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engineers + planners + land surveyors

December 14, 2019

Mick Michel
City Administrator
City of Dyersville
340 1st Avenue East
Dyersville, IA 52040

RE: Tegeler Pond Storm Water Study

Dear Mick:

In June of 2019 WHKS prepared a draft storm water report for the Tegeler Pond Development area in the City of Dyersville. WHKS presented the findings of this report to the City Council in June of 2019. The Council subsequently had a series of follow-on questions. They requested that WHKS consider variations of the alternatives presented to further define project costs and potential cost sharing with private developers. WHKS returned to the Council for a work-session in August of 2019 and presented the additional findings with further input from project stakeholders. At the Council work session various stakeholders raised concerns regarding the broader development of the area and those concerns went beyond the original scope of the study. At the conclusion of the work session the Council directed City staff to further consider how the development of this area may be implemented. Our understanding, at the conclusion of the work session, was that the City conduct further coordination with stake holders as needed to identify the long-term vision of this area, and to work through development agreements. The information presented by WHKS provided a framework for potential storm water infrastructure development for the central and eastern portions of the developable area. Further City coordination regarding the future development of the western portion of the site, as well as cost-sharing arrangements and development agreements, were still undefined.

At your request, this letter summarizes our findings and recommendations from our original work so that this information may used by the City to further the development of this area. In summary, our findings and recommendations based on the original project scope are as follows:

Findings:

1. The historical development of the Tegeler Pond area significantly altered the local hydrology and recent development did not account for future storm water conveyance and water quality concerns within the pond as a result.
2. WHKS studied a portion of the existing Tegeler Pond watershed and storm sewer system (primarily south of the pond) and determined that there is limited capacity for detention and retention within the existing developed area.
3. The existing storm sewer system within the residential developments southeast of Tegeler Pond are not properly sized to collect and convey the 10-yr 24-hour design event, which is the typical design criteria set by the City.

4. The alignment and configuration of the existing storm sewer system does not allow for, or accommodate, the layout of the proposed residential developments south and east of Tegeler Pond.

WHKS examined alternatives for the construction of a new storm water management system beginning near the south end of 11th St. SW, flowing north and then turning to the northeast to a discharge point at Bear Creek.

Recommendations:

1. The City should coordinate future storm water improvements with the developer(s) and owners of project area. Development agreements should be negotiated and agreed upon before any additional development work is implemented.
2. Completely re-routing of storm water from the south around Tegeler Pond is not recommended due to cost and physical constraints (depth and cover) required to construct a system large enough to convey the design event.
3. Based on the proposed development layout, it is recommended that the City construct a new storm sewer trunk line beginning near the north end of 11th St. SW and following the alignment of the proposed road extending west from the end of 6th Avenue SW
4. The existing 36-in storm sewer trunk line serving the residential areas along 11th Street SW should be removed and replaced with a 54-inch equivalent storm sewer trunk line along the alignment previously described. A 54-inch equivalent storm sewer is the estimated size needed to convey runoff from a 10-year 24-hour rainfall event from the contributing upstream watershed.
5. The system should be constructed with an overflow culvert that discharges into Tegeler Pond during runoff events that exceed the capacity of the proposed trunk line. At a minimum, a small pond or water control structure should be constructed at the intersection of the overflow culvert and trunk line inlet to regulate the flow of water during large events.
6. The City may wish to consider constructing a storm water wetland along and adjacent to the existing drainage ditch that flows north parallel to 11th St. SW. A wetland in this location would provide water quality benefits and limited storm water detention. A wetland could also function as amenity providing green space and habitat.
7. The existing outlet on the north end of Tegeler pond is not adequately sized to convey discharge from large events to Bear Creek. The City should consider constructing a new outlet with additional capacity. Further study will be needed to evaluate outlet configurations that balance the need to discharge with the desire to prevent backflow from the river during infrequent runoff events.
8. The collection and conveyance of storm water from areas west of the original project area were not considered. Interest was expressed in enlarging the proposed trunk line to accommodate additional runoff from these areas. However, both cost and physical constrains may prevent the up-sizing of the trunk line at this time. If these areas were to be developed it is assumed that new storm water infrastructure including structures to address water quality and rate control would be needed.

