



MISSOURI DEPARTMENT OF AGRICULTURE
 DIVISION OF WEIGHTS, MEASURES AND CONSUMER PROTECTION
 LAND SURVEY PROGRAM

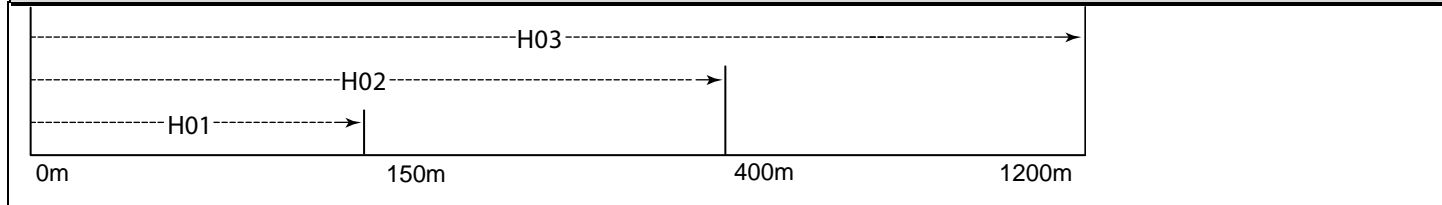
EDM CALIBRATION REPORT – LAKE CITY EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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INSTRUMENT TYPE, MODEL AND SERIAL NUMBER

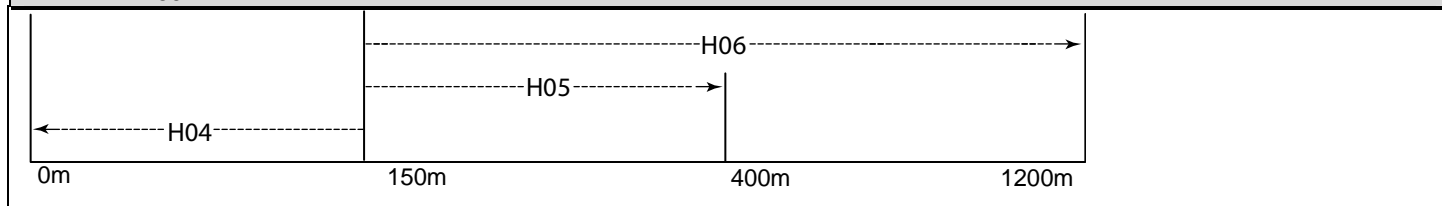
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m



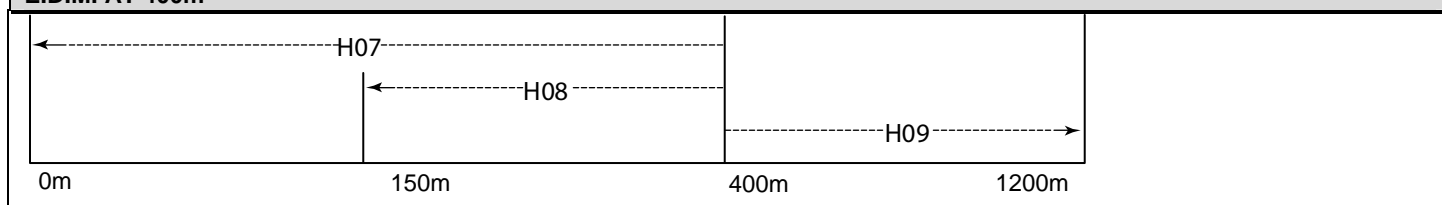
H01 =	H02 =	H03 =	TEMP
H01 = (150.0429m)	H02 = (400.0248m)	H03 = (1199.7801m)	❖ PRESS

