Dirt Gravel and Low Volume Road Program

WEBINAR

GIS Updates:

Topographic Wetness Index / Project Error Checker / Financial

12/17/20 Starts at 9am

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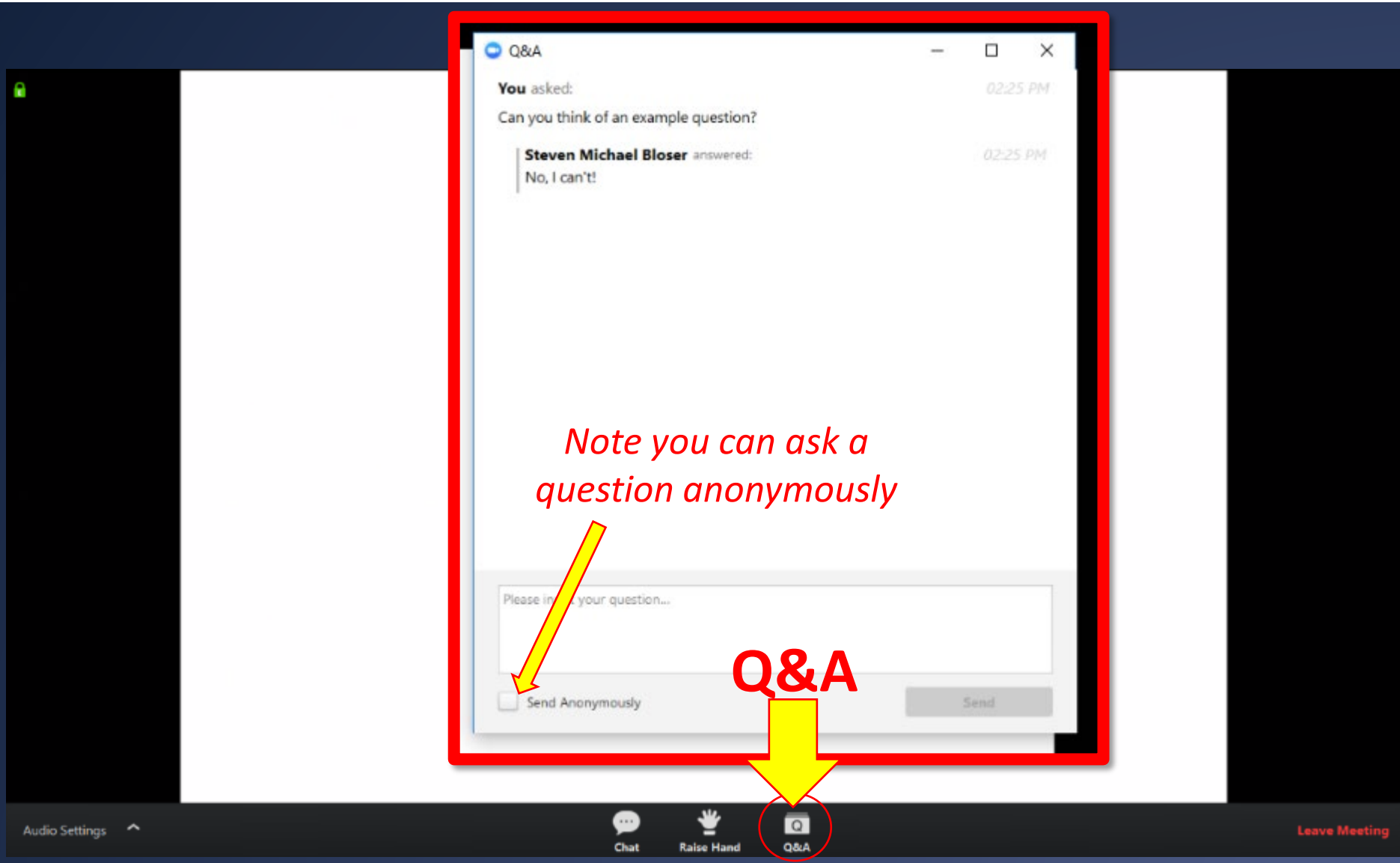
Center for Dirt and Gravel Road Studies

GIS Updates:

Topographic Wetness Index / Project Error Checker / Financial



For audio via phone: 646-876-9923

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

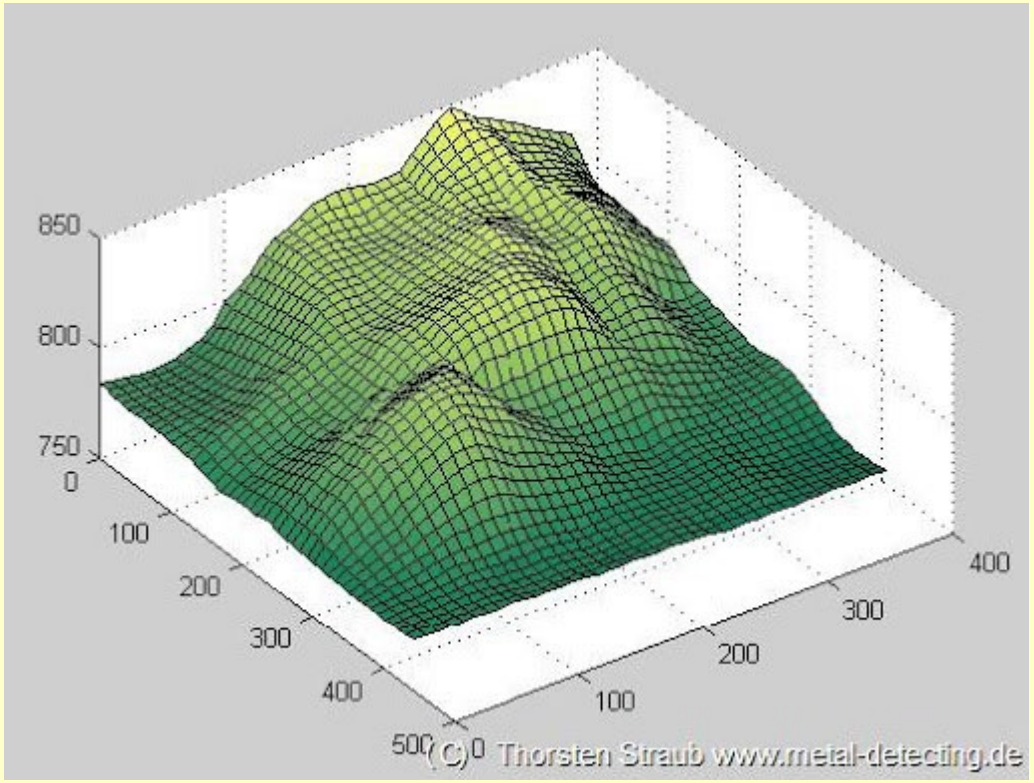
- **GIS Updates:**
- **Topographic Wetness Index:** New GIS layer that extrapolates soil wetness and make it easier to identify ephemeral streams and areas likely to see collect overland flow
- **Project Error Checker:** New GIS feature to double check the project data entered for worksites for typos 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:

