

#B109 STORMWATER MANAGEMENT



For City Use Only:
Date Stamp

Applicant's Name: VANCE RENDER Address: Box 10880 B-1. WA
Applicant Phone #: (206) 384-8837 e-mail: V4VANCE@AOL.COM
Site Assessor Tax Parcel #: 02240210052007
Site Address: _____

All information in this worksheet is required to be filled out for your permit application to be accepted.

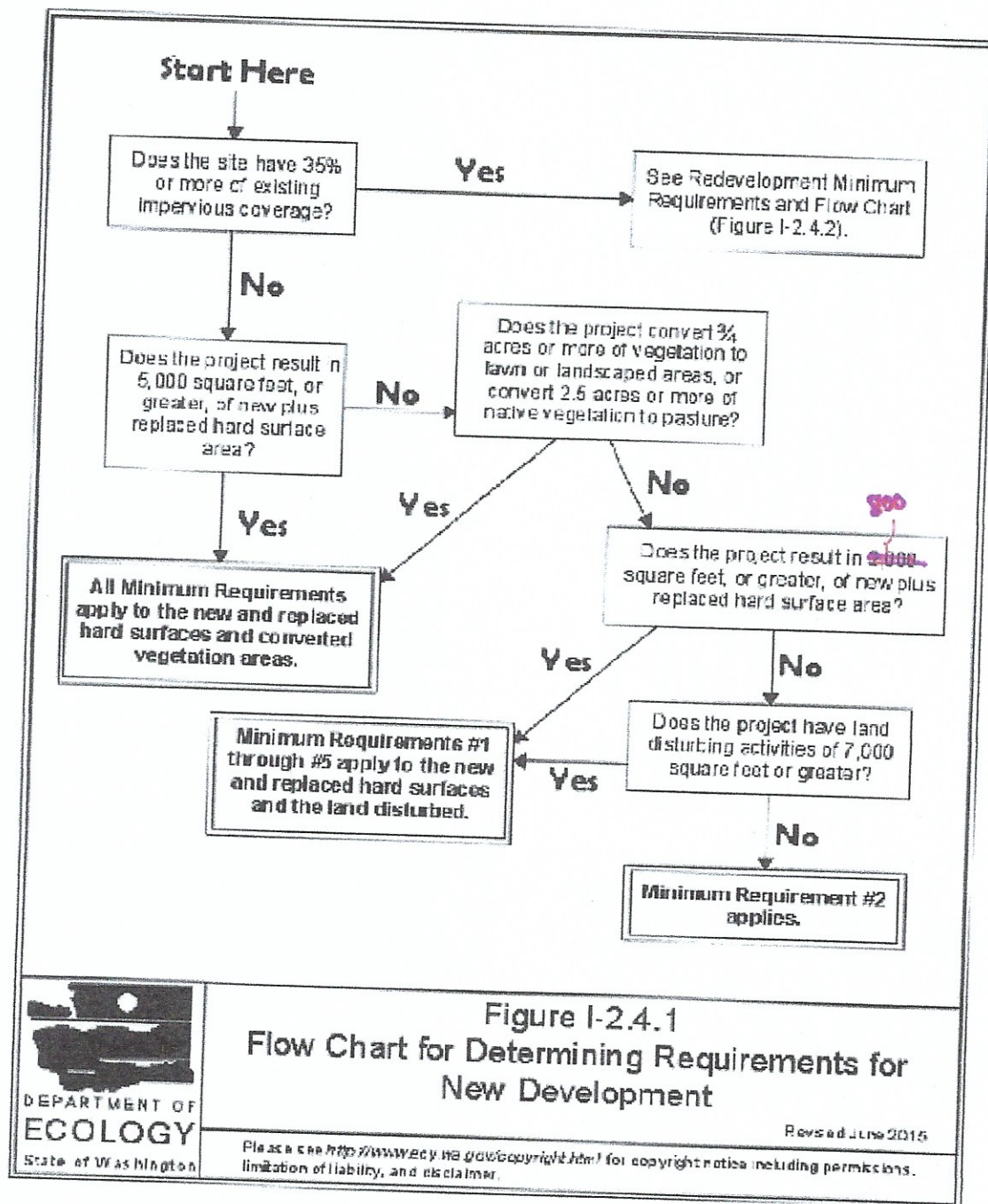
Section 1 General Information

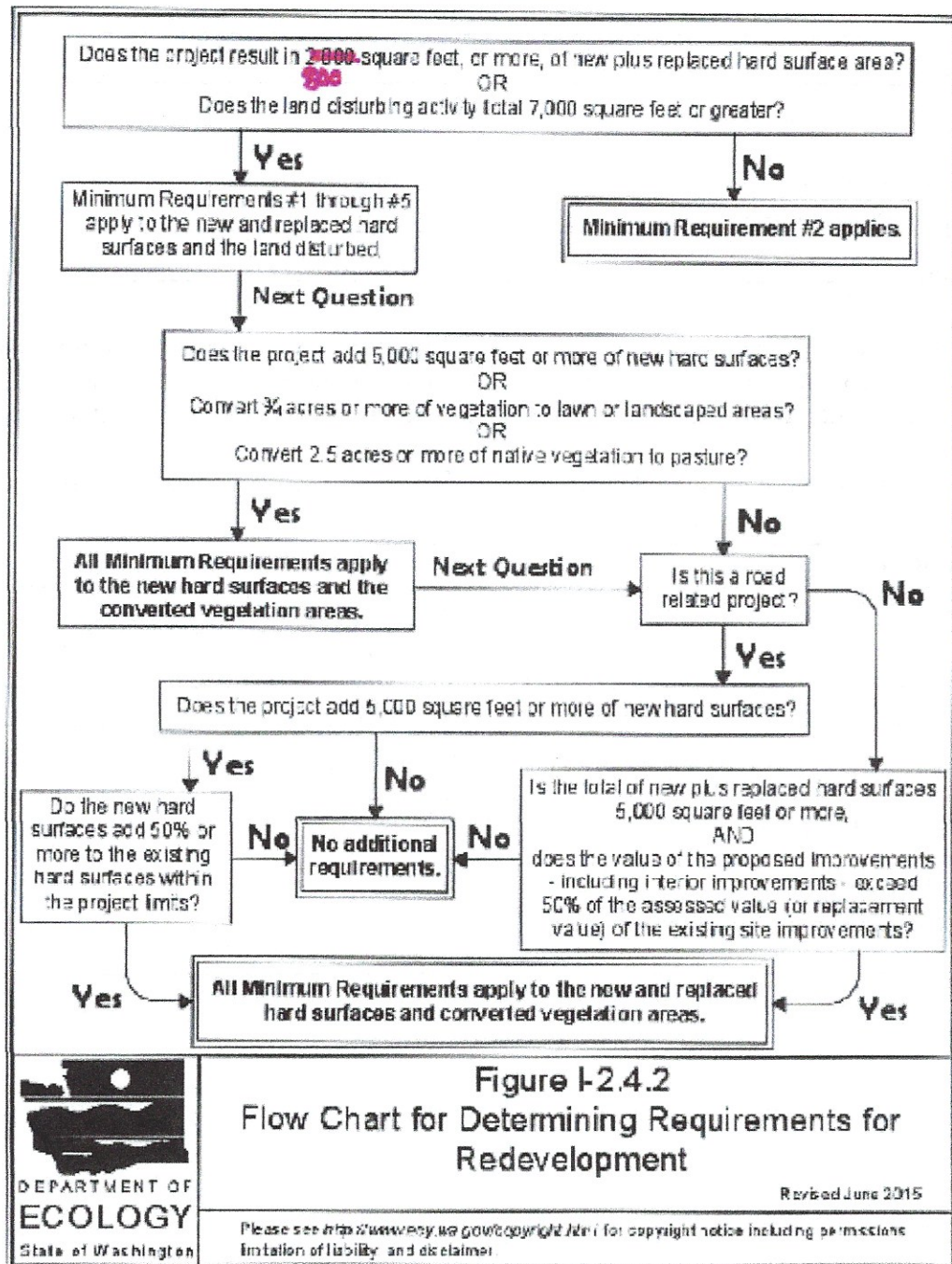
1. Existing Site Conditions: UNDEVELOPED LAND
2. Proposed Site Development Activity: BUILD SINGLE FAMILY DWELLING & DRAIN FIELD
3. Total Size of property: 4.75 AC (206,910 SQ FT)
4. Existing hard coverage on the site (%): 960 SQ FT
5. Proposed (new + replaced) hard surface area on site: 1,200 SQ FT square feet.
6. Total proposed land disturbance area: 2,000 square feet.
7. Area converted from native vegetation to lawn, landscaping or pasture: 0 square feet.
8. Water Purveyor (if applicable): KPUD
9. Sanitary Sewer Purveyor (if applicable): _____
10. Adjacent or onsite water bodies: pond ☒ wetland stream/creek shoreline

Review flow charts attached and determine what Minimum Requirements apply to your project?

