

July 14, 1977

Mr. Toshio Ishikawa, Administrator
Maui Historic Commission
County of Maui
200 S. High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Ishikawa:

SUBJECT: EIS for Lahaina Seawall Project, Lahaina, Maui

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes, and the Executive Order of August 23, 1971. This environmental impact statement will be a useful tool in the process of deciding whether or not the action described therein should or should not be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws, and does not constitute an endorsement of the proposed action.

When you make your decision regarding the proposed action itself, I hope you will weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, will provide you with a useful analysis of alternatives to the proposed action.

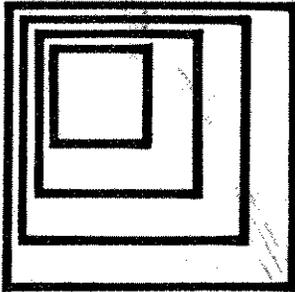
With warm personal regards, I remain,

Yours very truly,


George R. Ariyoshi

bcc: ✓ Hon. Richard Marland

Office of Environmental Quality Control
Office of the Governor
550 Halekuanua Street
Tani Office Building, Third Floor
Honolulu, Hawaii 96813



Lahaina Seawall Environmental Impact Statement Revised

MAUI HISTORIC COMMISSION

COUNTY OF MAUI

REVISED
ENVIRONMENTAL IMPACT STATEMENT
FOR THE
LAHAINA SEAWALL
LAHAINA, MAUI, HAWAII

Prepared by: Environment Impact
Study Corporation

For: Hawaii Design Asso-
ciates, Inc.

MAY, 1977



SUMMARY

Lahaina has had a long and notable history. The oldest and most picturesque part of town is a few blocks along Front Street open to the sea. This area is a focus of visitor interest and the visitor industry has come to be the Lahaina District's largest.

The view from the open side of Front Street out over the ocean to the island of Lanai is a beautiful one. This is the location of the proposed Lahaina Seawall project.

There is an existing seawall which was built in the 1920's and added to in the 1930's. It consists of a rubble wall surmounted by a concrete cap, sidewalk and railing. Portions of the cap, sidewalk and railing are seriously deteriorated, presenting a potential safety hazard as well as being unsightly. It is unsatisfactory in other ways too: because of its configuration it is subject to spray overtopping, its railing is closed obstructing views and ocean breezes from unshaded Front Street and the sidewalk is inconveniently on two levels.

The proposal would remove the existing cap, sidewalk and railing but retain the rubble wall. On top of the wall a new widened one level sidewalk, cap and open railing would be constructed. A riprap toe would be added to the wall to help remedy the spray overtopping and stabilize the seawall against wave action. Seating areas would be provided which would incorporate planters for shade trees.



Most of the environmental impacts would be short-term during construction. These would include dust, noise, debris, traffic disruption, loss of parking stalls, disturbance of marine habitats and removal from use of the existing sidewalk and benches. Mitigative measures would be taken to minimize all of these impacts. The project would be constructed in two increments, half at a time. Total construction time is estimated to be six months.

The only serious long-term impact would be the loss of seven parking stalls in place of which the seating areas and two cross walks would be constructed. The cost of the project is estimated to be \$484,000.



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SECTION 1

DESCRIPTION OF THE PROPOSED PROJECT

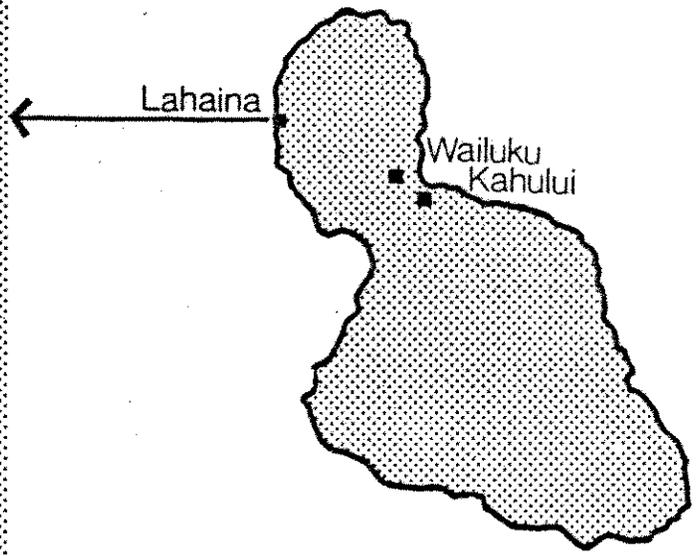
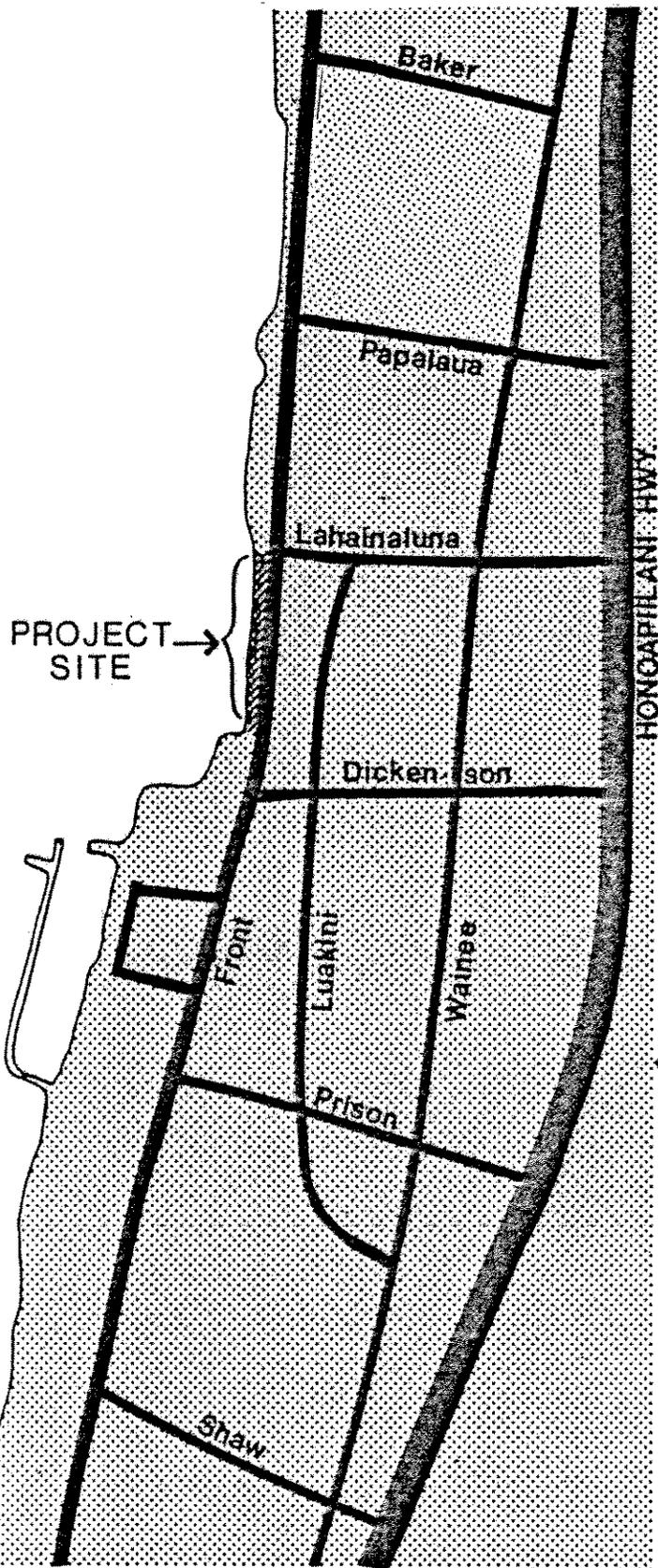
I. BACKGROUND

The Lahaina Seawall parallels Front Street between Lahainaluna Road and Dickenson Street for a length of 730 feet, as shown in Figure 1-1. Existing plans indicate that the present seawall was the result of two distinct construction efforts. The first work was initiated in the late 1920's with the construction of a concrete rubble masonry (CRM) retaining wall. This CRM wall was topped with a pipe railing and backfilled along its entire length to widen Front Street to its present width. The second major construction took place 10 years later when approximately 730 linear feet of concrete rail, cap and sidewalk was constructed over the CRM wall. See Figure 1-6 on page 1-14 showing the existing seawall.

Presently, portions of the wall are badly deteriorated, particularly the concrete railing, cap and sidewalk of the southern half of the seawall. This deterioration is marked by the weathering and spalling of extensive surface areas of the concrete, the failure and collapse of sections of the concrete rail and the rusting of exposed steel reinforcing elements. Although the northern half of the seawall appears to be structurally sound, cracks and rust stains are apparent, indicating the decay process has already made some inroads



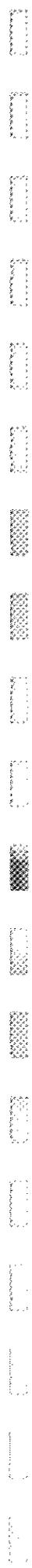
FIGURE 1-1



Island of Maui

Project Location

1:700'



into the structure. In addition, portions of the toe or bottom of the retaining wall have become exposed, due to the erosion of sand levels along the face of the retaining wall.

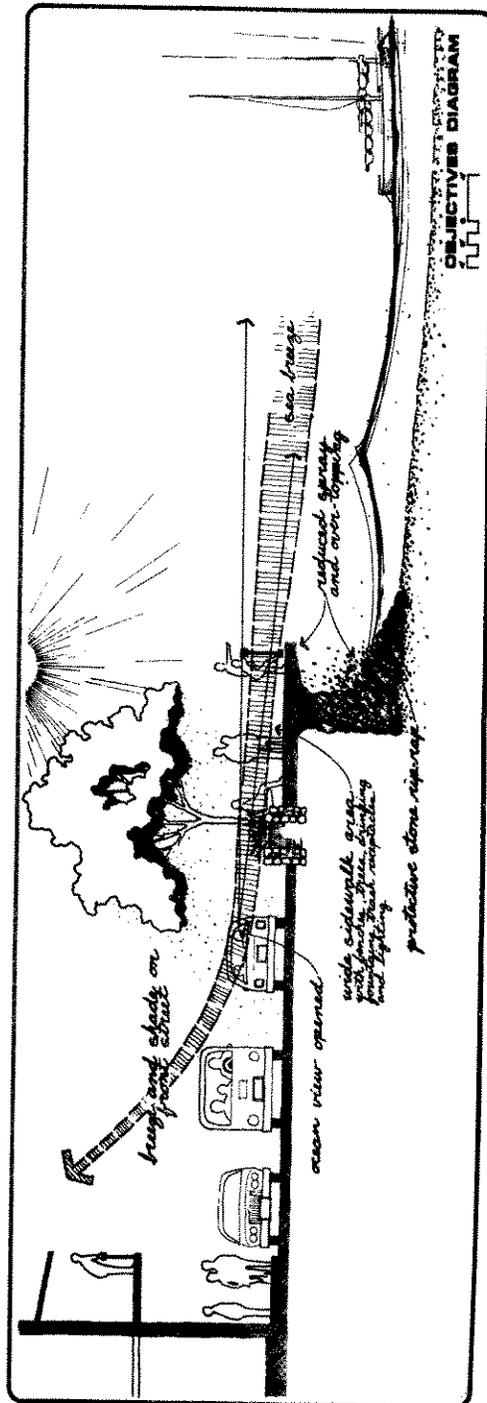
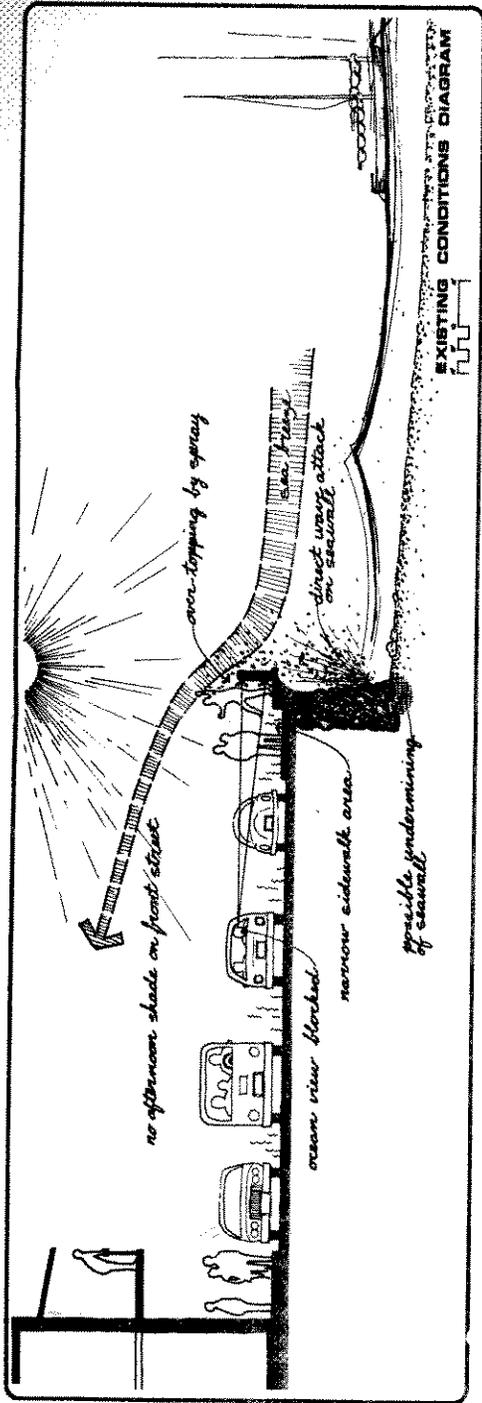
The seawall in its present condition is subject to spray overtopping onto Front Street, particularly during Kona conditions in the winter or during periods of south swells in the summer. The quantity of overtopping is not severe and is limited to spray. The spray, however, periodically inconveniences pedestrians walking along the seawall side of the street. In addition, the structural deterioration of the seawall presents a potential safety hazard to pedestrians. Continuing deterioration of the seawall will require that replacement of sections or of the entire wall be implemented to protect the safety and well-being of Front Street pedestrians.

