

**Dirt Gravel and Low  
Volume Road Program**

**WEBINAR**

**GIS Updates:  
Topographic Wetness Index /  
Project Error Checker / Financial**

**12/17/20 Starts at 9am**

*If you are reading this, then you are successfully seeing the webinar video. Webinar audio should be automatic through your computer (or click “join audio”), and options can be accessed in the “audio options” button on the bottom left. If your computer audio is not working, you can listen on your phone by dialing 646-876-9923.*

# GIS Updates:

Topographic Wetness Index /  
Project Error Checker / Financial

The image shows a Zoom meeting interface with a Q&A window open. The Q&A window is highlighted with a red border and contains the following text:

**Q&A**

**You asked:** 02:25 PM  
Can you think of an example question?

**Steven Michael Bloser answered:** 02:25 PM  
No, I can't!

Below the Q&A window, there is a text input field with the placeholder text "Please enter your question...". Below the input field is a checkbox labeled "Send Anonymously" and a "Send" button.

Red text annotations are present:

- Note you can ask a question anonymously* (with a yellow arrow pointing to the "Send Anonymously" checkbox)
- Q&A** (with a yellow arrow pointing to the Q&A icon in the bottom toolbar)

The bottom toolbar of the Zoom meeting includes icons for "Audio Settings", "Chat", "Raise Hand", "Q&A", and "Leave Meeting".

For audio via phone: 646-876-9923

- GIS Updates:
- **Topographic Wetness Index:** New GIS layer that extrapolates soil wetness and make it easier to identify ephemeral streams and areas likely to see collect overland flow
- **Project Error Checker:** New GIS feature to double check the project data entered for worksites for typos or obvious errors.
- **Financial Update:** Brief updates related to administrative and education spending.

## Topographic Wetness Index (TWI)

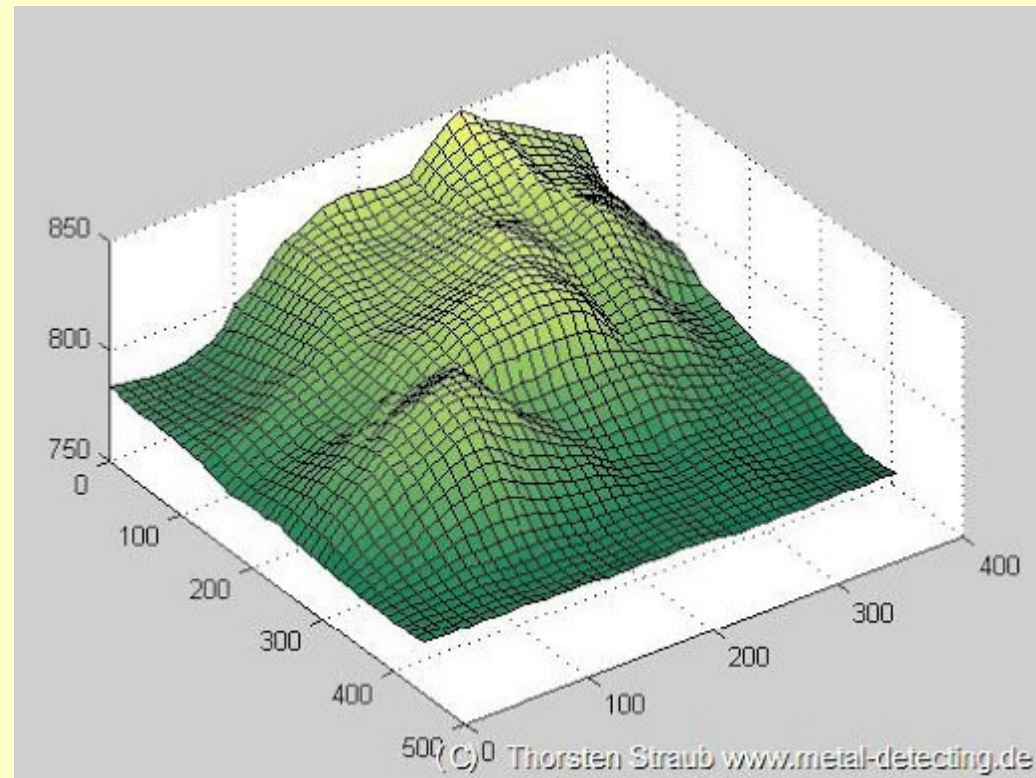
- **Background**
  - Approximates soil moisture and flow channels
  - It is NOT a direct measurement
  - What it looks like:



