

From: Larry Paul a SeaView Resident, directly speaking to where do we go from here, and not how did we get here regarding the Landslide Documentation via Email to The City Manager of Rancho Palos Verdes, February 13, 2024.

Ara,

As always thank you for all that you are doing, but I feel I need to bring this to your and the city of RPV's attention. I have not seen is any discussion about what is likely a very significant aspect to what will address the "Root Cause" of our slide movement issue in SeaView and PBC.

We also know from 42+ years of documentation that water in the Klondike Canyon is the major contributing factor to movement in SeaView. I know the main Portuguese Bend slide area movement is also a contributing factor and that is something that I hope your FEMA work will help with getting the PB slide area to slow down. I know that this is also a complex issue and there are still things to be discovered.

I do feel that the 24/7/365 flow of water from the homes surrounding the Klondike Canyon is a contributing factor as it keeps the underground water feeding our soils with water because they don't have sewers they have septic tanks. Cal Water can tell us probably fairly accurately how much water that feed those homes but it is important to note: 100% of the water that they feed to those homes goes into the Klondike Canyon. There is new proposed construction going in too on a very large parcel of land.

I would estimate that to be on the order of 15-25 Million gallons per year is being fed by CalWater, going on and already starting underground 24/7/365, however, I think there is a much larger problem that I am not aware of being discussed (perhaps it is and I am just out of the loop-and that is quite possible, but I am not seeing that discussion taking place as recently as last weeks meeting notes).

I see on the meeting minutes for Feb 7:

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| <p>Coordination with the City of Rolling Hills</p> <ul style="list-style-type: none">• There has been concern and discussions that the City of Rolling Hills Estates has been hands off. However, their City Council has been focused on recent land movement and events. They have a meeting with FCD in March 2024.• Karina Banales will report more as the information is available.• Kit Song requested a Fact Sheet on septic tanks, including the number of residents connected to sewer lines. Karina will work on providing that information. | <p>Ara Mihranian Karina Banales</p> |
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I was up in Rolling Hills just before the rain. My biggest concern is there is no storm drain system in Rolling Hills at all. Water has been diverted and re-directed in many places to flow directly into the Klondike Canyon structure with NO storm drain system that can carry the water to ocean directly or to the 48" pipe that is just to the north of PVDS that leads to the ocean.

While SeaView does have a decent storm drain system, I can't say the same for the balance of the Klondike Canyon.

It certainly appears that Rolling Hills never built any storm drains that connect to the ocean or to RPV's storm drains. There is to my estimate about 189 acres of land in Rolling Hills that directly feed the Klondike Canyon with both septic runoff from homes and very significantly storm drain runoff.

I am not sure why it was not built, but RPV never to my knowledge built an appropriately sized drainage system up the Klondike Canyon that was presented on at least one of the studies that I have seen dated November 29, 1982. There was a pipe that extended all the way up the canyon to beyond the then known fault line of the Klondike Canyon but I think it was only 3" or 4" in diameter. A pipe of this size could never support the amount of storm drain runoff that is directed down into the canyon.

Los Angeles and Orange Counties have created a series of cement waterways all over the greater Los Angeles area to try to avoid flooding and property damage. We need infrastructure added to the Klondike Canyon that directs this water so it actually gets to the ocean. Just because it was never done in the past does not mean it is not required.

Perhaps it is a combination of large above ground flexible pipes and some cement channels added to strategic sections of the canyon. I know that it is difficult in some sections of the Flying Triangle slide area to build with cement, and that is why I suggested some areas with large diameter flexible culvert drain pipe. Perhaps like this...

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48" x 20' Corrugated Dual-Wall Solid Belled End Culvert Drainage Pipe

