

Agency: Commerce, Community and Economic Development**Grants to Municipalities (AS 37.05.315)****Grant Recipient: Yakutat****Federal Tax ID: 92-6001319****Project Title:****Project Type: Maintenance and Repairs**

Yakutat - Ocean Cape Dock Major Maintenance

State Funding Requested: \$1,196,933**House District: 35 / R**

One-Time Need

Brief Project Description:

This dock is a critical element of Yakutat's waterfront which is the economic lifeline of the community. There are two main aspects to the project: Replacement of pilings, concrete footings and the southeast wall on the main dock, along with replacement of the OSHA required wash house which is beyond repair.

Funding Plan:

Total Project Cost:	\$1,926,933
Funding Already Secured:	(\$730,000)
FY2015 State Funding Request:	<u>(\$1,196,933)</u>
Project Deficit:	\$0

Funding Details:

This project was partially funded in FY 2014 with an appropriation of \$500,000 in SB 18. The City and Borough of Yakutat contributed \$230,000 of our own funds to this project to complete the rebuild on the washhouse and sanitation facilities of the plant.

Detailed Project Description and Justification:

The Ocean Cape Dock is a vital part of the Yakutat economy. It houses Yakutat Seafoods, the economic lifeblood of the community. The seafood plant is leased to Yakutat Seafoods, which operates the business year round, with most processing concentrated from March (when halibut and black cod season opens) through the spring, summer and fall salmon seasons, and concluding with the close of longlining in November. Small amounts of winter king salmon and rockfish are processed aswell.

****NOTE:** The dock also serves as the barge and ferry dock, making it a key transportation facility for Yakutat. The City and Borough provides the dock to the Alaska Marine Highway through an MOU at no cost to the state.

An engineers report for the dock (attached) has been completed. It identified numerous structural issues that threaten the Ocean Cape Dock. This project will replace 106 of the 318 pilings that support the structure. Furthermore, there are 212 concrete splice collars that must be replaced due to deteriorated concrete. The southeast wall of the facility is the only wall that is not metal sheathed. The wood is rotten and needs to be rebuilt. In doing so, we will face it with metal siding for better protection.

Furthermore, the attached condition assessment of the wash house recommends complete replacement of this structure, which is critical to the operation of the municipally-owned seafood plant on the dock. PND took a close look at the wash

house and determined the building was beyond repair.

Work in 2013 was focused on Phase I, wash house replacement, due to the OSHA mandate to completely rebuild it. This work will be completed in March of 2014. The second phase, South wall replacement and piling replacement, has yet to be addressed and these elements form the current FY 15 request.

In 2013 significant damage was done to the old wood/creosote pilings on the front face of the dock, utilized as the most important mooring facility in Yakutat. In addition to hundreds of fishing vessel tie-ups annually, this face of the dock serves as the ferry dock and barge dock, where almost all seaborne freight is delivered to the community. Pilings were damaged either in one major event or in several concurrent events. No single vessel can be proven responsible for this damage, but based on visual inspection it is likely due to a large vessel like the M/V Kennecott or the AML tug/barge. The pilings on this face of the dock will be replaced with steel pilings faced with the modern standard UHMW plastic piling guards (bumpers.)

Project Timeline:

November to February 2014

November to February 2015

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

City and Borough of Yakutat

Grant Recipient Contact Information:

Name: Frank Ryman
 Title: Borough Manager
 Address: 309 Max Itelio Drive
 Yakutat, Alaska 99689
 Phone Number: (907)784-3323
 Email: sryman@yakutatak.us

Has this project been through a public review process at the local level and is it a community priority? Yes No

Attachment C

STRAGIER ENGINEERING SERVICES, INC.

504 DEGROFF STREET
SITKA, ALASKA 99835
(907) 747-5833

**ENGINEERS REPORT
SITKA SOUND SEAFOOD'S
PROCESSING PLANT
YAKUTAT, ALASKA**

Prepared for:

Sitka Sound Seafood's

333 Katlian Avenue

Sitka, Alaska 99835

Prepared by:

Stragier Engineering Services, Inc.

504 DeGroff Street

Sitka, Alaska 99835

June 5, 1991

ENGINEER'S REPORT

At the request of Sitka Sound Seafoods (SSS), an inspection was performed on the piling foundation system of their processing plant located in Yakutat, Alaska. The inspection was performed on May 3, 1991, by Noel F. Stragier, P.E..

The SSS processing plant in Yakutat, Alaska consists of a large two story wood frame building that is approximately 232 feet long, 48 feet wide and 46 feet high. It was built in 1916, according to local legend, and was utilized as a cannery for many years. The building is currently owned by the City of Yakutat and is leased to SSS. There are ancillary buildings attached and adjacent to the original cannery building such as blast freezers, storage buildings and offices. There is a modern dock adjacent to the town end of the original building which is used to load and unload freight for the community and for the plant.

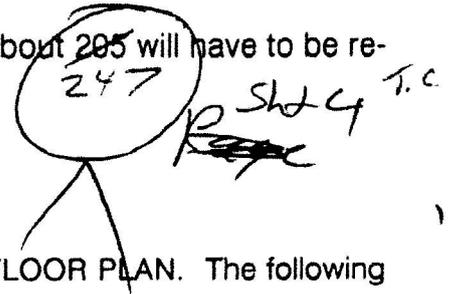
The original building, to which this report is addressed, is supported by a combination of natural untreated wooden driven piling and newly installed creosoted piling, which rest on the original piling at about the ground line. The original piling are in various stages of deterioration and decomposition. The creosoted piling are in much better condition than

the original piling, but connections to the existing pile caps are questionable.

