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MICROFILMED

BEACONSFIELD ASBESTOS REPORT

ALLSTATE EXPLORATIONS N.L.

1971-72.

E.L. 33/71

1972.

BRONWYN JONES ?

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1. SUMMARY AND CONCLUSIONS

The Beaconsfield chrysotile asbestos prospect is held under lease by Newmont Pty. Ltd. and extensions of the area are held by Allstate Explorations N.L.

The leases are situated near the mid-north coast of Tasmania, thirty miles north of Launceston and two miles west of the Beaconsfield township.

Portions of the area were mined for asbestos between 1889 and 1919 but only limited production records are available. During an eighteen month period prior to March 1919 Wunderlich Ltd. produced 441 tons of fibre from the main quarry area of an effective recovery grade of 1%.

Allstate Explorations have recently completed an extensive exploration program over this area under the supervision of Mr. J. Mullins of Watts, Griffis & McQuat (Australia) Pty. Ltd. This program included extensive detailed mapping, a magnetometer survey, fibre testing and evaluation and fifteen diamond drill holes. Abundant fibre was not intersected at depth in any area other than than near the main quarry.

Although numerous pockets of fibre were scattered over the area, mapping, trenching and subsequent drilling failed to locate chrysotile asbestos in economic quantities.

Most of the areas where fibre was abundant on surface were drilled but it was found that the fibre occurrences are discontinuous at depth, including a location where fibre could be traced over a distance of several hundred feet on the surface.

The drilling program covered all of the obvious areas of potential fibre zones.

The small quantity of cross fibre intersected in the small zones was disappointing. Large quantities of fibrous material, thought possible slip fibre chrysotile proved to be predominantly brucite and hence were of no value.

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Any remaining areas where extensive fibre may occur are largely covered by ironstone and quartz gravels or areas of swampy alluvium where there are no outcrops of serpentinite.

2.1 PROPERTY LOCATION AND ACCESS

The prospect is situated approximately two miles west of Beaconsfield township, Tasmania in the Scots Hill - Dans Hill area. It may be reached by following the Yorktown Road for 1½ miles, turning left and following Tattersal's Road.

After approximately 2 miles this road turns sharply to the south, at its junction with the old Mt. Vulcan tramway, and runs down the western side of the prospect.

A turnoff to the left 1 mile along the Yorktown road provides access to the eastern area and the old asbestos quarries.

Allstate Explorations N.L. holds an E.L. of approximately 7 miles square (E.L. 33/71) surrounding mineral leases held by Newmont Pty. Ltd. (160 acres) and Tasminex P.L. (80 acres) in which Allstate has an interest. 7 sq. miles

The distribution of these leases is shown in Fig. 2.1.

3.0 PHYSIOGRAPHY

The area is composed predominantly of moderate to gently sloping hillsides where the maximum local relief is a little over 200 feet. A ridge of resistant, metamorphic rock (referred to as "syenite") runs in a roughly N-S direction down the middle of the area, and ridges covered by Tertiary gravels comprise the northern and eastern limits.

Anderson's Creek, the main watercourse, flows through the middle of the prospect in a roughly north-northwest direction. To the east of the metamorphic "syenite" ridge, the area is lightly timbered forest while a major part of the area west of the ridge is covered with dense ti-tree scrub.

Soil cover is light in a few areas and moderate in most, being about 1 ft to 5 ft thick. In the southwest of the area and along parts of Anderson's Creek, the area is swampy, particularly

after extended rainy periods. In these areas outcrop is rare.

4.0 HISTORY

4.1 PRODUCTION RECORDS

Australasian Asbestos Co. Ltd. was first to mine asbestos in this area commencing in the year 1889. Their work was confined to the northern quarries (30,800N to 31,200N between 18900E and 19600E) where they drove their quarries along vein systems. Little or no fibre remains visible on the quarry walls. Production records are not available.

There are no accurate records of production from the main quarry; however Taylor (1955) quoted production statistics from Wunderlich Ltd. who worked the quarry for a period of 18 months in the years 1917 - 1918. These figures enabled a calculation to be made of the effective grade of the rock in the quarry at that time.

Records show that 48,854 tons of rock were mined from the quarry from which 4,414 tons were hand selected for milling to give 441 tons of fibre. Thus, the effective grade of rock in the quarry was 1%. This rock was hand sorted to 10% for milling.

5.0 GEOLOGY

A summary of previous geological work on the Beaconsfield serpentine belt, from which most of the following information is taken is contained in a report by Taylor (1955).

Twelvetrees (1899)

- Gave the age of the serpentinite as post-Silurian.
- Described the occurrence of asbestos veins in Australian Asbestos Corp.'s quarries as follows:
  - ¼" - ½" - common
  - 1" - 1½" - less frequent
  - 2½" - exceptional
- Recognised the serpentinites' parent rock as harzbergite (peridotie consisting of bronzite (enstatite) and olivine).

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. "The seam or filling is not a lode and continuity cannot be relied upon even though the line of decomposition may be discernible for a considerable distance ..."

Reid (1919)

Reported on the results of Wunderlich Ltd.'s prospecting, ie. on Condor's Prospect, Jackson's Prospect and Smith's Prospect.

Taylor (1955)

. Divided the serpentinite into 7 different types, A1, A2, B, C, D, E, F.
. Described the "syenite" as an hybrid rock resulting from granite intruding, melting and becoming contaminated with pyroxenite.
. Produced a geological map of the serpentinite belt.
. Described structural features of fibre veins in detail.

Other authors dealing with the serpentine belt are included in the list of references.

5.1 GEOLOGICAL SETTING

Serpentinite has been formed as a result of metamorphism of an elongate pyroxenite body which intrudes quartzites and micaceous schist of Precamrian age, and other "clayslates and claystones". These metamorphic sediments form the Asbestos Range to the west of Beaconsfield.

Serpentinite occurs in a belt some ~~11~~ 4 miles in length along the eastern side of the Asbestos Range. The degree of alteration of pyroxenite to serpentinite varies considerably and a range of varieties has been described by Taylor (1955).

Theories differ as to whether a foliated quartz-biotite feldspar rock within the serpentinite is an intrusion of syenite composition or a roof pendant of metamorphic material (a more likely alternative). In this report, for simplicity it will be referred to as "syenite". Extensive deposits of Tertiary quartz gravels overlie the older rocks in the region to the north and the east of the prospect. In the western portion of the prospect area the serpentinite is overlain by Tertiary lateritic ironstone and ironstone gravel.

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5.2 GENERAL GEOLOGY

The area was mapped in three sections:

1. East of Anderson's Creek to the eastern edge of serpentinite outcrop, and including part of the area west of the creek in the southwest corner of the map area (Map 1).
2. From Anderson's Creek, westward to the forestry road (Map 2).
3. West from the forestry road to the contact of the serpentinite with pre-Cambrian sediments (Map 3).

(i) Major Rock Types

(a) Serpentinite

The serpentine varies in both colour and texture and was divided into various types on this basis. The distinction between types is often indefinite and gradational but the following broad divisions could be made.

Type A - Serpentinite showing remnants of original pyroxenite, with crystal structure, both coarse and fine grained, preserved (both types being intimately associated); medium to dark green and black in colour; resistant, and froming the majority of outcrops in this area. Fine-grained types may contain veins of cross fibre.

Type B - Mid to darkish-green serpentinite; granular, fine grained and without lustre. Usually contains magnetite veins or bands and is rarely fibre bearing.

Type C - Mid to dark green serpentinite, amorphous to subtranslucent. Most common host rock for fibre.

Type D - Light to pale green serpentinite, granular, fine grained and dull. Rarely contains fibre.

The characteristics of types B and D appear largely due to the response of the original rock type to weathering processes.

(b) "Syenite"

The origin of this rock is in dispute. It is a melanocratic rock consisting of biotite, muscovite, quartz and altered feldspar, with traces of tourmaline and apatite. In most exposures this rock type is well foliated and has a typical metamorphic appearance. Less often, outcrops of the same composition have a basaltic appearance. The rock was mapped as "syenite" on the basis of its chemical composition only. It is

more likely a slab of metamorphic basement material brought up by the original pyroxenite. Similar blocks occur in the Woodsreef asbestos area (J. Mullins, personal communication).

(c) Rodingite

Narrow bands of rodingite-type rocks were seen in some trenches and intersected in drill holes, probably representing original gabbro dikes. Such rocks are believed to be the product of lime metasomatism of gabbros and are composed of calc-silicate minerals. Examples seen were predominantly very hard, extremely fine grained and creamy coloured containing occasional aggregates of small, red brown garnet crystals.

(d) Gravels

Extensive deposits of Tertiary gravels cover large areas of serpentinite. On the eastern and north eastern boundaries of the leases the hills are capped with thin deposits of quartz gravel. On the western side, large areas are covered with chromium-rich ironstone gravels which locally are massive but generally are unconsolidated and have a red-brown, ocherous clay matrix. The thicker accumulations have been mined in the past for either quartz gravel or iron ore.

(ii) Eastern Area Geology

Lack of outcrop in this eastern area hampered comprehensive geological mapping. However with the aid of bulldozed trenches the area was mapped in some detail.

It was generally impossible to trace any particular horizon more than 20 - 40 ft. due to the lenticular nature of the exposures. Broad zones of a dominant lithological type were mapped (Map No. 1). Generally speaking, individual fibre zones could not be traced very far along strike, no doubt because of the lenticular nature of the fibre-bearing horizons. It was found that cross fibre commonly occurs adjacent to exposures of coarse-grained, dark serpentinite. Various old pits exist adjacent to rocky outcrops of this serpentinite which obviously served as a target for prospecting activities. These fibre-bearing zones could not be traced with any certainty.

In the northern portion of the area, a fibre zone was mapped on surface over a strike length of about 1300 ft. The fibre in this zone varies from about 1/16" to ½" in

length and is particularly abundant in the dumps beside each excavation.

Another fibre zone of considerable extent is located in the vicinity of the main quarry. Several patches of fibre are exposed in nearby pits but little remains in the quarry walls. Dumped material beside the main quarry contains abundant fibre of lengths varying from 1/32" to about ½". According to local sources of information. lengths of ½" and upward were previously selected for milling.

The geology in the region of Trench 4 is complex and exposures are limited; consequently interpretation is difficult. Fibre of reasonable lengths can be found but cannot be traced for any distance. In the southern area the geology is less complex and it is possible to make a reasonable correlation of rock types between trenches. In this area fibre is less abundant than elsewhere.

In the far southern portion of the area, adjacent to the eastern boundary of the "syenite" a small pit contains abundant fibre. However this zone could not be traced for any distance due to a paucity of outcrop, and drilling indicated that the zone is not continuous at depth.

In general the distribution of major fibre zones is related to the location of old workings, as is demonstrated by the map (Map No. 1). Most information relating to the nature of fibre in the workings has been obtained from an investigation of material remaining in the various dumps.

Fibre occurrences are indicated on the map. They are mainly restricted to the northern portion of the area, with only a few isolated fibre-bearing rocks being present further south.

