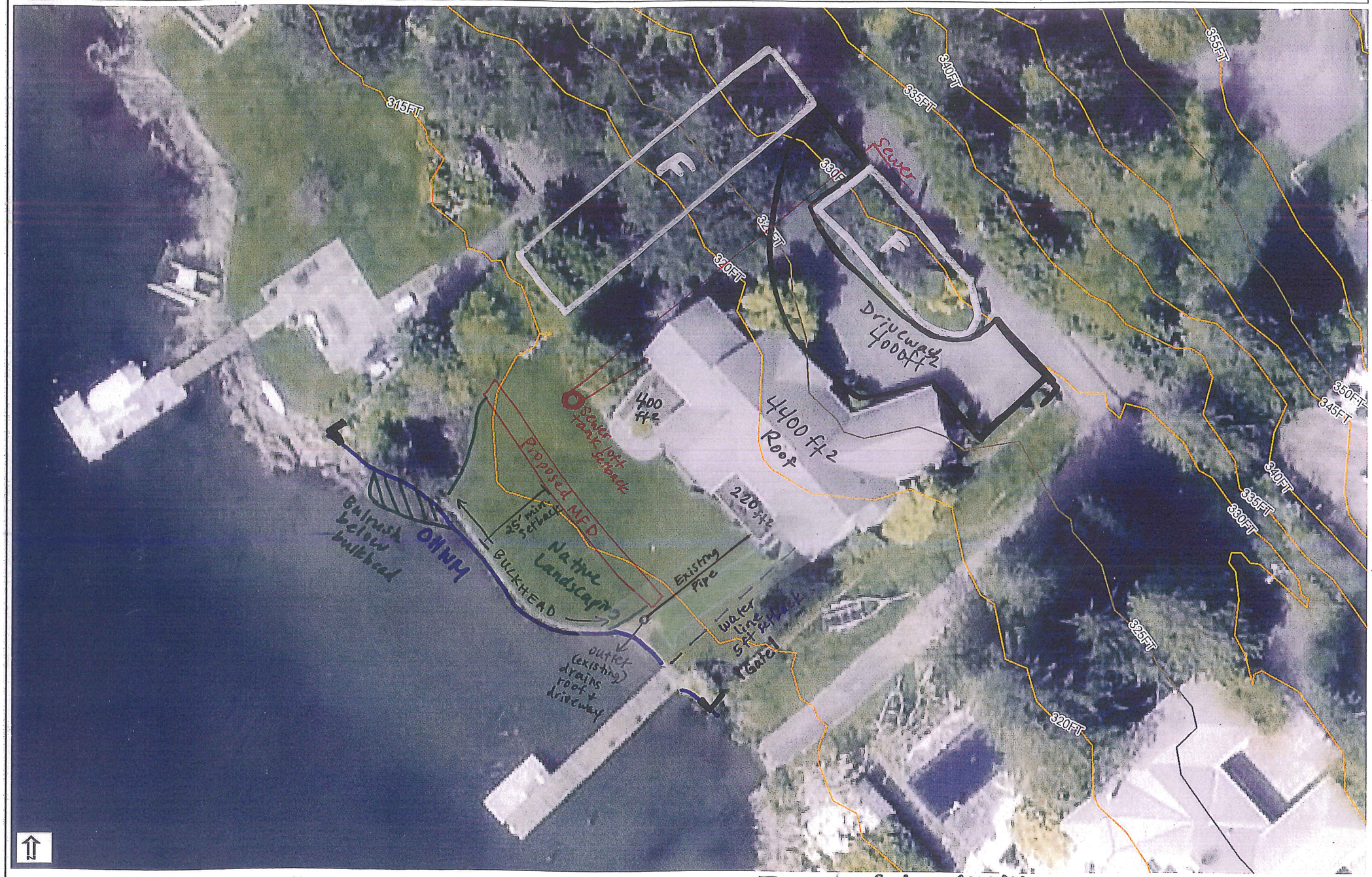
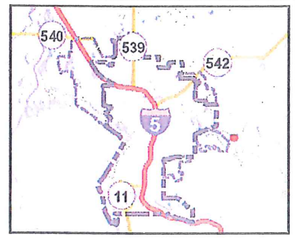
City of Bellingham WASHINGTON

CityIQ Map Pre-Design





Legend

- Water Access Points
- Service Valve
  - Fireline Valve
  - Hydrant Valve
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- Control Valve
  - Air Release
  - Blow Off
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  - Water Customer
  - Critical Water Customer
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- Lateral Line
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- Water Main
  - City Main; Active; Potable
  - City Main; Active; Untreated
  - City Main; Under Construction; Potable
  - Private Main; Active; Potable
  - Private Main; Active; Untreated
- Reservoirs
- Clean Outs
  - Active
  - Inactive
  - Under Construction
- Fitting
  - Active
  - Inactive
  - Under Construction
- Network Structures
- Sewer Access Points
- Sewer Lateral Lines
- Manholes
  - Active
  - Inactive
  - Under Construction
- Sewer Gravity Mains
  - City Mains, Inactive
  - City Mains, Active

Notes

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62 0 31 62 Feet

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Impervious Surface – 9020 ft²
Partially Pervious (Lawn/Landscape) – 12,230 ft²
Fully Forested – 3,510

Total Site Area: 24,759 ft²

Min. 25% treatment – 6,190 ft²

Pre-Design Information
County Critical Areas Example

Total Parcel Area (not including lake portion of parcel): 24,759 ft^2

Total Treatable Area (excludes the fully vegetated areas shown in silver on the map): 21,115 ft^2

Minimum 25% Treatment: 5,278 ft^2

Critical Area Review/Checklist (see checklist filled out in submittal packet paperwork):
Due to the existence of bulrush on the lake-side of the bulkhead and squishy ground on the land-side of the bulkhead the critical areas checklist was filled out to determine if additional BMP placement restrictions were required due to a potential fringe wetland.

It was determined that wetland indicators were lacking and the location of the bulkhead between the bulrush and the rest of the property negated any further restriction on BMP placement other than the standard 25ft.

BMP Notes:
The proposed upland Media Filter Drain would most likely be longer than 50', which means there would need to be split into two MFDs with a break and connecting pipe at the 50 foot mark.