II. PROJECT OBJECTIVES

The County of Maui, in coordination with the Maui Historic Commission, proposes to replace the concrete rail, cap and sidewalk portions of the existing seawall with a new superstructure that will be visually pleasing as well as reduce ocean spray. The replacement of portions of the seawall will be coordinated with the construction of new improvements to create a more attractive and comfortable environment along Front Street between Dickenson Street and Lahainaluna Road. The overall objective of the proposed project is to maximize comfort and safety for the pedestrian



FIGURE 1-2



while enhancing the visual values of this portion of Front Street. Specifically, as shown in Figure 1-2, the project objectives are:

1. To reduce the problem of ocean spray overtopping onto Front Street, while allowing the passage of ocean breezes.
2. To increase visual access to the ocean for both vehicular and pedestrian traffic.
3. To provide for the comfort and relaxation of pedestrians by the addition of trees, benches and drinking fountains.
4. To landscape such seating areas in a manner designed to add texture, color and shade to Front Street, in harmony with the existing character of Lahaina town.

III. TECHNICAL CHARACTERISTICS

The proposed project will involve the demolition of the existing concrete parapet wall and sidewalk foundation and the construction of replacement structures and supporting facilities. As the retaining wall portion of the existing seawall has been found to be structurally sound, it will remain intact and all new construction will occur above it.

The problem of ocean spray overtopping should be greatly reduced by 1) the construction of a re-entrant or bull-nosed top that will rest on the retaining wall and 2) a rubble slope foundation (riprap boulders) that will be placed along the exposed toe portions of the wall. This combination has been selected due to the following:

1. It is most effective for the conditions that are predominant when overtopping occurs.



FIGURE 1-3

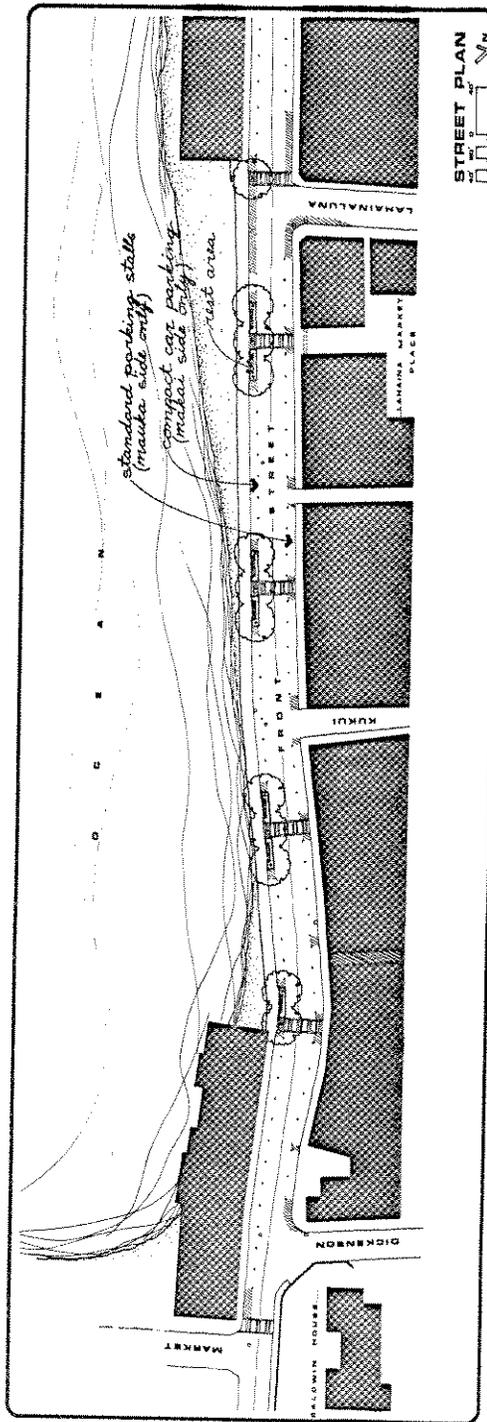
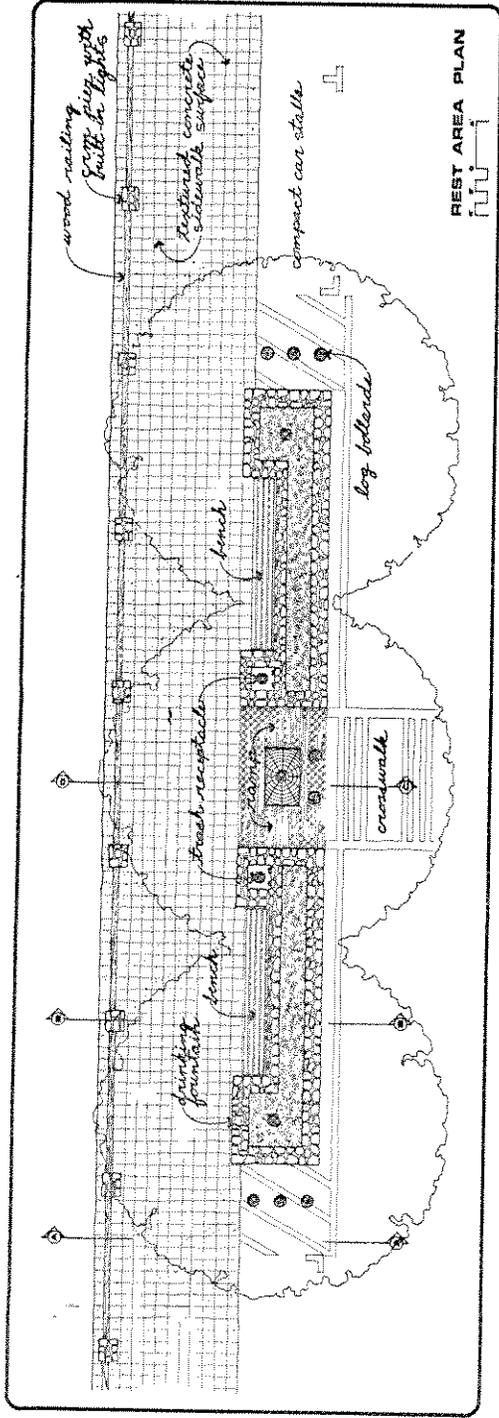


FIGURE 1-4

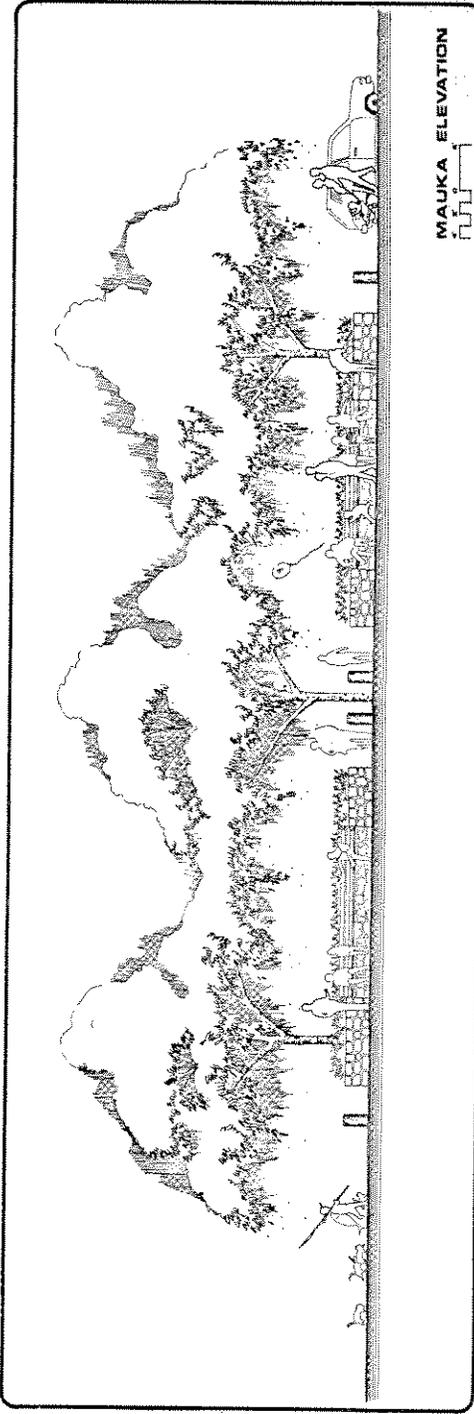
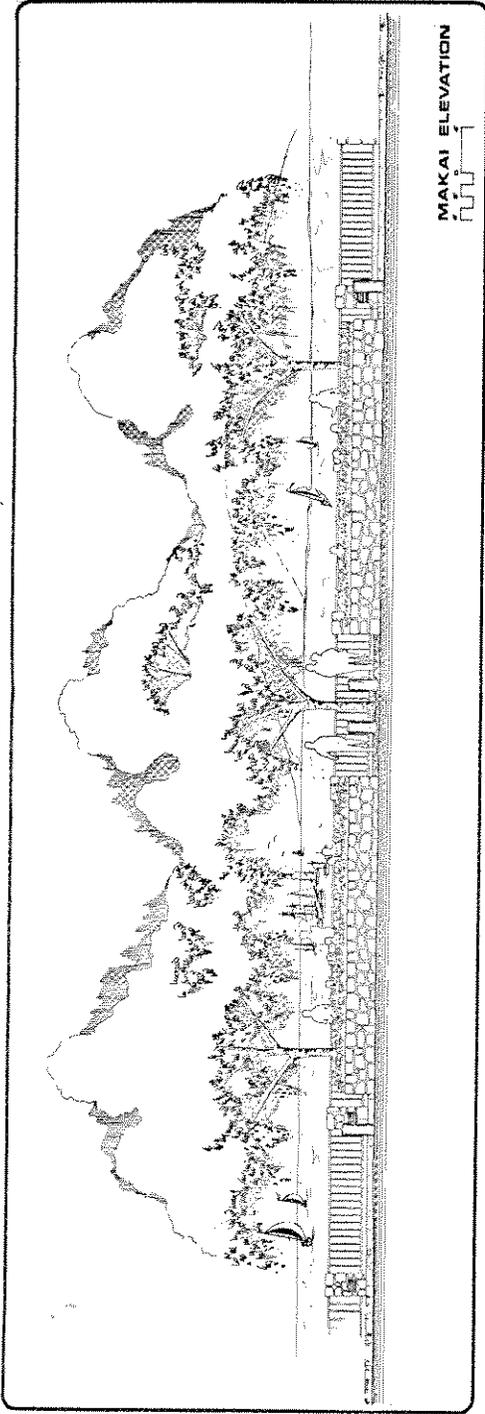
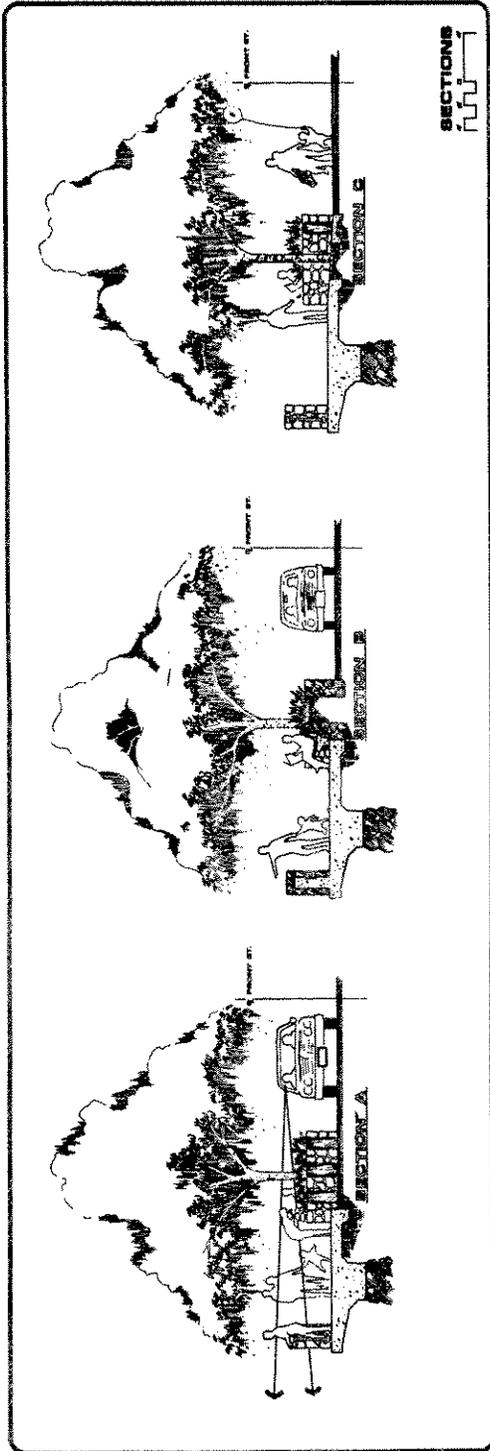


FIGURE 1-5



2. The rubble slope dissipates wave energy and thereby reduces wave reflection, splash and spray.
3. The rubble slope reduces the wave forces acting on the vertical wall section above it.
4. The existing foundation is protected from further scour.
5. Rubble toe construction is comparatively simple.
6. The re-entrant or bull-nosed top will reduce the overtopping spray and provide maximum useable space at the crest.

See Figure 1-7 on page 1-15 showing the conceptual seawall design.

The re-entrant will protrude approximately 4 feet beyond the outer face of the existing retaining wall, adding approximately 3 feet more of sidewalk width at the crest than now exists.

Design of the upper structure of the seawall is simplified by the attenuation of wave force with height. The existing foundation takes the brunt of the impact force. Although expected wave forces on the upper wall are small, there will be forces on the cantilevered section. These forces may occur when a wave hits the vertical section and splashes upward. There are no theoretical methods for calculating these forces but they are related to horizontal impact forces. The maximum horizontal impact forces vary from 500 to 2660 pounds per square foot (psf), depending on toe protection. Because of the lack of data and theory, a conservative force estimate is required. The cantilevered section should be designed for an

uplift force of 1000 psf where there is rubble toe protection and 1500 psf where there is no toe protection.

In addition, the proposed project will include the construction of the following structures and facilities which are shown in Figures 1-3 to 1-5.

Railing and Piers. A new railing and piers will be constructed on the retaining wall, replacing the existing concrete wall. The piers will be of Concrete Rubble Masonry (CRM) construction, faced with either natural beach rock or coral blocks. The piers will support a railing of natural-colored, pressure treated lumber. The open railing will provide greater openness to ocean views and allow for greater passage of cooling ocean breezes onto the Front Street area.

