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St. George and St. Paul are also separated geographically by 45 miles of unsheltered northern ocean. Therefore, economic development is necessary on both islands to insure the survival of our communities.

The people of St. George--as represented by their village council and village corporation--are together in their drive to economic independence. We wish not only to build an economy for ourselves but for those of our people who want to return home. For example, our corporation has committed nearly $3/4 million to harvesting and processing development and our village council is supporting this effort in every possible way.

Our list is not long. It includes few studies, grants, plans or unwarranted subsidies. We simply ask -- as would any industrious marine community -- for the means to support ourselves through commerical fisheries development.

Max Malavanski, President
St. George Traditional
Village Council

Anthony Merculief, Chairman
St. George Tanaq Corporation

ST. GEORGE ISLAND ECONOMIC DEVELOPMENT PLAN

SUMMARY OF REQUESTS FOR STATE ASSISTANCE

PROGRAM	AGENCY	AMOUNT
Economic Development		
Boat Harbor Construction	Governor's Office Legislature DOT/PF	$8,400,000*
Continued Fisheries Training	Univ. of Alaska Economic Dev. Admin.	100,000
State Support For Increased Halibut Quota By IPHC	Governor's Office AK Dept. of F & G	--
Tourism Training	Univ. of Alaska Economic Dev. Admin.	50,000
Community Development		
Executive Level Assistance in Withdrawal Negotiations	Governor's Office or Attorney General	--
Technical Assistance for Local Government Transition	Dept. of Community and Regional Affairs	--
Community Planning Assistance for Phase II Fisheries Development	Dept. of Community and Regional Affairs	148,000

*Prior appropriation of $4.3 million plus $8.4 million in new funding totals $12.7 million project cost for St. George harbor.

PHASE II -- LARGE SCALE HARVESTING AND PROCESSING (WITH ZAPADNI BAY HARBOR IN PLACE)

St. George Tanaq Corporation plans construction of a 2,000,000# capacity fish processing plant at Zapadni Bay to process fish from an enlarged local fleet and other American vessels wishing to base operations at St. George.

The Zapadni harbor location has the following advantages:

-The immediate uplands area is open and available for well planned development.

-This location is on the opposite side of the island from the community. Though access is by road in a matter of minutes the community is away from the harbor and processing activity and this should help to minimize social impacts.

-The location is near a new fresh water source at Zapadni.

-The location is well away from the most spectacular bird and seal habitat and shouldn't intrude on tourist enjoyment of St. George.

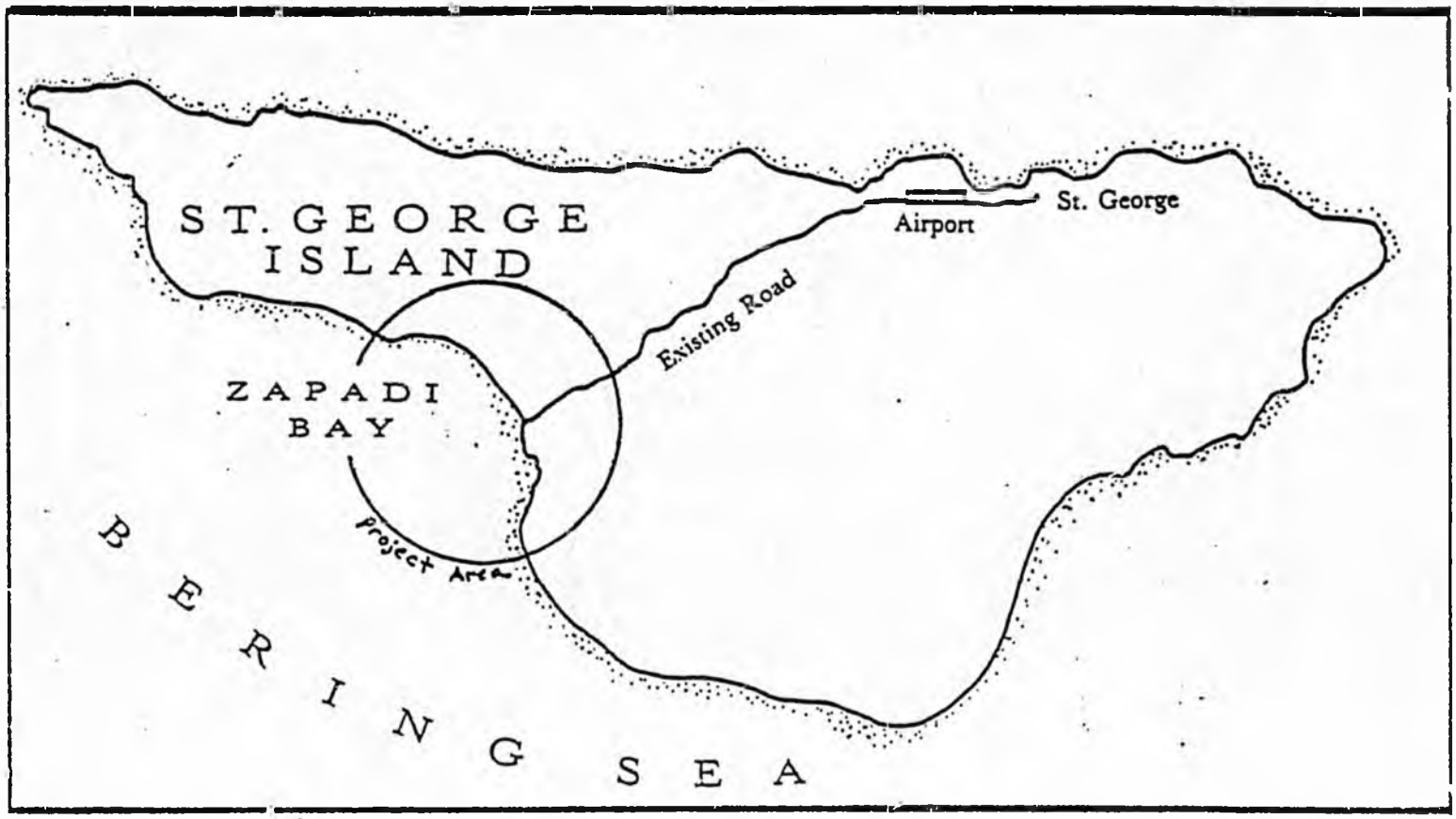
Phase II plans are not complete but the following Baseline Studies information gives a detailed picture ofthe kind of development St. George plans at the new harbor.

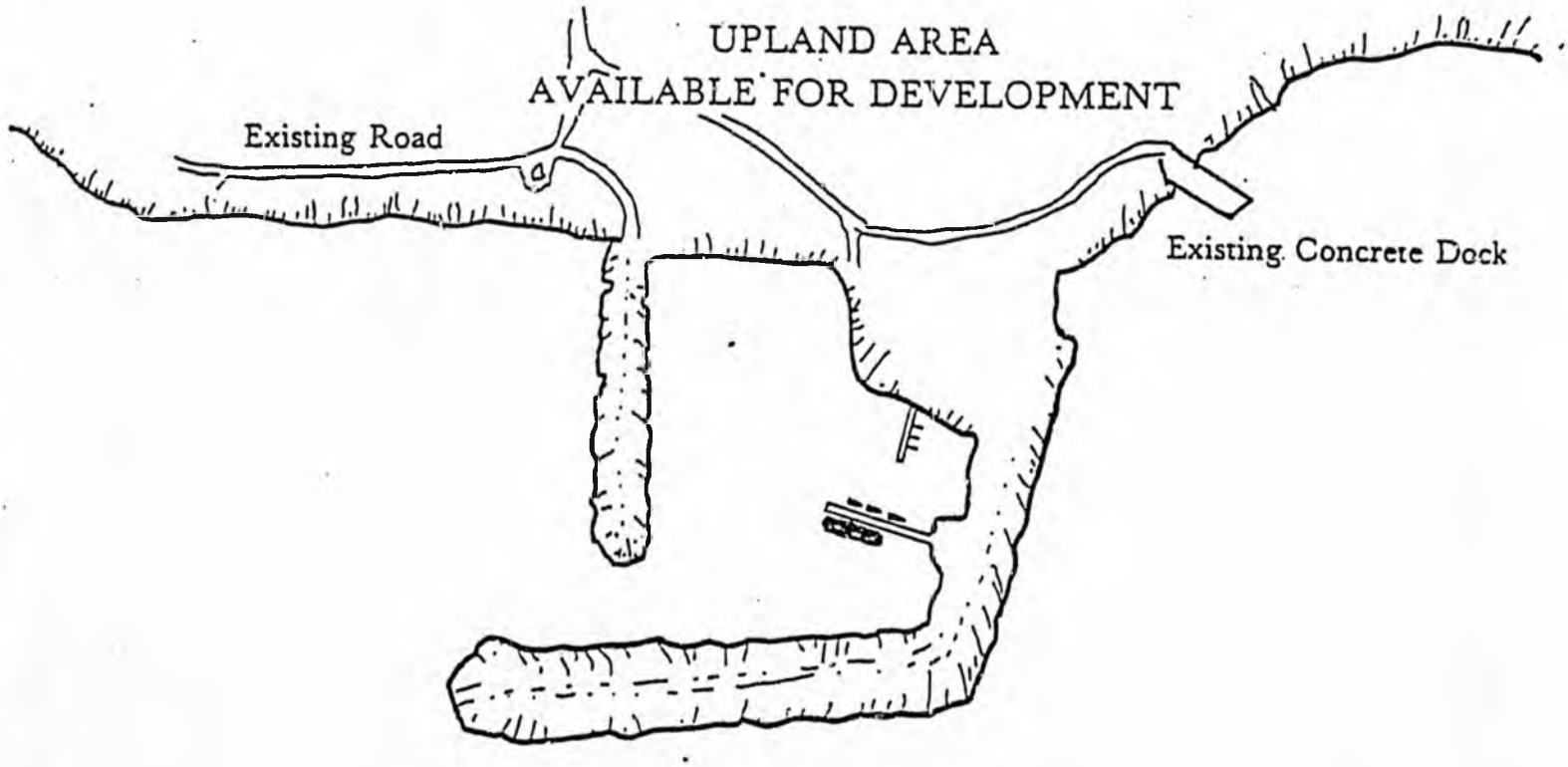
TABLE 3 - FISHERY PROGRAM COMPONENTS

CHARACTERISTICS	DESCRIPTION (ultimate development)
Fishing Boats	Ten boats 24 to 42 ft, equipped to longline and jig for halibut and Pacific cod. The larger boats would also snortline pots for cod and hair crab. The boats would be owned by Tanaq Corporation. Two boats 100 to 120 ft. equipped principally to fish red and blue king crab, tanner crab (C. bairdi and C. opilio), hair crab and to fish longline for halibut (if the hair crab season is closed) and longline and pot for Pacific cod also during closed crab seasons. The boats would be owned by the Tanaq Corporation. Two to five non-resident boats 100 to [illegible] would also deliver red and blue king crab, hair crab, and possibly trawl-caught Paci[illegible] supplement production requirements of the processing plant in the early stage of develo[illegible] and also to fill production voids.
Fishing Labor	10 to 15 persons from St. George would operate the ten small boats (24 to 42 ft) for six months of the year. An employment base of up to 30 persons would be needed to assure full crews for these boats. Eight to 10 persons from St. George would operate the two larger Tanaq boats year-round rotating with the small boat crews. Actual employment requirements would be slightly higher to provide this manning level. The labor for the two to five transient boats delivering to St. George would be non-resident labor.
Product Form and Approximate Quantities	Tanner Crab, frozen sections — 1,250,000 lbs. King Crab, frozen sections — 1,050,000 lbs. Hair Crab, frozen in round — 2,000,000 lbs. Halibut, frozen, H & G* — 240-480,000 lbs. Pacific Cod (20%),[1] frozen, H & G — 112-140,000 lbs. Pacific Cod (80%),[2] salted — 128-160,000 lbs.
Processing Plant	Must have: (a) butcher line for King and Tanner Crab (b) cooking for all crab (c) cutting line for Pacific cod (d) heading machine for halibut (e) salting room (f) flash freezer (g) glazing tank (h) cold storage
Processing Labor	Twenty to thirty persons are needed at peak times - May through October.
Docks	The peak dock requirements will be May through October. Storms, delivery back logs, closed seasons may force the following boats into dock: - all of the small boats (24 to 42 ft) - both of the Tanaq large boats (100 to 120 ft) - possibly one or two of the transient large boats (100 to 140 ft)
Fuel	Gasoline will be required for the smaller boats (maybe the smallest five) which will consume 30 to 50 gallons/day per boat. Diesel will be required for: - the largest five of the 10 small boats, which will use 100 to 120 gallons/day; five boats at six months at 15 to 20 day/month. - the two large Tanaq boats (100 to 120 ft) which will use 700 to 900 gallons per day: 12 boats at 10 months at 20 days/month. - Some fuel for the transient boats which might use 800 to 1,000 gallons per day; two to five boats.
Ice	Ice will be needed for all of the small boats and the larger boats for halibut and Pacific cod. Roughly one pound of ice for one pound of fish.
Fresh Water	The smaller boats (24 to 42 ft) will use 50 to 150 gallons (24 to 42 ft) of water per trip, except day fishing. The longer trips will probably not exceed three days. The larger boats (100 to 120 ft) will take 2,000 to 3,000 gallons of water per filling, approximately three times a month.

1 20% x [800,000 to 1,000,000] x 20% recovery.
2 80% x [800,000 to 1,000,000] x 70% recovery.
* HG = Headed and gutted.

*PP 1-71 through 1-73 from St. George Harbor Baseline Studies, Dames & Moore, Norguard (U.S.A.), Inc., January, 1983

