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February 15, 2022

Mat Jackmond, Commissioner
Hopkins Drainage Ditch District #2
10330 Tilley Road S.
Olympia, WA 98512

Sent via email to mjackmond@wa.net

Dear Mr. Jackmond:

This letter responds to your comments regarding flooding within the Hopkins Drainage District boundaries. You indicate an action or lack of action by the City of Tumwater related to “The Preserve” development resulted in an increase in stormwater flow through Hopkins Ditch, exacerbating flooding issues within District boundaries during December 2021 and January 2022 weather events.

Theoretically, an increased stormwater flow may be possible with any project that increases impermeable surface area. However, the likelihood of the development causing any adverse impacts is precluded by mitigation. Engineering measures account for soil strata and the hydrology of the development site. City staff followed all requirements for reviewing studies and reports by industry professionals. It was demonstrated there would be no change between pre- and post-development conditions related to stormwater downstream of the site. City staff have further reviewed the reports following your comments and have reconfirmed the adequacy of the development’s stormwater design and the professional opinions of no effect.

We understand your concerns about flood severity and see how you might draw your conclusion given the timing of the development and the subsequent increase in flood severity. However, the reasonable cause of the increase in flood severity was the record-setting rain event concurrent with snow and ice melt. At the same time, the water table was already high.

City staff reviewed data from all available monitoring wells, stream gauges, and precipitation gauges in the immediate vicinity and within the same basin and several in distinct basins or watersheds. We have provided a review of that data as an enclosure with the location where you can review the data for each gauge.


The most significant points are:

- All but two of the gauges in the study area, including those in distinct basins, recorded their highest water elevations in the history of those gauges, most of which have collected between 10 and 23 years of data.
- We reviewed precipitation data at the Olympia Airport rain gauge that has collected data for over 75 years. The Olympia Airport rain gauge measured the third-highest amount of rainfall on record from October until January 14, when you contacted us.
- The measured precipitation for January 1-14 at the Olympia Airport rain gauge was by far the most on record (approximately 50% higher than the next highest), at a time when the water table was already high, all while snow and ice were melting.
- The measured rainfall for the 2-weeks before the peak of the flood was higher than the 1996, 1999, and 2007 flood events.

It is important to recognize flood events cannot be directly compared as each storm event is different inasmuch as the water table at the start of the events is different and the ground saturation is different. We know this flood event occurred much later in the rainy season than the 2007 event. This means the water table was already higher, and the soil column was more saturated than during the 2007 event. This flood occurred during a timeframe more similar to the 1996 event and earlier than the 1999 event of record. The recent event had significantly more rain in the 2-weeks building to the peak of the flood than all events of record and with ice and snowmelt simultaneously. It is unlikely this event will exceed the overall 1999 event of record because the rain persisted for much longer in 1999 even after the initial event, but the initial flood elevations should have been higher in this basin as they appear to have been.

We are confident that the data and information demonstrate the higher elevation of water and greater severity of flooding within the District boundaries and throughout the region are due to the record-setting abnormal weather event.

