



*Frigga Kruse*

# Historical archaeology of Advent City and Hiorthhamn (Isfjorden, Spitsbergen)

July 22, 2014

**Final report**



### **Non-technical summary**

On July 22, 2014, three archaeologists revisited the former British coal mine at Advent City in (Isfjorden on Spitsbergen, which was used between 1901 and 1908. Their questions were 1) whether Advent City's industrial archaeology had been recorded in its entirety and 2) what its potential was for studying the lasting impact of a former industrial site on the environment. They also visited the former Norwegian mining settlement of Hiorthhamn, to where most of the buildings from Advent City had been moved. There, they looked into 3) the state of the former British buildings as well as 4) Hiorthhamn's potential for studying the lasting impact of a former industrial site on the environment.

It was a worthwhile exercise to re-visit Advent City and to a lesser extent Hiorthhamn. The team generated answers and recommended further fieldwork at Advent City (and to a lesser extent Hiorthhamn). 1) Despite previous fieldwork, the archaeological record of Advent City and Hiorthhamn is not complete. It does, however, reflect the different remits of past surveys well. A shift in research focus makes future work possible as well as necessary. 2) It is generally known that the buildings of Advent City had been relocated to Hiorthhamn, but it was remarkable to what extent the originals were kept intact; in fact, there has been very little alteration, making the houses at Hiorthhamn the largest group of old buildings still in use in Svalbard. 3) Advent City lends itself very well to the study of environmental impacts of a former coal-mining sites, more so than Hiorthhamn, although the latter could assume a comparative role. The recommendation for future work at Advent City comprises excavation of selected features, vegetation survey, and topographic survey. Not only would such a programme offer new insights into diet, health as well as short-term and long-term environmental impacts; it would serve as a precedent to future archaeological studies with a key environmental remit. The growing body of such data could close gaps in our current knowledge of the historical ecology of Svalbard and inform cultural and environmental conservation management.

### **Keywords**

Archaeology, history, Advent City, Hiorthhamn, Spitsbergen, Svalbard, environmental impact, animal bones, invasive species, historical ecology, conservation



## Content

Introduction	4
Aims and objectives	5
Site setting and previous work	5
New insights: Advent City	11
<i>Comparison of LASHIPA 1 (2004) and Askeladden (2012)</i>	11
<i>Newly recorded archaeological features</i>	14
<i>Repeat photography</i>	17
<i>Measured drawing</i>	18
New insight: Hiorthhamn	18
<i>Comparison of Løkken (after Hoel, 1966) and Askeladden (2012)</i>	19
<i>Repeat photography at Hiorthhamn</i>	24
<i>Measured drawing</i>	25
Environmental impact of former industrial sites	25
<i>Advent City</i>	25
<i>Hiorthhamn</i>	26
Future work	27
Conclusions	28
References & Online sources	29

## Appendices

<i>Appendix A1: Comparative maps of Advent City</i>	
<i>Appendix A2: Newly recorded archaeological features</i>	
<i>Appendix A3: Photographic record of Advent City and Hiorthhamn</i>	
<i>Appendix A4: Repeat photography at Advent City</i>	
<i>Appendix A5: Drawings of Advent City</i>	
<i>Appendix A6: Comparative maps of Hiorthhamn</i>	
<i>Appendix A7: Repeat photography at Hiorthhamn</i>	
<i>Appendix A8: Drawings of Hiorthhamn</i>	

## Introduction

On July 22, 2014, three archaeologists revisited the former British coal mine at Advent City in Adventfjorden (Isfjorden, Spitsbergen, Svalbard), which had been in use from 1901 until 1908. Their guiding questions were **1) whether Advent City's industrial archaeology had been recorded in its entirety** and **2) what Advent City's potential was for studying the long-term impact of a former industrial site on the environment**. With time to spare, Frigga Kruse (University of Groningen), Sarah Dresscher (University of Groningen), and Ingvild Sjøbakk (Svalbard Museum) also visited the former Norwegian mining settlement of Hiorthhamn, to where most of the buildings from Advent City had been moved. They additionally looked into **3) the state of the former British buildings at their new location** as well as **4) Hiorthhamn's potential for studying the long-term impact of a former industrial site on the environment**.

Previously, the International Field Course in Arctic Industrial Heritage, later referred to as LASHIPA 1, had carried out a one-day archaeological survey at Advent City in 2004 as part of the Large-Scale Historical Exploitation of Polar Areas (LASHIPA) Project (RiS ID 3106). The Norwegian activities at Hiorthhamn were unfortunately outside the project's remit. Based on the findings of LASHIPA 1, Kruse treated Advent City in her doctoral thesis "Frozen assets: British mining, exploration, and geopolitics on Spitsbergen, 1904-53" (2013). The site visit in 2014 was part of Kruse's NWO-funded research project "Ecological consequences of 400 years of natural-resource exploitation on Spitsbergen" (RiS ID 6917).

Kruse considers the archaeological recording of both Advent City and Hiorthhamn to be incomplete and believes that former industrial sites such as these hold great potential for environmental impact research. The archaeological team thus revisited the sites in search for previously overlooked material remains but also to make preliminary environmental observations. They completed the photographic record of features LASHIPA had missed, carried out repeat photography, identified environmentally significant features such as stables, middens, and toilets, assessed the former British buildings at Hiorthhamn, and took grass samples in both locations. Back in the office, they compared the previous archaeological record and the newly recorded features to the material remains that have been registered in Norway's Askeladden database ([askeladden.ra.no](http://askeladden.ra.no)) and searched historical photographs and documents for structural and environmental clues.

It is clear from the fieldwork and the subsequent comparative study that different researchers record archaeological sites differently and by no means completely. Further, combining both archaeological and historical materials gives the most complete image of a site. The grass samples collected had not been analysed at the time of writing, but even without the genetic knowledge of probable invasive species, both Advent City and Hiorthhamn warrant further archaeological work, not least to characterise and quantify their environmental impacts. Such studies are essential building blocks in the comprehensive historical ecology of Svalbard and can inform conservation management.

### **Aims and objectives**

The fieldwork aimed to address the following questions:

- 1) Has Advent City's industrial archaeology been recorded in its entirety?
- 2) What is Advent City's potential for studying the long-term impact of a former industrial site on the environment?
- 3) What is the state of the former British buildings that were moved from Advent City to Hiorthhamn?
- 4) What is Hiorthhamn's potential for studying the long-term impact of a former industrial site on the environment?

The archaeological team intended to generate answers by conducting a one-day site visit at Advent City, which with time to spare would be extended to Hiorthhamn. During the site visit, a walkover, digital photography, sketching, and measured drawing would be appropriate tools to make observations and record any new and indicative data.

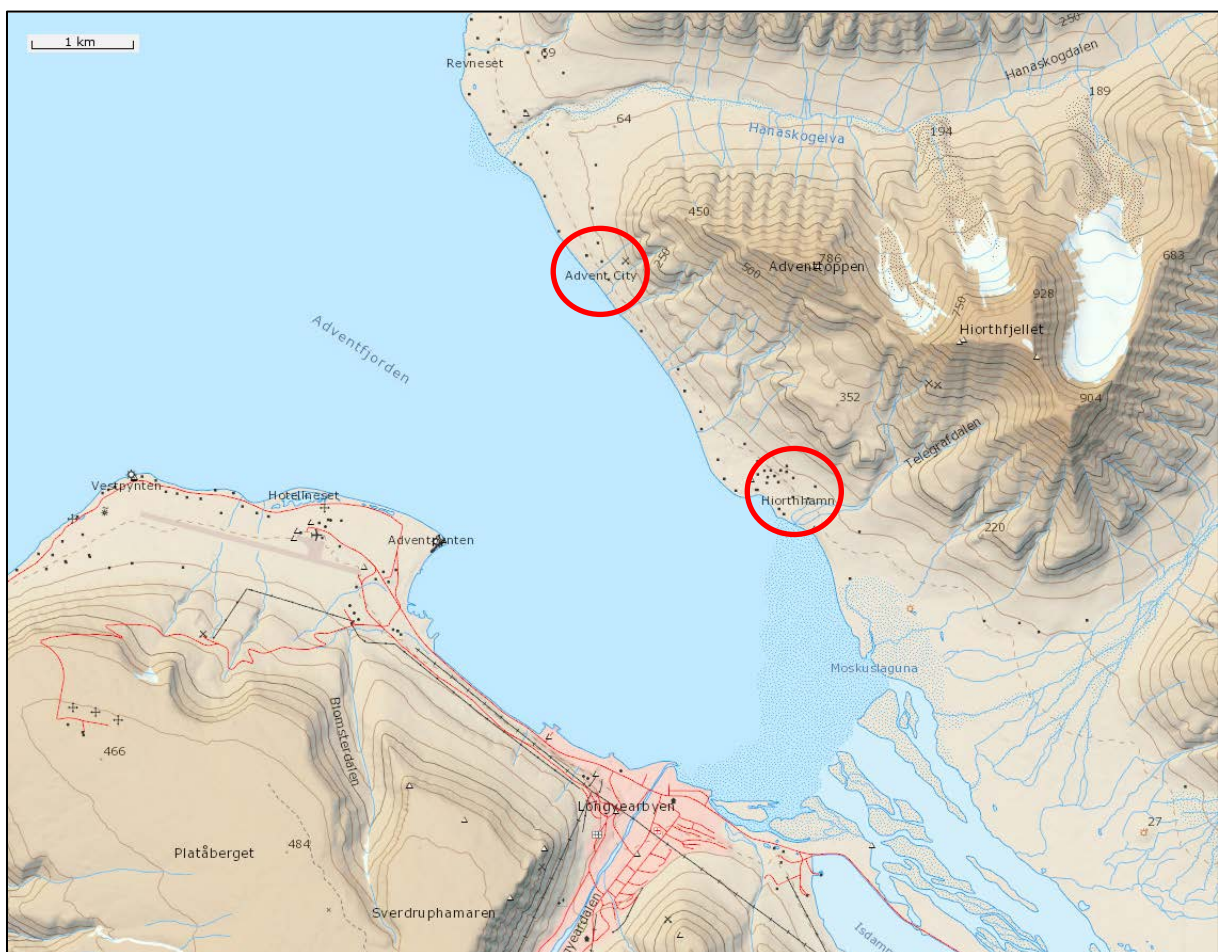
The site visit to Advent City and Hiorthhamn would essentially be a pilot study in order to find out if either or both industrial sites warrant more detailed archaeological fieldwork in the near future.

### **Site setting and previous work**

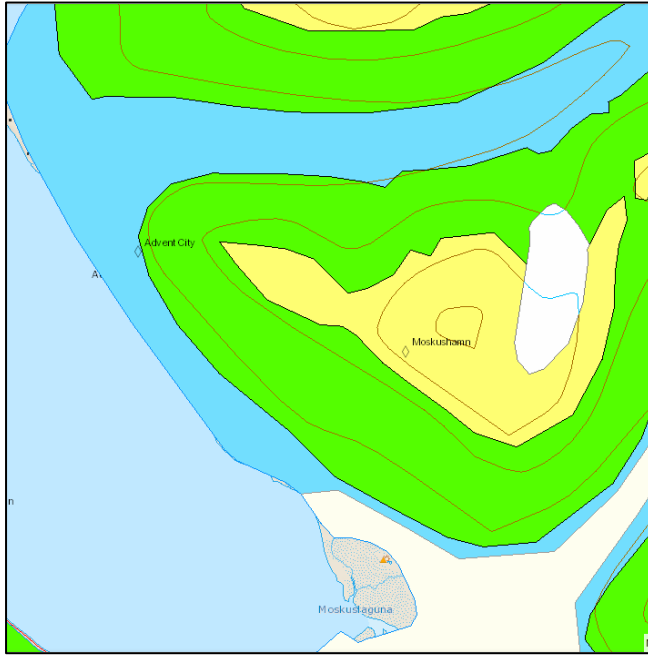
According to *The place names of Svalbard* (2003), **Advent City** (78° 10' N 15° 30' E) is a "deserted mining camp on the eastern side of Adventfjorden, north of Nordenskiöld Land. Was built by the Spitzbergen Coal and Trading Company Limited of Sheffield 1904 and 1905. In the first year only one mess hut was built, but the next summer several houses, including a bakery, were erected (two streets). In 1916-17 the remaining houses were moved to

Hiorthhamn, now Moskushamn, some 2.5 km to the southeast at the same fiord. Only the foundations are now left. Name given by the company.”

The location map (Fig. 1) shows Advent City to lie approximately 5 km to the north of Longyearbyen. The geological map (Fig. 2) indicates underlying bedrock of the Janusfjellet Subgroup (bitum, shale, siltstone, sandstone) of the Middle Jurassic to Early Cretaceous in blue and bedrock of the Helvetiafjellet and Carolinefjellet Formations (clastic sedimentary rocks, mainly sandstone) of the Early Cretaceous in green. From the geological map, it is not immediately obvious that the sedimentary layers also contained coal.



**Fig. 1** Location map of Advent City, which lies approximately 5 km north of Longyearbyen. The distance between Advent City and Hiorthhamn to the southeast is around 2.5 km.



**Fig. 2** Geological map of Advent City and Hiorthhamn (Moskushamn): the Janusfjellet Subgroup of the Middle Jurassic to Early Cretaceous in blue, the Helvetiafjellet and Carolinefjellet Formations of the Early Cretaceous in green, and the lower part of the Van Mijenfjorden Group comprising coal seams from the Palaeocene in yellow.

The Spitzbergen Coal and Trading Company Limited was not the first to try and mine coal at this location, but it was the most active and created the majority of the archaeological record on site. In her thesis, Kruse (2013) outlines the company's formation and development as follows,

“The Norwegian predecessor was the A/S Bergen-Spitsbergen Kulgrubekompani or simply Bergen Co. In 1901, seven men arrived on the northern shore of Advent Bay and located coal on the hillside approximately 100 metres above sea level. Using metal wire, the party fenced off a claim and erected wooden boards along its boundary. The main board read that the property had been occupied on July 22 and that it was delineated by a boundary between Advent Bay and Sassen Bay. In addition, the men built a shed to store tools and explosives. They then left for Kings Bay, where they found coal on the southern shore and took possession of it in a similar manner. The total output that year was five tons of coal, which was taken to Norway for tests.

In 1903, an expedition of 15 under the leadership of the Norwegian engineer Stener August Fangen arrived at Advent Bay at the beginning of June. The group anchored close to the place that would become Advent City. The water was too shallow for the ship to approach the shore, so equipment and supplies were discharged in rowing boats, which was an unassuming task in calm weather. Although a kitchen and a mess tent were put up, the men mainly lived and slept on board.

During the summer, the men drove an adit of 80 metres into the coal seam. They levelled the gradient at the mine and built simple retaining walls. The pithead arrangements included a railway track into the mine, some winding gear, and a small smithy. The simple



ropeway transported the coal downhill to the coast. By the end of the season, the Bergen Co. had extracted approximately 40 tons of coal. Some filled the stores of a Hurtigruten ship. Some was used on the expedition's own journey from Tromsø to Bergen. An amount of coal also fuelled a locomotive on the Bergen-Voss railway, and the remainder was sent to Bergen's gas plant for further tests.

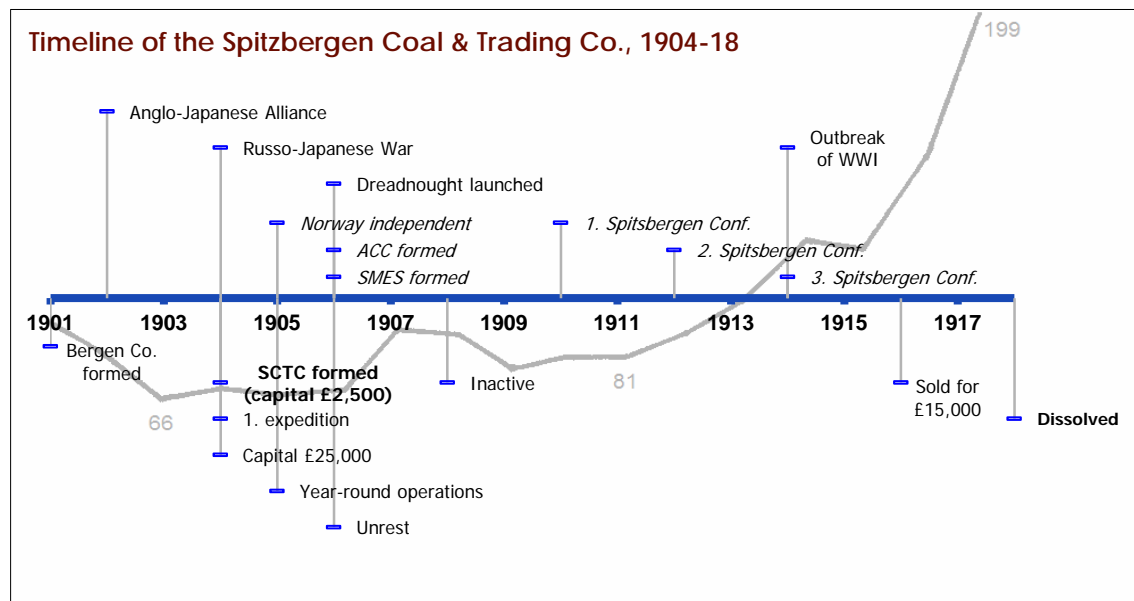
Armed with favourable reports, Fangen travelled to England in autumn 1903. He had formerly been employed by Emerson Muschamp Bainbridge and now met the coalowner in London to promote the Arctic coal mine. Besides making a financial contribution, Bainbridge put the Norwegian in touch with colleagues and friends, who would be instrumental in the formation of the new company. Of these, Jacob Kruise Müller Hessler was a ship owner and timber merchant as well as the Norwegian consul in West Hartlepool in North East England. William Black had been one-time secretary and manager at Nunnery Colliery Co. Ultimately, Fangen was able to raise about £4,000 in England. The money was most likely intended for a new expedition in 1904.

Following the meeting with Fangen, Bainbridge felt that the Arctic coal mine was worth pursuing and initiated a mining company. The application to the Board of Trade was signed by Bainbridge, Black, and the colliery agent William Austin Marshall Toyne on May 11, 1904. Bainbridge resided in London, but Black, who would be the managing director, was a Sheffield man. The Spitzbergen Coal & Trading Co. was therefore registered in Sheffield. Besides Bainbridge and Black, the board of directors also comprised the solicitor William Edwin Clegg. The colliery clerk Edwin Vickers Weston carried out his secretarial duties at Kings Chambers on Angel Street in the town centre. The Treasury approved a nominal capital of £2,500, which was divided into 2,494 ordinary shares of £1 each and 120 founders' shares of 1s each.

While the new expedition sailed for Spitsbergen, Black signed an agreement with the Spitzbergen Coal & Trading Co. on June 17, 1904. He was acting on behalf of those who had previously invested in the Bergen Co. The shareholders had transferred their rights to Black, who in turn sold all property, assets, and interests of the adventure to the firm. A condition of the agreement was that the Spitzbergen Coal & Trading Co. would issue fully paid up ordinary shares to the former subscribers, the amount being representative of their previous commitment. Accordingly, 1,969 ordinary shares were issued, of which Norwegian investors received 62 per cent, while the residual 38 per cent went to British subscribers. Although the agreement did not specify, which possessions had been signed over and although ownership was seemingly retained by the Norwegians, the Spitzbergen Coal & Trading Co. was ready to commence business.

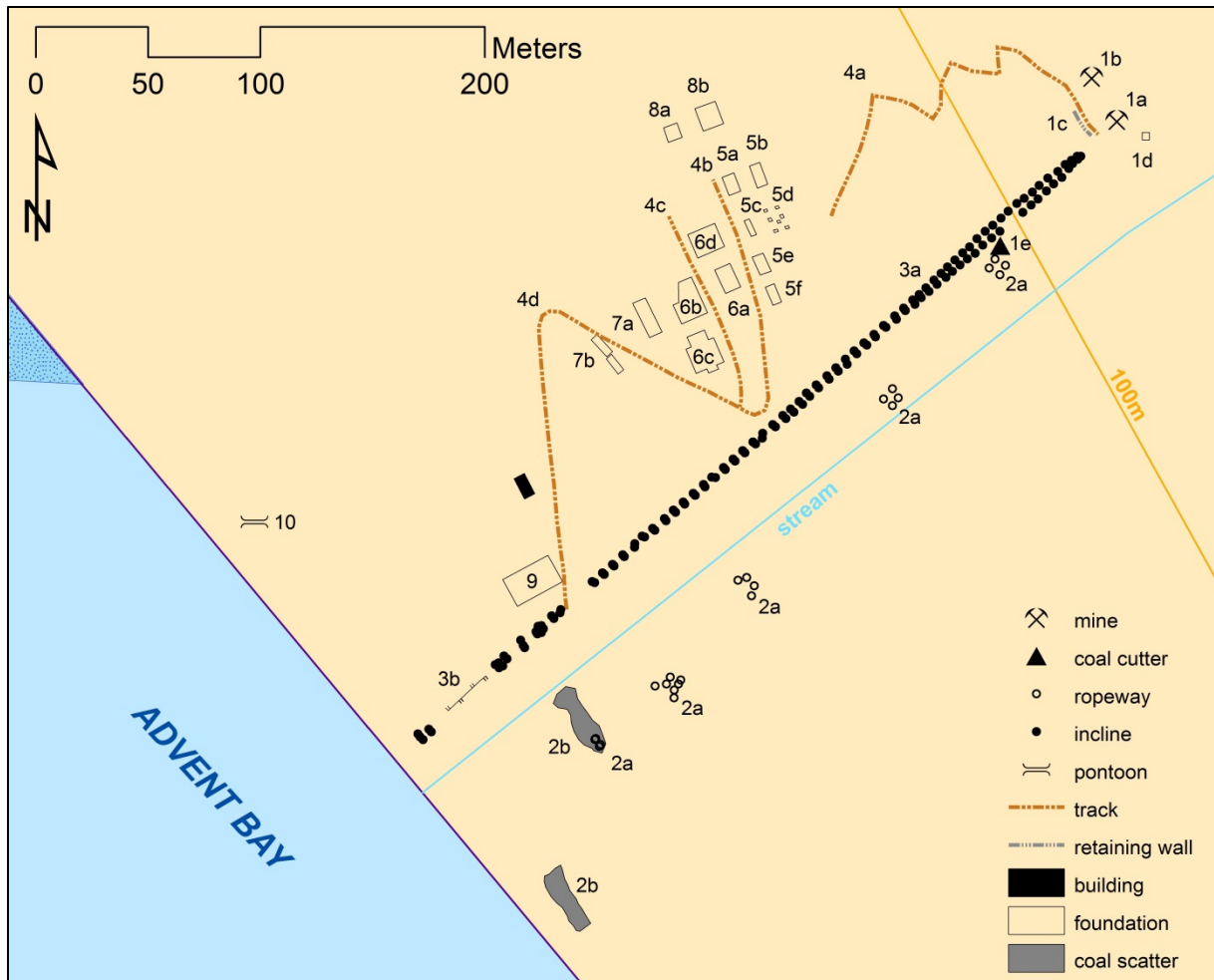
The chronological overview in Fig. 3 summarises the subsequent events. The global context was marked by political upheaval. The Anglo-Japanese Alliance, the Russo-Japanese War, and the launching of the first *Dreadnought* battleship signify Britain's emergence from political isolation, a shift in the European balance of power, and the intensification of the arms race with Germany, respectively. All are thought to have contributed to the outbreak of the First World War. Meanwhile, the Swedish-Norwegian union had ended, which fuelled the aspirations

of both countries to be the foremost Arctic nation. Shortly afterwards, the Arctic Coal Co. and the Spitzbergen Mining & Exploration Syndicate were founded, which increased the presence of American and British actors in the no man's land. Three Spitzbergen conferences took place to settle the legal status of the islands, but the third had to be postponed indefinitely at the outbreak of war. Economically, the British coal market had barely stabilised after the peak in 1900, with a temporary high in 1907 and 1908, before the rise into abnormally high prices during the war began. A strong British market with correspondingly steep export rates (export being restricted during the war) meant that importers like northern Norway looked for cheaper alternatives. In those periods, Spitsbergen coal was potentially good business. Against this background, the Spitzbergen Coal & Trading Co. sent an expedition in 1904 and increased its capital to £25,000 later in the same year. Year-round operations commenced with the expedition in 1905, followed by unrest that culminated in a strike in winter 1906/7. From the end of summer 1908, the company was inactive until it sold its properties to a Norwegian entrepreneur during the war. After 14 years in existence, it was eventually dissolved in 1918.



**Fig. 3** Timeline of the Spitzbergen Coal & Trading Co., 1904-18. Events below the bar are company-specific. Above the bar, events in italics are relevant to Spitsbergen, while others are thought to have defined the global context. The grey line indicates the indexed British coal price movements, whereby the bar denotes 1913 = 100 and the bottom edge approaches 0. Actual percentages have intermittently been added for clarify.

Kruse (2013) further published a site map of Advent City (Fig. 4) based on the material remains recorded by LASHIPA 1 in 2004. The individual features shown on the site map are listed in Table 1 below. For a larger copy of the site map, see Appendix A1.



**Fig. 4** Site map of Advent City. (Data: LASHIPA 1, 2004; Map: F. Kruse, 2013.)

Neither LASHIPA nor the author had done any previous archaeological fieldwork at **Hiorthhamn**. According to *The place names of Svalbard* (2003), Hiorthhamn (78°15'N 15° 40'E) is "situated east of Adventfjorden, Nordenskiöld Land. Coal mining camp 1917-1921 belonging to A/S De Norske Kullfelter Spitsbergen, Norway. After Fredrik Hiorth, Kristiania (Oslo), Norway, director of the company. Musk-oxen, introduced to this region from East Greenland in 1929, were often seen in the neighbourhood of the camp, and the name was changed to Moskushamn in 1938. Changed back to its original name in 2002. Hiorthhamn represents one of the many deserted settlements in Svalbard and remains of the coal activities can still be found."

From the location map (Fig. 1) and the geological map (Fig. 2), it can be seen that while the mining settlement at Hiorthhamn was located at the shore, the actual mine lay at a height of approximately 580 mAOD. The bedrock here is described as the lower part of the Van

Mijenfjorden Group, which comprises sedimentary rocks as well as coal seams from the Palaeocene (in yellow).