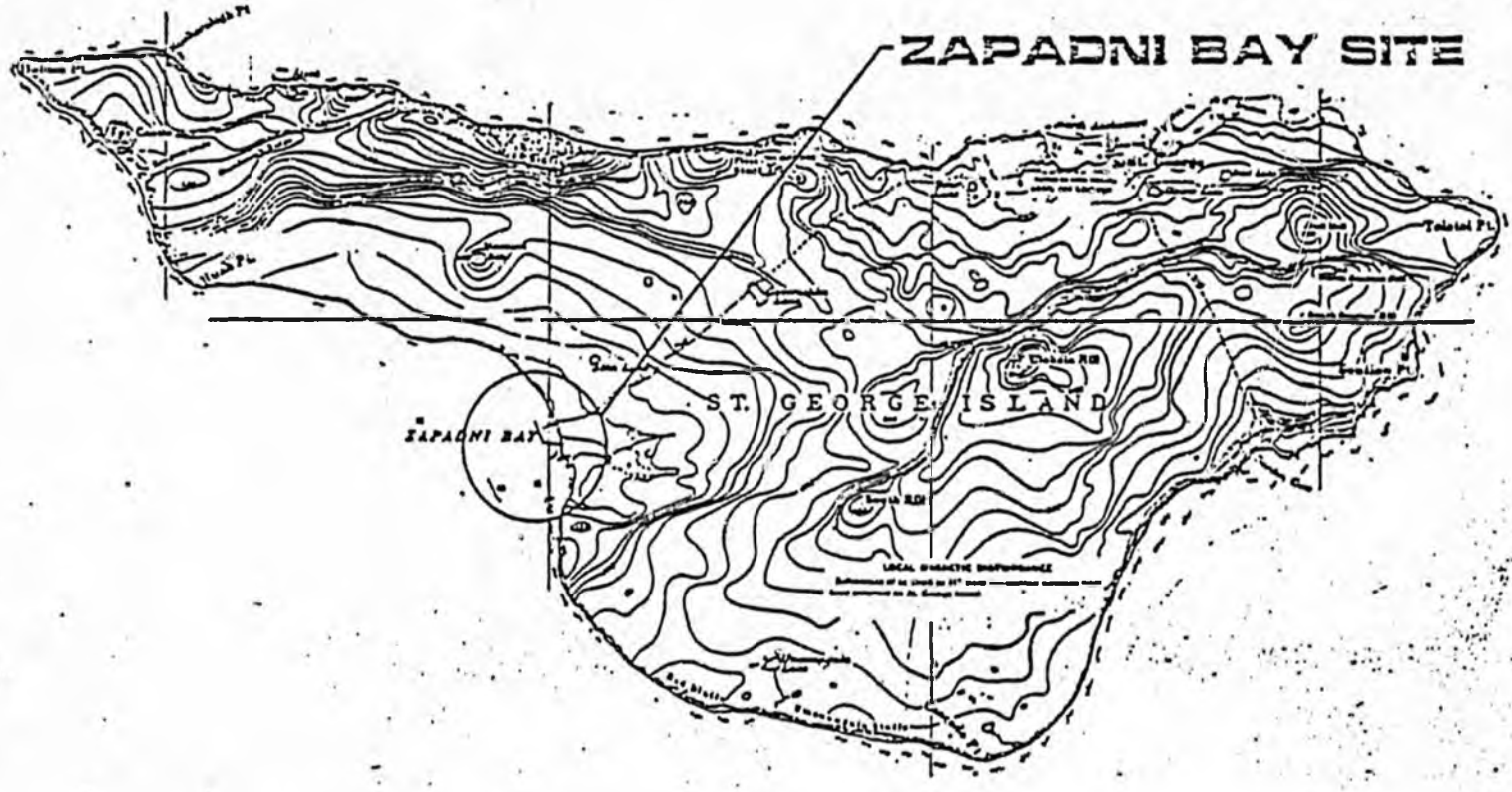




Preliminary Plan
St. George Boat Harbor

PRELIMINARY

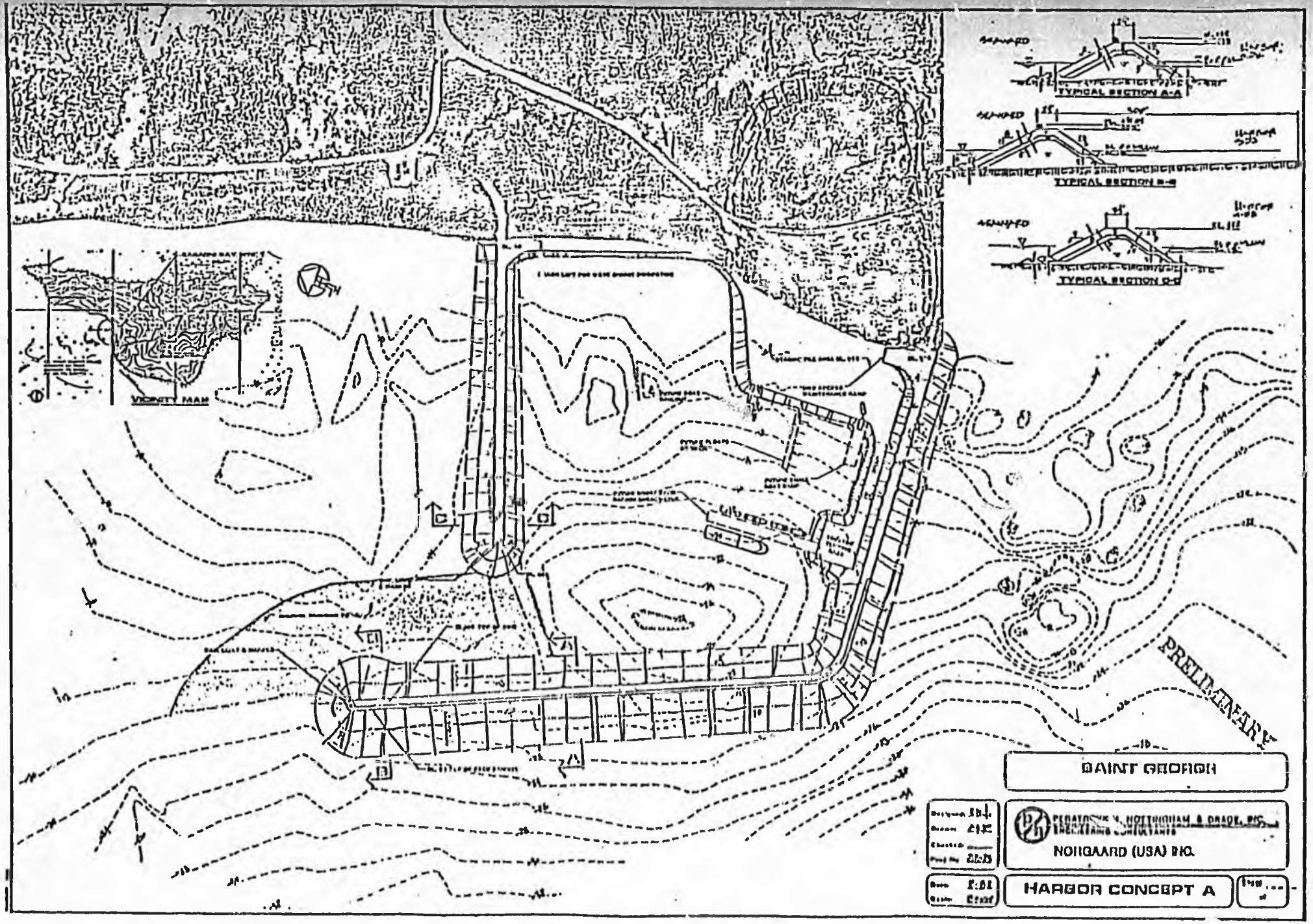
SAINT GEORGE HARBOR
PRELIMINARY DESIGN REPORT



ALASKA DOT/PF
CENTRAL REGION
DESIGN & CONSTRUCTION

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants

NORGAARD (USA) INC.
Dames & Moore


TYPICAL SECTION A-A
TYPICAL SECTION B-B
TYPICAL SECTION C-C
VICINITY MAP
PRELIMINARY
SAINT GEORGE
PENNONI ASSOCIATES, NOTTINGHAM & DRAGE, PIC
ENGINEERING CONSULTANTS
NORGAARD (USA) INC.
HARBOR CONCEPT A

B. PERFORMANCE CRITERIA

The harbor performance criteria are primarily based on the useage and operational requirements which were presented at the St. George Steering Committee meeting on September 28, 1982 (see Appendix B).

The St. George Harbor site is located in an area having a severe wave climate. Fortunately, the nearshore bathymetry reduces the expected wave heights near the breakwater; however, this also means that the design wave heights can be expected at relatively frequent recurrence intervals (less than one year). For this reason, access to the harbor will be limited during significant storms by the shallow water depth (due to wave action) in the approach and entrance. Dredging of a channel deep enough to overcome this limitation may not be economically justified at this time.

The following performance criteria have been developed for the St. George Harbor:

a. Provide protection and berthing for ten fishing boats having an average length of 36 feet and maximum draft of 10 feet. Maximum allowable wave height at berths is 1.5 feet.

b. Provide protection and berthing for loading/offloading two 120-foot fishing vessels simultaneously.

c. Provide protection and berthing for loading/offloading a 50' x 200' freight barge. Accompanying tug has draft of up to 16 feet.

d. Combining b. & c.; provide a berth of at least 250 feet in length with a water depth of not less than 21 feet. Maximum allowable wave height at the berth is 3.0 feet.

e. Provide sufficient upland area to accomodate fish processing, cold storage, cargo staging area, fuel storage, and commercial development.

f. Provide 'harbor of refuge' for fishing vessels up to 120 feet in length and 16 foot draft.

g. Maximize options for future facilities, including those to be privately developed, and future harbor expansion.

h. Minimize maintenance costs in all structures.

i. Minimize construction and maintenance dredging.

C. ALTERNATE A - ENCLOSED HARBOR AND BREAKWATER

Alternate A, as shown on the attached drawing, envisions an enclosed harbor surrounded by a breakwater. The harbor entrance would be located on the northwest corner of the facility. Although inner-harbor development is outside the scope of this project, from a conceptual standpoint, the main dock could be located as shown. This location could serve two purposes. First, it is directly accessible from the breakwater entrance and utilizes the existing deep bathymetry for ship turning and manuevering. Second, it would act as a secondary wave absorber, and further protect the small boat mooring area and the small boat ramp.

Design Criteria

Based upon preliminary investigations and calculations, it was determined that the most suitable breakwater type for the St. George harbor is a rubble mound breakwater. This is nearly always the design of choice when native materials of adequate quality and quantity are available, because of lower construction and maintenance costs.

The basic design criteria in a rubble mound breakwater are:

a. design wave conditions;
b. design water level;
c. size of available armor rock;
d. specific gravity (density) of available armor rock.

Applying these criteria to the appropriate equations and physical models yields a cross section design, including rock layer sizes and thicknesses, side slopes, crest elevation, and crest width.

Bathymetric surveys and preliminary layouts have located the outer portion of the breakwater in an area having a seabed elevation of -20' mean lower low water (MLLW). The nearest tidal reference is Village Cove, St. Paul Island, having a mean tide level of 2.0' MLLW and a mean higher high water of 3.2'MLLW. For design purposes, a water depth of 22.0 feet was selected.

Detailed wave measurement and wave hindcast studies have computed wave parameters for a "nearshore" location at Zapadni Bay. These parameters are as presented in Table 1.

PRELIMINARY

TABLE 1

WAVE PARAMETER	RECURRENCE PERIOD (YEARS) 1	10	50	100
Significant Wave Height (ft.)	25.6	30.8	34.1	35.4
Zero-Crossing Period (sec)	11	12	13	14
Peak Period (sec)	15	17	18	19
Max. Crest Elevation (ft.)	32.8	39.4	43.6	45.3
Mean Wave Direction	S to W	S to W	S to W	S to W

However, the "nearshore" location in the numerical model was located at a point having a water depth of approximately 56 feet. Because of the depth of water in the proposed harbor site, wave heights as those given above, could not occur at the breakwater. Therefore, the wave height is said to be depth limited. For the breakwater design, the design wave height used in most calculations is the significant wave. This is the average height of the highest one-third of all waves in a given wave group. In the case of the Zapadni Bay breakwater, the significant wave height is 11 feet.

Samples were taken from the proposed quarry site and were tested for several parameters. Perhaps the most significant of these parameters is specific gravity. Tests on the Zapadni Bay samples indicate a specific gravity ranging from 2.57 to 2.83 for 12 samples, with an average of 2.72. For design purposes, a value of 2.70 was selected.

The approximate available rock sizes and distribution are presented in Table 2. The proposed surface boulder field was found to have sufficient material in the applicable sizes.

PRELIMINARY

Cross Section

Based upon the above criteria, a breakwater cross section was designed using the Hudson formula and other basic mathematical methods. The resulting cross section was tested in a wave flume to further evaluate and refine the design.

The breakwater is a multi-layered structure having a seaward slope of 2:1 and an inward slope of 1.5:1. A description of the armor layers and rock sizes is shown in Figure 1.

Material Sites

The geotechnical investigation located a source of armor rock approximately one mile to the north and 1/2 mile inland. The armor rock lies on the ground surface and should be easily accessible to the construction contractor. No excavation per se is anticipated to recover armor rock, and no blasting should be needed. A location map is attached. Approximate boulder sizes and expected distribution are shown below in Table 2.

TABLE 2
APPROXIMATE ROCK SIZES AND DISTRIBUTION

AREA	TOTAL VOLUME LARGE ROCK (> 2T) (YDS. CU.)	2-5 TONS	5-7 TONS	7-12 TONS
A	56,665	40,799	11,050	4,816
B	15,195	10,940	2,963	1,292
C	19,503	14,042	3,803	1,658
D	1,259	906	246	107
E	7,200	5,184	1,404	612
F	6,112	4,401	1,191	520
	105,934	76,272	20,657	9,005

Additional sources of surface armor rock are available in nearby areas should the above quantities prove insufficient.

The haul distance to the harbor site is estimated at between one and two miles, depending on the haul route chosen. An inland route is preferred to avoid possible impact on the seacliff bird sanctuary.

Core material for the breakwater will be mined directly adjacent to the harbor. The resulting "bench" can be used as a staging area or upland development area depending on future needs. Some armor rock should be stockpiled near the breakwater for future repairs or expansion, should it be necessary.

Breakwater Entrance

The breakwater entrance is oriented to the north, as shown on the attached layout drawing. The entrance width is 200 feet and will have a minimum water depth of 20 feet. This will require dredging the sand and either blasting or excavating the underlying bedrock. A large barge mounted backhoe may be one possibility for excavating both sand and weak rock. However, it is expected that some blasting of the bedrock will be required to construct a channel which will assure a 20-foot water depth at MLLW.

The 20-foot water depth will permit boats with a draft of 16 feet to enter the channel. A wave height of 4 feet (resulting in a trough of 2 feet) and a boat squat of 2 feet were assumed. Since the entrance channel bottom is expected to be rocky, no boat bottoming was assumed, as might be permitted with a soft bottom channel.

Breakwater Geometry

The basic geometry of the breakwater is shown on the drawing Harbor Concept A. Based on material quantity constraints and the results of the wave modeling tests, a breakwater crest elevation of +25 MLLW was chosen for the outer leg of the outer breakwater. This is tapered to +16 at the shore. The inner breakwater is tapered from +25 at its head, to +16 at the shore connection. Because of the extent of overtopping indicated by the wave modeling tests, a natural rock wave barrier is included for the most exposed portions of the outer breakwater. Again, depending on the availablity of

Class I (8-12 ton rock), the height of this wave barrier will extend from El. +29 to +31 MLLW. This scheme should eliminate all but the most severe overtopping. Some occasional damage to small boats docked in the harbor must still be expected during the most severe storms.

An additional measure for prevention of inner harbor damage from overtopping would be to construct the main dock in such a manner as to intercept harbor waves before they reach the small boat docking and mooring area.

Vehicular access will be available over the entire breakwater. This will permit local fishing as well as allow maintenance vehicles to make repairs.

Staging Area and Upland Development

A large staging area would be constructed where core material is quarried from the hillside. Upland building and development was considered in conjunction with construction of the staging area, which is anticipated to be at elevation +11 feet near the harbor and higher inland as required.

Construction of the breakwater would be accompanied by basic site development for a future industrial area supporting a fish processing industry and other compatible uses. Basic site development will include access roads to the industrial area and harbor staging area, and site clearing for future water and fuel tanks and transmission lines.

A minimum of 10 acres will be prepared for the above facilities and future developments including but not limited to a cannery, power plant, communications facility, harbormaster's office, and crew quarters.

Approximate areas required for future industrial facilities area as follows:

- Chill Storage - 1,000 sq.ft.
- Cold Storage - 5,000 sq.ft.
- Ice Plant - 200 sq.ft.
- Processing Plant - 10,000 sq.ft.

Preliminary design parameters for the upland staging area include:

- Minimum area of 10 acres required for staging, fish processing facilities, parking, storage, roadway, and manuevering.

- Access road to industrial area located to maintain maximum of 5% grades, minimize length of roadway and cut-and-fill quantities.

- Minimum 100-foot turning radius for large trucks.

- Provide minimum 1-acre diked fuel storage area. Depending on the volume stored, a 2-acre fuel storage area would function more efficiently.

- Minimum inside curb radius for access road of 100 feet.

- Minimum roadway width of 24 feet.

- Design should provide for future utility systems.

- Use gravel or scoria surface for initial topping on cargo staging area and roadways.

- Provide for future expansion of uplands, including allowance for future secondary sewage treatment for products of land facilities and shipboard waste products.

- Future extension of waterlines from well development area includes fire protection and future harbor expansion.

- Provide space for tanks to store various volumes of diesel, heating fuel, and gasoline.

- Provide space for future shop/garage for maintenance and operations equipment.

- Design elevation of upland area to be above effects of highest wind-driven waves. Design elevation of residential areas, critical life support facilities and industrial facilities not impacted economically by their proximity to a future dock, to be above tsunami influences.

- Provide space for future communications facility.

- Allow space for future roll-on/roll-off cargo activities.

Due to a delay in obtaining mapping of the Zapadni uplands through the State, a plan sheet delineating upland development has not been included in this report. This plan will be included in the final design documents.

Advantages - Alternate A

The advantages of this configuration are listed below:

- Size - Harbor area of 15 acres. This accommodates all vessels as required in the Performance Criteria.

- Protection - Although there will be minor inner-harbor waves generated by overtopping and diffraction through the entrance, no severe harbor waves are foreseen. This reslts in a high degree of safety for vessels seeking refuge from inclement weather.

- Freshwater - There is a proven source of freshwater at a nearby location.

- Environmental - Studies to date indicate no serious environmental disruptions with this scheme. The only blasting expected would be directly inland from the harbor, and possibly underwater for dredging the entrance. One inland haul road would be constructed to the armor rock source.

