

## **RE: Stormwater Drainage 406/408 N. Ellen**

### **Background:**

In early October, staff was asked by the City Administrator to provide information and possible solutions to council regarding complaints of stormwater drainage problems between 406 and 408 N. Ellen St. The information below along with a few attached pictures is presented to answer that request.

### **Analysis:**

The area in question was developed in the 1990's when city stormwater regulations were to meet design requirements considerably less restrictive than regulations we build to today. That design standard coupled with less than ideal ground level elevations for building stormwater systems has, in this case created a marginal conveyance system that does drain the water but lacks enough capacity to handle all waters in heavy-flash storms or those coupled with already saturated ground. In areas such as this, even minor property owner alterations over time can create negative outcomes.

To meet requirements under those older regulations, many areas weren't necessarily required to be built with stormwater piping systems as the gutters in the streets were thought sufficient to convey the stormwater and costs were considerably better. These street/stormwater systems moved stormwater to a low point where it was released into some form of pipe, drainage channel or detention basin, typically between or on private lots or common property of the subdivision. From there the water eventually drained away where it had historically gone. This particular location is a perfect example of that, as are a number of other similar areas around town; the streets/gutters were designed as the conveyance facilities to move water from the immediate area to the lowest downstream drainage point, where it flows out of the subdivision and onto the historically known conveyance.

It was a very common practice that these designs were approved and built without any commitment for future maintenance by the city. There was no need to have any form of drainage or stormwater easement as it was left to the property owner and assumed it would be maintained as it was built into the future. Because of this, there has been no maintenance by the city and there have been no prohibitions from making any improvements within these conveyances other than building setback standards. It is typical to see fences being the main culprit that blocks or reroutes stormwater flow as is the case here. Over time property owners have extended drives, built fences and other similar non-building structures that has altered the original design which has partially blocked and reduced the designed capacity of the conveyance and pushed the flow of water onto other parts of the property.

As you can see on the attached pictures, the stormwater in these examples has risen outside of what is left of the original conveyance and onto yards where it was never intended to be. Unfortunately, we have no pictures of the original conveyance revealing the full width of the shallow ditch between the properties but it was common practice that the entire width of the conveyance was split equally across two lots. The only way to correct most of the instances is to return the conveyance back to its original design. That would include relocating the fences along with the short walls and driveway extension to a point where the volume can be achieved. The earthwork would be reshaped to allow for the unrestricted flow of stormwater from Ellen St. east across the properties and onto a similar surface drain ahead of a detention basin on property owned by the church to the east.

To make these corrections, removal of the improvements built in the original conveyance needs to take place followed by regrading of the ground to the shallow wide ditch that was originally built. Staff has determined that as in the original design, there is enough fall from N. Ellen east through the properties and across a small portion of the church property to get it into the existing detention basin north of the church parking lot. To do this, the existing trickle channel and drainage area will need to be regraded, reshaped and reseeded. This may necessitate a small amount of similar work on the church property as that area has begun to wash out due to recent improvements they have made.

Improvements can be implemented in a couple of different ways; either with the City taking control and oversight of the conveyance or it could be corrected by the property owners themselves. Provided the latter was chosen, we would offer to assist them with some non-engineered planning or advice as has been described. To complete this as a City project (which I don't recommend), we would consult with our engineers for assistance, especially in the drafting of easement descriptions and grade staking. The property owners would need to grant drainage easements with ingress and egress rights for any future repair or major maintenance work, including on the church property if it was determined that was needed. Additionally, there would be temporary construction easements needed so workers can access all areas necessary to accomplish the project. Keep in mind that everyone would need to go into this with the understanding that we most likely can't meet today's design standard. Preliminary estimates we have developed put the cost to complete this in the range of \$25,000.

By reporting that the city "can" make the above-mentioned corrections, I'm not advocating the city move towards acquiring easements and maintaining this and other similar areas at this time. We don't have the staff and other resources, especially dedicated funding, to take on such tasks whether it be this single project or city-wide. To do that would necessitate the creation of a stormwater department with a dedicated funding source such as that mentioned in the strategic plan.

**Recommendation:**

Staff has no further recommendation beyond that discussed in the paragraphs above as to how this issue is corrected and we look to Council for any further direction.

I do, however, have a related recommendation for the future and that is a prohibition of any improvements, including (especially) fences in drainage easements, here and everywhere else they exist or are proposed, to keep these problems from developing in other areas. Provided the Council would want to entertain such an ordinance, staff can prepare something for your consideration.

**MEMO SUBMITTED BY:**

**Doug Colvin** | Assistant City Administrator, Director Nixa Utilities and Public Works

dcolvin@nixa.com | 417-725-2353



































