

CITY OF MERCER ISLAND

DEVELOPMENT SERVICES GROUP

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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Narrative and Plan Submittal

Instructions: This is a template for a simplified Stormwater Report. This form or an equivalent must accompany your Building Permit Application if the answer is “Yes” to each statement below. If “No” is the answer to one or more of the statements below, a full Drainage Report is required and the project does not qualify for use of the Small Project Stormwater Site Plan/Report template.

Select “yes” or “no” for each statement below. Answer “yes” if the statement accurately describes your project.

Yes	No	Statement
✓		This project disturbs less than 1 acre and is not part of a larger common plan of development.
✓		This project converts less than 3/4 acre to lawn or landscape areas.
✓		This project will create, add, or replace (in any combination) 2,000 square feet or greater, but less than 5,000 square feet, of new plus replaced hard surface OR will have a land disturbing activity of 7,000 square feet or greater OR will result in a net increase of impervious surface of 500 square feet or greater.
✓		This project will not adversely impact a wetland, stream, water of the state, or change a natural drainage course.

Basic Project Information

Project Name: Asdourian Residence

Site Address: 5300 Butterworth Rd, Mercer Island, WA 98040

Total Lot Size: 20,076 sq ft

Total Proposed Area to be Disturbed (including stockpile area): 21,700 sq ft

Total Volume of Proposed Cut and Fill: 340 cy sq ft

Total Proposed New Hard Surface Area: 725 sq ft

Total Proposed Replaced Hard Surface Area: 8,615 sq ft

Total Proposed Converted Pervious Surface Area 0
(Native vegetation to lawn or landscape): _____ sq ft

Net Increase in Impervious Surface: ~725 sq ft



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #1 : Preparation of Stormwater Site Plan

Written Project Description:

CONSTRUCTION OF NEW SINGLE FAMILY RESIDENCE, 2 STORIES WITH ATTACHED GARAGE.

DIRECT DISCHARGE FOR ALL HARD SURFACE RUNOFF INTO LAKE WASHINGTON. REFER TO ATTACHED DRAINAGE PLAN SHOWING PROPOSED STORM SYSTEM.

Calculate new or replaced areas by surface type:

Lawn or Landscape Areas: <u>10,736</u> sq ft	Roof Area: <u>5,203</u> sq ft
Other Hard Surface Areas:	
Driveway: <u>3,300</u> sq ft	Patio: <u>446</u> sq ft
	Sidewalk: <u>281</u> sq ft
Parking Lot: <u>0</u> sq ft	Other: <u>110</u> sq ft

Attach Drainage Plan

Drainage Plan shall include the following:

- Scaled drawing with slopes, lot lines, any public-right-of-way and any easements, location of each on-site stormwater management BMP selected above and the areas served by them, buildings, roads, parking lots, driveways, landscape features, and areas of disturbed soils to be amended.
- The scaled drawing must be suitable to serve as a recordable document that will be attached to the property deed for each lot that includes on-site BMPs. Document submittal must follow the “Standard Formatting Requirements for Recording Documents” per King County: www.kingcounty.gov/depts/records-licensing/recorders-office/recording-documents.aspx
- Identify design details and maintenance instructions for each on-site BMP, and attach them to this Small Project Stormwater Site Plan/Report.



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #2 : Construction Stormwater Pollution Prevention

- Complete Section B of this submittal package: Construction Stormwater Pollution Prevention Plan Narrative (SWPPP)
- Attach construction SWPPP

Minimum Requirement #3 : Source Control of Pollution

This section contains practices and procedures to reduce the release of pollutants. Provide a description of all known, available and reasonable source control BMPs that will be, or are anticipated to be, used at this location to prevent stormwater from coming into contact with pollutants. Additional BMPs are found in Volume IV of the 2014 Stormwater Management Manual for Western Washington (SWMMWW).

Check the BMPs you will use:

- BMP S411 for Landscaping and Lawn/ Vegetation Management
Operational practices for sites with landscaping
- BMP S421 for Parking and Storage of Vehicles.
Public and commercial parking lots can be sources of suspended solids, metals, or toxic hydrocarbons such oils and greases.
- BMP S433 for Pools, Spas, Hot Tubs, Fountains
Discharge from pools, hot tubs, and fountains can degrade ambient water quality. Routine maintenance activities generate a variety of wastes. Direct disposal of these waters to drainage system and waters of the state are not permitted without prior treatment and approval.
- Other BMPs found in Volume IV of SWMMWW applicable to project:

- No source control BMPs are applicable for this project.



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #4 : Preservation of Natural Drainage Systems

Natural drainage patterns shall be maintained and discharges from the project site shall occur at the natural location, to the maximum extent practicable. All outfalls require energy dissipation.

Choose the option below that best describes your project:

This site has existing drainage systems or outfalls. These items are shown on the Drainage Plan. Include the following items on the Drainage Plan:

- Pipe invert elevations, slopes, cover, and material
- Locations, grades, and direction of flow in ditches and swales, culverts, and pipes

Describe how these systems will be preserved:

Discharge of flows from the project will be a direct discharge into Lake Washington to the east, over a tract lot. The natural drainage pattern will be maintained and utilized to convey site flows.

This site does not have any existing drainage systems or outfalls.

Additional Comments:



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #5 : On-site Stormwater Management

All projects meeting the thresholds for this Small Project Stormwater Report shall employ on-site stormwater management BMPs (See Small Project Stormwater Requirements Tip Sheet) to infiltrate, disperse, and retain stormwater runoff on-site to the extent feasible without causing flooding or erosion impacts.

List #1

For each category select the *first* feasible item on the list below. Document your justification for each infeasible BMP in Section C of this submittal package.

Check one option for each category below:



Lawn and Landscape Areas

- My project does not have *Lawn or Landscape* areas
- Post-construction soil quality and depth
- Post-construction soil quality and depth is infeasible (see Section C of this submittal package)



Roofs

- My project does not have *Roof* areas
- 1. Full dispersion or downspout full infiltration
- 2. Rain garden or bioretention
- 3. Downspout dispersion system
- 4. Perforated stub-out connections
- 5. On-site detention system or fee-in-lieu of on-site detention authorized by the City Engineer (applicable if options #1-4 are infeasible and drainage from the site will be discharged to a storm or surface water system that includes a watercourse or there is a capacity constraint in the system)
- 6. No Roof BMP (applicable if options #1-4 are infeasible and on-site detention is not required)

Measured Infiltration Rate: _____ in/ hr

If #5 or #6 is selected, briefly describe why no Roof BMP is feasible (include detailed information in Section C of this submittal package):



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #5 : On-site Stormwater Management (cont.)



Other Hard Surfaces (such as driveway, sidewalk, parking lot, patio, etc.)

- My project does not have *Other Hard Surface* areas
- 1. Full dispersion
- 2. Permeable pavement, rain gardens, or bioretention
- 3. Sheet flow dispersion or concentrated flow dispersion
- 4. On-site detention system or fee-in-lieu of on-site detention authorized by the City Engineer (applicable if options #1-3 are infeasible and drainage from the site will be discharged to a storm or surface water system that includes a watercourse or there is a capacity constraint in the system)
- 5. No Other Hard Surface BMP (applicable if options #1-3 are infeasible and on-site detention is not required)

Measured Infiltration Rate: _____ in/ hr

If #4 or #5 is selected, briefly describe why no Other Hard Surface BMP is feasible (include detailed information in Section C of this submittal package):

Flow Control Exempt List

Proceed with this list if your project discharges directly to Lake Washington or if findings from a downstream analysis confirm that the downstream system is free of capacity constraints for a minimum of ¼ mile and a maximum of 1 mile.

For flow control exempt discharges, the BMPs listed below for Roofs and Other Hard Surfaces do not need to be evaluated in priority order. You can select any BMP from the lists provided below and do not need to document infeasibility in Section C of this submittal package.

Check one option for each category below:



Lawn and Landscape Areas

- My project does not have *Lawn or Landscape* areas
- Post-construction soil quality and depth



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SECTION A: SMALL PROJECT STORMWATER SITE PLAN/REPORT

Minimum Requirement #5 : On-site Stormwater Management (cont.)



Roofs

- My project does not have *Roof* areas
- Downspout full infiltration
- Downspout dispersion system
- Perforated stub-out connections
- Each item above is infeasible

If “Each item above is infeasible” is selected, briefly describe why no Roof BMP is feasible:

Infiltration and dispersion BMPs infeasible due to high groundwater levels, per Geotech's recommendation.



Other Hard Surfaces (such as driveway, sidewalk, parking lot, patio, etc.)

- My project does not have *Other Hard Surface* areas
- Sheet flow dispersion
- Concentrated flow dispersion
- Each item above is infeasible

If “Each item above is infeasible” is selected, briefly describe why no Other Hard Surface BMP is feasible:

Infiltration and dispersion BMPs infeasible due to high groundwater levels, per Geotech's recommendation.



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Instructions

This is a template for a simplified Construction Stormwater Pollution Prevention Plan (“Construction SWPPP”). If “No” is the answer to one or more of the statements on the first page of Section A of this submittal package, then a full Construction SWPPP is required and the project does not qualify for the use of the Small Project Construction SWPPP Narrative template. If the project is less than the thresholds on the first page of Section A of this submittal package, then Minimum Requirement #2 still applies, but this section (Section B) or a full construction SWPPP is not required. You should include your Construction SWPPP in your contract with your builder. A copy of the Construction SWPPP must be located at the construction site or within reasonable access to the site for construction and inspection personnel at all times.

General Information on the Existing Site and Project

Describe the following in the Project Narrative box below (attach additional pages if necessary):

- Nature and purpose of the construction project
- Existing topography, vegetation, and drainage, and building structures
- Adjacent areas, including streams, lakes, wetlands, residential areas, and roads that might be affected by the construction project
- How upstream drainage areas may affect the site
- Downstream drainage leading from the site to the receiving body of water
- Areas on or adjacent to the site that are classified as critical areas
- Critical areas that receive runoff from the site up to one-quarter mile away
- Special requirements and provisions for working near or within critical areas
- Areas on the site that have potential erosion problems

Project Narrative:

The project site is an irregularly shaped, with a protruding rectangular area to the northwest. The existing residence and garage lie on the western portion of site, with a driveway connecting the north face of the garage and western face of the residence to Butterworth Rd to the west. Site topography generally slopes to the east at 1-5%. According to the Geotech Report, site is located in a seismic hazard zone. The residence and garage will be demolished and a new residence and garage is proposed. A direct connection is proposed to manage all hard surface runoff. Please refer to the attached Drainage Plan, showing the proposed storm system.



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Construction SWPPP Drawings

Refer to the general Drawing Requirements in Stormwater Management Manual for Western Washington (SWMMWW) Volume I, Chapter 3.

Vicinity Map

Provide a map with enough detail to identify the location of the construction site, adjacent roads, and receiving waters.

Site Map

Include the following (where applicable):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Legal description of the property boundaries or an illustration of property lines (including distances) on the drawings. | <input checked="" type="checkbox"/> Final and interim grade contours as appropriate, drainage basins, and the direction of stormwater flow during and upon completion of construction. |
| <input checked="" type="checkbox"/> North arrow. | <input checked="" type="checkbox"/> Areas of soil disturbance, including all areas affected by clearing, grading, and excavation. |
| <input checked="" type="checkbox"/> Existing structures and roads. | <input checked="" type="checkbox"/> Locations where stormwater will discharge to surface waters during and upon completion of construction. |
| <input checked="" type="checkbox"/> Boundaries and identification of different soil types. | <input checked="" type="checkbox"/> Existing unique or valuable vegetation and vegetation to be preserved. |
| <input checked="" type="checkbox"/> Areas of potential erosion problems. | <input checked="" type="checkbox"/> Cut-and-fill slopes indicating top and bottom of slope catch lines. |
| <input checked="" type="checkbox"/> Any on-site and adjacent surface waters, critical areas, buffers, flood plain boundaries, and Shoreline Management boundaries. | <input checked="" type="checkbox"/> Total cut-and-fill quantities and the method of disposal for excess material. |
| <input checked="" type="checkbox"/> Existing contours and drainage basins and the direction of flow for the different drainage areas. | <input type="checkbox"/> Stockpile; waste storage; and vehicle storage, maintenance, and washdown areas. |
| <input checked="" type="checkbox"/> Where feasible, contours extend a minimum of 25 feet beyond property lines and extend sufficiently to depict existing conditions. | |

Temporary and Permanent BMPs

Include the following on site map (where applicable):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Locations for temporary and permanent swales, interceptor trenches, or ditches. | <input checked="" type="checkbox"/> Details for bypassing off-site runoff around disturbed areas. |
| <input checked="" type="checkbox"/> Drainage pipes, ditches, or cut-off trenches associated with erosion and sediment control and stormwater management. | <input checked="" type="checkbox"/> Locations of temporary and permanent stormwater treatment and/or flow control best management practices (BMPs). |
| <input checked="" type="checkbox"/> Temporary and permanent pipe inverts and minimum slopes and cover. | <input checked="" type="checkbox"/> Details for all structural and nonstructural erosion and sediment control (ESC) BMPs (including, but not limited to, silt fences, construction entrances, sedimentation facilities, etc.) |
| <input checked="" type="checkbox"/> Grades, dimensions, and direction of flow in all ditches and swales, culverts, and pipes. | <input type="checkbox"/> Details for any construction-phase BMPs or techniques used for Low Impact Development (LID) BMP protection. |
| <input checked="" type="checkbox"/> Locations and outlets of any dewatering systems. | |



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 1: Preserve Vegetation / Mark Clearing Limits

The goal of this element is to preserve native vegetation and to clearly show the limits of disturbance.

This element **does not** apply to my project because:

The site was cleared as part of clearing activity that is subject to an enforcement action and is re-vegetated. Restoration may be necessary to comply with Critical Area Regulations or NPDES requirements. Buffer Zones-BMP C102 may apply if Critical Areas exist on-site and buffer zones shall be protected.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the best management practices (BMPs) you will use:

The perimeter of the area to be cleared shall be marked prior to clearing operation with visible flagging, orange plastic barrier fencing and/or orange silt fencing as shown on the SWPPP site map. The total disturbed area shall be less than 7,000 square feet. Vehicles will only be allowed in the areas to be graded, so no compaction of the undeveloped areas will occur.

Additional Comments:

See C2.0 TESC Plan.

Check the BMPs you will use:

- C101 Preserving Natural Vegetation C102 Buffer Zones C103 High Visibility Fence



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 2: Construction Access

The goal of this element is to provide a stabilized construction entrance/exit to prevent or reduce or sediment track out.

This element **does not** apply to my project because:

The driveway to the construction area already exists and will be used for construction access. All equipment and vehicles will be restricted to staying on that existing impervious surface.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

A stabilized construction entrance will be installed prior to any vehicles entering the site, at the location shown on the SWPPP site map.

