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ENVIRONMENTAL IMPACT REPORT
MADONNA ROAD CULVERT ENLARGEMENT
AND PREFUMO CHANNEL MODIFICATIONS

July 1973

City Engineers Office
City of San Luis Obispo

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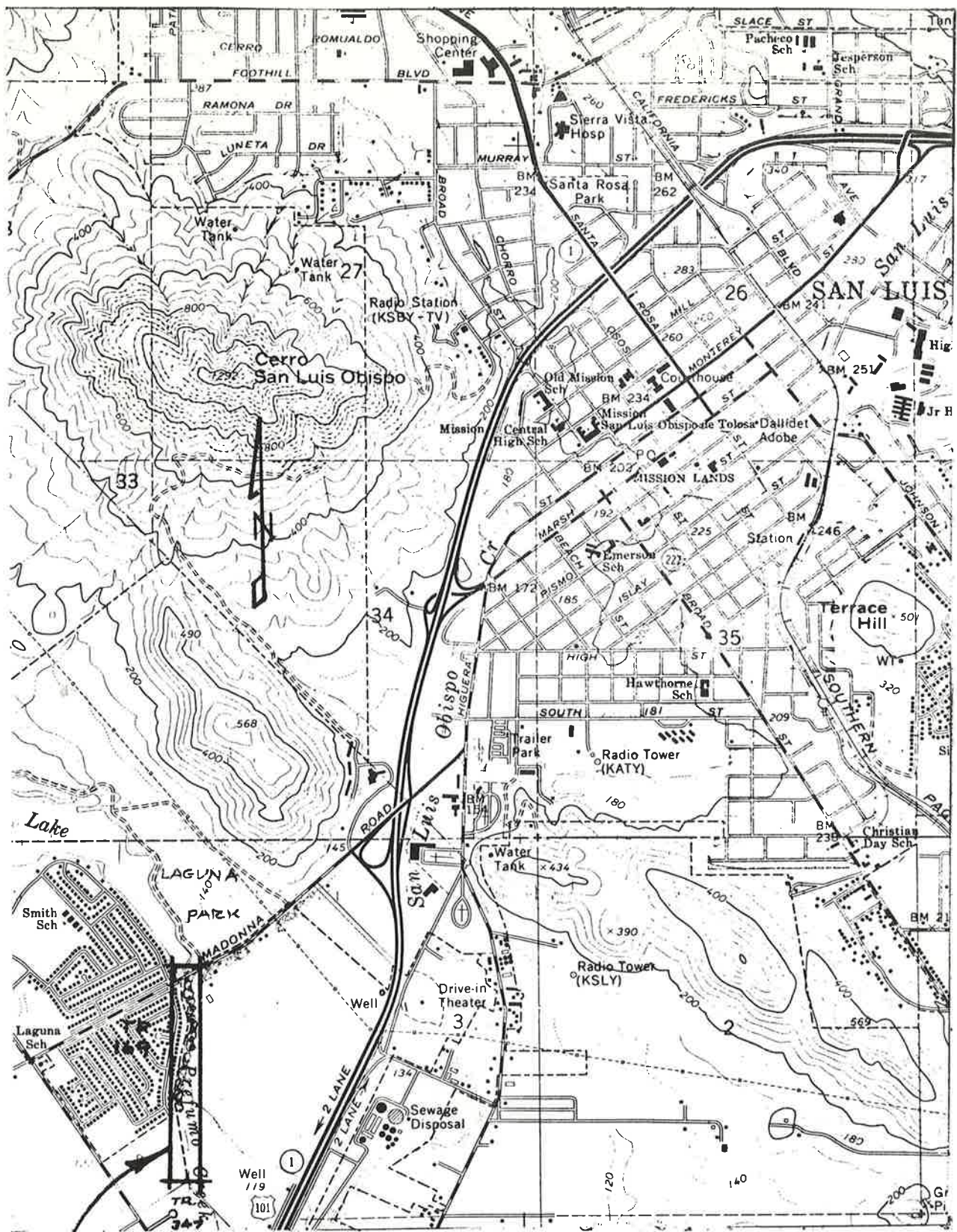
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PROJECT SITE

PROPOSED MADONNA RD. CULVERT ENLARGEMENT
AND PREFUMO CHANNEL MODIFICATIONS.