Conveyance – There is an existing outfall pipe that drains the entire roof and driveway that could be interrupted, run through an MFD and reconnected back to the original outfall.

For the native landscaping along the shoreline, the homeowner's goal is to deter geese, which means plants chosen should grow to knee height for best results.

A gate in the southwest corner could provide easy access for any equipment onto the property via the paved boat launch access road adjacent to the property.

Homeowner priorities:
- Keep some lawn
- Have native landscaping buffer along shoreline as a way to deter geese
- Treat runoff from hard surfaces

WHATCOM COUNTY
Planning & Development Services
5280 Northwest Drive
Bellingham, WA 98226-9097
360-778-5900, TTY 800-833-6384
360-778-5901 Fax

J.E. "Sam" Ryan
Director

Natural Resource Notification of Activity

Required Application Fee: $35.00 (UFS8441)
Make checks payable to Whatcom County Planning and Development Services

For Administration Use

Permit#(s)

_____

_____

_____

Date Stamp

Received by: _____

Receipt #: _____ Date Paid: _____ Total Fees: _____

Reviews: ☐ CA Wetland/HCA ☐ CA Geo Hazards ☐ Flood ☐ Shoreline ☐ Watershed

Notice of work to be performed in or near a Critical Area or Water Resource Special Management Area in compliance of the Whatcom County Code 16.16.235 and 20.80.735. This Notification should be submitted to the Whatcom County Planning and Development Services at least 10 working days before proposed starting date. No work shall commence until approval from Whatcom County is received. Review of this proposed activity may result in the requirement for a permit such as land disturbance, shoreline, etc. You will be notified if permits will be required for the proposed activity.

Notice of Activity Number (WCC16.16.235 Section A-K)
Check the Notice of Activity Number below that best describes your project.

- ☐ A. Emergency Construction
- ☑ B. Maintenance
- ☐ C. Select Vegetation Removal
- ☐ D. Installation Navigation Aids/Boundary Markers
- ☐ I. Installation Mooring Buoys
- ☐ F. Routine Site Investigation
- ☐ G. Cleaning, Pruning, Revegetation
- ☐ H. Fish, Wildlife, Wetland Restoration
- ☐ I. Household herbicides, Pesticides
- ☐ J. Routine Maintenance of Drainage Channels
- ☐ K. Alteration or Removal of Beaver Structures Less than 2 years old

Agent/Contact Name: _____

Mailing Address: _____ City _____

State _____ Zip Code _____ Phone # ( ) _____

Fax # ( ) _____ Email _____

Property Owner Name Mr. & Ms. Hip

Mailing Address: 1234 Watershed Ave City Bellingham

State WA Zip Code 98229 Phone # ( ) 360-XXX-XXXX

Fax # ( ) _____ Email XX@gmail.com

Property Information

Site address 1234 Watershed Ave, Bellingham, WA 98229

Assessor's Parcel Number P38032XXXXXXX

Parcel size: 24,759 in acres/square footage (if less than an acre please provide square footage)

Proposed start date June 1, 2018 Proposed finish date June 16, 2018

Type of affected Critical Area and/or watershed _Lake Whatcom

Describe activity to be conducted (if more space is needed attach additional information sheets). Provide a site plan with this notification. Clearly identify location of proposed activity on the site.

Install Lake Whatcom Homeowner Incentive Program project. See attached HIP submittal packet including project summary, project narrative, and site plan.

I / We understand this work and/or activity may have adverse effects on the Critical Area and/or watershed processes, and acknowledge that special care must be taken to reduce or eliminate adverse effects. Effective sediment and erosion control measures must be installed and disturbed areas shall be restored as near as possible to the previous condition.

Description of sediment erosion control measures and/or restoration

See attched HIP submittal packet including erosion and sediment controls on site plan and SWPPP.

SITE PLAN	***SCALED SITE PLAN REQUIRED***

	• The following information must be put on the scaled site plan and be consistent across the site plan.
	  ○ All buildings, existing and proposed.
	  ○ Parking, access roads and driveways.
	  ○ Critical areas (e.g.: wetlands, streams) located.
	  ○ Ditches.
	  ○ Property lines, corner pins.
	  ○ Topography (contours, slope grade).
	  ○ Utilities.
	  ○ Erosion and Sedimentation Control Measures.
	• Show any trees that are to be removed.
	• *Incomplete or inadequate site plan can significantly delay processing.*
	(Note: Incomplete applications are not accepted)

I / We the undersigned acknowledge and accept the responsibility for the progress and completion of this project. Any unforeseen problems or plan changes will immediately be brought to the attention of the County Technical Administrator.

Signed Mr. Hip Date 3/15/18 Signed Ms. Hip Date 3/15/18

Mr. Hip
Print Name

Ms. Hip
Print Name

FOR AGENCY USE

Approved _____ Date _____

Additional Information/permits required _____

Property Owner: Mr. + Ms. Hip

Site Address: 1234 Watershed Avenue

Submittal Requirements Checklist

Use this checklist to determine which submittal documents are required for your project. Please make sure all of the required documents are included in the submittal packet and check the appropriate boxes.

Part I: Submittal requirements for all HIP projects

- [x] Project Summary & Project Narrative
- [x] Project Site Plan
  - [x] Existing Conditions Sheet with utilities, including approximate location of rights-of-way
  - [x] Proposed Improvements Sheet (BMP footprint, dimensions, and conveyance)
- [x] Stormwater Pollution Prevention Plan (SWPPP) -required for all ground-disturbing projects
  - [x] SWPPP Narrative
  - [x] Erosion and Sediment Control Plan Sheet
  - [x] Erosion and Sediment Control Details
- [x] Material Specifications

Part II: Submittal requirements for each primary BMP

- [x] **Native Landscaping**
  - [x] Design Submittal (Sections I - II)
  - [x] Plant Density Calculator
  - [x] Plant List
- [ ] **Infiltration Trench**
  - [ ] Design Submittal (Sections I - II)

  OR
  - [ ] Sizing Calculator
  - [ ] Alternative Sizing Calculator
  - [ ] Facility Cross Section
- [x] **Media Filter Drain**
  - [x] Design Submittal (Sections I - II)