There are approximately 388 piling supporting the structure. Of these, 40 are creosoted piling, while the remainder are the original untreated piling. All of the piling are located within the intertidal zone. Two hundred feet of the building is supported on piling spaced on about a 5' x 5' grid, while the remaining 32 feet of the building is supported on piling spaced on an 8' x 8' grid. A unique feature of the piling on the exterior of the building, is that every other piling is a square 12" x 12" member which extends beyond the 1st floor level to the second floor. This feature adds lateral rigidity to the structure by having a single member extend from the 2nd floor into the ground. Unfortunately, most of these piling are deteriorating at the ground line and some are showing signs of deterioration at other exposed locations.

The only piling in the entire system which do not show some kinds of deterioration are the newly installed creosoted piling. Fortunately, these new piling are located in the vicinity of the heaviest loads within the building; directly under the engine room. All of the remainder of the piling will have to be either removed and/or replaced with treated piling. Furthermore, a cross bracing system will have to be installed so that horizontal loads can be effectively transferred to the ground.

Our calculations of the structural capacity of the existing pile caps reveals that, except for in the area of the engine room, the existing pile caps can span a distance of 10 feet. The implications of this capacity is that in each lateral row of nine piling, 4 can be removed. So, instead of having to replace ~~348~~³⁷⁰ piling, only about ~~205~~²⁴⁷ will have to be replaced.



Please refer to the drawing on calculation sheet 1, entitled FLOOR PLAN. The following piling can be completely removed from the system:

GRID LINE

B - 1 THRU 20

B - 35 THRU 40

D - 1 THRU 40

F - 1 THRU 40

H - 1 THRU 40

All of the remaining piling should be replaced according to the details provided on sheets 5 and 6 of the attached calculation sheets, except the existing creosoted piling. These piling should be attached to the pile caps according to the attachment details on sheet 5.

Cross-bracing, in both the lateral and longitudinal direction as detailed on sheets 8 and

9, shall be installed according to the schedule on those sheets.

The piling which have little or no structural capacity or whose bases are severely eroded should be replaced first. These piling have been inventoried and can be located on the fold-out sheet following the calculation sheets. There are approximately 55 of these piling that will have to be replaced first. Next will be those piling identified as having 50% of their bases deteriorated. There are approximately 12 of these, including a couple under the engine room.

After inspecting the condition of the piling supporting the building, I was astonished that the building recently survived an earthquake in the 6.5 magnitude range. There are places where the piling are completely rotted through or just hanging in the air. To me it is a very dangerous situation. A situation that can be best described as "an accident ready to happen". I would not want to be the insurer of the building.

CONCLUSIONS AND RECOMMENDATIONS

Following our inspection of the piling system supporting the processing plant leased to Sitka Sound Seafoods by the City of Yakutat, we have concluded that **immediate** repairs are required. There are approximately 55 piling which are so deteriorated that they

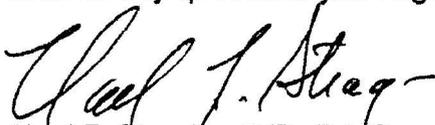
no longer have structural capacity. There are another 12 to 15 piling whose structural capacity is less than 50% of their original capacity. Our calculations show that the total load on each piling varies from 6 to 15 tons, depending on its position in the grid system. The greatest loads are to those piling under the engine room area. Our calculations also show that the piling in every other longitudinal grid line are not required, except those piling located under the engine room. Furthermore, since there is no effective mechanism with which to transfer horizontal loads to the ground (except for developing a moment in the piling), a system of cross bracing in both the lateral and longitudinal direction will be required.

We recommend that immediate repairs/renovations be instigated to the piling system supporting the SSS processing plant in Yakutat. These repairs should follow the details shown on the attached drawings. Careful inspection of the condition of existing pile caps and stringers should be conducted prior to replacing individual piling. If either of these two components show signs of deterioration they should be replaced with an equally sized treated wood member.

Please be aware that this report concerns itself with only the piling support system of the subject building. We did not inspect other aspects of the building, whether they be structural or architectural in nature, to determine their structural capacity. This report is not

intended to address any other aspects of the building except the piling system.

Please review this report and the attached details at your convenience. Should you, or other interested parties, have any questions concerning our findings, conclusions or recommendations, please do not hesitate to call on me. I would be more than happy to answer any questions you might have.


Noel F. Stragier, P.E., R.L.S.