SCALE: 1" = 2,000'

INTRODUCTION

The City of San Luis Obispo has proposed construction of a culvert enlargement at the outlet of Laguna Lake and modification of the Prefumo Drainage Channel below the lake outlet. As most of the area involved in the project is outside the City, the County has required the City to apply for a grading permit and as a condition of the issuance of this permit, an environmental impact report was required. The City Engineer's Office has written this report on the impact that this project will have on the environment, both during construction and on a long term basis. This report was written to conform to the County of San Luis Obispo "Environmental Impact Procedures".

A. Present Site Characteristics

1. Location, general description and site map: The project is located two miles southwest of the center of San Luis Obispo on the Prefumo Drainage Channel. The work will consist of enlargement of the culvert under Madonna Road at the outlet of Laguna Lake and modification of approximately one half mile of the Prefumo Drainage Channel. Eighteen hundred feet of the existing channel is in the City limits. This was constructed in a drainage easement as part of Tract 169. The last nine hundred feet of the project is the natural channel of Prefumo Creek and is in the County. The widening of the existing channel would be in the County as would the re-alignment of the natural channel. The project will cover an area of 4.5 acres.

2. Existing uses and alterations: The land involved, four and one quarter acres, is in various uses at the present time. The Froom property through which the natural channel flows, has been used for grazing. The Dalidio property in the project area is not and has not been in active use for a considerable length of time. There are no structures or manmade facilities of any kind within the project area on either the Froom or Dalidio property. There are two rows of trees consisting of approximately 630 Blue Gum Eucalyptus and 70 Monterey Cypress on the Dalidio property within the project area. These were planted for wind-break purposes in the early 1900's.

3. Soils: The soils in the project area are recent alluvial silts of a highly expansive nature. There are some traces of gravel. This soil has been formed by the weathering and decomposition of basalt, Greywacke sandstone and serpentine.

4. Geology: There are no seismic hazards involved due to the nature of this project. All cut slopes will be no steeper than 1.5:1 and not over 10 feet in height. There are no mineral resources of any value and no fossils have been found in the area.

5. Hydrology: The groundwater in this area is generally quite shallow. The average depth in the project area is about 12 feet. Fairly recent tests of this water indicate that it is potable, but quite highly mineralized. The Dalidio ranch has a well near Highway 101 which is used for irrigation. There is also a smaller domestic well which serves the family home. This well is about 500 feet from the project. There is nothing in the proposed project which will have a significant effect on the groundwater table.

The flow in both the Madonna Plaza Ditch and the Prefumo Channel is intermittent in nature. The channel is dry about seven months out of the year. During the winter the flows vary from insignificant to about 1500 c.f.s. as observed by slope area measurement on January 18, 1973. This waterway drains an area of over 9000 acres. Due to the more or less natural state and lack of human access to the project area, there is virtually no pollution occurring.

6. Topography: The topography is relatively flat with a slight slope toward the waterways. The Prefumo Channel is about 8 feet deep through the Dalidio property and 10 to 12 feet deep through the Froom property where it is a natural channel.

7. Vegetation: The predominant vegetation in the project area are Blue Gum Eucalyptus trees and Monterey Cypress trees. Under these trees are annual grasses such as rye and oats. There is an occasional elder on the channel banks. The growth in the section of channel through the Dalidio property consists mainly of sedge, rushes and tules. The section of natural channel through the Froom property has mainly willow growth on the waterway edge. The land on either side of the channel is covered with annual grasses. No endangered or rare species, unusual specimens of non-endangered species or unique grouping of species exists in the project area or its vicinity. See map and landscaping plan for details of vegetation to be introduced.

