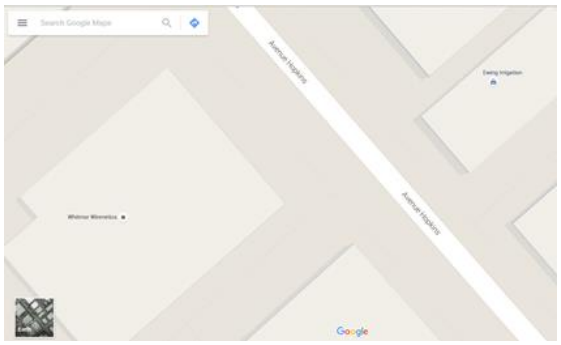
Measuring Irregularly Shaped Landscape Areas

The irregular shape in landscapes is more pleasing to the eye than hard angular designs. The curvilinear shape of turf areas, drive ways and patios in residential landscapes are very common in contemporary landscapes but make estimating more complicated

These irregularly shaped areas make the task of estimating square footage more difficult for the landscape professional because at first blush these areas seem more difficult to measure. The good news is that as technology advances, we have more techniques to measure these landscapes quickly and accurately. If the measurement is of an existing landscape the area can be measured by accessing Google Maps. Locate the property by address and switch from the "Map" view to the "Earth" view by clicking on the box in the lower left area of the screen.



You'll now have the sight displayed as a digital photographic image. Now simply "right click" on the mousepad of your PC. You will activate the toolbar which has a "measure distance" feature. Click around the area to be measured on the perimeter at no less than 16 points in a clockwise direction. Once you arrive back at the first measure point a small box will appear displaying the area. In this case the area is 2,714 square feet.

Manually measuring the distance

Some sites are too new to have an up-to-date Google Maps Image. In other cases the image was taken in the summer where deciduous trees block the satellite image of the perimeter. These sites can be accurately measured by using some basic high school geometry. You've probably read in other publications that the irregular shape can be broken into a series of circles, squares and triangles and the areas can be calculated by using a variety of geometric formulas.

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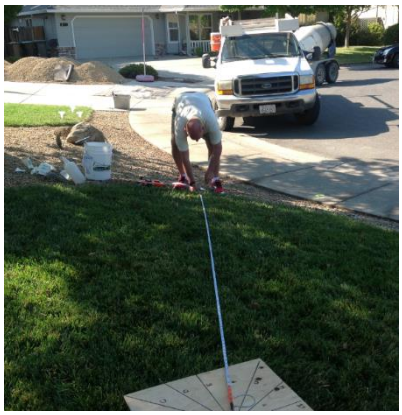
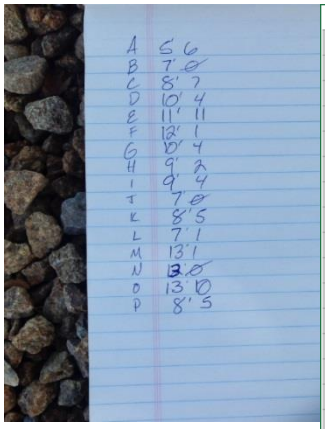
This process leads to the chance for errors and, in fact, only one formula is needed. That formula is for the area of a circle (Pi x the radius squared) where Pi is a mathematical constant of 3.1416. All that is necessary is to establish the average radius for any shape with a 100 ft tape from the center point. We do this with a plywood board that is 2 ft by 2 ft that has a hole in the center. The board has 16 lines drawn at 22.5 degree angles. We draw these lines at even increments because a 360 degree circle divided 16 times = 22.5 (16 x 22.5 = 360.) At the job site we simply measure 16 times along the radii drawn on the board and add them together. We then reference the attached chart which incorporates the calculation.

Measure 16 points and write down each measurements as points A through P. We refer to these measuring points as letters rather than numbers to avoid confusion in the field. If you call out to your co-worker a measurement of 16 ft for measurement number 16 it could be confusing and lead to errors so we refer to that data point as measurement "P".





	FEET	INCHES
A	5	6
B	7	
C	8	7
D	10	4
E	11	11
F	12	1
G	10	4
H	9	2
I	9	4
J	7	
K	8	5
L	7	1
M	13	1
N	12	
O	13	10
P	8	5
	154	1

Now we simply access the table and derive the area with an accuracy that is + or – 2%! The area of this small site is 295 square feet. If we manually calculated this with the formula and arrived at a total of 154 feet the answer would be 291 square feet!. We are good using 295 square feet!