(iii) <u>East of Forestry Road - West of Anderson's Creek</u>

Initial reconnaissance to the west of Anderson's Creek revealed additional fibre occurrences. A detailed mapping program was initiated in order to detect and delineate additional fibre zones.

The geology in this area appears to be less complex than that on the eastern side. The area can be divided into broad lithological bands which trend slightly west of north, and other less definite zones. This serpentinite is overlain by lateritic ironstone and

gravels which obscure large areas of serpentinite in the middle of the area.

Two main serpentinite types occur viz., type A (crystalline serpentinite, resistant, dark to light green) and type C (amorphous - subtranslucent serpentinite, mid to dark green, common host rock). Fibre occurrences are indicated on the geological map; they usually occur in a dark-green, translucent to subtranslucent serpentinite, which is extensive in this part of the area. However, large areas are barren.

It was observed that fibre zones often occur on or adjacent to ridges and are probably related to shear zones.

(iv) West of the Forestry Road

A number of traverses were made over this area; however mapping was carried out in less detail than in other portions of the ultrabasic body. Adjacent to the road an extensive cover of ironstone, presumably overlying and derived from the serpentinite, continues westward and disappears under heavy soil and swampy cover.

Serpentinite outcrops extensively in the north of the area but contains no visible chrysotile fibre. An area around 33,000N, 16,000E contains small quantities of chrysotile. To the west of an elongate swampy area the first exposures mapped were pre-Cambrian (?) silt-stones. It seems likely that the contact is hidden beneath the swamp in a weathered, non-resistant zone which has probably resulted from shearing. Several prospecting trenches were found within pre-Cambrian(?) siltstones, close to the contact in an area containing abundant quartz veins. No trace of mineralisation was apparent. The age of these silt-stones is in some doubt as they are not the typical pre-Cambrian blue siltstones which occur extensively elsewhere along the range. On surface evidence it seems unlikely that a major asbestos occurrence is present in this area.

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5.3 STRUCTURAL GEOLOGY

Layering:

A lithological layering difficult to detect on fresh surfaces, is often apparent on weathered resistant outcrops. This layering is emphasised by grain size and by textural or compositional variations in hand specimen.

On a mesoscopic scale a layering of the various rock types is common in the eastern area; for example, regularly oriented bands of dark green translucent serpentinite (type C) are commonly found within the type D. This layering is present on an even larger scale west of Anderson's Creek as a broad major layering of rock types. Throughout most of the area these layerings dip almost vertically and strike very close to 165^{o} or 185^{o}.

Chrysotile Veins

Cross-fibre chrysotile occurs in two mains sets of parallel veins. The dominant set is usually parallel to the layering in the rock while the other is often poorly expressed (if at all); hence the majority of cross-fibre chrysotile veins are oriented around 165^{o} or 185^{o}. These orientations persist in rocks with no obvious layering.

Very narrow veins of cross-fibre chrysotile are usually simple, while wider veins are of composite nature.

Slip Planes

At almost any locality numerous slip planes are visible with one orientation usually predominant.

The slip surfaces are typically characterised by slickensides and fibrous brucite (and possible chrysotile) which are often accompanied by talc.

Shear Zones

Most old prospecting trenches appear to be along zones of shearing. In the eastern area these zones trend 120^{o} - 140^{o} and appear to dip steeply. In the western area the predominant strike of shear zones is again 120^{o}-140^{o}. A fibre zone in the north of the eastern area trends ina similar direction, suggesting control of mineralisation by shearing.

5.4 ECONOMIC GEOLOGY

Cross-fibre chrysotile found in the area examined is generally quite short. Fibre of 1/8" and less was by far the most abundant, 1/8" to 3/8" lengths were present in moderate amounts locally, and

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fibre 3/8" and longer was seldom found. Isolated veins containing fibre 1" in length were seen at two localities. Occasional veins were about 1" in width but numerous fibre partings reduced the individual fibre length to about 1/8". The longer fibre was not confined to any one particular area within the prospect but was almost found in a fibre zone of some extent. Thread veins and short fibre veins about 1/16" were found away from the main fibre zones. Most fibre zones of any extent occur relatively close to the "syenite" this being particularly marked on the eastern side. There is very little fibre around the visible extremities of the serpentinite body.

6.0 EXPLORATION PROGRAM

6.1 MAPPING AND PROSPECTING

Detailed surface mapping of the limited outcrop was carried out in order to uncover and delineate fibre zones as targets for further detailed exploration.

Mapping was carried out on a grid system with traverses being made every two hundred feet.

Additional reconnaissance traverses were made over surrounding areas of serpentinite both within and outside areas held by Allstate.

6.2 TRENCHING

Initially four trenches were bulldozed across the area covered by the Newmont leases to expose the rocks and to assist in tracing zones of fibre formation. Geological mapping and examination of old workings suggested that fibre formation trended roughly north - northwest and trenches were positioned in order that they would cross this trend.

It was hoped to produce a clean surface of rock, in situ, in the trenches, which could be logged in detail for fibre in order to obtain a visual estimate of fibre abundance.

However, owing to the depth of weathering and the shattered nature of the rock, such a surface could not be obtained. In some places trenching did not uncover any rock. Loose boulders, representative of the underlying rock, were commonly uncovered and zones of fibre formation could be delineated, although a visual estimate of fibre concentration could not usually be obtained.

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Further trenching was carried out both in the Newmont area and further south into E.L. 33/71 in order to test the extension of known fibre zones and to obtain information on the geology and structure of the area.

Additional trenches were made for general prospecting purposes, mainly in areas covered by soil and gravel.

6.3 MAGNETOMETER SURVEY

A ground magnetic survey was conducted over the prospect by McPhar Geophysics Pty. Ltd.

Station spacings of 25 ft. over traverses 200 ft apart were used to detect local magnetic fluctuations and to correlate them along strike between lines.

The results were presented as profiles of vertical magnetic intensity as well as in contour form. In preparation of the contour map profiles were smoothed to remove erratic fluctuations. The magnetite content of serpentinite varies markedly and is often related to zones of intense alteration or metamorphism. Chrysotile asbestos fibre is usually found in highly metamorphosed serpentinite and it was hoped to delineate these zones by their magnetic effect. It was found that the most common host rock for cross-fibre chrysotile, type C, occurs in areas of low magnetic intensity, suggesting that fibre is found in rocks with low magnetite content.

The following major magnetically low areas were apparent on the contour map (Map 4).

(i) 30600N to 29800N near 16900E to 1799E
(ii) 16800E from 26400N to 27600N
(iii) 18800E from 26400N to 27200N

An appraisal of the magnetics of the area is contained in the report by Mr. S. Webster of McPhar Geophysics for Allstate Explorations.

6.4 DIAMOND DRILLING

1. SELECTION OF DRILL SITES

Initially a drilling program of 2 x 800 ft. exploratory holes to test for the presence and quality of fibre in the area was undertaken. The holes were sited to drill across a surface lineament and probable shear zone, underneath old workings from which reasonable amounts of asbestos had been extracted (ie.

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Main Quarry and Terazzo Quarry).

Following test analysis of these results and further surface work a detailed drilling program was recommended by Mr. Mullins of Watts, Griffis and McQuat to test for the possible existence of a fibre zone of economic dimensions within the area. Five thousand feet of drilling was carried out, using NQ core size.

In the eastern area the recommended drilling program was carried out on a grid with 400 ft. spacings on lines 800 ft. apart within an area where fibre was most abundant on the surface. (Holes 6 to 12).

After disappointing results from the initial holes this program was modified and the remaining holes in the eastern area and all the holes in the western area were drilled immediately underneath fibre-bearing outcrops in order to test their continuity. (Holes 13 to 18 inclusive).

RESULTS OF DRILLING

All drill core was logged for lithology and fibre, details being available on the log sheets.

Longitudinal sections were plotted through each drill hole and results projected to the surface. A colour code system recommended by Watts, Griffis and McQuat based on the length and quantity of fibre, was used in these diagrams to summarise results in a convenient and readily interpreted form.

INITIAL DRILLING PROGRAM

a) DDHA4 Location N E
Attitude 45^{o} to 215^{o}

Asbestos found over ft. of the 800 ft drilled as follows:

with fibre volume % from 0.1% to 0.9%
with fibre volume % from 1.0% to 1.9%
with fibre volume % greater than 2%

no section missing

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Both cross-fibre chrysotile and slip fibre (probably brucite) are present in fairly distinct zones, as follows:

0	-	115'	(115')	slip fibre
115'	-	120	(105)	cross fibre
220	-	350	(103)	slip fibre
350	-	410	(60)	cross fibre
410	-	455	(45)	slip fibre
455	-	485	(30)	cross fibre
485	-	800	(315)	slip fibre

section missing

DDH A5 Location N E
Attitude 45° to 21°E

Asbestos found over ' of the 800 ft. drilled, as follows:

' with fibre volume % from 0.1% to o.9%
' with fibre volume % from 1.0% to 1.9%
' with fibre volume % greater than 2%.

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DDH A6

Location 29,200N 19200E
Attitude: 45° to 270°

Asbestos found over 355' of the 800' drilled, as follows:
215' with fibre volume % from 0.1% to 0.9%
90' with fibre volume % from 1.0% to 1.9%
50' with fibre volume % greater than 2%
The majority of fibre is found in zones 200 - 270'; 305' - 325'; 350' - 425'; 460' - 520'; 630' - 660'; 695' - 780';
Most fibre is found in fine grained serpentinite in zones of alternating coarse and fine-grained serpentinite layers, or close to zones of alteration or shearing.
The hole passes under Anderson's Creek, an area of no outcrop, then under fibre zones seen on the surface on the western side of the creek.
The drill hole passed well under the surface contact of the "syenite" (?) (a probable slab of metamorphic basement) without hitting it, suggesting that the "syenite"(?) is either discontinuous in depth or dips westward.

DDH A10

Location 30,000N 19000E
Attitude 45° to 270°

Asbestos found over 15' of the 447' drilled. A11 15' had fibre volume % from 0.1% to 0.9%.
The fibre is scattered through the upper sections of the core in small amounts. This was the second hole to pass underneath the "syenite" (?) without hitting it.

DDH A 11

Location 30,000N 19,800E
Attitude 45° to 270°

Asbestos found over 30' of the 450' drilled as follows:
25' with fibre volume % from 0.1% to 0.9%
5' with fibre volume % from 1.0% to 1.9%
Most fibre is scattered within a minor zone (295' - 315', in a sheared and broken area.
Fibre seen on surface above this hole is apparently discontinuous in depth.

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DDH A12

Location 27,800N 19600E
Attitude 45° to 270°

Asbestos found over 125' of the 405' drilled, as follows:
95' with fibre volume % from 0.1% to 0.9%
20' with fibre volume % from 1.0% to 1.9%
10' with fibre volume % above 2%
Fibre zones in this hole were found at 25' - 35'; 150' - 160'; 235' - 265'; 280' - 295'; 310' -320'; 345' - 395';
Most fibre is within bands of very fine-grained to translucent, dark serpentinite.
The hole was collared on the grid, between two outcropping fibre zones.

