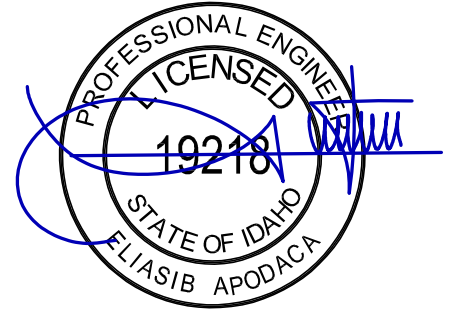


Project Narrative



10/06/2023

Owner: 630 North, LLC
Project Address: 478544 US-95, Ponderay, ID 83852

Standards of Construction

All work shall conform to the City of Ponderay Standards and Requirements. The contractor shall be responsible for all compaction testing requirements. Non-structural materials for fill shall have all boulders and cobbles greater than 6-inches removed. All fill material shall be dried or moistened to within 2% of the optimum moisture, before placement. Lifts shall not exceed eight inches. Efforts shall be made to compact uniformly to avoid any differential settlement.

Access to the property is off US Highway 95. The property is relatively flat and the existing slopes vary from 0% to 18%. The existing vegetation on the site consists of landscaping and native grasses. According to the USDA Web Soil Survey, the soil type is Mission Silt Loam (Group D). The site is known to likely have high groundwater.

Construction Erosion Control

The contractor will provide temporary erosion control and stormwater management during construction. Erosion will be controlled on the property by installing silt fencing according to the Erosion Control plan included with the Construction Design Drawings. Materials are to be in good condition for proper sediment retention and installed per the manufacturer's instructions. The silt fence is to be keyed into the existing ground 6 to 8 inches.

Straw Bales will also be used in areas of larger sediment (gravel) and areas with heavy equipment disturbance. Silt fence and straw bale locations can be modified and placed at the contractor's discretion, to maximize the effectiveness of the sediment containment and erosion control.

Construction Erosion Control shall follow the Rolled Erosion Control Products (RECPs) Installation Guidelines as published by the Erosion Control Technology Council (2017).

Permanent Erosion Control

For permanent erosion control, all disturbed soils will be revegetated with the hydroseeding of native grasses. No fertilization for enhancing grass seed growth is allowed. Mulching rates noted in the erosion control matrix assume hydroseeding and mulching. Mulch shall be spread uniformly. Mulch shall immediately follow seeding for wet weather period erosion control. For disturbed areas on slopes, biodegradable netting or a jute mesh is desirable and may be used instead of bonding agents to provide a stable area for seeding. Netting shall be anchored per the manufacturer's recommendations. All seeding and landscaping shall be supplied with adequate moisture. Supply water as needed, especially in abnormally hot or dry weather or on adverse sites. Water application rates shall be controlled to provide adequate moisture without causing runoff. Clear plastic sheeting



shall be installed immediately on areas seeded between November 1 to March 31 and remain until vegetation is firmly established. Areas that fail to establish vegetative cover adequate to prevent erosion shall be reseeded as soon as such areas are identified.

Stormwater Control

Stormwater will be conveyed via surface sheet flow and storm drain piping from asphalt, gravel, and roof downspouts to a proposed grassy swale. Per City of Ponderay Code section 8-4-8(A), the grassy swales have been designed to detain any increase in peak runoff from the undeveloped state for the 25-year critical storm.

The project has been analyzed with one watershed, and we have performed stormwater calculations using the rational method to find peak runoff for all impervious areas.

The watershed consists of roof and driveway (gravel and asphalt). The watershed has a pre-development runoff of 0.55 CFS and a post-development runoff of 2.20 CFS. The required detention volume to capture the increase in peak runoff is 921 CF. We have proposed a grassy swale that is ~2.5 feet deep, with 2:1 sides and a bottom area of 400 SF, for a total detention area of 1,000 CF.

Construction Schedule

The project is scheduled to begin in Fall 2023 and be complete by Winter 2023.

Inspection Schedule

Site inspections shall be completed by the project engineer prior to the beginning of work and at the end of the project. If any work is required during the winter months, additional inspections shall be completed in November and February.

