

C & T.S. file # 2085-2

AIRPHOTO INTERPRETATION OF  
GRANULAR MATERIAL SOURCES FROM  
MP 1150 to 1220 (KP 1850 to 1963 approx)  
ALASKA HIGHWAY  
FEBRUARY 16, 1988

GR-01-030

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16 February 1988

YUKON  
Community and Transportation Services  
Highway Engineering Branch  
Box 2703  
Whitehorse, Yukon Y1A 2C6

Attention: E. Gibson, P. Eng.

Re: Airphoto Interpretation of Granular Material Sources  
MP 1150 - 1220 (KP 1850 - 1963 approx.)  
Alaska Highway

In response to your request of 15 February 1988 I have reviewed the airphotos for the seven sites you have identified as possible granular material sources. I have also checked the Foothills geotechnical atlas and existing Public Works Canada file information where they are pertinent to your sites.

I have not checked the Land Use status of any of the seven sites.

A description of each site is attached. With respect to the mileposts and kilometre posts shown, I have picked the locations to the nearest mile from existing 1:50,000 topographic maps. The kilometerage shown is converted from the mileposts, and are approximate only.

There are existing field and laboratory data in some cases; however in general the proposed borrow sites will require field investigation and laboratory testing to confirm the suitability of the materials for various aggregate types needed for highway construction and maintenance.



Glynnis M. Horel, P. Eng.



Enclosures

**SITE DESCRIPTIONS**

SITE NO. 1

Location: MP 1175 (KP 1890 approx)

Terrain Unit: glaciofluvial plain segment

Physical Description:

- flat to very gently sloping plain, pitted surface; steep frontal scarp descending to stream and small lakes
- covered with grass, sedge and stunted trees

Borrow Materials:

- stratified, silty to well graded gravel and sand
- mostly frozen, occasional unfrozen zones
- ice contents typically 5 to 10%
- overburden depth 0.5 to 2 m of organic topsoil and clay
- deposit depth greater than 10 m

Development:

- material haul across flat grades to highway
- pit(s) could be concealed with tree screen by providing generous setbacks from highway
- clearing and stripping required
- quarry would be developed as a pit
- consider advance stripping of borrow area to allow material to thaw

Comments:

- this is a proposed compressor station site (CS - 11A) for Foothills Pipelines (south Yukon) Ltd. and may have an existing reserve on it
- potentially very good borrow site with large quantities of granular material available
- some existing drill hole data from Foothills is available.



SCALE: 1:24,000  
Photo: NW67778 - 041  
Date: 31-07-78

SITE NO. 1  
MP. 1175  
(KP 1890, approx.)

SITE NO. 2

Location: MP 1220 (KP 1963 approx.)

Terrain Unit: thin blanket of rubbly colluvium over bedrock

Physical Description:

- moderate to steep southwest-facing slope above highway
- covered with brush and small trees
- well drained

Borrow Materials:

- decomposed shale, overlain by sandy clay to silty gravel surface layer
- this shale has been crushed and used for surfacing by PWC , in other pits nearby
- PWC records for pit in same terrain unit at MO 1215.5:
  - 0 - 3.5 m sand and silt, over shale
  - 20 - 25% fines in pit-run
  - average liquid limit (LL) = 29 %
  - average plasticity index (PI) = 5 %
- thin deposit, expect shallow bedrock

Development:

- adjacent to highway; easy access
- pit clearing is completely visible from highway; pit expansion would make even larger clearing visible from highway
- clearing, some stripping probably required
- face-type quarry working upslope and across slope
- consider ripping weathered rock to increase available quantities

Comments:

- poor to fair quality borrow site
- test pits and laboratory tests are recommended if borrow area is to be expanded

SCALE: 1:24,000  
PHOTO: NW67778-113  
DATE: 31-07-78

SITE NO. 2  
MP 1220  
(KP 1963 approx.)