DDH A13

Location 27,400N 18519E
Attitude 45° to 270°

Asbestos found over 71' of the 183' drilled, as follows:
50' with fibre volume % from 0.1% to 0.9%
11' with fibre volume % from 1.0% to 1.9%
10' with fibre volume % above 2%
This hole was sited to pass under an excellent fibre zone outcropping on the surface. However, drilling results were extremely disappointing. The hole ended in a shear zone, beginning at about 180'. This zone probably represents the "syenite"(?) contact in the area.

DDH A14

Location 2736N; 1840E
Attitude 45° to 090°

Asbestos found over 95' of the 300' drilled as follows:
85' with fibre volume % from o.1% to o.9%
10' with fibre volume % from 1.0% to 1.9%
Low grade fibre zones extend from 60 - 100' and 250 - 275' with other fibre being scattered between the two zones.
This hole was drilled underneath the same fibre zone as DDH A13 but from the opposite direction. Again the fibre content of the core was surprisingly low. The hole, collared just to the east of the "syenite" (?) contact, missed the shear zone encountered in hole A13.

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DDH A15

Location 31,346N 18642E
Attitude 45° to 212°

Asbestos was found over 30' of the 300' drilled, as follows:
20' with fibre volume % from 0.1% to 0.9%
10' with fibre volume % from 1.0% to 1.9%
Fibre is mostly scattered through the core.
The drill was collared in a trench and drilled across a fibre zone about 100ft. in width with surface exposure of numerous veins carrying fibre 1/8" - ½".
This fibre zone trends roughly E-W and is extensive on surface but apparently discontinuous in depth.

DDH A16

Location 28,096N 17125E
Attitude 45° to 065°

Asbestos was found over 110' of the 250' drilled, as follows
90' with fibre volume % from o.1% to 0.9%
15' with fibre volume % from 1.0% to 1.9%
5' with fibre volume % greater than 2%
The following were the main fibre zones: 25' - 95'; 105' - 120'; 135' - 155' in dark subtranslucent serpentinite and near shear zones.
This hole was selected to pass underneath outcrops carrying fibre up to 5/16" in length. Although almost half of the core is fibre bearing the grade is very low.

DDH A17

Location 27,460N 17028E
Attitude 45° to 075°

Asbestos was found over 95' of the 250' drilled, as follows
70' with fibre volume % from 0.1% to 0.9%
10' with fibre volume % from 1.0% to 1.9%
15' with fibre volume % above 2%
Zones of fibre were present at 20 - 135' and 195' - 220'.
The drill was collared on the western edge of a shear zone which marked the beginning of a fibre zone which is 50 ft wide at the surface in this locality. The fibre found in the core did not come up to expectations insofar as length and abundance were concerned.

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DDH A18

Location 27,597N 17540E
Attitude 45° to 090°

Asbestos was found in 135' of the 255' drilled, as follows:

125' with fibre volume % from 0.1% to 0.9%
10' with fibre volume % from 1.0% to 1.9%

Zones of fibre occurred in the following intervals: 15' - 30'; 40' - 85'; 95' - 130'; 140' - 155'; 165' - 190'; 225' - 250'.

This hole was collared in a fibre zone and drilled under a resistant ridge.

The length and abundance of fibre in the core did not compare with that expressed on the surface. However much of the slip fibre had the appearance of being originally cross-fibre.

3. SUMMARY

Drilling covered areas where fibre was most abundant on the surface with the later holes in the programme being drilled directly into fibrous rocks.

A section approximately 1300 ft. in length along line 28,200N was covered by drilling from 19,900E westward. Fibre was present over most of this zone but predominantly in only minor quantities.

DDH A9 on line 30,000N contained fibre but holes either side were practically barren.

In the southern portion of the area DDH A12 produced only small quantities of fibre. Disappointing results were obtained in the above holes. Two additional holes were drilled on either side of an outcrop containing abundant fibre near the south east boundary of the "syenite". Both holes passed beneath this outcrop but neither of them intersected fibre comparable to the surface occurrences, indicating that the fibre zone petered out in depth.

Similar results were obtained in DDH A15. The remaining three holes were drilled in the western area beneath significant fibre occurrences. All holes intersected less fibre than is visible on the surface and generally the veins were much shorter in width. Drilling results failed to outline a major fibre zone, but seemed to indicate that visible fibre zones are a series of small lenses or pockets of fibre which have no continuity in depth.

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FIBRE EVALUATION

7.1 GEOCHEMICAL

Due to the similarity incomposition of chrysotile and its serpentinite host rock, standard techniques of geochemical exploration have no application in the search for asbestos deposits. Geochemical analyses for Cu, Ni, Co and Cr were carried out on several chip samples of serpentinite with the following results -

ELEMENT			
Cu	0.01%	0.01%	0.01%
Ni	0.13%	0.18%	0.09%
Co	0.02%	0.02%	0.01%
Cr	0.58%	0.68%	0.81%

7.2 MINERALOGICAL

X-ray diffraction identification was carried out on fibrous material selected from diamond drill core by Mr. J. Mullins of Watts, Griffis & McOuat to determine mineralogy.

The samples were long and shiny brittle white fibres (brucite and crystallite) or long stringy white fibres with very little strength (brucite and chrysolite ..)

7.3 FIBRE TESTING

Samples of fibrous diamond drill core were sent to the Quebec Department of Mines for testing under the supervision of Mr. Barrie Butt of Watts, Griffis and McOuat. The following samples were sent:

1. DDHA4 25' to 75' (50) Slip Fibre
2. " 115' to 175' (60) Cross Fibre
3. " 225' to 275' (50) Slip Fibre
4. " 275' to 340' (65) Slip Fibre
5. " 380' to 410' (30) Cross Fibre
6. " 550' to 620' (70) Slip Fibre
7. DDHA5 110' to 160' (50) Slip Fibre
8. " 285' to 350' (65) Slip Fibre
9. " 405' to 440' (35) Cross Fibre
10. About 50 lbs. of material from dump (30,800N 18,800E) containing cross fibre

Table (7.3) (quoted from Mr. Butt's report) summarizes the results of the Quebec Standard Test on the above samples.

TABLE 7.3

SAMPLE	LENGTH	VISUAL RESULTS			MIXED RESULTS		
		%	$	GROUP	%	$	GROUP
No. 2 (05014)	60'	2.55	2.76	7D	3.91	5.27	6D
No. 5 (05017)	30'	0.84	0.81	7F	INSUFFICIENT FIBRE FOR TEST		
No. 6 (05018)	70'	SLIP FIBRE SAMPLE			0.42	1.00	4T
No. 7 (05019)	50'	SLIP FIBRE SAMPLE			2.39	3.06	6D
No. 9 (05021)	35'	2.76	2.37	7F	3.56	3.70	7D

021

Detailed reports on the findings of tests made, and a fibre evaluation were prepared by Mr. Butt who drew the following conclusions -

(a) Slip fibre generally has no value but may have some value in someparts of the deposit (Sample No. 6)

(b) Cross fibre stands up to milling and has a value.

(c) Milled fibre recovered is approximately 40% in excess of the visual estimate.

(d) The grade of fibre in the area may range from a 4D ($258.00 per ton) to a 7R ($53.50 per ton) product.

(e) Dollar values obtained in the rock samples tested are marginal.

8.0 CONCLUSIONS

Although numerous pockets of fibre were scattered over the area, mapping, trenching and subsequent drilling failed to locate an orebody of sufficient dimension. Most of the areas where fibre was abundant on surface were drilled, and found to be discontinuous in depth. Even fibre which could be traced several hundred feet on surface was proved to be discontinuous in depth (DDH A15).

The drilling program covered all of the most obvious areas of potential fibre zones.

The small quantity of cross fibre intersected in the small zones was disappointing. Large quantities of fibrous material, thought to be possibly slip fibre chrysotile proved to be predominantly brucite and to be of no value.

Any remaining areas where extensive fibre may occur are largely covered by ironstone and quartz gravels or areas of swampy aluvium where there is no outcrop of serpentinite.

LEGEND

- A — Crystalline serpentinite, resistant, dark to light green
- B — Fine grained serpentinite, granular, mid to dark green
- C — Amorphous — subtranslucent serpentinite, mid to dark green, common host rock.
- R — Rhodingite (?)
- Syenite — foliated metamorphic rock of syenite compound
- Quartz and Quartzite gravels
- Ironstone gravels
- Massive Ironstone
- Dump
- Quarry
- •1/16 — Area of fibre occurance
- Geological boundary
- Geological boundary (position approximate)
- —?—?— Geological boundary (position inferred)
- DDH. A18 — Diamond Drill Hole
- Fault

72-922

ALLSTATE EXPLORATIONS N.L.

GEOLOGICAL MAP BEACONSFIELD ASBESTOS AREA (WESTERN)

100 0 100 200 300

Scale in Feet

634023

1261

5 cm

Map 1

Map 2

634024

72-922

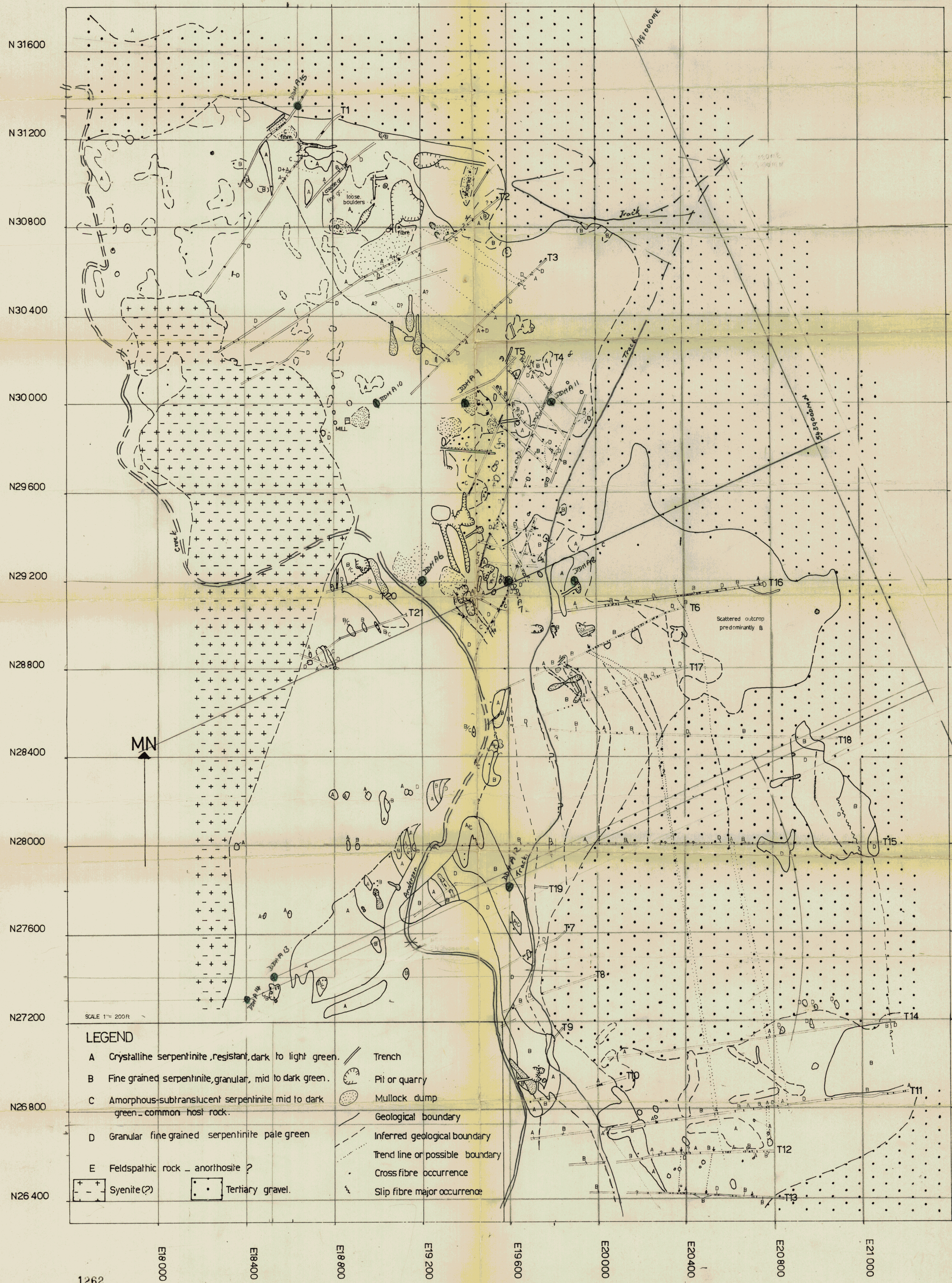
ALLSTATE EXPLORATIONS N.L.

