

J. S. HODGSON, P. Eng



31D09SW0001 63.744 HARVEY

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Registered Professional Engineer in the Province of Ontario

Gooderham, Ontario

Report on the Geological Mapping and Scintillometer Surveying of a Portion of the Property of Drude Uranium Mines Limited, situated in Cavendish and Harvey Townships, Eastern Ontario.

Forward

The geological mapping of the Property was started on November 8, 1955, and completed on November 24, with the exception of drawing the maps, which were completed on November 28. Four men were employed in this work, as well as 2 C.A.E. model 963 Scintillometers. Due to the lateness of the season, the presence of snow, and cold weather, scintillometer readings were somewhat lower than they otherwise would have been.

Mr. T.J. Fallis and Mr. Harold Schickler directed the geological mapping and scintillometer survey respectively, and were assisted by Mr. Ray McColl and Mr. Jim Dewey. The mapping and office work was done by Mr. Fallis, Mr. Schickler, Miss Dorene Switzer and myself.

Property

The property surveyed consists of lots 15 in the 10th and 11th concession of the Township of Cavendish, claims EO-16105 - EO-16108 inclusive, comprising lots 1 and 2 in the 1st. concession of the Township of Cavendish, and claims EO-16151 to EO-16153 inclusive, comprising the east half of lot 32, concession 8, and the centre part of lot 31, concession 8, in the Township of Harvey.

Lots 15 in the 10th and 11th concession of Cavendish Township is just west of the Buckhorn Road and the other claims are at least one mile past the end of a road passible to jeeps that leads west from the Buckhorn.

Geology

As shown on the geological maps, the Properties are generally underlain by paragneiss, crystalline limestone and granites, with pegmatite intrusions in each. The crystalline limestone is relatively impure and often almost appear gneissic, due to the presence of biotite.

The paragneiss is well banded and contains calcium carbonate, quartz, mica and some amphibole and hornblende alteration products. The percentages of the various constituents is not constant. In some places these gneisses are quite schistose, while in others the banding is not well defined.

The granites appear to have intruded the gneisses and often appear as granite gneisses. They are quite red in colour, medium grained in texture and contain somewhat more biotite than is customary in normal granites, which accounts for the gneissic texture. Stringers of pegmatite, which are often quite highly radioactive, are extremely prevalent in these gneissic granites.

The pegmatites are typical of the mineralized pegmatites in Cavendish Township, and are composed of approximately two-thirds reddish feldspar, one-quarter quartz, and the remainder biotite, garnet, hornblende, amphibole, pyroxene, magnetite and radioactive minerals. The grain texture varies from medium-fine to medium-coarse, with the better mineralized sections contained in finer grained material which has been fractured more than the average of the pegmatites.

The radioactive minerals are almost invariably associated with concentrations of magnetite, although it appears that they are not so intimately associated with the magnetite as to be inseparable by mechanical means. From preliminary examinations of specimens of the mineralization, it appears that the radioactive minerals are Uraninite, Uranothorite, secondary Gummite, and a Thorite complex containing varying amounts of Uranium, Thorium, Rare Earths, Zirconium and Hafnium. Detailed mineralogical studies will be necessary to determine what percentage of the values are contained in each of these mineral forms. It would appear, however, that between one half and two-thirds of the U308 is contained in Uraninite type minerals, up to one-fourth of the U308 is contained in Uranothorite type minerals, and up to one-fourth of the U308 is contained in a relatively insoluble Thorite complex.

There are small amounts of diorite and other rocks present on the Properties, but they are of no consequence at present. It is only the pegmatites, and their method of deposition and enrichment with radioactive minerals above the concentrations in normal granites, that is of consequence.

As is evident on the geological maps, the north half of lot 15, concession 11, Township of Cavendish, is composed almost entirely of crystalline limestone. The south half is mainly crystalline limestone with some diorite near the south-east corner, and gneissic granite containing pegmatite stringers near the centre and south-east corner.

The north half of lot 15, concession 10, has a wide section of crystalline limestone striking north-south near the centre of the half lot. There is pegmatite both to the east and west of this limestone. One pegmatite to the east is nearly 300 feet wide and 1000 feet long. A pegmatite to the west is over 300 feet wide in places, is approximately 1100 feet long on the half lot, and continues for nearly 500 feet on the south half of the lot.

The south half of lot 15, concession 10, is much similar to the north half, with crystalline limestone in the centre, the continuation of the pegmatite to the north, on the west, and pegmatites on the east, one of which is approximately 500 feet wide and 1200 feet long.

This lot deserves further exploration, probably including diamond drilling, in an endeavour to indicate sizeable areas of mineralization and possibly commercial ore. This work could be done at any time when there is not an undue amount of snow covering the ground.

Claim EO-16105 is underlain by gneissic granite containing pegmatite stringers, much of which is obscured by swamp.

Claim EO-16107 is underlain by gneissic granite containing pegmatite stringers, small amounts of paragneiss, and several small radioactive pegmatites. Again, much of the ground is covered by swamp, obscuring the formations.

