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## HOW TO READ TRUE ELEVATION IN **FEET, TENTHS AND HUNDREDTHS**

### **YELLOW BACKGROUND – BLACK NUMBERS**

1. Set rod foot on a benchmark or hub with a known elevation; i.e. 2,525.25 elevation.
2. Run the laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector. If you are using an optical instrument, site to the rod and use the horizontal line as your grade reference.
3. Loosen the tape lock pin (lower knob) and disengage the tape pin from the grommet.
4. Roll the tape face until 5.25 is across from the pointer on the laser detector bracket, or the horizontal line on your optical instrument. You are using the last whole number and the decimal numbers of 2,525.25.
5. Lock the tape by engaging the tape lock pin into the nearest grommet. Then tighten the knob. You have now locked into the rod elevation (2,525.25). All future readings will be true elevation above or below 2,525.25 (5.25).
6. To find an elevation, simply set the rod foot at any location on the job within the range of your laser or optical instrument. Run the detector and / or front rod section up or down until you pick up the “on grade” signal from your detector. Read the number opposite the pointer. That number is your true elevation. If using an optical instrument, just read the number across the horizontal line. That number is your true elevation.

#### **EXAMPLE:**

Rod reading is 6.10 = 2,526.10 true elevation  
Rod reading is 8.32 = 2,528.32 true elevation  
Rod reading is 4.70 = 2,524.70 true elevation

## HOW TO READ CUT & FILL IN **FEET, TENTHS AND HUNDREDTHS**



1. Set rod foot on the elevation you wish to use as your reference; i.e. finish grade, subgrade, etc.
2. Run laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector.
3. Loosen the tape lock pin (lower knob) and disengage the tape lock pin from the tape grommet.
4. Roll the tape until the laser detector pointer is at zero (between the blue and red sections).
5. Lock the tape by engaging the tape lock pin into the closest grommet, then tighten the knob.
6. To determine the amount of cut or fill at any location within the range of your laser, set the rod down and find the “on grade” signal with your laser detector. Read across from the detector pointer and the tape will tell you how much to cut or fill.

### EXAMPLE:

Rod reading is in “**BLUE**” section 1.75 feet. Existing grade is too **LOW**.  
You **FILL** 1.75 feet to get up to grade.

Rod reading is in “**RED**” section .80 of a foot. Existing grade is too **HIGH**.  
You **CUT** .80 of a foot to get down to grade.

## HOW TO READ “METRIC” TRUE ELEVATION

### YELLOW BACKGROUND – BLACK NUMBERS

The GR 1000 Series rods have a total working range of 3 meters elevation. The tape is a continuous loop having three one meter sections designated by:

- ONE DOT**      •
- TWO DOTS**    ••
- THREE DOTS** •••

1. Set rod foot on a benchmark or hub with a known elevation; i.e. 168.50 elevation.
2. Run the laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector. If you are using an optical instrument, site to the rod and use the horizontal line as your grade reference.
3. Loosen the tape lock pin (lower knob) and disengage the tape pin from the grommet.
4. Roll the tape face until 5 is across from the pointer on the laser detector bracket. You are using •• as 168. Meters and the decimal number of .5 to equal 168.50.
5. Lock the tape by engaging the tape lock pin into the nearest grommet. Then tighten the knob. You have now locked into the rod elevation (168.50). All future reading will be true elevation above or below 168.50.
6. To find an elevation, simply set the rod foot at any location on the job within the range of your laser. Run the detector and / or front rod section up or down until you pick up the “on grade” signal from your detector. Read the number opposite the pointer. That number is your true elevation.

#### EXAMPLE:

Rod reading is 1.5 = 167.15 true elevation

Rod reading is 2 = 168.20 true elevation

Rod reading is 7 = 169.70 true elevation

**Note:** If you are using a GR 1450 series five-meter rod, it will have five sections: •, ••, •••, ••••, •••••. Set your initial elevation using the ••• section.

## HOW TO READ **METRIC** CUT & FILL

**FILL****CUT**

1. Set rod foot on the elevation you wish to use as your reference; i.e. finish grade, subgrade, etc.
2. Run laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector.
3. Loosen the tape lock pin (lower knob) and disengage the tape lock pin from the tape grommet.
4. Roll the tape until the laser detector pointer is at zero (between the blue and red sections).
5. Lock the tape by engaging the tape lock pin into the closest grommet, then tighten the knob.
6. To determine the amount of cut or fill at any location within the range of your laser, set the rod down and find the “on grade” signal with your laser detector. Read across from the detector pointer and the tape will tell you how much to cut or fill.

### EXAMPLE:

Rod reading is in “**BLUE**” section 125 centimeters. Existing grade is too **LOW**.  
You **FILL** 125 centimeters to get up to grade.

Rod reading is in “**RED**” section 80 centimeters. Existing grade is too **HIGH**.  
You **CUT** 80 centimeters to get down to grade.



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## HOW TO READ TRUE ELEVATION IN **FEET, INCHES AND FRACTIONS OF AN INCH**

### **YELLOW BACKGROUND – BLACK NUMBERS**

1. Set rod foot on a benchmark or hub with a known elevation; i.e. 2,525 feet 4 1/4 inches elevation.
2. Run the laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector. If you are using an optical instrument, site to the rod and use the horizontal line as your grade reference.
3. Loosen the tape lock pin (lower knob) and disengage the tape pin from the grommet.
4. Roll the tape face until 5 feet 4 1/4 inches is across from the pointer on the laser detector bracket, or the horizontal line on your optical instrument. You are using the last whole number of 2,525 (which is 5 feet) plus the inches and fraction of an inch (which is 4 1/4 inches).
5. Lock the tape by engaging the tape lock pin into the nearest grommet. Then tighten the knob. You have now locked into the rod elevation (2,525 feet 4 1/4 inches). All future readings will be true elevation above or below 2,525 feet 4 1/4 inches (5 feet 4 1/4 inches) as read on the rod.
6. To find an elevation, simply set the rod foot at any location on the job within the range of your laser or optical instrument. Run the detector and / or front rod section up or down until you pick up the “on grade” signal from your detector. Read the number opposite the pointer. That number is your true elevation. If using an optical instrument, just read the number across the horizontal line. That number is your true elevation.

#### **EXAMPLE:**

Rod reading is 6 feet 5 3/4 inches = 2,526 feet 5 3/4 inches true elevation  
Rod reading is 4 feet 7 1/2 inches = 2,524 feet 7 1/2 inches true elevation

## HOW TO READ CUT & FILL IN INCHES



1. Set rod foot on the elevation you wish to use as your reference; i.e. finish grade, subgrade, etc.
2. Run laser receiver up or down the side of the rod and / or raise or lower front rod section until you get the “on grade” signal on your laser detector.
3. Loosen the tape lock pin (lower knob) and disengage the tape lock pin from the tape grommet.
4. Roll the tape until the laser detector pointer is at zero (between the blue and red sections).
5. Lock the tape by engaging the tape lock pin into the closest grommet, then tighten the knob.
6. To determine the amount of cut or fill at any location within the range of your laser, set the rod down and find the “on grade” signal with your laser detector. Read across from the detector pointer and the tape will tell you how much to cut or fill.

### EXAMPLE:

Rod reading is in **“BLUE”** section  $1\frac{3}{4}$  inches. Existing grade is too **LOW**.  
You **FILL**  $1\frac{3}{4}$  inches to get up to grade.

Rod reading is in **“RED”** section  $\frac{9}{16}$  of an inch. Existing grade is too **HIGH**.  
You **CUT**  $\frac{9}{16}$  of an inch to get down to grade.