E.D.M. AT 150m



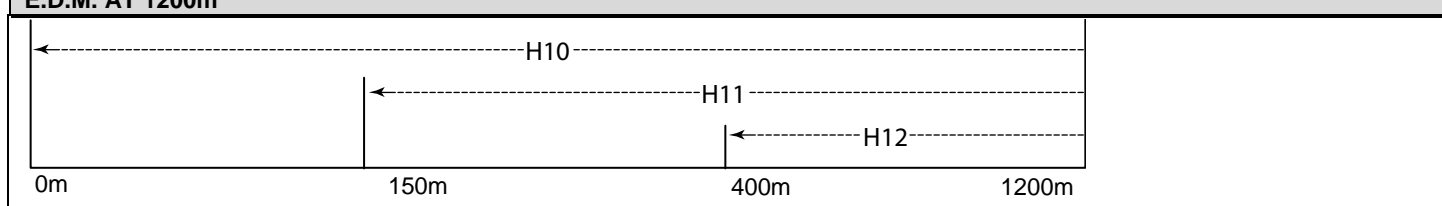
H04 =	H05 =	H06 =	TEMP
H04 = (150.0429m)	H05 = (249.9812m)	H06 = (1049.7372m)	❖ PRESS

E.D.M. AT 400m



H07 =	H08 =	H09 =	TEMP
H07 = (400.0248m)	H08 = (249.9812m)	H09 = (799.7552m)	❖ PRESS

E.D.M. AT 1200m



H10 =	H11 =	H12 =	TEMP
H10 = (1199.7801m)	H11 = (1049.7372m)	H12 = (799.7552m)	❖ PRESS

❖ Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.



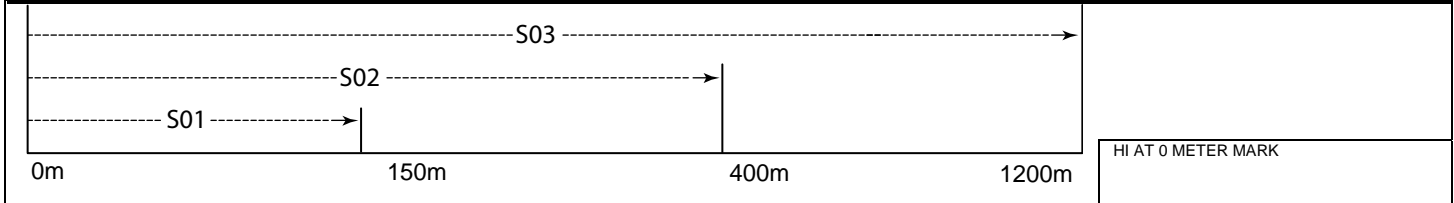
MISSOURI DEPARTMENT OF AGRICULTURE
 DIVISION OF WEIGHTS, MEASURES AND CONSUMER PROTECTION
 LAND SURVEY PROGRAM
EDM CALIBRATION REPORT – LAKE CITY EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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INSTRUMENT TYPE, MODEL AND SERIAL NUMBER

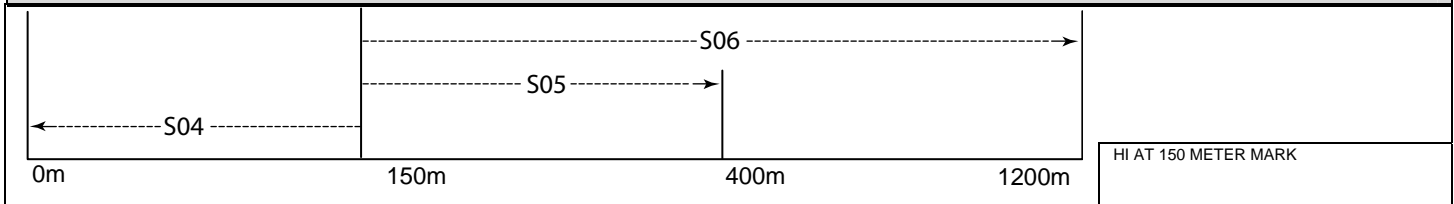
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m



