

Bement Drain

Public Informational Meeting

Fremont Township Hall

October 6, 2022

6:00 PM



Brian J. Wendling

Saginaw County Public Works Commissioner

Purpose of Meeting



- ✓ Inform landowners adjacent to drain of proposed improvements
- ✓ Public Works Commissioner to receive input and comments from landowners on the proposed plan

Presentation Agenda

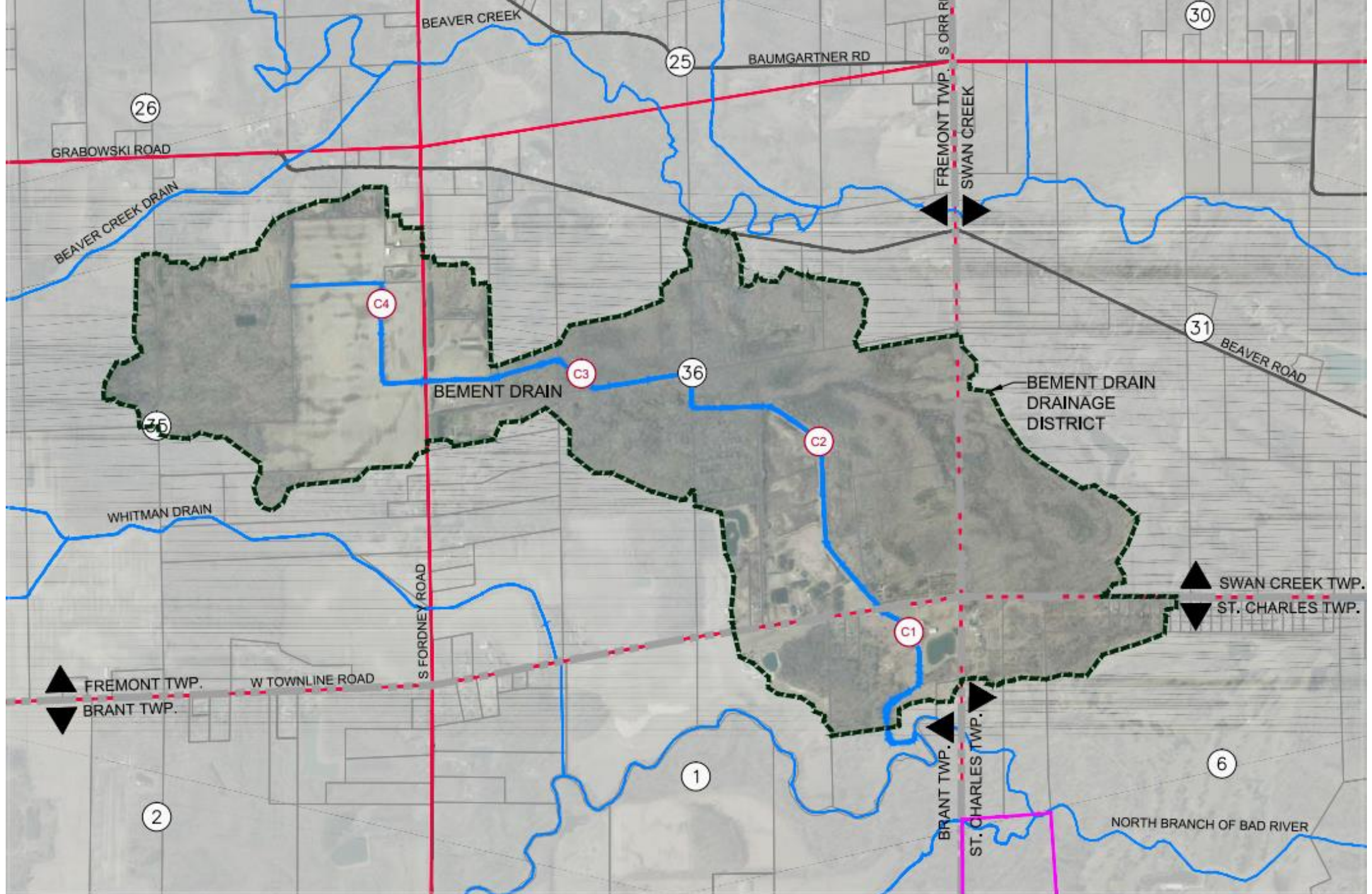


- Drain Background
- Drainage District
- Survey and Design
- Open Channel Improvements
- Drain Crossing Improvements
- Cleanup and Restoration
- Tentative Project Schedule
- Preliminary Estimate of Cost
- Questions and Comments

Drain Background



- **Established in 1920**
- **Location of the Bement Drain**
 - Outlet is at the North Branch of the Bad River, approximately 4,900 feet east of S. Fordney Rd.
 - Upper end of drain is located approximately 1,300 feet west of S. Fordney Rd.
 - Total length of approximately 2.0 miles