Claim EO-16106 is underlain by gneissic granite containing pegmatite stringers, some diorite, and several small pegmatites, much of which formations are again covered by swamp.

Claim EO-16108 contains several pegmatites in paragneiss and gneissic granites, as well as numerous pegmatite stringers in paragneiss. There are several large pegmatites in the west and central sections. Less of the formations are covered by swamp than on much of the rest of the Properties.

Claim EO-16151 in Harvey Township is underlain by gneissic granite containing pegmatite stringers and several larger pegmatites, as well as considerable paragneiss, which is in the south-east corner of the claim. Swamp obscures much of the claim.

Claim EO-16153 is underlain by paragneiss and pegmatite, much of which is obscured by swamp. This claim probably contains the greatest proportion of pegmatite of any. There are large areas of radioactive pegmatites in the west and centre of the claim, while swamp makes it impossible to determine the extent of the pegmatites on the east. These pegmatites are contained in paragneiss, where there are also innumerable radioactive small pegmatite stringers, suggesting that the majority of the rock at depth would be composed of pegmatite.

Claim EO-16152 is covered by swamp on the east and west, and the central section is underlain by paragneiss containing numerous radioactive pegmatites and pegmatite stringers.

These last two claims (EO-16153 and EO-16152) contain a large number of pegmatites which appear favourable for the presence of mineralization containing sections where concentrations of more than 0.10% U₃O₈ should be outlined by diamond drilling. There is a sufficient surface area of mineralized pegmatite to permit the presence of large orebodies.

All of the formations on the Properties have a general north-east strike and a south-east dip. No major faults or other structural control for presence of either the pegmatites or the better mineralized sections in them, is evident. However, sections in the pegmatites that are of ore grade are almost invariably associated with either fault zones or

ness of major fracturing. Diamond drilling is about the only method of outlining such favourable areas for the presence of large tonnages of ore.

Results of Scintillometer Survey

Cool weather and the presence of snow have effectively lowered the magnitude of scintillometer readings considerably. (All readings are in counts per second). It appears that mass effect readings are considerably lower than in warmer weather. Therefore, readings in excess of 60 counts per second, or 4 times background, whichever is less, are definitely significant in this Area under the conditions present when the survey was taken.

Recommendations

At least 10,000 feet of diamond drilling is warranted on the Properties examined, in an earnest endeavour to indicate sufficient tonnages of commercial ore to warrant underground development. This work could be done at any time on the basis of information secured by the men doing the survey who are familiar with the Property.

Conclusions

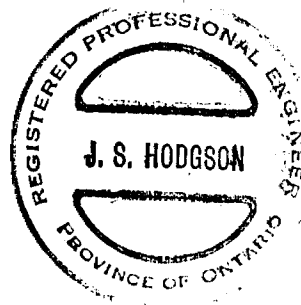
Large areas of radioactive mineralized pegmatites are present on the Properties examined. These pegmatites are generally contained in paragneisses of the Grenville Series, similarly to other pegmatites being developed as producers of Uranium and other products, in the general area. Further work should similarly prove that commercial ore is contained on these Properties.

Respectfully submitted,

J. S. Hodgson

J. S. Hodgson, P. Eng.

Gooderham Ontario,
November 28, 1955.



Re claims E.O.16151 -2-3 Harvey Township.

Re Hodgson's report on these properties and inability to get further information from Mr. Hodgson, Mr. Drude says -

"We could get the work he completed on the South Group recorded even tho he has left his present place of business in a hurry. The time he and his Associates spent on the South Group of Drude Uranium property and also the North Group is in your files including the Maps. A Scintillator and Geological Survey was done by him on Lots 15, Con. 10 and 11 of the North Group and on the South Group the same work was performed on claims E.O. 16105 to E.O. 16108 inc. Cavendish Township and E.O. 16151 to 16153 inc. Harvey Twp. "