Area (square feet)	Sum of 16 perimeter measurements	Area (square feet)	Sum of 16 perimeter measurements	Area (square feet)	Sum of 16 perimeter measurements	Area (square feet)	Sum of 16 perimeter measurements	Area (square feet)	Sum of 16 perimeter measurements	Area (square feet)	Sum of 16 perimeter measurements
295	**155**										
314	160	1,142	305	2,485	450	4,345	595	6,811	745	9,721	890
334	165	1,179	310	2,541	455	4,418	600	6,903	750	9,830	895
355	170	1,218	315	2,597	460	4,492	605	6,995	755	9,940	900
376	175	1,257	320	2,653	465	4,566	610	7,088	760	10,051	905
398	180	1,296	325	2,711	470	4,642	615	7,182	765	10,162	910
420	185	1,336	330	2,769	475	4,717	620	7,276	770	10,274	915
443	190	1,377	335	2,827	480	4,794	625	7,371	775	10,387	920
467	195	1,419	340	2,887	485	4,871	630	7,466	780	10,500	925
491	200	1,461	345	2,946	490	4,948	635	7,562	785	10,614	930
516	205	1,503	350	3,007	495	5,027	640	7,659	790	10,728	935
541	210	1,547	355	3,068	500	5,105	645	7,756	795	10,843	940
567	215	1,590	360	3,130	505	5,185	650	7,854	800	10,959	945
594	220	1,635	365	3,192	510	5,265	655	7,952	805	11,075	950
621	225	1,680	370	3,255	515	5,346	660	8,052	810	11,192	955
649	230	1,726	375	3,318	520	5,427	665	8,151	815	11,310	960
678	235	1,772	380	3,382	525	5,509	670	8,252	820	11,428	965
707	240	1,819	385	3,447	530	5,591	675	8,353	825	11,547	970
737	245	1,867	390	3,513	535	5,675	680	8,454	830	11,666	975
767	250	1,915	395	3,578	540	5,758	685	8,556	835	11,786	980
798	255	1,964	400	3,645	545	5,843	690	8,659	840	11,906	985
830	260	2,013	405	3,712	550	5,928	695	8,762	845	12,028	990
862	265	2,063	410	3,780	555	6,013	700	8,866	850	12,149	995
895	270	2,114	415	3,848	560	6,099	705	8,971	855	12,272	1,000
928	275	2,165	420	3,917	565	6,186	710	9,076	860	12,395	1,005
962	280	2,217	425	3,987	570	6,274	715	9,182	865	12,519	1,010
997	285	2,269	430	4,057	575	6,362	720	9,289	870	12,643	1,015
1,032	290	2,322	435	4,128	580	6,450	725	9,396	875	12,768	1,020
1,068	295	2,376	440	4,200	585	6,540	730	9,503	880	12,893	1,025
1,104	300	2,430	445	4,272	590	6,720	740	9,612	885	13,019	1,030

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13146	1035	17,087	1180	21,545	1325	26,518	1470	32,008	1615	38,447	1770
13273	1040	17,232	1185	21,708	1330	26,699	1475	32,206	1620	38,664	1775
13401	1045	17,378	1190	21,871	1335	26,880	1480	32,405	1625	38,882	1780
13530	1050	17,525	1195	22,035	1340	27,062	1485	32,605	1630	39,101	1785
13659	1055	17,672	1200	22,200	1345	27,245	1490	32,805	1635	39,320	1790
13789	1060	17,819	1205	22,365	1350	27,428	1495	33,006	1640	39,540	1795
13919	1065	17,967	1210	22,531	1355	27,612	1500	33,208	1645	39,761	1800
14050	1070	18,116	1215	22,698	1360	27,796	1505	33,410	1650	39,982	1805
14182	1075	18,265	1220	22,865	1365	27,981	1510	33,613	1655	40,204	1810
14314	1080	18,415	1225	23,033	1370	28,167	1515	34,225	1670	40,426	1815
14447	1085	18,566	1230	23,202	1375	28,353	1520	34,430	1675	40,649	1820
14580	1090	18,717	1235	23,371	1380	28,540	1525	34,636	1680	40,873	1825
14714	1095	18,869	1240	23,540	1385	28,727	1530	34,843	1685	41,097	1830
14849	1100	19,022	1245	23,710	1390	28,915	1535	35,050	1690	41,322	1835
14984	1105	19,175	1250	23,881	1395	29,104	1540	35,257	1695	41,548	1840
15120	1110	19,329	1255	24,053	1400	29,293	1545	35,466	1700	41,774	1845
15257	1115	19,483	1260	24,225	1405	29,483	1550	35,675	1705	42,000	1850
15394	1120	19,638	1265	24,398	1410	29,674	1555	35,884	1710	42,228	1855
15532	1125	19,793	1270	24,571	1415	29,865	1560	36,094	1715	42,456	1860
15670	1130	19,949	1275	24,745	1420	30,057	1565	36,305	1720	42,684	1865
15809	1135	20,106	1280	24,920	1425	30,249	1570	36,516	1725	42,914	1870
15949	1140	20,264	1285	25,095	1430	30,442	1575	36,728	1730	43,143	1875
16089	1145	20,422	1290	25,271	1435	30,636	1580	36,941	1735	43,374	1,880
16230	1150	20,580	1295	25,447	1440	30,830	1585	37,154	1740	43,605	1,885
16371	1155	20,739	1300	25,624	1445	31,025	1590	37,368	1745	43,836	1,890
16513	1160	20,899	1305	25,802	1450	31,220	1595	37,583	1750	44,069	1,895
16,656	1165	21,060	1310	25,980	1455	31,416	1600	37,798	1755	44,301	1,900
16,799	1170	21,221	1315	26,159	1460	31,613	1605	38,013	1760	44,535	1,905
16,943	1175	21,383	1320	26,338	1465	31,810	1610	38,230	1765	44,769	1,910