2012 Stormwater Management Manual for Western Washington

LID Case Study

Objective: Evaluate Minimum Requirement #5: On-site Stormwater Management for a 10-Acre Single Family Subdivision.

Assumptions:

General Project Conditions:

- The project does not discharge to a Flow Control Exempt water**.**
- All minimum requirements will apply to the project.
- The project is inside the UGA.
- The project is a new development and the site does not have any existing structures or impervious area.
- Project area slopes are less than 8%.
- Roads, Driveways, Sidewalks will have slopes less than 5%.

Zoning Codes & City Standards:

- The maximum density is 44 units.
- Meet the setbacks & building areas allowed by the local zoning codes.
- Roads will be as narrow as allowed per the fire code.
- Roads will have two sidewalks.
- A parking lane will be only on one side of the street.

From the Site Specific Soil Analysis:

- Uniform Class C – till soil across the site
    - Initial Infiltration Rate = 0.3 inches / hour
- The depth to groundwater is adequate for LID BMPs
- Soil meets the site suitability criteria for infiltration
- No areas prone to erosion, slope failure, or flooding

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Tables & Figures courtesy of Herrera Environmental Consultants, Inc.

Table B-1. Planning and Design Assumptions for Single-Family Residential Subdivision.	
Density Requirements[1]	
Zone	R-1,5.0
Min. Density (DU/acre)	4
Max. Density (DU/acre)	5.73
Average lot size (sf)[2]	7,602
Lot Requirements	
Min. Lot Area (sf)	6,000
Average Min. Lot Width (ft)	20
Average Min. Lot Depth (ft)	60
Setback Requirements	
Front Yard Arterial (ft)	25
Front Yard at Other (ft)	20
Side Yard (ft)	5
Rear Yard (ft)	15
Max. Building Height (ft)	35
Coverage	
Max. Land Coverage	35%
Parking Spaces[3]	4
Parking Space Size (ft)	8x20
Right-of-way	
ROW Minimum (ft)	50
Street Width (ft)	28 (i.e. 2 x 10-ft travel lanes + 8-ft parking lane)
Min. Sidewalk (ft)	5 x 2
Planting Strip (ft)	5 x 2
Curb & Gutter (ft)	1 x 2

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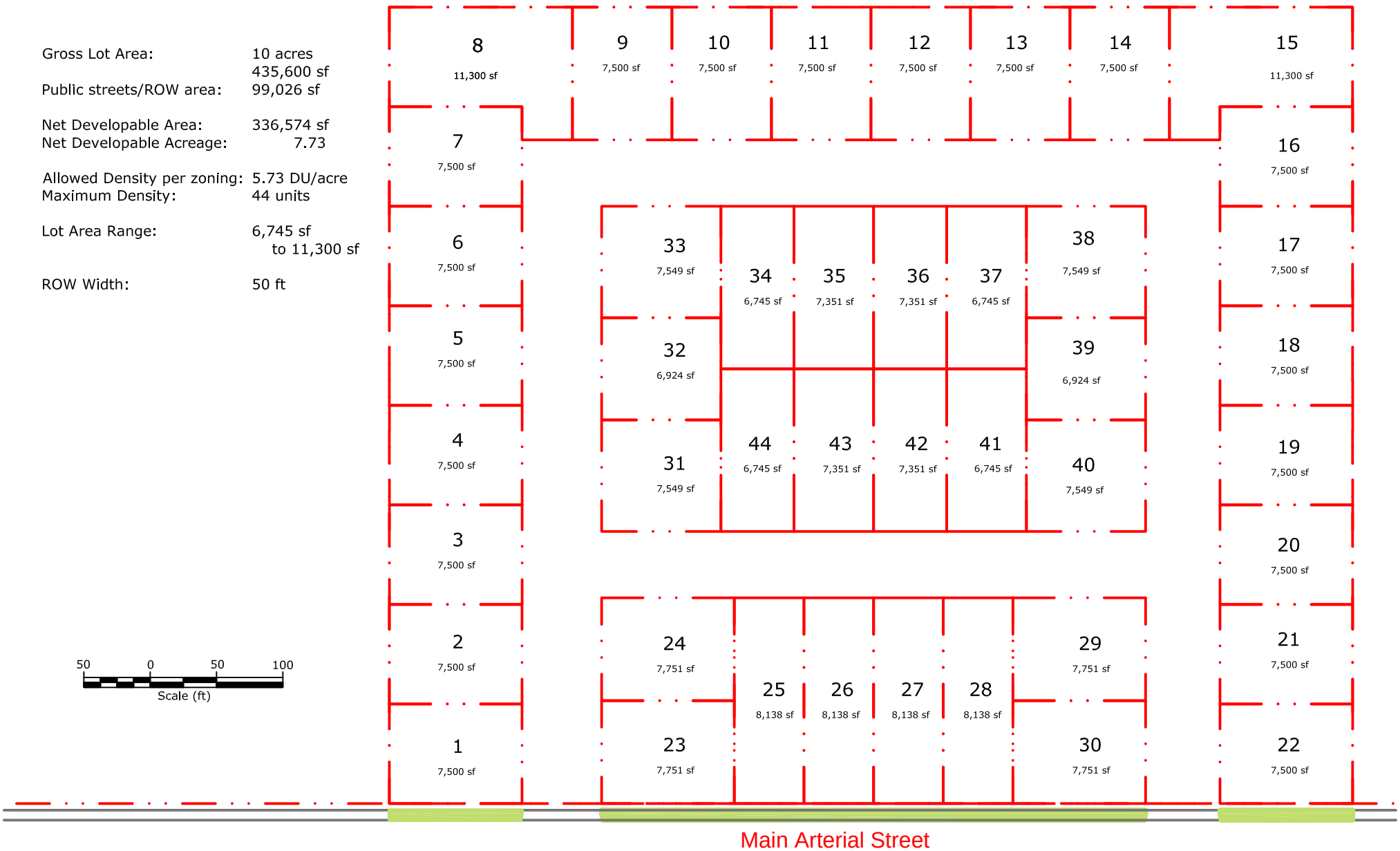
Typical 10-acre Single-Family Residential Development

