EXHIBIT B-3

GOLDEN BEAR BIOSTUDIES

STREAM CLASSIFICATION

MACKENZIE-MUELLER VINEYARD (CLOS PEGAS) IN NAPA COUNTY

Prepared for Robert Mueller
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I. INTRODUCTION

A. PROJECT DESCRIPTION

MacKenzie-Mueller Vineyard has proposed to install a vineyard on its 65-acre property in Napa County (Assessor's Parcel 047-280-017-000, Erosion Control Plan 00187), shown in the aerial photograph in Figure 1. The approximate location of the property and a rough sketch of the existing reservoir on the property are indicated on a portion of the USGS 7.5 minute topographic map Cuttings Wharf in Figure 2. The property lies in the watershed of an unnamed waterway that enters the Napa River between Steamboat Slough and Fagan Slough.

B. PURPOSE

This study attempts to classify a waterway present on the subject vineyard according to Napa County Ordinance No. 1204. The ordinance specifies setback of various distances depending on the classification of the waterway under consideration. The need for this study arises from MacKenzie-Mueller Vineyard's proposal to install a vineyard adjacent to an area that formerly had been mapped as a dashed blue line stream on the Cuttings Wharf quad (Figure 3).

C. LITERATURE SEARCH

The State Water Resources Control Board was prepared conducted and approved an Initial Study in 1992 (Applications 29391 & 29603). Although the study included a description and impact assessment for the subject area proposed for a vineyard, the only reference to any riparian habitat is for "Carneros Creek and it blue line tributary. If any riparian habitat had existed in the subject drainage, it would have been noted.

II. ENVIRONMENTAL SETTING

A. DESCRIPTION

There is no surface channel conveying runoff or streamflow on the property at the proposed vineyard site. The entire length of the waterway on the property has been routed through and underground culvert. Sheet flow from storm events is collected via drop inlets, which a routed underground to a reservoir constructed at the southern portion of the property in 1989. Overflow from the reservoir continues on to the Napa River, several miles south of the site. No upstream flow enters the culvert because an upstream reservoir captures any flow that may have entered the property from the original watershed. (Figures 1-2). It is important to note the watershed has been highly altered with drainages captured and/or truncated for irrigation and agricultural drainage improvement. As a result, there are no vestiges of a channel of any kind at the site.

Other drainage improvements were completed in 1992 and run most of the length of the eastern property line. All of these activities were conducted after obtaining all applicable County and Department of Fish and Game (DFG) permits.

B. U. S. GEOLOGICAL SURVEY DATA

The County bases its stream classification, in part, on whether the subject waterway appears as a "blue line stream" on U. S. Geological Survey (USGS) maps. The USGS 15 min. Cuttings Wharf topographic quadrangle was originally mapped in 1951; photorevised in 1968 and photoverified in the 1970's. The map shows a dashed blue-line stream flowing southerly through lands that are now in part vineyard and the subject proposed vineyard-planting area (Figure 2). At some point in the 1990's, the flow of this waterway was captured and diverted into an underground culvert that flows north to south that discharges into the reservoir.

The USGS defines the dashed blue-line waterways that can occur on their maps (Figure 1) as follows (see http://capp.water.usgs.gov/GIP/h2o_gloss/):

Arroyo/Wash - A small, deep, flat-floored channel or gully of an ephemeral or intermittent stream, usually with nearly vertical banks cut, into unconsolidated material. A term commonly used in the arid and semiarid regions of the Southwestern United States.

Ephemeral stream - A stream or part of a stream that flows only in direct response to precipitation; it receives little or no water from springs, melting snow, or other sources; its channel is at all times above the water table.

Intermittent stream - A stream that flows only when it receives water from rainfall runoff or springs, or from some surface source such as melting snow.

Since the same map symbol applies to all of the above definitions, it is uncertain which applies to the previously occurring blue line stream. Given this wide range of hydrologic environments and flow regimes, it is equally possible that the dashed blue-lined stream that is shown as previously occurring on the site (Figure 3) represents an intermittent or ephemeral stream or a wash. The present day classification of the subject channel that presumably replaced the previously existing stream is more likely to be considered an ephemeral stream or a wash.