## Topographic Wetness Index (TWI)

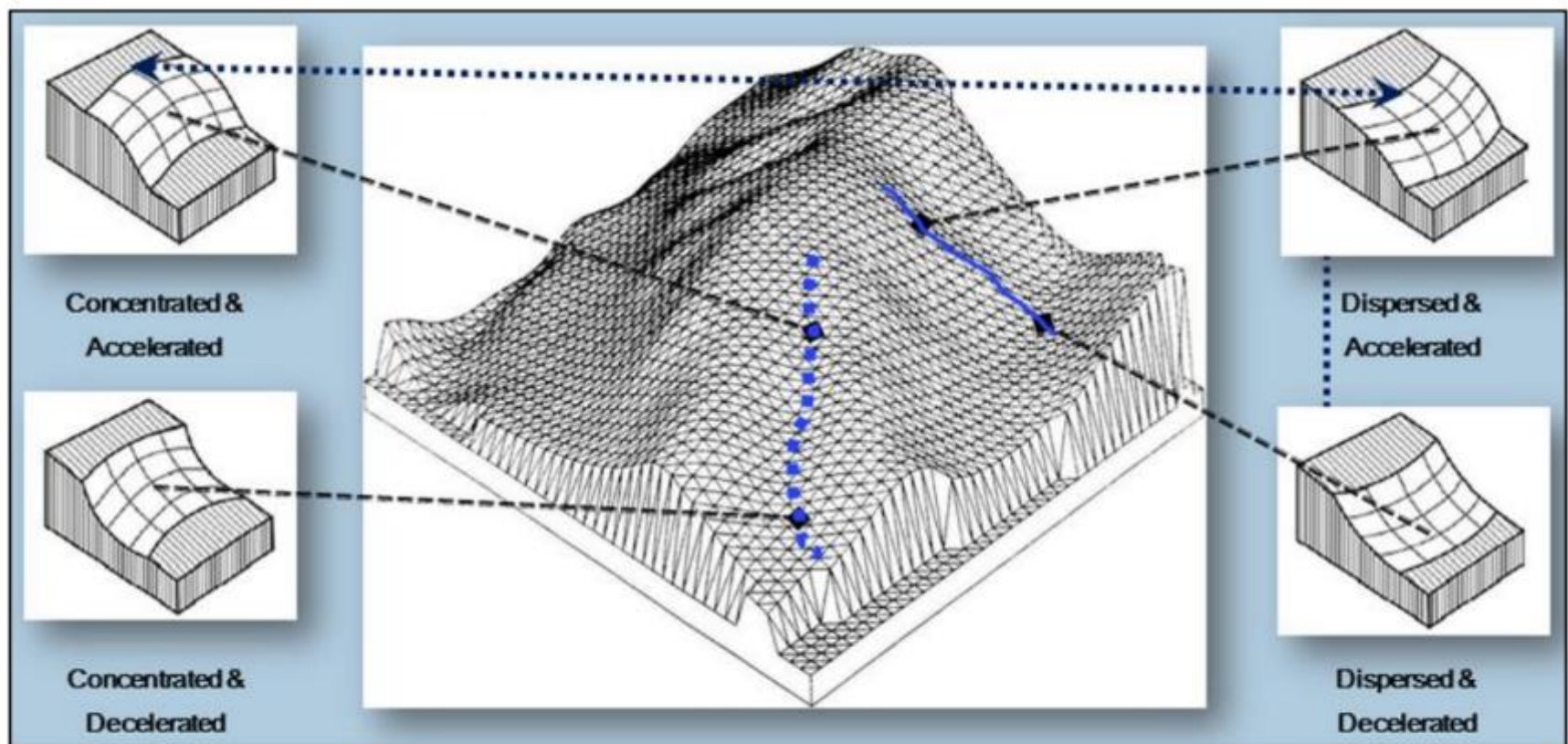
- **Background**

- Comes from interpretations from LIDAR
- LIDAR used to create a detailed “Digital Elevation Model”



## Topographic Wetness Index (TWI)

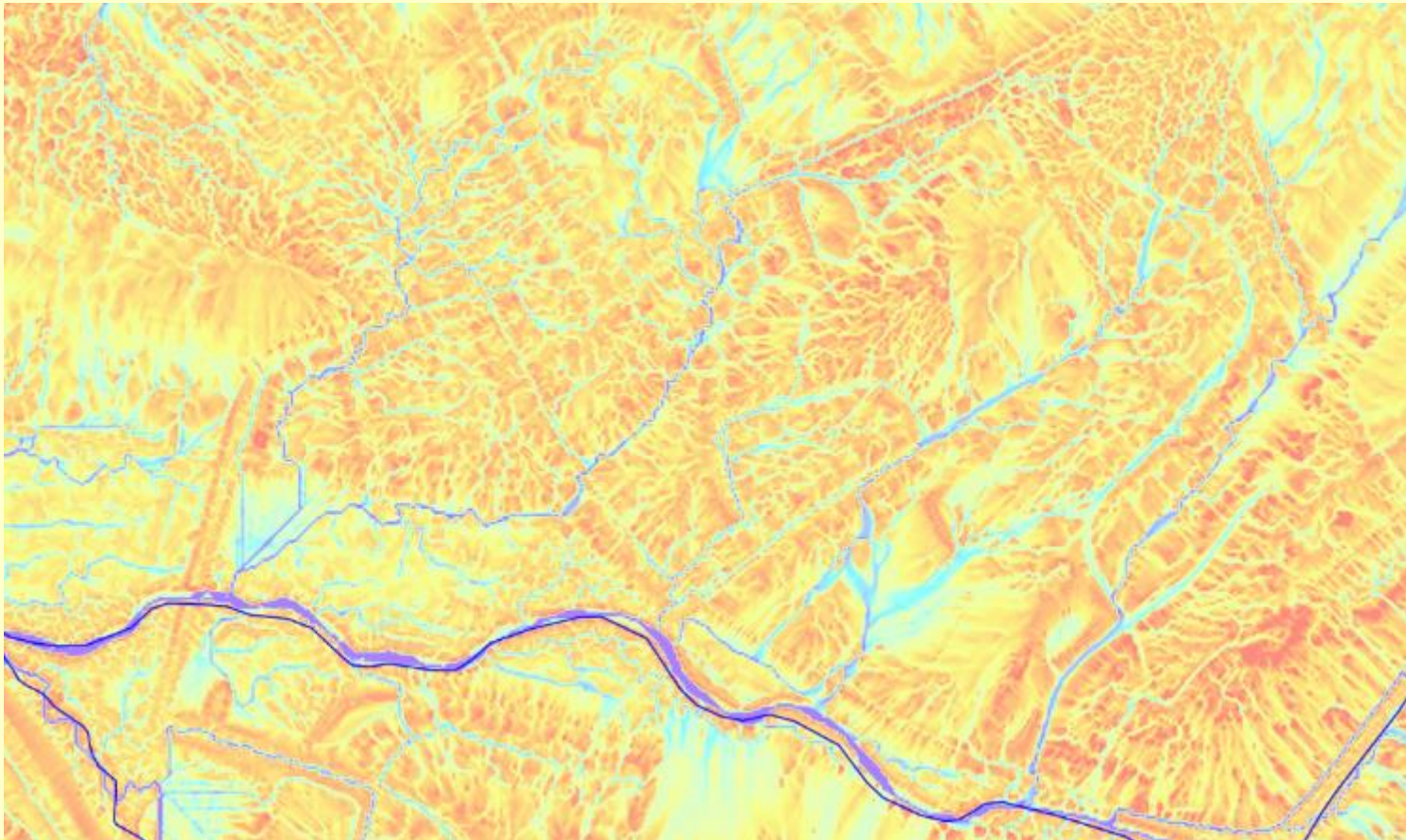
- Background
  - TWI is a function of land slope and contributing area



