

CITY OF SANTA ROSA
P.O. Box 1678
Santa Rosa, CA 95402

OCT 07 1996

DEPARTMENT OF
COMMUNITY DEVELOPMENT

ESTERO MUTUAL WATER COMPANY
WILLIAM R. WALTON III
REPRESENTATIVE
P.O. BOX 75
DILLON BEACH CA 94929
(707) 878-2660

WRWIII

5 OCT 96

MARIE MEREDITH
CITY OF SANTA ROSA
COMMUNITY DEVELOPMENT DEPARTMENT
P.O. BOX 1678
SANTA ROSA CA 95402-1678
(707) 543-3181

SUBJECT: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTEWATER PROJECT

MARIE MERIDITH:

IT IS REQUESTED THAT THIS LETTER BE INCLUDED WITH THE COMMENTS ON THE DRAFT EIR/EIS ON THE SANTA ROSA SUBREGIONAL LONG TERM WASTEWATER ANALYSIS.

001

ESTERO MUTUAL WATER COMPANY (EMWC) WOULD BE SERIOUSLY DAMAGED BY A DAM FAILURE OF THE TWO ROCK OR HUNTLEY DAM. YOUR STATEMENTS AND MAPS IN THE DEIR/EIS CLEARLY SHOW THAT EMWC'S DRINKING WATER COLLECTION FACILITIES ON THE BANKS OF THE ESTERO DE SAN ANTONIO WOULD BE INUNDATED AND DESTROYED.

REFERENCE VOL II, PARA 4.3, FIG 4.3-1, "REGIONAL FAULTS", (INCL 1)
REFERENCE VOL III, PARA 4.19, PG 3, PARA 2, (INCL2), "A PROBABILITY ANALYSIS ... OF THE DAM COULD RESULT." THIS PARAGRAPH REFERS TO A DAM IN SOUTHERN CALIFORNIA WHICH BEARS NO RELATION TO THE FAULTS OR LOCAL GEOLOGY OF THE TWO ROCK OR HUNTLEY AREAS. EARTHQUAKE SCIENCE IS UNRELIABLE IN PREDICTING THE LOCATION, TIMING, OR STRENGTH OF AN EARTHQUAKE WHICH COULD OCCUR TOMORROW OR NEVER. AND THIS PARAGRAPH FURTHER STATES THAT THERE REMAINS A POSSIBILITY THAT DAM FAILURE COULD OCCUR AND THAT INUNDATION OF AREAS DOWNSTREAM COULD RESULT. THE LOCATION OF EMWC'S COLLECTION POND, PUMP AND DIVERSION BARRIER IS UNMISTAKABLY IN THE PATH OF DESTRUCTION. THESE FACTS ALONE SHOULD ELIMINATE THE HUNTLEY AND TWO ROCK RESERVOIR SITES FROM CONSIDERATION. SEE THE RED "X" MARKED ON FIGURES 4b (INCL 6) AND 9b (INCL 8).

REFERENCE VOL III, PARA 4.19, PG 5, PARA "TWO ROCK", (INCL 3).

REFERENCE VOL X, APP J-1, FIG 4a & 4b, (INCL 6)

THIS PARAGRAPH STATES THAT THE FLOOD WATERS WOULD BACK UP SEVERAL TRIBUTARIES TO STEMPLE CREEK AND ESTERO DE SAN ANTONIO AND WOULD FLOOD SEVERAL BUILDINGS BETWEEN TWO ROCK AND BODEGA BAY. ONE OF THESE TRIBUTARIES IS THE UNNAMED TRIBUTARY TO WHICH EMWC HAS RIPARIAN RIGHTS. EMWC DIVERTS THE FRESH WATER TO ITS COLLECTION POND AND THEN PUMPS IT TO AN ELEVATION OF 400 FEET INTO THE RESERVOIR. ONE OF THE BUILDINGS THAT WOULD BE INUNDATED WOULD BE THE PUMP HOUSE AND ITS ELECTRIC PUMP.

REFERENCE VOL III, PARA 4.19, PG 6, PARA "HUNTLEY", (INCL 4).

REFERENCE VOL X, APP J-1, FIG 9a & 9b, (INCL 8).

THIS PARAGRAPH STATES THAT THE WORST CASE SCENARIO WOULD BACK UP SEVERAL TRIBUTARIES TO STEMPLE CREEK AND ESTERO DE SAN ANTONIO. THIS WOULD INCLUDE OUR UNNAMED TRIBUTARY AND WOULD DAMAGE EMWC FACILITIES AS STATED IN THE PARAGRAPH ABOVE.

EMWC HAS BEEN ADVISED THAT THE CITY OF SANTA ROSA IS CURRENTLY REVIEWING THE DRAFT EIR/EIS.

MARIE MERIDITH

5 OCT 96 001 (cont.)

SUBJ: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTE WATER PROJECT
PAGE 2

REFERENCE VOL X, APP J-1, FIG 4b & 9b, (INCL 6 & INCL 8), SEE RED "X".

REFERENCE VOL III, PARA 4.19, PG 7, BULLET "SURFACE WATER HYDROLOGY" (INCL 5)
"STREAMBANK EROSION IN THE EVENT OF A DAM FAILURE HAS NOT BEEN QUANTIFIED, BUT IS ASSUMED TO BE SIGNIFICANT". EMWC'S WATER COLLECTION FACILITIES ARE JUST A FEW FEET ABOVE THE ESTERO DE SAN ANTONIO'S WATER LEVEL, AND A DAM FAILURE WOULD DESTROY THEM (COLLECTION POND WITH EARTHEN WALL, PUMP, PUMP HOUSE, DIVERSION BARRIER FOR UNNAMED TRIBUTARY).

REFERENCE VOL X, APP J-1, FIG 4a & 4b, (INCL 6), SEE RED "X".

REFERENCE VOL X, APP J-1, PG 4, PARA "HUNTLEY (T-1)", (INCL 7).

THIS PARAGRAPH MAKES STATEMENTS ABOUT FLOOD WATERS BACKING UP TRIBUTARIES TO ESTERO DE SAN ANTONIO SIMILAR TO STATEMENTS IN PARA 4.19 WHICH ARE CITED ABOVE.

REFERENCE VOL X, APP J-1, FIG 9a & 9b, (INCL 8), SEE RED "X".

REFERENCE VOL X, APP J-1, PG 5, PARA "TWO ROCK (T6A)", (INCL 9).

THIS PARAGRAPH MAKES REFERENCES TO FLOOD WATERS BACKING UP TRIBUTARIES TO ESTERO DE SAN ANTONIO SIMILAR TO STATEMENTS IN PARA 4.19 WHICH ARE CITED ABOVE.

IN SUMMARY SANTA ROSA'S PURSUIT OF SEWER WATER DAMS AND RESERVOIRS AT THE HUNTLEY AND TWO ROCK SITES SHARPLY INCREASES THE RISK THAT HOMES IN OCEANA MARIN MAY LOSE THEIR SOURCE OF DRINKING WATER FROM EARTHQUAKES AND DAM FAILURES AT THE HUNTLEY OR TWO ROCK SITES.

SANTA ROSA IS REQUESTED TO REPLY DIRECTLY TO THIS LETTER AS WELL AS INCLUDE IT IN THE DEIR/EIS COMMENTS. FOR YOUR INFORMATION I AM INCLUDING A COPY OF A SIMILAR LETTER WRITTEN IN CONNECTION WITH THE PREVIOUS EIR/EIS IN 1991. (INCL 10).

SINCERELY,



WILLIAM R. WALTON III
REPRESENTATIVE
ESTERO MUTUAL WATER COMPANY
(707) 878-2660

COPY FURNISHED: SEE DISTRIBUTION

EMWC:\03\WPF\SEWER18A.WPF\printed 05 OCT 96

5 OCT 96

MARIE MERIDITH
SUBJ: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTE WATER PROJECT
PAGE 3

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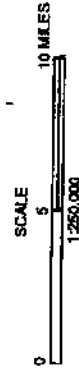
Geologic Time Scale	Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION
Quaternary - Potentially Active				
Late Quaternary	200	~~~~~	~~~~~	Displacement during historic time (e.g. San Andreas Fault, 1906). Includes area of known fault creep.
	10,000	~~~~~	~~~~~	Displacement during Holocene time.
Early Quaternary	100,000	~~~~~	~~~~~	Faults showing evidence of displacement during late Quaternary time.
	2,000,000	~~~~~	~~~~~	Quaternary (undifferentiated) faults - most in this category show evidence of displacement during the last 2,000,000 years; possible exposure are faults which displace rocks of undifferentiated Pleistocene age.
Pre-Quaternary - Inactive				
Pliocene	5,000,000	~~~~~	~~~~~	Fault showing evidence of no displacement during Quaternary time or faults without recognized Quaternary displacement.
Miocene				

FAULT MAP SYMBOLS

ON LAND

Solid where well located; dashed where approximately located or inferred; dotted where concealed by younger rocks, lakes or bays; queried where continuation or existence is uncertain. Barbs indicate thrust fault (barbs on upper plate). Arrows indicate relative or apparent direction of movement.

Two Rock
ALTERNATIVE RESERVOIR STORAGE SITE



Santa Rosa Subregional Long-Term
Wastewater Project

Figure 4.3-1

REGIONAL
FAULTS

BASE FROM BORTUGNO, E.J. (COMPILED), 1982, MAP SHOWING REGENCY OF FAULTING, SANTA ROSA QUADRANGLE 1250,000 IN CALIFORNIA DIVISION OF MINES AND GEOLOGY, REGIONAL MAP SERIES MAP NO. 2A.

Source: Best Environmental & Infrastructure

HARLAND BARTHOLDSEN & ASSOCIATES, INC.
PARSONS ENGINEERING SCIENCE, INC.
UNITS OF PARSONS INFRASTRUCTURE & TECHNOLOGY INC.

PARSONS

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construction, bedrock foundation², and conservative freeboard³ would preempt serious earthquake damage. The Division of Safety of Dams requires appropriate instrumentation and monitoring and submittal of annual reports.

* A probability analysis performed for a planned reservoir in Southern California (*The Reliability Analysis for a Major Dam Project*) indicates that the probability of failure of that dam was small (one in a billion). However, no similar analysis has been performed for the dams proposed for this Project and there remains a possibility that dam failure could occur and that inundation of areas downstream of the dam could result.