Sidewalk Foundation. The existing two-level sidewalk (8 feet 3 inches in width) and viewing platform will be replaced by a new, one-level sidewalk (12 feet 6 inches in width). The usable (walking area) portion of the sidewalk will be 11 feet wide from the edge of the curb to the railing. This will increase present pedestrian walking space from the 6 foot width of the first level of the existing sidewalk by 5 feet. Gently graded ramps will lead up to the sidewalk where crosswalks meet the curb. Crosswalks and sidewalk ramps will provide access to pedestrian rest areas.

Pedestrian Rest Areas. Four pedestrian rest areas will replace the existing benches along the seawall. The rest

areas will combine trees, planters and benches to provide comfortable, shady pedestrian "oases" along Front Street. Each rest area will be 66 feet long and 7 feet wide and will replace the equivalent of three parking spaces along the makai side of Front Street. This will allow the full use of the seawall sidewalk for pedestrian circulation, while simultaneously providing rest areas for ocean viewing. Each rest area will have CRM planters faced with natural beach rock or coral blocks and a ramp leading up from street level to the sidewalk. A canopy tree will be centered in the ramp to provide shade and, with log bollards, prevent vehicular access onto the sidewalk area.

Each planter will contain a large canopy tree and ground cover. Fourteen foot long wooden benches will be centered and built into the makai side of each planter. The planter will buffer the rest areas from vehicular traffic on Front Street. Trash receptacles will be built into the ramp ends of each of the planters and a water fountain will be provided for each seating area. Additional benches will also be provided between the rest areas along the seawall railing. This will provide seating areas open to the sun.

The rest areas will be sited in order to preserve mauka-makai view channels from alleyways and other pedestrian corridors connecting Front Street and Luakini Street. This will provide people approaching Front Street on foot from mauka areas an ocean view which will increase to panoramic scale as they exit from between building masses.



Lighting. Lighting will be provided by walkway lights built into the CRM piers of the seawall to ensure safe walking at night. In addition, concealed lights directed upwards into the tree foliage will enhance night illumination. It is anticipated that illumination will be sufficient to provide for the safety and security of Front Street pedestrians in this area.

Drainage. Drainage for the sidewalk portion of the seawall will be disposed as surface runoff through the seawall railings into the ocean. Front Street runoff will be collected by four additional catch basins placed adjacent to the curb. All runoff will be discharged into the ocean.

Water. Water for drinking and irrigation purposes will be provided by a 1-inch line which will tie-in to existing water lines along Front Street.

Power. Electrical power for the lighting system will be provided by underground tie-ins to the existing lines on Front Street.

Landscape Planting. Shade trees will be Hawaiian kou (Cordia subcordata), which is a compatible seacoast species that does not shed leaves excessively nor produce messy fruit. Ground cover will be laua'e fern (Polypodium phymatodes) which has a slight fragrance similar to that of maile and will be attractive both in terms of scent and appearance.

IV. PROJECT PHASING AND FUNDING

The proposed project will be constructed in two increments. The first increment involves the demolition of



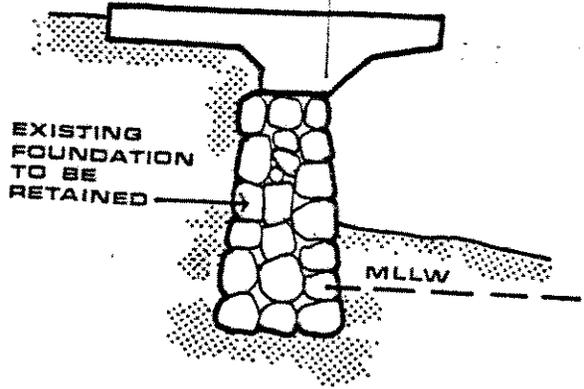
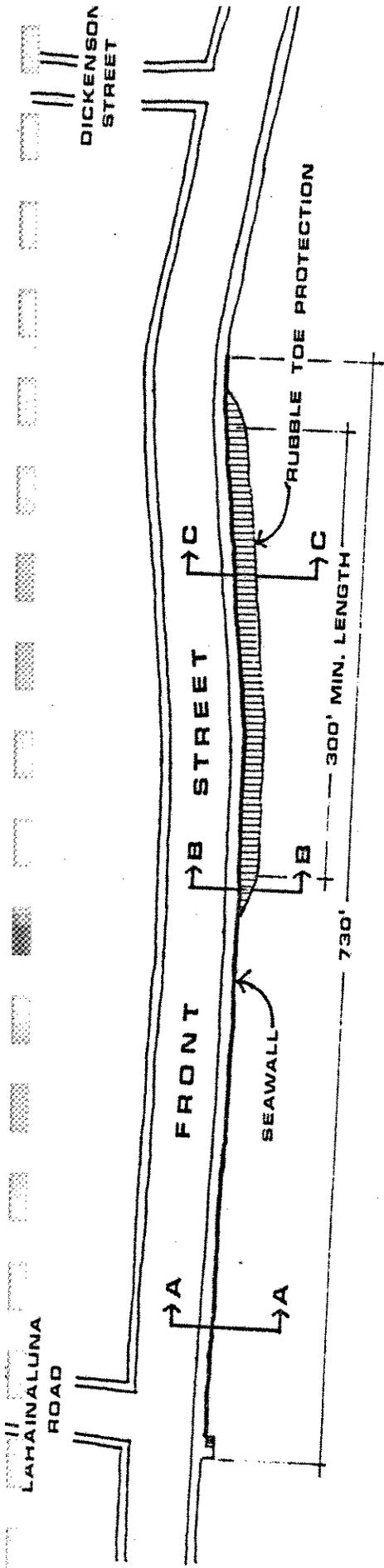
approximately half (362 feet) of the existing concrete cap and rail of the seawall and the construction of replacement structures. The second increment, involving the other half of the seawall, will proceed after completion of the first increment. Incremental construction is anticipated in order to produce the least disruption of vehicular and pedestrian traffic and minimize construction impacts on shops facing Front Street.

Construction is estimated to take 6 months. Construction costs are estimated at approximately \$484,000, and will be funded by funds from the State.

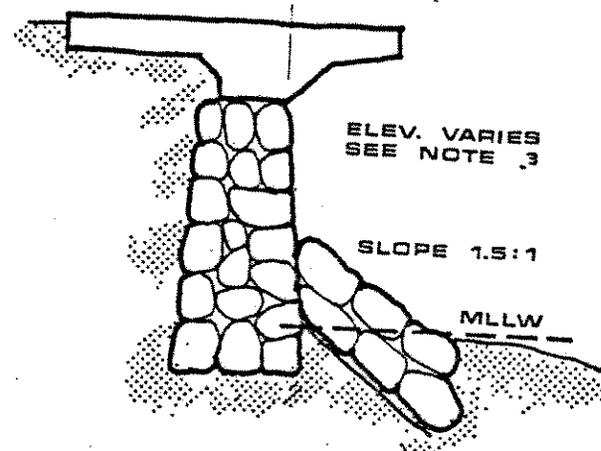




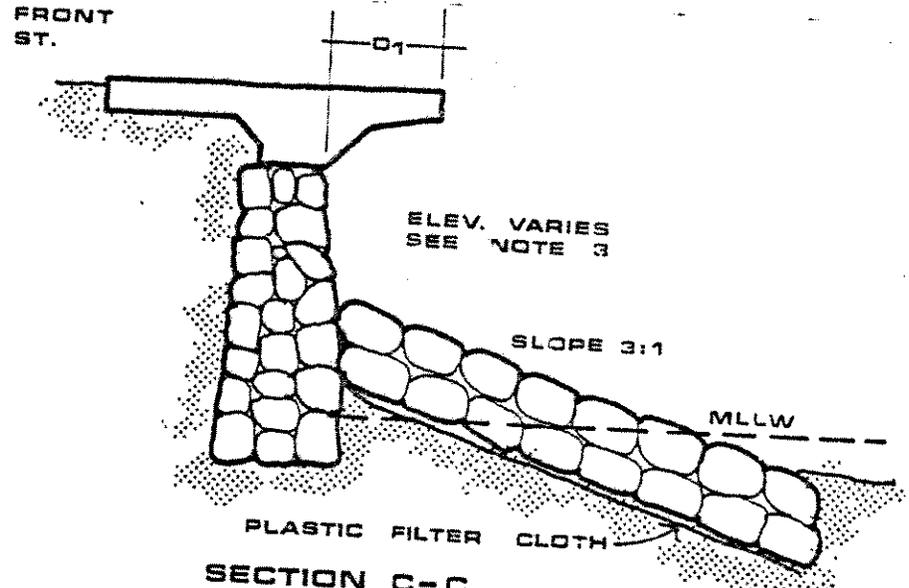
FIGURE 1-7
CONCEPTUAL SEAWALL DESIGN



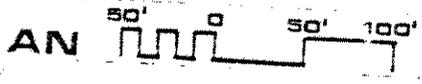
**SECTION A-A
 UNPROTECTED TOE**



**SECTION B-B
 TRANSITION**



**SECTION C-C
 PROTECTED TOE**





SECTION 2

DESCRIPTION OF THE AFFECTED ENVIRONMENT

I. HISTORIC PERSPECTIVE

The town of Lahaina probably began as a fishing settlement during the days of the early Hawaiians. On lush fertile land, adjacent to calm, fish-filled waters, blessed by a mild climate, this site was an obvious place in which to settle, farm and fish. The many natural amenities of the early settlement of Lahaina were widely recognized and it became the seat of government for the Hawaiian kings of Maui prior to the unification of all the islands.

The recorded history of Lahaina begins with the "discovery" of the island by Captain James Cook in 1778. Lahaina, at this time, was a slow, quiet settlement ruled by hereditary kings and it remained so until it became the royal capital and home of Kamehameha I, the conquerer of all the islands. Under Kamehameha I, Lahaina grew and thrived as a center for the lucrative sandalwood trade that arose between the islands and China at this time.

In 1819, Kamehameha I died, and it was also during this year that the first American whaling ships arrived. These two events signaled a new epoch that would leave its mark on Lahaina: the waning of old Hawaiian culture and religion as a predominant force and the rise of American economic and cultural influence in the islands.

A map prepared of Lahaina at this time shows Kamehameha I's "palace," small structures scattered along the shoreline



(which is now Front Street), and numerous irrigation areas where taro was planted. Lahaina, in the pre-whaling era, was still a village, though a "royal" one, with no apparent roadways and a lack of physical definition.

The whaling industry brought a new era of growth and prosperity to Lahaina. The American whaling ships, having "fished out" the north Atlantic, began to "round the Horn" in increasing numbers to search the Pacific. The discovery of rich whale grounds off the coast of Japan around 1820 multiplied the number of whaling ships in the Pacific, particularly during 1843-1860, the "Golden Age" of Pacific whaling.

This had a direct effect on the settlement of Lahaina since Lahaina was a convenient and palatable place from which whaling ships could stock supplies on their way to the Northwestern Pacific. Lahaina was able to provide fresh produce to the ships, and the growing demand for these supplies led to a rise of diversified agriculture in Lahaina.

In addition to provisions, Lahaina also provided a recreational retreat to the sailors trapped for months at sea. Lahaina acquired a reputation as a lusty, free-swinging town with all types of pleasures available, stretched out on the single main street of the town.

The missionaries arrived about the same time as the first whaling ships. They did not regard Lahaina merely as a port-of-call, but were determined to develop Lahaina as a stable and prosperous town. Under the influence of the



missionaries, who did much of the building, and the whaling trade, which provided the economic means, Lahaina made the transition from royal village to larger, rural town.

Population increased and commercial developments expanded. Land was allotted to private owners under the kuleana system and property boundaries formed the beginning of a street system that defined much of the block development existing today.

Kamehameha III, who ruled the Hawaiian Kingdom during the whaling years, also began a program of construction, erecting a royal residence and many public buildings. These were concentrated along the southern end of Front Street, in the wharf area. The reef area makai of Front Street was filled in to create new land and Front Street itself, then known as Main Street, was emphasized as the central spine of the town with almost all of the commercial developments occurring along it.

By 1859, kerosene began to replace whale oil and this replacement, in addition to the Civil War, which transferred many ships from private to military use, severely hurt the whaling industry. The full development of San Francisco Port diverted the remaining whaling ships from Lahaina. The final blow to the whaling industry occurred in 1869 when the Transcontinental Railroad was completed; with the Railroad, ships no longer had to "round the Horn" to transfer whale bone and oil to the East Coast and the whaling era thus came to an end.

The decline of the whaling industry and the development



of San Francisco curtailed Lahaina's boom-town prosperity and Lahaina returned to the land for subsistence. Agriculture, primarily sugar, provided its economic base. The first sugar mill was started about 1861 and sugar and pineapple became the principle economic activity until the early 1960's.

Lahaina's development during the post-whaling years was slow and steady, for the most part, and its physical development continued along the lines set during the whaling era. A map prepared of the town in 1884 shows the linear development of the town along Front Street, with many professional "haole" residences lining the street as well as a few Chinese shops and smaller businesses serving the workers of the Pioneer Mill.

A map prepared in 1914 follows the 1884 plan. Many of the residences along Front Street were replaced by businesses and the residential areas moved mauka toward Wainee Street. The commercial area was concentrated between Lahainaluna and Dickenson Streets and included theaters, hotels and numerous general stores, some of which are still standing today. The wharf area was enlarged to provide for shipping commodity transfer and a modern water system was installed to serve the town.

Lahaina's growth with agriculture as the prime economic activity continued until 1940 and a rural, plantation town atmosphere replaced the heady, boom town ambiance of earlier days.

Agriculture, however, was not able to provide for



Lahaina's continued development. Economic difficulties in the industry and increased mechanization resulted in job cutbacks. Residents left Lahaina in large numbers, migrating to Honolulu in search of employment. Population during the 1940-1960 years declined by almost half in the Lahaina District.

This trend of decline was reversed during the early 1960's with the development and growth of the visitor industry. In 1960, the visitor influx to Maui began and island visitors were particularly drawn to the charm and quiet of Lahaina and the region's spectacular scenery and white sand beaches.

