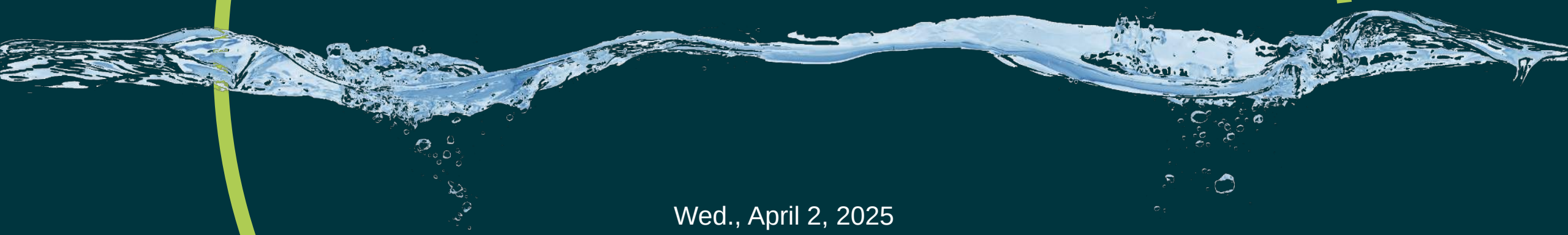
15 Years of Stormwater Planning, Design and Implementation for the City of Pewaukee



Wed., April 2, 2025

Rick Eilertson, PE, ENV SP
rick.eilertson@aecom.com
608-402-5862

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Emerald Acres Flood Mitigation Project

CITY OF PEWAUKEE

AECOM

Rick Eilertson, P.E.
Project Engineer/Manager

aecom.com

Emerald Acres Flood Mitigation Project

Topics to be covered:

1. Flood risks that contributed to the pursuit of stormwater conveyance retrofits and design criteria
2. Project Hurdles (RR permits, WDNR/ACOE permits, private owner permission, etc.)
3. Keys to successfully installing casing pipes and culverts under active RR and through wetlands/waterways on private property

Emerald Acres Flood Mitigation Project

Emerald Acres Drainage Basin

263 acres of subdivision and parkland drain to the culverts

Emerald Acres Flood Mitigation Project

2010 Flooding

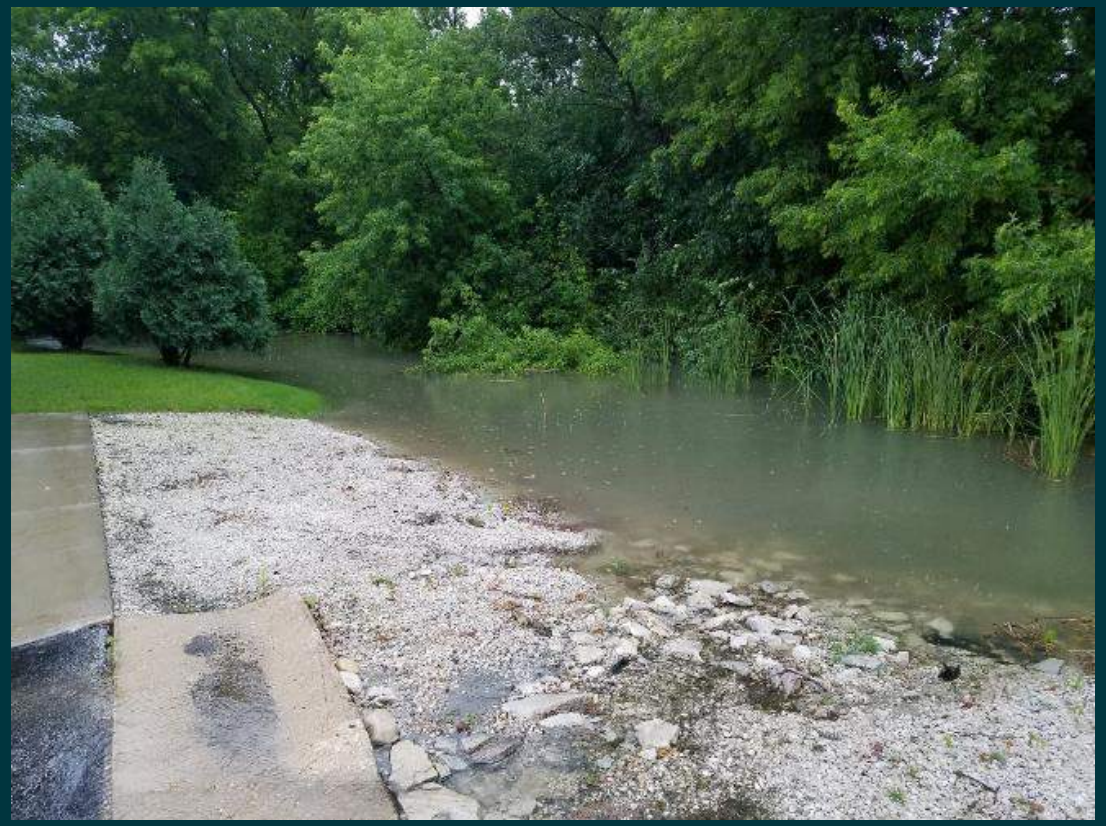
North side of Green Road

South side of Green Road

Emerald Acres Flood Mitigation Project

2017 Flooding

South side Green Road
(post Road Reconstruction)



View of ditch from Emerald Lane
(south of Green Road)

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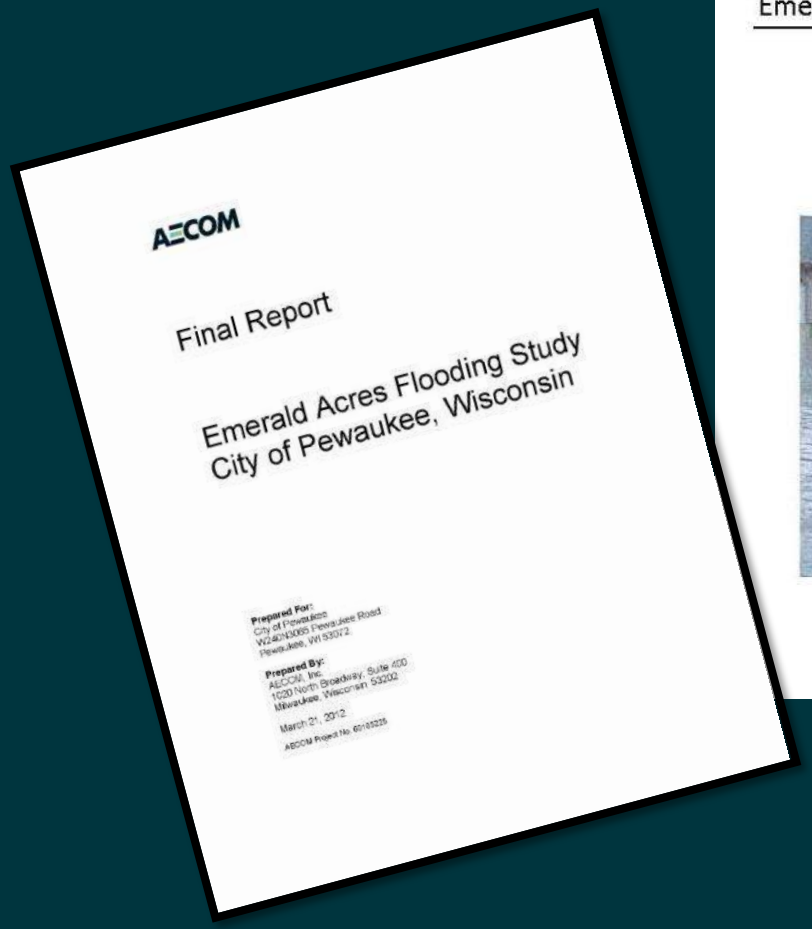
Emerald Lane Flooding


AECOM

Final Report

Emerald Acres Flooding Study
City of Pewaukee, Wisconsin

Prepared For:
City of Pewaukee
W24N3065 Pewaukee Road
Pewaukee, WI 53072

Prepared By:
AECOM, Inc.
1020 North Broadway, Suite 400
Milwaukee, Wisconsin 53202

