

**HISTORICAL RESOURCE IMPACT ASSESSMENT
ALBERTA TRANSPORTATION/ALBERTA INFRASTRUCTURE
SPY HILL AGGREGATE MINE
(Sections 28 and 33-25-2-W5M)
FINAL REPORT
(Permit 2003-085)**

Prepared for

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EXECUTIVE SUMMARY

A Historical Resource Impact Assessment (HRIA) was undertaken in advance of Alberta Transportation/Alberta Infrastructure plans to develop the initial phases of an Aggregate Mine in the Spy Hill area of Northwest Calgary. The project area is located northwest of Stoney Trail, 2 km north of Highway 1A (Sections 28 and 33-25-2-W5M) (Figure 1). Although plans call for development of the entire Aggregate Mine to be phased in over a number of years, this HRIA focused on the northern half of Section 28 scheduled to be developed first as Phases One and Two (see Figure 2).

Field studies of the Spy Hill Aggregate Mine were carried out over a two day period in the spring of 2003 (Figures 1 and 2 and Plates 1-3). Subsequently an extensive backhoe testing program was carried out to test high potential areas and to identify and examine deeper sediments (see Figure 2). No archaeological sites were noted during the course of this HRIA. We recommend that no further archaeological studies are required in the context of this project and that Alberta Community Development issue development clearance for Phases I and II of the proposed development.

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Covered Under Permit 2003-8514

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1.0 PROJECT LOCATION /DESCRIPTION

The following report describes the Historical Resource Impact Assessment (HRIA) undertaken in advance of Alberta Transportation/Alberta Infrastructure plans to develop the initial phases of an Aggregate Mine in the Spy Hill area of Northwest Calgary. The project area is located northwest of Stoney Trail, 2 km north of Highway 1A (see Figure 1). Legally this area falls within Sections 28 and 33-25-2-W5M. Although plans call for development of the entire Aggregate Mine to be phased in over a number of years, this HRIA focused on the northern half of Section 28 scheduled to be developed first as Phases One and Two (see Figure 2).

These lands fall within the Nose Hill Hummocky Ice Disintegration Moraine complex. They are characterized by a gently rolling knob and kettle topography. This undulating topography is the result of ice-walled and proglacial channels which formed during the disintegration of a large ice block 16,000 years ago or more. These complex formation processes are responsible for the uneven and irregular, or hummocky, surface topography that typifies the project and surrounding areas (see Plates 1 and 2). The project area is situated near the top of this moraine in an area where the surficial topography flattens out before falling away toward the north and northeast (see Plate 3). As such the topography is more regular and gently rolling than that found on the side slopes of the same moraine.

Natural vegetation within the area is defined within the foothills fescue-aspen parkland community. The project area features a mix of open grassland pastures with a number of aspen groves and thick willow bunches growing in the topographic lows (see Plate 1). A large portion of the NW quarter of the section has been previously cultivated, as is evident by numerous rock piles found around the perimeter of the field.

2.0 ARCHAEOLOGICAL STUDIES

2.1 Previous Studies

A file search indicates that no previously recorded archaeological sites occur within the specific limits of the project area (portions of Sections 28 and 33-25-2-W5M). A number of HRIAs have been carried out in recent years on adjacent lands or nearby properties in the area of the Nose Hill Moraine (i.e. Brewer 1992; Hanna 1999; Head 1998; Reeves 1998; Reeves and Walde 1993; Vivian 2002, 2003a, 2003b). Results of these HRIAs varied greatly, indicating that the present study area is archaeologically transitional. To the southeast, the Nose Hill Moraine is archaeologically productive as indicated by HRIAs done at Arbor Lake (Head and Van Dyke 1982; Gryba et al. 1990) and at Hawkwood (Head and Smith 1980; Van Dyke and Stewart 1985). These areas were characterized by both surface stone features (such as tipi rings) and sub-surface campsites (some of which are 8,000 years in age). Areas to the north and northwest of the present study area, such as Church Ranch (Reeves and Walde 1993), essentially lacked surficial or buried sites. More directly related to the Spy Hill Project, Lifeways of Canada conducted HRIAs of the southern portions of Section 28 for the City of Calgary Research Park in 1982 (Van Dyke 1982a and 1982b). These surveys resulted in the documentation of several small isolated stone features, but no significant buried Precontact sites were found.