8. Wildlife: The extensive eucalyptus groves on the Dalidio property consist of several thousand trees which provide roosting and/or nesting sites for several species of birds. There is a high percentage of raptors and carnivorous waders due to the abundance of small vertebrates and crustaceans in the channel, in Laguna Lake, in San Luis Creek and in Laguna Park. The most productive area in the project area is the channel itself and on the "edge". The "edge" is the line delineating habitat change and characteristically has the heaviest wildlife population and the most feeding activity. The vast majority of the Dalidio property is in garbonzo beans and is cultivated and sprayed regularly for insects and weeds and is therefore almost sterile as far as value to wildlife is concerned. The Froom property has considerable grassy cover and is a valuable source of small mammals for predators in the area. Regularly observed in the project area and vicinity are hawks, owls, crows, herons, jays, vultures, dove, black birds, sparrows, humming birds, marsh wrens, house finches and bush-tits. The mammal population consists of possums, raccoons, skunks, rabbits, gophers, moles, rats and mice. Reptiles consist mainly of lizards and gopher, king and garter snakes. During the winter, the intermittent stream flow supports a run of steelhead. There are no gravel beds in the project area and the flows in the

channel are so intermittent that no spawning occurs. The fish go into Laguna Lake. The pools which remain in the depressions in the channel bottom have a large frog and crayfish population in the spring before they dry.

9. Atmospheric Conditions: The climate in the Los Osos Valley is typical of coastal valleys. The prevailing winds blow from the west over 50% of the time. The general exceptions are the early morning when gentle winds blow from the east pushing the evening fogs back to the ocean and during the winter when storms will be blown in from the southeast. The annual rainfall is 21 inches which occurs between October and April. The effective precipitation under the many trees in the area is somewhat greater than the measured rainfall because the many trees collect a considerable amount of moisture from the fog and the drip contributes to the soil moisture. The air quality in the area is uniformly excellent because of several reasons. There are fairly strong, 4 to 15 knots, winds which blow over 50% of the time from the ocean which is 11 miles west of the site. This area is far enough from the basin in which San Luis Obispo is built to rarely be bothered by the atmospheric inversion which occurs over the downtown area. The surrounding land use does not produce objectionable atmospheric pollution. Highway 101 which is about one half mile east of the project area is the main source of air and noise pollution, but since the prevailing winds blow from the project area toward the highway neither the noise nor air pollution is a problem at this site.

10. Scenic Values: The visual amenities of the project area are many. There are many Blue Gum Eucalyptus and Monterey Cypress trees planted in such a way as to create a very pleasant park-like atmosphere. Virtually the entire length of the project area is visible from Highway 101. The lots on the east side of Oceanaire Drive back up to the existing channel by the Dalidio property. At one time there were more trees in the general area but they were cut prior to World War II. At one time the entire area surrounding the project area was devoted to agricultural use, both vegetable crop production and grazing land. In 1959, residential development began and since then there has been much residential development, two schools and a small amount of commercial development built to the northwest of the area.

11. Historical Values: The area has a very interesting history. In the latter part of the 1700's, this land was used by the San Luis Obispo de Tolosa Mission for grazing. The missions were secularized and lost the right to use the unlimited amount of land that they once controlled. In 1844, when California was still a Mexican possession, Governor Micheltorena made the La Laguna Grant to Bishop Joseph Alemany of the Monterey Diocese of the Catholic Church. This consisted of 4157 acres of the Los Osos Valley. About 30 years later, the land was sold to Captain John Wilson, the owner of the Rancho Canada de los Osos, which lay to the northwest of La Laguna. The properties were combined to form the Rancho Canada de los Osos y la Laguna. In

the 1880's, the entire area was subdivided and then sold in parcels. Prior to its removal in 1906, there was a large horse race track and grandstand on the Dalidio property. The grandstand was moved and converted to a barn which is still in use by the Dalidio family. There are no Federal, State or local historical landmarks on or near the project area.