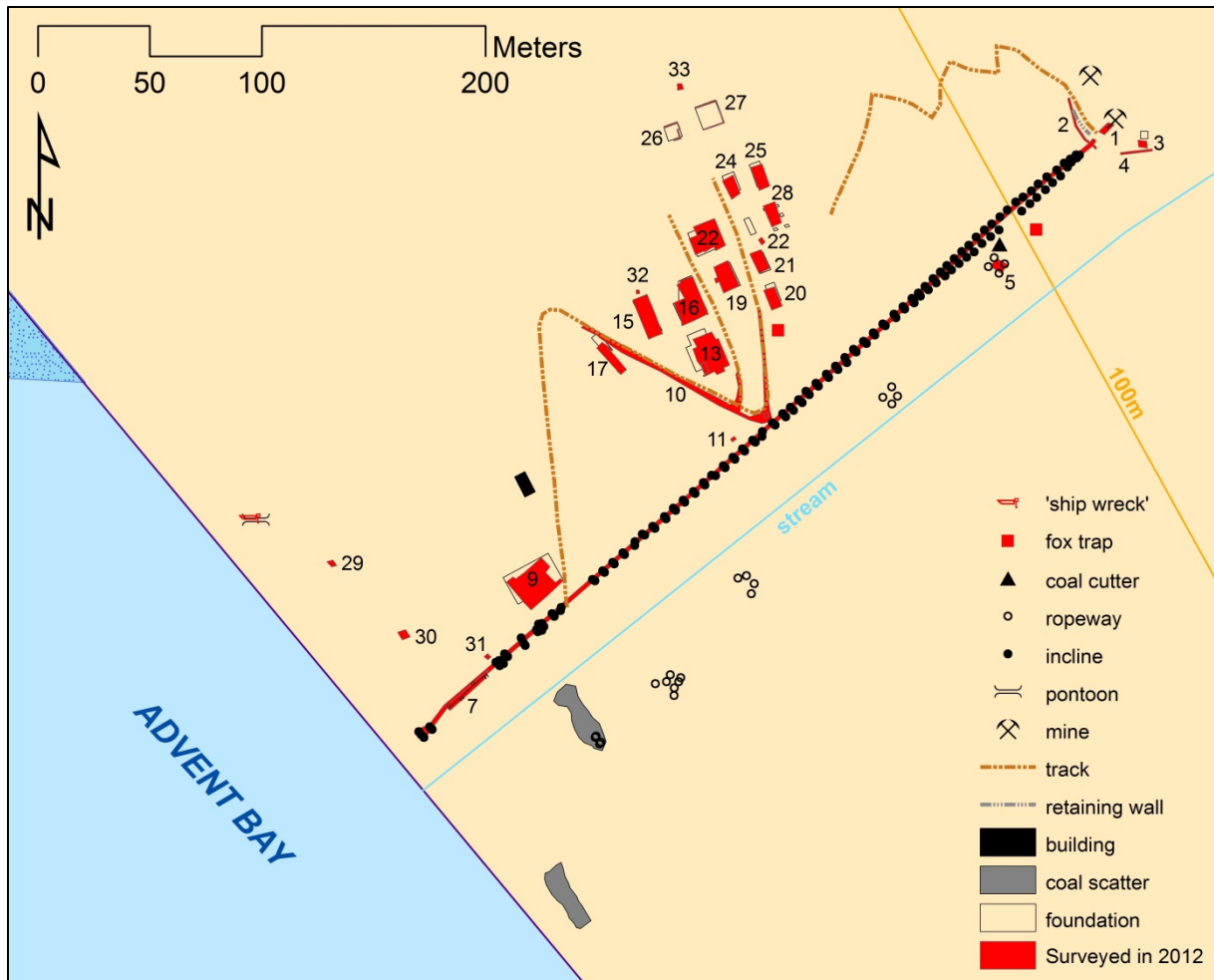
More details about the site and the coal mining activities can be found in Johannessen's (1997) *Hiorthhamn. Coal mining under difficult conditions*. Although Johannessen also covers some of the history of Advent City and touches on its archaeology, he goes no further than to say that many of the former British buildings were moved to Hiorthhamn. From his work, there is little indication of their present state at the new location.

### **New insights: Advent City**

#### ***Comparison of LASHIPA 1 (2004) and Askeladden (2012)***

To better understand the industrial archaeology of Advent City and subsequent site formation processes, the archaeological team compared the material remains recorded by LASHIPA 1 in 2004 with those registered by Kristin Foosnæs on behalf of the Governor of Svalbard in 2012. Based on Foosnæs' (2012) survey, the Askeladden database was updated later that year.

In Fig. 5, Kruse's (2013) map of Advent City has been overlain by the data currently available in Askeladden (in red; for a larger copy of the site map, see Appendix A1). Askeladden couples site-specific identification codes with feature-specific endings, which are also adhered to here. However, due to a lack of space, the site-specific ID for Advent City, which is 93035, has been left out on the map and only feature-specific endings are shown. The 'ship wreck' and three fox traps are not numbered; their Askeladden ID's are 93034, 158446, 158447, and 158448, respectively. It is immediately obvious that some discrepancies exist between the two datasets. Interestingly, neither LASHIPA nor Foosnæs mapped the modern building on the site. Despite being modern and serviceable, the author believes such structures must be mapped as a true contemporary record of a site, as points of orientation, and because they could become cultural heritage themselves in years to come.



**Fig. 5** Kruse’s (2013) map of Advent City overlain by the data currently available in Askeladden (in red). Askeladden’s site-specific identification code for Advent City is 93035 (not shown). The numbers correspond with Askeladden’s feature-specific endings for Advent City.

To make the comparison between the two datasets even easier, Table 1 below lists the features described in each source. Where a feature appears in one source but not the other, gaps in the table also mark gaps in the record.

LASHIPA 1 , 2004 (numbering according to Kruse’s (2013) map)		Foosnæs, 2012 (numbering corresponds to Askeladden ID)	
1a	Mine adit	93035-1	Gruve
1b	Ventilation adit		
1c	Retaining wall	93035-2	Tørrmur
1d	Smithy	93035-3	Bygning
1e	Disc coal cutter		
2a	Aerial ropeway tower	93035-5	Fundament
2b	Coal scatter		
3a	Self-acting incline (posts)	93035-7	Trallebane



3b	Self-acting incline (embankment)	93035-8	Mur
4a	Narrow track, footpath		
4b	'Street'	93035-10	Veitrase
4c	'Street'	93035-10	Veitrase
4d	Wide track, vehicles		
5a	Barrack foundation, earthworks	93035-24	Tuft
5b	Barrack foundation, earthworks	93035-25	Tuft
5c	Barrack foundation, earthworks		
5d	Barrack foundation, sandstone pillars	93035-28	Tuft
5e	Barrack foundation, earthworks	93035-21	Tuft
5f	Barrack foundation, earthworks	93035-20	Tuft
6a	House foundation, earthworks	93035-19	Tuft
6b	House foundation, concrete strip	93035-16	Tuft
6c	House foundation, concrete strip	93035-13	Tuft
6d	House foundation, brick strip	93035-23	Tuft
7a	Building foundation, concrete strip	93035-15	Tuft
7b	Building foundation, timber piles	93035-17	Tuft
8a	Building foundation, concrete strip	93035-26	Tuft
8b	Building foundation, concrete strip	93035-27	Tuft
9	Engine house	93035-9	Maskinhus
10	Coal lighter? Water barge? Pontoon?	93034	Skipsfunn
		93035-4	Tørrmur (next to smithy 1d)
		93035-6	Fundament (part of incline 3b)
		93035-11	Fundament (next to incline 3a)
		93035-22	Trekonstruksjon (next to barrack 5c)
		93035-29	Grop (on beach)
		93035-30	Tuft (on beach)
		93035-31	Trekonstruksjon (next to incline 3a)
		93035-32	Trekonstruksjon (next to building 7a)
		93035-33	Tuft (next to houses 8a and 8b)
		158446	Revefelle
		158447	Revefelle
		158448	Revefelle

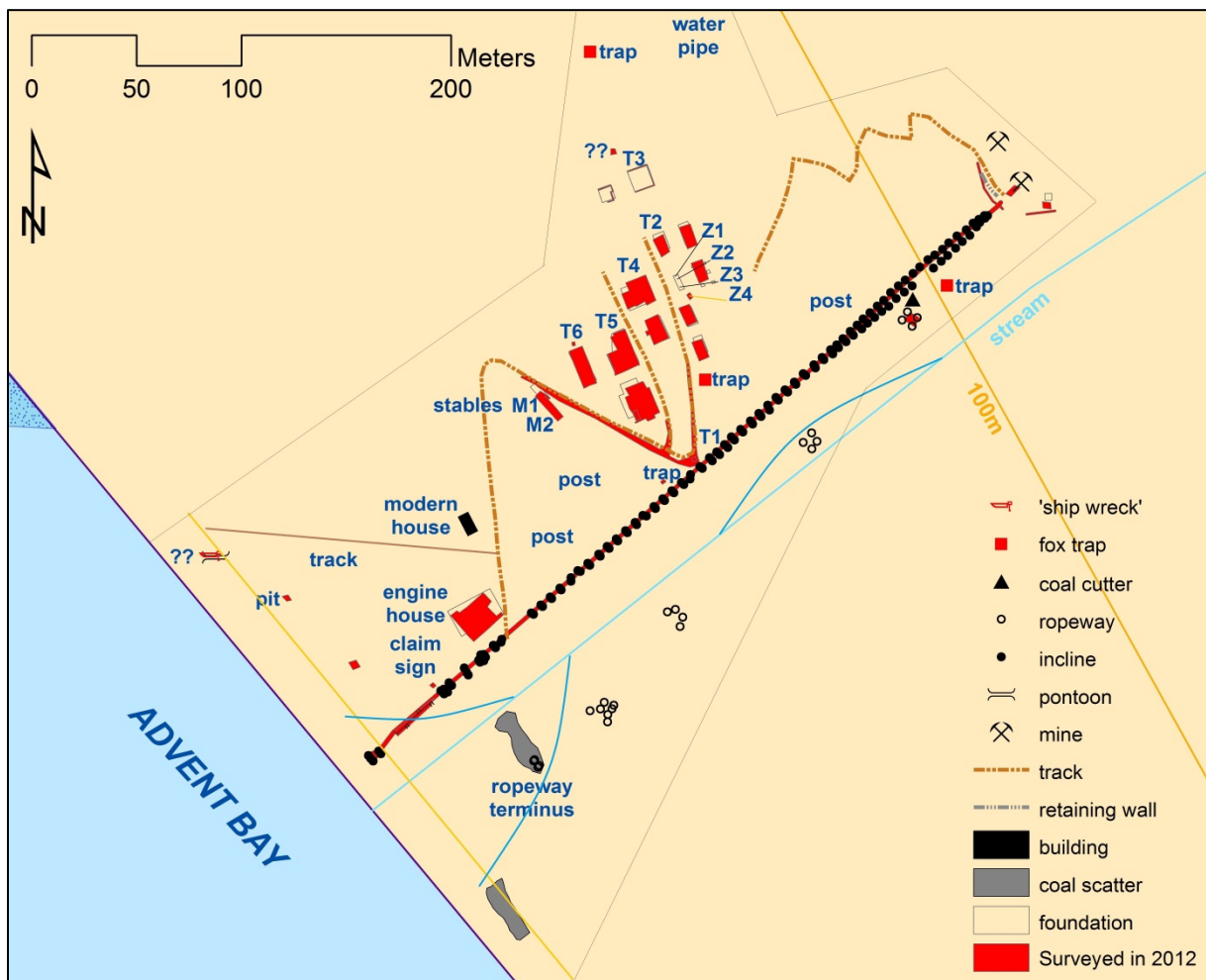
**Table 1** Comparison of features recorded by LASHIPA 1 in 2004 (left) and registered by Foosnæs in 2012 (right). Gaps in the table mark gaps in the record.

LASHIPA being an industrial archaeology project, the descriptions of its features are much more in-depth and interpretative than those entered into Askeladden. However, features that could not be assigned a clear 'industrial' function commonly are not recorded whereas

Askeladden lists them as ambiguous ‘wood constructions’ or more purposefully as fox traps. The remit of both projects thus clearly stands out, but neither record is complete.

**Newly recorded archaeological features**

The archaeological team set out to complete the archaeological record of Advent City but remains hesitant to say that it has been successful in doing so. Fig. 6 shows the newly recorded archaeological features (in blue). For a larger copy of the map and an index of these features, see Appendix A2. The feature index also comprises a list of associated photographs, the full photographic record being available in Appendix A3.



**Fig. 6** Map of archaeological features newly recorded during the site visit in July 2014.

**Landscape.** In the first instance, the team attempted to rectify the base map for Advent City by ‘bending’ the stream and distinguishing between the shore line (purple) and coast line (amber), but the landscape and especially those features that lead to unwanted erosion of

the site remain poorly recorded. Neither LASHIPA 1 nor Foosnæs added any topographical detail to their survey. A good overview photograph can go a long way. Linear features such as the coast line, the width of the beach, and the stream should be recorded in more detail. Time-permitting, the topography, vegetation cover and species, earthworks, and any scattered animal bones could be recorded.

**Limits of survey.** Neither LASHIPA nor Foosnæs delineated their surveys, giving the impression that the areas left and right of Advent City are void of any archaeology and putting the completeness of their work into question. The team has made an attempt at a survey boundary (grey), which invariably shows that the work was not done in the most systematic fashion.

**Site formation processes.** As mentioned above, archaeological surveys to date have been too focussed on particular research questions or remits. Surveying a site in its entirety is a cost-effective way of making information available to researchers who may not have the finances to visit the locations themselves. Furthermore, recording later features such as the modern cabin or the changing stream bed can highlight essential site formation processes.

**Modern house.** As mentioned above, the modern cabin has not previously been surveyed. Its position on the map remains a manually added approximation.

**Ropeway terminus.** In light of lacking information, this is the most likely interpretation for a group of features comprising earthworks, colliery spoil, waste rock or building stone, and wooden posts. See Appendix A4 for repeat photography: B.

**Claim sign.** This metal sign without any text features prominently in many LASHIPA photographs but has not yet been recorded properly. It was probably a claim sign of the Spitzbergen Coal & Trading Co. Since falling out of use, it has been used for target practice.

**Engine house, detail of construction.** Details include pillars made from local roughly-hewn sandstone and concrete mixed with rounded beach gravel and cobbles. Behind the engine

house lay a large plywood panel on which more beach cobbles had been stored temporarily but were never used.

**British bricks.** There are different kinds of British bricks on the site, the company names on which could be used for building up a network of suppliers.

**Lined pit at beach.** Although the square pit at the beach has been recorded in Askeladden (93035-29), a former form and function has not been suggested. It shows signs of burning.

**Foundation at beach.** The team failed to identify this Askeladden feature (93035-30). Either the pit above or this unidentified foundation may have been the first storage shed constructed in 1901.

**Lighter, barge, or pontoon?** The question remains whether this feature was once a coal lighter, a water barge, or a pontoon. There are no historical documents to give clarity. Askeladden is right to give it a separate ID: perhaps it was never associated with Advent City but is a later feature.

**Additional track and possible landing site.** On photographs, it becomes obvious that the long, wide track on site did not just terminate at the former engine house but runs along the bottom of the modern house to the shore near the lighter/barge/pontoon. Was there an additional landing site here? One for landing equipment and stores? See Appendix A4 for repeat photography: D, I, J, and K.

**Postholes and posts.** Two sawn-off wooden posts have been noticed between the engine house and the former settlement, another one to the west of the incline. There are probably many more, and if recorded, they will give a picture of the intended electricity supply to the buildings and the mine. It is not known, however, if electricity was successfully produced. See Appendix A4 for repeat photography: A, C, D, and R.

**Stables and middens M1 and M2.** It is safe to assume that the bottom-most building(s) of the settlement had a livestock-related function and was probably the stables for horses and

pigs known to have been on site. Two sizable middens contain much organic material including butchered animal remains and support a lush vegetation of grasses, which in turn has been grazed on by geese. See Appendix A4 for repeat photography: V. See Appendix A5 for a drawing of the stables and middens.

**Fox traps.** On vantage points. Completely ignored by LASHIPA 1 with an interest only in mining, three or possibly fox traps are listed in Askeladden. The author did not check if one of the traps has simply been mapped in the wrong location.

**Water pipe.** A water pipe enters the settlement from the north. Any water will have frozen in winter. Where does it come from? Where did it go? See Appendix A4 for repeat photography: F.

**Outhouses T1 to T6.** Wooden remains interpreted as outhouses with two cubicles and a metal bucket, a slop-pail in each. They were probably only used in summer since their contents would have frozen in winter. See Appendix A4 for repeat photography: A, D, F, H, M, Q, and R.

**Outhouses?? Z1 to Z4.** Thought of as toilets, the preliminary interpretation also included middens, composts, and vegetable patches before coming full circle to toilets. It is possible that the 'summer toilets' above were neglected in favour of these bucket-less versions closer to the buildings in winter. See Appendix A4 for repeat photography: S? What was in the tent? See Appendix A5 for a drawing of the 'outhouses' Z1 to Z4.

**??** Askeladden lists a feature of four wooden posts of unknown function at the northern extremity of the settlement. Could it have been anything to do with the water supply?

### ***Repeat photography***

The author claims that digital photography, because of ease of use, speed of recording, and quality of data recorded, is the single most important tool available to polar archaeologists at present. However, due care must be taken to avoid overkill and everything should be indexed well. The full photographic record of Advent City and Hiorthhamn is available in



Appendix A3, while Appendix A4 contains the results of the repeat photography done at Advent City. The repeat photography helps to visualise the site and provides information about former structures and past activities as well as the sources of long-term environmental impacts. Of particular interest are the pigs, the supply of freshwater, the horses, the earthworks impacting on vegetation, and the positions of toilets, stables, and middens.

### ***Measured drawings***

Since features which may hold information about the long-term environmental impact on the site are of particular interest to this study, measured drawings of the stables, the associated middens, and the possible toilets Z1 to Z4 have been included in Appendix A5.

### **New insights: Hiorthhamn**

With time to spare, the archaeologists walked approximately 2.5 km along the beach to Hiorthhamn. Kruse and Dresscher had no previous experience of the site, but Sjøbakk had assisted Foosnæs during the survey in 2012, on the basis of which the Askeladden database was updated later that year. Fig. 7 is a picture of how Hiorthhamn presented itself to the approaching team.

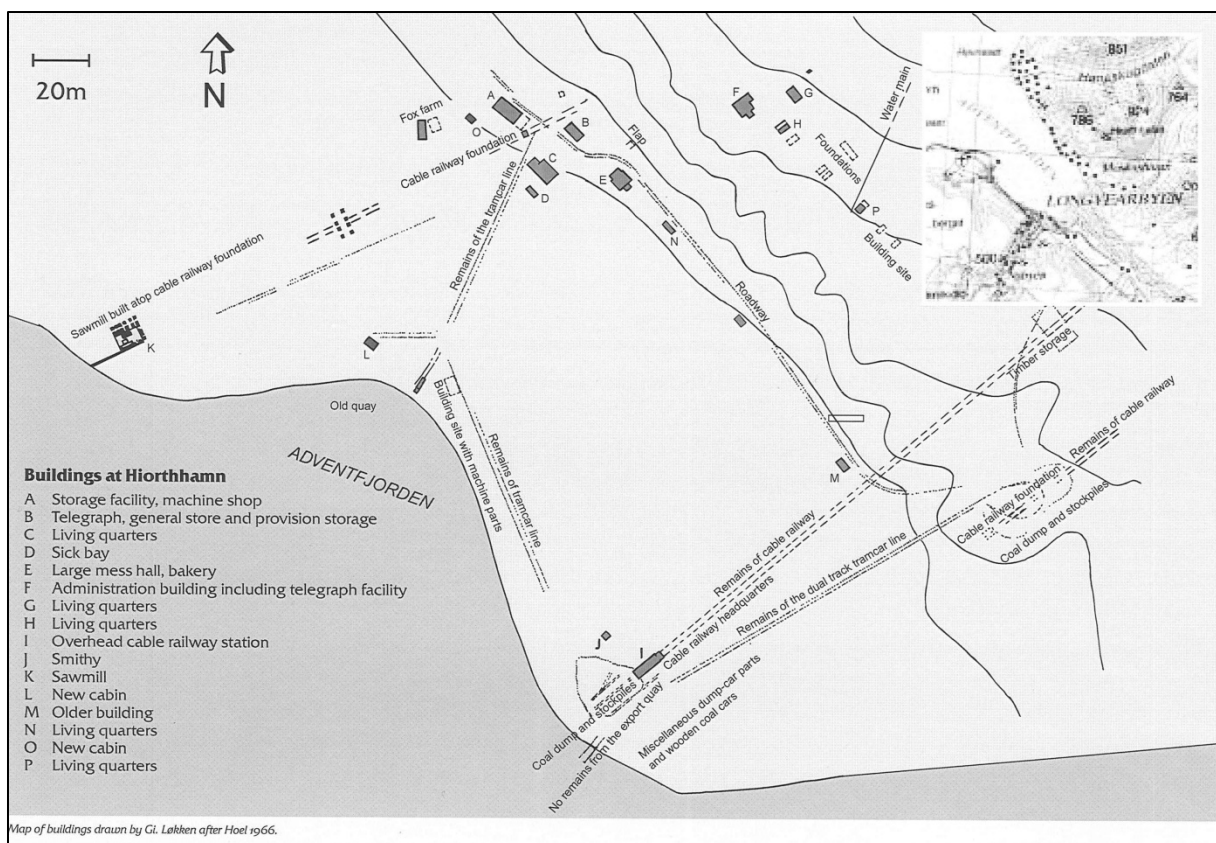


**Fig. 7** Hiorthhamn on July 22, 2015, looking east. (Photo: I. Sjøbakk, 2015.)

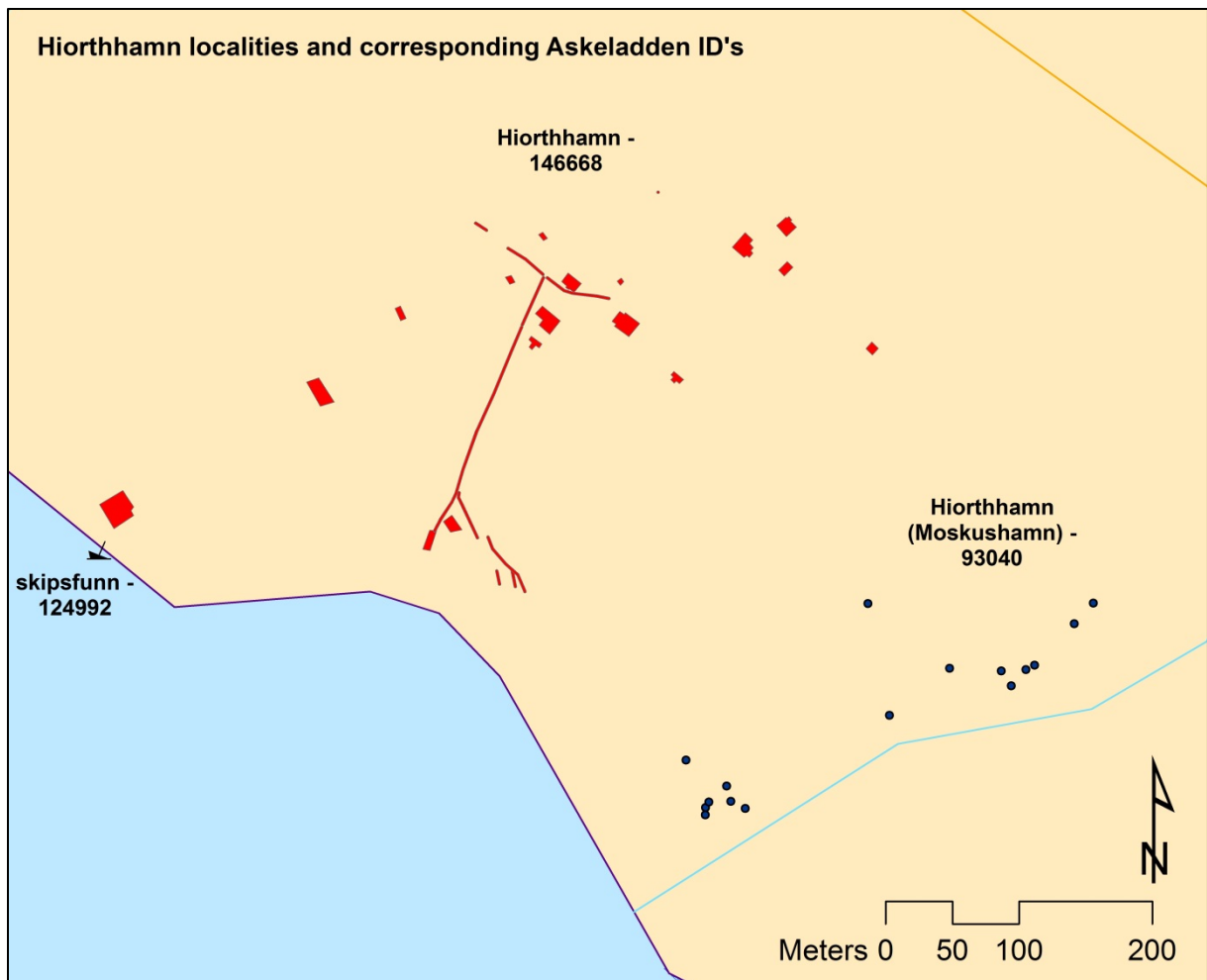
The team made the spontaneous decision to walk into the small settlement in search of invasive plant species among the buildings and grass samples for later analysis. It was not until seeing the sturdy concrete foundation of the large building to the left of the photograph that the exciting prospect dawned on Kruse that the buildings from Advent City had not only been brought and reused here but that the very originals had been rebuilt with only minor alterations. In 2015, these buildings would be 100 years old – and still in use.