BEACONSFIELD ASBESTOS PROJECT

GEOLOGICAL MAP_EASTERN

1: 2500 APPROX

5 cm

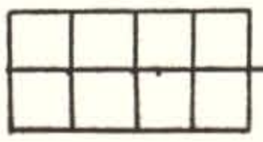


1262

ALLSTATE EXPLORATIONS N.L.

BEACONSFIELD ASBESTOS PROJECT

COLOUR CODE



FIBRE

ROCK TYPE

FIBRE

CATEGORY	1/16	1/8	3/16	1/4
1	2	2	2	2
2	2	2	2	
3	2	2		
4	>5			
5	⩽5			

ROCK TYPE

PALE GREEN FINE GRAINED SERPENTINITE

MID GREEN-GREY FINE-COARSE GRAINED SERPENTINITE

MID GREEN FINE GRAINED SERPENTINITE

APPLE GREEN GRANULAR SERPENTINITE

DARK GREEN-GLACK FINE GRAINED TO TRANSLUCENT SERPENTINITE

RODINGITE

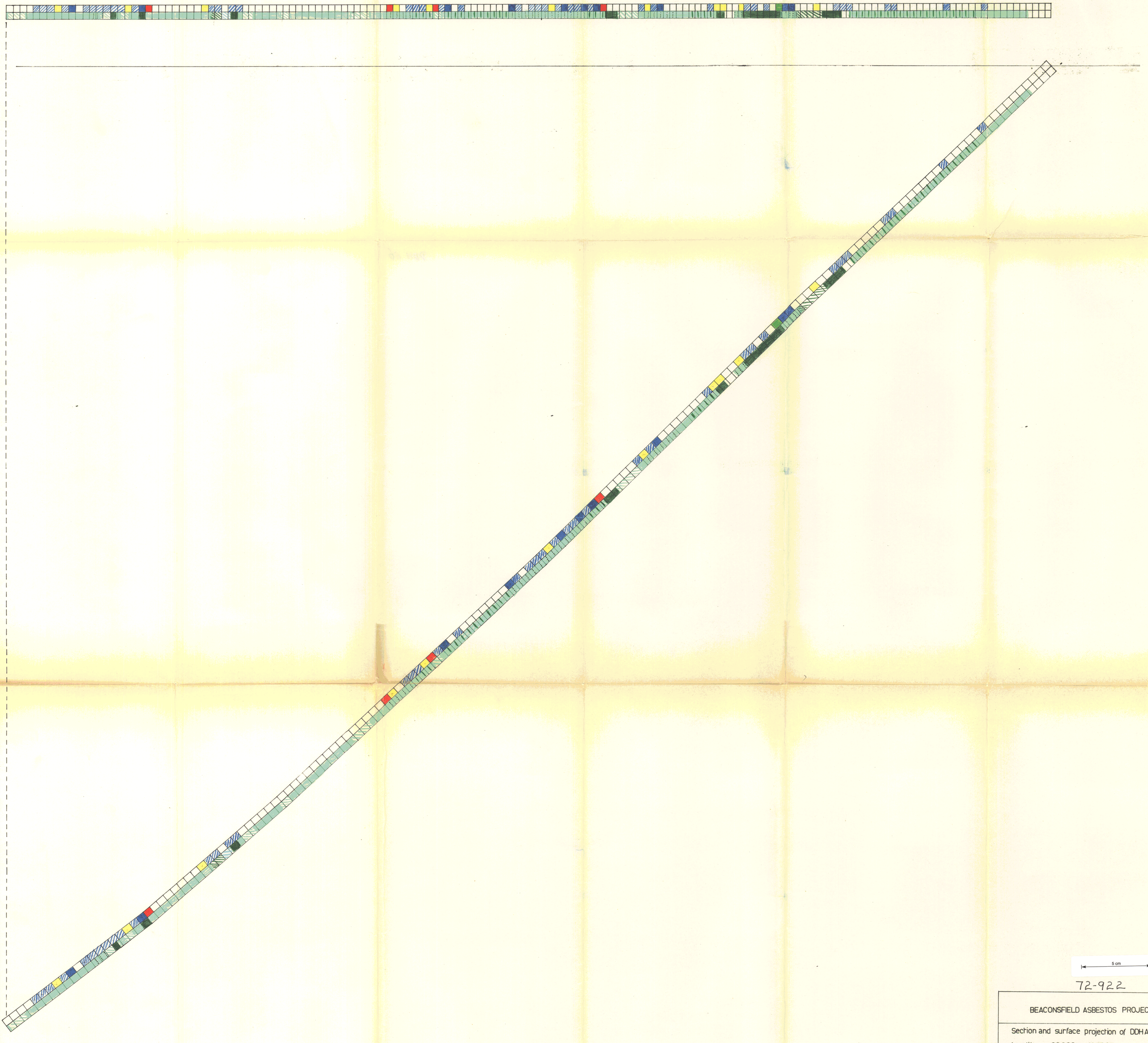
HIGHLY SHEARED ZONE

BROKEN ZONE

1265

ALLSTATE EXPLORATIONS N.L.

DDH A6 SECTIONS



5 cm

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDH A6

Locality — 29200N 19200E

Attitude — 45° to 270°

Depth — 800°

Scale — 1"= 20'

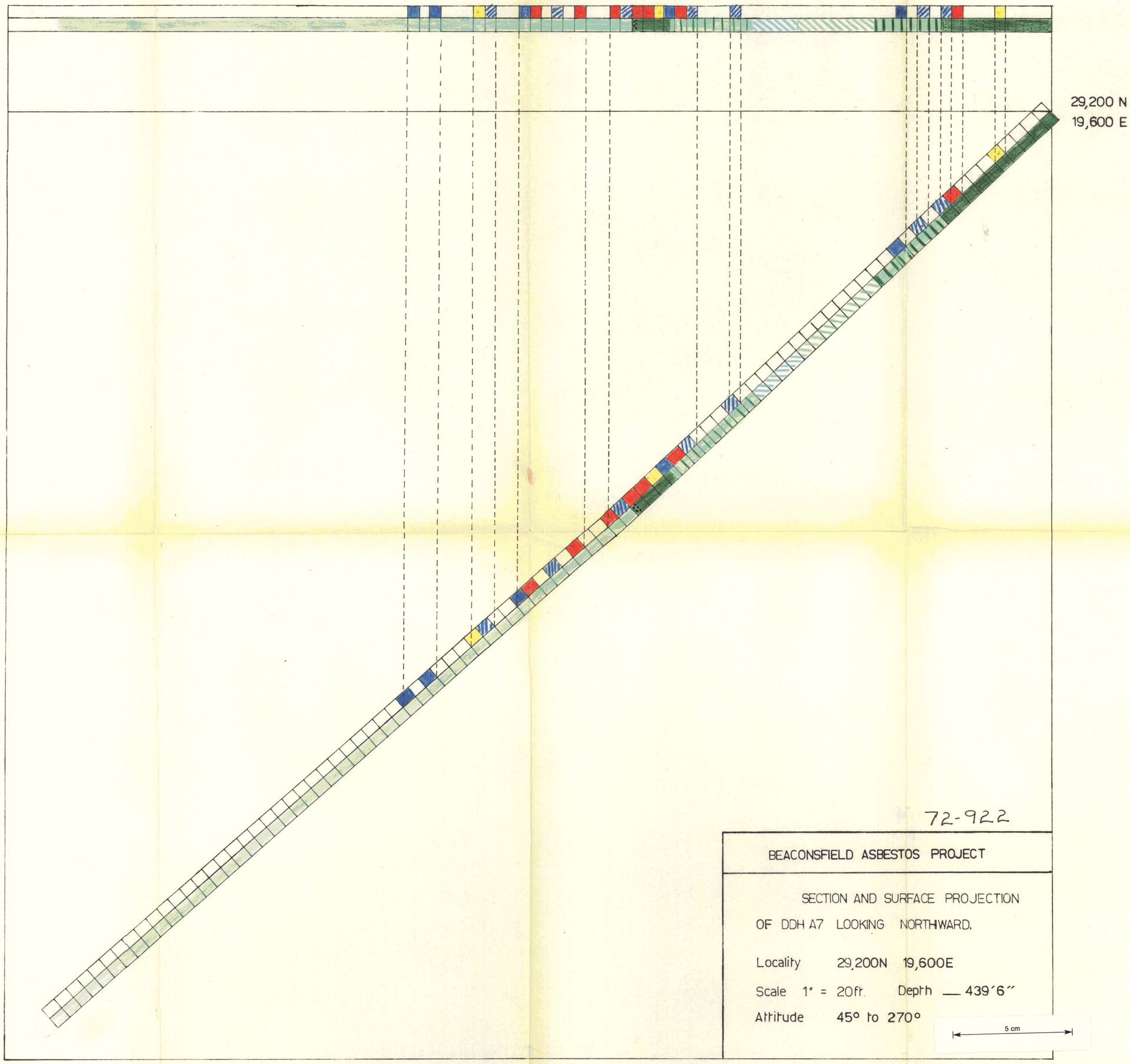
634026

1265

Map 4

ALLSTATE EXPLORATIONS N.L.

DDH A7 CROSS SECTION



72-922

BEACONSFIELD ASBESTOS PROJECT

SECTION AND SURFACE PROJECTION
OF DDH A7 LOOKING NORTHWARD.