- Quarry Location - The majority of fill required to construct the breakwater and staging area would be mined directly adjacent to the

breakwater. Haul distance for this shot rock would be minimal. The quarry floor would become part of the staging area and transition into an upland area for development.

- Future Expansion and Development - Harbor size could be increased by constructing additional breakwaters to the north. Future development of inland and upland areas would depend on development requirements, ownership, and environmental constraints.

- Low Maintenance - Maintenance for the breakwater will be minor except for damage resulting from the most severe storms.

Disadvantages - Alternate A

- Cost - The primary disadvantage of this configuration is the high initial capital cost. Costs of interior harbor development, including dock and wharves, are not included in current cost estimates.

- Dredging - Periodic dredging may be required to insure proper entrance channel depths. This could require stationing of permanent dredging equipment at the harbor and personnel trained to use it.

- Overtopping - Under the current design, some overtopping of the breakwater is expected. This could result in harbor waves that are unnacceptably large to small boats. Tests are anticipated contingent upon State funding to determine the expected sizes of harbor waves generated by overtopping, and to refine harbor arrangements to minimize inner harbor wave heights.

Alternate A is recommended for final design and permitting efforts. While it is initially the most expensive alternate, it provides the most completely protected harbor based on investigations funded to date by the State of Alaska.

PRELIMINARY

ST. GEORGE HARBOR

ALTERNATE A

COSTS

ITEM	QUANTITY	UNIT PRICE	PRICE
Mobilization/Demob.	Lump Sum	$1,500,000	$ 1,500,000
Armour Rock (1.5 Tons)	130,000 C.Y. (Bank Measure)	$30/C.Y.	3,900,000
Toe Filter and Core	300,000 C.Y. (Bank Measure)	$10/C.Y.	3,000,000
Quarry Access Road	20,000 C.Y. (Bank Measure)	$12.50/C.Y.	250,000
Dredging	30,000 C.Y.	$50/C.Y.	1,500,000
Upland Site Development	10 Acres	$20,000/Acre	200,000
		Subtotal	$ 10,350,000
		Plus 15% Engineering, Administration and Contingency	1,550,000
		Late 1982$ Total	$ 11,900,000
		Plus 7% Inflation for 1983$	800,000
		Project Total (Late 1983$)	$ 12,700,000

Department of Transportation and Public Facilities
Central Region Planning and Programming

PROPOSED $7.0 MILLION ST. PAUL HARBOR PROJECT

Staff Analysis

by

Murph O'Brien

Introduction:

On January 4, 1983, word was received that the FY'84 budget request for the Pribilof Harbor Development Program had been reduced from $12.0 million to $7.0 million. The purpose of this analysis is to determine if a feasible project could be constructed at St. Paul for $7.0 million.

Background:

The emphasis of the current final design effort on St. Paul is to provide a design for a $25.0 million harbor complex at St. Paul. The design effort will provide drawings for a phased development. Phase one would cost approximately $12.0 million and provides a 1,100 foot breakwater with a concrete caisson dock structure for cargo and product handling.

Phase II would extend the breakwater to its full 1,770 foot length and provide the following inner-harbor facilities:

- Two berths for fishing boats 140 feet long to be unloaded.
- One berth for loading fuel, ice, water, and stores onto the fishing boats.
- One berth for unloading cargo vessels, at least 200 feet long.
- One berth for mooring a floating processor.
- One berth with the capability of unloading oil.

The final layout will provide a 17 acre basin with a minimum depth of 18 feet at MLLW without dredging.

Table I presents a detailed breakdown of the cost of the $12.7 million interim facility.

TABLE I

PHASE I COST SUMMARY (1,110 ft. Structure)
ST. PAUL HARBOR

Direct cost

Haul Road	$ 213,500
Core Material (Village Hill)	842,300
Core Material (Kaminista Ridge)	716,000

Direct Cost (Cont'd)

Zones III, IV, & Riprap	$ 364,100
Zones I & II	1,128,800
Concrete Caissons	1,888,000
Fenders	250,000
Bitts, Bollards, Ladders	99,700
Mobilization (Marine Transportation)	2,000,000
Subtotal Direct Cost	$7,502,400
Construction Support Cost	
Camp & Catering	$ 625,000
Move Crews In & Out	260,000
Indirect Costs	1,000,000
Equipment Standby	210,000
Subtotal Construction Support Cost	$2,095,000
Contractor Markup - 15%	$1,439,600
Construction Cost - Total	$11,037,000
Contingency - 15%	1,663,000
TOTAL PRESENT DAY COST	$12,700,000

Possible Project Scenarios:

The following are three possible project scenarios that could occur using the $7.0 million either separately or in combination with the existing $3.8 million available for St. George harbor construction. Advantages and disadvantages of each scenario are provided.

1. A $7.0 million St. Paul Harbor Project: Based on conversation with Norgaard and Bechtel, $7.0 million may be sufficient funds to construct the interim 1,110 foot rubble mound breakwater with a greatly reduced docking facility. A reduced funding scheme, such as this, will significantly increase the total project cost due to inflation and the likely need for additional project mobilizations.

   Advantages: A breakwater and docking facility could possibly be built for $7.0 million.

   Disadvantages:
   1. Increase project costs.
   2. Initial facility will not meet the needs or expectations of the community.
   3. The construction of this facility has been described as a key element in the overall bottomfish expansion plans for Southwest Alaska. A delay in this project may have serious ramifications on this plan, as well as, potentially impede the "market attractiveness" of St. Paul.

2. St. George Harbor Development: The $7.0 million could be added to the existing $3.8 million available for construction of the St. George Harbor. These combined funds may possibly, depending on the bidding climate, construct the breakwater at Zapadni Bay on St. George as being recommended by Peratrovich, Nottingham and Drage, Inc. It should be noted that the St. George $12.7 million Harbor Design estimate does not include any inner-harbor facilties. Therefore, a similar situation would exist on St. George as on St. Paul, with the community being dependent on lightering.

Advantages:

1. A complete structure as defined by the current design program could be built if the bidding climate is favorable.
2. The community could enter into the bottom and high value fish industry.
3. Creation of the harbor could spur private development of shoreside facilities
4. The final design is closer to completion.

Disadvantages:

1. A harbor facility at St. George would not carry the regional and statewide significance compared to one at St. Paul. The fishing industry at St. George in predicted to be smaller and more community oriented, therefore, will have less effect on the statewide economy.
2. The harbor facility at St. George would be about 1/3 the size of the total facility at St. Paul. Six and one half usable acres compared to seventeen usable acres at St. Paul.
3. St. George's airport and other basic infrastructure is not as well developed compared to similar facilities on St. Paul.
4. Politically, it may be unwise to choose St. George over St. Paul.

3. St. Paul Harbor Project: This project would include the $7.0 million being proposed and revising the St. George harbor program to transfer its existing $3.8 million to St. Paul. The interim harbor project including the breakwater and docking facilities, depending on the bidding climate, could possibly be built for $10.8 million.

Advantages:

1. A $10.8 million project could provide a usable harbor and docking facility with greater state and regionwide significance than the total project on St. George.
2. St. Paul's airport and other basic infrastructure are better developed than St. George's.

Disadvantages:

1. The political ramifications of revising the St. George program could prove to be disasterous.
2. St. Paul's harbor design program is not as far along as St. George's design effort.

Recommendations/Conclusions:

Our emphasis is to still construct the harbor facility at St. Paul first, but not necessarily at the expense of St. George's existing harbor program. A $7.0 million project at St. Paul would improve the existing situation, but

still be considerably less than desired. Additional funds, other than St. George's existing $3.8 million, should be identified and included in the St. Paul project.

Ideally, an additional $5.0 million should be added to the Governor's budget request. This would construct a logical and usable facility at St. Paul while maintaining the integrity of the St. George harbor development program.

If the Governor's request cannot be increased, two potential funding sources could be revised and transferred to the Pribilof Harbor Development Program for use at either St. Paul or St. George. These are:

1. The 1978 G.O. Bond Harbor Fund. Use of the approximately $3.0 million in this fund in the Pribilof's will require a Legislative Revised Program.
2. The Supplement for Chapter 82 Ports & Harbors. The $4.0 million in this fund can easily be RP'd to the St. Paul program since a St. Paul Harbor project is included in the Chapter 82 legislation.

(It should be noted, that if the Governor's request is increased back to the recommended $12.0 million funding level, transferring funds from the 1978 G.O. Bond Harbor Fund and the Supplemental for Chapter 82 Ports and Harbors to the Pribilof Harbor Program may still be desirable. These funds added to the existing $3.8 million for St. George would provide the combined total of $22.8 million. This level of funding would be sufficient to construct the interim facility at St. Paul as well as the entire breakwater at St. George.)

ST. PAUL HARBOR
PROJECT DESCRIPTION

JANUARY 1983

The proposed St. Paul Boat Harbor project is planned to fulfill a long-standing need for a port facility in the central Bering Sea. Such a facility will serve to establish an onshore commercial fishing industry near the vast fishery resources of the area, thus making a tremendous contribution in developing a renewable resource industry for the State. Presently, a large percentage of the commercial fish harvested in the region is taken by fishermen and processors from outside of Alaska due to lack of adequate landing and service facilities.

Detailed resource and fishing industry assessments have concluded that development of an onshore commercial fishing industry at St. Paul is, by no means, resource limited. Indeed, demand for such a facility is so great that a development of this type could soon fill to capacity, even at a large scale.

Several development scenarios were analyzed to balance the needs of the fishing industry, the goals of the residents of St. Paul, and likely available construction funds. The result of this analysis was a scenario based on a moderate level of development. Due to anticipated levels of funding, the development plan was divided into phases. Tables 1a and 1b illustrate, in general terms, the minimum expected volume and wholesale value of landings and processed product corresponding to Phase I development. Tables 2a and 2b illustrate similar estimates for Phase II.

In Phase I, dock space will be limited to the extent that priority must be given to vessels offloading fish, or cargo vessels which cannot afford lengthy waits. This facility will primarily be dedicated to establishing an onshore processing and cold storage operation. Limited services, such as fuel and ice will also be available.

The additional harbor area and port facilities planned for Phase II will provide additional berths for fishing vessels and a protected area sufficiently large to accomodate processing ships. Services to fishermen can be expanded to include repair facilities including electronics, gear, and engines.

Table 1a. ANNUAL VOLUME AND VALUE OF LANDINGS AT ST. PAUL HARBOR: PHASE I

Species	Volume (lb.)	Exvessel Price ($ per lb.)	Value ($)
Halibut	640,000	0.85	544,000.
Pacific Cod	300,000	0.21	63,000.
King Crab	600,000	1.00	600,000.
Hair Crab	750,000	0.70	525,000.
Tanner Crab	400,000	0.70	280,000.
TOTAL	2,690,000		2,012,000.

Table 1b. ANNUAL VOLUME AND VALUE OF PROCESSED PRODUCT AT ST. PAUL HARBOR: PHASE II

Species (product form)	Volume (lb.)	Wholesale Price ($ per lb.)	Value ($)
Halibut (frozen H&G)	480,000	2.50	1,200,000.
Pacific Cod (frozen H&G)	75,600	1.00	75,600.
Pacific Cod (salted)	86,400	0.75	64,800.
King Crab (frozen sections)	300,000	3.50	1,050,000.
Hair Crab (frozen whole)	650,000	4.00	2,600,000.
Tanner Crab (frozen sections)	200,000	2.10	420,000.
TOTAL	1,792,000		5,410,000.

Table 2a. ANNUAL VOLUME AND VALUE OF LANDINGS AT ST. PAUL HARBOR: PHASE II

Species	Volume (lb.)	Exvessel Price ($ per lb.)	Value ($)
Halibut	800,000	0.85	680,000.
Pacific Cod	1,000,000	0.21	210,000.
King Crab	1,200,000	1.00	1,200,000.
Hair Crab	1,500,000	0.70	1,050,000.
Tanner Crab	1,000,000	0.70	700,000.
TOTAL	5,500,000		3,840,000.

Table 2b. ANNUAL VOLUME AND VALUE OF PROCESSED PRODUCT AT ST. PAUL HARBOR: PHASE II

Species	Volume (lb.)	Wholesale Price ($ per lb.)	Value ($)
Halibut (frozen H&G)	600,000	2.50	1,500,000.
Pacific Cod (frozen H&G)	252,000	1.00	252,000.
Pacific Cod (salted)	288,000	0.75	216,000.
King Crab (frozen sections)	600,000	3.50	2,100,000.
Hair Crab (frozen whole)	1,300,000	4.00	5,200,000.
Tanner Crab (frozen sections)	500,000	2.10	1,050,000.
TOTAL	3,540,000		10,318,000.

The principal component of the proposed St. Paul Harbor project is a breakwater/wharf structure which will create an artificial harbor at Village Cove. This harbor will contain a fishing port as well as facilities to handle cargo vessels and fish processing ships.

The completed breakwater/wharf will be 2,770 feet in length and will provide approximately 17 acres of protected basin with a depth of 18 feet or greater at mean lower low water, with no dredging required. Since the cost of this facility is estimated to exceed the amount of funding which can be reasonably expected to be available in the initial stage of development, the project is planned to be developed in phases.

Phase 1 development will consist of the excavation of a portion of Village Hill at the harbor site and the creation of a protected harbor by constructing a one thousand foot long breakwater/wharf projecting out from the headland.

The excavation of the headland will create a three acre site for future fish processing plants and other facilities needed for the fishing industry.

The breakwater/wharf will comprise a breakwater and a wharf built back-to-back to form an integrated structure. No dredging of the Cove will be required. The 650 foot long wharf will provide berthing for any of the following combinations:

a. Two 140-foot long fishing vessels each moored alongside the wharf.

b. A floating fish processing ship and two 140-foot long fishing vessels moored side by side.

c. A cargo vessel and two 140-foot long fishing vessels moored side by side.

d. A moored ocean-going barge and two 140-foot fishing vessels moored side by side.

In addition to the above combination of vessels, the wharf will provide moorings for up to ten smaller fishing vessels. The capacity can be further increased by the addition of floats in the inner harbor as well

A roll-on/roll-off ramp will be provided to facilitate the unloading of barges and a bilge and processor wastewater collection and disposal system will be installed along the length of the wharf.

Phase II development comprises the extension of the breakwater/wharf to 1770 feet in order to provide additional berthing and improved shelter. The development will include the provision of service and maintenance buildings, lighting, and utilities.

The engineering and construction costs of Phase I development with the facilities proposed are estimated at $12 million. The costs for Phase II (the full development plan) are estimated at $25.8 million if the complete development is awarded in one contract. If the full development plan is constructed in two phases, the total cost is increased by $3.1 million due to the need to remove and reconstruct the breakwater head from Phase I.

In addition to its contribution to the State of Alaska in general, the St. Paul Harbor project will provide employment opportunities for local residents. These opportunities will occur at two levels. Short term jobs will be available during construction of the boat harbor and port facilities. Long term employment will be made available in fishing, fish processing, cargo handling, and other marine oriented activities.

The construction is scheduled in stages which will provide maximum opportunities for local participation. The initial stage will include haul road construction, demolition of structures and pipeline relocation, opening quarries, and preparation of contractor's housing. Most of these activities could be performed by local forces and would provide an excellent opportunity for local workers to expand their experience into the competitive marketplace. This will make those workers a more attractive labor pool for the main breakwater contractor in later construction contracts.

The main breakwater contract will be awarded to a contractor specially qualified for this work. Some of the jobs will, of necessity, be filled by the contractor's own experienced workers. However, there will also be substantial opportunities for local residents, particularly due to the high cost of transporting and housing outside workers at St. Paul.

Table 1 illustrates an estimate of the type and number of personnel who will be required to construct the Phase 1 facilities.

Even as the harbor is being constructed, long term commercial activity will begin to emerge. Negotiations between local groups and fish companies will establish the basis for onshore processing activities. Ancillary commercial activities such as electronic sales and repair, ship chandlery, fuel sales, ice plant, cold storage, etc. will also provide new business and employment opportunities for local residents.

