



## **Topographic Maps for Land Navigation and Global Positioning Satellite Requirements**

1. **Purpose:** This page holds links to maps that may be used by scouters and scouts to learn and apply land navigation and utilize Global Positioning System (GPS) to navigate. These maps provide a resource to be used when camping at the camp sites they are made for. In order to conduct orienteering, land navigation, and understanding and applying GPS and Military Grid Reference System (MGRS) for determining location in the eastern North Carolina region, maps are required to conduct training or meet rank requirements (see paragraph 5).

2. **Problem being solved:** The topographic maps are based off of U.S. Geological Survey (USGS) 1:24,000 7.5 minute series maps. These maps are available to download for free at <https://store.usgs.gov/map-locator>. The drawback with using these maps is the USGS maps are 26in x 33in and cover approximately 150 km<sup>2</sup>. Providing this size map to scouts is problematic. If ordered hard copy maps from the USGS, the maps cost ~\$15.00 each. Also, most campsites which troops use are at most 6 km<sup>2</sup>, which means most of the map is irrelevant to the task at hand. Additionally, in some cases, campsites lie on the seam between two maps, thus doubling or quadrupling the maps required to conduct training. By zooming in on the immediate area of the camping site, and where required, combining map sheets to form one map, a map that is easily printed for handing out to scouts is built with all required periphery information to conduct land navigation using a map of the area they are actually camping or hiking in.

In many cases, areas we camp near the coast have very little terrain to assist the scouts in understanding the lay of the land in regards to their map. For this reason, a composite map of USGS topographic map and aerial imagery (from NAIP ARCGIS <https://www.arcgis.com/home/webmap/viewer.html>) is also provided.

3. **What is provided:** The maps contained in this collection are designed as a resource to accomplish rank requirements and merit badge requirements at the Scout reservations within the Eastern North Carolina Council and for other camping areas that are regularly used by troops to camp during their scouting year. All maps are provided as Adobe Portable Document Format (PDF) to ensure maximum cross-platform compatibility.

