The following describes the logic used to reconcile the 1947 Swift Map with the 2014 Horizons Survey.

Section 1:

1) The 1947 Swift Map describes three lots, one of which is the Kent lot.
2) The Kent lot is framed by a 100' lake frontage on the east, Crescent Brook on the southwest, and two borders defined here as a long border, CE, from the beach to the back border, and a short border, EF, from the end of the long border to the brook.
3) The two borders intersect at point E in a perfect bearing fit
4) Note: A map's size can change when copied or printed as in 8.5"x11" or 11"x17".
5) This is fine if the aspect ratio does not change.
6) Printing a larger, or smaller copy, simply changes the original "value" of what an *inch* represents.
7) The printed copy of the map used here is probably a different size than the original Swift map.
8) The map can describe a line or border with a given bearing.
9) The 1947 Swift Map describes the configuration of the Brook which should be plotted at the same scale as the rest of the map. ***Swift didn't do this!*** In fact, he used different scales on the x and y axis and more than one scale on the back border.
10) If not plotted using the same scale, the Brook size and configuration is not correct relative to other points on the map.
11) The Swift map shows two dimensions and is basically an x/y plot, including the "map" of the brook.
12) The y (vertical) dimension is created/based on the brook, from the lake, and is plotted @ 1" = 90'.
13) The x (horizontal) dimension is based primarily on the 53° border to the road (F to W') and is plotted @ 1" = 75'.
14) A cartographer cannot do this! Swift needed to use one scale. In consequence, his map is meaningless but can be deciphered.

Known Facts:

1. The "approximately 400' " in the 1947 Kent deed [Book 19, Page 21] is taken from the Swift map by measuring from E to a point 100' from the mouth of the brook on the shore. This uses the "Y" dimension and should be @ 90'/inch. Swift used 75'/inch [hereafter feet/inch will be given as '/"; for brevity "and '/" are not always indicated].
2. For the printed copy, the "distance" is ≈5.33"from water's edge to back border, thus at 75'/" the distance is about 400' (5.33"x75'/" =399.75').
3. The black line at the bottom of the map is the "water's edge", *not* the tree line.
4. The tree line is 30' from the water for Galvin Swift's lot [located to the southwest of the brook mouth], 33' at SFT's cairn, R, and 36' at C.
5. C to E according to the Horizons Survey is about 438 from Stake C or 474' to the water's edge. The "approximately 400 feet" is reported in the Kent deed. The distance of 388.5' is reported in the 1971 Swift deed [Book 22 Page 295] and states "Commencing from an iron pipe" which would be Stake C to Stake D.
6. If 5.33" is used from #2 above, and the scale of 90'/", from the scale of the "brook", the map reveals a value of about 480' [5.33 x 90' = 479.7'] from the lake to the back border at E.
7. 480' is close to either 474' (E to lake), or -36', E to C of 444'. This is correct!!!!, and yet a bit too long.
8. The map is basically correct, in this dimension, but the accuracy is off, giving a small error.
9. The distance is about 6' too long [where the surveyed distance is 438']. This is explained under <u>The New Plot…</u> see i-v.

Also known:

A) The "approximately 190' " in the Kent deed is taken from the Swift map by measuring F-E @ 75'/". This uses the "X" dimension @ 75'/". Swift calculated the distance at that scale, but it should have been 90'/" to match Y.
B) On the printed map copy, the distance E to F is ≈2.53", thus at 75'/inch the distance rounds off to 190' [2.53 x 75' = 189.75'].