Drain Background

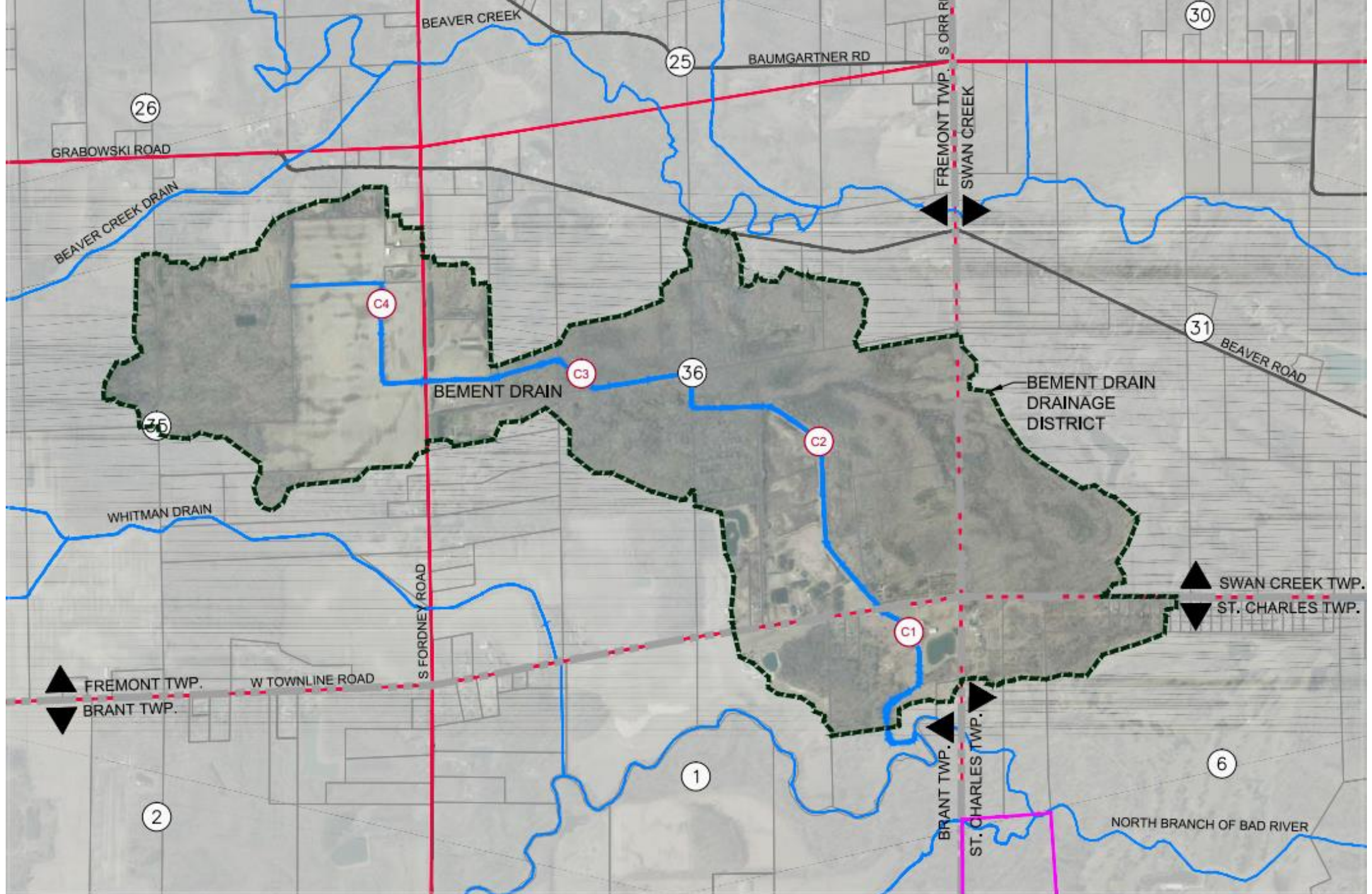


- **Current Landowner Petition**
 - Dated January 11, 2021
- **Landowner Testimony – Board of Determination Meeting held August 4, 2021**
 - Stagnant water
 - Excessive sediment buildup
 - Buried tile outlets
 - Woody debris / obstructions
 - Existing spoil piles impeding overland drainage

Drainage District



- **What is a drainage district?**
 - Lands contributing storm water to a drain
 - The drainage district serves as the special assessment district
 - Bement Drain Drainage District includes:
 - Fremont, Brant, St. Charles & Swan Creek Townships
 - Saginaw County
 - Landowners – Approximately 42 parcels
 - 548 Acres



Survey, Engineering & Design



- Survey of drain
- Draft survey onto plans
- Engineering field review
- Existing utility research
- Hydrology and hydraulic calculations
- Analyze alternatives
- Final design of plans

Survey



- **Surveyed approximately 2.0 miles of open drain**
 - Collected flowline elevations every 250 feet
 - Collected cross sections at minimum every 500 feet
 - Collected topography within 50 feet of the drain centerline
 - Collected elevations of all culvert crossings

Design



- **10-Year Design Storm**
 - Saginaw County Standard Level of Service
 - 1.43 Inches of rain in 1 hour
 - 3.05 Inches of rain in 24 hours