March 21, 2012

AECOM Project No. 60153225


City of Pewaukee
Emerald Acres Flooding Study — *Final Report*

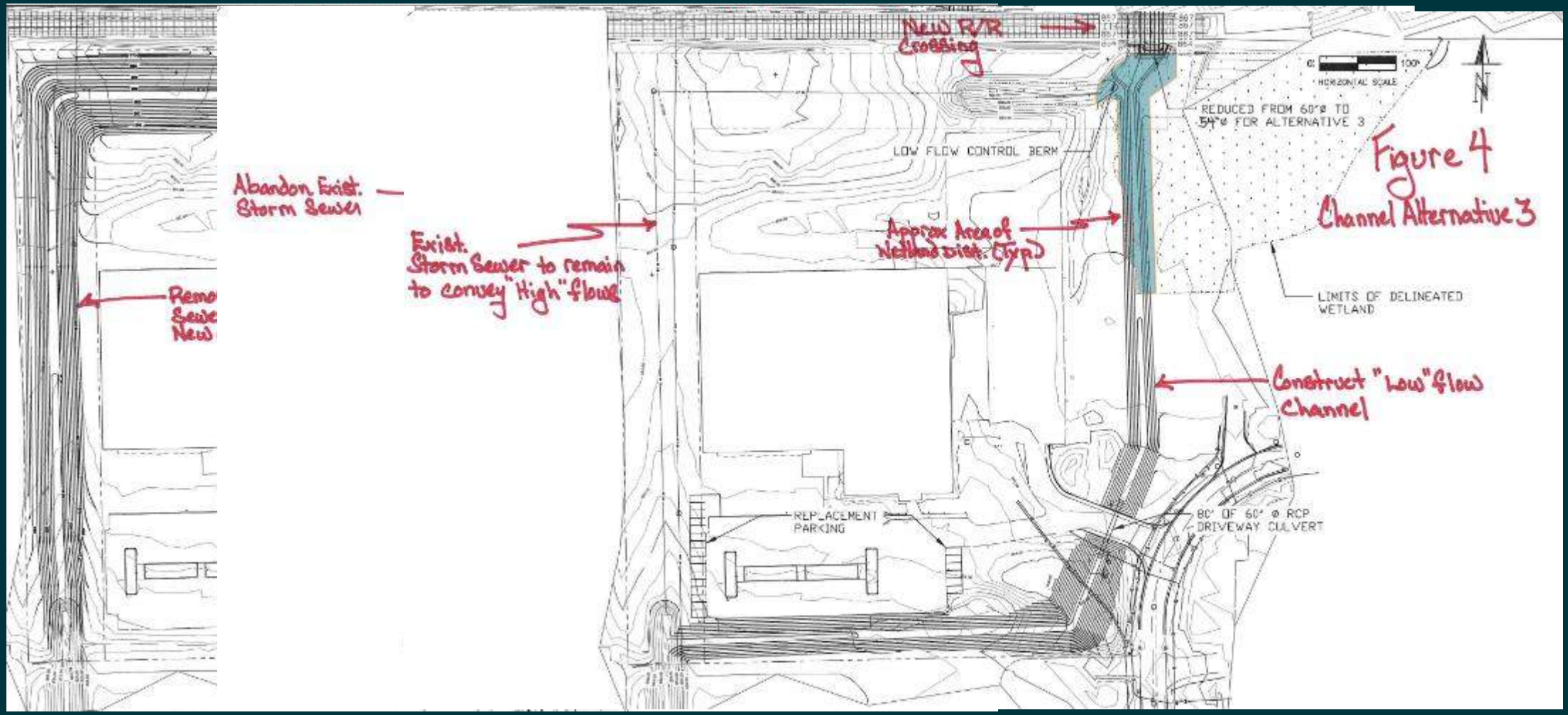
Figure 10
South end of Emerald Lane

Figure 11
Front yard of N3021 condo unit
At south end of Emerald Lane

Emerald Acres Flood Mitigation Project

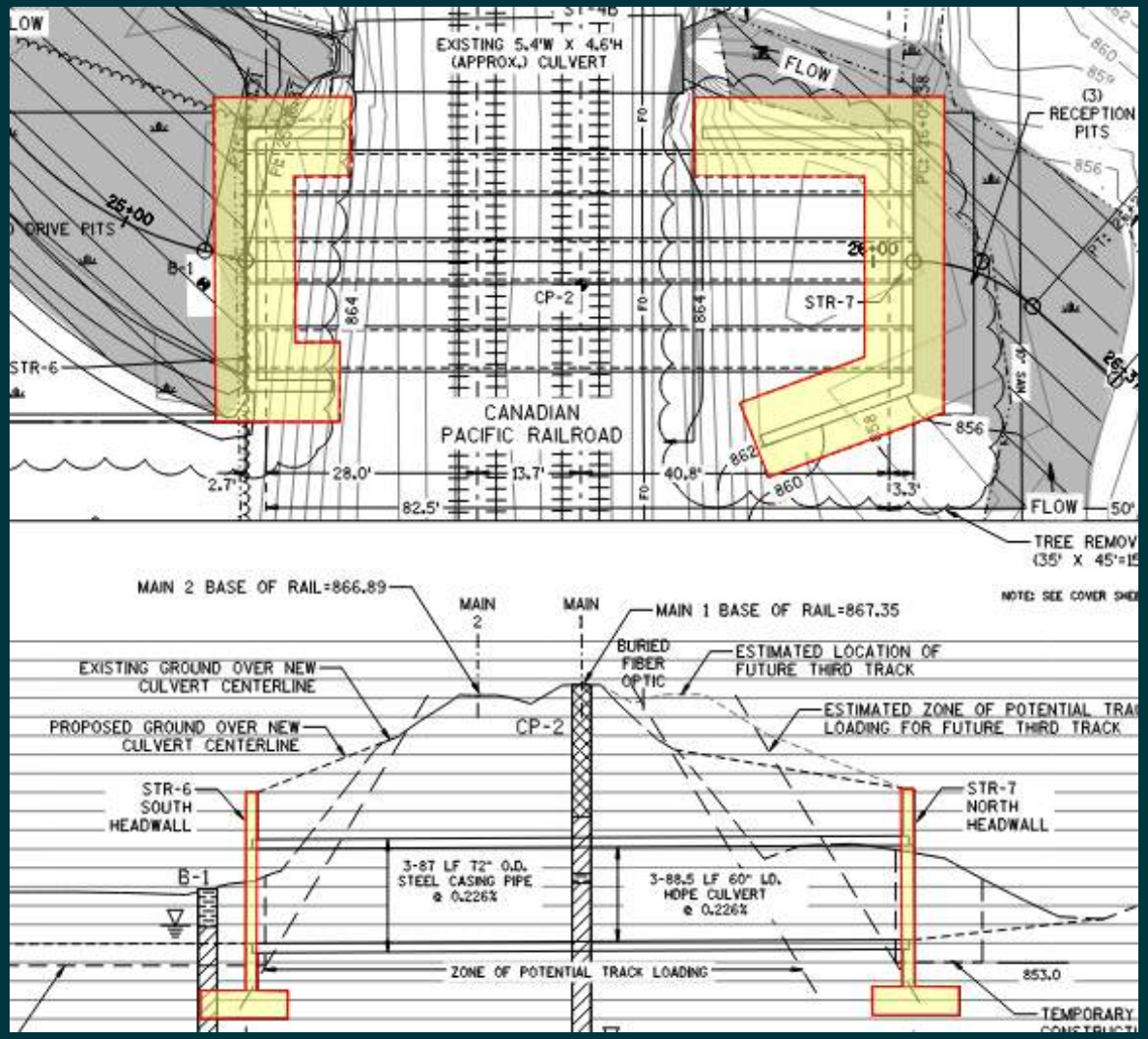
Emerald Acres Flood Mitigation Project

