

MR 1-5 Storm Drainage Summary

Pazarena Addition/ADU

8430 SE 47th Place
Mercer Island, WA 98040

2,500 SF
(NEW & REPLACED Impervious)

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General:

This site's new and replaced impervious area is **BELOW** 5,000 sf, site is subject to minimum requirements MR1-5 identified below. See more information on pages 2 and 3 about project scope and stormwater discussion.

MR1 = Preparation of Storm Water Site Plans	See C2.0 Drainage Plan
MR2 = Construction Storm Water Pollution Prevention Plan	See C1.0 TESCP in plan set.
MR3 = Source Control of Pollution	See C1.0 for erosion control measures recommended to mitigate erosion and sediment discharge from site during construction phase.
MR4 = Preservation of Natural Drainage Systems and Outfalls	Construction of this this addition located in an urban setting will not have any relevant impact to natural drainage systems and outfalls that might exist in the area.
MR5 = On-site Stormwater Management	None currently proposed but we are exploring infiltration option that might eliminate the detention. We'll report to Ruji if we will seek this option out.
MR6 = Runoff Treatment	n/a – proposed new + replaced

	impervious less than 5,000 sf
MR7 = Flow Control	Required per email confirmation by Ruji Ding. Detention will serve the new ADU roof area plus driveway. (garage/ADU roof + driveway)
MR8 = Wetlands Protection	n/a – no wetlands to best of our knowledge
MR9 = Operations and Maintenance	n/a – no wetlands

Background:

A new ADU is proposed adjacent & above the existing garage at this site. Site is located approximately half way south down Mercer Island and just east of West Mercer Way. Existing main house will remain. This lot has a watercourse adjacent to it with an associated buffer reduction proposed. There is a storm drain to connect to in street. Storm BMP's are not proposed due to low permeable soils and slope behind addition plus many trees and water course buffer on the flatter, front area.

The stormwater from the new roof and driveway will be collected and detained in a 60"-dia. x 20 LF detention pipe and tight-lined to the existing storm system directly to the northwest of this lot. See our C2.0 sheet for design of storm and C4.0 for the detention and storm profile.

Soils and Infiltration Feasibility:

See full service report by Nelson Geotechnical Associates. Soil is native glacial till and advance outwash deposits. BMP measures are not proposed due to space constraints and topography that slopes away from existing garage and house.

We will be taking a harder look at infiltration while this in first review as an alternative stormwater solution to the detention for this project. We have taken a deeper dive into the soils report and they did find some medium sand advanced outwash in their hand auger bore #1 which is nearest to the garage. We'll request a formal infiltration test if we chose to eliminate the detention tank.

MR5 = On-site Stormwater Management (BMPs):

The List Approach selection process was applied to site to evaluate feasibility of BMP's (reference 2014 DOE Manual):

Lawn and Landscaped Areas:

- Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Chapter 5 of Volume V of the DOE Manual. Compost-Amended Soil is required.

Roof and Driveway Surface BMP Evaluation:

- **Full Dispersion:**
Infeasible due to lack of 100 LF flowpath.
- **Downspout Full Infiltration:**
Currently not proposed but we are taking a harder look at this option given they did find some advanced outwash soils onsite. This could eliminate the detention.
- **Rain Garden or Bioretention:**
Not recommended due to fill soils and topography constraints near the garage/DADU structure..
- **Downspout Dispersion:**
Infeasible. Land slopes toward the property line, there is not a 50 LF flowpath.
- **Perforated Stub-out Connection:**
The only on-site storm drain pipes proposed are under the driveway, not a good place for a perforated pipe.
- **Permeable Pavement:**
Not proposed due to the driveway sloping toward the structure and fact the underlying soils are in fill with unknown compaction level.

Impervious Area Spreadsheet		
Pazarena Addition - 8430 SE 47th Place, Mercer Island, WA 98040 - CES #1666		
Proposed Impervious Area (on-site)		
Garage/ADU Roof	1,247	total roof from architecture roof plan
Driveway, on-site	1,100	from architecture site plan
total on-site proposed =	2,347	sf