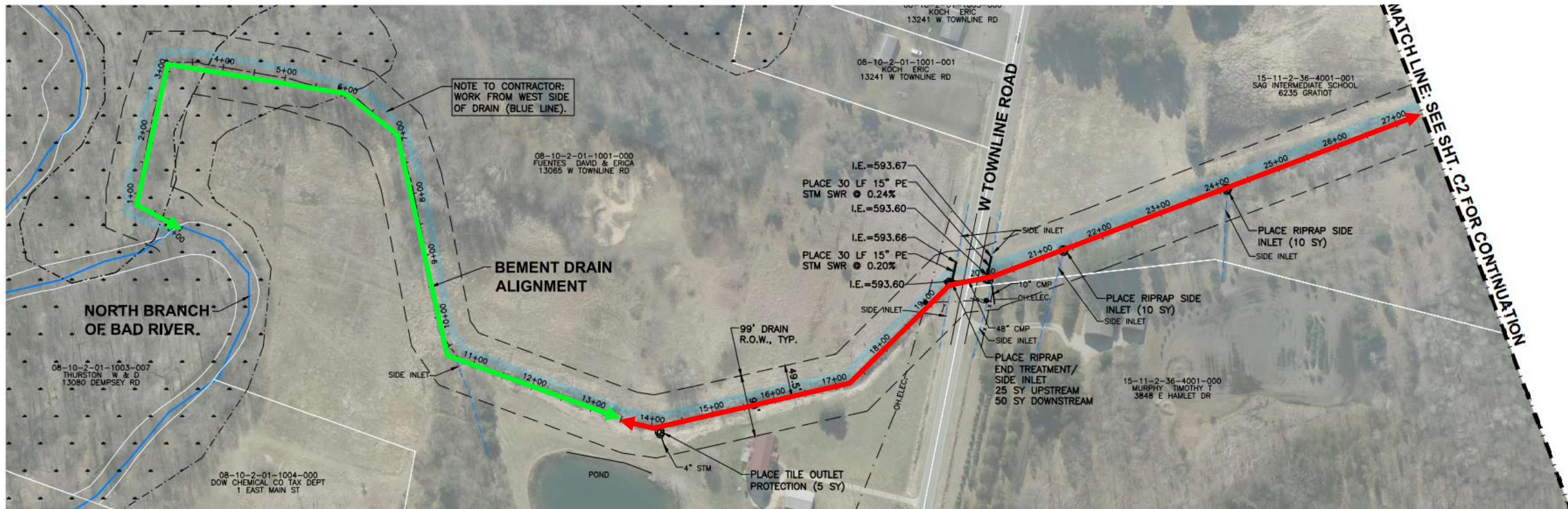
Channel Improvements



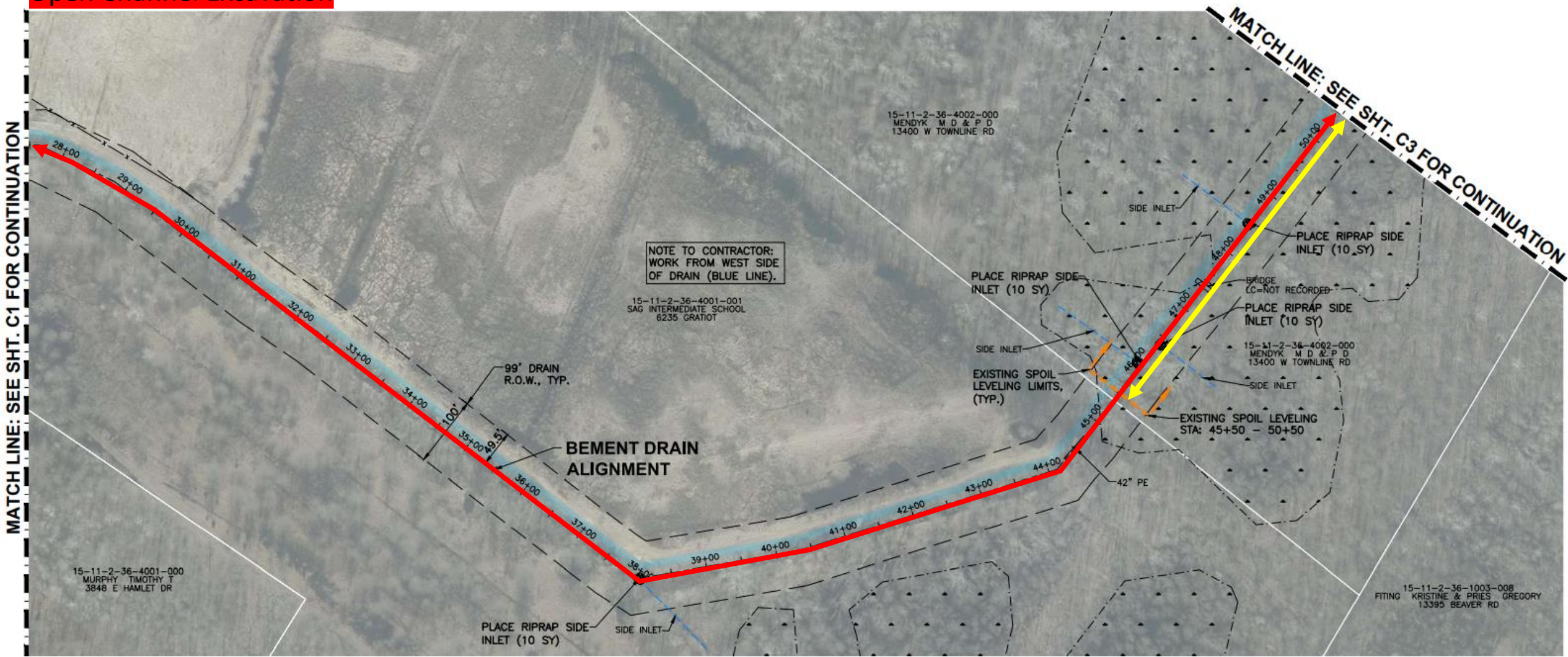
- **Drain Restoration**
 - Vegetation management
 - Sediment removal
 - Erosion repair
- **Channel Excavation**
 - Sediment removal from bottom
 - One or both side slopes are regraded to stabilize

