SEGMENTING / PARALLEL SURFACE TENTING EVALUATION ------ DRAFT

Objective: Evaluate two approaches for limiting building height, each using a tenting method whose starting point is governed by property lines as per the following: 30 ft from front property line; 20 ft from rear property line; 10 ft from side property lines. Determine, given the constraints detailed below, if either or both approaches allow for the building of a second story over the entire allowable building area while constraining the height of the building to its allowable maximum and what, if any constraint modifications, would be required to make the approach workable.

Discussion: there is considerable concern among Rollingwood residents about recently built homes that "loom" over their neighbors' lots. However, a survey revealed that most residents are in favor of maintaining the current 35-foot residential maximum building height, but nothing more. Observation, survey comments and neighbor complaints suggest that "looming factor" concerns increase as the edges of a building get closer to its property line. A technique called "tenting" is used by some cities to mitigate the looming factor by reducing the allowable building height at the edges of the buildable area and gradually increasing it as the distance from the property line increases. In fact, after much consideration, Rollingwood's Comprehensive Residential Code Review Committee (CRCRC) recommended that the City introduce tenting into the building code. On a perfectly flat lot the application of tenting is fairly simple. However, it becomes significantly more difficult to apply to lots that are not flat. In addition to tenting, the CRCRC recommended using a parallel plane (more properly, "parallel surface") methodology to regulate building height. However, it's not clear that parallel surface and tenting are compatible, particularly if applied on uneven or highly sloped topography. The city of Austin uses an approach that breaks the buildable area into smaller segments with the rules of tenting applied to each segment individually thereby making it easier to handle sloped and uneven topography. However, the segmenting approach may introduce opportunity to exceed the 35' maximum height, at least in a building's center. These concerns and others are meant to be addressed in this exercise. In any case, it is the CRCRC's and presumably the Planning and Zoning Commission's aim to enable new-builds a minimum of 2 stories on each side of the lot's allowable building area while adhering to the 35' rule.

Segment Evaluation Method:

1) Create a set of contours that approximate a 15% grade with some additional side-to-side sloping (Fig 1).
2) Impose a 100' x 150' rectangular lot (15000sf) onto the contours. Show maximum buildable area on the lot using currently required yard dimensions: front -30'; back - 20'; and 2 sides - 10' each (actually 10' and 15', but two 10' yards ensures a proper level of difficulty). Divide the buildable area into 3 segments: 40', 40' and 20'(Fig 2)
3) Esablish a datum for each segment side at the segment high points (e.g. points B and D for the center segment). Using those datum points, construct tenting constraints for each segment starting at 25' at 10' from the side lot line and adding 1 foot of height for every additional 1 foot of distance from the lot line to a maximum of 35'.
4) Answer these questions:
    a. Can each segment support a second story at its exterior walls? (assume a 12 foot first floor and a 10 foot second floor)
    b. Can a second story be extended from one segment into the next one adjacent?

c. Does the building height ever exceed 35’ within the segment plane defined by A,B,C,D and if so, by how much.

5) Repeat steps 3 and 4 using segment low points (e.g. points A and C for the center segment) to establish a datum.
6) Repeat steps 3 and 4 using the average of points A, B, C and D to establish a datum.
7) Skew the buildable area on the contours to the right and repeat steps 3, 4, 5 and 6 (Fig 3).
8) Skew the buildable area on the contours to the left and repeat steps 3, 4, 5 and 6 (Fig 4).

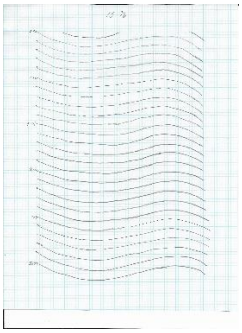

Fig 1

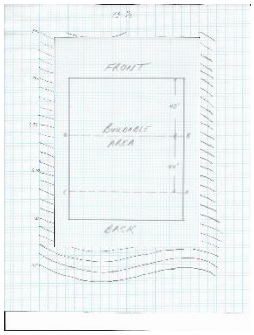

Fig 2

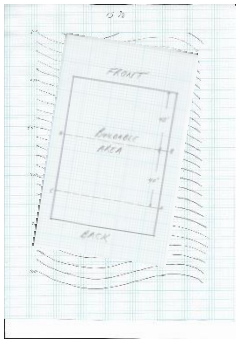

Fig3

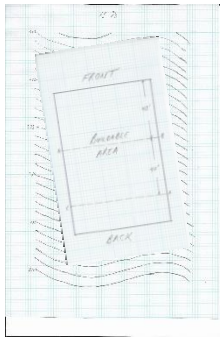

Fig 4

Parallel Surface Evaluation Method:

Using the Fig 1 contours:

1) Impose a 100’ x 150’ rectangular lot (15000sf) onto the contours. Show maximum buildable area on the lot using currently required yard dimensions front -30’; back - 20’; and 2 sides - 10’ each. (Fig 5).
2) Contruct a continuos set of tenting constraints over the entire buildable area using the intersections of buildable area perimeter and the topographic contours as starting points. Start with 25’ at 10’ from the side lot line and add 1 foot of height for every additional 1 foot of distance from the lot line to a maximum of 35’.
3) Answer this question:
    a. What is the maximum front to rear distance that will support two unbroken stories at the building exterior perimeter assuming a 12 foot first floor and a 10 foot second floor.
4) As in the Segment method, repeat steps 2 and 3 first skewing the buildable area to the left and then to the right.

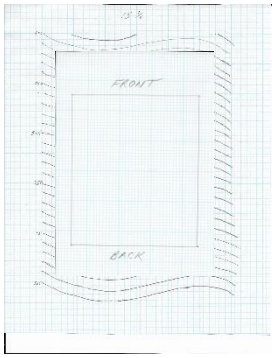

Fig 5