

STORM DRAINAGE REPORT

Proposed Single-Family Residence

For YOUN CHUNG

Located at

7002 78TH AVE SE
MERCER ISLAND, WA 98040

PARCEL # 252404-9217

For

YOUN CHUNG

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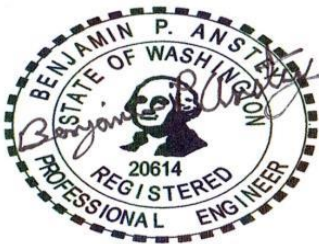
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Project Overview

The site is an existing single-family residence at the north end of 78th Ave SE in Mercer Island, WA. The site is located at 7002 78th Ave SE, Mercer Island, WA, and the parcel number is 252404-9217. The lot is 15,001 SF and has an existing 2768 SF house and 571 SF patio, with a 175 SF shed, a 1136 SF asphalt driveway, and 82 SF of concrete walkways. There are variable diameter trees, bushes, and grass. The site is bordered to north by SE 70th St (with vegetated buffer in ROW separating the property from the street), to the south by 78th Ave SE, and on the west, east and southeast by adjacent single family residences. This project would propose to construct a 460 SF new DADU, a 7 SF new concrete pad at the entrance to the DADU, and 57 SF of new hardscape walkways as 12"x12"x2" eco paver tiles with 1" gaps. Additionally, a new water service and meter will be provided for the DADU, and the existing water meter for the existing house will also be replaced.

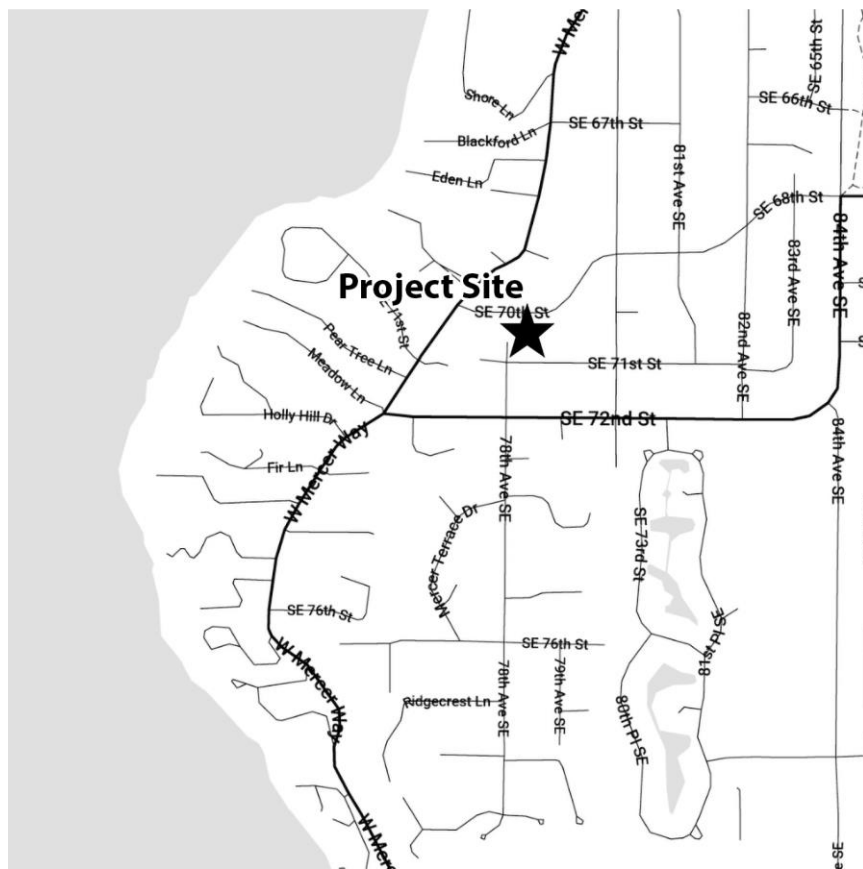


Figure 1 – Vicinity Map

Per the Mercer Island GIS Portal, the site is located within the LID Infeasibility zone for Areas Infeasible for Infiltration. A small portion of the site at the south end, and a small portion in the very northwest corner, is identified per GIS as a landslide and erosion hazard area, however the majority of the property does not lie within this zone. There are small, locally steep slopes on site, and most of the site slopes moderately to the north-northwest. Per the King County iMap, no streams or wetlands are in the vicinity of the site, nor is the site in a floodplain.

