

APPENDIX A

DESCRIPTION OF PROJECT

Alamoosook Dam

The Alamoosook Dam is located at the outlet of Alamoosook Lake in the town of Orland, Maine at the head of the Narramissic River. The structure is primarily used to regulate the level of Alamoosook Lake and withdraw water to pump to Silver Lake, which serves as the water supply reservoir for the town of Bucksport and Champion International. Approximately 250' downstream of the Alamoosook dam is a pump station which pumps flow from Alamoosook Lake overland through a pipeline to Silver Lake in the town of Bucksport. A fish ladder in the dam provides passage for the seasonal migration of alewives.

The dam is a concrete gravity structure with sluice gate, pump intake, spillway, fish ladder and abutment sections. All elevations are approximate USGS datum, as converted from site datum which is an estimated 100 feet higher than USGS datum.

In the center of the structure is a 5.5' wide wooden sluice gate with a sill elevation of 13.5' (USGS), approximately 7.8' below the normal lake elevation of 21.3'. The concrete gate structure is abutted to the north by the concrete intake structure, which has an overtopping elevation of 25.0'. A concrete ogee spillway approximately 70' long abuts the gate structure on its south side and has a permanent crest elevation of 20.0'. Flashboards 1.3' high bring the normal pond elevation to 21.3'. The bottom of the spillway is at elevation 6.5'. The south abutment of the dam is 2' thick and has an elevation of 23.0'. This abutment is approximately 15' long and is tied into bedrock. North of the intake is a fish ladder and concrete abutment. The north abutment, at elevation 26.0', is approximately 30' long with a thickness of 2'.

The Alamoosook Dam impounds approximately 6,973 acre-feet of water at the normal pond elevation of 21.3', with a surface area of 1,180 acres. The drainage area contributing to the site is 94 square miles. When the lake elevation is below elevation 21.3' (20.0' when the flashboards are out), the principal means of passing flow is through the sluice gate. A small amount of flow is contributed by the fish ladder.

Narramissic River

The Narramissic River flows from Alamoosook Lake to the Orland Village Dam, a distance of approximately 2.5 miles. The Orland Village Dam, with a crest elevation of 7.8' (USGS), backwaters the Narramissic River to within several hundred feet of the Alamoosook Dam. The Orland Village Dam separates the Narramissic River from the Orland River, which is estuarine.

Due to the backwater influence of the Orland Village Dam, the Narramissic River is wide and sluggish. A single small tributary, Whites Brook, enters the river about a mile downstream of Alamoosook Lake. A site visit by KA engineers determined that development adjacent to the Narramissic River is limited to a few residences. On the west side of the Narramissic River, approximately 0.5 mile downstream of the Alamoosook Dam and just upstream of the confluence of Whites Brook with the river, a mobile home is situated in a

floodplain area off the Mast Hill Road. Flood Insurance Rate mapping for the town of Bucksport (November 4, 1988) indicates that the structure is within the 100-year floodplain. Further downstream, approximately 1.2 miles downstream of the dam on the east side of the river, is a house located just off the Lower Falls Road. Flood Insurance Rate mapping for the Town of Orland indicates that this structure is also within the 100-year floodplain. Approximately 1.4 miles downstream of the dam, on the west side of the river, is another house within the 100-year floodplain. Closer to the Orland Village Dam, nearly 2.5 miles downstream of the Alamoosook dam, sits one house on the east side of the river (Lower Falls Road) and a house and one business on the west side of the river (Narramissic Road). The town of Orland Flood Insurance Rate mapping indicates that these structures may be within the 100-year floodplain. A mobile home on the Fish Point Road, on the west side of the river, lies within the 100-year floodplain indicated on the Town of Orland Flood Insurance Rate Map.

Bridges spanning the Narramissic River include the Upper Falls Road bridge, which includes four culverts approximately 12.5' in diameter, the Route 1 bridge and the Rt. 175 bridge.

Little information exists about watershed hydrology, lake levels and historic flows at the Alamoosook dam. From lake level records provided by Champion Paper for the period January 1960 through August 1998, a peak lake level of 25.0' (estimated USGS datum) occurred in December 1969. The flow in the Narramissic River was unknown. For the present dam configuration, a lake level of 25.0' would result in a calculated 3,089 cfs of overtopping flow (5.0' over the permanent crest of the spillway and 2.0' over the north abutment) with an unknown amount of gate flow. Assuming a maximum gate opening of 8', the gate could contribute as much as 580 cfs additional flow. Typically, Alamoosook Lake levels are between elevations 20' and 22', with the lowest levels occurring during September and October.

Alamoosook Lake has drainage area of approximately 94 square miles. In watersheds in Maine, average annual flows are approximately 2 cfs/mi² according to records from gaged basins. The average annual flow for the Alamoosook Lake drainage is therefore estimated to be 188 cfs.