Additional Comments:

See C2.0 TESC Plan.

Check the BMPs you will use:

C105 Stabilized Construction Entrance / Exit

C106 Wheel Wash

C107 Construction Road / Parking Area Stabilization



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 3: Control Flow Rates

The goal of this element is to construct retention or detention facilities when necessary to protect properties and waterways downstream of development sites from erosion and turbid discharges.

This element **does not** apply to my project because:



Other Reason / Additional Comments:

A direct discharge into Lake Washington is proposed to transfer hard surface runoff post-development. No adverse impacts to downstream properties are anticipated from this development.

If it **does** apply, describe the steps you will take and select the BMPs you will use:



Flow rates will be controlled by using SWPPP Element 4 sediment controls and BMP T5.13 Post-Construction Soil Quality and Depth if necessary.

Additional Comments:



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 4: Sediment Control

The goal of this element is to construct sediment control BMPs that minimize sediment discharges from the site.

This element **does not** apply to my project because:

The site has already been stabilized and re-vegetated.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

Sediment control BMPs shall be placed at the locations shown on the SWPPP site map

Additional Comments:

Temporary silt fencing downslope of disturbed areas will be provided prior to grading activities.

Check the BMPs you will use:

C231 Brush Barrier

C233 Silt Fence

C235 Wattles

C232 Gravel Filter Berm

C234 Vegetated Strip



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 5: Stabilize Soils

The goal of this element is to stabilize exposed and unworked soils by implementing erosion control BMPs.

This element **does not** apply to my project because:

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

- Exposed soils shall be worked during the week until they have been stabilized. Soil stockpiles will be located within the disturbed area shown on the SWPPP site map. Soil excavated for the foundation will be backfilled against the foundation and graded to drain away from the building. No soils shall remain exposed and unworked for more than 7 days from May 1 to September 30 or more than 2 days from October 1 to April 30. Once the disturbed landscape areas are graded, the grass areas will be amended using BMP T5.13 Post-Construction Soil Quality and Depth. All stockpiles will be covered with plastic or burlap if left unworked.

Additional Comments:

This is an export site; since there is limited area onsite for stockpiles, it is anticipated that soils will be trucked offsite.

Check the BMPs you will use:

- | | | | | |
|--|---|---|---|---------------------------------------|
| <input checked="" type="checkbox"/> C120 Temporary & Permanent Seeding | <input type="checkbox"/> C122 Nets & Blankets | <input checked="" type="checkbox"/> C124 Sodding | <input type="checkbox"/> C131 Gradient Terraces | <input type="checkbox"/> C235 Wattles |
| <input checked="" type="checkbox"/> C121 Mulching | <input checked="" type="checkbox"/> C123 Plastic Covering | <input checked="" type="checkbox"/> C125 Topsoil / Composting | <input checked="" type="checkbox"/> C140 Dust Control | |



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 6: Protect Slopes

The goal of this element is to design and construct cut-and-fill slopes in a manner to minimize erosion.

This element **does not** apply to my project because:

No cut slopes over 4 feet high or slopes steeper than 2 feet horizontal to 1 foot vertical, and no fill slopes over 4 feet high will exceed 3 feet horizontal to 1 foot vertical. Therefore, there is no requirement for additional engineered slope protection.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

Additional Comments:

Recommendations for excavations and slopes will follow the Geotechnical Report as noted on C2.0. Upstream drainage will be directed away from cut slopes.

Check the BMPs you will use:

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> C120 Temporary & Permanent Seeding | <input checked="" type="checkbox"/> C205 Subsurface Drains | <input checked="" type="checkbox"/> C207 Check Dams |
| <input type="checkbox"/> C204 Pipe Slope Drains | <input type="checkbox"/> C206 Level Spreader | <input type="checkbox"/> C208 Triangular Silt Dike (Geotextile-Encased Check Dam) |



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 7: Protect Permanent Drain Inlets

The goal of this element is to protect storm drain inlets during construction to prevent stormwater runoff from entering the conveyance system without being filtered or treated.

This element **does not** apply to my project because:

- The site has open ditches in the right-of-way or private road right-of-way.
- There are no catch basins on or near the site.
- Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

- Catch basins on the site or immediately off site in the right-of-way are shown on the SWPPP site map. Storm drain inlet protection shall be installed.

Additional Comments:

Catch basins to be protected for the duration of construction activity.

Check the BMPs you will use:

- C220 Storm Drain Inlet Protection



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 8: Stabilize Channels and Outlets

The goal of this element is to design, construct, and stabilize on-site conveyance channels to prevent erosion from entering existing stormwater outfalls and conveyance systems.

This element **does not** apply to my project because:

Construction will occur during the dry weather. No storm drainage channels or ditches shall be constructed either temporary or permanent. A small swale shall be graded to convey yard drainage around the structure using a shallow slope; it shall be seeded after grading and stabilized.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

A wattle shall be placed at the end of the swale to prevent erosion at the outlet of the swale.

Additional Comments:

Check the BMPs you will use:

C202 Channel Lining C207 Check Dams C209 Outlet Protection C235 Wattles



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 9: Control Pollutants

The goal of this element is to design, install, implement and maintain BMPs to minimize the discharge of pollutants from material storage areas, fuel handling, equipment cleaning, management of waste materials, etc.

This element **does not** apply to my project because:

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

Any and all pollutants, chemicals, liquid products and other materials that have the potential to pose a threat to human health or the environment will be covered, contained, and protected from vandalism. All such products shall be kept under cover in a secure location on-site. Concrete handling shall follow BMP C151.

Additional Comments:

To be addressed as needed by contractor.

Check the BMPs you will use:

- | | |
|--|--|
| <input checked="" type="checkbox"/> C151 Concrete Handling | <input checked="" type="checkbox"/> C152 Sawcutting and Surfacing Pollution Prevention |
| <input checked="" type="checkbox"/> C153 Material Delivery, Storage, and Containment | <input checked="" type="checkbox"/> C154 Concrete Washout Area |



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 10: Control De-watering

The goal of this element is to handle turbid or contaminated dewatering water separately from stormwater.

This element **does not** apply to my project because:

No dewatering of the site is anticipated.

Other Reason / Additional Comments:

If it **does** apply, describe the steps you will take and select the BMPs you will use:

Additional Comments:

Any dewatering required will follow BMPs below and/or recommendations from the project Geotech.

Check the BMPs you will use:

C203 Water Bars

C236 Vegetated Filtration

C206 Level Spreader



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 11: Maintain Best Management Practices

The goal of this element is to maintain and repair all temporary and permanent erosion and sediment control BMPs to assure continued performance.

Describe the steps you will take:

- Best Management Practices or BMPs shall be inspected and maintained during construction and removed within 30 days after the City Inspector or Engineer determines that the site is stabilized, provided that they may be removed when they are no longer needed.

Element 12: Manage the Project

The goal of this element is to ensure that the construction SWPPP is properly coordinated and that all BMPs are deployed at the proper time to achieve full compliance with City regulations throughout the project.

If it **does** apply, describe the steps you will take and select the BMPs you will use:

The Construction SWPPP will be implemented at all times. The applicable erosion control BMPs will be implemented in the following sequence:

- 1. Mark clearing limits
- 2. Install stabilized construction entrance
- 3. Install protection for existing drainage systems and permanent drain inlets
- 4. Establish staging areas for storage and handling polluted material and BMPs
- 5. Install sediment control BMPs
- 6. Grade and install stabilization measures for disturbed areas
- 7. Maintain BMPs until site stabilization, at which time they may be removed

Additional Comments:



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SECTION B: SMALL PROJECT CONSTRUCTION SWPPP NARRATIVE

Element 13: Protect Low Impact Development BMPs

The goal of this element is to protect on-site stormwater management BMPs (also known as “Low Impact Development BMPs”) from siltation and compaction during construction. On-site stormwater management BMPs used for runoff from roofs and other hard surfaces include: full dispersion, roof downspout full infiltration or dispersion systems, perforated stubout connections, rain gardens, bioretention systems, permeable pavement, sheetflow dispersion, and concentrated flow dispersion. Methods for protecting on-site stormwater management BMPs include sequencing the construction to install these BMPs at the latter part of the construction grading operations, excluding equipment from the BMPs and the associated areas, and using the erosion and sedimentation control BMPs listed below.

Describe the construction sequencing you will use:

Additional Comments:

No Low Impact Development BMPs are proposed.

Select the BMPs you will use:

- | | | |
|---|---|---|
| <input type="checkbox"/> C102 Buffer Zone | <input type="checkbox"/> C103 High Visibility Fence | <input type="checkbox"/> C231 Brush Barrier |
| <input type="checkbox"/> C233 Silt Fence | <input type="checkbox"/> C234 Vegetated Strip | |



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SECTION C: INFEASIBILITY CRITERIA

Minimum Requirement #5 (On-Site Stormwater Management)

The following tables summarize infeasibility criteria that can be used to justify not using various on-site stormwater management best management practices (BMPs) for consideration for Minimum Requirement #5. This information is also included under the detailed descriptions of each BMP in the 2014 Stormwater Management Manual for Western Washington (Stormwater Manual), but is provided here in this worksheet for additional clarity and efficiency. Where any inconsistencies or lack of clarity exists, the requirements in the main text of the Stormwater Manual shall be applied. If a project is limited by one or more of the infeasibility criteria specified below, but an applicant is interested in implementing a specific BMP, a functionally equivalent design may be submitted to the City for review and approval. Evaluate the feasibility of the BMPs in priority order based on List #1 or #2 (Small Project Stormwater Requirements Tip Sheet and Stormwater Manual). Select the first BMP that is considered feasible for each surface type. Document the infeasibility (narrative description and rationale) for each BMP that was not selected. Only one infeasibility criterion needs to be selected for a BMP before evaluating the next BMP on the list. Attach additional pages for supporting information if necessary.

Note: If your project discharges directly to Lake Washington (flow control exempt) or a downstream analysis confirms that the downstream system is free of capacity constraints for a minimum of ¼ mile and a maximum of 1 mile, then you do not need to complete this worksheet, but should still refer to the infeasibility criteria when selecting BMPs.