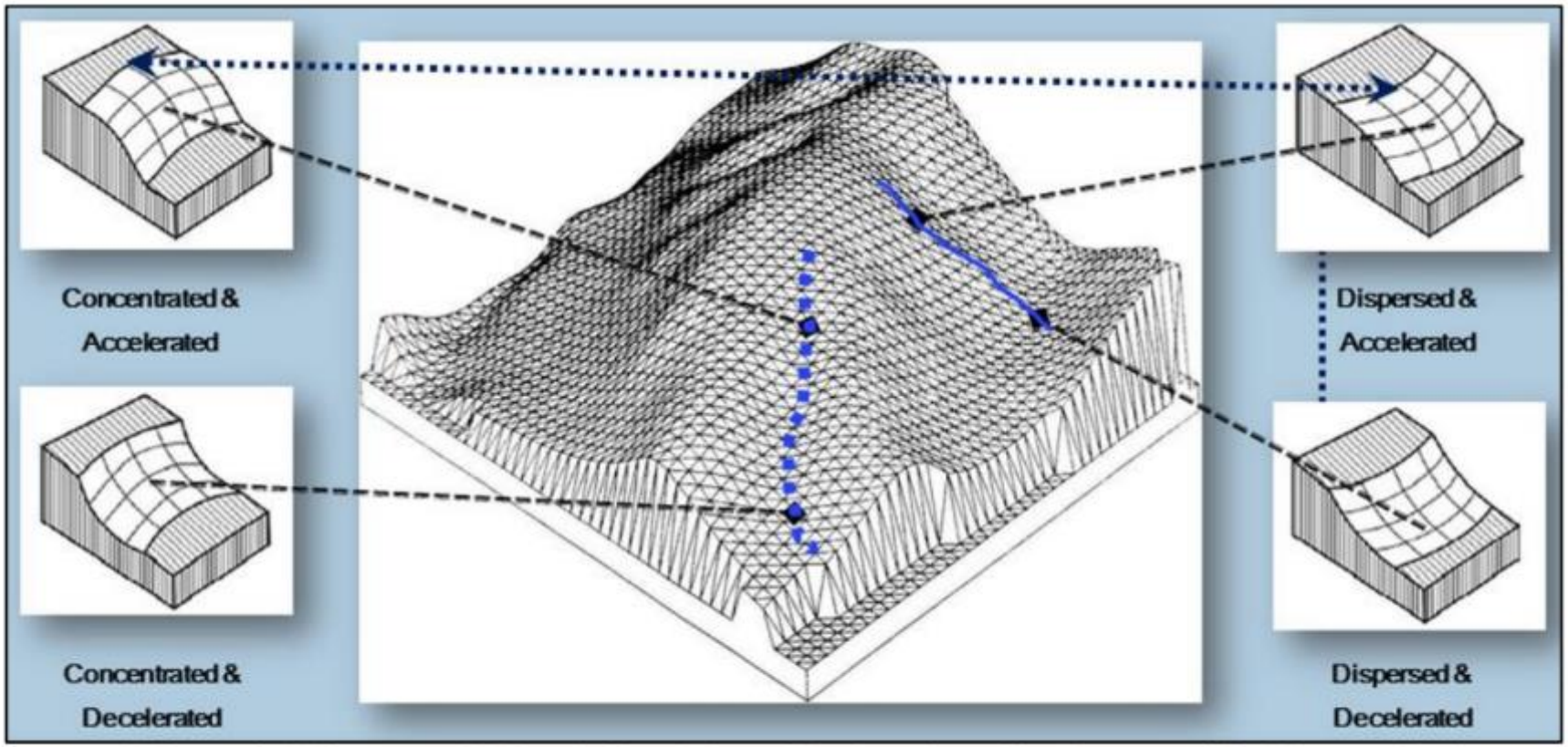
Topographic Wetness Index (TWI)

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



Topographic Wetness Index (TWI)

