Tegeler Pond Project

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engineers + planners + land surveyors

Overview

- **Project Understanding**
- **Brief History**
- **Thought Process**
- **Existing Storm System**
- **Retention Evaluation**
- **Options for further consideration**

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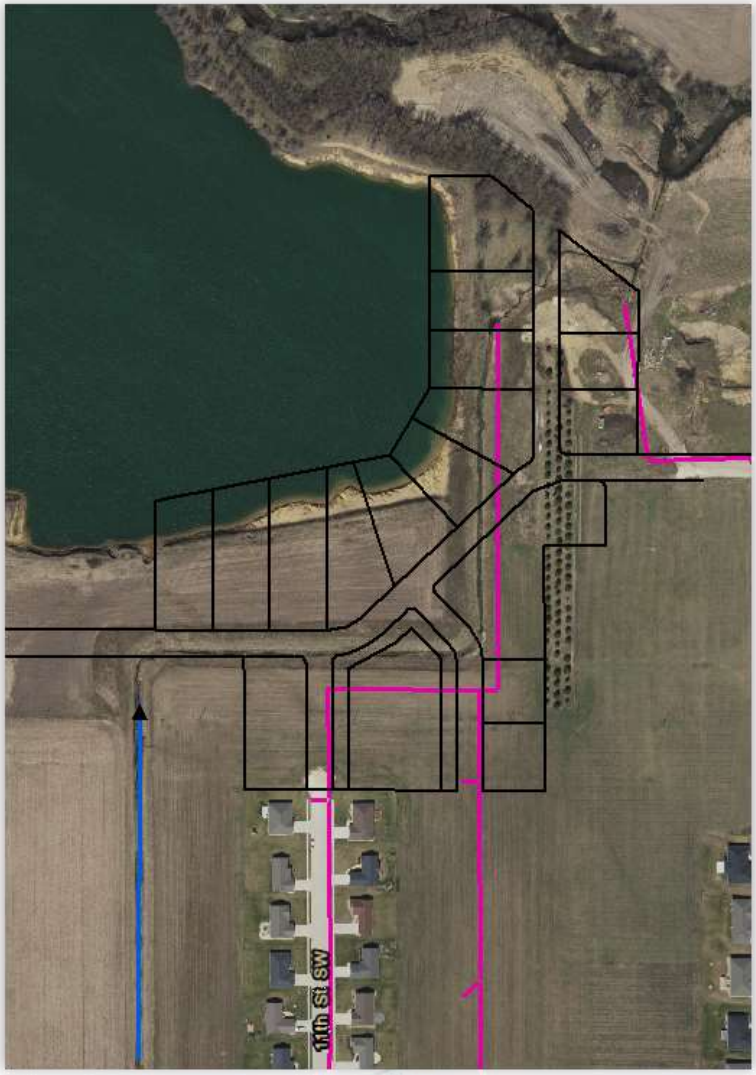
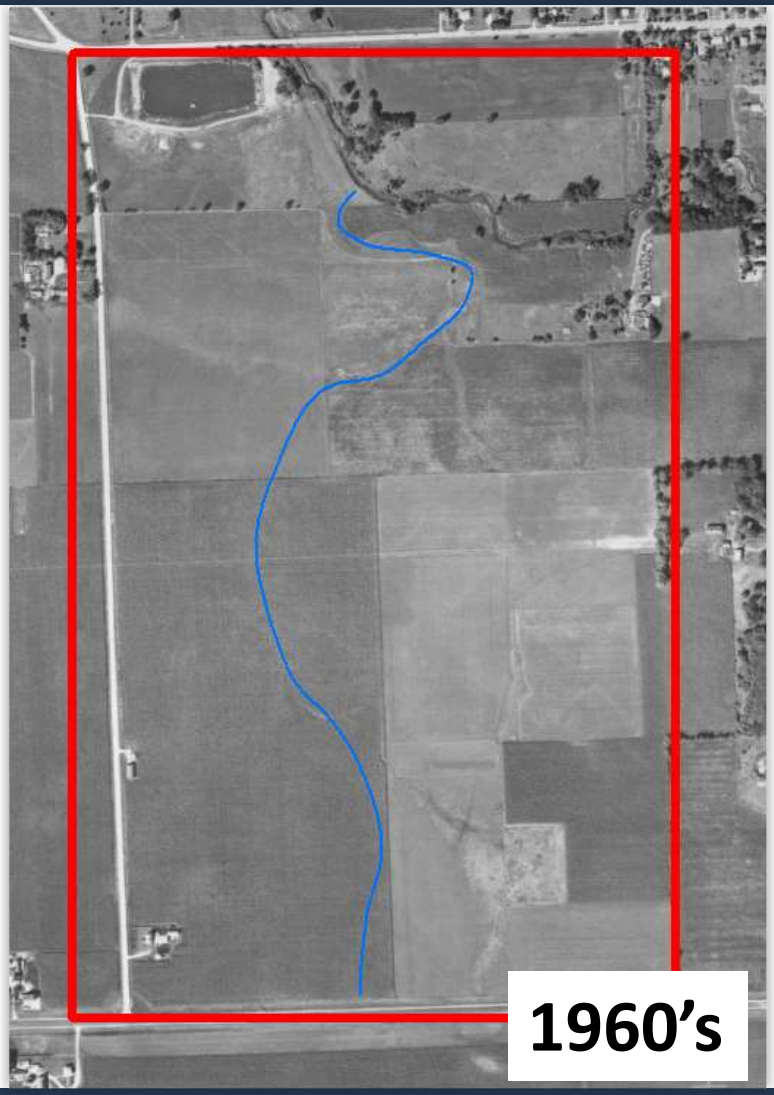
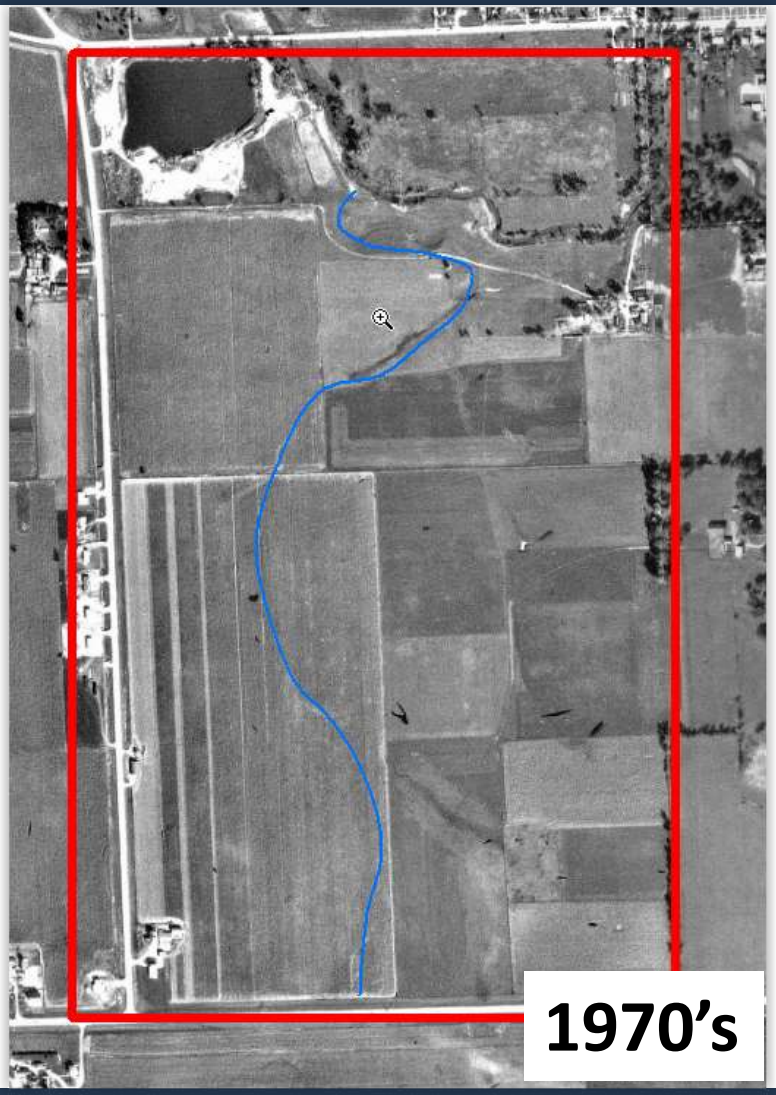
Project Understanding