**Comparison of Løkken (after Hoel 1966) and Askeladden (2012)**

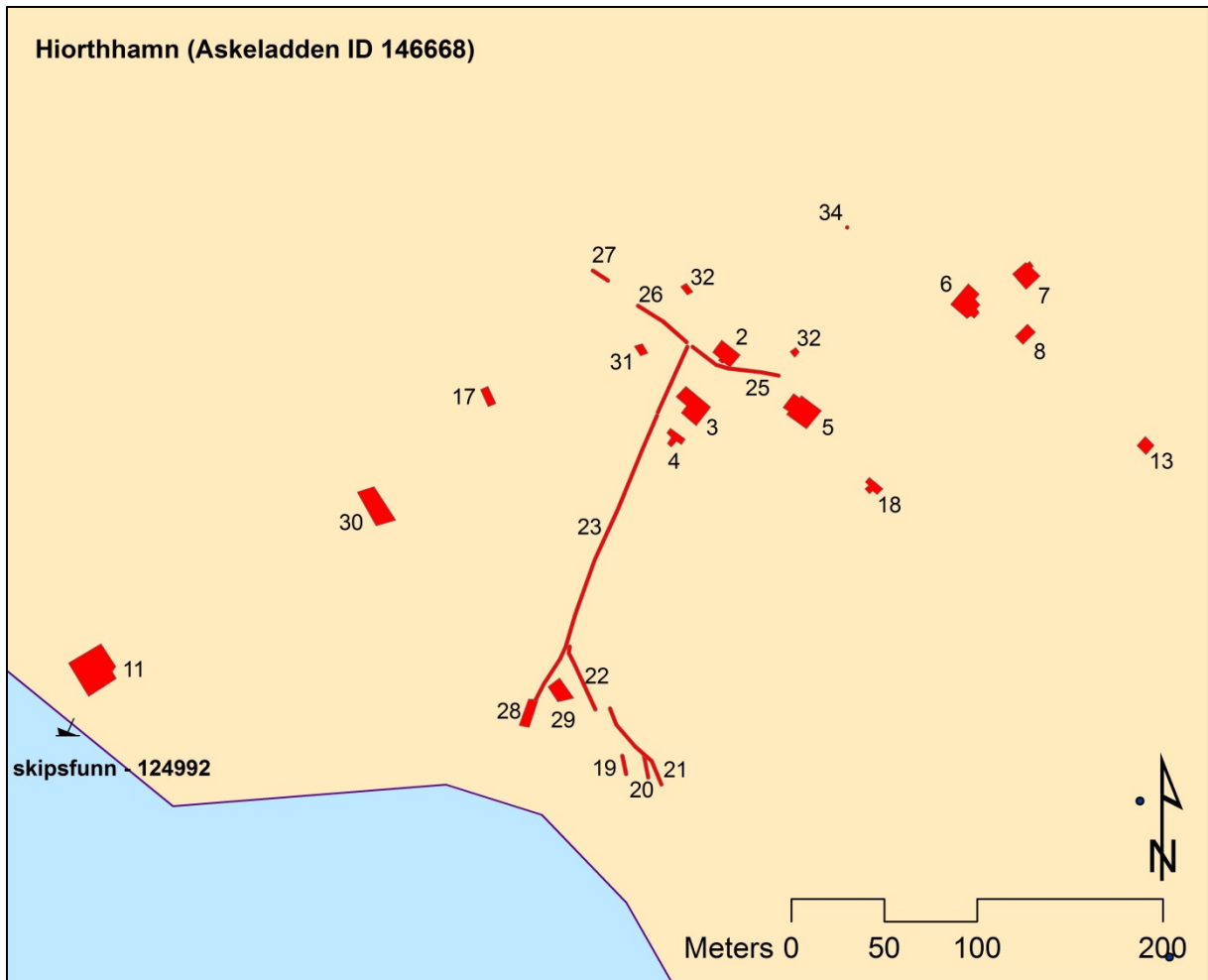
A detailed map of Hiorthhamn (Fig. 8) has been made by Løkken after Hoel (1966) and is available in Johannessen (1997). As mentioned above, remapping of the site in 2012 led to the Askeladden database being updated later that year. The Askeladden data has been plotted in Fig. 9, Fig. 10, and Fig 11. For a larger copies of the maps, see Appendix A6.



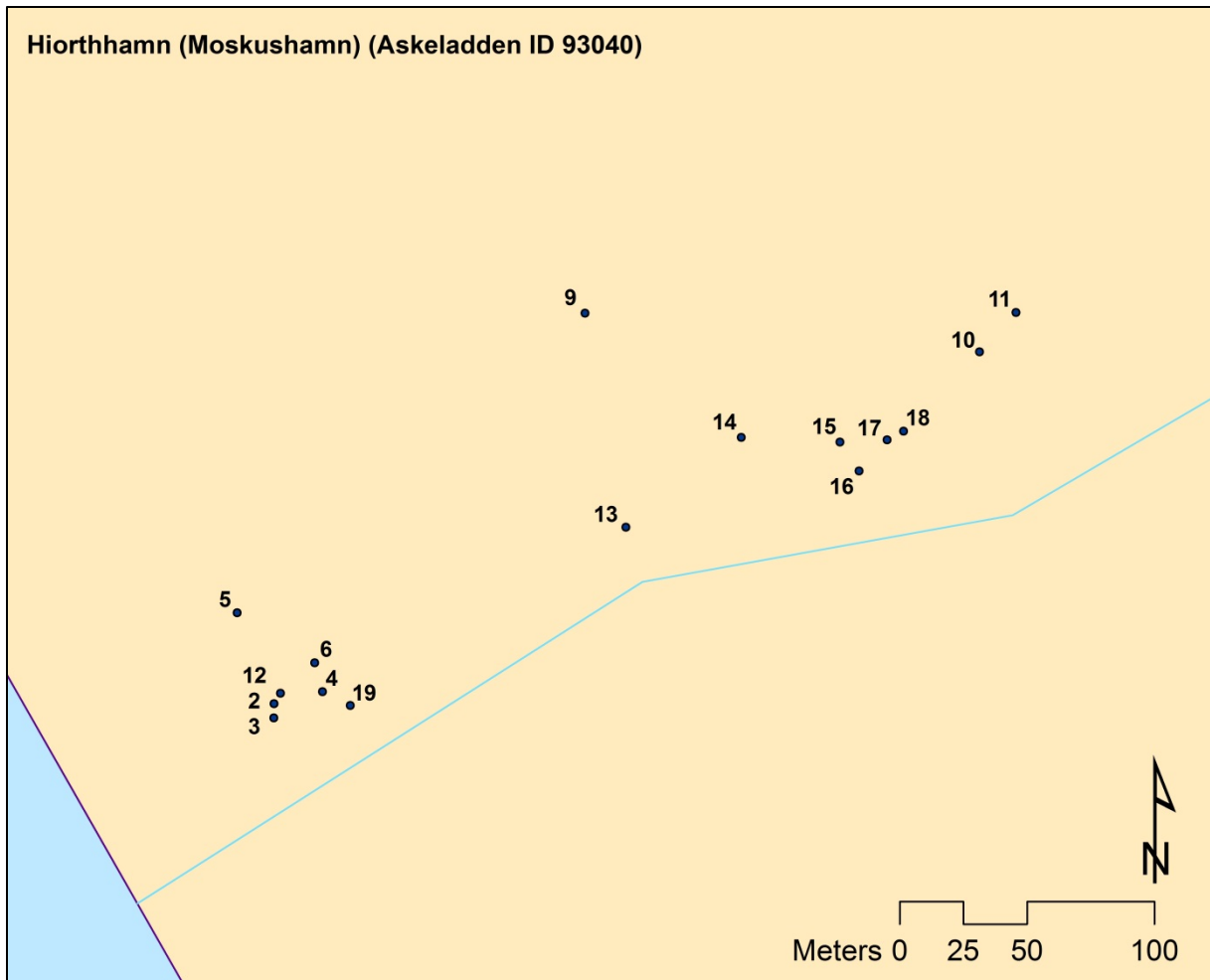
**Fig. 8** Løkken’s map after Hoel (1966). (Source: Johannessen, 1997.)



**Fig. 9** Overview map of Hiorthhamn showing the different locality ID's currently registered in Askeladden. (Data: Askeladden.ra.no, map: F. Kruse.)



**Fig. 10** Map of Hiorthhamn (Askeladden ID 146668). The numbers correspond to Askeladden's individual feature ID's for this site. (Data: askeladden.ra.no, map: F. Kruse.)



**Fig. 11** Map of Hiorthhamn (Moskushamn) (Askeladden ID 93040). The numbers correspond to Askeladden's individual feature ID's for this site. (Data: askeladden.ra.no, map: F. Kruse.)

Comparing Løkken and Askeladden, it is immediately obvious that Løkken's meticulous and admittedly interpretative work has created a comprehensive image of a mining landscape, while the Askeladden data plots mainly as disconnected features. A particular shortcoming of the latter is the representation of polygonal and linear features as either small segments or single points. If cultural heritage specialists were to refer Askeladden only, they would be hard-pressed to understand the site as an integrated whole, let alone be able to pinpoint areas and features worth maintaining and protecting. The Askeladden map, besides being digitised and spatially referenced, is barely an improvement over Løkken's map.



To make the comparison between Løkken and Askeladden easier still, Table 2 below lists the features in each map. Where a feature appears in one but not the other, a gap in the table also marks a gap in the record. The author has added comments and critiques in square brackets. These give an indication of shortcomings in both sources. The unfortunate circumstance that all features at locality 93040 are represented as points regardless of their actual size and shape has not been additionally highlighted.

Løkken (after Hoel 1966)		Askeladden (updated in 2012)	
	Contours		[no topographic detail]
A	Storage facility, machine shop		[entirely missed out]
B	Telegraph, general store and provision storage	146668-2	Provianten/telegrafan – Bygning B
C	Living quarters	146668-3	Boligbrakke – Bygning C
D	Sick bay	146668-4	Sykestue – Bygning D
E	Large mess hall	146668-5	Stormesse, bakeri – Bygning E
F	Administration building including telegraph facility	146668-6	Administrasjon, Direktørboligen – Bygning F
G	Living quarters	146668-7	Boligbrakke – Bygning G
H	Living quarters	146668-8	Boligbrakke – Bygning H
I	Overhead cable railway station	93040-6	Taubanesentralen, Bygning I
J	Smithy	93040-5	Smie, bygning J
K	Sawmill built atop cable railway foundation	146668-11	Taubanefundament – Rester av sagbruk
L	New cabin		[lacking and thus not giving a true record of the site]
M	Older building [poor description; according to the record the building was moved here from Advent City... just like most other buildings on the site]	93040-9	Eldre bygning, bygning M [clear case of the description having been taken over uncritically]
N	Living quarters	146668-18	Boligbrakke – Bygning N
O	New cabin		[lacking and thus not giving a true record of the site]
P	Living quarters	146668-13	Boligbrakke – Bygning P
	Fox farm [rebuilt?]	146668-17	Revegård [earlier foundation not shown, only upstanding remains]
	Remains of tramcar line [simplified]	146668-19	Trase [on the one hand segmented, on the other hand more detail than Løkken]
		146668-20	
		146668-21	
		146668-22	
	Remains of tramcar line	146668-23	Trase [segmented]
		146668-24	

	Roadway [what is the difference between Løkken's tramcar line and roadway?]	146668-25	Trase [segmented]
		146668-26	
		146668-27	
	[mapped but not labelled]	146668-28	Brygge
	Building site with machine parts	146668-29	Tuft
	[mapped but not labelled]	146668-30	Taubanefundament [also see 146668-11; no hint of the linear nature of the overall feature]
	Cable railway foundation	146668-31	
	[mapped but not labelled; it's actually a toilet, sanitary facilities usually being a feature on industrial sites which have had too little attention]	146668-32	Tuft
	Flap [terrible description]	146668-33	Gruveåpning [if this is in fact an adit was it a) the same coal as Advent City and b) used commercially or site only?]
		146668-34	Flyvrak-del
	Remains of cable railway	93040-2	Trase
	Remains of cable railway	93040-3	Trase
	Remains of cable railway	93040-4	Trase
	[relationship between Løkken and Askeladden unclear]	93040-10	Taubanebukk
		93040-11	Taubanebukk
	Coal dump and stockpiles	93040-12	Kulltipp
		93040-13	Fundament
		93040-14	Jernbanetrase
	[relationship between Løkken and Askeladden unclear]	93040-15	Grop
		93040-16	Løsfunn
		93040-17	Tuft
		93040-18	Taubanebukk
	Remains of the dual track tramcar line	93040-19	Trase

**Table 2** Comparison of features mapped by Løkken (left) and registered in Askeladden in 2012 (right). Gaps in the table mark gaps in the record. (Sources: Johannessen 1997, askeladden.ra.no)

### ***Repeat photography***

As mentioned above, the full photographic record of Advent City and Hiorthhamn is available in Appendix A3, while Appendix A7 contains the results of the repeat photography done at Hiorthhamn. Again, the repeat photography helps to visualise the site. IN this particular instance, the author has tried to compare and contrast the buildings of Advent City with those at their new location in Hiorthhamn. The results are remarkable.

### ***Measured drawing***

In addition to repeat photography at Hiorthhamn, measured plan drawings were made of six large buildings on the site. These plans are included in Appendix 8. The originals having been British prefabs, they were re-measured in both the metric and the imperial scale. As can be seen in the appendix, the imperial scale 'makes more sense'. Together with the observation that stencilled marks to guide re-assembling remain at the corners of all six buildings, the imperial measurements are another indication that very few alterations had indeed taken place.

### **Environmental impacts of former industrial sites**

#### ***Advent City.***

Thanks to LASHIPA 1 and Kruse's subsequent thesis, the unassuming remains of the mine and the settlement of Advent City constitute one of the best studied former industrial sites in Svalbard. Activities here began in 1901, intensified after 1904, and were over already in 1908. Another cornerstone in the subsequent site formation processes was the relocation of most of the buildings to Hiorthhamn in 1917. With the structures gone, Advent City never formed a focal point for tourism and its damaging side effects. In fact, with the exception of ongoing erosion along the stream and along the coast, site degradation may have been kept at a minimum at Advent City. It is these factors – limited spatial extent, clear temporal boundaries, and minimal site formation processes over the next 100 years (coupled with easy accessibility from Longyearbyen) – that make Advent City an ideal place to investigate the long-lasting impacts of its former inhabitants on their surroundings.

***Mining.*** The removal of coal has since led to a settling of the mountain and lasting changes in topography.

***Groundworks.*** Groundworks have taken place all over the site: pithead, building platforms, tracks, and more. Groundworks have led to lasting changes in topography. Groundworks also had an impact on vegetation: if vegetation had formerly been destroyed, plants are now returning with a preference to shelter in and around human-made features.

**Spoil and stockpile.** Heaped material of any kind has led to lasting changes in the topography, even if attempts were made to remove it. This material is initially dumped on the vegetation. If vegetation was thereby destroyed, it was not observed if and how it is returning.

**Trampling.** Among all the groundworks and relocated material, trampling along footpaths, for instance, was very noticeable. Stone displacement, soil compaction, and vegetation changes were noticeable.

**Invasive species.** Grasses were noted and sampled at the mine entrance, at the stream, among the former buildings, and in association with possible toilets. It was not immediately obvious if these were invasive species which would in all likelihood have arrived with the miners. Other 'invasive species' known to have been on site were horses and pigs. It is likely that some of the butchered animal remains found on site belonged to these domestic animals. It is also likely that they were fed with hay, which would form another pathway for invasive plants.

**Endemic species.** Reindeer bones were found in the site. Although it is known from historical sources that the miners hunted reindeer, it was not immediately obvious from the surface finds if these animals had been butchered.

### **Hiorthhamn**

Kruse had no prior knowledge of Hiorthhamn. The site is larger than Advent City, structures are still upstanding, and the temporal dimension is not delineated as neatly because habitation and recreational use continues to this day. It would not be Kruse's first choice of site to study the environmental impacts of a former industrial site, but she believes that it lends itself better to the purpose than either Longyearbyen, Barentsburg, or Ny Ålesund with their extremely complex site formation processes, which are also still open-ended. Owing to a similar accessibility from Longyearbyen, Hiorthhamn could function as a comparative study to Advent City.

### **Future work**

In light of the above, Kruse recommends further archaeological and environmental fieldwork at Advent City with the aim of coming to terms with the immediate environmental impact of four years of intensive mining activity followed by a period of recovery over the next 100 years. Such a clearly delineated study is currently not possible at any other site in Svalbard.

**Excavation.** The primary focus of the fieldwork should be the excavation (full or partial) of the middens below the stables, of what are currently thought of as the summer toilets, and of what are currently thought of as the winter toilets. It is assumed that these features can provide detailed information about the diet (butchered animal remains, kitchen wastes) and health (parasites, pests) of the miners. Depending on what animals were being butchered and how many, the impact on the environment through either hunting or introducing domestic breeds can be deduced.

**Vegetation survey.** The secondary focus should be a detailed vegetation survey on the site in order to find out how groundworks, relocated materials, and trampling has affected the vegetation at the time and to what extent it has recovered since. Invasive species should be identified and analysed. A vegetation distribution map of the site and its immediate surroundings can give insight into how, if at all, these invasive species have spread over a century.

**Topographic survey.** The third focus could be a detailed topographic survey in order to investigate if it is possible to work out volumes of ground shifted around on industrial sites. This is something Kruse had intended to do at the former marble quarries on Blomstrand to see how much rock had actually been extracted on that site. With the differentiated GPS not being allowed in the radio-silent vicinity of Ny Ålesund, the method could yet be tested at this location.

**Hiorthhamn.** Hiorthhamn being less well delineated than Advent City, it is only of secondary importance in these recommendations. Nonetheless, if suitable target areas at the location could be identified, a similar programme of excavation, vegetation survey, and topographic survey could be carried out. This would have a high comparative value, and it would form a

missing link between the abandoned site of Advent City and ongoing environmental studies at rapidly changing places like Longyearbyen, etc.

## **Conclusion**

It was a worthwhile exercise to re-visit the historical archaeology of Advent City and to a lesser extent Hiorthhamn. The archaeological team could answer their guiding questions, which in turn informed the recommendation for further fieldwork at Advent City (and to a lesser extent Hiorthhamn). 1) Despite previous fieldwork, the (industrial) archaeology of Advent City and Hiorthhamn has not been recorded in its entirety. Yet, it has to be said that the current records do reflect the remits of their surveyors well. A shift in research focus makes future work possible as well as necessary. 2) Although it is generally known that the prefabricated buildings of Advent City had been relocated to Hiorthhamn, it had not previously been recorded to what extent the originals were kept intact; in fact, there has been very little alteration since, making the houses of Hiorthhamn the largest group of old buildings still in use in Svalbard. 3) Advent City lends itself very well to the study of lasting impacts of a former coal-mining site on its environment, more so than Hiorthhamn, although the latter could assume a comparative role. The recommendation for further fieldwork at Advent City comprises excavation of selected features, vegetation survey, and topographic survey. Not only would this programme offer new insights into diet, health as well as short-term and long-term environmental impacts; it would serve as a precedent to future archaeological studies with a key environmental remit. The growing body of such data could close gaps in our current knowledge of the historical ecology of Svalbard and inform cultural and environmental conservation management.

**Frigga Kruse**

Polar historical archaeologist

Arctic Centre, Groningen

September 2015

## References

Foosnæs, K. (2012) *Rapport arkeoloiske registreringer Longyearbyen planområde 2012*. Longyearbyen: Governor of Svalbard.

Johannessen, L. J. (1997) *Hiorthhamn. Coal mining under difficult conditions*. Longyearbyen: Governor of Svalbard.

Kruse, F. (2013) *Frozen assets. British mining, exploration, and geopolitics on Spitsbergen, 1904-53*. Eelde: Barkhuis.

Norwegian Polar Institute (2003) *The place names of Svalbard*. Tromsø: Norwegian Polar Institute.

## Online sources

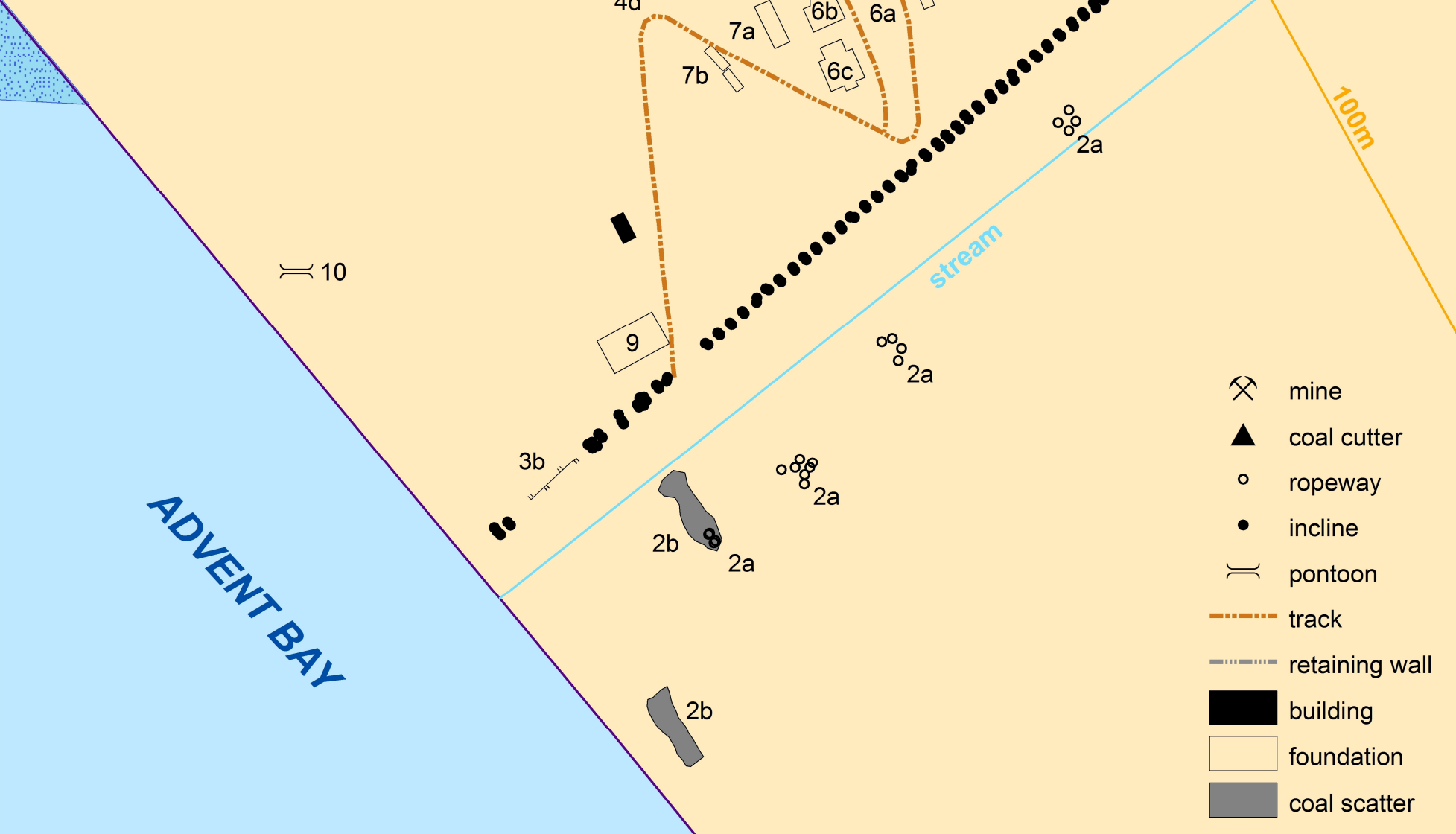
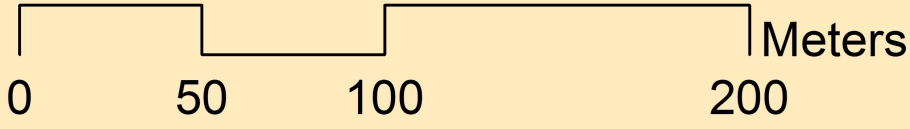
<http://www.npolar.no/en/services/maps/>

<https://askeladden.ra.no>

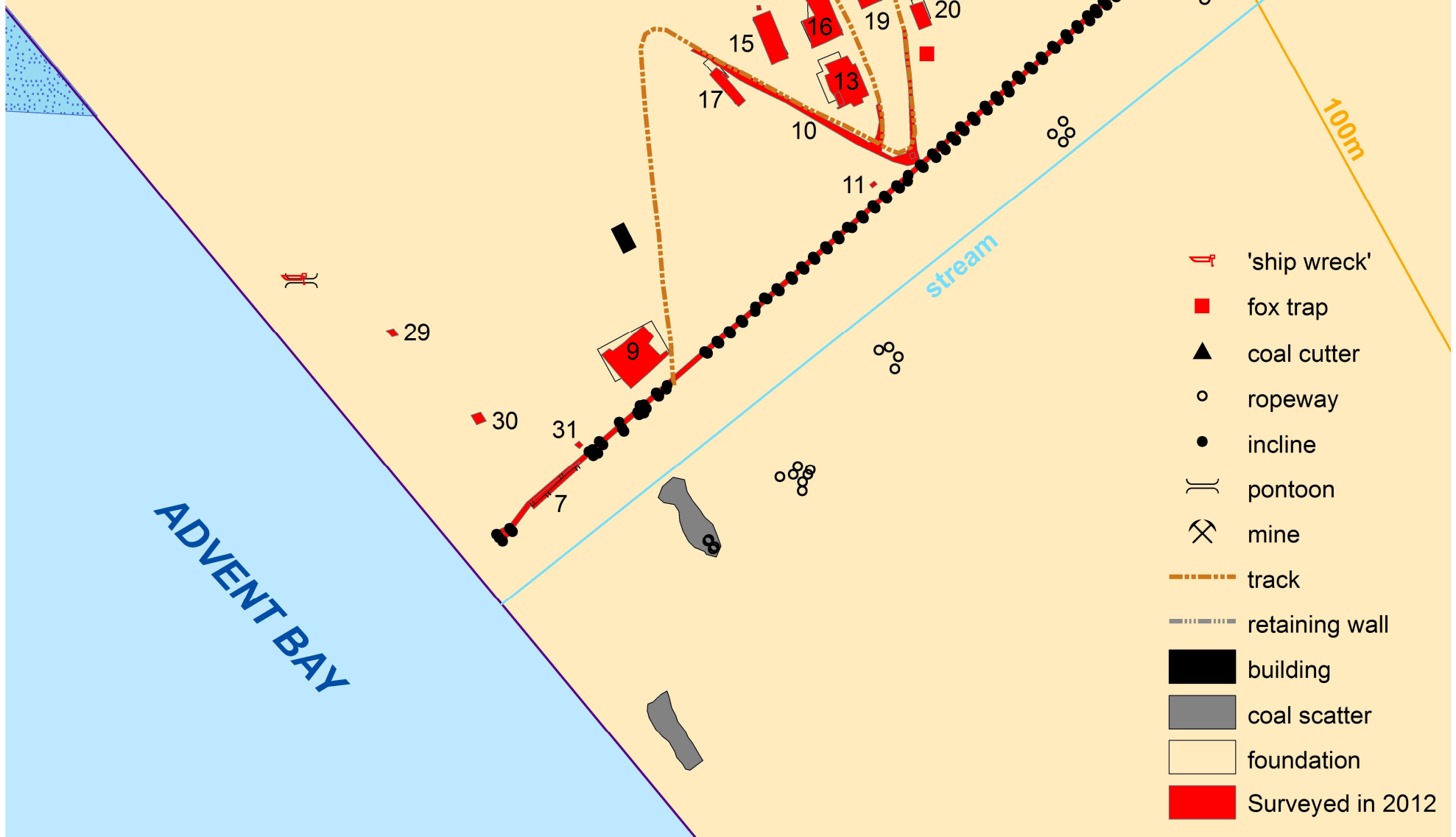
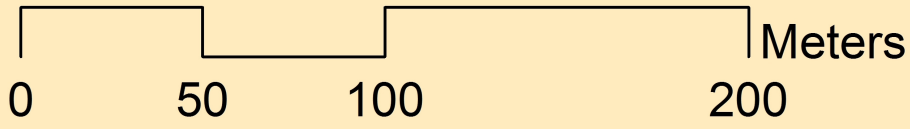
## Appendix A1