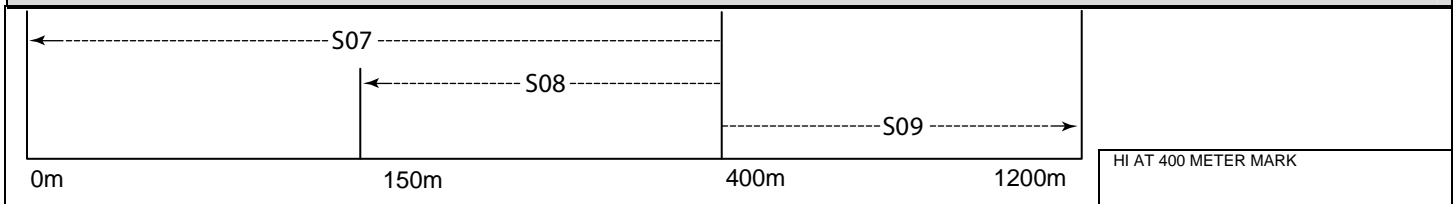
0m	150m	400m	1200m	HI AT 0 METER MARK
S01 =	S02 =	S03 =	TEMP	
H0 =	H0 =	H0 =	❖ PRESS	

E.D.M. AT 150m



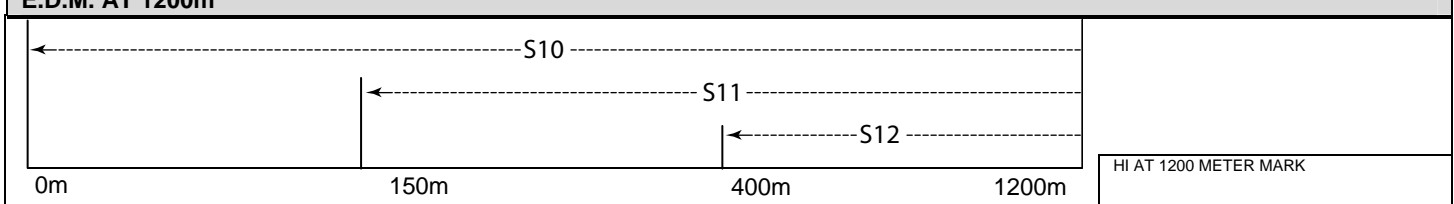
0m	150m	400m	1200m	HI AT 150 METER MARK
S04 =	S05 =	S06 =	TEMP	
H0 =	H0 =	H0 =	❖ PRESS	