2.2 Field Studies

Field studies of the Spy Hill Aggregate Mine were carried out over a two day period in the spring of 2003 (Figures 1 and 2 and Plates 1-3). These studies included an initial foot traverse and inspection of surfaces and all available exposures. At this time no sites were observed.

Subsequently an extensive backhoe testing program was carried out to test high potential areas and to identify and examine deeper sediments (see Figure 2). All backhoe test locations were mapped using a GPS unit. The back dirt of all backhoe tests was carefully examined for bones, fire-broken rock, and stone artifacts. All observed materials were collected. Summary notes were taken on the sediments and stratigraphy of each backhoe test (Appendix 1). Photographs were selectively taken.

A total of 36 backhoe prospects were excavated. Depths of the tests varied and were dictated by the nature of the landforms and the substrata encountered (see Plates 4, 5 and 7). The general stratigraphic profile within the area is typified by very shallow soils to a depth of ca. 20 cm overlying clay and till deposits. Only in the topographic depressions or lower swales was this found to differ to any extent. Here deeper sediments and greater soil development was occasionally encountered (see Plate 6). Mazama Ash was identified only in a few isolated circumstances, no buried paleosols were observed nor were any concentrations of cultural material indicative of buried

archaeological sites. Only a single piece of fire broken rock was found, but the lack of other cultural material precluded recording this as a pre-contact site.

In addition to the backhoe testing, shovel testing was carried out along the berm in the northwest portion of the study area which was not accessible to the backhoe (Figures 1 and 3). All shovel tests were negative and no cultural materials were observed in the generally shallow and poorly developed deposits.

3.0 CONCLUSIONS

A Historical Resource Impact Assessment was undertaken in advance of Alberta Transportation planned Aggregate Mine in the Spy Hill area of NW Calgary. Foot traverses, inspection of all exposures, shovel testing, and thirty-six backhoe prospects were used to assess the study area. Inspection of the backhoe prospects indicates that the soils within the study area are generally shallow and poorly developed, and deeper sediment pockets are very sporadic. Only one piece of fire broken rock was found. The potential for any buried Precontact sites in the area is considered to be very low.

In our opinion, no further archaeological studies are required. We recommend that Alberta Community Development issue development clearance for Phases I and II of the proposed development.

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Appendix 1: Stratigraphic Notes for All Backhoe Tests