### **Comparative maps of Advent City**





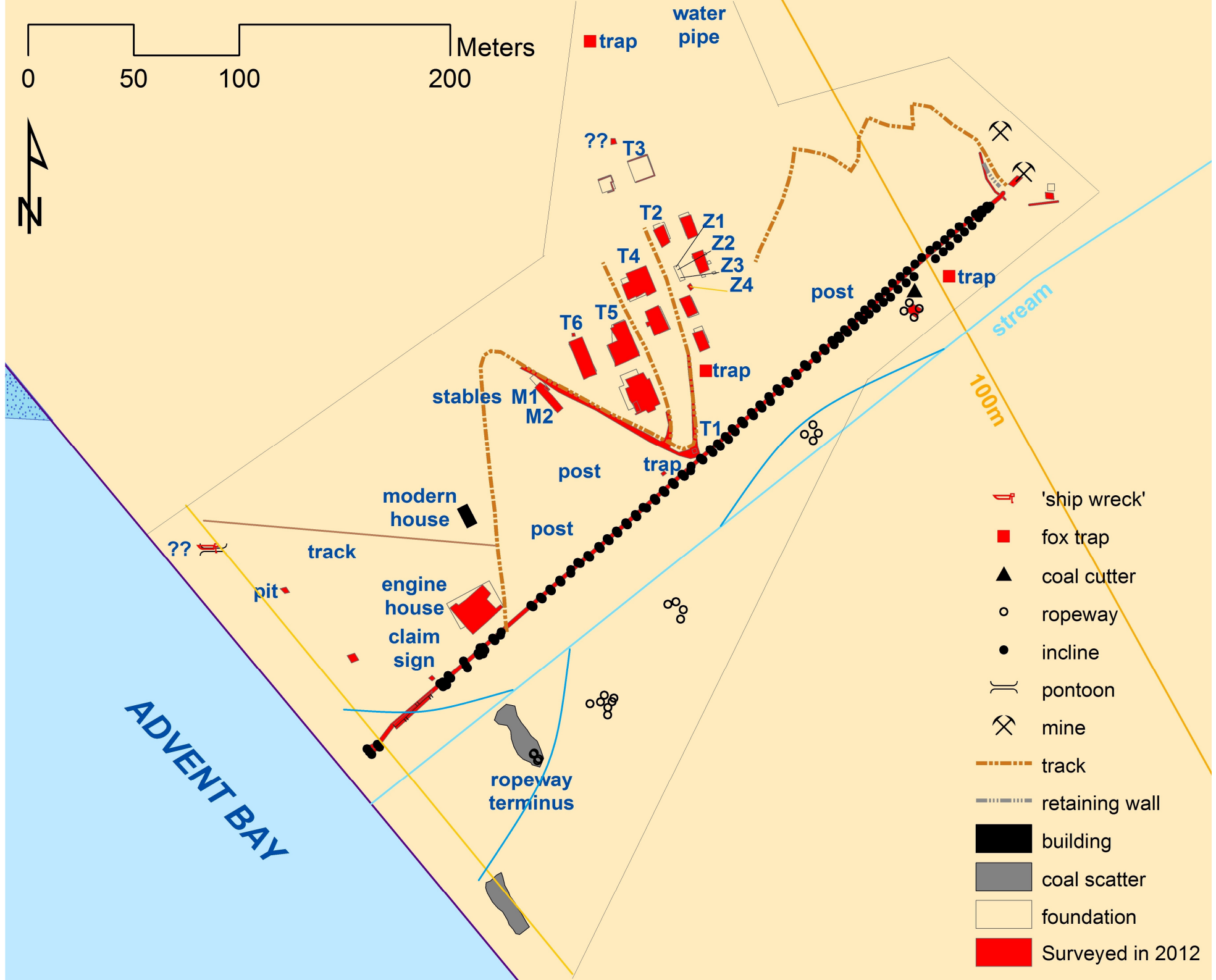
- mine
- coal cutter
- ropeway
- incline
- pontoon
- track
- retaining wall
- building
- foundation
- coal scatter



-  'ship wreck'
-  fox trap
-  coal cutter
-  ropeway
-  incline
-  pontoon
-  mine
-  track
-  retaining wall
-  building
-  coal scatter
-  foundation
-  Surveyed in 2012

## Appendix A2

# **Newly recorded archaeological features**



<b>Newly recorded archaeological features</b>		
Site: Advent City, Adventfjorden, Spitsbergen		
Sheet <u>  </u> of <u>  </u>		
	Photos	Initial, Date
<b>Observations, preliminary interpretation, additional questions</b>		
<b>Landscape.</b> The landscape in which Advent City is situated remains poorly recorded. A good overview photograph can go a long way. Linear features such as the coast line, the width of the beach, and the stream should be recorded in more detail. Time-permitting, the topography, earthworks, vegetation cover and species could be recorded.	P1040926	FK, 22/07/2014
<b>Limits of survey.</b> Archaeological surveys have hitherto not defined their limits, which leads to the question how complete the surveys are.		
<b>Site formation processes.</b> Archaeological surveys have been too limited to the particular questions the surveyors asked of the site. Surveying later features such as the modern cabin of the changing stream bed, i.e. erosion, can highlight essential site formation processes.	P1040926, P1050034	FK, 22/07/2014
<b>Modern cabin.</b> It is remarkable that the modern cabin has not been surveyed by LASHIPA or the sysselemann. It has only been manually added to the LASHIPA map on hindsight.	P1040926	FK, 22/07/2014
<b>Ropeway terminus.</b> In light of lacking information, this is a likely interpretation for this feature of earthworks, colliery spoil, waste rock or building stone, and wooden posts.	P1040929, P1050017, historical photo (B)	FK, 22/07/2014
<b>Claim sign.</b> This metal sign without text features prominently in many photographs but has not yet been recorded properly. Since falling out of use, it has been used for target practice.	P1040987, DSC_0935	FK, IS, 22/07/2014
<b>Engine house, detail of construction.</b> Details include pillars from local roughly-hewn sandstone and concrete mixed with beach pebbles.	P1050086, P1050087, P1050093, P1050104	FK, 22/07/2014
<b>British bricks.</b> There are different kinds of British bricks in the site, which could be used to build up a network of suppliers.	P1050105, P1050107	FK, 22/07/2014
<b>Lined pit at beach.</b> Although the square pit at the beach has been recorded in Askeladden, a function has not been suggested. It shows signs of burning.	P1050059	FK, 22/07/2014
<b>Boat or pontoon?</b> The question remains whether this feature is a boat, perhaps used for water, or a pontoon for the jetty. It does not appear in any of the historical photographs. It might not even belong to the former mining settlement.	P1050064, P1050075	FK, 22/07/2014
<b>Additional track and possible landing site.</b> On photographs, it becomes obvious that the long track on site did not just terminate at the former engine house but runs along the bottom of the modern cabin to the shore near the boat/pontoon. Was there a first or additional landing site here?	P1040926, P1040928, hist. photos (D), (I), (J), (K)	FK, 22/07/2014
<b>Postholes and posts.</b> Two sawn-off wooden posts have been noticed between the engine house and the former settlement, another one to the W of the incline. There are probably many more and if recorded they will give a picture of the intended electricity supply. It is not known, however, if electricity was successfully produced.	P1040932, P1050109, P1050137, hist. photos (A),(C), (D), (R)	FK, 22/07/2014
<b>Stables and middens M1 and M2.</b> It is safe to assume that the bottom-most building of the settlement have a livestock-related function and was probably the stables. Two sizable middens contain much organic material including cut animal bones and support a lush vegetation of grasses, which in turn has been grazed on by geese.	P1050112, P1050122, hist. photo (V)	FK, 22/07/2014

## Newly recorded archaeological features

Site: Advent City, Adventfjorden, Spitsbergen

Sheet    of   

<b>Observations, preliminary interpretation, additional questions</b>	<b>Photos</b>	<b>Initial, Date</b>
<b>Fox traps.</b> On vantage points. Completely ignored by LASHIPA with an interest in mining, three of four traps are listed in Askeladden. Or has one of the traps simply been mapped in the wrong location? - I did not check.	P1050145, DSC_0952	FK, IS, 22/07/2014
<b>Water pipe.</b> A water pipe enters the settlement from the north. Any water will have frozen in winter. Where does it come from? Where did it go?	IMG_5298, hist. photo (S)	SD, 22/07/2014
<b>Outhouses T1 to T6.</b> These were outhouses with two cubicles and a metal bucket, a slop-pail in each. They were probably only used in summer since their contents would have frozen in winter.	P1050148, P1050168, P1050170, DSC_0894, hist photos (A), (D), (F), (H), (M), (Q), (R)	FK, IS, 22/07/2014
<b>Outhouses?? Z1 to Z4.</b> Thought of as toilets, the preliminary interpretation also included middens, composts, and vegetable patches before coming full circle to toilets. It is possible that the 'summer toilets' were neglected in favour of these bucket-less ones in the winter.	P1050158, P1050159, P1050164, hist. photo (S)	FK, 22/07/2014
<b>??</b> Askeladden lists a feature of four wooden posts of unknown function at the northern extremity of the settlement. Could it have had anything to do with the water supply?	DSC_0948	IS, 22/07/2014

## Appendix A3

# **Photographic record of Advent City and Hiorthhamn**





P1040926.JPG



P1040928.JPG



P1040929.JPG



P1040930.JPG



P1040931.JPG



P1040932.JPG



P1040933.JPG



P1040934.JPG



P1040935.JPG



P1040936.JPG



P1040937.JPG



P1040938.JPG



P1040939.JPG



P1040940.JPG



P1040941.JPG



P1040942.JPG



P1040945.JPG



P1040946.JPG



P1040947.JPG



P1040948.JPG



P1040951.JPG



P1040952.JPG



P1040953.JPG



P1040954.JPG



P1040955.JPG



P1040956.JPG



P1040957.JPG



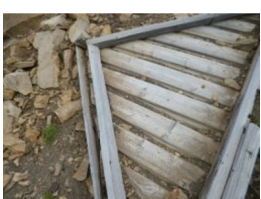
P1040958.JPG



P1040959.JPG



P1040960.JPG



P1040961.JPG



P1040962.JPG



P1040963.JPG



P1040964.JPG



P1040965.JPG





P1040966.JPG



P1040967.JPG



P1040969.JPG



P1040971.JPG



P1040972.JPG



P1040973.JPG



P1040974.JPG



P1040976.JPG



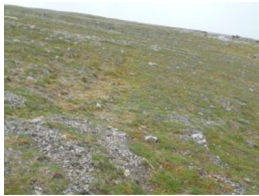
P1040977.JPG



P1040978.JPG



P1040979.JPG



P1040980.JPG



P1040981.JPG



P1040982.JPG



P1040983.JPG



P1040984.JPG



P1040985.JPG



P1040986.JPG



P1040987.JPG



P1040988.JPG



P1040989.JPG



P1040990.JPG



P1040991.JPG



P1040992.JPG



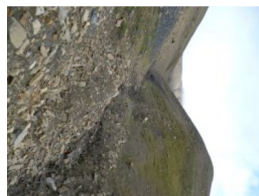
P1040993.JPG



P1040994.JPG



P1040995.JPG



P1040996.JPG



P1040997.JPG



P1040998.JPG



P1040999.JPG



P1050001.JPG



P1050002.JPG



P1050003.JPG



P1050004.JPG





P1050005.JPG



P1050006.JPG



P1050007.JPG



P1050008.JPG



P1050009.JPG



P1050010.JPG



P1050012.JPG



P1050014.JPG



P1050015.JPG



P1050016.JPG



P1050017.JPG



P1050018.JPG



P1050019.JPG



P1050020.JPG



P1050021.JPG



P1050023.JPG



P1050025.JPG



P1050026.JPG



P1050027.JPG



P1050028.JPG



P1050029.JPG



P1050030.JPG



P1050031.JPG



P1050032.JPG



P1050033.JPG



P1050034.JPG



P1050036.JPG



P1050037.JPG



P1050038.JPG



P1050039.JPG



P1050040.JPG



P1050041.JPG



P1050042.JPG



P1050043.JPG



P1050044.JPG





P1050045.JPG



P1050046.JPG



P1050047.JPG



P1050048.JPG



P1050051.JPG



P1050052.JPG



P1050053.JPG



P1050054.JPG



P1050055.JPG



P1050056.JPG



P1050057.JPG



P1050058.JPG



P1050059.JPG



P1050060.JPG



P1050061.JPG



P1050062.JPG



P1050063.JPG



P1050064.JPG



P1050065.JPG



P1050066.JPG



P1050067.JPG



P1050068.JPG



P1050069.JPG



P1050070.JPG



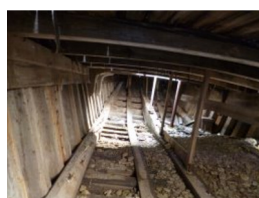
P1050071.JPG



P1050072.JPG



P1050074.JPG



P1050075.JPG



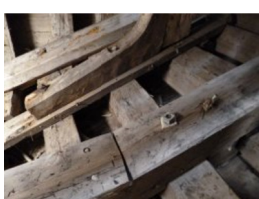
P1050076.JPG



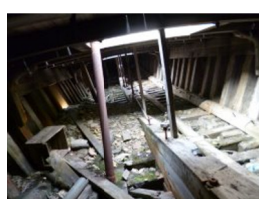
P1050077.JPG



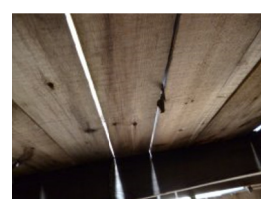
P1050078.JPG



P1050079.JPG



P1050080.JPG



P1050081.JPG



P1050082.JPG





P1050083.JPG



P1050085.JPG



P1050086.JPG



P1050087.JPG



P1050088.JPG



P1050089.JPG



P1050090.JPG



P1050091.JPG



P1050092.JPG



P1050093.JPG



P1050094.JPG



P1050095.JPG



P1050096.JPG



P1050098.JPG



P1050099.JPG



P1050100.JPG



P1050101.JPG



P1050103.JPG



P1050104.JPG



P1050105.JPG



P1050106.JPG



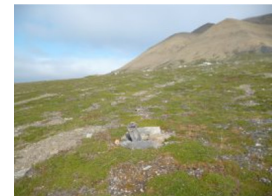
P1050107.JPG



P1050108.JPG



P1050109.JPG



P1050110.JPG



P1050111.JPG



P1050112.JPG



P1050113.JPG



P1050114.JPG



P1050115.JPG



P1050116.JPG



P1050117.JPG



P1050118.JPG



P1050119.JPG



P1050120.JPG





P1050121.JPG



P1050122.JPG



P1050123.JPG



P1050124.JPG



P1050125.JPG



P1050126.JPG



P1050127.JPG



P1050129.JPG



P1050130.JPG



P1050131.JPG



P1050132.JPG



P1050133.JPG



P1050134.JPG



P1050135.JPG



P1050136.JPG



P1050137.JPG



P1050138.JPG



P1050139.JPG



P1050140.JPG



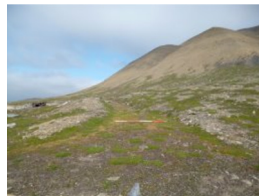
P1050141.JPG



P1050142.JPG



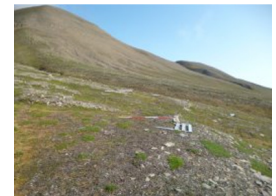
P1050143.JPG



P1050144.JPG



P1050145.JPG



P1050146.JPG



P1050147.JPG



P1050148.JPG



P1050149.JPG



P1050150.JPG



P1050151.JPG



P1050152.JPG



P1050153.JPG



P1050154.JPG



P1050155.JPG



P1050156.JPG





P1050157.JPG



P1050158.JPG



P1050159.JPG



P1050160.JPG



P1050161.JPG



P1050162.JPG



P1050163.JPG



P1050164.JPG



P1050165.JPG



P1050166.JPG



P1050167.JPG



P1050168.JPG



P1050169.JPG



P1050170.JPG



P1050171.JPG



P1050172.JPG



P1050173.JPG



P1050174.JPG



P1050175.JPG



P1050176.JPG



P1050177.JPG



P1050178.JPG



P1050179.JPG



P1050180.JPG



P1050181.JPG



P1050182.JPG



P1050183.JPG



P1050184.JPG



P1050185.JPG



P1050186.JPG



P1050187.JPG



P1050188.JPG



P1050189.JPG



P1050194.JPG



P1050195.JPG





P1050196.JPG



P1050197.JPG



P1050198.JPG



P1050199.JPG



P1050200.JPG



P1050201.JPG



P1050202.JPG



P1050203.JPG



P1050204.JPG



P1050205.JPG



P1050206.JPG



P1050207.JPG



P1050208.JPG



P1050209.JPG



P1050210.JPG



P1050211.JPG



P1050212.JPG



P1050213.JPG



P1050214.JPG



P1050215.JPG



P1050216.JPG



P1050217.JPG



P1050218.JPG



P1050219.JPG





DSC\_0893.JPG



DSC\_0894.JPG



DSC\_0897.JPG



DSC\_0899.JPG



DSC\_0900.JPG



DSC\_0910.JPG



DSC\_0914.JPG



DSC\_0916.JPG



DSC\_0917.JPG



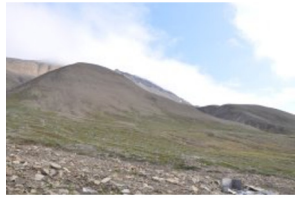
DSC\_0923.JPG



DSC\_0924.JPG



DSC\_0927.JPG



DSC\_0928.JPG



DSC\_0931.JPG



DSC\_0935.JPG



DSC\_0936.JPG



DSC\_0941.JPG



DSC\_0943.JPG



DSC\_0947.JPG



DSC\_0948.JPG



DSC\_0950.JPG



DSC\_0951.JPG



DSC\_0952.JPG



DSC\_0954.JPG



DSC\_0956.JPG



DSC\_0957.JPG



DSC\_0960.JPG



DSC\_0970.JPG



DSC\_0971.JPG



DSC\_0972.JPG





DSC\_0001.JPG



DSC\_0002.JPG



DSC\_0003.JPG



DSC\_0004.JPG



DSC\_0005.JPG



DSC\_0007.JPG



DSC\_0009.JPG



DSC\_0011.JPG



DSC\_0013.JPG



DSC\_0015.JPG



DSC\_0016.JPG



DSC\_0017.JPG



DSC\_0021.JPG



DSC\_0022.JPG



DSC\_0023.JPG



DSC\_0031.JPG



DSC\_0032.JPG



DSC\_0033.JPG



DSC\_0034.JPG



DSC\_0036.JPG



DSC\_0037.JPG



DSC\_0038.JPG



DSC\_0039.JPG



DSC\_0041.JPG



DSC\_0042.JPG



IMG\_5241.JPG



IMG\_5241\_edit.jpg



IMG\_5242.JPG



IMG\_5248.JPG



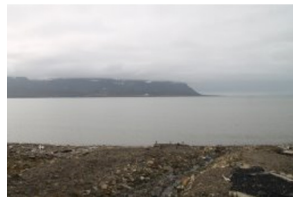
IMG\_5251.JPG



IMG\_5267.JPG



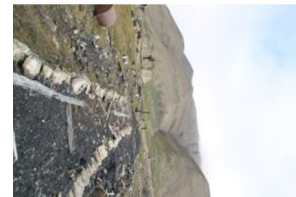
IMG\_5268.JPG



IMG\_5271.JPG



IMG\_5272 edit.jpg



IMG\_5272.JPG





IMG\_5273.JPG



IMG\_5275.JPG



IMG\_5284.JPG



IMG\_5288.JPG



IMG\_5289.JPG



IMG\_5292.JPG



IMG\_5295.JPG



IMG\_5296.JPG



IMG\_5298.JPG



IMG\_5299.JPG



IMG\_5301.JPG



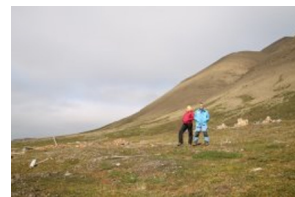
IMG\_5305.JPG



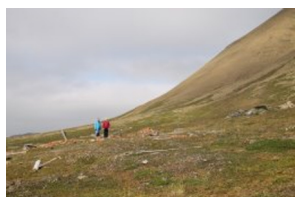
IMG\_5306.JPG



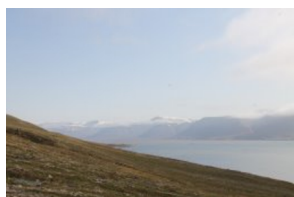
IMG\_5307.JPG



IMG\_5308.JPG



IMG\_5309.JPG



IMG\_5310.JPG



IMG\_5311.JPG



IMG\_5340.JPG



IMG\_5342.JPG



IMG\_5343.JPG



IMG\_5344.JPG



IMG\_5344\_edit.jpg



IMG\_5345.JPG



IMG\_5346.JPG



IMG\_5347.JPG



IMG\_5348.JPG



IMG\_5349.JPG



IMG\_5350.JPG



IMG\_5351.JPG



IMG\_5352.JPG



IMG\_5353.JPG



IMG\_5354.JPG



IMG\_5355.JPG



IMG\_5356.JPG



IMG\_5357.JPG



IMG\_5358.JPG



IMG\_5359.JPG



IMG\_5360.JPG



IMG\_5361.JPG



IMG\_5362.JPG



IMG\_5363.JPG



IMG\_5364.JPG



IMG\_5365.JPG



IMG\_5366.JPG

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>1</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1040926	Overview of Advent City in Advent Bay, power plant in the centre, looking NE	FK, 22/07/14
Digital	P1040928	Overview of Advent City in Advent Bay, power plant in the centre, looking NE	FK, 22/07/14
Digital	P1040929	Overview of Advent City in Advent Bay, looking NE	FK, 22/07/14
Digital	P1040930	Equipment, '10 Gall's E. Pugh & Co Wednesbury'	FK, 22/07/14
Digital	P1040931	Equipment, 'No. 12 100 liter guaranteed'	FK, 22/07/14
Digital	P1040932	Drill hole to split rock	FK, 22/07/14
Digital	P1040933	Mine entrance (Kruse, 2013: ID 1a), scale 2m, looking NE	FK, 22/07/14
Digital	P1040934	Mine entrance 1a, coal seam, scale 2m, looking N	FK, 22/07/14
Digital	P1040935	Mine entrance 1a, coal seam, scale 2m, looking N	FK, 22/07/14
Digital	P1040936	Mine entrance 1a, collapsed, scale 2m, looking N	FK, 22/07/14
Digital	P1040937	Mine entrance 1a, collapsed	FK, 22/07/14
Digital	P1040938	Mine entrance 1a, post and wire, scale 30cm	FK, 22/07/14
Digital	P1040939	Mine entrance 1a, cable	FK, 22/07/14
Digital	P1040940	Mine entrance 1a, posts and beams, gun for scale, looking NE	FK, 22/07/14
Digital	P1040941	Ingvild Sjoebakk (IS) and Sarah Dresscher (SD) in the process of repeat photography near the former smithy, looking E	FK, 22/07/14
Digital	P1040942	Mine entrance 1a, pieces of cable	FK, 22/07/14
Digital	P1040945	Mine entrance 1a, grass plants, scale 10cm	FK, 22/07/14
Digital	P1040946	Mine opening 1b, collapsed, scale 2m, looking NE	FK, 22/07/14
Digital	P1040947	Mine opening 1b, collapsed, scale 2m, looking NE	FK, 22/07/14
Digital	P1040948	Mine opening 1b, collapsed, scale 2m, looking NE	FK, 22/07/14
Digital	P1040951	Retaining wall 1c, scale 2m, looking E	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>2</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1040952	Polar horsetail, scale 10cm	FK, 22/07/14
Digital	P1040953	Retaining wall 1c, scale 2m, looking E	FK, 22/07/14
Digital	P1040954	Wire rope below retaining wall, looking S	FK, 22/07/14
Digital	P1040955	Retaining wall, light cover of coal, looking towards mine opening 1b, looking NW	FK, 22/07/14
Digital	P1040956	Smithy 1d, scale 2m, looking NE	FK, 22/07/14
Digital	P1040957	Smithy 1d, scale 2m, looking NE	FK, 22/07/14
Digital	P1040958	Retaining wall on route to smith 1d, scale 2m, looking E	FK, 22/07/14
Digital	P1040959	Smithy 1d, scale 2m, looking E	FK, 22/07/14
Digital	P1040960	Smithy 1d, sandstone and concrete, some brick, some wooden roof	FK, 22/07/14
Digital	P1040961	Smithy 1d, wooden gable	FK, 22/07/14
Digital	P1040962	Smithy 1d, detail of wooden gable, use of cloth	FK, 22/07/14
Digital	P1040963	Smith 1d, stone wall and wooden roof	FK, 22/07/14
Digital	P1040964	Smithy 1d, stone walls and wooden gables and roof, scale 2m, looking SE	FK, 22/07/14
Digital	P1040965	View from mine entrance 1a towards Plataberget and Vestpynten, scale 2m, looking SW	FK, 22/07/14
Digital	P1040966	View from mine entrance 1a towards Plataberget and Vestpynten, scale 2m, looking SW	FK, 22/07/14
Digital	P1040967	IS and SD at mine entrance 1a	FK, 22/07/14
Digital	P1040969	View from mine entrance 1a, retaining wall, wire rope, over former Advent City towards Plataberget and Vestpynten, looking SE	FK, 22/07/14
Digital	P1040971	Tracing the retaining wall downhill, IS marking the footpath, looking NW	FK, 22/07/14
Digital	P1040972	Tracing the retaining wall / footpath, marked by large cobbles and boulders, looking NW	FK, 22/07/14
Digital	P1040973	Parts of retaining wall along footpath	FK, 22/07/14
Digital	P1040974	Retaining wall and footpath still recognisable but much colluvium from above, looking NW	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>3</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1040976	View over Advent City, footpath not immediately obvious, looking SW	FK, 22/07/14
Digital	P1040977	Wooden planks along the footpath, many nails, to fasten cloth?	FK, 22/07/14
Digital	P1040978	IS marking a bend in the footpath, looking S	FK, 22/07/14
Digital	P1040979	IS marking a bend in the footpath, looking E	FK, 22/07/14
Digital	P1040980	Footpath	FK, 22/07/14
Digital	P1040981	Footpath	FK, 22/07/14
Digital	P1040982	Footpath	FK, 22/07/14
Digital	P1040983	Footpath: IS on the upper stretch, bend to the right, lower stretch in the foreground	FK, 22/07/14
Digital	P1040984	Piece of wire along footpath	FK, 22/07/14
Digital	P1040985	Coal cutter 1e, scale 2m, looking E	FK, 22/07/14
Digital	P1040986	Coal cutter 1e, scale 2m, looking E	FK, 22/07/14
Digital	P1040987	Coal cutter 1e, a new 'claim sign'?, vandalism in any case	FK, 22/07/14
Digital	P1040988	Coal cutter 1e, scale 2m, looking W	FK, 22/07/14
Digital	P1040989	Coal cutter 1e, looking S	FK, 22/07/14
Digital	P1040990	Near coal cutter	FK, 22/07/14
Digital	P1040991	Near coal cutter	FK, 22/07/14
Digital	P1040992	Near coal cutter	FK, 22/07/14
Digital	P1040993	Coal cutter, no identifying feature on the inside	FK, 22/07/14
Digital	P1040994	Coal cutter, no identifying feature on the outside	FK, 22/07/14
Digital	P1040995	Coal cutter, wire rope, did the rope snap while the machine was being hauled up to the mine?	FK, 22/07/14
Digital	P1040996	The melt water gully on which mine entrance 1 a lies, looking NE	FK, 22/07/14