- **Proposed development around Tegeler Pond**
- **Drainage from the south**
- **(~120 Acres)**
- **Need to route storm water from the south to Bear Creek**
- **Concerns of discharge to Tegeler Pond**
- **Cost concerns of routing around Tegeler Pond**
- **Need to evaluate alternatives**
- **Multiple project aspects**



A Brief History





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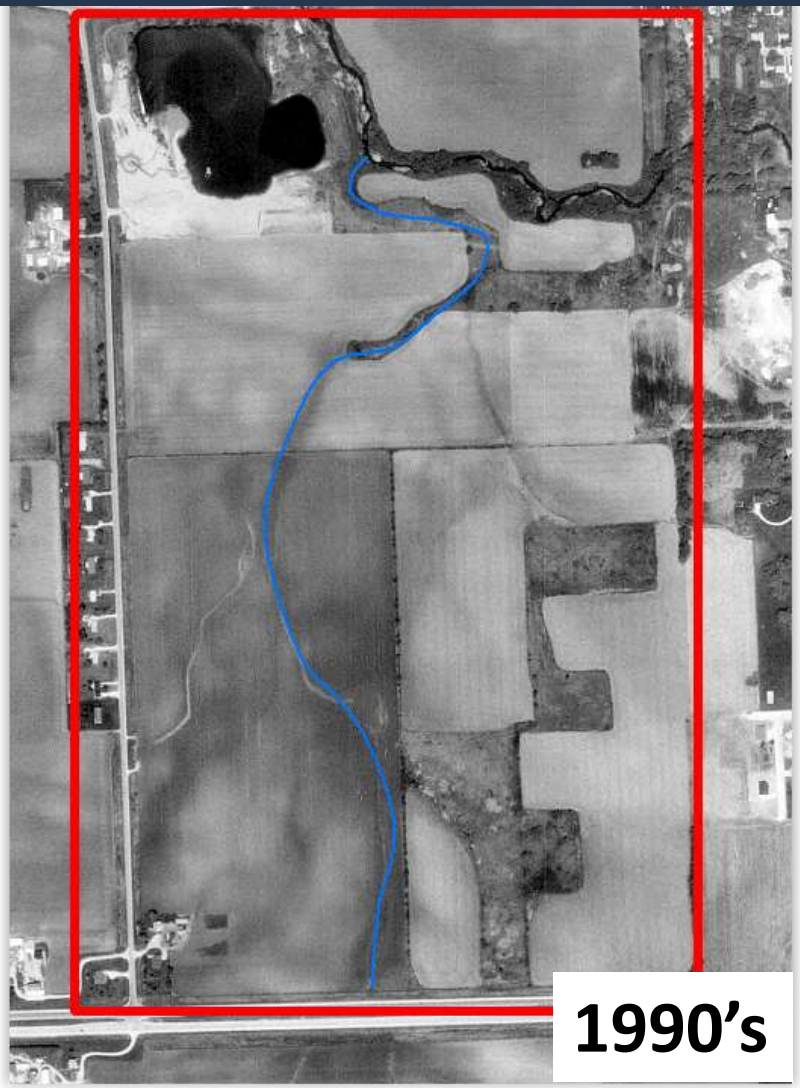