Lawn and Landscaped Areas		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Post-construction Soil Quality and Depth List #1 and #2	<input type="checkbox"/> Siting and design criteria provided in BMP T5.13 (Stormwater Manual Volume V, Section 5.3) cannot be achieved. <input type="checkbox"/> Lawn and landscape area is on till slopes greater than 33 percent.	
Roofs		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Full Dispersion List #1 and #2	<input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.30 (Stormwater Manual Volume V, Section 5.3) cannot be achieved. <input checked="" type="checkbox"/> A 65 to 10 ratio of forested or native vegetation area to impervious area cannot be achieved. <input checked="" type="checkbox"/> A minimum forested or native vegetation flowpath length of 100 feet (25 feet for sheet flow from a non-native pervious surface) cannot be achieved.	Insufficient space on-site for full dispersion.
Downspout Full Infiltration List #1 and #2	<input checked="" type="checkbox"/> Evaluation of infiltration is not required per the Infiltration Infeasibility Map due to steep slopes, erosion hazards, or landslide hazards. <input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.10A (Stormwater Manual Volume III, Section 3.1.1) cannot be achieved. <input type="checkbox"/> The lot(s) or site does not have out-wash or loam soils. <input type="checkbox"/> There is not at least 3 feet or more of permeable soil from the proposed final grade to the seasonal high groundwater table or other impermeable layer. <input type="checkbox"/> There is not at least 1 foot or more of permeable soil from the proposed bottom of the infiltration system to the seasonal high groundwater table or other impermeable layer.	Infiltration is not permitted for this project based on City's map and is also not recommended by the project Geotech due to fine soils on site and high groundwater levels.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Roofs (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Bioretention or Rain Gardens List #1 (both) and List #2 (bioretention only)	<p><i>Note: Criteria with setback distances are as measured from the bottom edge of the bioretention soil mix.</i></p> <p>Citation of any of the following infeasibility criteria must be based on an evaluation of site-specific conditions and a written recommendation from an appropriate licensed professional (e.g., engineer, geologist, hydrogeologist):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Where professional geotechnical evaluation recommends infiltration not be used due to reasonable concerns about erosion, slope failure, or down-gradient flooding. <input type="checkbox"/> Within an area whose ground water drains into an erosion hazard, or landslide hazard area. <input type="checkbox"/> Where the only area available for siting would threaten the safety or reliability of pre-existing underground utilities, pre-existing underground storage tanks, pre-existing structures, or pre-existing road or parking lot surfaces. <input type="checkbox"/> Where the only area available for siting does not allow for a safe overflow pathway to stormwater drainage system or private storm sewer system. <input type="checkbox"/> Where there is a lack of usable space for bioretention areas at re-development sites, or where there is insufficient space within the existing public right-of-way on public road projects. <input type="checkbox"/> Where infiltrating water would threaten existing below grade basements. <input type="checkbox"/> Where infiltrating water would threaten shoreline structures such as bulkheads. <p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Evaluation of infiltration is not required per the Infiltration Infeasibility Map due to steep slopes, erosion hazards, or landslide hazards <input type="checkbox"/> Within setback provided for BMP T7.30 (Stormwater Manual Volume V, Section 7.4) <input type="checkbox"/> Where they are not compatible with surrounding drainage system as determined by the city (e.g., project drains to an existing stormwater collection system whose elevation or location precludes connection to a properly functioning bioretention area). 	See previous responses.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Roofs (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Bioretention or Rain Gardens (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where land for bioretention is within an erosion hazard, or landslide hazard area (as defined by MICC 19.07.060). <input type="checkbox"/> Where the site cannot be reasonably designed to locate bioretention areas on slopes less than 8 percent. <input type="checkbox"/> Within 50 feet from the top of slopes that are greater than 20 percent and over 10 feet of vertical relief. <input type="checkbox"/> For properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act [MTCA]): <ul style="list-style-type: none"> • Within 100 feet of an area known to have deep soil contamination. • Where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in the groundwater. • Wherever surface soils have been found to be contaminated unless those soils are removed within 10 horizontal feet from the infiltration area. • Any area where these facilities are prohibited by an approved cleanup plan under the state MTCA or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW. <input type="checkbox"/> Within 100 feet of a closed or active landfill. <input type="checkbox"/> Within 10 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is 1,100 gallons or less. As used in these criteria, an underground storage tank means any tank used to store petroleum products, chemicals, or liquid hazardous wastes of which 10 percent or more of the storage volume (including volume in the connecting piping system) is beneath the ground surface. <input type="checkbox"/> Within 100 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is greater than 1,100 gallons. 	See previous responses.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Roofs (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Bioretention or Rain Gardens (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where field testing indicates potential bioretention/rain garden sites have a measured (a.k.a., initial) native soil saturated hydraulic conductivity less than 0.30 inches per hour. A small-scale or large-scale PIT in accordance with Stormwater Manual Volume III, Section 3.3.6 (or an alternative small scale test specified by the City) shall be used to demonstrate infeasibility of bioretention areas. If the measured native soil infiltration rate is less than 0.30 in/hour, bioretention/rain garden BMPs are not required to be evaluated as an option in List #1 or List #2. In these slow draining soils, a bioretention area with an underdrain may be used to treat pollution-generating surfaces to help meet Minimum Requirement #6, Runoff Treatment. If the underdrain is elevated within a base course of gravel, it will also provide some modest flow reduction benefit that will help achieve Minimum Requirement #7. <input type="checkbox"/> Where the minimum vertical separation of 3 feet to the seasonal high groundwater elevation or other impermeable layer would not be achieved below bioretention that would serve a drainage area that exceeds the following thresholds (and cannot reasonably be broken down into amounts smaller than indicated): <ul style="list-style-type: none"> o 5,000 square feet of pollution-generating impervious surface (PGIS) o 10,000 square feet of impervious area o 0.75 acres of lawn and landscape. <input type="checkbox"/> Where the minimum vertical separation of 1 foot to the seasonal high groundwater or other impermeable layer would not be achieved below bioretention that would serve a drainage area less than the above thresholds. <input type="checkbox"/> Within 100 feet of a drinking water well, or a spring used for drinking water supply. <input type="checkbox"/> Within 10 feet of small on-site sewage disposal drainfield, including reserve areas, and grey water reuse systems. For setbacks from a "large on-site sewage disposal system," see Chapter 246-272B WAC. 	See previous responses.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Roofs (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Downspout Dispersion Systems List #1 and #2	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.10B (Stormwater Manual Volume III, Section 3.1.2) cannot be achieved. <input type="checkbox"/> For splash blocks, a vegetated flowpath at least 50 feet in length from the downspout to the downstream property line, structure, stream, wetland, slope over 15 percent, or other impervious surface is not feasible. <input type="checkbox"/> For trenches, a vegetated flowpath of at least 25 feet in between the outlet of the trench and any property line, structure, stream, wetland, or impervious surface is not feasible. A vegetated flowpath of at least 50 feet between the outlet of the trench and any slope steeper than 15 percent is not feasible. 	Downstream slope exceeds maximum allowable for dispersion.
Perforated Stub-Out Connections List #1 and #2	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Evaluation of infiltration is not required per the Infiltration Infeasibility Map due to steep slopes, erosion hazards, or landslide hazards <input type="checkbox"/> For sites with septic systems, the only location available for the perforated portion of the pipe is located up-gradient of the drainfield primary and reserve areas. This requirement can be waived if site topography will clearly prohibit flows from intersecting the drainfield or where site conditions (soil permeability, distance between systems, etc.) indicate that this is unnecessary. <input type="checkbox"/> Site setbacks and design criteria provided in BMP T5.10C (Stormwater Manual Volume III, Section 3.1.3) cannot be achieved. <input type="checkbox"/> There is not at least 1 foot of permeable soil from the proposed bottom (final grade) of the perforated stub-out connection trench to the highest estimated groundwater table or other impermeable layer. <input type="checkbox"/> The only location available for the perforated stub-out connection is under impervious or heavily compacted soils. 	Infiltration is not permitted for this project based on City's map and is also not recommended by the project Geotech due to fine soils on site.
On-site Detention List #1 and #2	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project discharges directly to Lake Washington. <input type="checkbox"/> Findings from a 1/4 mile downstream analysis confirm that the downstream system is free of capacity constraints. <input type="checkbox"/> Site setbacks and design criteria provided in the Stormwater Manual (Volume III, Section 3.2.2) cannot be achieved. 	Direct discharge is utilized for site.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Full Dispersion List #1 and #2	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.30 (Stormwater Manual Volume V, Section 5.3) cannot be achieved. <input checked="" type="checkbox"/> A 65 to 10 ratio of forested or native vegetation area to impervious area cannot be achieved. <input checked="" type="checkbox"/> A minimum forested or native vegetation flowpath length of 100 feet (25 feet for sheet flow from a non-native pervious surface) cannot be achieved. 	Same as described for roof drainage.
Permeable Pavement List #1 and #2	<p>Citation of any of the following infeasibility criteria must be based on an evaluation of site-specific conditions and a written recommendation from an appropriate licensed professional (e.g., engineer, geologist, hydrogeologist):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Where professional geotechnical evaluation recommends infiltration not be used due to reasonable concerns about erosion, slope failure, or downgradient flooding. <input type="checkbox"/> Within an area whose ground water drains into an erosion hazard, or landslide hazard area. <input type="checkbox"/> Where infiltrating and ponded water below the new permeable pavement area would compromise adjacent impervious pavements. <input type="checkbox"/> Where infiltrating water below a new permeable pavement area would threaten existing below grade basements. <input type="checkbox"/> Where infiltrating water would threaten shoreline structures such as bulkheads. <input type="checkbox"/> Down slope of steep, erosion prone areas that are likely to deliver sediment. <input type="checkbox"/> Where fill soils are used that can become unstable when saturated. <input type="checkbox"/> Excessively steep slopes where water within the aggregate base layer or at the subgrade surface cannot be controlled by detention structures and may cause erosion and structural failure, or where surface runoff velocities may preclude adequate infiltration at the pavement surface. <input type="checkbox"/> Where permeable pavements cannot provide sufficient strength to support heavy loads at industrial facilities such as ports. <input type="checkbox"/> Where installation of permeable pavement would threaten the safety or reliability of pre-existing underground utilities, pre-existing underground storage tanks, or pre-existing road subgrades. 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Permeable Pavement (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Evaluation of infiltration is not required per the Infiltration Infeasibility Map due to steep slopes, erosion hazards, or landslide hazards <input type="checkbox"/> Within an area designated as an erosion hazard, or landslide hazard. <input type="checkbox"/> Within 50 feet from the top of slopes that are greater than 20 percent. <input type="checkbox"/> For properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under MTCA): <ul style="list-style-type: none"> • Within 100 feet of an area known to have deep soil contamination. • Where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in the groundwater. • Wherever surface soils have been found to be contaminated unless those soils are removed within 10 horizontal feet from the infiltration area. • Any area where these facilities are prohibited by an approved cleanup plan under the state MTCA or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW. <input type="checkbox"/> Within 100 feet of a closed or active landfill. <input type="checkbox"/> Within 100 feet of a drinking water well, or a spring used for drinking water supply, if the pavement is a pollution-generating surface. <input type="checkbox"/> Within 10 feet of a small on-site sewage disposal drainfield, including reserve areas, and grey water reuse systems. For setbacks from a "large on-site sewage disposal system," see Chapter 246-272B WAC. <input type="checkbox"/> Within 10 feet of any underground storage tank and connecting underground pipes, regardless of tank size. As used in these criteria, an underground storage tank means any tank used to store petroleum products, chemicals, or liquid hazardous wastes of which 10 percent or more of the storage volume (including volume in the connecting piping system) is beneath the ground surface. <input type="checkbox"/> At multi-level parking garages, and over culverts and bridges. <input type="checkbox"/> Where the site design cannot avoid putting pavement in areas likely to have long-term excessive sediment deposition after construction (e.g., construction and landscaping material yards). 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Permeable Pavement (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where the site cannot reasonably be designed to have: <ul style="list-style-type: none"> • Porous asphalt surface < 5% slope • Pervious concrete surface < 10% slope • Permeable interlocking concrete pavement surface < 12% slope • Grid systems < 6-12% slope (check with manufacturer and local supplier to confirm maximum slope) <input type="checkbox"/> Where the subgrade soils below a pollution-generating permeable pavement (e.g., road or parking lot) do not meet the soil suitability criteria for providing treatment. See soil suitability criteria for treatment in the Stormwater Manual Volume III, Section 3.3.7. Note: In these instances, the city may approve installation of a 6 inch sand filter layer meeting city specifications for treatment as a condition of construction. <input type="checkbox"/> Where underlying soils are unsuitable for supporting traffic loads when saturated. Soils meeting a California Bearing Ratio of 5 percent are considered suitable for residential access roads. <input type="checkbox"/> Where replacing existing impervious surfaces unless the existing surface is a non-pollution generating surface over an outwash soil with a saturated hydraulic conductivity of 4 inches per hour or greater. <input type="checkbox"/> Where appropriate field testing indicates soils have a measured (a.k.a., initial) subgrade soil saturated hydraulic conductivity less than 0.3 inches per hour. Only small-scale PIT or large-scale PIT methods in accordance with Stormwater Manual Volume III, Section 3.3.6 (or an alternative small scale test specified by the City) shall be used to evaluate infeasibility of permeable pavement areas. (Note: In these instances, unless other infeasibility restrictions apply, roads and parking lots may be built with an underdrain, preferably elevated within the base course, if flow control benefits are desired.) <input type="checkbox"/> Roads that receive more than very low traffic volumes, and areas having more than very low truck traffic. Roads with a projected average daily traffic volume of 400 vehicles or less are very low volume roads (AASHTO 2001) (U.S. Department of Transportation, 2013). Areas with very low truck traffic volumes are roads and other areas not subject to through truck traffic but may receive up to weekly use by utility trucks (e.g., garbage, recycling), daily school bus use, and multiple daily use by pick-up trucks, mail/parcel delivery trucks, and maintenance vehicles. (Note: This infeasibility criterion does not extend to sidewalks and other non-traffic bearing surfaces associated with the collector or arterial). 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Permeable Pavement (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> At sites defined as “high-use sites” (refer to the Glossary in the Stormwater Manual Volume I). <input type="checkbox"/> In areas with “industrial activity” as identified in 40 CFR 122.26(b)(14). <input type="checkbox"/> Where the risk of concentrated pollutant spills is more likely such as gas stations, truck stops, and industrial chemical storage sites. <input type="checkbox"/> Where routine, heavy applications of sand occur in frequent snow zones to maintain traction during weeks of snow and ice accumulation. <input type="checkbox"/> Where the seasonal high groundwater or an underlying impermeable/low permeable layer would create saturated conditions within 1 foot of the bottom of the lowest gravel base course. 	Same as described for roof drainage.
Bioretention or Rain Gardens List #1 (both) and List #2 (bioretention only)	<p><i>Note: Criteria with setback distances are as measured from the bottom edge of the bioretention soil mix.</i></p> <p>Citation of any of the following infeasibility criteria must be based on an evaluation of site-specific conditions and a written recommendation from an appropriate licensed professional (e.g., engineer, geologist, hydrogeologist):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Where professional geotechnical evaluation recommends infiltration not be used due to reasonable concerns about erosion, slope failure, or down-gradient flooding. <input type="checkbox"/> Within an area whose ground water drains into an erosion hazard, or landslide hazard area. <input type="checkbox"/> Where the only area available for siting would threaten the safety or reliability of pre-existing underground utilities, pre-existing underground storage tanks, pre-existing structures, or pre-existing road or parking lot surfaces. <input type="checkbox"/> Where the only area available for siting does not allow for a safe overflow pathway to stormwater drainage system or private storm sewer system. <input type="checkbox"/> Where there is a lack of usable space for bioretention areas at re-development sites, or where there is insufficient space within the existing public right-of-way on public road projects. <input type="checkbox"/> Where infiltrating water would threaten existing below grade basements. <input type="checkbox"/> Where infiltrating water would threaten shoreline structures such as bulkheads. 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Bioretention or Rain Gardens (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Where evaluation of infiltration is not required per the Infiltration Infeasibility Map due to steep slopes, erosion hazards, or landslide hazards. <input type="checkbox"/> Within setback provided for BMP T7.30 (Stormwater Manual Volume V, Section 7.4) <input type="checkbox"/> Where they are not compatible with surrounding drainage system as determined by the city (e.g., project drains to an existing stormwater collection system whose elevation or location precludes connection to a properly functioning bioretention area). <input type="checkbox"/> Where land for bioretention is within an erosion hazard, or landslide hazard area (as defined by MICC 19.07.060). <input type="checkbox"/> Where the site cannot be reasonably designed to locate bioretention areas on slopes less than 8 percent. <input type="checkbox"/> Within 50 feet from the top of slopes that are greater than 20 percent and over 10 feet of vertical relief. <input type="checkbox"/> For properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act [MTCA]): <ul style="list-style-type: none"> • Within 100 feet of an area known to have deep soil contamination. • Where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in the groundwater. • Wherever surface soils have been found to be contaminated unless those soils are removed within 10 horizontal feet from the infiltration area. • Any area where these facilities are prohibited by an approved cleanup plan under the state MTCA or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW. <input type="checkbox"/> Within 100 feet of a closed or active landfill. <input type="checkbox"/> Within 10 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is 1,100 gallons or less. As used in these criteria, an underground storage tank means any tank used to store petroleum products, chemicals, or liquid hazardous wastes of which 10 percent or more of the storage volume (including volume in the connecting piping system) is beneath the ground surface. 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Bioretention or Rain Gardens (cont.)	<p>The following criteria can be cited as reasons for infeasibility without further justification (though some require professional services to make the observation):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Within 100 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is greater than 1,100 gallons. <input type="checkbox"/> Where field testing indicates potential bioretention/rain garden sites have a measured (a.k.a., initial) native soil saturated hydraulic conductivity less than 0.30 inches per hour. A small-scale or large-scale PIT in accordance with Stormwater Manual Volume III, Section 3.3.6 (or an alternative small scale test specified by the City) shall be used to demonstrate infeasibility of bioretention areas. If the measured native soil infiltration rate is less than 0.30 in/hour, bioretention/rain garden BMPs are not required to be evaluated as an option in List #1 or List #2. In these slow draining soils, a bioretention area with an underdrain may be used to treat pollution-generating surfaces to help meet Minimum Requirement #6, Runoff Treatment. If the underdrain is elevated within a base course of gravel, it will also provide some modest flow reduction benefit that will help achieve Minimum Requirement #7. <input type="checkbox"/> Where the minimum vertical separation of 3 feet to the seasonal high groundwater elevation or other impermeable layer would not be achieved below bioretention that would serve a drainage area that exceeds the following thresholds (and cannot reasonably be broken down into amounts smaller than indicated): <ul style="list-style-type: none"> o 5,000 square feet of pollution-generating impervious surface (PGIS) o 10,000 square feet of impervious area o 0.75 acres of lawn and landscape. <input type="checkbox"/> Where the minimum vertical separation of 1 foot to the seasonal high groundwater or other impermeable layer would not be achieved below bioretention that would serve a drainage area less than the above thresholds <input type="checkbox"/> Within 100 feet of a drinking water well, or a spring used for drinking water supply. <input type="checkbox"/> Within 10 feet of small on-site sewage disposal drainfield, including reserve areas, and grey water reuse systems. For setbacks from a "large on-site sewage disposal system," see Chapter 246-272B WAC. 	Same as described for roof drainage.