<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>4</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1040997	Detail of the melt water gully, ongoing erosion	FK, 22/07/14
Digital	P1040998	Wire rope	FK, 22/07/14
Digital	P1040999	Melt water gully, base of ropeway tower (Kruse, 2013: 2a; new ID 2b)	FK, 22/07/14
Digital	P1050001	Ropeway tower 2b	FK, 22/07/14
Digital	P1050002	View from ropeway tower 2b to mine entrance 1a, looking NE	FK, 22/07/14
Digital	P1050003	A ropeway bucket on the colluvium	FK, 22/07/14
Digital	P1050004	A ropeway bucket on the colluvium, scale 2m	FK, 22/07/14
Digital	P1050005	A ropeway bucket on the colluvium, scale 2m	FK, 22/07/14
Digital	P1050006	View from gully towards power plant out to Isfjorden, looking W	FK, 22/07/14
Digital	P1050007	View of a spoil heap (?) and the otherwise featureless shore towards Plataberget, looking SW	FK, 22/07/14
Digital	P1050008	No clear features at the shore, some scattered coal (old ID 2b, new ID 2g), looking E	FK, 22/07/14
Digital	P1050009	No clear features at the shore, some scattered coal (2g), a wooden beam, looking NE	FK, 22/07/14
Digital	P1050010	No clear features at the shore, some scattered coal (2g, in locations of former ropeway tower of terminus?), some wooden beams and planks, looking S	FK, 22/07/14
Digital	P1050012	No clear features at the shore, some scattered coal (2g), driftwood?, scale 2m, looking SW	FK, 22/07/14
Digital	P1050014	No clear features on the shore, looking W	FK, 22/07/14
Digital	P1050015	Coal scatter (old ID 2b, new ID 2f), former stockpile?, looking N	FK, 22/07/14
Digital	P1050016	Dry bed of a melt water stream, will it erode the coal scatter in time?, looking NE	FK, 22/07/14
Digital	P1050017	Top of coal scatter 2f, it now looks less like a stockpile, was there a plant here?, for sorting?, looking NW	FK, 22/07/14
Digital	P1050018	Top of coal scatter 2f, sandstone cobbles, wooden planks, not much coal: difficult to interpret, looking S	FK, 22/07/14
Digital	P1050019	Top of coal scatter 2f, sandstone cobbles, wooden planks, not much coal: difficult to interpret, looking W	FK, 22/07/14
Digital	P1050020	Top of coal scatter 2f, an old hearth?, a sunken barrel?, looking SW	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>5</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050021	Dry bed of a melt water stream, was this here when Advent City was in operation?, or did it cut off coal scatter 2f from incline 3a?, looking SW	FK, 22/07/14
Digital	P1050023	Relationship between slow-flowing melt water stream and incline 3a, looking SW	FK, 22/07/14
Digital	P1050025	Solidified contents of barrel, probably cement	FK, 22/07/14
Digital	P1050026	Ropeway bucket	FK, 22/07/14
Digital	P1050027	Incline 3a, coal scatter, why was it lost here?, looking SW	FK, 22/07/14
Digital	P1050028	Incline 3a, wooden construction immediately to the right (northwest), looking SW	FK, 22/07/14
Digital	P1050029	Last posts of incline 3a, start of incline 3b, coal scatter to the left (southeast) scale 2m, looking SW	FK, 22/07/14
Digital	P1050030	Last posts of incline 3a and small coal scatter eroded by melt water stream, not large enough to be a stockpile, looking W	FK, 22/07/14
Digital	P1050031	Small coal scatter or pile, eroded by meltwater stream, scale 2m, looking SW	FK, 22/07/14
Digital	P1050032	Incline 3b, coal scatter and retaining sandstone walls, scale 2m, looking SW	FK, 22/07/14
Digital	P1050033	Incline 3b, coal scatter and retaining sandstone walls, erosion by water clearly visible, scale 2m, looking NE	FK, 22/07/14
Digital	P1050034	Incline 3b, coal scatter and retaining sandstone walls, erosion by water clearly visible, scale 2m, looking NE	FK, 22/07/14
Digital	P1050036	SD and IS investigating grass plants	FK, 22/07/14
Digital	P1050037	Grass plants in the meltwater stream	FK, 22/07/14
Digital	P1050038	Grass plants in the meltwater stream	FK, 22/07/14
Digital	P1050039	Grass plants in the meltwater stream	FK, 22/07/14
Digital	P1050040	Grass plants in the meltwater stream	FK, 22/07/14
Digital	P1050041	Grass plants in the meltwater stream	FK, 22/07/14
Digital	P1050042	Wooden construction (new ID 3c) at shore, incline terminus and/or pier?, scale 2m, looking SW	FK, 22/07/14
Digital	P1050043	No other features between construction 3c and water besides two short lengths of metal pipe, looking SW	FK, 22/07/14
Digital	P1050044	Two short lengths of metal pipe (left bottom and top right), looking SW	FK, 22/07/14



<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>6</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050045	Short length of metal pipe	FK, 22/07/14
Digital	P1050046	Looking back on construction 3c, looking NE	FK, 22/07/14
Digital	P1050047	Construction 3c, angular colluvium from the melt water stream meets beach deposits, looking E	FK, 22/07/14
Digital	P1050048	Incline 3b, signs of heavy erosion, the strange coal scatter 2f, looking E	FK, 22/07/14
Digital	P1050051	Solidified contents of barrel, probably cement	FK, 22/07/14
Digital	P1050052	View along the beach towards barge or pontoon 10, looking NW	FK, 22/07/14
Digital	P1050053	Fragment of a boat, scale 2m	FK, 22/07/14
Digital	P1050054	Fragment of a boat, scale 2m	FK, 22/07/14
Digital	P1050055	Detail of boat construction, scale 10cm	FK, 22/07/14
Digital	P1050056	Detail of boat construction, scale 10cm	FK, 22/07/14
Digital	P1050057	Fragment of another boat?	FK, 22/07/14
Digital	P1050058	Square pit (new ID 10a) on the shore, looking NW	FK, 22/07/14
Digital	P1050059	Square pit (10a) lined with thick wooden planks, scale 2m, looking SW	FK, 22/07/14
Digital	P1050060	Square pit (10a) lined with thick wooden planks, signs of burning	FK, 22/07/14
Digital	P1050061	Square pit (10a), planks breaking under heavy soil	FK, 22/07/14
Digital	P1050062	View from the square pit (10a) into Advent City, no obvious features, signs of soil slumping, looking NE	FK, 22/07/14
Digital	P1050063	Barge or pontoon (old ID 10, new ID 10b), scale 2m, looking W	FK, 22/07/14
Digital	P1050064	Barge or pontoon (10b), long side, scale 2m, looking SW	FK, 22/07/14
Digital	P1050065	Pontoon 10b, construction detail	FK, 22/07/14
Digital	P1050066	Pontoon 10b, short side, looking NW	FK, 22/07/14
Digital	P1050067	Pontoon 10b, scale 2m	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>7</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050068	Pontoon 10b, detail of bottom	FK, 22/07/14
Digital	P1050069	Pontoon 10b, detail of deck	FK, 22/07/14
Digital	P1050070	Pontoon 10b, detail of deck	FK, 22/07/14
Digital	P1050071	Pontoon 10b, short side, construction detail	FK, 22/07/14
Digital	P1050072	Pontoon 10b, short side, scale 2m, looking SE	FK, 22/07/14
Digital	P1050074	Pontoon 10b, detail of deck	FK, 22/07/14
Digital	P1050075	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050076	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050077	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050078	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050079	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050080	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050081	Pontoon 10b, inside	FK, 22/07/14
Digital	P1050082	Ropeway buckets	FK, 22/07/14
Digital	P1050083	Power plant 9, concrete, scale (red) 50cm	FK, 22/07/14
Digital	P1050085	Brick 'WC 40 C'	FK, 22/07/14
Digital	P1050086	Power plant 9, concrete, scale 2m	FK, 22/07/14
Digital	P1050087	Power plant 9, stone and cement pillar, scale 2m, looking N	FK, 22/07/14
Digital	P1050088	Furnace door	FK, 22/07/14
Digital	P1050089	Power plant 9, gas engine plinth, scale 2m, looking N	FK, 22/07/14
Digital	P1050090	Power plant 9, gas engine plinth and gas engine, scale 2m, looking NE	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>8</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050091	Power plant 9, gas engine plinth and concrete wall, scale 2m	FK, 22/07/14
Digital	P1050092	Power plant 9, concrete wall, scale 2m	FK, 22/07/14
Digital	P1050093	Power plant 9, concrete wall	FK, 22/07/14
Digital	P1050094	Power plant 9, cobbles for wall construction?	FK, 22/07/14
Digital	P1050095	Power plant 9, concrete wall and sandstone wall, scale 2m, looking NE	FK, 22/07/14
Digital	P1050096	Power plant 9, concrete wall and plinths	FK, 22/07/14
Digital	P1050098	Power plant 9, posterior, scale 2m, looking W	FK, 22/07/14
Digital	P1050099	Power plant 9, posterior, brickwork, looking N	FK, 22/07/14
Digital	P1050100	Power plant 9, engine 'The Little Samson', scale (red) 50cm	FK, 22/07/14
Digital	P1050101	Power plant 9, engine 'The Little Samson', signs of repair	FK, 22/07/14
Digital	P1050103	Track 4d from power plant 9, solidified contents of barrels, looking N	FK, 22/07/14
Digital	P1050104	Power plant, store of angular cobbles for concrete, scale 2m	FK, 22/07/14
Digital	P1050105	Brick 'H. Carr & Co' (British)	FK, 22/07/14
Digital	P1050106	Bricks 'H. Carr & Co' (British)	FK, 22/07/14
Digital	P1050107	Brick '?? Sons ??os ??ley' (British)	FK, 22/07/14
Digital	P1050108	Sawn-off post, electricity?, looking E	FK, 22/07/14
Digital	P1050109	Same sawn-off post, looking SW	FK, 22/07/14
Digital	P1050110	Same sawn-off post, looking N	FK, 22/07/14
Digital	P1050111	View towards buildings 7b and 7c (new ID), conspicuous green mounds, looking N	FK, 22/07/14
Digital	P1050112	View towards buildings 7b and 7c, conspicuous green mounds, looking N	FK, 22/07/14
Digital	P1050113	Stable 7b and midden M1 (new ID), scale 2m, looking NE	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>9</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050114	Stable 7b and midden M1, scale 2m, looking SW	FK, 22/07/14
Digital	P1050115	Bend in track 4d, looking NW	FK, 22/07/14
Digital	P1050116	Track 4d, looking E	FK, 22/07/14
Digital	P1050117	Stable 7b and midden M1, lush green contained to down-slope (southwest) side, scale 2m, looking SE	FK, 22/07/14
Digital	P1050118	Stable door, light construction	FK, 22/07/14
Digital	P1050119	Stable 7c and midden M2 (new ID), scale 2m, looking SE	FK, 22/07/14
Digital	P1050120	Use of concrete in construction and reindeer droppings	FK, 22/07/14
Digital	P1050121	Stable 7c and midden M2, scale 2m, looking SE	FK, 22/07/14
Digital	P1050122	Stable 2c and midden M2, scale 2m, looking NW	FK, 22/07/14
Digital	P1050123	Stable 2c and midden M2, scale 2m, looking SW	FK, 22/07/14
Digital	P1050124	Stable 2c and midden M2, scale 2m, looking SW	FK, 22/07/14
Digital	P1050125	Stable 2c and midden M2, scale 2m, looking NE	FK, 22/07/14
Digital	P1050126	Stable 2c, animal vertebra, butchered	FK, 22/07/14
Digital	P1050127	Stable 2c, animal vertebra, butchered	FK, 22/07/14
Digital	P1050129	Stable 2c, animal vertebra, butchered	FK, 22/07/14
Digital	P1050130	Stable 2c, animal rib, butchered, scale 10cm	FK, 22/07/14
Digital	P1050131	Stable 2c, animal rib, butchered, scale 10cm	FK, 22/07/14
Digital	P1050132	Stable 7c, midden M2, plant assemblage with animal dropping and pieces of coal, wood, bone, scale 10cm	FK, 22/07/14
Digital	P1050133	Midden M2, detail of vegetation, animals bones, scale 10cm	FK, 22/07/14
Digital	P1050134	Near stable 2c, gable of the stable?, light construction, steps, scale 2m	FK, 22/07/14
Digital	P1050135	Near stable 2c, manger or animal feeder?	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>10</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050136	Birch bark	FK, 22/07/14
Digital	P1050137	Pit and boulders, some planks, for a post?, electricity?, scale 2m, looking S	FK, 22/07/14
Digital	P1050138	Pit and boulder, some planks, for a post?, electricity?, scale 2m, looking NW	FK, 22/07/14
Digital	P1050139	Solidified contents of barrel, probably cement, building 6c, scale 2m, looking NE	FK, 22/07/14
Digital	P1050140	Solidified contents of barrel, probably cement, building 6c	FK, 22/07/14
Digital	P1050141	Solidified contents of barrel, probably cement, building 6c, scale 2m, looking NW	FK, 22/07/14
Digital	P1050142	Solidified contents of barrel, probably cement, building 6c	FK, 22/07/14
Digital	P1050143	Track 4c, scale 2m, looking SE	FK, 22/07/14
Digital	P1050144	Track 4c, scale 2m, looking N	FK, 22/07/14
Digital	P1050145	Track 4c, trapdoor fox trap, scale 2m, looking N	FK, 22/07/14
Digital	P1050146	Bend from track 4c to track 4b, fox trap, scale 2m, looking E	FK, 22/07/14
Digital	P1050147	Track 4c, looking NW	FK, 22/07/14
Digital	P1050148	Wooden platform on bend to track 4b, metal chain behind, scale 2m, looking NE	FK, 22/07/14
Digital	P1050149	Wooden platform on bend to track 4b, metal chain behind, scale 2m, looking NW	FK, 22/07/14
Digital	P1050150	Track 4b, looking NW	FK, 22/07/14
Digital	P1050151	Track 4b, looking SE	FK, 22/07/14
Digital	P1050152	Barracks 5f and 5e, scale 2m, looking NW	FK, 22/07/14
Digital	P1050153	Barrack 5f, is that a passage or a drain?, two toilets beyond?, scale 2m, looking NW	FK, 22/07/14
Digital	P1050154	View from barrack corner down the 'passage', house 6a to the right, looking SW	FK, 22/07/14
Digital	P1050155	House 6a, looking W	FK, 22/07/14
Digital	P1050156	House 6d, looking W	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			Sheet <u>11</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050157	Toilets T1 and T2 (new IDs), scale 2m, looking S	FK, 22/07/14
Digital	P1050158	Toilets T1 and T2, barrack 5d in the background, scale 2m, looking NE	FK, 22/07/14
Digital	P1050159	Toilet T3 (new ID), barrack 5d in the background, scale 2m, looking NE	FK, 22/07/14
Digital	P1050160	Toilet T3, scale 2m, looking NW	FK, 22/07/14
Digital	P1050161	Toilet T3, close-up of vegetation	FK, 22/07/14
Digital	P1050162	Toilet T3, reached via steps, animal bone	FK, 22/07/14
Digital	P1050163	SD and IS record toilet T3	FK, 22/07/14
Digital	P1050164	Toilet T4 (new ID), barrack 5d in the background, scale 2m, looking NE	FK, 22/07/14
Digital	P1050165	Toilet T4, scale 2m, looking SE	FK, 22/07/14
Digital	P1050166	IS and SD recording toilets T1, T2, and T3, barrack 5d in the background, looking NE	FK, 22/07/14
Digital	P1050167	Another toilet?	FK, 22/07/14
Digital	P1050168	Same toilet, looking SE	FK, 22/07/14
Digital	P1050169	A marker?	FK, 22/07/14
Digital	P1050170	A sixth toilet?	FK, 22/07/14
Digital	P1050171	Toilet T1, focus on vegetation	FK, 22/07/14
Digital	P1050172	Brick 'DUX??'	FK, 22/07/14
Digital	P1050173	Toilet T1, detail	FK, 22/07/14
Digital	P1050174	Toilet T2, focus on vegetation	FK, 22/07/14
Digital	P1050175	Toilet T2, detail, reindeer mandible	FK, 22/07/14
Digital	P1050176	Toilet T3, focus on vegetation	FK, 22/07/14
Digital	P1050177	Toilet T3, detail, grass plants	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			
			Sheet <u>12</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050178	Toilet T4, focus on vegetation	FK, 22/07/14
Digital	P1050179	Toilet T4, detail	FK, 22/07/14
Digital	P1050180	Toilet T4, detail	FK, 22/07/14
Digital	P1050181	Toilet T4, grass plants in front	FK, 22/07/14
Digital	P1050182	Building 7a, stables unlikely, a store?, looking W	FK, 22/07/14
Digital	P1050183	Stable 7b, midden M1, evidence of grazing, scale 2m, looking NE	FK, 22/07/14
Digital	P1050184	Midden M1, detail of grazing, scale 30cm	FK, 22/07/14
Digital	P1050185	Midden M1, detail of grazing, reindeer and goose dropping	FK, 22/07/14
Digital	P1050186	Midden M1, detail of grazing, scale 30cm	FK, 22/07/14
Digital	P1050187	Midden M1, evidence of grazing	FK, 22/07/14
Digital	P1050188	Walk along the beach from Advent City to Hiorthhamn, looking SE	FK, 22/07/14
Digital	P1050190	A boat, scale 2m	FK, 22/07/14
Digital	P1050194	Another boat at Hiorthhamn	FK, 22/07/14
Digital	P1050195	Industrial features at Hiorthhamn	FK, 22/07/14
Digital	P1050196	Industrial features at Hiorthhamn	FK, 22/07/14
Digital	P1050197	Overview of Hiorthhamn, looking E	FK, 22/07/14
Digital	P1050198	Animal cages	FK, 22/07/14
Digital	P1050199	Animal cages, scale 2m	FK, 22/07/14
Digital	P1050200	Animal cages, scale 2m	FK, 22/07/14
Digital	P1050201	Animal cages	FK, 22/07/14
Digital	P1050202	Animal cages, grass plants	FK, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn			
			Sheet <u>13</u> of <u>13</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	P1050203	Animal cages, grass plants	FK, 22/07/14
Digital	P1050204	Animal cages, close-up of vegetation	FK, 22/07/14
Digital	P1050205	Hiorthhamn, inside the 'power plant'	FK, 22/07/14
Digital	P1050206	Hiorthhamn, inside the 'power plant'	FK, 22/07/14
Digital	P1050207	Hiorthhamn, inside the 'power plant'	FK, 22/07/14
Digital	P1050208	Hiorthhamn, building with claim sign	FK, 22/07/14
Digital	P1050209	Hiorthhamn, original claim sign used for target practise	FK, 22/07/14
Digital	P1050201	Hiorthhamn, construction detail, parts labelled C5 (bottom) to C12 (top)	FK, 22/07/14
Digital	P1050211	Hiorthhamn, construction detail, 'C8', stencilled, scale 10cm	FK, 22/07/14
Digital	P1050212	Hiorthhamn, construction detail	FK, 22/07/14
Digital	P1050213	Hiorthhamn, construction detail	FK, 22/07/14
Digital	P1050214	Hiorthhamn, construction detail, 'A6'	FK, 22/07/14
Digital	P1050215	Hiorthhamn, toilet also an Advent City import?	FK, 22/07/14
Digital	P1050216	Hiorthhamn, toilet	FK, 22/07/14
Digital	P1050217	Hiorthhamn, toilet, buckets to be emptied	FK, 22/07/14
Digital	P1050218	Hiorthhamn from above, looking W	FK, 22/07/14
Digital	P1050219	Hiorthhamn from above, looking W	FK, 22/07/14



<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn by Ingvild Sjoebakk			Sheet <u>  1  </u> of <u>  2  </u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	DSC_0893	Sarah Dresscher (SD) and Frigga Kruse (FK) at building 7c, midden M2, looking S	IS, 22/07/14
Digital	DSC_0894	SD and FK, toilet (?) in foreground, Longyearbyen across Advent Bay, looking S	IS, 22/07/14
Digital	DSC_0897	wheelbarrow	IS, 22/07/14
Digital	DSC_0899	FK on a piece of retaining wall along the footpath (4a) leading to the mine entrance (1a), looking E	IS, 22/07/14
Digital	DSC_0900	SD and FK on a piece of retaining wall along the footpath (4a) that leads to the mine entrance (1a), looking E	IS, 22/07/14
Digital	DSC_0910	Repeat photography: smithy, mine entrance, and incline, looking SW	IS, 22/07/14
Digital	DSC_0914	Repeat photography: smithy, mine entrance, and incline, looking SW	IS, 22/07/14
Digital	DSC_0916	View from Advent City along the shore, looking W	IS, 22/07/14
Digital	DSC_0917	SD and FK and at the coal cutter (1e)	IS, 22/07/14
Digital	DSC_0923	Coal scatter or stockpile (old ID 2b, new ID 2f), looking SW	IS, 22/07/14
Digital	DSC_0924	Reindeer at Advent City	IS, 22/07/14
Digital	DSC_0927	Coal scatter or stockpile (old ID 2b, new ID 2f), looking SW	IS, 22/07/14
Digital	DSC_0928	View from Advent City, looking E	IS, 22/07/14
Digital	DSC_0931	Repeat photography: incline and engine house, looking NE	IS, 22/07/14
Digital	DSC_0935	Metal sign (new ID 11), used for target practice, looking NE	IS, 22/07/14
Digital	DSC_0936	Metal sign (new ID 11), used for target practice, looking NE	IS, 22/07/14
Digital	DSC_0941	Repeat photography: FK marking the ropeway tower in the photo with the pigs, looking E	IS, 22/07/14
Digital	DSC_0943	Repeat photography: FK marking the ropeway tower in the photo with the pigs, looking E	IS, 22/07/14
Digital	DSC_0947	Repeat photography: view of Advent City with the man in the foreground, looking SE	IS, 22/07/14
Digital	DSC_0948	Repeat photography: view of Advent City with the man in the foreground, looking SE	IS, 22/07/14
Digital	DSC_0950	Site of Advent City with Longyearbyen in the background, looking S	IS, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City and Hiorthhamn by Ingvild Sjoebakk			Sheet <u>2</u> of <u>2</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	DSC_0951	Site of Advent City with Longyearbyen in the background, looking S	IS, 22/07/14
Digital	DSC_0952	Trapdoor fox trap, site of Advent City, and Longyearbyen, looking S	IS, 22/07/14
Digital	DSC_0954	FK walking along the shore towards Hiorthhamn, protective spit in the background, looking SE	IS, 22/07/14
Digital	DSC_0956	SD and FK investigating a rowing boat on route to Hiorthhamn	IS, 22/07/14
Digital	DSC_0957	SD and FK investigating a rowing boat on route to Hiorthhamn	IS, 22/07/14
Digital	DSC_0960	Reindeer on route to Hiorthhamn	IS, 22/07/14
Digital	DSC_0970	View of Hiorthhamn, looking E	IS, 22/07/14
Digital	DSC_0971	Hiorthhamn, 'cable railway headquarters', looking SE	IS, 22/07/14
Digital	DSC_0972	Hiorthhamn, buildings B, C, and D, building F above (according to Lokken after Hoel 1966)	IS, 22/07/14

## PHOTOGRAPHIC INDEX

140722 - Advent City by Sarah Dresscher

Sheet 1 of 4

B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	DSC_0001	Hiorthhamn, building B (telegraph, general store, and provision storage), west face, scale 2m, looking SE	SD, 22/07/14
Digital	DSC_0002	Hiorthhamn, building B, west face, scale 2m, looking SE	SD, 22/07/14
Digital	DSC_0003	Hiorthhamn, building B, south face, scale 2m, looking NE	SD, 22/07/14
Digital	DSC_0004	Hiorthhamn, building B, south face, scale 2m, looking NE	SD, 22/07/14
Digital	DSC_0005	Hiorthhamn, building B, north face, scale 2m, looking SW	SD, 22/07/14
Digital	DSC_0007	Hiorthhamn, building B, east face, scale 2m, looking NW	SD, 22/07/14
Digital	DSC_0009	Hiorthhamn, building B, east face, scale 2m, looking NW	SD, 22/07/14
Digital	DSC_0011	Hiorthhamn, building E (large mess hall and bakery), south face, 'Flap' centre left, scale 2m (staircase to the left), looking NE	SD, 22/07/14
Digital	DSC_0013	Hiorthhamn, building E, west face, scale 2m, looking SE	SD, 22/07/14
Digital	DSC_0015	Hiorthhamn, building E, east face, scale 2m (corner right), looking NW	SD, 22/07/14
Digital	DSC_0016	Hiorthhamn, building E, north face, scale 2m, looking SW	SD, 22/07/14
Digital	DSC_0017	Hiorthhamn, from left to right: corner building E, building C (living quarters), building O (new cabin), building B (telegraph), building A (machine shop), and 'Flap', looking W	SD, 22/07/14
Digital	DSC_0021	Hiorthhamn, building F (administration building including telegraph facility), south face, scale 2m, looking NE	SD, 22/07/14
Digital	DSC_0022	Hiorthhamn, from left to right: building E, building D (white; sick bay), building C, 'Flap', building B, building O (new cabin), and building A, looking W	SD, 22/07/14
Digital	DSC_0023	Hiorthhamn, building F, west face, scale 2m, looking SE	SD, 22/07/14
Digital	DSC_0031	Hiorthhamn, building F, east face, scale 2m, looking NW	SD, 22/07/14
Digital	DSC_0032	Hiorthhamn, building F, north face, looking SW	SD, 22/07/14
Digital	DSC_0033	Hiorthhamn, building G (living quarters), west face, partial building H (living quarters), scale 2m, looking SE	SD, 22/07/14
Digital	DSC_0034	Hiorthhamn, building G, south face, scale 2m, looking NE	SD, 22/07/14
Digital	DSC_0036	Hiorthhamn, building G, east face, scale 2m, looking NW	SD, 22/07/14