*Schematic Diagram of Morphology Types Used to Compile Topographic Wetness Index*

## Topographic Wetness Index (TWI)

- **Background**
  - The result is dimensionless, and expressed as a color gradient from red (dry) to blue (wet)

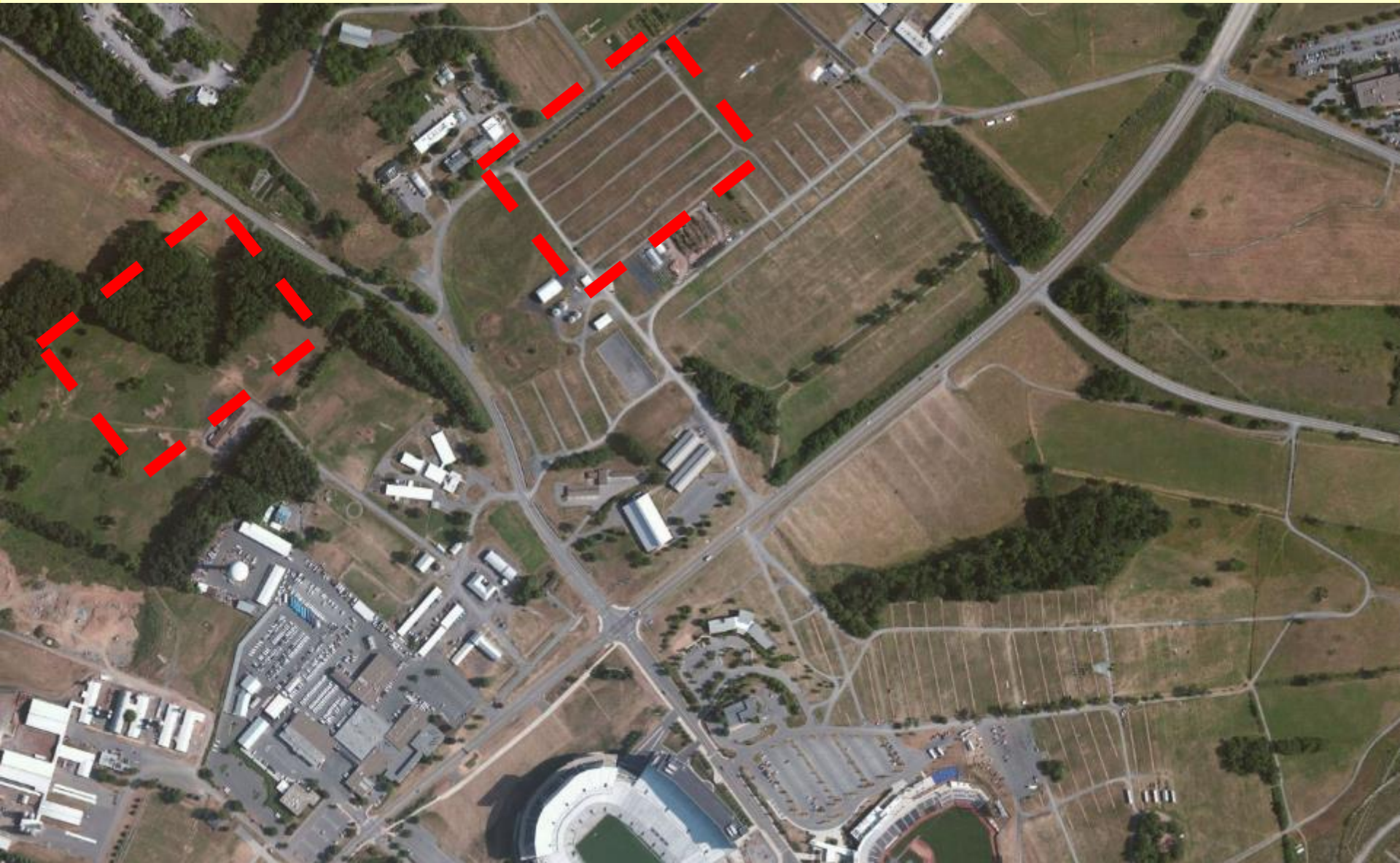


## Topographic Wetness Index (TWI)

- **Uses**
  - Identifying ephemeral streams
  - Identifying likely overland flow paths with no channel
  - Features can be identified remotely that may not be visible in the field
  - **DGLVR Program:**
    - Where to put crosspipes
    - Identifying off-ROW water impacts
  - **Other Programs:**
    - Field runoff patterns
    - Erosion control