W. B. Hodgson



16105	16107	Cavendish
16106	16108	
16151	16153	Harvey
16152	17977	
17976	17975	

Patented

DRUDE URANIUM MINES

GEOLOGICAL MAP OF N $\frac{1}{2}$ LOT 15. CON. 10. CAVENDISH

PATENTED

LEGEND

2  PEGMATITE

1.  CRYSTALLINE LIMESTONE

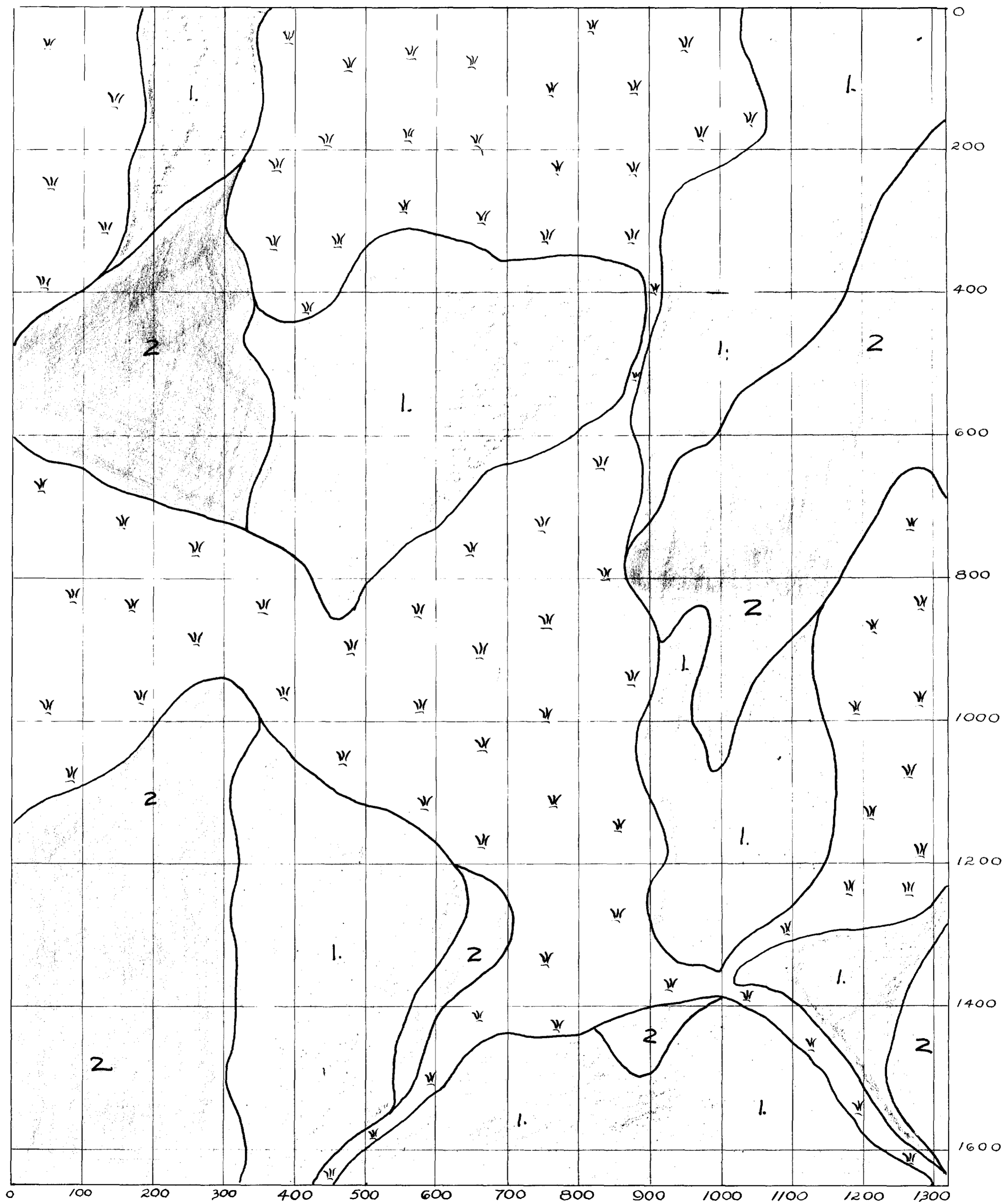
 SWAMP

SCALE 1" = 100'

MAPPED & DRAWN BY
TJ FALLIS

DATE - 13/11/55

J. S. Hodgson



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Altered

DRUDE URANIUM MINES

GEOLOGICAL MAP OF S. 1/2 LOT 15, CON. 10, CAVENDISH.