NW67778-113 31-07-78 1:24000

SITE NO. 3

Location: MP 1191 (KP 1916 approx.), by Snag Lake

Terrain Unit: hummocky moraine

Physical Description:

- hummocky, irregular topography
- tops of knolls are moderately well drained, depressions are poorly drained
- covered with shrubs, stunted trees

Borrow Materials:

- sandy clay to clayey gravel and silty gravel (gravelly till)
- HIGHLY VARIABLE
- frozen; some areas of high ice content
- overburden depth typically 1 - 2 m (from Foothills logs in same terrain unit nearby)
- PWC pit at M. 1191:
  - gravel with 2 - 15 % fines in pit-run
  - rock fragments: 80 % shale, 15 % granitic

Development:

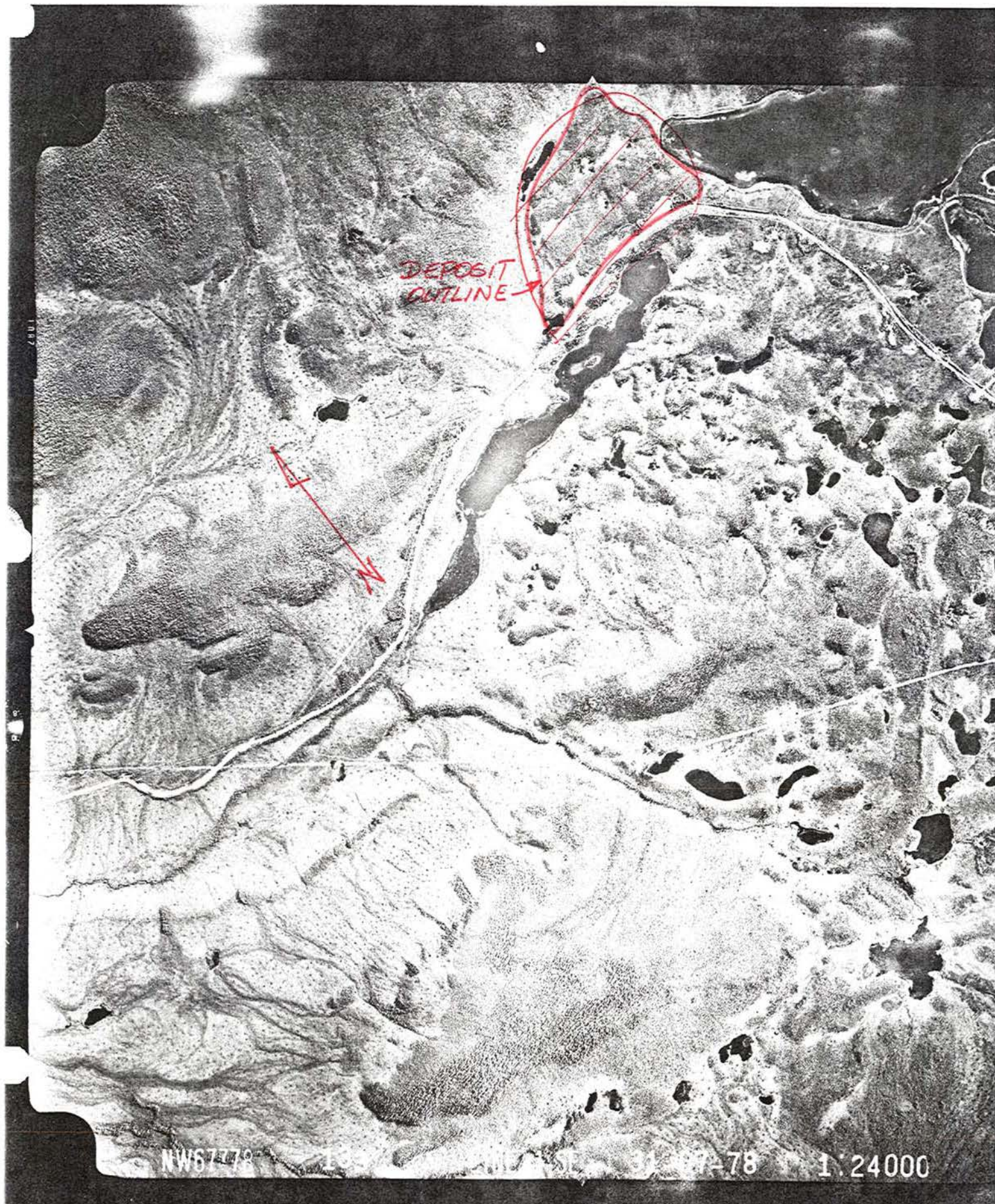
- relatively good grades for access to highway
- clearing and stripping for expansion of existing pit or development of new pit
- may need advance stripping and predrainage to allow materials to thaw and drain
- depressions and low areas will be wet; pit layout should include drainage considerations

Comments:

- deposit is highly variable; detailed test pit/drilling program needed to delineate most suitable quarry area
- Foothills has also identified this as a possible borrow source
- check for existing reserves
- check for possible encroachment on YTG campground at Snag Lake

SCALE: 1:24,000  
PHOTO: NW 67778-133  
DATE: 31-07-78

SITE NO. 3  
MP 1191  
(KP 1916 approx.)