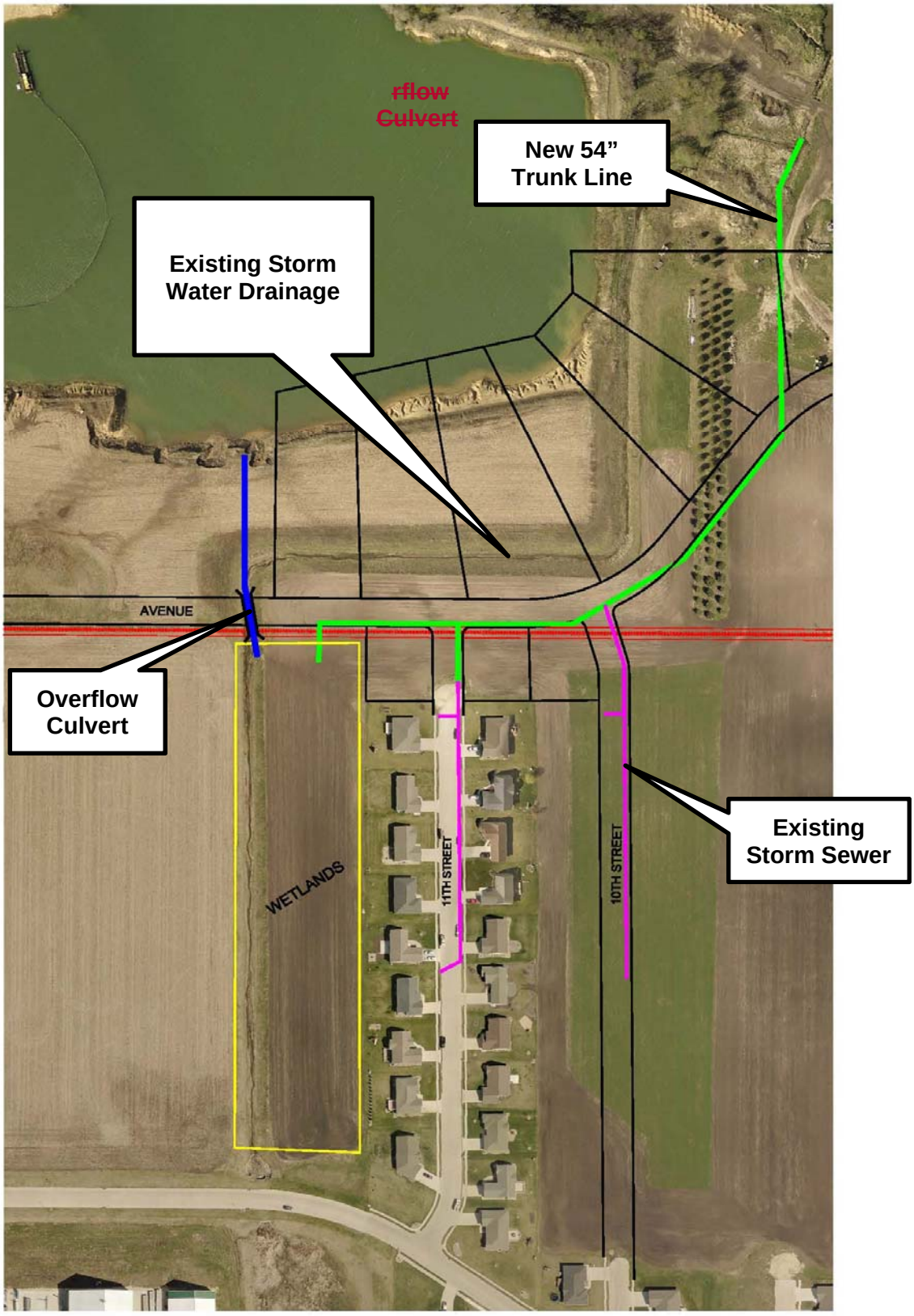
A concept schematic of the recommended improvements is attached for your reference. WHKS previously provided the City with data developed for the draft report including figures and schematics of the existing watershed conditions as well as the alternatives considered. WHKS also provided the Council with preliminary cost opinions to construct the proposed improvements.

As the City moves forward with this project it is likely that negotiations and agreements with project stakeholder will be required before further refinement of these alternatives can be accomplished. If you wish for us to provide you with any additional data, please do not hesitate to ask. If you require additional professional services, we welcome the opportunity assist you.

Sincerely,

***WHKS** & CO.*

Nathan Anderson


rflow
Culvert
New 54"
Trunk Line
Existing Storm
Water Drainage
AVENUE
Overflow
Culvert
WETLANDS
11TH STREET
10TH STREET
Existing
Storm Sewer