Clearing, Grubbing & Snagging

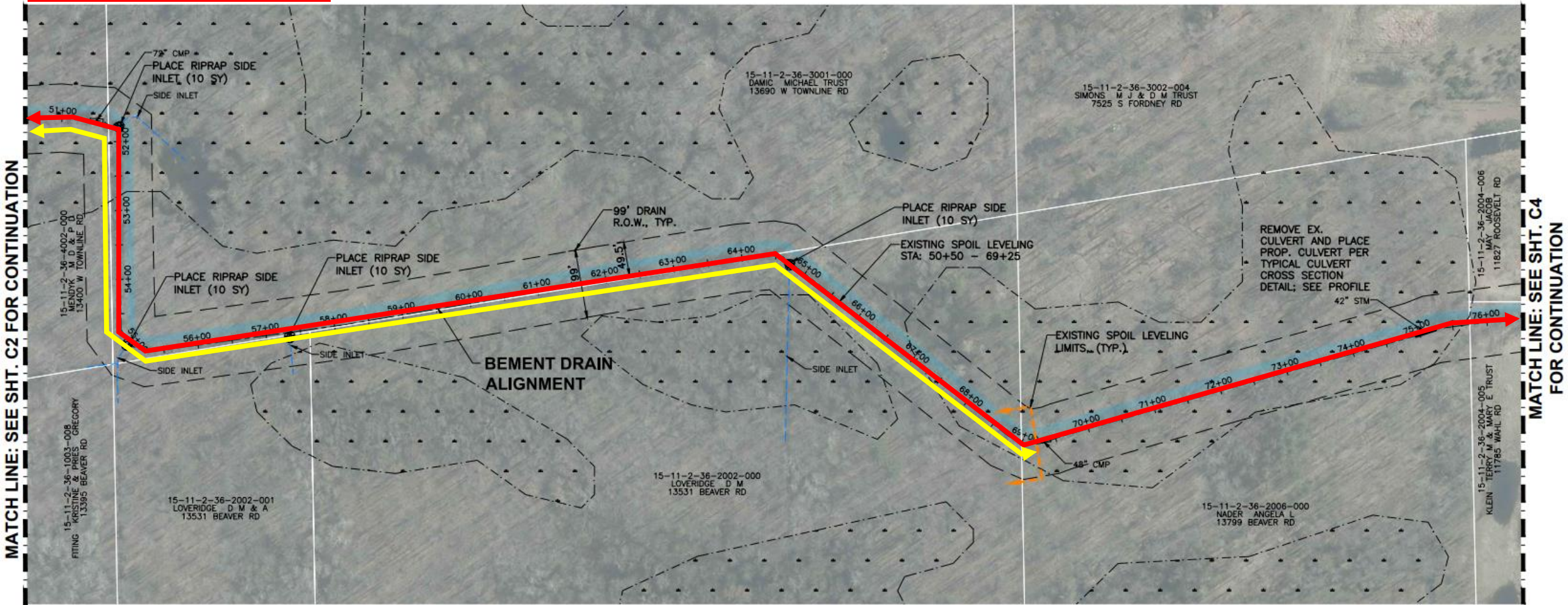
Open Channel Excavation



Existing Spoil Leveling
Open Channel Excavation



Existing Spoil Pile Leveling
Open Channel Excavation