  OR
  - [x] Sizing Calculator
  - [ ] Alternative Sizing Calculator
  - [x] Facility Cross Section

Part II (continued)

- ☐ **Dispersion**
  - ☐ Design Submittal (Sections I - II)

  OR
  - ☐ Sizing Calculator
  - ☐ Alternative Sizing Calculator
  - ☐ Facility Cross Section
- ☐ **Lake Whatcom Rain Garden**
  - ☐ Design Submittal (Sections I - II)

  OR
  - ☐ Sizing Calculator
  - ☐ Alternative Sizing Calculator
  - ☐ Facility Cross Section

Part III: Submittal requirements specific to the City or County

City Only:

- ☐ Stormwater Permit Application*
- ☐ Other City forms if applicable

**This project will not trip redevelopment thresholds regarding new or replaced impervious or partially-pervious surfaces. Therefore, this work qualifies for permitting exemptions for phosphorus- or flow-limiting projects as provided by applicable local codes and development standards.*

County Only:

- ☑ Natural Resource Notification of Activity
- ☐ Other County forms if applicable

Part IV: Signatures

	Printed Name	Signature	Date
Submittal Completed By:	HIP Coordinator	Hip Coordinator	3/15/18
On Behalf Of:	Mr. & Ms. Hip	Hip	3/15/18

These requirements were developed in accordance with the minimum requirements found in the Stormwater Management Manual for Western Washington and local regulations.

Project Summary

Address: 1234 Watershed Ave 98229 Parcel #: P38032XXXX
(street address) *(zip code)*

Owner:	Phone:	Email:
Mr. & Ms. Hip	360-XXX-XXXX	XX@gmail.com
HIP Staff: Jenny Coe	Phone: 360-306-4701	Email: jcoe@whatcomcd.org
Designer: HIP Designer	Phone: 360-XXX-XXXX	Email: XXX@

Short Description:
Installation of two HIP BMPs to address stormwater runoff from private property.

Check boxes below to characterize the project:

Best Management Practices	Additional Practices	Stormwater Calculations
☒ Native Landscaping	☐ Permeable Paving	☐ None (Landscaping Only)
☐ Infiltration Trench	☐ Rainwater Harvesting	☒ HIP Standard Calculations
☒ Media Filter Drain	☐ Invasive Species Removal	☐ WWHM Modeling
☐ MFD Clean Beach	☐ Other:	☐ MGS-Flood Modeling
☐ Dispersion		☐ Other:
☐ Lake Whatcom Rain Garden		

Measurement	Number	Notes
Total Treatable Area	21,249 ft²	
Area Landscaped by Project	3250 ft²	
Area Infiltrated by Project	ft²	
Area Dispersed/Treated by Project	13,820 ft²	Includes sheet-flow, piped flow and MFD trench square footages
New or Replaced Lawn	ft²	
New or Replaced Hard Surface	ft²	
Amount of Soil Excavated	600 yd³	

Project Narrative

The following project, located at 1234 Watershed Ave is proposed as a voluntary stormwater retrofit designed to protect and restore water quality in and around Lake Whatcom. The attached and enclosed information details the proposed phosphorus-reducing best management practices (BMPs) to be installed at the project site.

A summary of these BMPs is as follows:

- **BMP#1:** Media Filter Drain
  - This component will be 400 ft² in size.
  - This component addresses 13,820 ft² of site area.
  - Location of BMP relative to house: Lakeside (west)
- **BMP#2:** Native Landscaping
  - This component will be 3250 ft² in size.
  - This component addresses 3250 ft² of site area.
  - Location of BMP relative to house: Lakeside (west) + below MFD
- **BMP#3:** _____
  - This component will be _____ ft² in size.
  - This component addresses _____ ft² of site area.
  - Location of BMP relative to house: _____

If the project contains more than three BMPs, additional information must be attached to this project narrative.

Design Submittal
Media Filter Drain System

Section I: System and Sizing Summary

☑ I have provided a site plan and facility cross-section.
☑ I have defined the area that will drain into the MFD by piping.
That area is 8400 **ft² of impervious surface and/or** _____ **ft² of lawn/landscape**
☑ I have defined the area that will drain into the MFD by sheet flow.
That area is 620 **ft² of impervious surface and/or** 4400 **ft² of lawn/landscape**
☑ I have sized the MFD using approved methodology (HIP Sizing Calculator or stormwater hydrological modeling software) and attached that data.
My trench will need to be at least 4 **feet wide and** 400 **ft² in filter area**