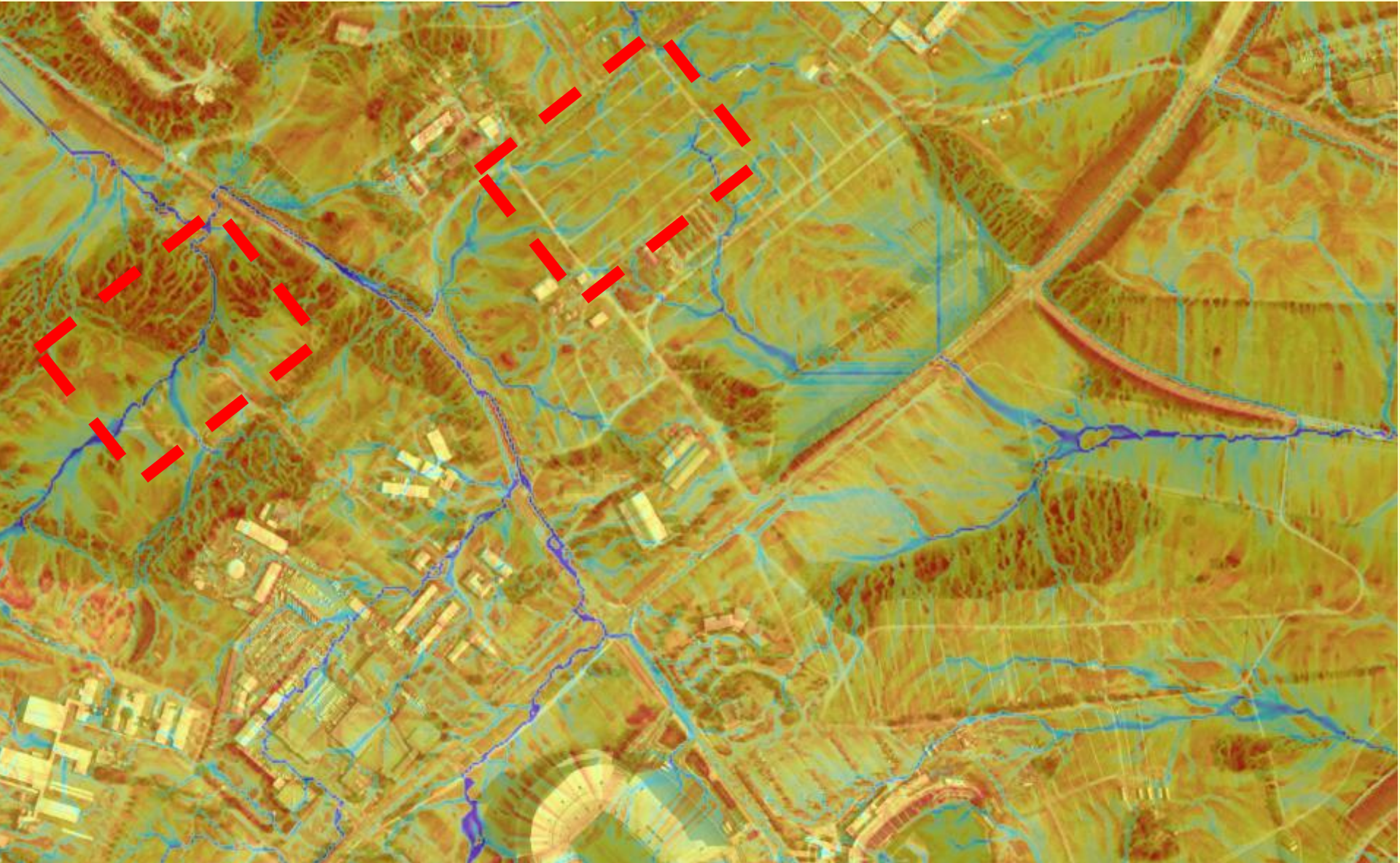
# GIS Updates



## TWI Example #1



## TWI Example #1

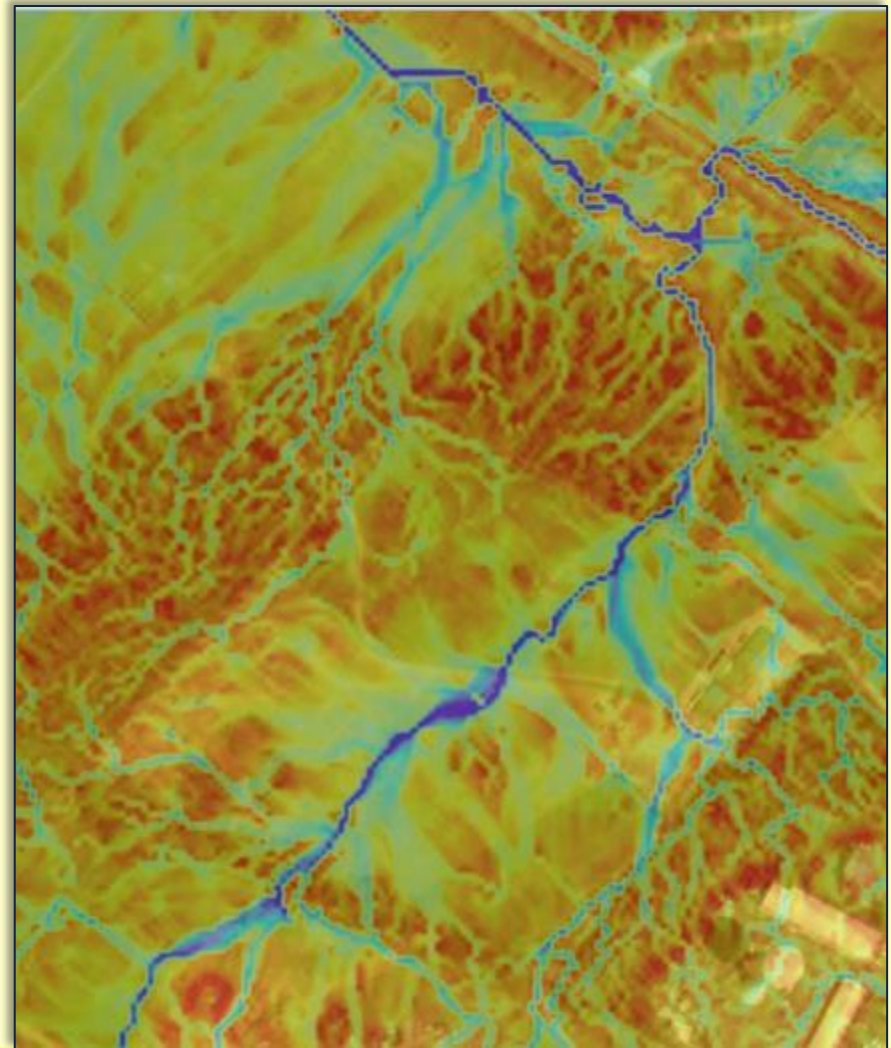


## TWI Example #1

TOPO MAP



TWI

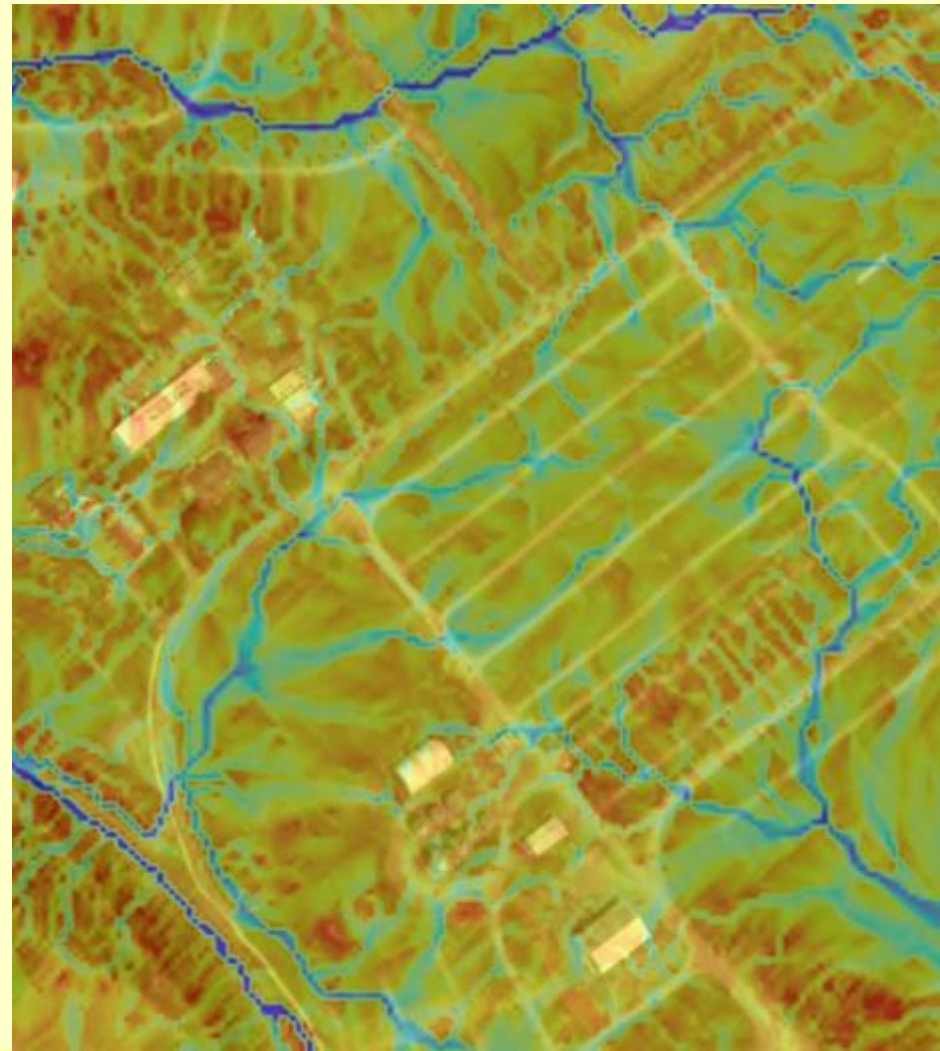


## TWI Example #1

TOPO MAP



TWI



## TWI Example #2: wooded road

TOPO MAP



Red Rose Road  
Huntingdon County