The hotel development of the Kaanapali Beach, three miles north of Lahaina, brought increasing numbers of visitors to Lahaina and the economic outlook for the town and region began to brighten. By 1965, the island of Maui had 1383 hotel rooms, of which the Lahaina region had 88.9 percent. Estimated visitors to Maui in that year numbered over 150,000, spending an estimated 503,000 visitor-days on the island. Lahaina, because of the hotel concentration, was the center of the tourist industry and as that industry and supporting services expanded so did the economic outlook of Lahaina town and the West Maui region.

Lahaina today is the social, economic and cultural center of West Maui and is the third most populous urban center on the island of Maui. It continues in importance as



a visitor destination center and its popularity has been enhanced by the preservation and restoration of the historic qualities of the town.

II. CLIMATE

The climate of the Lahaina District is mild and dry. Northeasterly trade winds prevail 80-95 percent of the time with velocities of 10-12 miles per hour. Temperature extremes range between 52°F and 93°F with average monthly temperatures varying between 71.2°F for the coolest month and 77.7°F for the warmest month. Highest temperatures occur during the months of August and September. Rainfall averages 14.5 inches annually.

Lahaina's climate produces a certain degree of discomfort along Front Street during the afternoon hours, and especially along the seawall length of Front Street. This is due to the absence of any shade casting elements and, as the temperature rises, the human comfort level drops. This heat-produced discomfort is aggravated due to blockage of sea breezes by the solid concrete rail of the seawall.

III. LAND USE

Front Street contains the majority of visitor oriented shops and establishments, particularly from Papalaua Street to Prison Street. Commercial usage more oriented to the residents of Lahaina occurs toward the northern end of the town, particularly on the block bounded by Honoapiilani Highway and Lahainaluna, Front and Papalaua Streets. The

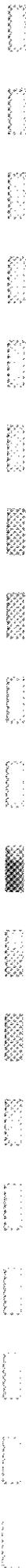


Lahaina Shopping Center, the Lahaina Square Shopping Center, the post office, and two banks all contribute to the intense activities occurring in this area. Shopping establishments more oriented to the visitor are located along Front Street, particularly toward the southerly end of the town center.

The project site is located along Front Street, in the heart of the shopping district. It is bordered by Marty's Coral Grotto on its northern (Kaanapali) end and by the row of buildings extending from Market Street on its southern (Harbor) end. Small commercial shops and services are located across the street.

IV. POPULATION TRENDS

The resident population in Lahaina has been steadily increasing since 1960, reflecting the revitalization of the area's economy through the growth of the visitor industry. In 1960, the resident population of the Lahaina District totaled 4,844, and in Lahaina town, 3,423. By 1970, the population had increased by 14 percent to 5,524 in the Lahaina District and by 8.6 percent to 3,718 in Lahaina town. More recent population estimates were made as of July 1, 1973 by the Hawaii State Census Statistical Areas Committee, which showed population of the District as 6,809, a 23 percent increase over the 1970 census figure. It is estimated that the 1975 resident population for the Lahaina District was 7,000.



The average daily resort population of the Lahaina District is not known, but can be estimated from data collected by the Hawaii Visitors Bureau. The number of visitors to Maui in 1974 totaled 852,200, with an intended length of stay of 3.23 days which equals approximately 2,750,000 visitor days. This would give Maui County a visitor population of approximately 7,540 visitors each day, and the Lahaina District, with 75 percent of the available hotel units, can be estimated as having 5,660 as its resort population on an average day.

V. EMPLOYMENT TRENDS

Agriculture has traditionally been the major employer of West Maui residents and in 1965 employed an estimated 50 percent of the working force in the Lahaina District. The hotel and visitor industries, however, have been assuming an increasingly more dominant role in the employment market. The 1970 census reflected that of a total labor force of 2,568, approximately 40 percent were employed in retail sales, clerical positions or as service workers. The visitor industry provided employment to additional workers in managerial positions, in transportation and in construction and maintenance.

More recent comments on employment in the visitor industries come from the November, 1975 report by First Hawaiian Bank, Maui County in 1975:



"Pineapple and sugar companies have done some hiring this year, and hotel employment has increased by 120 in the first eight months. Hotel employment on Maui passed the number of sugar workers for the first time last year, and hotel employment is still ahead this year. It is unlikely that the hotel industry will relinquish its position as the largest private employer because it is growing rapidly compared with sugar, which is near its maximum acreage potential.

. . . Maui is the only area in the State that is enjoying a fine tourist year in 1975, and despite the County's high unemployment figure, hotels cannot get sufficient labor during peak periods."

Employment projections forecast continuing increases in the work force, with the hotel and visitor support industries maintaining their status as the major employer of West Maui residents. In addition, non-primary or resident-oriented employment will also show large increases by 1990, and it is anticipated that this type of employment will account for approximately 30 percent of the work force, as compared to approximately 18 percent in 1965.

VI. FLOOD HAZARD

Portions of Lahaina have been subject to flooding by overtopping of Kahoma Stream during periods of heavy and sustained rainfall. The project site is not within the Kahoma Stream floodplain, as the southwestern boundaries of the 100-year floodplain end at Lahainaluna Road. A flood control project is planned by the Army Corps of Engineers to reduce flood hazard for the affected areas of Lahaina town.

VII. TSUNAMI HAZARD

Tsunamis are a regular occurrence in Hawaiian waters as the islands are subject to tsunamis generated almost anywhere



in the Pacific. Eighty-five tsunamis have been observed in Hawaii since 1813, with 15 resulting in significant damage.

There have been four severe tsunamis in recent years, occurring in 1946, 1957, 1960 and 1964. The 1946 tsunami was the most destructive, in terms of loss of life and property, to ever hit Hawaii. Only the 1960 tsunami was observed at the project site, with a run-up of seven feet at the Lahaina lighthouse. Areas north and south of Lahaina had slightly higher run-ups.

The project site is located within the tsunami inundation limit as defined by the Drainage Master Plan for the County of Maui (Towill, 1971), as is most of Lahaina town. Based upon the historical run-ups at Lahaina and the immediate vicinity, a 10-foot run-up can be anticipated at the project site.

VIII. SHORELINE

A small sand beach is located at the northern end of the seawall with a stairway connecting the beach to the seawall. A thin strip of sand strewn with boulders and a shallow reef comprise the beach area along the center and southern portions of the seawall. Most portions of the beach along the seawall are eroded and this erosion has resulted in the exposure of the toe of the seawall.

The shoreline area is limited in its recreational uses due to limited sand areas for sunbathing and near shore reefs which limit swimming. Residents and visitors rarely use this area.



IX. TIDES

There are two tidal cycles per day in Hawaii, with the ranges of water level movement being unequal. Mean higher high water (MHHW) is the average height of the higher of the two high waters. Mean lower low water (MLLW) is the average of the lower of the low waters and is the reference water level for this report.

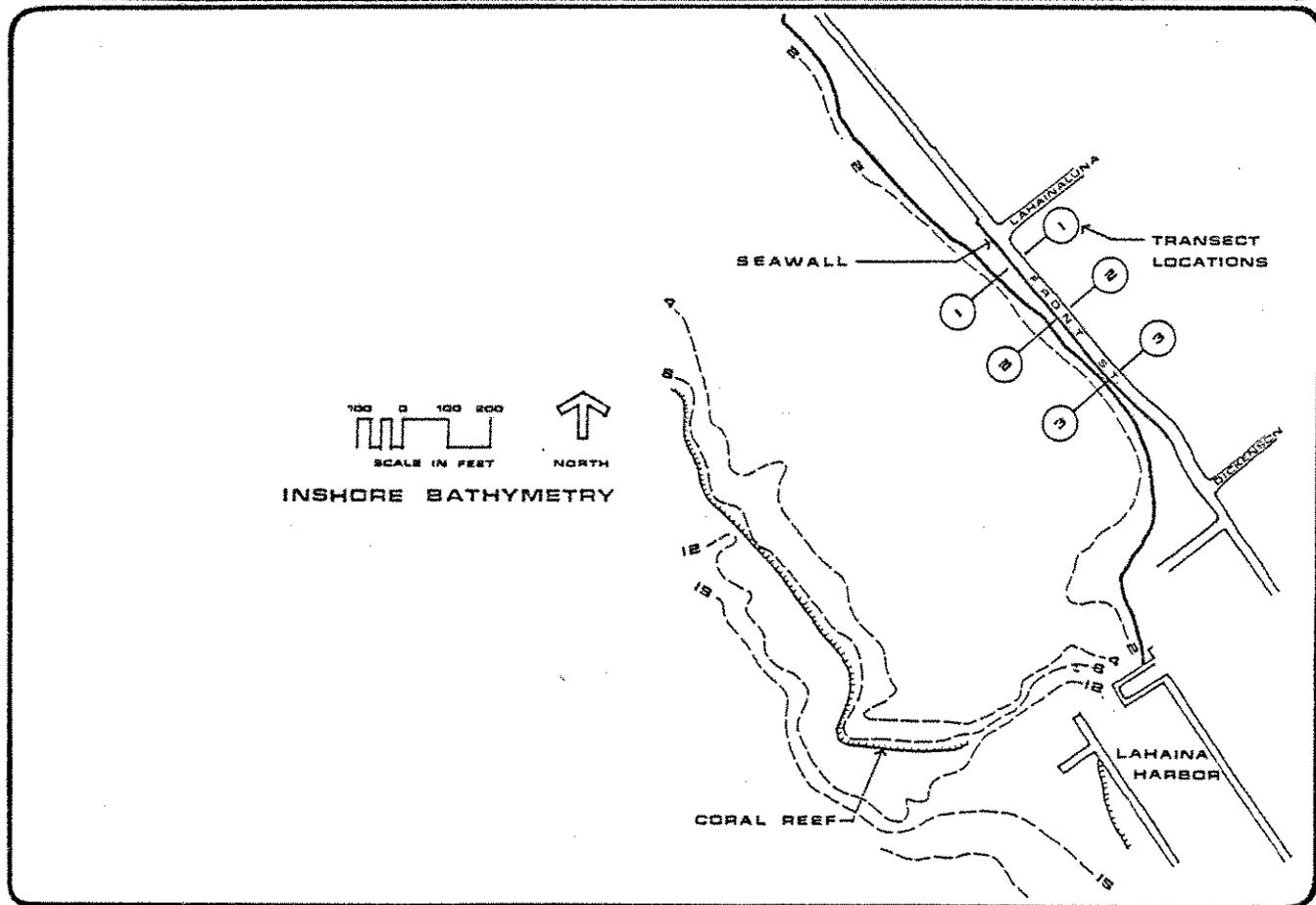
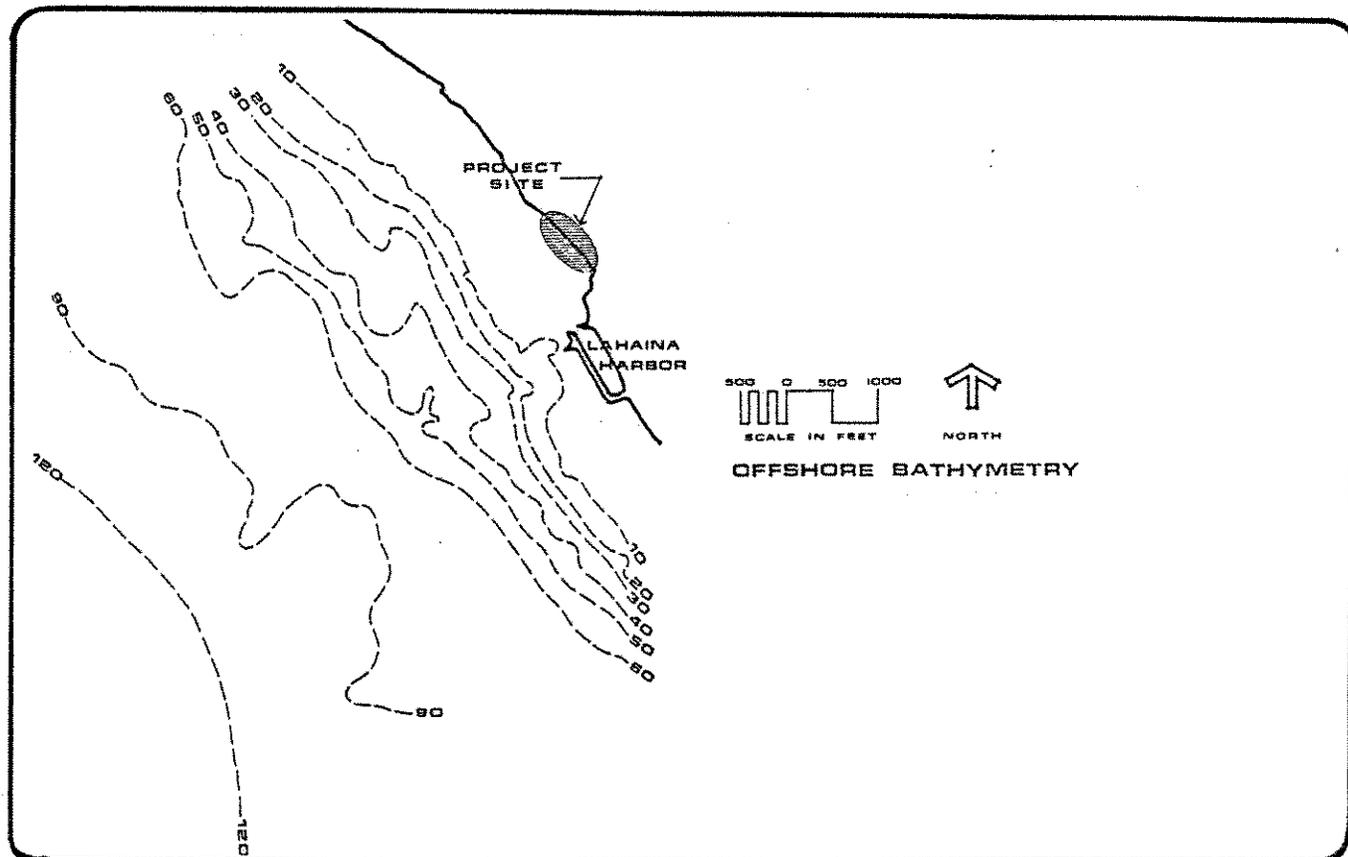
For Lahaina, the mean sea level is 0.85 feet (reference MLLW) and mean higher high water is 2.1 feet. The normal tidal range is approximately 2.0 feet.

