

October 01, 2021

File No.: 2243-17-048 (4)

Julie Verville ASSOCIATE
Architect AIBC, LEED AP BD+C
KRA Architecture
368 Powell Street, Vancouver BC V6A 1G4

Dear Ms. Verville

RE: Ocean Estuary Development: Stormwater Management Philosophy - October 1st, 2021 - Revised DP submission

Submission Purpose:

This Technical Memorandum summarizes the storm water management philosophy applied to the Ocean Estuary Project and is intended to be submitted in support of the Development Permit application.

1. Existing Condition

The development site is located adjacent to Fulford Harbour and is bounded by Fulford Road to south and the west, and Fulford Creek to the east. The site is predominately vegetated and slopes towards the southeast. The Fulford Inn has been removed and only the slab on grade remains.

Surface runoff currently drains to the site perimeters with a significant portion of the site draining to Fulford Creek. A smaller portion of the site drains to the ditch line of the south side of the property culminating at a low point in the southeast corner. This low spot appears to accept additional drainage (through a culvert crossing) from the south side of Fulford Road. It has a discharge (through another culvert) at the southeast corner.

The proposed development includes 17 motel units within 8 cottage buildings, that follow the northern site boundary, and a new commercial building located adjacent to the east property boundary. The proposed development retains a considerable amount of greenspace; however, net imperviousness will increase. Our storm water approach includes a combination of conventional and green infrastructure to collect, treat and convey storm water while maintaining the current flow regime. In section 2, we summarize the stormwater management approach that will be applied to the detailed design phase

2. Proposed Stormwater Management Approach

Based on topography, proposed site layout, and geotechnical sanitary sewer dispersal field constraints we have divided the site into three major drainage areas.

a. Area 1 - Buildings 1, 2, and 3 and the West Parking Area

- All storm water from the building roofs will be directed to the surface. Landscape areas will be located at drain outlets, complete with splash pads, to infiltrate/dissipate storm water. Overflows will follow the existing drainage path towards the north to Fulford Creek.



- A larger landscaped rain garden area will be designed between buildings 1, 2 and 3 and the Parkin Area to collect and treat water collected from the adjacent parking area, prior to discharged to Ocean Estuary.

b. Area 2 – Buildings 4 through 6 and the Commercial Parking Area

- For buildings 4, 5, and 6, all storm water will be directed to the surface. Landscape areas will be located at drain outlets, complete with splash pads, to infiltrate/dissipate storm water. Overflows will follow the existing drainage path towards the north to Fulford Creek.
- The commercial parking area will be drained to the north with a low point located approximately in parking stall 7. Raising the grade on the south side of the commercial building is required to allow vertical structure for the septic disposal system.

Water will then be directed into a rain garden system that parallels the west side of the commercial building with an overflow directed to the North Storm Drain system. The rain garden system will treat and attenuate storm water flows.

The rain garden system will also serve as the 200-year flow route for the parking lot.

c. Area 3 - Commercial Area and Buildings 7 and 8

- A new storm drain (North Storm Drain System) will collect stormwater generated on the north side of the property and will direct it to the stream to the north. Permitting (if required) will be managed by the environmental consultant.
- At present we have shown a potential stormwater infiltration/attenuation structure, and end of pipe stormwater treatment unit. As we are discharging directly upstream of the ocean, stormwater quantity (downstream flood risk) is not an issue; however, storm water quality is important. The type of structure (infiltrator Vs end of pipe treatment) will be confirmed during the detailed design phase.
- Buildings 7, and 8 will be connected directly to the North Drain System. Water will not be directed to ground at this location to minimize connections to Fulford Creek. As this roof water is considered clean it will not be treated.
- The commercial building and plaza area will be connected to the north storm drain.

d. Area 4 – Entrance and Commercial Parking Area East Side

- A small portion of the commercial parking area will be directed to the east. This is to allow reduction in parking lot grade on the east side of the lot. Water will be collected in a low profile catch basin and directed to a small rain garden at the southeast corner of the parking area for treatment and attenuation. Water from this ditch line will then flow into the existing MOT culvert (following the existing flow route).

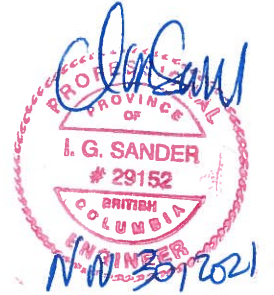


- The longitudinal grade of Fulford Ganges Road, and the main entrance falls to the east. A rain garden will be installed adjacent to the east side of the entrance to collect and treat (and attenuate) stormwater generated at the entrance. Water from this rain garden will then be directed to the existing ditch line located in the property southeast corner.

Please feel free to call if you have any questions.

Sincerely,
McElhanney Consulting Services Ltd.

Ian Sander, P. Eng. PMP.
Senior Project Manager



Attachments: Stormwater Concept Plan