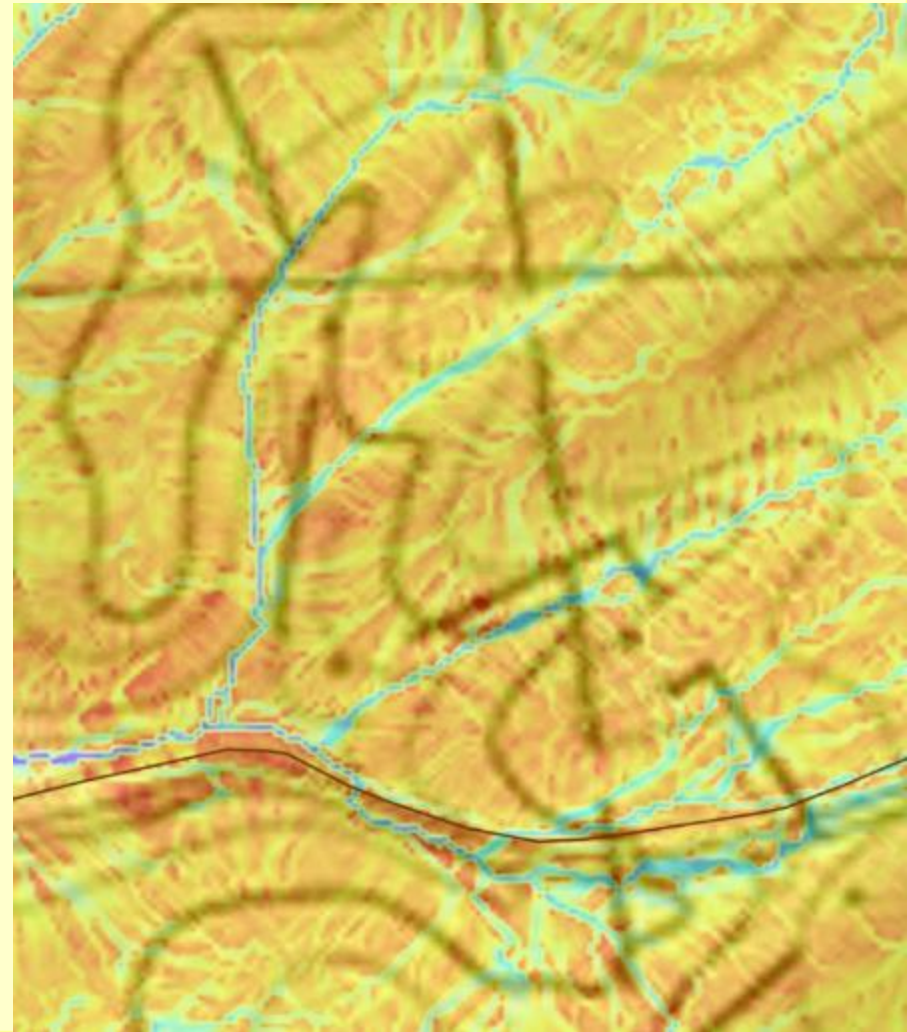
No “blueline” stream

## TWI Example #2: wooded road

TOPO MAP



TWI

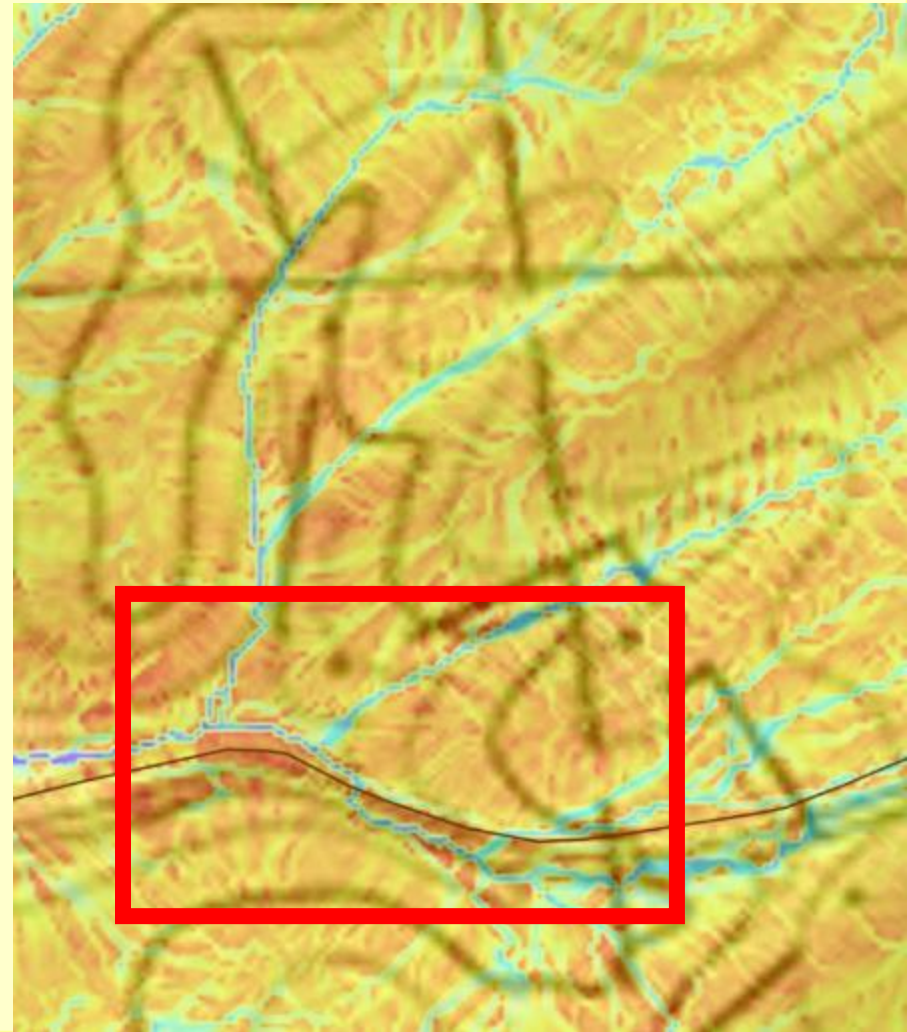


## TWI Example #2: wooded road

TOPO MAP



TWI

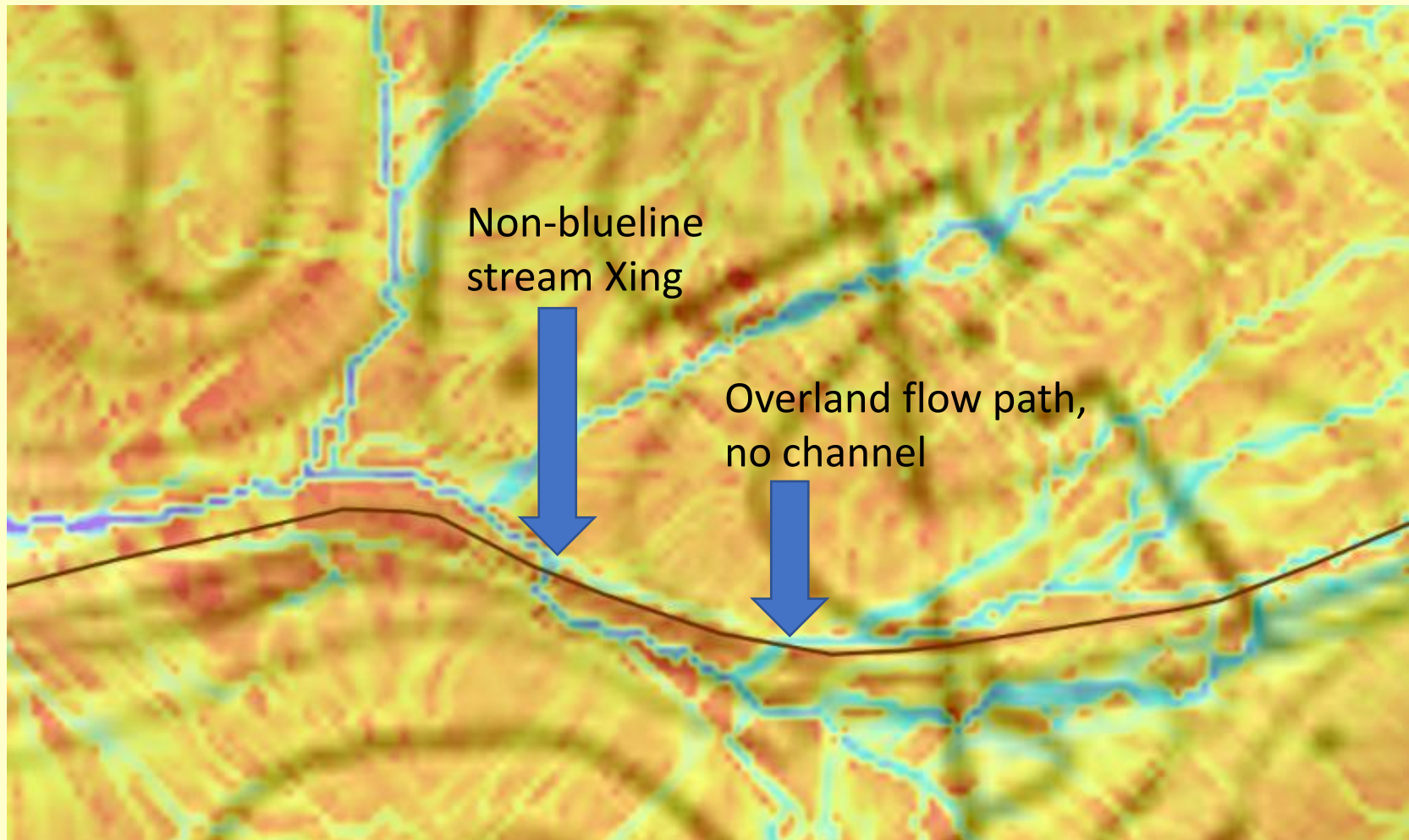




## TWI Example #2: wooded road

TOPO MAP

TWI



## TWI Example #3: agriculture road

Aerial



Ag Progress Days  
