
APPENDIX B

ALTERNATIVES DROPPED FROM FURTHER CONSIDERATION

APPENDIX B Alternatives Dropped from Further Consideration

Per Order 5050.4B 706 (d)(7), an explanation and discussion is needed to explain why the sponsor or FAA eliminated an alternative from further consideration. Since the mid-1990s, the Alaska Department of Transportation and Public Facilities (DOT&PF) has examined numerous alternatives to address existing deficiencies and future needs at the Kwigillingok Airport. The physical environment at Kwigillingok presents great challenges for constructing and maintaining a community-class airport. Challenges taken into consideration included:

- Minimizing the amount of fill to be placed in wetlands, lakes, and other waterbodies
- Minimizing the amount of material to be hauled in
- Siting the airport to allow for a crosswind runway, minimizing economic and environmental impact
- Considering the amount and ownership of property to be acquired

Some of the alternatives considered to address these challenges had drawbacks that led to their elimination from further consideration before extensive analysis of their probable environmental impacts was required.

1 ALTERNATIVES ELIMINATED IN 1996

In 1996, an Environmental Assessment (EA) evaluated several alternatives and developed two (shown on Figures B-1 and B-2): *Alternative A: Proposed Action* (extend and widen the existing runway) and *Alternative B: Lengthen Existing Runway and Add New Crosswind Runway*. Alternative A was selected as the Preferred Alternative.

As described below, several other alternatives were considered during preparation of the 1996 EA but dismissed as unviable prior to submission of the EA to FAA for approval.

1.1 Closure of Kwigillingok Airport and Road Access to Kongiganak Airport

An alternative to connect Kwigillingok and Kongiganak (approximately nine air miles away) with a road was considered. Road construction of that magnitude is outside the jurisdiction of FAA, and obtaining FHWA funding for the new road did not seem feasible. Also, costs and impacts were thought to be greater than those for airport improvements. Therefore, this concept was dismissed from consideration.

1.2 Relocation

Relocating the airport to another site near Kwigillingok was also considered and rejected. Mapping efforts within the vicinity of Kwigillingok did not reveal uplands with an orientation to match prevailing winds.

1.3 Northward Extension of Existing Runway

Another alternative considered and rejected was to extend the runway to the north. This would have required blocking the eroding tidal channel north of the airstrip and allowing the drained lake to the west to refill. The unknown consequences of refilling the dry lake caused this alternative to be considered unfeasible. The community also indicated that while temporary filling of the lake might be acceptable, permanently refilling it was not.

2 ALTERNATIVE DEVELOPED IN 2004

Following the 1996 EA Finding of No Significant Impact (FONSI), the airport project was delayed due to difficulty in acquiring the land needed. In 2000, the Native Village of Kwigillingok pursued becoming the airport sponsor. Airport planning and design efforts were re-initiated and a Supplemental EA was prepared for which a FONSI was signed by the FAA on May 11, 2004.

The 2004 Supplemental EA carried forward the preferred alternative (Alternative A) from the 1996 EA with minor changes, such as increasing the runway requirements from Design Group I to Group II standards and reducing the length of the channel realignment. See Figure B-3 for a depiction of this alternative as presented in the 2004 Supplemental EA.

3 ALTERNATIVES ELIMINATED FROM 2010 TO 2014

In 2012, on behalf of DOT&PF, PDC Inc. Engineers (PDC) reviewed the alternatives evaluated in the 1996 EA and the 2004 Supplemental EA, as well as several possibilities considered and dismissed in earlier studies, and prepared the draft engineering scoping report in June 2012. At this time, PDC also developed two new alternatives (Alternatives B-2 and C) to explore ways of reducing or eliminating some of the engineering disadvantages of other alternatives. See Figures 4 through 7 for further detail on the alternatives considered and later eliminated.

In 2012, Alternative B (first presented in the 1996 EA) (Figure 2) was upgraded to Design Group II dimensional standards. The apron and taxiway were relocated to the south to reduce the area of filling into the existing lakes and in order to serve both the existing runway and the future crosswind runway more effectively. The original Alternative B was dropped from further consideration. The new alternative (adapted and modified from Alternative B) was named Alternative B-1 (Figure 5).