E.D.M. AT 400m



0m	150m	400m	1200m	HI AT 400 METER MARK
S07 =	S08 =	S09 =	TEMP	
H0 =	H0 =	H0 =	❖ PRESS	

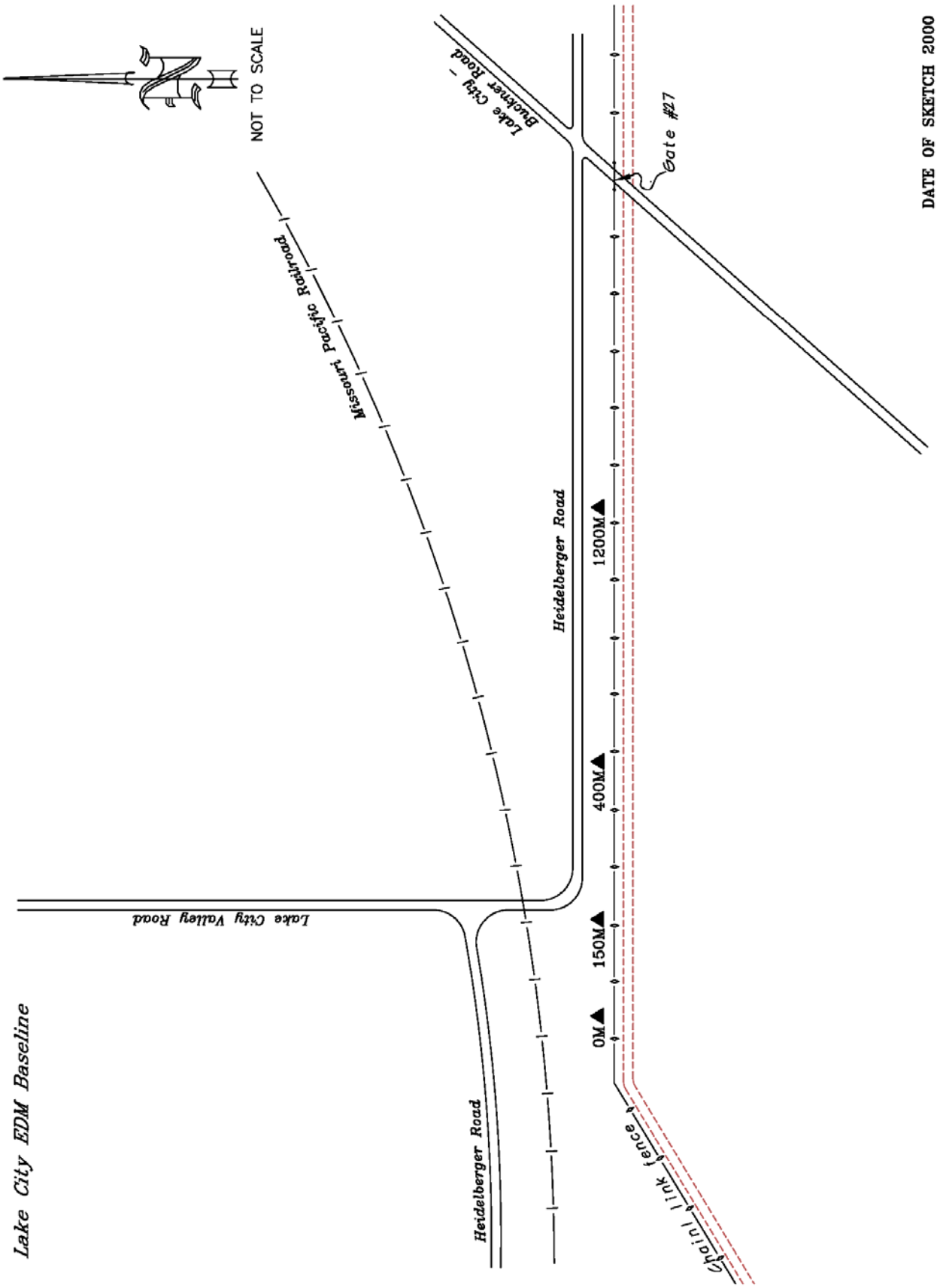
E.D.M. AT 1200m



0m	150m	400m	1200m	HI AT 1200 METER MARK
S10 =	S11 =	S12 =	TEMP	
H0 =	H0 =	H0 =	❖ PRESS	

Heights or delta elevations between monuments (referenced to NAVD88).
 0m = 228.81m 150m = 226.57m 400m = 225.54m 1200m = 224.83m
 ❖ Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

Lake City EDM Baseline



DATE OF SKETCH 2000

LAKE CITY BASELINE

Electronic Distance Measurement (EDM) Calibration Baseline Jackson County, Missouri

Established by the
Missouri Department of Agriculture
Division of Weights, Measures & Consumer Protection
Land Survey Program

in cooperation with the
Kansas City Metro Chapter of the Missouri Society of Professional Surveyors

2000

SPECIAL INFORMATION NOTE: Before using the Lake City EDM Baseline, the user is required to contact the Lake City Army Ammunitions Plant Security Office in person. The Security Office is located at the west entrance to the plant.

To reach the Lake City EDM Baseline from the intersection of Interstate Highway 70 and state Route 7 in Blue Springs, Mo., go north on state Route 7 for 5.3 miles to the traffic circle of state Route 7 and state Route 78, on the west side of the Lake City Army Ammunitions Plant. Continue north on state Route 7 for 1 mile to the intersection with Bundschu Road. Turn east and follow Bundschu Road for 1.2 miles to the intersection with N. Elsea Smith Road. Go south on N. Elsea Smith Road for 0.8 miles to a right angle intersection with E. Heildberger Road. Go east on E. Heildberger Road for 0.8 miles to the intersection with N. Lake City Valley Road to the north. Go south crossing the railroad tracks to a right angle turn to the east. The Lake City EDM Baseline as described.