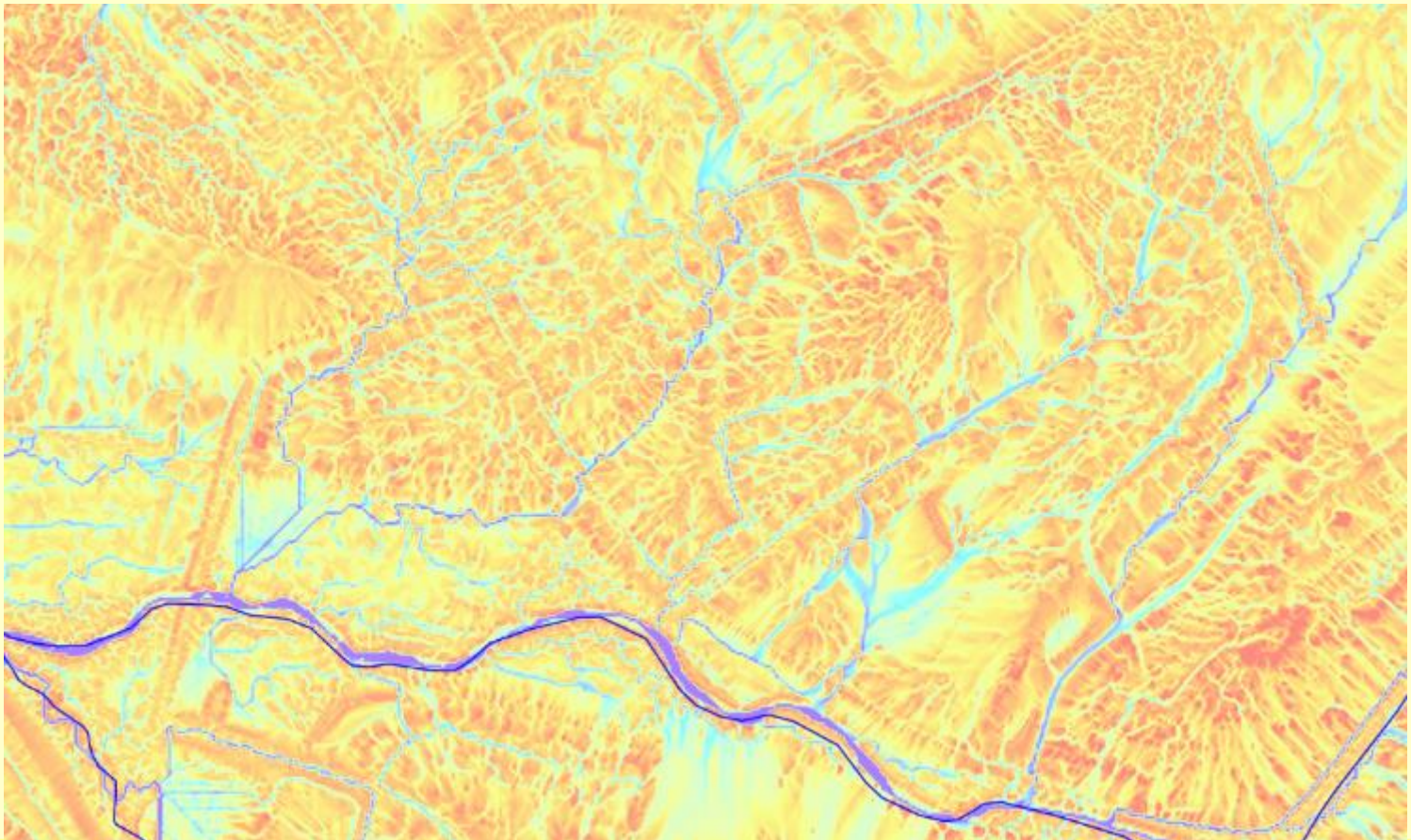
- **Background**
  - **TWI is a function of land slope and contributing area**



Schematic Diagram of Morphology Types Used to Compile Topographic Wetness Index

Topographic Wetness Index (TWI)

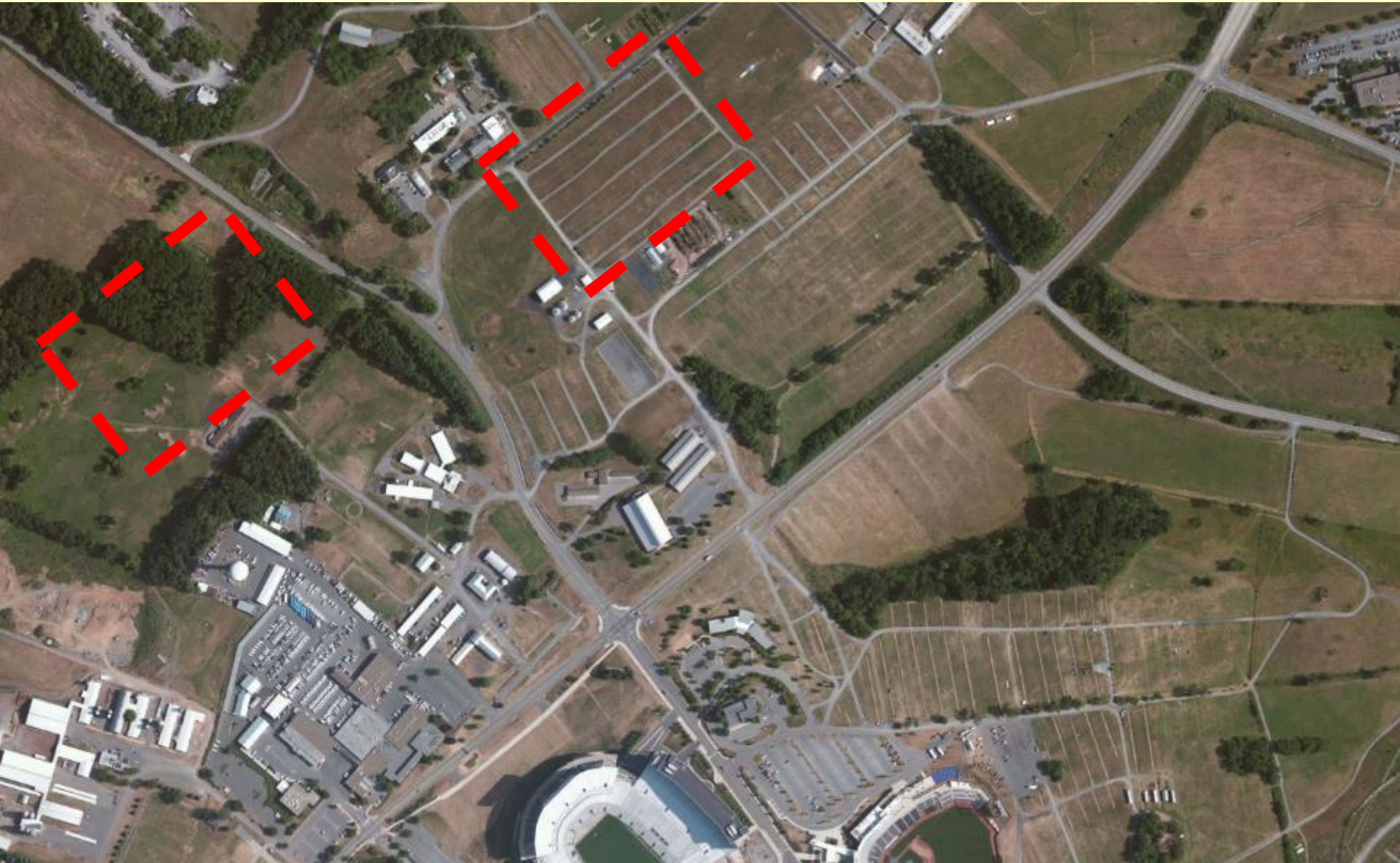
- **Background**
  - The result is dimensionless, and expressed as a color gradient from red (dry) to blue (wet)