PATENTED

LEGEND

3 PEGMATITE

2 CRYSTALLINE LIMESTONE

1. GABRO

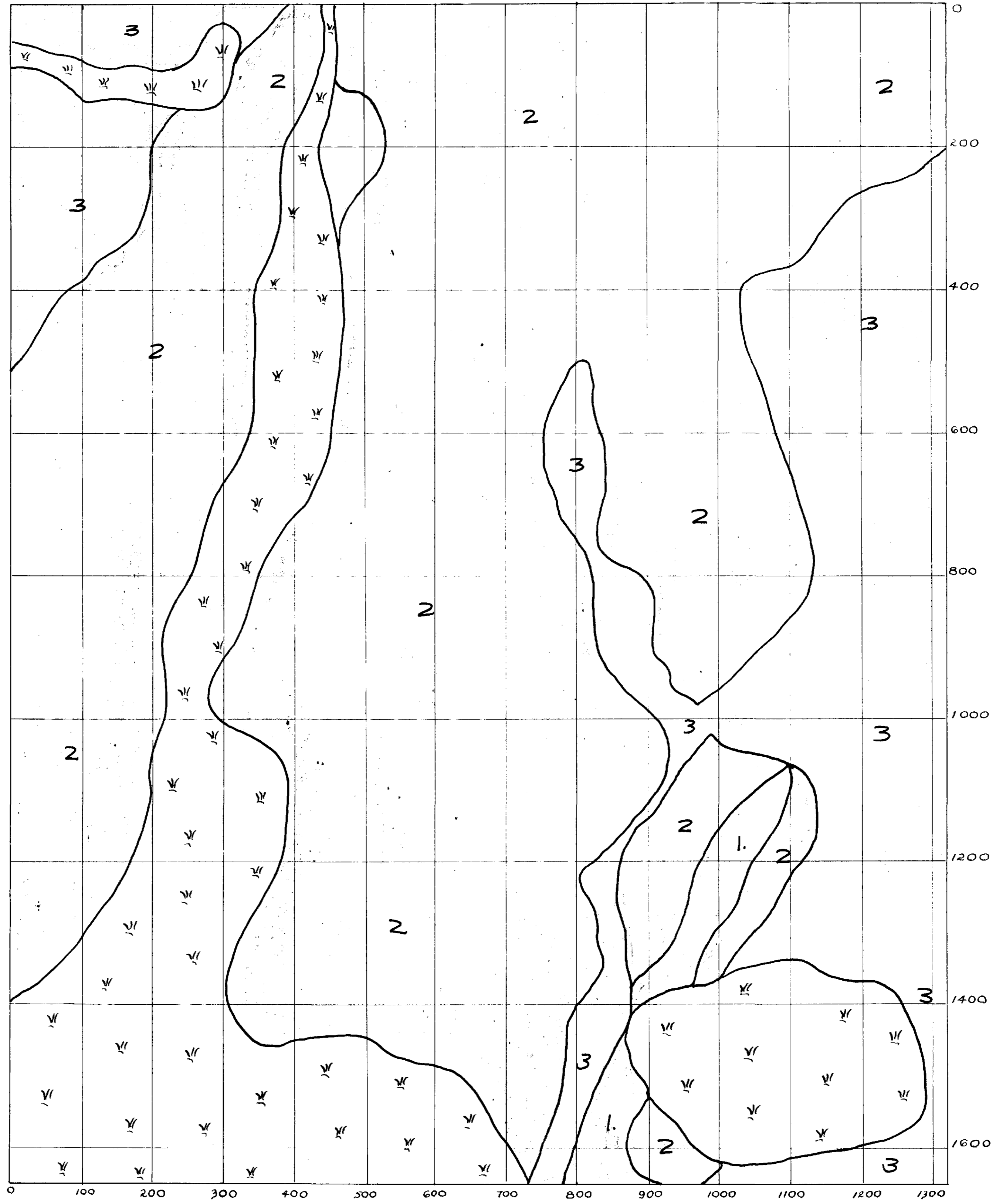
SWAMP

SCALE 1" = 100'

MAPPED & DRAWN BY
TJ FALLIS

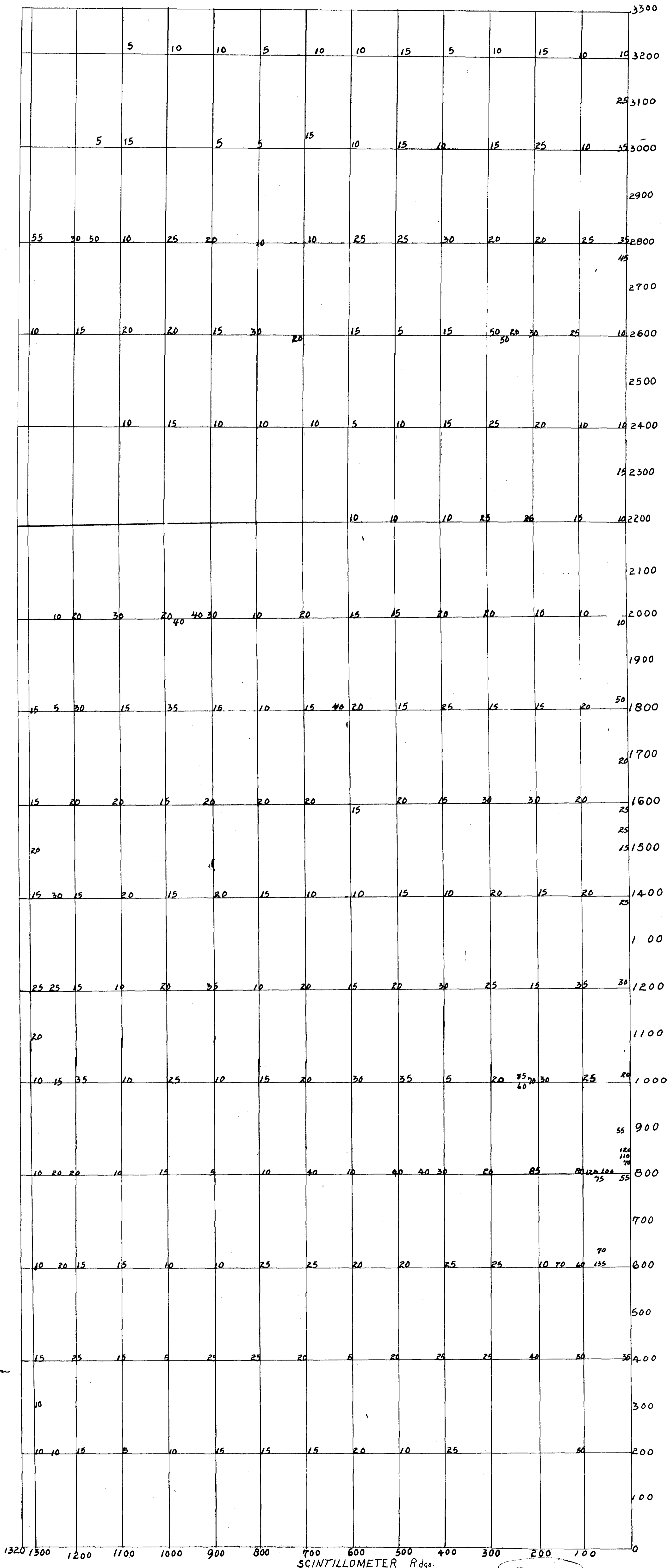
DATE - 10/11/55.