CITY OF MERCER ISLAND

SECTION C: INFEASIBILITY CRITERIA

Other Hard Surfaces (cont.)		
BMP and Applicable Lists	Infeasibility Criteria	Infeasibility Description and Rationale for Each BMP Not Selected
Sheet Flow Dispersion List #1 and #2	<input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.12 (Stormwater Manual Volume V, Section 5.3) cannot be achieved. <input type="checkbox"/> Positive drainage for sheet flow runoff cannot be achieved. <input type="checkbox"/> Area to be dispersed (e.g., driveway, patio) cannot be graded to have less than a 15 percent slope. <input type="checkbox"/> For flat to moderately sloped areas, at least a 10 foot-wide vegetation buffer for dispersion of the adjacent 20 feet of contributing surface cannot be achieved. For variably sloped areas, at least a 25 foot vegetated flowpath between berms cannot be achieved.	Same as described for roof drainage.
Concentrated Flow Dispersion List #1 and #2	<input checked="" type="checkbox"/> Site setbacks and design criteria provided in BMP T5.11 (Stormwater Manual Volume V, Section 5.3) cannot be achieved. <input type="checkbox"/> A minimum 3 foot length of rock pad and 50 foot flowpath OR a dispersion trench and 25 foot flowpath for every 700 square feet of drainage area followed with applicable setbacks cannot be achieved. <input type="checkbox"/> More than 700 square feet drainage area drains to any dispersion device.	Same as described for roof drainage.
On-site Detention List #1 and #2	<input checked="" type="checkbox"/> Project discharges directly to Lake Washington. <input type="checkbox"/> Findings from a 1/4 mile downstream analysis confirm that the downstream system is free of capacity constraints. <input type="checkbox"/> Site setbacks and design criteria provided in the Stormwater Manual (Volume III, Section 3.2.2) cannot be achieved.	



CITY OF MERCER ISLAND

SECTION D: POST-CONSTRUCTION SOIL MANAGEMENT

Attachments Required *(Check off required items that are attached)*

- Site Plan showing, to scale:
 - Areas of undisturbed native vegetation (no amendment required)
 - New planting beds (amendment required)
 - New turf areas (amendment required)
 - Type of soil improvement proposed for each area

Soil test results (required if proposing custom amendment rates)

Product test results for proposed amendments

Total Amendment / Topsoil / Mulch for All Areas

Calculate the quantities needed for the entire site based on all of the areas identified on the Site Plan and the calculations on the following page(s):

Product	Total Quantity (CY)	Test Results
Product #1: _____	_____ CY	_____ % organic matter _____ C:N ratio "Stable"? yes <input type="checkbox"/> no <input type="checkbox"/>
Product #2: _____	_____ CY	_____ % organic matter _____ C:N ratio "Stable"? yes <input type="checkbox"/> no <input type="checkbox"/>
Product #3: _____	_____ CY	_____ % organic matter _____ C:N ratio "Stable"? yes <input type="checkbox"/> no <input type="checkbox"/>

CY = cubic yards, C:N = Carbon:Nitrogen



CITY OF MERCER ISLAND

SECTION D: POST-CONSTRUCTION SOIL MANAGEMENT

Amendment / Topsoil / Mulch by Area

For each identified area on your Site Plan, provide the following information: (Use additional sheets if necessary)

Area # Per Plan (should match identified Area # on Site Plan)

Planting type: Turf Undisturbed native vegetation
 Planting Beds Other: _____

Pre-Approved Amendment Method

<input checked="" type="checkbox"/>	Amend with compost Turf: <u>10,736</u> SF x 5.4 CY ÷ 1,000 SF = <u>58</u> CY Planting beds: _____ SF x 9.3 CY ÷ 1,000 SF = _____ CY Total Quantity = <u>58</u> CY Scarification depth: 8 inches	Product: <u>TBD</u>
<input type="checkbox"/>	Stockpile and amend Turf: _____ SF x 5.4 CY ÷ 1,000 SF = _____ CY Planting beds: _____ SF x 9.3 CY ÷ 1,000 SF = _____ CY Total Quantity = _____ CY Scarification depth: 8 inches	Product: _____
<input type="checkbox"/>	Topsoil import Turf: _____ SF x 18.6 CY ÷ 1,000 SF = _____ CY Planting beds: _____ SF x 18.6 CY ÷ 1,000 SF = _____ CY Total Quantity = _____ CY Scarification depth: 6 inches	Product: _____

Custom Amendment

<input type="checkbox"/>	Amend with compost Attach information on bulk density, percent organic matter, moisture content, C:N ratio, and heavy metals analysis to support custom amendment rate and scarification depth. Total Quantity = _____ CY Scarification depth: _____ inches	Product: _____
<input type="checkbox"/>	Stockpile and amend Attach information on bulk density, percent organic matter, moisture content, C:N ratio, and heavy metals analysis to support custom amendment rate and scarification depth. Total Quantity = _____ CY Scarification depth: _____ inches	Product: _____

Mulch

<input type="checkbox"/>	Amend with compost Planting beds: _____ SF x 12.4 CY ÷ 1,000 SF = _____ CY Total Quantity = _____ CY	Product: _____
<input type="checkbox"/>	Stockpile and amend Planting beds: _____ SF x 12.4 CY ÷ 1,000 SF = _____ CY Total Quantity = _____ CY	Product: _____
<input type="checkbox"/>	Topsoil import Planting beds: _____ SF x 12.4 CY ÷ 1,000 SF = _____ CY Total Quantity = _____ CY	Product: _____

CY = cubic yards, C:N = Carbon:Nitrogen



CITY OF MERCER ISLAND

SECTION E: SIGNATURE PAGE

Project Engineer's Certification for Section B

For Stormwater Site Plans with engineered elements, the Construction SWPPP is stamped by a professional engineer licensed in the State of Washington in civil engineering.

If required, attach a page with the project engineer's seal with the following statement:

Asdourian Residence

*"I hereby state that this Construction Stormwater Pollution Prevention Plan for _____
(name of project)
has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Mercer Island does not and will not assume liability for the sufficiency, suitability, or performance of Construction SWPPP BMPs prepared by me."*

Applicant Signature for Full Stormwater Package (Sections A through D)

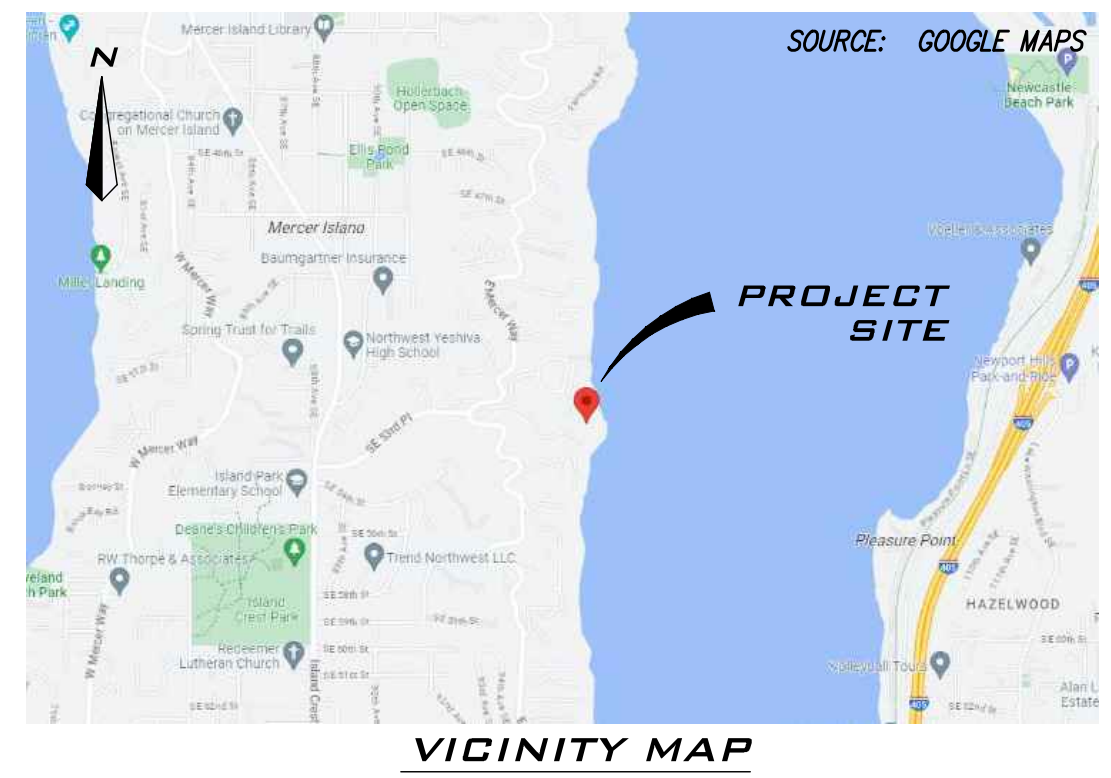
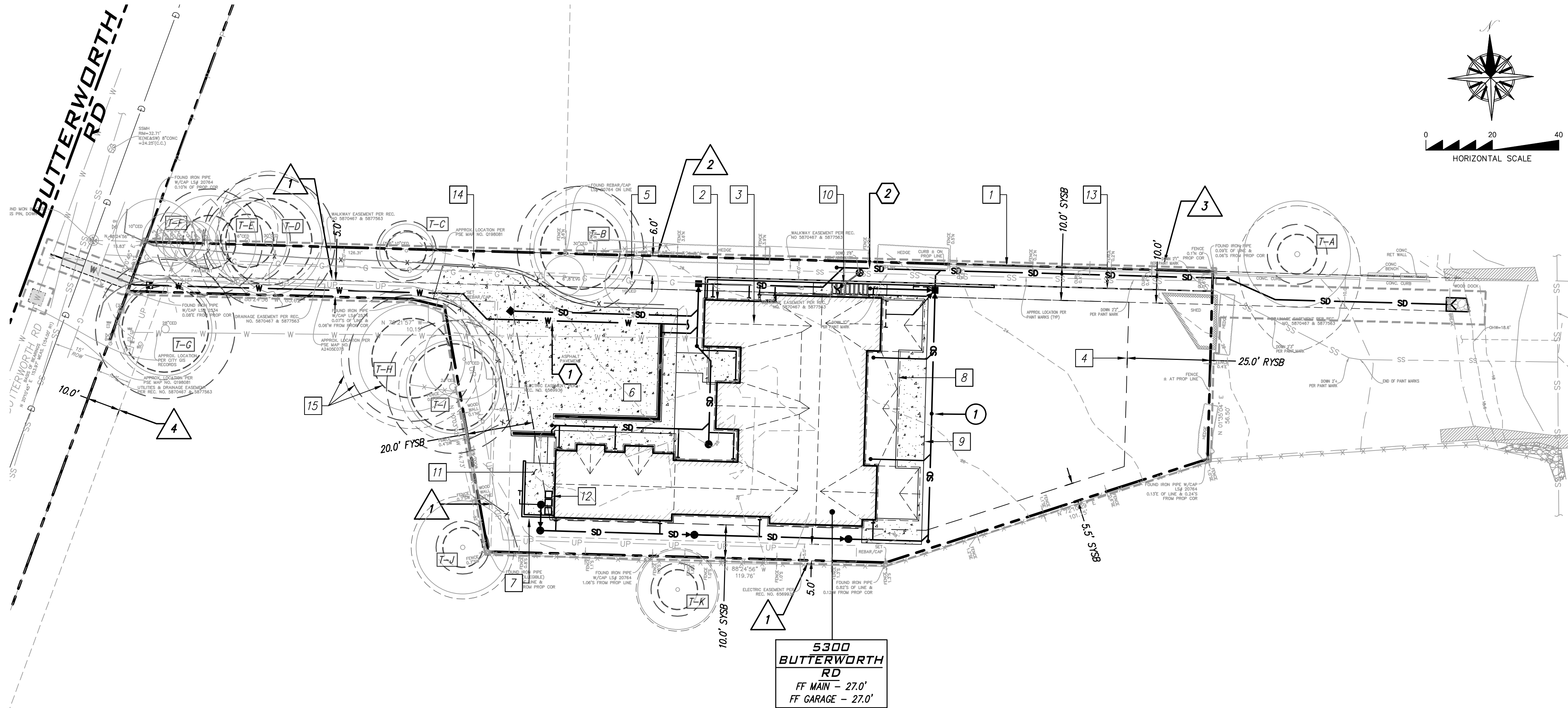
I have read and completed the Stormwater Submittal Package and know the information provided to be true and correct.

Print Applicant Name: Schwin Chaosilapakul

Applicant Signature:  Date 5/9/2024

ASDOURIAN RESIDENCE

SE 1/4, NE 1/4, SEC 19, T 24 N, R 05 E, W. M.