DNR Permitting 2016-2018



Emerald Acres Flood Mitigation Project

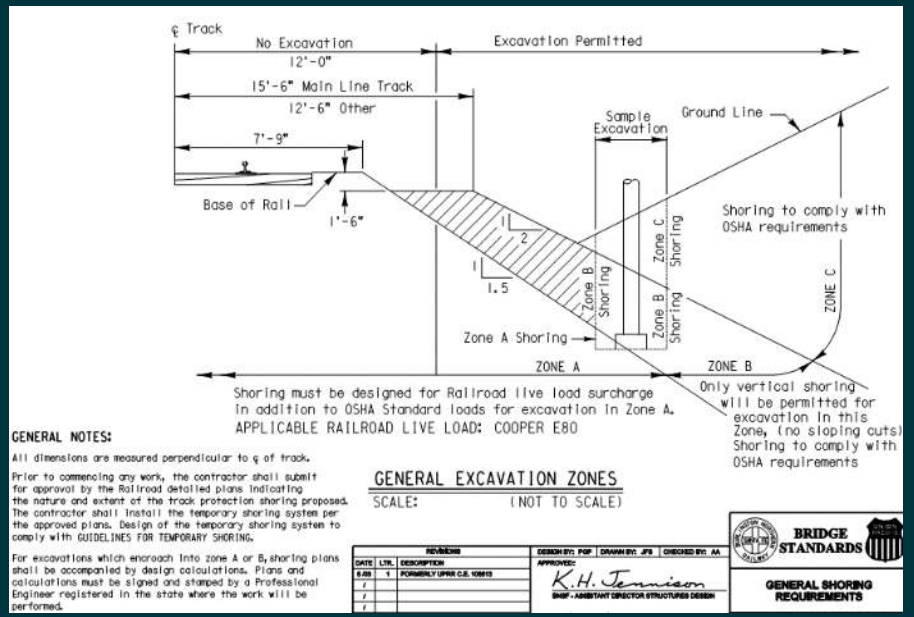
Original Concrete Headwall Design



Emerald Acres Flood Mitigation Project

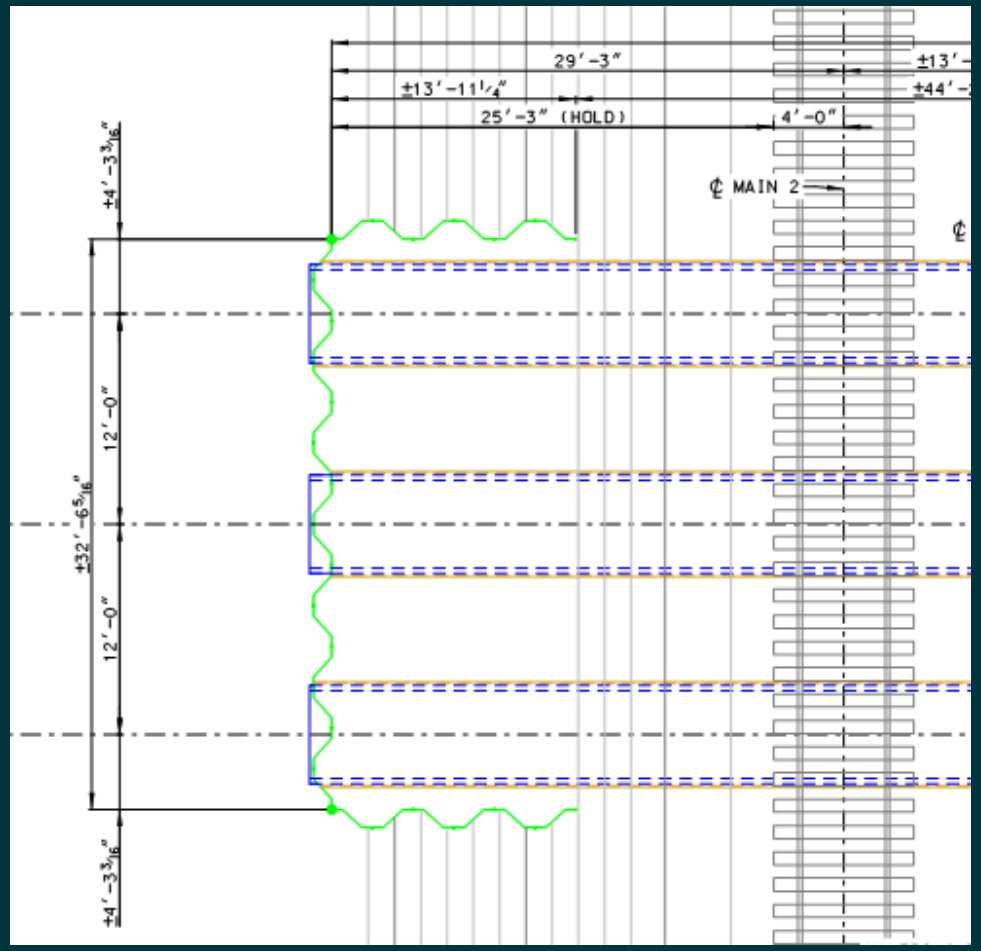
Railroad Requirements

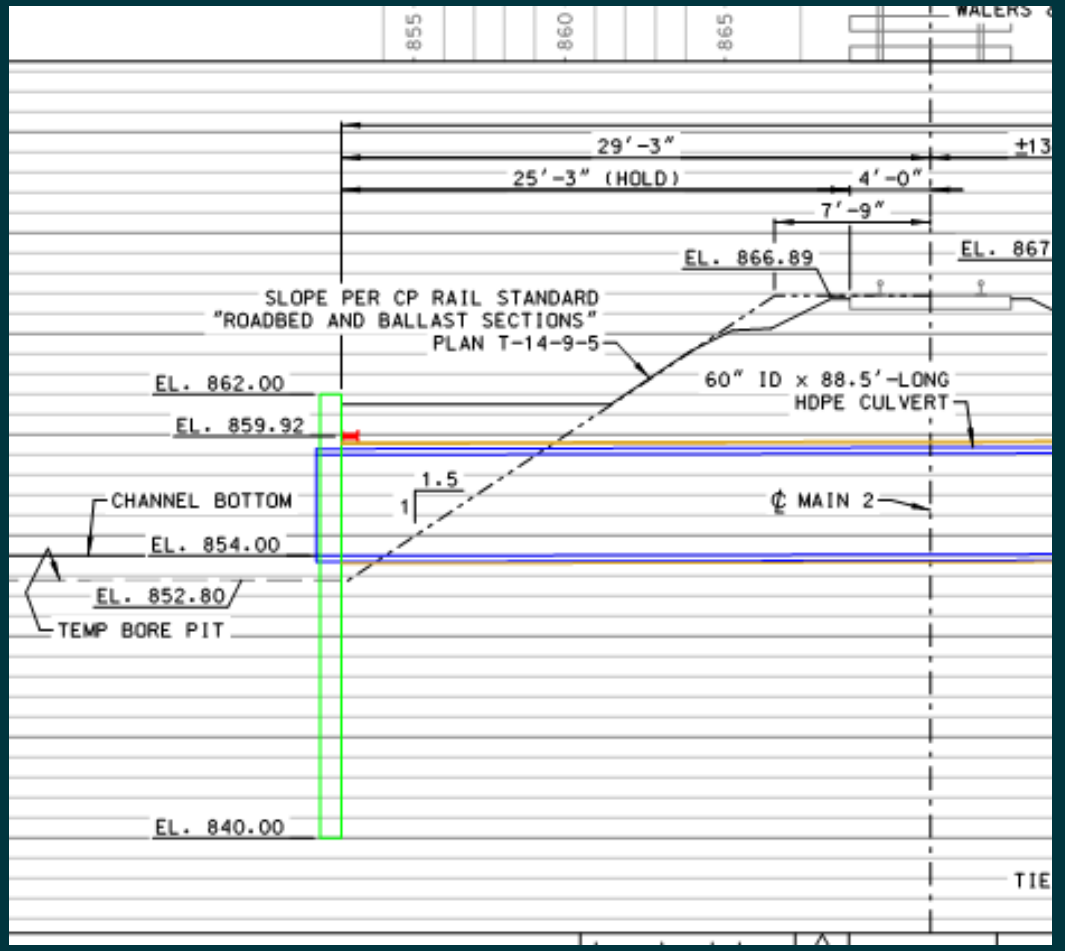
- Railroad Flaggers
- Railroad Protective Insurance
- Utilities – Fiber Optic Line
- RR review and approval



