Attachment I

CASCADE
ENGINEERING GROUP, P.S., INC.

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REGISTERED
PROFESSIONAL ENGINEER
3-28-2023

MEMORANDUM

DATE: March 28, 2023

TO: Trent Slusher – Slusher Luxury Homes

FROM: Michael DiSpigno, P.E.

SUBJECT: **Preliminary Stormwater Assessment for Luna Short Plat (530 38th Street, Bellingham, WA)**

PROJECT: SLUS0004

COPIES:

This memorandum provides a preliminary assessment on how stormwater management will be provided for this project. Our understanding is that the existing parcel at 530 38th Street in Bellingham will be subdivide into two lots (526 and 532 38th Street).

Existing Conditions

The site's existing conditions are shown in sheet A1 of the architecture plans (Attachment #1). The existing 30,830 sf (0.71 acre) parcel is currently developed as a single-family residence that contains an approximately 3,500 sf house and a 600 sf gravel driveway. (Total existing hard surfaces is 4,100 sf). The remainder of the lot is covered with lawn and some ornamental trees. The property slopes down to the northwest at an approximate 8% slope with a steeper section, at an approximate 39% slope, in the northwest corner of the lot.

The project site is located in the Connelly Creek Watershed. Surface runoff from the site eventually enters the road stormwater conveyance system downstream of the site. This conveyance system consists of existing pipes and ditches that convey the runoff west and south until it eventually discharges into Connelly Creek at Taylor Avenue, just west of 32nd Street.

A geotechnical soil investigation (see Attachment #2) was performed by Geotest Services (GeoTest) with field work performed in January 2023. Their investigation revealed that the southern portion of the lot was covered with a six to eight inch layer of topsoil on top of a layer of weathered glacial deposits consisting of varying amounts of sand and silt. This layer terminates at an approximate five foot depth with a hardpan layer below. The investigation revealed that the northern portion of the lot was covered with one foot to 3.5 feet of uncontrolled fill on top of the weathered glacial deposits layer. In this area, this layer also terminates at an approximate five foot depth with a hardpan layer below.

With respect to the potential to infiltrate stormwater, the GeoTest reports states the following:

> The presence of the highly variable, and often fine-grained native materials, and/or near surface perched groundwater, in our opinion, supports the presence of a "restrictive layer", as defined by the 2019 Stormwater Management Manual for Western Washington. Maintaining a minimum separation from the base of traditional stormwater infiltration systems to these restrictive layers does not appear feasible. Thus, it is our opinion that the site is not suitable for conventional stormwater infiltration.

The topography of the site, and the fact that the site sits on top of a knob with steep slopes on the north side and to the west, indicate that any stormwater infiltrated on the site could daylight through the steep slopes and effect the downstream properties. Our understanding of these site conditions results in an agreement with the GeoTest conclusion that stormwater infiltration from impervious surfaces should be minimized.