PROJECT TEAM:

OWNER:
RYAN AND ASHLEY ASDOURIAN
5300 BUTTERWORTH RD
MERCER ISLAND, WA 98004
EMAIL: RASDO@MICROSOFT.COM

PROJECT ARCHITECT:
STURMAN ARCHITECTS
KATI EITZMAN
9-103RD AVE NE, SUITE 203
BELLEVUE, WA 98004
PH: (425) 451-7003
EMAIL: KATI@STURMANARCHITECTS.COM

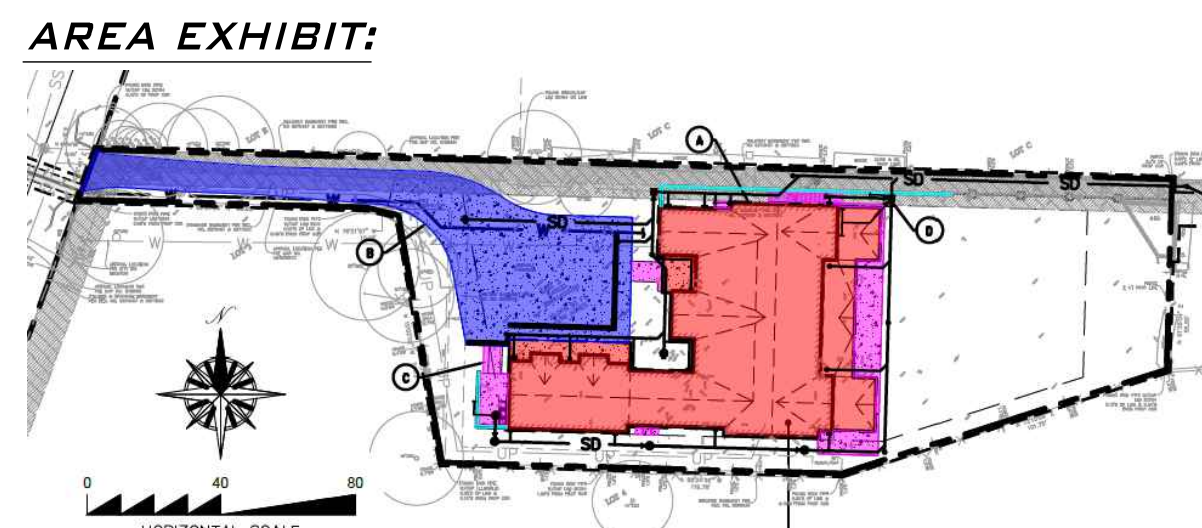
PROJECT CIVIL ENGINEER:
PATRICK HARRON & ASSOCIATES, LLC
SCHWIN CHAOSLAPAKUL, PE
14900 INTERURBAN AVENUE S #279
SEATTLE, WA 98169
PH: (206) 674-4659
EMAIL: SCHWIN@PATRICKHARRON.COM

PROJECT SURVEYOR:
TERRANE
JACOB MILLER
10801 MAIN ST, SUITE 102
BELLEVUE, WA 98004
PH: (425) 458-4488
EMAIL: SUPPORT@TERRANE.NET

PROJECT GEOTECHNICAL ENGINEER:
GEOTECH CONSULTANTS, INC
MARC MCGINNIS
2401 10TH AVE EAST
SEATTLE, WA 98102
PH: (425) 747-5618
EMAIL: MARCM@GEOTECHNW.COM

PROJECT ARBORIST:
TREE SOLUTIONS, INC
CHARLIE VOGELHEIM
2940 WESTLAKE AVE N #200
SEATTLE, WA 98109
PH: (206) 528-4670
EMAIL: CHARLIE@TREETOLUTIONS.NET

SITE PLAN
SCALE: 1"=20'



SITE CALLOUTS:

- PROPERTY BOUNDARY, TYP.
- PROPOSED BUILDING FOOTPRINT, TYP.
- PROPOSED BUILDING ROOFLINE, TYP.
- BUILDING SETBACK LINE, TYP. SEE DEVELOPMENT DATA NOTES FOR MINIMUM SETBACKS.
- EXISTING TREES TO BE PROTECTED-IN-PLACE UNLESS OTHERWISE NOTED, TYP (SEE ARBORIST REPORT AND SHEET C2.0 FOR LIMITS OF DISTURBANCE AND TREE PROTECTION).
- PROPOSED ON-SITE CONCRETE DRIVEWAY/PARKING, TYP (SEE SHEET C3.0 FOR GRADING PLAN).
- PROPOSED CONCRETE RETAINING WALL (< 4.0'), TYP.
- PROPOSED IMPERVIOUS DECK, TYP.
- PROPOSED CONCRETE OR PAVER PATIO, TYP.
- PROPOSED PAVER PATH.
- PROPOSED CONCRETE TRASH PAD.
- PROPOSED MECHANICAL/ELECTRICAL EQUIPMENT, TYP.
- PROPOSED PRIVACY FENCE, TYP.
- TREE PROTECTION FENCING, TYP (SEE SHEET C2.0).
- TREE DRIPLINE/RL0D/ML0D, TYP (SEE SHEET C2.0).

SITE NOTES:

- SOILS OF DISTURBED PERVIOUS AREAS TO BE AMENDED.

STORM CALLOUTS:

- PROPOSED STORM DRAINAGE SYSTEM, TYP (SEE SHEET C3.1 FOR DRAINAGE PLAN).

SEWER & WATER CALLOUTS:

- PROPOSED DOMESTIC WATER SYSTEM, TYP (SEE SHEET C3.0 FOR WATER PLAN).
- PROPOSED SANITARY SEWER SYSTEM, TYP (SEE SHEET C3.0 FOR SEWER PLAN).

EASEMENT CALLOUTS:

- 5.0' ELECTRIC EASEMENT.
- 6.0' WALKWAY EASEMENT.
- 10.0' DRAINAGE EASEMENT.
- 10.0' UTILITIES & DRAINAGE EASEMENT.

SHEET LIST		
SHEET #	NAME	DESCRIPTION
1	C1.0	COVER SHEET & SITE PLAN
2	C2.0	DEMOLITION & TESC PLAN
3	C2.1	TESC DETAILS
4	C3.0	GRADING & UTILITY PLAN
5	C3.1	STORM DRAINAGE PLAN
6	C3.2	STORM DRAINAGE DETAILS
7	C3.3	UTILITY DETAILS

PROJECT INFORMATION:

DEVELOPMENT DATA:
PROJECT NAME: ASDOURIAN RESIDENCE
PROPERTY AREA: 20076 SF (0.46 AC)
SITE ADDRESS: 5300 BUTTERWORTH RD, MERCER ISLAND, WA 98004
PARCEL NUMBER: 8661400020
ZONED: R-15

BUILDING SETBACKS:
FRONT YARD: 20.0 FT
SIDE YARD: 10.0 FT
REAR YARD: 25.0 FT

LOT COVERAGE (BLDG): 40% (MAX)

UTILITIES:
SEWER: MERCER ISLAND PUBLIC WORKS
WATER: MERCER ISLAND PUBLIC WORKS
POWER: PUGET SOUND ENERGY
SCHOOLS: LAKE WASHINGTON #414
FIRE DISTRICT: MERCER ISLAND FIRE DEPARTMENT

LEGAL DESCRIPTION:

LOT 2, TONJA ESTATES, AS PER PLAT RECORDED IN VOLUME 77 OF PLATS, PAGE 64, RECORDS OF KING COUNTY, WASHINGTON; TOGETHER WITH THAT PORTION OF LOT 3 OF SAID PLAT DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE SOUTH 1°35'04" WEST ALONG THE EASTERLY LINE OF LOT 3, A DISTANCE OF 75.31 FEET; THENCE NORTH 10°03'02" WEST A DISTANCE OF 74.73 FEET; THENCE NORTH 76°21'57" WEST A DISTANCE OF 10.15 FEET, MORE OR LESS, TO THE NORTH LINE OF SAID LOT 3; THENCE SOUTH 88°24'56" EAST ALONG SAID NORTH LINE 25.00 FEET TO THE POINT OF BEGINNING. TOGETHER WITH AN UNDIVIDED 1/7 TH INTEREST IN LOT 1 OF SAID PLAT.

DATUM:

VERTICAL DATUM - NAVD 88 PER CITY OF MERCER ISLAND BENCHMARK NO. 1934
DESCRIPTION: 3" BRASS PLUG IN 4"x4" CONC (DN 1.6") LOCATION: OPP D/W HSE #5210 ON BUTTERWORTH RD. ELEVATION: 52.14'

HORIZONTAL DATUM (BASIS OF BEARINGS)

ACCEPTED THE BEARING OF S20°10'45"W BETWEEN MONUMENTS FOUND ALONG THE CENTERLINE OF BUTTERWORTH ROAD, PER REFERENCE NO. 1.

AREA INVENTORY:

Proposed Surface Coverage Summary (Onsite)			
Callout	Description	(sf)	(ac)
Total Property		20,076	0.461
A	New House Roof	5,203	0.119
B	Driveway	3,300	0.076
C	Walkways & Patio	727	0.017
D	Walls	110	0.003
Total Proposed Hard Surface		9,340	0.214
Total Pervious Surface (Lawn)		10,736	0.246

REFERENCES:

- ARCHITECTURAL PLANS BY STURMAN ARCHITECTS.
- BOUNDARY AND TOPOGRAPHIC SURVEY BY TERRANE.
- GEOTECH REPORT BY GEOTECH CONSULTANTS, INC.
- ARBORIST REPORT BY TREE SOLUTIONS, INC.

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THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-424-5555 OR 811 (CELL) A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

May 09, 2024 1:00:29PM - User: Sheri Stark
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BY	SC
DESCRIPTION	CITY REVIEW COMMENTS 2/14/24
R#	5/9/24

CITY OF MERCER ISLAND
BUILDING PERMIT

COVER SHEET & SITE PLAN

Civil Engineering & Planning
14900 Interurban Ave. S, Suite 279, Seattle, WA 98168
Phone: 206.674.4659
Web: patrickharron.com

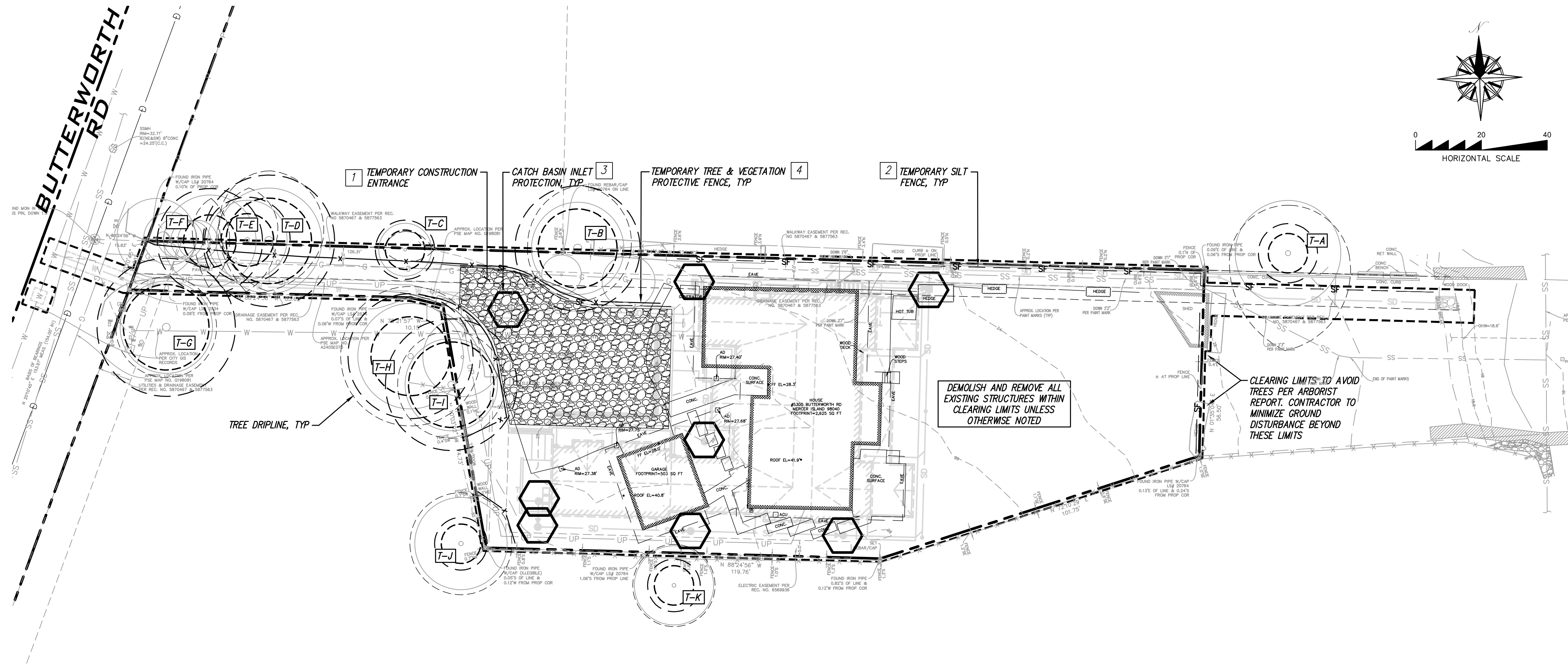
PROJ. NO.	23109	DSN. BY:	CC
DWN. BY:	CC	CHK. BY:	SC

ASDOURIAN RESIDENCE

DATE: 5/9/24
SCALE: AS SHOWN
DRAWING NO.: C1.0
1 OF 7

ASDOURIAN RESIDENCE

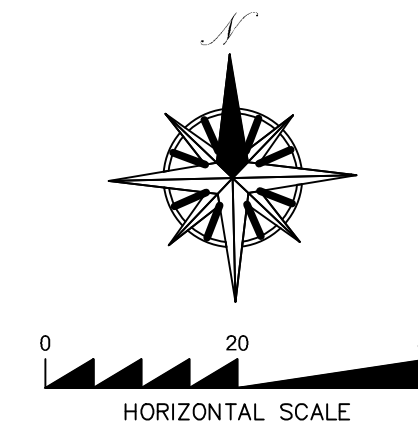
SE 1/4, NE 1/4, SEC 19, T 24 N, R 05 E, W. M.



DEMOLITION & TESC PLAN
SCALE: 1"=20'

TESC LEGEND:

- REMOVE TREE
- CATCH BASIN INLET PROTECTION
- SAWCUT
- TEMPORARY SILT FENCE
- TEMPORARY TREE & VEGETATION PROTECTIVE FENCE
- CLEARING LIMITS
- TEMPORARY CONSTRUCTION ENTRANCE



DEMOLITION & TESC CALLOUTS:

1. TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL 1, SHEET C2.1). COORDINATE WITH SITE INSPECTOR FOR LOCATION AND EXTENTS.
2. TEMPORARY SILT FENCE, TYP (SEE DETAIL 2, SHEET C2.1 AND TESC NOTE 4). ALTERNATIVELY, STRAW WATTLES MAY BE USED TO LESSEN IMPACTS ON TREE ROOT SYSTEMS. IMPLEMENTATION OF SEDIMENT CONTROL SYSTEMS TO BE COORDINATED WITH PROJECT ARBORIST FOR AREAS WITHIN TPZ.
3. CATCH BASIN INLET PROTECTION, TYP (SEE DETAIL 3, SHEET C2.1).
4. TEMPORARY TREE & VEGETATION PROTECTIVE FENCE, TYP (SEE DETAIL 4, SHEET C2.1). SEE DEMOLITION & TESC NOTES, THIS SHEET, FOR ADDITIONAL TREE PROTECTION GUIDELINES.
5. SOILS OF DISTURBED PERVIOUS AREAS ARE TO BE AMENDED, PER BMP T5.13, TYP (SEE DETAIL 5, SHEET C3.2).