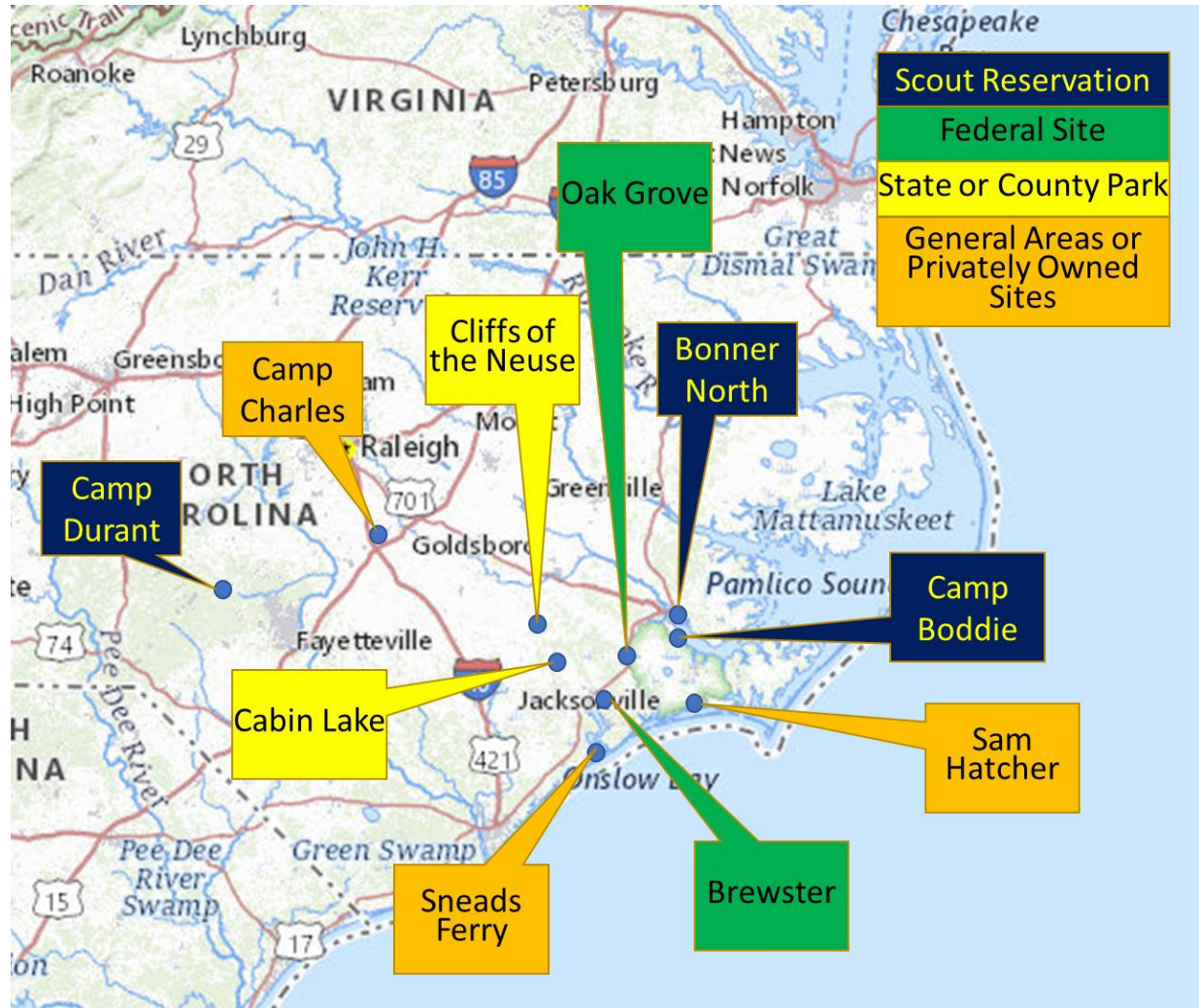
Most locations covered have two separate files to provide maps:

a. A **poster-sized map** (sized at ~3ft x 3ft) are meant as a teaching aide for instruction and demonstration. and a sheet sized map.

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b. A **single sheet-sized maps** (sized at 11in x 17in or 8.5in x 11in) are meant to provide an easily available printable map to provide to each scout.

4. **Map Sets Available:** The below map indicates areas for which maps have been developed: Not all have both poster size and handout size, but you can always print to the size desired.



### 5. Rank Requirements associated with maps:

#### a. Second Class Requirements:

3a: Demonstrate how a compass works and how to orient a map. Use a map to point out and tell the meaning of five map symbols.

3b. Using a compass and map together, take a 5-mile hike (or 10 miles by bike) approved by your adult leader and your parent or guardian.

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## b. First Class Requirements:

4a. Using a map and compass, complete an orienteering course that covers at least one mile and requires measuring the height and/or width of designated items (tree, tower, canyon, ditch, etc.).

4b: Demonstrate how to use a handheld GPS unit, GPS app on a smartphone, or other electronic navigation system. Use GPS to find your current location, a destination of your choice, and the route you will take to get there. Follow that route to arrive at your destination.