Centre County

## TWI Example #3: agriculture road

Aerial

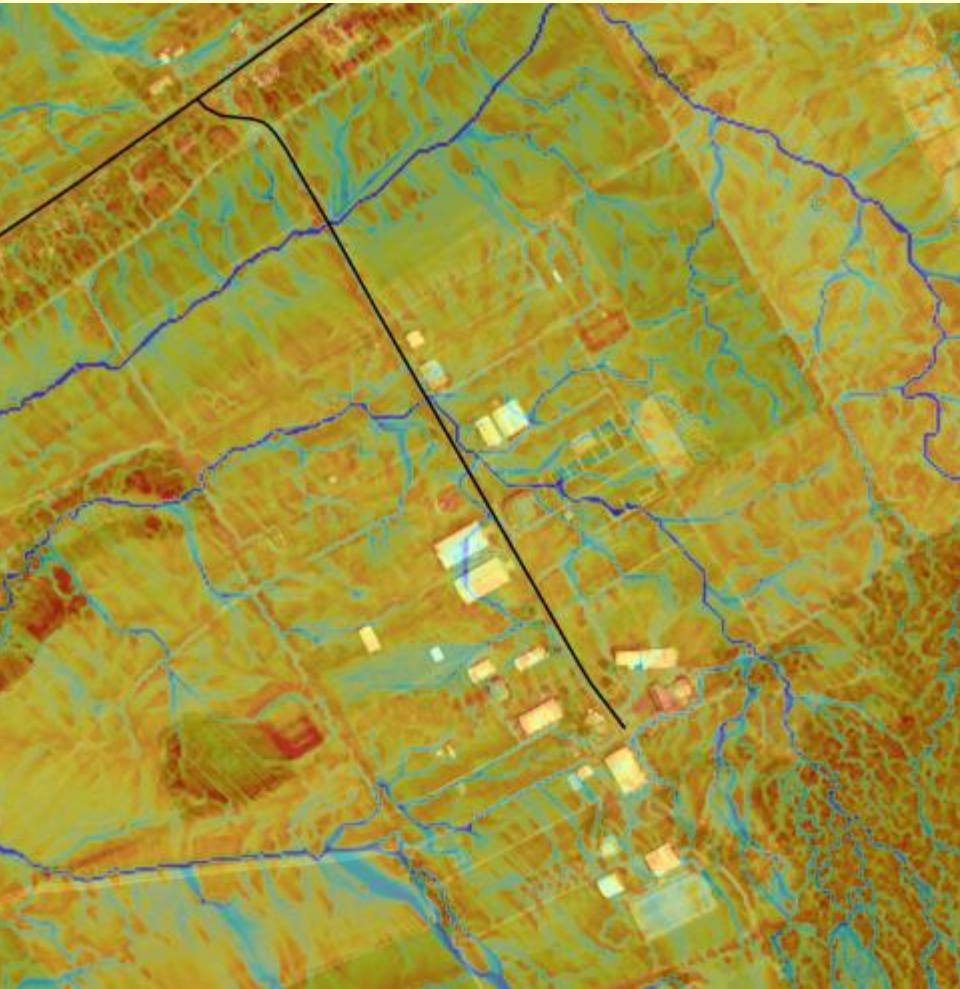


TOPO



## TWI Example #3: agriculture road

TWI



TOPO



## Logistics: how to access it

- You already have access to it as a GIS layer
- **DO NOT TURN TWI LAYER ON UNTIL YOU ZOOM IN.** It is a large layer and may freeze your computer up if you try to load it for the entire county.