Due to funding in the foreseeable future (20 years), it was considered impractical to plan for a Design Group II alternative. Therefore, Alternative B-1 was revised to meet Design Group I standards. This is consistent with the current forecasts for the Alaska Aviation System Plan, which indicates the current and future central aircraft through the year 2030 is the Cessna 206/207 (a Design Group I aircraft). **Alternative B-1 modified to Design Group I dimensions is the alternative carried forward for this Environmental Assessment as the Preferred Alternative.** This modified alternative is presented as the proposed action in the body of this EA.

3.1 Alternative A-1

In 2012, Alternative A, the preferred alternative in previous environmental documents, was reconfigured and renamed A-1. The apron was moved to the south, where the embankment could be placed on existing land instead of filling in lakes. Unlike other alternatives considered, Alternative A-1 had no crosswind runway. FAA guidance calls for a crosswind runway when wind coverage from a single runway is less than 95%. The wind coverage (percent of time the crosswind speed and direction do not exceed the allowable limits for safe aircraft operations) is 75.22%. Even if the single runway were constructed to the standards for larger aircraft (Design Group II) with a greater tolerance for crosswinds, 95% coverage cannot be met. Therefore, Alternative A-1 was eliminated from further consideration.

3.2 Alternative B-2

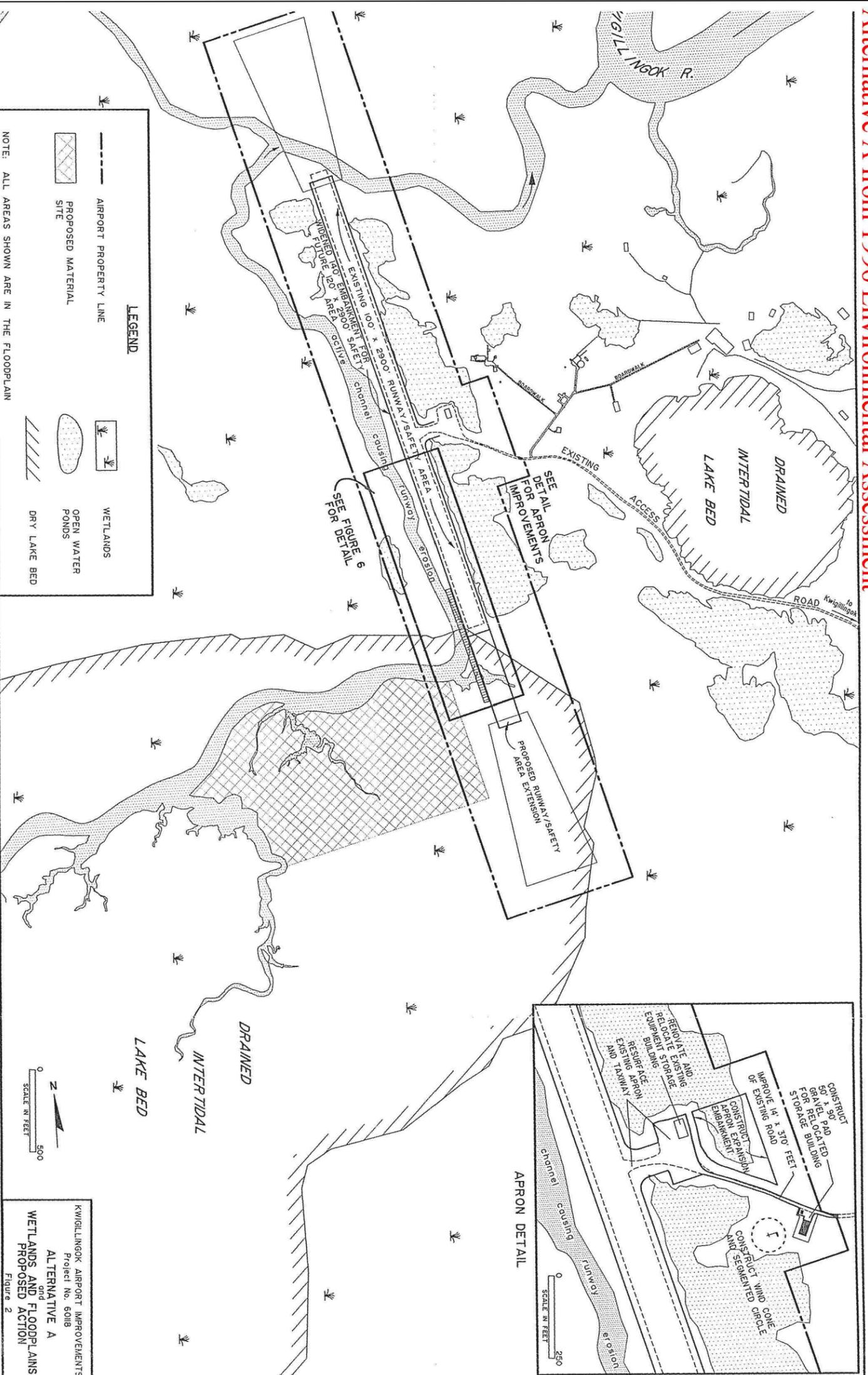
In February 2011, five wind towers were erected in Kwigillingok. The wind towers conflict with Alternative B-1's proposed crosswind runway. Thus, Alternative B-2, which would position the crosswind runway farther north in order to shift the approach away from the wind towers, was proposed. Alternative B-2 requires placement of more borrow material to construct the runway and places the crosswind runway closer to the active tidal channel. The only advantage of Alternative B-2 over B-1 was the avoidance of the wind towers. However, correspondence with the designer of the wind generation system indicated a likelihood that within the next 20 years the towers would be replaced at a different location. Due to the proximity of the tidal channel and the higher volumes of fill required, Alternative B-2 was eliminated from further consideration.

