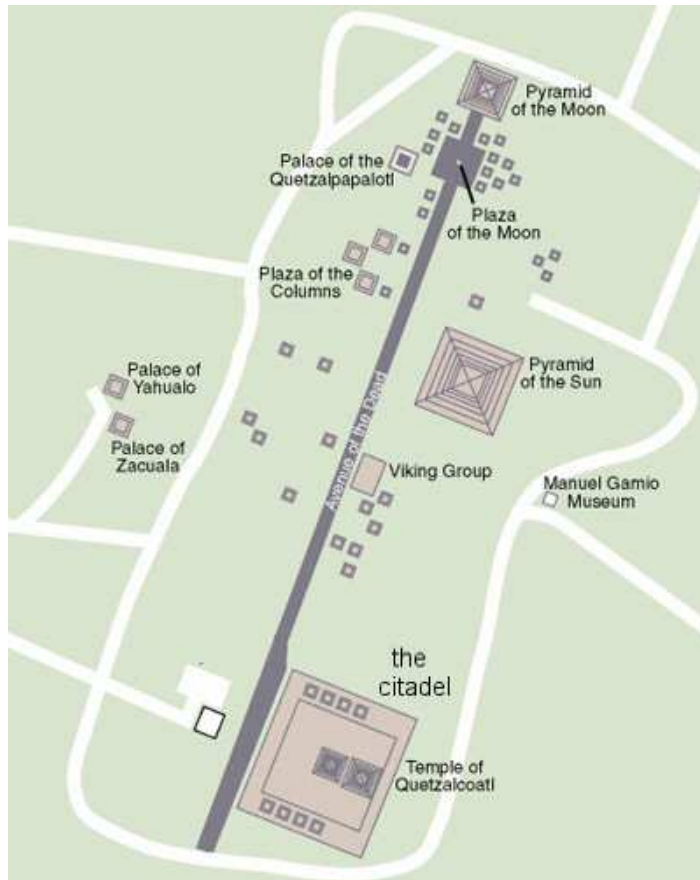


Measurement units of the Citadel in Teotihuacan, Mexico.

Satellite images provided by Google Earth have been used in this study to try and determine the units of measurement used in the planning of the enclosure known as the Citadel in the ancient city of Teotihuacan, Mexico.

This follows on from studies of [measurement units in Teotihuacan](http://www.atlantisbolivia.org/teotihuacancubits.htm) www.atlantisbolivia.org/teotihuacancubits.htm and [Chichen Itza](http://www.atlantisbolivia.org/elcastillocubits.htm) www.atlantisbolivia.org/elcastillocubits.htm



Map showing the location of the citadel and the pyramids of the Sun and Moon.



An early view of the Citadel, a name given by the Spanish conquistadors (ciudadela)

Hugh Harleston jnr found Teotihuacan to be built in measures of 1.059 metres which would be 2 x cubits of 20.85" making one *hunab* (compare to 2 x Egyptian Royal cubits of 20.625" making 1 *hunab*)

Prof Sugiyama proposed a unit of 830 mm for Teotihuacan. This would be a yard of 32.68" and very interestingly compares to the "megalithic yard" of 32.64" found by Prof A. Thom for the Megalithic Sites in Britain.

Prof Sugiyama quotes a study by Drewitt (1969, 1987) and Drucker (1971, 1974, 1977's) which found a unit of 805 mm (31.692").

The Sumerian basic units were a "shusi" of 0.66", link of 12 shusi (7.92"), foot of 20 shusi (13.2") cubit of 30 shusi (19.8"), yard of 50 shusi (33.0") and double yard of 100 shusi (66.0").

For larger distances, the pole of 16.5 feet (15 Sumerian feet) was used, along with a chain of 66 feet (60 Sumerian feet which was 100 links) and furlong of 660 feet (600 Sumerian feet).

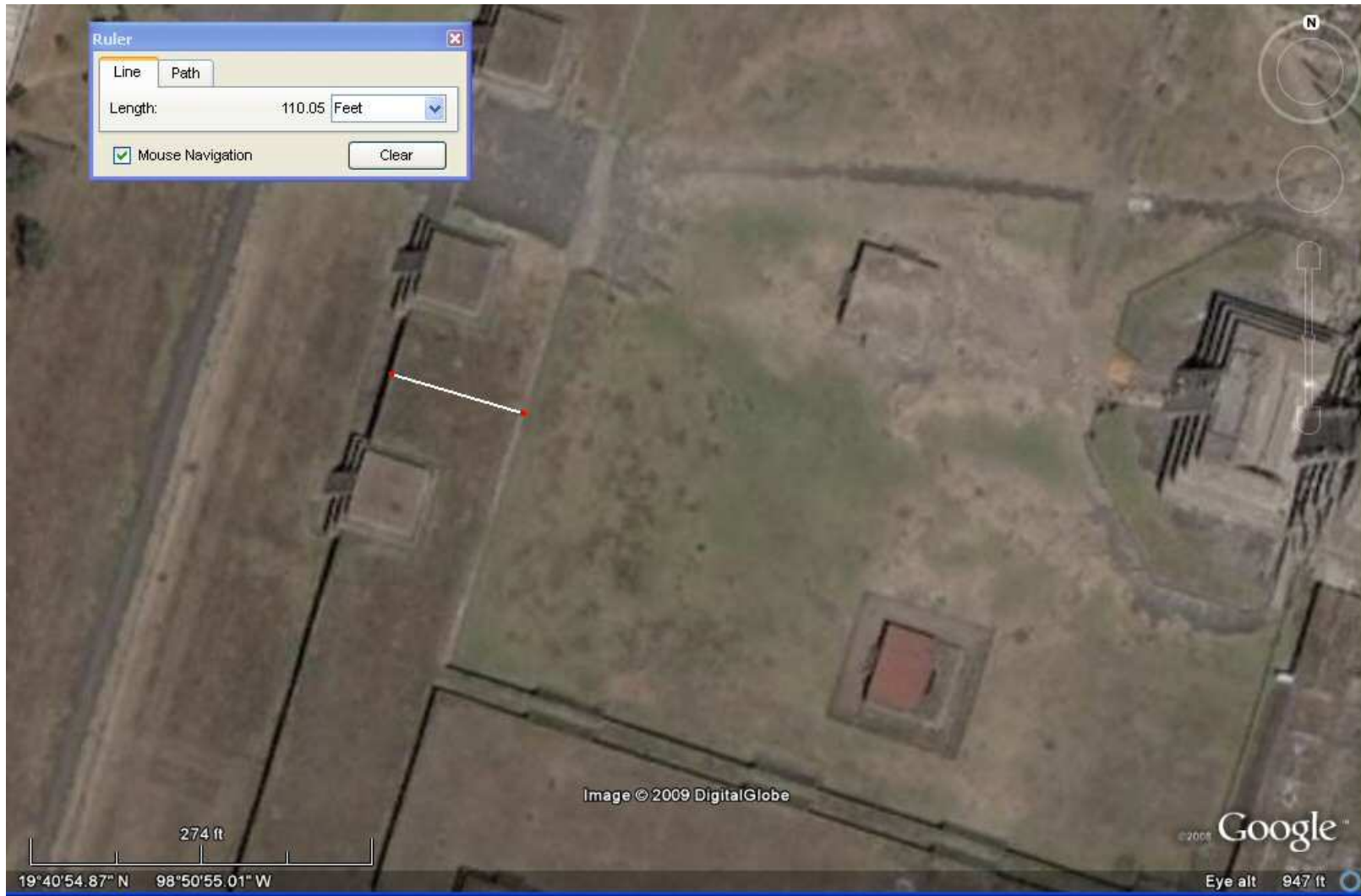
Looking back to Drewitt and Druckers figure of 805 mm (31.692") we can readily see that in place of a yard of 50 *shusi*, they have been calculating in yards of 48 *shusi* (4 x links) since $48 \times 0.66" = 31.68" = 804.7 \text{ mm}$ and their study in itself provides evidence of the use of "Sumerian" measurement units at Teotihuacan.