X. BATHYMETRY

The characteristics of the waves reaching the Lahaina seawall are determined by the generation of waves at sea and by the bathymetry of the reef and offshore areas which influence the waves through the processes of refraction, shoaling and breaking as they move into shallow water. The bathymetry of the inshore area is shown in Figure 2-1. A shallow fringing reef parallels the shoreline along the project site, and extends 1,000 feet offshore, providing natural protection to the site. The area inside the reef is almost flat, with an average depth of 3.5 feet. Seaward of the reef, there is a rapid drop-off to the 60-foot depth then a gradual decrease down to 150 feet. The depth contours, down to the 90-foot depth, generally parallel the reef and the coastline.



FIGURE 2-1





XI. WATER QUALITY

The water quality of Lahaina's near shore water is Class A.

XII. FLORA AND FAUNA

There are no terrestrial flora or fauna on the project site.

The marine flora and fauna inhabiting the shoreline and near shore waters of Lahaina consist of species commonly found along the Maui coast. Littoral organisms consist of the black rock crab (Grapsus grapsus), pipipi (Nerita sp.) and the rock snail (Littorina sp.). Waters near the seawall were conspicuous by the low density and diversity of organisms in comparison with the reef areas located farther offshore. Common populations include weke (Mulloides sp.), upapalu (Amia menesema), ulae (Saurida gracilis) and papio (Carangus sp.). Most of the species found near shore were not confined to this area. The lack of suitable benthic habitats and the shallow depth probably account for the lack of organisms in this area.

Most of the organisms are found on the reefs located off-shore from the seawall. The reef consists primarily of colonies of coral such as Pocillopora meandrina, Porites lobata and Porites compressa.

Common algae include Ulva, Enteromorpha, Acanthophora and Ectocarpus. Sea urchins such as Tripneustes, Echinothrix and Heterocentrotus are also commonly found on the reef.



The most prevalent fish species include manini (Acanthurus sandvicensis), hinalea (Thalassoma duperreyi), butterfly fish (Chaetodon sp.), damselfish (Pomacentrus jenkinsi) and goatfish (Parupeneus sp.).

The majority of marine flora and fauna are found on the reef areas due to good water circulation, suitable substrate and habitats and the abundance of food.

XIII. PUBLIC SERVICES

A. Fire Protection

The Lahaina District is served by the Lahaina Fire Station. Response time to Lahaina town is estimated at two minutes.

B. Police Protection

The Lahaina District is served by 27 patrol officers and 4 detectives with assistance from 9 vice squad members.

C. Refuse Collection

Refuse collection is provided by the County of Maui on a twice-a-week basis. A private refuse collection company augments municipal refuse service.

XIV. TRAFFIC

Accurate traffic counts for Front Street are not available. Front Street is one of the major traffic corridors of the town and is frequently congested. Such congestion is compounded by the use of the street for on-street parallel parking.



XV. PARKING

There are 70 on-street parking stalls within the project area between Lahainaluna Road and Dickenson Street. Thirty-seven parking stalls are located on the makai side of Front Street and 33 stalls along the mauka side.

A survey of existing off-street parking facilities in Lahaina town shows the following breakdown:

MUNICIPAL OFF-STREET PARKING

LOCATION	CARS	BUSES
Dickenson-Wainee	72	
Prison-Front	25	14
Lahaina Armory	28	

PRIVATE OFF-STREET PARKING

LOCATION	CARS	BUSES
Lahaina Shopping Center	260	--

The County of Maui has proposed the construction of additional municipal off-street parking lots on Luakini Street between Dickenson and Prison Streets and between Lahainaluna Road and Dickenson Street.



Existing parking facilities, particularly on Front Street, are presently overburdened. The Dickenson Street municipal parking facility, however, is generally underutilized. This is due to the reluctance of Front Street motorists to walk the extra block from the Dickenson Street lot to the Front Street shopping area. The net result is traffic congestion and a shortage of parking spaces along Front Street and available parking in the Dickenson Street Facility.

XVI. EXISTING SITE INFRASTRUCTURE

A. Water

A 6-inch waterline parallels the project site along the makai edge of Front Street. A fire hydrant is located on the northern end of the project site.

B. Sewage

An 18-inch sewer line is located along the mauka side of Front Street.

C. Storm Drainage

Five catch basins are located in the project area, three along the makai side of Front Street and two along the mauka side. A sixth catch basin is located at the intersection of Dickenson and Front Street. Storm water is discharged through three drain outlets located on the oceanside of the seawall.

D. Power and Communication

Electrical power and telephone service are available through overhead transmission lines located along the mauka side of Front Street.



E. Illumination

Street lamps are located on both ends of the seawall as well as at intervals along the mauka side of Front Street. The lamp design was selected to harmonize with the historic character of Lahaina town.



SECTION 3

RELATIONSHIP OF THE PROPOSED PROJECT TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

The project site is located in Historic District 2 as delineated in the General Plan for the Lahaina District (1968), the official general plan, and the Lahaina Community Development Plan (1973), a guide for development.

The above plans and almost every planning study done for Lahaina have recommended that pedestrian-oriented areas be increased in Lahaina town, and particularly along Front Street. The General Plan recommended that Wainee Street replace Front Street as the major secondary arterial within the town. It recommended that traffic on Front Street be limited to service and emergency vehicles, with portions of Front Street, including the area in front of the seawall, becoming a pedestrian mall.

The Lahaina Community Development Plan also recommended encouraging pedestrian circulation within the town, though it did not seek to restrict vehicular movement along Front Street. It did recommend, however, that on-street parking on Front Street be removed, and all off-street parking areas be consolidated in an area mauka of Luakini Street, between Dickenson Street and Lahainaluna Road. It further recommended the creation of pedestrian access routes along the sidestreets meeting Front Street. This would facilitate pedestrian movement between Front Street and the Luakini Street parking areas. The creation of these corridors would



preserve mauka to makai images and provide scenic view and ocean breeze corridors.

Community opposition to these concepts has been voiced, particularly by Front Street shop owners who generally object to the restriction or removal of vehicular traffic as well as on-street parking along Front Street. The proposed project has been designed to recognize both needs: It will increase "people space" in this portion of town and facilitate pedestrian circulation, and it will also allow basic traffic patterns to continue, while improving the visual driving environment along Front Street.



SECTION 4

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATIVE MEASURES TAKEN TO MINIMIZE ADVERSE IMPACTS

I. AIR QUALITY

Short-term impacts. During site development and construction activities, dust and emissions will be generated by construction operations and vehicles. These impacts will be temporary and limited to the duration of the construction phase which is anticipated to last approximately 6 months.

Emissions from construction vehicles and equipment are not anticipated to cause a problem, as emissions are not anticipated to exceed safe levels at any time. The contractor will be responsible for the proper maintenance of all construction equipment, which will minimize pollutants from internal combustion engines.

Dust will be generated during all phases of project development but will be particularly high during site clearance and grading activities, which will involve the demolition of portions of the existing seawall. Dust levels will be controlled through water sprinkling and care will be taken to minimize dust levels at all times, particularly during high dust-generating activities. The contractor will be responsible for the sweeping of accumulated dust and debris on the site at the end of a day's construction activities and the proper disposal of such debris.



Long-term impacts The project is not anticipated to affect the ambient air quality of the project area.

II. NOISE LEVELS

Short-term impacts. Noise will be generated by the operation of general construction equipment during site development and construction and by motor vehicles necessary to construction activities. General construction noises are not anticipated to be high, as shown in Figure 4-1. However, the use of pneumatic impact equipment will generate high noise levels for short periods during demolition activities. Demolition should be completed in seven days for each of the two phases of construction. Noise nuisance will be unavoidable but will be mitigated by limiting the hours of construction from 7:00 a.m. to 3:30 p.m., five days a week. In addition, the contractor will ensure that all mufflers on construction equipment are functional and properly maintained.

No hospitals, rest homes, residences or schools are located adjacent to or near the site.

Long-term impacts. Ambient noise levels within the project area are not anticipated to be affected by the project.

III. WATER QUALITY

Water quality of the near shore waters may be slightly altered by dust generated during demolition and construction activities. The contractor will remove the seawall cap and rail from Front Street and ensure that no portions of the



FIGURE 4-1
CONSTRUCTION EQUIPMENT NOISE RANGES

		NOISE LEVEL (dba) AT 50 FT					
		60	70	80	90	100	110
EARTH MOVING	EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	COMPACTERS (ROLLERS)		H			
		FRONT LOADERS		I	I		
		BACKHOES		I	I	I	
		TRACTORS		I	I	I	
		SCRAPERS, GRADERS			I	I	
		PAVERS				H	
		TRUCKS			I	I	
HANDLING	EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	CONCRETE MIXERS		I	I		
		CONCRETE PUMPS			H		
		CRANES (MOVABLE)		I	I		
		CRANES (DERRICK)				H	
STATIONARY	EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	PUMPS	H				
		GENERATORS		I	I		
		COMPRESSORS		I	I		
EQUIPMENT	IMPACT EQUIPMENT	PNEUMATIC WRENCHES			I		
		JACK HAMMERS AND ROCK DRILLS			I	I	
		PILE DRIVERS (PEAKS)				I	I
OTHER	OTHER	VIBRATOR		I	I		
		SAWS		I	I		

Note: Based on Limited Available Data Samples

Source: Noise From Construction Equipment and Operations
Building Equipment, and Home Appliances, EPA, 1971

seawall spill over onto the shoreline area below. Dust will be raised and water sprinkling to reduce dust levels will run off into the shoreline area below. This will increase sedimentation in and turbidity of near shore waters, although such increases are not anticipated to be significant.

Turbidity in near shore waters will also temporarily increase during the removal of boulders from the shoreline at the toe of the seawall. This is unavoidable but every effort will be made to minimize movement and activity in and around the shoreline. The use of turbidity screens was considered. However, the shallowness of the inshore waters and the minimal anticipated increase in turbidity is not thought to make them practicable nor necessary for the proposed project.

IV. ALTERATION OF SHORELINE

Short-term Impacts. Portions of the shoreline fronting the seawall will be cleared of boulders and graded to create a level base for the rubble slope foundation. As a result, marine fauna will be disturbed and turbidity in near shore waters will be increased.

The volume of sand required for grading, the amount of boulders to be removed and the area in which the rubble slope foundation will be placed have not yet been determined. However, before construction can begin, a construction permit must be obtained from the State Department of Transportation, Harbors Division, and the U. S. Army Corps



of Engineers. These agencies will ensure that no significant adverse impacts on the shoreline result from the proposed project.

Long-term Impacts. The rubble slope foundation will reduce wave reflection on the seawall thus minimizing scouring and the frequency of spray overtopping. It should not accelerate the slow erosion of the north half of the beach which has been going on for sometime and can be expected to continue whether or not the rubble slope foundation is built (Sea Engineering, 1976).

V. FLORA AND FAUNA

Short-term Impacts. The removal of boulders and debris along portions of the shoreline fronting the seawall will result in the temporary removal of existing habitat for marine flora and fauna. Rare or endangered species are not known to inhabit the project area and the species involved are common throughout the shoreline areas of Lahaina.

Long-term Impacts. The placement of the rubble slope foundation at the toe of the seawall will provide new habitats for shoreline species. It is anticipated that algae, crustaceans, mollusks and small fish populations will establish themselves in this new, expanded habitat.

The proposed project will also provide the addition of terrestrial flora to the project area. The addition of foliage will visually improve the site setting, provide



shade and comfort to pedestrians and reduce street heat and glare. All plants will be irrigated and maintained.

VI. WATER SUPPLY

Short-term impacts. Water will be required during construction for dust control. A fire hydrant at the north end of the site may be relocated. No adverse impacts on Lahaina's water supply are anticipated.

Long-term impacts. The amount of water required for watering plants is estimated at 500 gallons per day. In addition, water will be required for drinking fountains and for maintaining the seawall area. Adverse impacts on Lahaina's water supply are not anticipated as water needs will constitute a small percentage of the total water consumption of Lahaina town.

VII. DRAINAGE

Short-term Impacts. No short-term impacts are anticipated.

Long-term Impacts. The installation of additional catch basins along Front Street will facilitate drainage and minimize ponding. No adverse environmental impacts are anticipated.

VIII. POWER

Short-term Impacts. Electrical power will be required during the construction phase of the project. Temporary power lines will be extended to the project site and no



adverse impacts are anticipated. The street lamps at each end of the seawall will remain in place.

Long-term Impacts. Electrical power will be required for evening lighting. Recessed walkway lighting will illuminate the sidewalk and seating areas. Lighting will also be installed in the planters to reflect light off the trees.

IX. REFUSE

Short-term Impacts. Demolition and construction activities will generate refuse and debris. The contractor will be responsible for disposing of construction refuse and debris at County-approved disposal sites.

Long-term Impacts. The County will be responsible for properly maintaining the site and no adverse environmental impacts are anticipated.

X. CIRCULATION

Short-term Impacts. Portions of both the makai traffic lane and parking lane will be closed in the vicinity of the project site. The extent of traffic disruption will depend upon the routing of through traffic. The contractor, working with the County of Maui will determine how to expedite safe traffic flow in the least disruptive manner. The contractor will be responsible for notifying motorists of pending construction, posting construction warning notices or signs and stationing flagmen to divert traffic.



Pedestrians will also be temporarily inconvenienced during construction activities, as they will have to use the sidewalk on the mauka side of Front Street to avoid construction hazards. This will aggravate pedestrian congestion on the mauka sidewalk.

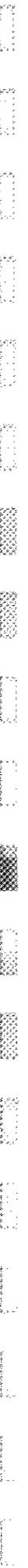
Long-term Impacts. The proposed project is not anticipated to contribute to vehicular traffic in Lahaina as the seawall is anticipated to attract pedestrians strolling along Front Street.

The project will facilitate safe pedestrian circulation. The project will realign the two existing crosswalks across Front Street to meet the new pedestrian rest areas, and provide 2 additional crosswalks for the other proposed seating areas. In addition, the crosswalk ramps will enable the disabled or handicapped to easily gain access to the makai sidewalk from street level.

XI. PARKING

Short-term Impacts. Construction activities will reduce the number of parking stalls along Front Street. No more than one-half of the existing 37 parking stalls along the seawall will be affected during each project increment. Parking will not be permitted in the construction site after working hours as the parking lane will be used for storing construction equipment and vehicles.

Several parking stalls on the mauka side of Front Street may be affected during construction. The extent of the impact will depend on the routing of through traffic.