It is impossible to assign a stream type to the dashed blue line stream since there is no obvious difference in preparing the legend indications used by the USGS for topo maps when reading the symbols for intermittent stream and narrow wash. According to the USGS, if the symbol used (dotted and dashed line) does not connect with another intermittent, perennial stream or otherwise, it would be classified as a wash (David Howell, USGS; personal communication).

In addition, these USGS topos would not hold up in a court of law, as they are not produced by physical inspection or survey of the land, rather were produced by aerial photographs being taken and topographic details being defined by the interpretation of those photos.

C. HISTORICAL AERIAL PHOTO EVIDENCE

There is no riparian vegetation evident on an aerial photo taken prior to the culverting of the drainage (Figure 4). The linear features probably correspond with the blueline features for the Cuttings Wharf quad (Figure 2). However, the darker signatures indicate possible seasonal wetlands, but are not suggestive of the patterns larger riparian trees would make. In any event, these darker patches are discontinuous and do not suggest a well-developed riparian corridor.

D. LEVEL OF DISTURBANCE

The Cuttings Wharf quad (Figures 2-3) was originally mapped in 1949 and photorevised in 1981. At that time, at least three reservoirs had been constructed upstream o the proposed vineyard. At present, at least three more have been constructed upstream and one at the downstream edge of the site (Figure 1). These reservoirs have drastically altered whatever previously existing hydrology was present for the original drainage.

III. STREAM CLASSIFICATION

A. PROVISIONS OF COUNTY ORDINANCE

The Interim Urgency Ordinance Of The Board Of Supervisors (No. 1204) affects the planting of new vineyard at the site according to the following stipulations;

"Until May 2, 2003, no building permit, grading permit, sewage permit, well drilling permit, erosion control plan or other permits or entitlements necessary for development of any new structure, accessory structure, new vineyard, earthmoving or land conversion activities, shall be issued or approved by any employee, department, or body of the County on land in the unincorporated area of the County and located within the Napa River Watershed as shown on the map entitled "Napa River Watershed" attached as Exhibit "A" and incorporated here by reference unless the project complies with the regulations, restrictions and prohibitions described herein or is exempt under Section 7 below."

"Any earthmoving activity (as that term is defined in Section 18.108.030 of the County Code) shall be prohibited within 150 feet of the top of the high bank of all Class I and II streams as defined herein and within 25 feet of the top of the high banks of all Class III streams as defined herein."

Class I, II and III streams shall be defined as follows:

Class I stream *– A perennial stream that serves a domestic water supply; a spring that serves a domestic water supply; and/or a stream where fish are always or seasonally present onsite, and habitat to sustain fish migration and spawning exists.*

Class II stream *– A perennial or intermittent stream where fish are always or seasonally present; a stream where habitat for aquatic vertebrates and/or macro-invertebrates exists; a stream that is not a Class I stream but is identified as a "blue line stream" (blue solid line, blue dash and 3 dots or similar stream symbol) on the largest scale of the US Geological Survey Topographic Map covering the area most recently published; and/or a stream that is not a Class I but has a well-defined channel that is deeper than 4 feet with banks steeper than 3:1 and contains hydrophilic vegetation or is bordered by riparian vegetation or woody vegetation including tree species greater than 10 feet in height.*

Class III stream *– An intermittent or ephemeral watercourse showing evidence of a defined bed and banks, annual scour, and capacity to transport sediment to Class I and II streams.*

Natural watercourses that have been modified or re-aligned are not considered ditches, channels, canals or culverts and retain their original classifications.

B. ASSESSMENT OF THE SUBJECT WATERWAY

Since the site has no waterway to give any clues or evidence to indicate the hydrologic regime of the previously occurring dashed blue-line drainageway, it is impossible to estimate whether the original waterway was perennial, intermittent or ephemeral/wash. However, since it is presumed that the original blue line stream was a natural watercourses that has been modified or re-aligned, it will not be considered a culverts, but must retain its original classification.

It is probable the original waterway exhibited at a minimum the characteristics of an ephemeral stream (Figure 4), and would most likely meet the criteria for a Class III stream Napa County Ordinance No. 1204.