J. S. Hodgson



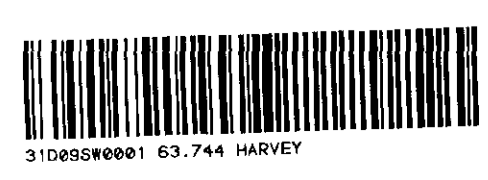
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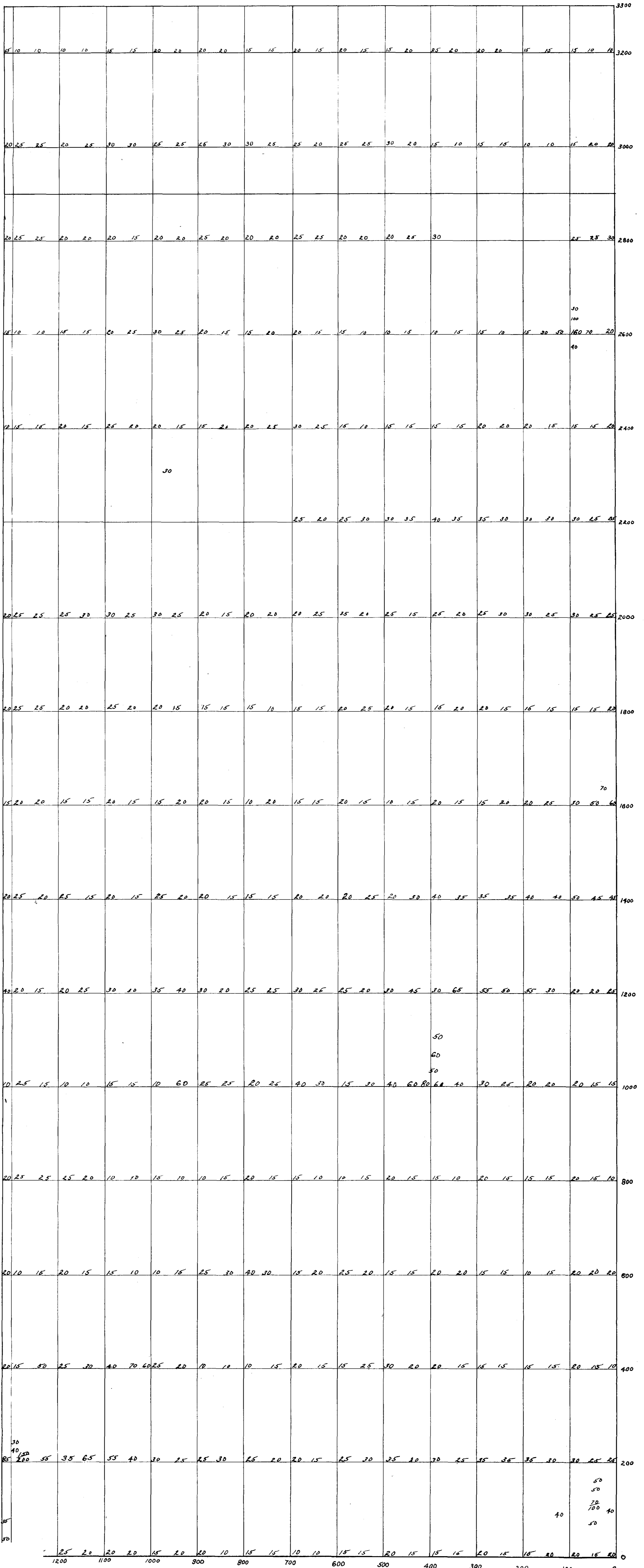
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E0 16107
E0 16108