SITE NO. 4

Location: MP 1210 approx. (KP 1947 approx.)

Terrain Unit: thin blanket of drift over bedrock

Physical Description:

- moderate to steep south-facing slope above highway
- well drained
- covered with trees and brush

Borrow Materials:

- decomposed shale
- thin surface layer of silty sand or silty gravel
- shallow bedrock

Development:

- adjacent to highway, easy access, highly visible
- expansion of pit would require larger clearing adjacent to highway
- face-type quarry development, working upslope or across slope
- consider ripping weathered rock to increase quantities

Comments:

- poor to fair quality borrow material
- test pits and laboratory tests needed if pit area is to be expanded

SCALE: 1:24,000

PHOTO: NW67778-119

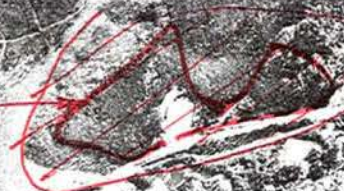
DATE: 31-07-78

SITE NO. 4

MP 1210 approx.

(KP 1947 approx.)

DEPOSIT  
OUTLINE



NW67778

31-07-78

1:24000

24000

## SITES 5, 6 and 6a

Location: vicinity of MP 1155 (KP 1858 approx.) near Pickhandle Lake

Terrain Units: 5 and 6: thin veneer of till over bedrock  
6a: alluvial deposits

### Physical Description:

- sites 5 and 6 are on moderate, south-facing, well-drained slopes just above the highway.
- site 5 is in a narrow band between the Haines-Fairbanks pipeline and the Alaska Highway
- site 6a is a relatively flat, poorly drained area in the vicinity of an old camp site

### Borrow Materials:

- sites 5 and 6: gravelly silt till to bouldery gravel over shallow bedrock (at 2 - 3 m depth according to Foothills data)
- PWC data for site 6 (MP 1155) shows:
  - silty sand and gravelly till over bedrock frozen at 0.5 m depth
  - rock particles: 60% quartzite, 10% granitic, 15% schist, 15% other
  - 12 - 47% fines in laboratory crush samples
- site 6 has been used as a crusher site
- site 6a: Foothills has a number of drill holes in this area showing layered, predominantly fine-grained alluvial deposits: silt, sand, peat, volcanic ash, and occasional thin seams of gravel
- material is frozen