As discussed in Measure 2.2.14, the State requires that an inundation map be prepared for any dam which either is 25 feet or more in height or impounds 50 acre feet or more of water (California Water Code, §8589.5). The map is submitted by the dam owner to the Office of Emergency Services for review and approval. Following approval, the Office of Emergency Services transmits the map to the appropriate local government, which is required to produce evacuation plans within six months.

HYDROLOGIC AND HYDRAULIC ANALYSIS

To meet Office of Emergency Services requirements, hydrologic and hydraulic analysis was performed to estimate the approximate depth of flooding and approximate limits of inundation caused by a main dam break at each of ten proposed reservoir sites. For each reservoir, five breaching alternatives were analyzed: 15 minute failure of the full dam; 3 hour failure of the full dam; 15 minute failure of part of the dam; 3 hour failure of part of the dam; and 12 hour failure of part of the dam. It was assumed that, for purposes of these analyses, the initial water level in each reservoir was at the spillway crest elevation. The peak stage elevations, flooding depths, and inundation limits were calculated using the flood hydrograph computer model HEC-1 developed by the U.S. Army Corps of Engineers. Because the spillway for each dam would be designed to handle the Probable Maximum Flood, it was assumed that the dams would not be overtopped during the Probable Maximum Flood. Therefore, an overtopping analysis was not conducted.

At several sites there are one or more supplementary side dams in addition to the main dam. However, only the main dam was analyzed (except at Tolay Confined where the back dam was also analyzed) since failure of these back dams would result in the largest flood levels.

Based on the modeling results for each reservoir, the flood inundation limit for the catastrophic case scenario (failure of the full dam within 15 minutes) for each reservoir was plotted on USGS base maps. The flood inundation limits for the catastrophic for each reservoir are:

² A bedrock foundation prevents damage from liquefaction.

³ Adequate freeboard would allow the reservoir to safely retain the maximum storage capacity even if earthquake-induced settlement were to occur.

Sears Point

The Sears Point dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. The worst case scenario dam break would cause Tolay Creek to flood buildings in the vicinity of Sears Point and scattered buildings along Highway 121 and on Tubbs Island. State Highways 37 and 121, which are important transportation corridors, could be inundated. The estimated maximum water level at Sears Point would be less than 5 feet.

* Two Rock

The Two Rock dam would be sited a tributary of Stemple Creek north of Two Rock in the Roblar de la Miseria. Discharge from the reservoir would flow down the tributary into the main branch of Stemple Creek near Two Rock. From there, the water would flow through Marin County into the Estero de San Antonio to Bodega Bay. The worst case scenario dam break would cause Stemple Creek to flood the town of Two Rock. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The Two Rock School and the Two Rock Fire Station lie on the edge of the flood inundation. Portions of the Coast Guard Reservation also appear to lie in the flood inundation area of the Two Rock Reservoir. The flood waters would back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Two Rock and Bodega Bay. The estimated maximum water depth at Two Rock would be 80 feet.

Bloomfield

The Bloomfield dam would be sited on a tributary of Americano Creek northwest of the town of Bloomfield. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past the town to Bodega Bay. The dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would also back up into Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated maximum water depth would be 13 feet at Valley Ford and 20 feet at Bloomfield.

Carroll Road

The Carroll Road dam would be sited on a tributary of Americano Creek between the towns of Bloomfield and Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. The 15 minute dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would

JULY 31, 1998

INUNDATION DUE TO DAM FAILURE

PAGE 4.10-6

INCL 3

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also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated maximum water depth would be 17 feet at Valley Ford and 26 feet at Bloomfield.

Valley Ford

The Valley Ford dam would be sited on a tributary of Americano Creek in the Canada de Pogolimi area northeast of Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. The 15 minute dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Estero Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Estero Americano Creek. The backup along Estero Americano Creek and Bloomfield Creek would inundate part of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be approximately 15 feet at Valley Ford and approximately 17 feet at Bloomfield.

* Huntley

The Huntley dam would be sited on a tributary of Stemple Creek along Martinoni Road near the Sonoma-Marin County line. Discharge from the reservoir would flow down the tributary into Marin County and to the main branch of Stemple Creek. From there, the water would flow into Estero de San Antonio to Bodega Bay. The worst-case scenario dam break would cause the Estero de San Antonio to back up to Fallon. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would also back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between the Huntley dam and Bodega Bay. Portions of the Coast Guard Reservation also appear to lie in the flood inundation area of the Huntley reservoir. The estimated maximum water depth would be 76 feet at Fallon - Two Rock Road and 61 feet near Fallon.

Additional information about the analyses conducted may be found in the Technical Memorandum, *Dam Break Inundation Analysis* (Dames & Moore 1995), contained in Appendix J-1.

EFFECTS OF INUNDATION

In the event of inundation from dam failure, significant and widespread damage to property is likely within the areas of inundation. Within this area there would also be the possibility of personal injury and loss of life, the magnitude of which would be dependent

Santa Rosa Subregional Long-Term Wastewater Project
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on the amount of warning before the dam failure, and the success of the evacuation procedures.

In addition to these effects on public safety, other effects would be likely to occur in the event of inundation from dam failure.

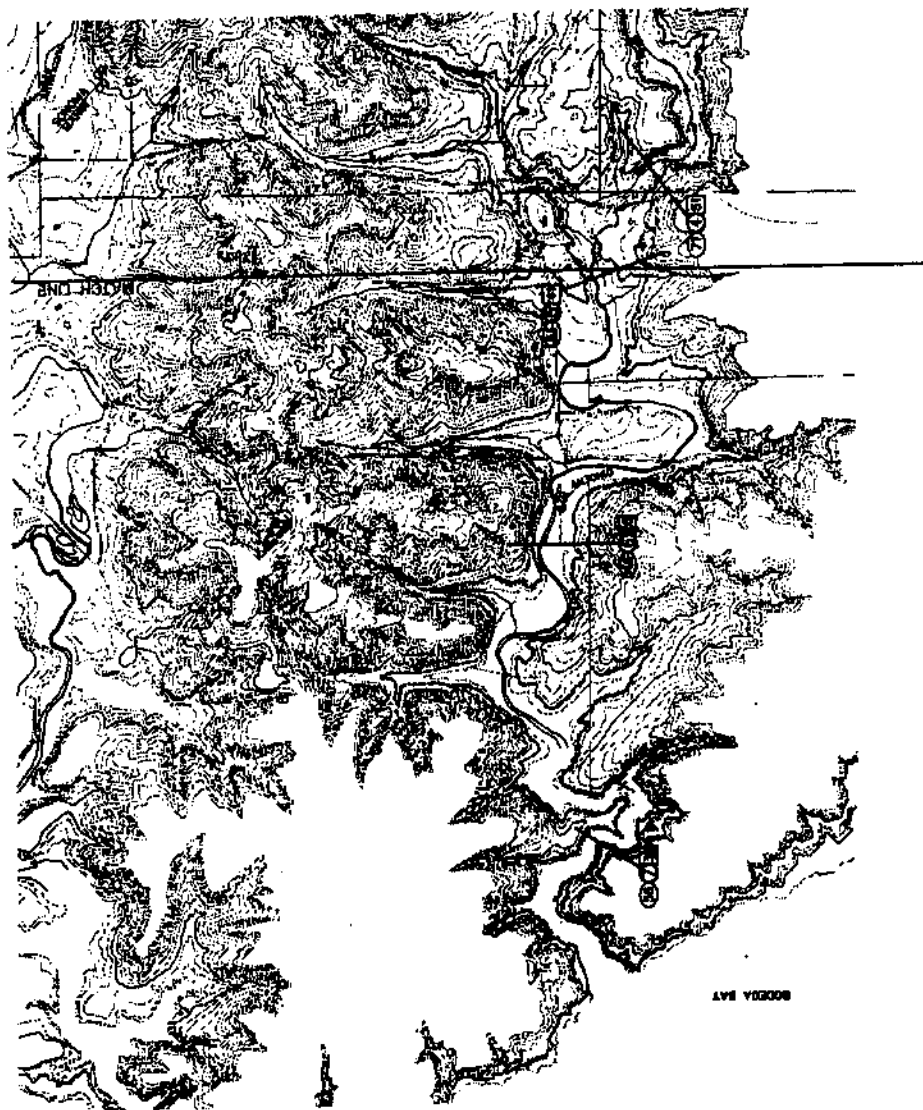
- * • Surface Water Hydrology - Streambank erosion in the event of a dam failure has not been quantified, but is assumed to be significant.
- Groundwater - Dam failure would release large quantities of reclaimed water, but would occur over a very short duration. Reclaimed water may pond in small depressions downstream of the dam, but most would enter a drainage and be carried out of the vicinity. The short duration of ponding would not significantly affect groundwater quality for nitrate.
- Surface Water Quality - If dam failure occurs, a large volume of water with an elevated ammonia, hydrogen sulfide, or cyanide concentration may be released to the streams below the dam.
- Terrestrial and Aquatic Biological Resources - Dam failure at any of the reservoir sites would result in inundation of large downstream areas and probable destruction of terrestrial and aquatic vegetation and wildlife habitat, and may impact endangered, threatened, or rare terrestrial wildlife or plant species in association with drainages downstream from a dam site.
- Jurisdictional Wetlands Resources - Dam failures at storage sites would result in inundation of streams below the dam site, scouring of stream channels, destruction of riparian vegetation and other wetland vegetation, and deposition of sediment from the reservoir into wetlands.
- Transportation - Inundation from dam failure would be likely to damage roads downstream of the dam.
- Public Services, Utilities, and Recreation - Inundation from dam failure would be likely to damage infrastructure downstream from the dam and would have a significant impact on emergency services. In the event of damage to infrastructure such as water and sewer mains, and gas, electricity and communications lines, these services could be disrupted for varying lengths of time until repairs could be made.