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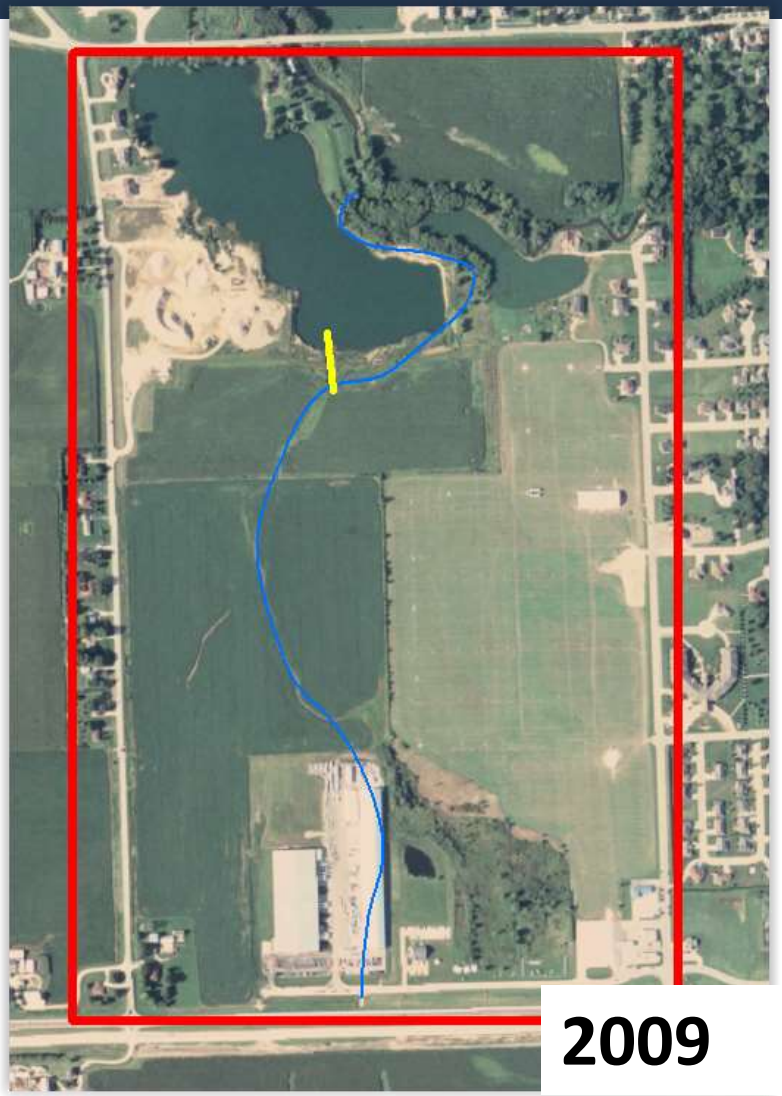
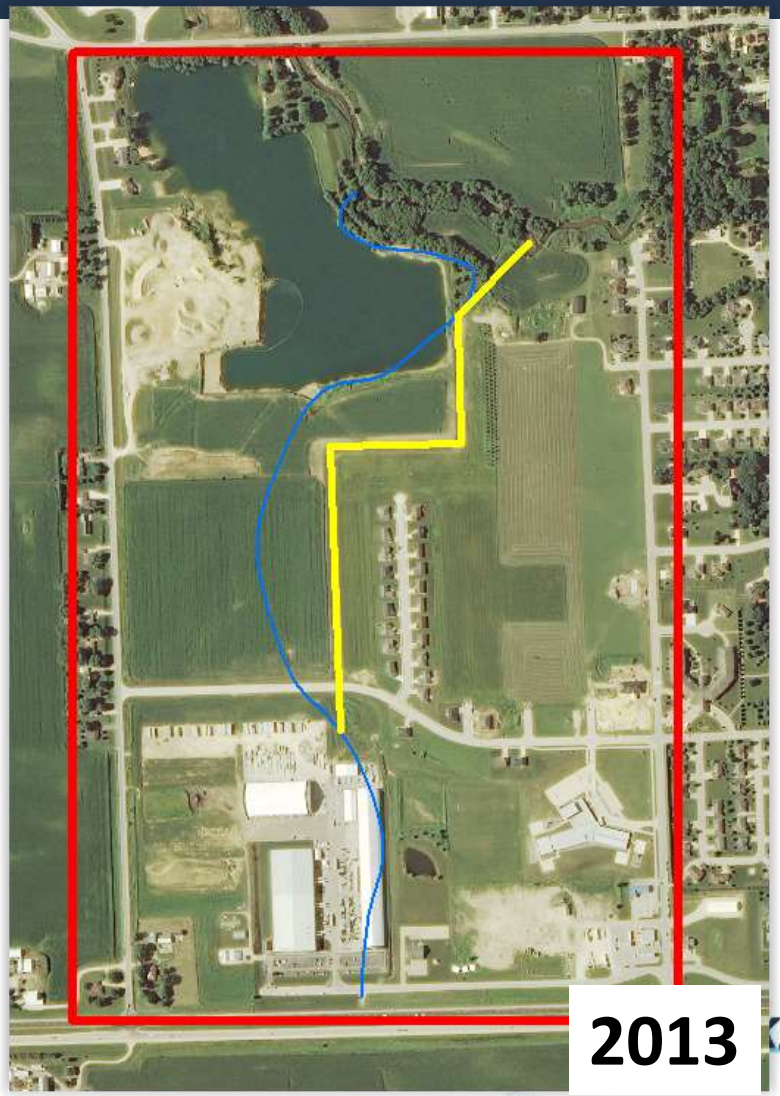
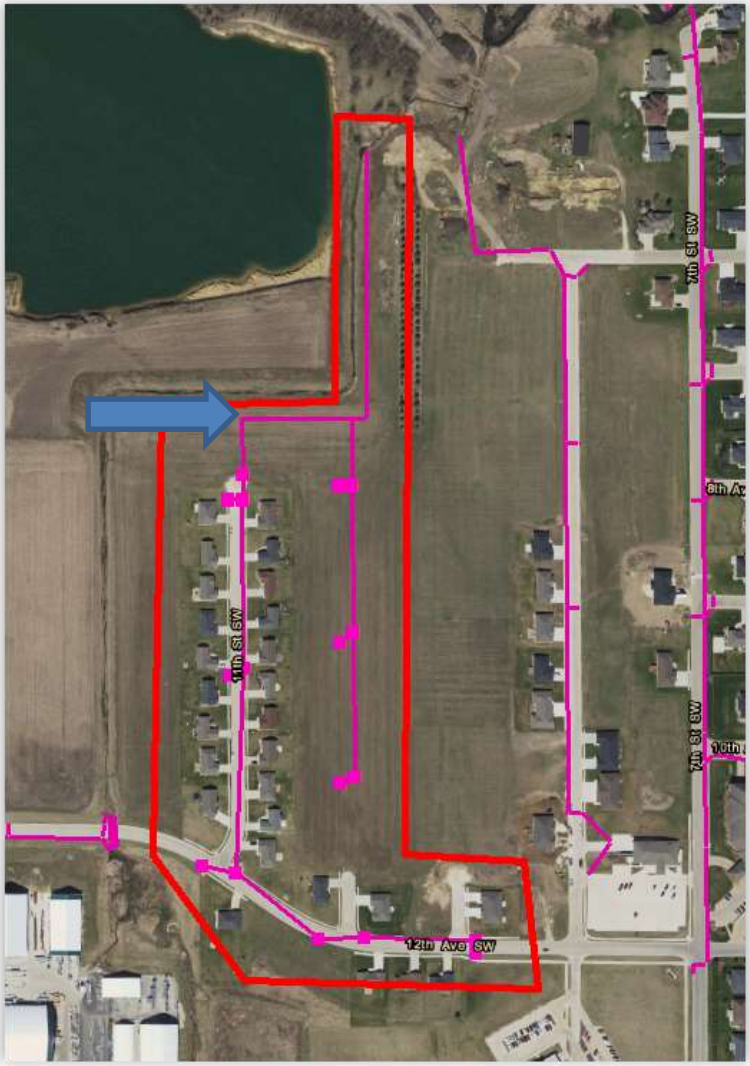