menards.com

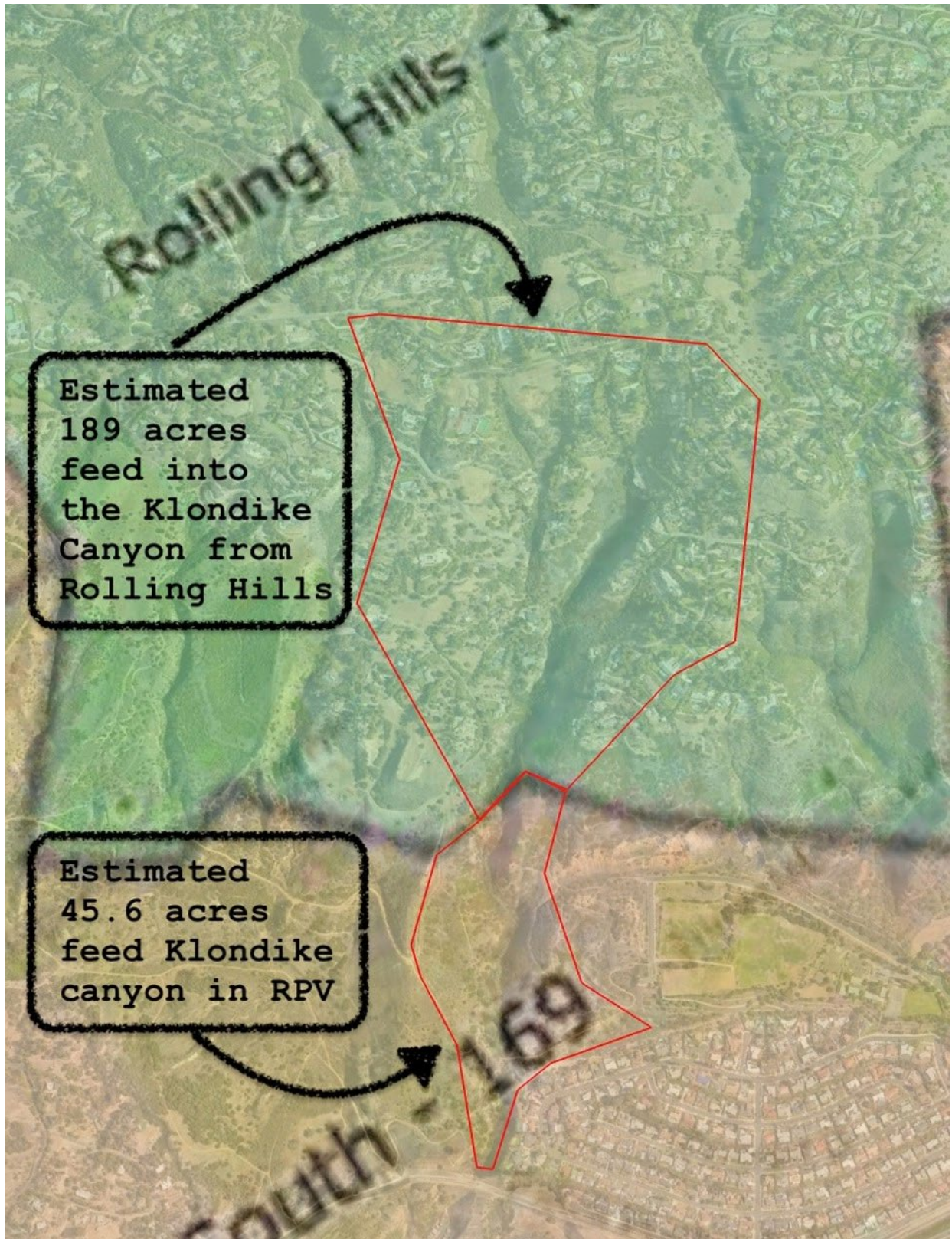
...but hundreds of feet long that connect to the large pipe and concrete system just north of PVDS in the Klondike Canyon.

We have open fissures that water from above us is pouring directly into the ground and I believe flow directly to the bedrock and bentonite layers beneath SeaView and Portuguese Bend Club that is causing our (now accelerated) movement.

Adding more pumps and getting more water out at the beach is good, but extracting the water at the beach is pulling water that has already passed under the homes here and done the damage. We really must find a way to prevent the majority of the water from entering the soil in the first place-and that begins uphill from our communities.

This is my estimate of land area that fed the Klondike Canyon. Roughly 189 acres in RH and another 46 acres that are in the RPV area.

NOTE: This is MY estimate... it is NOT from an official document!!!!



With the storm over the past couple of weeks I would estimate that around 44 million gallons of water landed in Rolling hills that all was directed into the canyon. A very large percentage and I suspect a vast majority of that water never made it down the canyon to the 48" pipe/to the ocean, it went into the ground exactly where we don't want it to be.

I am not saying that we can or need capture all of it, but currently there is no storm drainage system at all and the land here cannot just keep absorbing this amount of water every time it rains.