## PHOTOGRAPHIC INDEX

140722 - Advent City by Sarah Dresscher

Sheet 2 of 4

B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	DSC_0037	Hiorthhamn, toilet to the north of building G, looking NW	SD, 22/07/14
Digital	DSC_0038	Hiorthhamn, building G, north face, partial building H, scale 2m, looking SW	SD, 22/07/14
Digital	DSC_0039	remnants of stoves and ovens	SD, 22/07/14
Digital	DSC_0041	Hiorthhamn, building I (cable railway headquarters) and building J (smithy), looking S	SD, 22/07/14
Digital	DSC_0042	Hiorthhamn, building I (cable railway headquarters) and building J (smithy), looking S	SD, 22/07/14
Digital	IMG_5241	Advent City, is that a track in the foreground?, looking S	SD, 22/07/14
Digital	IMG_5242	Advent City, remnants of a stove	SD, 22/07/14
Digital	IMG_5248	Repeat photography: smithy, mine, and incline, looking SW	SD, 22/07/14
Digital	IMG_5251	Advent City, tracks 4b, 4c, and 4d) clearly visible, note pit at top right, looking SW	SD, 22/07/14
Digital	IMG_5267	Repeat photography: pier, looking SW	SD, 22/07/14
Digital	IMG_5268	Repeat photography: pier, looking SW	SD, 22/07/14
Digital	IMG_5271	Repeat photography: pier, looking SW	SD, 22/07/14
Digital	IMG_5272	Repeat photography: incline and engine house, looking NE	SD, 22/07/14
Digital	IMG_5273	Repeat photography: incline and engine house, looking NE	SD, 22/07/14
Digital	IMG_5275	Repeat photography: incline and engine house, looking NE	SD, 22/07/14
Digital	IMG_5284	FK climbing into the barge/pontoon	SD, 22/07/14
Digital	IMG_5288	Repeat photography: FK marking the former ropeway tower in the picture with the pigs, looking SE	SD, 22/07/14
Digital	IMG_5289	Repeat photography: FK marking the former ropeway tower in the picture with the pigs, looking SE	SD, 22/07/14
Digital	IMG_5292	Repeat photography: view of Advent City with the man in the foreground, looking E	SD, 22/07/14
Digital	IMG_5295	Repeat photography: view of Advent City, IS being the man in the foreground, looking E	SD, 22/07/14
Digital	IMG_5296	Repeat photography: view of Advent City, IS being the man in the foreground, looking E	SD, 22/07/14

<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City by Sarah Dresscher			Sheet <u>3</u> of <u>4</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	IMG_5298	Water pipe, looking S	SD, 22/07/14
Digital	IMG_5299	View from Advent City towards Revneset, looking NW	SD, 22/07/14
Digital	IMG_5301	Length of water pipe	SD, 22/07/14
Digital	IMG_5305	Repeat photography: IS marking a corner of Huset (6d), FK marking a corner of building 6a, looking N	SD, 22/07/14
Digital	IMG_5306	Repeat photography: Huset (6d) and building 6a, looking N	SD, 22/07/14
Digital	IMG_5307	Repeat photography: FK and IS posing for men, looking N	SD, 22/07/14
Digital	IMG_5308	Repeat photography: FK and IS posing for men, looking N	SD, 22/07/14
Digital	IMG_5309	Repeat photography: FK and IS posing for women in the doorway of Huset (6d), looking N	SD, 22/07/14
Digital	IMG_5310	View into Advent Bay and toward Hiorthhamn, protective headland, looking SE	SD, 22/07/14
Digital	IMG_5311	View into Advent Bay and toward Hiorthhamn, protective headland, looking SE	SD, 22/07/14
Digital	IMG_5340	Hiorthhamn, FK investigating grasses at the Fox Farm	SD, 22/07/14
Digital	IMG_5342	Hiorthhamn, building C, west face, looking SE	SD, 22/07/14
Digital	IMG_5343	Hiorthhamn, building C, west face, partial building E and building N (red; living quarters) on the left, building D (white; sick bay) and building I (ropeway terminus) on the right, looking SE	SD, 22/07/14
Digital	IMG_5344	Hiorthhamn, building C, west face, partial building E and building N (red; living quarters) on the left, building D (white; sick bay) and building I (ropeway terminus) on the right, looking SE	SD, 22/07/14
Digital	IMG_5345	Hiorthhamn, building B, south face, looking N	SD, 22/07/14
Digital	IMG_5346	Hiorthhamn, building B, south face, Building A, east face, looking N	SD, 22/07/14
Digital	IMG_5347	Hiorthhamn, building B, claim sign above door used for target practice	SD, 22/07/14
Digital	IMG_5348	Hiorthhamn, stairs of building B (grasses) and building A, east face, looking W	SD, 22/07/14
Digital	IMG_5349	Hiorthhamn, stairs of building B (grasses) and building A, east face, looking W	SD, 22/07/14
Digital	IMG_5350	Hiorthhamn, building A, north face, building L (new cabin) in background, scale 2m, looking SW	SD, 22/07/14

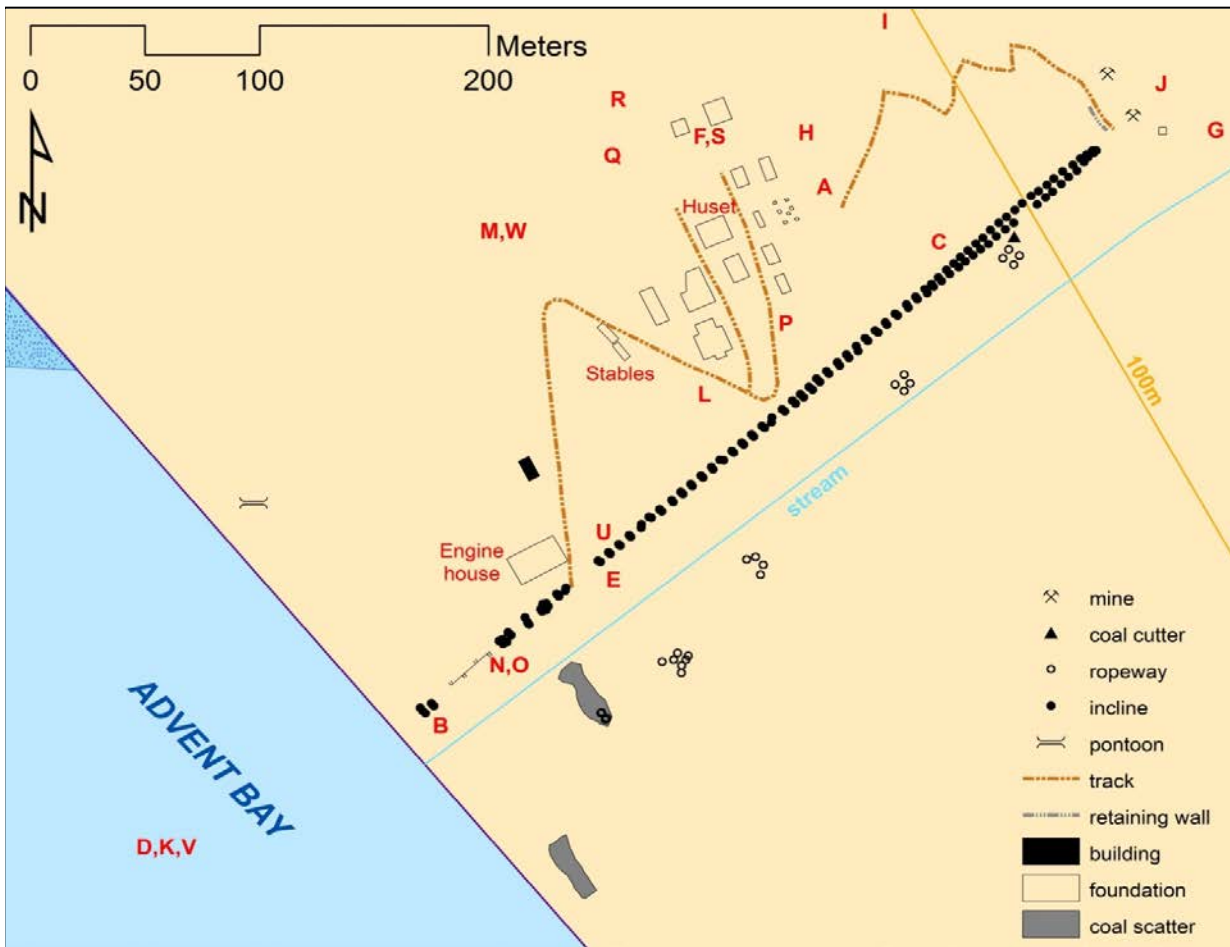
<b>PHOTOGRAPHIC INDEX</b>			
140722 - Advent City by Sarah Dresscher			Sheet <u>4</u> of <u>4</u>
B/W or C/P or C/S or Digital	Film No / Shot No  e.g. (1/2)	Location, Main Feature/s, Scale/s, Orientation, Remarks (e.g. weather, lighting conditions, bracketing)	Date & Initials
Digital	IMG_5351	Hiorthhamn, building A, west face, looking SE	SD, 22/07/14
Digital	IMG_5352	Hiorthhamn, IS and FK measuring building E, looking S	SD, 22/07/14
Digital	IMG_5353	Hiorthhamn, building A, east face, scale 2m, looking NW	SD, 22/07/14
Digital	IMG_5354	Hiorthhamn, building A, west face, scale 2m, looking SE	SD, 22/07/14
Digital	IMG_5355	Hiorthhamn, building A, north face, scale 2m, looking SW	SD, 22/07/14
Digital	IMG_5356	Hiorthhamn, reindeer grazing	SD, 22/07/14
Digital	IMG_5357	Hiorthhamn, building A, west face, scale 2m, looking SE	SD, 22/07/14
Digital	IMG_5358	Hiorthhamn, building A, south face, scale 2m, looking NE	SD, 22/07/14
Digital	IMG_5359	Hiorthhamn, building A, south face, scale 2m, looking NE	SD, 22/07/14
Digital	IMG_5360	Hiorthhamn, building C, west face(s), looking E	SD, 22/07/14
Digital	IMG_5361	Hiorthhamn, building C, west face(s), scale 2m, looking E	SD, 22/07/14
Digital	IMG_5362	Hiorthhamn, building C, south face (obscured by building D), scale 2m, looking NE	SD, 22/07/14
Digital	IMG_5365	Hiorthhamn, brick 'Borgestad 2A-811'	SD, 22/07/14
Digital	IMG_5364	Hiorthhamn, brick 'Höganäs'	SD, 22/07/14
Digital	IMG_5365	Hiorthhamn, building C, east face, looking NW	SD, 22/07/14
Digital	IMG_5366	Hiorthhamn, building C, north face, scale 2m, looking SW	SD, 22/07/14

## Appendix A4

**Repeat photography at Advent City**

## Repeat photography - Advent City

Since repeat photography was not the primary objective behind the recent photographs, many are only approximations. Some of the photographs have been cropped.



The map indicates the positions from which historical photographs were taken. The red letters correspond to those in the following list.



Repeat photography - Advent City

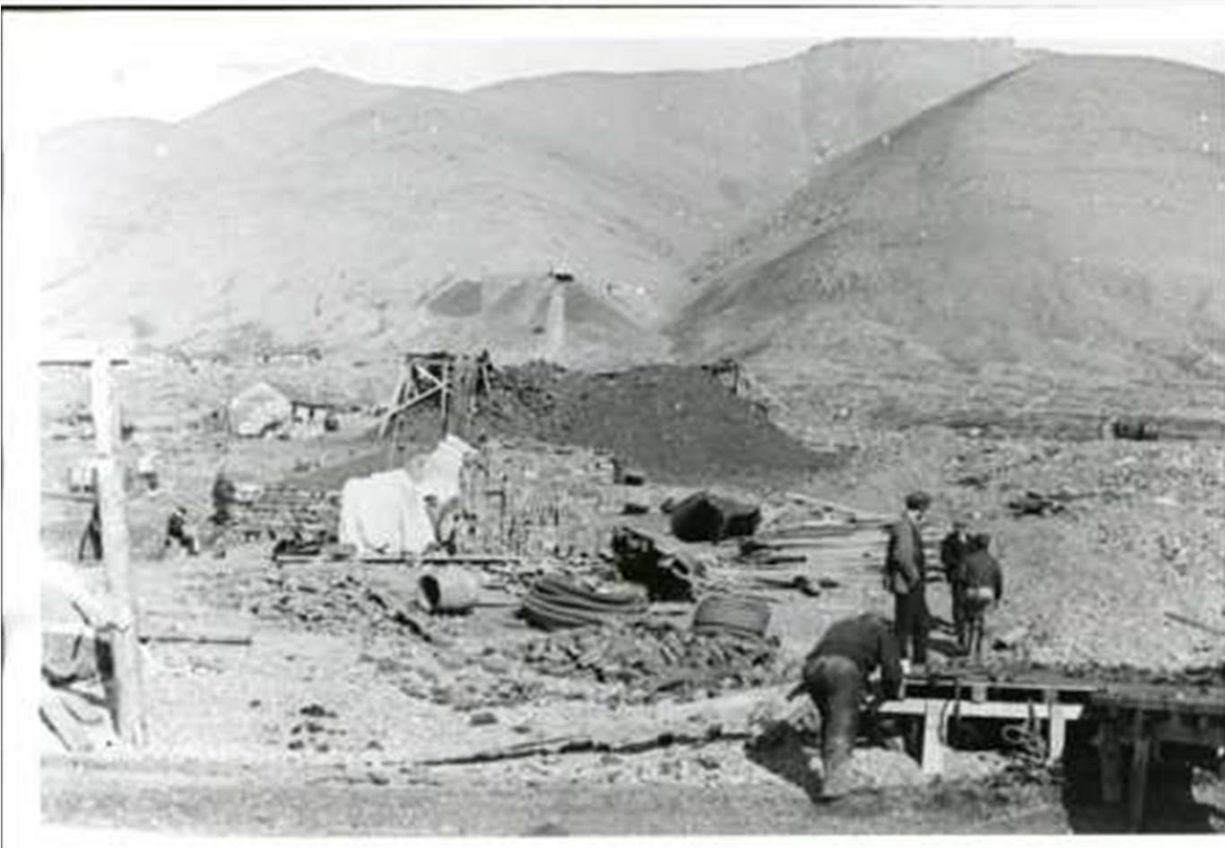


(A) View of Advent City, Huset in the centre, looking SW. (Unknown source.)



I. West 2014





**(B)** The incline being constructed, probably in 1905, looking NE. (Source: Internet.)



F. Kruse 2014.





**(B)** The incline terminus, also acting as the jetty, looking W. (Unknown source.)



F. Kruse 2014.



Repeat photography - Advent City



(C) The mine entrance and the incline, looking NE. (Unknown source.)



I. West 2004.



Repeat photography - Advent City

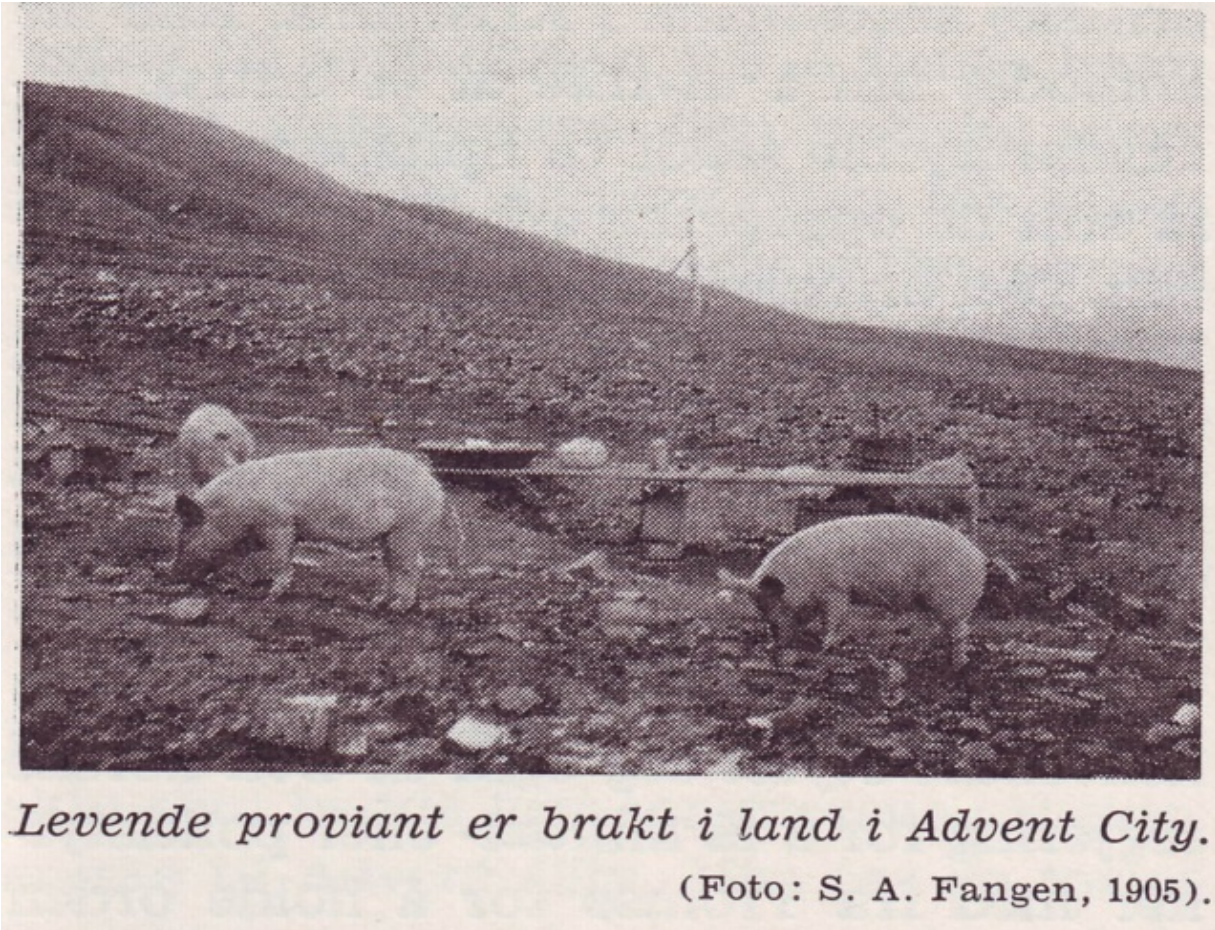


**(D)** Advent City from the water, looking NE. (Source: Facebook.)



F. Kruse 2014.





(E) Live pigs at Advent City, ropeway tower in the background, looking E. (Source: Hoel 1966 563.)



I. Sjøbakk 2014



(F) View of Advent City, Huset right of centre, looking SE. (Source: Norsk Folkemuseum.)



I. Sjøbakk 2004





(G) Smithy, mine entrance, and incline, looking W. (Source: Norsk Folkemuseum.)



I. Sjøbakk 2014.

Repeat photography - Advent City



(H) View of Advent City, looking SW. (Source: Norsk Folkemuseum.)



F. Kruse 2014.



Repeat photography - Advent City



(I) View of Advent City, looking S. (Source: Norsk Folkemuseum.)



F. Kruse 2014.



Repeat photography - Advent City



(J) View from the mine, looking SW. (Source: Norsk Folkemuseum.)



L. Mishkar 2004



**(K)** View of Advent City from the water, looking NE. (Source: Norsk Folkemuseum)



F. Kruse 2014.





(L) Scene in Advent City, Huset to the left, looking NW. (Source: Norsk Folkemuseum.)



I. Sjøbakk 2014



**(M)** View of Advent City, the mine, and the incline, looking NE. (Source: Norsk Folkemuseum.)



F. Kruse 2014.



Repeat photography - Advent City



**(N)** The incline and the engine house, looking NE. (Source: Norsk Folkemuseum.)



S. Dresscher 2014.



Repeat photography - Advent City



**(N)** The incline and the engine house, looking NE. (Source: Norsk Folkemuseum.)



I. West 2004.

Repeat photography - Advent City



(O) View of the terminus of the incline, the jetty, looking SW. (Source: Norsk Folkemuseum.)



S. Dresscher 2014





(P) View of a 'street' in Advent City, Huset in the back left, looking N. (Source: Norwegian Polar Institute, NPI.)



F. Kruse 2014.



(Q) View of Advent City, Huset on the right, looking E. (Source: NPI.)



I. Sjøbakk 2014

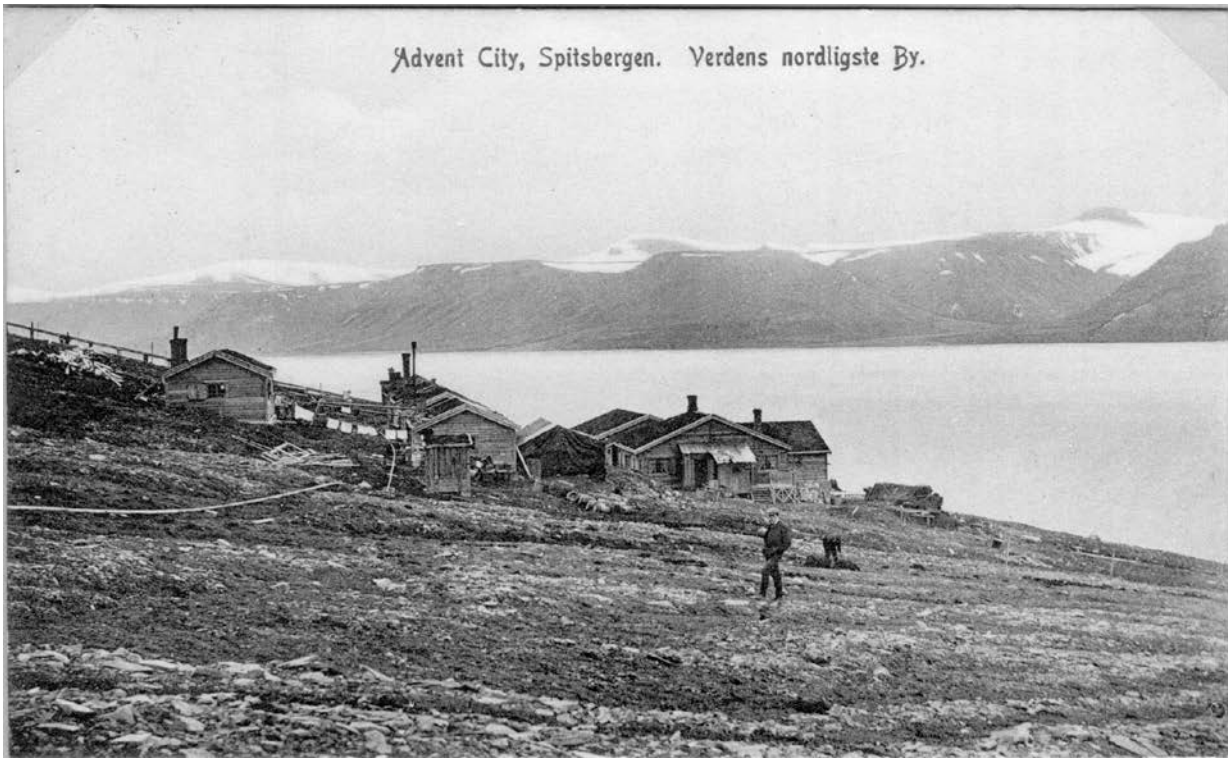




**(R)** View of Advent City, Huset on the right of centre, looking SE. (Source: NPI.)



S. Dresscher 2014



(S) View of Advent City, Huset on the right of centre, looking SE. (Source: NPI.)



S. Dresscher 2014.



Repeat photography - Advent City



(T) Scene in Advent City, Huset on the left with flag, looking N. (Source: NPI.)



F. Kruse 2014.



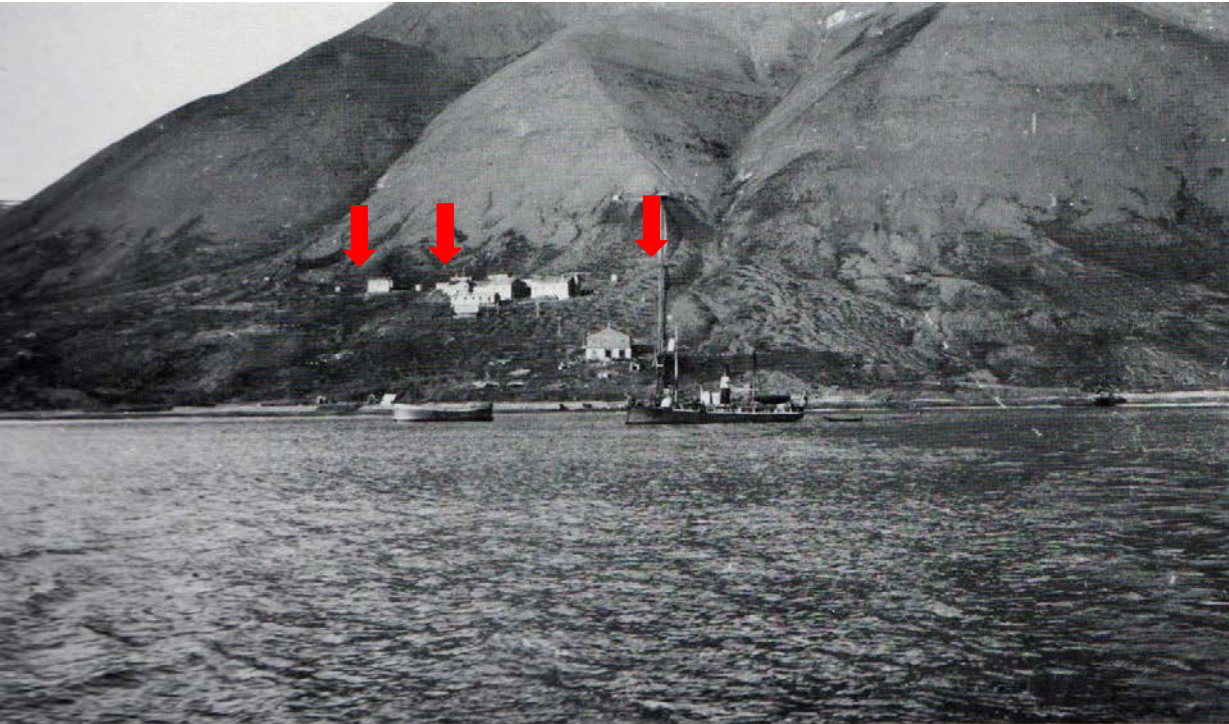
**(U)** The engine house, looking SW. (Source: NPI.)



L. Mishkar 2004



Repeat photography - Advent City



**(V)** This photograph shows three outhouses, looking NE. (Source: Facebook.)



These are the remains of the easternmost outhouse, scale 2m, looking NW. (F. Kruse 2014.)