Investigation Thought Process

- **Discharge to Tegeler Pond is not desired (multiple concerns)**
- **Routing of storm water directly to stream is preferred**
- **Construction of large storm sewer will be costly**
- **Minimize construction cost by providing upstream retention (multiple sites)**
- **Need to evaluate existing storm sewer capacity**

Existing Storm Capacity



- **Existing storm main is a 36” pipe**
- **Evaluated for a 10-yr 24-hr runoff event**
- **Existing pipe cannot convey design event**
- **No additional capacity available**

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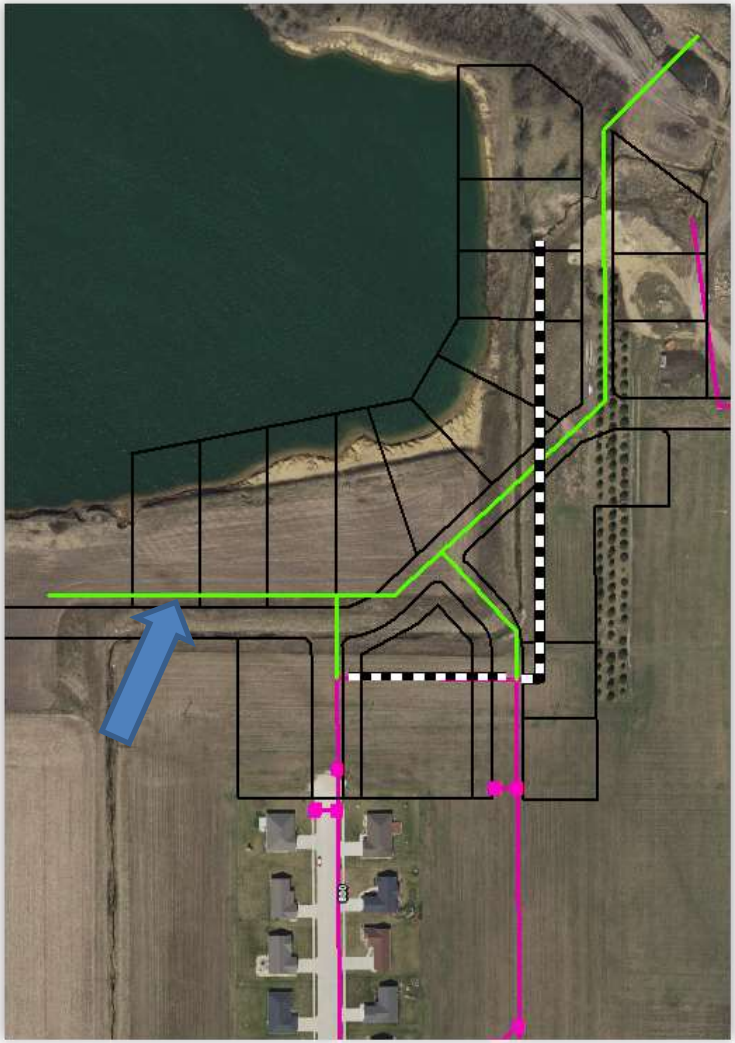
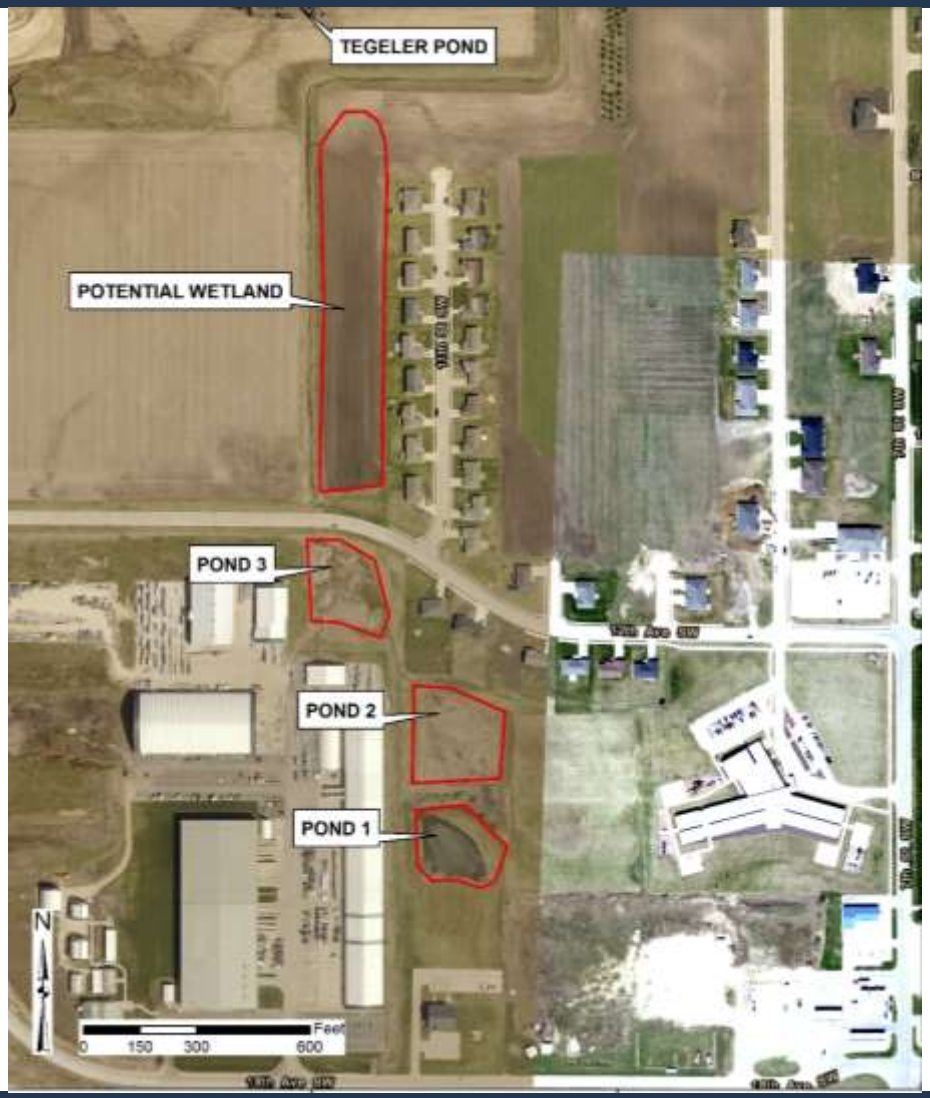
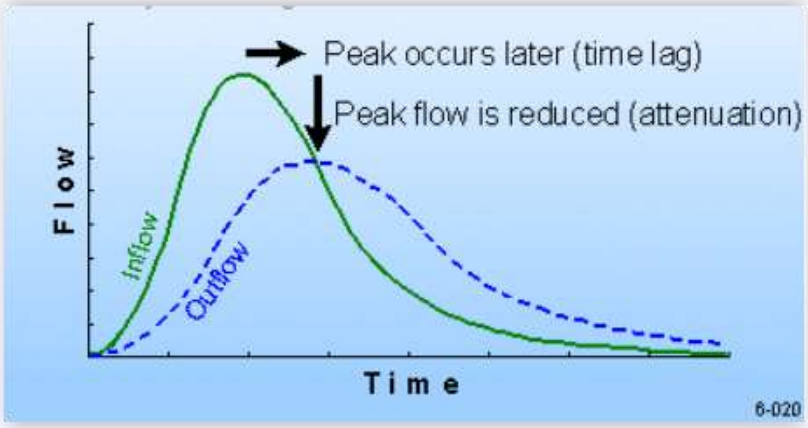
Existing Storm System Layout



