

Haines Borough Lutak Dock Design and Development Concepts December 15 and 16



Brad Ryan – Director of Public Facilities
Shawn Bell– Harbormaster
Van Le, AICP – R&M Planning Lead
John Daley, P.E. – R&M Project Manager
www.LutakDock.com



Schedule



- First Public Meeting to inform & to solicit input of alternatives
 - November 1, 2016 (Complete)
- Alternatives and Infrastructure Concepts
 - November 1 through December 8, 2016 (Complete)
- Second Public Meeting to Present Draft Concepts
 - December 15, 2016
- Chamber of Commerce Luncheon
 - December 16, 2016
- Haines Borough evaluates alternatives (costs, funding, public input, Planning Commission)
 - December 15 through January 12
- Third Public Meeting to Present Final Preferred Concept
 - January 12, 2017
- Final Report
 - January 25, 2017



Project Purpose and Need



- All freight and fuel for Haines comes over Lutak Dock.



Project Purpose and Need



- Long series of local failures and reports documenting the condition of the dock.
- 2014 report by PND Engineers, Inc. "the structure has reached the end of credible 60-year service life. Further utilization is effectively on borrowed time."
- 2014 Echelon Engineering reported an average section loss of 37% on the main cells with a maximum section loss of 65%.
- According to the ASCE Manual of Practice 130 "*Waterfront Facilities Inspection and Assessment*" this type of section loss can be considered to represent "major" and "severe" damage.



Project Purpose and Need



Sink holes and loss of fill



Corrosion failure closure arc (PND Engineers)



Project Purpose and Need



- If (when?) the dock fails the fuel and cargo for Haines will be forced to come over the Highway.
- 2016 Northern Economics reports: "The increase in transportation costs is expected to impact the cost of goods and services in Haines for both consumer and industrial end users."
- 2016 Northern Economics reports: "Based on national transportation statistics, the average freight revenue per ton-mile for freight moved by truck is over seven times as much as the average freight revenue per ton-mile for freight moved by barge."



Project Purpose and Need



Project Progress



- Preliminary engineering and evaluation complete.
- Preliminary cost estimates complete.
- Original direction / ideas included three alternatives:
 1. Encapsulation; New sheet pile wall outside of the existing cells
 2. Replace in kind with earth filled bulkhead
 3. Pile supported dock with sheet pile abutment



Project Progress



- Combi-wall encapsulation not economically feasible. Height requires multiple levels of tie backs.
- Modified diaphragm encapsulation feasible and economic.
- Berthing dolphins economic and feasible
- New three alternatives:
 1. Encapsulation of the existing cells with modified diaphragm
 2. Pile supported dock with sheet pile abutment
 3. Berthing dolphins



Project Progress



- Mining operation support considered
- FASTLANE grant application support provided



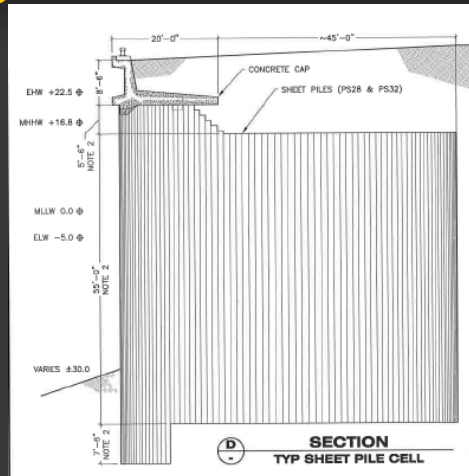
Existing Site



Existing Site



Existing Site



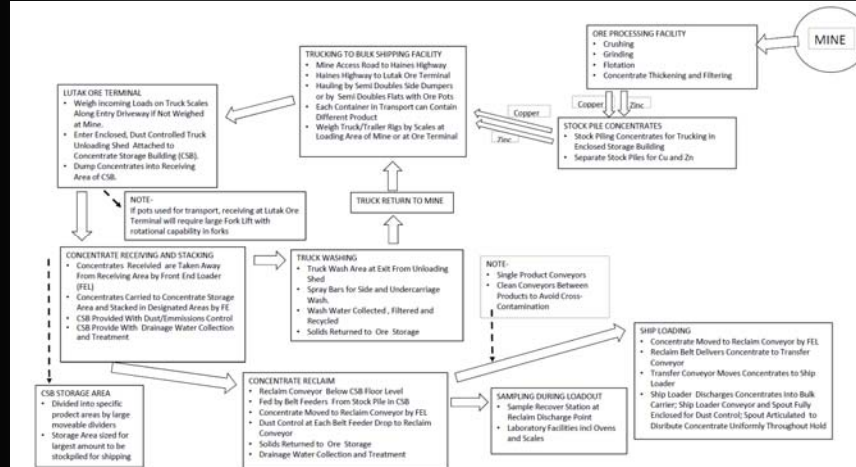
Mine Support



- Hypothetical development of the Palmer Mine.
- The export site requires a concentrate storage building and related facilities. This could take up 7-10 acres.
- Existing dock is about 4 acres.
- Ship loader and berth need for Handimax size vessel