Emerald Acres Flood Mitigation Project

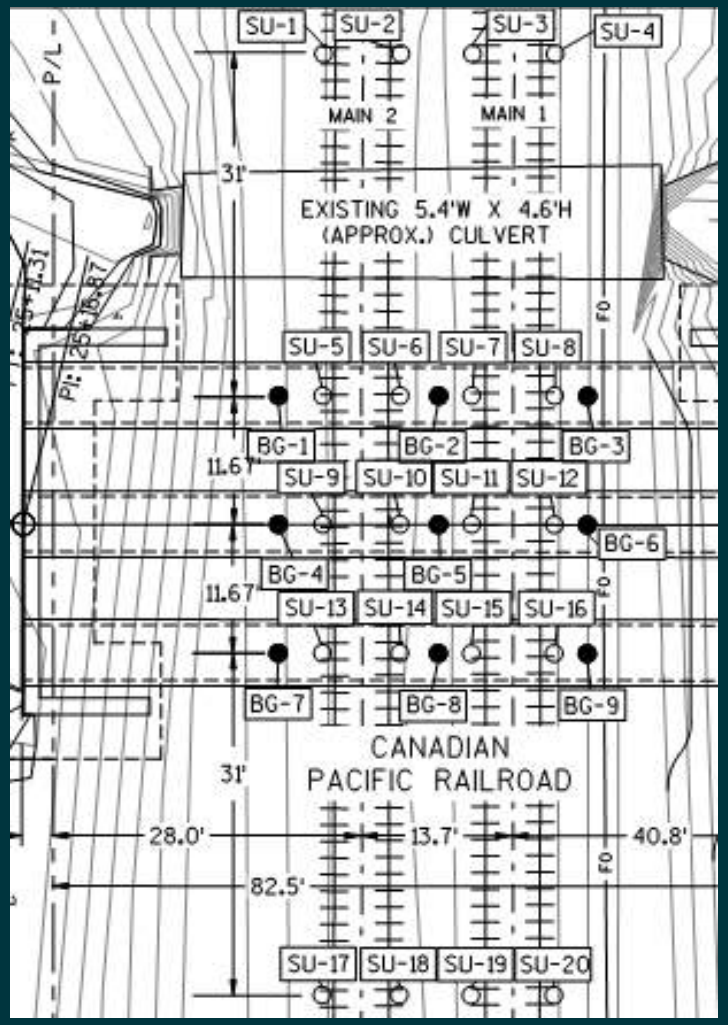
Alternative Sheeting Design



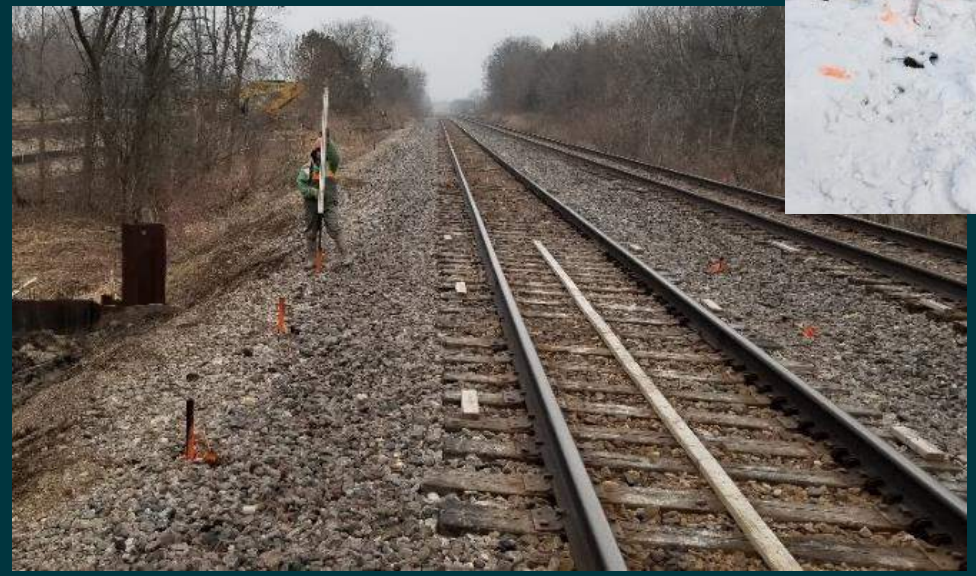


Emerald Acres Flood Mitigation Project

Settlement Monitoring



- Subsurface Points
- Surface Points
- Contingency Plans



Monitoring occurred before, during, & after Boring Operations

Emerald Acres Flood Mitigation Project

Challenges – Site Access

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Boring and Jacking Operations

(3 – 72” Diameter Steel Casing Pipes)

LUNDA CONSTRUCTION CO.

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Challenges – Bank Stability

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Boring and Jacking Operations

(3 – 72” Diameter Steel Casing Pipes)

LUNDA CONSTRUCTION CO.

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HDPE Liner - Grouting

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Challenges – Maintaining Flow

Upstream Side

Downstream Side

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Final Cleanup

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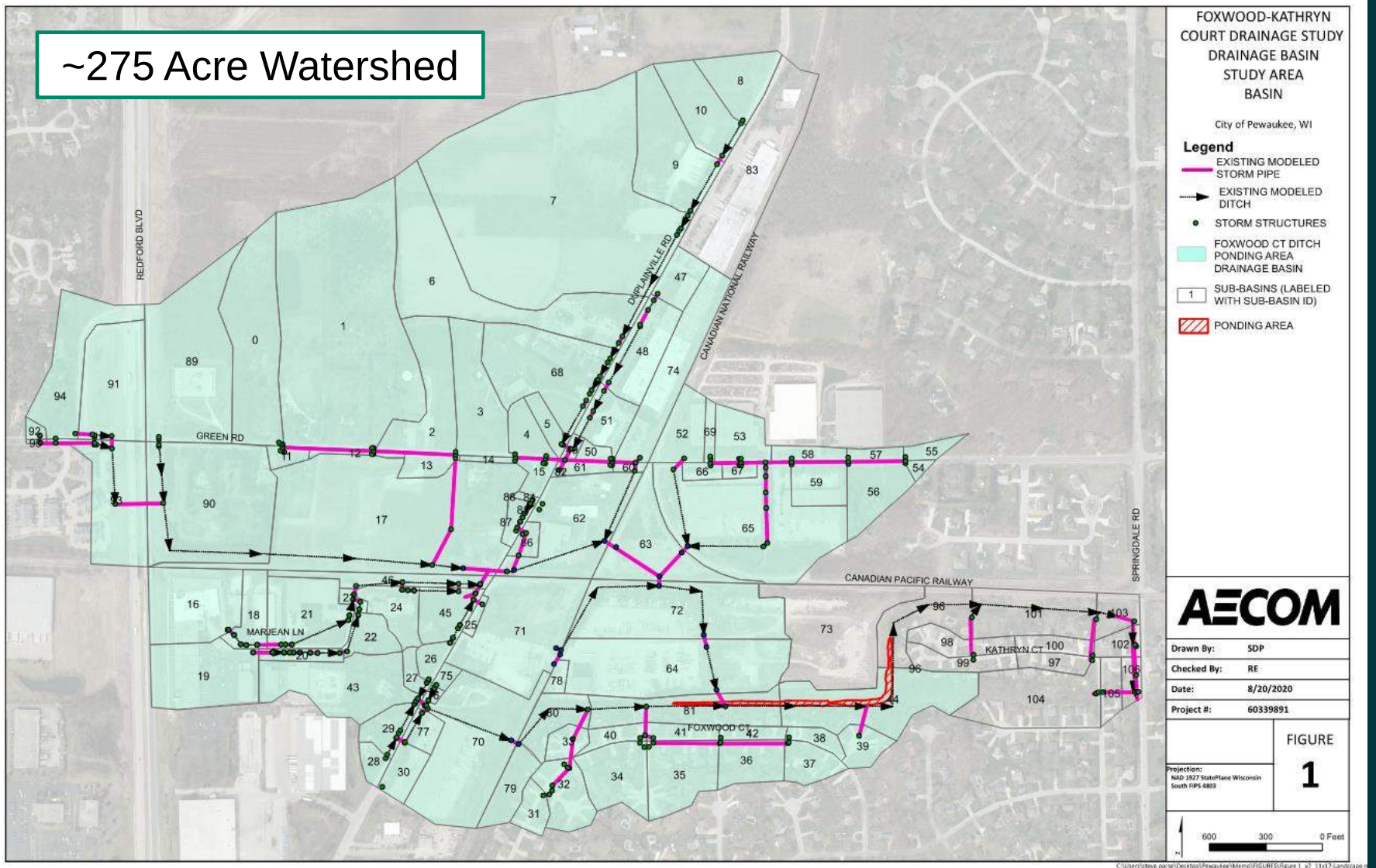
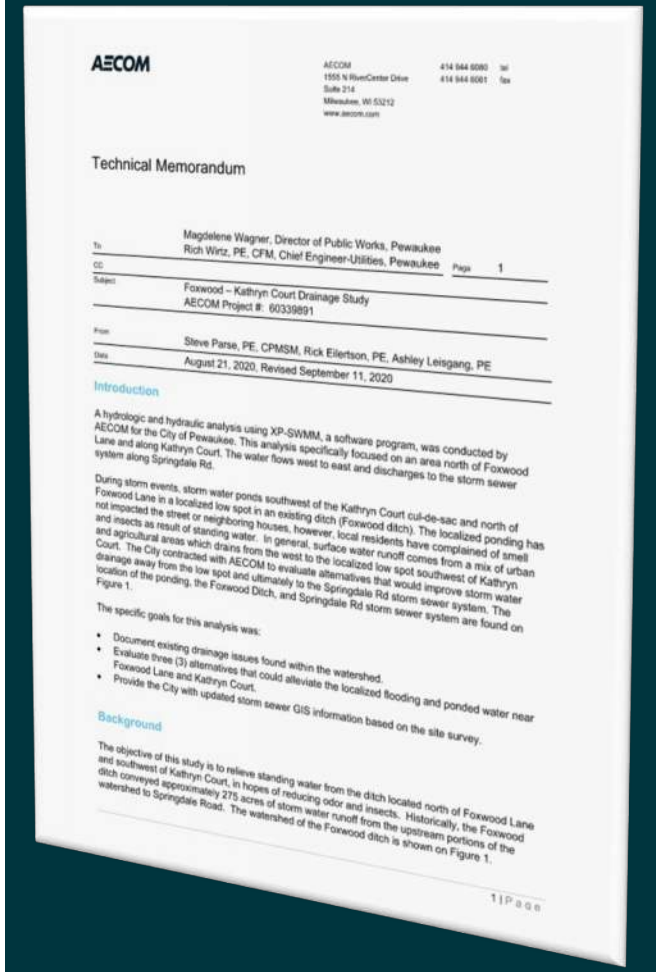
Kathryn Court Drainage Improvements Project





AECOM

Technical Memorandum

To: Magdelene Wagner, Director of Public Works, Pewaukee
Rich Wirtz, PE, CFM, Chief Engineer-Utilities, Pewaukee
Page 1

CC:

Subject: Foxwood – Kathryn Court Drainage Study
AECOM Project #: 60339891

From: Steve Parse, PE, CPMSM, Rick Eilertson, PE, Ashley Leisgang, PE

Date: August 21, 2020, Revised September 11, 2020

Introduction

A hydrologic and hydraulic analysis using XP-SWMM, a software program, was conducted by AECOM for the City of Pewaukee. This analysis specifically focused on an area north of Foxwood Lane and along Kathryn Court. The water flows west to east and discharges to the storm sewer system along Springdale Rd.

During storm events, storm water ponds southwest of the Kathryn Court cul-de-sac and north of Foxwood Lane in a localized low spot in an existing ditch (Foxwood ditch). The localized ponding has not impacted the street or neighboring houses, however, local residents have complained of smell and insects as result of standing water. In general, surface water runoff comes from a mix of urban and agricultural areas which drains from the west to the localized low spot southwest of Kathryn Court. The City contracted with AECOM to evaluate alternatives that would improve storm water drainage away from the low spot and ultimately to the Springdale Rd storm sewer system. The location of the ponding, the Foxwood Ditch, and Springdale Rd storm sewer system are found on Figure 1.