- **Existing storm sewer layout does not allow for development of concept provided**
- **Realignment of sewer will likely be required regardless of conveyance from the south**
- **Minimum 48” pipe required to convey design event for existing**
- **Development should consider safe overflow**
- **Additional capacity needed for rerouted flow**

Retention Evaluation





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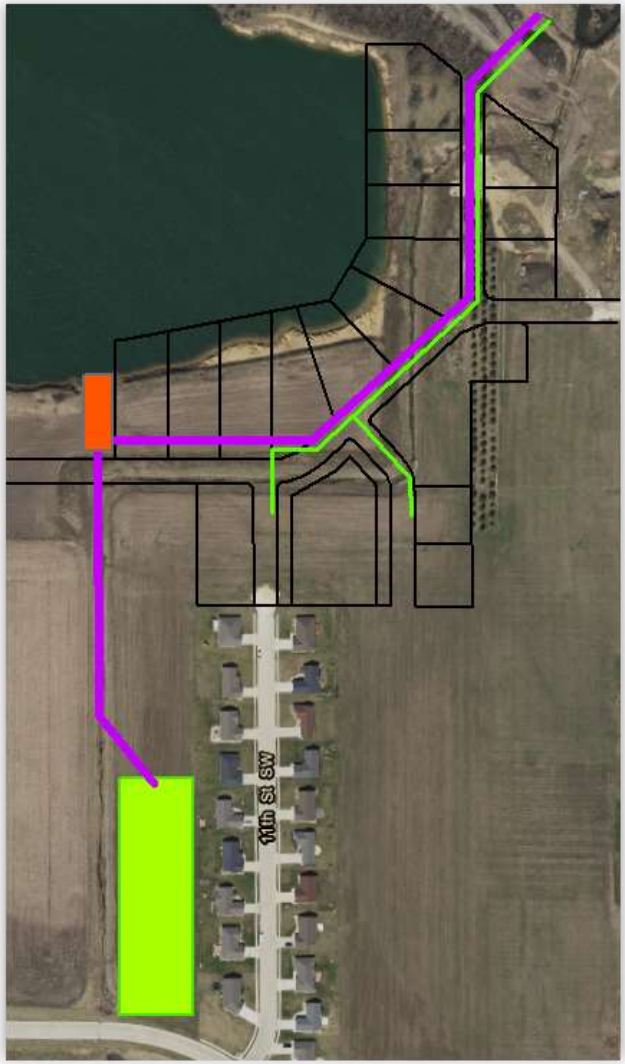
Wetland Vision