DEMOLITION & TESC NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION ON TREE PROTECTION.
2. PRIOR TO BEGINNING ANY CONSTRUCTION, COORDINATE INSTALLATION OF TREE PROTECTION FENCING WITH GENERAL CONTRACTOR, CITY AND OWNERS REPRESENTATIVE PROJECT ARBORIST. COORDINATE GRADING AND SOIL PREPARATION ACTIVITIES AROUND EXISTING TREES TO REMAIN WITH GENERAL CONTRACTOR, OWNERS REPRESENTATIVE, PROJECT ARBORIST AND CITY.
3. TREE PROTECTION BARRIERS SHALL BE INITIALLY ERRECTED AT 5 FEET OUTSIDE OF THE DRIP LINE PRIOR TO MOVING ANY HEAVY EQUIPMENT ON SITE.
- TREE PROTECTION FENCING SHALL ONLY BE MOVED WHERE NECESSARY TO INSTALL IMPROVEMENTS, BUT ONLY AS CLOSE AS THE LIMITS OF DISTURBANCE, AS INDICATED IN THE ARBORIST REPORT.
- EXCAVATION LIMITS SHOULD BE LAID OUT IN PAINT ON THE GROUND TO AVOID OVER EXCAVATING.
- EXCAVATIONS WITHIN THE DRIP LINES SHALL BE MONITORED BY A QUALIFIED TREE PROFESSIONAL SO NECESSARY PRECAUTIONS CAN BE TAKEN TO DECREASE IMPACTS TO TREE PARTS. A QUALIFIED ARBORIST SHALL MONITOR EXCAVATIONS WHEN WORK IS REQUIRED AND ALLOWED UP TO THE "LIMITS OF DISTURBANCE".
- TO ESTABLISH SUB GRADE FOR FOUNDATIONS, CURBS AND PAVEMENT SECTIONS NEAR THE TREES, SOIL SHOULD BE REMOVED PARALLEL TO THE ROOTS AND NOT AT 90-DEGREE ANGLES TO AVOID BREAKING AND TEARING ROOTS THAT LEAD BACK TO THE TRUNK WITHIN THE DRIP-LINE. ANY ROOTS DAMAGED DURING THESE EXCAVATIONS SHOULD BE EXPOSED TO SOUND TISSUE AND CUT CLEANLY WITH A SAW.
- AREAS EXCAVATED WITHIN THE DRIP LINE OF RETAINED TREES SHOULD BE THOROUGHLY IRRIGATED WEEKLY DURING DRY PERIODS.
- PREPARATIONS FOR FINAL LANDSCAPING SHALL BE ACCOMPLISHED BY HAND WITHIN THE DRIP LINES OF RETAINED TREES. PLANTINGS WITHIN THE DRIP LINES SHALL BE LIMITED. LARGE EQUIPMENT SHALL BE KEPT OUTSIDE OF THE TREE PROTECTION ZONES.
4. FILTER/SILT FENCING WITHIN THE TPZ OF RETAINED TREES SHALL BE INSTALLED IN A MANNER THAT DOES NOT SEVER ROOTS. INSTALL SO THAT FILTER/SILT FENCING SITS ON THE GROUND AND IS WEIGHED IN PLACE BY SANDBAGS OR GRAVEL. DO NOT TRENCH TO INSERT FILTER/SILT FENCING INTO THE GROUND. REFER TO PROJECT ARBORIST TREE PROTECTION SPECIFICATIONS ON C2.1.

TABLE OF TREES:

REFERENCE ARBORIST REPORT



Table of Trees
5300 Butterworth Rd, Mercer Island, WA

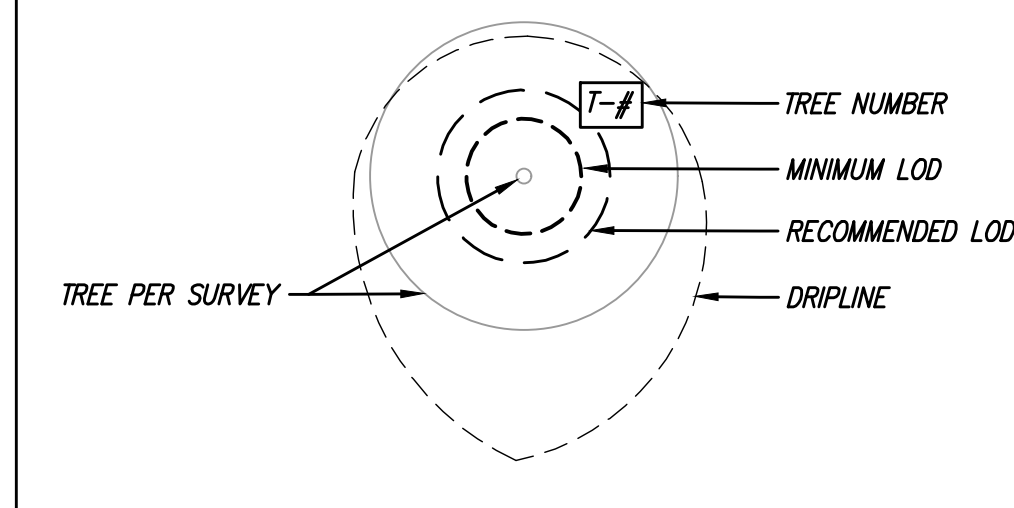
Arborist: Charlie Vogelheim
Date of Inventory: 3/9/2023
Table Prepared: 3/10/2023

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the *Guide for Plant Appraisal, 10th Edition*, published by the Council of Tree and Landscape Appraisers. DSH for multi-stem trees are noted as a single stem equivalent, which is calculated using the method defined in the *Guide for Plant Appraisal, 10th Edition*. Letters are used to identify trees on neighboring property with overhanging canopies. Minimum Limit of Disturbance (MLD) is defined as 5 times trunk diameter or 6 feet, whichever is greater. Recommended Limit of Disturbance (RLD) is 8 times trunk diameter or greater depending on tree species and/or condition. Dripline is measured from the center of the tree to the outermost extent of the canopy.

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Dripline Radius (feet)				Exceptional Threshold	Exceptional	24-inch DSH or Greater	MLD (feet)	RLD (feet)	Proposed Action	Notes
						N	E	S	W							
A	<i>Salix matsudana</i>	Corkscrew willow	14.0	Good	Fair	14.6	18.6	29.6	17.6	-	-	6	9	-	-	Lean to south, narrow structural branch attachments.
B	<i>Thuja plicata</i>	Western Redcedar	29.1	Good	Good	19.2	16.2	16.2	15.2	30.0	Yes	12	19	-	-	Corrected lean to north, codominant at base.
C	<i>Thuja plicata</i>	Western Redcedar	13.9	Good	Fair	5.6	8.6	3.6	6.6	30.0	-	6	9	-	-	Codominant at base with 6 stems. Maintained as 20 foot hedge.
D	<i>Thuja plicata</i>	Western Redcedar	30.0	Good	Good	21.3	16.3	15.3	14.3	30.0	Exceptional-Size	Yes	13	20	-	Lean too north, corrected at 30 feet. Cracks in asphalt to the south suggest surface roots, wildlife hole at 6 feet.
E	<i>Thuja plicata</i>	Western Redcedar	20.0	Good	Good	15.8	8.8	15.8	8.8	30.0	-	8	13	-	-	-
F	<i>Thuja plicata</i>	Western Redcedar	24.0	Good	Good	13.0	6.0	14.0	5.0	30.0	Yes	10	16	-	-	-
G	<i>Thuja plicata</i>	Western Redcedar	32.0	Good	Good	15.3	15.3	15.3	15.3	30.0	Exceptional-Size	Yes	13	21	-	Corrected lean to East, surface roots.
H	<i>Cercis canadensis</i>	Redbud	28.0	Good	Good	21.2	21.2	21.2	21.2	-	Yes	12	19	-	-	Surface roots, soil has been blown away.
I	<i>Thuja plicata</i>	Western Redcedar	30.0	Good	Good	16.3	16.3	16.3	16.3	30.0	Exceptional-Size	Yes	13	20	-	-
J	<i>Cercis canadensis</i>	Redbud	12.0	Good	Good	15.5	15.5	15.5	15.5	-	-	6	8	-	-	Surface roots, obstructed view.
K	<i>Cercis canadensis</i>	Redbud	12.0	Good	Good	12.5	12.5	12.5	12.5	-	-	6	8	-	-	Surface roots, obstructed view.

TREE LEGEND:

REFER TO TABLE OF TREES PER ARBORIST REPORT



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CITY OF MERCER ISLAND
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DEMOLITION & TESC PLAN



Civil Engineering & Planning
14900 Interurban Ave. S, Suite 279, Seattle, WA 98148
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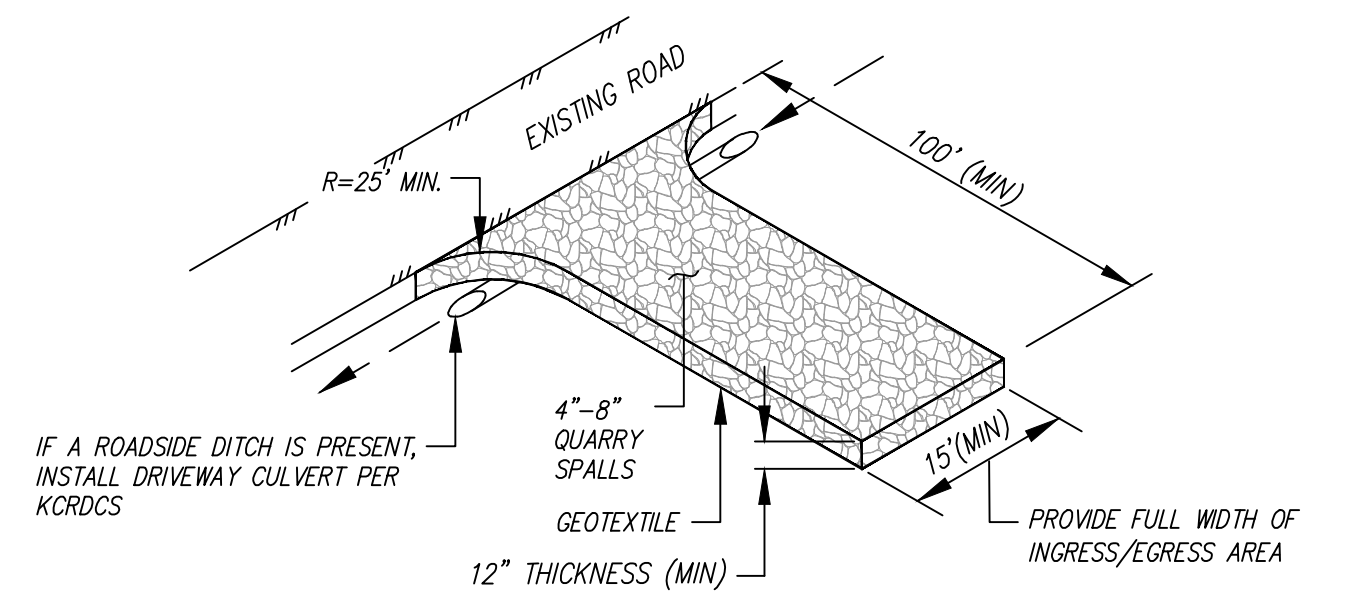
PROJ. NO.: 23109
DSN. BY: CC
OWN. BY: CC
CHK. BY: SC

ASDOURIAN RESIDENCE
5300 BUTTERWORTH RD
MERCER ISLAND, WA 98040

DATE: 5/9/24
SCALE: AS SHOWN
DRAWING NO.: C2.0
2 OF 7

ASDOURIAN RESIDENCE

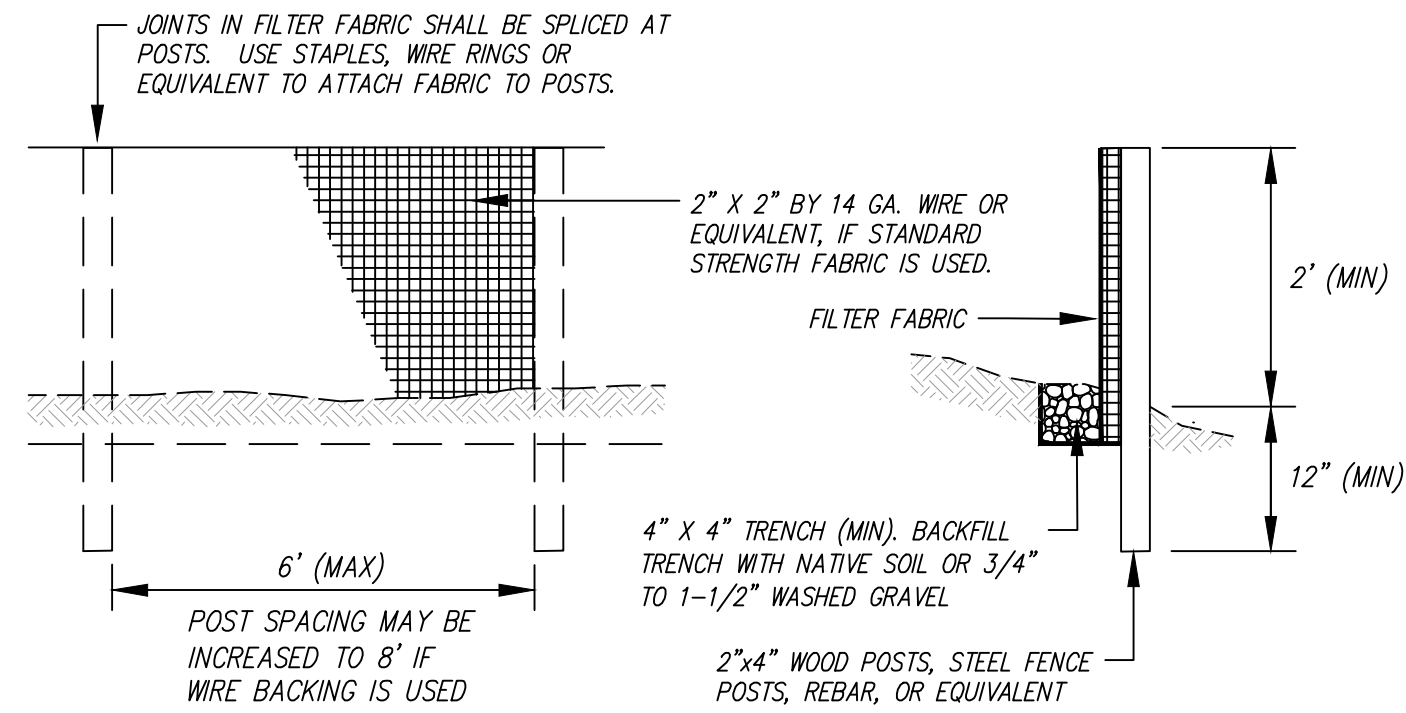
SE 1/4, NE 1/4, SEC 19, T 24 N, R 05 E, W. M.



NOTES:

- PER KING COUNTY ROAD DESIGN AND CONSTRUCTION STANDARDS (KCRDCS), DRIVEWAYS SHALL BE PAVED TO EDGE OF R-O-W PRIOR TO INSTALLATION OF THE CONSTRUCTION ENTRANCE TO AVOID DAMAGING OF THE ROADWAY.
- IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD.