TABLE 1: Construction Personnel Summary

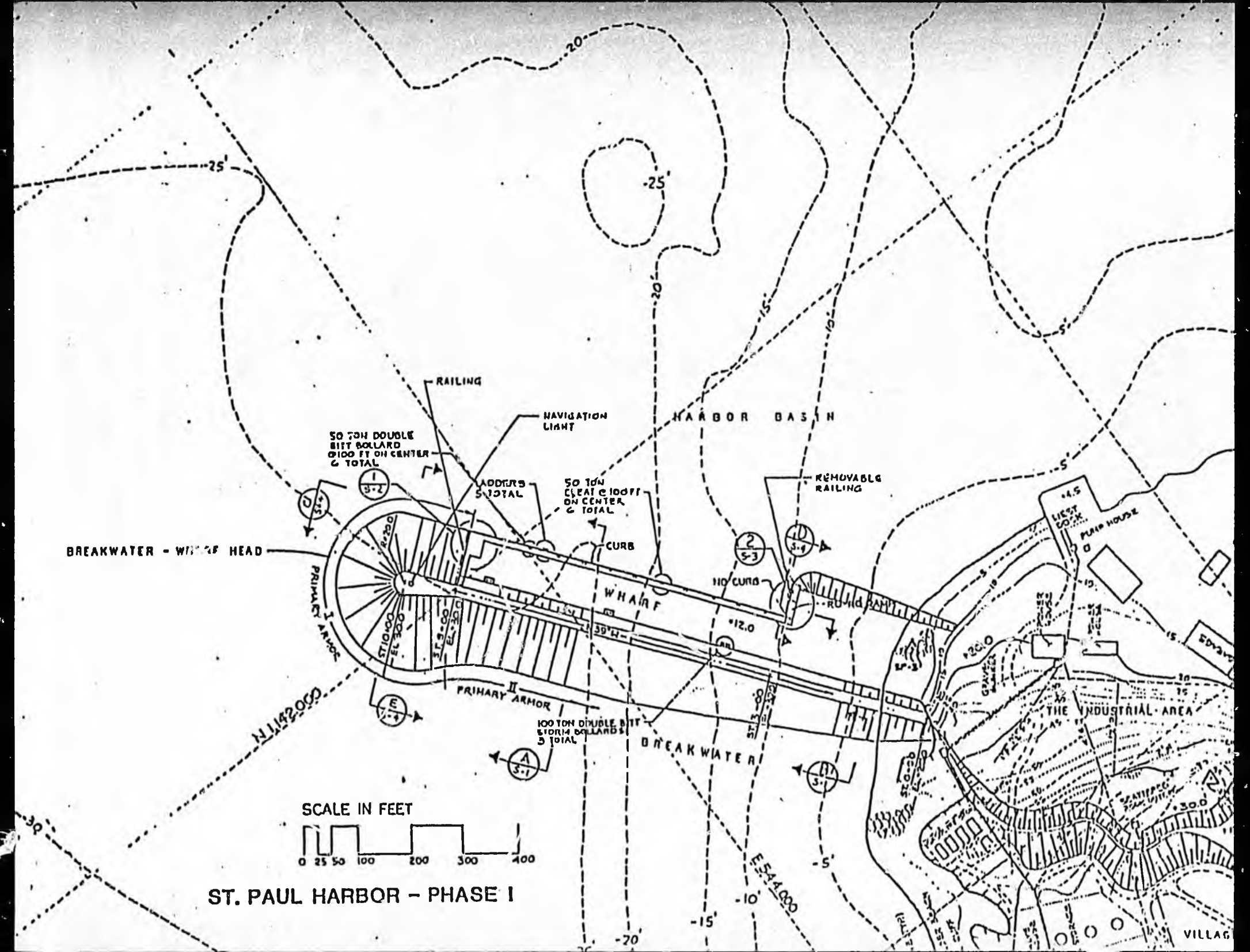
	Site Preparation	Quarries	Breakwater/ Wharf	Camp Operation & Maintenance	Main Contractor Requirement
Supervisory Staff					
Foreman	2	2	1		3
Survey Crew	1		3		3
Operator	10	28	6		34
Driller		2			2
Chuck Tender		2			2
Powder Man		2			2
Oiler			4		4
Rigger			8		8
Teamster		4			4
Laborer	6	6	2		8
Signalman			2		2
Maintenance Crew	3			6	6
Camp Crew				12	12
Checker			2		2
Clerk			1		1
Timekeeper					2
Warehouseman				2	2
Carpenter	4		2		2
Plumber	2				
Dump Man	1				
Ironworker	3				
					102

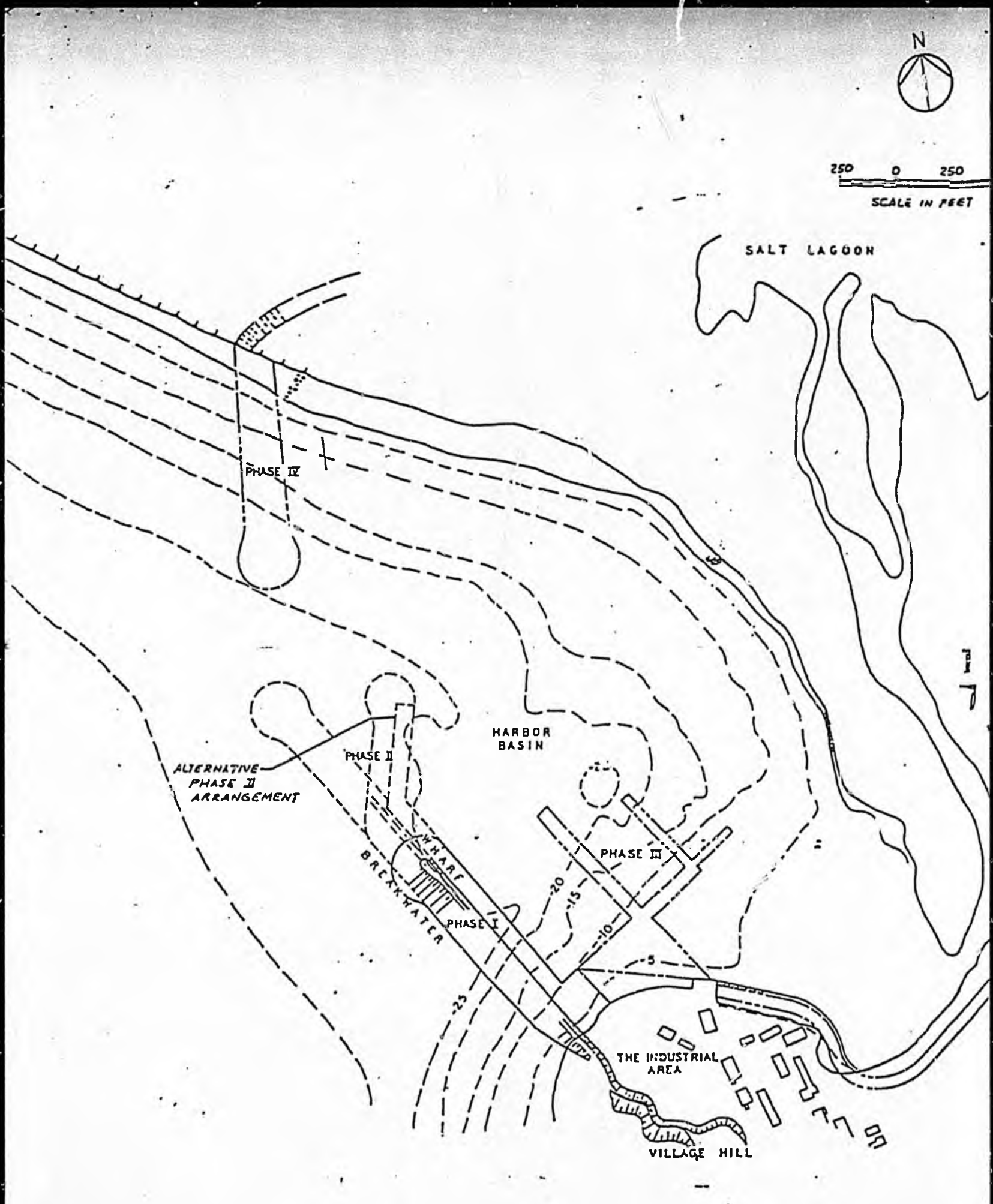
Table 2 illustrates an estimate of the type and number of long term jobs which will likely be filled by St. Paul residents.

In addition to these marine oriented activities, general commercial activity will also increase, providing additional opportunities in the private sector.

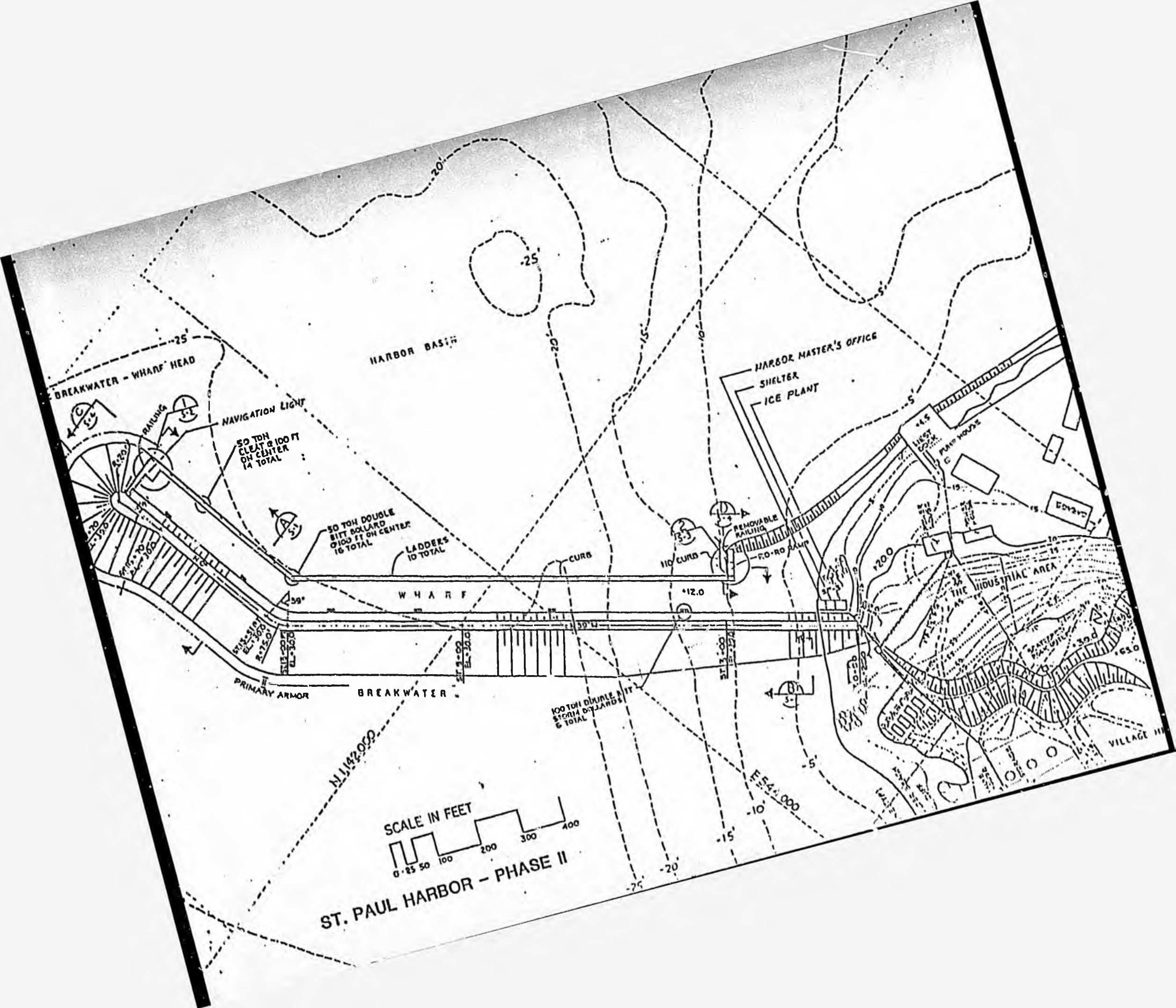
TABLE 2: Commercial/ Industrial Jobs Expected to be Filled by Local Residents

Fishermen	21
Processing	56
Service Industries	15
Public Sector	20


RAILING
NAVIGATION LIGHT
50 TON DOUBLE BITT BOLLARD @100 FT ON CENTER & TOTAL
LADDERS 5 TOTAL
50 TON CLEAT @ 100FT ON CENTER & TOTAL
CURB
REMOVABLE RAILING
BREAKWATER - WITH HEAD
PRIMARY I ARMOR
WHARF
110' CURB
PRIMARY II ARMOR
100 TON DOUBLE BITT STORM BOLLARDS 3 TOTAL
BREAKWATER
HARBOR BASIN
THE INDUSTRIAL AREA
SCALE IN FEET
0 25 50 100 200 300 400
ST. PAUL HARBOR - PHASE I



ST. PAUL HARBOR


HARBOR BASIN
BREAKWATER - WHARF HEAD
NAVIGATION LIGHT
RAILING
50 TON CLEAT @ 100 FT ON CENTER 14 TOTAL
50 TON DOUBLE BITT BOLLARD @100 FT ON CENTER 16 TOTAL
LADDERS 10 TOTAL
CURB
WHARF
REMOVABLE RAILING
R.O.-RO RAMP
HARBOR MASTER'S OFFICE
SHELTER
ICE PLANT
PUMP HOUSE
INDUSTRIAL AREA
PRIMARY ARMOR
BREAKWATER
100 TON DOUBLE BITT STORM BOLLARDS 6 TOTAL
SCALE IN FEET
0 25 50 100 200 300 400
ST. PAUL HARBOR - PHASE II

Dames & Moore

800 Cordova, Suite 101
Anchorage, Alaska 99501
(907) 279-0673
Telex: 090-25227 Cable address: DAMEMORE

March 17, 1983

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 West 36th Avenue, Suite 101
Anchorage, AK 99503

Attention: Mr. Jeff Gilman

Gentlemen:

Report of Additional Rock Testing
Surface Boulder Samples
St. George Island, Alaska

This letter summarizes the results of Los Angeles abrasion (ASTM C-131) and California durability index (plastic fines and aggregate) tests performed on samples of rock from St. George Island. Durability index tests were in accordance with AASTHO T-210-72 procedures.

The samples were obtained from "large rock" areas delineated on Figure 2 of our November 24, 1982 geotechnical report. The samples were obtained by St. George residents acting on our telephone instructions with respect to sample size, location, etc. Earlier, specific gravity and absorption testing was completed for these samples; the results of those tests were presented in our letter dated February 17, 1983. At this writing, accelerated expansion tests (Corps of Engineers CRD-C148-69) and freeze-thaw loss testing (AASHTO 103-78, 50 cycle) are still in progress. Those results will be presented later. At this time, however, the accelerated expansion testing has been in progress beyond the nominal two-week time limit. Casual observation indicates no change in the samples. Also, the freeze-thaw loss tests have progressed through about 20 cycles. Thus far there is no visible change.

The results of the LA abrasion and durability index tests may be summarized as follows:

LABORATORY TEST RESULTS

Sample Identification	LA Abrasion Loss (percent)	Durability Index
Sample A+E (combined)	24(a)	-
Sample B+F (combined)	56(a)	-
Sample D	-	83.5(b)
Sample Z	-	85

(a) LA abrasion tests utilized gradation "A" (1-1/2 minus to 3/8 plus material).
(b) Two trials were run; results were 82 and 85, the average, 83.5, is reported above.

In addition to this testing, we have completed an examination under high magnification of these rock samples and have compared them side-by-side with the surface boulder samples obtained by ADC earlier this year. On the basis of this examination, all of the "new" samples have a less "open appearing" fabric than the ADC samples. There are no significant lithological differences, however; all the rocks can be classified as felsite or felsophyre as reported in our January 6, 1983 letter. Texturally, all of these rock samples appeared quite similar to those rocks obtained from the core borings and exposed in the cliff face. The fabric was perhaps somewhat more "open" than the cores, but only slightly more so. It was definitely tighter than the previous surface samples. Of course, this appearance difference is reinforced by the results of the specific gravity testing (as reported in our letter of February 17, 1983). Those test results were in the same range as the specific gravity data obtained by our earlier testing on the cores; they were considerably higher than the previous surface sample tests.