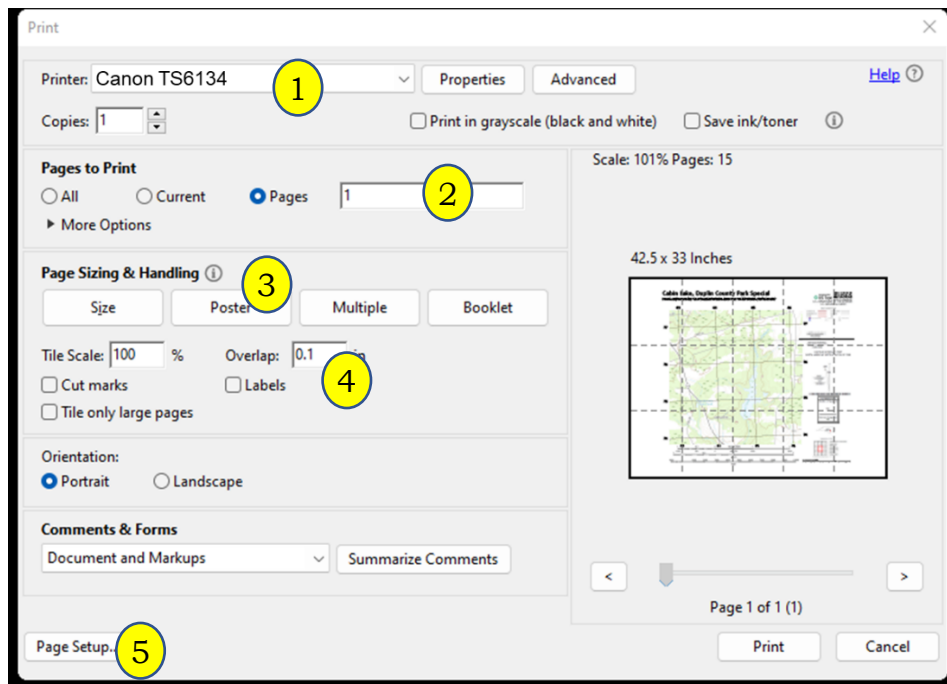
## c. Star Scout Requirements:

6. While a Star Scout, use the Teaching EDGE method to teach another Scout (preferably younger than you) the skills from ONE of the following choices, so that the Scout is prepared to pass those requirements to their Scoutmaster's satisfaction.

- c. Second Class 3a and 3d (navigation)
- e. First Class 4a and 4b (navigation)

## 6. Printing out maps.

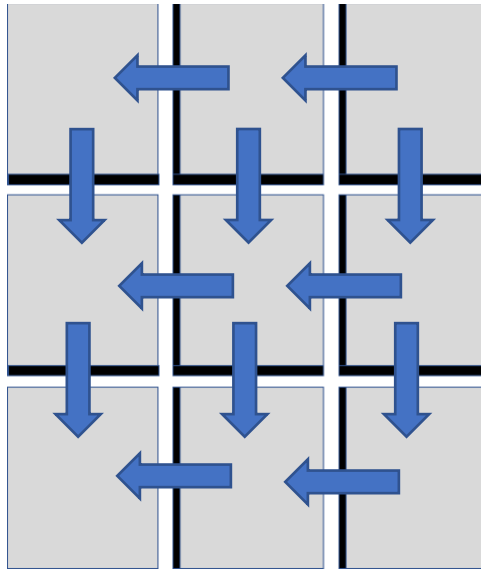
a. To print out the poster sized maps on normal printers, you will need to use the PDF print screen to set up printing on multiple sheets of paper. Recommended setting information is below:



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- (1) **Select your printer.** Ensure it is set to print on one side only.
- (2) Specify the page you want to print out if you only want one of the pages.
- (3) Select the “Poster” box.
- (4) Select an Overlap of 0.1 to 0.2 to ensure you have some overlap to align images and sheets.
- (5) If you have the ability to print on larger paper (e.g., 11 x 17), select that size paper using the “Page Setup...” button.

b. After printing out, cut the edges of each page slightly into the printed section (this is why you set an overlap) to create a full bleed. Remember, you do not have to cut all edges, but you have to coordinate what edges to cut. In the below examples, the black areas of nine pages represent areas to be trimmed prior to assembly to allow appropriate overlap. Arrows show the pages trimmed edges are situated on top of another pages non-trimmed edges.



c. After cutting, lay out images and when two sheet are aligned to your satisfaction, use two small pieces of scotch tape to tac them together. Continue to put the entire piece together with minimal tape on the front. Then carefully flip over and tape down all seams on the back. This will hold the map together while not putting a lot of shiny tape on the front.

7. Point of Contact: For questions, comments, or suggestions, text Mark Blanchard at 703-203-8461 or call and leave message.