Minimum Requirements:

- ☐ #1-#9 go to Section 2 – An engineered plan will be required
- ☐ #1-#5 go to Section 2
- ☐ #2 go to Section 4





Section 2 – Site Assessment

Site assessment shall follow the steps outlined in the “2012 Low Impact Development Technical Guidance Manual for Puget Sound”

Surveyor (Registered land surveyor required): _____

Soil Report Prepared by: _____

Certification: _____

Native Vegetation and Soil Plan Prepared by: _____

Certification: _____

Preliminary Drainage Report Prepared by: _____

Certification: _____

Submittals

This submittal checklist is intended to assist you in preparing and submitting a complete application. Once your application is determined to be counter complete, a review for technical completeness is conducted and you may be required to submit additional information in order to proceed with further review of your application.

Submittal Requirements

Use the column to the left to check off items included with your application. More detailed submittal descriptions are provided on the following pages of this document.

✓	Required Submittal Items	Number
	1. Surveyed Existing Site Plan	2 original paper
	2. Soils Report	2 original paper
	3. Native Vegetation and Soil Protection Area Plan	2 original paper
	4. Drainage Report	2 original paper
	5. Site Plan	2 original paper
	6. Other technical reports as applicable, including but not limited to: <ul style="list-style-type: none">○ Geotechnical report○ Wetlands delineation report and mitigation plan○ Other	3 original paper

Site Assessment/ Analysis Requirements

Detailed application requirements are noted below; full details are not provided due to limited space. Please note that additional items or information may be required if the review process indicates more information is needed to evaluate the project. Follow and submit in accordance with “*Low Impact Development (LID) Technical Guidance Manual for Puget Sound*”, Chapter 2 Site Assessment.

Survey Site Plan Requirements:

- ☐ Project datum and two project benchmarks identified.
- ☐ Scale
- ☐ Existing topography, including existing structures, for the site and extending 50 feet beyond project boundaries. Existing topography for adjacent rights-of-way must be included for the full width of right-of-way. Contours as follows:
 - Up to 10 percent slopes, two-foot contours.
 - Over 10 percent to less than 20 percent slopes, 5-foot contours.
 - 20 percent or greater slopes, 10-foot contours.
 - Elevations shall be at 25-foot intervals.
- ☐ Property lines, right-of-way and easements are clearly identified.
- ☐ Existing public and private development, including utility infrastructure on and adjacent (if publicly available) to the site.
- ☐ Major hydrologic features with streams, wetland, and water body survey and classification report showing wetland and buffer boundaries consistent with COBI requirements.
- ☐ Flood hazard areas on or adjacent to the site, if present.
- ☐ Geologic hazard areas and associated buffer requirements.
- ☐ Aquifer and wellhead protection areas on or adjacent to the site, if present.
- ☐ Topographic features that may act as natural stormwater storage, infiltration or conveyance.

Soils Report:

- ☐ Soil Report prepared by a certified soil scientist, professional engineer, geologist, hydrogeologist or engineering geologist registered in the State of Washington or suitably trained persons working under the supervision of the above professionals. The report will identify:
 - Underlying soil texture and stratigraphy on the site. Tests for accessing and assessing on-site soil texture and stratigraphy include soil surveys, soil test pits, small-scale Pit Infiltration Test (PIT) or soil borings. Grain size analysis may be substituted for infiltration tests on soils unconsolidated by glacial advance.
 - Determine if depth to hydraulic restriction layer under rain gardens or permeable pavement is within one foot of the bottom (subgrade surface) of the infiltration areas, using a monitoring well or excavated pit. This analysis should be performed in the winter season (December 1 through April 1). The optimum time to test for depth to seasonally high groundwater is late winter (e.g. March) and shortly after an extended wet period. Historic site information and evidence of high groundwater can also be used.
 - **For Sites Required to Meet Minimum Requirements 1-5 per BIMC 15.20.060:** Infiltration rates of on-site soils. Infiltration rates for rain gardens, bioretention areas or permeable pavement installations must be assessed using septic style pit tests, small-scale PIT or grain size analysis (if unconsolidated soils). See 2012 LID Technical Guidance Manual for Puget Sound.
 - **For Sites Required to Meet Minimum Requirements 1-9 per BIMC 15.20.060:**
 - Saturated hydraulic conductivity (Ksat) of site soils.
 - Detailed logs for each test pit or test hole and a map showing the location of the pits or holes.