Site Limitations

- **Existing ponds have limited capacity or are serving intended purpose**
- **Potential permitting issues**

- **A wetland may be possible**
- **Wetland topography not well suited for storm detention due to existing homes**
- **At best, perhaps half of the area is suitable for detention (pond)**

Option 1 - Storm Sewer System



- Includes small pond
  - One pipe size reduction
  - Sediment capture
- Storm sewer is primary outlet
- Additional 48”+ equivalent pipe needed to convey <u>design event</u> from the watershed to the south
- Design event of 10-yr 24-hr storm
- Overflow to Tegeler pond still required unless…..
- 100-yr event requires 72” pipe

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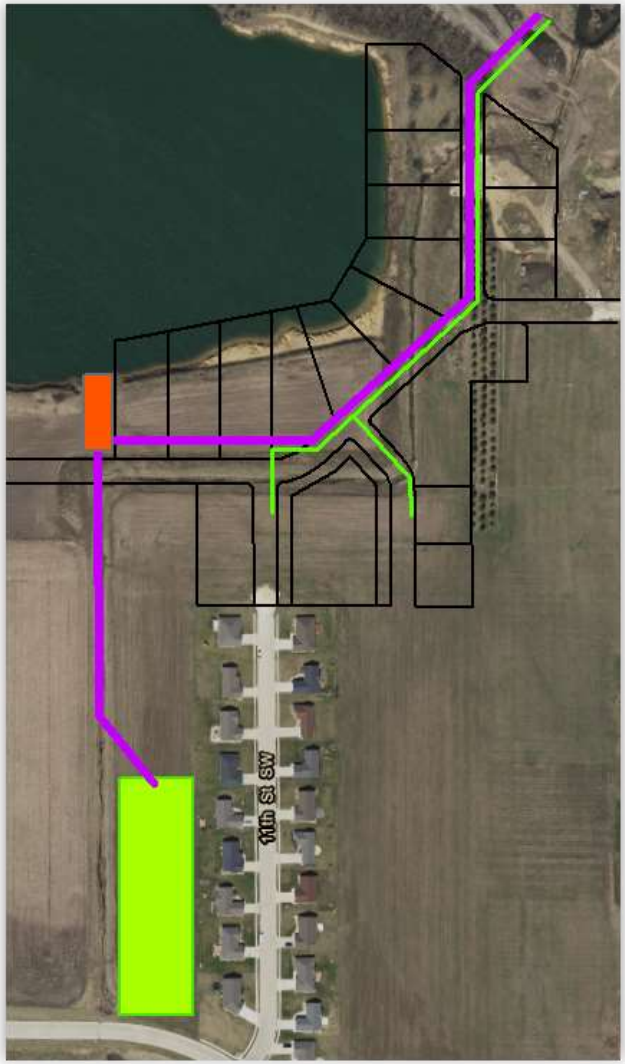
Option 2 – Reduce Criteria



- **Design event reduced to less than 10-yr 24-hr storm**
- **Greater and more frequent overflow to Tegeler Pond**
- **Smaller pipe to convey lesser events to stream**
- **Wetland optional (with increased overflow)**