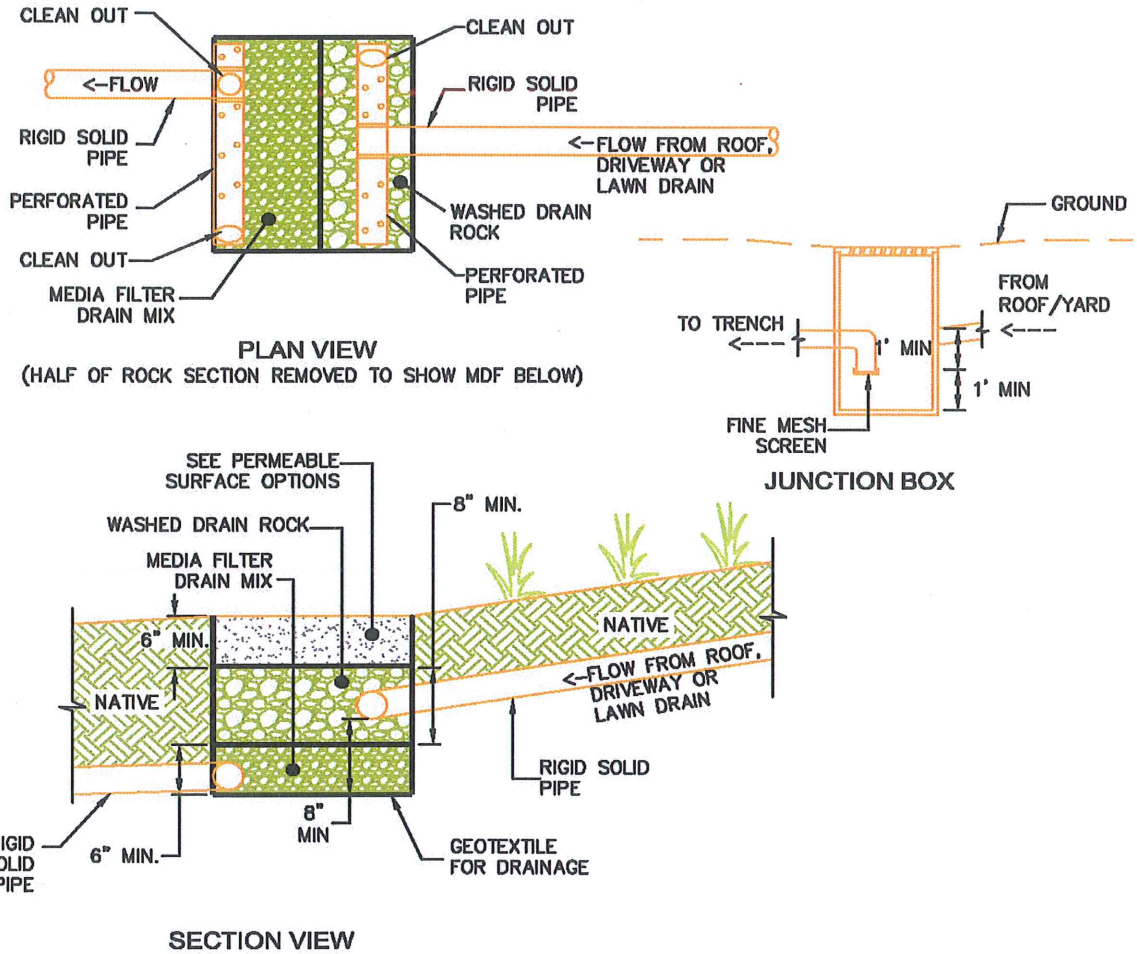
Section II: Site-Specific Planning

☑ I have determined that the MFD is at least 5' from known public and private utilities.
☑ I have determined that the MFD is at least 5' from structures with slab-on-grade foundations and 10' from structures with a basement or crawl space.
☑ I have determined that the MFD is not on or next to a slope steeper than 15% and not within 50' upgradient of a slope steeper than 35%.
☑ I have developed an erosion control plan for the excavation of the trench and completed a site-specific SWPPP that is included with this application.

Sizing Calculator
Media Filter Drain System

Instructions: Measure hard surface area and lawn/landscaping surface area draining to trench. Characterize flow as sheet flow or piped flow. Insert values in the table below and use the following formula to calculate the size of MFD trench that is needed to adequately manage the runoff directed to the system. Sheet flow trenches must be at least 2' wide while piped flow trenches must be at least 3' wide in order for this calculation to be applicable. Runoff from a pipe that crosses at least 25' of lawn or landscape before reaching the trench can be considered sheet flow.

Drainage Type	Hard Surface (square feet)	Hard Surface Multiplier	Lawn/Landscape (square feet)	Lawn/LS Multiplier	Minimum Trench Area (square feet)
Sheet Flow	[620	0.03] + [4400	0.01] =		63
Piped Flow	[8400	0.04] + [	0.01] =		336
Total area of trench needed (add trench areas above):					400 (rounded from 399)



MEDIA FILTER DRAIN END-OF-PIPE CONFIGURATION
HIP BMP "C.2", TYPICAL NTS

Design Submittal

Native Landscaping

Section I: System and Sizing Summary

☑	I have defined the area that will be converted into native landscaping and have provided a site map showing the planting area.
	Native landscaping will replace 3250 **ft² of lawn/existing landscape and/or** _____ **ft² of impervious surface**
☐	If any of my planting is in the public right-of-way, I have received written approval from the jurisdiction that manages the public area (City or County).
	The size of the area of the Right-of-Way I plan to landscape is _____ **ft²**
☑	I have selected a vegetation layer combination for each unique planting area (e.g., right-of-way area, front yard, back yard, etc...) and used the HIP plant density calculator to calculate the number of plants and yards of mulch required for each planting area.
	The total combined quantities for all of my planting areas are: 41 **cubic yards of approved mulch,** _____ **trees,** 67 **shrubs, and** 130 **groundcovers.**

Section II: Site-Specific Planning

☑	I have determined that I will not be planting trees or shrubs within 5' of a known utility, including septic systems (on private property) or 10' from a utility (in public ROW).
☐	I have determined that I will not need additional approvals for planting trees in the public right-of-way (if proposed, tree planting in ROW is not required).
☑	I have determined that the planting area is not on or next to a slope steeper than 35%.
☑	I have developed a plan to prevent erosion or runoff during my planting activities, including work during the wet season that complies with winter work provisions.

Plant Density Calculator

Native Landscaping

Instructions: Select one of the options listed below for each unique planting area and calculate the minimum required planting density and mulch. Note that existing plants may be counted to meet required plant density numbers.

Option	Vegetation Layer Combination	Plant Layer	Project area (sq ft)	Density Divider	Number of Plants
A	Tree, Shrub, and Groundcover	Trees		225 (15' o.c.*)	
		Shrubs		64 (8' o.c.)	
		Groundcovers		25 (5' o.c.)	
B	Tree and Shrub Only (No Groundcovers)	Trees		144 (12' o.c.)	
		Shrubs		36 (6' o.c.)	
C	Tree and Groundcover Only (No Shrub)	Trees		144 (12' o.c.)	
		Groundcovers		16 (4' o.c.)	
D	Shrub and Groundcover Only (No Tree)	Shrubs	3250	49 (7' o.c.)	67
		Groundcovers	3250	25 (5' o.c.)	130
Cubic Yards of Mulch			3250	80	41

*The abbreviation "o.c." stands for "on center", a convention used to describe the average distance between plants. For example, a tree that is planted 15' o.c. would be, on average, 15' from its nearest neighbor.