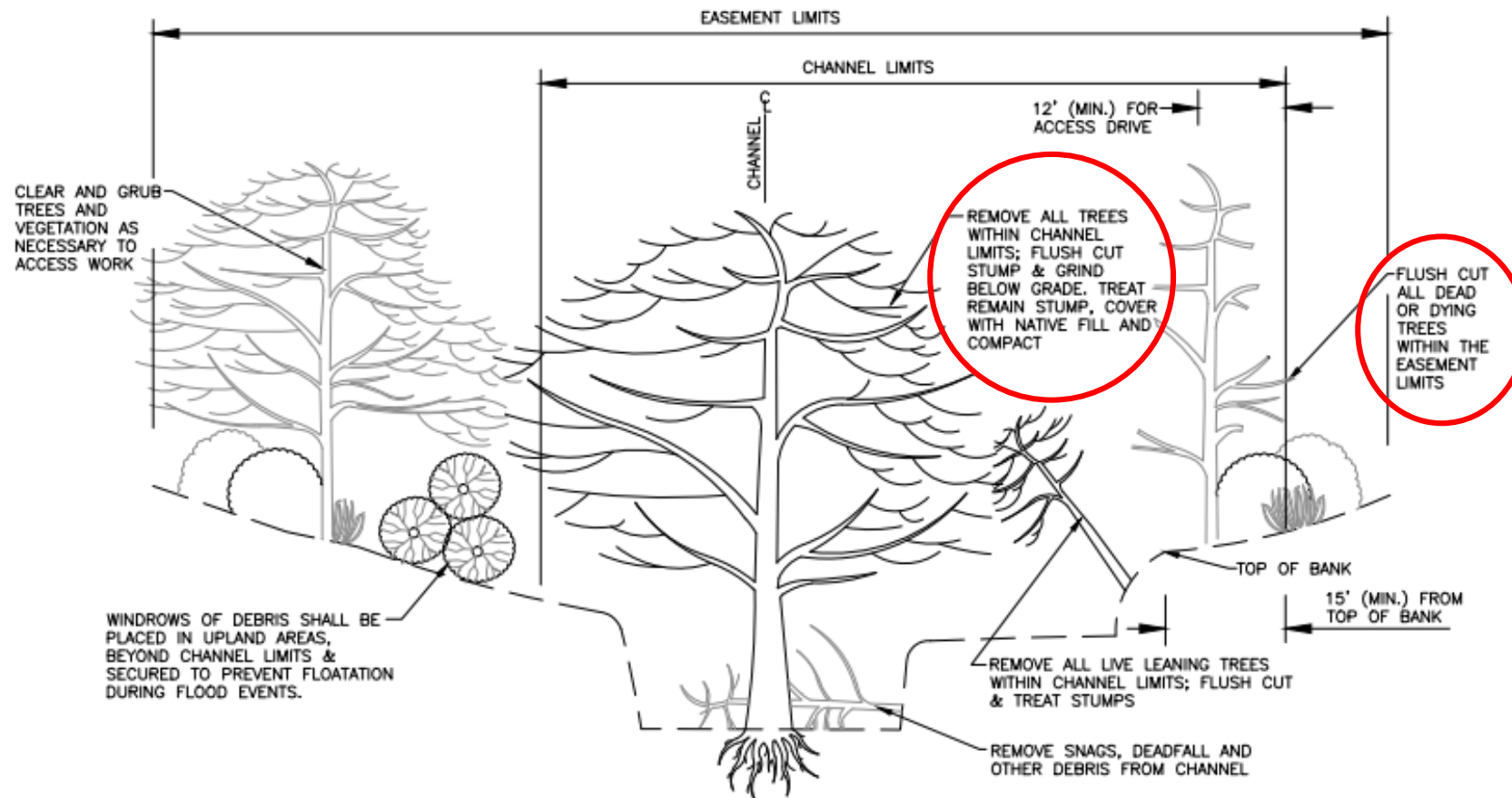


Open Channel Excavation

MATCH LINE: SEE SHT. C3 FOR CONTINUATION



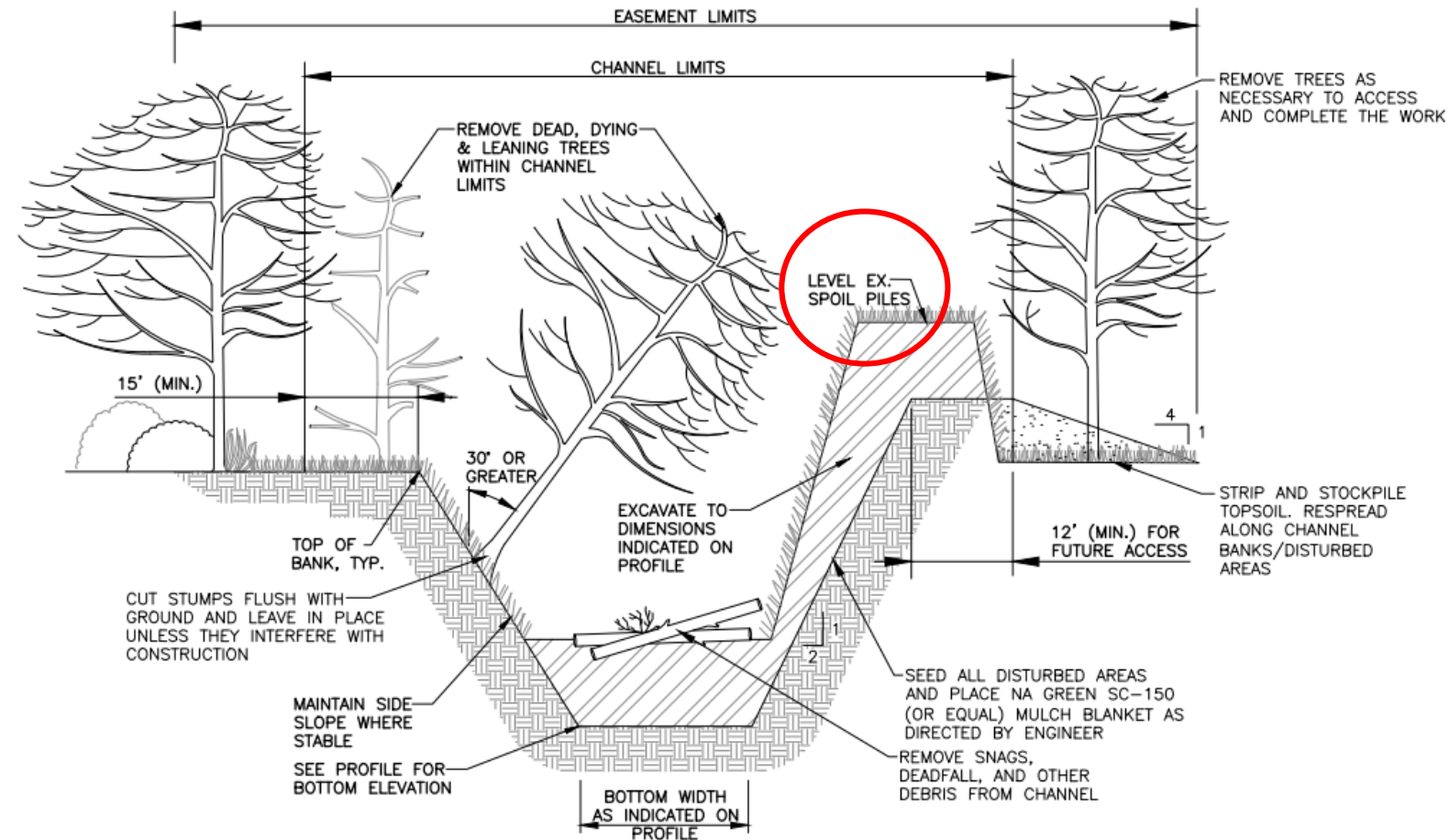
Typical Clearing, Grubbing & Snagging Detail



