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PLS 5180

STORMWATER MANAGEMENT REPORT

For

PACIFIC COAST HARDWOODS

Attn: Dave Joseph
250 Ocean View Avenue
Santa Cruz, CA 95062

New Saw Mill at
1400 Ranport Road
Watsonville, Santa Cruz County
APN 052-511-06
Job No. 15027
July 2016
Rev: February 2017

REGISTERED PROFESSIONAL ENGINEER
JEFF A. ROPER
No. 41081
CIVIL
STATE OF CALIFORNIA

Existing Site Drainage

The existing parcel is bounded by Highway One to the north, Ranport Road to the south, the headwaters of Harkins Slough to the east and commercial property to the west. The site consists of 2 relatively level bench pads, the west pad being approximately 40 feet higher in elevation that the east pad.

The area surrounding the pads slope away from the level areas in all directions. There are drainage ditches along Ranport Road and Highway One that drain to Harkins Slough. Harkins Slough has a 100 year flood level of 17.0 feet as shown on the civil plans.

The west pad is currently being used by a tree pruning company and will continue to utilize this location. The east pad will be developed for the saw mill as shown on the preliminary civil and architectural plans.

Proposed Drainage

The project development will be split into four phases. Our preliminary civil plans assume full build out of all phases. Four new buildings are proposed, two 5000 sf warehouses, one 5000 sf saw mill building and one 864 sf office building along with asphalt paths and baserock driveways. We propose to collect all the runoff from the roof downspouts and direct them to the bioretention/detention pond. This pond will be sized to mitigate the 2 to 10 year storm levels.

The Infiltration Report by Rock Solid Engineering gave infiltration rates of 0.08 to 0.3 inches per hour. Due to the low percolation rates of the onsite soils, we propose to provide bioretention at the rate of 4% of the new impervious area.

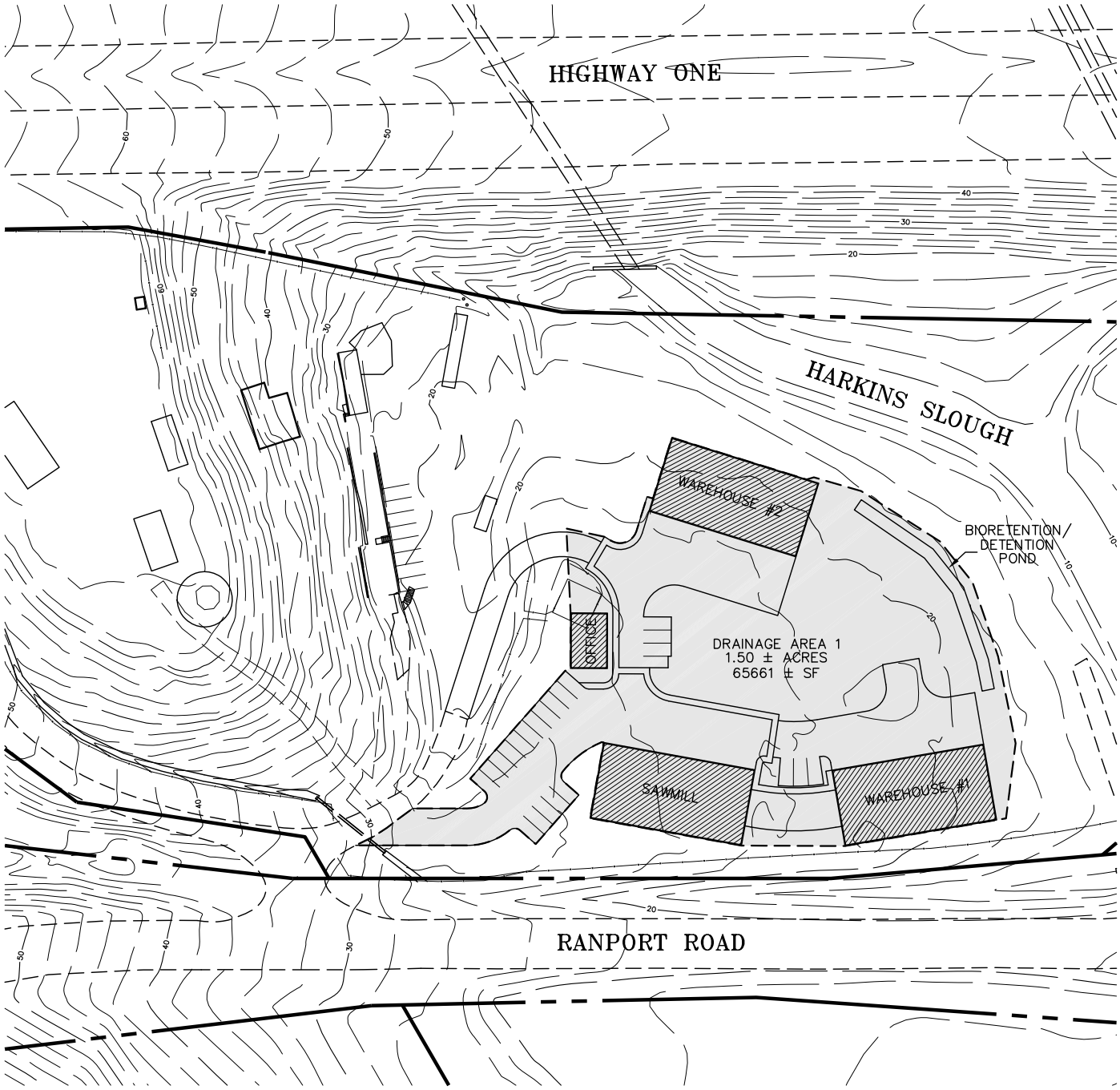
A three foot high berm will be constructed outside the 50’ riparian setback and the 100 year flood level to direct all runoff from the new impervious surfaces through the bioretention/detention pond. This berm will surround the lower bench between warehouses #1 & #2 along Harkin Slough.