Topographic Wetness Index (TWI)

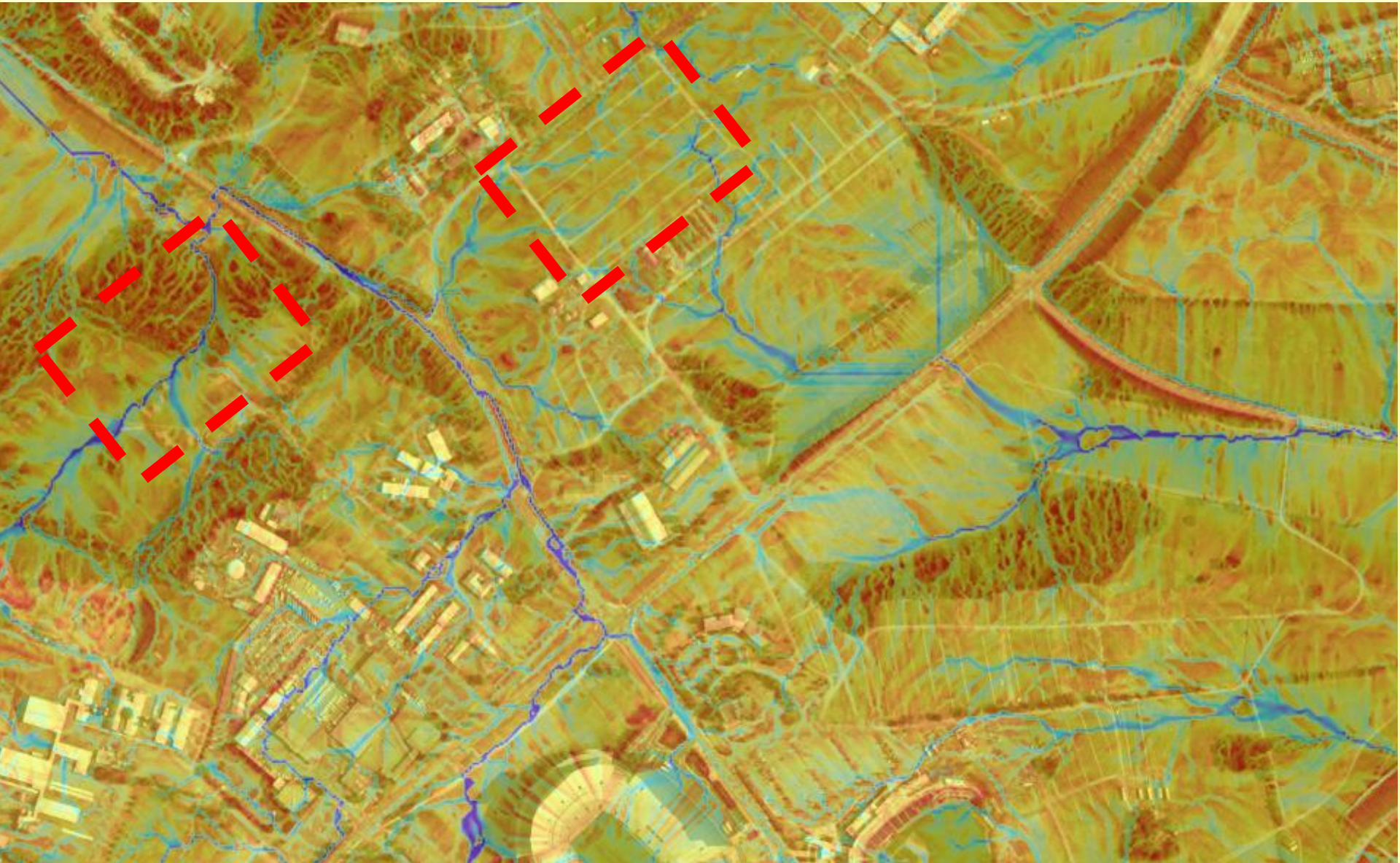
- **Uses**
  - Identifying ephemeral streams
  - Identifying likely overland flow paths with no channel
  - Features can be identified remotely that may not be visible in the field
  - **DGLVR Program:**
    - Where to put crosspipes
    - Identifying off-ROW water impacts
  - **Other Programs:**
  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