We have no complete, certain explanation for these differences in rock character. We understand that the initial surface boulder samples were broken from the edges of large rock blocks with heavy

hammers. Although close examination revealed no obvious signs of advanced chemical weathering (i.e., discoloration, deterioration of felospars, presence of clay minerals, etc.), we must speculate that some changes nevertheless had occurred. Perhaps years of frost action had opened up the fabric in some subtle way. As indicated, the only discernible difference between all the rock samples, based on examination under fairly high magnification, was the apparent "openness" of fabric. Since there is no reason to expect major lithologic or fabric differences on the basis of the rock origin, and since careful examination disclosed no lithological differences, we can only conclude that some process has operated to reduce the density of the boulder surfaces. The weight of evidence now suggests that a bulk specific gravity in the 2.6 area, or perhaps slightly higher, should be utilized for stability calculations.

Most of the additional testing (absoprtion, accelerated expansion, durability index, Los Angeles abrasion, and freeze-thaw loss) suggest that the rock is of reasonably good quality for armor rock purposes. The only exception is the LA abrasion test on combined Sample B and F, which produced a loss of 56 percent. Examination of the other test results, as well as the rock performance to date in the accelerated expansion and freeze-thaw testing, provides no clue as to why this particular sample should have performed so poorly in the abrasion testing. It is true that all of the samples for abrasion and durability index testing had to be crushed and screened from larger rock particles. Our review of case history data has established that crushed rock (as opposed to rounded gravel or crushed gravel) produces significantly higher losses under LA abrasion testing. This is particularly true of brittle rocks (such as these) which tend to break in ways that produce many relatively thin particles with sharp edges. We speculate that this may be the reason for the anomalously high abrasion losses for combined Sample B and F.

We have completed additional research in an attempt to better understand the implications of the various tests that we have completed. Our research did not produce any significant body of data comparing armor rock performance with results of these tests. As you know, the Los

Angeles abrasion and durability index tests were designed primarily for evaluation of concrete aggregate and crushed base or surfacing material for roads. The best information we obtained was included in a letter from Mr. James Paxton, Director of the Northern Pacific Division Corps of Engineers Materials Laboratory in Troutdale, Oregon. He transmitted to us a summary of typical riprap specifications that he had compiled for the various Corps regions within the North Pacific District and other (undefined) sources. We have reproduced that table in an attachment to this letter. It was interesting to learn that there is no district-wide policy within the Corps of Engineers with respect to riprap or armor rock specifications. During telephone conversations, Mr. Paxton explained that the specification provisions in this table are typical but all of them are not necessarily applied to each project. Also, he emphasized that the Corps tends to rely first on a record of satisfactory performance from a quarry; they "fall back" to specific specification provisions and extensive testing only if a quarry does not have such a record. (In earlier conversations with geotechnical engineers within the Seattle District, we were informed that they had numerous experiences with quarries that performed well in service where specification provisions indicated they should not and vice versa.)

- o O o -

We will report the results of the LA abrasion and durability index tests in a subsequent letter. In the meantime if you have any questions, feel free to call us. The budgetary reserve in our geotechnical study contract has been exhausted, no further testing or study can be undertaken without further authorization.

Yours very truly,

DAMES & MOORE

Larry L. Morrison
Associate

LLM:ss
3 copies submitted
8215-082-05

QUARRY STONE
RIPRAP SPECIFICATIONS - TYPICAL

Tests	District NPW (Walla Walla)	NPS (Seattle)	NPP (Portland)	NPA (Alaska)	MISC. (Non Corps)
Specific Gravity, BSSD (unit weight-lbs/cu ft)	≥2.75	2.56 (160.0)	2.56 (160.0)	2.60	2.57
Absorption, percent	≤2.5	3.0	5.0	2.5	5.0
Freeze-Thaw (100 cycles)	≤5.0	<10.0	15.0	5.0	15.0
Ethylene Glycol	No breakage	<15.0(a)	15.0	No breakage	+
Abrasion (500 cycles)	25.0	<20.0	20.0	20.0	25.0
Wet/Dry (80 cycles)		<15.0	15.0		15.0
MGSO4 (5 cycles)			15.0		
Petrographic	*	*	*	No significant deleterious materials	*
X-ray				No significant deleterious materials	

(a) Based on counting pieces that separate.
* No specific criteria, based on subjective analysis.

Dames & Moore

800 Cordova, Suite 101
Anchorage, Alaska 99501
(907) 279-0673
Telex: 090-25227 Cable address: DAMEMORE

February 17, 1983

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 West 36th Avenue, Suite 101
Anchorage, AK 99503

Attention: Mr. Jeff Gilman

Gentlemen:

Preliminary Report
Additional Laboratory Testing
Surface Boulder Samples
St. George Island, Alaska

This letter summarizes the results of specific gravity and absorption testing on rock samples from the various identified surface source area near Zapadni Bay on St. George Island. Samples were obtained from the "large rock" areas delineated on Figure 2 in our November 24, 1982 geotechnical report. The samples were obtained by St. George residents acting on our telephone instructions with respect to sample size, location, etc.

Specific gravity and absorption testing has been completed for all of these "new" samples. Additional tests, including Los Angeles abrasion, durability index, freeze-thaw loss, and accelerated exparsion are now in progress and will be reported later.

In accordance with your request, specific gravity and absorption testing was completed in accordance with two different ASTM standard methods for comparison. Also, the specific gravity was computed in three ways - bulk, bulk SSD (saturated surface dried), and apparent. The results of these tests are summarized in the attached table.

All of these samples, irrespective of the test method, have higher specific gravities than the first surface boulder samples. The values, however, are lower than for the initial test results which were obtained from cores and samples broken from inplace rock in the sea cliff. A detailed examination of the lithology, texture, and fabric of these latest rock samples has not yet been completed. However, a brief hand lens examination indicates some variation. Some of the samples appear very similar to the initial batch of surface boulder samples that were obtained by ADC. A few pieces of rock appeared to have the "tighter" fabric and slightly darker color that characterized the bulk of the sound rock in the cores. Others were of

intermediate appearance. A more detailed examination will be made at the conclusion of the testing program and our final report will include that information together with all of the test results.

- o O o -

We trust that this information will be of value to you in the ongoing design development. If you have any questions, feel free to call us at any time. The LA abrasion and durability index tests should be completed in the latter portion of February. The other tests are quite time consuming and will be completed later.

Yours very truly,

DAMES & MOORE

By Larry L. Morrison

Larry L. Morrison
Associate

LLM:jm
Attachment
3 copies submitted

SUMMARY OF SPECIFIC GRAVITY AND ABSORPTION TEST DATA

Sample Location and Test Method	Percent Absorption	Specific Gravity		
		Bulk	Bulk SSD(1)	Apparent
Area A				
C-97	1.6	2.65	2.69	2.76
C-127	1.4	2.64	2.68	2.74
Area B				
C-97	2.3	2.53	2.59	2.69
C-127	2.2	2.52	2.57	2.67
Area C				
C-97	3.4	2.46	2.55	2.69
C-127	3.0	2.49	2.57	2.69
Area D				
C-97	1.7	2.66	2.70	2.79
C-127	1.7	2.66	2.71	2.79
Area E				
C-97	2.0	2.58	2.63	2.72
C-127	1.8	2.57	2.62	2.70
Area F				
C-97	2.4	2.58	2.63	2.74
C-127	2.4	2.58	2.64	2.75
Area Z(2)				
C-97	1.8	2.51	2.56	2.63
C-127	1.5	2.59	2.63	2.70

(1) SSD means saturated surface dried.
(2) Area Z sample for C-97 test method appeared slightly more porous than sample for C-127 test method.

Introduced: 1/28/83
Referred: Transportation and Finance

Funding Information
General Fund $20,400,000
Other Funds -0-
$20,400,000

IN THE SENATE BY MULCAHY

SENATE BILL NO. 87

IN THE LEGISLATURE OF THE STATE OF ALASKA

THIRTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act making a special appropriation to the Department of Transportation and Public Facilities for construction of harbor facilities at St. George and St. Paul; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. The sum of $20,400,000 is appropriated from the general fund to the Department of Transportation and Public Facilities for construction of harbor facilities at St. George and St. Paul as follows:

St. George boat harbor	$ 8,400,000
phase I of St. Paul boat harbor	12,000,000

* Sec. 2. The appropriation made by this Act is for a capital project and is subject to AS 37.25.020.

* Sec. 3. This Act takes effect July 1, 1983.

10 yr. Plan out
Need Justification - Port Necessary

STATE OF ALASKA
PRELIMINARY STATEMENT OF FISCAL IMPACT

Bill No: SB87 Date on Bill: January 28, 1983
Title: Approp. for construction of harbor facilities at St. George & St. Paul.
Sponsor:
Requestor: Mulcahy

1. Estimate fiscal impact on:

a. Expenditures:

(Thousands of Dollars)

			FY 84	FY 85	FY 86	FY 87		
Capital			20,400					
Operating								
Total			20,400	0.0*	0.0*			

b. Revenues:

Revenue								

2. Source of funds to offset fiscal impact of bill:

* Daily maintenance of port and harbor facilities is typically the responsibility of the local communities.

Not identified by sponsor

3. Assumptions: See attached Analysis.

4. Disclaimer:
This statement has not been reviewed by the OMB in the Office of the Governor. It therefor does not represent the final estimate of fical impact.

Prepared By: Wayne Weeks Phone: 465-4060
Division: DOT/PF, Planning & Programmng Date:

Approved by Commissioner: Date:
Department: Transportation and Public Facilities

5. Distribution:
Original to Legislative Finance
Copy to OMB
Copy to Sponsor
Copy to Requestor

2/15/83

III. ANALYSIS (cont'd)

A $12.0 million allocation should be sufficient to construct the interim facility at St. Paul.

The proposed $8.4 mil' on, combined with the $3.66 million remaining from earlier appropriation., should be sufficient to construct the St. George breakwater, which is currently estimated at $12.7 million. This figure is based on the assumption that suitable armor stone is available on St. George. A reevaluation of the quarry is currently being undertaken to confirm this. If an off-island quarry is needed for suitable armor stone, the price of the project will increase. The reevaluation of the armor stone and readjusted cost estimates if necessary, should be available by the end of March, 1983.

MEMORANDUM

Date: May 18, 1984

Subject: CSSB 87 (Finance)

To: Senator Moss

From: Rhonda Connell

CSSB 87 no longer relates to the construction of harbor facilities at St. George and St. Paul. This project will be completed in phases over a number of years through the D.O.T. capital budget.

CSSB 87 was stripped of its original title in order to be used as the appropriation vehicle for SB 479 "An Act relating to a forest products business loan guarantee program; and providing for an effective date."

Copies of CSSB 87 and CSSB 479 are attached.

M E M O R A N D U M

Date: March 14, 1983

Subject: Attached Back-up for SB 157

To: All Committee Members
Senate Transportation Committee

From: H. Pappy Moss, Chairman
Senate Transportation Committee

This appropriation request is for the Brookside Service Area which is made up of two subdivisions; the Brookside Subdivision and the East Beaver Subdivision.

The Brookside Subdivision is a relatively new subdivision, requested by the North Star Borough when it sought service area status to incorporate with an older subdivision, the East Beaver Subdivision. The East Beaver Subdivision was developed from an old homestead but divided from the remaining original subdivision by the new Richardson Highway. This money appropriation will be used to bring the roads of the East Beaver Subdivision up to safety standards. At the time East Beaver was developed, the roads were not designed for the traffic they are now experiencing. As an example, the roads go around natural obstructions, such as trees. In addition, when the new Richardson came through, the normal access to many of the streets in East Beaver was cut off. With increased density, these roads have become a hazard since emergency vehicles, such as large modern fire trucks, can not negotiate the narrow twisting roads.

The Brookside Service Area seeks a direct appropriation because they have difficulty receiving a priority position with the North Star Borough since they are located well outside of the city of Fairbanks. In addition, directly across the new Richardson Highway the City of North Pole competes with the Brookside Service Area for funding requests from the North Star Borough. Consequently, because the City of North Pole represents a distinct political subdivision, the Brookside Service Area generally goes unnoticed. This hold true for both general appropriation money and money allocated to the North Star Borough through the Local Service Roads and Trails program.

The money in this appropriation request would be used to survey, repair, widen and gravel roads in the East Beaver Subdivision to meet minimum standards for fire protection and general safety. This is not a request for paving of highways; it is a request to bring an existing 2.2 miles of roads up to minimum safety standards. Future maintenance of the improved roads would be paid by households in the service area.

March 18, 1983

Susan M. Lewis
2602 W. 32nd
Anchorage, Alaska 99503

Dear Susan:

Thank you very much for your letter concerning SB 87. I have scheduled it for a committee hearing on March 29, 1983. We have not received any opposition to the Bill.

In you have any further questions, please do not hesitate to contact my transportation aide, Clyde Stoltzfus, at 465-4797.

Sincerely,

H. Pappy Moss
Senator

2602 W. 32nd
Anchorage, Alaska 99503

March 3, 1983

The Honorable Pappy Moss
Chairman, Senate Transportation Committee
Pouch V
Juneau, Alaska 99811

Dear Senator Moss,

As a UAA student doing a two semester practicum in social work with the Aleutian/Pribilof Islands Association, Inc., and a life-long Alaska resident, I am very interested in SB 87 regarding port facilities on St. Paul and St. George Islands.

The Aleutian/Pribilof Region is facing an economic crisis. Actual unemployment for Aleut people in the region has been estimated as high as 87%. Port facilities on the Pribilofs will be a major step in developing the fishing industry in this region, as well as offering many other economic and social advantages.

I would like to be informed of past and impending actions of your committee concerning SB 87. Also if there are groups or individuals known to your committee who are opposed to this bill or who are working towards its passage, I would appreciate the information.

Thank you for your consideration.

Sincerely,

Susan M. Lewis

Susan M. Lewis

NOTE REGARDING THE FOLLOWING FRAME(S) ON MICROFILM:
COMPLETE DOCUMENT IS AVAILABLE IN ORIGINAL FILES.
TITLE PAGE ONLY HAS BEEN FILMED.

BUSINESS & ECONOMIC DEVELOPMENT PLAN FOR ST. PAUL HARBOR & RELATED OPERATIONS

FEBRUARY 1983

CONTRIBUTORS:

NORGAARD (USA) INC.
ERIK NORGAARD & FRANK CARSON

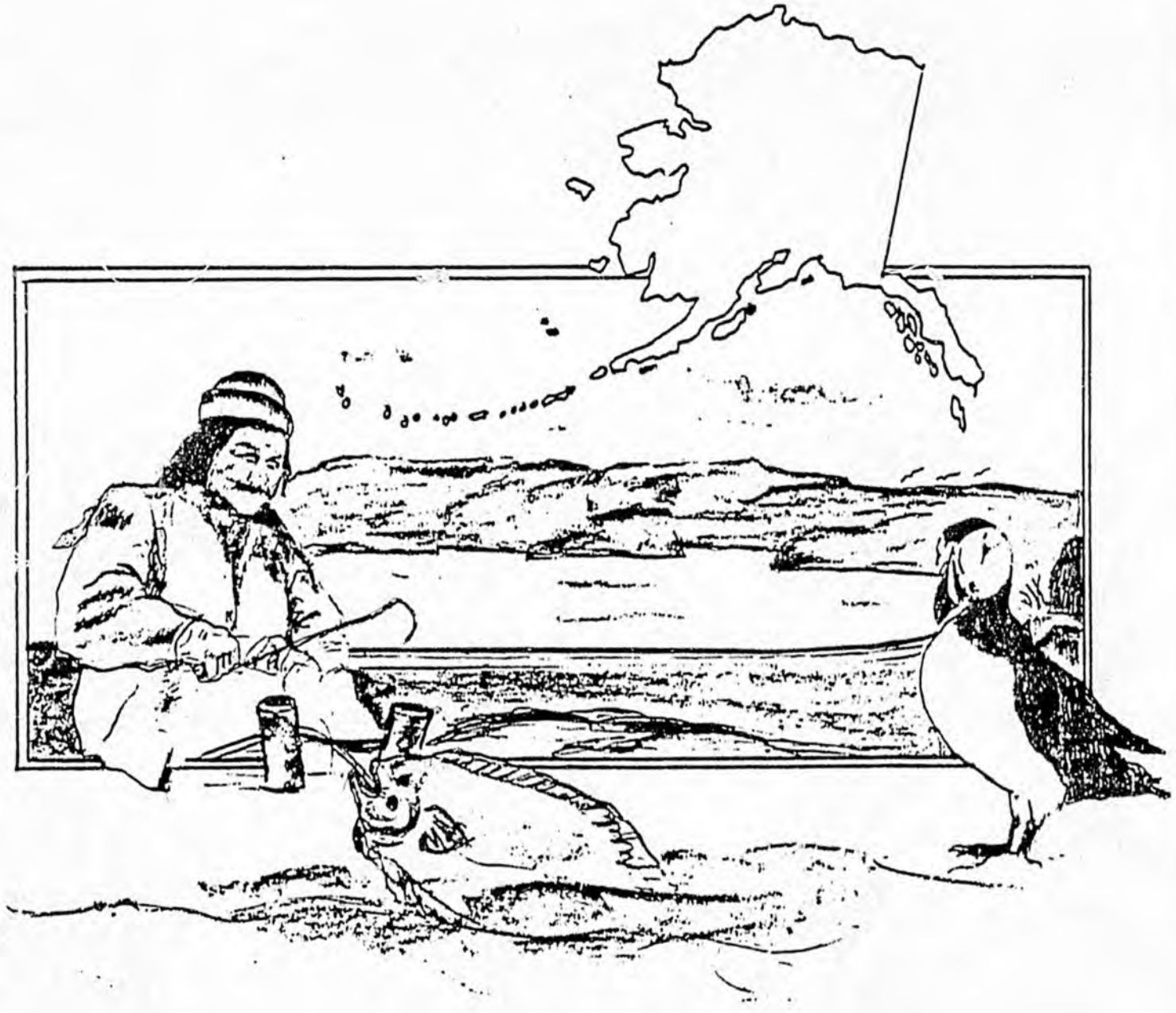
DAMES & MOORE
MARK HUTTON & JOHN CHRISTOFFERSON