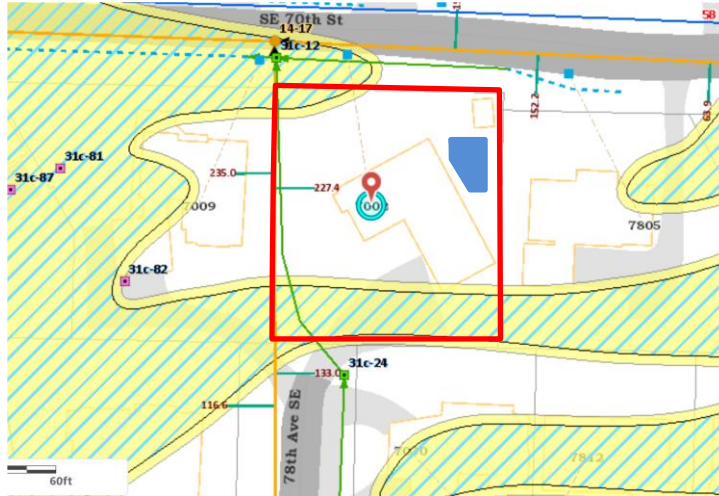


Figure 2 – Critical Areas Map

Stormwater runoff appears to flow north-northwest into a vegetated buffer within the SE 70th St ROW. Any runoff that reaches SE 70th St would appear to enter a storm system along the south side of the street consisting of open ditches and 12" concrete pipes. The system flows westward to W Mercer Way where it then flows south to SE 71st St and then continues northwest to outlet into Lake Washington. The total path is approximately 2000 linear feet.

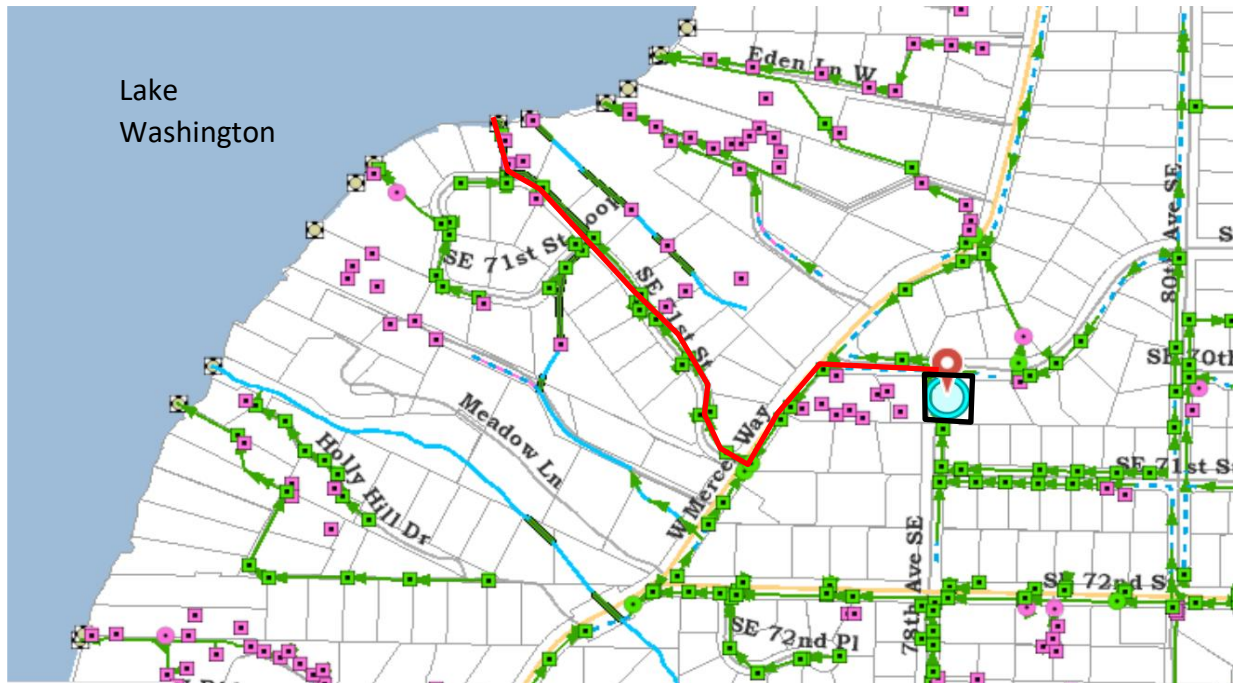


Figure 3 – Drainage Path to Receiving Waters

Minimum Requirements

The City of Mercer Island has adopted the 2014 Stormwater Management Manual for Western Washington (SWMMWW) by Washington Department of Ecology as the basis for their storm drainage review.

The project proposes to construct a DADU with a roof area of 460 SF, plus an uncovered concrete pad of 7 SF totaling 467 SF. Approximately 57 SF of 12"x12"x2" eco paver tiles with 1" gaps will be placed as a hardscape walkway, connecting the parking area to the existing concrete walk at the west side of the house, and connecting the new DADU to the existing patio.

Under the assumption that the City of Mercer Island does not consider eco paver hardscape tiles as impervious surface, the total net increase in impervious area is 467 SF.

The total land disturbing activity as defined by the extent of the clearing limits is 6000 SF. However, the actual amount of significant land disturbance will be much less, as the clearing limits has been extended to include a travel path and suitable space for construction equipment. Closer to 2000 SF of excavation and grading work is planned.

