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City of Sebastopol
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M E M O R A N D U M

TO: Melvin K. Davis, City Manager

FROM: Paul L. Schoch, City Engineer

SUBJECT: Laguna Study
Job No. 1186-E001-75

DATE: 16 March, 1988

As per your request I have calculated approximate amounts of fill for the following areas:

Area "A" - Properties West of Morris Street and North of Sebastopol Avenue and fronting on Morris Street.

Area "B" - Properties East of Morris Street and North of Sebastopol Avenue.

Area "C" - Properties South of Sebastopol Avenue and North of railroad tracks including properties from the Laguna or East City limit line to 76 foot elevation.

Area "D" - Properties North of Sebastopol Avenue and West of properties fronting Morris Street to 76 foot elevation.

In all cases, I have assumed that the properties would be filled to 76 feet. No reduction in fill has been assumed for constructing parking areas below 76 feet. In other words, the values which I have computed would be the "worse case" scenario. It also assumes that where properties are already developed, the existing structures would be removed and fill placed on the property to bring the elevation above flooding and to allow a graded pad at 76 feet.

The Laguna Study on Page 2 states "The Laguna drainage basin or water shed is approximately 162,560 acres with a flood basin encompassing 7,000 acres. The flood basin has a storage capacity of 80,000 acre feet of water."

The Sonoma County Water Agency report entitled "Flood", December, 1964/January, 1965, on Page 20 states "However, during flood crest of the river (Russian River) the Laguna de Santa Rosa formed a lake having an area of 7,400 acres and capacity of approximately 80,000 acre feet of water. The Laguna storage reduced Russian River flow by approximately 40,000 cfs, partly as a result of backflow from the Russian River into the Laguna, and partly as a result of detention of runoff of the Laguna Water Shed".

If we assume that the area of the Laguna at approximate 76 foot elevation flood stage is 7,000 acres, with a storage capacity of 80,000 acre feet, the amount of raising of the Laguna due to filling of all lands within the City limits of Sebastopol, can be computed as shown in the following table:

AREA	AREA IN ACRES	ESTIMATED FILL	FILL (In Acre Feet)	EQUIVALENT THEORETICAL RAISE IN LAGUNA LEVEL
"A"	6.5	97,777 C. Y.	61	0.0087 FT.
"B"	12.6	193,888 C. Y.	120	0.0172 FT.
"C"	13.5	69,257 C. Y.	43	0.0061 FT.
"D"	18.3	157,174 C. Y.	97	0.0139 FT.
			321	0.0459 FT.

Based on the calculations, the maximum raise in the Laguna would be 0.05 feet or five-eights of an inch if all properties within Sebastopol were filled to the 76 foot level. However, it can safely be assumed that all of the properties will not be filled. As an example, many of the properties located within Area "C" and "D" have fills of one to three feet. It is more logical that these properties could develop by constructing foundations and floors above the 100-year level of 76 feet, and keep all parking and landscaping at its natural level. This would reduce the amount of fill by a safe estimated 50%. Even for Areas "A" and "B", which need the greatest amount of fill, economic design would call for the parking lot to be below the 76 foot level. Therefore, I believe it would be safe to assume that the maximum equivalent rise in the Laguna due to filling in Sebastopol would be closer to 0.03 feet or 3/8 of an inch.