Plant List

Instructions: submit a list of native plants proposed for the project categorized by tree, shrub, and groundcover. List plant name (scientific preferred) and quantity. Include number of existing plants used to meet plant density requirements. Identify non-natives and cultivars and limit to no more than 10% of total plants.

Native Plant List
County Critical Areas Example

Native Landscaping BMP – 3250 ft^2

Shrubs: 67
Groundcovers: 130

Shrubs:
Amelanchier alnifolia - **8**
Calycanthus occidentalis - **7**
Holodiscus discolor - **10**
Myrica gale- **5**
Phildelphus lewisii - **8**
Physocarpus capitatus - **9**
Ribes sanguieum - **10**
Vaccinium ovatum - **5**
Viburnum opulus var. americanum - **5**

Groundcovers:
(10 of each)
Asarum caudatum
Deschampsia caespitosa
Festuca idahoensis spp. Roemeri
Brodiaea coronaria
Camassia leichtlinii spp. suksdorfii
Aruncus diocus
Helenium autumnale
Lupinus latifolius
Lupinus polyphyllus
Mahonia Repens
Penstemon serrulatus
Petasites firgidus v palmatus
Symphyotrichum subspicatum spp. subspicatum

HIP Critical Areas Checklist

Purpose: This checklist will be used by the HIP Coordinator to identify likely critical areas on a HIP participating property and determine if further professional investigation is required prior to HIP project design.

Owner Name	Mr. & Mrs. HIP
Address	1234 Watershed Avenue, Bellingham, WA
Parcel #	P38032XXXXX
HIP staff completing checklist	Jenny Coe, Emily Hirsch
Date checklist completed	3/15/18

A. Waterways:

1. Are there any streams, regulated ditches, lakes, or ponds on the property?
   (Check Whatcom County GIS layer to identify regulated ditches).
   ☒Yes ☐ No

2. If yes, show on project site plan. HIP BMP minimum requirements and design limitations for shorelines and creeks will apply.

Comments on waterways:
Lake Whatcom shoreline

B. Slopes:

1. Are there any slopes steeper than 35% within 50ft of the proposed project area?
   ☐ Yes ☒ No

2. If yes, identify on project site plan. HIP BMP minimum requirements and design limitations for slope will apply.

Comments on Slope:

C. Wetlands:

1. Is there ever standing water, squishy lawn, or indicators of standing water (water stained leaves, debris or sediment deposits, algal mats, surface soil cracks) within 25 ft of the proposed project area?
   ☒ Yes ☐ No
   Two conditions have been observed on-site: There is bulrush growing on the lake-side of the bulkhead which will be adjacent to the proposed native landscaping buffer in the HIP design.

Squishy lawn was also observed on the land-side of the bulkhead; however the day of the site visit it was pouring rain and had been raining for multiple days prior. The homeowner stated that any standing water or squishy lawn was quick to drain when the rain stops.

2. Are there any dominant plant species that are FAC or wetter within 25ft of the proposed project area?
   ☒ Yes ☐ No
   Bulrush was found on the lake-side of the bulkhead which would be within 25 feet of the proposed native landscaping buffer along the shoreline.

3. If yes to any of the above, dig a test hole(s) 12-24 inches deep within the project area. Stop at hard layers or the water table. (*Results from recent OSS soil tests can be used if available).* Complete USACE Wetland Determination Data Form.

   A test hole was not dug on the water-side of the bulkhead. Small test holes were dug on the land-side of the bulkhead where standing water and squishy lawn were observed.

   a. Note depth to water table: **NO GROUND WATER OBSERVED**
   b. Note depth to restrictive layer: **NONE OBSERVED**
   c. Note soil texture: **Sandy**

4. Was a wetland identified using the Wetland Determination Form? See attached wetland data form.
   ☐ Yes ☒ No
   See comments below.

   If yes, locate the edge of the wetland with line and tape. Consult with PDS staff on appropriate location of proposed HIP BMPs within wetland buffer. Include a map showing edge of wetland on the project site plan.

   If no, no further critical area investigation is required.

   Comments on wetlands:
   This property has a bulkhead in place that runs the entire distance of the shoreline. In one small section on the lake-side of the bulkhead, there is the presence of bulrush. On the land-side of the bulkhead wetland indicators were lacking, salal (FACU) was the dominant vegetation, and soil texture was sandy. Native landscaping is the only BMP that will be adjacent to the bulkhead and bulrush. The planned Media Filter Drain trench will be a minimum of 25ft away from the bulkhead in an area that had no evidence of wetland indicators.

   See Existing Conditions Map for location of bulrush.

Include a copy of this checklist and any associated maps or support materials, as applicable, as an attachment to the Whatcom County Natural Resource Notification of Activity form submitted with the HIP application.