JOHN P. DAY M.A.I. & ASSOCIATES

L. WILLIAM CHILDS, C.P.A.

CHARLOTTE L. KIRKWOOD, PLANNER

St. George Island
Economic Development Plan



SB

91

SB 91 TITLE & SPONSOR SUMMARY 10:57 6/27/83 PAGE 1 OF 2

AMENDED TITLE:
AN ACT MAKING SPECIAL APPROPRIATIONS FOR PAYMENT AS GRANTS TO THE CITY OF BETHEL AND THE CITY OF GALENA FOR RIVERBANK STABILIZATION PROJECTS; AND PROVIDING FOR AN EFFECTIVE DATE

PRIME SPONSOR: SACKETT

GENERAL DOLLARS: $15,000,000 (APPROP)

OTHER DOLLARS: $0

CO-SPONSORS:

CURRENT STATUS: 3/02/83 IN (S) FINANCE

SB 91 SENATE ACTION 10:57 6/27/83 PAGE 2 OF 2

DATE	SEQ	PAGE	LEGISLATIVE ACTION
01/31/83	01	0100	FIRST READING -- COMMITTEE REPORTS
03/02/83	02	0296	TRAN -- DP04 FINANCE RULES
****	**	**	*** *** ***

M E M O R A N D U M

Date: February 25, 1983

Subject: Attached Back-up for SB 91

To: All Committee Members
Senate Transportation Committee

From: H. Pappy Moss, Chairman
Senate Transportation Committee

Please find attached back-up material submitted by the City of Bethel for SB 91.

We have requested a fiscal note from the Department of Community Affairs; however, it has not yet arrived.

Please bring the attached report to the committee meeting Tuesday since we have limited copies available.

Alaska State Legislature

SENATOR
H. PAPPY MOSS
P.O. BOX 182
DELTA JUNCTION, ALASKA 99737
(907) 895-4384

WHILE IN JUNEAU
POUCH V
JUNEAU, ALASKA
99811
(907) 465-4921

State Senate

MEMORANDUM

Date: February 25, 1983

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Senate Transportation Committee

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Senate Transportation Committee

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COMMITTEE REPORT

SENATE

FURTHER: FINANCE

1/31/83

Date: March 1, 1983

Mr. President:

The Committee on TRANSPORTATION has had SENATE BILL NO. 91

Making special appropriations for payment as grants to the City of Bethel and the City of Galena for riverbank stabilization projects; eff. date.

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

[X] do pass [ ] do not pass

[ ] do pass with attached amendments(s)

[ ] replace with CS for _____ [ ] same title [ ] new title

and recommends _____

[ ] AND attaches a "Letter of Intent" [ ] New Fiscal Note

[ ] reports it back without recommendation

[ ] referred to the _____ Committee

MEMBERS SIGNING
DO PASS

Don Bergman
Bettye Fahrenkamp
Joe Josephson

MEMBERS HAVING
OTHER RECOMMENDATIONS:

R. Page Wilson
CHAIRMAN

S 60 (Rev. 12/78)

STATE OF ALASKA
PRELIMINARY STATEMENT OF FISCAL IMPACT

Bill No: SB 91 Date on Bill: January 31, 1983
Title: ...Special Appropriation..Bethel...Galena for Riverbank Stabilization Projects
Sponsor: Sackett
Requestor:

1. Estimated fiscal impacts on:

a. Expenditures:

(Thousands of Dollars)

			FY 83	FY 84	FY 85	FY 86	
Capital			15,000.0	Ø	Ø		
Operating			3.0	4.0	4.0		
Total			15,003.0	4.0	4.0		

b. Revenues:

Revenue			Ø	Ø	Ø		

2. Source of funds to offset fiscal impact of bill:

3. Assumptions:

4. Disclaimer:
This statement has not been reviewed by the OMB in the Office of the Governor.

Prepared By: Kenneth R Balls Phone: 465-2277
Division: Director, Division of Administrative Services Date: March 1, 1983

Approved by Commissioner: Bill Kendall Date: March 1, 1983
Department: Admin.

5. Distribution:
Original to Legislative Finance
Copy to Department
Copy to Sponsor
Copy to Requestor

2/8/83

7/0301-05/BDGSF1

POSITION PAPER
SB 91

Fiscal propriety demands that the State maintain project monitoring capability to ensure that the grant funds are spent for the project, and are managed according to Borough or Municipal fiscal procedures. Accordingly, a minimal State operating budget impact will be felt with the passage of each special appropriation under AS 37.05.315-37.05.319, such as this specific bill proposes. I should point out at this time that local governments have recognized their similar responsibilities when awarding grants to local social service providers, etc. Municipalities charge an administrative overhead fee of one to three point eight percent per grant. The Department of Administration requests that the specific grant appropriation language acknowledge a State agency overhead factor of up to .5% (one half of one percent) as Department of Administration operating costs for all special appropriations awarded under AS 37.05.315.

The Department questions the historical practice promoted under AS 37.05.315 and wonders if the Department of Community and Regional Affairs might be of better assistance to local governments through its Local Government Assistance program. Whereas the Department of Administration functions as a centralized control agency for all other Executive Branch agencies, the Department of Community and Regional Affairs is specifically charged with the responsibility of assisting local government in maximizing services to citizens.

Kenneth R Ryals March 1 1983
Director, Division of Administrative Services

Ron S Rudd 3/1/83
Commissioner
Department of Administration

1/0301-01/COMM

Alaska State Legislature

SENATOR
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MASTER PLAN AND REPORT

FOR

PORT DEVELOPMENT

AT

BETHEL, ALASKA

CONSISTING OF

GENERAL CARGO DOCK
PETROLEUM PRODUCTS DOCK
RIVERBANK STABILIZATION

PREPARED FOR

THE CITY OF BETHEL

BETHEL, ALASKA

PREPARED BY

HAROLD H. GALLIETT, JR.

CONSULTING ENGINEER

ANCHORAGE, ALASKA

GEORGE C. SILIDES

CONSULTING ENGINEER

FAIRBANKS, ALASKA

APRIL 1981

REVISED JANUARY 1983

TABLE OF CONTENTS

SELECTED BIBLIOGRAPHY

Comprehensive Study Report For A Medium Draft Port Facility, for the Alaska Division of Waters and Harbors and the City Of Bethel, November 1971

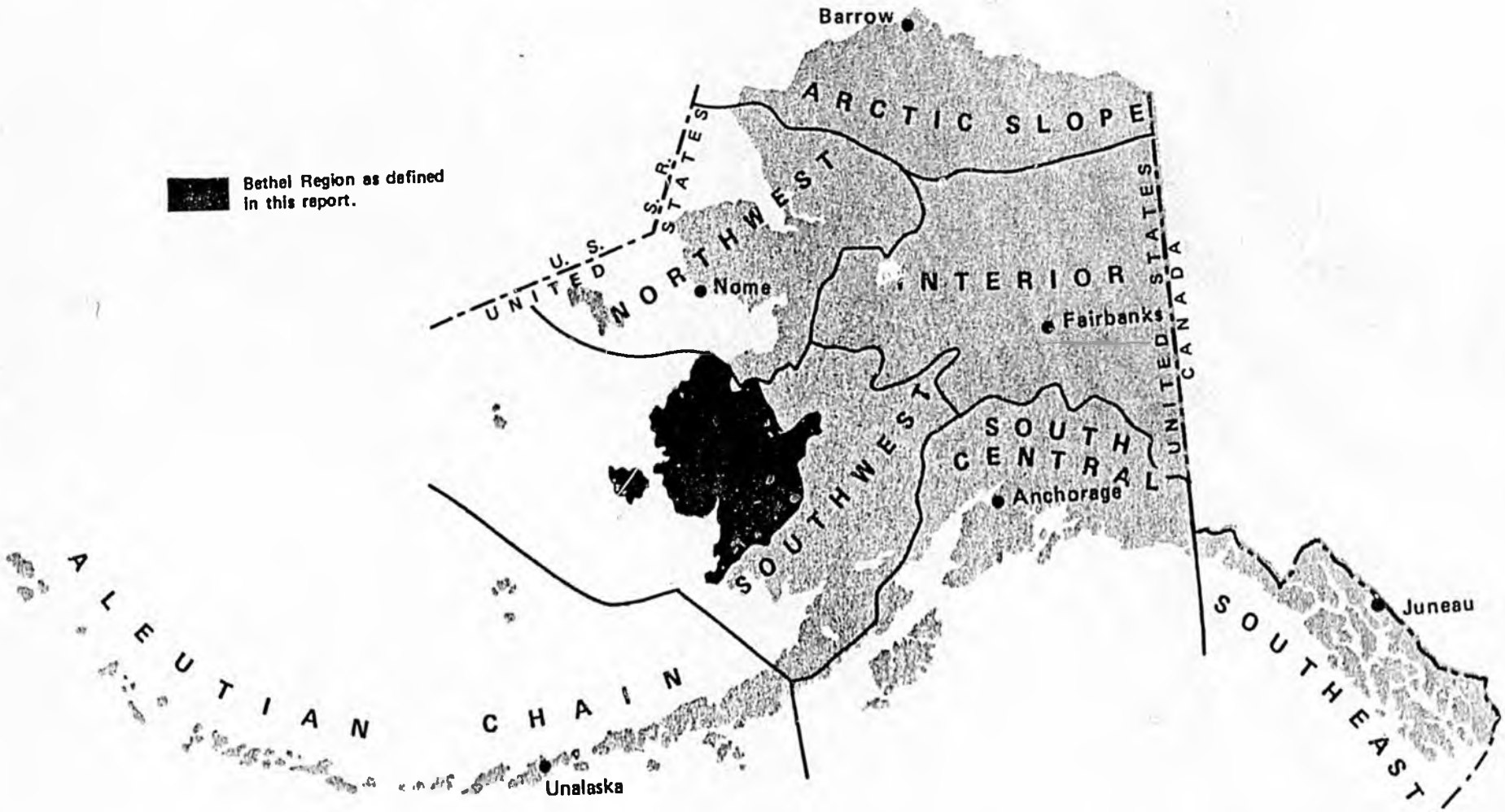
Cost/Benefit Report To The U.S. Army Corps Of Engineers Of A Permanent Erosion Control Project At Bethel, Alaska; by the Office Of Planning and Citizens Committee, Bethel, 1977 & 1978

Environmental Impact Statement And Feasibility Report, Bank Stabilization, Bethel, Alaska, by the U.S. Army Corps Of Engineers, Alaska District, April 1981

Western Alaska Area Transportation Study, Alaska Department Of Transportation And Public Facilities, 1982

Legislative Journals And Budget History, FY 1973 - FY 1983

PLATE 1



MAJOR ALASKA REGIONS

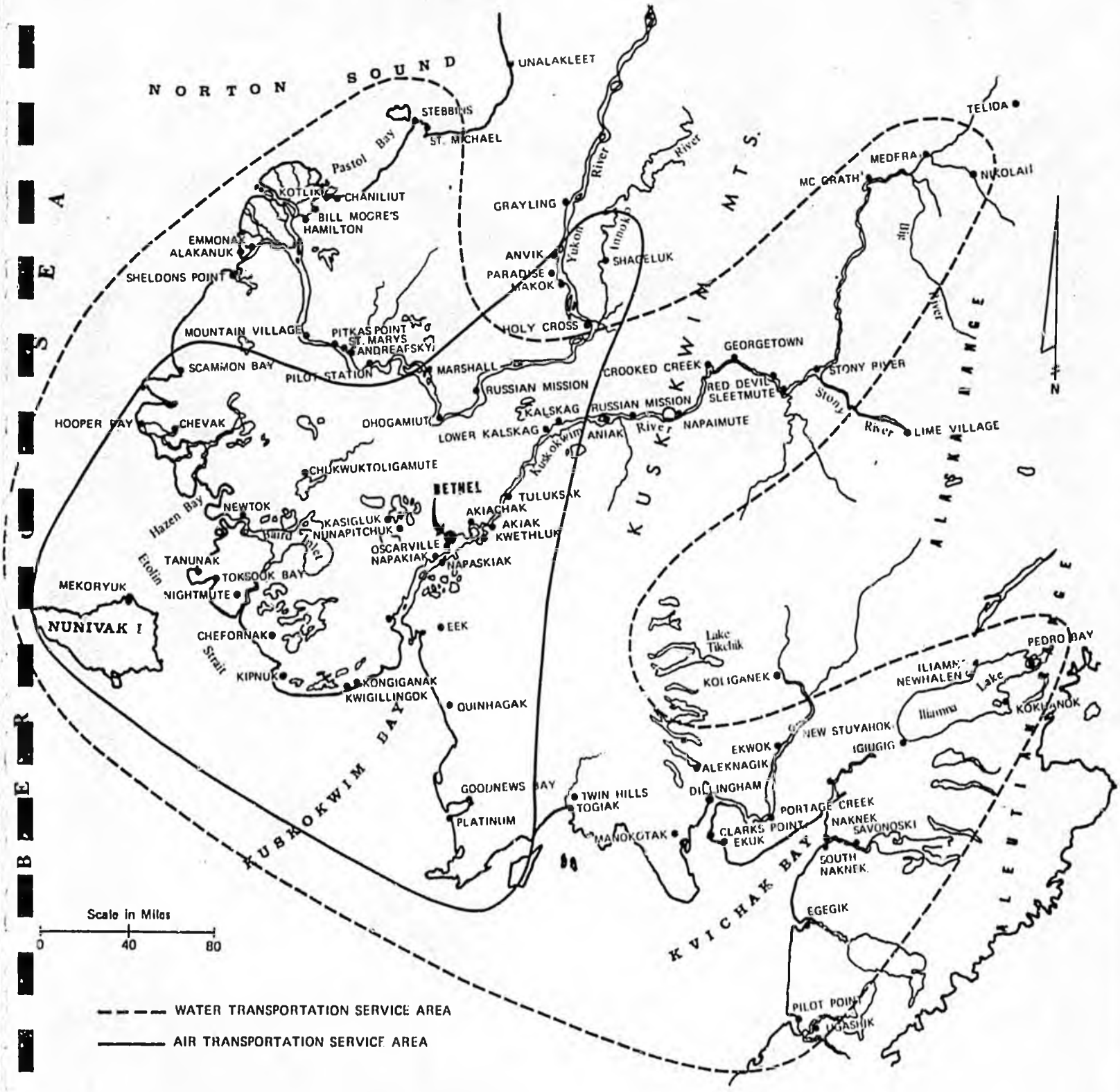

NORTON SOUND
BERING SEA
UNALAKLEET
STEBBINS
ST. MICHAEL
Pastol Bay
KOTLIK
CHANILIUT
BILL MOORE'S
HAMILTON
EMMONAK
ALAKANUK
SHELDONS POINT
MOUNTAIN VILLAGE
PITKAS POINT
ST. MARYS
ANDREAFSKY
SCAMMON BAY
PILOT STATION
MARSHALL
HOOPER BAY
CHEVAK
OHOGAMIUT
CHUKWUKTOLIGAMUTE
BETHEL
NEWTOK
Hazen Bay
KASIGLUK
NUNAPITCHUK
Baird Inlet
OSCARVILLE
NAPAKIAK
NAPASKIAK
TANUNAK
Etolin Strait
TOKSOOK BAY
NIGHTMUTE
MEKORYUK
NUNIVAK I
CHEFORNAK
EEK
KIPNUK
KONGIGANAK
KWIGILLINGOK
QUINHAGAK
KUSKOKWIM BAY
GOODNEWS BAY
PLATINUM
TWIN HILLS
TOGIAK
MANOKOTAK
GRAYLING
ANVIK
PARADISE
MAKOK
HOLY CROSS
SHAGELUK
Yukon River
Innoko River
RUSSIAN MISSION
KALSKAG
LOWER KALSKAG
ANIAK
Kuskokwim River
TULUKSAK
AKIACHAK
AKIAK
KWETHLUK
KUSKOKWIM MTS.
TELIDA
MEDFRA
NIKOLAI
MC GRATH
Big River
GEORGETOWN
CROOKED CREEK
RED DEVIL
SLEETMUTE
STONY RIVER
Stony River
LIME VILLAGE
NAPAIMUTE
ALASKA RANGE
Lake Tikchik
KOLIGANEK
NEW STUYAHOK
EKWOK
ALEKNAGIK
DILLINGHAM
CLARKS POINT
EKUK
PORTAGE CREEK
NAKNEK
SAVONOSKI
SOUTH NAKNEK
KVICHAK BAY
EGEGIK
PILOT POINT
UGASHIK
ILIAMNA
NEWHALEN
Lake Iliamna
PEDRO BAY
KOKHANOK
IGIUGIG
ALEUTIAN RANGE
Scale in Miles
0
40
80
WATER TRANSPORTATION SERVICE AREA
AIR TRANSPORTATION SERVICE AREA