Mine Support



Mine Support



Mine Support



Table 1 Key Dimensions of Design Ships

| Dimensions | Ship Size (dwt) | | |
|----------------------------|-----------------|--------|--------|
| | 12,000 | 35,000 | 45,000 |
| Length Overall (ft) | 426 | 625 | 722 |
| Beam (ft) | 66 | 88 | 100 |
| Moulded Depth (ft) | 37 | 50 | 58 |
| Loaded Draft (ft) | 27 | 34 | 42 |
| Number of Hatches | 4 | 6 | 6 |
| Hatch coverage length (ft) | 308 | 446 | 518 |



Mine Support



Mine Support Summary



- Concentrate Storage Building requires 7 to 10 acres and may be better suited at old US Army POL site.
- Handimax vessels could be berthed at Lutak Dock. Ship loader and dolphins would be required.
- Lutak Dock could support general cargo for a mining operation.



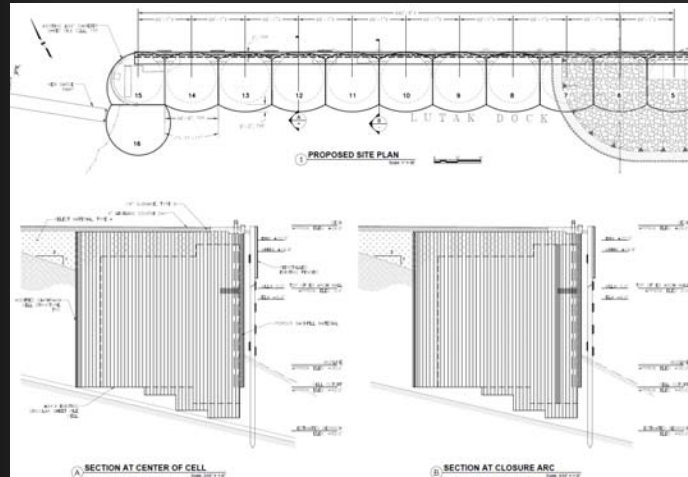
Alternatives



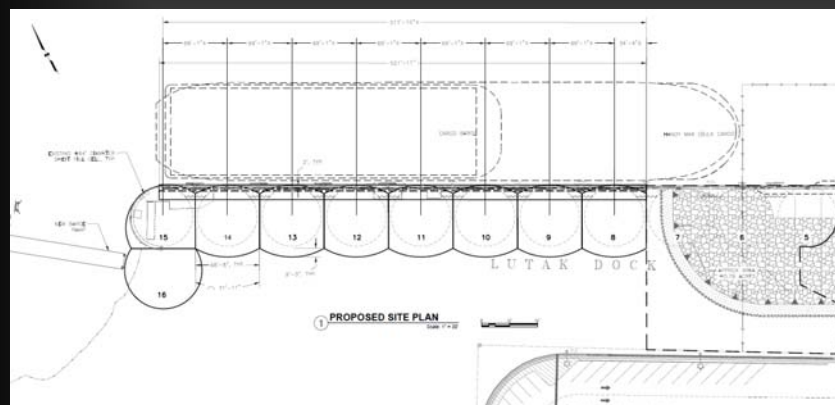
- 1A and 1B Encapsulate with Modified Diaphragm.
- 2 Pile Supported Platform Dock
- 3 Berthing Dolphins



