

DETAILED AGGREGATE ASSESSMENT PROJECT - INSULAR NEWFOUNDLAND

by

Fred Kirby
Quaternary Geology Section

ABSTRACT

Detailed aggregate resource assessments were begun by the Department of Mines and Energy in 1979 as part of the Inventory of Aggregate Resources Program (Kirby et al., 1983). In 1982 a separate and ongoing program (Kirby, 1983) was started to identify, map and sample specific areas of the province where restrictive land use practices threaten to sterilize valuable nonrenewable aggregate resources.

Most of the work to date has been conducted in municipal planning areas where new plans are being developed or where plans are under review. Mapping has also been conducted in a number of areas where restrictive zoning (e.g. watersheds, forestry, etc.) threatens valuable aggregate deposits.

All information obtained from the survey is made available to the various planning agencies and to the general public upon request.

INTRODUCTION

This report summarizes the results of the detailed aggregate resources sampling program conducted in selected areas of Newfoundland during the 1984 field season.

Including the 1984 field work, a total of 32 planning areas have been completed, along with a number of special projects.

FIELD PROGRAM, 1984

Most of the 1984 work was again concentrated in municipal planning areas (Figure 1). These included Pasadena (12H/4), Cormack (12H/3 & 6), Grand Bank/Fortune (1M/4), and that portion of the Conception Bay North area between Victoria and Holyrood (1N/6, 11 and 14). Some follow-up work was also conducted in the Deer Lake area.

Other projects conducted in 1984 included: (1) backhoe test pitting in the Billy's Pond area, near Port aux Basques, to determine if the establishment of a protected watershed in the area would sterilize any valuable aggregate resources; (2) a reconnaissance level aggregate resources survey, using all-terrain vehicles and helicopters, along proposed road routes to the Cape Ray gold prospect on the south coast of Newfoundland and (3) in conjunction with the Mineral Deposits Section, five backhoe test pits in the Wild Cove clay deposit near Corner Brook. Five bulk clay samples were collected and sent to Ottawa for further analyses to determine their suitability for brick manufacture.

A total of 406 aggregate and rock samples were collected during the 1984 field season.

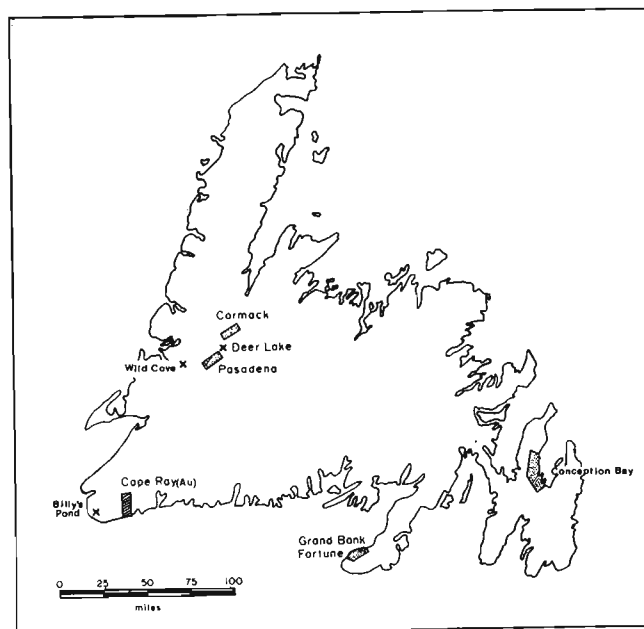


Figure 1: Detailed Aggregate Resource Assessments.

All samples collected containing +8 mm material were field sieved and a split of the -8 mm material was retained and sent to the laboratory for further sieve analysis (Kirby et al., 1983). A split of the +16 mm pebble fraction was retained for field petrographic analysis.

MUNICIPAL PLANNING AREAS

PASADENA - The study verified that the community has been constructed on a portion of a large glaciofluvial terrace deposit. The terrace is composed of stratified sand

and gravel that is greater than 8 m in depth. Private land ownership has virtually sterilized the remainder of the deposit. In addition, numerous cabin developments along the shore of Deer Lake has virtually sterilized all remaining potential aggregate sites in the study area.

Generally, the petrographic characteristics of the samples indicate that the gravels are not suitable for most high grade aggregate uses (e.g. asphalt or concrete). The glacial tills in the area are also generally very silty and of poor quality. A number of clay exposures were noted and sampled throughout the area. Visual inspection of these clay exposures revealed a high mica content, which would limit their use as a source of clay for ceramics or brick manufacture.

CORMACK - The area is covered by a thin veneer of local stony till over fractured siltstone and mudstone. These tills are very silty and are of poor quality for aggregate use.

A number of eskers composed mainly of sand with lesser amounts of stratified gravel occur in the area. These deposits are an excellent source of blending sand. The petrographic characteristics of the coarser gravels may limit their use as a source of high quality aggregate.

Bedrock exposures in the western portion of the area are mainly highly fractured Cambro-Ordovician marbles. Siltstone, sandstone and mudstone are common throughout the remainder of the area. One small siltstone quarry was noted in the area, but marble has been quarried extensively and is still the main source of coarse aggregates in the area. Approximately 70% of the land area is privately owned.

DEER LAKE - Mapping and sampling were conducted in this area in 1982. The 1984 work involved sampling and mapping within the boundaries of Deer Lake airport. Large deposits of sand with lesser amounts of gravel exist within the airport property, but they display the same poor petrographic characteristics as deposits outside the boundaries.

A potentially high-grade clay deposit was located and sampled at Nicholsville on the shore of Deer Lake. More detailed sampling will have to be completed to more accurately determine the extent and quality of this deposit and to evaluate its potential for brick or ceramic uses.

GRAND BANK/FORTUNE - High quality sand and gravel resources in the area are confined to a large glaciofluvial terrace deposit, a number of esker ridges at Fortune, and an esker ridge and small

marine terrace at Grand Bank. Housing developments and private land ownership have sterilized or barred access to much of these resources.

Glacial tills in the area are composed of thin silty veneers over bedrock. Although petrographically sound, the high silt content restricts the use of till as a source of aggregate without substantial washing and screening.

Bedrock exposures are generally of volcanic origin, but there are exposures of shale at Fortune. Quarry potential in the volcanic rocks ranges from good to moderate. Presently, shale is being used as a source of fill materials in the Fortune area.

CONCEPTION BAY NORTH - High quality sand and gravel deposits are confined to the river valleys at Shearstown, North River, Springfield and Marysvale. Most of the deposits in these areas are under private land ownership. Virtually all of the deposit at North River is unrecoverable due to extensive housing development, and much of the land in the other areas is under agricultural development. A large quarry at Springfield supplies over 90% of the high quality aggregate used in the area. This area is privately owned and sections are leased out to various contractors. Petrographic analyses of samples show they are of excellent quality for most high-grade aggregate uses.

Glacial till deposits in the area are mostly thin, discontinuous, and poor quality due to a high silt content. However, some better quality tills that generally have good petrographic characteristics were mapped within the area.

Bedrock in the area is mainly siltstone and sandstone, although volcanic rocks predominate in the southern part of the study area. Most of these rock types are suitable as aggregate sources.

FALL/WINTER PROGRAM, 1984/85

Preliminary maps showing the areas with the greatest aggregate potential, as identified from field investigations, are being forwarded to the Department of Municipal Affairs on a regular basis for inclusion into draft municipal plans.

During the late fall and winter of 1984-85, maps and sample analyses with accompanying reports will be compiled for open file release.

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83-2 and Open File Maps, Nfld. 1287 and Labrador 602.

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