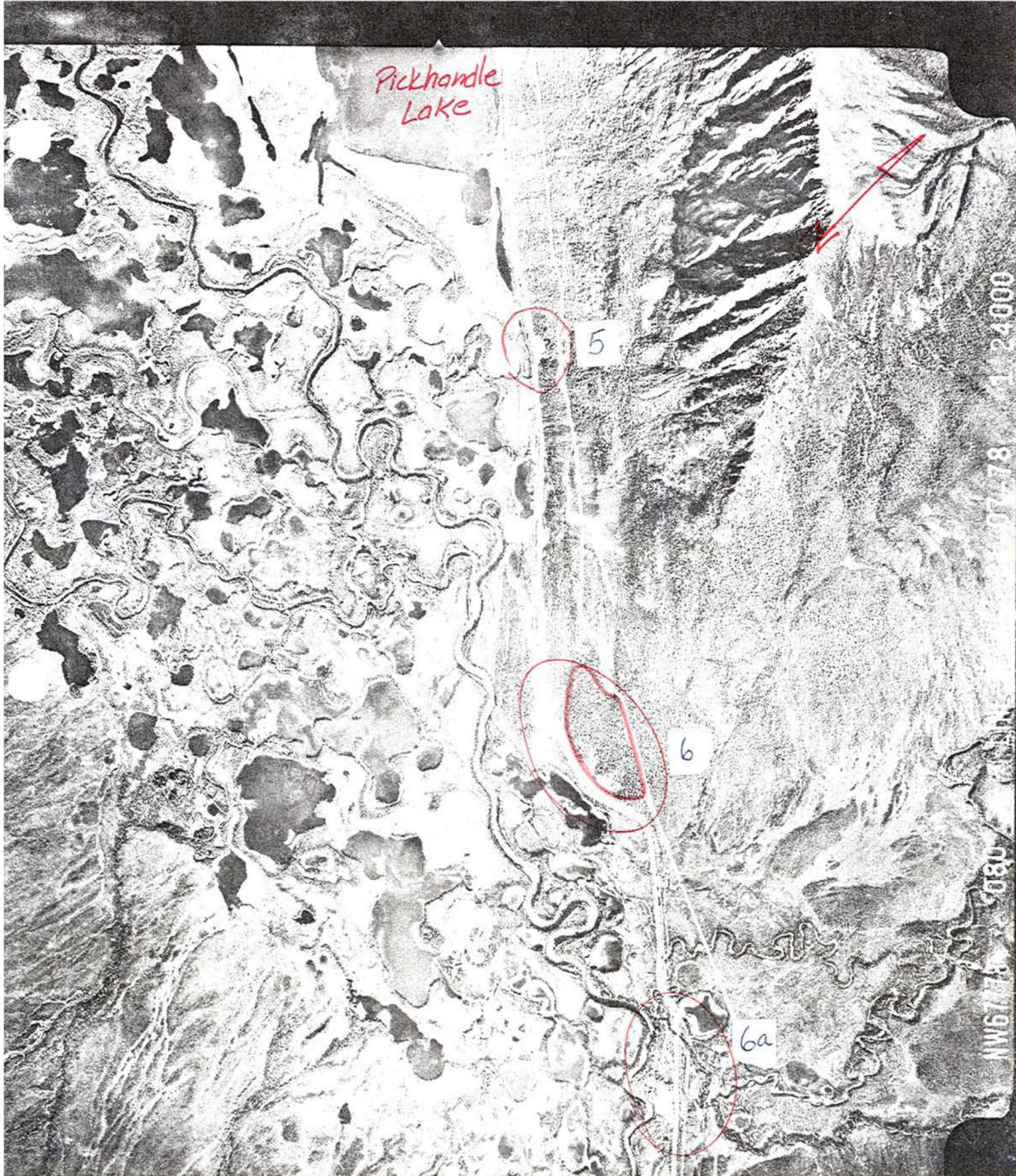
### Development:

- sites 5, 6 and 6a are all readily accessible to the highway
- site 5 is limited to the distance development can take place upslope by the existing pipeline, which may not be a constraint over the long term
- sites 5 and 6 are well-drained. Expansion of these pits would be highly visible from the highway. Expect shallow bedrock.
- developing a quarry at site 6 could facilitate a favorable highway realignment
- site 6a is not suitable for development. Existing drill hole data shows an absence of gravel.
- Foothills has identified this site as a possible stockpile site during construction.

SITES 5, 6 and 6a (cont'd)

COMMENTS:

- Site 5 is a poor to fair borrow site of limited areal extent
- site 6 is a fair borrow/quarry site
- site 6a is not suitable for development



Pickhandle  
Lake

5

6

6a

NW 67778-080  
1:24000

SCALE: 1:24,000  
PHOTO: NW 67778-080  
DATE: 31-07-78

SITE NO.'s 5, 6 & 6a  
MP 1155 ± (KP 1858 approx)  
near Pickhandle Lake

SITE NO. 7

Location: MP 1201 (KP 1932 approx.), adjacent to Beaver Creek bridge

Terrain Unit: alluvial plain (Beaver Creek floodplain) and low terraces

Physical Description:

- flat to gently sloping, poorly drained, terraced and channelled surface
- thick brush and trees

Borrow Materials:

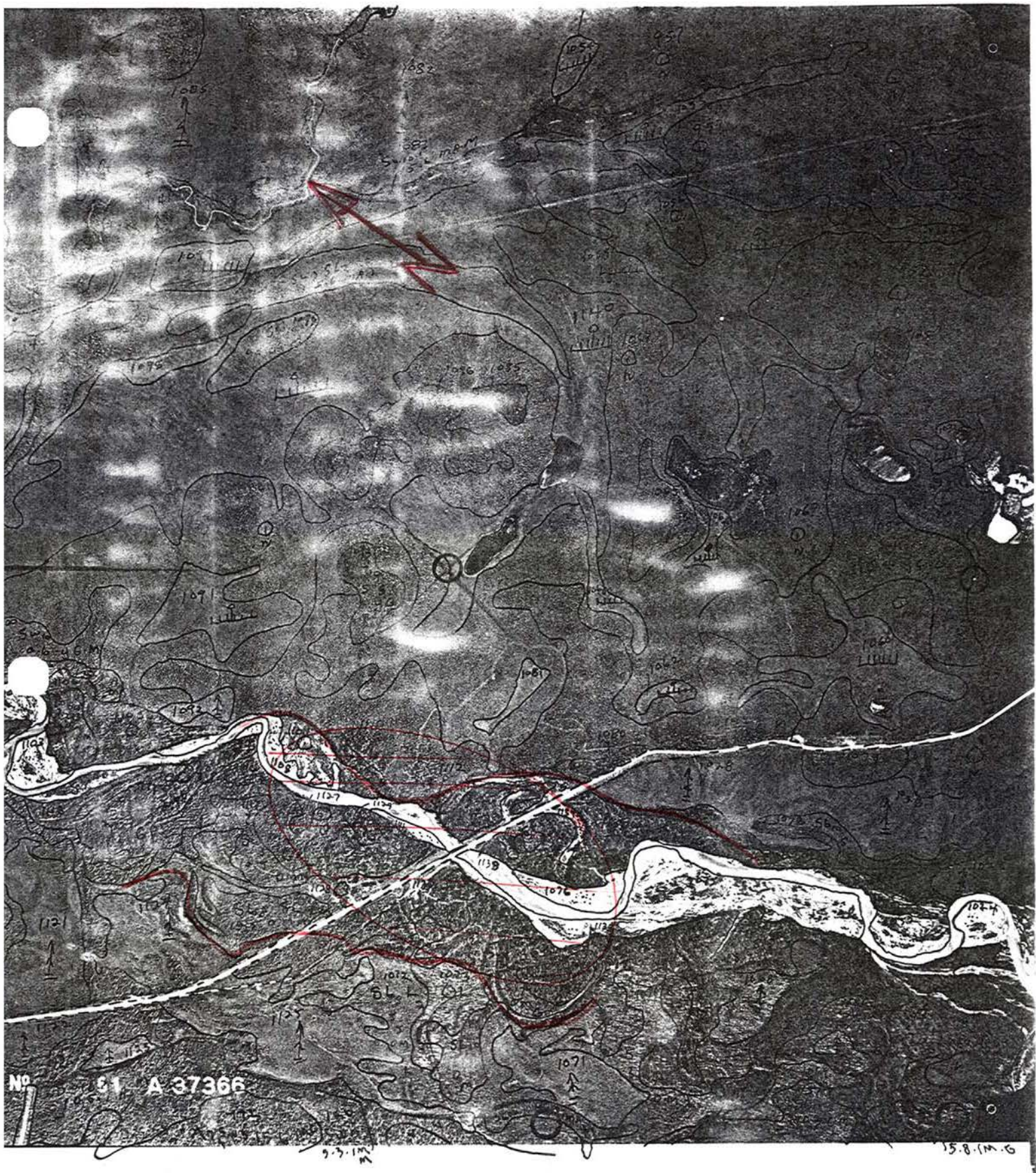
- these alluvial deposits consist of stratified sands, silts and gravels and are highly variable
- without test hole data it is difficult to predict whether or not the gravel layers are sufficiently thick to be mined in a quarry  
(NB if there are drill hole logs for the bridge these may give some indication)
- expect a high water table
- expect frozen zones

Development:

- assuming that significant gravel zones exist, development of this site would involve a pit-type quarry
- pit development should consider drainage measures
- the highest terraces should be examined first

Comments:

- a test pit program within the proposed borrow area is needed to confirm the material types and groundwater levels, etc.
- Note: there are very extensive gravel deposits in the glaciofluvial plain in the vicinity of the airport at Beaver Creek



SITE NO. 7  
MP 1201  
(KP 1932 approx.)  
adjacent to  
Beaver Creek bridge