This study looks at the citadel for evidence of "Sumerian" units, but in actual fact, it seems that "Sumerian", "Egyptian" and "Mayan" units are all based on the same measurement foundation, a plot of 100 x 100 "Sumerian" cubits which when divided by 100, 96 or 48 gives "Sumerian", Egyptian" or Mayan" units respectively.

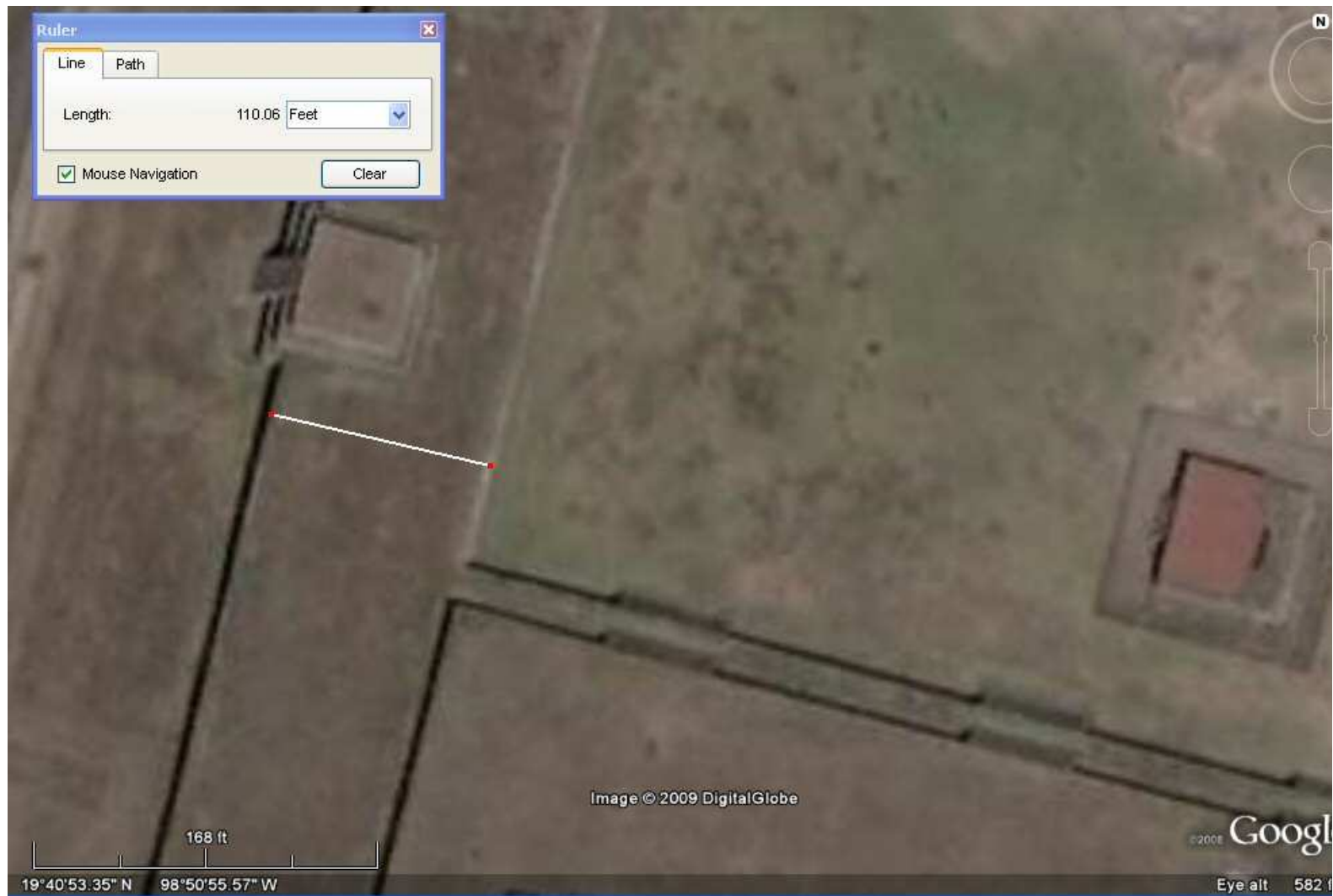


above, the Citadel today from Google Earth.

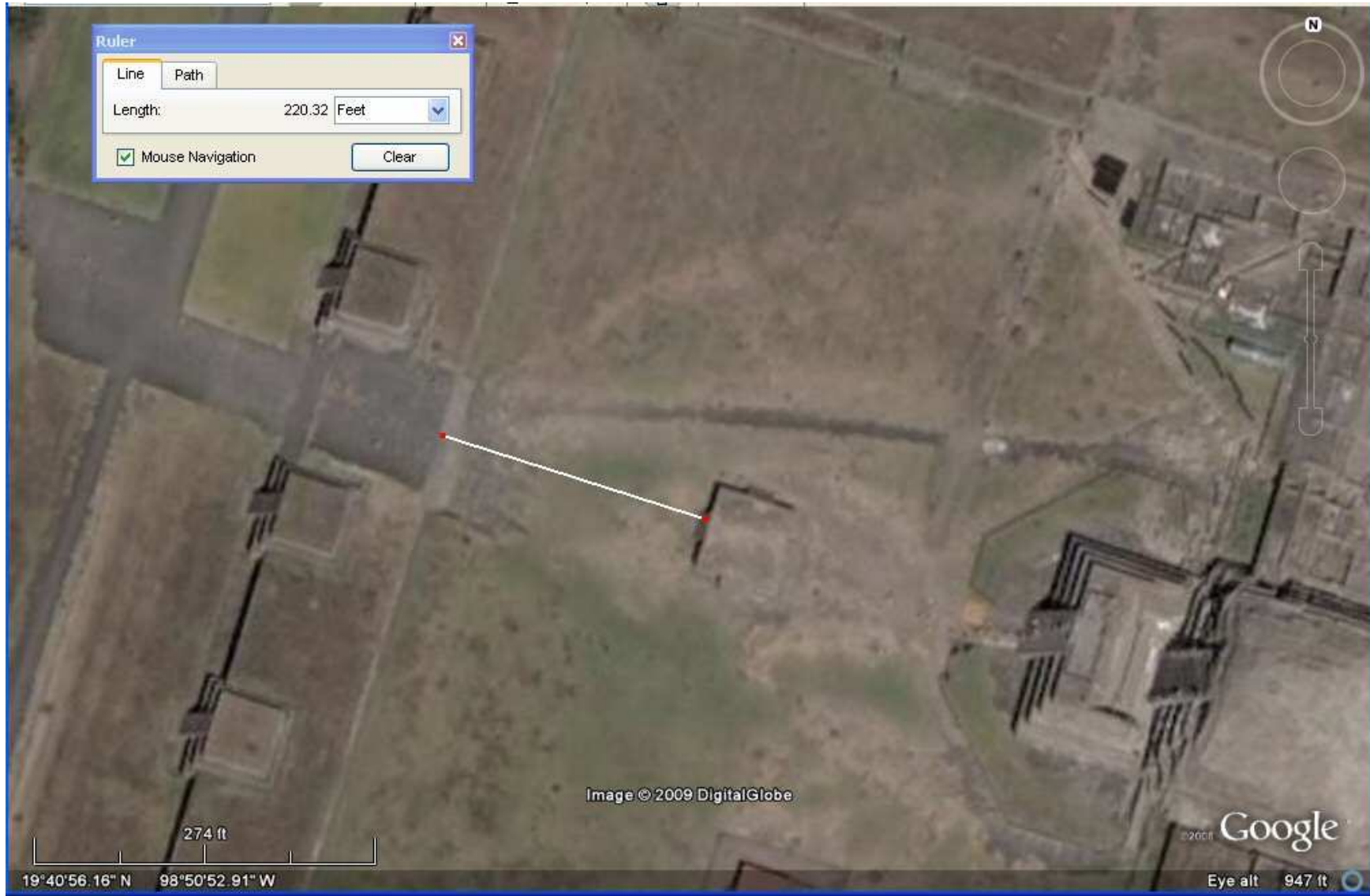
Some examples of measurements at the Citadel in Sumerian feet are given below.



