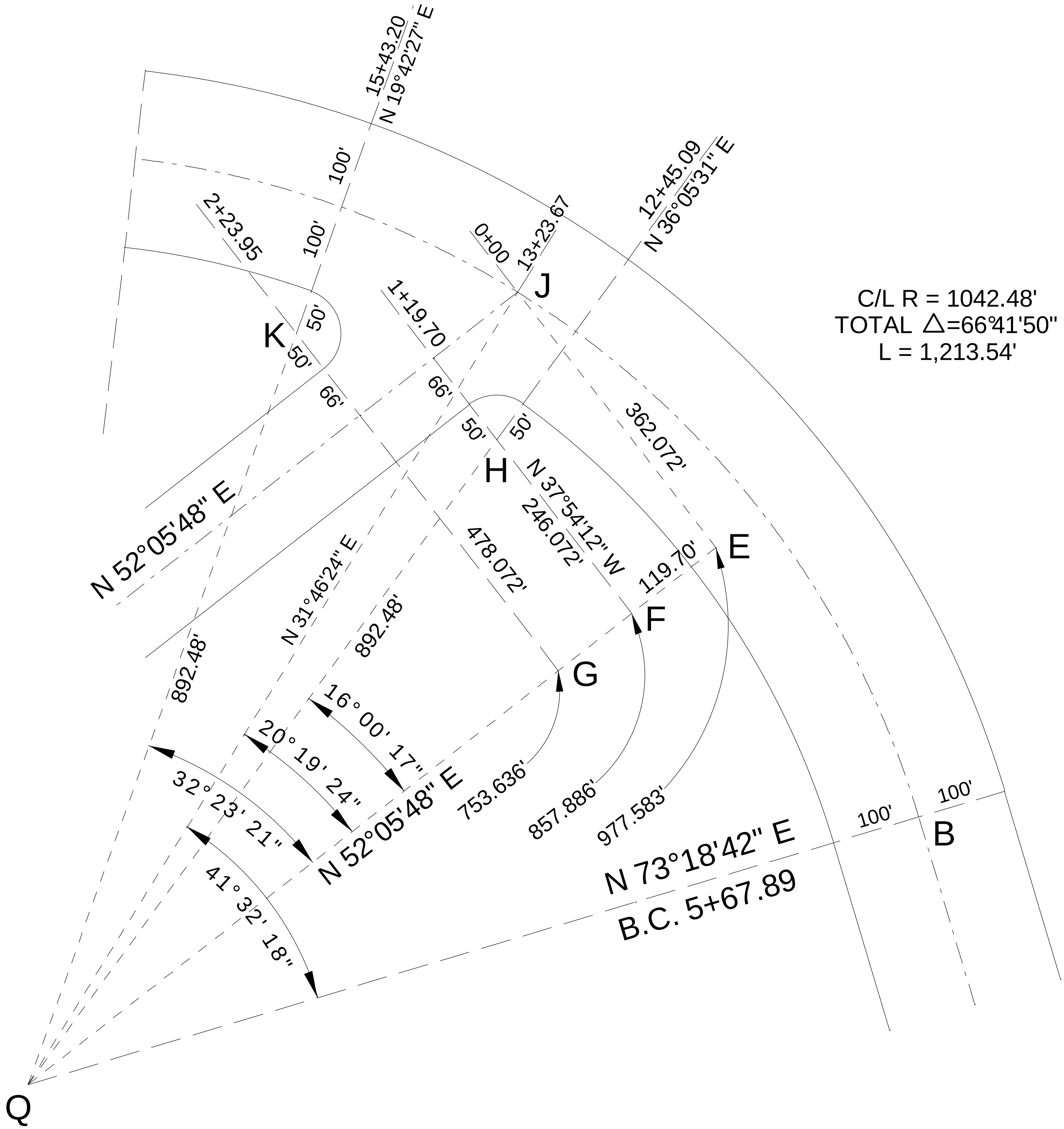

C/L R = 1042.48'
TOTAL △=66°41'50"
L = 1,213.54'
15+43.20
N 19°42'27" E
12+45.09
N 36°05'31" E
13+23.67
0+00
2+23.95
1+19.70
100'
100'
50'
50'
66'
66'
50'
50'
J
K
H
E
F
G
B
Q
362.072'
N 37°54'12" W
246.072'
478.072'
119.70'
N 52°05'48" E
N 31°46'24" E
892.48'
892.48'
16° 00' 17"
20° 19' 24"
32° 23' 21"
41° 32' 18"
N 52°05'48" E
753.636'
857.886'
977.583'
100'
100'
N 73°18'42" E
B.C. 5+67.89

The first thing to do in any problem involving a straight line and curve intersection is to construct a line parallel with the straight line that passes through the radius point of the curve and then solve for the perpendicular distance between the parallel lines. It doesn't have to be to scale, a sketch will do. In this case, QE is such a line, where Q is the radius point.

The stationing along the curve (13+23.67) to the streets' intersection gives an arc length from the B.C. of the curve of 1323.67–567.89 = 755.78' which makes the central angle of that portion of the curve equal (755.78/1042.48)·180/pi = 41°32'18" and the bearing to the intersection is then N 73°18'42" E – 41°32'18" = N 31°46'24" E.

In triangle Q-J-E, angle E-Q-J is N 52°05'48" E – N 31°46'24" E = 20°19'24". Side J-E equals 1042.48·sin20°19'24" = 362.072 and side Q-E equals 1042.48·cos20°19'24" = 977.583.

In triangle Q-K-G, angle G-Q-K equals arcsin(362.072+66+50)/(1042.48–150) = 32°23'21" and side Q-G equals 892.48·cos32°23'21" = 753.636 (or $QG^2 = QK^2 – QK^2$).

In triangle Q-H-F, angle F-Q-H equals arcsin(362.072 – 66 – 50)/1042.48 – 150) =16°00'17" and side Q-F equals 892.48·cos16°00'17" = 857.886, or by Pythagorean Theorem, $QF^2 = QH^2 – HF^2$.

The station along SIDE STREET to a point perpendicular to H equals QE – QF = 119.697, or 1+19.70 with stationing increasing from the intersection along the centerline of SIDE STREET. The station to a point perpendicular to K equals QE – QG = 223.947, or 2+23.95.

The radial line through Q-H equals the bearing of Q-E minus angle E-Q-H, or

N 52°05'48" E – 16°00'17" = N 36°05'31" E.

The radial line through Q-K equals the bearing of Q-E minus angle E-Q-K, or

N 52°05'48" E – 32°23'21" = N 19°42'27" E.

From the radial bearings and the radial bearing to the B.C. arc lengths are then calculated and added to the B.C. station:

(N 73°18'42" E – N 36°05'31" E)·(pi/180)·1042.48 + 567.89 = 12+45.09 and

(N 73°18'42" E – N 19°42'27" E)·(pi/180)·1042.48 + 567.89 = 15+43.20

The 50' radius curve with radius point at H has a central angle of N36°05'31"E + N37°54'12"W = 73°59'43", a length of 64.57' with a tangent of 37.67'

The 50' radius curve with radius point at K has a central angle of 180° – N19°42'27" – S37°54'12"E = 122°23'21", a length of 106.80 and a tangent of 90.93'.