E:\WS\REP\SSSENG.REP



**STRAGIER
ENGINEERING SERVICES, INC.**

504 DeGross Street
SITKA, ALASKA 99835
(907) 747-5833

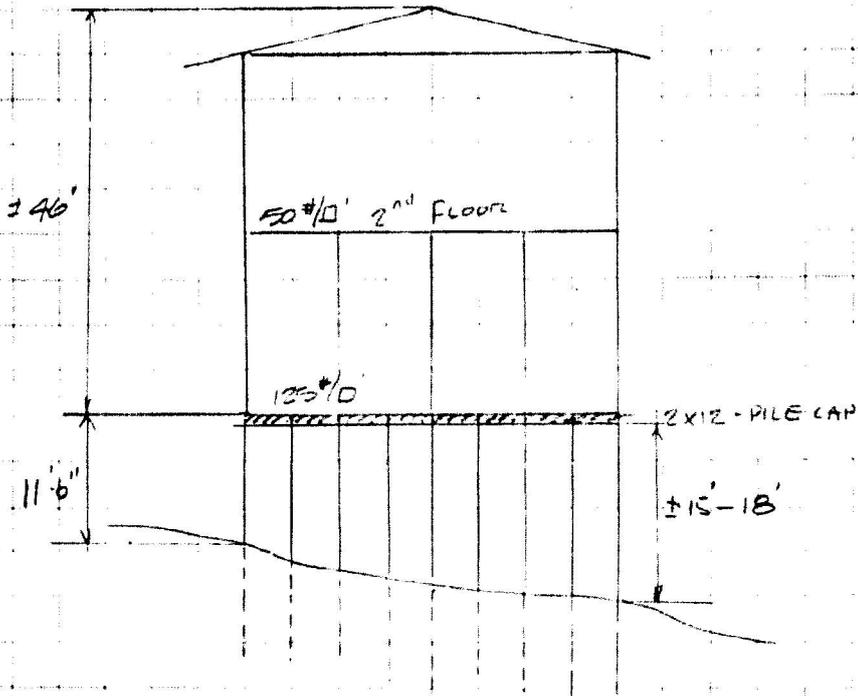
JOB 1435 S23 YALUHT PLANT

SHEET NO. 2 OF _____

CALCULATED BY BARB DATE 6.1.91

CHECKED BY _____ DATE _____

SCALE _____



END VIEW

N.T.S.

**STRAGIER
ENGINEERING SERVICES, INC.**

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SITKA, ALASKA 99835
(907) 747-5833

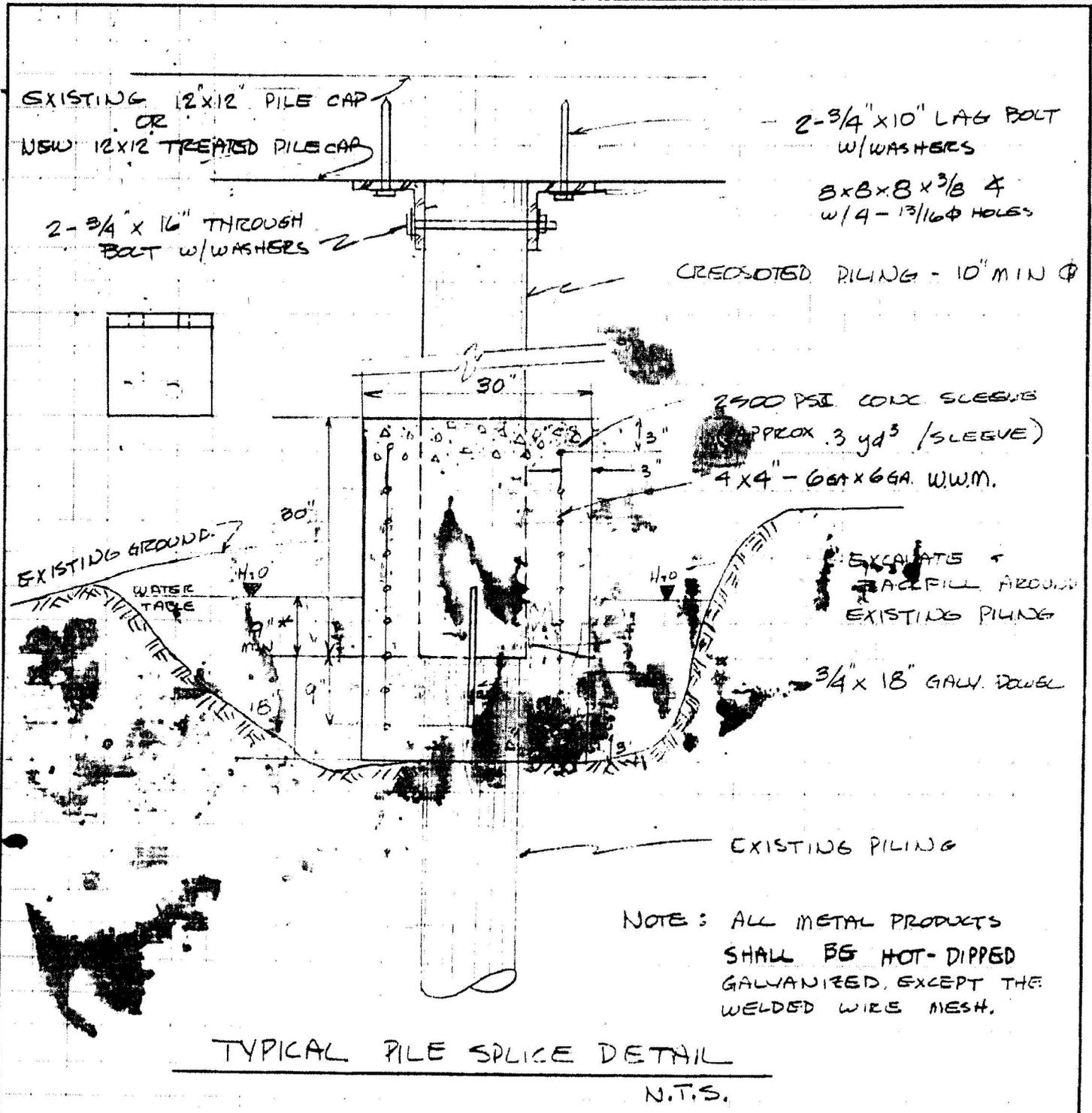
JOB 1435 ESS YAKUTAT PLANT.