GIS Updates



TWI Example #1

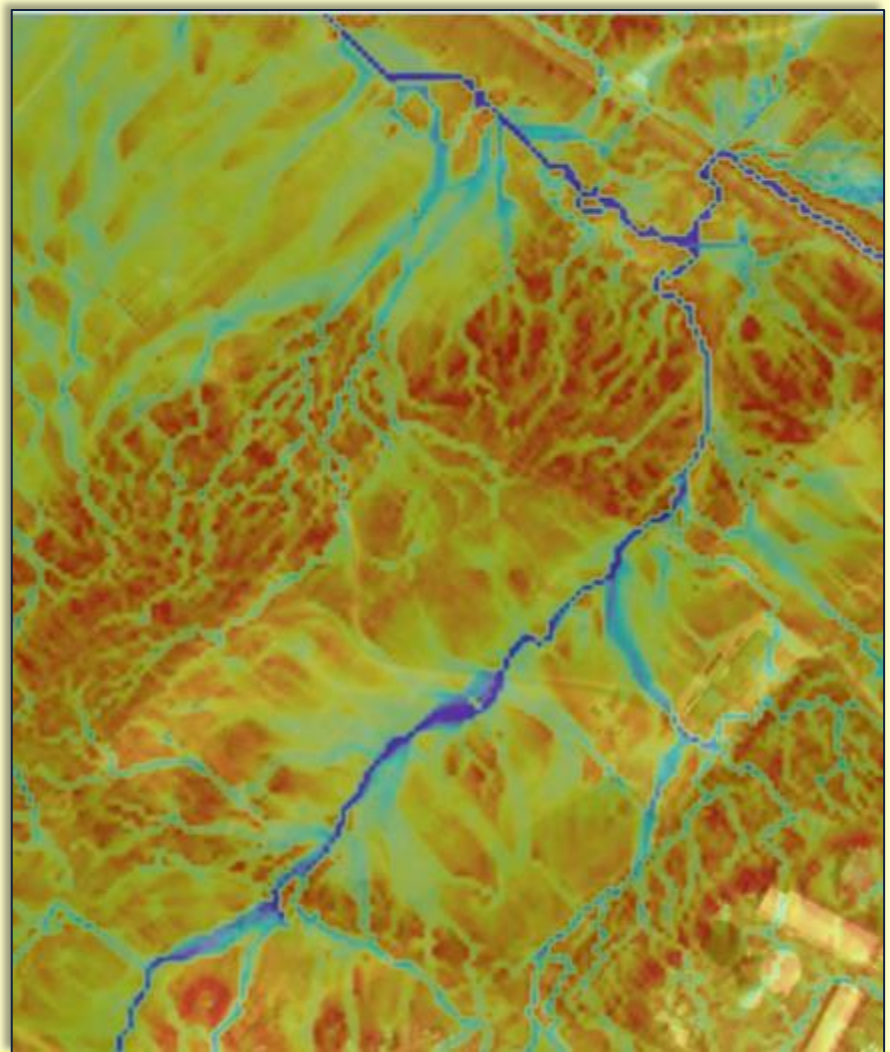
TWI Example #1



TWI Example #1

TOPO MAP

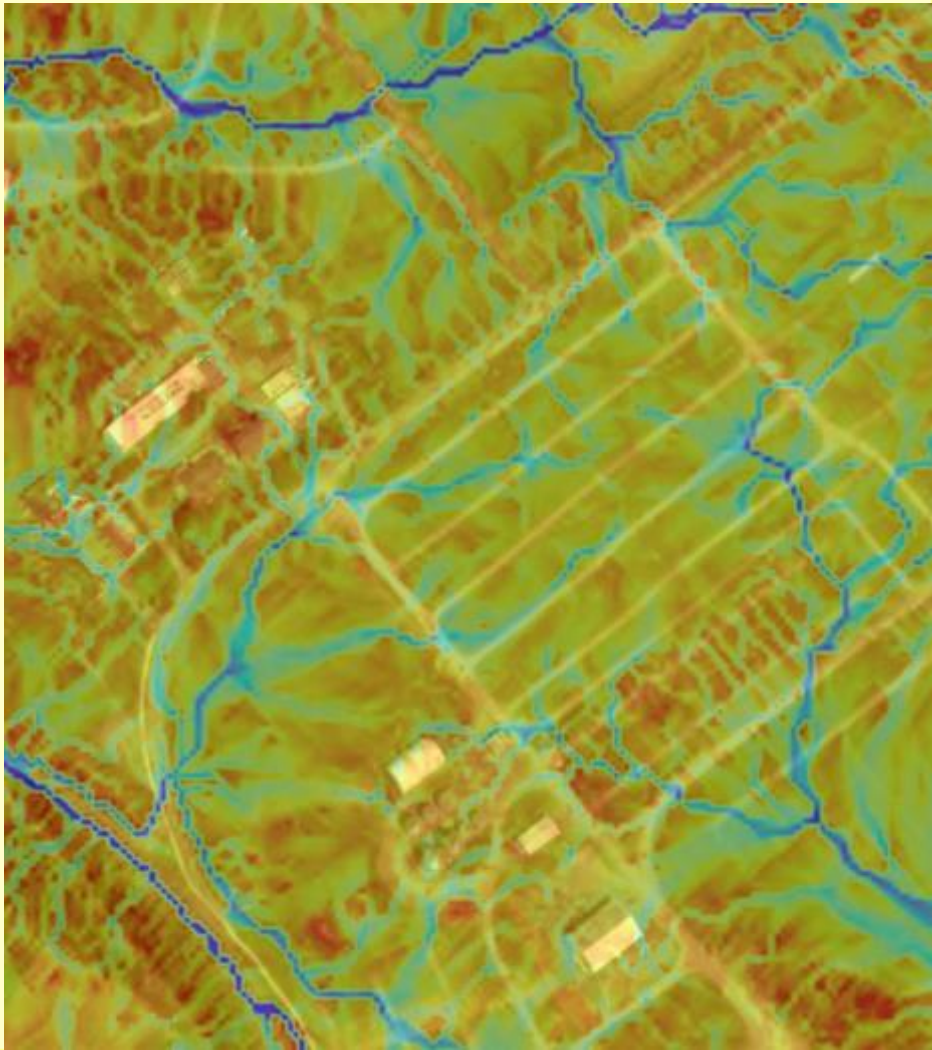
TWI



TWI Example #1

TOPO MAP

TWI



TWI Example #2: wooded road

TOPO MAP

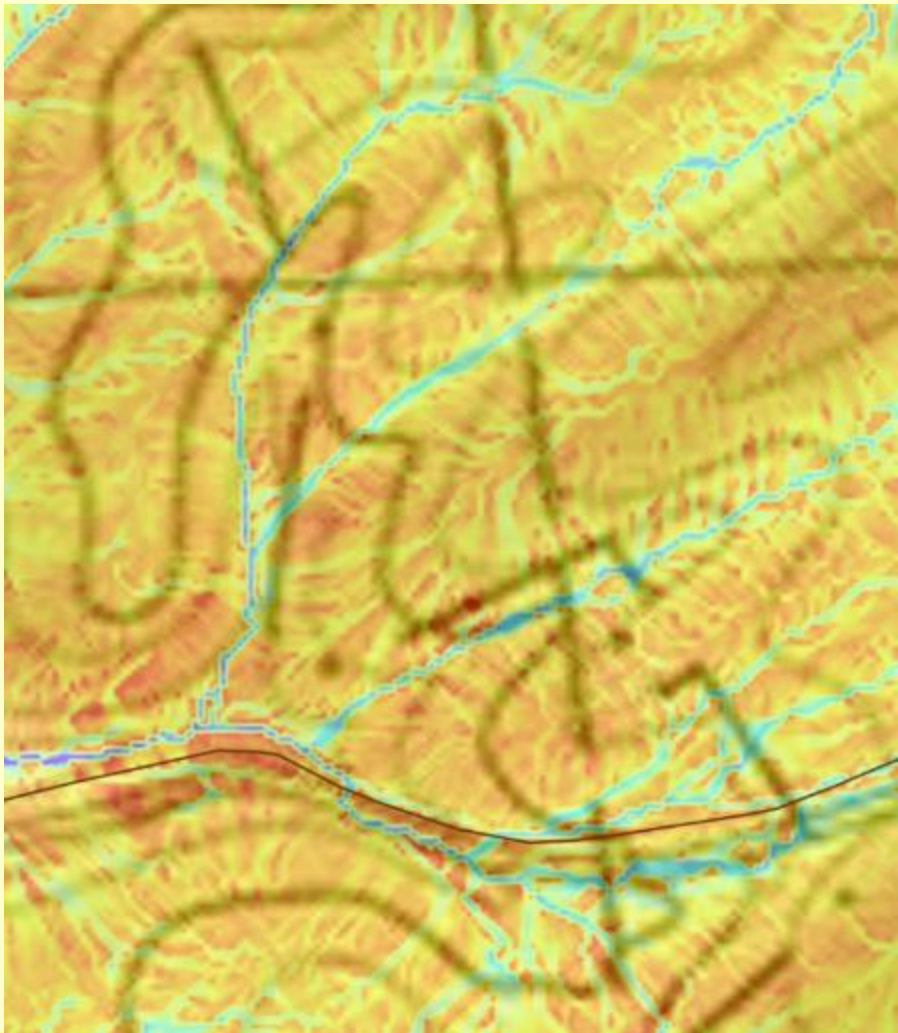
