Lake	60	Randolph	54	White	60
Fountain	60	LaPorte	60	Ripley	48	Whitley	60