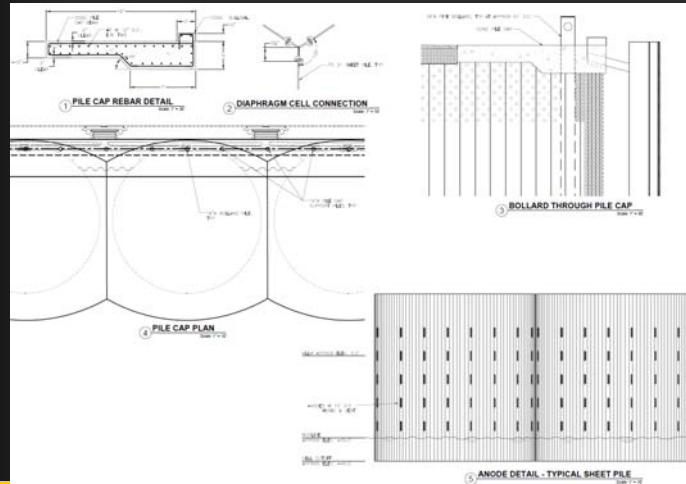
Design Option 1A Encapsulation



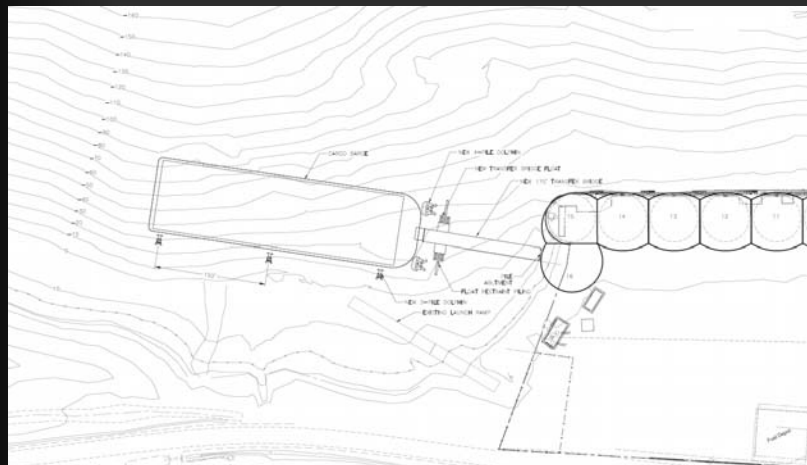
Design Option 1B Encapsulation



Design Option 1 Encapsulation



Design Option 1 Encapsulation



Design Option 1 Encapsulation



- Pros:
 - Efficient and cost effective.
 - Maintains existing footprint.
 - Accommodates existing and multipurpose users.
 - 1A reclaims about ½ acre.
- Cons:
 - Pile driving risk during construction.
 - Existing cell and poor quality fill remain.



Design Option 1 Encapsulation



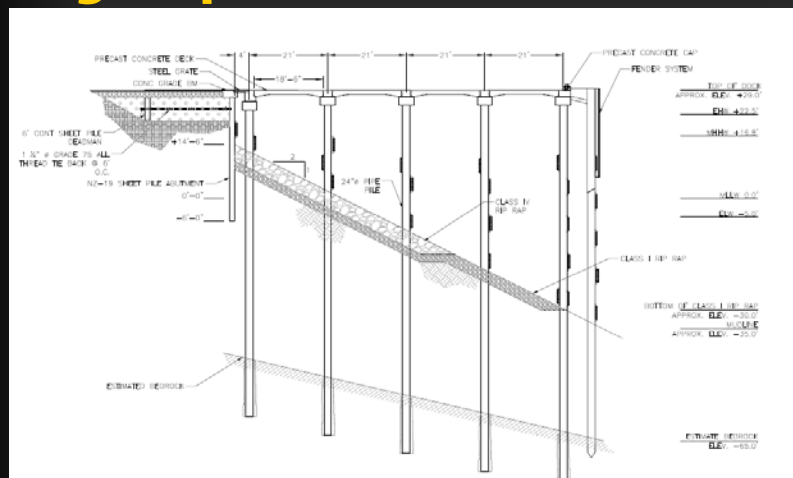
- 1A \$37,300,000
- 1B \$31,900,000



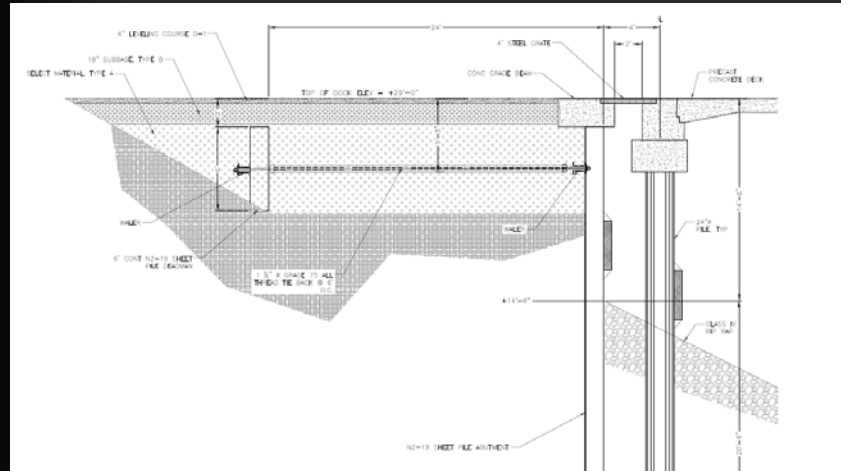
Design Option 2 Platform Dock



Design Option 2 Platform Dock



Design Option 2 Platform Dock



Design Option 2 Platform Dock



- Pros:
 - All new facilities.
 - Higher level of seismic performance.
 - Accommodates existing and multipurpose users.
 - Reclaims about ½ acre.
- Cons:
 - Highest cost.