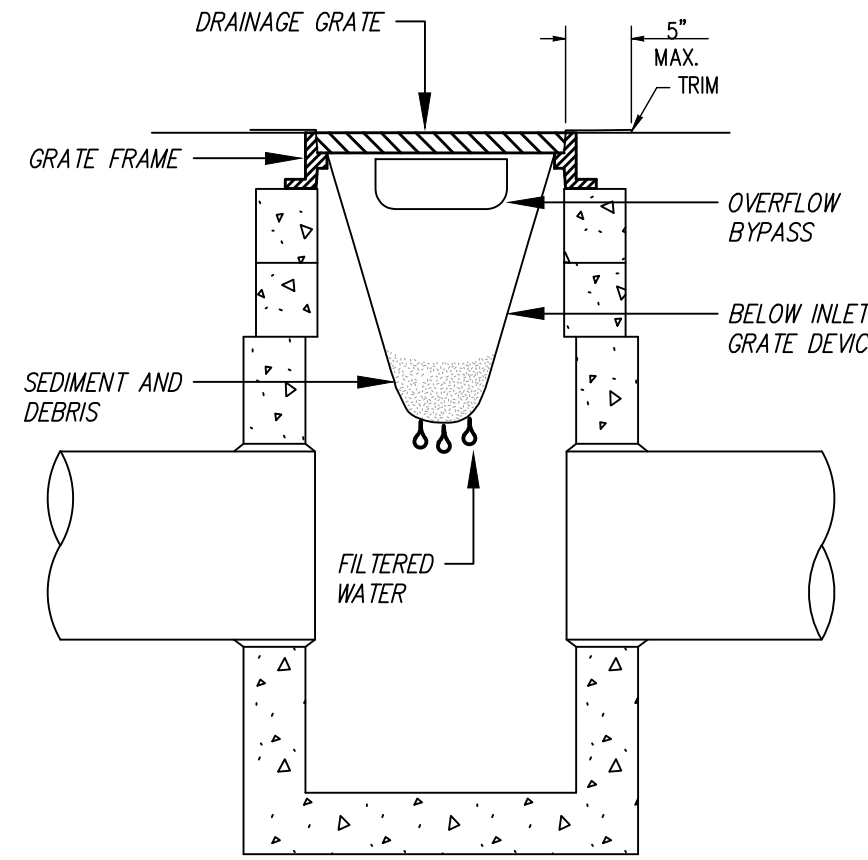
1 CONSTRUCTION ENTRANCE
C2.0 SCALE: NTS



NOTE:

- SILT FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOURS WHENEVER POSSIBLE

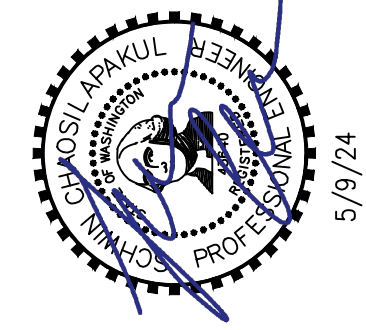
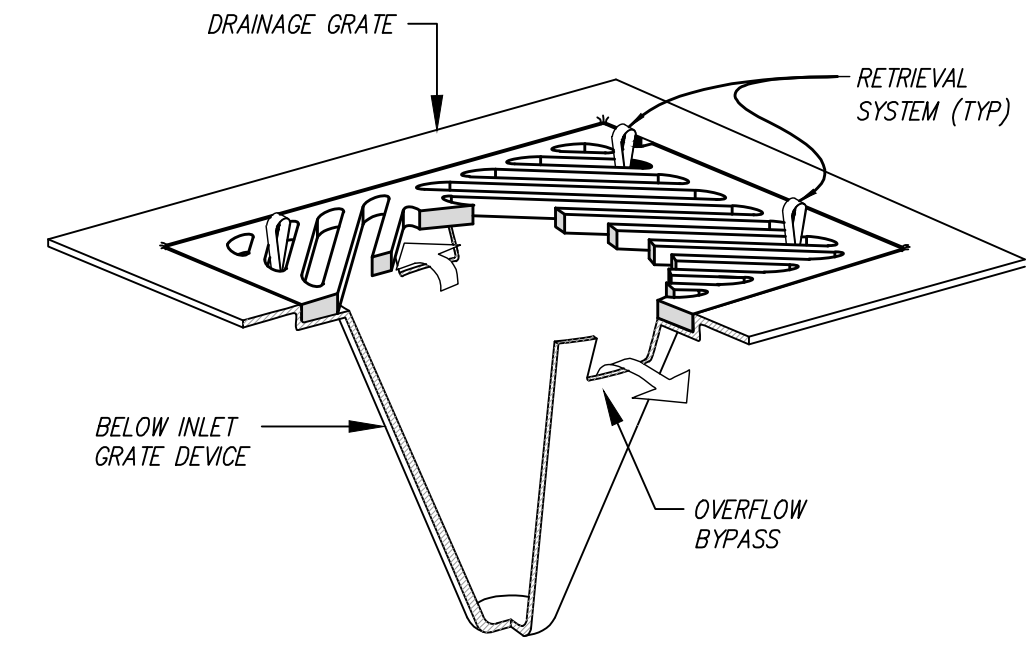
2 SILT FENCE
C2.0 SCALE: NTS



NOTES:

- SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
- THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
- THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
- PERFORM MAINTENANCE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 8-01.3(15).

3 CATCH BASIN INLET PROTECTION
C2.0 SCALE: NTS



CITY OF MERCER ISLAND
BUILDING PERMIT
TESC DETAILS



PROJ. NO. 23109
DWN. BY: CC
DGN. BY: CC
CHK. BY: SC

ASDOURIAN RESIDENCE

ASDOURIAN RESIDENCE
5300 BUTTERWORTH RD
MERCER ISLAND, WA 98040

DATE: 5/9/24
SCALE: AS SHOWN
DRAWING NO. C2.1
3 OF 7

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Appendix F Tree Protection Specifications

The following is a list of protection measures that must be employed before, during and after construction to ensure the long-term viability of retained trees.

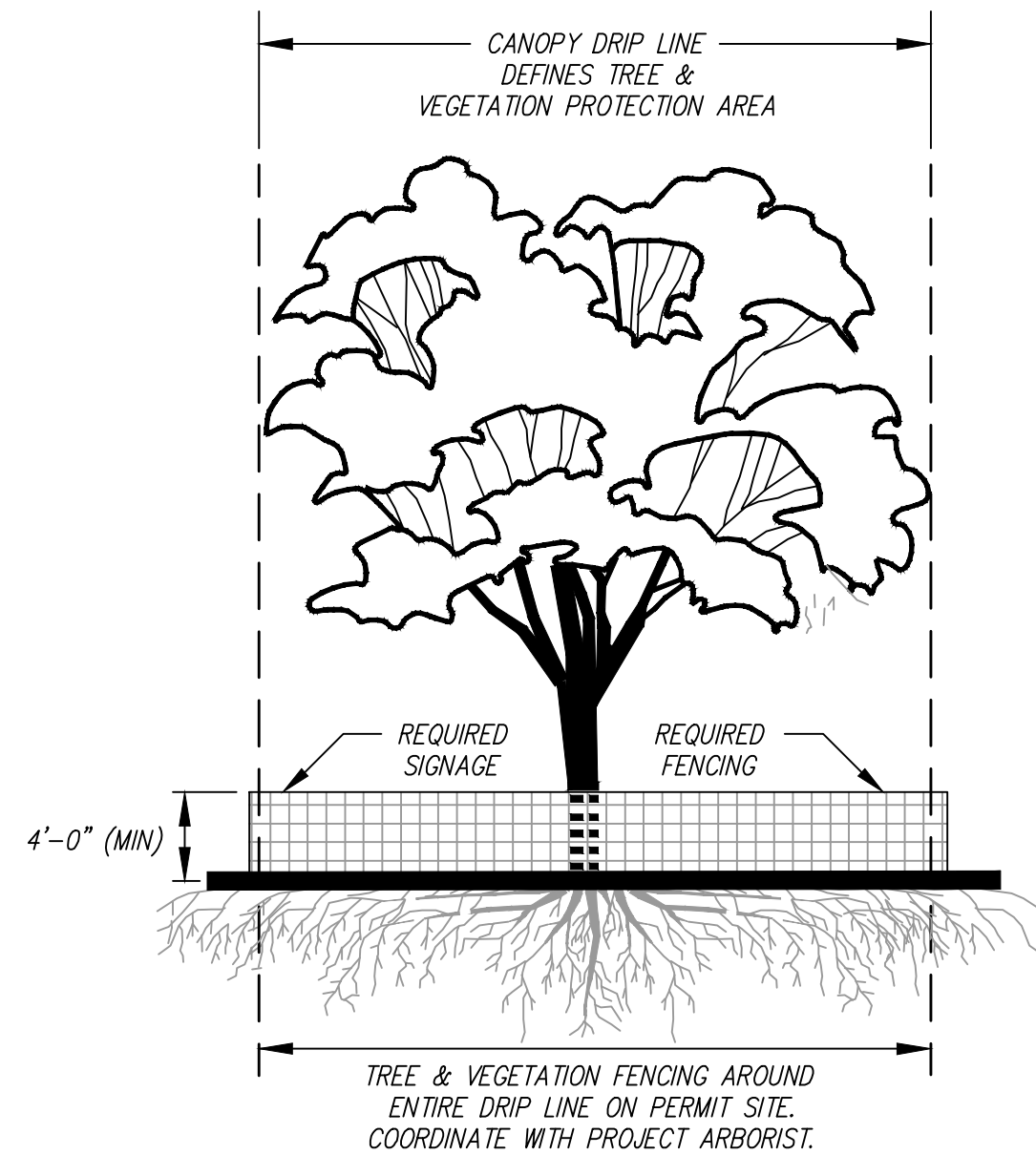
- Project Arborist:** The project arborists shall at minimum have an International Society of Arboriculture (ISA) Certification and ISA Tree Risk Assessment Qualification.
- Tree Protection Zone (TPZ):** The City of Mercer Island requires a tree protection zone (TPZ) congruent with the Recommend Limits of Disturbance (RLD) established by the project arborist. The RLD must be consistent with current ISA BMPs. In some cases, the TPZ may extend outside tree protection fencing. Work within the TPZ must be approved and monitored by the project arborist.
- Tree Protection Fencing:** Tree protection shall consist of 6-foot chain-link fencing installed at the TPZ as approved by the project arborist. Fence posts shall be anchored into the ground or bolted to existing hardscape surfaces.
 - Where trees are being retained as a group the fencing shall encompass the entire area including all landscape beds or lawn areas associated with the grove.
 - Per arborist approval, TPZ fencing may be placed at the edge of existing hardscape within the TPZ to allow for staging and traffic.
 - Where work is planned within the TPZ, install fencing at edge of TPZ and move to limits of disturbance at the time that the work within the TPZ is planned to occur. This ensures that work within the TPZ is completed to specification.
 - Where trees are protected at the edge of the project boundary, construction limits fencing shall be incorporated as the boundary of tree protection fencing.
- Access Beyond Tree Protection Fencing:** In areas where work such as installation of utilities is required within the TPZ, a locking gate will be installed in the fencing to facilitate access. The project manager or project arborist shall be present when tree protection areas are accessed.
- Tree Protection Signage:** Tree protection signage shall be affixed to fencing every 20 feet. Signage shall be fluorescent, at least 2' x 2' in size, with 3" tall text. Signage will note: "Tree Protection Area - Do Not Enter: Entry into the tree protection area is prohibited unless authorized by the project manager." Signage shall include the contact information for the project manager and instructions for gaining access to the area.
- Filter / Silt Fencing:** Filter / silt fencing within the TPZ of retained trees shall be installed in a manner that does not sever roots. Install so that filter / silt fencing sits on the ground and is weighed in place by sandbags or gravel. Do not trench to insert filter / silt fencing into the ground.
- Monitoring:** The project arborist shall monitor all ground disturbance at the edge of or within the TPZ, including where the TPZ extends beyond the tree protection fencing.
- Soil Protection:** No parking, foot traffic, materials storage, or dumping (including excavated soils) are allowed within the TPZ. Heavy machinery shall remain outside of the TPZ. Access to the tree protection area will be granted under the supervision of the project arborist. If project arborist allows, heavy machinery can enter the area if soils are protected from the load. Acceptable methods of soil protection include applying 3/4-inch plywood over 4 to 6 inches of wood chip mulch or use of AlumaMats[®] (or equivalent product approved by the project arborist). Retain existing paved surfaces within or at the edge of the TPZ for as long as possible.
- Soil Remediation:** Soil compacted within the TPZ of retained trees shall be remediated using pneumatic air excavation according to a specification produced by the project arborist.
- Canopy Protection:** Where fencing is installed at the limits of disturbance within the TPZ, canopy management (pruning or tying back) shall be conducted to ensure that vehicular traffic does not

Appendix F Tree Protection Specifications

The following is a list of protection measures that must be employed before, during and after construction to ensure the long-term viability of retained trees.

- Damage Canopy Parts:** Exhaust from machinery shall be located five feet outside the dripline of retained trees. No exhaust shall come in contact with foliage for prolonged periods of time.
- Duff/Mulch:** Apply 6 inches of arborist wood chip mulch or hog fuel over bare soil within the TPZ to prevent compaction and evaporation. TPZ shall be free of invasive weeds to facilitate mulch application. Keep mulch 1 foot away from the base of trees and 6 inches from retained understory vegetation. Retain and protect as much of the existing duff and understory vegetation as possible.
- Excavation:** Excavation done at the edge of or within the TPZ shall use alternative methods such as pneumatic air excavation or hand digging. If heavy machinery is used, use flat front buckets with the project arborist spotting for roots. When roots are encountered, stop excavation, and cleanly sever roots. The project arborist shall monitor all excavation done within the TPZ.
- Fill:** Limit fill to 1 foot of uncompacted well-draining soil, within the TPZ of retained trees. In areas where additional fill is required, consult with the project arborist. Fill must be kept at least 1 foot from the trunks of trees.
- Root Pruning:** Limit root pruning to the extent possible. All roots shall be pruned with a sharp saw making clean cuts. Do not fracture or break roots with excavation equipment.
- Root Moisture:** Root cuts and exposed roots shall be immediately covered with soil, mulch, or clear polyethylene sheeting and kept moist. Water to maintain moist condition until the area is back filled. Do not allow exposed roots to dry out before replacing permanent back fill.
- Hardscape Removal:** Retain hardscape surfaces for as long as practical. Remove hardscape in a manner that does not require machinery to traverse newly exposed soil within the TPZ. Where equipment must traverse the newly exposed soil, apply soil protection as described in section 8. Replace fencing at edge of TPZ if soil exposed by hardscape removal will remain for any period of time.
- Tree Removal:** All trees to be removed that are located within the TPZ of retained trees shall not be ripped, pulled, or pushed over. The tree should be cut to the base and the stump either left or ground out. A flat front bucket can also be used to sever roots around all sides of the stump, or the roots can be exposed using hydro or air excavation and then cut before removing the stump.
- Irrigation:** Retained trees with soil disturbance within the TPZ will require supplemental water from June through September. Acceptable methods of irrigation include drip, sprinkler, or watering truck. Trees shall be watered three times per month during this time.
- Pruning:** Pruning required for construction and safety clearance shall be done with a pruning specification provided by the project arborist in accordance with American National Standards Institute ANSI-A300 2017 Standard Practices for Pruning. Pruning shall be conducted or monitored by an arborist with an ISA Certification.
- Plan Updates:** All plan updates or field modification that result in impacts within the TPZ or change the retained status of trees shall be reviewed by the senior project manager and project arborist prior to conducting the work.
- Materials:** Contractor shall have the following materials onsite and available for use during work in the TPZ:
 - Sharp and clean bypass hand pruners
 - Sharp and clean bypass loppers
 - Sharp hand-held root saw
 - Reciprocating saw with new blades
 - Shovels
 - Trowels
 - Clear polyethylene sheeting
 - Burlap
 - Water