Red Rose Road
Huntingdon County

No “blueline” stream

TWI Example #2: wooded road

TOPO MAP

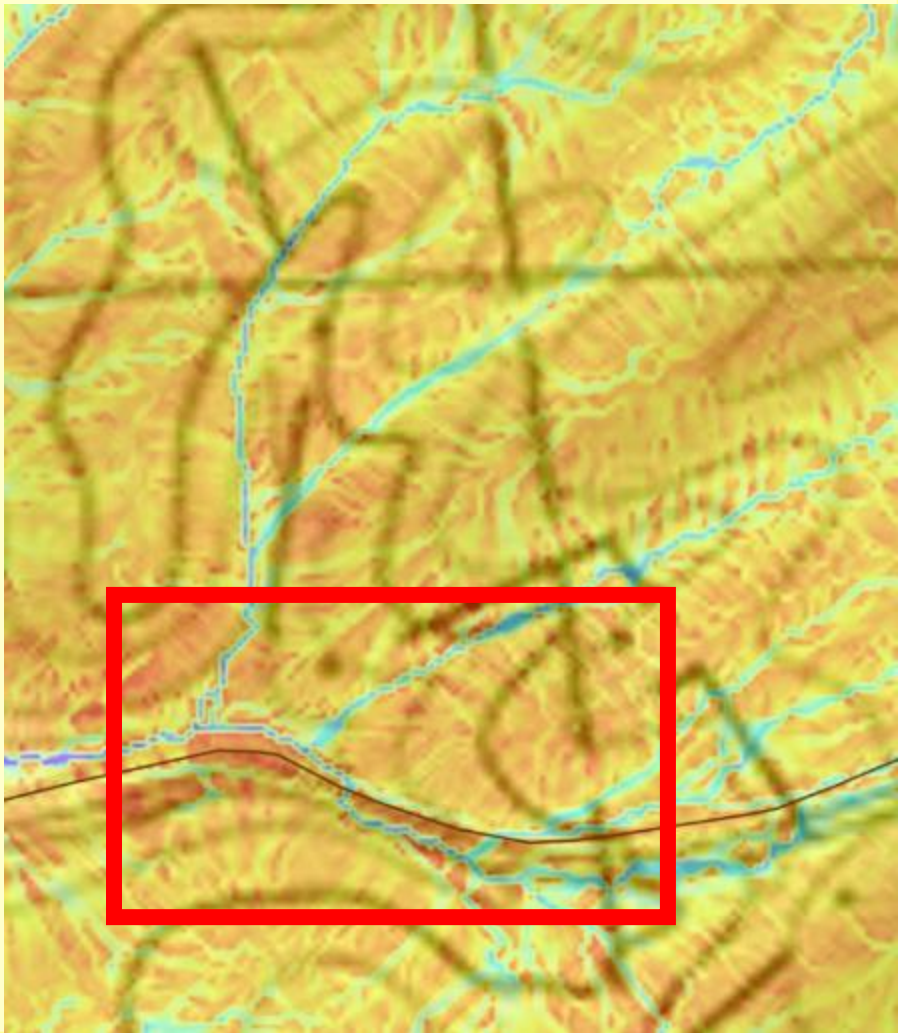
TWI



TWI Example #2: wooded road

TOPO MAP

TWI



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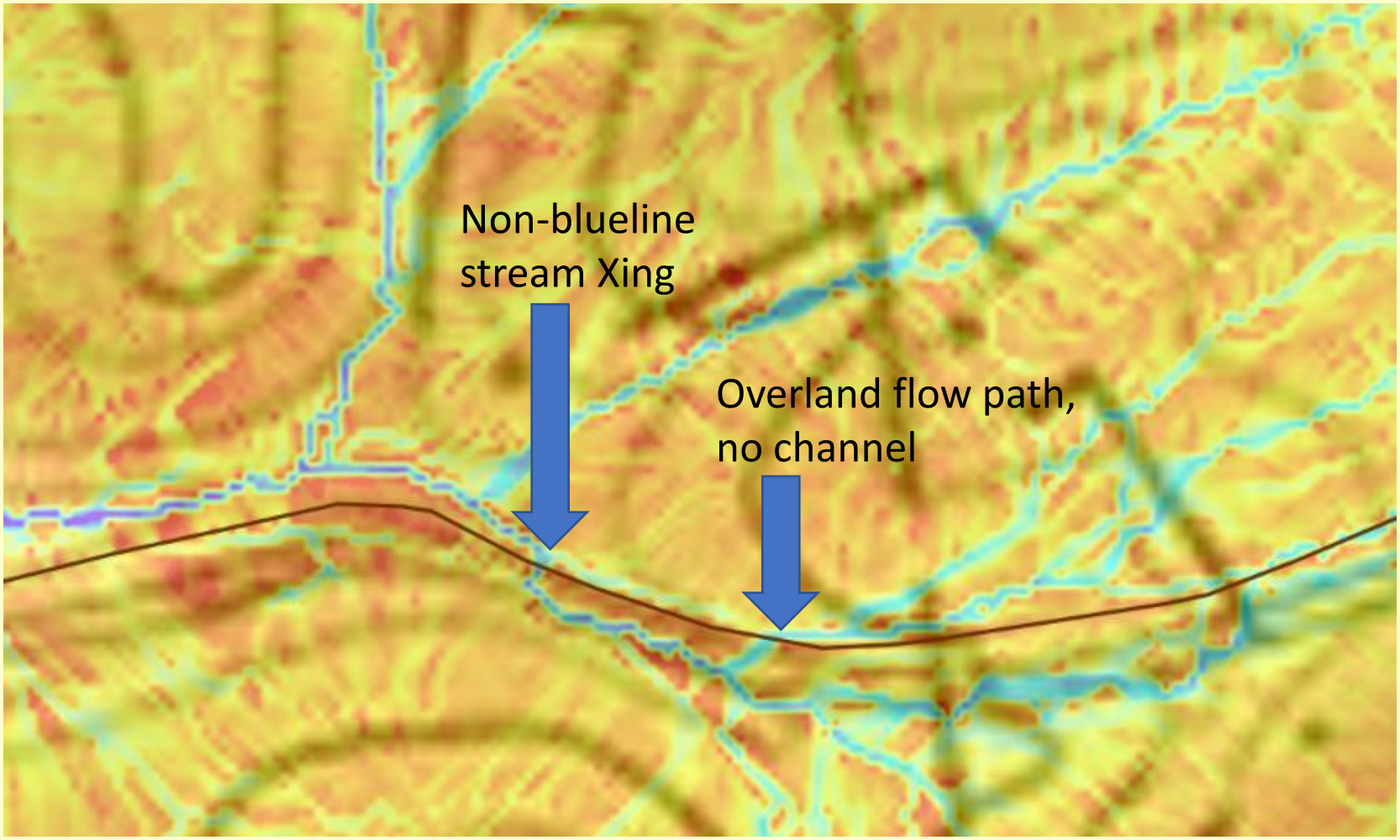
