Building #1 Maintenance and Stabilization Rebuttal to Ken Kusen Email

I want to preface that all the pictures and the snippets come from the report that is on the RCMC website. Not just conjecture to be used as misinformation.

2015 Report

Ken Kusen email information states the following:

"Several years ago, the BOD hired an engineer to evaluate the building and shoreline. The core samples taken around the building, showed that there was no problem with the ground the building was built on and that the building was not sinking."

"If the embankment is truly eroding away behind building one how about the riverbank behind building 14."

The facts are as follows:

Study that was undertaken by Universal Engineering Sciences dated March 18, 2015, as contracted by RCMC. Here are some of the findings.

Foundations:

- **This is the foundation for Building 1**.

The existing foundation was explored at location TP-2 southeast corner of Building No. 1. No footing was found, it was discovered that a slab-on-grade approximately 8 inches thick supports the building. The dimensions are show below in Figure 2.

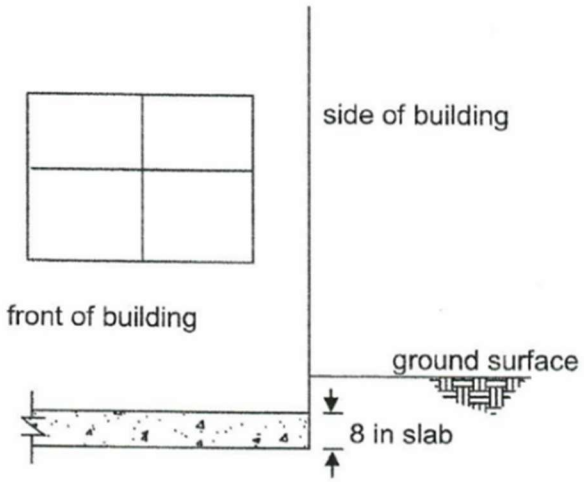

Figure 2. (not to scale)

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- **This is the foundation for Building 14.**

The existing footing was explored at location TP-1 to measure the thickness and width of the footing at Building No. 14. The footing is 12 inches thick and about 16+ inches in width. The dimensions are show below in Figure 1.

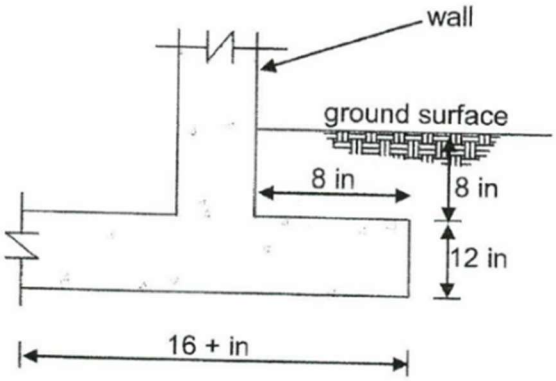

Figure 1. (not to scale)

With the two pictures you can see the difference in the foundation designs. So, comparing building 1 and 14 is like comparing apples and oranges. Yes, both buildings have foundations, just like apples and oranges are both fruit. The comparison ends there.

The Recommendation by the contracted engineering firm Universal Engineering are as follows. (Copied from report).

4.3 DISCUSSION

The loose soil conditions found in the test borings at locations B-3, B-4, B-5, and B-6 adjacent to Building No.1 appears to be a contributing factor to the building settlement. Uneven settlement likely resulted from different support conditions. Therefore, we recommend the use of a deep foundation system to transfer foundation loads to a stable bearing layer beneath the loose soils. Deep foundations may consist of helical piers, pin piles, micro-piles or similar elements designed by a structural engineer. Such a foundation system should be designed within the settlement tolerances of the structure, and installed by a contractor experienced with pile foundation construction.

The bottom line is that there was a report provided to the Board and never disclosed to Owners of units in Building #1.

- The report is not directly talking about the embankment as it is more speaking to the foundation and how to stabilize the foundation of Building #1. The comment on Building #14 does not apply since it has a different foundation design.
- The engineering firm did state a recommendation for added foundation support, not that everything was fine.

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Report from 2019

In 2019 the issue was brought up about bank stabilization and another engineer was directed by RCMC to do a study and a report. This time it was with MCR Professional Engineering.

Rip Rap vs. Upland retaining wall

- At some point rip rap was installed along the shoreline
- See pictures of the complete failure

Photo 1 View looking West

East End of Building #1.

Photo 2 - Sand at toe of rip rap.
This indicates erosion under the rip-rap from the embankment. This observation was typical along the toe of the rip rap. The embankment continues to slope into the water an additional 10 feet horizontal and 3 foot vertical.

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2019 Report Conclusion and Recommendations by contracted engineering firm MCR Professional Engineering (Copied from the report)

CONCLUSION AND RECOMMEDATION

.A vinyl, upland retaining wall with an exposed height of 3 feet, with 5 foot embedment is recommended. (See attached repair sketch option A). An optional approach is to install erosion control fabric on the slope, install additional rip-rap as refurbishment and stabilization, and then backfill and sod the embankment back to the approximate original slope. A sketch of this alternative method is annotated as option B.