above, the Google Earth satellite measures the width of the entrance wall as 110 feet - this equals 100 Sumerian feet of 13.2", 40 Sumerian yards of 33.0", 20 Sumerian double yards of 66.0", or 64 Egyptian royal cubits of 20.62" or 32 Mayan hunabs of 41.25" .



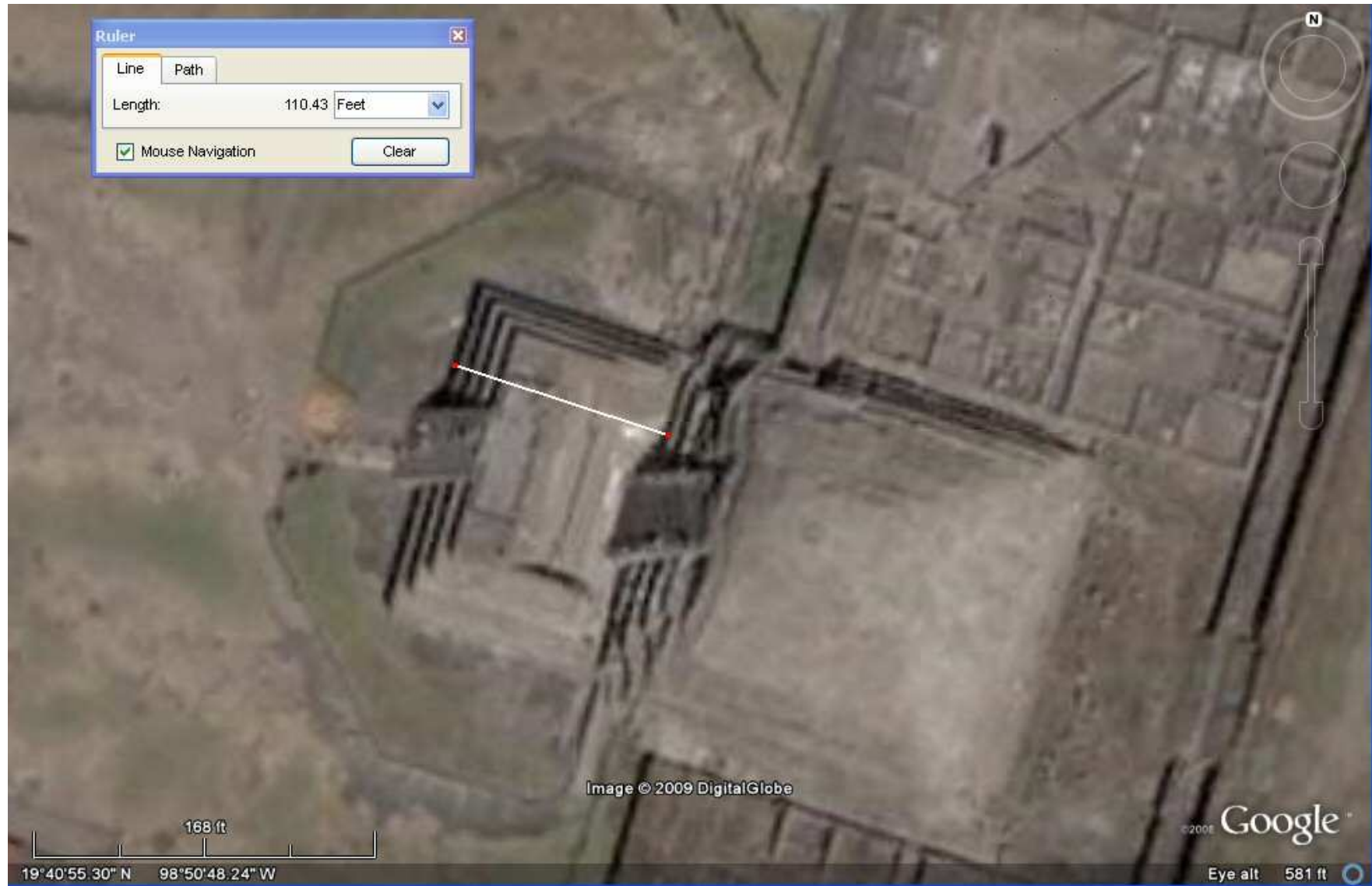
above, close-up of measurement equals 100 Sumerian feet of 13.2" .