JULY 31, 1996

INCL 5

INUNDATION DUE TO DAM FAILURE

PAGE 4.19-7



HUNTLEY RESERVOIR (7-1)

SANTA ROSA SURVEYOR, LONG-TERM INFILTRATION PROJECT
DAM BREAK INVESTIGATION ANALYSIS
NOVEMBER 1986
SANTA ROSA, CALIFORNIA
303-535-0043

DAMES & MOORE **FIGURE 4b**

LEGEND:

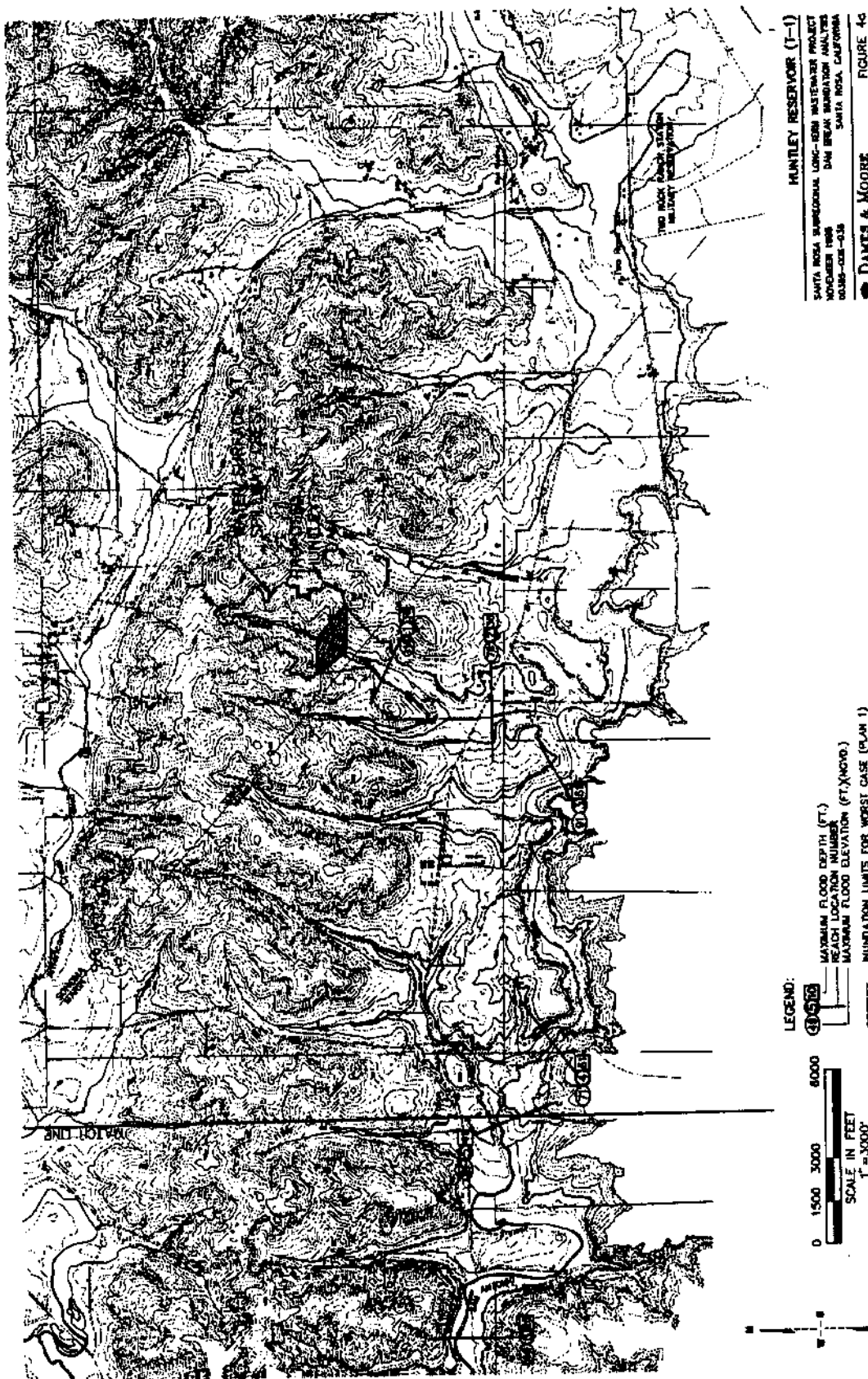
— MAXIMUM FLOOD DEPTH (FT.)

— REACH LOCATION NUMBER

— MAXIMUM FLOOD ELEVATION (FT. (NGVD.))

— FLOOD LIMITS FOR WORST CASE (PLAN 1)

79 TCM 1



past the town to Bodega Bay. As shown on Figure 2, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be 13 feet at Valley Ford and 20 feet at Bloomfield.

Carroll Road North (V7): The Carroll Road North dam would be sited on a tributary of Americano Creek between the towns of Bloomfield and Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. As shown on Figure 3, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be 17 feet at Valley Ford and 26 feet at Bloomfield.

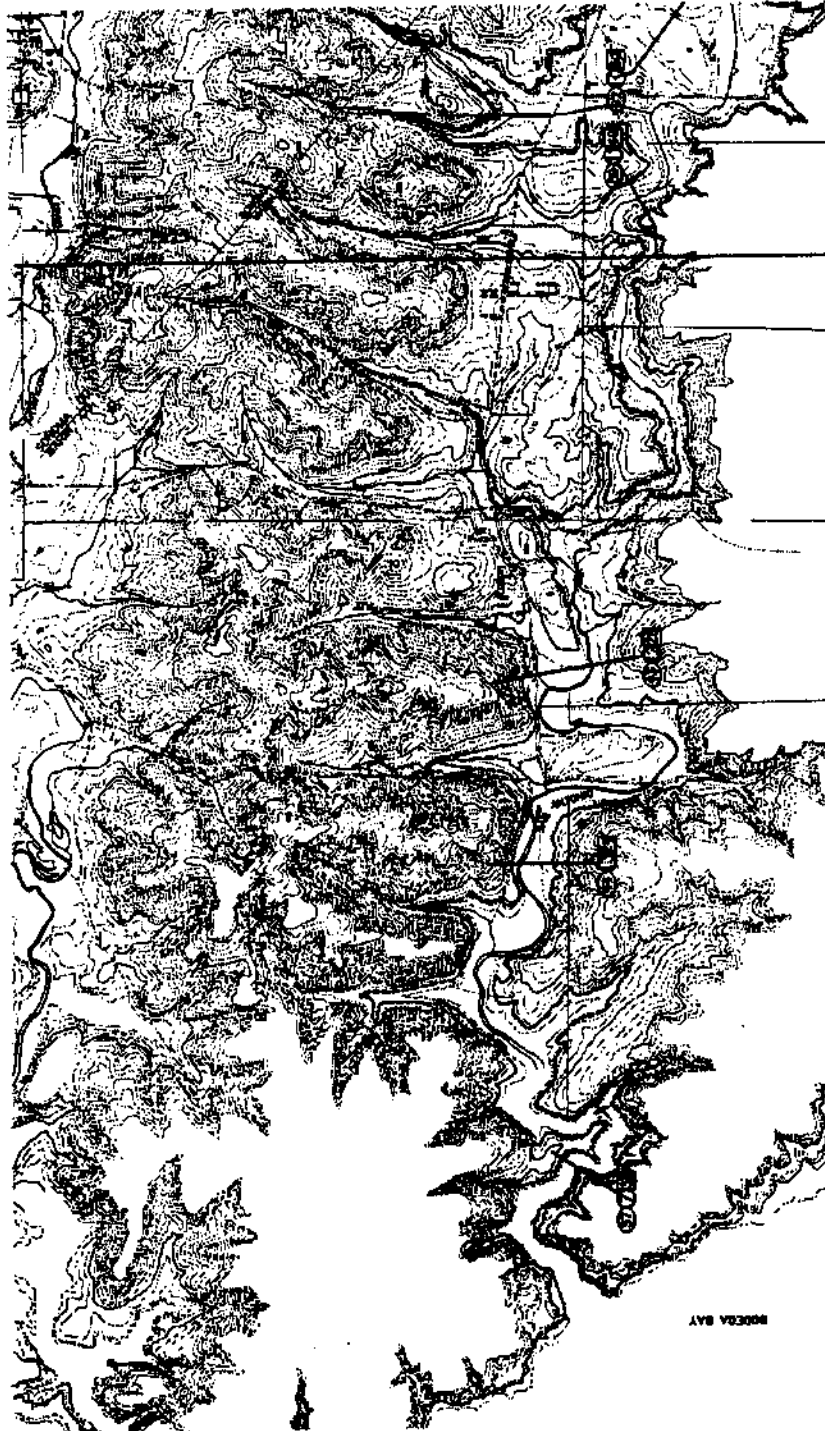
* Huntley (T-1): The Huntley dam would be sited on a tributary of Stemple Creek along Martinoni Road near the Sonoma-Marin County line. Discharge from the reservoir would flow down the tributary into Marin County and to the main branch of Stemple Creek. From there, the water would flow into Estero de San Antonio to Bodega Bay. As shown on Figure 4, the worst case scenario dam break would cause the Estero de San Antonio to partially flood the town of Fallon. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would also back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Huntley Dam and Bodega Bay.

Lakeville Hillside (L-2A): The Lakeville Hillside dam would be sited on a tributary of the Petaluma River near the Lakeville Highway and Hog Island. Discharge from the reservoir would flow down the tributary into the Petaluma River, and from there into San Pablo Bay. As shown on Figure 5, the worst case scenario dam break would cause flooding between Lakeville Highway and the Petaluma River. No towns would be inundated and few buildings would be flooded.

Sears Point (SP-1): The Sears Point dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 6, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be less than 5 feet.

Tolay A (S39): The Tolay A dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 7, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be 11 feet.

