Determination of Coverage from GPS Tracks

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Appalachian Search and Rescue Conference

Objective

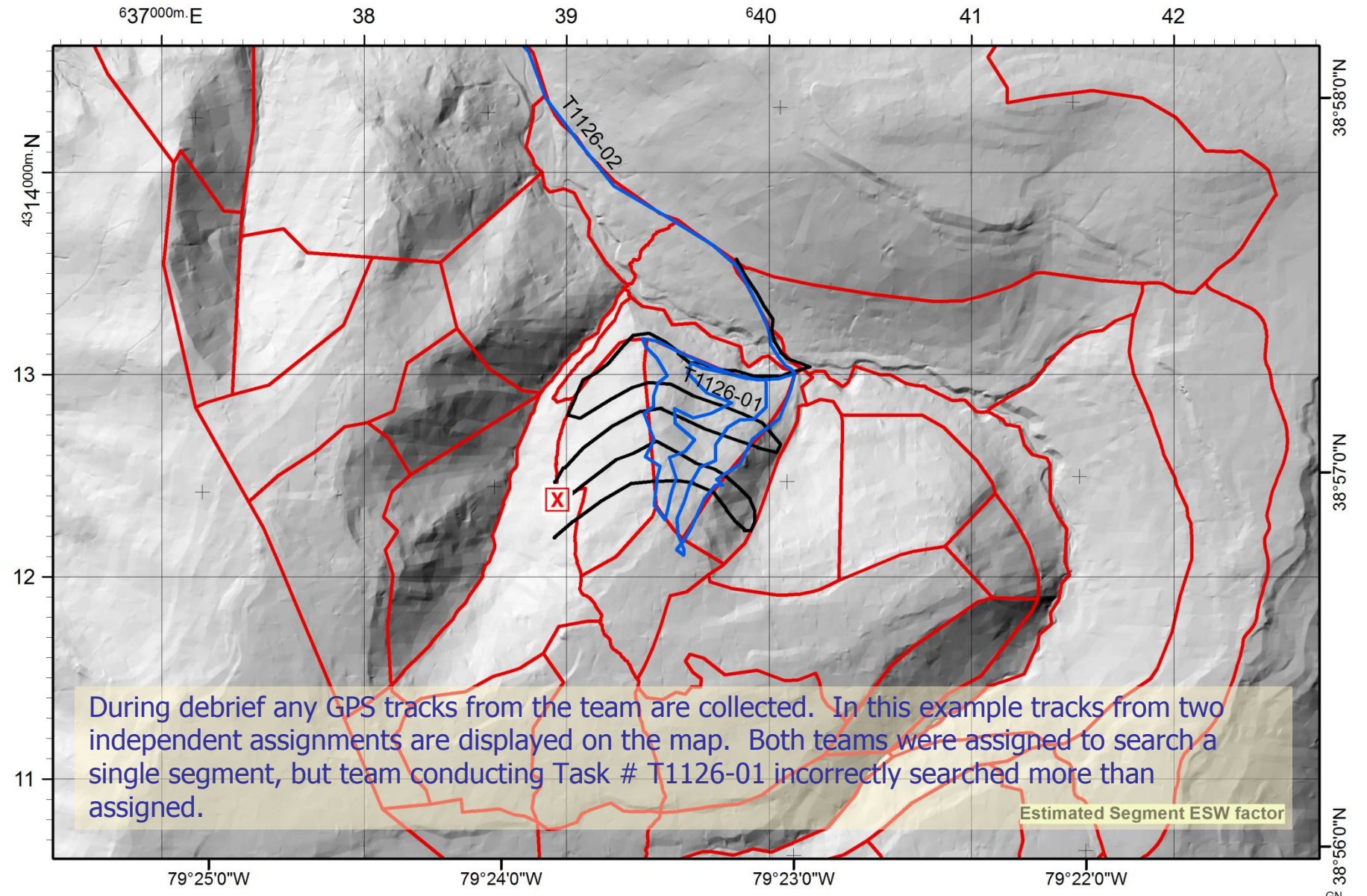
- Use GPS tracks, operational team information and search segment/probability region details to calculate the ratio of area search to area of the segment or region.
- Coverage provide a more accurate description of how well the team performed than a Team Leader estimate of POD.
- Often times teams accidentally or purposefully search outside of their assigned search area. Using POD for their assignment does not credit the unassigned areas for being searched

Map Name:

Mission Name: DollySods_Autistic
Mission Number: WV200810126A

Planning #:
Task #:

Date: 1/11/2012



ArcGIS provided by

1:25,000

0 500 1,000 Meters

CONTOUR INTERVAL 20 FEET

GRID EXAMPLE
READ RIGHT THEN UP
UTM: 17N 060245 438963
USNG: 17S PD 0245 8963

US National Grid	Grid Zone Designation
100,000-m Square ID	
PD	17 S

Map Datum: WGS 1984

TO CONVERT FROM MAP TO COMPASS BEARING ADD MN ANGLE.