12. Archaeological Value: There are no known sites or indication of possible sites in the project area. The owners, who have occupied the site since 1918, and the writer of this report, who has observed many earthwork projects in the area, have never seen evidence of prehistoric occupation such as shell or bone deposits, stone implements, or fire pits. These are very commonly found in this area, but on higher ground. There are no records of any formal archaeological surveys in the project area.

B. Description of Proposed Project

1. General Information: The project consists of the addition of a third barrel to the culvert under Madonna Road which is the outlet of Laguna Lake. This will increase the outlet capacity from 1150 c.f.s. to 2400 c.f.s. The channel downstream to the confluence of the Madonna Plaza ditch would be widened to accomodate this flow. From the confluence to the end of Tract 234, Lakewood, the existing channel which now has a bottom width of 27 feet would be widened to 40 feet with 2:1 side slopes. The reach through the Froom property, about 900 feet, which is the only natural streambed in the area, will be filled and realigned at a future time. The existing alignment is very torturous and undersized even for the present flows. When realigned, this section will have a bottom width of about 25 feet and 1.5:1 side slopes. The slope from Madonna Road to Tract 347 will be 0.15% to prevent erosion velocity.

2. Need for Project: The existing culvert and channel were designed using a 100 year storm as the criteria. In January, 1969, there was a 35 year storm and the culvert was discharging at its maximum design capacity of 1150 c.f.s. It became obvious on January 18, 1973, when a 100 year storm occurred that an error in hydrology was made. On that date, the water in Laguna Lake raised to elevation 128.5; 3.1 feet over flood level. There were 132 houses flooded. Property damage was enormous. For several hours access to the area was almost impossible because of water flowing over Madonna Road. The decision was made by the San Luis Obispo City Council to authorize construction of the proposed culvert enlargement and downstream channel modification. A complete hydrological analysis and flood routing study was made of the Laguna Lake watershed by the writer which was used in the design of the new outlet works. Construction of this project will eliminate the possibility of re-occurring flooding.

3. Construction methods to minimize adverse effects: The construction project is planned to begin on or about September 4, 1973, and shall be completed by November 30, 1973. Earthwork to be done in and around the existing

channel will therefore be done during the period of year in which there has been no water in the channel for three to four months. There will undoubtedly be some damage to dormant eggs or creatures, but these are very rapidly self-restoring. The specifications for tree removal spell out removal methods which will minimize damage to the trees which are slated to remain.

4. Conformance with present ordinances and plans: This project is in conformance with all present ordinances and plans. The County will require a grading permit which will be taken out before construction begins. This Environmental Impact Report has been submitted to satisfy the County requirements. Completed plans will be submitted to the California State Fish and Game Department for review and a permit to construct.

5. Related projects in the area: There are no related projects in the area, either existing or planned, that the writer is aware of.

6. Access and circulation: At the present time, there is no public access to the project area as it is in private ownership. The City proposes a pedestrian-equestrian pathway that can be used for landscape and channel maintenance. No vehicles other than maintenance trucks and equipment will be allowed on the pathway. Construction access is available from Madonna Road and from the southerly end of Oceanaire Drive.

7. Relation to natural resources: Ultimately, the project will be beneficial to natural resources. The project does not propose any impermeable surfaces or substantial decreases in soil permeability. There will be about 312 eucalyptus trees removed in an area 15 feet wide by 1000 feet long. The channel grading will involve about three acres of land which includes the one-third acre occupied by the trees. It is proposed to plant California native shrubs between the pathway and the channel. The channel through the Fromm property will have a row of cottonwood trees planted by the side of the pathway and native shrubs planted in groups between the pathway and the channel and beside the channel on top of the westerly bank. The only possible air pollution caused by this project would be caused by the construction equipment involved in the clearing and earthwork. This type of equipment is almost universally powered by diesel and therefore the exhaust pollutants are less harmful than those of gasoline powered equipment. The horsepower-hours expended on this project are minute in comparison with Highway 101, so any increase in air pollution would be unnoticeable. There should be no effect on the groundwater levels or quality. As far as scenic values are concerned, the visual effect from Tracts 169 and 234 will be that the eucalyptus will appear to be less dense because of removal of one of the two rows of trees, but there will be more ground cover with the planting of shrubbery than there is at present. By the planting of this additional cover and extending the row of trees, the project will create more wildlife habitat.