INCL 7

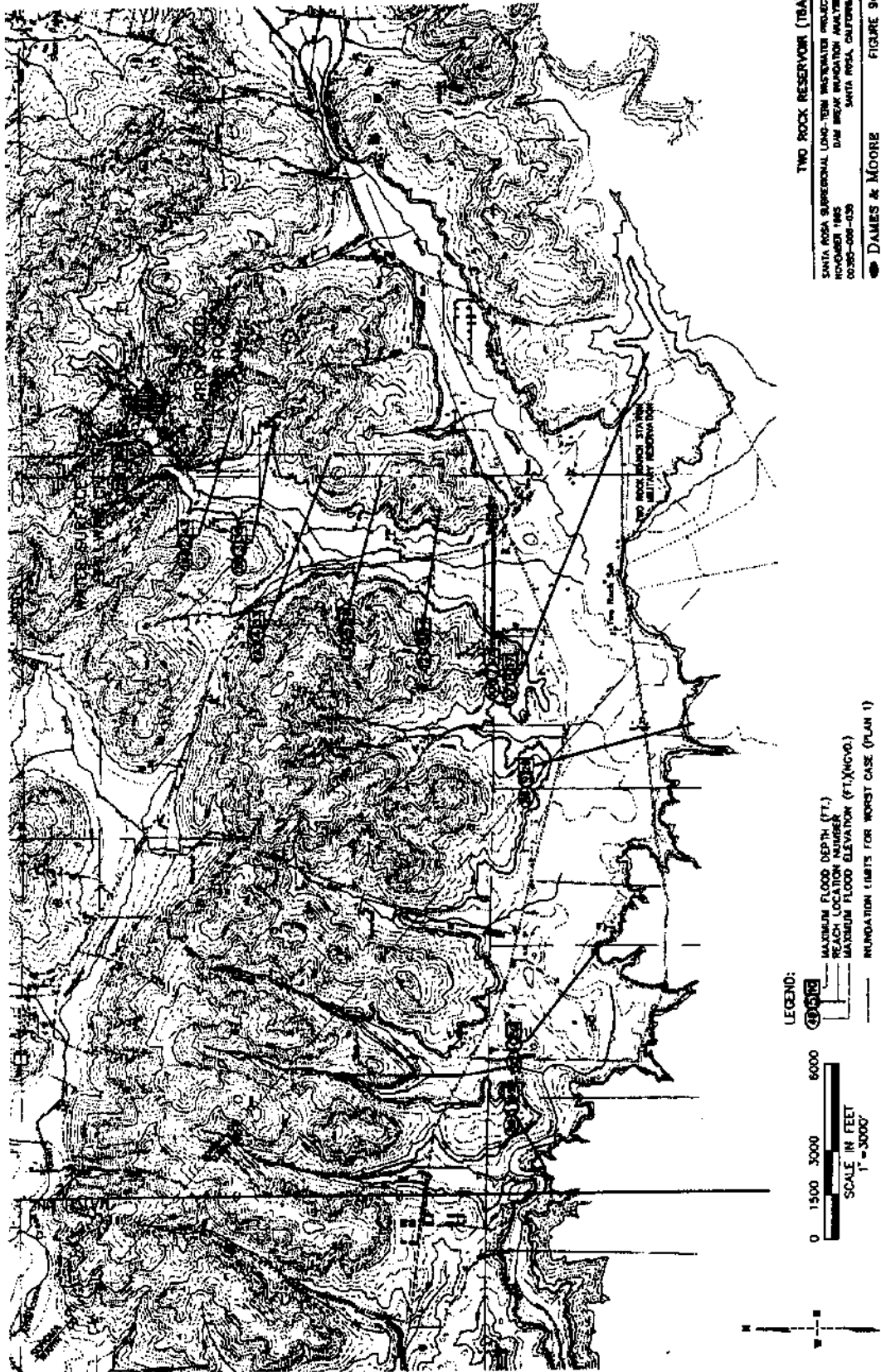


TWO ROCK RESERVOIR (TBA)
SANTA ROSA SUBREGIONAL LONG-TERM WATERWAYS PROJECT
NOVEMBER 1995 DAM BREAK FLOODING ANALYSIS
90135-105-038 SANTA ROSA, CALIFORNIA
DAMES & MOORE FIGURE 96

LEGEND:
MAXIMUM FLOOD DEPTH (FT.)
BEACH LOCATION NUMBER
MAXIMUM FLOOD ELEVATION (FT./MWDG.)
FLOODING LIMITS FOR WORST CASE (PLAN 1)

0 1500 3000 6000
SCALE IN FEET
1"=3000'

INCL 81



Tolay C (S39C): The Tolay C dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 7, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be 12 feet.

* Two Rock (T6A): The Two Rock dam would be sited a tributary of Stemple Creek north of Two Rock in the Roblar De La Miseria. Discharge from the reservoir would flow down the tributary into the main branch of Stemple Creek near Two Rock. From there, the water would flow through Marin County into Estero de San Antonio to Bodega Bay. As shown on Figure 9, the worst case scenario dam break would cause Stemple Creek to flood the town of Two Rock and part of Dos Piedras. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Two Rock and Bodega Bay.

Valley Ford East (V4): The Valley Ford East dam would be sited on a tributary of Americano Creek in the Canada De Pogolimi area northeast of Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. As shown on Figure 10, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate part of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be approximately 15 feet at Valley Ford and approximately 17 feet at Bloomfield.

Tolay C Back Dam Analysis

In addition to the analysis conducted for the main dams, an analysis was conducted for the Tolay C back dam. A failure of the back dam would flood the area north of the back dam. Based on a comparison of the storage capacity curves for Tolay A and Tolay C reservoirs, the resulting water surface elevation in this area would be at 240 feet NGVD. This water surface elevation would result in flow over the 230 foot saddle at Tolay Creek and the 235 foot saddle into a tributary of Stage Gulch Creek.

Due to the multiple discharge points and the large volume of water going into storage in the area behind the back dam, this dam break scenario would be difficult to model using the HEC-1 computer model. The inundation limits were instead determined using engineering judgment based on the depth of flow over the saddles.

The water would back-up beyond the headwaters of Tolay Creek and flow down a creek along the south side of Adobe Road and down to the Petaluma River near Browns Lane and the Lakeville Highway. Also, the water would flow over a saddle north of Cannon Lane and into a tributary of Stage Gulch Creek. As shown on Figure 11, most of the flooding would be limited to

INCL 9

PAGE 5

COPY

EMWC

26 JAN 91

SUBJECT: SANTA ROSA SUBREGIONAL WATER RECLAMATION SYSTEM - EIR/EIS (DEC 90)

REFERENCE: EIR/EIS PAGES 9-67 AND 9-68, IMPACT 9.1-11

SANTA ROSA CITY COUNCIL
DEPARTMENT OF COMMUNITY DEVELOPMENT
SANTA ROSA CITY HALL
100 SANTA ROSA AVE., ROOM 3
SANTA ROSA CA 95402

COUNCIL MEMBERS:

REFERENCE IS MADE TO THE REMARKS OF BILL WALTON FOR ESTERO MUTUAL WATER COMPANY (EMWC) DURING YOUR HEARING ON JANUARY 15, 1991 AND HIS REMARKS TO THE NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD ON JANUARY 24, 1991 AT THE MEETING IN THE ROHNERT PARK CITY HALL.

THE ENCLOSED FACT SHEET SUMMARIZES THE BASIC INFORMATION ABOUT THE EMWC'S FACILITIES LOCATED ON THE BANKS OF THE ESTERO DE SAN ANTONIO. ANY INCREASE IN THE HEIGHT OF THE WATER FLOWING IN THE ESTERO WOULD ENDANGER OUR WATER SUPPLY BY POSSIBLY FLOODING OUR COLLECTION POND THUS CONTAMINATING OUR DRINKING WATER, BY POSSIBLY DAMAGING OUR ELECTRICAL SERVICE AND 100 HORSEPOWER MOTOR/PUMP, AND BY POSSIBLY WEAKENING OR DAMAGING THE PG&E POWER POLE BRINGING ELECTRICITY TO THE SITE.

OUR INTEREST IN THIS MATTER IS NOT TO BLOCK THE IRRIGATION PORTION OF THE EIR/EIS. BUT RATHER TO INSURE THAT ADEQUATE LEGAL, FINANCIAL, AND STRUCTURAL ARRANGEMENTS ARE IN PLACE WELL BEFORE ANY INCREASE IN THE ESTERO WATER LEVEL OCCURS, IN ORDER TO COMPENSATE US IN A TIMELY AND ADEQUATE MANNER FOR REPAIRS AND REBUILDING OF OUR ESTERO SITED FACILITIES. AND, ADDITIONALLY, TO INDEMNIFY US AGAINST LOSS CAUSED BY CONTAMINATION OF THE WATER SUPPLIED TO OUR CUSTOMERS. ALL OF THIS WITHOUT RESORT TO LITIGATION, IN THE EVENT THAT DAMAGE RELATED TO A RISE IN THE WATER LEVEL OF THE ESTERO BEYOND A "NATURAL" LEVEL SHOULD OCCUR AT A FUTURE TIME.

WE REQUEST A MEETING WITH APPROPRIATE MEMBERS OF YOUR STAFF TO EXAMINE THE INFORMATION AVAILABLE TO SUPPORT YOUR STATEMENTS CONCERNING A 4.4' RISE, REDUCED TO 1' BY EVAPORATION, AND MITIGATION BY PUMPING OR SOME OTHER MEANS, PLUS AN ALL-IMPORTANT DEFINITION OF "...THE LEVEL THAT WOULD OCCUR NATURALLY." AND TO DISCUSS THE ARRANGEMENTS MENTIONED ABOVE TO PROTECT OUR INTERESTS. WE ALSO SOLICIT ANY IDEAS YOUR ENGINEERS MIGHT HAVE FOR STRUCTURAL CHANGES TO LESSEN OUR RISKS AT THE ESTERO.

EMWC4/SEWER01.WPF/26JAN91.....PAGE 1

1/10-10-

COPY

26 JAN 91

EMWC

SUBJECT: SANTA ROSA SUBREGIONAL WATER RECLAMATION SYSTEM - EIR/EIS (DEC 90)

PAGES 9-67 AND 9-68 OF THE EIR/EIS APPEAR TO PRESUME A SUMMER TIME IRRIGATION SEASON AND NO LASTING EFFECT DURING THE WINTER RAIN SEASON ON THE WATER LEVEL OF THE ESTERO. THIS IS NOT A SAFE PRESUMPTION OVER THE LONG TERM, SINCE A NUMBER OF RANCHERS HAVE VERBALLY TESTIFIED THAT WITH IRRIGATION THEY MIGHT RAISE THREE CROPS A YEAR OF CATTLE FORAGE. THIS MIGHT REQUIRE IRRIGATION DURING MOST OR ALL OF THE YEAR. ADDITIONALLY, THERE IS ALWAYS THE POSSIBILITY THAT FUTURE GROWTH IN THE SANTA ROSA SEWAGE SERVICE AREA WILL PROMPT PLANNING FOR RELEASE OF THE TREATED SEWER WATER INTO THE STEPLE CREEK/ESTERO DE SAN ANTONIO WHICH COULD RAISE ITS HEIGHT TO A DANGER POINT FOR OUR FACILITIES.

YOUR WRITTEN REPLY IS REQUESTED AS WELL AS THE INCLUSION IN THE EIR/EIS OF THIS LETTER AND YOUR REPLY.

OUR POINT OF CONTACT IS MR. WILLIAM R. WALTON III, (707) 878-2660.