Operation & Maintenance

The property owner shall be responsible for operating and maintaining the stormwater treatment system (grassy swales). Maintenance activities shall include:

1. Clean up - Remove soil or debris blocking grassy swale inlets or overflows. Remove trash that typically collects near inlets or gets caught in vegetation.
2. Prune - Prune or cut back plants for health and to ensure flow into inlets and across the surface of the grassy swale.
3. Control weeds - Control weeds by manual methods and soil amendment. Selectively use natural herbicides if necessary.
4. Add mulch - Add aged mulch (compost mulch) to reduce the ability of weeds to establish, keep soil moist, and replenish soil nutrients. Ensure that the top of the mulch layer is below the facility overflow.



5. Check signage.
6. Check irrigation - Confirm irrigation is adequate but not excessive.

The owner and landscape maintenance personnel should be aware of the following:

1. Do not add fertilizer to grassy swales.
2. Do not use synthetic pesticides on grassy swales.

Stormwater Detention Swale Calculations

This spreadsheet is used to size stormwater treatment swales. Swale size is based on the following stormwater design considerations as required by the the Stormwater Management requirements of the City of Ponderay, Idaho Swale provides the required storage/detention volume and detention time to attenuate the peak runoff rate to pre-development conditions for a 25-year storm.

1.0 CONDITION A: DETENTION VOLUME

The Rational Method ($Q=CIA$) is used to determine the existing and developed runoff rates and the Bowstring Method is used to calculate the detention volume required to attenuate the runoff rate.

1.1 Intensity, I

Rainfall intensity is determined from the ITD Intensity-Duration-Frequency (IDF) Curve and the appropriate Zone, Return Period, and Duration. Refer to sheet "RAIN INTENSITY"

Zone = **C**

Return Period = 25-years

Duration = Time of Concentration (T_c) for the basin being analyzed

T_c = 6 min

Note: min allowable time of concentration = 5min, check sheet "TIME OF CONCENTRATION"

I = 2.7 inches/hour

1.2 Areas, A

Total Basin Area = **44,560** square feet

A = 1.02 acres

1.3 Weighted Runoff Coefficient, C

EXISTING / UNDEVELOPED				PROPOSED / DEVELOPED			
Area Description	Acres	Square Feet	Runoff Coefficient	Area Description	Acres	Square Feet	Runoff Coefficient
Natural Slope	1.023	44,560	0.2	Natural Slope	0.000	0	0.2
Cut Slope (turf)	0.000	0	0.3	Cut Slope (turf)	0.000	0	0.3
Fill Slope (turf)	0.000	0	0.3	Fill Slope (turf)	0.000	0	0.3
Gravel Road (rolling)	0.000	0	0.6	Gravel Road (rolling)	0.348	15,180	0.6
Pavement and Roofs (rolling)	0.000	0	0.9	Pavement and Roofs (rolling)	0.674	29,380	0.9
Total Area / Weighted C	1.023	44,560	0.20	Total Area / Weighted C	1.023	44,560	0.80

1.4 Runoff Rates, Q (25-year storm)

$Q_{existing} = C I A = 0.55$ CFS

$Q_{developed} = 2.20$ CFS

1.5 Bowstring Method for Detention Basin Volume

1	2	3	4	5	6	7	8
Time	Time	Intensity	$Q_{developed}$	Vol In	Vol Out	Storage	Swale Area
min.	sec.	25 yr. in/hr	$A \cdot C^3$ CFS	see below CF	$Q_{existing} \cdot \#2$ CF	#5-#6 CF	#7/0.5' SF
5	300	2.85	2.33	935	166	769	1539
10	600	2.10	1.71	1238	331	907	1813
15	900	1.70	1.39	1418	497	921	1843
20	1200	1.45	1.18	1565	663	902	1804
25	1500	1.30	1.06	1721	829	893	1785
30	1800	1.15	0.94	1804	994	810	1620
35	2100	1.07	0.87	1941	1160	781	1561
40	2400	0.97	0.79	1997	1326	671	1342
45	2700	0.90	0.73	2073	1491	582	1163
50	3000	0.85	0.69	2166	1657	509	1018
55	3300	0.80	0.65	2234	1823	412	823
60	3600	0.75	0.61	2278	1989	290	580

Note: Vol In = $1.34 \cdot Q \cdot \text{Time}$ for Time less than or equal to T_c
 Vol In = $(Q_{dev} \cdot \text{Time}) + (0.34 \cdot Q_{dev} \cdot T_c)$ for Time greater than T_c

Required Detention Volume to Attenuate the 25 yr. Storm =

921 CF