- **Quick Demo:**

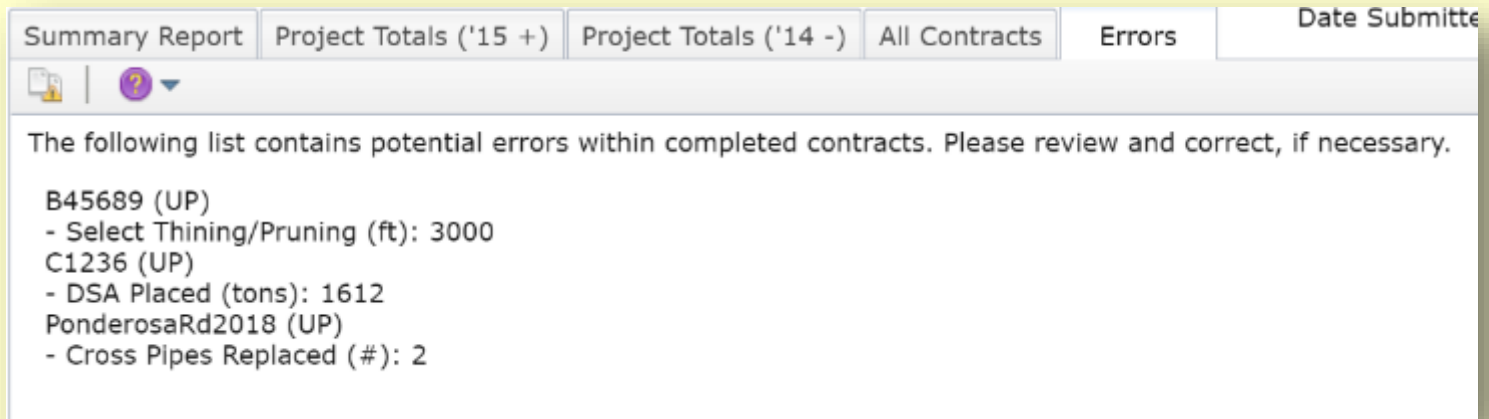
- GIS Updates:
- **Topographic Wetness Index:** New GIS layer that extrapolates soil wetness and make it easier to identify ephemeral streams and areas likely to see collect overland flow
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## Project Errors