3.3 Alternative C

In an attempt to avoid placing fill into the eroding tidal channel flowing along the west side of the runway, Alternative C was proposed. This alternative rotated the existing runway from 165 degrees to 163 degrees and thereby avoided placing fill in the tidal channel. Instead, more fill would be placed in the adjacent lakes on the east side of the runway. Protection of the runway embankment from the tidal channel erosion would still be needed, as the channel is still actively eroding.

Embankments constructed of local materials in this region of Alaska take years to stabilize. During this period, the rotated runway would likely rest on unstable embankments. Alternative C was dropped from further consideration due to these geotechnical concerns.

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KWIGILLINGOK AIRPORT IMPROVEMENTS
Project No. 6018
ALTERNATIVE A
and
WETLANDS AND FLOODPLAINS
PROPOSED ACTION
Figure 2



STATE OF ALASKA
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CENTRAL REGION
Kwigillingok Airport
Appendix B
Figure 1
Alternative A from 1996
Environmental Assessment

KWIGILLINGOK, ALASKA

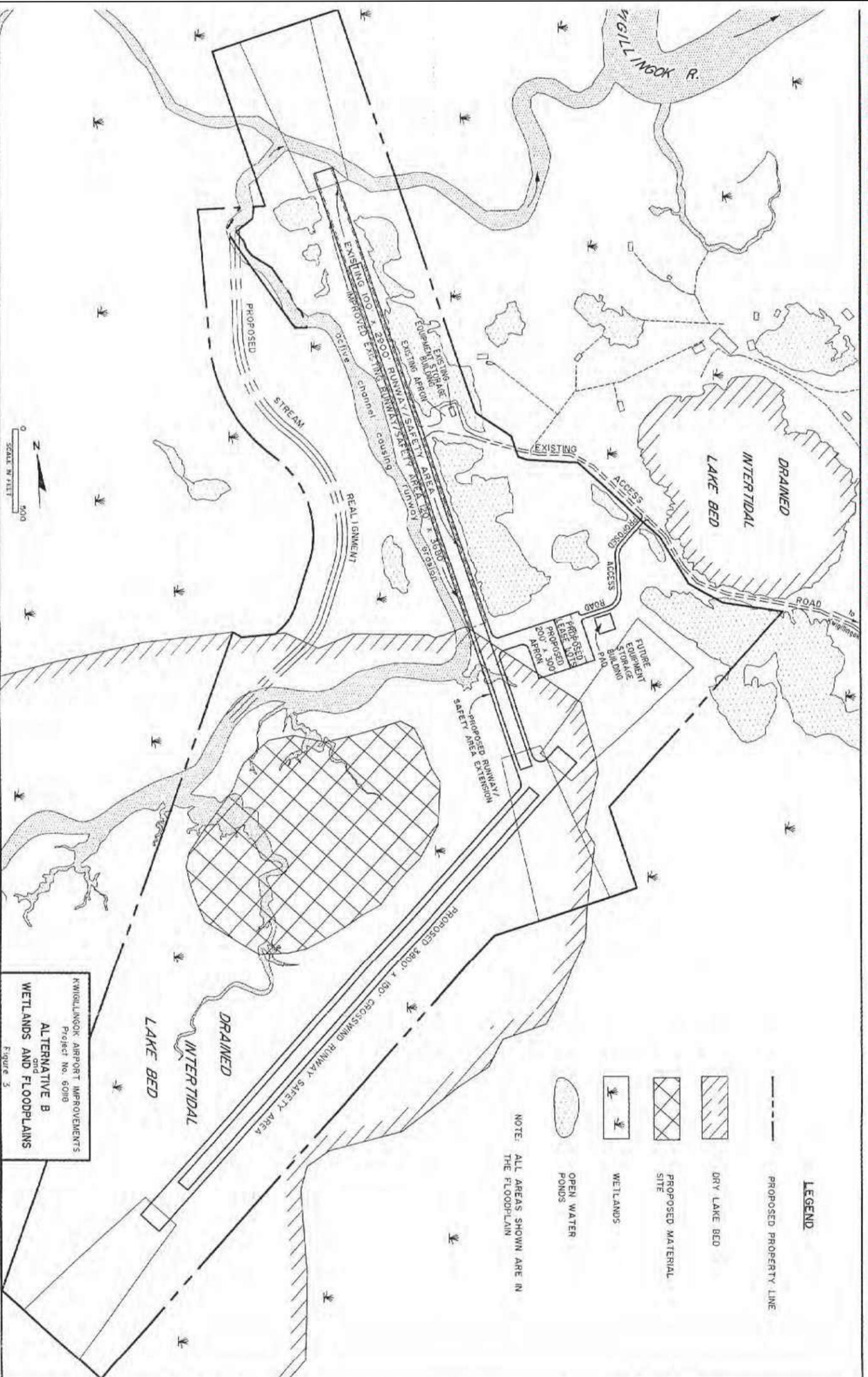


Figure 2
Alternative B from 1996
Environmental Assessment

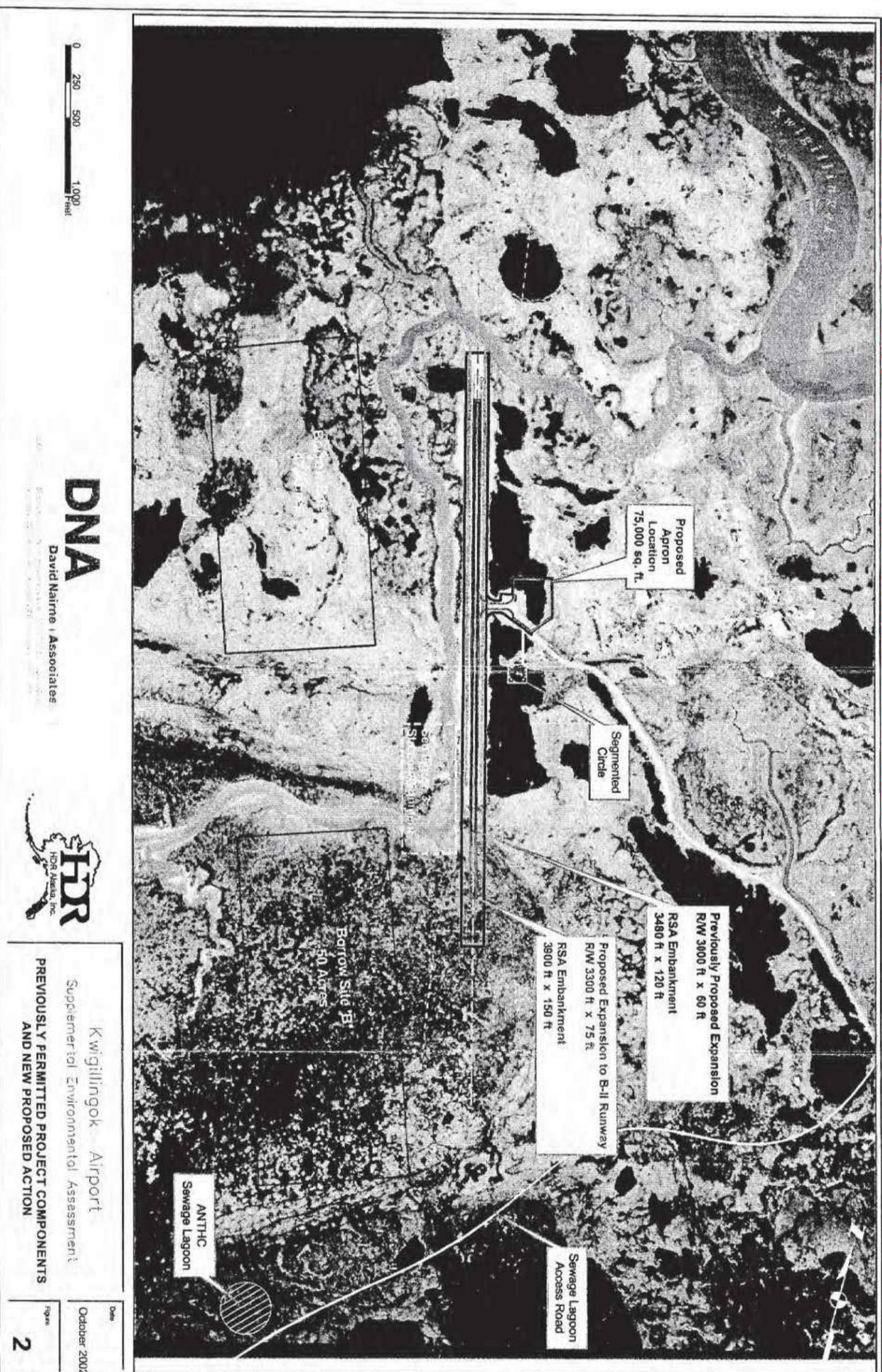
KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 2 of 7

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Kwigillingok Airport
Appendix B

Alternative B from 2004 Supplemental Environmental Assessment



Kwigillingok Airport
 Supplemental Environmental Assessment
 PREVIOUSLY PERMITTED PROJECT COMPONENTS
 AND NEW PROPOSED ACTION