SHEET NO 5 OF _____

CALCULATED BY BAVE DATE 6.1.91

CHECKED BY _____ DATE _____

SCALE _____



TYPICAL PILE SPLICE DETAIL

N.T.S.

* CUT OFF EXISTING PILING A MINIMUM OF 9" BELOW WATER TABLE OR AT A SOLID PORTION OF EXISTING PILING.

**STRAGIER
ENGINEERING SERVICES, INC.**
504 DeGross Street
SITKA, ALASKA 99835
(907) 747-5833

JOB YAKUTAT CANAL/ST PILING REPAIR
SHEET NO _____ OF _____
CALCULATED BY BABS DATE 10.10.91
CHECKED BY _____ DATE _____
SCALE _____

NEW TREATED PILING CAN BE OUT OF PLUMB BY AS MUCH AS A 1:12 SLOPE

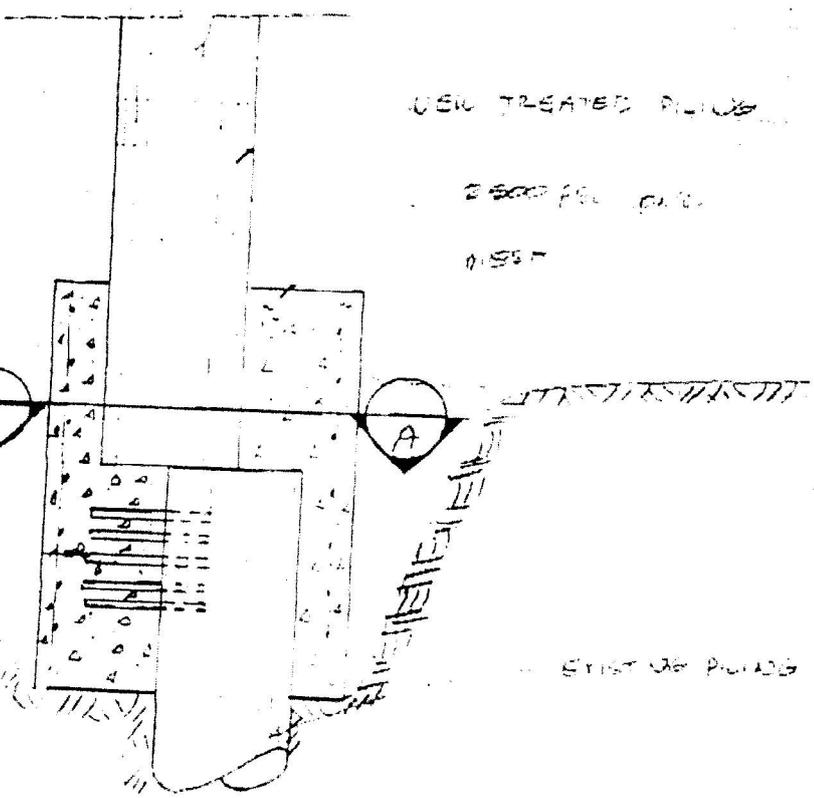
Stragier Sanitation Services, Inc.
504 DeGross Street
Sitka, Alaska 99835
(907)747-5669
FAX(907)747-4993

Date 10.10.91 Time 9:30 A

Please Deliver to MIKE SINDER
JIM COMPLEY

Number of Pages, including cover
page 1

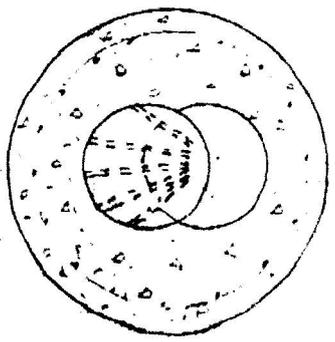
if there are any problems or questions with this transmission, please call BABS at (907)747-5833