A 9 CLEARING, GRUBBING & SNAGGING DETAIL

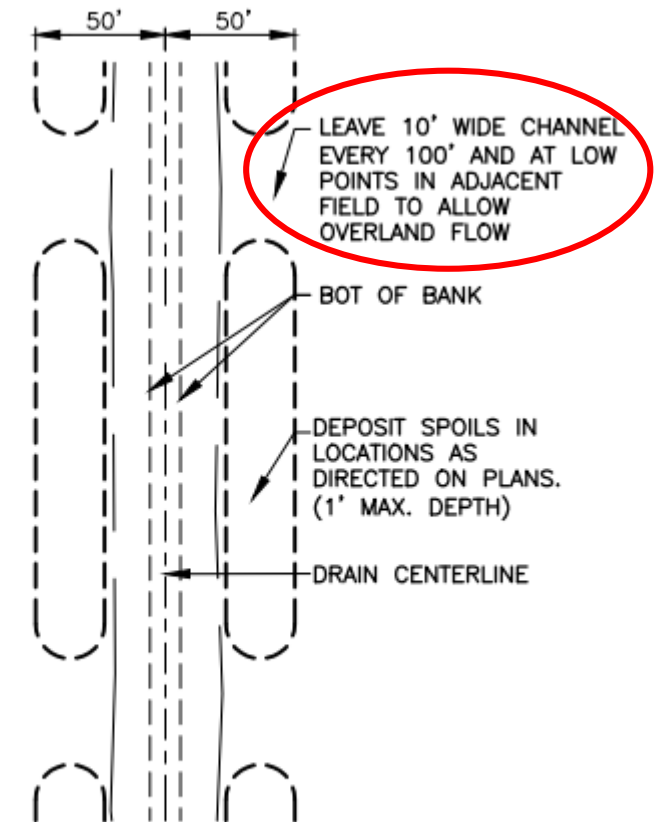
NOT TO SCALE

Typical Channel Excavation Detail & Spoil Leveling



A **B** **OPEN CHANNEL EXCAVATION DETAIL**

NOT TO SCALE

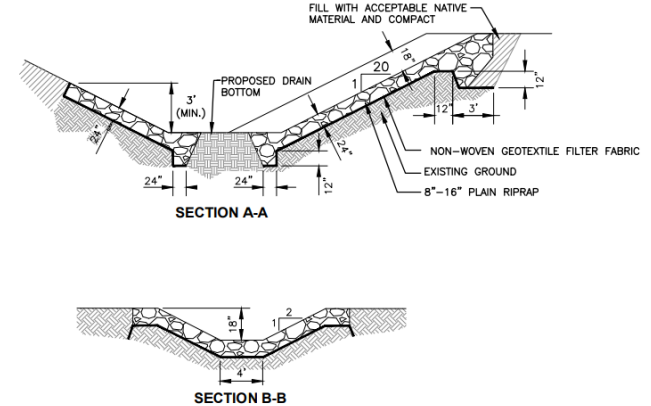
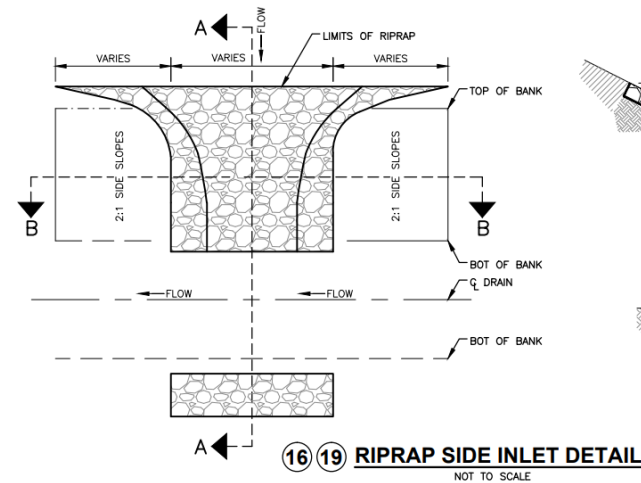


B **SPOILS LEVELING DETAIL**

NOT TO SCALE