Date: October 2002
 Figure: 2

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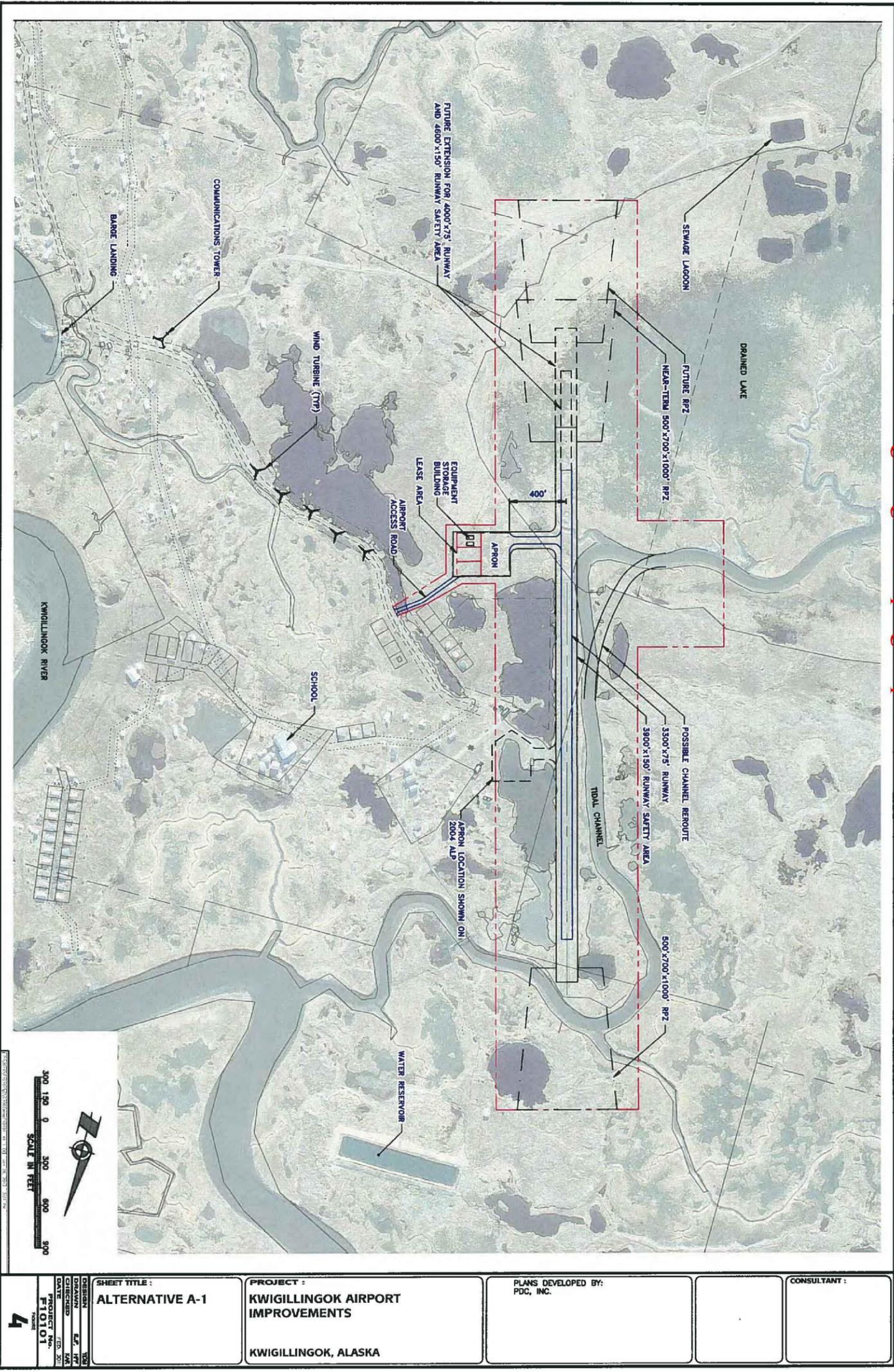
Kwigillingok Airport
 Appendix B