C. Evaluation

1. The environmental impact of the project: The greatest effect of this project will be felt outside of the project area itself. By virtue of the installation of an adequate culvert under Madonna Road and the enlargement of the Prefumo Creek Channel, the area around Laguna Lake which was so disastrously flooded on January 18, 1973, will be assured of relief of a recurrence. Downstream of the culvert in the area to be graded for the channel widening there will be a significant short-term impact to several life systems. There will be a considerable number of dormant reptiles (frogs, toads, etc.) destroyed. The removal of the eucalyptus trees in the area to be widened will destroy some of the available bird habitat. The graded area in the channel bottom will begin the role as a supporter of its life system after the first winter. It was observed that after the winter of 1969, when a total of 54 inches of rain fell, that the bottom was completely eroded and denuded of all vegetation. The Army Corps of Engineers repaired the eroded sections during the summer of 1969. By the spring of 1970, the bottom was again a productive habitat and the banks had a covering of annual grasses. The trees which are slated for removal are the trees which are closest to the houses on the westerly side of the channel. For this reason, and also because this area is usually shadowed, there is a lesser bird population than in the trees which will remain. One other short-term effect of this project will be the creation of a considerable disturbance caused by the construction itself. There will be a period of about 30 days during which time the trees will be removed and the grading will take place. The noise will undoubtedly disturb the adjacent residences and some of the wildlife in the area. The disturbance will generally begin at about 8:00 a.m. and will subside at 4:30 p.m. The dust problem should be minimal because of the direction of the prevailing winds and the fact that the moisture content of the soil in this area is quite high. If this becomes a problem, water trucks will be used to settle the dust. It has been observed that the heron and vulture population does not roost or nest in the project area. The area most frequented by these birds is to the west of the row of trees in the project area which are to be removed. Contrary to a considerable amount of publicity which herons have received lately, they do have considerable tolerance to the presence of traffic, humans, and civilization. Unless they are deliberately disturbed by rock throwing or other efforts to create unrest, they appear to adapt quite well to the proximity of human life. The vultures generally roost almost over Madonna Road and would not be adversely effected by the construction in the daytime as they are not in the trees during this period of time. They will warm themselves and dry their feathers in early morning sun before leaving their roosting places when the morning breezes come up.

Since most of the area which will benefit from the flood control measures is built up to its maximum density, there will be little or no population shift or change in the use of the area. Only a benefit to neighboring properties can be seen. As far as the project area itself is concerned, there will

be some change in the human use of the area. By obtaining an easement wide enough to include both rows of trees by the existing channel and the construction of the proposed pedestrian-equestrian-bicycle path which eventually will follow this drainage channel to where it is crossed by Calle Joaquin, there will be a very pleasant park-like area opened up to the public. This entire area is closed to the public due to private ownership.

2. Unavoidable adverse effects: Probably the most significant adverse effect that this project will have would be that upon completion, the release rate of water in Laguna Lake will be about doubled and this will increase the hazard of flooding in the area north of the Los Osos Valley Road-Highway 101 interchange. At the present time, the culverts under Calle Joaquin, the Los Osos Valley Road offramp and Highway 101 are inadequate to handle the design discharge of the proposed project. As explained in the preceding sections, the temporary destruction of wildlife habitat and the probable annoyance to the nearby residential area are unavoidable but temporary, and every effort shall be made to minimize these effects.