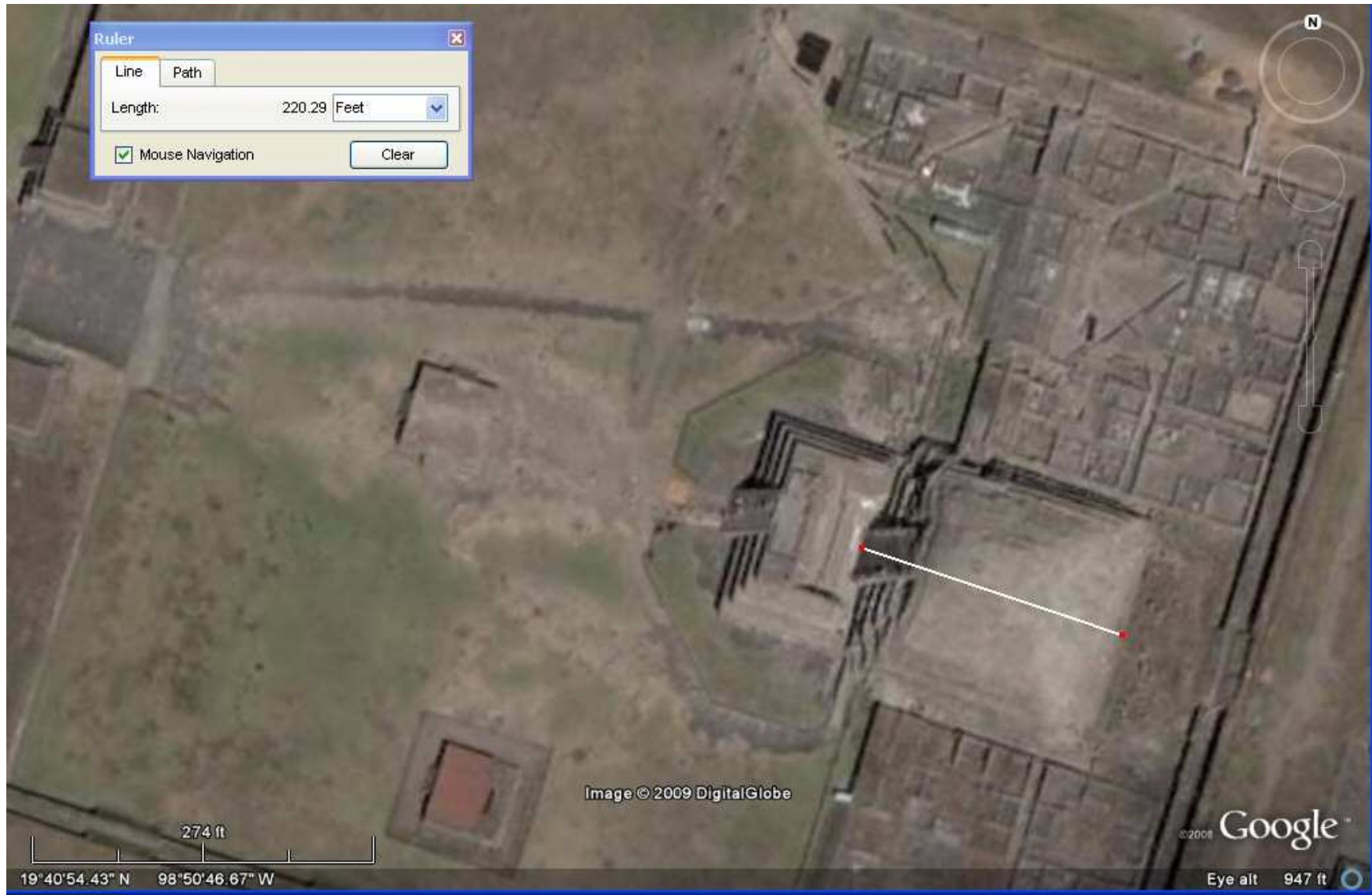
above, from the entrance to the first construction is 200 Sumerian feet of 13.2" .



above, the Google Earth satellite measures the distance from the front of the front pyramid platform steps to the front of the rear pyramid steps as 110 English feet = 100 Sumerian feet.



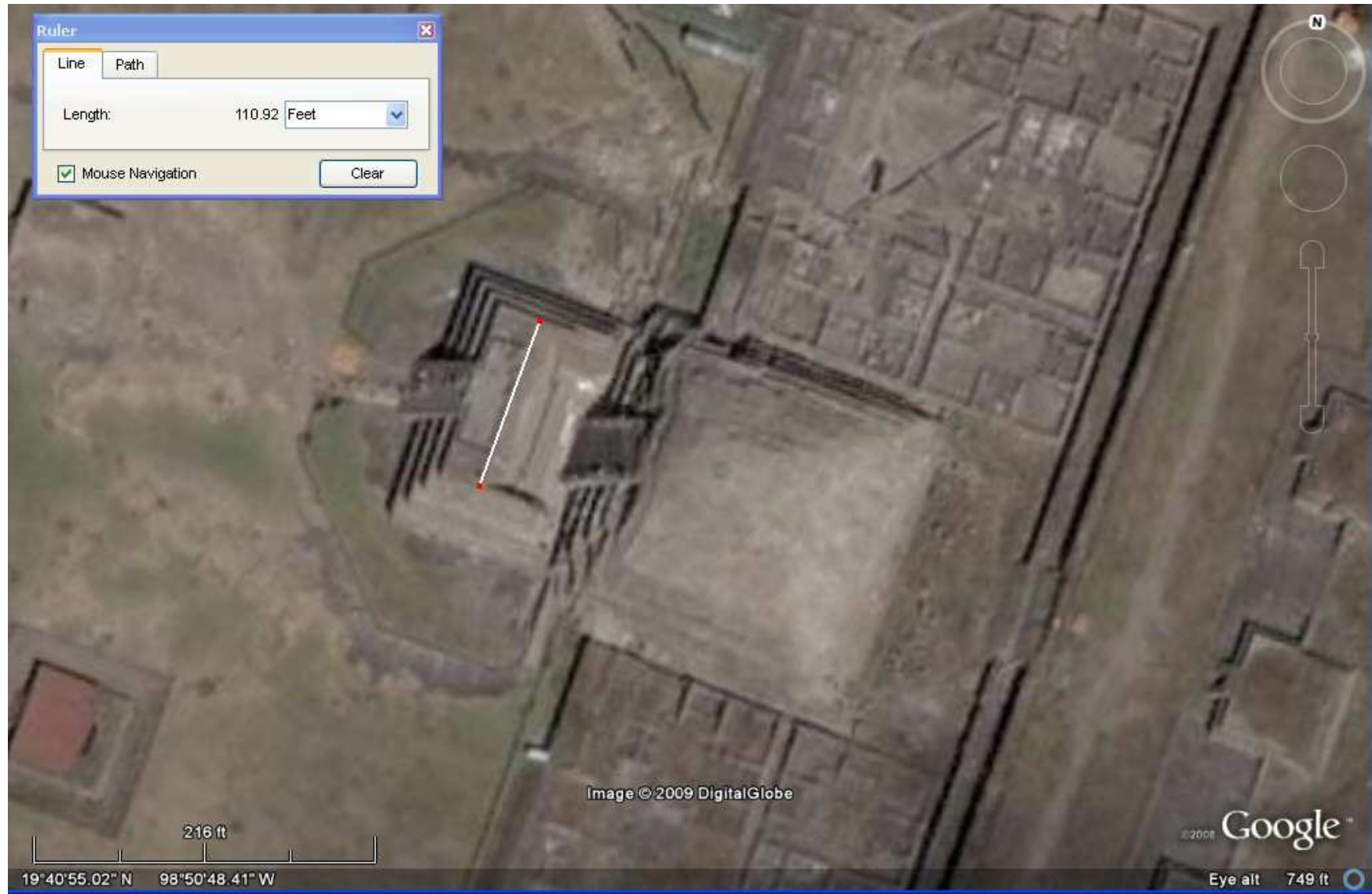
above, the Google Earth satellite measures the distance from the front of the front pyramid platform base to the front of the rear pyramid base as 110 English feet = 100 Sumerian feet.