4 TREE & VEGETATION PROTECTIVE FENCE
C2.0 SCALE: NTS



TREE PROTECTION FENCING AND SIGN

- CHAIN LINK, WIRE MESH, OR SIMILAR OPEN RIGID MATERIAL (NO PLYWOOD)
- MUST BE INSTALLED PRIOR TO DEMOLITION OR GROUND DISTURBANCE
- KEPT IN PLACE FOR THE DURATION OF CONSTRUCTION
- NO SOIL DISTURBANCE OR ACTIVITY ALLOWED WITHIN FENCED AREA: MATERIAL STORAGE/STOCKPILING, PARKING, EXCAVATION, DUMPING, OR WASHING
- MODIFICATIONS OF THESE REQUIREMENTS BY APPROVAL OF SDCI PLANNER ONLY
- IF ROOTS GREATER THAN 2 INCH FOUND OUTSIDE OF FENCING, PROTECT BY HAND EXCAVATION AND, IF NECESSARY, CUT CLEANLY AND KEEP MOIST
- USE 3 INCHES OR DEEPER WOOD CHIP MULCH OUTSIDE FENCED AREAS TO PROTECT FEEDER ROOTS

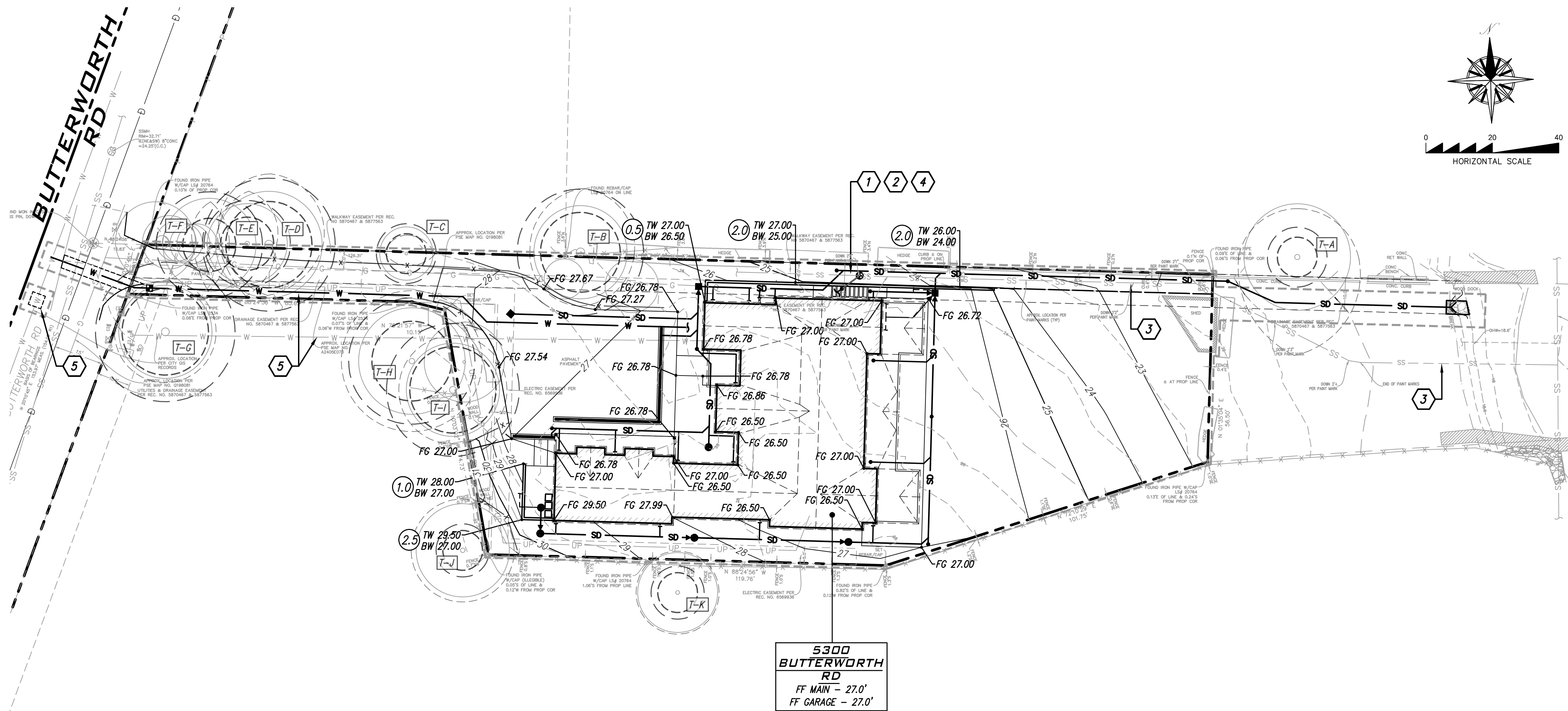
VEGETATION PROTECTION

- ORANGE MESH OR SIMILAR OPEN MATERIAL
- MINIMIZE CONSTRUCTION ZONE
- PROTECT VEGETATION OUTSIDE CONSTRUCTION ZONE WITH FENCING AS SHOWN
- USE 3 INCHES OR DEEPER WOOD CHIP MULCH OUTSIDE FENCED AREAS TO PROTECT FEEDER ROOTS

5 TREE PROTECTION SPECIFICATIONS
C2.0 (PER ARBORIST REPORT BY TREE SOLUTIONS, INC.)

ASDOURIAN RESIDENCE

SE 1/4, NE 1/4, SEC 19, T 24 N, R 05 E, W. M.



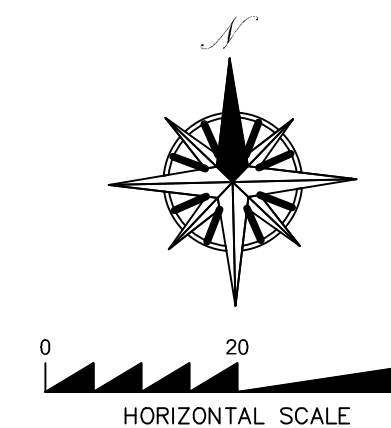
GRADING & UTILITY PLAN
SCALE: 1"=20'

UTILITY CALLOUTS:

- INSTALL 6" PVC SANITARY SIDE SEWER @ 2.0% (MIN), PER CITY OF MERCER ISLAND STD. PLAN NO. S-3 AND S-18 (SEE DETAIL 1 AND 2, SHEET C3.3 AND UTILITY NOTE 2).
- INSTALL SANITARY SEWER CLEANOUT, PER CITY OF MERCER ISLAND STD. PLAN NO. S-19, TYP (SEE DETAIL 3, SHEET C3.3). INSTALL BACKFLOW PREVENTER AT CONNECTION TO EXISTING 6" SANITARY SEWER SERVICE.
- EXISTING 6" SANITARY SEWER SERVICE (SS-LL-07248) FOR 5300 BUTTERWORTH RD, PER CITY OF MERCER ISLAND GIS AND FIELD LOCATION.
- SLEEVE PIPE THROUGH WALL FOOTING.
- SEE UTILITY NOTE 1.

UTILITY NOTES:

- THE EXISTING WATER METER IS 3/4", PER CITY OF MERCER ISLAND GIS. SIZES OF WATER SERVICE (SERVICE FROM MAIN TO METER, METER, AND SERVICE FROM METER TO BUILDING). THIS SERVICE SHALL BE RETIRED AT THE CITY MAIN. INSTALL NEW 2" WATER METER AND SERVICE. USE DIRECTIONAL BORING TO INSTALL WATER SERVICE, AS REQUIRED.
- LOCATE THE EX. SIDE SEWER AND UTILIZE IF LOCATION AND ELEVATION WORKS WITH THE PROPOSED PLAN (COORDINATE WITH PUBLIC WORKS INSPECTOR FOR RE-USE). THE EX. SIDE SEWER CONDITION MUST BE VIDEOED FOR INSPECTION AND COORDINATED WITH THE PUBLIC WORKS INSPECTOR.



5300 BUTTERWORTH RD
FF MAIN - 27.0'
FF GARAGE - 27.0'

May 09, 2024 1:02:17PM - User Sheri Stark
X:\Projects & Project Data\2023\23109_Asdourian Res_Mercer Island\Drawing\Working\SheetSet\23109_C3.0-GRADING AND UTILITY PLAN.dwg

BY	DESCRIPTION	DATE	R#
SC	CITY REVIEW COMMENTS 2/14/24	5/9/24	1
			2
			3
			4
			5

	CITY OF MERCER ISLAND BUILDING PERMIT
	GRADING & UTILITY PLAN

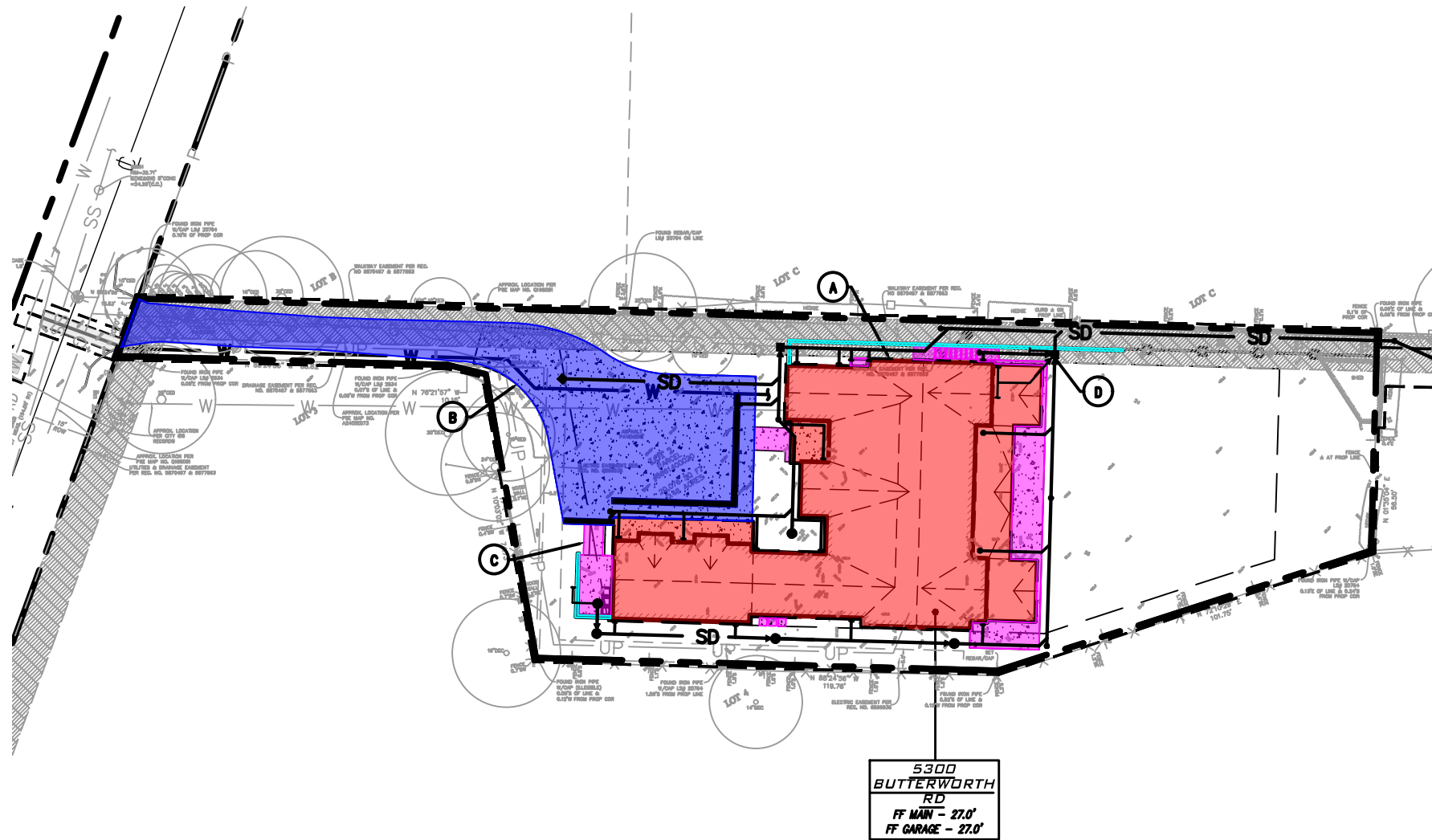
	Civil Engineering & Planning 14900 Interurban Ave. S, Suite 279, Seattle, WA 98148 Phone: 206.674.4659 Web: patrickharron.com
	PROD. NO.: 23109 DSN. BY: CC DWN. BY: CC CHK. BY: SC

ASDOURIAN RESIDENCE ASDOURIAN RESIDENCE 5300 BUTTERWORTH RD MERCER ISLAND, WA 98040	DATE: 5/9/24
	SCALE: AS SHOWN
	DRAWING NO.: C3.0

<p>CALL 48 HOURS BEFORE YOU DIG 811</p>	<p>THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-424-5555 OR 811 (CELL) A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.</p>
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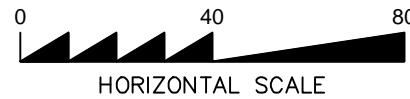
4 OF 7

ASDOURIAN RESIDENCE PROPOSED AREA EXHIBIT



Proposed Surface Coverage Summary (Onsite)			
Callout	Description	(sf)	(ac)
		Total Property	20,076
A	New House Roof	5,203	0.119
B	Driveway	3,300	0.076
C	Walkways & Patio	727	0.017
D	Walls	110	0.003
Total Proposed Hard Surface		9,340	0.214
Total Pervious Surface (Lawn)		10,736	0.246

5300
BUTTERWORTH
RD
FF MAIN - 27.0'
FF GARAGE - 27.0'



ASDOURIAN RESIDENCE

5300 BUTTERWORTH RD

MERCER ISLAND, WA 98040

SE 1/4, NE 1/4, SEC. 19, T. 24 N., R. 05 E., W.M.

	Civil Engineering & Planning	DWN. BY	DATE	JOB NO.
	14900 Interurban Ave. S, Suite 279, Seattle, WA 98168 Phone : 206.674.4659	OT	5/9/2024	23109
		CHKD. BY	SCALE	SHEET
		SC	1" = 40'	1 OF 1