Other Channel Improvements

- **Erosion Control**
 - Side Inlets – riprap spillway or culvert installation
 - Seeding and mulching
- **Tile Outlets**
 - Riprap splash pads
 - Repair outlet if in poor condition
 - Maintain outlet if in good condition

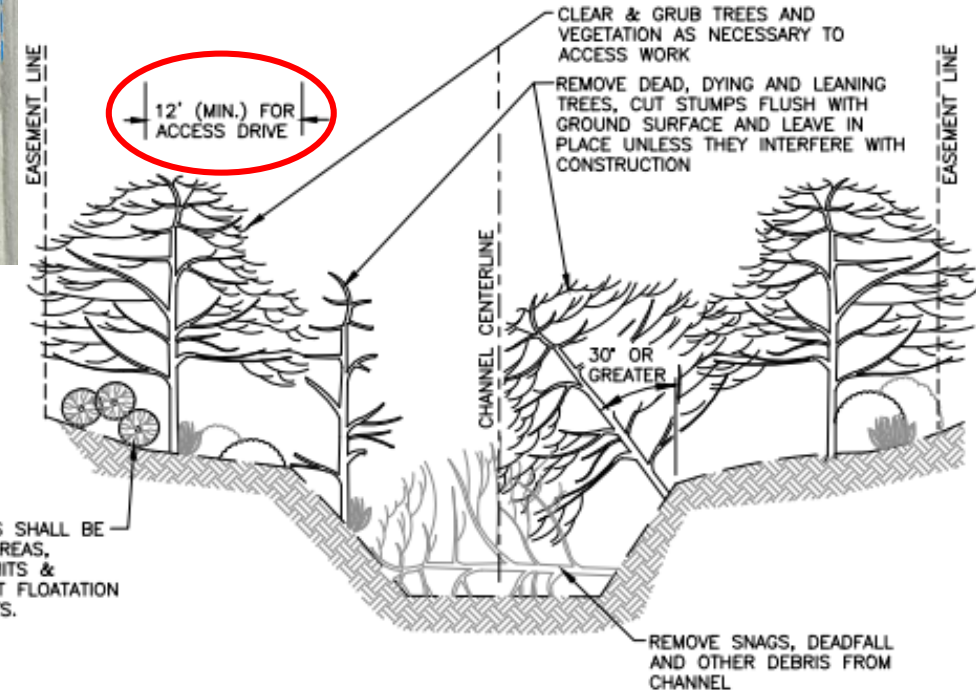
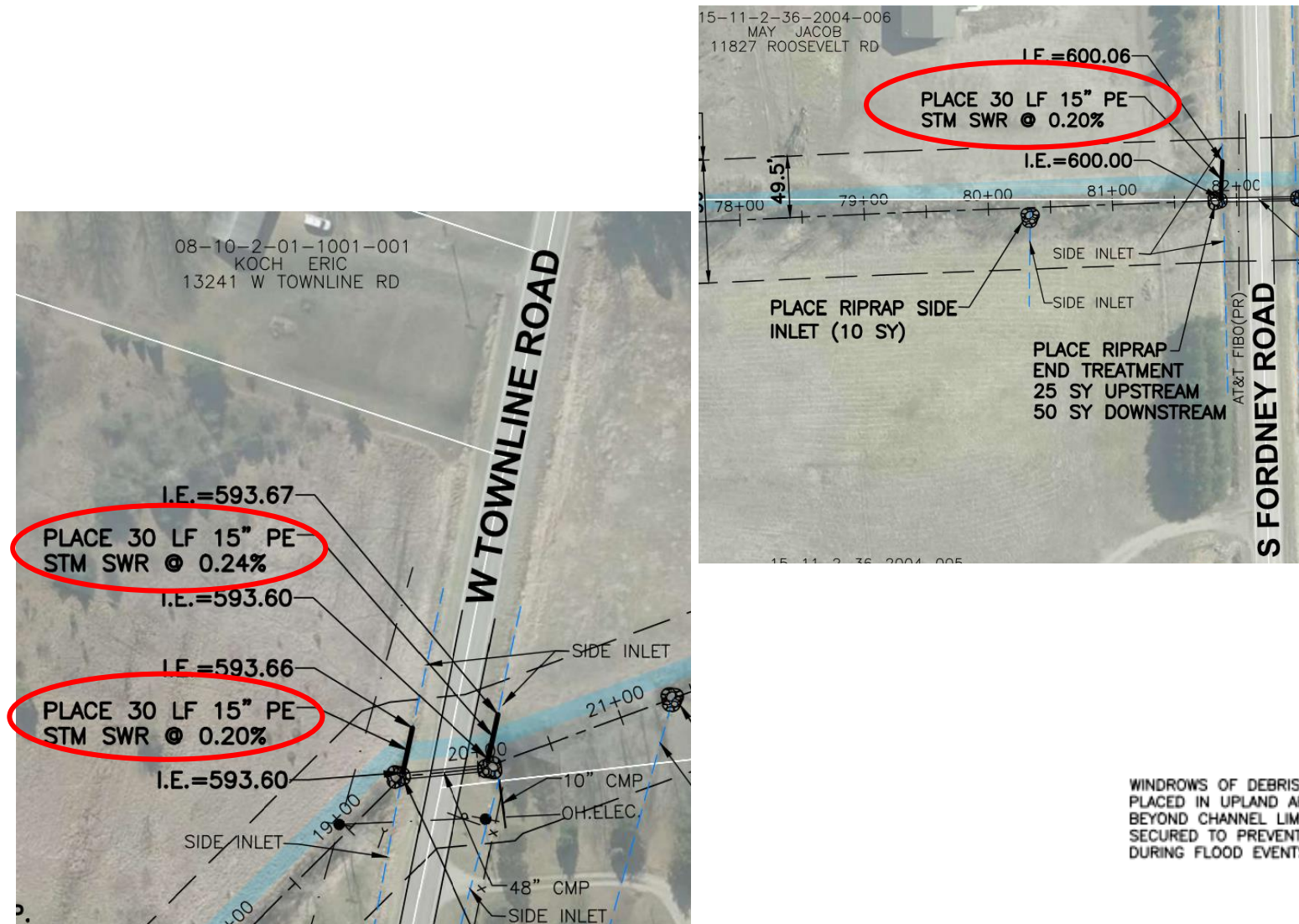