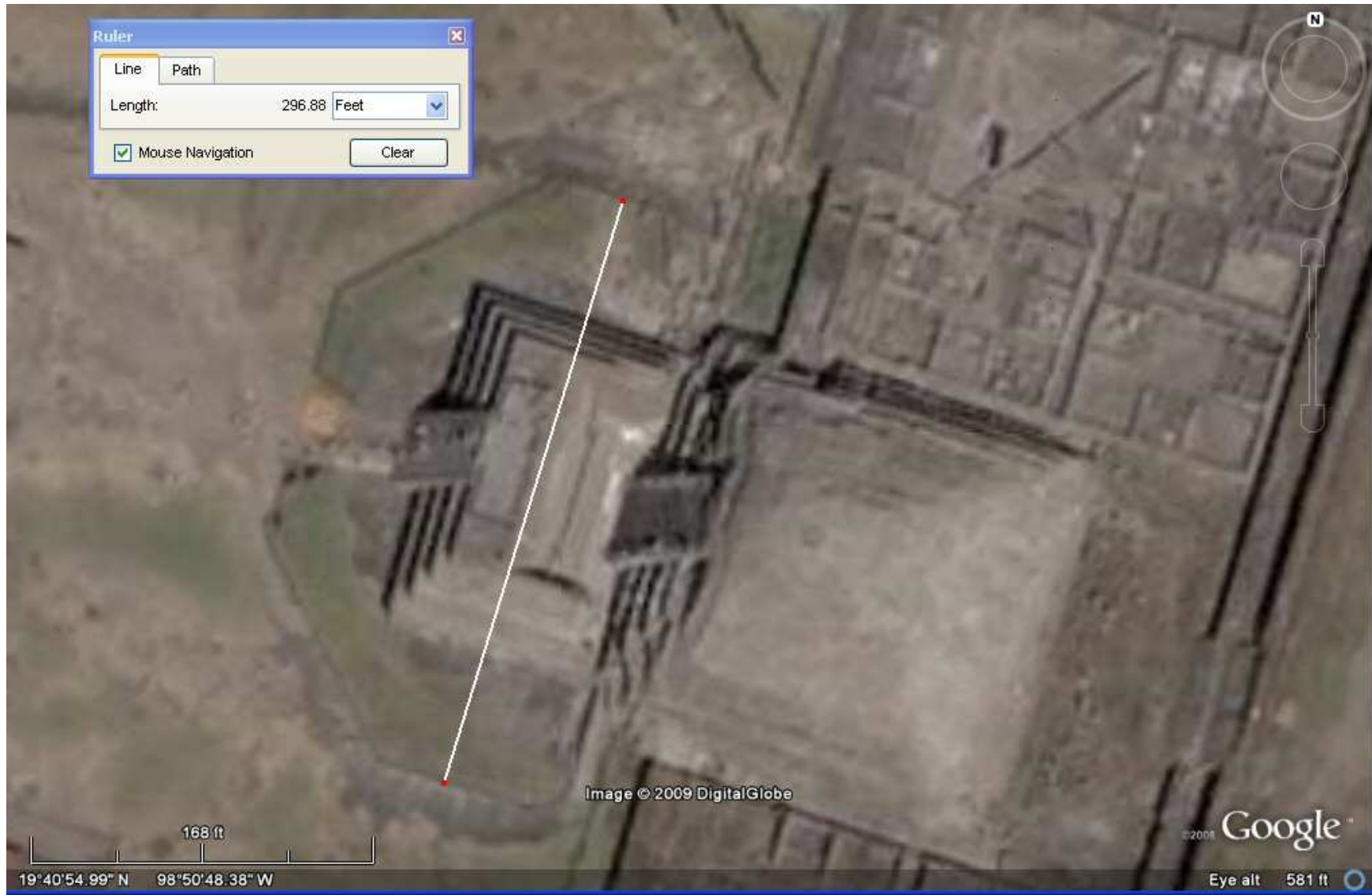
above, the Google Earth satellite measures the depth of the pyramid complex as 220 English feet
= 200 Sumerian feet of 13.2"



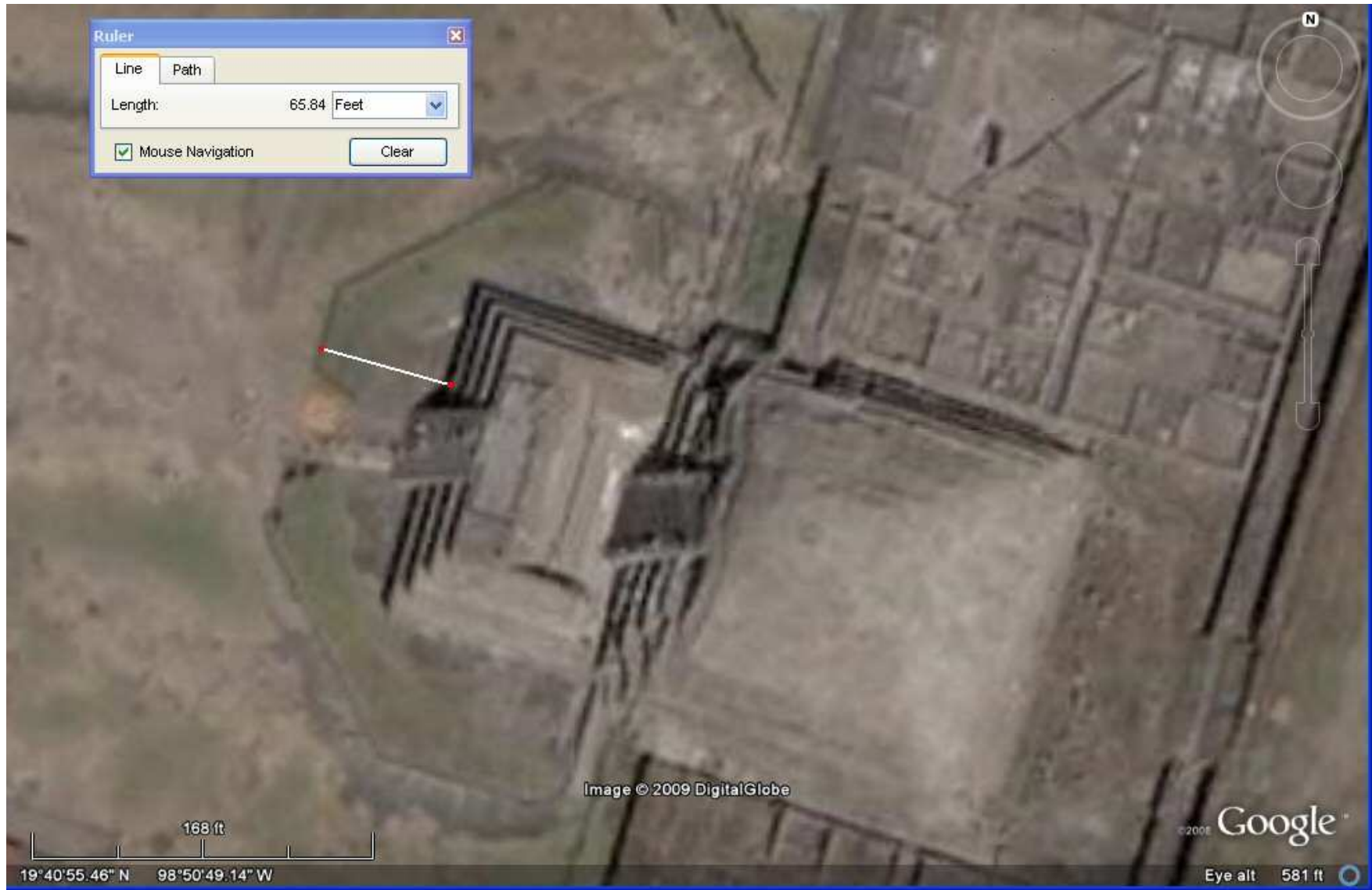
above, the Google Earth satellite measures the width of the front pyramid platform base as 165 English feet = 100 Sumerian cubits of 19.8" which is also 150 Sumerian feet of 19.8", 60 Sumerian yards of 33.0", 96 Egyptian royal cubits of 20.62" or 48 Mayan hunabs of 41.25".