Figure 3
 Alternative B from 2004
 Supplemental Environmental
 Assessment

KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 3 of 7





CONSULTANT :		PLANS DEVELOPED BY: PDC, INC.	PROJECT : KWIGILLINGOK AIRPORT IMPROVEMENTS KWIGILLINGOK, ALASKA	SHEET TITLE : ALTERNATIVE A-1 <table border="1"> <tr> <td>DESIGNED</td> <td>DATE</td> </tr> <tr> <td>DRAWN</td> <td>PROJECT NO.</td> </tr> <tr> <td>CHECKED</td> <td>FIG. NO.</td> </tr> <tr> <td>DATE</td> <td>FIG. NO.</td> </tr> </table>	DESIGNED	DATE	DRAWN	PROJECT NO.	CHECKED	FIG. NO.	DATE	FIG. NO.
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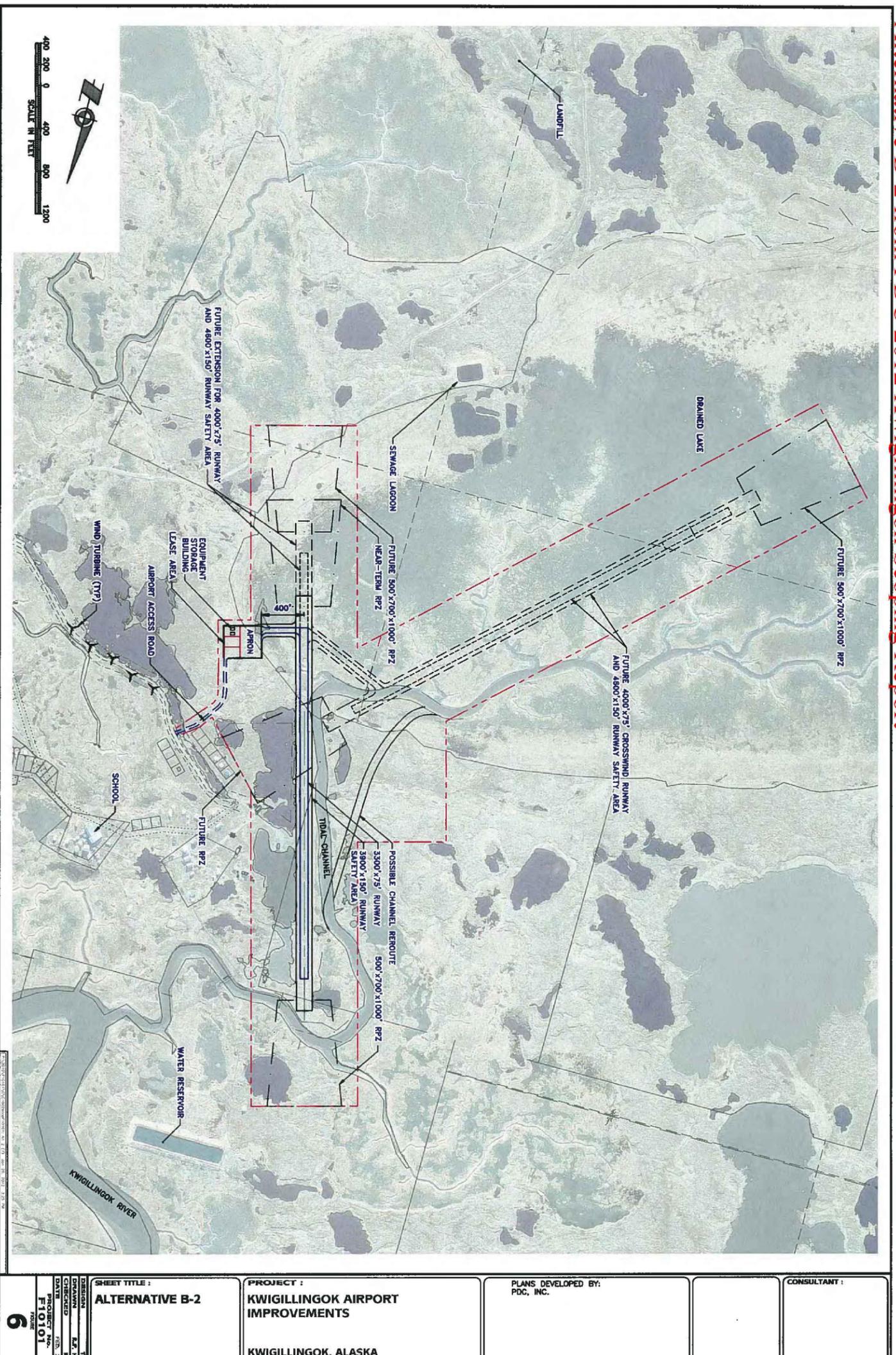
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Appendix B



