

NAVIGATION BASICS FOR FRONTIER ADVENTURE CHALLENGE COMPETITORS

Frontier would be remiss to not include a navigation component in the Frontier Adventure Challenge Series due to its fundamental role in the sport of adventure racing. After all, exceptional skill at navigation often separates the good teams from the elite. This is why we offer a series of Navigation for Adventure Racing courses each year – see www.far.on.ca for more details.

First Tip: DO NOT PANIC!!! In this Series, we are striving to open up multi-sport wilderness racing to more people and expose participants to all the components of adventure racing. Therefore, the focus of the navigation component within the context of the Frontier Adventure Challenge Series race experience is to touch on the basics and have participants put theory into practice.

With that in mind, teams **DO NOT** need to be experts at using a map and compass. While the racecourse is unmarked and there may be sections where following a bearing is necessary, teams will **not** get hopelessly lost in a Frontier Adventure Challenge Series race. That said, even the best athletes will not finish well if they don't make thoughtful navigational decisions – going the wrong way quickly versus the correct way moderately-paced will not win the race!

It would be to your team's advantage to do some brief, preliminary research on basic map reading and compass skills. For example, most compasses come with a short instruction sheet, there are several internet sites on orienteering and navigation, and there are several books on the subject (eg. [The Essential Wilderness Navigator](#); David Seidman; McGraw Hill). There is much to learn about navigation (hence, Frontier's Navigational Instruction Courses) and even the top adventure racers in the world are continually perfecting their skill.

The following outlines a basic framework of navigational information to help your team reach each checkpoint in the coming Frontier Adventure Challenge racecourse. Like any skill, the more you practice, the faster and more efficient you will become when navigating.

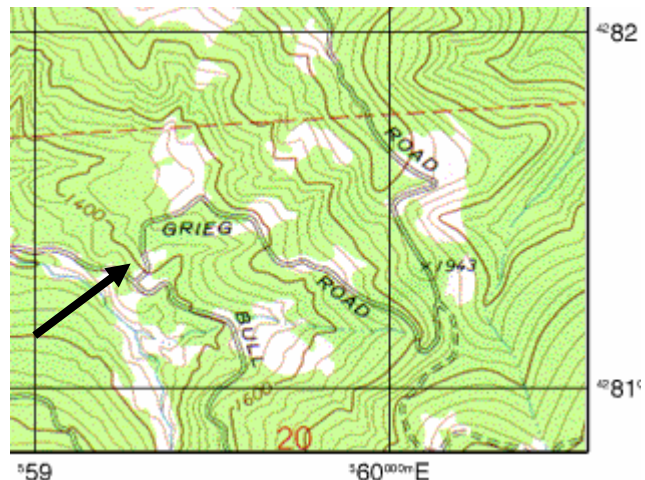
A. Labeling the Checkpoints and Interpreting the UTM Grid System

When the map(s) and course description are distributed at the Competitor Briefing, each checkpoint will need to be labeled on the map(s). It is important to put them in the correct place otherwise you may spend time on the racecourse looking for a checkpoint that isn't there! Frontier staff will be available to aid your team in the process of plotting checkpoints but we will not give any unfair advantage by correcting mistakes or reviewing plotting decisions.

The checkpoints will be written as a six-digit number known as a UTM grid reference (eg. 593813). Using these numbers and the UTM grid system on the map(s) provided, you will mark all the points on the map and label them as the series of checkpoints that comprise the racecourse. The course description aids in the reality check of the decisions you make during the race.

The six-digit number should be thought of as two sets of three digits – the first three are called your 'Easting' and the second set of three is your 'Northing'. The first two numbers in each set of three (eg. '59' and '81') point you to a square on the map. This is done by finding the vertical line across the map marked '59' (bottom, top, and middle of map) and cross-referencing it with the horizontal line marked '81' – this is the bottom-left of the square you are after.

On this square, the horizontal and vertical lines should be mentally divided into ten equal parts (create a mental grid within the square). Now use the other two numbers in each set of three digits (eg. '3' and '3') – again, the first '3' refers to the horizontal and the second '3' is the vertical. Counting three mental lines



to the right and three mental lines upward will give you the intersection/checkpoint you are after. In this case, the checkpoint is at the intersection of Bull Road and Grieg Road. **NOTE:** *Frontier CPs are ALWAYS located at a highly distinguishable feature.*

B. Orient Your Map

There may be a point during the race when your team is unsure of where you are or where you need to go. It is a good idea at this point to orient your map. Orienting the map means to point all the vertical lines on the map to the north (eg. matching grid north on the map to grid north in reality). This may help to locate and identify features (eg. hills, streams, roads) and point you in the correct direction.

For the purposes of the Frontier Adventure Challenge Series, this is done by aligning the left or right edge of your compass along the vertical lines on the map and turning your body (compass **ON** the map held in front of you) until the red arrow of the compass needle is in the red arrow painted on the base plate of the compass. Your map is now oriented as north on the map is north in reality.

C. Setting a Bearing

As mentioned previously, there may be a section when you have to go off-trail to find the next checkpoint. This is a case when it is a good idea to set a bearing so that you don't travel off course. You will likely notice an off-trail section when you are plotting the checkpoints following the competitor briefing – this is the best time to calculate the bearing you will need to travel on (the less time spent calculating during the race the better).

For the purposes of the Frontier Adventure Challenge Series, Frontier staff will provide assistance in helping to pre-set a bearing using **declination** (described below) for a particular point on the racecourse should the need arise.

D. Reading Features and Contours

The easiest, and most times, most useful way to find yourself on the map is to identify distinguishable features in your line of sight in the real world and then find them on the map - it helps to become familiar with the map legend to do this well (eg. rivers, roads, paths, swamps, man-made structures). For example, if your team needs to go off-trail to reach the next checkpoint, it helps to know that you must cross two streams and go by a swamp (as identified on your map) before intersecting the correct trail. The more often you do this, the easier it becomes to translate between the real world and a map.

Contour reading is an addition to feature reading but is important enough to merit its own description. Contours are lines (usually brown) on the map that indicate elevation and is the map's way of illustrating a three-dimensional world on a flat piece of paper. Each contour line on a map is at an above-sea-level height and are separated from other contour lines by a defined interval as specified in the map's legend. For example, your team can figure out where you need to go by noticing a long embankment in the real world and applying it to what you see on the map (eg. closely spaced contour lines).

E. Declination

Declination is often viewed as a 'scary' topic in navigation but **DO NOT WORRY** – we only include it here as a part of the learning process and because it would be remiss not to. Declination is the difference between Grid North and Magnetic North – **Yes, there is a difference!** Stated another way, declination is the difference between what your map says is north and what your compass needle says is north. For the purposes of the Frontier Adventure Challenge Series, this is all you need to remember. In fact, we will inform everyone at the race briefing of the racecourse's declination (also listed on each team map) and how to account for it during the race. As a suggestion, if you are purchasing a compass, ask for one with a declination screw – you can adjust such a compass so that it accounts for an area's declination automatically.

It is worth reading up on Magnetic versus Grid North (eg. http://www.geolab.nrcan.gc.ca/geomag/e_magdec.html) for your own interest but once again, please remember that your team **WILL NEVER GET HOPELESSLY LOST** in a Frontier Adventure Challenge race! (eg. 90% of all teams have historically reached the finish line).