BH#1

0-25: A – dark silty loam

25-40: yellowish clays

No cultural material found

BH#2

0-40: A – dark silty loam

40-70: mottled clayish silts

70-78: Mazama Ash

78-80: thin poorly developed paleosol

80-90: dark silty grey clays

90-105: grey clay

105: yellowish clays

No cultural material found

BH#3

0-15: A – dark silty loam

15-20: yellow clays

No cultural material found

BH#4

0-35: A – dark silty loam

35-40: yellowish clays

No cultural material found

BH#5

0-25: A – dark silty loam

25-30: yellowish clays

No cultural material found

BH#6

0-30: A – dark silty loam

30-80: mottled clayish silts

80-90: Mazama Ash

90-110: dark organic rich silty clays

110-130: dark silty clays

130-140: yellow clays

No cultural material found

BH#7

0-40: A – dark silty loam

40-55: mottled silty clays

55-70: yellow clays

No cultural material found

BH#8

0-25: A – dark silty loam

25-50: yellow clays

*No cultural material found***BH#9**

0-25: A – dark silty loam

25-450: yellow clays

*No cultural material found***BH#10**

0-40: A – dark organic silty loam

40-70: mottled silty clay

70-75: patches of Mazama Ash

75-90: light grey clay

90-105: very dark silty clay

105-120: yellow/olive clay

*No cultural material found***BH#11**

0-35: A – dark organic silty loam

35-80: mottled silty clays

80-90: yellow/olive clay

*No cultural material found***BH#12**

0-30: A – dark organic silty loam

30-35: patches of Mazama Ash

35-45: organic rich dark silty clays

45-65: yellow/olive clay

*No cultural material found***BH#13**

0-30: A – dark organic silty loam

30-50: yellow clay

*No cultural material found***BH#14**

0-15: A – dark organic silty loam

15-20: yellow clay

*No cultural material found***BH#15**

0-15: A – dark organic silty loam

15-20: yellow clay

No cultural material found

BH#16

0-30: A – dark organic silty loam

30-40: yellow clay

No cultural material found

BH#17

0-30: A – dark organic silty loam

30-40: yellow clay

No cultural material found