The 0 meter station is an aluminum disk set in a 12-inch diameter concrete monument, flush with the ground. The disk is stamped, "LAKE CITY EDM BASELINE 0 M." The center is marked with a cross. The station is 71.4 feet northeast of an angle point in the Lake City Army Ammunitions Plant chain link fence; 20 feet north of a carsonite witness post 68 feet east of the angle point in the fence.

The 150 meter station is an aluminum disk set in a 12-inch diameter concrete monument, flush with the ground. The disk is stamped, "LAKE CITY EDM BASELINE 150 M." The center is marked with a cross. The station is 18.3 feet north of the Lake City Army Ammunitions Plant chain link fence; 25 feet northeast of a carsonite witness post in the fence; and 25 feet northwest of a carsonite witness post in the fence.

The 400 meter station is an aluminum disk set in a 12-inch diameter concrete monument, flush with the ground. The disk is stamped, "LAKE CITY EDM BASELINE 400 M." The center is marked with a cross. The station is 18.4 feet north of the Lake City Army Ammunitions Plant chain link fence; 25 feet northeast of a carsonite witness post in the fence; and 25 feet northwest of a carsonite witness post in the fence.

The 1,200 meter station is an aluminum disk set in a 12-inch diameter concrete monument, flush with the ground. The disk is stamped, "LAKE CITY EDM BASELINE 1200 M." The center is marked with a cross. The station is 21.5 feet north of the Lake City Army Ammunitions Plant chain link fence; 25 feet northeast of a carsonite witness post in the fence; and 25 feet northwest of a carsonite witness post in the fence. This station is 63.5 feet east of the projected east edge of Building #17 S on the south side of the Lake City Army Ammunitions Plant chain link fence.

The baseline station elevations are established on the
North American Vertical datum 1988 (NAVD88):

0 meter – 228.81 meters
150 meter – 226.57 meters
400 meter – 225.54 meters
1,200 meter – 224.83 meters

Baseline station autonomous point positions are:

	<u>0 meter</u>	<u>1,200 meter</u>
Latitude	39° 06' 37.87"	39° 06' 36.70"
Longitude	094° 15' 09.93"	094° 14' 20.01"

ELECTRONIC DISTANCE MEASUREMENT (EDM) CALIBRATION BASELINES IN MISSOURI

The Missouri Department of Agriculture has established 12 Electronic Distance Measurement (EDM) calibration baselines in Missouri. Modern equipment provides the user a multitude of options in the art of measurement. Inability, inexperience and incompetence using these systems can cause serious blunders. The EDM baseline will allow the operator to verify the instrument is in calibration, affirm the instrument is being operated properly and substantiate all the equipment utilized in measurement is properly adjusted and used correctly.

Each EDM baseline consists of four monumented stations. The monuments are nominally spaced at 0 meters, 150 meters, 400 meters and 1,200 meters. Each station will be occupied by the EDM instrument and a measurement made to the other three stations for a total of 12 measurements. The results will determine the scale factor, the system constant and the standard deviation of the measurement in parts per million.

The EDM should be tested using the same procedures as in every day fieldwork. This will not only confirm the EDM is in good working order, but will ensure the entire system is properly adjusted. The measuring system includes, but is not limited to, the instrument, the tripods, bipods, tribrachs, prisms, prism poles, thermometers and barometers/altimeters.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- After taking delivery of a new or used instrument
- Immediately after service
- Anytime the operator feels the instrument is not working properly
- Before and after the Missouri Department of Natural Resources or other government agency contracts

BEFORE RUNNING THE BASELINE, PERFORM THE FOLLOWING:

- Check and adjust optical plummets, bull's-eye bubbles and plumbing poles
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running

When filling out the EDM Calibration Report form, fill in all lines that apply and add additional information if needed.

IMPORTANT NOTE: Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. **DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM.** One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1,000 feet, dividing 1,000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.