Locality 29,200N 19,600E

Scale 1" = 20ft. Depth — 439'6"

Attitude 45° to 270°

5 cm

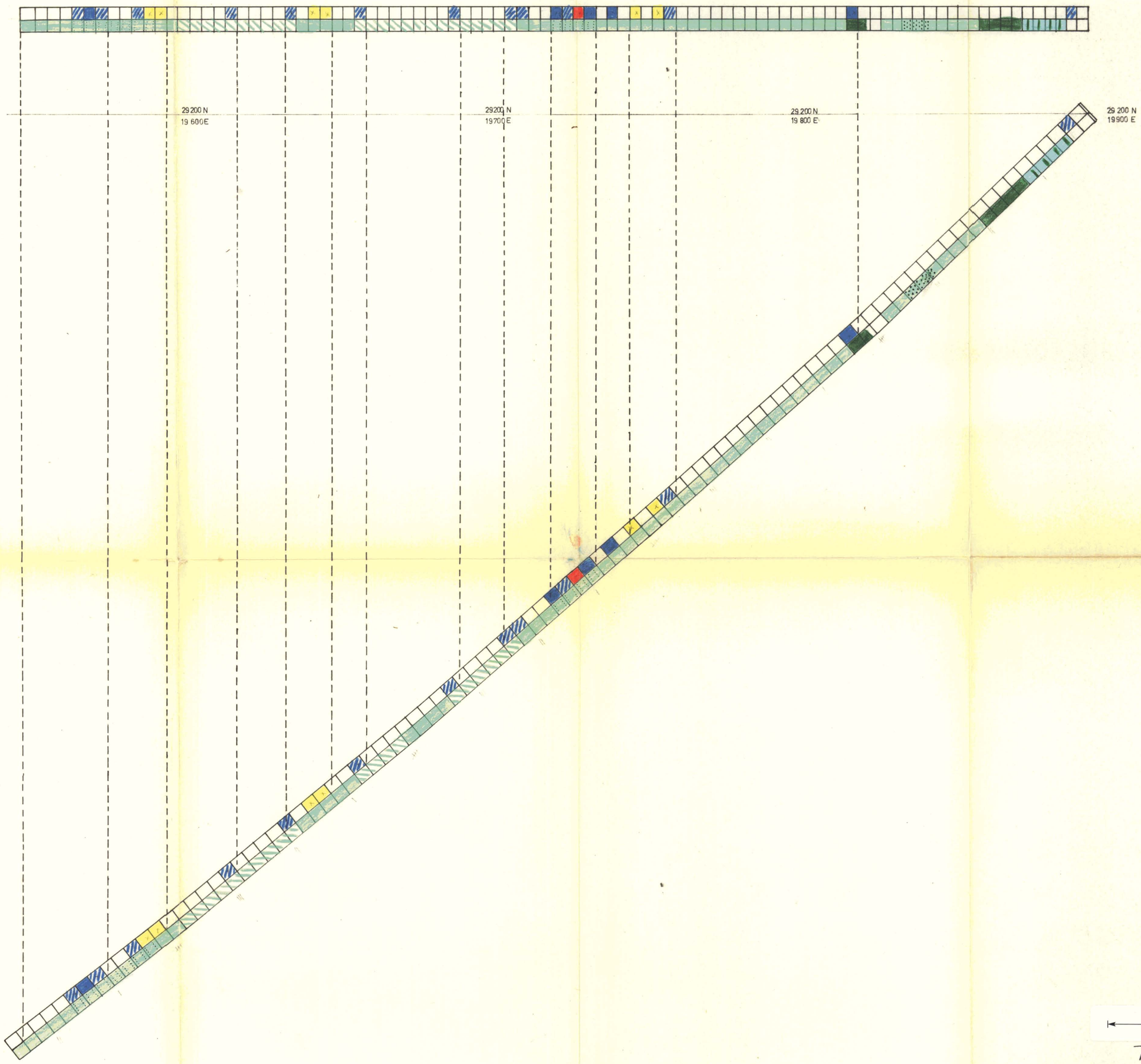
1266

634027

Map 5

ALLSTATE EXPLORATIONS N.L.

DDHA8 SECTION



5 cm

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA8

Locality ___ 29200N 19900 E

Attitude ___ 45° to 270°

Depth ___ 465'

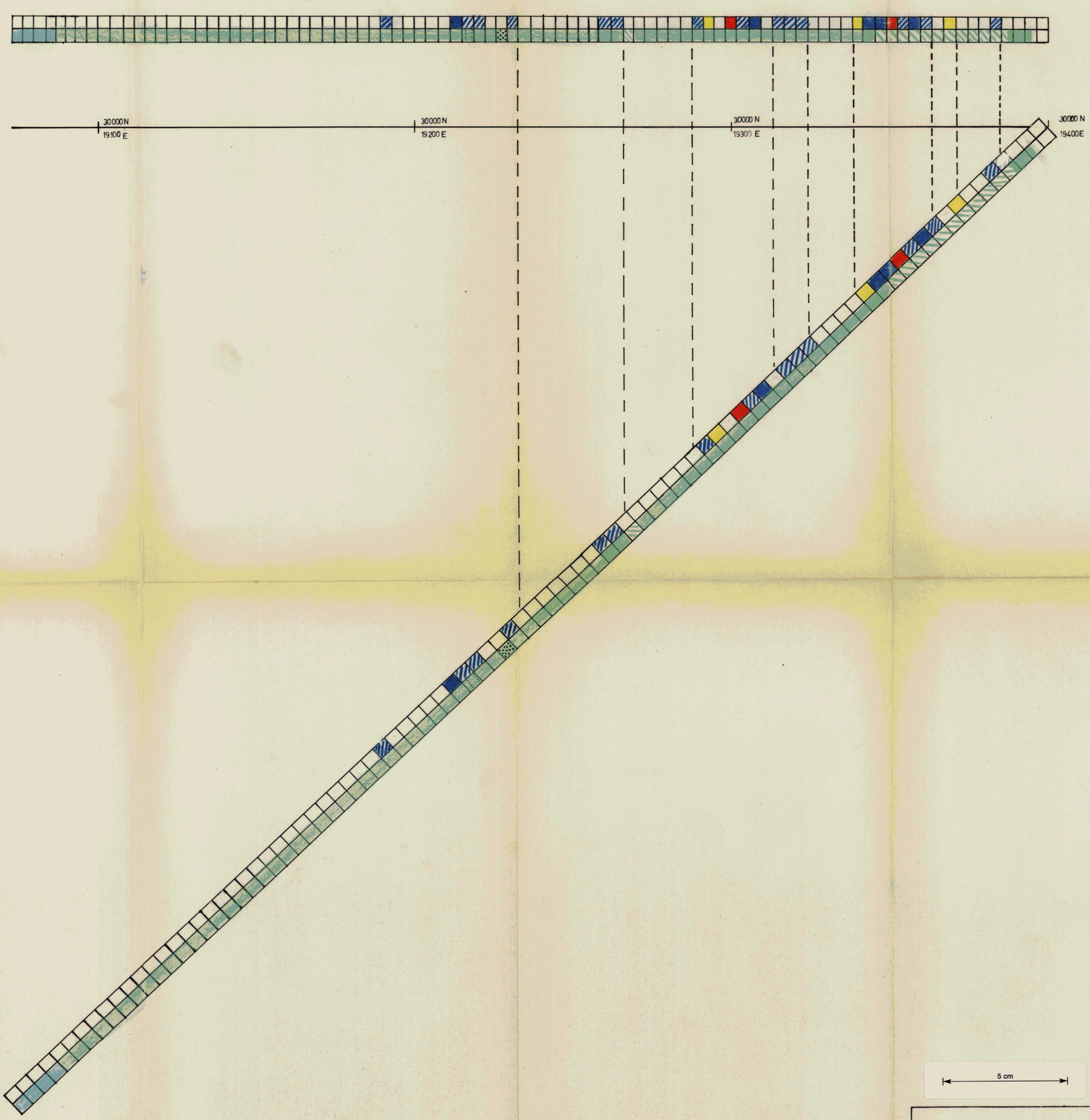
Scale ___ 1" = 20' 634028

Map 6

1267

ALLSTATE EXPLORATIONS N.L.

DDHA9 SECTION



5 cm

634029

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA9

Locality — 30000N 19400E

Attitude — 45° to 270°

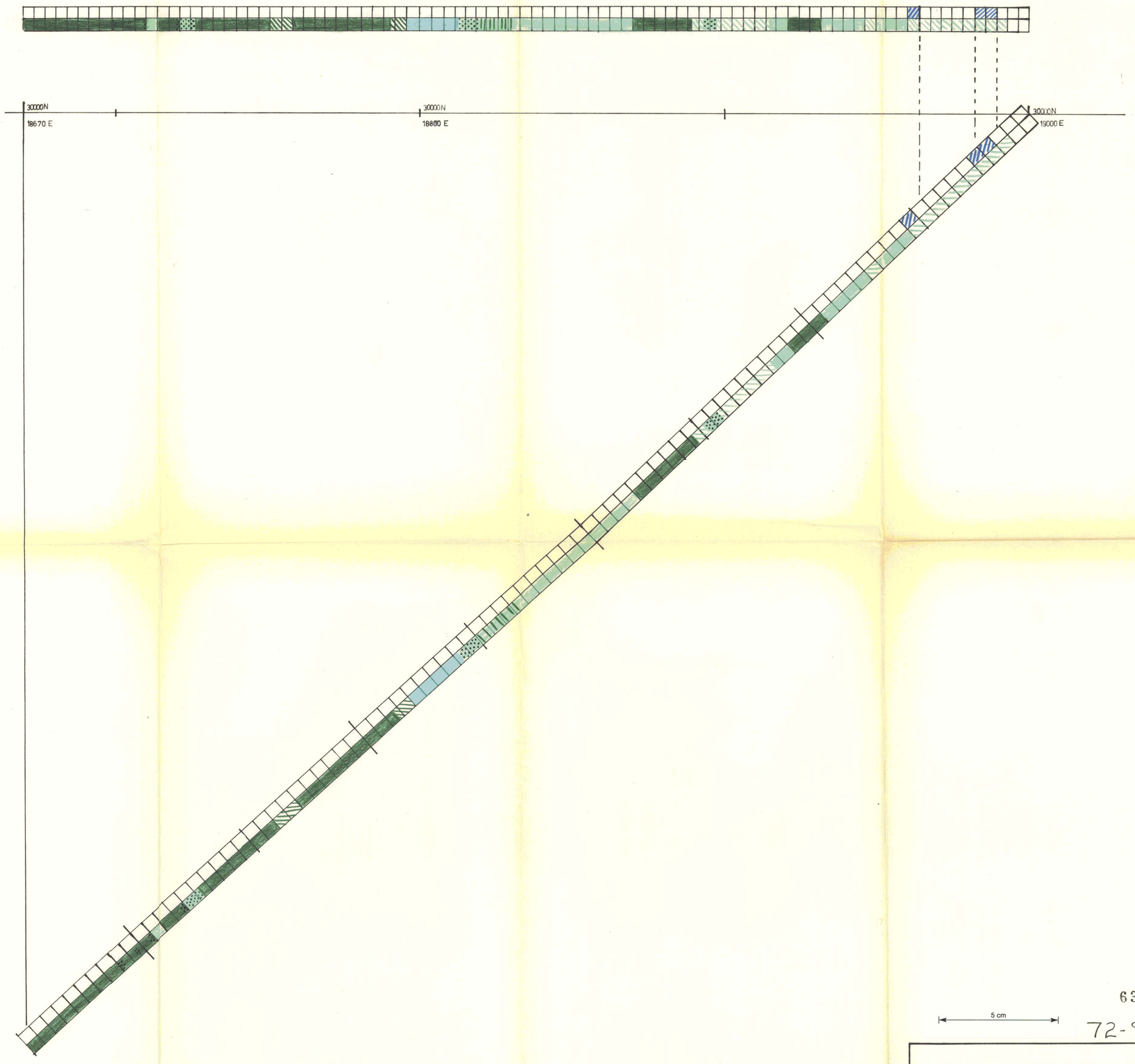
Depth — 450'

Scale — 1" = 20'

Map 7

ALLSTATE EXPLORATIONS N.L.