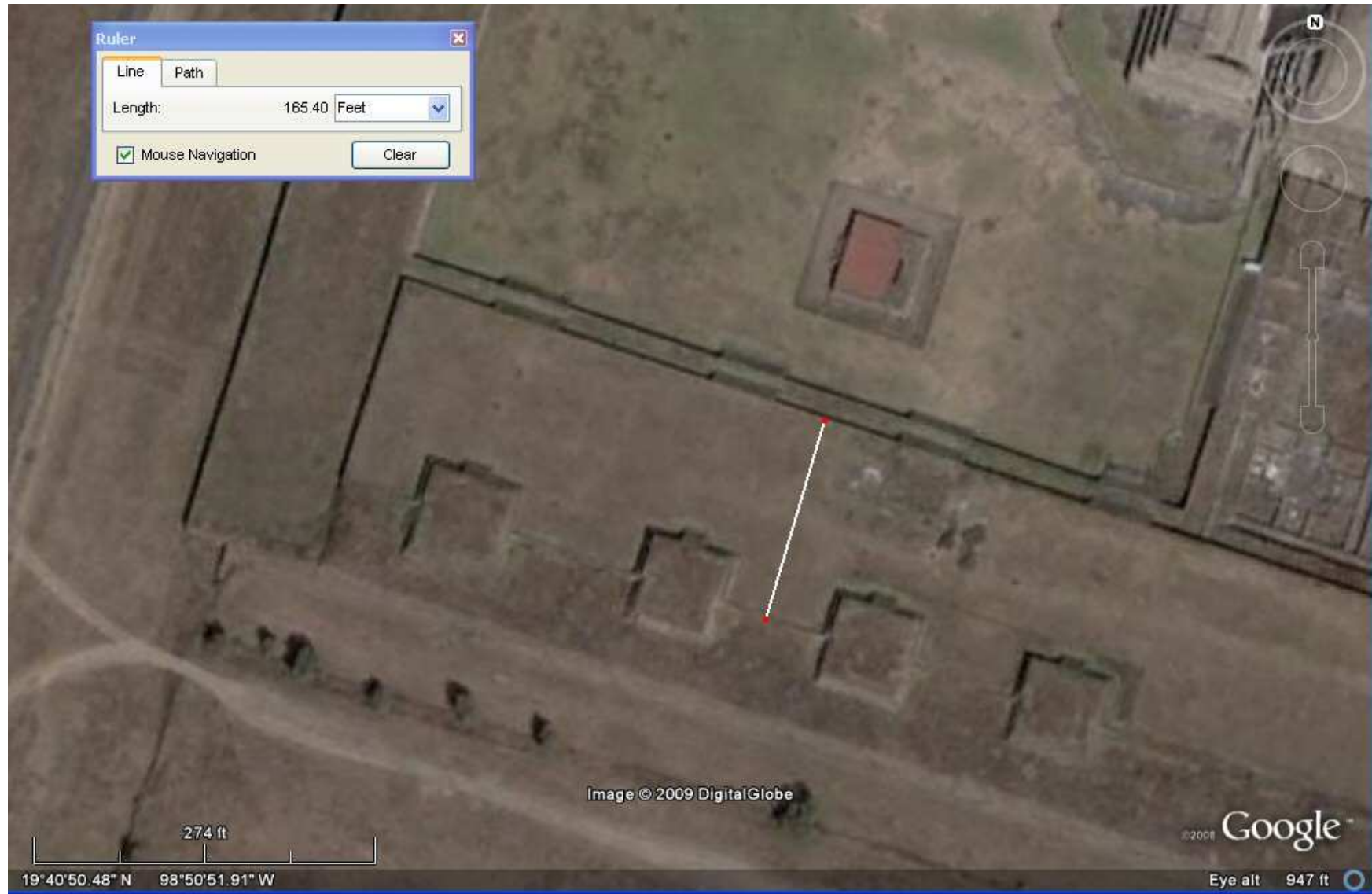
above, the Google Earth satellite measures the width of the pyramid platform as 110 English feet = 100 Sumerian feet. .



above, the Google Earth satellite measures the width of this base as 297 English feet = 180 Sumerian cubits of 19.8"



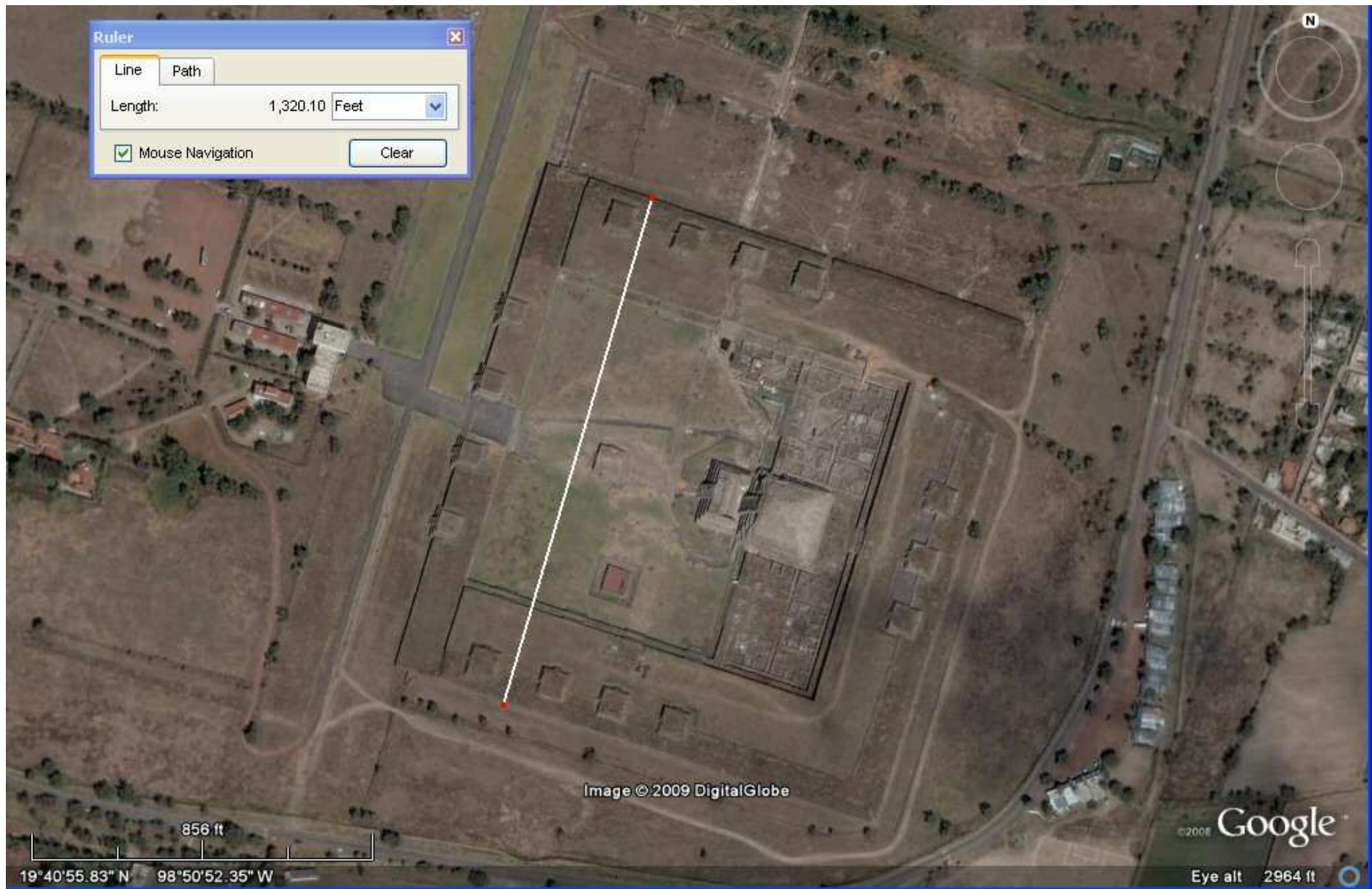
above, the Google Earth satellite measures this distance to the front as 66 English feet = 60 Sumerian feet or 40 Sumerian cubits.



