



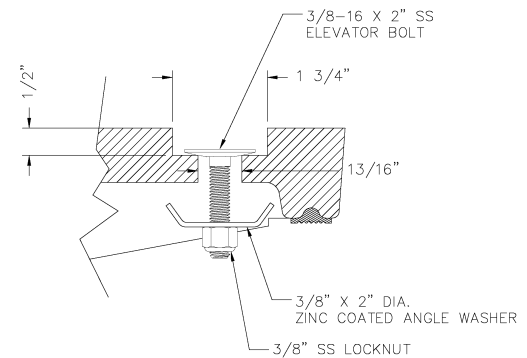
# Case Study

## Dislodged Manhole Cover

### Need

In 2017 a sanitary sewer manhole cover was becoming dislodged due to gas pressure in the manhole in the City of Fort Wayne, IN. The City of Fort Wayne contact Neenah Foundry for an economical solution.

- The dislodged cover created a hazard to vehicular traffic and any pedestrian that walked over the area.
- Bolting the manhole cover to the frame was not an option as damage to the underground infrastructure would occur or just relocate the issue to another manhole.
- A vented cover with open holes was not an option as limiting infiltration into the system was a priority.



**Cross section view of retrofit vent**

### Actions

Neenah Foundry engineers worked with the City of Fort Wayne to design a modified manhole cover that could be retrofit into the existing frame.

- The manhole cover was an R-1772 manhole cover.
- Eight holes were drilled through the manhole cover and fitted with elevator bolts and angle washers.
- Positive pressure in the manhole causes the elevator bolts to rise allowing pressure dispersion to occur and thus prevent the manhole cover from coming dislodged.
- An angle washer and lock nut allow venting of the gas pressure while preventing the elevator bolt from being dislodged.

### Results

- The manhole covers are still in place and operating as designed.
- Retorfitting the manhole cover allowed for easy and fast replacement and reduced the need for more costly construction or system modifications.



**Installed 1772 manhole cover with new venting (courtesy, City of Fort Wayne, IN)**