

Problem Area No. 17

A. LOCATION

Wetlands located east of Lawndale Lane in between Elm Road and 68th Avenue. Basins 193 and Basin 503 are also part of the hydraulic system in this area.

B. DESCRIPTION OF PROBLEM

The outlet (IN22576) for the wetland north of 66th Avenue is regularly clogged with debris and needs to be cleaned out consistently.

Residents at 17338, 17370, and 17392 66th Place North called the city commenting that the outlet was clogged causing flooding in their backyards. Residents at 17392 66th Place North also noted that their basement was flooded due from the wetland not draining properly.

The City has also noted that Garland Lane has flooded multiple times during heavy rainfall events.

C. EXISTING CONDITIONS

There are three key areas that were included in the hydraulic modeling for this problem area: the northern wetland, the southwest wetland and the eastern wetlands.

Northern Wetland Existing Conditions

The existing wetland outlet from the northern wetland consists of a 24-inch RCP (IN22576_MH22910) with a flared end section. The invert of the flared end section controls the normal water level for the wetland at 933.64. There is an approximately 14-acre drainage area that drains directly to the wetland. The northern wetlands discharges to Basin 193 downstream. The backyards and 66th Avenue flood at 940.0. There is little freeboard available in this area for the adjacent homes. The existing high water level from the 100-year storm event is 941.6.

Southwest Wetland Existing Conditions

Basin 193 discharges to the southwest wetland as well as a 7.5-acre direct drainage area. The existing wetland outlet from the southwest wetland is a 15-inch RCP pipe (IN22579_MH12497) with a flared end section. The invert of the flared end section has an invert at 929.85 which controls the normal water level of the wetland. The outlet pipe collects drainage off of the ballpark as it routes to the eastern wetland. The inlet into the eastern wetland is flat at only a 0.15% slope. The current 100-year high water level for the southwest wetland is 935.4. The baseball field to the east of the wetland begins to get flooded at 934.0.

Eastern Wetland

The eastern wetland receives discharge from the southwest wetland and Basin 503, a sediment basin. The wetland has a 10.5-acre drainage area. The existing outlet structure from the eastern wetland is an 18-inch RCP (IN22578_OUT1022) with a flared end section. The invert of the flared end section controls the normal water level of the wetland at 920.1. Water floods Garland Lane when the pond reaches 926.0. The current high water level for the 100-year storm event is 926.3.

D. FEASIBLE ALTERNATIVES TO ADDRESS THE PROBLEM

1. **Add outlet structures to all three wetland outlets and upsize outlet pipes.** Add outlet structures to three wetlands outlets (IN22576, IN22579, and IN22578) to reduce debris buildup reducing pipe capacities. Upsize IN22576_CB16130) for the northern wetland from a 24-inch to a 36-inch RCP. The proposed high water level for the 100-year storm event for the northern wetland is 939.4.

Upsize (IN22579_OUT1020) from the southwest wetland from a 15-inch RCP to a 44-inch RCP arch and lower the outlet invert from 929.85 to 928.0. The proposed high water level for the 100-year storm event for the southwestern wetland is 934.3.

Upsize (IN22578_OUT1022) from the eastern wetland from an 18-inch to a 52-inch RCP arch. The proposed high water level for the 100-year storm for the eastern wetland is 925.4.

2. **Create additional storage where available in the wetlands.** Excavate wetlands, both upstream and the three wetlands analyzed here, to create additional storage to increase room for bounce.
3. **Add outlet structure to upstream wetland.** Add an outlet structure to IN24112, the outlet for the wetland north of 68th Avenue to constrict the flow to downstream wetlands.

E. CONCLUSIONS AND RECOMMENDATIONS

Based on hydraulic modeling of this problem area, **Alternative 1** is recommended. The outlets from all three areas were shown to be undersized from the hydraulic modeling. The indirect drainage area for all three wetlands is quite large, with a lot of water being routed through these wetlands. Larger outlet pipes are required to handle these large flows. Outlet structures would reduce buildup ensuring outlet pipes are running as close to full capacity as possible. Outlet structures would also control the flow rate to downstream areas decreasing the risk of flooding downstream.

Excavating wetlands for **Alternative 2** would require permits and a large amount of storage would need to be added to reduce the flooding risk to properties on 66th Avenue. The wetland

north of 68th Avenue already has limited bounce available, so adding an outlet structure as suggested in **Alternative 3** would create flooding issues on 68th Avenue and is not recommended.

SWMP Problem: Backyard and basement flooding due to an undersized outlet from the wetland directly north of the properties. Downstream flooding was also seen to be a problem.

Recommendation: Add outlet structures to three wetland outlets noted on figure. Upsize outlet pipe from wetland directly north of properties from a 24" to 36". Lower outlet from wetland at the northeast corner of Elm Road and Lawndale Lane to 928 and upsize outlet from 15" to a 44" RCP arch. Upsize outlet pipe from wetland west of Garland Lane from 18" to 52" RCP arch.

Floods property and 66th Place N @ 940

Existing HWL = 941.6

**NWL = 933.6
Proposed HWL = 939.4**

**NWL = 920.1
Proposed HWL = 925.4**

Add an outlet structure to IN22576 and upsize pipe (IN22576_CB16130) to 36"

Floods Field @ 934

Floods Garland Lane @ 926

Existing HWL = 935.4

**Proposed NWL = 928.0
Proposed HWL = 934.3**

Add an outlet structure to IN22578 and upsize outlet pipe (IN22578_OUT1022) to 52" RCP arch

Floods Elm Road @ 935

Add an outlet structure to IN22579 and upsize outlet pipe (IN22579_OUT1020) to 44" RCP arch

Contour Type

- Index (10-Foot)
- Intermediate (2-Foot)

Storm Sewer

- Storm Sewer

Drainage Areas

- Drainage Areas

Resident Called City

- Resident Called City

Water Bodies

- NURP Pond
- Sediment Basin
- Wetland

Problem Area 17- 66th Place N

Project Number 01913-240
City of Maple Grove