Ordinance 1204 defines any blue-line stream from a USGS quadrangle as a Class I or II stream. The subject waterway is not a Class I stream because it is not a perennial stream (Figures 4-7). The present-day channel lacks the aquatic and/or riparian functions and values the ordinance seeks to protect in Class II streams. Implicit in the definition of a Class II stream is that it be at least intermittent and provide habitat for the seasonal presence of fish and/or aquatic vertebrates or macro-invertebrates (Section Five, Ordinance 1204). The USGS did not use these criteria for mapping blue line streams, so it is unclear whether all blue-line streams consistently possessed the resources the ordinance seeks to protect. It is not possible to determine what criteria USGS used to map the stream in the 1950's. Therefore, the best assessment of the subject waterway would be limited to consideration of the present day situation, and not presumptions that cannot be proven.

Nonetheless, the Ordinance implies that any waterway created as a result of modifying a natural waterway retains the original classification. By arbitrarily assuming blue-line streams mapped by USGS possessed the characteristics of at least a Class II stream, the subject waterway would inadvertently be mis-classified as Class II instead of properly classified as a Class III.

Application of the criteria in the "Stream Setback Technical Memo" (Jones and Stokes, 2002) further supports the drainage as a Class III waterway. Figure 1 of that report shows Class III streams as tributary to tributaries of the main stem of creek and rivers. Figure 2 of this report shows the subject drainage as a tributary to a tributary of the Napa River in the lowlands south of Cuttings Wharf (Figure 2, this report).

Confounding this analysis is verbiage from County staff about issues and comments raised to-date regarding the proposed stream setback revision ordinance (Napa County, 2002). In particular, the following text implies there could possibly be a "0" setback for this proposed vineyard: "Moreover, the setback approved for a stream section longer than 300 feet that is culverted or otherwise placed completely underground may be reduced to zero."

IV. CONCLUSION

An aerial photo of the pre-culverting condition does not indicate the presence of well-developed riparian vegetation. The USGS has a broad general criteria for the mapping of dashed blue-line streams that range from dry washes to well developed creeks, thus their maps do not provide with any degree of confidence the pre-existing drainage characteristics. The hydrology of the watershed has been drastically altered by the construction of several reservoirs upstream of the proposed vineyard. The entire length of the pre-existing channel has been culverted for approximately 3,500 feet. Given the lack of compelling evidence the drainage would qualify as a Class II, the drainage should either be treated as a Class III stream or be given a 0 setback due to the culvert exceeding 300'.

In summary, given the existing environment, our best interpretation of the historic conditions and the application of the Ordinance and technical memo, it is our conclusion that the drainage is either a Class 3 stream, or exempted from setbacks, i.e. a "0" setback.

V. REFERENCES

Napa County. October 30th, 2002. Proposed Stream Setback Revision Ordinance Issues and Comments Raised To-Date. Napa County Staff Responses 10/30/02 Planning Commission Hearing

Jones and Stokes. October, 2002. Stream Setback Technical Memo.