3 #5 bars
run into existing
pile

TYPICAL ELEVATION

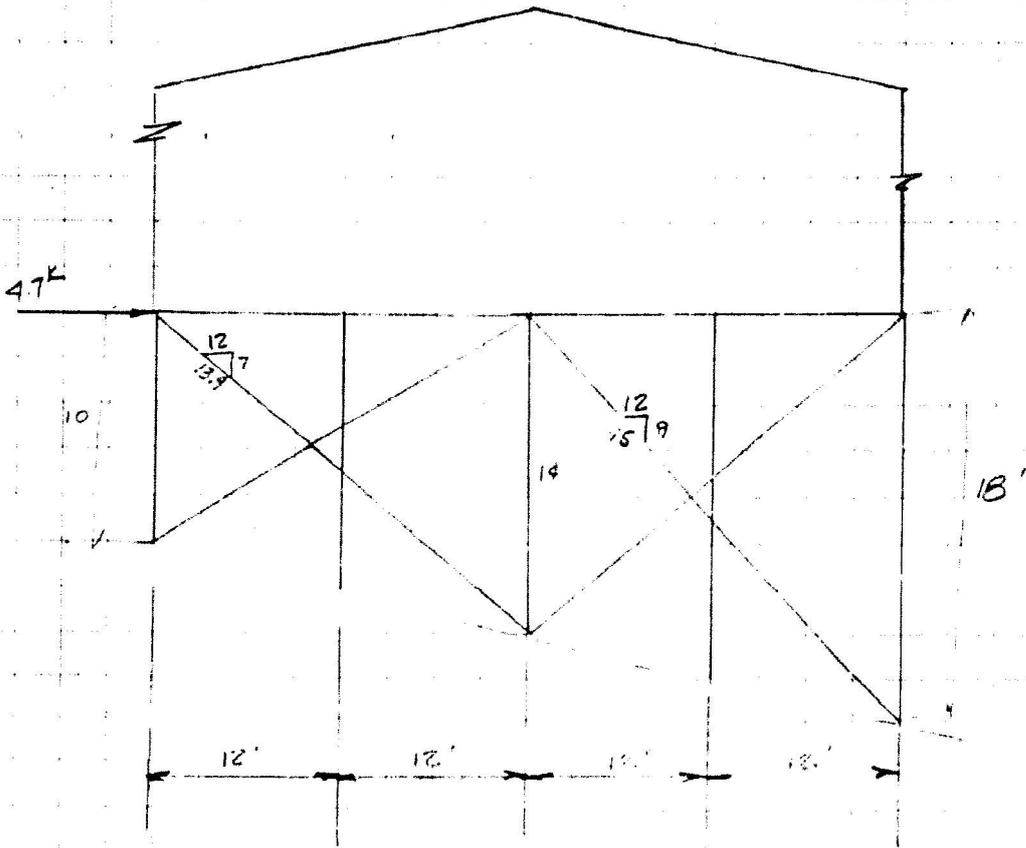
NTS



CHECK OF HORIZONTAL LOADS:

WIND LOAD - 27 psf x 35' HIGH = 945 #/LF.

@ 5' O.C., then, each row of piling has to resist $5 \times 945 = 4,725 \#$



THIS LOAD WILL BE DISTRIBUTED THROUGH 2 X-BRACCS
LETS TRY A 2X10 MEMBER:

THE X-BRACING WOULD BE ANALYZED AS A TENSION MEMBER
WITH ITS MAXIMUM CAPACITY EQUAL TO $F_L (1250 \text{ psi})$
if a 2X8 WOULD HAVE A CAPACITY OF $1.5 \times 7.5 \times 1250 = 14K$

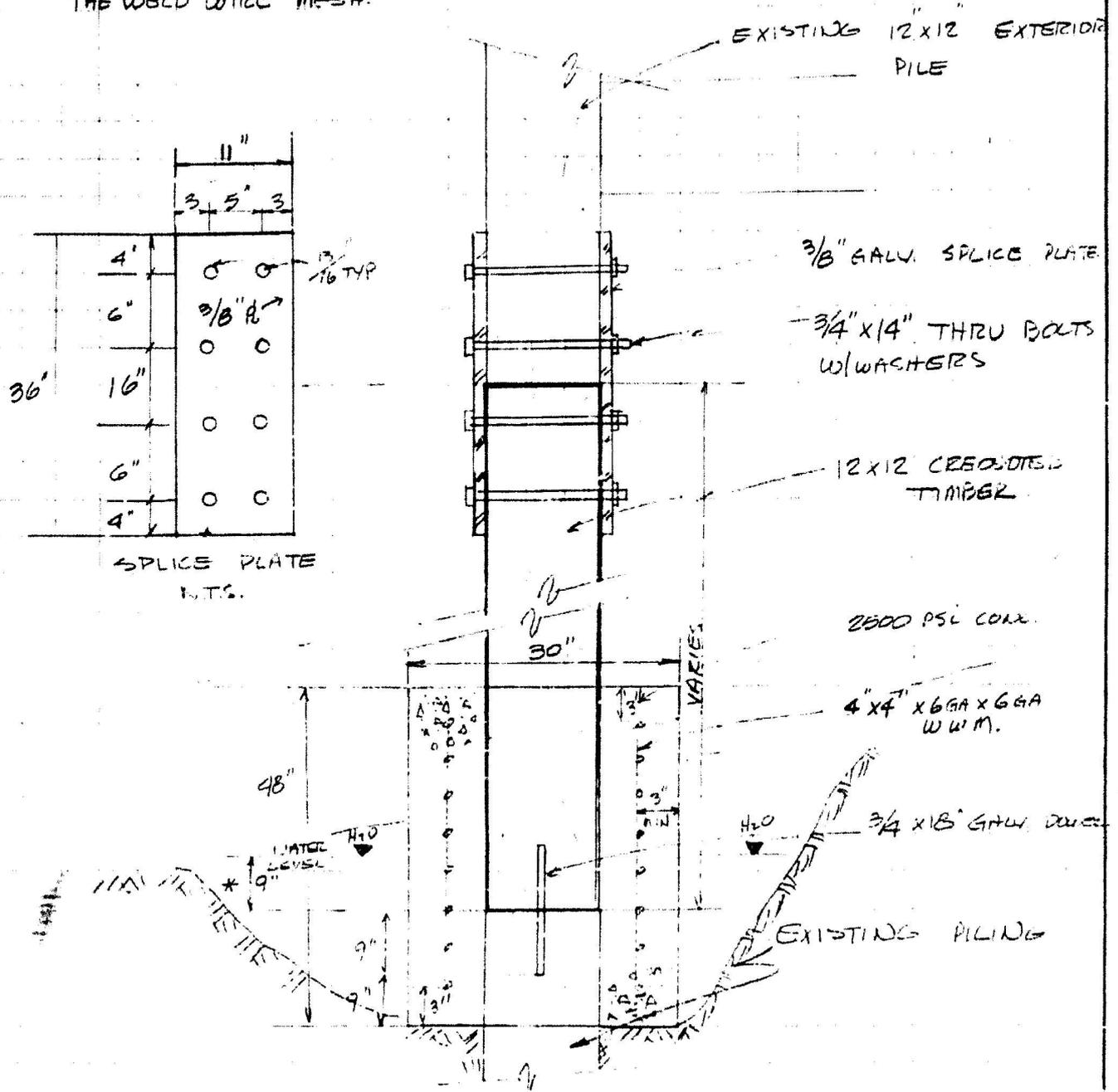
WE WOULD NEED X BRACING THEN $\frac{14}{4.7 \times 1.2} = 4.6$ OR EVERY 4TH ROW OF
PILING.