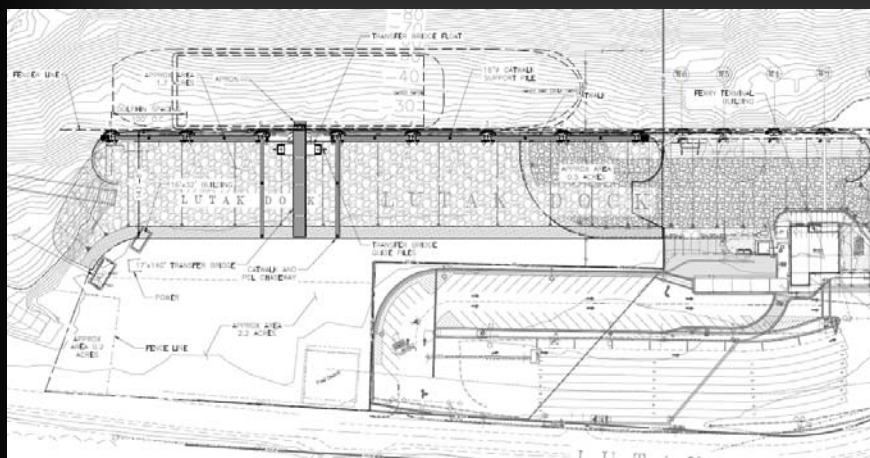
Design Option 2 Platform Dock



- \$61,000,000



Design Option 3 Berthing Dolphins



Design Option 3 Berthing Dolphins



- Pros:
 - Least cost
 - All new facilities
- Cons:
 - Lose about 1.7 acres
 - Lose pass pass and side load ability
 - Lose multi purpose dock



Design Option 3 Berthing Dolphins



- \$24,100,000



Alternatives Analysis Summary



Table 1: Lutak Dock Replacement, Alternatives Analysis Summary

| Alt. No. | Description | Pros | Cons | Level of Service | Capital Cost |
|----------|--|---|--|------------------|--------------|
| 1A | Encapsulate using Modified Diaphragm | <ul style="list-style-type: none"> Efficient and cost effective Maintains existing footprint Accommodates current users including pass pass cargo operations Reclaim about 1/2 acre uplands at cells 5, 6, and 7 | <ul style="list-style-type: none"> Pile driving risk during construction Encapsulates existing sheets and poor quality fill | High | \$37,300,000 |
| 1B | Encapsulate using Modified Diaphragm | <ul style="list-style-type: none"> Efficient and cost effective Maintains existing footprint Accommodates current users including pass pass cargo operations | <ul style="list-style-type: none"> Pile driving risk during construction Encapsulates existing sheets and poor quality fill Does not reclaim uplands at cells 5, 6, and 7 | High | \$31,900,000 |
| 2 | Platform Dock (Steel Pile-Supported Concrete Deck) | <ul style="list-style-type: none"> All new facilities Higher level of seismic performance Maintains existing footprint and reclaims 1/2 acre uplands at cells 5, 6, and 7 Accommodates current users including pass pass cargo operations | <ul style="list-style-type: none"> Highest cost | High | \$61,000,000 |
| 3 | Dolphins and Transfer Bridge | <ul style="list-style-type: none"> Least cost All new facilities | <ul style="list-style-type: none"> Lose approximately 1.7 acres of uplands Lose ability to use pass pass for cargo operations Lose ability to side load over dock face | Medium | \$24,100,000 |



Alternatives Analysis Summary



- Alternative 2 cost too high!
- Practical choice between alternative 1 and 3.
- How important are the uplands and multipurpose use?
- How much funding can you get and from where?



Next Steps



- Visit the project website - www.LutakDock.com
- Public comment on Alternatives
- Selection of Preferred Alternative by January 2017
 - Community Meeting #3
- Ports & Harbors Advisory Committee will make recommendation
- Preferred Alternative will go to Planning Commission for hearing
- Planning Commission will make recommendation to Assembly



Questions?



- Visit the project website
www.LutakDock.com
- The study team is available for follow on meeting(s) if required.



Questions?