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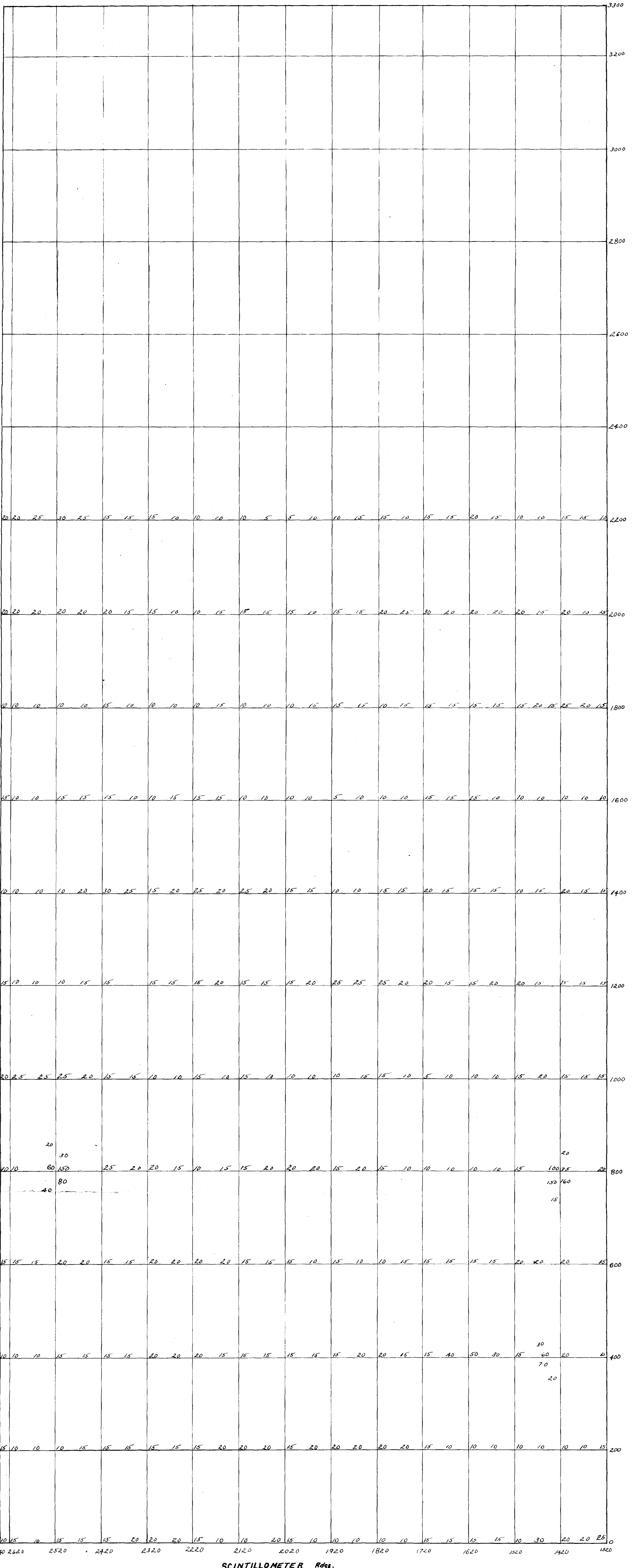


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230
SCALE 1"=100'-0"

SCINTILLOMETER Rdgs
LOT 2 CON. 1 CAVENDISH TWP.

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63-2444

J.S. Ziegler

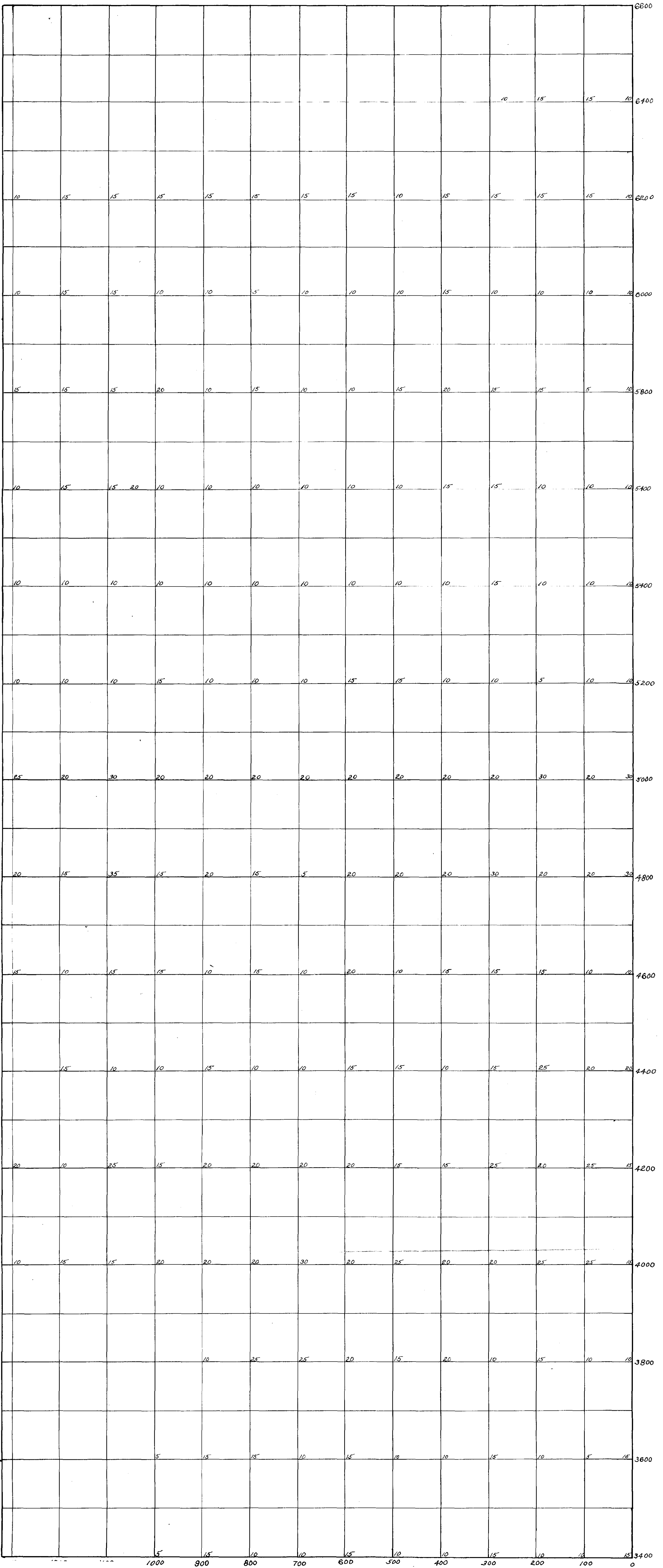
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SCINTILLOMETER Rds.