DDHA10 SECTION



634030

5 cm

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA10

Locality — 30,000N 19,000E

Attitude — 45° to 270°

Depth — 450'

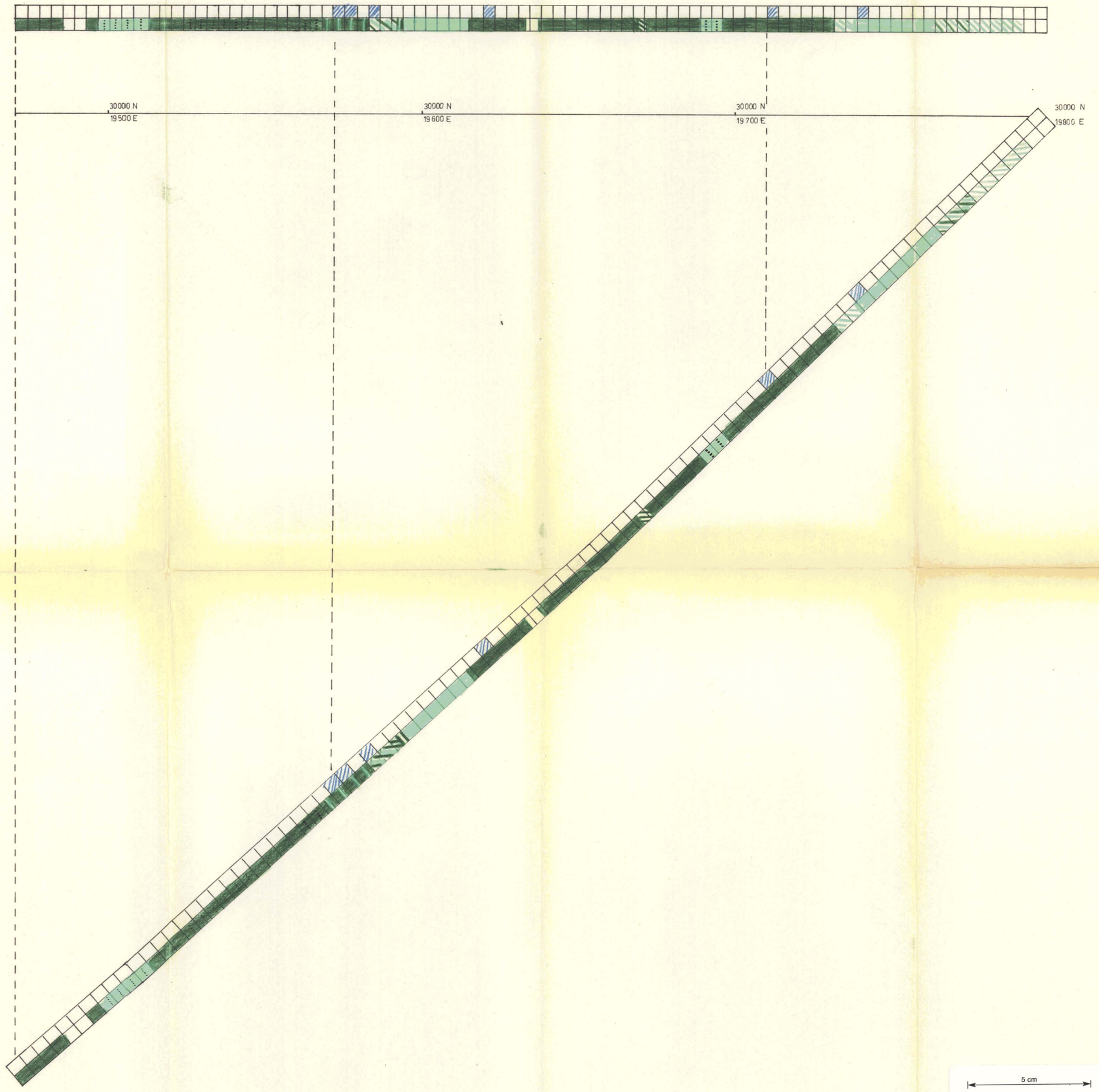
Scale — 1" = 20'

1269

Map 8

ALLSTATE EXPLORATIONS N.L.

DDHA11 SECTION.



5 cm

634031

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA11

Locality ____ 30,000N 19,800E

Attitude ____ 45° to 270°

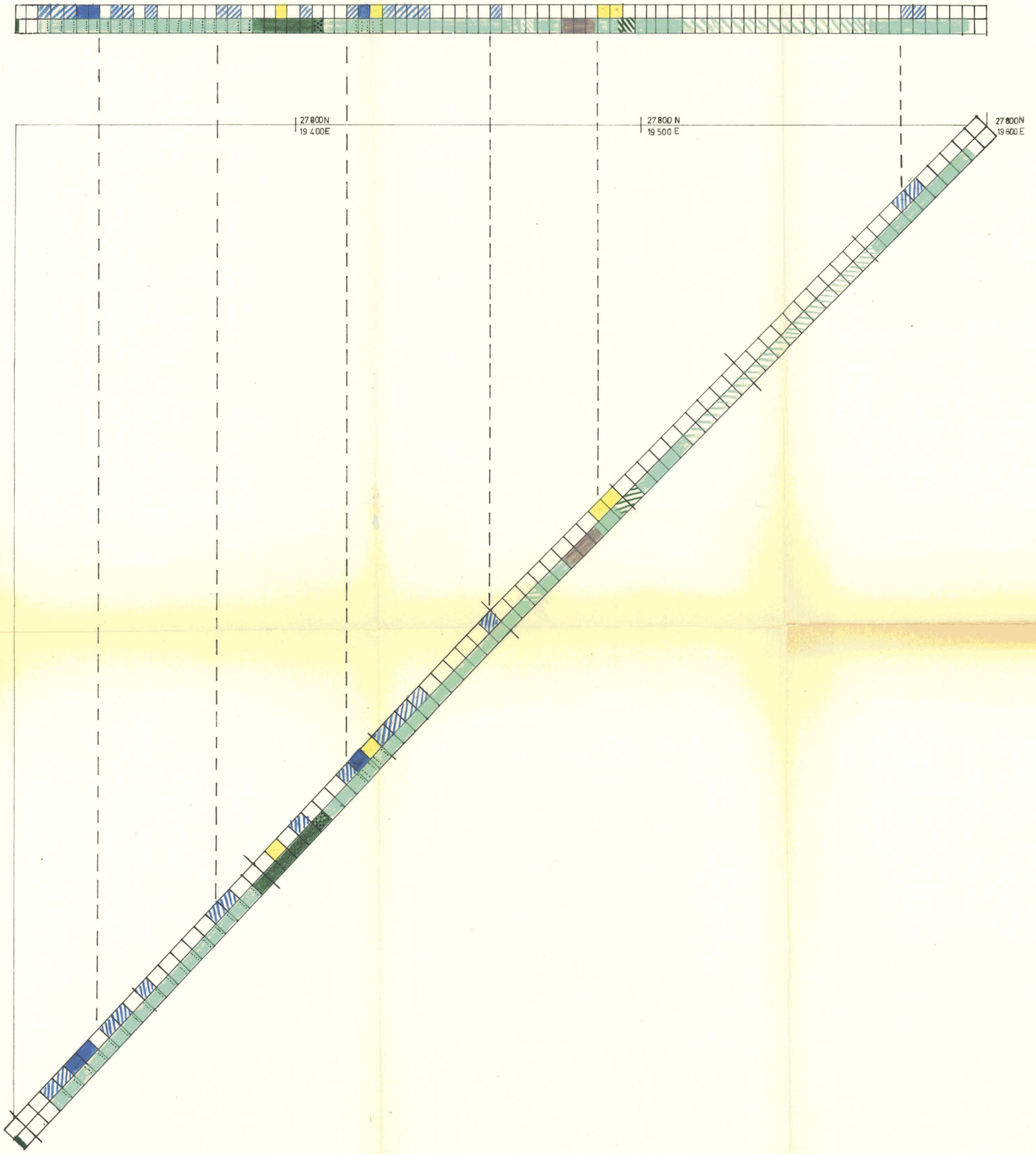
Depth ____ 450'

Scale ____ 1" = 20'

1270 Map 9

ALLSTATE EXPLORATIONS N.L.