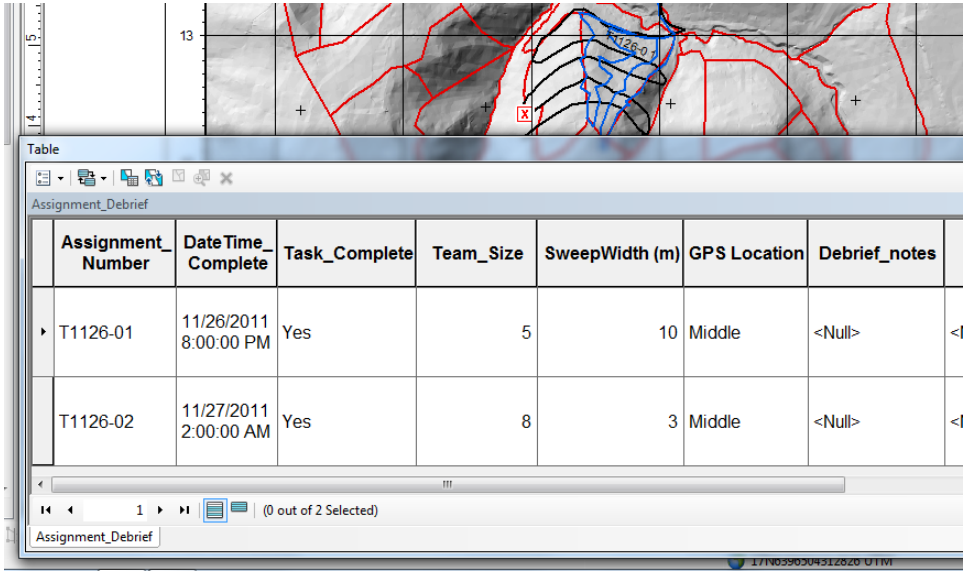
TO CONVERT A COMPASS BEARING TO A MAP SUBTRACT MN ANGLE.

GN
MN
9 DEG

Team Debrief

- During the debrief GPS tracks are downloaded and debrief information is collected.
- Data collected includes:
  - Team Size
  - Sweep Width (m)
- These data are used to create a buffer around the GPS track eventually used to calculate Coverage

$$Coverage = \frac{Area\ Searched}{Segment\ Area}$$



Coverage Tool

- Tool is located in the SAR_Toolbox under Operations
- Only input is "Workspace"
  - Uses the following as inputs
    - Routes_Line – GPS tracks, Debriefing, Search_Segments, Probability_Regions
    - Several other features are created during the process but deleted.
- During the running of the process the Assignment Numbers being process are displayed on screen.
- Next slides walk through the process performed by the Coverage Tool. The end-user will not see these individual steps only the end product.