Figure 1. Aerial Photo of Site as it Appears in Current Context

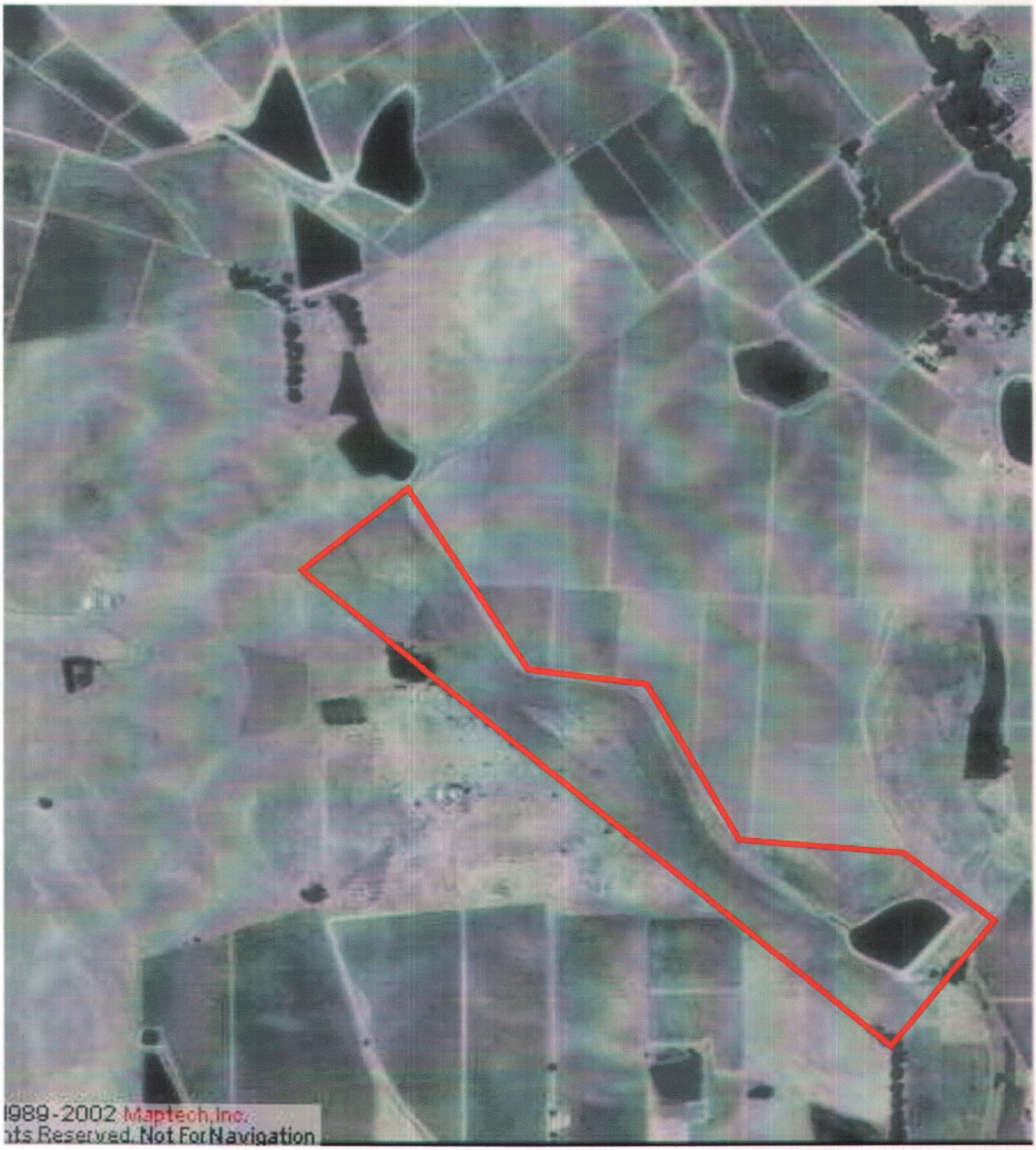

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Figure 2. Site in Context of Drainages, Cuttings Wharf USGS Quad