BH#18

0-40: A – dark organic silty loam

40-70: yellow/orange clay

No cultural material found

BH#19

0-30: A – dark silty clays

30-40: lighter yellowish clays

No cultural material found

BH#20

0-40: A – dark organic loam

40-60: lighter silty clay

60-80: Mazama Ash

80-95: Dark silty clay

95-100: yellow clays

No cultural material found

BH#21

0-30: A – dark organic loam

30-40: yellow clays – slightly oxidized

No cultural material found

BH#22

0-30: A – dark organic loam

30-80: yellow clays

No cultural material found

BH#23

0-20: A – dark organic loam

20-30: yellow clays

No cultural material found

BH#24

0-15: A – dark organic loam

15-20: yellow clays

No cultural material found

BH#25

0-45: A – dark organic loam

45-60: yellow clays

Found 1 piece of fire broken rock – ca. 30-40 cm. DBS

BH#26

0-50: A – dark organic loam

50-110: dark silty clay

110-120 Patches of Mazama Ash

120-125 Dark organic rich clays

125-140 Dark brown/black clays

No cultural material found

BH#27

0-45: A – dark organic loam

45-55: yellow clay

No cultural material found

BH#28

0-20: A – dark organic loam

20-40: yellow clay

No cultural material found

BH#29

0-55: A – dark organic loam

55-65: grey silty clay

65-75: yellow clay

No cultural material found

BH#30

0-30: A – dark organic loam

30-50: lighter clays mixed with gravels

No cultural material found

BH#31

0-15: A – dark organic loam

15-20: yellow clay mixed with gravel

No cultural material found

BH#32

0-20: A – dark organic loam

20-30: yellow clay

No cultural material found

BH#33

0-10: A – dark organic loam

10-20: yellow clay

No cultural material found

BH#34

0-10: A – dark organic loam

10-20: yellow clay

No cultural material found

BH#35

0-30: A – dark organic loam

30-40: yellow clay

No cultural material found

BH#36

0-20: A – dark organic loam

20-30: yellow clay

No cultural material found

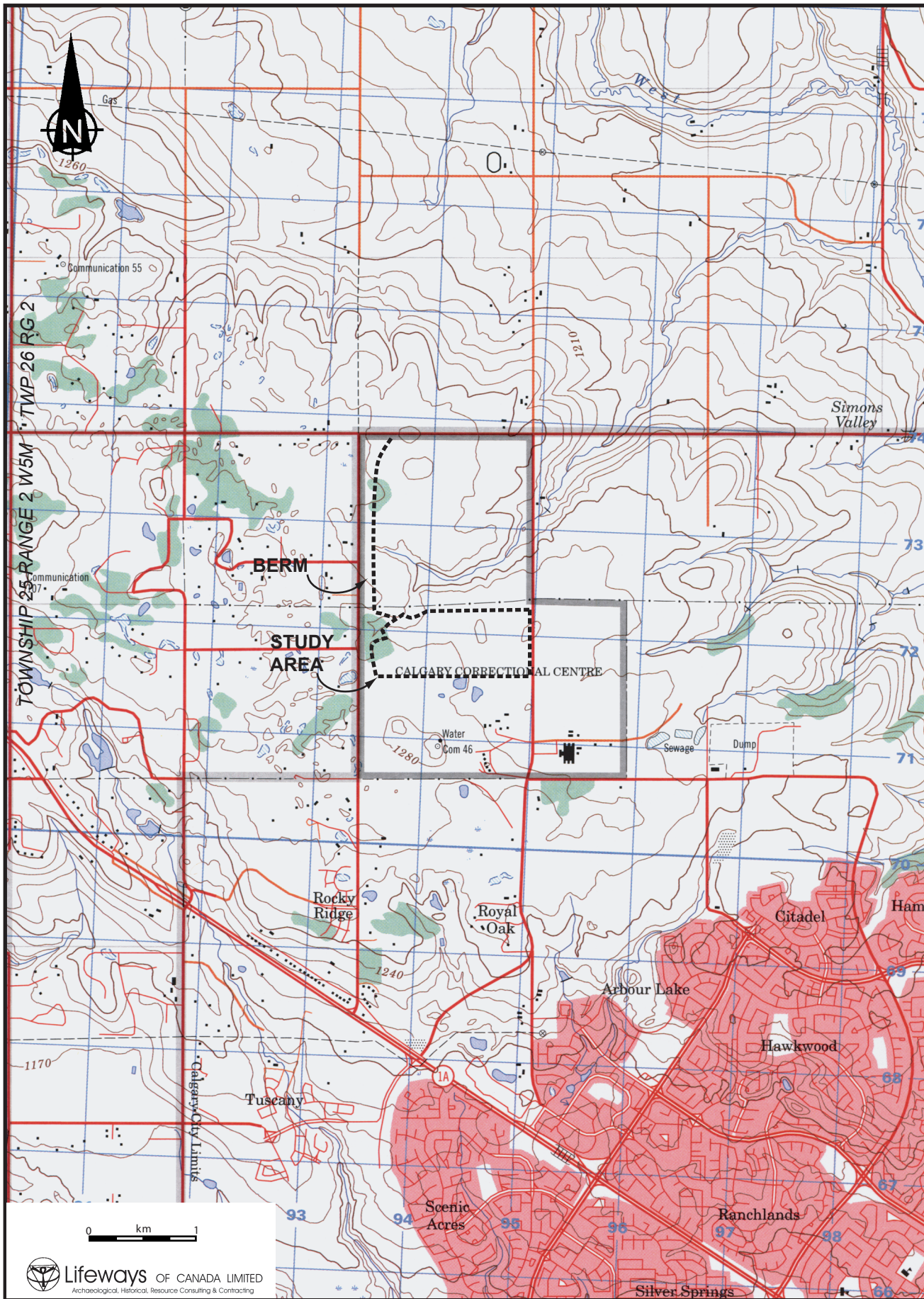


Figure 1: Project Area (1: 50,000 NTS)