Repeat photography - Advent City



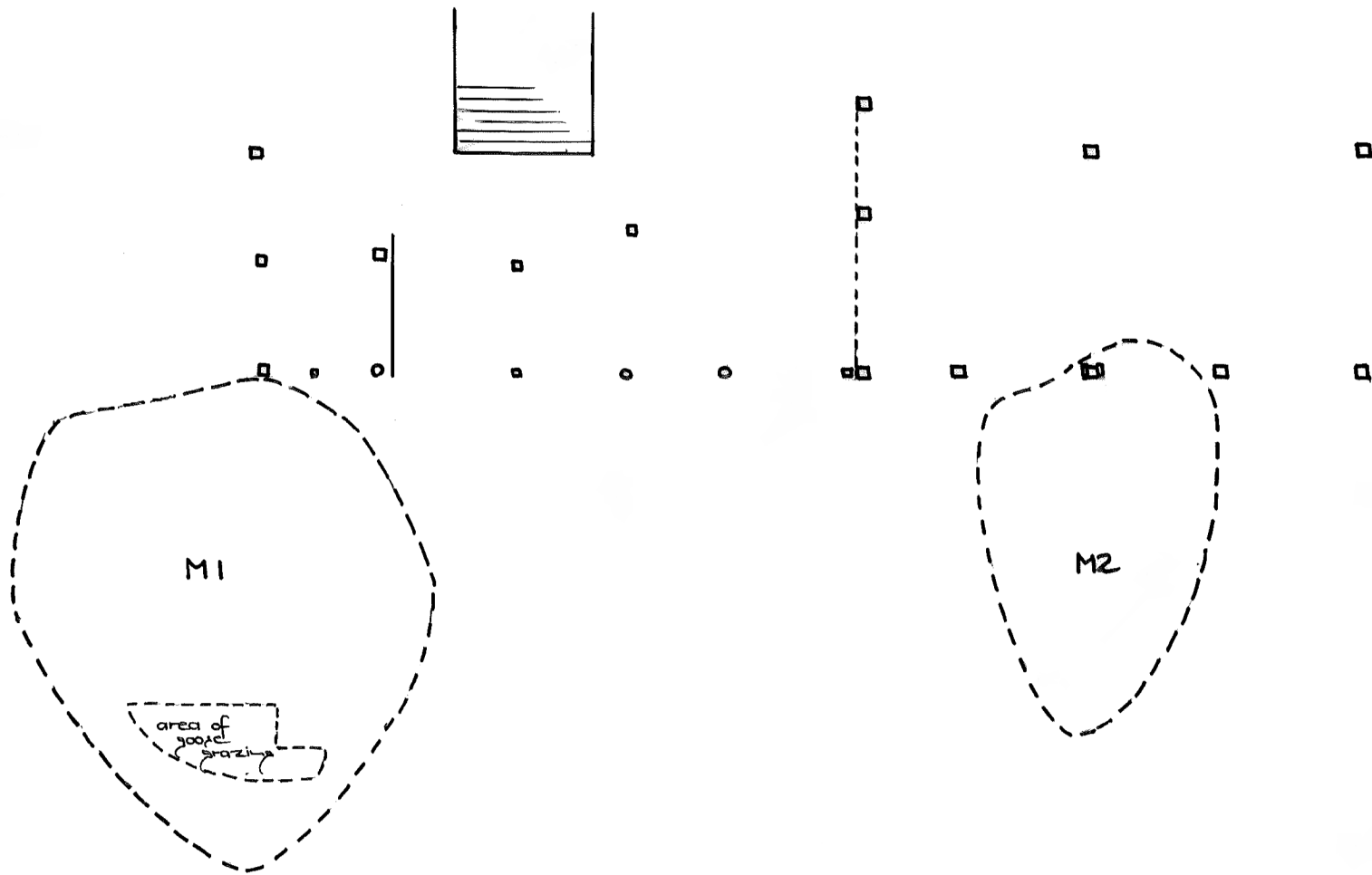
**(W)** Were these semi-detached officers' outhouses? (Source: NPI, np002342.)



Could this be such a semi-detached officers' outhouse? (I. Sjøbakk 2014.)

## Appendix A5

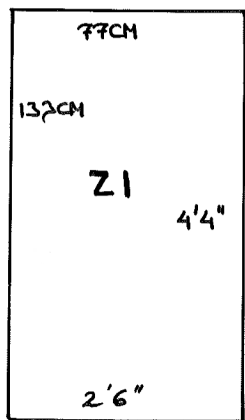
### **Drawings of Advent City**



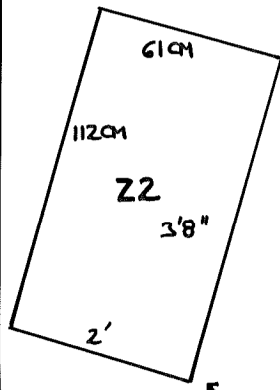
ADVENT CITY  
 PROBABLE TABLES  
 LIKELY MIDDENS M1 + M2  
 FK, 22/07/2014



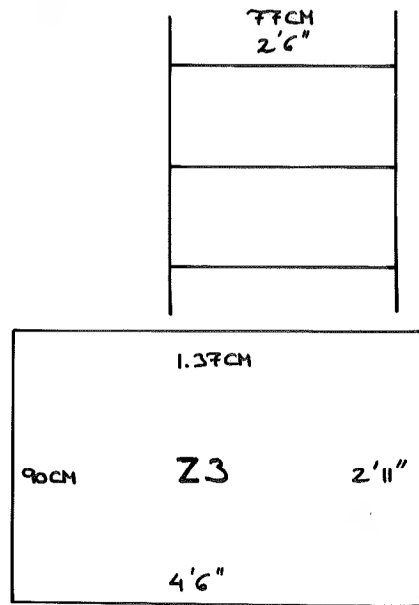




Z1 : 20cm

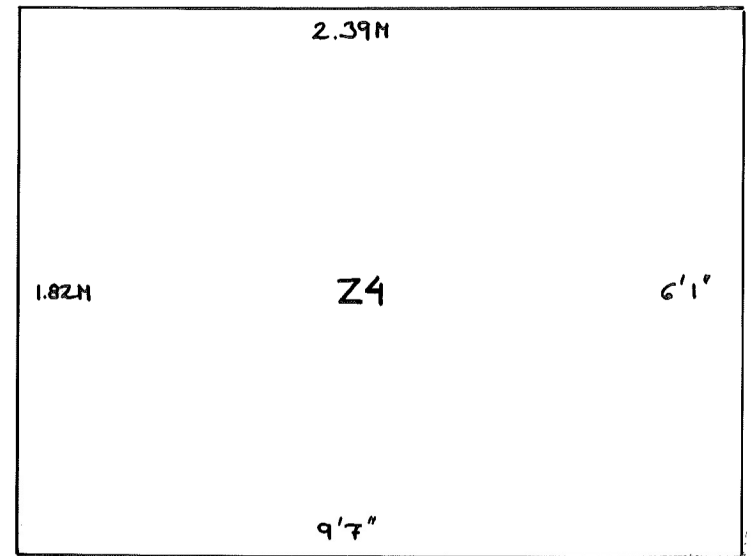


Z2 : 10cm



Z3 : 30cm

← AVERAGE DEPOSIT THICKNESS: →



Z4 : 35cm

ADVENT CITY  
FEATURES Z1 - Z4  
UNKNOWN FUNCTION  
15, 22/07/2014

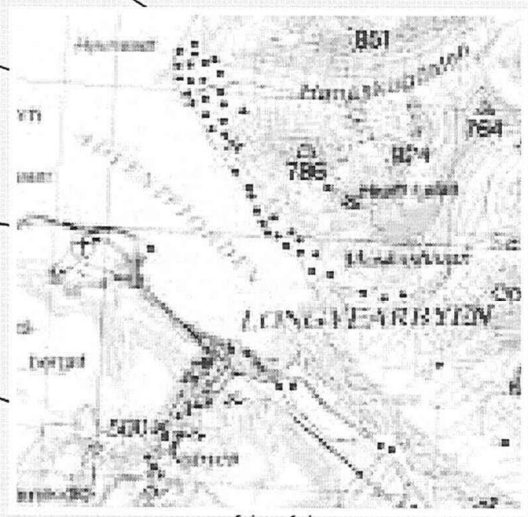


[THESE ARE ONLY APPROXIMATIONS. FK]

## Appendix A6

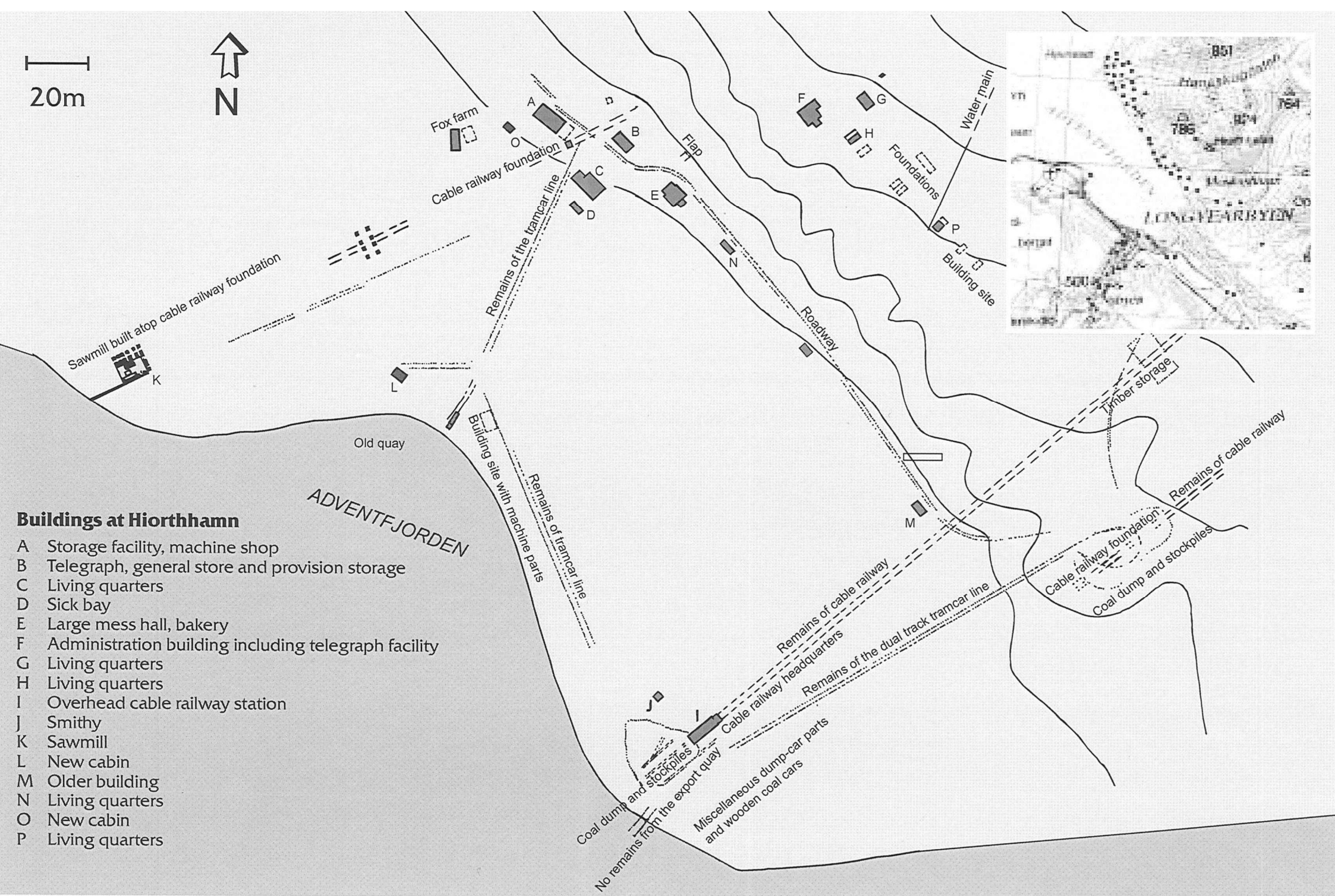
### **Comparative maps of Hiorthhamn**

20m



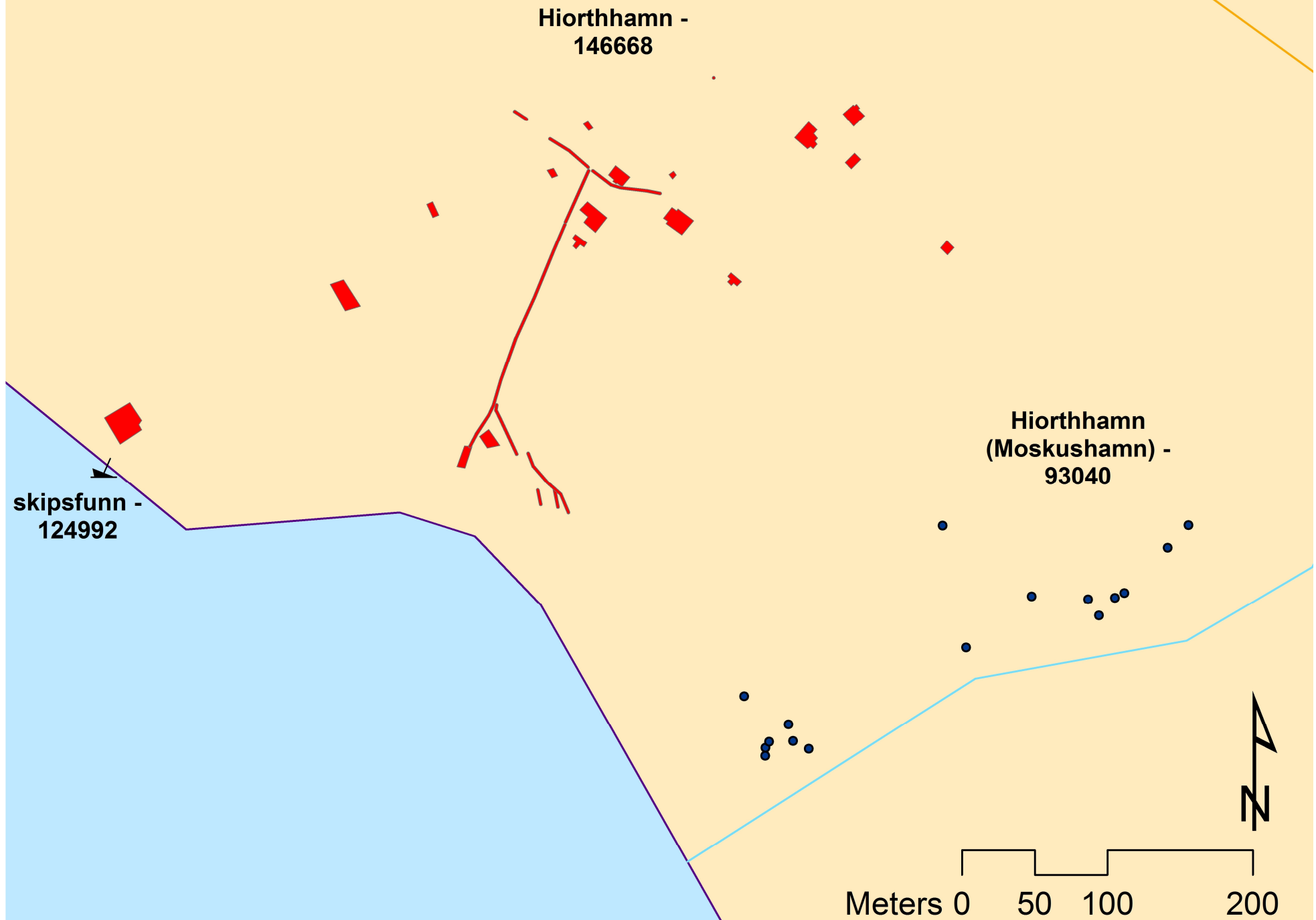
### Buildings at Hiorthhamn

- A Storage facility, machine shop
- B Telegraph, general store and provision storage
- C Living quarters
- D Sick bay
- E Large mess hall, bakery
- F Administration building including telegraph facility
- G Living quarters
- H Living quarters
- I Overhead cable railway station
- J Smithy
- K Sawmill
- L New cabin
- M Older building
- N Living quarters
- O New cabin
- P Living quarters



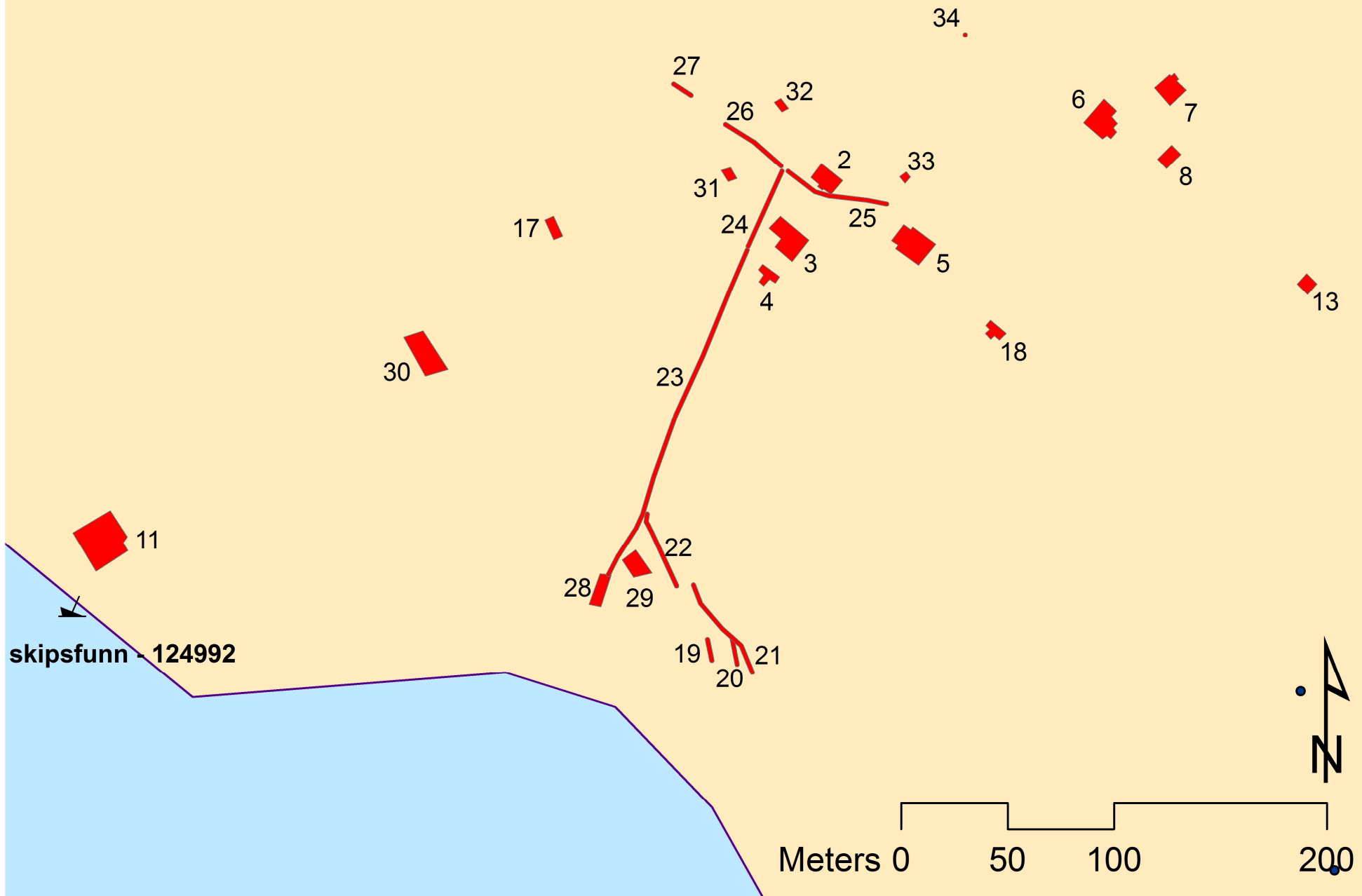
Map of buildings drawn by Gi. Løkken after Hoel 1966.

# Hiorthhamn localities and corresponding Askeladden ID's

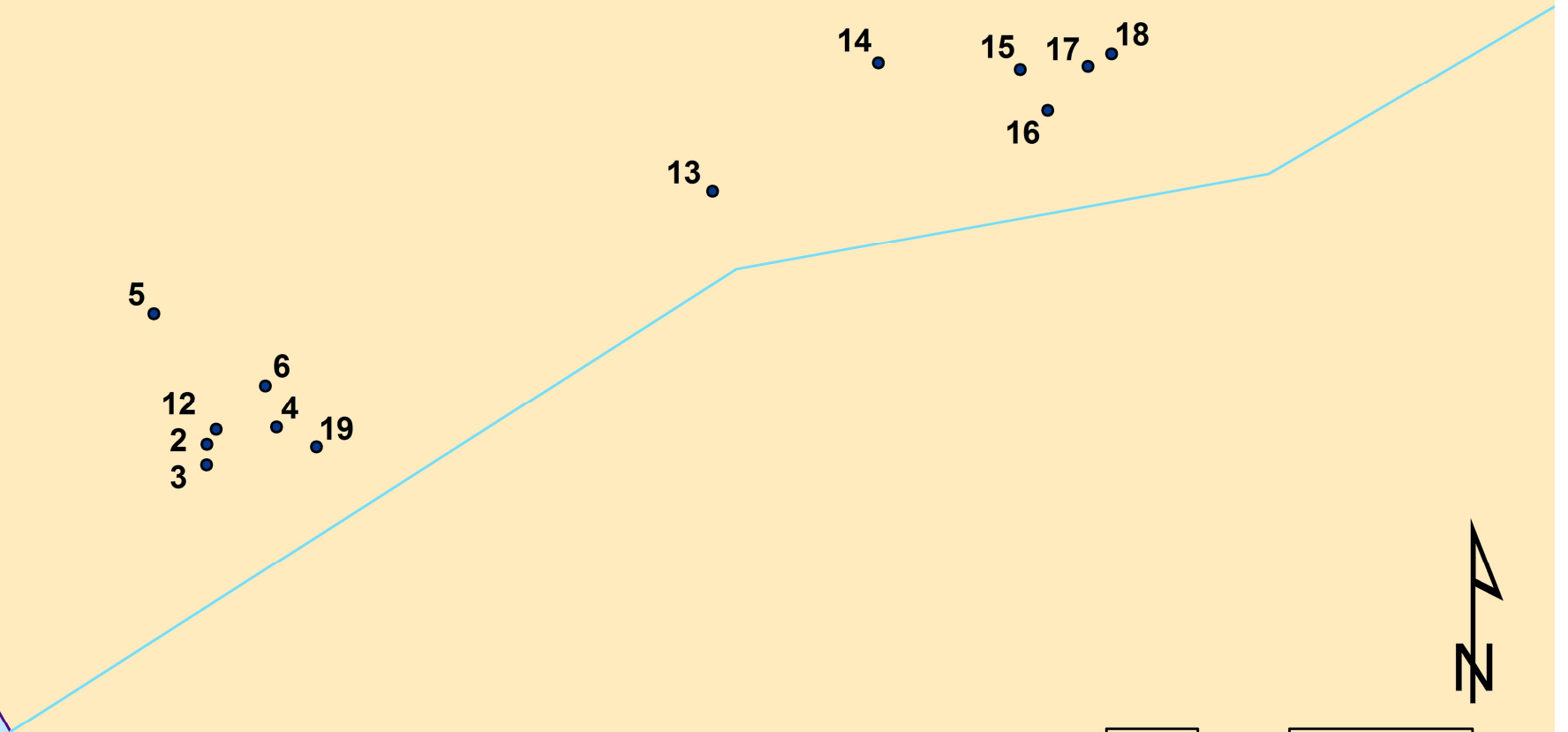
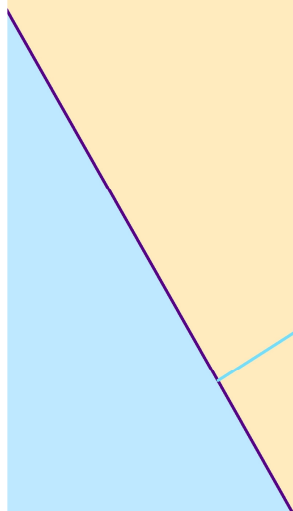