PLATE 2

PLATE 3 - BETHEL 1981

SPECIAL SUMMARY FOR THE EXECUTIVE

PORT OF BETHEL DEVELOPMENT

The Port of Bethel, which accommodates large ocean going barges at all stages of the tide, is the most important port of entry into Western Alaska. The port is the receiving and transshipment center for more than 60 coastal and river communities in an area comprizing more than 100,000 square miles. Plates 1 and 2 of this Special Summary show the extent of Bethel's influence, and of the Region's dependence.

Because of its pre-eminent position as the Regional service center, Bethel has doubled its population within the past decade, and now ranks seventh in size among Alaska's cities. At the present time it appears to be Alaska's fastest growing city, in terms of rate of population increase.

Notwithstanding current expansion of facilities at the second most important Western Alaska ports, Dillingham and St.Marys, and the proposed, very expensive, port facility at Nome, Bethel will remain the best port in terms of versatility, initial construction costs, generation of income for its own maintenance, life cycle costs, creation of employment and the maximum number of people served.

In the future, it is anticipated that the Port of Bethel will also handle diverse shipments such as timber harvested along

the Yukon and Kuskokwim Rivers, and agricultural and refined petroleum products from the Interior. At that time, not only will the Port of Bethel increase its service area toward Bristol Bay and the Alaska Peninsula, but will establish ties to the Asian Pacific Rim.

The following data for the Port of Bethel is summarized from the Western Alaska Area Transportation Study (WAATS) for the Alaska Department of Transportation.

1979	General (Dry) cargo throughput	23,714 Tons
1985	Average throughput forecast	29,110 Tons
1990	" " "	34,518 Tons
1995	" " "	41,096 Tons
2000	" " "	45,725 Tons

1979 Bulk fuel throughput, 21 million gallons

1982 Bulk fuel throughput, 24 million gallons, which already equals the old forecast of 23.9 million gallons for the year 2000

The first usable general cargo dock and staging area to be built in Bethel was completed in 1974. The facility became inadequate in size by 1980. Photographs appended to this summary show the crowded condition, even in the winter.

In order to accommodate the forecasted increase in dry cargo, WAATS recommends that the present dock face be lengthened from 200 linear feet to 400 linear feet, and that the staging /warehouse area be increased from the present 3.5 acres to 9.2 acres.

The consequences of not enlarging and improving docking and staging area facilities in pace with expected cargo increases will result in, a) Unavailability of consumer goods to Bethel and to the Bethel Service Area and, b) A much higher cost for those goods which are delivered.

In 1980, to properly plan and to present plans for adequately meeting the responsibilities placed upon it as the Regional Center, Bethel began a Master Plan for Port of Bethel Development, essentially consisting of three parts;

1. General Cargo Dock and Staging Area expansion, improvement and protection.
2. Construction of a Petroleum Products Dock, to protect the Region's main bulk fuel storage facility, and to facilitate the receipt and transshipment of fuel oil and motor fuel.
3. Construct Riverbank Stabilization And Protective Works (commonly referred to as the Bethel "Sea Wall"), to create a marginal pier and to arrest the loss of riverbank to the erosion that is seriously threatening the physical and economic safety of the community and, as a consequence, the economics of the Region.

With State financial assistance, a part of the Master Plan has been implemented, as follows:

1. The Brown's Slough portion of the Cargo Dock was expanded in 1982 to serve as a work area for the coastal and river barges engaged in transshiping. See 1st and 2nd photos, Appendix.
2. Property acquisition for the Cargo Dock, Warehouse and Staging Area expansion and improvement is underway. Purchase of the necessary property will exhaust the remainder of the funds appropriated in FY 1982 for Cargo Dock expansion. Construction Plans, Documents and Specifications are complete. Further construction is in abeyance, awaiting funding.
3. The new Petroleum Products Dock is currently under construction during the winter months. See 3rd, 4th and 5th photos, Appendix.
4. River surveys and test pile programs have been completed, and conceptual plans for the Riverbank Stabilization Works and Marginal Pier have been prepared. They are the fold-outs at the back of this report.
5. Construction Plans, Documents and Specifications for approximately 6% of the proposed "Sea Wall" are in the process of completion. Proposals for material supply are being negotiated. Obligation of funds for this minor portion of the necessary work has exhausted all State assistance funds appropriated to date.

U.S. Army Corps of Engineers Plates D-3.1 through D-3.8, inserted in the Appendix show the Historic Rate Of Erosion that can

be expected if no adequate riverbank stabilization measures are taken. The estimated loss of land and improvements, discounted in value to reflect 1982 dollars, is calculated by the Corps, as follows:

Loss Between 1980 to 1990	$ 10,850,000
Loss Between 1990 to 2000	$ 16,447,000
Loss Between 2000 to 2020	$ 9,876,000
Total Loss In 1982 $$$	$ 37,173,000

The losses include the bulk fuel plant, the city dock and the the hospital, and show the loss in dollar value of the improvements only. The causation and effects of human misery is not calculable. By any rational criteria, it is not acceptable.

Riverbank erosion abatement measures currently in force at Bethel are shown on the 6th - 11th photos. These photos show the serious, intense efforts undertaken by the community as an interim measure. Results are marginal, at best, and definitely temporary.

There appears little to say about the conditions shown by the photos that they do not say for themselves except that, considering even only a portion of the foregoing, any Administrative and/or Legislative failure to provide assistance is unreasonable, in view of the massive proposed appropriations by the larger urban communities. "Enhancing" the quality of life in urban Alaska is worthwhile --- providing the basics for survival in rural Alaska is still a necessity that cannot be ignored. In this instance, without an early undertaking of a sustained program of riverbank stabilization, much of the industrial section of the waterfront

and parts of the residential section will continue to be lost. In that most likely occurrence, the existing cargo dock, and the bulk fuel tank farm and new petroleum products dock will also be hazarded.

It is easily seen that the benefits to Southwest Alaska from Bethel Port improvements and bank stabilization exceed the cost of facility construction, and that funding for the Bethel port development/riverbank stabilization program is in keeping with both Administrative and Legislative fiscal policy of development.

It is requested that the Legislature appropriate and grant to the City of Bethel the necessary funds to implement the program of construction, as per the Budget shown on the following two pages, and that the Administration sponsor and fully support the appropriated grant.

A closing word regarding rumors of Federal participation in Bethel Riverbank protection. Without going into great detail for the reasons, we feel that, at best, the earliest any Federal participation can be hoped for would be in calendar year 1986, something we would give odds against its happenning. Furthermore, the proposed Federal plan now under consideration involves the placement of large stone rip-rap. Even if that rip-rap were to become available from some place far from Bethel, it would be a substitution of stone rubble for junked vehicles, effectively denying bank use and river access. To a society river oriented out of necessity, such compounding of the problem makes little sense or useful acceptability.

PROPOSED BUDGET FY 1984- FY 1987

PORT OF BETHEL DEVELOPMENT

Bank Stabilization & Marginal Pier

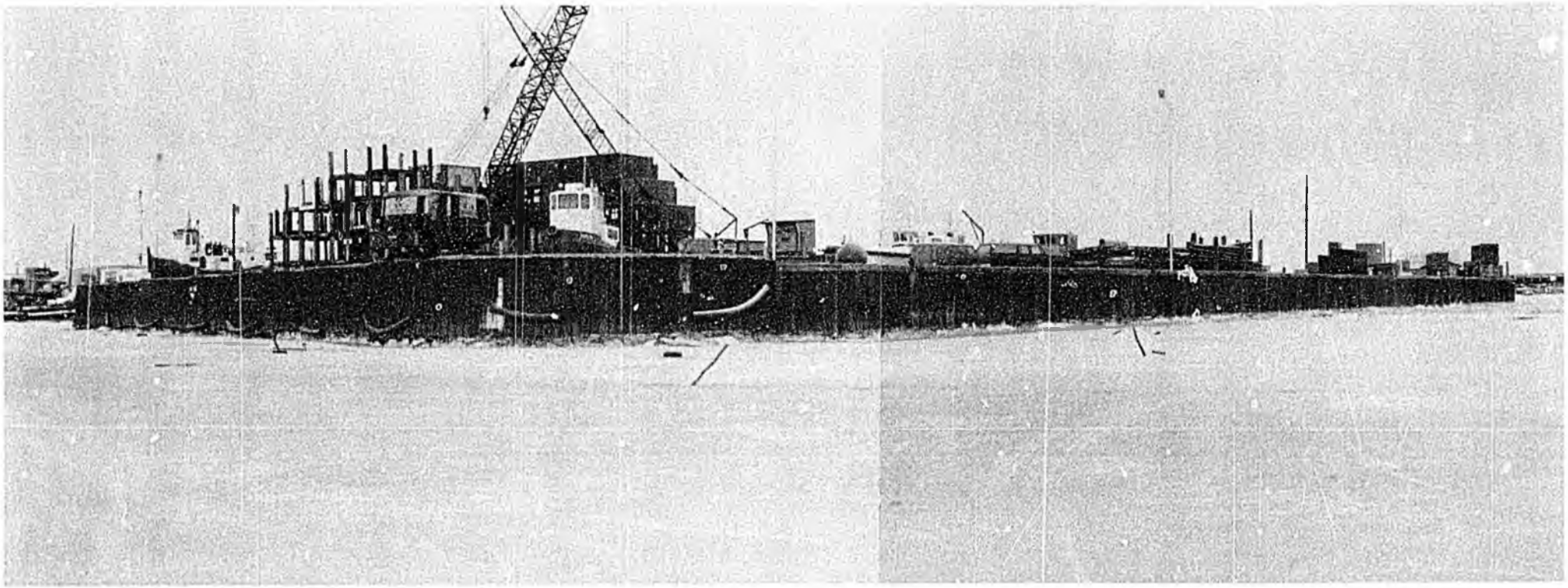
Cargo Dock Improvement & Expansion

Budget Estimate (In Thousands)

Year(s)	Item	$ 1983	$ Future
FY 1984 Spring & Summer 83	2,000 Linear Feet Of Pipe Pile Bulkhead From Cargo Dock To Main Street	3,290	3,290
FY 1984 Summer'83	500 Linear Feet Of Pipe Pile Bulkhead Petroleum Products Dock Protection	0,822	0,822
FY 1984 Fall 1983 to Summer 1984	1,600 Linear Feet Of Pipe Pile Bulkhead From Main Street To Mission Road, Plus	3,232 (2,632)	3,476 (2,830)
	Concrete Boat Access Ramp	(0,600)	(0,646)
FY 1985 Fall 1984 to Summer 1985	Cargo Dock Expansion And Improvements	2,412	2,788
	Warehousing	1,000	1,156
FY 1985 Fall 1984 to Summer 1985	1,000 Linear Feet Of Pipe Pile Bulkhead From Lousetown Slough To Brown's Slough And	2,262 (1,645)	2,614 (1,901)
	750 Linear Feet Of H Pile & Timber Bulkhead To Bridge	(0,617)	(0,713)

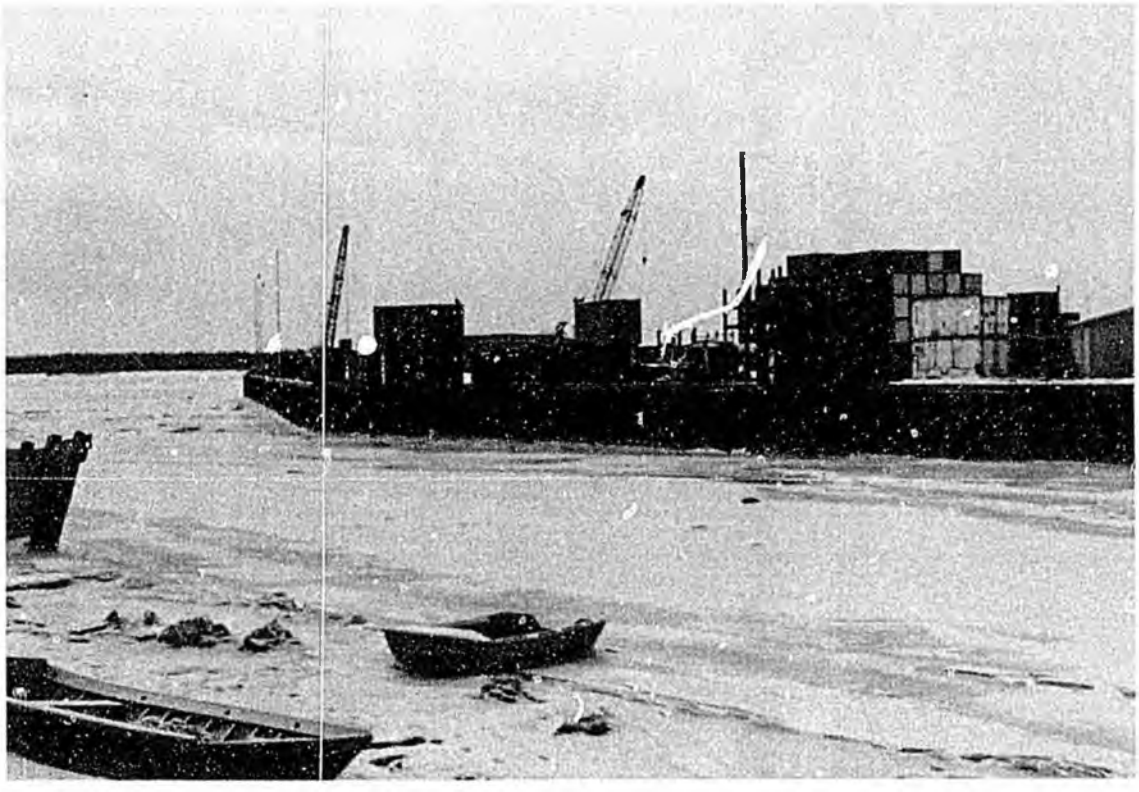
(Continued On Next Page)

Year(s)	Item	$ 1983	$ Future
FY 1986 Fall 1985 to Summer 1986	1,800 Linear Feet Of Pipe Pile Bulkhead From Mission Road To PHS	2,960	3,420
FY 1987 Fall 1986 to Fall 1987	Completion Of Pipe Pile Bulkhead, Floating Breakwater, Ramps, & Other Modifications -- 2,500 Linear Feet	4,112 0,600	5,109 0,745
	TOTAL	$20,690	$23,420