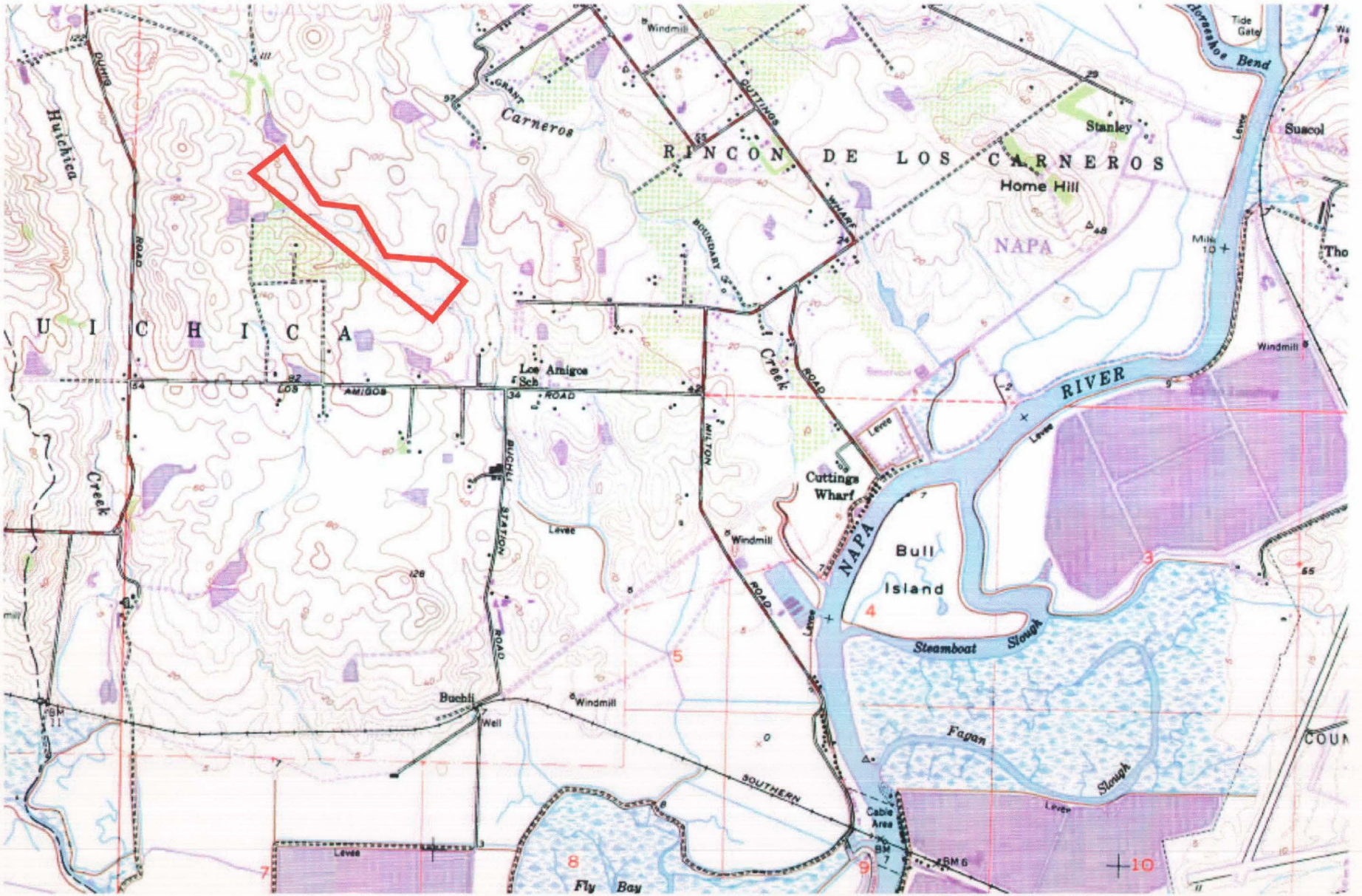

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Figure 2. Detail of Site as it apears in Cuttings Wharf Quad

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Figure 4. Topographic Map and Aerial Photo as Site Appeared Prior to Culverting of the Pre-existing Drainages

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DREW

Notification No. 5-__-90 THP No. _____

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AUG 23 1990

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Walsh Vineyards Management, Inc. Represented By Mr. Michael Walsh of Napa, State of California, hereinafter called the operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the operator, on the 2nd day of August, 1990, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of, the following water: Un-Named Stream, in the County of Napa, State of California, S____ T____ R____. APN 047-280-17

WHEREAS, the Department (represented by D. Edwards has made an inspection of subject area on the 15th day of August, 19 90 and) has determined that such operations may substantially adversely affect existing fish and wildlife resources including: Siltation of downstream areas from Construction Activity.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the operator's work. The operator hereby agrees to accept the following recommendations as part of his work: Numbers 1, 2, 3, 8, 10, 12, 16, 17, 19, 20, 21, 22 from the list of recommendations on the back of this page and the following special recommendations:

1. All work in or near the stream or lake shall be confined to the period Upon Signature By Both Parties Through December 31, 1990 Except that No Work Shall be done during periods of wet weather.

2. This project is to Stabilize a dry wash with Erosion Control Measures, As directed by Biologist Engineers, on the Above Property.

STORNETTA POND & STREAM WORK
SEE P. 2 FOR CONDITIONS

RECEIVED

AUG - 3 2001

NAPA CO. CONSERVATION DEVELOPMENT & PLANNING DEPT.

The operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractors and subcontractors and must be in their possession at the work site.

If the operator's work changes from that stated in the notification specified above, this agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the operator to trespass on any land or property, nor does it relieve the operator of responsibility for compliance with applicable federal, state, or local laws or ordinances.

THIS AGREEMENT IS NOT INTENDED AS AN APPROVAL OF A PROJECT OR OF SPECIFIC PROJECT FEATURES BY THE DEPARTMENT OF FISH AND GAME. INDEPENDENT REVIEW AND RECOMMENDATIONS WILL BE PROVIDED BY THE DEPARTMENT AS APPROPRIATE ON THOSE PROJECTS WHERE LOCAL, STATE, OR FEDERAL PERMITS OR OTHER ENVIRONMENTAL REPORTS ARE REQUIRED.

This agreement becomes effective on Upon Signature By both parties

Operator _____

Title Partner

Organization _____

Date 8/15/90

Department Representative

Title Fish & Game Warden

Department of Fish and Game, State of California

Date 8-15-90

RECOMMENDATIONS

1. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. The disturbed portions of any stream channel or lake margin within the high water mark of the stream or lake shall be restored to as near their original condition as possible.

2. Restoration shall include the revegetation of stripped or exposed areas.

3. Rock, riprap, or other erosion protection shall be placed in areas where vegetation cannot reasonably be expected to become reestablished.

4. Installation of bridges, culverts, or other structures shall be such that water flow is not impaired and upstream or downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade. Bottoms of permanent culverts shall be placed below stream channel grade.

5. Plans for design of concrete sills and other features that could potentially impede fish migrations must be approved by Department engineers.

6. When any dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife below the dam.

7. An adequate fish passage facility must be incorporated into any barrier that obstructs fish passage.

8. Any temporary dam (any artificial obstruction) constructed shall only be built from material such as clean gravel which will cause little or no siltation.

9. No equipment will be operated in live stream channels.

10. Equipment shall not be operated in the stream channels of flowing live streams except as may be necessary to construct crossings or barriers and fills at channel changes.

11. When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, temporary culvert, and/or a new channel capable of permitting upstream and downstream fish movement. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. Channel banks or barriers shall not be made of earth or other substances subject to erosion unless first enclosed by sheet piling, rock riprap, or other protective material. The enclosure and the supportive material shall be removed when the work is completed and the removal shall normally proceed from downstream in an upstream direction.

12. Temporary fills shall be constructed of nonerodible materials and shall be removed immediately upon work completion.

13. Equipment shall not be operated in the lake or its margin except during excavation and as may be necessary to construct barriers or fills. If work in the lake is unavoidable, a curtain enclosure to prevent siltation of the lake beyond the immediate working area shall be installed. The enclosure and any supportive material shall be removed when the work is completed.

14. Silt settling basins shall be located away from the stream or lake to prevent discolored, silt-bearing water from reaching the stream or lake.

15. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

16. Wash water containing mud or silt from aggregate washing or other operations shall not be allowed to enter a lake or flowing streams.

17. a) A silt catchment basin shall be constructed across the stream immediately below the project site. This catchment basin shall be constructed of gravel which is free from mud or silt.

b) Upon completion of the project and after all flowing water in the area is clear of turbidity, the gravel along with the trapped sediment shall be removed from the stream.

18. If operations require moving of equipment across a flowing stream, such operations shall be conducted without substantially increasing stream turbidity. For repeated crossings, the operator shall install a bridge, culvert, or rock-fill crossing as specified in comments below.

19. If a stream channel has been altered during the operations, its low flow channel shall be returned as nearly as possible to its natural state without creating a possible future bank erosion problem or a flat wide channel or sluice-like area. If a lake margin has been altered, it shall be returned as nearly as possible to its natural state without creating a future bank erosion problem. The gradient of the streambed or lake margin shall be as nearly as possible the same gradient as existed prior to disturbance.

20. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.

21. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any logging, construction, or associated activity of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

22. The operator will notify the Department of Fish and Game of the date of commencement of operations and the date of completion of operations at least five days prior to such completion.