No native vegetation is expected to be converted to lawn or landscaped area.

Per the City of Mercer Island small project stormwater requirements, this project falls below the minimum threshold to be considered a small project, as it results in less than 500 SF of net increase of impervious area, less than 2000 SF of new plus replaced hard surface area, less than 7000 SF of land disturbing activity, and less than ¼ acres of vegetation converted to lawn or landscaped area.

However, this report will address Minimum Requirements #1 through #5 out of due diligence.

Minimum Requirement #1: Preparation of Stormwater Site Plans

A Stormwater Site Plan has been provided per I-3 of the 2014 DOE Stormwater Management Manual for Western Washington.

Minimum Requirement #2: Construction Stormwater Pollution Prevention (SWPP)

An Erosion Control Plan has been provided which illustrates adherence to the following elements.

Element 1: Preserve Vegetation/Mark Clearing Limits

The clearing limits will be staked. Temporary fences will be erected to protect larger trees, and smaller trees will be behind the clearing limits and silt fence. Disturbance of natural vegetation will be kept to a minimum per BMP C101.

Element 2: Establish Construction Access

A stabilized gravel construction access will be provided. Construction vehicle access will be limited to this one route.

Element 3: Control Flow Rates

Based on the project size and requirements, flow control should not be required during construction. Energy dissipating BMPs such as Water Bar BMP C203 or Wattles BMP C235 can be used if needed.

Element 4: Install Sediment Controls

Silt Fence BMP C233 will be utilized around the perimeter of the clearing limits on the north and west sides. Storm Drain Inlet Protection BMP C220 can be used if needed on SE 70th St.

Element 5: Stabilize Soils

After construction activities conclude for the day, exposed soil and stockpiles will be stabilized and protected per BMP C123 Plastic Covering or other appropriate measures. Following completion of construction, disturbed soil will be seeded and mulched or sodded per BMP C120, C121 or C124.

Element 6: Protect Slopes

There will be no exposed slopes.

Element 7: Protect Drain Inlets

If necessary, BMP C220 Storm Drain Inlet Protection can be implemented on SE 70th St.

Element 8: Stabilize Channels and Outlets

There are no channels on this project.

Element 9: Control Pollutants

Measures will be taken to control concrete placing to avoid pollution. Materials on Hand BMP C150 and Materials Delivery, Storage and Containment BMP C153 can be used as needed. The Contractor may utilize other source control measures such as BMP C151, C152, C250, C251, C252, or C253 as appropriate.

Element 10: Control De-Watering

If dewatering is necessary, BMP C203 Water Bars or C236 Vegetative Filtration may be utilized as appropriate.

Element 11: Maintain BMPs

The owner will be responsible for maintaining the BMPs on this project.

Element 12: Manage the Project

The owner will be responsible for managing the project.

Element 13: Protect Low Impact Development BMPs

All low impact development BMPs will be followed by the owner.

Minimum Requirement #3: Source Control of Pollution

The site is a single-family residence, and is not a commercial, industrial or multi-family property. Measures will be taken to control concrete placing to avoid pollution. Materials on

Hand BMP C150 and Materials Delivery, Storage and Containment BMP C153 can be used as needed. The Contractor may utilize other source control measures such as BMP C151, C152, C250, C251, C252, or C253 as appropriate.

Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

The developed drainage patterns will be the same as the existing drainage patterns. Runoff from each contributing area will leave the site in the same manner and at the same location in the developed condition as in the existing condition.

Minimum Requirement #5: On-Site Stormwater Management

List #1 of the 2014 SWMMWW has been considered for the 460 SF roof area of the proposed DADU only. The additional 7 SF of uncovered concrete slab at the entrance to the DADU will disperse on its own and follow a 50 LF vegetated flowpath toward the north property line.

The 24 SF of eco paver hardscape tiles with 1” gaps on the west side of the property, and the 33 SF of hardscape tiles on the northeast side of the property, have not been considered for on-site stormwater management.

Table 1 – List #1 LID BMPs

List #1: Roofs	
Full Dispersion	Infeasible due to a minimum forested or native vegetation flowpath length of 100 feet cannot be achieved.
Bioretention or Rain Gardens	Infeasible due to the site is located within the LID Infeasibility zone for Areas Infeasible for Infiltration, per the City GIS portal.
Downspout Dispersion Systems	This is the most feasible option, and can be easily achieved using a splashblock and 50-foot vegetated flowpath northwest to the property line. The roof area is 460 SF, and will require only one splashblock.
Perforated Stub-out Connections	Not required to be considered, as downspout dispersion has been found feasible.
On-Site Detention	Not required to be considered, as downspout dispersion has been found feasible.

As demonstrated in the table above, the best feasible option is downspout dispersion of the DADU roof area via splashblock and 50-foot vegetated flowpath northwest to the property line.