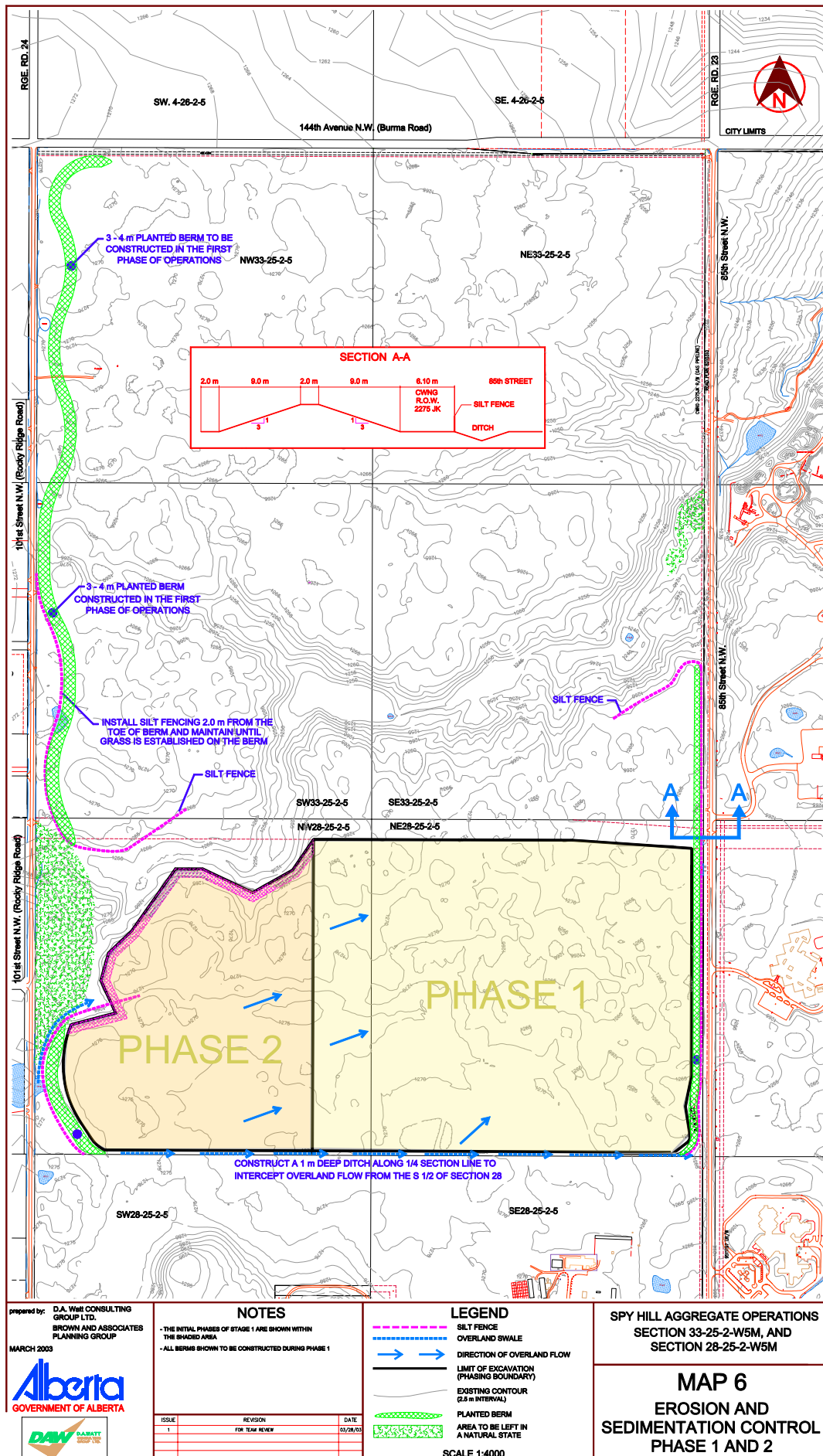


Figure 2. Map Showing Entire Project Area and Highlighted Portion of Study Area Covered Under Permit 2003-085)