LOT 1 CON 1 CAVENDISH Twp. PETERBOROUGH Co.



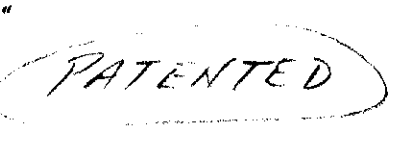
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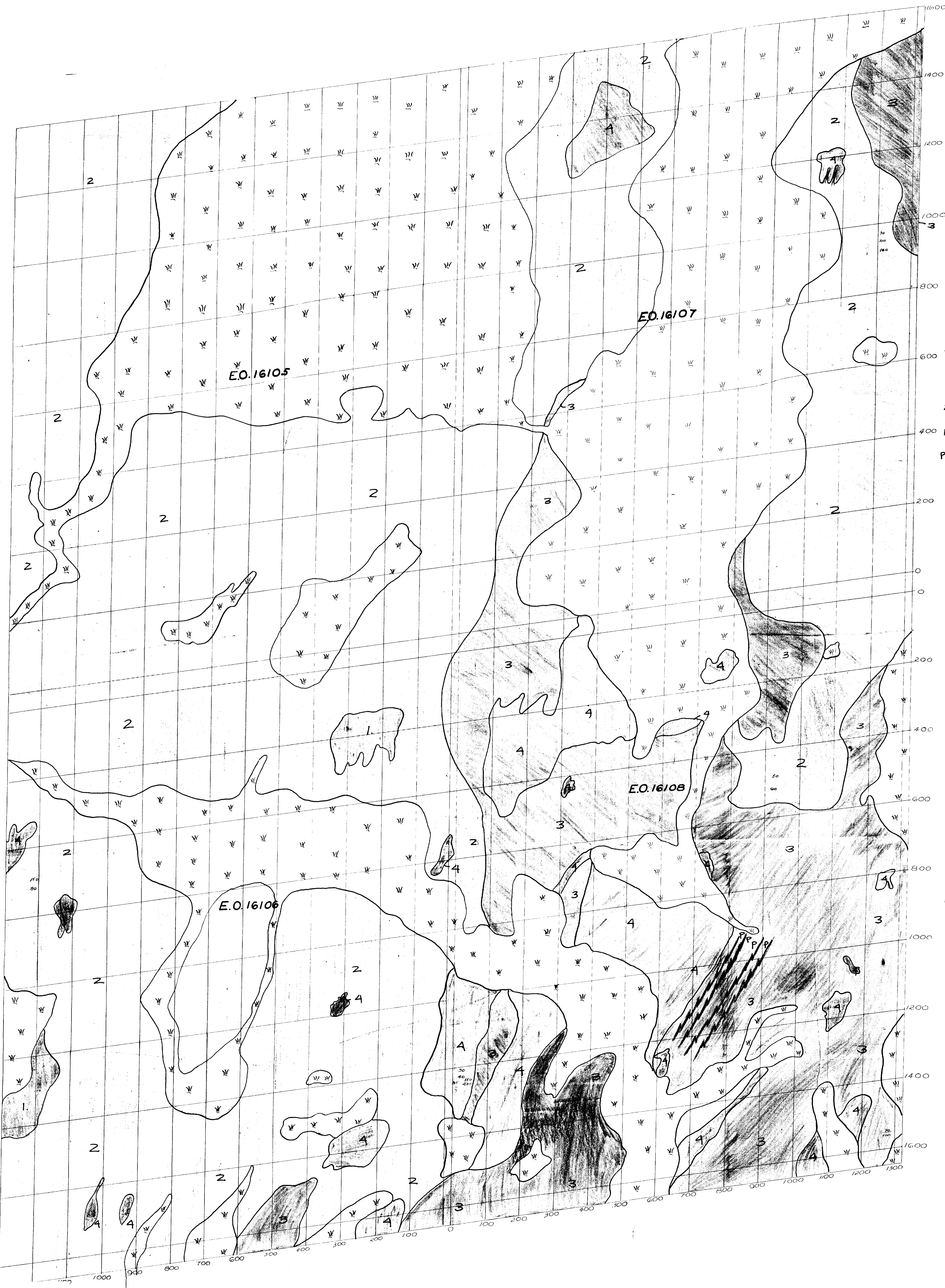
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J. L. Morgan