# Hiorthhamn (Askeladden ID 146668)



# Hiorthhamn (Moskushamn) (Askeladden ID 93040)



Meters 0 25 50 100

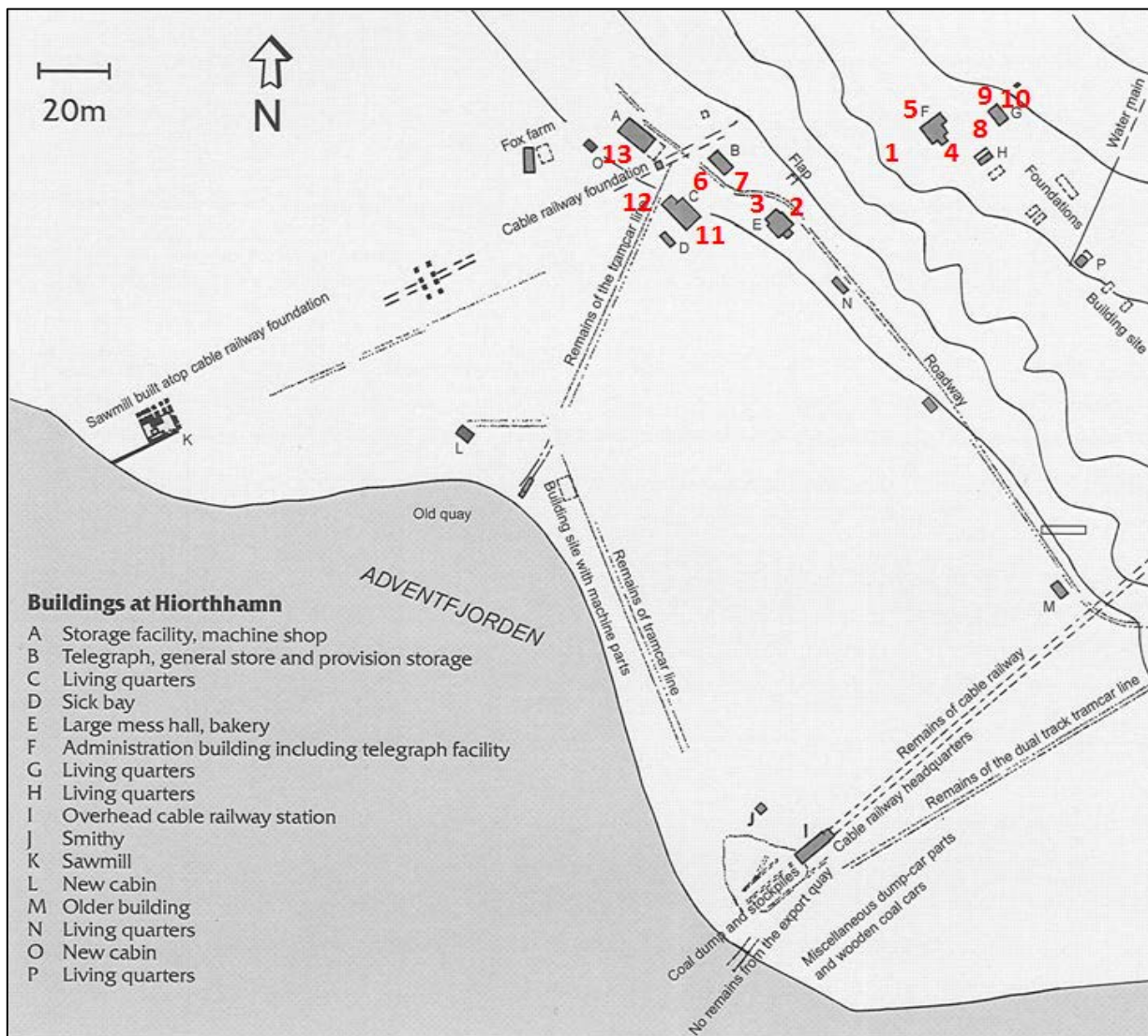


## Appendix A7

**Repeat photography at Hiorthhamn**

## Repeat photography - Hiorthhamn

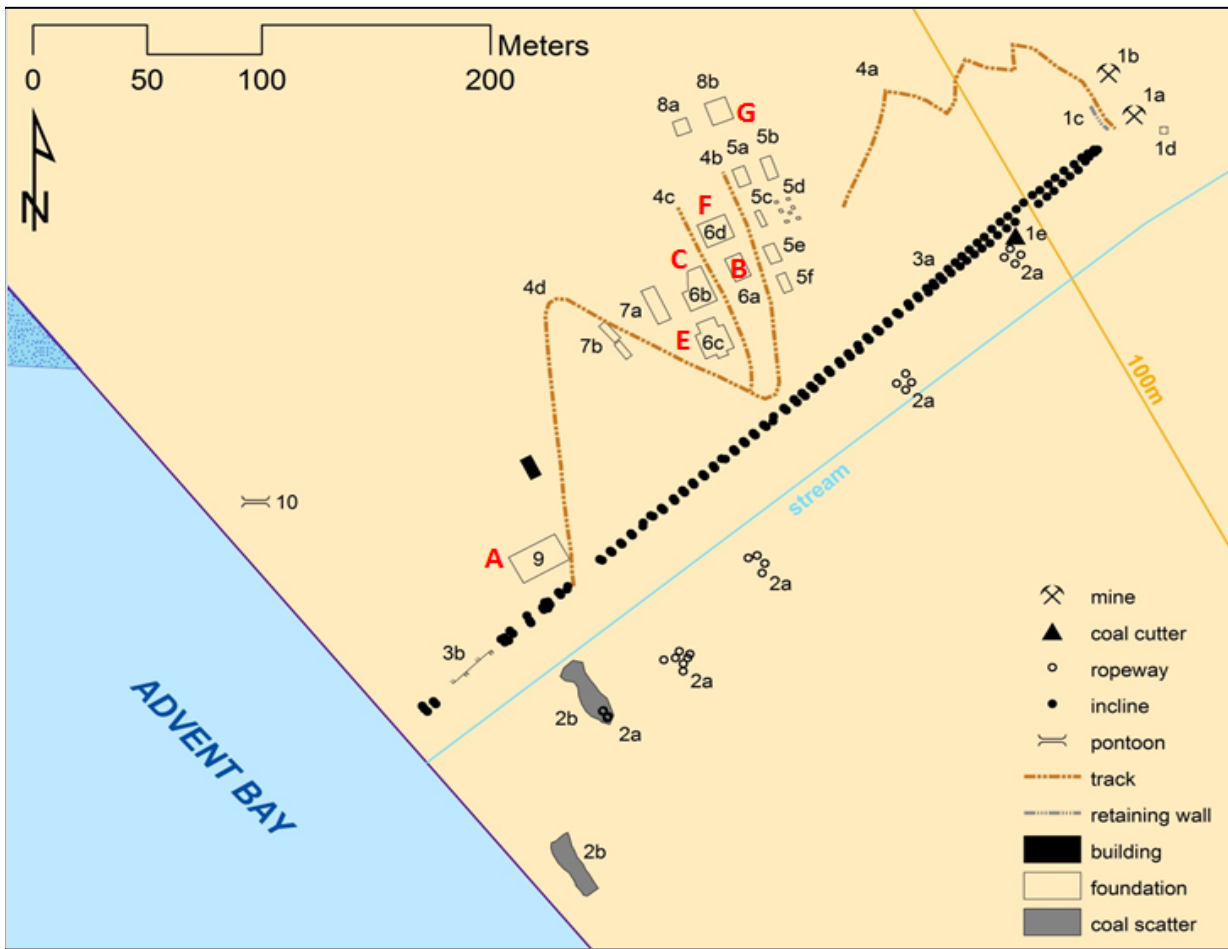
Since repeat photography was not the primary objective behind the recent photographs, many are only approximations. Some of the photographs have been cropped.



This map of Hiorthhamn (cropped) was made by L økken after Hoel (1966) and indicates the positions from which recent photographs were taken. The red numbers correspond to those in the following list. (Source: Johannessen 1997, 23.)



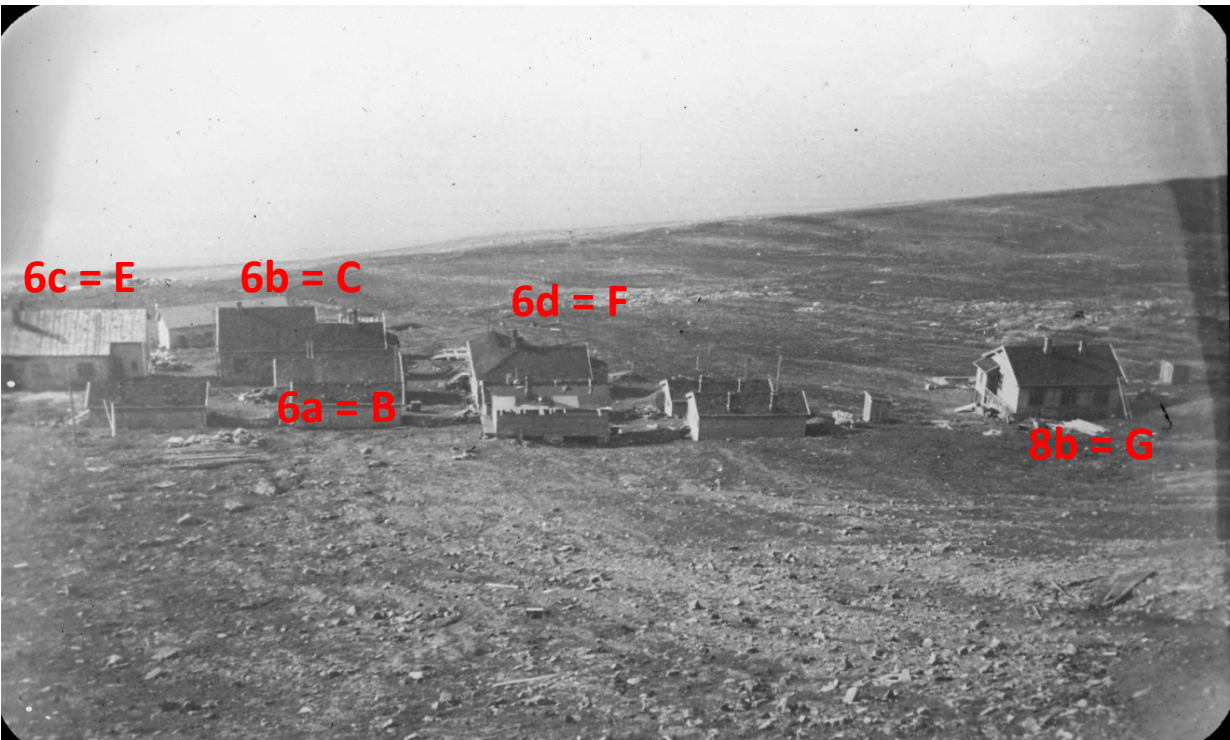
## Repeat photography - Hiorthhamn



*This map of Advent City, surveyed by LASHIPA in 2004, indicates which buildings were found back in Hiorthhamn in 2014. Note that not every building in Hiorthhamn could be investigated and photographed in the time available. The red letters correspond to those in the map above and in the following list. (Map: F. Kruse.)*



(1) Partial overview of Hiorthhamn. From left to right: building E (large mess hall, bakery), D (sick bay), B (telegraph, general store and provision storage), and A (storage facility, machine shop) in Hiorthhamn, looking W. (Photo: S. Dresscher, 2014.)



Partial overview of Advent City, looking SW. (Source unknown.)



Repeat photography - Hiorthhamn



(2) Building E (large mess hall, bakery) in Hiorthhamn, scale 2m, looking SW. (Photo: S. Dresscher, 2014.)



Building E originally stood in Advent City, looking SW. (Source unknown.)



Repeat photography - Hiorthhamn



(2) Building E (large mess hall, bakery) in Hiorthhamn, scale 2m, looking SW. (Photo: S. Dresscher, 2014.)



Building E originally stood in Advent City, looking SW. (Source unknown.)





(3) Building E (large mess hall, bakery) in Hiorthhamn, scale 2m, looking SE. (Photo: S. Dresscher, 2014.)



Building E originally stood in Advent City, looking S. (Source: Norwegian Polar Institute, NPI, np003825.)



**(4)** Building F (administration building including telegraph facility) in Hiorthhamn, scale 2m, looking NW. (Photo: S. Dresscher, 2014.)



Building F originally stood in Advent City, where it was the managerial accommodation known as Huset, looking S. (Source: Norsk Folkemuseum, NF.W 05514.)





(5) Building F (administration building including telegraph facility) in Hiorthhamn, scale 2m, looking SE. (Photo: S. Dresscher, 2014.)



Building F originally stood in Advent City, where it was the managerial accommodation known as Huset, looking SW. (Source: Norsk Folkemuseum, NF.W 05521.)



(4) Building F (administration building including telegraph facility) in Hiorthhamn, scale 2m, looking NW. (Photo: S. Dresscher, 2014.)



Building F originally stood in Advent City, where it was the managerial accommodation known as Huset, looking E. (Source: NPI, np002340.)





(4) Building F (administration building including telegraph facility) in Hiorthhamn, scale 2m, looking NW. (Photo: S. Dresscher, 2014.)



Building F originally stood in Advent City, where it was the managerial accommodation known as Huset, looking SE. (Source: NPI, np002343.)





(6) Building B (telegraph, general store and provision storage) in Hiorthhamn, scale 2m, looking NE. (Photo: S. Dresscher, 2014.)



Building B originally stood in Advent City and probably had the same function of being provision storage, looking N. (Source: Norsk Folkemuseum, NF.W 05522.)



(7) Building B (telegraph, general store and provision storage) in Hiorthhamn, scale 2m, looking NW. (Photo: S. Dresscher, 2014.)



Building B originally stood in Advent City and probably had the same function of being provision storage, looking NW. (Source: NPI, np002339.)





(6) Building B (telegraph, general store and provision storage) in Hiorthhamn, scale 2m, looking NE. (Photo: S. Dresscher, 2014.)



Building B originally stood in Advent City and probably had the same function of being provision storage, looking N. (Source: NPI, np003422.)



Repeat photography - Hiorthhamn



**(8)** Building G (living quarters) in Hiorthhamn, scale 2m, looking NE. (Photo: S. Dresscher, 2014.)



Building G used to stand in Advent City, where it probably had the function of a club house, looking SW. (Source unknown.)





(9) Building G (living quarters) in Hiorthhamn, scale 2m, looking SE. (Photo: S. Dresscher, 2014.)



Building G used to stand in Advent City, where it probably had the function of a club house, looking E. (Source: NPI, np002342.)



(10) Building G (living quarters) in Hiorthhamn, scale 2m, looking SW. (Photo: S. Dresscher, 2014.)

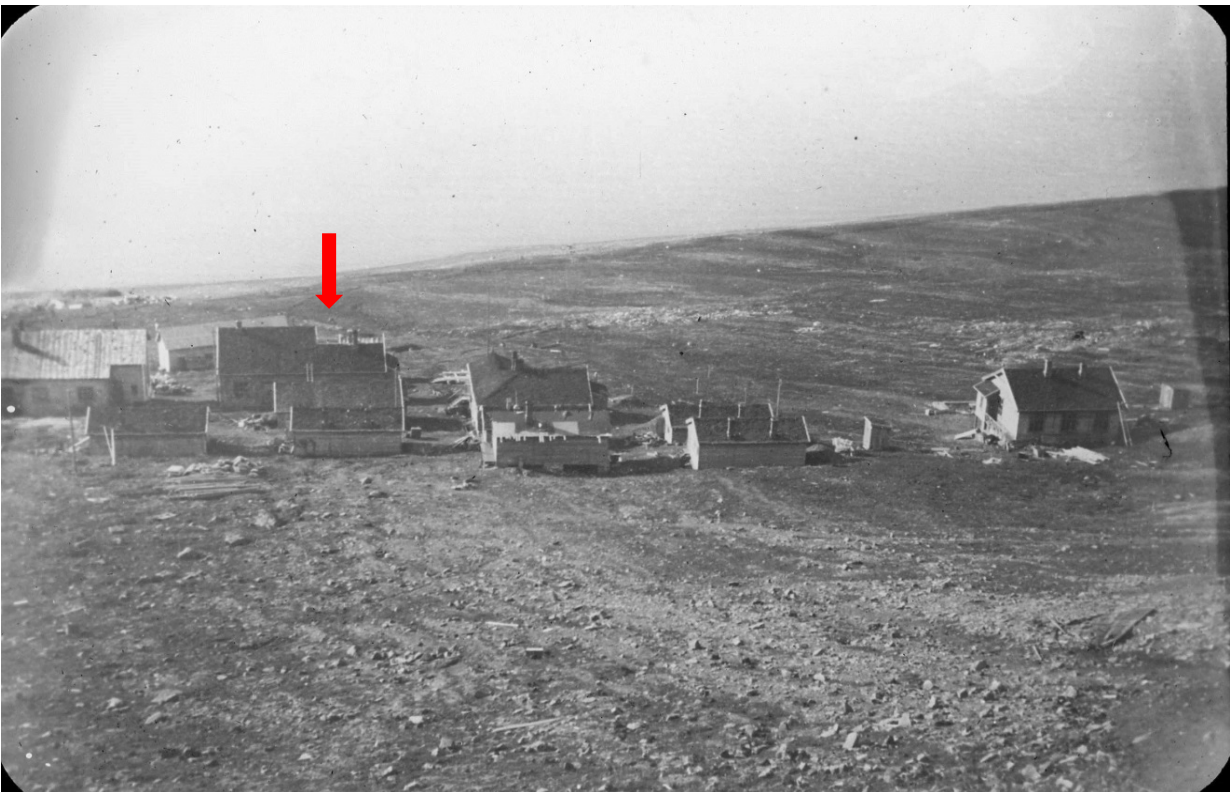


Building G used to stand in Advent City, where it probably had the function of a club house, looking E. (Source: Norsk Folkemuseum, NF.W 09355.)





(6) Building C (living quarters) in Hiorthhamn, scale 2m, looking SW. (Photo: S. Dresscher, 2014.)



Building C originally stood in Advent City, but its former function is not known, looking SW. (Source unknown.)



(11) Building C (living quarters) in Hiorthhamn, scale 2m, looking NW. (Photo: S. Dresscher, 2014.)

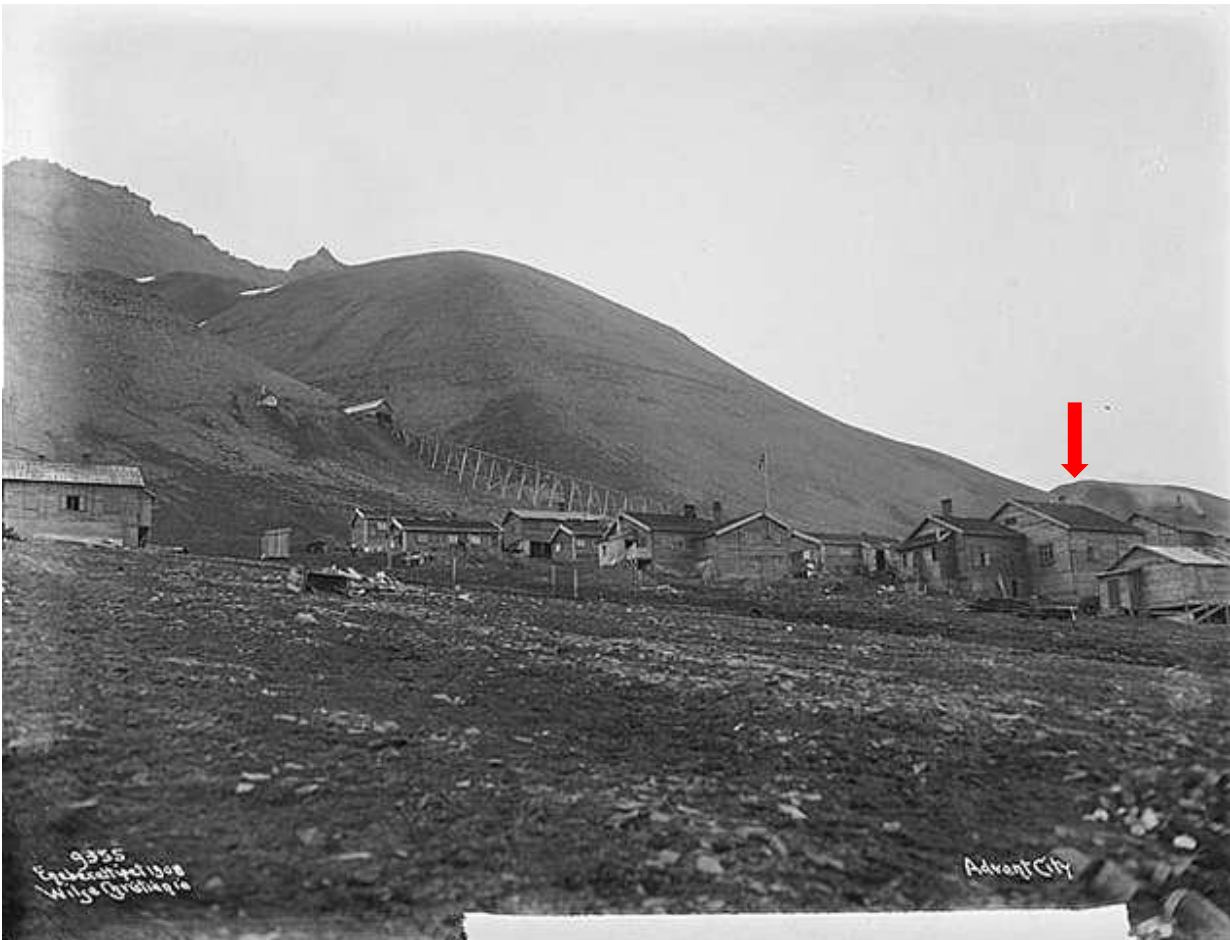


Building C originally stood in Advent City, but its former function is not known, looking W. (Source unknown.)





(12) Building C (living quarters) in Hiorthhamn, looking E. (Photo: S. Dresscher, 2014.)



Building C originally stood in Advent City, but its former function is not known, looking E. (Source Norsk Folkemuseum, NF.W 09355.)





(13) Building C (living quarters) in Hiorthhamn, looking SE. (Photo: S. Dresscher, 2014.)



Building C originally stood in Advent City, but its former function is not known, looking SE. (Source NPI, np002342.)

Repeat photography - Hiorthhamn



**(6)** Building A (storage facility, machine shop) in Hiorthhamn, looking NW. (Photo: S. Dresscher, 2014.)



Building A was originally the engine house in Advent City, looking NE. (Source: Norsk Folkemuseum, NF.W 09356.)





(10) This is an outhouse to the north of building G in Hiorthhamn, looking NW. (Photo: S. Dresscher, 2014.)

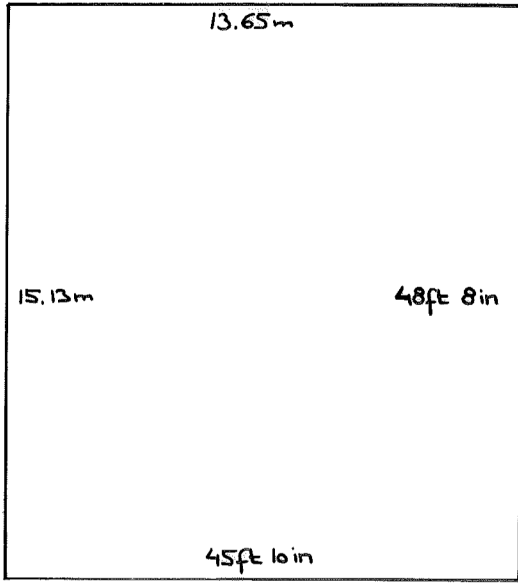


Similar outhouses were used in Advent City, looking E. (Source: NPI, np002340.)

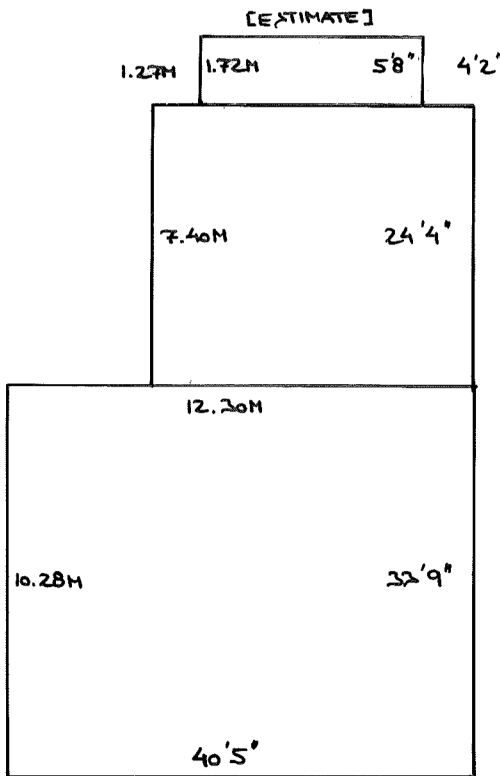


## Appendix A8

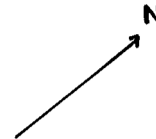
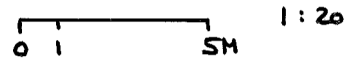
### **Drawings of Hiorthhamn**

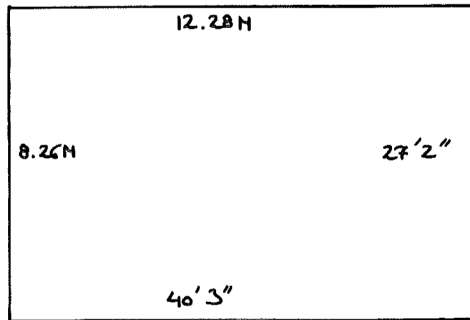


HORTHAMN  
BUILDING A - MACHINE SHOP  
FK, IS, 22/07/2014

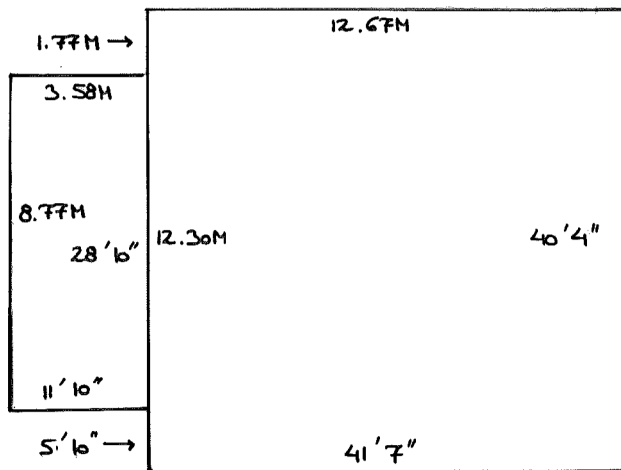
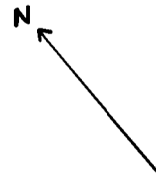


HORTHAMN  
BUILDING C - LIVING QUARTERS  
FK, IS, 22/07/2014





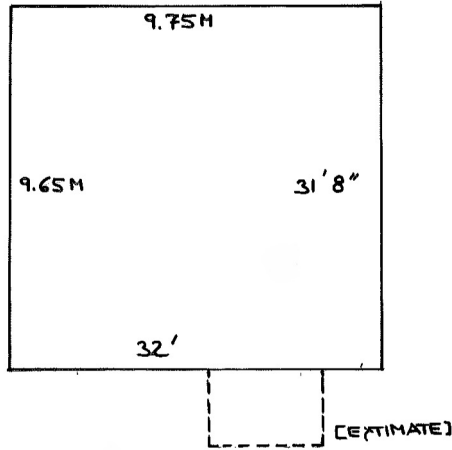
HORTHAMN  
BUILDING B - TELEGRAPH  
FK, 18, 22/07/2014



HORTHAMN  
BUILDING E - MESS HALL  
FK, 18, 22/07/2014

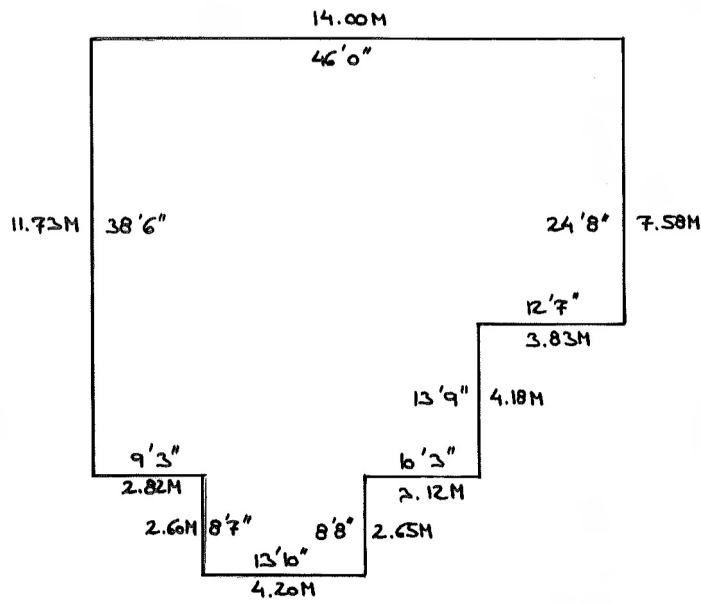
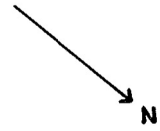






HIRTHMANN  
BUILDING G -  
LIVING QUARTERS  
FK, 18, 22/07/2014

0 1 5M 1:200



HIRTHMANN  
BUILDING F -  
ADMINISTRATION  
FK, 18, 22/07/2014

0 1 5M 1:200