- **All real data:**
  - **14 stream crossings replaced** (maybe one 14 foot crossing?)
  - **80 cross pipes installed** (maybe length reported?)
  - **45 cross pipes replaced** (maybe length reported?)
  - **9,000 tons DSA** (on a 5,000 foot site? Equates to a 50' wide placement)
  - **17,000 tons road fill** ( on a 1,000 foot site?, Equates to 8' of fill over entire site)
  - **20,000 cu yd paving** ( on a 3,000 ft site, equates to asphalt about 19" in thickness)
- Errors remain in database and make annual reports more difficult each year

## Project Errors

- **Error Checker designed to catch these mistakes.**
  - **Run by the CD before Annual Report**
  - **Give CD list of potential Errors**
    - **Not all potential errors may be true errors**
  - **CD must go in and correct data prior to submitting ASR**
    - **Ignore non-errors reported as errors**



The screenshot shows a software interface with a tabbed menu at the top. The tabs are: Summary Report, Project Totals ('15 +), Project Totals ('14 -), All Contracts, Errors, and Date Submitted. The 'Errors' tab is selected. Below the tabs, there is a toolbar with a document icon and a question mark icon. The main content area displays the following text:

The following list contains potential errors within completed contracts. Please review and correct, if necessary.

- B45689 (UP)
  - Select Thining/Pruning (ft): 3000
- C1236 (UP)
  - DSA Placed (tons): 1612
- PonderosaRd2018 (UP)
  - Cross Pipes Replaced (#): 2



## Project Errors

- Potential errors are determined by comparing project totals on assigned cutoff values determined by the Center.

**Error Comparison Value = Project Total / Site Length (ft)**

- Potential Error if Comparison Value > Cutoff Value
- Cutoff values will be provided as a downloadable pdf

## Project Errors

- **Example: A site in the GIS has a length of 850 feet but 12 crosspipes were entered. Would this be flagged as an error?**
  - The cutoff value is 0.01 (this equals 1 crosspipe per 100 feet)
  - $12/850 = 0.014 > 0.01 =$  **Potential Error**
- **Solutions**
  1. **Is the Project Total entry correct?**
    - a) Check the units. (i.e., # vs feet, sq ft vs sq yards, English vs Metric)
    - b) Typo (i.e., 1 vs 10)
  2. **Is the site length in the GIS correct? If it is too short, consider lengthening it.**
  3. **This is not an error (Site length and project total correct)**

## Project Errors

# GIS Demo

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## Financial Updates

- **Administrative and Education available spending reduced to 1 year (SCC Approved July 2020).**
  - **Unless an extension granted by SCC**
- **Includes FY 20/21**

## Financial Updates

- What happens July 1, 2021
  - ALL remaining FY 19/20 and FY 20/21 administrative and education funds are reset to \$0. (they roll back into projects)
  - FY 21/22 funds become available.

This screenshot shows the financial update interface for the transition from FY 19/20 to FY 20/21. The 'Previous Fiscal Year (19/20)' section shows Administrative funds at \$26,188.90 and Education funds at \$27,621.45. The 'Current Fiscal Year (20/21)' section shows both Administrative and Education funds at \$30,776.50, with these values circled in red. The 'Total Remaining (Previous + Current)' section shows Administrative funds at \$56,965.40 and Education funds at \$58,397.95. There are buttons for 'Apply Remaining Admin' and 'Apply Remaining Edu'.

Fiscal Year	Administrative	Education
Previous Fiscal Year (19/20)	\$26,188.90	\$27,621.45
Current Fiscal Year (20/21)	\$30,776.50	\$30,776.50
Total Remaining (Previous + Current)	\$56,965.40	\$58,397.95

This screenshot shows the financial update interface for the transition from FY 20/21 to FY 21/22. The 'Previous Fiscal Year (20/21)' section shows both Administrative and Education funds at \$0, with these values circled in red. The 'Current Fiscal Year (21/22)' section shows both Administrative and Education funds at \$30,000.00. The 'Total Remaining (Previous + Current)' section shows both Administrative and Education funds at \$30,000.00. There are buttons for 'Apply Remaining Admin' and 'Apply Remaining Edu'.

Fiscal Year	Administrative	Education
Previous Fiscal Year (20/21)	\$0	\$0
Current Fiscal Year (21/22)	\$30,000.00	\$30,000.00
Total Remaining (Previous + Current)	\$30,000.00	\$30,000.00

## Financial Updates

### What Does This Mean???

- **Come July 1, 2020, you won't be able to use any prior fiscal year monies for administrative and/or educational expenses.**
- **All remaining monies will simply convert to project funds**

## Financial Updates

### How Should I Plan?

- Using the QR, see how much FY 19/20 and FY 20/21 cap space is remaining.
- Budget your remaining cap space through June 30, 2021.
  - Don't forget to budget this against expected project expenses to ensure you have enough available funds.
- Call Ken with any questions.



- GIS Updates:
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## Winter Assessments

- **Unpaved Road Assessments:** driving unpaved roads in your county and identifying pollution sites
- **November through May is the best time to do unpaved road assessments** (*with <~3" of snow cover*)
- **Webinar 12/22:** Assessment Refresher/Primer
- **Recorded Webinar Training on CDGRS website:**
  - ~1.5 hours total, broken into 8 sections
  - [www.dirtandgravelroads.org](http://www.dirtandgravelroads.org) – education - assessment



## Winter Technical Assistance

- Increased availability at CDs, CDGRS, SCC, and TU over winter months.
- **December through March is the easiest time to get CDGRS/TU/SCC on site for planning *(with <~3" of snow cover)***
- **Contact Center/SCC/TU Staff**
- **Not sure who to contact? Contact me:**  
[smb201@psu.edu](mailto:smb201@psu.edu), 814-865-6967



## Photo Contest

- Typically held at annual workshop in fall.
- Planning to hold one over winter to create April 2021 to March 2022 DGLVR calendar
- **Submit to Amy (alp90@psu.edu)**
  - Before Picture
  - After Picture
  - Project description, 200 word max

**Dirt Gravel and Low  
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**GIS Updates**

**WEBINAR**

**QUESTIONS ?**