



July 15, 2020

**Submitted to:** City of Mercer Island  
**Permit # 2006-006 4207 W. Mercer Way**

**Memo:** Mitigation sequencing and critical area impacts per MICC 19.07.100(A-F) – Steep Slopes and Watercourse Critical Areas

**Accompanying documents:** Development set of drawings – Architectural, Civil and Structural (7/15/2020); Civil: Critical Areas Compliance and Mitigation Plan + City of Mercer Island Small Project Stormwater Site Plan/Report (7/10/2020); Geotechnical memo (7/14/2020)

This memo addresses measures being taken to minimize impacts to critical areas present on this site through proposed development. Per MICC 19.07.100 Mitigation sequencing - it is incumbent on the applicant to implement sequential measures to mitigate impacts to critical areas.

The above referenced project sits on a site that is layered with two critical areas: a geologically hazardous extreme slope and an nP watercourse at its base. There is a flat narrow shelf at the top of the hill right off West Mercer Way after which the slope drops at +/- 50% grade to an area within the 60' water course buffer where it flattens out. The project has undergone extensive study resulting in a responsive design positively addressing both critical areas.

Currently there is a house, built in the mid 1970's, in extreme dis-repair supported by a post and beam structure, with a failing stormwater pipe that winds down the surface of the hill to the water course below.

**19.07.100.A Avoiding** the impact altogether is not feasible in this situation as the site, with applied land-use requirements, has minimal building pad that does not include the steep slope or its setbacks. Stormwater discharge through the City catch basin is prohibitively expensive and would require pumping water uphill to then drop it into the water course we are proposing dropping water into through an onsite gravity fed system.

**19.07.100 B-F:** The proposed project employs several strategies that minimizes impact, protects the hillside, responsibly manages stormwater run-off and restores any areas that have been impacted during construction. They include:

4212 WEST MERCER WAY, MERCER ISLAND, WASHINGTON 98040  
TELEPHONE: 206.232.9147 TELEFAX: 206.275.0312  
[www.studioectypos.com](http://www.studioectypos.com)

1. **Limited scope** the proposed lot coverage (roofs and driveable surfaces) is approximately 3,300sf. Whereas the site would permit lot coverage of approximately 8,000sf. This leaves the remainder of the 26,673sf lot in native vegetation that contributes to the geologic stabilization of the hillside and natural stormwater mitigation.
2. **Siting** The footprint of the proposed building sits on as much of the shelf as current land-use regulations permit, more or less where the current structure sits and is limited in its extension on to the hill. It is a very simple rectangular foundation invading the steep slope less than existing development.
3. **Foundation systems** prescribed by the geotechnical engineer and outlined in his report and memo both stabilize the hillside and minimize excavation.
  - a. **Auger-cast piles** on the southeast and east sides of the structure where the immediate site is the steepest, stabilize the top of the slope. These will be executed by a drill rig staged as far back from the edge of the slope as the site and public right of way permit.
  - b. **Pin-pile foundations** where the slope is less steep and more stable. This system requires less excavation and will protect the slope from future shallow movement. This work will be executed with much smaller machinery after the auger cast piles and grade beam are set.
4. **Stormwater Management System** designed for the site includes a detention tank located between the road and the building, on the shelf, an outfall pipe hand placed on the hillside with minimum impact down to a Tee spreader on a bed of spall at the bottom. It replaces a 20 year old failing corrugated plastic pipe that is cracking in places, is subject to the vagaries of nature (vegetation invasion and animal disturbance), is not connected to a detention tank controlling the release of stormwater, and by its corrugated configuration is difficult to clean of blockages.
  - a. **Avoidance:** Connecting to the City storm drainage system was evaluated and discarded for a number of reasons: The location of the connection is 200 feet south along West Mercer Way, uphill from the site requiring the pumping of discharged water. This would have been a prohibitively expensive endeavor, trenching along the highly trafficked road and then once in place requiring a pump and back-up generator to deliver the water to it. Ultimately

discharge would be into the same basin the project is proposing to discharge to in a much more sustainable and reliable gravity fed system.

- b. **Minimizing impacts:** The proposed detention tank collects storm water from roofs and driveable surfaces, significantly reducing the peak flow. The proposed black 4" diameter outfall pipe, designed for a 100 year event, is very durable and easy to maintain. It will be anchored at the top of the hill and lowered manually down the hill. The spreader on quarry spall and related elements at the base dissipates flow over a wide area distributing the absorption of water into the water course eliminating the potential for erosion. When implemented this system will dramatically improve the current system, minimizing any disruption to the water course and buffer.
- c. **Rectifying impact:** In addition to the reduced impact described above the proposal provides for restoration of the area around the Tee spreader in the water course buffer. This will entail removal of invasive species including knot weed, mulching and planting native species intended for the particular bio-climate of the buffer. This is outlined in the development set. At the top of the hill around the building construction area this also will be restored with mulching and native planting as required depending on the level of disturbance. Additionally replacement trees for any that were removed on site will be hand transported to the hillside and planted there further contributing to future stability of the hillside once established.
- d. **Eliminating impact through preservation and maintenance:** The onsite stormwater management system will undergo annual maintenance and repair as required. The site vegetative restoration will be maintained until established and able to thrive on its own. Invasive species will be eliminated as they return to the specified area.
- e. **Compensating:** As all work occurs on site no compensation is necessary.
- f. **Monitoring:** The proposed monitoring program as outlined in the memo provided by the Civil engineer will consist of a visual inspection by the Owner one and two years after completion. They will check for and rectify any issues:

- i. Invasive plant growth
- ii. Establishment of restoration planting
- iii. Signs of erosion.

In closing we are confident the proposed design significantly improves both the hillside stability and impacts to the water course below and meets the criteria laid out in 19.07.100.A-F.

Respectfully submitted,

Studio Ectypos Architecture



Lucia Pirzio-Biroli, Architect

Cc: Rahul Shinde and Pashmi Vaney, Owners  
W.R. Consulting, Inc. (John Rundall, P.E.)  
Geotech Consultants, Inc. (Marc McGinnis, P.E.)

Pg.4 of 4

**Permit #2006-006 Mitigation Sequencing**  
**Studio Ectypos**

4212 WEST MERCER WAY, MERCER ISLAND, WASHINGTON 98040

TELEPHONE:206.232.9147 TELEFAX:206.275.0312

[WWW.studioectypos.com](http://WWW.studioectypos.com)