Runoff from the lower bench will be intercepted by the new bioretention/detention pond (see attached Drainage Area sketch). This pond will be designed to treat the 2 year storm from the new buildings, baserock and asphalt pavement areas. An Industrial SWPPP will be required for this operation which will describe how the bioretention/detention ponds will be maintained and protected from debris.

Clean overflow runoff water will be allowed to drain through the berm to the Harkins Slough drainage channel. Samples of this runoff will be taken during rain events as specified in the Industrial SWPPP.

Attached is a storm water detention calculation sheet. We utilized a runoff coefficient of 0.5 for the baserock areas. We used half of the new baserock surface areas in determining the new impervious surfaces for bioretention due to the semi-pervious nature of baserock.

CLIENT: PACIFIC COAST HARDWOODS	ROPER ENGINEERING CIVIL ENGINEERING & LAND SURVEYING 64 PENNY LANE, SUITE A WATSONVILLE, CA 95076 (831) 724-5300	JOB NO.: 15027
LOCATION: 1400 RANPORT ROAD		DATE: FEB. 17, 2016
DRAINAGE CALCULATIONS		SHEET: 1 OF 1



DRAINAGE AREAS

SCALE: 1"=100'

0 50 100 200
FEET

CONTOURS ON THIS SHEET ARE BASED UPON AERIAL MAPPING BY THE CITY OF WATSONVILLE DATED 2007
NAVD 1988 DATUM, 2 FOOT CONTOUR INTERVAL

PROJECT: Pacific Coast Hardwoods- APN: 052-511-06 Application: 161014 **Calc by:** JR **Date:** 2/16/2017