TOPO MAP

TWI



TWI Example #3: agriculture road

Aerial

Ag Progress Days
Centre County

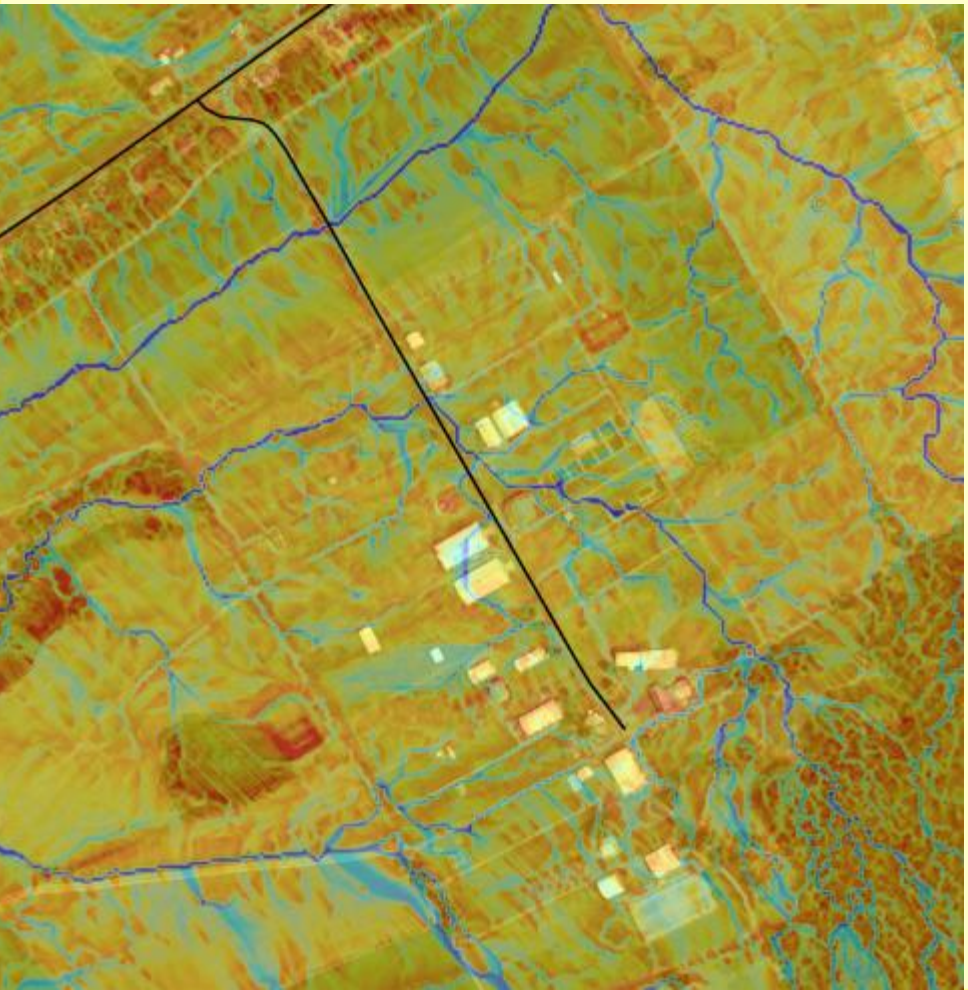
TWI Example #3: agriculture road

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 / Project Error Checker / Financial

