

Longview gets a green subdivision.

Longview's newest subdivision is the area's greenest, according to Cascade Construction's Mark Questad and Joni Geier. Their Homestead #4 development off 38th Ave. and Ohio St. in Longview addresses many emergent water quality themes. According to Longview Stormwater Manger, Josh Johnson, "it improves urban land instead of promoting sprawl, and it better mimics pre-existing conditions."

According to the EPA, almost 50% of our nation's waters no longer support beneficial uses such as drinking and recreation. Stormwater from agriculture and from impervious surfaces, such as streets, rooftops, and parking lots is the leading concern. In natural areas, over 99% of runoff flows through soils, forms little pools, or is intercepted by trees to be treated or stored. Contemporary development patterns short-circuit this process, replacing natural areas with lawns and whisking away large volumes of runoff along with brake dust, oils, silt, french fries, pet waste, etc. Individually, our contributions are minor; but collectively, it all adds-up fast.

The State of Washington's new Municipal Stormwater Permit requires that Longview, Kelso, and parts of Cowlitz County update their rules governing runoff by next summer. One change is to let builders use Low Impact Development (or "LID"), the goal of which is to better mimic the runoff patterns that existed before development. Instead of building large stormwater facilities, a developer is encouraged to reduce and treat runoff with infiltration, landscaping, and site designs that preserve open areas and/or require less impervious surface. Some of these techniques are challenging in the Longview-Kelso area because of poor soils, high water tables, and steep slopes. However, many developments are moving towards LID.

Cascade Construction's development boasts the Northwest's first privately-built permeable concrete public street. It terminates in a "hammerhead" instead of a cul-de-sac, which requires less pavement and is less of a restriction to emergency vehicles. Pervious pavements provide a hard, durable surface for development without generating runoff. They are typically supported by an open rock base, which doubles as an infiltration field. Pervious concrete is similar to regular concrete, but is made with less fines and water. Pervious asphalt is similar to regular asphalt, but again, without the fines and with a stiffer oil. Local examples include Quivers Resturant, Don Connell Mini Storage, and the future St. Vincent de Paul Food and Clothing warehouse.

FACT SHEET: CASCADE CONSTRUCTION’S HOMESTEAD #4 (OHIO & 38th AVE)

The proposed development is very unique and is to be commended. Its benefits include:

- **Exceptional Drainage:** The development has three drainage trenches and over 1,400’ of 12”-diameter perforated pipe. One drainage trench is located under the street and the other two extend along the North and South boundaries. These rear trenches are designed to intercept, store, and infiltrate runoff and preempt friction between residents of new and existing developments. Throughout the year, these will de-water neighborhood soils – a true benefit in Longview. Flapper gates and orifices retard any backflow of ditch waters.
- **Enhanced Flood Protection:** Finished floor elevations average over 7’, comfortably higher than others common in west Longview. High water assumptions were raised 1½’ for the hydrologic analysis, requiring fill and broad, shallow detention for runoff.
- **Street Strength and Durability:** The development is centered around an 8” thick pervious concrete street on 16” of crushed, washed aggregate. Like many of RA Long’s original concrete streets, it will provide a smooth, low-maintenance surface for decades. It was designed to handle 3,000 average daily trips with 3% trucks at 3% growth for 30-years at 85% reliability with a terminal serviceability index of 2.5 over west Longviews weakest soils (subgrade k-value of 15-psi/in, ≈saturated muck). All metrics were modeled at a very conservative standard deviation of 39%.
- **Safety:** This development terminates in a hammerhead (a.k.a. “T”). Although it consumes 18% less surface area than a cul-de-sac, trials conducted by Longview’s Fire and Public Works Departments indicate that the largest emergency vehicles can negotiate it with only one reverse, versus four needed on the 80’ cul-de-sacs common around town. This will likely be the first of many hammerheads built in Longview. Note: It is just wide enough to accommodate the turning radius of most large pickup trucks.
- **Taxes:** By developing under-utilized properties in town, Cascade Construction is slowing sprawl by adding 12 lots to the tax base. Also, storing and infiltrating runoff under the street adds another two – instead of adding to the growing number of ponds and bioswales that the city must maintain and accept liability for. Well built concrete streets like this one save tax dollars, because they can last as much as twice as long with less maintenance than asphalt streets. If all developments shed as little water as this one, then municipal and Diking District capital investments in stormwater infrastructure could be planned for farther into the future.
- **Aesthetics:** Stormwater facilities should be nicely integrated into a design, but all too often end-up like mosquito-breeding water prisons. This pond is hidden, rendering the issue moot (and giving lots 8 & 9 a view. The hammerhead increased lots 8 & 9 by 48% to ~9,275 sqft.)
- **Environment:** This development’s infrastructure may be as green or more than any known residential projects showcased recently along the Northwest’s I5 corridor. It has 27% less impervious surfaces than a typical development. That alone might be considered an effective water quality strategy; but it also provides over 28,000 sqft for infiltration. The 2005 Western Washington Stormwater Manual identifies infiltration as the most effective approach to runoff water quality control. This development compares well with others using more common approaches such as water quality manholes, bioswales, and off-site detention:

	Pervious Concrete Street	Traditional Storm Practices	
		Concrete Pond & CDS Manhole	Regional Detention
Impervious surfaces (Acres)	1.34	1.83	1.83
Increased 100-yr Storm Runoff (Cuft)	12,800	~18,500	20,200
Infiltration (Cuft)	5,400	200	0