Figure 4
Alternative A-1 from PDC
2012 Kwigillingok Scoping Report

KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 4 of 7



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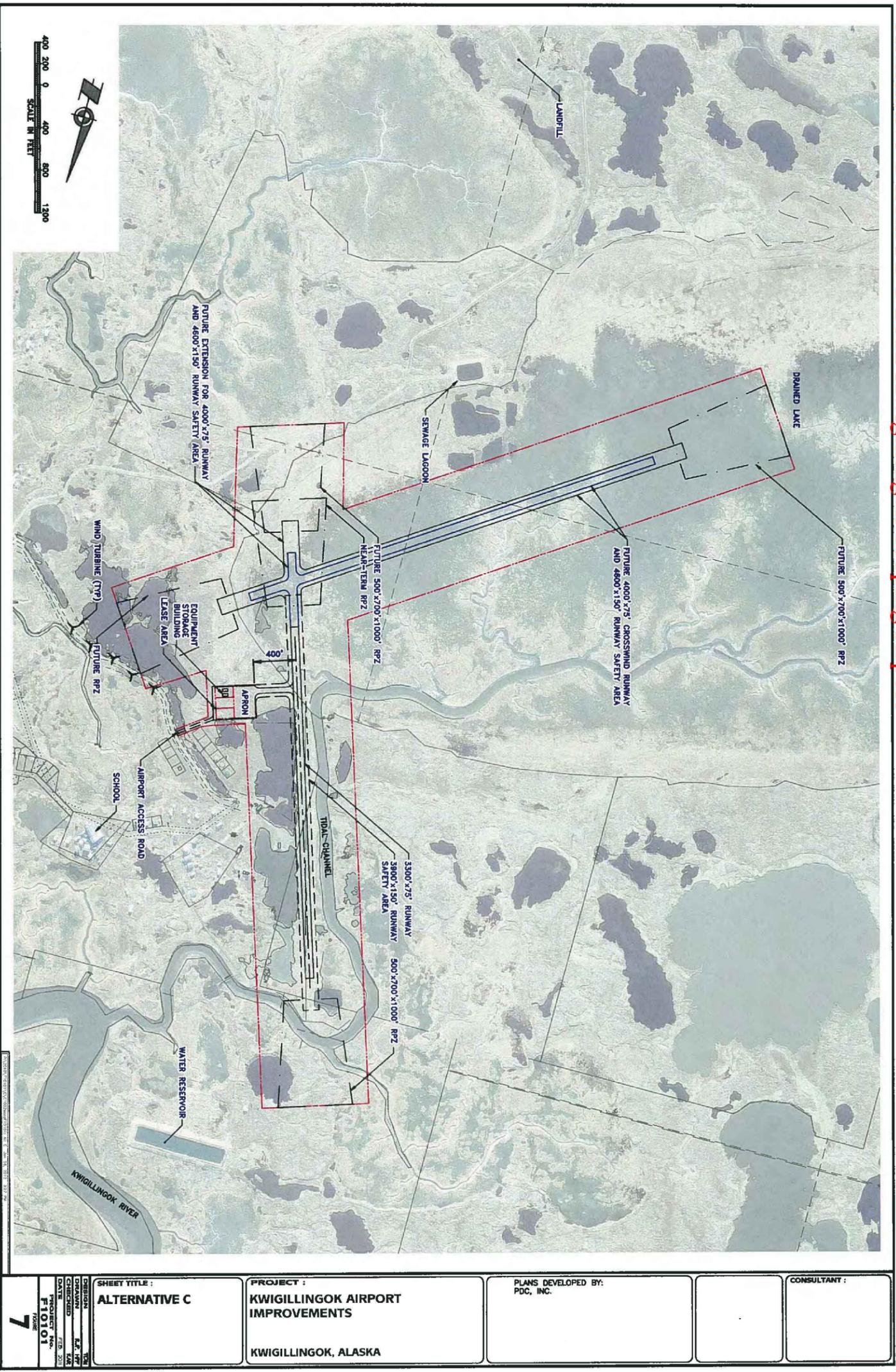
Kwigillingok Airport
Appendix B

Figure 6
Alternative B-2 from PDC
2012 Kwigillingok Scoping Report



KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 6 of 7



CONSULTANT :		PLANS DEVELOPED BY: PDC, INC.	PROJECT : KWIGILLINGOK AIRPORT IMPROVEMENTS KWIGILLINGOK, ALASKA	SHEET TITLE : ALTERNATIVE C	<table border="1"> <tr> <td>DESIGNED</td> <td>DATE</td> </tr> <tr> <td>CHECKED</td> <td>DATE</td> </tr> <tr> <td>PROJECT No.</td> <td>DATE</td> </tr> <tr> <td>F10101</td> <td>7</td> </tr> </table>	DESIGNED	DATE	CHECKED	DATE	PROJECT No.	DATE	F10101	7
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Kwigillingok Airport
Appendix B



Figure 7
Alternative C from PDC
2012 Kwigillingok Scoping Report

KWIGILLINGOK, ALASKA

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