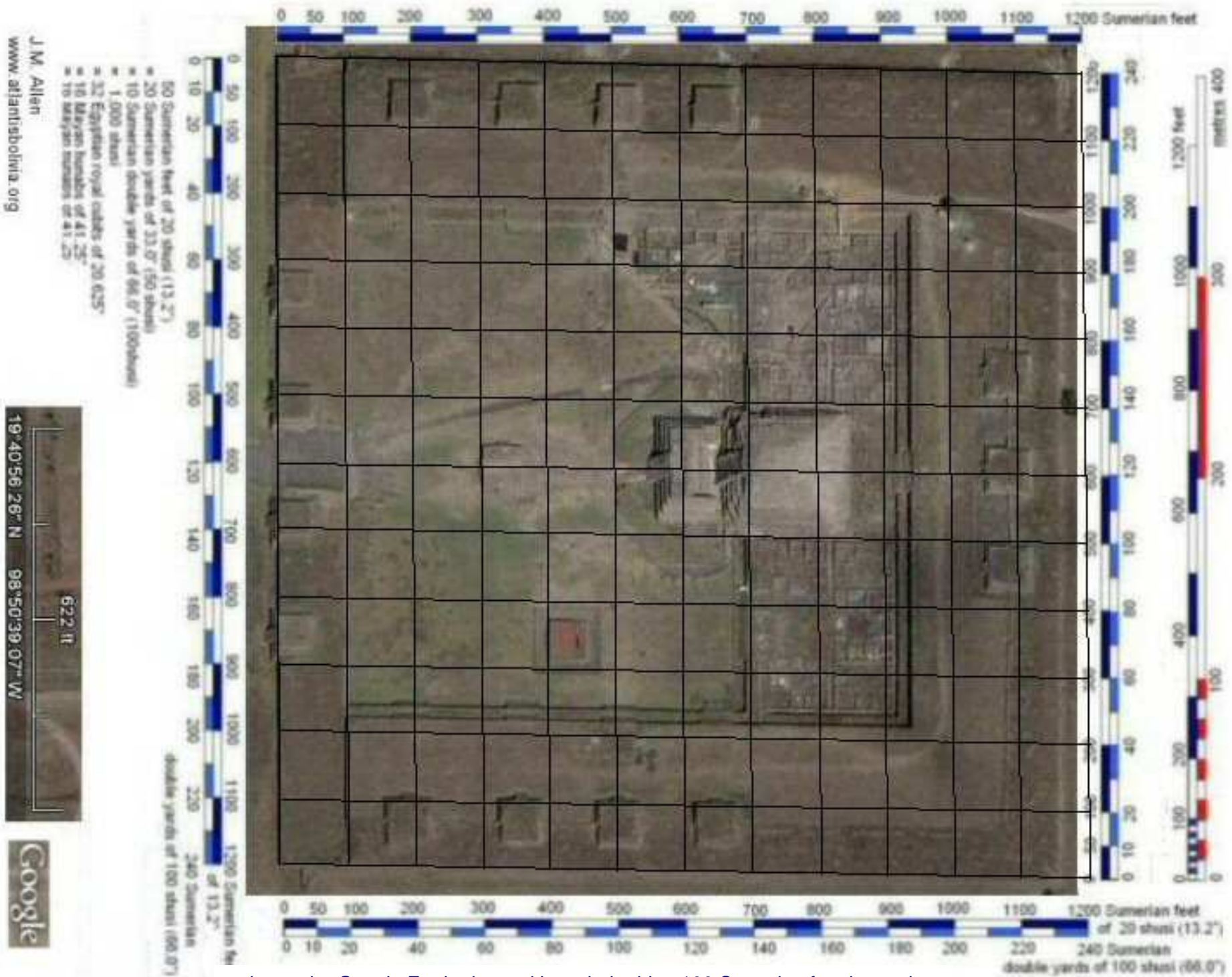
above, the Google Earth satellite measures the width of this terrace as 165 English feet
= 100 Sumerian cubits of 19.8".



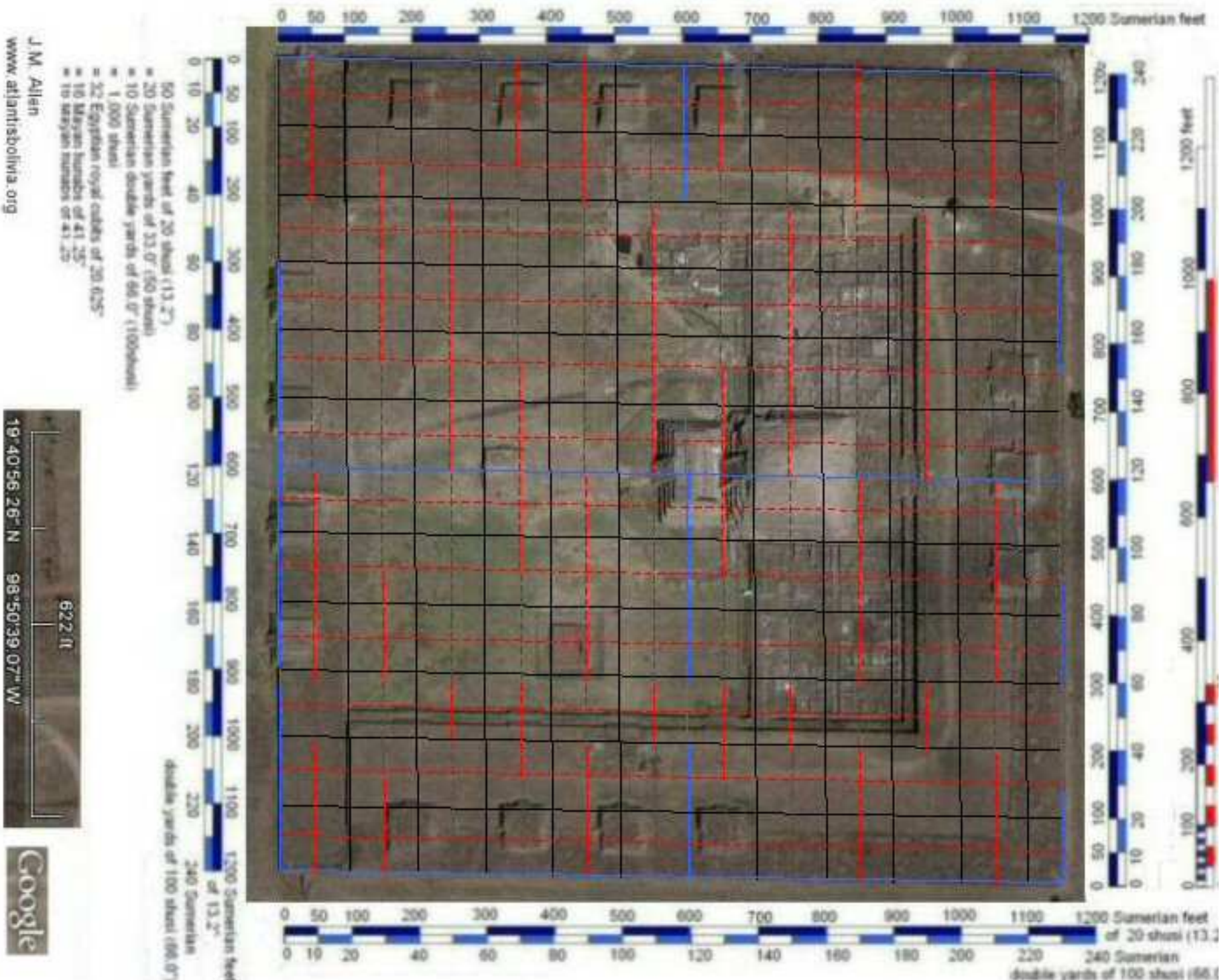
above, the Google Earth photo with units in Sumerian feet imposed



