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FORGECIVIL.COM

August 6, 2019

Department of Public Works, City and Borough of Sitka
100 Lincoln Street
Sitka, AK 99835
Attn: Dave Longtin



Subject: **Miller Subdivision, Lot 3**
Grading plan and stormwater calculations

Dear Dave:

The owner of a property in the Miller Subdivision, off Anna Drive, would like to subdivide it into two separate properties. We would like to submit this grading and drainage plan for the two new properties.

The property has an existing single-family home on it, on the upper portion (31,253 SF), which would become Lot 1. Lot 2 would be comprised of the lower 27,599 SF. The owner plans on building another single-family home on Lot 2, and has proposed the location based on the access and lot contours.

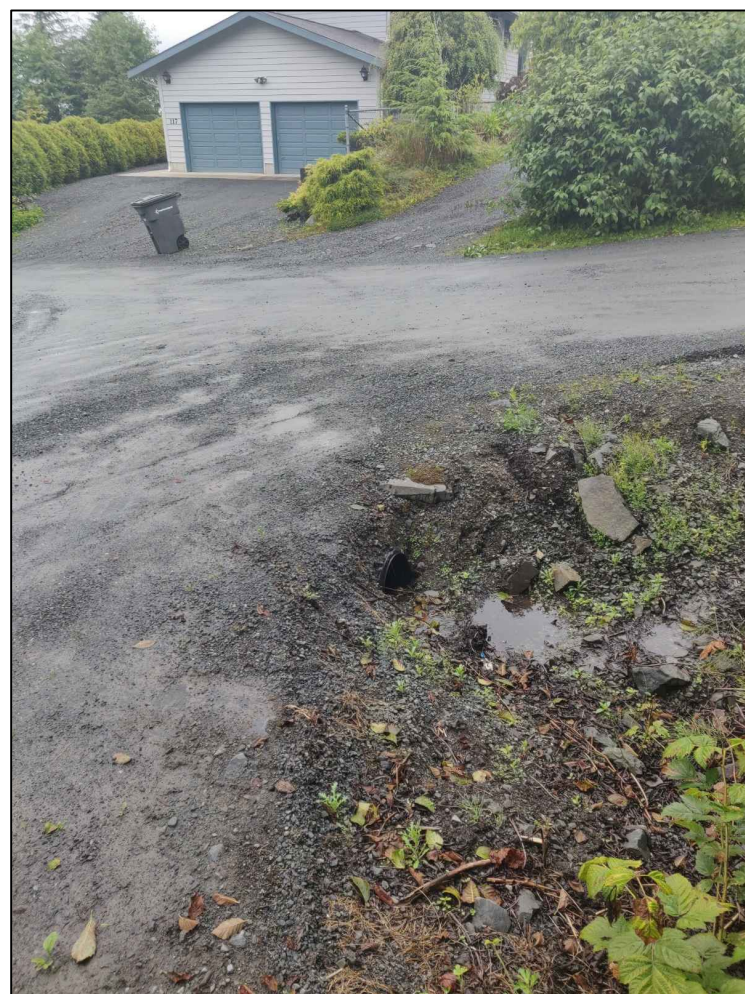
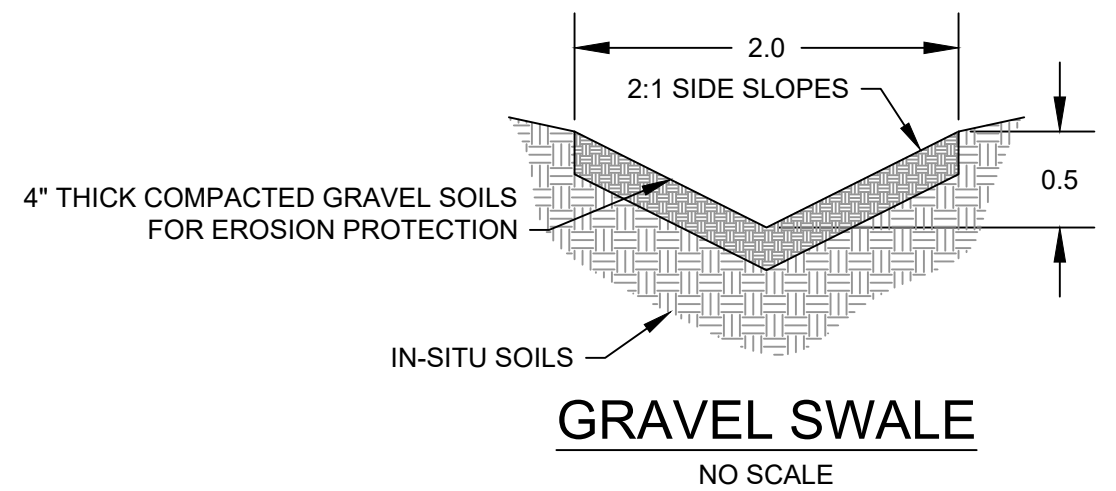
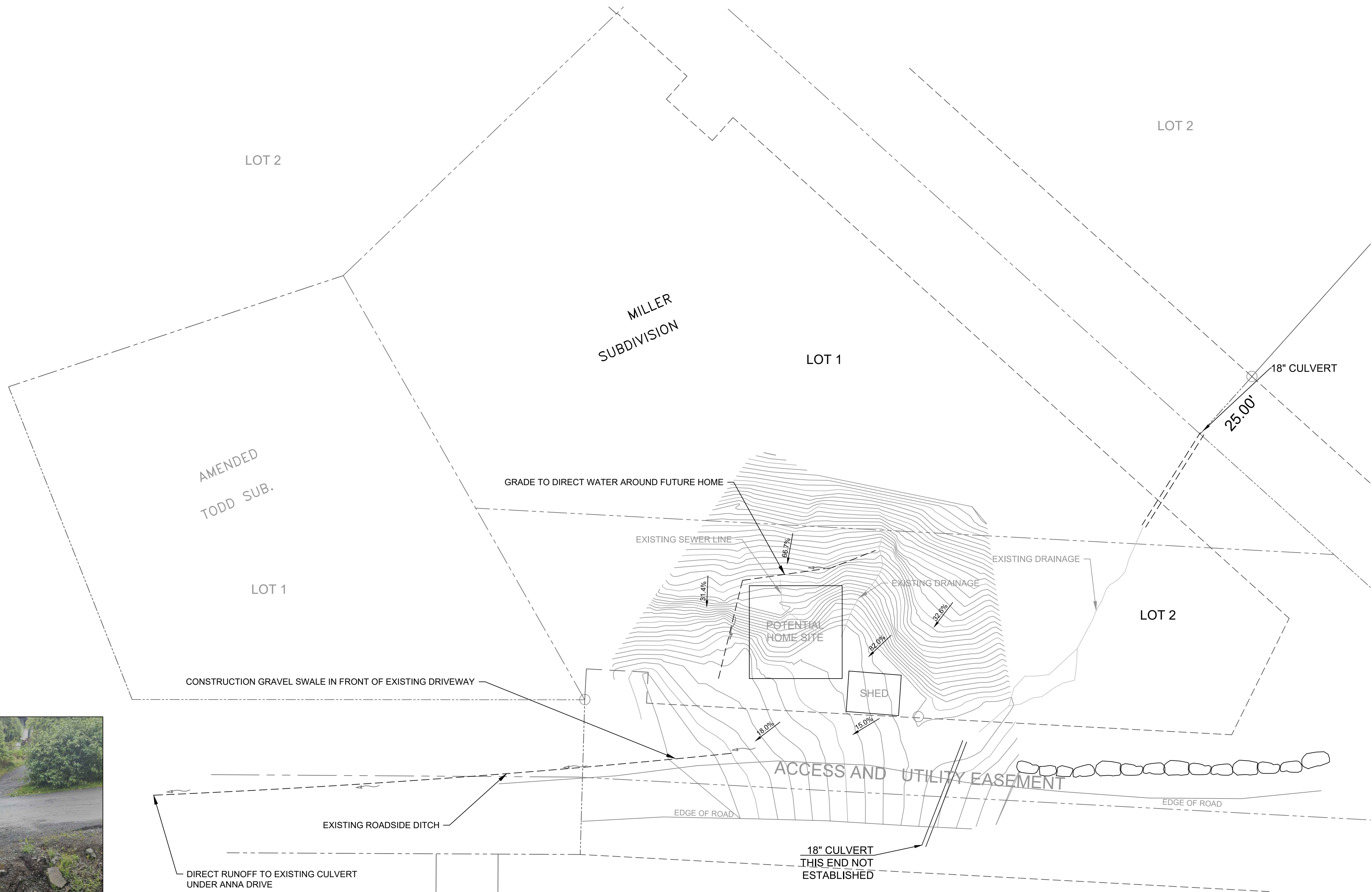
Both proposed lots currently drain into small intermittent streams that run through the property. There is a small stream on the east side that enters into a culvert under Anna Drive. Unfortunately, the contours of the lot prevent directing the new runoff into that drainageway. Instead, we propose building a gravel swale along the front of the lot, to channel the water along the north side of the (gravel) access road. This swale will cross in front of the existing driveway for the neighbor to the west, and enter into the existing drainage ditch along that side of the road, which channels drainage into a culvert and the Sitka storm drain system.

