2 APR 1982

[illegible]: Bennie Clavelaux, Dames and Moore

[illegible]: Bill Locke, Project Officer

[illegible]: Skagit County and Wenatchee, WA

At the request of FEMA Region 10, we wish to have Dames and Moore perform two minor investigations as discussed below:

Skagit County, WA

As a result of meetings held in Region 10 during the week of March 15, 1982 it was determined that a conventional floodway would not be established for the communities within the Skagit Delta area. These include Skagit County, the cities of Burlington and Mt. Vernon, and possibly others. The maps for these communities should show floodways delineated to include only the main channel of the Skagit river and the levees. Thus, the floodway should be delineated at the inside toe (protected side) of the levees.

The Regional office will establish several flood plain management requirements designed to maintain conveyance within the delta area. One of these requirements will be a density limitation criteria. Dames and Moore is to assist the Regional office in establishing this criteria for one or more subdivisions of the delta area. In conducting this analysis, Dames and Moore will be limited to the use of the appropriate density floodway method established by HUD (Appendix 2 of "Hydraulic Methods for Evaluating Density Floodways). You will also be limited to the use of available hydraulic and topographic information for the delta area. Hydraulic depths across sheet flow areas and energy slopes should be estimated from the existing work maps developed by the study contractor and available topographic mapping. You should coordinate with the Regional office prior to and during the analysis in order to determine whether a simple set of density parameters is appropriate for the entire delta area, or whether the delta should be subdivided to accomodate the existing zoning plan. Please keep Brian Mrazik informed of your progress on this task.

Wenatchee and Chelan County, WA

During a field visit during the week of March 15, 1982, it became apparent that the alluvial fan flooding analysis in these communities should receive further consideration. Field observations of the topography in Wenatchee indicated an area in the southern part of the City which was quite flat between elevations 200 and 220. This is not characteristic of alluvial fans which have a distinct uniform contour spacing. Likewise, the areas immediate of this point were steeper than those inshore, which is also not characteristic of alluvial fans. Further investigation by soil sampling, observation of excavation sites, and discussion with local SCS personnell indicated that the alluvial materials in

much of the lower areas of the city were deposited by the Columbia River and did not originate from the canyons. Likewise, the flat areas in the middle of the city are apparently old river terrances, as evidenced by the presence of varved clays in the subsurface materials. These observations suggest that the alluvial fan below Dry Gulch probably terminates at approximately 910 ft elevation. This may move the AO/A zone interface significantly upslope from its current position in that part of the City.

Another observation is that the extensive development on the Wenatchee fans will tend to reduce the propensity for avulsion during flood events. An avulsion coefficient of 1.5 was used on the Wenatchee fans. Based on the extensive development there, which extends farther up the fans than is indicated on the 1966 U.S.G.S. topographic mapping, it is believed that an avulsion coefficient as low as 1.0 can be supported, and that the effects of such a reduction should indeed be evaluated.

The FIRMs for the City of Wenatchee and Chelan County were prepared using U.S.G.S. topographic mapping. More detailed topographic mapping is now available for much or all of the alluvial fan areas which were studied. It is recommended that Dames and Moore utilize the new mapping in conjunction with the SCS Soil Survey report for the Chelan Area to redefine the limits of alluvial fan flooding. Also, the flooding depths and velocities should be recomputed utilizing a avulsion coefficient of 1.0. These changes should then be transmitted to the FEMA central and regional offices for review. Upon concurrence of both offices with the revisions, the formal map revision process should be initiated.

Please coordinate with the Regional Office and Brian Mrazik regarding this analysis. Please advise me of the estimated costs of these tasks.

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