SINCERELY,

JACK W. WALLACE
PRESIDENT

ENCLOSURES

CF: CAROL WILLIAMS, MARIN COUNTY PLANNING DEPT.
DAN CARLSON, UTILITIES DEPT. SANTA ROSA
CHRMN, NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD

EMWC4/SEWER02/26JAN91.....PAGE 2

INCL 103

RECEIVED

ESTERO MUTUAL WATER COMPANY
 WILLIAM R. WALTON III
 REPRESENTATIVE
 P.O. BOX 75
 DILLON BEACH CA 94929
 (707) 878-2660

NOV 05 1996

CITY OF SANTA ROSA
 CITY MANAGER'S OFFICE

WRWIII

5 OCT 96

MARIE MEREDITH
 CITY OF SANTA ROSA
 COMMUNITY DEVELOPMENT DEPARTMENT
 P.O. BOX 1678
 SANTA ROSA CA 95402-1678
 (707) 543-3181

SUBJECT: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTEWATER PROJECT

MARIE MERIDITH:

IT IS REQUESTED THAT THIS LETTER BE INCLUDED WITH THE COMMENTS ON THE DRAFT EIR/EIS ON THE SANTA ROSA SUBREGIONAL LONG TERM WASTEWATER ANALYSIS.

ESTERO MUTUAL WATER COMPANY (EMWC) WOULD BE SERIOUSLY DAMAGED BY A DAM FAILURE OF THE TWO ROCK OR HUNTLEY DAM. YOUR STATEMENTS AND MAPS IN THE DEIR/EIS CLEARLY SHOW THAT EMWC'S DRINKING WATER COLLECTION FACILITIES ON THE BANKS OF THE ESTERO DE SAN ANTONIO WOULD BE INUNDATED AND DESTROYED.

REFERENCE VOL II, PARA 4.3, FIG 4.3-1, "REGIONAL FAULTS". (INCL 1)
 REFERENCE VOL III, PARA 4.19, PG 3, PARA 2, (INCL 2), "A PROBABILITY ANALYSIS OF THE DAM COULD RESULT." THIS PARAGRAPH REFERS TO A DAM IN SOUTHERN CALIFORNIA WHICH BEARS NO RELATION TO THE FAULTS OR LOCAL GEOLOGY OF THE TWO ROCK OR HUNTLEY AREAS. EARTHQUAKE SCIENCE IS NOT EXACT. THERE IS NO PREDICTING THE LOCATION, TIMING, OR STRENGTH OF AN EARTHQUAKE WHICH COULD OCCUR TOMORROW OR NEVER. AND THIS PARAGRAPH FURTHER STATES THAT THERE REMAINS A POSSIBILITY THAT DAM FAILURE COULD OCCUR AND THAT INUNDATION OF AREAS DOWNSTREAM COULD RESULT. THE LOCATION OF EMWC'S COLLECTION POND, PUMP AND DIVERSION BARRIER IS UNMISTAKABLY IN THE PATH OF DESTRUCTION. THESE FACTS ALONE SHOULD ELIMINATE THE HUNTLEY AND TWO ROCK RESERVOIR SITES FROM CONSIDERATION. SEE THE RED "X" MARKED ON FIGURES 4b (INCL 6) AND 9b (INCL 8).

REFERENCE VOL III, PARA 4.19, PG 5, PARA "TWO ROCK". (INCL 3).
 REFERENCE VOL X, APP J-1, FIG 4a & 4b, (INCL 6)
 THIS PARAGRAPH STATES THAT THE FLOOD WATERS WOULD BACK UP SEVERAL TRIBUTARIES TO STEMPLE CREEK AND ESTERO DE SAN ANTONIO AND WOULD FLOOD SEVERAL BUILDINGS BETWEEN TWO ROCK AND BODEGA BAY. ONE OF THESE TRIBUTARIES IS THE UNNAMED TRIBUTARY TO WHICH EMWC HAS RIPARIAN RIGHTS. EMWC DIVERTS THE FRESH WATER TO ITS COLLECTION POND AND THEN PUMPS IT TO AN ELEVATION OF 400 FEET INTO THE RESERVOIR. ONE OF THE BUILDINGS THAT WOULD BE INUNDATED WOULD BE THE PUMP HOUSE AND ITS ELECTRIC PUMP.

REFERENCE VOL III, PARA 4.19, PG 6, PARA "HUNTLEY". (INCL 4).
 REFERENCE VOL X, APP J-1, FIG 9a & 9b, (INCL 8).
 THIS PARAGRAPH STATES THAT THE WORST CASE SCENARIO WOULD BACK UP SEVERAL TRIBUTARIES TO STEMPLE CREEK AND ESTERO DE SAN ANTONIO. THIS WOULD INCLUDE OUR UNNAMED TRIBUTARY AND WOULD DAMAGE EMWC FACILITIES AS STATED IN THE PARAGRAPH ABOVE.

EMWCHD3/WPF/SEWER18.WPF/printed 15 OCT 96

MARIE MERIDITH

5 OCT 96

SUBJ: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTE WATER PROJECT
PAGE 2

REFERENCE VOL X, APP J-1, FIG 4b & 9b, (INCL 6 & INCL 8), SEE RED "X".
REFERENCE VOL III, PARA 4.19, PG 7, BULLET "SURFACE WATER HYDROLOGY" (INC5)
"STREAMBANK EROSION IN THE EVENT OF A DAM FAILURE HAS NOT BEEN QUANTIFIED, BUT
IS ASSUMED TO BE SIGNIFICANT". EMWC'S WATER COLLECTION FACILITIES LIE JUST A
FEW FEET ABOVE THE ESTERO DE SAN ANTONIO'S WATER LEVEL AND A DAM FAILURE WOULD
DESTROY THEM (COLLECTION POND WITH EARTHEN WALL, PUMP, PUMP HOUSE, DIVERSION
BARRIER FOR UNNAMED TRIBUTARY).

REFERENCE VOL X, APP J-1, FIG 4a & 4b, (INCL 6), SEE RED "X".
REFERENCE VOL X, APP J-1, PG 4, PARA "HUNTLEY (T-1)", (INCL 7).
THIS PARAGRAPH MAKES STATEMENTS ABOUT FLOOD WATERS BACKING UP TRIBUTARIES TO
ESTERO DE SAN ANTONIO SIMILAR TO STATEMENTS IN PARA 4.19 WHICH ARE CITED
ABOVE.

REFERENCE VOL X, APP J-1, FIG 9a & 9b, (INCL 8), SEE RED "X".
REFERENCE VOL X, APP J-1, PG 5, PARA "TWO ROCK (T6A)", (INCL 9).
THIS PARAGRAPH MAKES REFERENCES TO FLOOD WATERS BACKING UP TRIBUTARIES TO
ESTERO DE SAN ANTONIO SIMILAR TO STATEMENTS IN PARA 4.19 WHICH ARE CITED
ABOVE.

IN SUMMARY SANTA ROSA'S PURSUIT OF SEWER WATER DAMS AND RESERVOIRS AT THE
HUNTLEY AND TWO ROCK SITES SHARPLY INCREASES THE RISK THAT HOMES IN OCEANA
MARIN MAY LOSE THEIR SOURCE OF DRINKING WATER FROM EARTHQUAKES AND DAM
FAILURES AT THE HUNTLEY OR TWO ROCK SITES.

SANTA ROSA IS REQUESTED TO REPLY DIRECTLY TO THIS LETTER AS WELL AS
INCLUDE IT IN THE DEIR/EIS COMMENTS. FOR YOUR INFORMATION I AM INCLUDING A
COPY OF A SIMILAR LETTER WRITTEN IN CONNECTION WITH THE PREVIOUS EIR/EIS IN
1991. (INCL 10).

SINCERELY,



WILLIAM R. WALTON III
REPRESENTATIVE
ESTERO MUTUAL WATER COMPANY
(707) 878-2660

COPY FURNISHED: SEE DISTRIBUTION

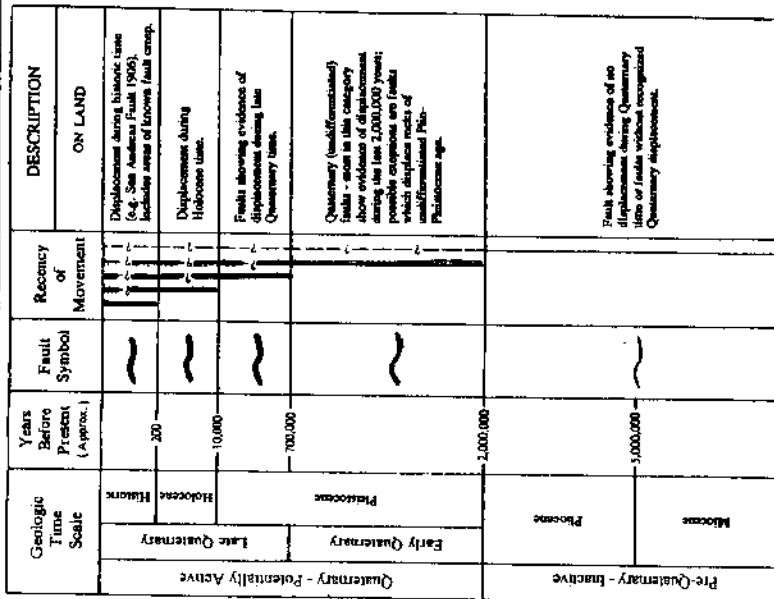
EMWCHD3/WPF/SEWER18A.WPF/printed 05 OCT 96

MARIE MERIDITH
SUBJ: EMWC COMMENTS ON DEIR/EIS SANTA ROSA WASTE WATER PROJECT
PAGE 3

5 OCT 96

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MARIN SPVSR. CANDIDATE KINSEY
MARIN SPVSR. CANDIDATE LEMIEUX
MAYOR SANTA ROSA
BD PUB UTIL SANTA ROSA
OCEANA MARIN ASSOC PRES. COOPER
C. MOELLER OCEANA MARIN NEWS
ESTERO MUTUAL PRES.
CAL WATER QUAL CNTRL BOARD
NORTH COAST WATER QUAL CNTRL BD.
MR. EDELBOCK DIR MARIN CONSERVATION LEAGUE
PEGI KNOPP CHAIR WATER COMMITTEE, MCL
MR. DEGABRIELE NORTH MARIN WATER DISTRICT
MR. UEBER MGR GULF FARALLONES MARINE SANCTUARY
MR. BERNER DIR MARIN AG LAND TRST
MR. CHARTER DIR SONOMA LAND TRST
MR. & MRS. TRESCH FRIENDS OF THE ESTEROS
MR. YARISH FRIENDS OF THE ESTEROS
MR. SHANNON AGRICULTURAL PROPERTY RIGHTS ALLIANCE
MR. STEWART GEYSER ALTERNATIVE-ENERGY

EMWCHD3/WPF/SEWER18B/



REGIONAL FAULTS

**Subregional Long-Term
Wastewater Project**

PARSONS ENGINEERING SCIENCE, INC.
SUBSIDIARY OF PARSONS CORPORATION, NEW YORK, N.Y.