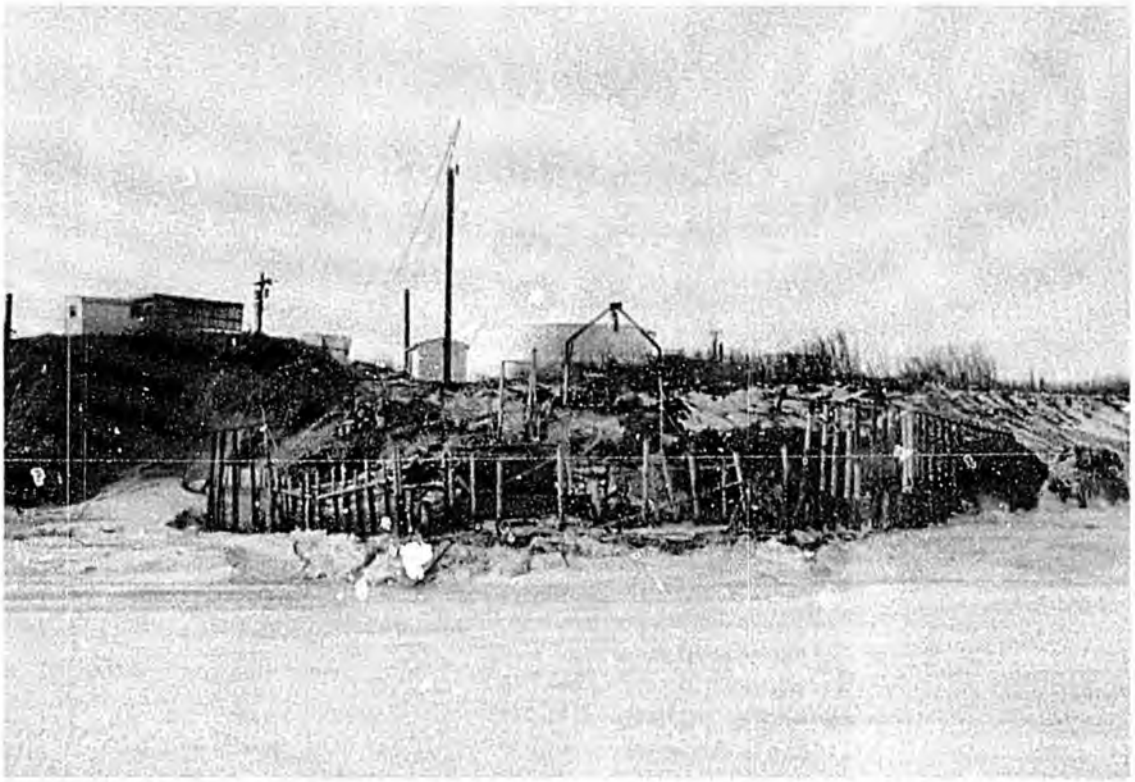
Present Cargo Dock And Staging Area

Circular steel cell dock at left was built in 1974 to accommodate ocean going barges from Seattle serving the Region through Bethel. The structure to the right was completed in 1982. Right foreground is a steel pipe pile and steel sheet pile pier to permit loading of river and coastal transshipment vessels simultaneously with the unloading of larger barges at the main dock. Right background is a steel H-pile and timber bulkhead to enlarge and protect the staging area.



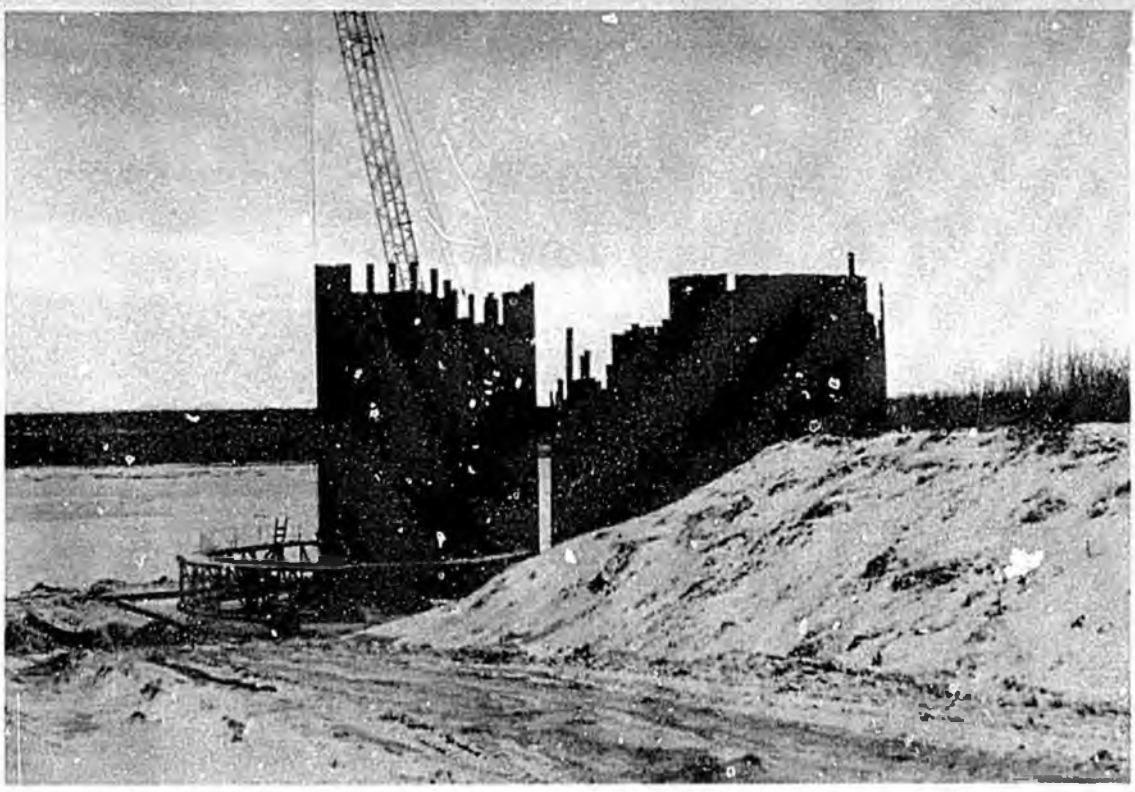
View of Staging Area from across Brown's Slough

Foreground is H-pile and timber bulkhead, left rear is pipe pile and steel piling pier. Note crowded conditions in staging area even during winter months.

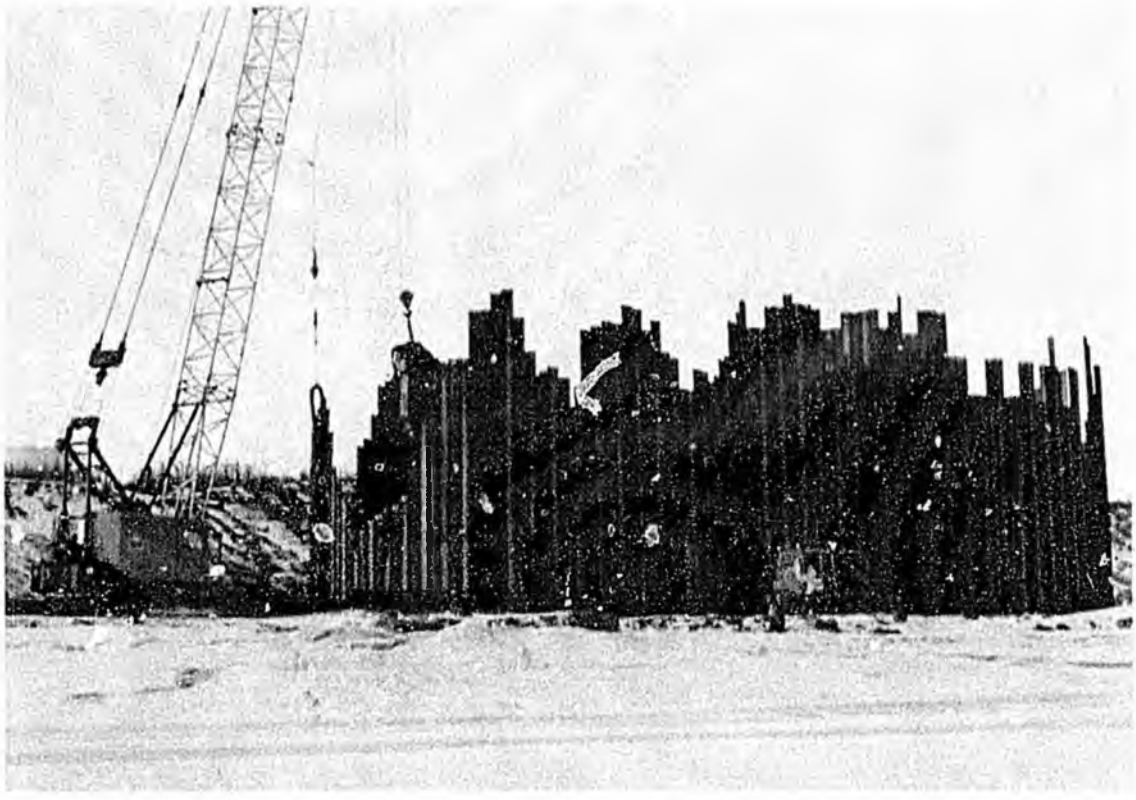


Present Petroleum Products Dock

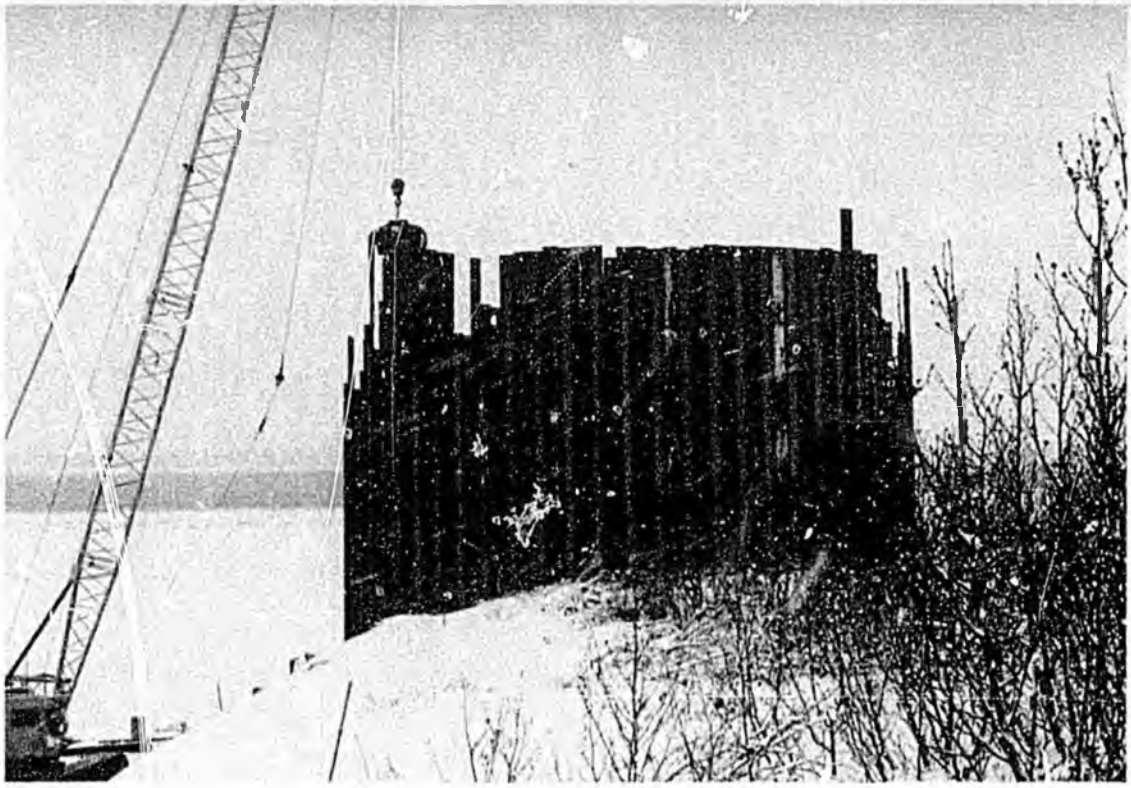
During the shipping season a small barge is fastened to the dock to permit tie-up of ocean going bulk fuel carriers. This is the fuel receiving and distribution point for the entire Region. Currently, about 24 million gallons are handled annually.



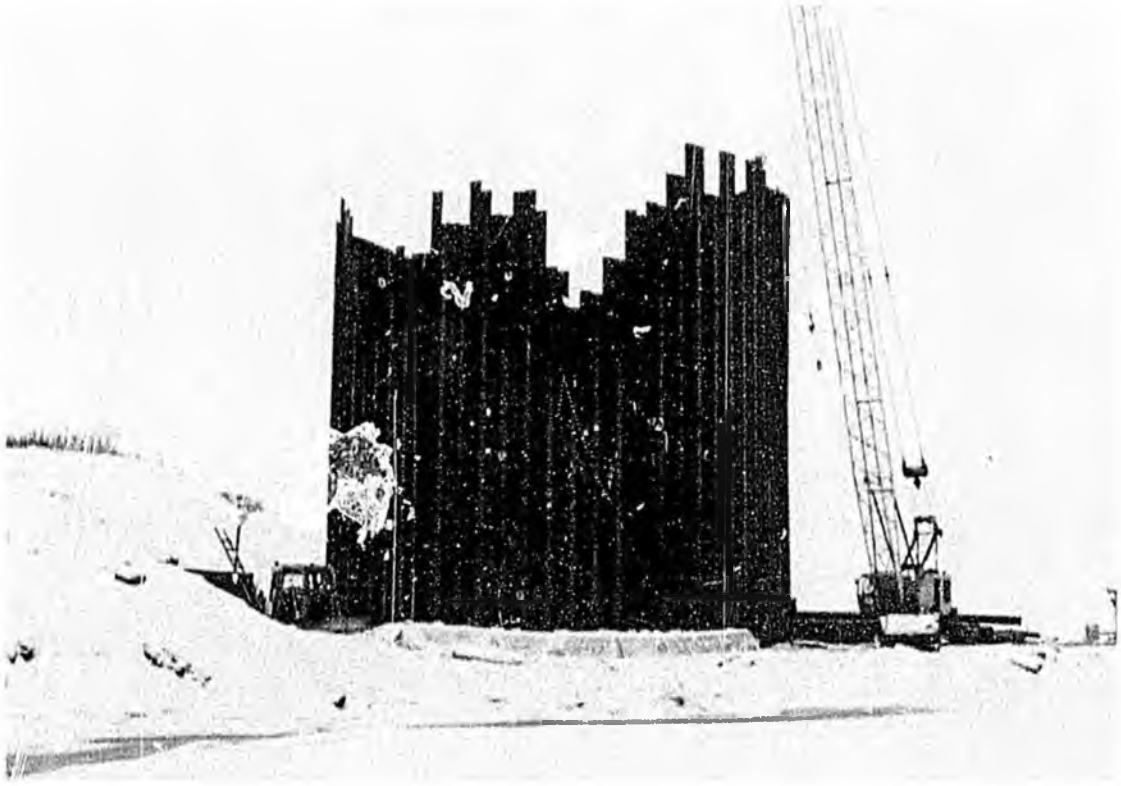
Rear view of the two steel sheet pile cells of the new Petroleum Products Dock under construction during the winter months of 1982 - 1983.



Front view of new Petroleum Products Dock under construction (Jan. 1983), showing various stages of driven steel piles. When completed, the dock will be similar to the General Cargo Dock.



One of two circular steel pile cells designed to form the new Petroleum Products Dock as viewed from rear.



Same cell as above viewed from river. Under construction during winter 1982 - 1983.

City business section of waterfront as seen from river. View is upstream toward cargo dock. Buildings in left foreground are part of ELM Fisheries. Note attempts to prevent loss of riverbank through the use of junked vehicles and other debris.

City business section, looking downstream from vicinity of ELM Fisheries.

Close up view at attempt to arrest loss of riverbank at ELM Fisheries.

City business area riverfront between ELM Fisheries and First National Bank of Anchorage. Looking Downstream.

Closer view of riverbank erosion abatement measures currently in force at Industrial/Business section between ELM Fisheries and Cargo Dock. Looking upstream. See previous photos.

Same as above, closer to Cargo Dock.

City business area waterfront between First National Bank and Main Street. Looking downstream toward Mission Road area.