- Location of monitoring wells if site assessment cannot confirm that seasonal high groundwater or hydraulic restricting layer is greater than 5 feet below the bottom of the bioretention or permeable pavement.
- Analysis of interflow potential and conveyance.
- Follow *2012 LID Technical Guidance Manual for Puget Sound* for additional requirements.

Native Vegetation or Soil Protection Area:

- ☐ Include a survey of native protection areas proposed for the site, if any. Survey of existing native vegetation cover will be prepared by a licensed landscape architect, arborist, qualified biologist.
- ☐ Identify any forest areas on the site.
- ☐ Provide a plan for protection of the area.

Drainage Report:

- ☐ Proposed plan for permanent stormwater management.
- ☐ Proposed staging to minimize site disturbance and impacts.
- ☐ Proposed stormwater management plan during construction.

Site Plan:

- ☐ Plan sheet size 18"x24" or 24"x36"
- ☐ All items provided in survey site plan.
- ☐ Proposed structure.
- ☐ Proposed utilities.
- ☐ Other proposed hard surfaces (driveway, parking, sidewalks and pathways).
- ☐ Proposed access points.
- ☐ Location of proposed stormwater facilities.

Section 3 - Stormwater Management Requirements

(Underline text corresponds to the 2012 (Rev. 2014) Stormwater Management Manual for Western Washington (SWMMWW))

Projects triggering only Minimum Requirements #1 through #5 shall either:

- a. Use On-site Stormwater Management BMPs from List #1 for all surfaces within each type of surface in List #1; or
- b. Demonstrate compliance with the LID Performance Standard. Projects selecting this option cannot use Rain Gardens. They may choose to use Bioretention BMPs as described in Chapter V-7 - Infiltration and Bioretention Treatment Facilities to achieve the LID Performance Standard.

Projects triggering Minimum Requirements #1 through #9, must

- a. meet the requirements in [I-2.5.5 Minimum Requirement #5: On-site Stormwater Management](#); and
- b. either
 1. Low Impact Development Performance Standard and [BMP T5.13: Post-Construction Soil Quality and Depth](#); or
 2. List #2

Low Impact Development (LID) Performance Standard

Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year peak flow to 50% of the 2-year peak flow. Refer to the Standard Flow Control Requirement section in Minimum Requirement #7 for information about the assignment of the pre-developed condition. Project sites that must also meet minimum requirement #7 – flow control - must match flow durations between 8% of the 2-year flow through the full 50-year flow.

List #1: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #5

For each surface, consider the BMP's in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations, and infeasibility criteria identified for each BMP in the SWMMWW; and
2. Competing Needs Criteria listed in [Chapter V-5 - On-Site Stormwater Management](#).

Lawn and landscaped areas:

- Post-Construction Soil Quality and Depth in accordance with [BMP T5.13: Post-Construction Soil Quality and Depth](#).

Roofs:

1. Full Dispersion in accordance with [BMP T5.30: Full Dispersion](#), or Downspout Full Infiltration Systems in accordance with [BMP T5.10A: Downspout Full Infiltration](#)

2. Rain Gardens in accordance with [BMP T5.14A: Rain Gardens](#), or Bioretention in accordance with [BMP T7.30: Bioretention Cells, Swales, and Planter Boxes](#). The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Downspout Dispersion Systems in accordance with [BMP T5.10B: Downspout Dispersion Systems](#)
4. Perforated Stub-out Connections in accordance with [BMP T5.10C: Perforated Stub-out Connections](#)

Other Hard Surfaces:

1. Full Dispersion in accordance with [BMP T5.30: Full Dispersion](#)
2. Permeable pavement⁴ in accordance with [BMP T5.15: Permeable Pavements](#), or Rain Gardens in accordance with [BMP T5.14A: Rain Gardens](#), or Bioretention in accordance with [BMP T7.30: Bioretention Cells, Swales, and Planter Boxes](#). The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Sheet Flow Dispersion in accordance with [BMP T5.12: Sheet Flow Dispersion](#), or Concentrated Flow Dispersion in accordance with [BMP T5.11: Concentrated Flow Dispersion](#).

List #2: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #9 – A registered professional engineer must complete this plan.

For each surface, consider the BMPs in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations, and infeasibility criteria identified for each BMP in this manual; and
2. Competing Needs Criteria listed in [Chapter V-5 - On-Site Stormwater Management](#).

Lawn and landscaped areas:

- Post-Construction Soil Quality and Depth in accordance with [BMP T5.13: Post-Construction Soil Quality and Depth](#).