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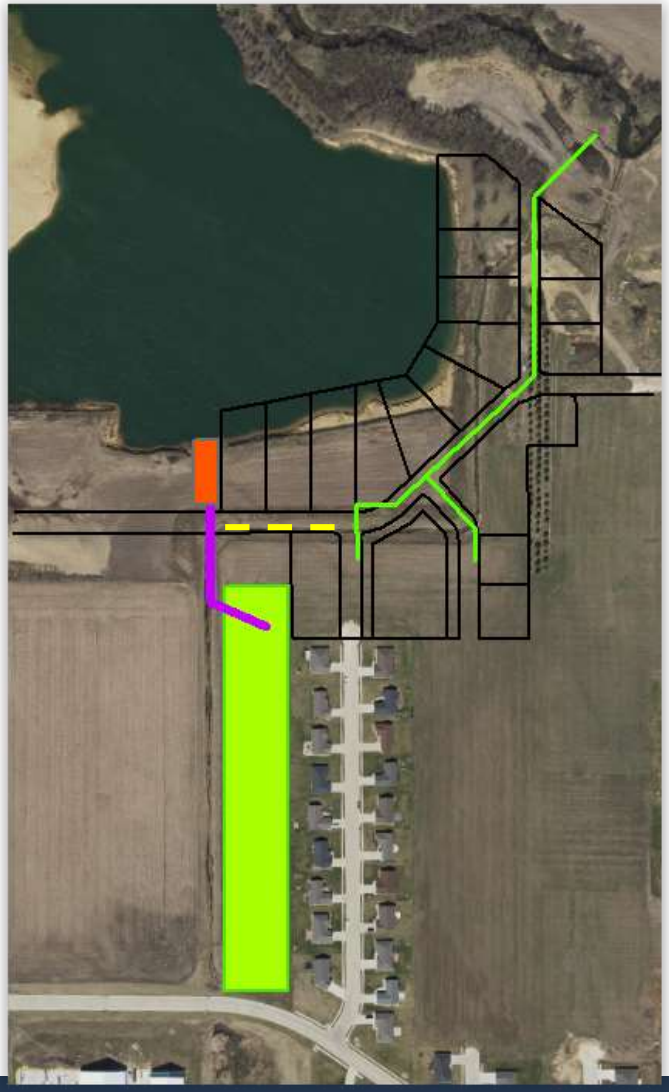
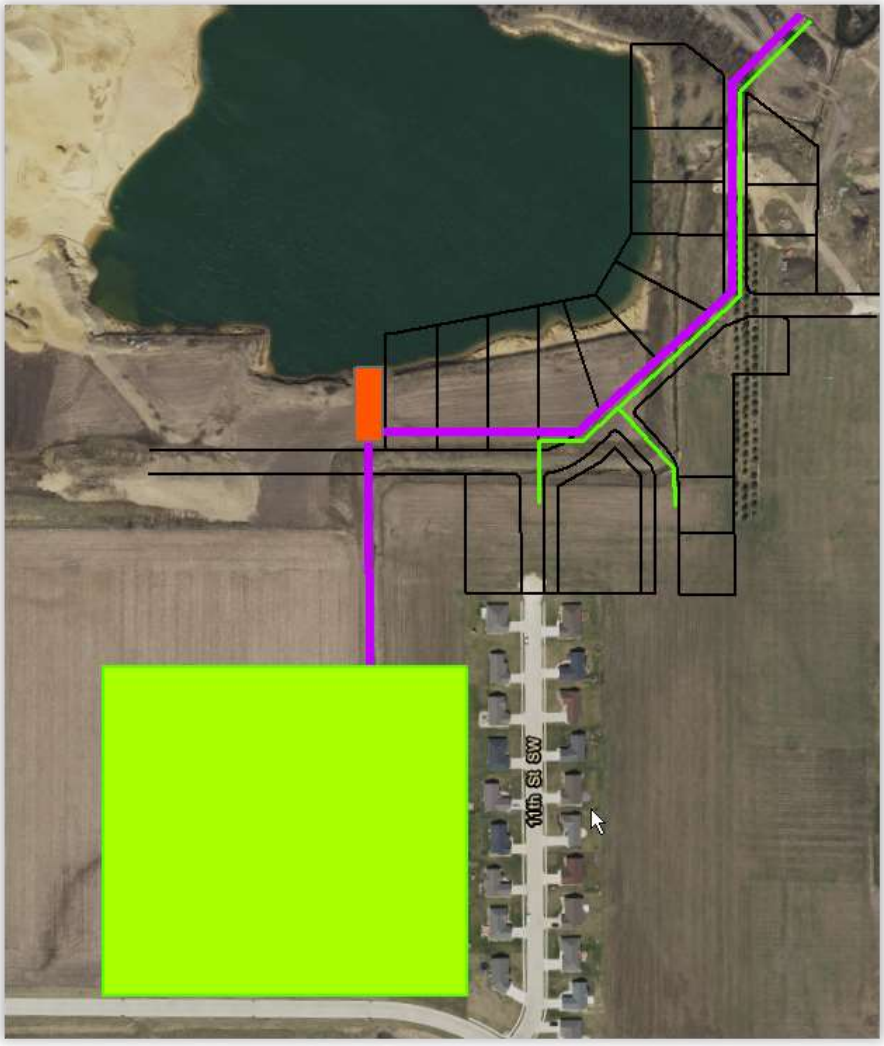
Option 3a & 3b – Discharge to Pond



- **Limited storm sewer required**
- **Wetland would provide treatment**
- **Allows development to occur on a different timeline**
- **3a: All water routed to Tegeler Pond**
- **3b: Most water discharged to pond**
- **3b: Small pipe conveys most nutrients to stream via sewer**

Option 4 – Expanded Wetland



- **Similar concept to storm sewer system**
- **Expanded pond/wetland allows for reduced pipe size by providing more retention**
- **Water quality and sediment control benefits**
- **Limited discharge to pond**
- **Still may require overflow (depending on area available)**

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Relative Cost

- City borne costs are difficult to estimate
- Development cost vs City cost?
- Expenditure timeline?
- Requirement vs amenity?
- Land cost?
- Lowest Cost alternative will involve discharge to Tegeler Pond
- Only way to avoid discharge to pond is
  - A) Large storm sewer
  - B) Acquire land for pond

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Relative Cost

- New 72” main: $900K to $1M (min)
- New 48” main: $400K to $500K (min)
- New Pond: $100K to $200K
- New Wetland: $200K to $300K

Recommendations

- Project needs to be coordinated with the developer
- Consider additional development
- Option 3 or 3a likely the best alternative to balance cost vs impact to the pond
- Pond impacts reduced by providing sedimentation area and removing nutrients with wetland
- Wetland provides opportunity for amenities such as recreation and habitat

Recommendations

- Further investigate pond outlet
- Keep in mind the existing floodplain

Discussion

- Questions
- Comments
- Direction