DDHA12 SECTION



634032

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA12

Locality — 27,800N 19600E

Attitude — 45° to 270°

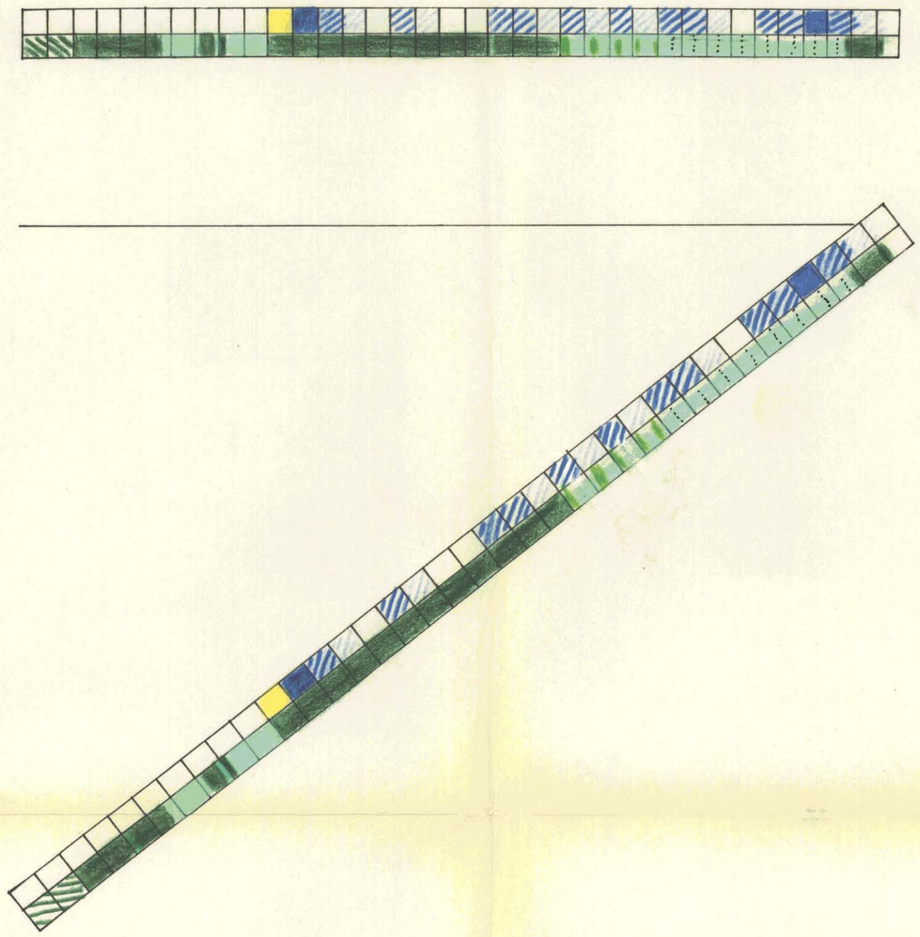
Depth — 404' 6"

Scale — 1" = 20'

5 cm

map 10 1271

ALLSTATE EXPLORATIONS N.L. DDHA13 SECTIONS



634033

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA13

Locality — 27,400N , 18,519 E

Attitude — 45° to 270°

Depth — 180'

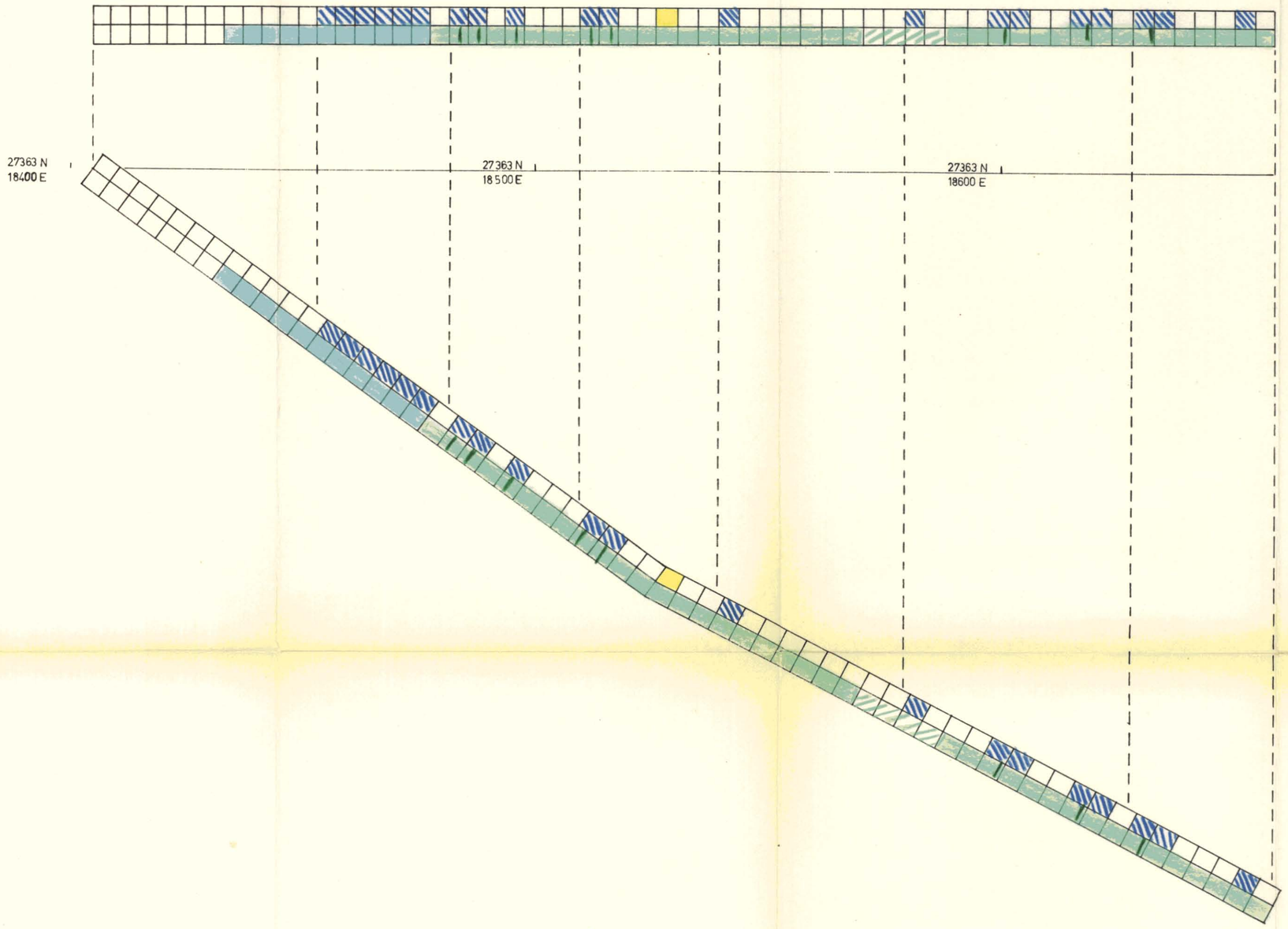
Scale — 1" = 20'

5 cm

Map 11 1272

ALLSTATE EXPLORATIONS N.L.

DDHA14 SECTION



634034

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA14

Locality — 27,363 N 18,405E

Attitude — 45° to 090°

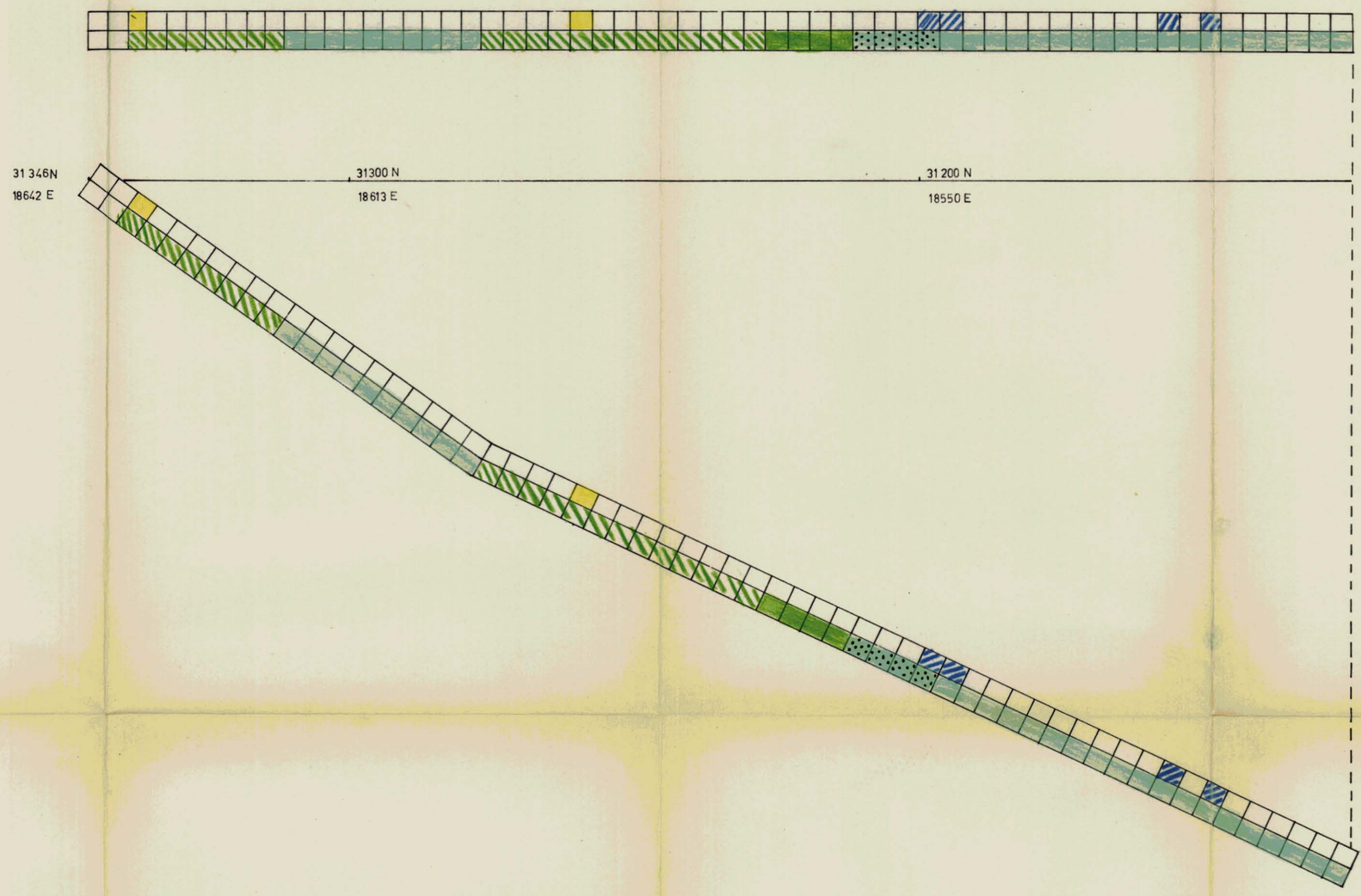
Depth — 300'

Scale — 1" = 20'