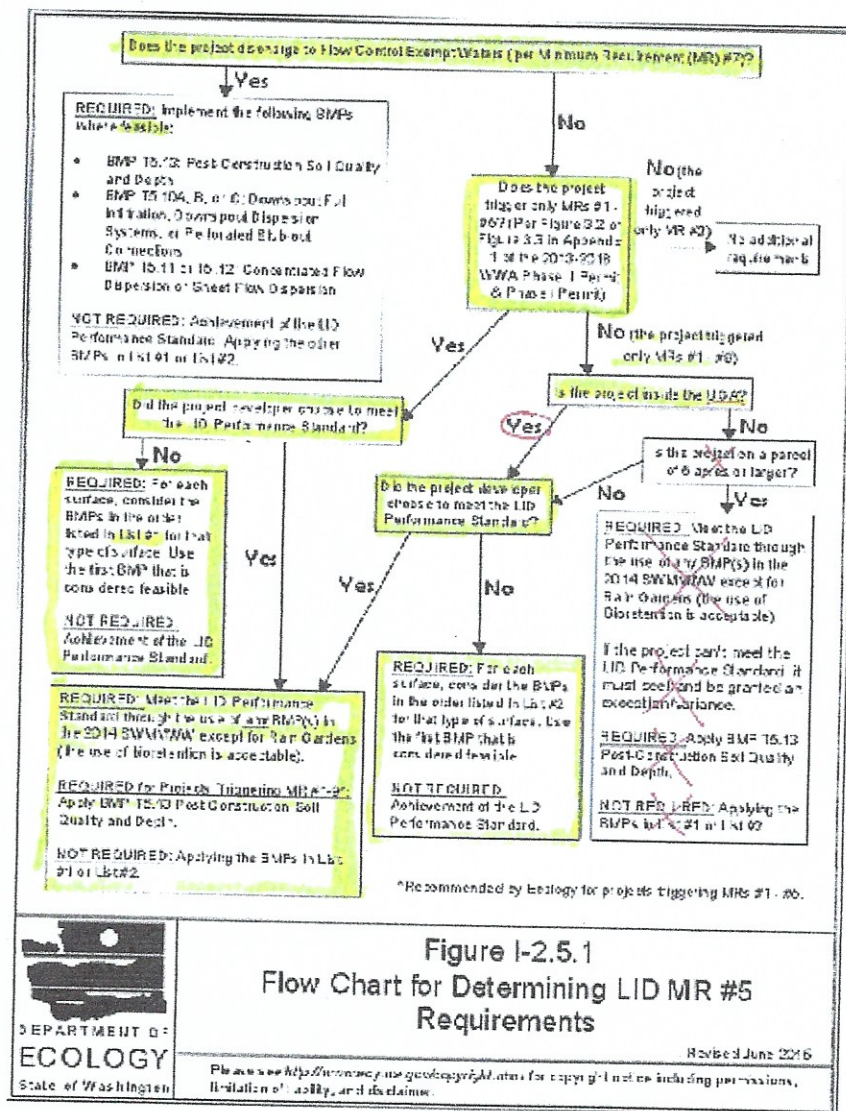
Roofs:

1. Full Dispersion in accordance with [BMP T5.30: Full Dispersion](#), or Downspout Full Infiltration Systems in accordance with [BMP T5.10A: Downspout Full Infiltration](#).
2. Bioretention (See [BMP T7.30: Bioretention Cells, Swales, and Planter Boxes](#)) facilities that have a minimum horizontally projected surface area below the overflow which is at least 5% of the total surface area draining to it.
3. Downspout Dispersion Systems in accordance with [BMP T5.10B: Downspout Dispersion Systems](#)
4. Perforated Stub-out Connections in accordance with [BMP T5.10C: Perforated Stub-out Connections](#)

Other Hard Surfaces:

1. Full Dispersion in accordance with [BMP T5.30: Full Dispersion](#)
2. Permeable pavement¹ in accordance with [BMP T5.15: Permeable Pavements](#)
3. Bioretention BMP's ([BMP T7.30: Bioretention Cells, Swales, and Planter Boxes](#)) that have a minimum horizontally projected surface area below the overflow which is at least 5% of the total surface area draining to it.
4. Sheet Flow Dispersion in accordance with [BMP T5.12: Sheet Flow Dispersion](#), or Concentrated Flow Dispersion in accordance with [BMP T5.11: Concentrated Flow Dispersion](#)

¹ This is not a requirement to pave these surfaces. Where pavement is proposed, it must be permeable to the extent feasible unless full dispersion is employed.