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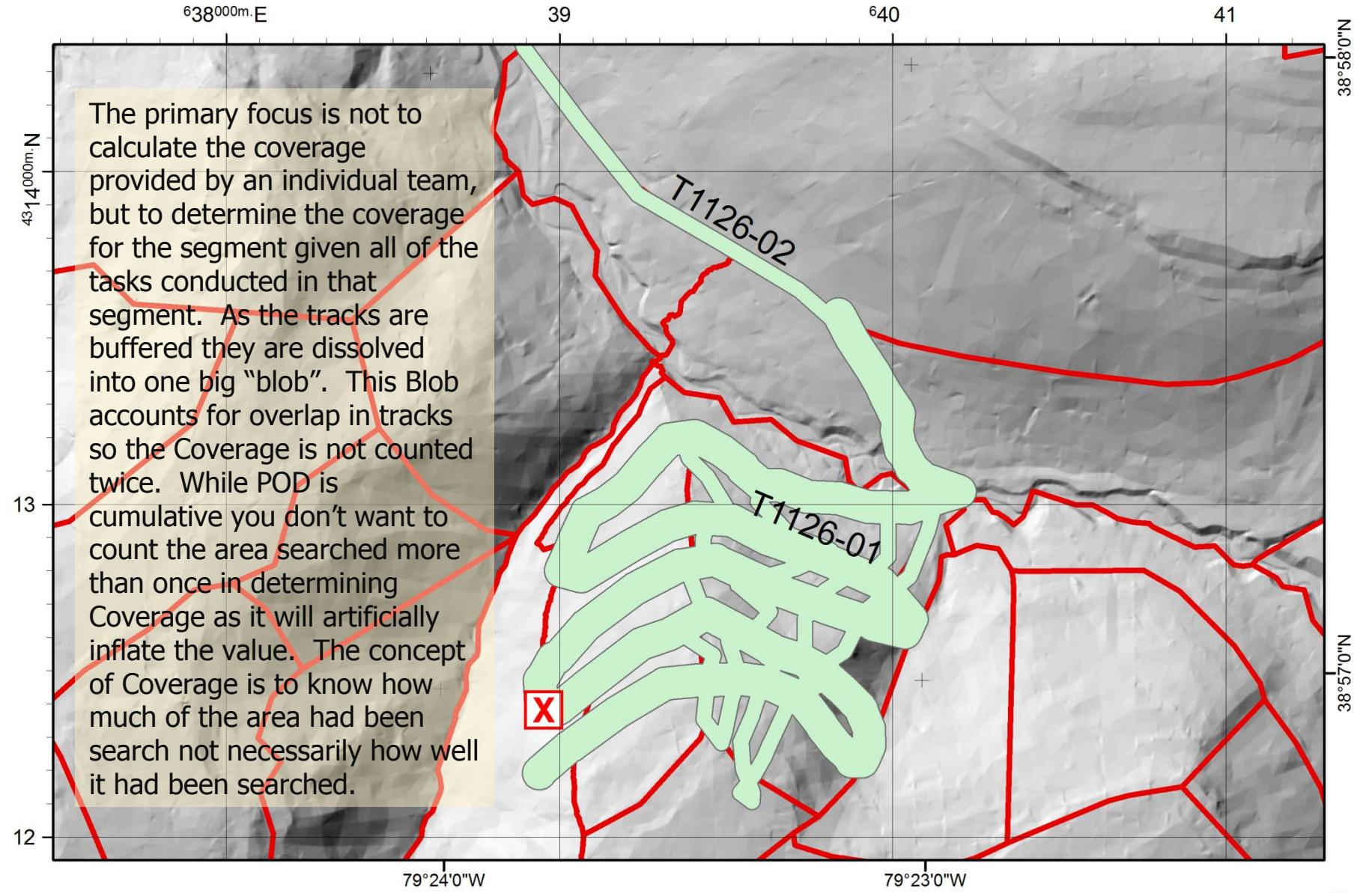

ArcGIS provided by ESRI

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CONTOUR INTERVAL 20 FEET

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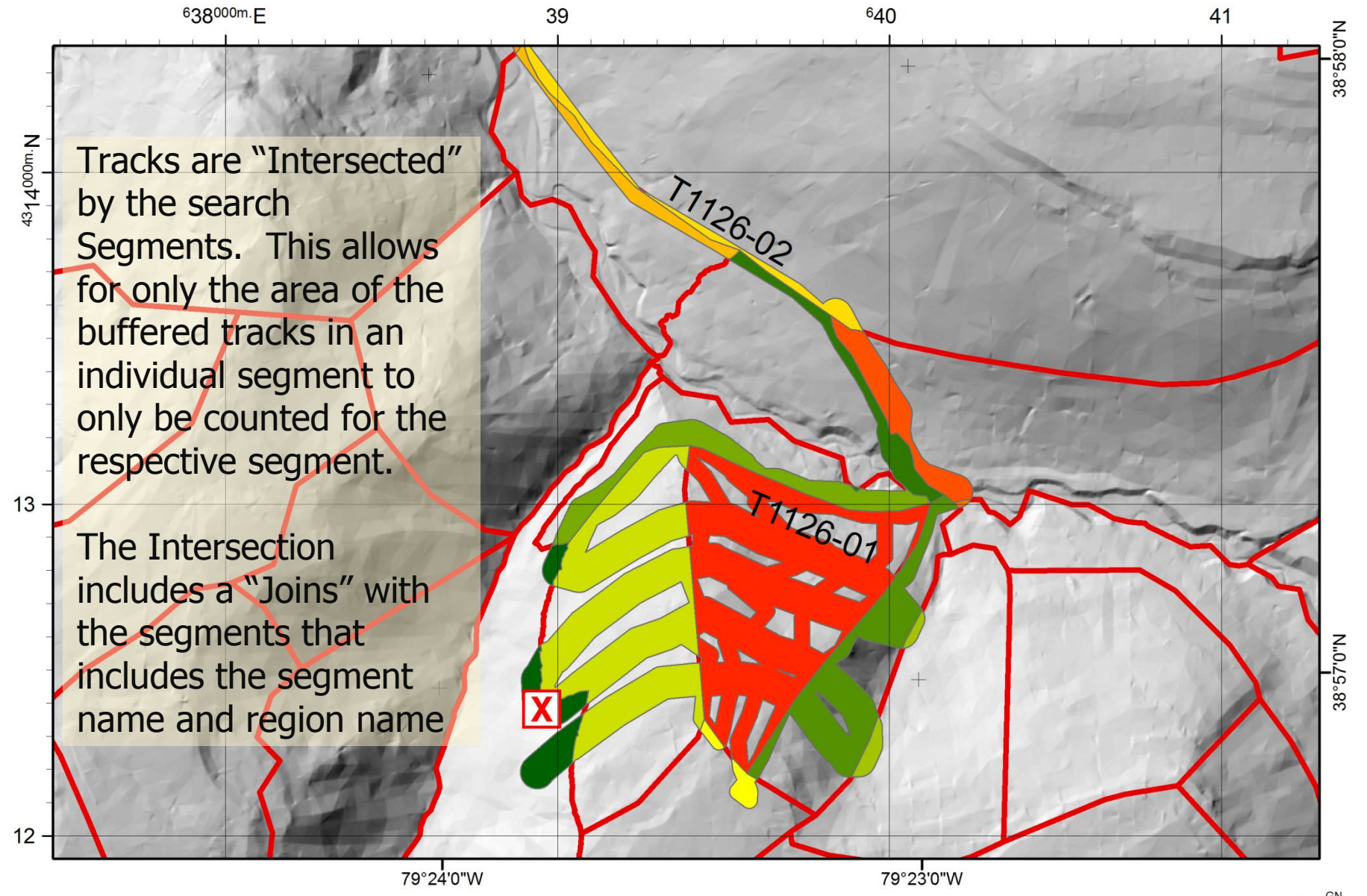