Sincerely,

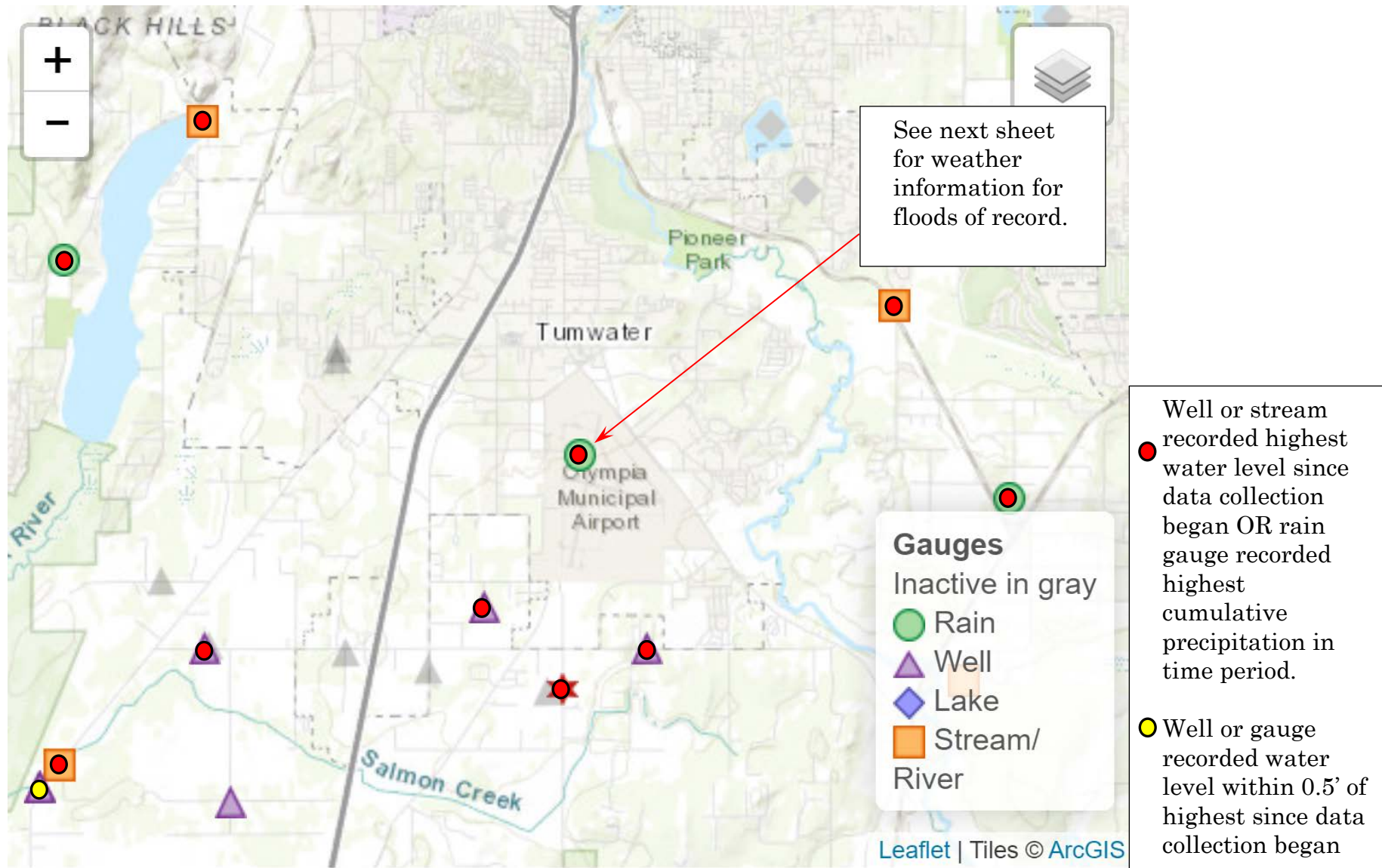


John Doan, AICP
City Administrator

C: Mayor Debbie Sullivan
City Council
Brandon Hicks, PE, Transportation & Engineering Director
Dan Smith, CSM, Water Resources & Sustainability Director

Attachments: Thurston County Monitoring Well Map
Comparison of Precipitation During Floods of Record

Thurston County Monitoring Well Map



Individual gauge data available at: [Thurston County | Planning | Water Monitoring Dashboard \(thurstoncountywa.gov\)](https://thurstoncountywa.gov/planning/water-monitoring-dashboard)

Comparison of Precipitation During Floods of Record

2022 Flood

Gauge water elevation at 93rd Ave (north side of 93rd at development) at start of event: 184.2 feet
Gauge water elevation at 93rd Ave (north side of 93rd at development) at peak: 189.8 feet (rise in EL = 5.6 feet)
Gauge water elevation at Tilley (south of 93rd) at start of event: 189.8 feet
Gauge water elevation at Tilley (south of 93rd) at peak of event: 193.2 feet (rise in EL = 3.4 feet)
Cumulative Inches rain from October 1 to January 14: 37.01 inches **(third highest on record)**
Cumulative Inches rain from January 1 to January 14 (14 days): **10.06 inches (highest on record)**
Cumulative Inches rain from December 14 to January 14 (14 days): **15.67 inches**

2007 Flood (Start of event December 1, 2007)

Gauge water elevation at 93rd Ave (north side of 93rd at development) at start of event: 177.4 feet
Gauge water elevation at 93rd Ave (north side of 93rd at development) at peak: 179.8 feet (rise in EL = 2.4 feet)
Gauge water elevation at Tilley (south of 93rd) at start of event: 182.8 feet
Gauge water elevation at Tilley (south of 93rd) at peak of event: 186.1 feet (rise in EL = 3.3 feet)
Cumulative Inches rain from December 1 to December 14 (14 days): **6.60 inches**
Cumulative Inches rain from November 14 to December 14 (4 weeks): **8.33 inches**

Winter 1998/1999 Flood (February 10, peak of flood)

Event occurred prior to gauge data at 93rd Ave (north side of 93rd at development) or at Tilley (south of 93rd)
Cumulative inches rain from to January 28 to February 10 (14 days): **7.03 inches**
Cumulative inches rain from to January 10 to February 10 (4 weeks): **17.94 inches**

Winter 1996 Flood (12/26 to 2/10, main flood 12/26 to 1/6/97)

Event occurred prior to gauge data at 93rd Ave (north side of 93rd at development) or at Tilley (south of 93rd)
Cumulative inches rain from December 26 to January 8 (14 days): **8.53 inches**
Cumulative inches rain from December 8 to January 8 (4 weeks): **13.31 inches**