UGA - URBAN GROWTH AREA. ALL OF BRIDGEMAN ISLAND IN UGA.

Section 4 – MR #2 Stormwater Pollution Prevention Plan (SWPPP) Narrative

Every Construction Stormwater Pollution Prevention Plan (SWPPP) must address the 13 required elements from the Washington State Department of Ecology [SWMMWW](#).

Check the suggested BMP you will use to satisfy the required element and **identify location on the stormwater site plan**. If an element does not apply to your proposal, provide a written justification identifying the reason an element is not applicable to the proposal.

1. **Preserve Vegetation/Mark the Area Disturbed by Construction Activity.** Describe the total disturbed area (grading, building pad, driveway, septic installation, etc.) and reference how you will clearly mark the area of disturbance.

- ☒ BMP C101 – Preserving Natural Vegetation
 - ☐ BMP C102 - Buffer Zones
 - ☐ BMP C103 – High Visibility Plastic or Metal Fence
 - ☐ BMP C104 – Stake and Wire Fence
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2. **Establish Construct Access.** Describe construction access.

- ☐ BMP C105 – Stabilized Construction Entrance
- ☐ BMP C106 – Wheel Wash
- ☐ BMP C107 – Construction Road/Parking Area Stabilization
- ☒ Not applicable – Existing access will prevent tracking of sediment onto public right-of-way

PROPERTY HAS LONG GRAVEL DRIVEWAY

3. **Control Flow Rates.** If there is substantial grading and/or the potential for stormwater runoff to flow off site during construction, then one of the two BMPs must be identified and shown on the site plan.

- ☐ BMP C240 – Sediment Trap
 - ☐ BMP C241 – Temporary Sediment Pond
 - ☒ Not applicable – Very little grading and/or site does not experience site runoff during storm events
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4. **Install Sediment Controls.** When there is grading on a site and the site is sloped, there is a potential for sediment to leave the site during storm events. Please identify a BMP below if your site has any slope to it.

- ☐ BMP C231 – Brush Barrier
 - ☐ BMP C232 – Gravel Filter Berm
 - ☒ BMP C233 – Silt Fence
 - ☐ BMP C234 – Vegetated Strip
 - ☐ BMP C235 – Straw Wattles
 - ☐ Site is flat and no potential for sediment to leave the site exists
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5. **Stabilize Soils.** All exposed soil must be protected from rainfall and wind erosion. From October 1 through April 30, no soil shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days.

- ☐ BMP C120 – Temporary and Permanent Seeding
 - ☒ BMP C121 – Mulching
 - ☐ BMP C122 – Nets and Blankets
 - ☒ BMP C123 – Plastic Covering
-
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-

6. **Project Slopes.** If the property has slopes, they must be protected from erosion if work is done on or near them.

- ☐ BMP C120- Temporary and Permanent Seeding
 - ☐ BMP C130 – Surface Roughening
 - ☐ BMP C131 Gradient Terraces
 - ☒ Not Applicable – The property does not have any slopes nor are there any slopes within 100 Feet of the project boundaries
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-

7. **Protect Drain Inlets.** Storm drains shall be protected from sediment entering them.

- ☐ C220 – Storm Drain Inlet Protection
- ☒ Not Applicable – There are no storm drains on the property or within 100 feet of the stabilized construction access.

8. **Stabilize Channels and Outlets.** If temporary on-site conveyance channels are used, they must be stabilized to protect against erosion.

- ☐ BMP C202 – Channel Lining
- ☐ BMP C209 – Outlet Protection
- ☒ Not Applicable – Temporary on-site conveyance channels are not used for this project.

9. **Control Pollutants.** All pollutants shall be handled and disposed of in a manner that does not cause contamination of stormwater. Please identify any BMP used for the project.

- ☒ BMP C151 – Concrete Handling
- ☐ CMP C152 – Sawcutting and Surfacing Pollution Prevention
- ☐ Above BMP not expected to be necessary, however all necessary precautions will be taken to ensure pollutants are handled and disposed of in a safe manner

10. **Control De-Watering.** If the site is expected to experience ponding and/or foundation is left in a manner that encourages water ponding, then the applicant shall make necessary plans to discharge the water in a manner that ensures it is safely cleaned before being discharged. Describe the plan for dewatering below.

- ☒ Not applicable. Site does not experience ponding and foundation will be kept dry such that water accumulation does not occur.
-