According to calculations by the EPA's SWMM program, the 10-year, 24-hour storm will generate a peak of 2.27 CFS of runoff. Using Manning's equation for a 'trapezoidal' channel, actually a V-shape with 2:1 side slopes and modeled as lined with gravel, a swale 6" deep will have the capacity to channel 31.0 CFS. This is sufficient to direct the flow from this property.

Please refer to the attached plan and program printouts. Please contact me with any questions.

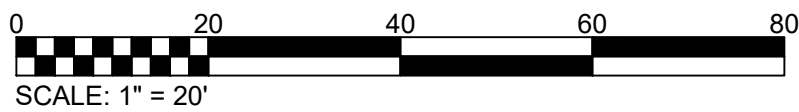
Sincerely,

Benjamin Schiller, PE



EXISTING CULVERT

MILLER SUBDIVISION GRADING PLAN
SCALE: 1"=20'



VERIFY SCALE THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" 1" IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.	DAN FALVEY 315 Seward St, Suite B Sitka, AK 99835 907-747-6274	 PO BOX 2201 SITKA, AK 99835 907-522-7773		MILLER SUBDIVISION, LOTS 1--2			
				GRADING AND DRAINAGE PLAN			
				HORZ SCALE: 1"=20' VERT SCALE: N/A	DATE: 7-30-2019	GRID: _____	SHEET C1
				PERMIT #			

S U M M A R Y S T A T I S T I C S

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Object System
Variable Runoff (CFS)
Event Period Variable
Event Statistic Peak (CFS)
Event Threshold Runoff > 0.0000 (CFS)
Event Threshold Event Volume > 0.0000 (ft3)
Event Threshold Separation Time >= 6.0 (hr)
Period of Record 04/20/2013 to 04/21/2013

Number of Events 1
Event Frequency*..... 0.233
Minimum Value 2.265
Maximum Value 2.265
Mean Value 2.265
Std. Deviation 0.000
Skewness Coeff. 0.000

*Fraction of all reporting periods belonging to an event.

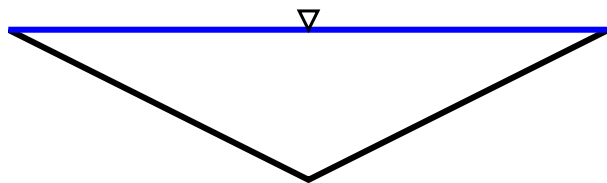
Free Online Manning Formula Trapezoidal Channel Calculator

>> Drop your fears at the door; love is spoken here. <<

Manning Formula Uniform Trapezoidal Channel Flow at Given Slope and Depth

Can you help me translate, program, or host these calculators? (./contact.php) [Hide this request]

Miller Subdivision	
Gravel Swale	
Set units: m mm ft in	
Bottom width	0 ft
Side slope 1 (horiz./vert.)	2
Side slope 2 (horiz./vert.)	2
Manning roughness, n ? (http://www.engineeringtoolbox.com/mannings-roughness-d_799.html)	0.025
Channel slope	8 rise/run
Flow depth	.5 ft
Bend Angle? (/riprap-bend-angle.png) (for riprap sizing)	
Stone specific gravity (2.65)	
Results	
Flow area	0.50 ft ²
Wetted perimeter	2.24 ft
Hydraulic radius	0.22 ft
Velocity, v	61.93 ft/sec
Flow, Q	30.97 cfs
Velocity head, h _v	59.61 ft
Top width, T	2.00 ft
Froude number, F	62.01
Shear stress (tractive force), tau	111.69 psf
Implied design ? riprap size based on n	0.07 ft
Required bottom angular riprap size, D50, Maricopa County	NaN ft
Required side slope 1 angular riprap size, D50, Maricopa County	NaN ft
Required side slope 2 angular riprap size, D50, Maricopa County	NaN ft
Required angular riprap size, D50, per Maynard, Ruff, and Abt (1989)	NaN ft
Required angular riprap size, D50, per Searcy (1967)	25.72 ft



Please give us your valued words of suggestion or praise. Did this free calculator exceed your expectations in every way? (./contact.php) [Hide this request]

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