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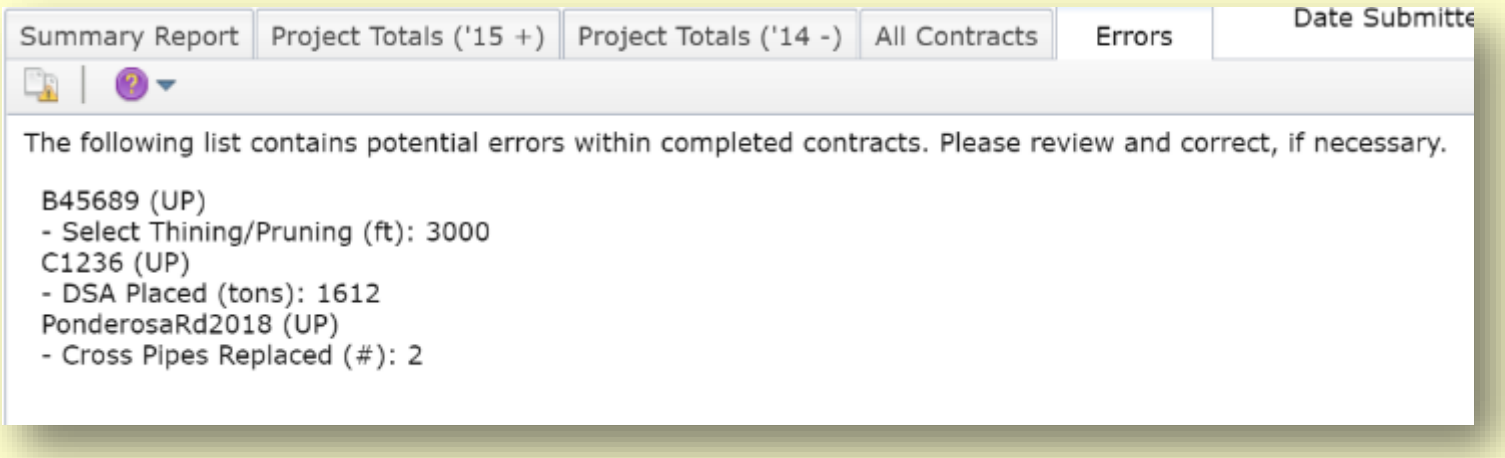
Project Errors

- **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



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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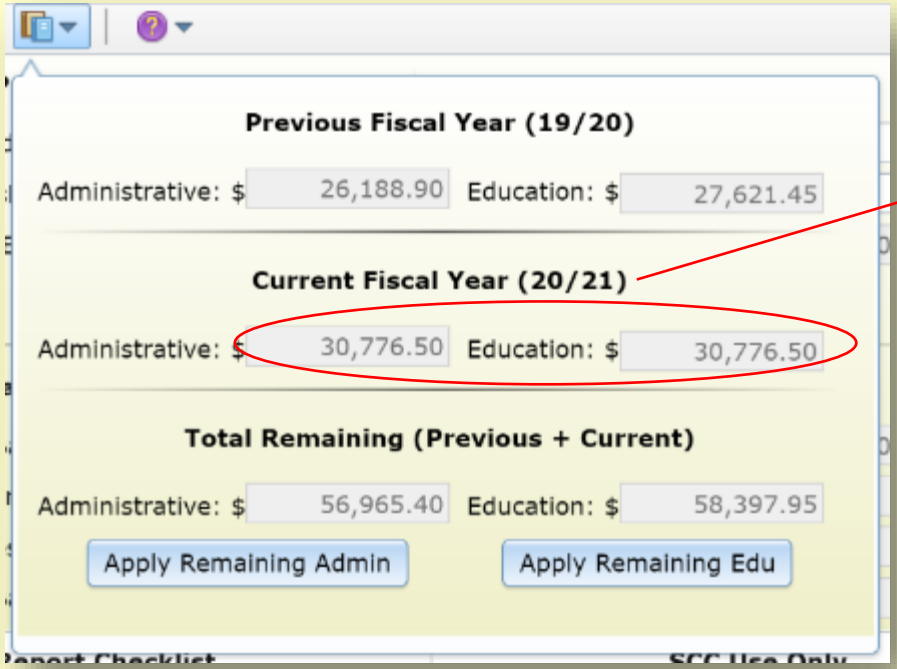
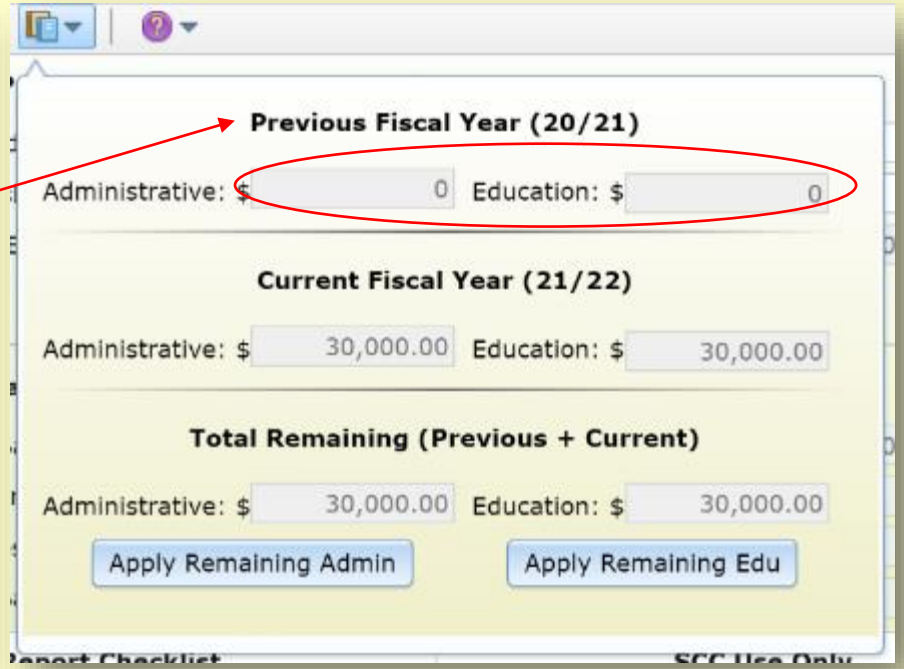
Financial Updates

- 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.**





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.

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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 – 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, 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 Volume Road Program

WEBINAR

GIS Updates

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