3. Mitigation measures proposed to minimize adverse effects: Due to the very poor alignment and channel condition in San Luis Creek at the confluence of Prefumo Creek, a backwater condition occurs and limits the discharge capabilities of any structure under Highway 101. Channel grading in this area, enlargement of the culverts under Highway 101 and the Los Osos Valley Road offramp, and modification or possible enlargement of the culvert under Calle Joaquin will be necessary to avoid probable flooding in this area. At the present time the City is planning to modify the Calle Joaquin culvert. The Department of Transportation is investigating the possibility of the enlargement or replacement of the other culverts. The planting of a row of cottonwoods through the Froom property should more than compensate for the loss of the eucalyptus trees. They will provide excellent habitat. The area beside the channel will be planted with native shrubs selected for their suitability for the area. The construction area as it exists has almost no low ground cover other than annual grasses. The graded areas on the slopes of the channel will be hydro-mulch treated to start ground cover growing as soon as possible.

4. Alternatives to the project: There were several alternative designs considered. The concept of deepening the existing channel instead of widening it to get the required cross-sectional area was considered. This would require lowering the floor of the culvert under Madonna Road and the subsequent lowering of the summer water level of the lake. This is very undesirable, as the lake is already so shallow that there is considerable weed growth which creates a bad insect problem in the summer. Leaving the channel in approximately its existing configuration and lining it with concrete was considered and rejected because the very high velocity which the water would have would require large energy dissipators to slow it to non-erosive velocities where it joins the earthen channel. The cost of lining would also be very expensive in comparison with a graded channel and would virtually

sterilize the area as far as habitat for wildlife. Also considered was the grading of a meandering type stream with rougher banks and a more natural appearance. This idea was also rejected as the required increase in size due to the poorer flow characteristics necessitated a channel of half again the width of the proposed channel. The cost would also be considerably higher. The "No Project" alternative was considered and overridden by the necessity to protect the health, safety and welfare of those living in the areas flooded on January 18, 1973.

5. Short term disruption - long term productivity relationship: The long term effect of the proposed project shall be to widen the range of beneficial uses of the area involved. The trail will allow the use of the area by hikers and horseback riders. Shrubs and trees planted as part of the project will provide additional wildlife habitat. These factors override the detrimental short term impact due to construction and temporary reduction in the wildlife support system.