The specific goals for this analysis was:

- Document existing drainage issues found within the watershed.
- Evaluate three (3) alternatives that could alleviate the localized flooding and ponded water near Foxwood Lane and Kathryn Court.
- Provide the City with updated storm sewer GIS information based on the site survey.

Background

The objective of this study is to relieve standing water from the ditch located north of Foxwood Lane and southwest of Kathryn Court, in hopes of reducing odor and insects. Historically, the Foxwood ditch conveyed approximately 275 acres of storm water runoff from the upstream portions of the watershed to Springdale Road. The watershed of the Foxwood ditch is shown on Figure 1.

1 | Page

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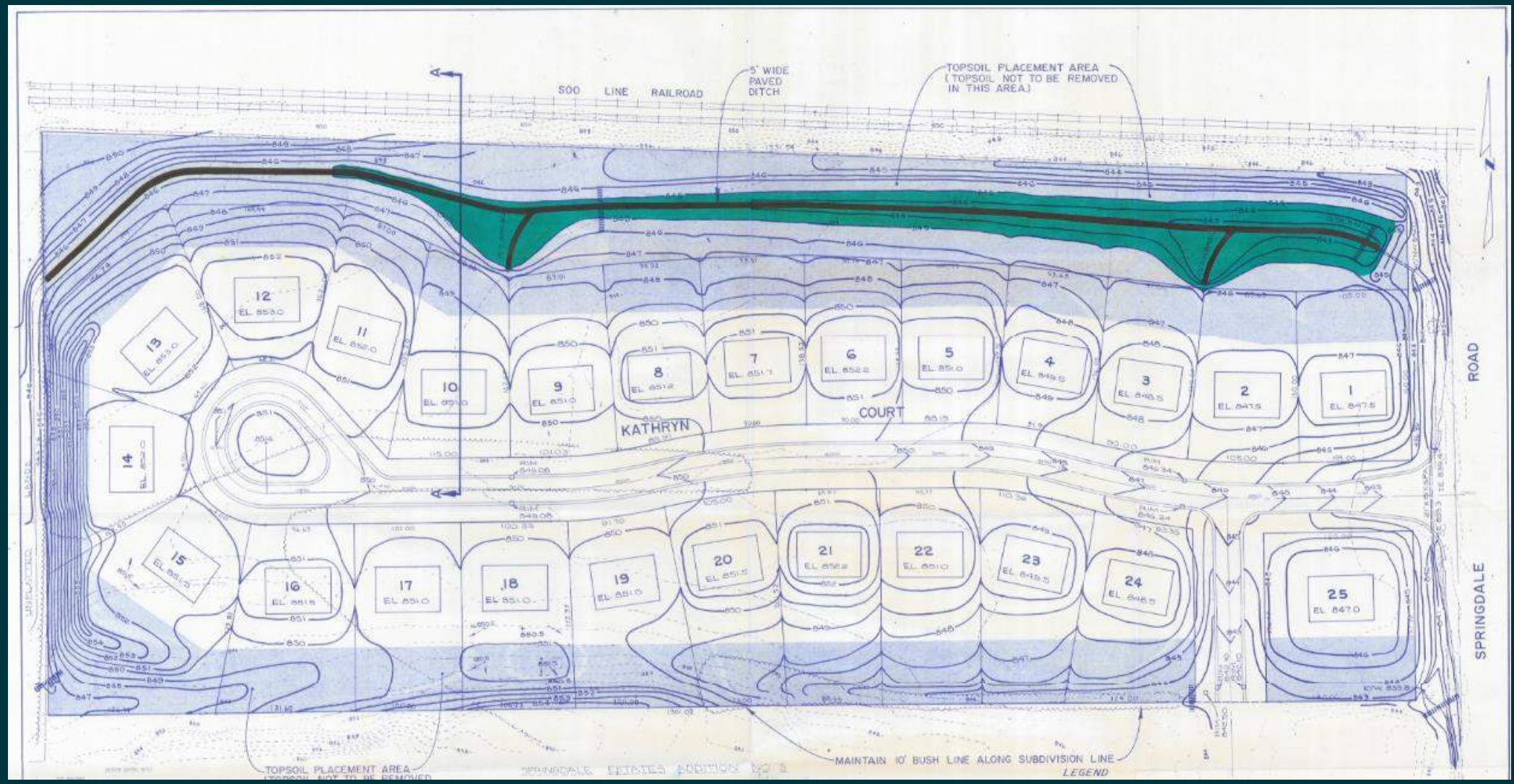
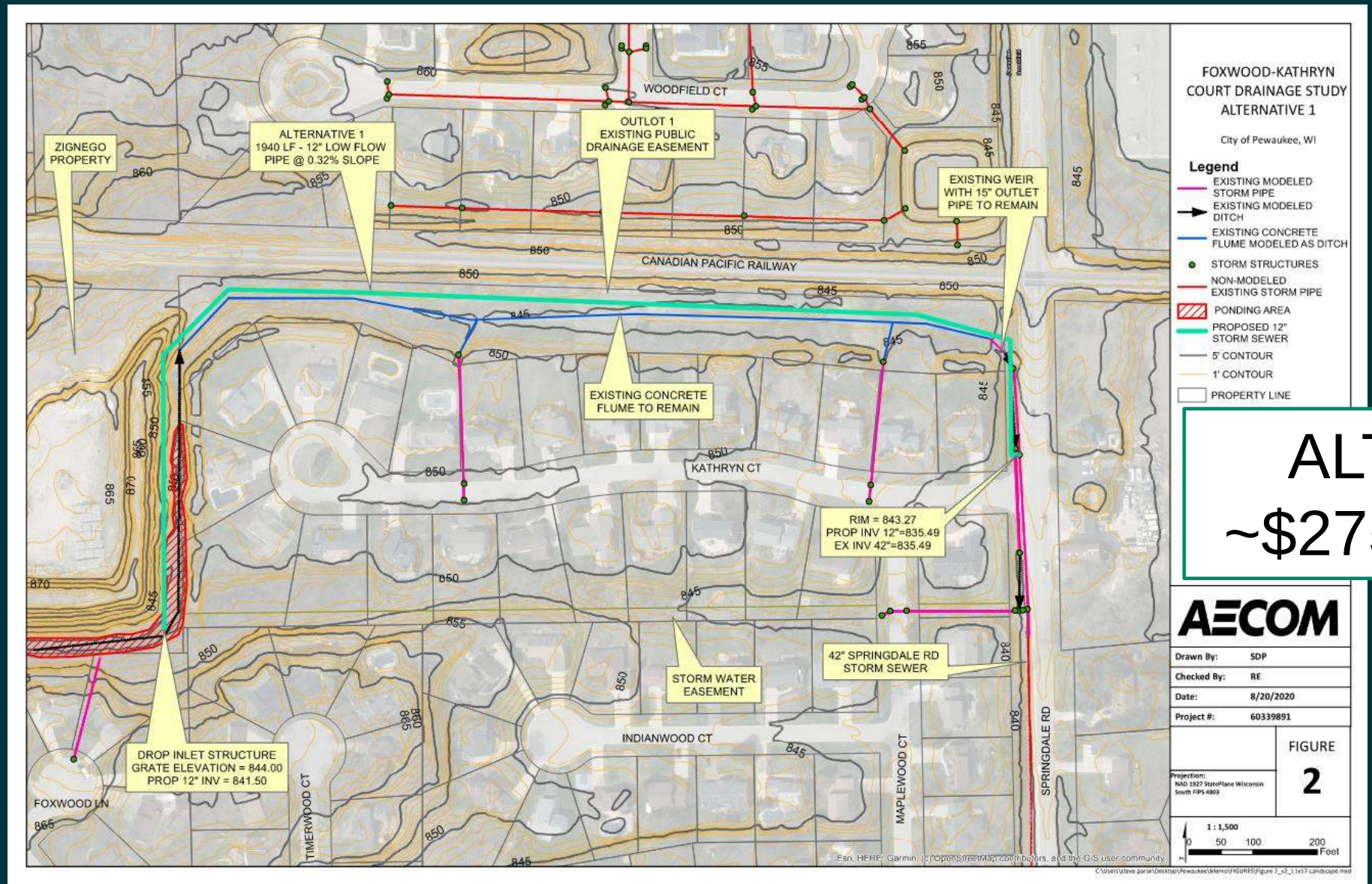
Kathryn Court Drainage Improvements Project