Material Specifications List

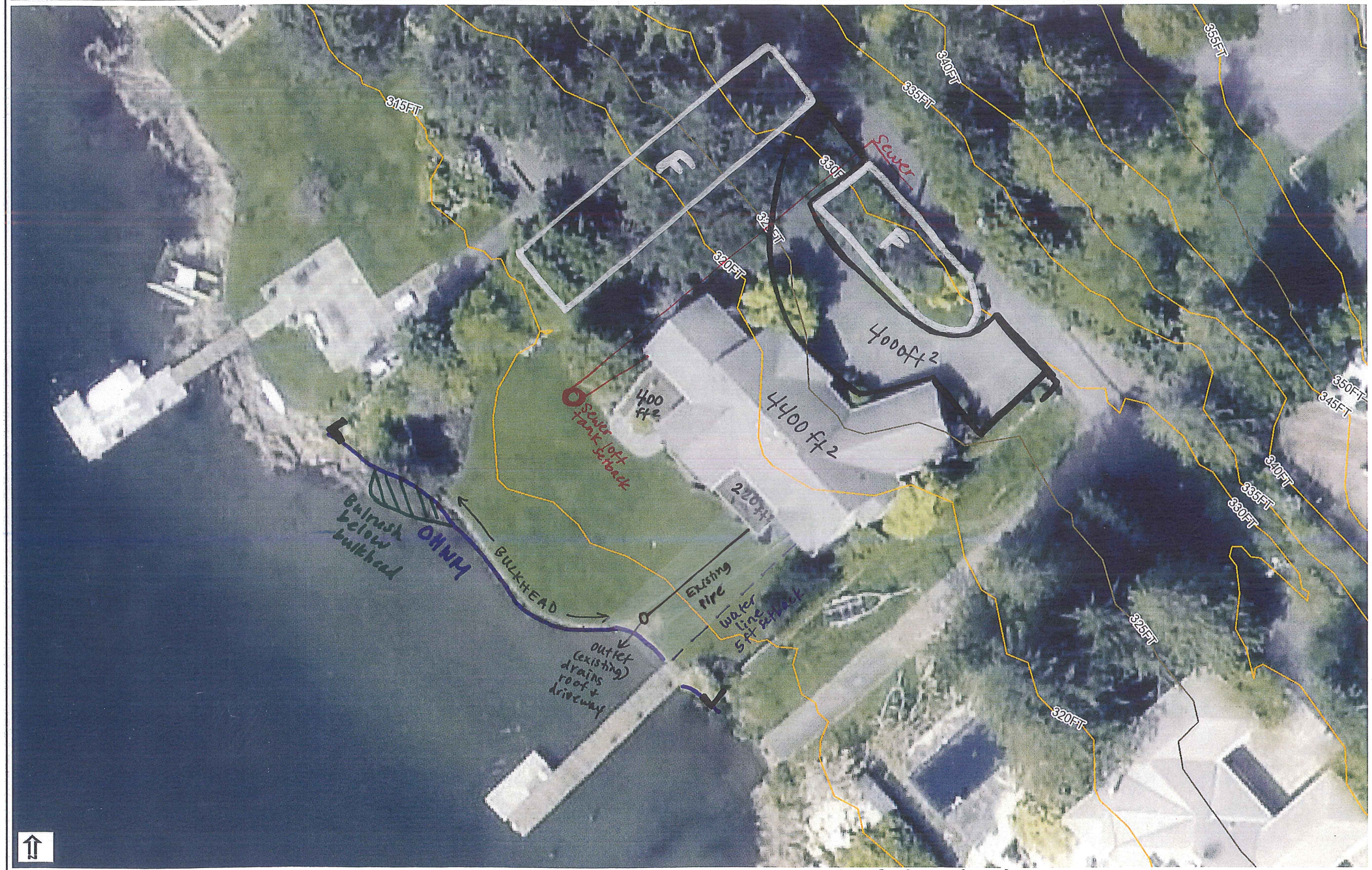
Check Here	Material Name in HIP 2.0 BMP Material Spec Book	Check Here	Material Name in HIP 2.0 BMP Material Spec Book
X	Native Plants (Page 15)	Pipe and Drains (Pages 9-10)	
Rock Materials (Pages 4-7)			Atrium Grate
	Cascade Stone	X	Catch Basin
X	Media Filter Drain Mix	X	Fine Mesh Screen
	Pea Gravel		Perforated Pipe
	Permeable Ballast	X	Pipe Couplings and Fittings
	Quarry Spalls		Rigid Solid Pipe
	River Rock	X	Solid Lids and Grates
	Sand		Trench Drain
	Shoreline Gravel		Trench Drain Grate
X	Washed Drain Rock		Type 1 Catch Basin
		Permeable Pavement Materials (Pages 11-12)	
Mulch and Compost Materials (Pages 7-8)			Permeable Interlocking Paver System
	Compost		Permeable Pavers
	Hog Fuel		Permeable Paver Joint Filler
X	Low-Phosphorus Mulch		Poured Permeable Surfacing
Soil-Based Materials (Pages 8-9)			Edge Restraints
	Low-P Rain Garden Soil Mix		Grid Paver System
	Low-P Topsoil		

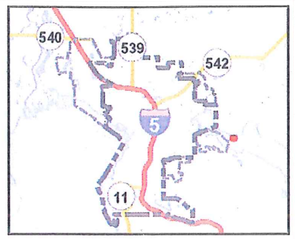
Material Specifications List Continued			
Check Here	**Material Name in HIP 2.0 BMP Material Spec Book**	**Check Here**	**Material Name in HIP 2.0 BMP Material Spec Book**
Erosion Controls (Pages 12-14)		Other (Pages 14-15)	
X	Catch Basin Inserts		Dispersion Trench Edging
	Grass Seed		Dispersion Trench Support Post
	Sandbags		Geotextile for Drainage
	Silt Fencing		Rigid, Waterproof Barrier
	Sod		
X	Soil Coverage Tarp		
X	Wattles		

Include any additional modifications here:

City of Bellingham WASHINGTON

CityIQ Map Existing Conditions





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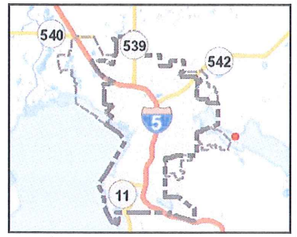
Partially Pervious (Lawn/Landscape) – 12,230 ft2
Fully Forested – 3,510

Total Site Area: 24,759 ft2

City of Bellingham WASHINGTON

CityIQ Map Proposed Improvements



Legend

Contours - detail (ft)
- 1000 FOOT
- 100 FOOT
- 25 FOOT
- 5 FOOT

Sheet flow to MFD: 5,020 ft²

Piped flow to MFD: 8,400ft²

MFD: 400ft²
- 2 trenches w/ level bottoms
- Connected via pipe at 50ft

Native Landscape 3,250 ft²

Conveyance:
- □ - Junction box Cut outfall pipe up & down stream of MFD. Connect inflow to distb. pipe. Connect under drain to downstream outfall pipe.
- – – – Distb. pipe 4" perf.
- – – – Underdrain pipe 4" perf.