Maintenance Access Improvements




- **Maintenance Path Construction**
 - 12 feet wide
 - Constructed on left top of bank within right-of-way
- **Fences, Sheds, Hunting Blinds/Stands, and Other items in Right-of-Way**
 - Landowners to remove all fences, landscaping, or other items within the drain right-of-way in advance of construction
 - Any items left within the drain right-of-way will be removed and stockpiled to allow clearance for construction operations
 - Reinstallation of removed fencing and landscaping only allowed outside of the drain right-of-way and is the responsibility of the landowner

Maintenance Access Improvements




Drain Crossings




- **Total of 6 Drain Crossings**
 - **4 Private Crossings**
 - Farm access drives
 - **2 Road Crossings**
 - W. Townline Road
 - S. Fordney Road

Drain Crossings




- **Measured Length, Elevation and Size**
- **Assessed Condition of Crossings**
- **Replacement Criteria**
 - Inadequately sized
 - Crossing set too high in the drain, impounding water upstream

Drain Crossings




- The following slides are a general listing of the work being completed at each of the drain crossings.
- If you would like details on your individual crossing(s) such as size, length, or material; please speak to us at the end of the meeting.

Drain Crossings



- **Crossings - Replaced w/ New Culvert**
 - No. 5 – Nader, A.
- **Crossings - Cleaned Out**
 - No. 1 – W. Townline Road
 - No. 2 – Farm Crossing
 - No. 3 – Farm Crossing
 - No. 4 – Farm Crossing

Drain Crossings



- **Maintenance Path Crossings - Culverts Added**
 - (2) roadside drainage culverts west of drain, north and south of W. Townline Road
 - (1) roadside drainage culvert south of drain, east of S. Fordney Road
- **Crossings - No Proposed Work**
 - None

Cleanup & Restoration



- All spoils will spread according to design plans in wooded natural areas and agricultural fields.
- All trees removed from the work area will be processed and disposed of unless the landowner requests to keep the wood.
- Stumps from cut trees will be cut flush with ground and treated.

Cleanup & Restoration



- All driveways and county roads shall be restored in kind
- Local traffic shall be maintained at all times

Tentative Project Schedule



- Bid Project – November 1st, 2022
- Day of Review of Apportionments –November 22, 2022
- Contractor Notice to Proceed – February - March 2023
- Construction Completion – October 15th, 2023

Project Cost



- Estimated Cost: \$ 200,000
 - Includes:
 - Open channel improvements
 - Crossing repairs and replacements
 - Erosion control
 - Cleanup and restoration
 - Utility coordination
 - Engineering, survey and design
 - Permitting fees
 - Financing fees
 - Construction staking and inspection
 - Final project cost determined by Contractor's bid

Bement Drain

Questions or Comments?