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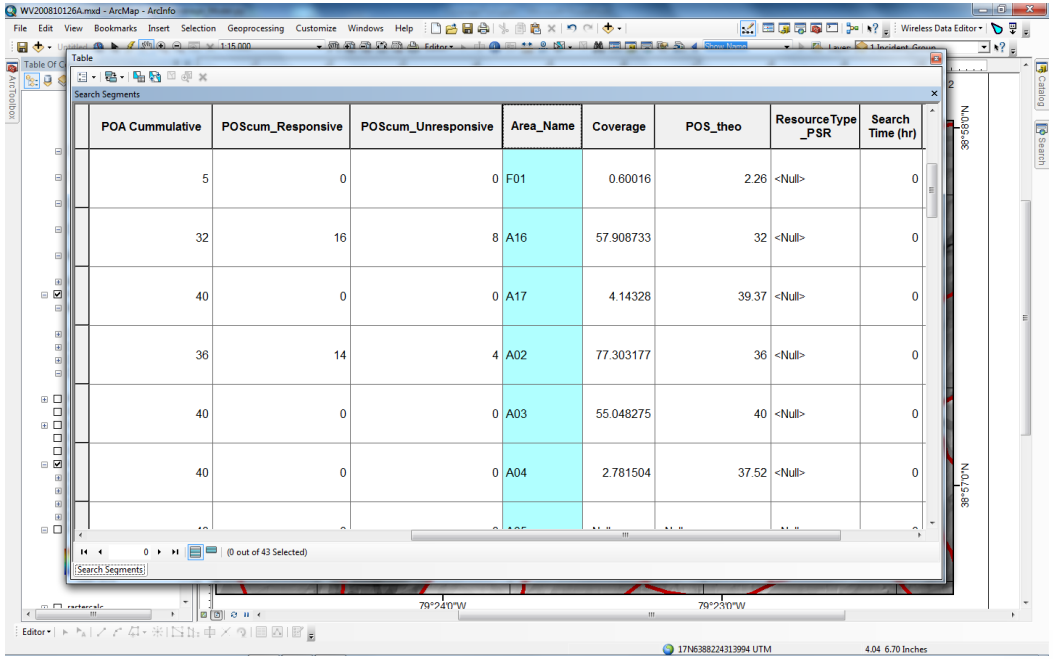
Coverage Tool

- The area of the Intersected-Buffered tracks is calculated and recorded in the Search_Segment feature class.
- POD is only provided by the team for the segment assigned but Coverage is calculated for any segment they entered
- The intermediate layers created during processing are deleted.



Coverage for Probability Regions

- The process continues to calculate the Coverage for the Probability Regions