62 0 31 62 Feet

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

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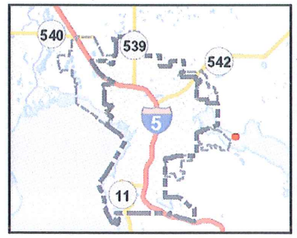
City of Bellingham WASHINGTON

CityIQ Map Erosion + Sediment Control Plan



Legend

- Water Access Points
- Service Valve
  - Fireline Valve
  - Hydrant Valve
- Fitting
- Control Valve
  - Air Release
  - Blow Off
- Meters
  - Water Customer
  - Critical Water Customer
- Hydrants
  - COB
  - City Filling Station
  - Private Hydrants
- Water System Valve
  - Bypass Valve
  - Inline Valve
  - Tapping Valve
  - Zone Valve
- Network Structure
  - Enclosed Storage Facility
  - Pump Station
  - SamplingStation
  - Storage Basin
  - Treatment Plant
- SamplingStations
- Lateral Line
  - Fireline Service
  - Hydrant Service
  - Water Service Line
- Water Main
  - City Main; Active; Potable
  - City Main; Active; Untreated
  - City Main; Under Construction; Potable
  - Private Main; Active; Potable
  - Private Main; Active; Untreated
- Reservoirs
- Clean Outs
  - Active
  - Inactive
  - Under Construction
- Fitting
  - Active
  - Inactive
  - Under Construction
- Network Structures
- Sewer Access Points
- Sewer Lateral Lines
- Manholes
  - Active
  - Inactive
  - Under Construction
- Sewer Gravity Mains
  - City Mains, Inactive
  - City Mains, Active

Notes

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62 0 31 62 Feet

THIS MAP IS NOT TO BE USED FOR NAVIGATION

HIP

Stormwater Pollution Prevention Plan (SWPPP)

Describe all elements below that apply to your project. Refer to the current edition of the Stormwater Management Manual for Western Washington for drainage project instructions. If you are only completing a landscaping project, describe elements below that you will implement during the winter work season.

Elements of the SWPPP

Element 1 – Mark Clearing Limits:

Clearing limits will be marked with orange fencing. All utilities will be marked with flags or paint.

Element 2 – Establish Stabilized Construction Access:

Construction access will be to the SE of the lot along a paved public boat launch access road. The lawn area between the road and the gate will be covered in 8" of hog fuel. If wheeled or tracked equipment is to be driven beyond the gate, plywood will be placed over lawn areas to prevent erosion and track out.

Element 3 – Control Flow Rates:

HIP Projects are not intended to increase flow rates or stormwater discharge volumes by any amount. Therefore, no flow controls are necessary during construction. If point-discharges are created during construction, they will be mitigated by proper installation of sediment controls and will be disconnected at the completion of the project.

Element 4 – Install Sediment Controls:

A mulch berm will be installed between the MFD construction area and the bulkhead and then used for the native landscaping BMP.

HIP

Element 5 – Stabilize Soils:

All disturbed, exposed, stockpiled, or uncovered soil materials will be covered using an approved material (durable tarp, mulch, straw, etc.) during all rain events occurring during construction. Unworked soils that will be left exposed for more than 48 hours will be covered at the end of the last working day prior to that 48-hour duration. All disturbed soils will be covered completely between October 1 and May 30.

Element 6 – Protect Slopes:

N/A

Element 7 – Protect Drain Inlets:

A catch basin insert will be placed in the junction box to protect it from dirt from getting into it during construction.

Element 8 – Stabilize Channels and Outlets:

There will be a temporary drain connected to the existing downspouts to divert any flow that comes through before the connection can be tied into the outlet at the bulkhead.

Element 9 – Control Pollutants:

No pollution-generating activities in excess of the approved HIP project are allowed. Spills and leaks of fuels, fluids, or chemicals will not be allowed to enter storm systems. Any fuel, fluid, or chemical pollutants entering storm systems, including ditches, must be reported to the City of Bellingham or Whatcom County immediately upon discovery.

Element 10 – Control Dewatering:

Dewatering is not an expected activity related to a HIP project. Trenches, drywells, and other stormwater systems will not be used as sediment traps at any time. If sedimentation occurs, restoration (including dewatering) will not cause the discharge of sediment-laden water from the site by either surface or piped flow.

HIP

Element 11 – Maintain BMPs:

All erosion control BMPs will be maintained per manufacturer's recommendations and as directed by HIP, City of Bellingham, or Whatcom County Staff.

Element 12 – Manage the Project:

Work will occur as defined in an approved HIP project plan and per HIP rules and requirements. Contractor will exercise adaptive management to correct any unexpected deficiencies in erosion control efforts, as necessary. Adaptive management strategies may be reviewed by HIP, City of Bellingham, or Whatcom County staff to ensure compliance with applicable rules and regulations.

Element 13 - Protect LID Features:

If the MFD trench is to remain open for more than one working day, or will be constructed during inclement weather, a straw wattle will be placed on the uphill side of the MFD trench to prevent sediment from entering the facility during construction.

Design Guidance

Erosion and Sediment Control

GENERAL CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

PURPOSE

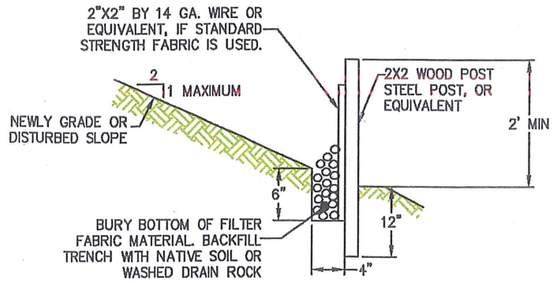
TO PREVENT THE DISCHARGE OF SEDIMENT AND OTHER POLLUTANTS TO THE MAXIMUM EXTENT PRACTICABLE FROM SMALL CONSTRUCTION PROJECTS.

DESIGN AND INSTALLATION

PLAN AND IMPLEMENT PROPER CLEARING AND GRADING OF THE SITE. IT IS MOST IMPORTANT ONLY TO CLEAR THE AREAS NEEDED KEEPING EXPOSED AREAS TO A MINIMUM. PHASE CLEARING SO THAT ONLY THOSE AREAS THAT ARE ACTIVELY BEING WORKED ARE UNCOVERED.

NOTE: CLEARING LIMITS SHALL BE FLAGGED ON THE LOT OR PROJECT AREA PRIOR TO INITIATING CLEARING.