East of
72211



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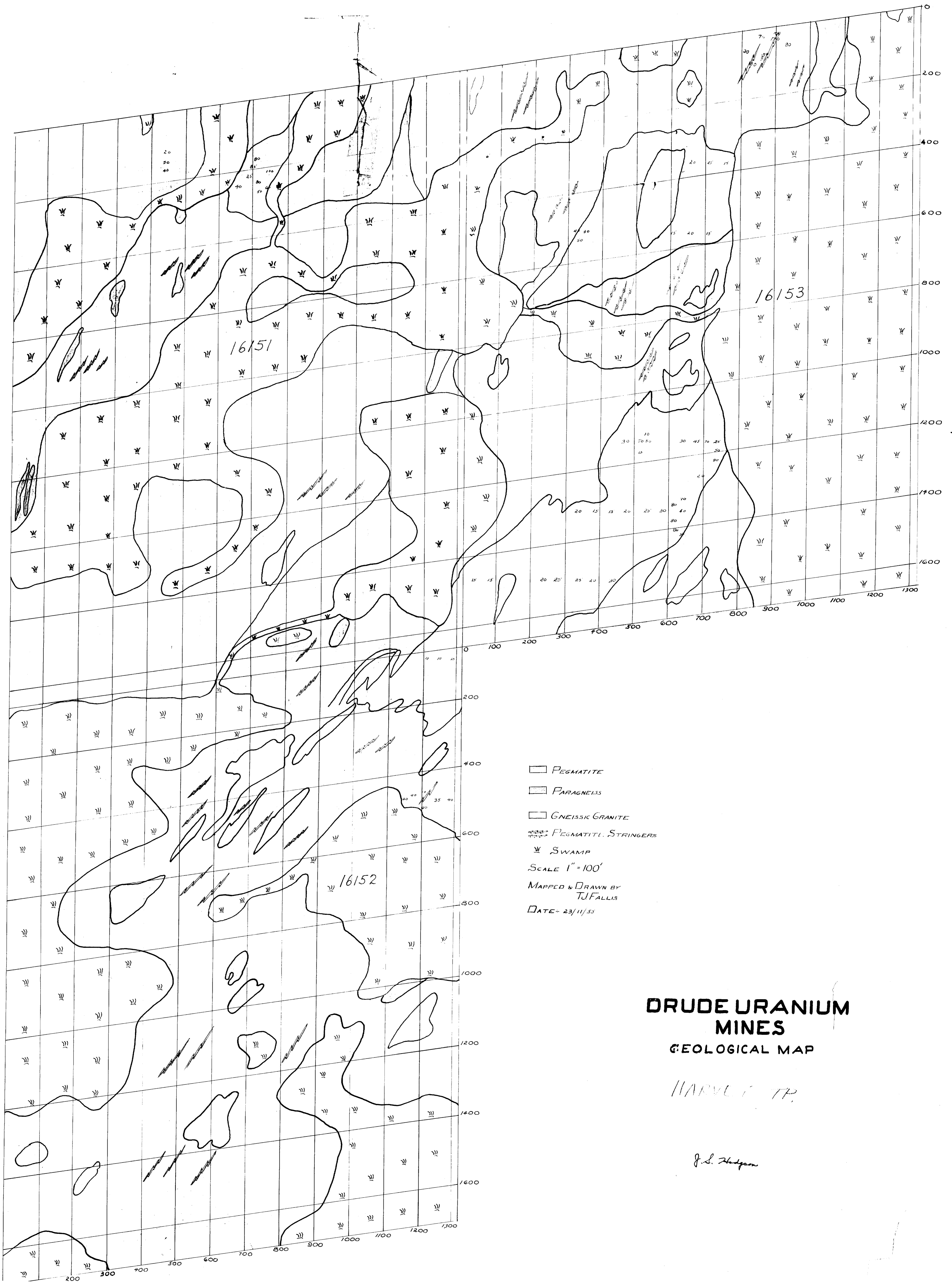
LEGEND

- 4 PEGMATITE
 - 3 PARAGNEISS
 - 2 GNEISSIC GRANITE
 - 1 DIORITE
 - P PEGMATITE STRINGERS
 - SWAMP
- MAPPED & DRAWN BY
T.J. FALLIS
DATE 12/11/55

SCALE 1" = 100'

DRUDE URANIUM MINES
GEOLOGICAL MAP

J. S. Hodgson



**DRUDE URANIUM
MINES
GEOLOGICAL MAP**

HARVEY T.P.

J. L. Hodgson