C) F to E in the Horizons Survey is 235'.
D) Thus, the 190' is wrong at 75'/inch.
E) 2.53" x 90'/" is about 228' (227.7'), which is off by 7' from 235', so 228' is also wrong.
F) There are two variables that must be corrected for error: 1. scales on xy axis, and 2. bearing rotation.
G) The cause of the FE error is not the same as the cause of the 6' error reported in #9 above.
H) Conclusion: neither scale is close/correct on the back-boundary line.
I) Example: S to E = 90' and is correct in the field. On the map 1.2" @75'/" = 90' in agreement. However, 2.53" for FE + 1.2" for ES = 3.73", and 3.73" x 75'/inch = 279.75' rounded off to 280'.
J) Swift literally drew this on the map: 190' + 90' = 280.'
K) F-S @75/" is 280' and is totally wrong in the "real world", just as 190' or 228' are wrong. Again, the surveyed distance of FE is 235'.
L) F to S in the real world is 235' + 90' = 325', not 280'.
M) Consider the 90'/" scale. 3.73" x 90'/" = 336'. 336' is close to the true value of 325' but also wrong.
N) Summarizing: F to S of 280' is 45' too short @75'/" for 325', and F to S of 336' is 11' too long @90'/" for 325'.
O) Further, F-W' is 5.0" x 75'/" = 375', which is a real value, i.e. the surveyed value, but F-W' of 5.0" x 90'/" = 450', or 75' too long.
P) Conclusion: 75'/" scale is too short, except @ 5.0", and 90'/" scale is too short or too long. The Swift Map has some serious problems in the x dimension.

Section 2.

Something else besides scale is wrong in the X dimension of the map. A – P, above, proves this.

a) First, the incorrect scale plot of the 100' on the shore of the lake must be corrected.
b) The map shows a point on the shoreline 100'/75' = 1.33" from the mouth of the brook (in line with C).
c) The correct value is 100'/90'=1.11". Therefore, 1.33" – 1.11" = 0.22" and 90'x).22 = 19.8 ~ 20 feet.
d) The entire 33° CE border line needs to move 0.22" closer to the brook, or 20'.
e) See Attachment 100' scale correction.
f) The new map shows F – E is **2.31**" x 90'/inch = 208'. Incorporating the 20' correction: 228'-20'=208', and 235' – 208' = 27'.
g) The error is worse by 27' where the true value of E to F is 235'. Nevertheless, this is a true x-axis correction.
h) A Second Correction involves Bearings. All line bearings are correct. F-S is 53°, E-lake is 33°, the beach is 54°, R -S is ≈ 29°, and North is the grid alignment of the map.
i) One bearing remains: the map of the brook has bearings at every point along the brook. The bearing of concern is that at Stake F which is to say what is the real location of F on this reconstructed map? The real location of F is unknown; what is known is the distance of 235' from E to F using an accurate plot of E on the new map.
j) The plot of the F bearing is off relative to the 1947 mouth of the brook.

The new Plot of the 1947 Swift Map is Correct.

1. The scales match at 90'/inch.
2. The bearing of the lake shore is correct at S 54° W, and each border, N 33°W and S 53°W, is correct, including S-R at ≈ N 29° W.
3. The vertical grid lines represent NORTH, and changes in magnetic North are negligible.
4. The intersection of line E to C with the lake, is now correctly plotted.
5. The new map shows the 53° border of F-E is now off by 27' (235'-208'=27'), or (27'/(90'/")) is 0.3".
6. The bearing of F, relative to the 1947 mouth of the brook, must be "off" by a bearing, resulting in it being incorrect by 27', or 0.3". Verified: Surveyor Nathan Nadeau shows ≈51° F-1947 Brook mouth, vs. 1947 Swift Map of ≈46°. This is a ≈5° difference.

Where the bearing of the brook is “wrong”, corrections follow.

i. F needs to rotate counterclockwise or “left”, while the relative distance remains constant.
ii. F needs to move in an arc, from the brook mouth of ≈0.3 inches, not just a straight line left on the 53° line.
iii. This “lowers” F and thus the entire 53° border by ≈0.0667”. The Arc was drawn ≈0.3"on the map to determine 0.0667".
iv. Using a compass and caliper at a true scale of 90'/”, 90'/” x 0.0667"=6.00'.
v. This corrects the 6' error in the map measurement. See #9 under Known Facts (above). The true calculated distance between C and E is 438’ in agreement with the Horizons Survey.
vi. See Attachment New Kent Map.

Main Conclusions:

1. F to E, 2.61” x 90'/" = 235'.
2. E to the lake shore, through actual location of C, 5.27" x 90'/" = 474', or to C - 36' = 438'.

Note: Exact maps may be generated by adequate computer software, particularly bearing rotation, and an accurate survey of the brook.