This action needs to be complimentary to addressing roof run-off into a designed discharge system (gutters into PVC pipes that drain to Warner Creek). Addressing rain runoff is a significant component to addressing the condition, and is required for any approach for addressing the embankment erosion.

A preliminary cost estimate for the retaining wall is $45,000 for 200 linear feet, which should also cover design and permitting of approximately $ 2500. The proposed sketch should be provided to contractors to provide a cost estimate of the project to River Club.

Conclusion from the 2019 Report tells a couple stories:

- The rip rap is at the bottom of the channel.
- What rip rap that is still on the side of the hill leaks like a sieve.
- An upland vinyl wall was recommended by the engineer that the Association contracted and paid, for their professional advice.

Report from 2021

Another report was completed in 2021. This one was for structural and foundation evaluation. Once again this was requested by RCMC and the engineering firm was MCR Professional Engineers. Once again, the full report which includes and references the first two reports is on the RCMC website.

Highlights:

In March of 2015, Universal Engineering Sciences, a geotechnical and testing engineering firm, completed a soils and foundation investigation. **(Appendix B)**. Included in the findings are 2 significant observations:
1) "*No footing was found, it was discovered that a slab on grade approximately 8 inches thick supports the building.*" (Pg 5 of 8)
2) " *A notable feature found in the general soil profile was the presence of very loose to loose soils from 0 to 10 feet at borings B-3, B-4, B-5, and B-6*" (Pg 6 of 8).

***Notice in this report the engineer references the 2015 investigation about the soils.**

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2021 Report Conclusion and Recommendations by the contracted engineering firm MCR Professional Engineering (Copied from the report)

CONCLUSION

Building condition can be stated many ways, such as water tight integrity, aesthetics, cost to maintain or repair, etc. This report concerns the building foundation, it's condition, and what can or should be done about it.

The observations do not necessitate foundation augmentation by underpinning or soil grouting at this time. Each unit where anomalies were observed has been inspected and documented with photographs. Monitoring of these units for significant change on a bi-annual, or significant change basis is a viable option, and is the recommended response at this time.

Regarding embankment stabilization, protecting the embankment from further erosion is not the same thing as construction of a retaining wall to enhance and stabilize the foundation. A retaining wall or system with significantly higher capacity and strength than the upland retaining wall or rip rap presently recommended will be needed. A structural retaining wall will provide the benefit of definitively stabilizing the soil on the North side of the building. This will address the conclusion that embankment erosion and fluctuating tide is adversely affecting the foundation.

Disturbance of the rear patios and potentially the foundation from roof run off is evident. The recommendation to provide for positive drainage away from the building still applies. This would involve collecting water from the downspouts into a sealed drainage pipe that discharges into Warner Creek instead of onto the ground adjacent to the building.

The plumbing drains need to be checked. If they are cracked, this could pull soil from under the building. Checking the manhole that collects the effluent from building 1 for sand in conjunction with scoping the the drain lines is needed, and has the benefit of specifically investigating and hopefully eliminating this possibility.

Whether to stabilize the embankment or provide for a retaining wall of adequate capacity is a significant owner concern. An expressed concern was that a low height retaining wall may be insufficient to stabilize the embankment *and* provide benefit for building 1 foundation support. This is true.

The difference in the 2 approaches (stabilize embankment verses stabilize foundation) from an economical perspective is substantial. An order of magnitude estimate for an anchored vinyl sheet pile retaining wall, (20 feet lengths, 10 feet embedment with 10 feet exposure) will be a minimum of $ 1000 per running foot, or between $ 220 thousand and $ 250 thousand.

As building 1 is the only structure in the development reported to be in this situation, it is a viable option to consider. Installation of a high strength retaining wall will stabilize the soil on the North side of the building, and thereby improve the foundation condition.

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RECOMMENDATIONS

1. Design and install a rain and roof runoff discharge system to direct water away from the building.
2. Scope (visually inspect by camera) plumbing drain lines, inspect manhole for sand.
3. Monitor building 1 bi-annually for documented cracks and anomalies re-emerging, or whenever s significant new observation occurs.
4. Design and evaluate a retaining or seawall system that will not only stabilize the embankment, but provide structural capacity adequate to enhance the soil adjacent to building 1.

Conclusion and recommendation from the 2021report highlights:

- Recognizes study of 2015 which was not known at the time
- The report states that underpinning of foundation is not required at this time.
- States that a seawall is needed to enhance the stability of the foundation soils.
- The report also recommends drainage system improvement from roof rain runoff.

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Backyard reference from Ken Kusen email

"When I left the Board in 2017, we had a photo album in the office that showed the rear yard and the embankment behind building one. At that time comparing photos from 1978 and the current ones at the time, the riverbank remained the same. Palm trees and other bushes and trees were in the same locations in both sets of photos. The photo album has disappeared or has been stolen by someone with access to the office."

Here is a picture that we have from ~ 1980 which shows Mr. Swanson in a lounge chair at the end of the wall that is still there. If you were to try and lay in a chair in this location today, you would be laying at a 45-degree angle with your feet touching the water. As it is commented in the email please come back behind the building and compare this picture to what you can see for yourself.

It is not that the waterline has moved closer to the building it is the fact that the top of slope has eroded and the breakover point of top of slope has moved closer to the building. So