Every effort will be made to minimize potential disruptions to parking and facilitate efficient traffic flow.

Long-term Impacts. The proposed project will reduce the number of on-street parking stalls from 70 to 63. Five stalls will be lost on the makai side of Front Street and two stalls on the mauka side.

The parking stalls on the makai side will be sized for compact cars and marked "Compact Cars Only". This limits the type of vehicles using the stalls to a certain size but increases the number of stalls available for vehicular parking. A survey of the airport rent-a-car firms indicates that most rented vehicles are of the compact car type. As the Front Street shops cater primarily to visitors, who generally rent compact cars, it is anticipated that the reduction of parking stall size will not cause undue hardship to Front Street patrons and merchants. Residents of Lahaina, who may drive larger cars, are generally served by the shopping centers mauka of Front Street, which provide their own parking facilities.

Parking stalls on the mauka side will be sized to accommodate standard size (sedan) automobiles. The two stalls "lost" on this side will be converted to crosswalks.

XII. OCEANOGRAPHIC IMPACTS

Short-term Impacts. The only impacts anticipated relate to placement of the rubble toe which is not expected to significantly affect tides, waves or bathymetry of the nearshore.



Other construction and demolition will take place above and behind the existing seawall. Care will be taken so that no demolition or construction debris will fall into the ocean.

Long-term Impacts. The frequency of wave overtopping will be reduced, as wave impact will be dissipated by the rubble toe. The wave force reduction occurs because the toe triggers the incoming wave to break before the wall instead of directly on the wall.

XIII. SOCIAL IMPACTS

Short-term. The construction of the proposed project will inconvenience Front Street pedestrians and shoppers along the portion of the seawall under development. The makai sidewalk will be closed to all pedestrians who had previously used the seawall and the benches along the seawall as an area in which to rest and enjoy scenic views. In addition, construction noise and any traffic congestion caused by construction activities may present a nuisance to surrounding shops and clientele. All efforts will be made to minimize such disturbance, as delineated in previous sections.

Long-term Impacts. The development of the project will upgrade the present site area and provide a shady, restful retreat in which to relax and enjoy ocean scenic viewing. It is anticipated that both visitors to and residents of Lahaina will use this area and it will provide an opportunity for communication and interaction between both the visitor and resident populations.



XIV. ECONOMIC

Short-term Impacts. Construction costs are estimated at \$480,000 with construction time estimated at half a year. The immediate economic benefit of the project will be a short-term infusion of cash and the provision of jobs in Maui County, particularly in Lahaina. The estimated project costs would involve the purchase of labor, materials and services. The direct expenditures will provide direct revenues to the Federal, State and County governments in the form of payroll taxes, gross income taxes and general excise taxes paid by the contractor, subcontractors and suppliers. Wages and salaries will generate an increase in the demand for goods and services from construction workers and suppliers sharing in the project payments with resultant multiplier effects throughout Maui's economy.

It is difficult to assess the economic impacts of the proposed project on commercial activities along Front Street. Construction related inconveniences may hamper business operations but also may stimulate more "walk in" traffic. The closing of the sidewalk fronting the seawall will divert pedestrian traffic to across the street thus exposing them to the many shops in this section of Lahaina. As a result of this greater exposure, shopowners may experience increases in retail sales.

Long-term Impacts. The long-term economic impacts of the proposed project are difficult to assess due to the



dependency the retail shops have on visitors and "walk in traffic". Increases in the number of visitors to Lahaina may induce economic benefits to shop owners; conversely, decreases in the number of visitors may result in less business.

It is anticipated that the proposed project will benefit shop owners surrounding the seawall and will enhance the appeal of Lahaina as a prime visitor shopping area. It is anticipated that pedestrians will be attracted to the seawall for ocean viewing or simply resting. With greater pedestrian movement, shopowners along the seawall stand to derive long-term economic benefits.

XV. VISUAL IMPACT

The development of the proposed project will substantially enhance that portion of Front Street between Dickenson Street and Lahainaluna Road. Presently, this section of Front Street is subject to heat and glare caused by lack of any type of shade from the sun. The glare is particularly strong as sunlight is reflected off the light concrete of the seawall and adjacent sidewalk. The solid concrete wall, in addition, blocks both breezes coming from the ocean and the scenic panorama of ocean and sailboats, with the island of Lanai as a backdrop.

The existing streetscape along the project site is also oriented to the automobile and dominated by vehicular traffic. The overwhelming portion of the space between the seawall and the store fronts that defines the street environment is



relegated to the automobile, both for movement and for parking. The individual on foot is allowed a choice of two narrow sidewalks on either side of the street on which to walk. The sidewalks are wide enough to permit only two persons to walk abreast comfortably. The net result for the pedestrian is a feeling of crampedness and an accompanying unconscious need of focusing his/her attention to what obstacles might be ahead.

This combination of limited pedestrian space, heat and traffic congestion results in uncomfortable conditions for the pedestrian. Drivers along Front Street also share the discomfort of heat, glare and congestion while being denied the ocean views that can be seen from above the seawall.

The proposed project will mitigate many of these conditions. The addition of canopy shade trees, buffered pedestrian seating areas and an open wooden railing will create green "oases" that will provide shade, accessible ocean views and ocean breezes that can be enjoyed by pedestrian and driver alike. Mauka-makai view corridors will be preserved from alleyways, Kukui Street and Lahainaluna Road and drivers or pedestrians heading toward Front Street will have accessible views to the ocean. Such views will be unobstructed, as the pedestrian rest areas have been sited between view corridors to maintain open views.



The rest areas will create safe, comfortable areas for pedestrians and are sited to provide ample walking space. The use of natural materials for the project, such as wood and rock will harmonize with existing materials used in construction in Lahaina. The addition of plants will soften the starkness of this section of Front Street and visually provide a green link to the more heavily landscaped and less developed sections of the southern end of the town.

The development of the proposed project, therefore, will create comfortable conditions in which to enjoy the natural assets of Lahaina ocean breezes and the ocean panorama, without the nuisance of ocean spray.

XVI. HISTORIC AND ARCHAEOLOGICAL

The proposed project will have no effect on any known historic or archaeological site on, or eligible for, the Hawaii or National Registers of Historic Places.



SECTION 5

ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Construction activities will generate temporary impacts on noise levels, air quality and traffic. These impacts can be minimized with the proper application of noise, dust and traffic control measures. Construction activities involving the alteration of the shoreline will cause a temporary increase in turbidity of shore waters with adverse aesthetic and environmental effects. The removal of boulders and debris along portions of the shore may also result in the destruction of existing marine habitats and individual marine organisms. Rock debris and silt generated by demolition activities may damage and stress organisms in both the nearshore and surrounding areas.

Construction activities will also entail the loss of some rocky intertidal habitats along the shoreline of the project site. Upon completion of the project, however, intertidal communities will reestablish on the riprap structure.



SECTION 6

ALTERNATIVES TO THE PROPOSED ACTION

I. NO ACTION

If the proposed project is not implemented, the Lahaina Seawall will continue to deteriorate both structurally and visually. The concrete cap railing will continue to be unsightly and obscure both ocean views and ocean breezes yet allow spray overtopping to continue. The toe portion of the retaining wall will remain unprotected and subject to continued wave action and scouring. This will ultimately undermine the seawall, requiring the eventual replacement of the entire seawall.

II. ALTERNATIVE SEAWALL CONFIGURATIONS

The design objectives for the Lahaina Seawall are to prevent overtopping to the maximum extent possible within given oceanographic constraints, to use the existing foundation and to provide crest width for expansion of the sidewalk. The advantages and disadvantages of several seawall alternatives are discussed below:

Sloped Face Seawall

This type of structure will reduce wave runup, reduce scour at the toe, and is able to withstand high wave action. The structure can be constructed of rubble, riprap, or concrete. The cost of materials and horizontal space requirements are disadvantages of this alternative.



Stepped Face Seawall

This alternative is a variation of the sloped face seawall and the advantages are the same. The disadvantages include: greater horizontal space is required, the steps are only efficient for moderate sized waves, and the turbulence of wave uprush is increased.

Vertical Seawall

This type of structure can be constructed of sheet piling, concrete, masonry or timber. A vertical seawall is relatively easy to construct and requires minimum horizontal space. The disadvantages of this alternative include: the occurrence of severe scouring when the base is in shallow water, frequency of wave overtopping and greater wave reflection and higher wave forces created by the vertical walls.

Curved Face Seawall

This type of seawall can be constructed of concrete or masonry. The structure reduces wave reflection and inhibits scouring at the toe; however, it is susceptible to overtopping spray during onshore winds.

III. ALTERNATIVES TO THE RUBBLE SLOPE FOUNDATION

Sand Beach

Replenishment of the sand beach in front of the seawall, particularly in severely eroded areas, would greatly reduce the frequency of overtopping. The quantity of sand required to build the entire beach 10 feet wide is approximately 1500 cubic yards. At the



present time, suitable sand delivered to the site, would cost from \$8.50 to \$25.00 per cubic yard, depending upon the grade of sand.¹ The cost of this alternative would range from \$12,000 to \$38,000 in addition to the cost of placing the sand on the beach.

There are several drawbacks to this alternative. The sand placement is not a permanent solution and the procedure would have to be repeated at regular intervals. Comparison of present sand levels to those shown on old plans indicated that there has been a net loss of sand in front of the seawall over the years. A very approximate calculation based on limited data indicated that sand replenishment would be effective for four to six years and then would have to be repeated. State Harbors Division has requested a U. S. Army Corps of Engineers Permit for maintenance dredging of the Lahaina Boat Harbor channel on a frequent basis. Coordinating replenishment of the beach with sand from the project would depend on the dredged material. If it is clean beach sand it would be used. If it is silt it could not be used because it would increase turbidity of the inshore waters. If it contains litter, rocks or other contaminants they would have to be removed before it could be used.

¹Cost figure was obtained from Maui Concrete and Aggregate.

Off-shore Breakwater

An off-shore breakwater, either permanent or floating, would almost eliminate the wave energy reaching the seawall. A permanent breakwater would obviously be more expensive than the rubble toe, and also be visually obtrusive. Floating breakwaters are still experimental and are the subject of much research. However, if necessary, a suitable design could be developed. Although the cost of a floating breakwater is less than that of a fixed structure, it would still be much more expensive than the construction of the comparatively simple rubble toe.

IV. ALTERNATIVE LANDSCAPE DESIGN

The proposed project was required to address all points articulated in Section 1, under Project Objectives, including the provision of seating areas, shade and the reduction of ocean spray. The following alternatives to the proposed design were considered:

Trellis and Vines. A trellis structure and vines were considered as an alternative to the canopy trees for use as the shade providing element. This alternative was rejected as it introduced manmade structures that could be visually obtrusive in the setting.

Street Trees. A series of trees planted along the Front Street sidewalk in front of the seawall was considered.

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This alternative would reduce the usable pedestrian area of the sidewalk, and seating areas would not be buffered from Front Street traffic.



SECTION 7

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The existing Lahaina Seawall is in a deteriorated condition and in need of replacement. The sidewalk areas in front of the seawall are narrow, hot and subject to glare. In addition, both ocean views and breezes are obstructed by the solid concrete wall.

The proposed project will remove the concrete wall portion of the seawall and replace it with an open railing which will allow ocean breezes to penetrate and provide accessible ocean views. The addition of sidewalk benches will provide convenient rest areas for Front Street pedestrians and promote pedestrian circulation.

The landscape planting of the project site will soften the stark appearance of Front Street and introduce natural elements that will provide shade and reduce glare. The proposed project, therefore, will substantially upgrade the existing seawall and will be in harmony with the charm and character of the rest of the town.



SECTION 8

IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENTS OF RESOURCES

The proposed action will involve an irretrievable commitment of funds, raw materials, labor and energy used directly in the construction of the proposed project.

The proposed improvements will disturb marine habitats around the project site. Some of the marine organisms disturbed during construction will recolonize the riprap surface after construction terminates but others may be damaged or lost.

Seven parking stalls will be irreversibly committed for the life span of the project.



SECTION 9

SUMMARY OF UNRESOLVED ISSUES

The rubble slope foundation may affect sand transport patterns along the seawall face. The extent of these alterations can only be determined following further investigation of the direction of sand movement, the rate of transport, grain size characteristics and changes in shore alignment.



SECTION 10

ORGANIZATIONS AND PERSONS CONSULTED

Army Corps of Engineers

State Department of Land and Natural Resources
Division of State Parks

State Department of Transportation, Harbors Division

Maui County Council

Maui County Planning Department

An advertised Public Meeting was held at Kamehameha III
Elementary School on June 14, 1976.



SECTION 11

LIST OF NECESSARY APPROVALS

<u>AGENCY</u>	<u>ACTION</u>	<u>STATUS</u>
Maui Historic Commission	EIS Acceptance	Submitted to O.E.Q.C. June 1, 1977
<u>Federal</u>		
U.S. Army Corps of Engineers	Permit for Activities in Waterway	For all others application will be made after acceptance of the EIS
<u>State</u>		
Department of Transportation, Water Transportation Facilities Division	Construction Permit for Work in Shore Waters	
Department of Land and Natural Resources	Right of Entry for Construction on State Lands and Conservation Use Application	
<u>County</u>		
Planning Commission	Special Management Area Permit	
Department of Public Works, Land Use and Codes	Building Permit	



SECTION 12

RESPONSES RECEIVED DURING THE CONSULTATION PERIOD

The Notice of Preparation of an Environmental Impact Statement was published in the Environmental Quality Commission Bulletin of December 23, 1976. No responses were received during the 30 day consultation period which ended January 24, 1976.

SECTION 13

COMMENTS AND RESPONSES TO THE EIS

The Environmental Impact Statement was announced in the Environmental Quality Commission Bulletin of February 23, 1977. The March 25, 1977 deadline for comments was extended to April 8, 1977.

GEORGE R. ARIYOSHI
GOVERNOR



JOHN FARIAS, JR.
CHAIRMAN, BOARD OF AGRICULTURE

YUKIO KITAGAWA
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

February 24, 1977

MEMORANDUM

To: Office of Environmental Quality Control

Subject: EIS for Lahaina Seawall

The Department of Agriculture has no comments to offer on the subject statement inasmuch as there would be no agricultural impact as a result of the project.

The EIS report is returned herewith.

A handwritten signature in cursive script, which appears to read "John Farias, Jr.", is written over the typed name.