Kathryn Court Drainage Improvements Project



ALT. 1
~$275,000

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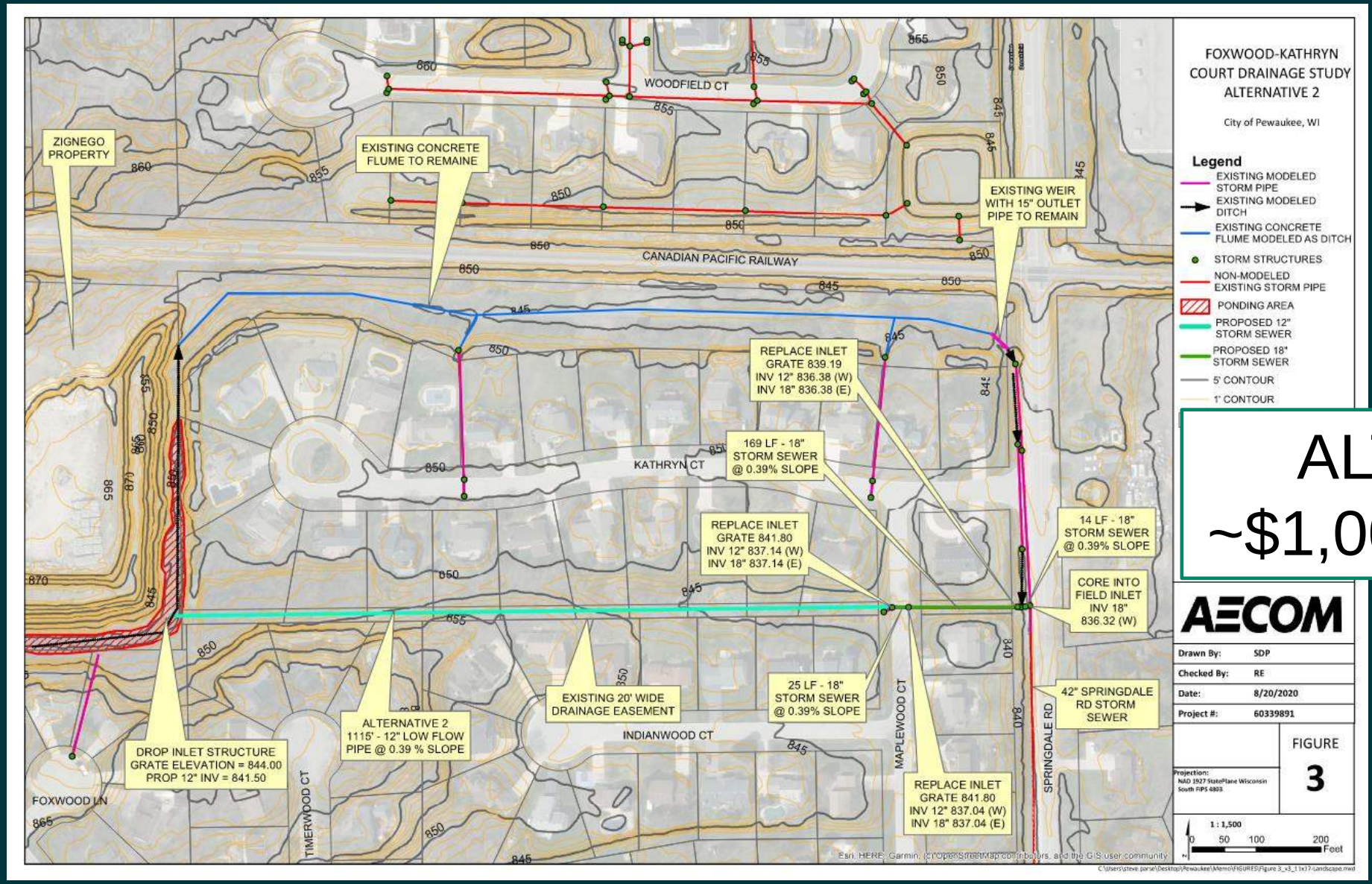
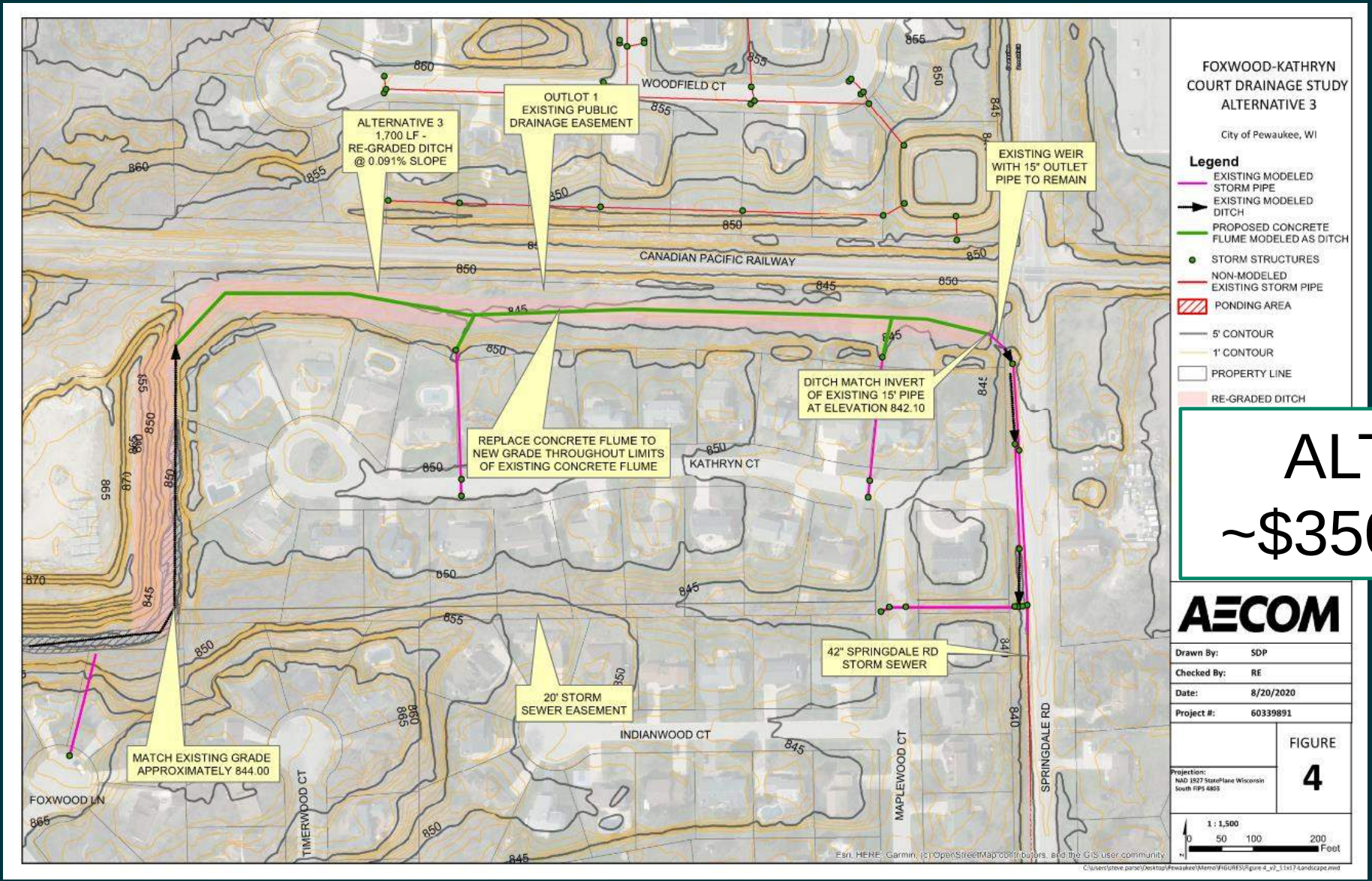
Kathryn Court Drainage Improvements Project



ALT. 2
~$1,000,000

Kathryn Court Drainage Improvements Project



ALT. 3
~$350,000

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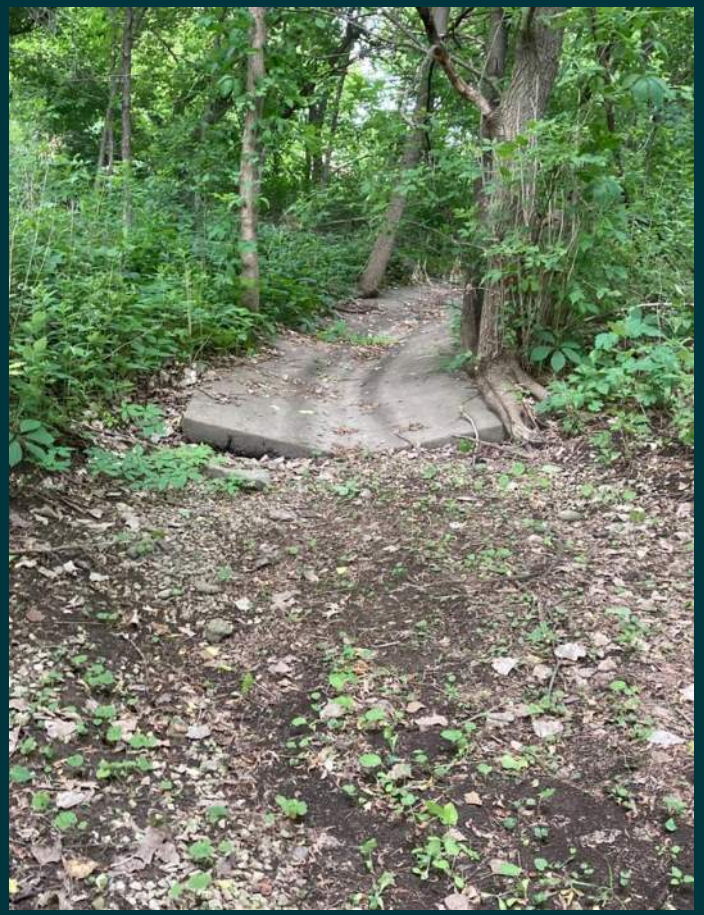
Kathryn Court Drainage Improvements Project