ENCLOSURE

WCL 1

construction, bedrock foundation², and conservative freeboard³ would preempt serious earthquake damage. The Division of Safety of Dams requires appropriate instrumentation and monitoring and submittal of annual reports.

* A probability analysis performed for a planned reservoir in Southern California (*The Reliability Analysis for a Major Dam Project*) indicates that the probability of failure of that dam was small (one in a billion). However, no similar analysis has been performed for the dams proposed for this Project and there remains a possibility that dam failure could occur and that inundation of areas downstream of the dam could result.

As discussed in Measure 2.2.14, the State requires that an inundation map be prepared for any dam which either is 25 feet or more in height or impounds 50 acre feet or more of water (California Water Code, §8589.5). The map is submitted by the dam owner to the Office of Emergency Services for review and approval. Following approval, the Office of Emergency Services transmits the map to the appropriate local government, which is required to produce evacuation plans within six months.

HYDROLOGIC AND HYDRAULIC ANALYSIS

To meet Office of Emergency Services requirements, hydrologic and hydraulic analysis was performed to estimate the approximate depth of flooding and approximate limits of inundation caused by a main dam break at each of ten proposed reservoir sites. For each reservoir, five breaching alternatives were analyzed; 15 minute failure of the full dam; 3 hour failure of the full dam; 15 minute failure of part of the dam; 3 hour failure of part of the dam; and 12 hour failure of part of the dam. It was assumed that, for purposes of these analyses, the initial water level in each reservoir was at the spillway crest elevation. The peak stage elevations, flooding depths, and inundation limits were calculated using the flood hydrograph computer model HEC-1 developed by the U.S. Army Corps of Engineers. Because the spillway for each dam would be designed to handle the Probable Maximum Flood, it was assumed that the dams would not be overtopped during the Probable Maximum Flood. Therefore, an overtopping analysis was not conducted.

At several sites there are one or more supplementary side dams in addition to the main dam. However, only the main dam was analyzed (except at Tolay Confined where the back dam was also analyzed) since failure of these back dams would result in the largest flood levels.

Based on the modeling results for each reservoir, the flood inundation limit for the catastrophic case scenario (failure of the full dam within 15 minutes) for each reservoir was plotted on USGS base maps. The flood inundation limits for the catastrophic for each reservoir are:

² A bedrock foundation prevents damage from liquefaction.

³ Adequate freeboard would allow the reservoir to safely retain the maximum storage capacity even if earthquake-induced settlement were to occur.

Sears Point

The Sears Point dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. The worst case scenario dam break would cause Tolay Creek to flood buildings in the vicinity of Sears Point and scattered buildings along Highway 121 and on Tubbs Island. State Highways 37 and 121, which are important transportation corridors, could be inundated. The estimated maximum water level at Sears Point would be less than 5 feet.

*** Two Rock**

The Two Rock dam would be sited a tributary of Stemple Creek north of Two Rock in the Roblar de la Miseria. Discharge from the reservoir would flow down the tributary into the main branch of Stemple Creek near Two Rock. From there, the water would flow through Marin County into the Estero de San Antonio to Bodega Bay. The worst case scenario dam break would cause Stemple Creek to flood the town of Two Rock. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The Two Rock School and the Two Rock Fire Station lie on the edge of the flood inundation. Portions of the Coast Guard Reservation also appear to lie in the flood inundation area of the Two Rock Reservoir. The flood waters would back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Two Rock and Bodega Bay. The estimated maximum water depth at Two Rock would be 80 feet.

Bloomfield

The Bloomfield dam would be sited on a tributary of Americano Creek northwest of the town of Bloomfield. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past the town to Bodega Bay. The dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would also back up into Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated maximum water depth would be 13 feet at Valley Ford and 20 feet at Bloomfield.

Carroll Road

The Carroll Road dam would be sited on a tributary of Americano Creek between the towns of Bloomfield and Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. The 15 minute dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would

JULY 22, 1998

INUNDATION DUE TO DAM FAILURE

PAGE 4.10-6

INCL3

also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated maximum water depth would be 17 feet at Valley Ford and 26 feet at Bloomfield.

Valley Ford

The Valley Ford dam would be sited on a tributary of Americano Creek in the Canada de Pogolimi area northeast of Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. The 15 minute dam break scenario would cause Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Estero Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Estero Americano Creek. The backup along Estero Americano Creek and Bloomfield Creek would inundate part of the town of Bloomfield. The Valley Ford and Bloomfield Fire Stations are the major public facilities that lie within the flood inundation area. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be approximately 15 feet at Valley Ford and approximately 17 feet at Bloomfield.

* Huntley

The Huntley dam would be sited on a tributary of Stemple Creek along Martinoni Road near the Sonoma-Marin County line. Discharge from the reservoir would flow down the tributary into Marin County and to the main branch of Stemple Creek. From there, the water would flow into Estero de San Antonio to Bodega Bay. The worst-case scenario dam break would cause the Estero de San Antonio to back up to Fallon. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would also back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between the Huntley dam and Bodega Bay. Portions of the Coast Guard Reservation also appear to lie in the flood inundation area of the Huntley reservoir. The estimated maximum water depth would be 76 feet at Fallon - Two Rock Road and 61 feet near Fallon.

Additional information about the analyses conducted may be found in the Technical Memorandum, *Dam Break Inundation Analysis* (Dames & Moore 1995), contained in Appendix J-1.

EFFECTS OF INUNDATION

In the event of inundation from dam failure, significant and widespread damage to property is likely within the areas of inundation. Within this area there would also be the possibility of personal injury and loss of life, the magnitude of which would be dependent

on the amount of warning before the dam failure, and the success of the evacuation procedures.

In addition to these effects on public safety, other effects would be likely to occur in the event of inundation from dam failure.

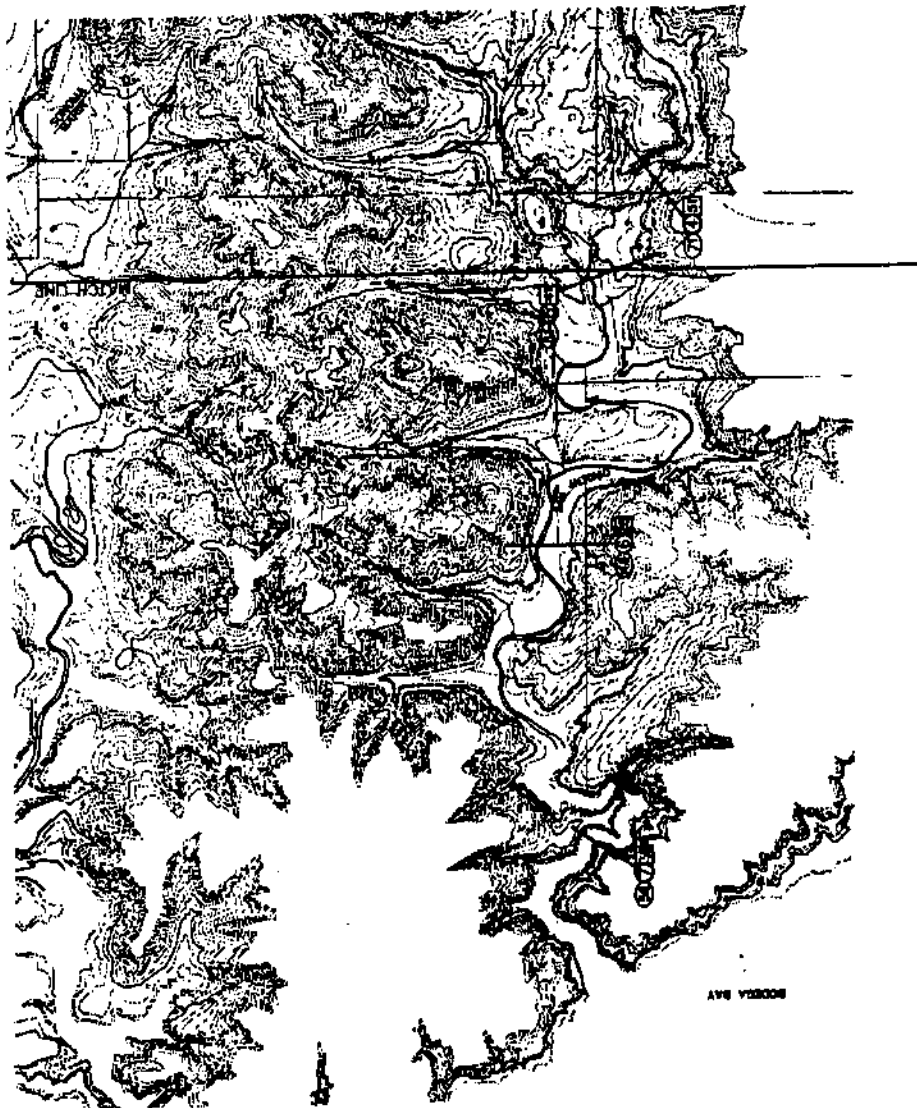
- * • Surface Water Hydrology - Streambank erosion in the event of a dam failure has not been quantified, but is assumed to be significant.
- Groundwater - Dam failure would release large quantities of reclaimed water, but would occur over a very short duration. Reclaimed water may pond in small depressions downstream of the dam, but most would enter a drainage and be carried out of the vicinity. The short duration of ponding would not significantly affect groundwater quality for nitrate.
- Surface Water Quality - If dam failure occurs, a large volume of water with an elevated ammonia, hydrogen sulfide, or cyanide concentration may be released to the streams below the dam.
- Terrestrial and Aquatic Biological Resources - Dam failure at any of the reservoir sites would result in inundation of large downstream areas and probable destruction of terrestrial and aquatic vegetation and wildlife habitat, and may impact endangered, threatened, or rare terrestrial wildlife or plant species in association with drainages downstream from a dam site.
- Jurisdictional Wetlands Resources - Dam failures at storage sites would result in inundation of streams below the dam site, scouring of stream channels, destruction of riparian vegetation and other wetland vegetation, and deposition of sediment from the reservoir into wetlands.
- Transportation - Inundation from dam failure would be likely to damage roads downstream of the dam.
- Public Services, Utilities, and Recreation - Inundation from dam failure would be likely to damage infrastructure downstream from the dam and would have a significant impact on emergency services. In the event of damage to infrastructure such as water and sewer mains, and gas, electricity and communications lines, these services could be disrupted for varying lengths of time until repairs could be made.