above, the Google Earth satellite measures the width of the complex as 1320 english feet which is 1200 Sumerian feet of 13.2" or 800 Sumerian cubits of 19.8"



above, the Google Earth photo with scaled grid at 100 Sumerian feet intervals.



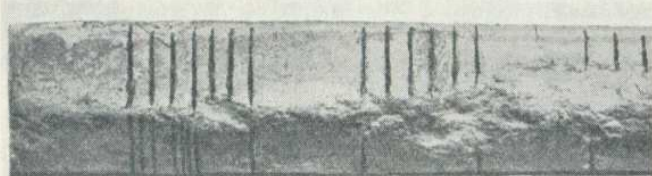
above, the Google Earth photo with scaled grid at 50 Sumerian feet intervals.

From the satellite images, the complex appears to measure 1200 Sumerian feet by 1150 Sumerian feet. Although there are many instances of multiples of 100 Sumerian feet suggesting a grid of 100 Sumerian feet was used in the planning, the odd shape of 1200 x 1150 Sumerian feet suggests it was planned on a grid of 50 Sumerian feet.

A unit of 50 Sumerian feet of 13.2" would be 20 Sumerian yards of 50 shusi, or 10 double yards of 100 shusi, or simply, 1,000 Sumerian shusi of 0.66". It would also be 32 Egyptian royal cubits of 20.625" or 16 Mayan hunabs of 41.25". Surprisingly it also means that 32 Egyptian royal cubits were equal to 1,000 Sumerian shusi, seeming to confirm that all the above measurements although attributed to varying countries as far apart as Sumeria, Egypt and Mexico, were originally part of a unified system as seen at Teotihuacan.

54 HISTORICAL METROLOGY

A to H: those with the tablet (F and B) are called 'L'Architecte à la règle' and 'L'Architecte au plan.' There is a copy of B in the British Museum (No. 91025) but it is on F that the rule is better preserved. In *Découvertes en Chaldée* (1884-1912) de Sarzec and Heuzey included the full-scale photograph from which I made these measurements * of the 16 divisions on the rule:



Portion of Gudea's rule, natural size

17.5	17.7	16.5	16.8	16.0	17.7	16.6	17.2	mm.
16.5	16.5	16.5	17.3	16.2	17.0	16.5	16.5	mm.
Total length = 269 mm. Average division = 16.8 mm. = 0.66 in.								= Sumerian shusi.

On the evidence of the cuneiform texts, the cubit contained 30 shusi: if, therefore, the length of the division on Gudea's rule is called a Sumerian shusi, the proportional Sumerian cubit was 19.8 in., or (1/10) English pole. The proportional Sumerian foot of 20 shusi measures 13.2 in.; and there is evidence of the use of this foot in the construction of the first century (A.D.) fort known as the Caburn,† on the Sussex downs near Lewes.

* In order to confirm the accuracy of these measurements, I sent a full-scale copy to the Louvre with a request that it be compared with the original: the reply from the Conservateur en Chef des Antiquités Orientales reads:

Je vous renvoie, avec les vérifications demandées par votre lettre, la règle qui est reproduite sur la statue de Gudea. J'ai indiqué deux coches supplémentaires invisibles sur le photo, entre les deux cassures. Le reste est exact.

These two additional notches mark one-tenth of a division, and do not in any way affect my interpretation of the length of the division itself.

Historical Metrology by A.E. Berriman
London J.M. Dent & Sons Ltd., 1953

above, a portion of the ruler known as "Gudea's rule" preserved in the Louvre shows intervals in Sumerian "shusi" of 0.66" which Berriman demonstrated formed 20 to the Sumerian foot of 13.2" and 30 to the Sumerian cubit of 19.8". 50 shusi made the Sumerian yard of 33.0" and 100 shusi made the Sumerian "double yard".

References

Berriman A.E. (1953) Historical metrology, J.M. Dent & Sons, London 1953.

Jim Allen, 25 June 2009
email webatlantis@hotmail.com

Relationship of Sumerian feet, cubits and yards, Egyptian cubits and Mayan hunabs to stade of 165 feet (100 Sumerian cubits).

		20 shusi	30 shusi	50 shusi	12 shusi	1 shusi			
English Feet 12"	Stade	Sumerian Feet 13.2"	Sumerian cubits of 19.8"	Sumerian yards of 33"	Sumerian links of 7.92"	Sumerian Shusi of 0.66"	Sumerian poles of 16.5ft	Egyptian Cubits of 0.625"	Mayan Hunabs of 41.25"
16.5	1/10th	15	10	6	25	300	1		
33	1/5th	30	20	12	50	600	2		
41.25	1/4		25	15		750		24	12
55	1/3rd	50		20		1000		32	16
66	2/5ths	60	40	24	100	1200	4		
82.5	½		50	30	125	1500	5	48	24
99	3/5ths	90	60	36	150	1800	6		
110	2/3rds	100		40		2000		64	32
165	1	150	100	60	250	3000	10	96	48
198		180	120	72	300	3600	12		
220	1+1/3	200		80		4000		128	64
264		240	160	96	400	4800			
297		270	180	108	450	5400			
330	2	300	200	120	500	6000	20	192	96
396		360	240	144	600	7200	24		
440		400		160		8000		256	128
495	3	450	300	180	750	9000	30	288	144
528		480	320	192	800	9600	32		
660	4	600	400	240	1000	12000	40	384	192
792		720	480	288		14400	48		
825	5	750	500	300	1250	15000	50	480	240
990	6	900	600	360	1500	18000	60	576	288
1320		1200	800	480	2000	24000	80	768	384
1650	10	1500	1000	600	2500	30000	100	960	480
1980	12	1800	1200	720	3000	36000	120	1152	576