What can be done urgently by either the City of Rolling Hills or Los Angeles County (that began the modifications to the land over 110 years ago)?

We need to have appropriate drainage in RPV in the Klondike Canyon that really can capture and direct the water directly from the Rolling Hills storm drain system (that is currently missing) and get it to flow to the 48" pipe. We need much more than the temporary plastic tarps and a 3-4" pipe that is there now.

The main point is: Unless we can get the city of Rolling Hills and or LA County and or the state of California to install and maintain a properly engineering and functioning storm drain system in the Klondike Canyon, it is unlikely that RPV can get this to ever slow down no matter what we do alone without support from outside of the city.

Even a temporary solution with the flex pipes like I had the link to that could carry a significant amount of the storm runoff to the 48" pipe I suspect would make a dramatic difference in getting storm water directly to the ocean.

I know you know we are in crisis here, but RPV cannot fix this situation alone and it is bigger than just a problematic lack of sewers in Rolling Hills (that also should be studied). While it is a problem that they don't have a proper sewer system, we must urgently find a solution to get uncontrolled storm drainage water to stop flowing from Rolling Hills into RPV via the open and compromised Klondike Canyon area.

I hope this can be discussed at the meeting tomorrow and future meetings.

Thank you very much for listening.

Best regards,

Larry

RPV City Manager Reply to the Larry Paul Email of 2-13-2024

On Feb 14, 2024, at 7:10 AM, Ara Mihranian <AraM@rpvca.gov> wrote:

Good morning, Larry,

Simply put, I share your concerns and have the same questions not only for Klondike Canyon, but all the canyons within the PB Landslide complex. The same question is being raised for Altamira Canyon, Paint Brush Canyon, etc.

A hydrology study is needed for the general area of the PB Landslide complex to understand the water source and how to address it. A question being asked is why the recent spike in movement throughout the landslide complex including Klondike and Seaview. I am also encouraging open communication and collaboration with Rolling Hills to study the hydrology condition in the area and how to address drainage flows into Klondike Canyon. Homes in Rolling Hills are also impacted by land movement.

The solutions you are proposing make sense but have impacts to biological resources which will likely be opposed by some, similar to the City's PB Landslide Remediation Project. We are exploring how some of the state requirements can be suspended or relaxed under the proclamation of a state of emergency. This will be addressed in the staff report for next week's council agenda item on the City's Landslide remediation project, which will be published by tomorrow. It wasn't published with the agenda last night as we are still gathering information on requesting the Governor to declare a state of emergency.

The City is committed to getting in front of the crisis and are knocking on every door possible to seek funding and resource assistance.

Thank you for your engagement and support – we are in this crisis together!

Ara

Larry Paul Document Continued via Email of February 14, 2024

Ara,

Thank you for the prompt and thoughtful response.

I am glad it is included in the larger picture of what as to the discovery of what is the "root causes" of the more recent accelerated movement.

I suspect (but certainly don't know) that part of what has increased this movement is a downward spiral: When fractures open, and that enables more water to enter and got deeper in the land. That causes more fractures and then there is more penetration of water deeper into the lower layers and that causes more fractures etc. We MUST break this cycle.

While I do support the notion "biological resources" as being important, there must be some appropriate solutions that will prioritize the homes, roads etc. that are being severely impacted. It cannot be 100% focused on preserving "natural" streams when humans have made significant changes

to the natural surroundings (homes, roads drainage re-routing etc.). Changes must be made to what is happening based on newer information. Storm drains are needed.

It is not legal for me to direct storm drain water from my property and dump it into my neighbor's land. RPV cannot withstand this if this is allowed to continue without some appropriate actions as neighbors in RPV are downhill from the neighboring city. There are new properties being developed for construction in Rolling Hills. This will mean even more water is being added. None of this is "natural" and the addition of more water with new construction will only make it worse.

We must find a way to get storm drains and sewers added to the land in the homes above RPV.

Perhaps if we had a combination of flexible piping over the areas of the land that is most permeable/fractured and there can be some areas that are allowed to be open if it is on non permeable land it might appease some of the environmental objections. Either way, we must find a solution.

The city of Rolling Hills is aware of these issues as well. Here are some excerpts from the City of Rolling Hills Hazard Mitigation Plan (Final Draft Plan) dated: January 16, 2019

Drainage and Groundwater Alterations

Water flowing through or above ground, is often the trigger for landslides. Any activity that increases the amount of water flowing into landslide-prone slopes increases landslide hazards.