JULY 31, 1996

INCL 5

INUNDATION DUE TO DAM FAILURE

PAGE 4.10-7



HUNTLEY RESERVOIR (T-1)
 SANTA ROSA SUBREGIONAL LONG-TERM WATERBURY PROJECT
 NOVEMBER 1988 DAM BREACH SCENARIO ANALYSIS
 DDBB-008-038 SANTA ROSA, CALIFORNIA
 DAMES & MOORE
 FIGURE 4b

LEGEND:
 MAXIMUM FLOOD DEPTH (FT.)
 REACH LOCATION NUMBER
 MAXIMUM FLOOD ELEVATION (FT.) (MOV.)
 INUNDATION LIMITS FOR WORST CASE (PLAN 1)

0 1500 3000 6000
 SCALE IN FEET
 1" = 3000'

INCL 6-1



HUNTLEY RESERVOIR (T-1)
 SANTA ROSA SURFICIAL LONG-TERM WATERWATER PROJECT
 NOVEMBER 1988 DAM BEACON WANDERING ANALYSIS
 00184-001-438 SANTA ROSA, CALIFORNIA
 DAMES & MOORE **FIGURE 4a**

LEGEND:
 MAXIMUM FLOOD DEPTH (FT.)
 REACH LOCATION NUMBER
 MAXIMUM FLOOD ELEVATION (FT. MVD.)
 INUNDATION LIMITS FOR WORST CASE (PLAN 1)

0 1500 3000 6000
 SCALE IN FEET
 1" = 3000'

INCL 62

past the town to Bodega Bay. As shown on Figure 2, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be 13 feet at Valley Ford and 20 feet at Bloomfield.

Carroll Road North (V7): The Carroll Road North dam would be sited on a tributary of Americano Creek between the towns of Bloomfield and Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. As shown on Figure 3, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate most of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be 17 feet at Valley Ford and 26 feet at Bloomfield.

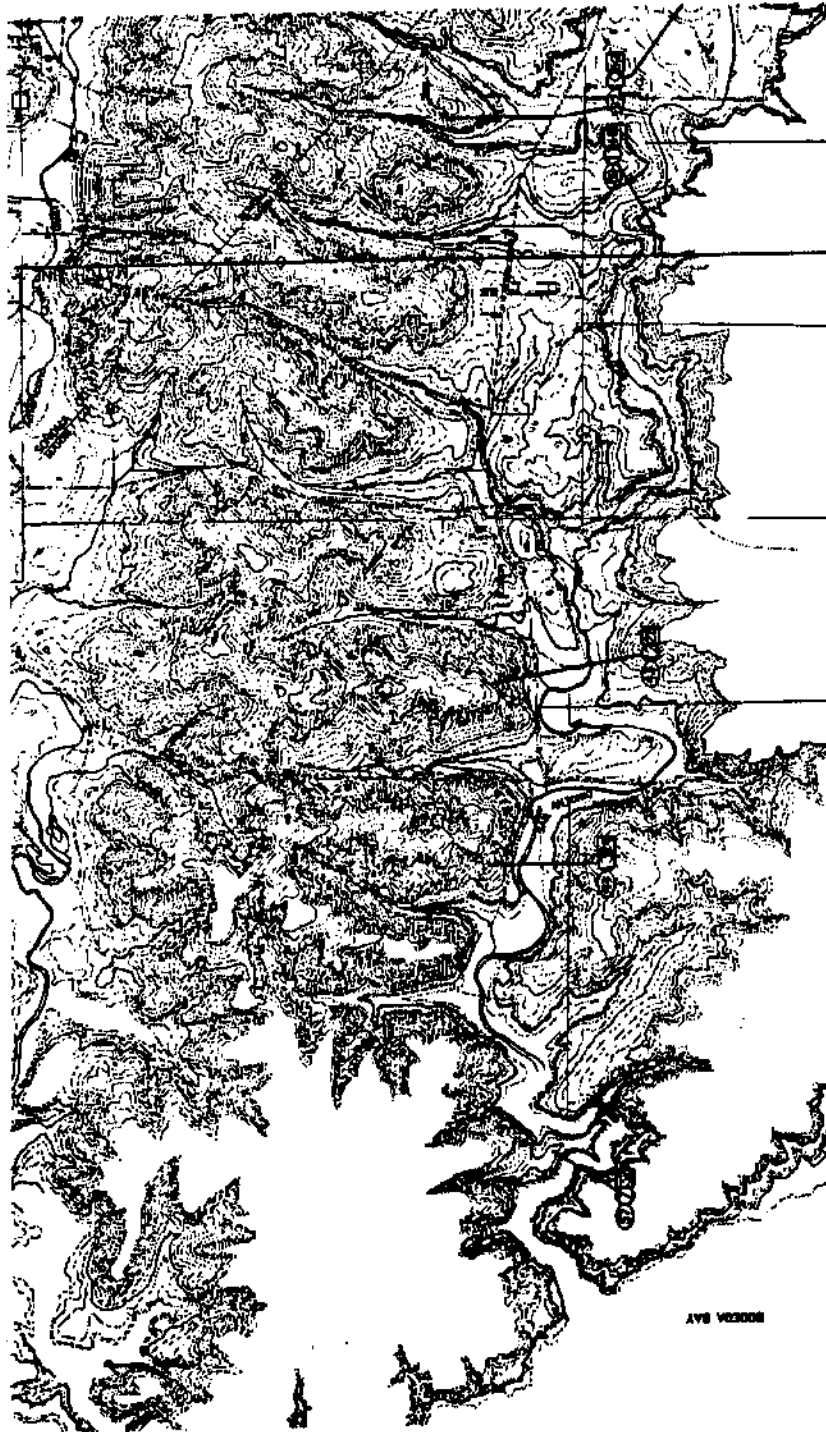
* Huntley (T-1): The Huntley dam would be sited on a tributary of Stemple Creek along Martinoni Road near the Sonoma-Marin County line. Discharge from the reservoir would flow down the tributary into Marin County and to the main branch of Stemple Creek. From there, the water would flow into Estero de San Antonio to Bodega Bay. As shown on Figure 4, the worst case scenario dam break would cause the Estero de San Antonio to partially flood the town of Fallon. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would also back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Huntley Dam and Bodega Bay.

Lakeville Hillside (L-2A): The Lakeville Hillside dam would be sited on a tributary of the Petaluma River near the Lakeville Highway and Hog Island. Discharge from the reservoir would flow down the tributary into the Petaluma River, and from there into San Pablo Bay. As shown on Figure 5, the worst case scenario dam break would cause flooding between Lakeville Highway and the Petaluma River. No towns would be inundated and few buildings would be flooded.

Sears Point (SP-1): The Sears Point dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 6, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be less than 5 feet.

Tolay A (S39): The Tolay A dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 7, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be 11 feet.

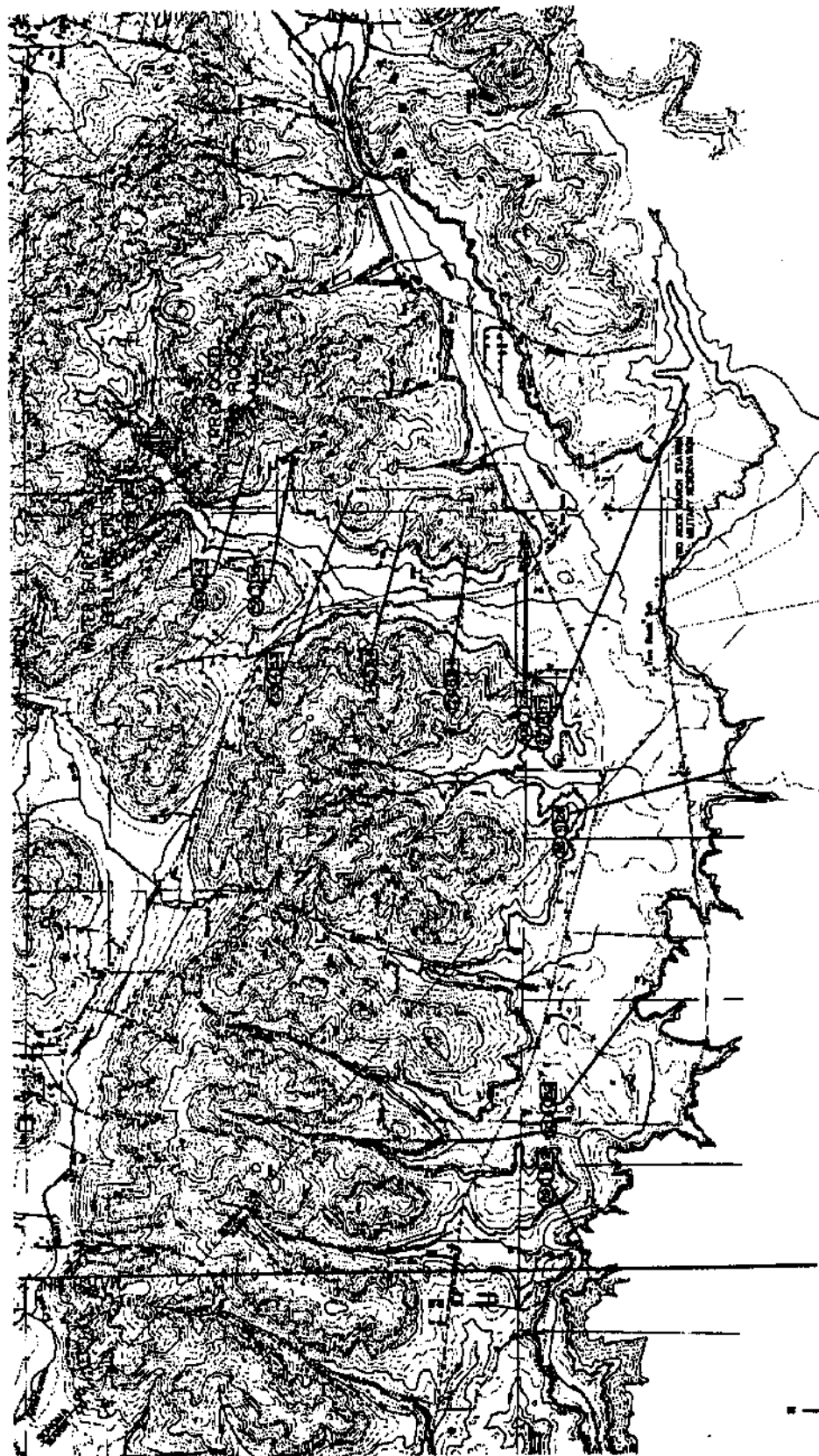
INCL 7



TWO ROCK RESERVOIR (TBA)
 SANTA ROSA SUPPLEMENTAL LONG-TERM WATERBODIES PROJECT
 NOVEMBER 1995 DAM BREAK INUNDATION ANALYSIS
 01185-009-038 SANTA ROSA, CALIFORNIA
 © DAMES & MOORE **FIGURE 30**