5 cm

Map 12 1273

ALLSTATE EXPLORATIONS N.L. DDHA 15 SECTION



634035

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDH A15

Locality — 31,346 N 18,642 E

Attitude — 45° to 212°

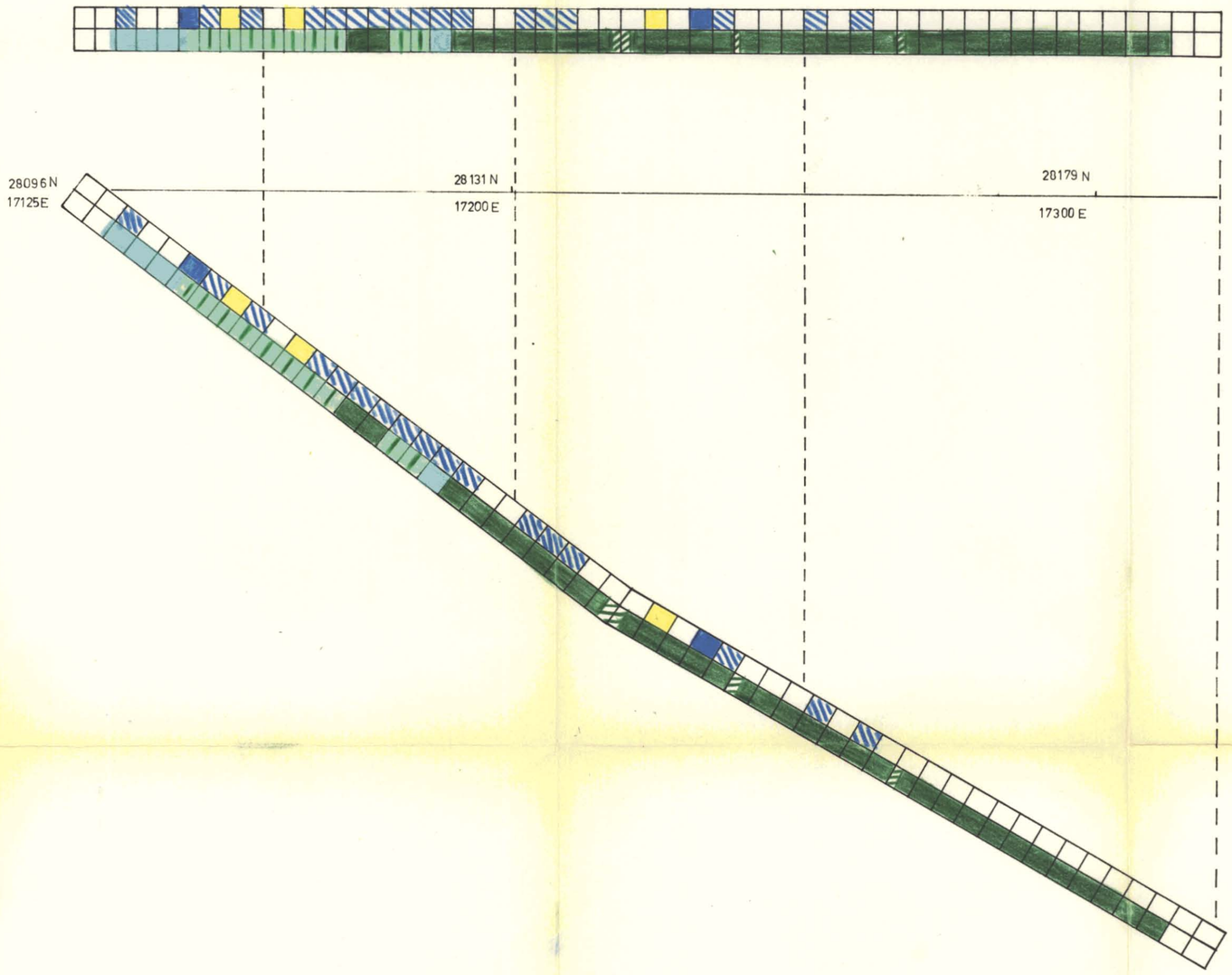
Depth — 300'

Scale — 1"= 20'

5 cm

Map 13 1274

ALLSTATE EXPLORATIONS N.L. DDHA16 SECTION



634036

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA16

Locality — 28,096N 17,125 E

Attitude — 45° to 065°

Depth — 250'

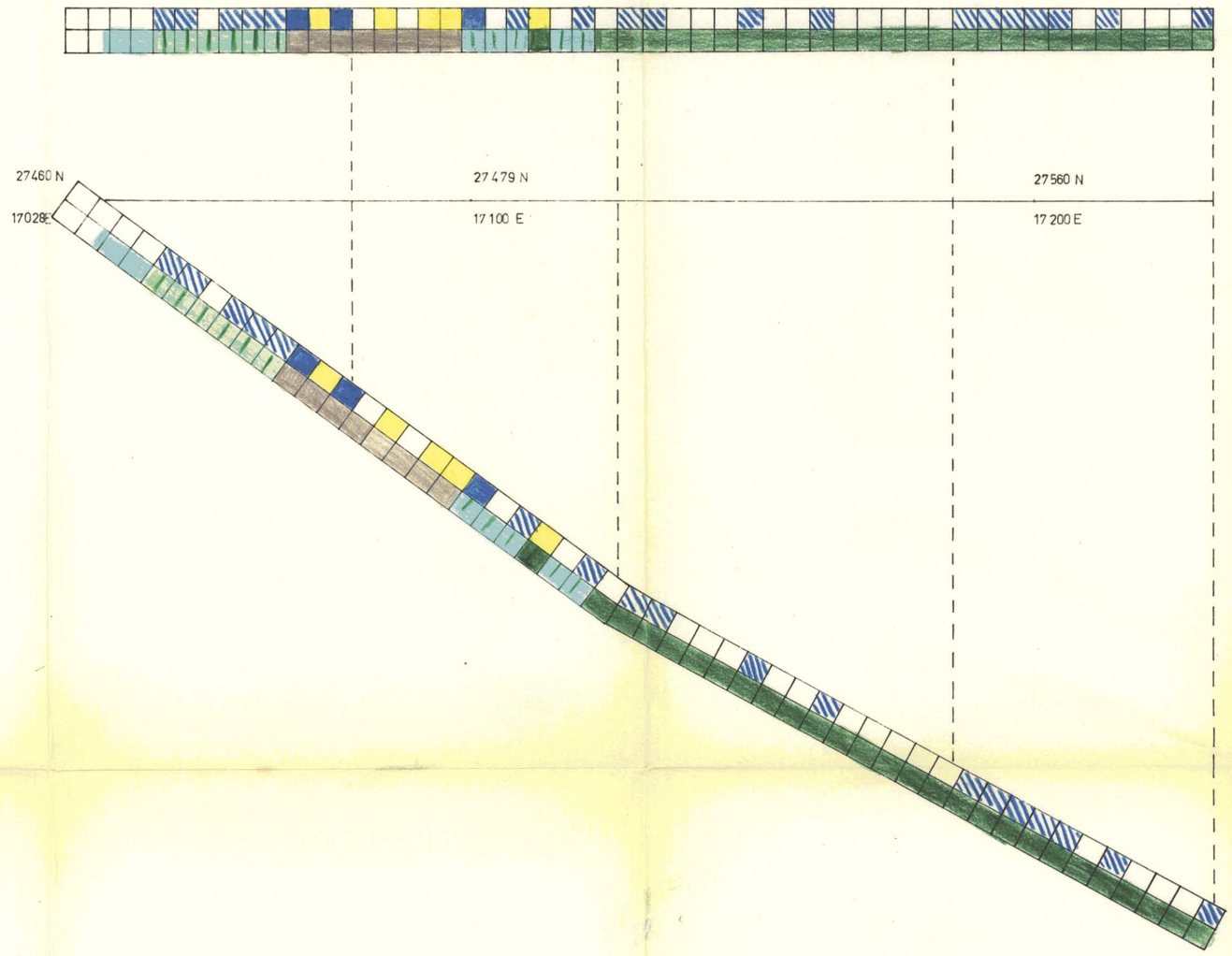
Scale — 1" = 20'

5 cm

Map 14 1275

ALLSTATE EXPLORATIONS N.L.

DDHA 17 SECTION



634037

5 cm

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA17

Locality ___ 27,460 N 17,028 E

Attitude 45° to 075°

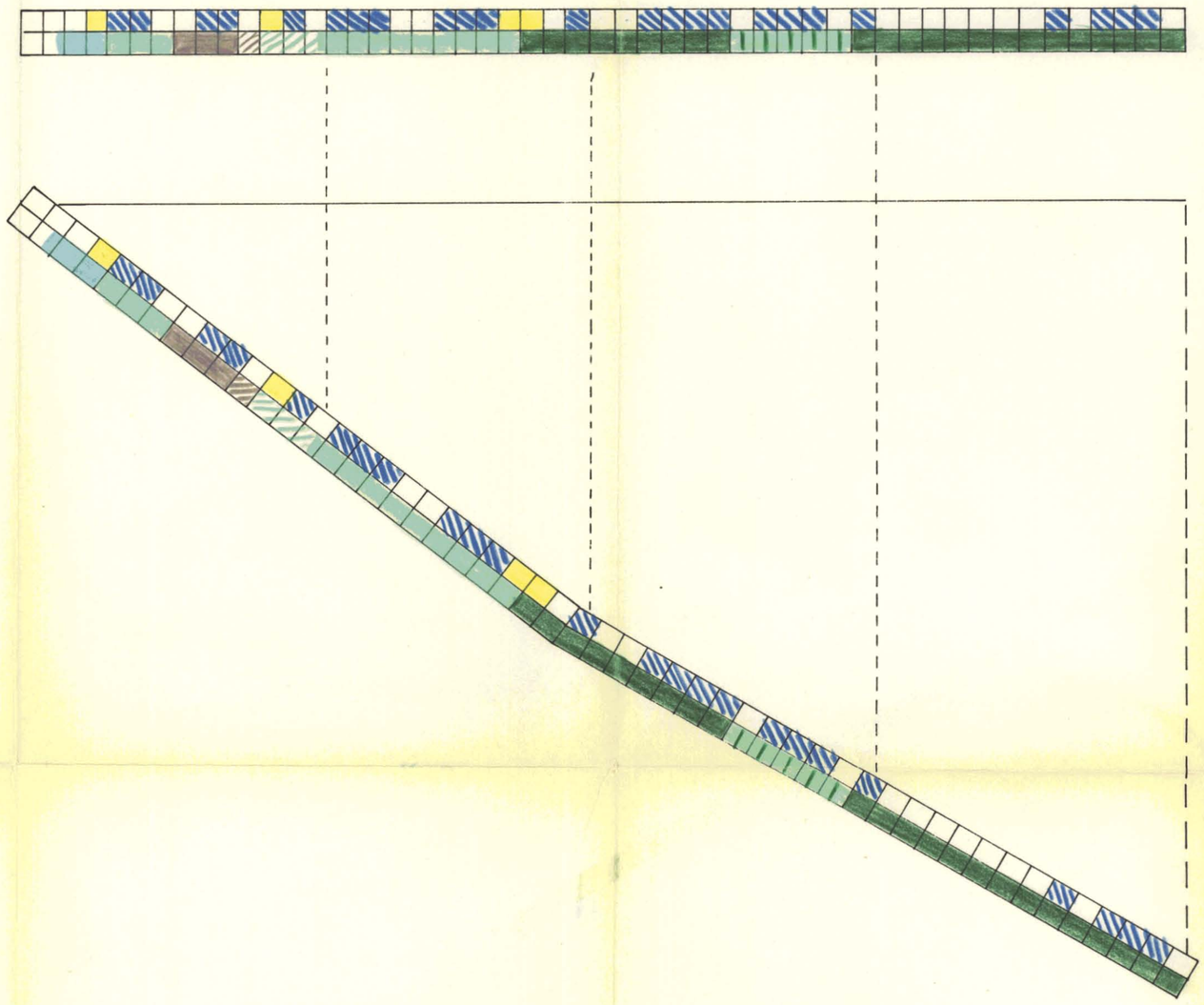
Depth ___ 250'

Scale ___ 1"= 20'

Map 15 1276

ALLSTATE EXPLORATIONS N.L.

DDH A18 SECTION.



634038

5 cm

72-922

BEACONSFIELD ASBESTOS PROJECT

Section and surface projection of DDHA 18

Locality — 27,597 N 17,540 E

Attitude 45° to 090°

Depth — 255'

Scale — 1"= 20'

Map 16 1277