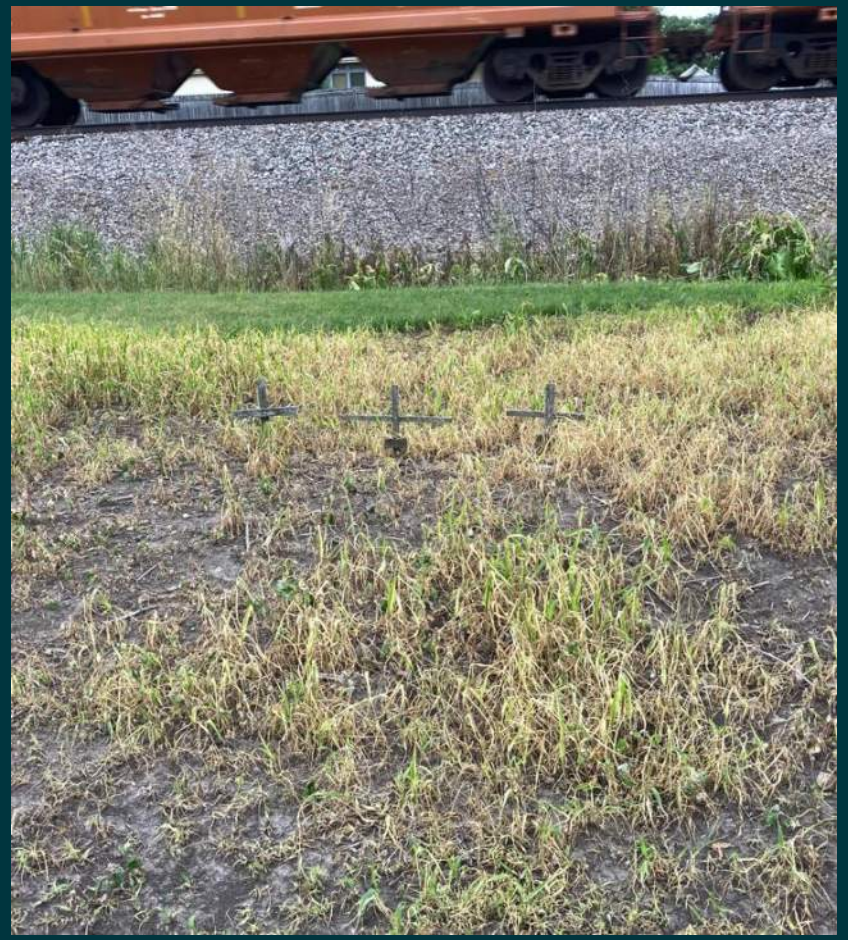
June 21, 2021

Kathryn Court Drainage Improvements Project



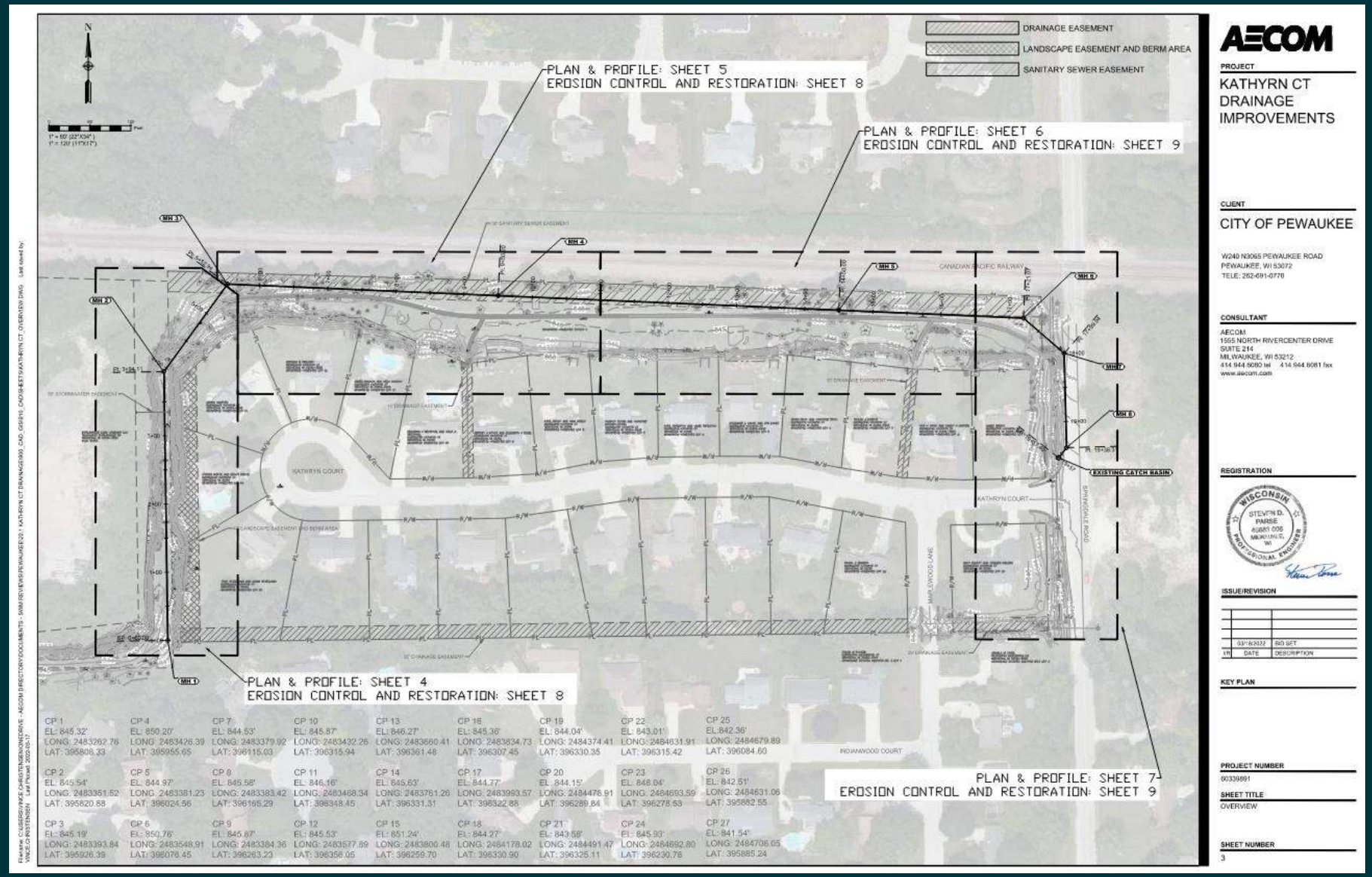
June 21, 2021

Kathryn Court Drainage Improvements Project



June 21, 2021

Kathryn Court Drainage Improvements Project



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Kathryn Court Drainage Improvements Project

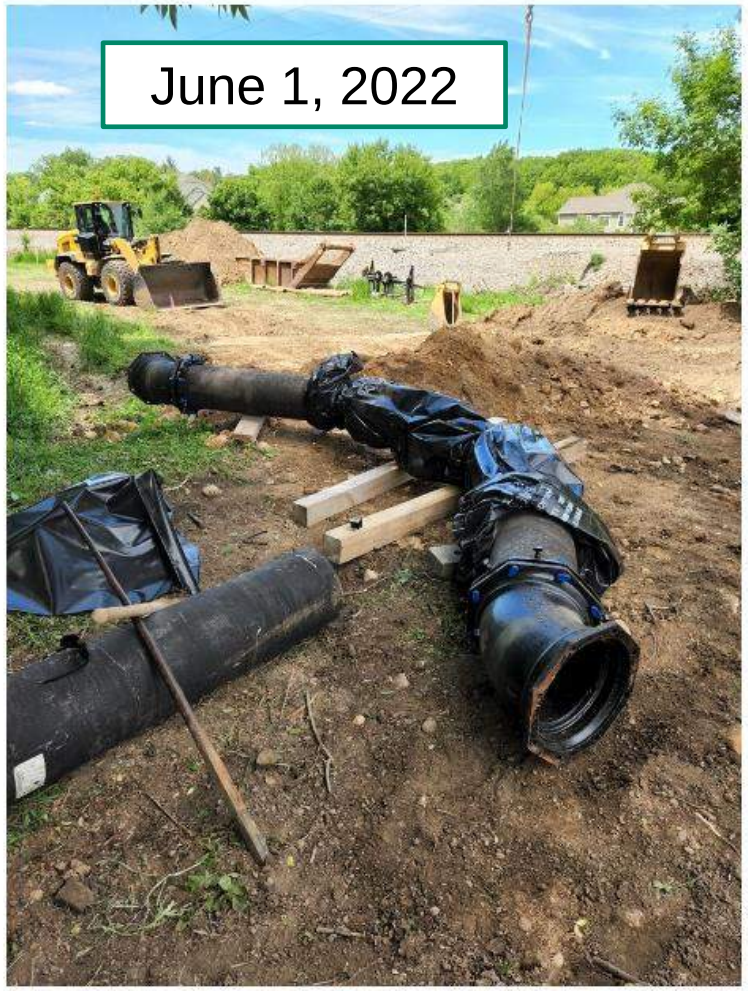


Photo of watermain assembly at the end of the day.