**STRAGIER
ENGINEERING SERVICES, INC.**

504 DeGroff Street
SITKA, ALASKA 99835
(907) 747-5833

JOB: HEB SSS YAKUTAT PLANT
SHEET NO: 6 OF _____
CALCULATED BY: BABS DATE: 6.1.91
CHECKED BY: _____ DATE: _____
SCALE: _____

NOTE: ALL METAL PRODUCTS SHALL
BE HOT DIPPED GALVANIZED, EXCEPT
THE WELD WIRE MESH.



TYPICAL 12x12 EXTERIOR PILE SPLICE DETAIL

* CUT OFF EXISTING PILING A MINIMUM OF 9" BELOW WATER TABLE OR AT
A SOLID PORTION OF EXISTING PILING.

**STRAGIER
ENGINEERING SERVICES, INC.**

504 DeGroof Street
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JOB 143B SES VALUANT PLANT

SHEET NO 5 OF _____

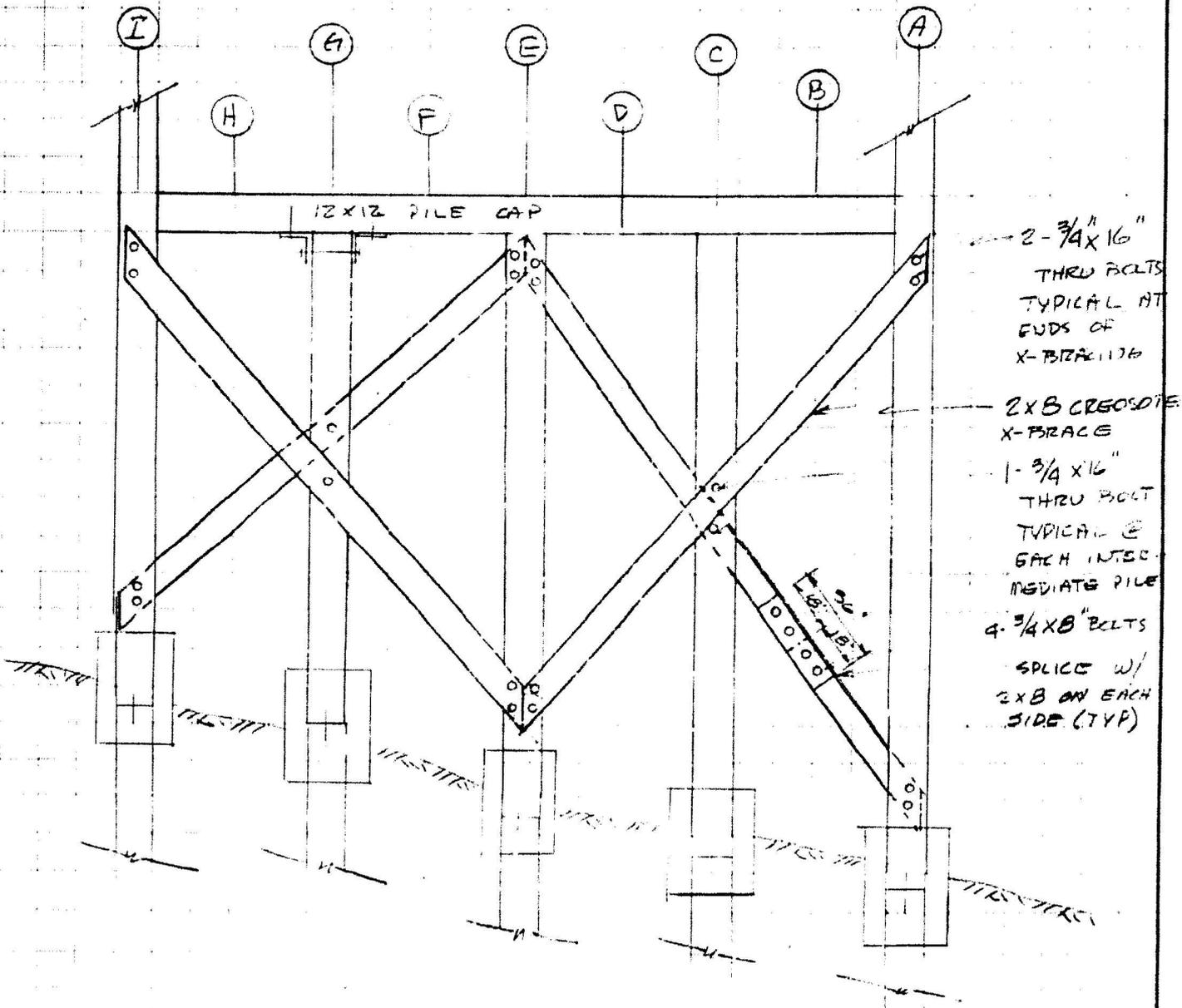
CALCULATED BY BADE DATE 6.3.91

CHECKED BY _____ DATE _____

SCALE _____

PROVIDE CROSS BRACING ON GRID LINES:
3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 41, 42, 43 & 44