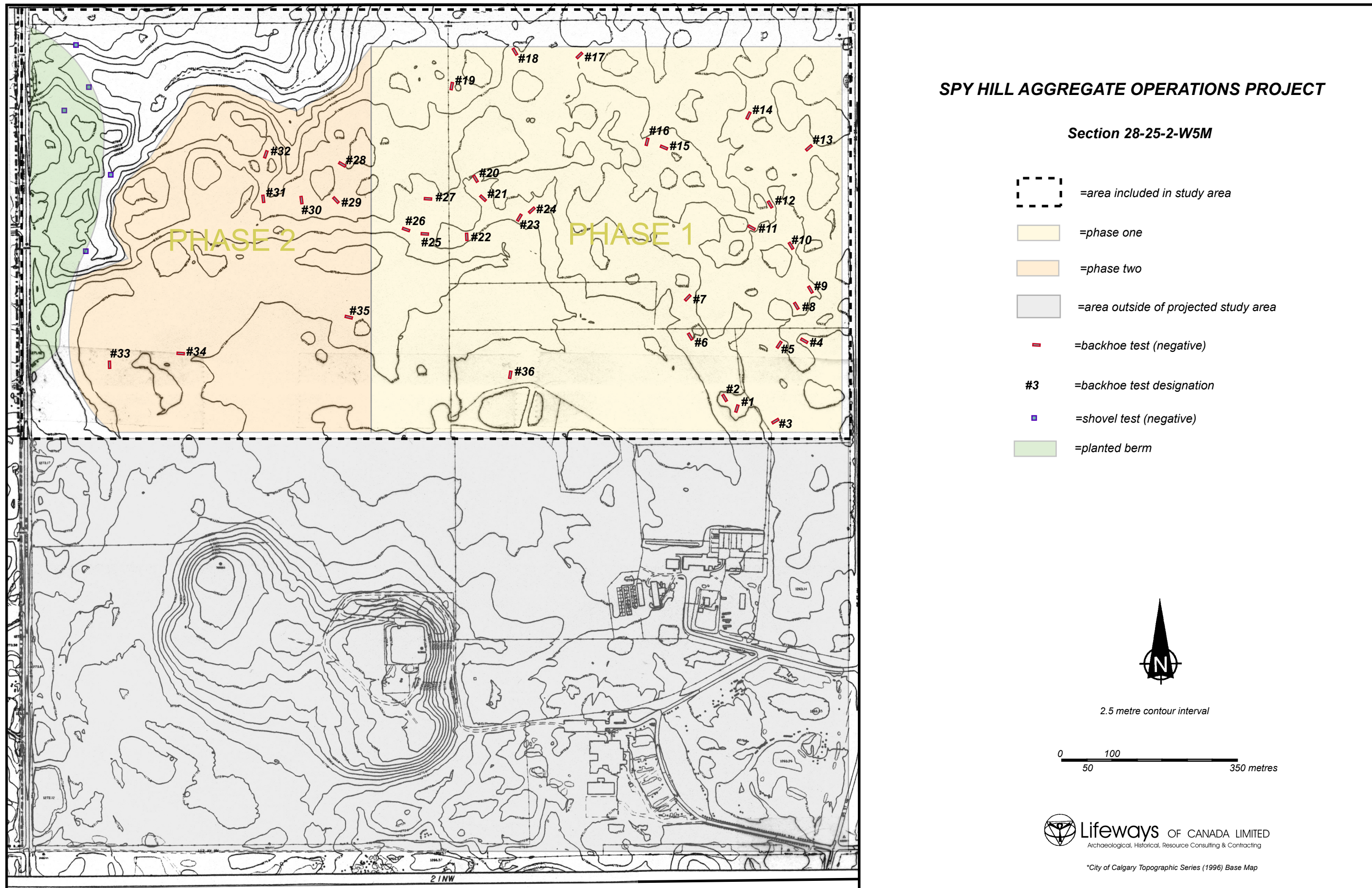


Figure 3. Spy Hill Aggregate Operations Project Phase One, Location of Backhoe Tests

PLATES



Plate 1. Spy Hill Project Area General Area View South



Plate 2. Spy Hill Project Area General Area View West



Plate 3. Spy Hill Project Area General Area View Southeast



Plate 4. Backhoe Testing Spy Hill Project Area



Plate 5. Backhoe Test #2 (View NW)



Plate 6. Backhoe Test #2, Stratigraphic Profile



Plate 7. Backhoe Test in middle of Project Area