Photo of the removal of the existing 15” CMP just west of Springdale Road.

Photo of bentonite collar area, BP needs more material for sides and top of CMP.

Kathryn Court Drainage Improvements Project

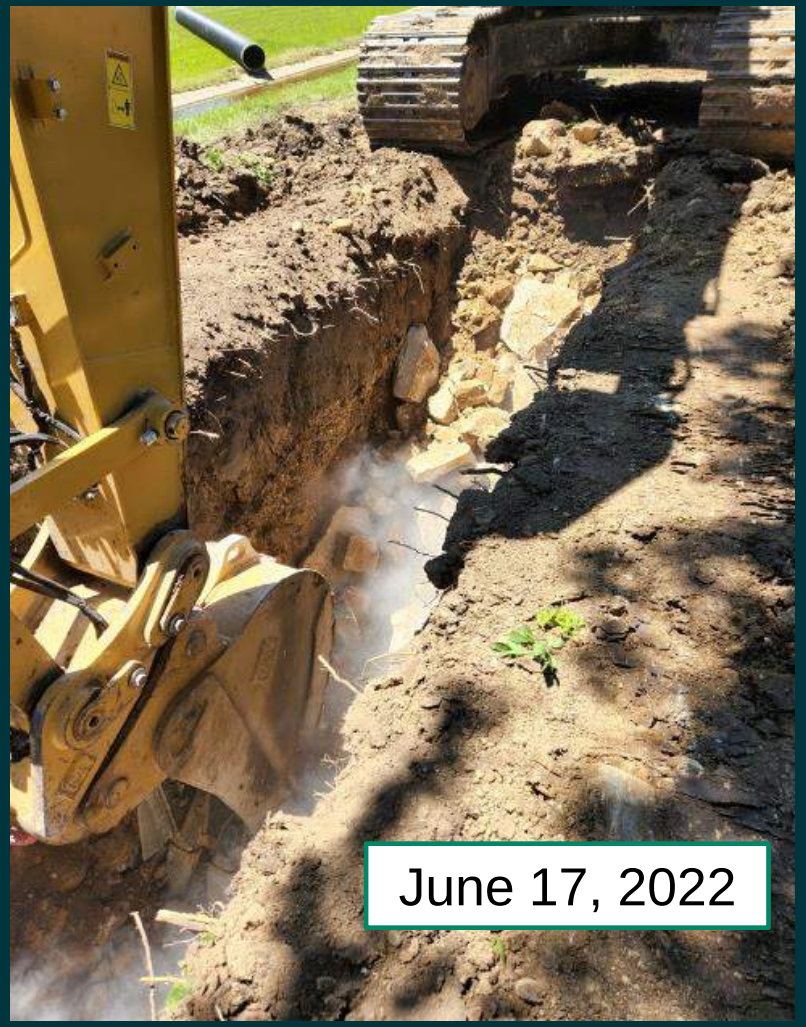


Photo of bedrock removal east of station 13+00.

Kathryn Court Drainage Improvements Project

Installed erosion log downstream across concrete flume at ~STA 8+00

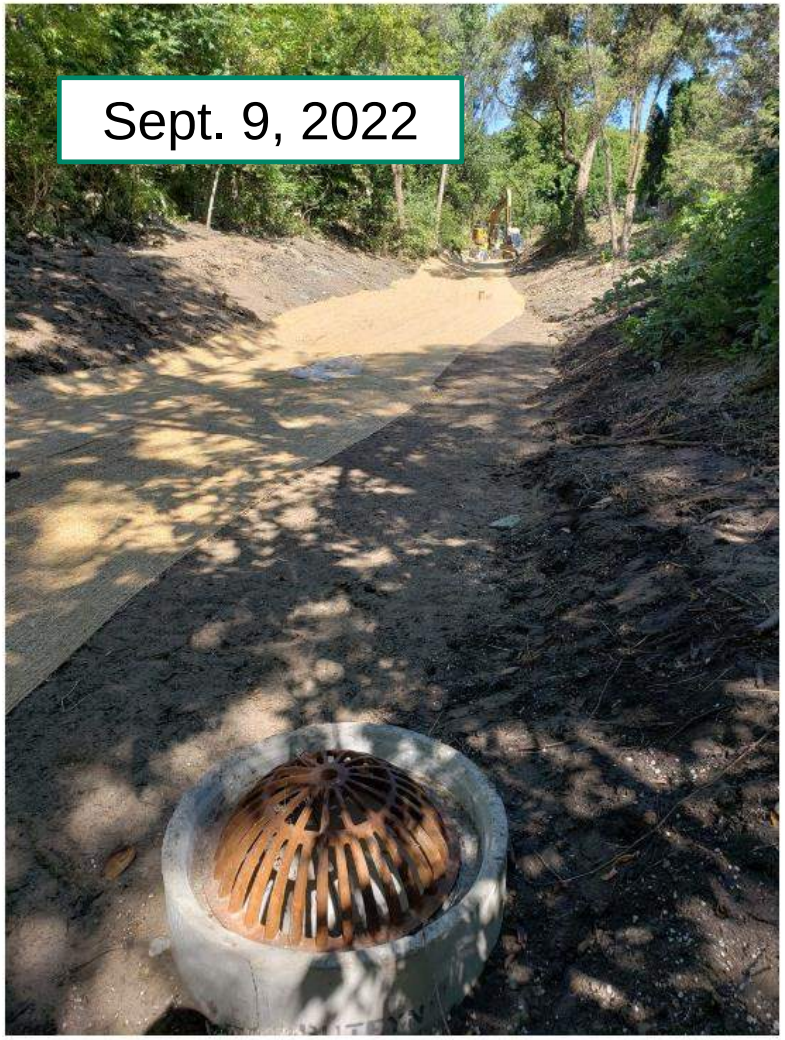
Leveled out soil after blasting between STA 5+50 to 7+50 (MH3 to MH4).

Kathryn Court Drainage Improvements Project

Installing storm sewer

Engineered soil graded near MH1

Kathryn Court Drainage Improvements Project



Progress of seeding and matting between MH1 and MH2

Seeded and matted area around MH2.

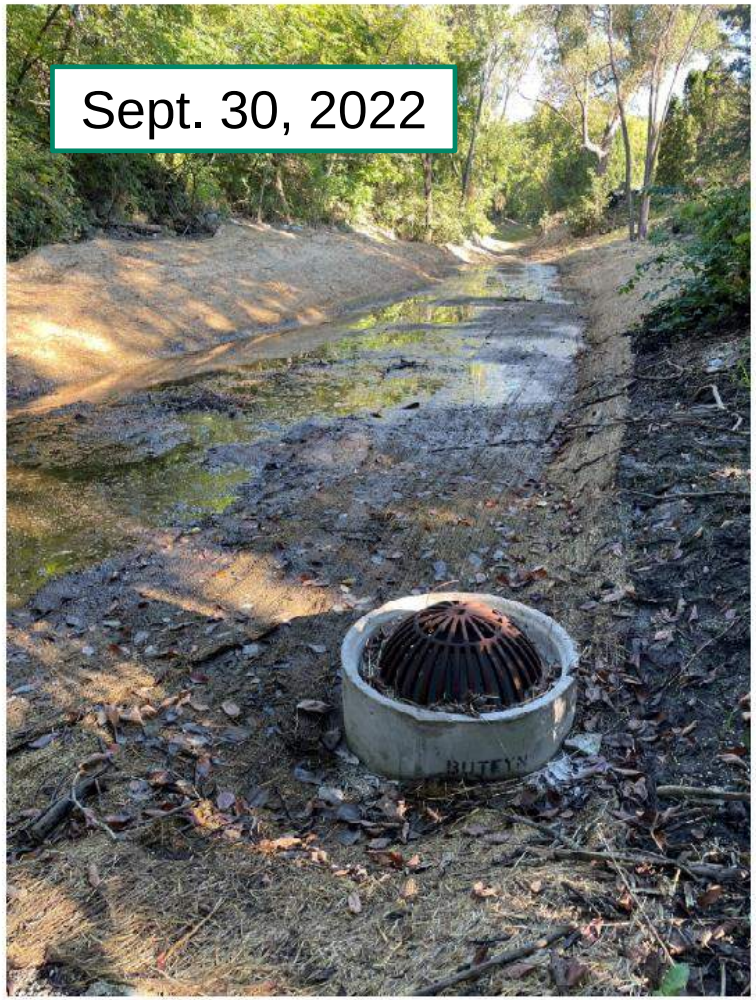
Kathryn Court Drainage Improvements Project

Transporting topsoil to site for final grading.

Final seeding and matting between MH1 and MH2 (closest).

Kathryn Court Drainage Improvements Project

Area around MH1 (located near the bottom middle of the photograph) looking west.



MH 1 looking north. Four bolts still missing from casting.

Questions?

Contact Information:

Rick Eilertson, PE, ENV SP
rick.eilertson@aecom.com
608-402-5862

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