Broken or leaking water or sewer lines can be especially problematic, as does water retention facilities that direct water onto slopes. However, even lawn irrigation in landslide prone locations results in damaging landslides. Ineffective storm water management and excess runoff also cause erosion, and increase the risk of landslide hazards. Drainage is affected, naturally by the geology and topography of an area. Development that results in an increase in impervious surface impairs the ability of the land to absorb water and redirects water to other areas. Channels, streams, ponding, and erosion on slopes indicate potential slope problems.

RPC 2(b)(iv) **Road and driveway drains, gutters, downspouts, and other constructed drainage facilities concentrates and accelerates flow. Ground saturation and concentrated velocity flow are major causes of slope problems and triggers landslides.**

Hazard Identification

Identifying hazardous locations is an essential step towards implementing more informed mitigation activities.

Landslides are the most serious geological hazard facing the residential community of Rolling Hills. **Residences in the Flying Triangle area of Rolling Hills were originally built upon pre-existing, unrecognized, or recognized, but un-stabilized landslide.** Geologically, most of the landslides within the City occur in the Altamira Shale Member of the Monterey Formation.

Landslide rupture surfaces are commonly along plastic clay beds or seams within clayey shale or siltstone units (Source: General Plan Safety Element-13). Refer to the Earthquake-Induced Landslide Area Maps located in the Earthquake Section of this plan.

Slope modification during grading can render slopes unstable. Slope instability occurs when bedding planes intersect the slope face of either natural slopes or designed cut slopes. Site specific investigations are necessary to determine potential slope instability problems at specific sites.

Landslides

Either by excessive rainfall, introduction of artificial water in the slope (landscaping irrigation/broken water or septic systems), or improper site design or grading practices. Grading activities must consider constraints as a condition of project approval. **The County of Los Angeles Public Works Department and a private engineering and public works company act as reviewer for the City of Rolling Hills to ensure all potential geologic problems are addressed.**

Factors included in assessing landslide risks include population and property distribution in the hazard area, the frequency of landslide or debris flow occurrences, slope steepness, soil characteristics, and precipitation intensity. This type of analysis could generate estimates of the damages to the city due to a specific landslide or debris flow event. At the time of publication of this plan, data was insufficient to conduct a risk analysis and the software needed to conduct this type of analysis was not available.

The primary effects of mudslides/landslides include: abrupt depression and lateral displacement of hillside surfaces over distances of up to several hundreds of feet, disruption of surface drainage, blockage of flood control channels and roadways, displacement or destruction of improvements such as roadways, buildings, and water wells.

1979 Klondike Canyon Landslide

A third landslide near but outside the boundaries of the planning area that deserves mention is the Klondike Canyon Landslide. This landslide is located adjacent to the coastline and to the east of the much larger Portuguese Bend Landslide, again in the City of Rancho Palos Verdes. Like the Portuguese Bend and the Abalone Cove Landslides, Woodring published the location of the ancient "Beach Club Landslide" in 1946. However, by that time, **both Yacht Harbor Drive (in 1927) and Palos Verdes Drive South (in 1937) had been constructed across this landslide.** Development of the two roadways was followed in the late 1940's by the construction of the Portuguese Bend Club and grading for the Seaview tract landward of Palos Verdes Drive South was completed in late 1956. **Following record-breaking rainfall in 1977-1978, the first indications of movement of the Klondike Canyon Landslide were noted in September 1979 at the intersection of Dauntless Drive and Exultant Drive in the Seaview tract. Heavy rainfall continued during 1979-1980 and 1982-1983, accelerating land movement, which damaged local roads and eventually destroyed one home in the Seaview tract.** In 1982, the Klondike Canyon Landslide Geologic Abatement District was formed and began installing dewatering wells to lower the ground water table within the slide mass. (Kerwin, Scott, "Land Stability in the Klondike Canyon," Moore and Taber professional report, no date but probably 1981 or 1982) The dewatering efforts have been successful in stabilizing the area and additional landslide abatement efforts have continued since that time, such as drainage improvements in Klondike Canyon and the installation of a private sewer system in the Portuguese Bend Beach Club.

The bottom line is we must get action from outside just the city of RPV as RPV cannot solve it alone. There is work that needs to be done in RPV, but Rolling Hills and I think Los Angeles County MUST be part of this solution.

Best regards,

Larry