JOHN FARIAS, JR.
Chairman, Board of Agriculture

att.

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. John Farias, Jr.
Chairman, Board of Agriculture
State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, HI 96814

Dear Mr. Farias:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa", written in dark ink.

Toshio Ishikawa
Administrator





DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
APO SAN FRANCISCO 96558

AFZV-FE-EE

25 FEB 1977

Office of Environmental Quality Control
550 Halekauwila Street Room 301
Honolulu, Hawaii 96813

Gentlemen:

Reference is made to Environmental Impact Statement for Lahaina Seawall, dated 18 February 1977.

The document has been reviewed and we have no comments to offer. There are no Army Installations in the area of the proposed project.

Document is returned as requested. Thank you for the opportunity to review the document.

Sincerely yours,

CARL P. RODOLPH
Colonel, CE
Director of Facilities Engineering

1 Incl
As stated

CF:
Maui Historic Commission
County of Maui
200 S. High Street
Wailuku, Maui 96793



VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Carl P. Rodolph
Colonel, CE
Director of Facilities Engineering
Department of the Army
Headquarters United States Army
Command, Hawaii
APO San Francisco 96558

Dear Colonel Rodolph:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa".

Toshio Ishikawa
Administrator



GEORGE R ARIYOSHI
GOVERNOR



VALENTINE A SIEFERMANN
MAJOR GENERAL
ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
FORT RUGER, HONOLULU, HAWAII 96816

HIENG

01 MAR 1977

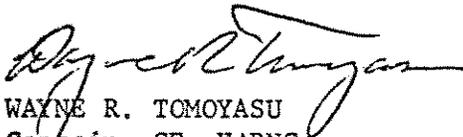
Dr. Albert Tom, Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Tom:

Lahaina Seawall

Thank you for sending us a copy of the Lahaina Seawall Environmental Impact Statement. We have received the publication and have no comments to offer.

Yours truly,


WAYNE R. TOMOYASU
Captain, CE, HARNG
Contr & Engr Officer

Enclosure -

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Wayne R. Tomoyasu
Captain, CE, HARNG
Contr & Engr Officer
State of Hawaii
Department of Defense
Office of the Adjutant General
Fort Ruger, Honolulu, HI 96816

Dear Captain Tomoyasu:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa", is written over a horizontal line.

Toshio Ishikawa
Administrator





STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
P. O. Box 339
Honolulu, Hawaii 96809

March 1, 1977

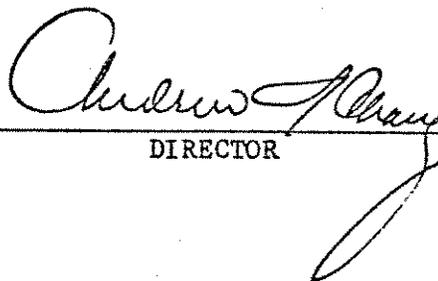
MEMORANDUM

TO: Environmental Quality Commission
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

FROM: Andrew I. T. Chang, Director
Department of Social Services and Housing

SUBJECT: Lahaina Seawall Environmental Impact Statement

Subject EIS has been reviewed for its effect on our department program areas. We have no comment to make and we are returning this EIS for your usage. Thank you for the opportunity to review and comment.



DIRECTOR

Attachment
cc: Maui Historic Commission
County of Maui
200 S. High St., Wailuku, Maui, 96793

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Andrew I. T. Chang
Director
State of Hawaii
Department of Social Services
and Housing
P. O. Box 339
Honolulu, HI 96809

Dear Mr. Chang:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

Toshio Ishikawa
Administrator





DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P. O. BOX 1109
WAILUKU, MAUI, HAWAII 96793

March 1, 1977

Office of Environmental Quality Control
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

Gentlemen:

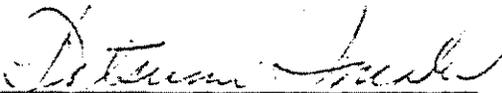
Subject: ENVIRONMENTAL IMPACT STATEMENT - Lahaina Seawall, Lahaina, Maui

Thank you for the opportunity to review the subject environmental impact statement.

We have the following correction to make:

Page 2 - 15, Water: We have no 8-inch waterline on the mauka side of the street between Dickenson and Lahainaluna on Front Street. However, we do have an old 6-inch waterline on the makai side of Front Street. The waterline is on the makai edge and there may be some interference between it and the proposed rest areas. We, therefore, request that the Seawall design take into account this fact and that we be allowed to review the plans.

Sincerely,


Tatsumi Imada, Acting Director

KS/ao

Enc. EIS

cc: Maui Historic Commission, County of Maui

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Tatsumi Imada
Acting Director
Department of Water Supply
County of Maui
P. O. Box 1109
Wailuku, Maui, HI 96793

Dear Mr. Imada:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
The Revised EIS has been corrected as you stated. Plans of
the seawall will be sent to you for your review.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa".

Toshio Ishikawa
Administrator



TO: Richard E. Marland, Interim Director,
Office of Environmental Quality Control

RE: LAHAINA SEAWALL

No comment.

EIS returned: project does not pertain to SCS
activities and/or responsibilities.

EIS received: undergoing review.

Jack P. Kanalz
State Conservationist
Soil Conservation Service

3/3/77

Date

UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

440 Alexander Young Bldg.
Honolulu, HI 96813

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF
AGRICULTURE
GR-101



~~OFFICE OF ENVIRONMENTAL
QUALITY CONTROL
550 HALEKAUWILA ST.-RM. 301
HONOLULU, HAWAII 96813~~

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Jack P. Kanalz
State Conservationist
United States Department of
Agriculture
440 Alexander Young Building
Honolulu, HI 96813

Dear Mr. Kanalz:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa".

Toshio Ishikawa
Administrator

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT

BOX 110
FPO SAN FRANCISCO 96610

IN REPLY REFER TO:

48:AMN:amn
Ser 443

4 MAR 1977

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Lahaina Seawall Environmental Impact Statement

The Navy has no comments on the Lahaina Seawall Environmental Impact Statement forwarded by your letter of 18 February 1977. As requested, the subject EIS is returned.

Thank you for the opportunity to review the EIS.

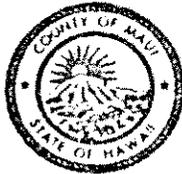
Sincerely,



R. P. NYSTEDT
CAPTAIN, CEC, USN
DISTRICT CIVIL ENGINEER
BY DIRECTION OF THE COMMANDANT

Encl

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

R. P. Nystedt
Captain, CEC, USN
District Civil Engineer
by Direction of the Commandant
Headquarters Fourteenth Naval District
Box 110
FPO San Francisco 96610

Dear Captain Nystedt:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely, yours,


Toshio Ishikawa
Administrator





DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (mep)
Fourteenth Coast Guard District
677 Ala Moana
Honolulu, Hawaii 96813

16475
10 MAR 1977

MauI Historic Commission
County of Maui
200 S. High Street
Wailuku, Maui 96793

Gentlemen:

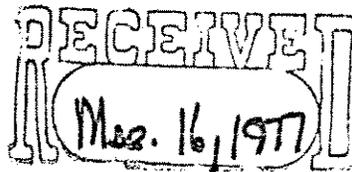
Staff review of the "Lahaina Seawall Environmental Impact Statement" has been completed, and the Coast Guard has no objections to implementing the project nor any comments to offer.

The opportunity to review and comment on this project is appreciated.

Sincerely,

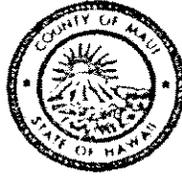
H. G. HOLMGREN
Captain, U. S. Coast Guard
Chief of Staff
Fourteenth Coast Guard District
Acting

Copy to:
COMDT (G-WEP/7)
CEQ Wash DC
OEQC Hawaii



MauI Hist. Com.

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

H. G. Holmgren, Captain
Chief of Staff
Fourteenth Coast Guard District, Acting
Department of Transportation
United States Coast Guard
677 Ala Moana
Honolulu, HI 96813

Dear Captain Holmgren:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

Toshio Ishikawa
Administrator



GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



CHRISTOPHER COBB, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

March 14, 1977

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Office of Environmental Quality Control
550 Halekawila St., Rm. 301
Honolulu, HI 96813

Gentlemen:

The proposed Lahaina Seawall will have no effect on any known historic or archaeological site on, or likely to be eligible for, the Hawaii and/or National Registers of Historic Places.

In the event unanticipated sites or remains are encountered please contact our Historic Sites Office immediately.

As noted on page 11-1, the project will need approval from the Board of Land and Natural Resources insofar as Conservation lands are involved. Because the land is also State owned, a right of entry from the Board will also be necessary.

Very truly yours,

GORDON SOH
Program Planning Coordinator

cc: Land Management
DOWALD
Historic Sites

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Gordon Soh
Program Planning Coordinator
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Soh:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS. Your information that the proposed Seawall will have no effect on any known historic or archaeological site will be included in the Revised EIS.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Toshio Ishikawa", is written over a horizontal line.

Toshio Ishikawa
Administrator



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HAWAII 96801

March 16, 1977

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health

Henry N. Thompson, M.A.
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

In reply, please refer to:
File: EPHS - SS

MEMORANDUM

To: Dr. Richard E. Marland, Director
Office of Environmental Quality Control

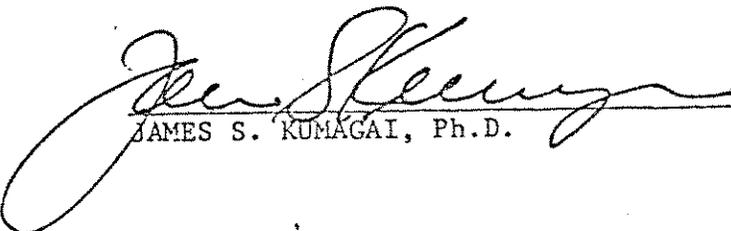
From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Lahaina Seawall

Thank you for allowing us to review and comment on the subject EIS. Please be informed that we have no objections to this project. Specifically, we refer you to Public Health Regulations:

Chapter 37, Water Pollution Control
Chapter 37-A, Water Quality Standards
Chapter 44-A, Vehicular Noise Control for Oahu

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.


JAMES S. KUMAGAI, Ph.D.

cc: Maui Historic Commission

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

James S. Kumugai, Ph.D.
Deputy Director for Environmental Health
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, HI 96801

Dear Dr. Kumugai:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
All Public Health Regulations will be complied with in
implementation of the proposed project.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa", written in dark ink.

Toshio Ishikawa
Administrator





DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVANEK
Deputy Director

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

March 21, 1977

Ref. No. 3179

Maui Historic Commission
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Sir:

Subject: Lahaina Seawall Environmental Impact Statement, Maui

Our agency has reviewed the subject impact statement and finds that this statement has fully described the probable short- and long-term effects on the environment.

The proposed project with its provision of additional pedestrian space and trees for the Front Street area will enhance that part of Lahaina.

Thank you for the opportunity to review this statement.

Sincerely,



HIDETO KONO

cc: Office of Environmental
Quality Control

RECEIVED

MAR 23 1977

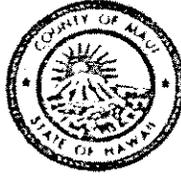
DEPT. OF PLANNING
COUNTY OF MAUI

RECEIVED

MAR 23 1977

DEPT. OF PLANNING
COUNTY OF MAUI

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Hideto Kono, Director
State of Hawaii
Department of Planning and
Economic Development
P. O. Box 2359
Honolulu, HI 96804

Dear Mr. Kono:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
We appreciate your comment that the proposed project will
enhance that part of Lahaina.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Toshio Ishikawa", is written over a faint, illegible printed name.

Toshio Ishikawa
Administrator

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

March 21, 1977

STP 8.4169

Environmental Quality Commission
550 Halekawila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Lahaina Seawall
Environmental Impact Statement

Thank you very much for giving us the opportunity to review the above-captioned document. In our judgment, the contemplated improvements are an excellent solution to upgrade the deteriorating seawall along Front Street between Dickenson and Lahainaluna Streets. The proposed project will not affect any of our Department's facilities or operations.

Please advise the applicant that he must obtain from our Water Transportation Facilities Division an approved Shorewaters Construction Permit before any work is advanced on the project.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 14, 1977

Mr. E. Alvey Wright
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hi 96813

Dear Mr. Wright:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
We appreciate your comment that the project is an excellent
solution to upgrade the deteriorating seawall.

A Shorewaters Construction Permit is on the List of
Necessary Approvals, Section 11 in the Revised EIS.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Toshio Ishikawa", is written over a horizontal line.

Toshio Ishikawa
Administrator

University of Hawaii at Manoa

Water Resources Research Center

March 21, 1977

MEMORANDUM

RECEIVED

MAK 28 1977

DEPT. OF PLANNING
COUNTY OF MAUI

TO: Maui Historic Commission

FROM: Reginald H. F. Young *RHFY*
Assistant Director, WRRRC

SUBJECT: Lahaina Seawall EIS

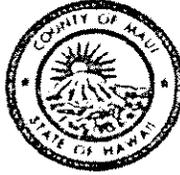
We have reviewed the Lahaina Seawall EIS and have no critical comment.
The EIS is being returned to the Environmental Quality Commission.

We appreciate the opportunity to participate in this EIS review.

RHFY/kn

cc: Env. Center

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Reginald H. F. Young
Assistant Director, WRRC
University of Hawaii at Manoa
Water Resources Research Center
Honolulu, HI 96823

Dear Mr. Young:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa".

Toshio Ishikawa
Administrator



MAR. 24 1977



DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, CORPS OF ENGINEERS
BLDG. 230, FT. SHAFTER
APO SAN FRANCISCO 96558

FODED-FV

22 March 1977

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

RECEIVED

MAR 28 1977

DEPT. OF PLANNING
COUNTY OF MAUI

Dear Sirs:

We have reviewed the Lahaina Seawall Environmental Impact Statement and offer the following comments for your consideration:

- a. Although there are no specific historical structures within the project area, the lead agency should determine, in conjunction with the State Historical Preservation Officer, whether or not there is any adverse effect on the National Historical Landmark pursuant to Section 800 of the "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).
- b. The construction of the riprap toe will require a Department of the Army permit.
- c. In reference to the sand beach alternative to the rubble slope foundation discussed on pp 6-2f: the State Harbors Division has requested a permit for maintenance dredging of the Lahaina Boat Harbor channel on a frequent basis. This could be a potential source of sand for the sand beach alternative should that alternative prove feasible, and should be considered and coordinated during the evaluation process.
- d. The elevation of the Front Street pavement varies from about 9 to 11 feet (MLLW). Frequency of high spray occurrences could be reduced if the rubble slope or beach slope is adequately designed. Details are not provided in this document.