ACCORDING TO THE FOLLOWING DETAILS:



**STRAGIER
ENGINEERING SERVICES, INC.**

504 DeGross Street
SITKA, ALASKA 99835
(907) 747-5833

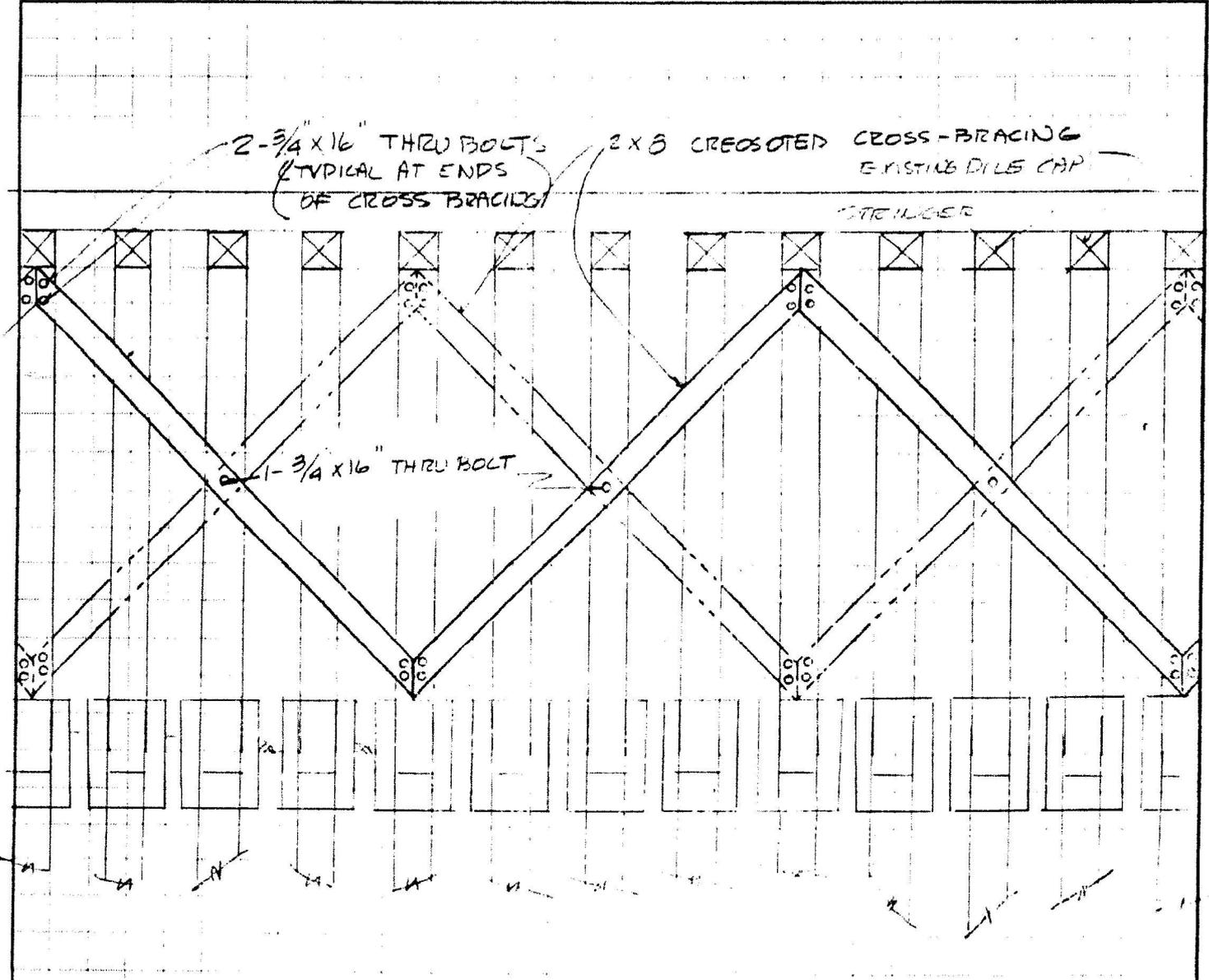
JOB 1400 HADUMI PLANT

SHEET NO 9 OF _____

CALCULATED BY BABE DATE 6.3.91

CHECKED BY _____ DATE _____

SCALE _____



TYPICAL LONGITUDINAL X-BRACING
@ GRID LINES A, E & I U.T.S.

SEE SHEET B FOR SPLICE DETAIL



ENGINEERS, INC.

February 1, 2013

PND 132020

Mr. Greg Indreland
Managing Owner
Yakutat Seafoods
PO Box 419
Yakutat, AK 99689

Re: Yakutat Seafoods Process Building
Piling Inspection and Assessment

Dear Greg,

Per your request PND Engineers, Inc. (PND) inspected and assessed the timber piling and piling splice collars at the Yakutat Seafoods Processing Building. This letter contains a description of the inspection, observations, assessment and recommendations.

Background

The Yakutat Seafoods Processing Building is approximately 232 feet long by 48 feet long and was built in 1916. The building is a two-story, timber-framed structure with a timber pile foundation. Piles are in rows from 5 to 8 feet on center with piles in each row spaced between 5 and 8 feet on center.