RUNOFF DETENTION BY THE MODIFIED RATIONAL METHOD

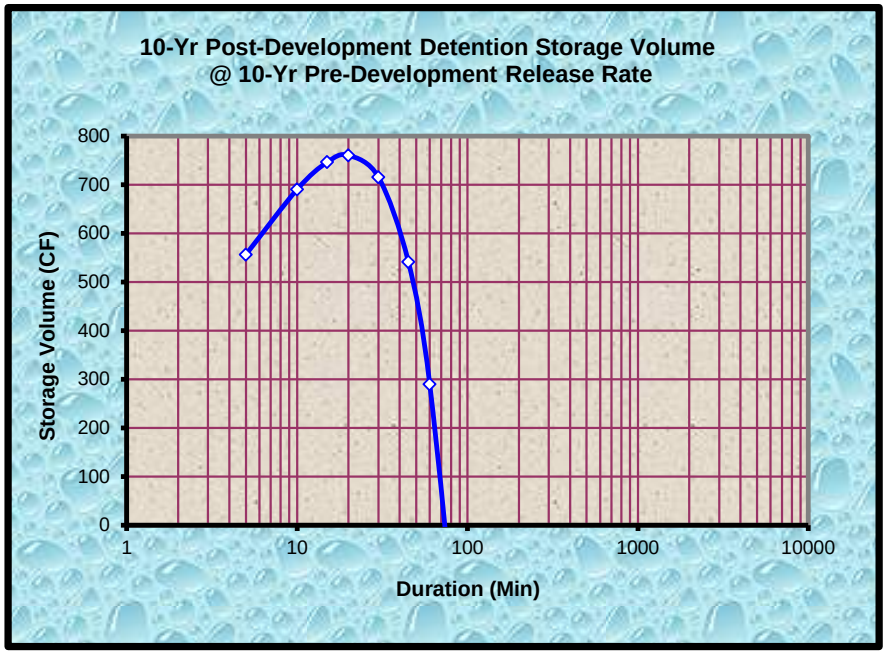
Data Entry: PRESS TAB & ENTER DESIGN VALUES SS Ver: 1.0

Site Location P60 Isopleth:	1.30		Fig. SWM-2 in County Design Criteria
Rational Coefficients Cpre:	0.25		See note # 2
Cpost:	0.51		See note # 2
Impervious Area:	67963	ft^2	See note # 2 and # 4

STRUCTURE DIMENSIONS FOR DETENTION

761	ft^3 storage volume calculated			
100	% void space assumed			
761	ft^3 excavated volume needed			
Structure	Length	Width*	Depth*	*For pipe, use the square
Ratios	95.00	8.00	1.00	root of the sectional area
Dimen. (ft)	**95.02**	**8.00**	**1.00**	

10 - YEAR DESIGN STORM				DETENTION @ 15 MIN.	
Storm Duration (min)	10 - Year Intensity (in/hr)	10 - Yr. Release Qpre (cfs)	10 - Year Qpost (cfs)	Detention Rate To Storage (cfs)	Specified Storage Volume (cf)
1440	0.21	0.084	0.171	-0.467	-50444
1200	0.23	0.091	0.185	-0.453	-40738
960	0.25	0.100	0.205	-0.433	-31199
720	0.29	0.114	0.232	-0.405	-21891
480	0.35	0.136	0.278	-0.359	-12940
360	0.39	0.155	0.316	-0.321	-8678
240	0.47	0.186	0.379	-0.259	-4660
180	0.54	0.211	0.431	-0.207	-2796
120	0.64	0.253	0.516	-0.122	-1098
90	0.73	0.287	0.586	-0.052	-348
60	0.88	0.344	0.702	0.064	290
45	0.99	0.391	0.798	0.160	541
30	1.19	0.469	0.956	0.318	716
20	1.43	0.561	1.145	0.507	**761**
15	1.62	**0.638**	1.301	0.663	746
10	1.94	0.764	1.558	0.921	690
5	2.64	1.040	**2.121**	1.484	556



Notes & Limitations on Use:

1) The modified rational method, and therefore the standard calculations are applicable in watersheds up to 20 acres in size.
2) Required detention volume determinations shall be based on all net new impervious area both on and off-site, resulting from the proposed project. Pervious areas shall not be included in detention volume sizing; an exception may be made for incidental pervious areas less than 10% of the total area.
3) Gravel packed detention chambers shall specify on the plans, aggregate that is washed, angular, and uniformly graded (of single size), assuring void space not less than 35%.
4) A map showing boundaries of both regulated impervious areas and actual drainage areas routed to the hydraulic control structure of the detention facility is to be provided, clearly distinguishing between the two areas, and noting the square footage.
5) The EPA defines a class V injection well as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system. Such storm water drainage wells are "authorized by rule". For more information on these rules, contact the EPA. A web site link is provided from the County DPW Stormwater Management web page.
6) Refer to the County of Santa Cruz Design Criteria, for complete method criteria.