INCL 8¹



TWO ROCK RESERVOIR (TBA)
 SANTA ROSA SUBREGIONAL LONG-TERM WATERSHED PROJECT
 NOVEMBER 1996 DRI BEYOND BOUNDARY ANALYSIS
 02385-004-038 SANTA ROSA, CALIFORNIA
 © DAMES & MOORE FIGURE 86

LEGEND:
 MAXIMUM FLOOD SCOP IN (FT.)
 REACH LOCATION NUMBER
 MAXIMUM FLOOD ELEVATION (FT.) (MAY 1996)
 FLOODIGATION LIMITS FOR WORST CASE (PLAN 1)

0 1500 3000 6000
 SCALE IN FEET
 1" = 3000'



INCL 82

Tolay C (S39C): The Tolay C dam would be sited on Tolay Creek northwest of the intersection of Highways 37 and 121. Discharge from the reservoir would flow down Tolay Creek to San Pablo Bay. As shown on Figure 7, the worst case scenario dam break would cause Tolay Creek to flood Sears Point and scattered buildings along Highway 121 and on Tubbs Island. The estimated water level at Sears Point would be 12 feet.

* Two Rock (T6A): The Two Rock dam would be sited a tributary of Stemple Creek north of Two Rock in the Roblar De La Miseria. Discharge from the reservoir would flow down the tributary into the main branch of Stemple Creek near Two Rock. From there, the water would flow through Marin County into Estero de San Antonio to Bodega Bay. As shown on Figure 9, the worst case scenario dam break would cause Stemple Creek to flood the town of Two Rock and part of Dos Piedras. The flood waters would also back up Stemple Creek and would flood scattered buildings near Two Rock School. The flood waters would back up several tributaries to Stemple Creek and Estero de San Antonio and would flood several buildings between Two Rock and Bodega Bay.

Valley Ford East (V4): The Valley Ford East dam would be sited on a tributary of Americano Creek in the Canada De Pogolimi area northeast of Valley Ford. Discharge from the reservoir would flow down the tributary to the main branch of Americano Creek. From there, the discharge would flow down past Valley Ford to Bodega Bay. As shown on Figure 10, the worst case scenario dam break would cause the Americano Creek to inundate the town of Valley Ford. The flood waters would also back up Americano Creek, Bloomfield Creek, and Ebabias Creek, as well as several other tributaries to Americano Creek. The backup along Americano Creek and Bloomfield Creek would inundate part of the town of Bloomfield. There are other buildings scattered along Americano Creek that would be inundated. The estimated water depth would be approximately 15 feet at Valley Ford and approximately 17 feet at Bloomfield.

Tolay C Back Dam Analysis

In addition to the analysis conducted for the main dams, an analysis was conducted for the Tolay C back dam. A failure of the back dam would flood the area north of the back dam. Based on a comparison of the storage capacity curves for Tolay A and Tolay C reservoirs, the resulting water surface elevation in this area would be at 240 feet NGVD. This water surface elevation would result in flow over the 230 foot saddle at Tolay Creek and the 235 foot saddle into a tributary of Stage Gulch Creek.

Due to the multiple discharge points and the large volume of water going into storage in the area behind the back dam, this dam break scenario would be difficult to model using the HEC-1 computer model. The inundation limits were instead determined using engineering judgment based on the depth of flow over the saddles.

The water would back-up beyond the headwaters of Tolay Creek and flow down a creek along the south side of Adobe Road and down to the Petaluma River near Browns Lane and the Lakeville Highway. Also, the water would flow over a saddle north of Cannon Lane and into a tributary of Stage Gulch Creek. As shown on Figure 11, most of the flooding would be limited to

INCL 9

PAGE 6

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EMWC

26 JAN 91

SUBJECT: SANTA ROSA SUBREGIONAL WATER RECLAMATION SYSTEM - EIR/EIS (DEC 90)

REFERENCE: EIR/EIS PAGES 9-67 AND 9-68, IMPACT 9.1-11

SANTA ROSA CITY COUNCIL
DEPARTMENT OF COMMUNITY DEVELOPMENT
SANTA ROSA CITY HALL
100 SANTA ROSA AVE., ROOM 3
SANTA ROSA CA 95402

COUNCIL MEMBERS:

REFERENCE IS MADE TO THE REMARKS OF BILL WALTON FOR ESTERO MUTUAL WATER COMPANY (EMWC) DURING YOUR HEARING ON JANUARY 15, 1991 AND HIS REMARKS TO THE NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD ON JANUARY 24, 1991 AT THE MEETING IN THE ROHNERT PARK CITY HALL.

THE ENCLOSED FACT SHEET SUMMARIZES THE BASIC INFORMATION ABOUT THE EMWC'S FACILITIES LOCATED ON THE BANKS OF THE ESTERO DE SAN ANTONIO. ANY INCREASE IN THE HEIGHT OF THE WATER FLOWING IN THE ESTERO WOULD ENDANGER OUR WATER SUPPLY BY POSSIBLY FLOODING OUR COLLECTION POND THUS CONTAMINATING OUR DRINKING WATER, BY POSSIBLY DAMAGING OUR ELECTRICAL SERVICE AND 100 HORSEPOWER MOTOR/PUMP, AND BY POSSIBLY WEAKENING OR DAMAGING THE PG&E POWER POLE BRINGING ELECTRICITY TO THE SITE.

OUR INTEREST IN THIS MATTER IS NOT TO BLOCK THE IRRIGATION PORTION OF THE EIR/EIS, BUT RATHER TO INSURE THAT ADEQUATE LEGAL, FINANCIAL, AND STRUCTURAL ARRANGEMENTS ARE IN PLACE WELL BEFORE ANY INCREASE IN THE ESTERO WATER LEVEL OCCURS, IN ORDER TO COMPENSATE US IN A TIMELY AND ADEQUATE MANNER FOR REPAIRS AND REBUILDING OF OUR ESTERO SITED FACILITIES. AND, ADDITIONALLY, TO INDEMNIFY US AGAINST LOSS CAUSED BY CONTAMINATION OF THE WATER SUPPLIED TO OUR CUSTOMERS. ALL OF THIS WITHOUT RESORT TO LITIGATION, IN THE EVENT THAT DAMAGE RELATED TO A RISE IN THE WATER LEVEL OF THE ESTERO BEYOND A "NATURAL" LEVEL SHOULD OCCUR AT A FUTURE TIME.

WE REQUEST A MEETING WITH APPROPRIATE MEMBERS OF YOUR STAFF TO EXAMINE THE INFORMATION AVAILABLE TO SUPPORT YOUR STATEMENTS CONCERNING A 4.4' RISE, REDUCED TO 1' BY EVAPORATION, AND MITIGATION BY PUMPING OR SOME OTHER MEANS, PLUS AN ALL-IMPORTANT DEFINITION OF "...THE LEVEL THAT WOULD OCCUR NATURALLY." AND TO DISCUSS THE ARRANGEMENTS MENTIONED ABOVE TO PROTECT OUR INTERESTS. WE ALSO SOLICIT ANY IDEAS YOUR ENGINEERS MIGHT HAVE FOR STRUCTURAL CHANGES TO LESSEN OUR RISKS AT THE ESTERO.

EMWC4/SEWER01.WPF/26JAN91.....PAGE 1

INCL 10¹

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26 JAN 91

EMWC

SUBJECT: SANTA ROSA SUBREGIONAL WATER RECLAMATION SYSTEM - EIR/EIS (DEC 90)

PAGES 9-67 AND 9-68 OF THE EIR/EIS APPEAR TO PRESUME A SUMMER TIME IRRIGATION SEASON AND NO LASTING EFFECT DURING THE WINTER RAIN SEASON ON THE WATER LEVEL OF THE ESTERO. THIS IS NOT A SAFE PRESUMPTION OVER THE LONG TERM, SINCE A NUMBER OF RANCHERS HAVE VERBALLY TESTIFIED THAT WITH IRRIGATION THEY MIGHT RAISE THREE CROPS A YEAR OF CATTLE FORAGE. THIS MIGHT REQUIRE IRRIGATION DURING MOST OR ALL OF THE YEAR. ADDITIONALLY, THERE IS ALWAYS THE POSSIBILITY THAT FUTURE GROWTH IN THE SANTA ROSA SEWAGE SERVICE AREA WILL PROMPT PLANNING FOR RELEASE OF THE TREATED SEWER WATER INTO THE STEMPLE CREEK/ESTERO DE SAN ANTONIO WHICH COULD RAISE ITS HEIGHT TO A DANGER POINT FOR OUR FACILITIES.

YOUR WRITTEN REPLY IS REQUESTED AS WELL AS THE INCLUSION IN THE EIR/EIS OF THIS LETTER AND YOUR REPLY.

OUR POINT OF CONTACT IS MR. WILLIAM R. WALTON III, (707) 878-2660.

SINCERELY,

JACK W. WALLACE
PRESIDENT

ENCLOSURES

CF: CAROL WILLIAMS, MARIN COUNTY PLANNING DEPT.
DAN CARLSON, UTILITIES DEPT. SANTA ROSA
CHRMN, NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD

EMWC4/SEWER02/26JAN91.....PAGE 2

1NCL 103