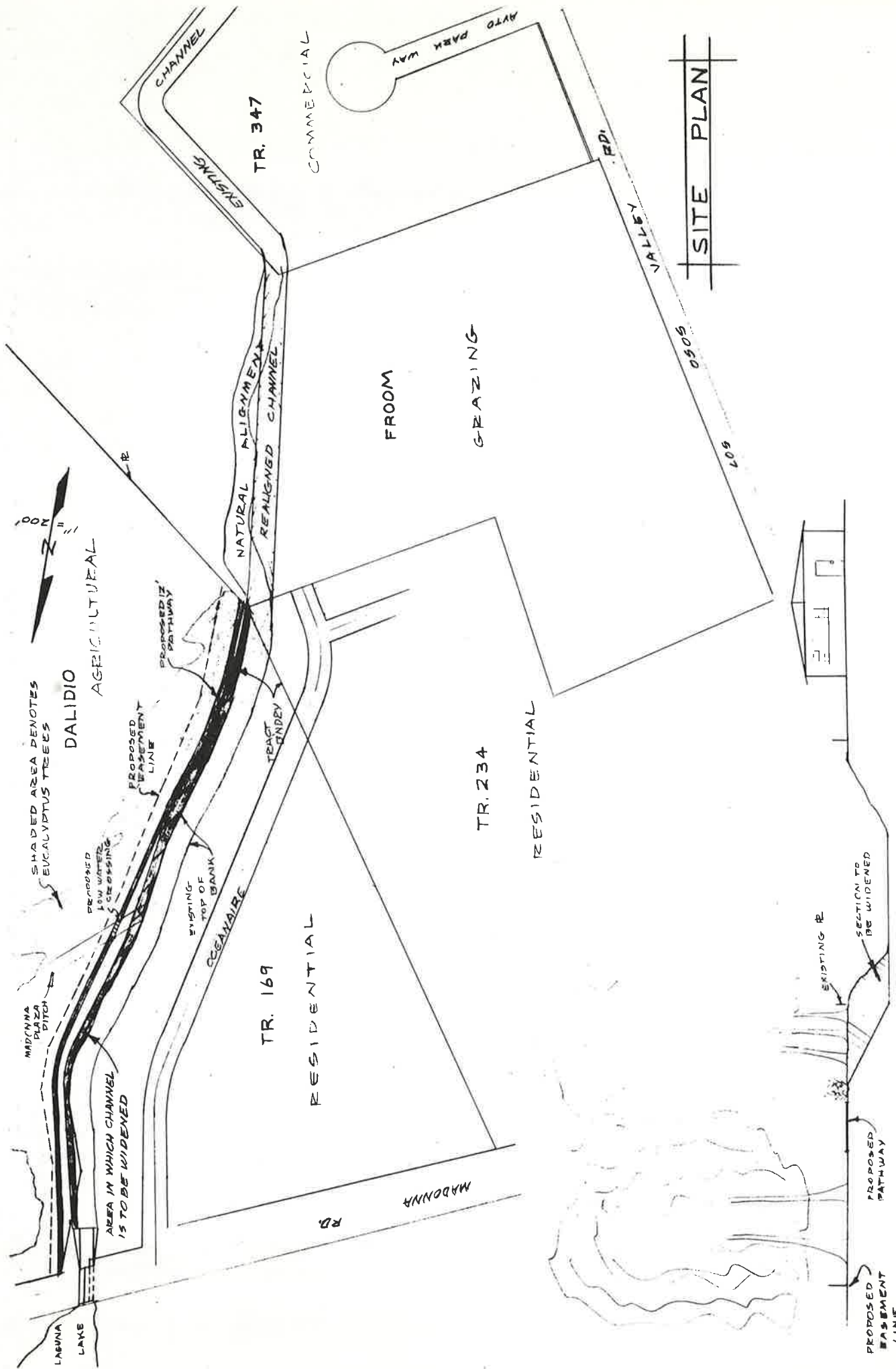
6. Irreversible and irretrievable commitment of resources: The major resource to be committed on this project will be the manpower and equipment involved in its construction. Due to the relatively small size of the project, this will be of a minor nature. The loss of the eucalyptus trees will be a temporary situation until the new planting of trees and shrubs develops into maturity.

7. Growth inducing impact: There would be little or no reason to expect any population shift or growth stimulation due to this project because its prime purpose is to prevent flooding in an area which is totally developed. The residential area that borders Laguna Lake is about 95% developed. The east side of the lake is a City park. There were restrictions on building within the flood plain area around Laguna Lake which precluded construction in this area even before this project was proposed. The area downstream of the culvert at Madonna Road which is now in the County and owned by the Dalidio and Froom families is a logical annexation to the City and no development is likely before this occurs. The channel modification through this area is only made necessary by the enlargement of the lake outlet and should have no bearing on the development of this property at this time.

INFORMATION SOURCES ON ENVIRONMENTAL IMPACT REPORT

1. Flora: County Farm Advisor; Winton Frey, California Polytechnic State University Ornamental Horticulture Department.
2. Fauna: Dr. Donaldson, California Polytechnic State University Biological Sciences Department.
3. Historical: Mrs. Louisiana C. Dart, Curator, County Historical Museum.
4. Archaeological: Dr. Charles Dills, Recorder, County Archaeological Society.
5. Weather: County Airport Wind Data

This report was prepared and written by Paul E. Landell, Jr., Civil Engineering Assistant II, City of San Luis Obispo Engineering Department.



TYPICAL SECTION OF CHANNEL WIDENING
SCALE 1" = 20'