Gross Lot Area:	10 acres 435,600 sf
Public streets/ROW area:	99,026 sf
Net Developable Area:	336,574 sf
Net Developable Acreage:	7.73
Allowed Density per zoning:	5.73 DU/acre
Maximum Density:	44 units
Lot Area Range:	6,745 sf to 11,300 sf
ROW Width:	50 ft



Typical Single-Family Residence

Lot Size:	7,500 sf
Building Area:	2,579 sf
Max. Building Coverage:	35%
Roof Area (1-ft overhang):	2,820 sf
Driveway Area:	462 sf
Sidewalk/PathArea:	145 sf
Landscape Area:	4,073 sf
Total Impervious Area:	3,427 sf

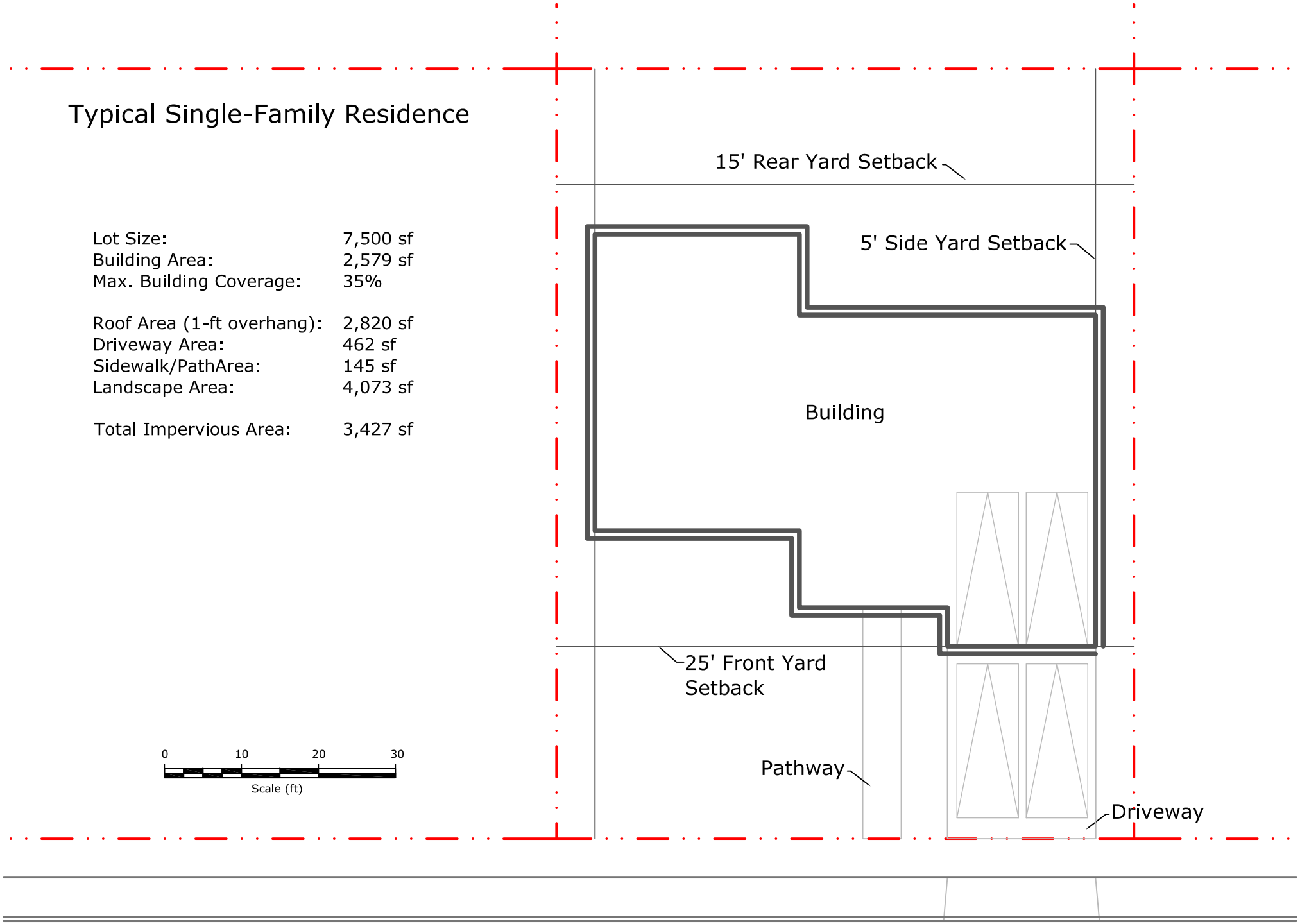


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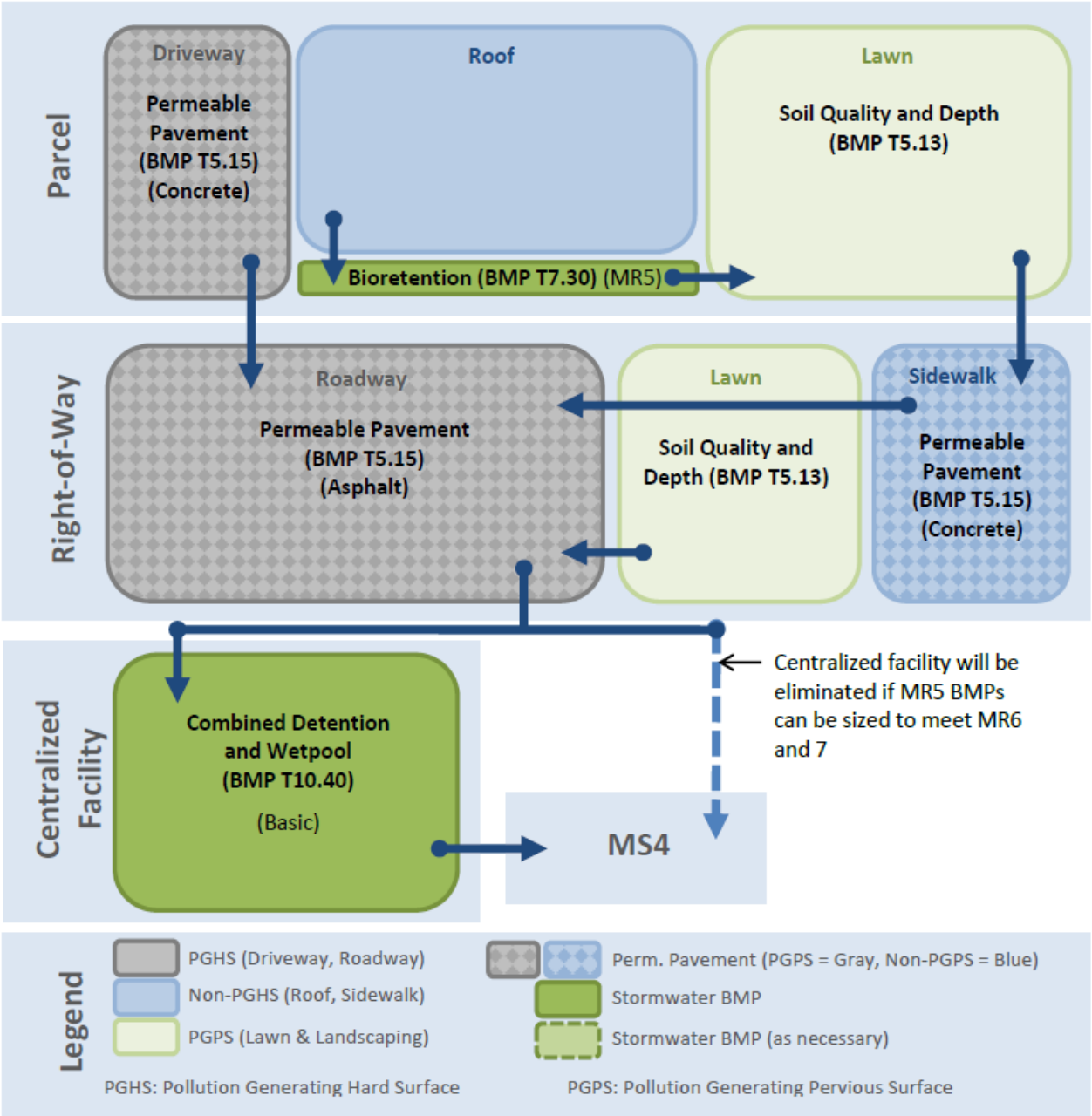
Figure A-2. Residential - Till



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