Piles are in various states of condition: some relatively new and in good condition while some appear to be very old and are in very poor condition. Many original round piles have been replaced with treated timber round piles or square 12x12 or 10x10 sections. Piles that are not original have been spliced at the mudline with the splice encased in a concrete collar. Many of the newer piles were installed after a 1991 inspection and report by Stragier Engineering. In that report there are sketches for pile replacement including connections and splice collars.

Inspection and Observations

On January 31, 2013, Mr. Chris Gianotti, P.E. inspected the piling. The inspection was primarily a visual inspection as deterioration at the piles and concrete collars was so significant no further probing or sounding was required. Observations were conducted at low tide so the entire pile above mud line could be inspected.

Observations included:

- 1) There are approximately 106 un-treated timber piles that require replacement. These piles are rotten and deteriorated to the extent that they cannot be relied upon to bear load. Many have a reduced cross-sectional area and the condition of the remaining timber at that reduced section is very poor. Two piles are completely missing and have had a column placed adjacent to the

missing location. It appears the replacement columns are set in place and not driven and their load capacity cannot be relied upon.

- 2) There are 212 piles that have deteriorating concrete splice collars, are missing splice collars or will require a splice collar when the deteriorated piles are replaced. Deterioration is in the form of excessive cracking and erosion and spalling of the concrete.
- 3) The concrete in the fairly recently constructed splice collars is of poor quality. The repair detail indicates a minimum strength of 2,500 psi. There are numerous abrasions and cracks in this concrete.

Assessment and Recommendations

Based on the age of the facility and the observations the following assessments and recommendations can be made:

- 1) Untreated piling that are deteriorated no longer can be counted on to support the dead and live loads anticipated in the building. These piles should be replaced within the next year.
- 2) Original piling are likely in fair to good condition several feet below the mudline as there is inadequate oxygen to support rot mechanisms. A repair and replacement technique that includes cutting deteriorated piling off at a point where the cross-section is full and constant and the timber is of sound condition is a reasonable and cost-effective method. Piles cannot be re-driven at this time and replacing their bearing value with footings would require significant excavation and concrete.
- 3) The repair details in the Stragier Engineering 1991 report should be followed with slight modifications: any concrete reinforcing should be galvanized and the concrete should be a high performance concrete with a minimum concrete strength of 4,500 psi. Galvanized reinforcing will have significantly higher resistance to salt water corrosion. Concrete with lesser strengths have been found to be more permeable and more susceptible to salt water penetration. The salt water will corrode the steel reinforcing and expand causing cracking. Cracking will allow water to intrude that when frozen will expand and cause additional deterioration. The intruding saltwater will also start to destroy the chemical bonds of the concrete and result in spalling and flaking.
- 4) The pile splices without concrete collars should have collars added within 2 years. Splices with deteriorating concrete collars should have the collars replaced within 5 years. If collar repair is not accomplished in these time frames the life of piles will be reduced.
- 4) Replacement timbers should be pressure preservative treated. Oil borne preservative treatments will provide longer protection than water borne treatments. Water borne treatment salts will be leached out over time when submerged by tidal waters. The treatment should be creosote and of at least 12 pound per cubic foot of retention.

- 5) All cut ends and drill holes in preservative treated timber that are made after treatment should be field treated. For cut ends a copper naphthenate solution is applied in several coats. For drilled holes the holes should be swabbed with copper naphthenate and then be injected with coal tar prior to installing the bolts or pins. Field treatment should follow American Wood Preservers Association (AWPA) standard M4 which includes best management practices to avoid and minimize impacts to the environment.

Hopefully, this report meets your needs. If you have questions or need additional information, please feel free to call me.

Sincerely,

PND Engineers, Incorporated | Juneau Office



Chris Gianotti, P.E.
Senior Engineer /Vice President



305 E Summa Street
Centralia, WA 98531

CALPORTLAND

BUILDING MATERIALS QUOTE:

TO: **Jim - Yakutat Seafoods**

JOB:

LOCATION: Seattle docks
Alaska bound

ATTN:
PHONE: 907.784.3392

DATE: 12.17.12

EMAIL: jimc@yakutatseafoods.com

SALESMAN: D. Twining/R. Drumheller
PHONE: (360) 736-1131

ITEM #	DESCRIPTION	UNIT	To Docks Seattle
2236	94# Portland Cement Type I-II 35 bags/pallet *Pallets will be bagged and wrapped (28 pallets = 980 bags) *Delivery via our truck to Seattle dock of your choice (ie: Northland Services).	pallet	\$385 x 28 pallets \$600.00 \$11,380.00
	Daravair	3.5 gallons	\$57.20 x 3
	WRDA 64	3.5 gallons	\$56.50 x 10
	ADVA 195	3.5 gallons	\$134.75 x 10
	Daraset 400	55 gallons	\$937.20 x 2
	Daraset 400	3.5 gallons	\$73.64 x 9
			\$4,621.26
		Total	\$16,001.26
	*Shipping from Seattle dock to final Alaska destination will be customer responsibility. *Please allow 7 days notice prior to delivery to the docks so we may plan our delivery schedule accordingly.		

This offer shall remain in effect for 30 days from quote date and may be accepted by endorsement hereon. Quote does not include tax.

Accepted: **Yakutat Seafoods**

CalPortland

By: _____

By: _____

Date: _____

Date: _____