Thank you for the opportunity to review this document.

Sincerely yours,

Cf: Maui Historic Commission
County of Maui
200 South High St.
Wailuku, Maui 96793

KISUK CHEUNG
Chief, Engineering Division

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI

200 S. High Street

Wailuku, Maui, Hawaii 96793

April 15, 1977

Mr. Kisuk Cheung
Chief, Engineering Division
Department of the Army
Honolulu District, Corps of
Engineers
Bldg. 230, Ft. Shafter
APO San Francisco 96558

Dear Mr. Cheung:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
We are pleased to respond to your specific comments as follows:

- a. The proposed project will have no effect on any known historic or archaeological site on, or eligible for, the Hawaii or National Register of Historic Places, according to the Department of Land and Natural Resources. Enclosed is a copy of their letter so stating.
- b. The U. S. Army Corps of Engineers is included in SECTION II, LIST OF NECESSARY APPROVALS of the EIS.
- c. We appreciate your information about the proposed frequent dredging of Lahaina Boat Harbor. Coordinating replenishment of the beach with sand from the project would depend on the dredged material. If it is clean beach sand, it could be used. If it is silt, it could not be used because it would increase turbidity of the inshore waters. If it contains litter, rocks, or other contaminants, they would have to be removed before it could be used.
- d. Reduction of spray overtopping has been a major determinant in the design of the rubble slope.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Toshio Ishikawa".

Toshio Ishikawa
Administrator

GEORGE R. ARIYOSHI
GOVERNOR



RICHARD E. MARLAND, PH.D.
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

March 23, 1977

RECEIVED

MAR 28 1977

Toshio Ishikawa, Administrator
Maui Historic Commission
County of Maui
200 S. High St.
Wailuku, Maui 96793

DEPT. OF LAND & NATURAL RESOURCES
COUNTY OF MAUI

Dear Mr. Ishikawa,

SUBJECT: Lahaina Seawall Environmental Impact Statement

This Office has reviewed the subject EIS. Overall, we note that this is a well prepared document. Our specific comments are as follows:

- a) P. 1-9 We suggest the term "pressure treated lumber" over the use of the specific trade name "wolmanized".
- b) P. 2-5 It was the increased mechanization on the plantations that reduced the labor force, not automation as stated.
- c) P. 4-1 We believe the word "cleaning" (or something to that effect) is missing in the last sentence on the short-term impacts on air quality.
- d) P. 4-2 What is the estimated length of time for the noisy demolition process? In other words, how short are "short periods?"
- e) P. 4-2 The discussion on the short-term impact on water quality should include the potential use of turbidity screens during demolition and construction.
- f) P. 6-1 The environmental impacts of the alternatives, such as potential sand scouring and loss, should be discussed.
- g) P. 6-2 Could sand from the boat harbor channel maintenance project be utilized in front of the seawall?

h) P. 10-1 Comments, if any, from the organizations and persons consulted that are listed on this page should be reproduced along with any responses made.

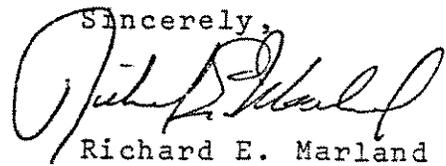
i) P. 11-1 The status of these approvals should also be indicated in this section.

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. This Office will exercise the option and will consider responses after the fourteen day period.

As of this date we have received a total of nine (9) comments as indicated on the attached list. We will forward to you copies of any comments received after today.

Thank you for allowing us to review this EIS. We will look forward to receiving the Revised Statement.

Sincerely,



Richard E. Marland
Director

attachments

List of commentors for the Environmental Impact Statement for the Lahaina Seawall Project, Maui. (Maui Historic Commission)

State Agencies

Comment Date

*Dept. of Agriculture	February 24, 1977
Dept. of Land and Natural Resources	March 14, 1977
*Dept. of Defense	March 1, 1977
*Dept. of Social Services and Housing	March 1, 1977

Federal Agencies

*Soil Conservation Service	March 3, 1977
*U.S. Navy	March 4, 1977
*U.S. Army-DAFE	February 25, 1977
*U.S. Coast Guard	March 10, 1977

Maui County Agencies

Dept. of Water Supply	March 1, 1977
-----------------------	---------------

*denotes no comment

VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

April 15, 1977

Richard E. Marland, Ph.D.
Director
Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Dr. Marland:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS.
We are pleased to answer your specific comments as follows:

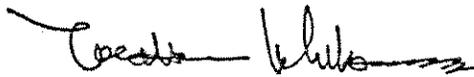
- a, b, and c) These changes have been made in the Revised EIS as suggested.
- d) Demolition should be completed in seven days for each of the two phases of construction.
- e) The use of turbidity screens was considered. However, the shallowness of the inshore waters and the only slight anticipated increase in turbidity is not thought to make them practicable nor necessary for the proposed project.
- f) All of the alternatives would result in greater short-term environmental impacts than the proposed project as they would require more extensive construction. The proposed project utilizes the existing seawall, thereby limiting disturbance of the near shore environment to that caused by placement of the rubble toe. Scouring is mentioned for all the alternative seawall configurations.

Richard E. Marland, Ph.D.
April 15, 1977
page 2

Other environmental impacts which are not specifically mentioned for each alternative are considered to be essentially the same as for the proposed project, in relation to which they are discussed. For example, the potential for sand loss. Sand transport is seasonal, being offshore in the winter and onshore in the summer, though there are indications of a long term net loss and drift northward. None of the alternative configurations would have a significantly different effect on this pattern than the proposed project. The effect on sand loss of the Sand Beach alternative is mentioned. That of the Off-shore Breakwater would require further study.

- g) State Harbors Division has requested a U. S. Army Corps of Engineers permit for maintenance dredging of the Lahaina Boat Harbor channel on a frequent basis. Coordinating replenishment of the beach with sand from the project would depend on the dredged material. If it is clean beach sand, it could be used. If it is silt, it could not be used because it would increase turbidity of the inshore waters. If it contains litter, rocks, or other contaminants, they would have to be removed before it could be used.
- h) Comments and responses are reproduced in the Revised EIS.
- i) The status of approvals is indicated in the Revised EIS.

Sincerely yours,



Toshio Ishikawa
Administrator

HUMIO OKIMOTO, Chairman
VINCENT R. RODRIGUES, JR., Vice-Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



STANLEY OKAMOTO
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex-officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793

March 29, 1977

Mr. Richard Stahl II
Project Manager
Environmental Impact Study Corp.
P.O. Box 2996
Honolulu, Hawaii 96802

RECEIVED

MAR 30 1977

EISC

Dear Mr. Stahl:

Re: Environmental Impact Statement (E.I.S.)
Lahaina Seawall Project.

Transmitted herewith for your review are xerox copies of agency comments relative to the above project. Please also note that the Maui Historic Commissioners have taken the opportunity to individually evaluate the E.I.S. and their comments were positive except for a technical concern relating to the structural design of the wave deflector.

If additional clarification is required, please contact this office.

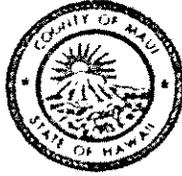
Very truly yours,

CHRISTOPHER L. HART
Landscape Architect - Planner

Encl.



VINCENT R. RODRIGUES, Chairman
STANLEY OKAMOTO, Vice Chairman
ANTHONY DE GAMA
MRS. WAILANI JOHANSEN
BAIRD MILLER



GORDON MIYAKI
MRS. EMMA K. SHARPE
MRS. CAROLYN VAN DER LINDEN
TOSHIO ISHIKAWA, ex officio

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Wailuku, Maui, Hawaii 96793
April 15, 1977

Mr. Christopher L. Hart
Landscape Architect - Planner
Maui Historic Commission
200 South High Street
Wailuku, Maui, HI 96793

Dear Mr. Hart:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS. From your telephone conversation with Richard Stahl of April 1, 1977, we understand that the technical concern is about the structural stability of the wave return cantilever projection of the sidewalk out over the seawall.

Design of the upper structure of the seawall is simplified by the attenuation of wave force with height. The existing foundation takes the brunt of the impact force. Although expected wave forces on the upper wall are small, there will be forces on the cantilevered section. These forces may occur when a wave hits the vertical section and splashes upward. There are no theoretical methods for calculating these forces but they are related to horizontal impact forces. The maximum horizontal impact forces vary from 500 to 2,660 pounds per square foot (psf), depending on toe protection. Because of the lack of data and theory, a conservative force estimate is required. The cantilevered section should be designed for an uplift force of 1,000 psf where there is rubble toe protection and 1,500 psf where there is no toe protection.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Toshio Ishikawa", is written over a faint circular stamp.

TOSHIO ISHIKAWA
Administrator



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

RECEIVED

MAR 30 1977

Office of the Director

DEPT. OF PLANNING
March 25 1977
COUNTY OF MAUI

MEMORANDUM

TO: Maui Historic Commission
FROM: Doak C. Cox *Doak Cox*
RE: Lahaina Seawall Draft Environmental Impact Statement (DEIS)

The Environmental Center review of the above cited DEIS has been prepared with the assistance of Charles L. Bretschneider and Frans Gerritsen (Ocean Engineering), Harold Loomis (Joint Tsunami Research Effort), Ralph Moberly (Geophysics), Jacquelin N. Miller and Clare Shinsato (Environmental Center).

The above cited DEIS adequately addresses most of the potential concerns associated with this project. We would appreciate clarification in the final EIS of several questions raised by our reviewers. The following comments are submitted for your consideration.

The DEIS states that under existing conditions wave spray is a factor of concern. This implies considerable wave action in front of the wall despite the existence of a shallow offshore reef. If this is true, the proposed modification will induce high wave-pressures against the bottom of the overhanging slab, which may lead to serious structural damage. This effect should be evaluated in the present design and included in the final EIS.

Are the weep holes provided in the seawall to relieve possible water pressures from 1) surface water runoff (rainfall), 2) spray that might still get over the wall, or 3) tsunami inundation?

We are unable to determine whether the use of a proper filter cloth is provided beneath the rubblemound toe protection and/or underneath the seawall to prevent erosion of the beach beneath the seawall. Is this necessary and if so where? Is the seawall anchored on a rock bottom? If so, why is toe protection necessary? The fact that toe protection is shown would indicate that the seawall does not rest on rock. If this is the case, then a filter cloth may be necessary under the rubblemound toe protection, and also under the wall. These problems should be fully addressed and included in the final EIS.

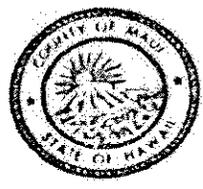
Figure I-4 confuses the above mentioned issues. The final EIS should include figures which clearly show the type of modifications being made and where.

XII. Oceanographic Impact (p. 4-9) There is no evidence documented to support these conclusions.

We appreciate the opportunity to review this draft Environmental Impact Statement.

AN EQUAL OPPORTUNITY EMPLOYER

RODRIGUES, Chairman
KAMOTO, Vice Chairman
DE GAMA
ANI JOHANSEN
LER



MOA TOSHIO ISHII

MAUI HISTORIC COMMISSION

COUNTY OF MAUI
200 S. High Street
Waituku, Maui, Hawaii 96793

April 15, 1977

Mr. Doak C. Cox
University of Hawaii
Environmental Center
2550 Campus Road
Crawford 317
Honolulu, HI 96822

Dear Mr. Cox:

SUBJECT: LAHAINA SEAWALL
ENVIRONMENTAL IMPACT STATEMENT

Thank you for your response to the subject EIS. We are pleased to answer your specific comments as follows:

Paragraph 3 of your memorandum

Design of the upper structure of the seawall is simplified by the attenuation of wave force with height. The existing foundation takes the brunt of the impact force. Although expected wave forces on the upper wall are small, there will be forces on the cantilevered section. These forces may occur when a wave hits the vertical section and splashes upward. There are no theoretical methods for calculating these forces but they are related to horizontal impact forces. The maximum horizontal impact forces vary from 500 to 2,660 pounds per square feet (psf), depending on toe protection. Because of the lack of data and theory, a conservative force estimate is required. The cantilevered section should be designed for an uplift of 1,000 psf where there is rubble toe protection and 500 psf where there is no toe protection.



Mr. Doak C. Cox
April 15, 1977

Page 2

Paragraph 4

Weep holes are not needed. Surface water runoff (rainfall) will enter existing and proposed catch basins along Front Street and be conveyed in outflow channels beneath the seawall sidewalk. Spray that might still get over the wall will drain back across the sidewalk and through the proposed open railing. Backwash from tsunami inundation will flow back across the seawall sidewalk and through the proposed open railing and also be conveyed through the surface water runoff system.

Paragraph 5

The bed on which the existing seawall rests is not known. Construction of the rubble toe is to maintain its present structurally sound condition. A filter cloth will be laid beneath the rubble toe but could not practicably be laid beneath the existing seawall.

Paragraph 6

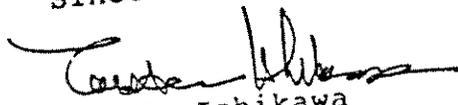
In the Revised EIS, Figure 1-6 shows a typical section through the existing seawall and figure 1-7 shows the conceptual design of the proposed seawall.

Paragraph 7

Short-term Impacts refers to those during construction. The only short-term impacts anticipated relate to placement of the rubble toe which is not expected to significantly affect tides, waves, or bathymetry of the near-shore. Other construction and demolition will take place above and behind the existing seawall. Care will be taken so that no demolition or construction debris will fall into the ocean.

Long-term Impacts. See page 1-5, Technical Characteristics, of the Revised EIS. The wave force reduction occurs because the toe triggers the incoming wave to break before the wall instead of directly on the wall.

Sincerely yours,



Toshio Ishikawa
Administrator

BIBLIOGRAPHY

ANNUAL REPORT, 1960 to 1974, Maui Department of Water Supply.

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ENVIRONMENTAL IMPACT STATEMENT FOR LAHAINA PLAZA, Environment Impact Study Corp., 1975.

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