Proposed Development

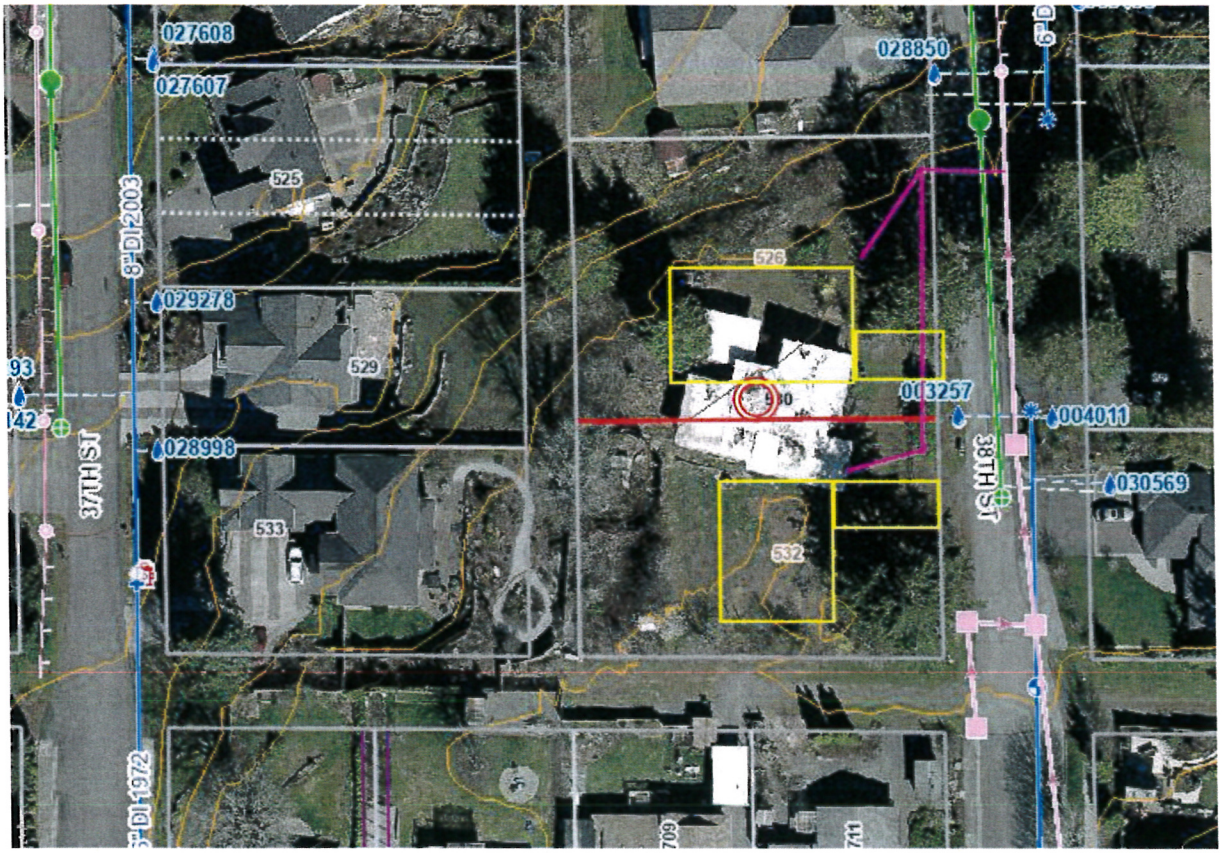
The proposed site development is shown in sheet A3 of the attached architecture plans. The proposed impervious hard surface areas on the lots are summarized in the table below:

	Lot 526	Lot 532	Total
Roof Area (sf)	2,284	2,348	4,632
Driveway Area (sf)	1,112	1,502	2,614
Total (sf)	3,396	3,850	7,246

As shown in this table, the project will add or replace 7,246 sf of impervious hard surfaces, which includes 2,614 sf of pollution generation hard surfaces (the driveways). In accordance with the requirements of Bellingham Municipal Code 15.42 *Stormwater Management* (BMC 15.42), Section 15.42.B.2, redevelopment projects that create or add more than 5,000 sf of new, replaced, or new plus replaced hard surface area must comply with Minimum Requirements #1 - #9. A Stormwater Site Plan will be prepared that addresses these requirements.

With respect to Minimum Requirement #5 – *On-Site Stormwater Management*, based on the site topography and soil conditions, implementation of Low Impact Development (LID) Best Management Practices (BMPs) is not recommended. Stormwater runoff from the roofs is anticipated to be collected and piped to the 38th Street stormwater conveyance system as shown in the figure below.

Figure A: Proposed Site Plan and Lot Stormwater Service Layout



With respect to Minimum Requirement #6 – *Runoff Treatment*, runoff treatment is not required since the 2,624 sf of pollution generating surfaces (the driveways) is less than the 5,000 sf threshold. Runoff from the driveway is anticipated to sheet flow onto the adjacent grass. This vegetated area will provide some measure of treatment before the flow enters the road stormwater system.

Similarly, with respect to Minimum Requirement #7 – *Flow Control*, detention is not required since the 7,246 sf of new and replaced hard surfaces is less than the 10,000 sf threshold. The 3,146 sf difference between the existing hard surface area (4,100 sf) and the proposed hard surface area (7,246 sf) is assumed to have an negligible effect on the capacity of the downstream stormwater system so no flow control BMPs are proposed.

As previously stated, a Stormwater Site Plan will be prepared that addresses the nine Minimum Requirements. This report will be included with the building permit application submittal documents.

Attachments:

1. Architect Drawings, *Alteration of Lot 2 of Luna Short Plat, 530 38th Street, Slusher Luxury Homes*, March *1, 2023* (3 sheets)

2. GeoTest Services, *Limited Geotechnical Engineering Report, Proposed Residence, 530 38th Street, Bellingham, WA,* March 1, 2023.