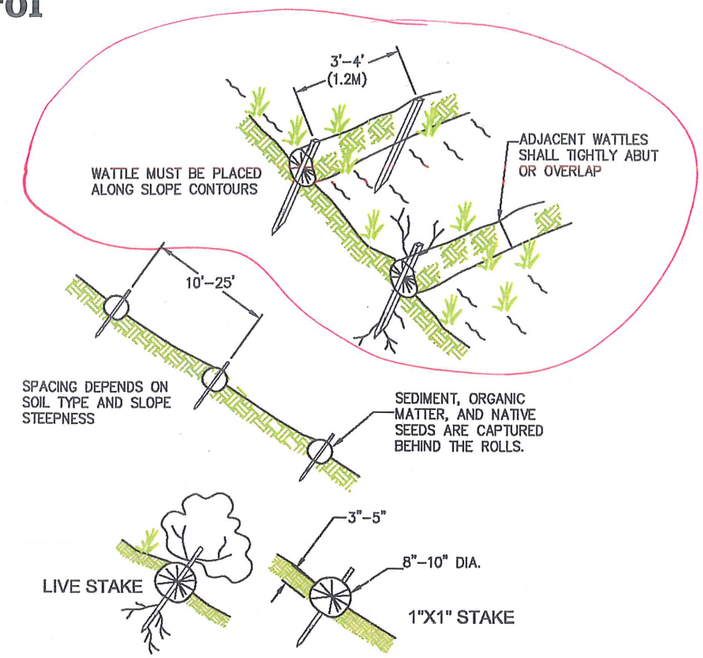
- FROM OCTOBER 1 THROUGH APRIL 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN TWO DAYS FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN SEVEN DAYS.
- SOIL SHALL BE MANAGED IN A MANNER THAT DOES NOT PERMANENTLY COMPACT OR DETERIORATE THE FINAL SOIL AND LANDSCAPE SYSTEM. IF DISTURBANCE AND/OR COMPACTION OCCUR THE IMPACT MUST BE CORRECTED AT THE END OF THE CONSTRUCTION ACTIVITY. THIS SHALL INCLUDE RESTORATION OF SOIL DEPTH, SOIL QUALITY, PERMEABILITY, AND PERCENT ORGANIC MATTER. CONSTRUCTION PRACTICES MUST NOT CAUSE DAMAGE TO OR COMPROMISE THE DEPTH OF PERMANENT LANDSCAPE OR INFILTRATION AREAS.
- LOCATE ANY SOIL PILES AWAY FROM DRAINAGE SYSTEMS. SOIL PILES SHOULD BE TARPED OR MULCHED UNTIL THE SOIL IS EITHER USED OR REMOVED. PILES SHOULD BE SITUATED SO THAT RUNOFF DOES NOT RUN INTO THE STREET OR ADJOINING YARDS.
- BACKFILL WALLS AS SOON AS POSSIBLE AFTER BACKFILLING. THIS WILL ELIMINATE ANY SEDIMENT LOSS FROM SURPLUS FILL.
- THE CONSTRUCTION ENTRANCE SHALL BE STABILIZED WHERE TRAFFIC WILL BE LEAVING THE CONSTRUCTION SITE AND TRAVELING ON PAVED ROADS OR OTHER PAVED SURFACES.
- PROVIDE FOR PERIODIC STREET CLEANING TO REMOVE ANY SEDIMENT THAT MAY HAVE BEEN TRACKED OUT. SEDIMENT SHOULD BE REMOVED BY SHOVELING OR SWEEPING AND CAREFULLY REMOVED TO A SUITABLE DISPOSAL AREA WHERE IT WILL NOT BE RE-ERODED, STREET WASHING IS PROHIBITED.



TYPICAL CROSS SECTION

SILT FENCE SEDIMENT BARRIER

NTS



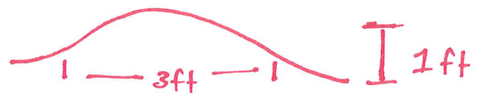
NOTE:

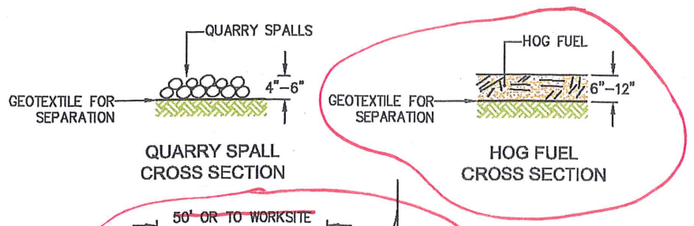
1. WATTLE INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE WATTLE IN A TRENCH, 3"-5" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND WATTLE

WATTLES (SEDIMENT BARRIER)

NTS

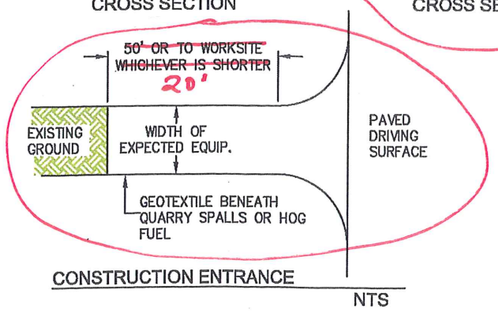
Mulch berm - min. 3' x 1'





QUARRY SPALL CROSS SECTION

HOG FUEL CROSS SECTION



CONSTRUCTION ENTRANCE

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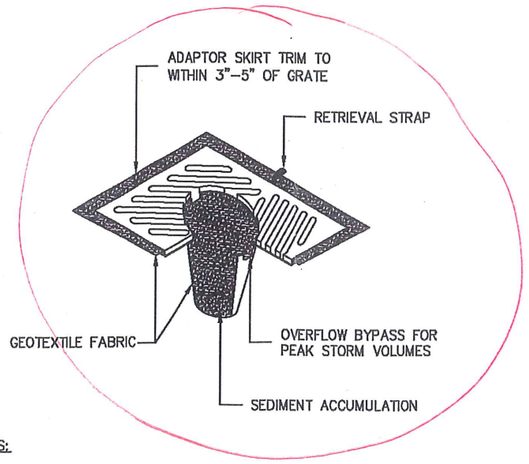

NOTES:

1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.

CATCH BASIN INSERT (INLET PROTECTION) DETAIL

NTS