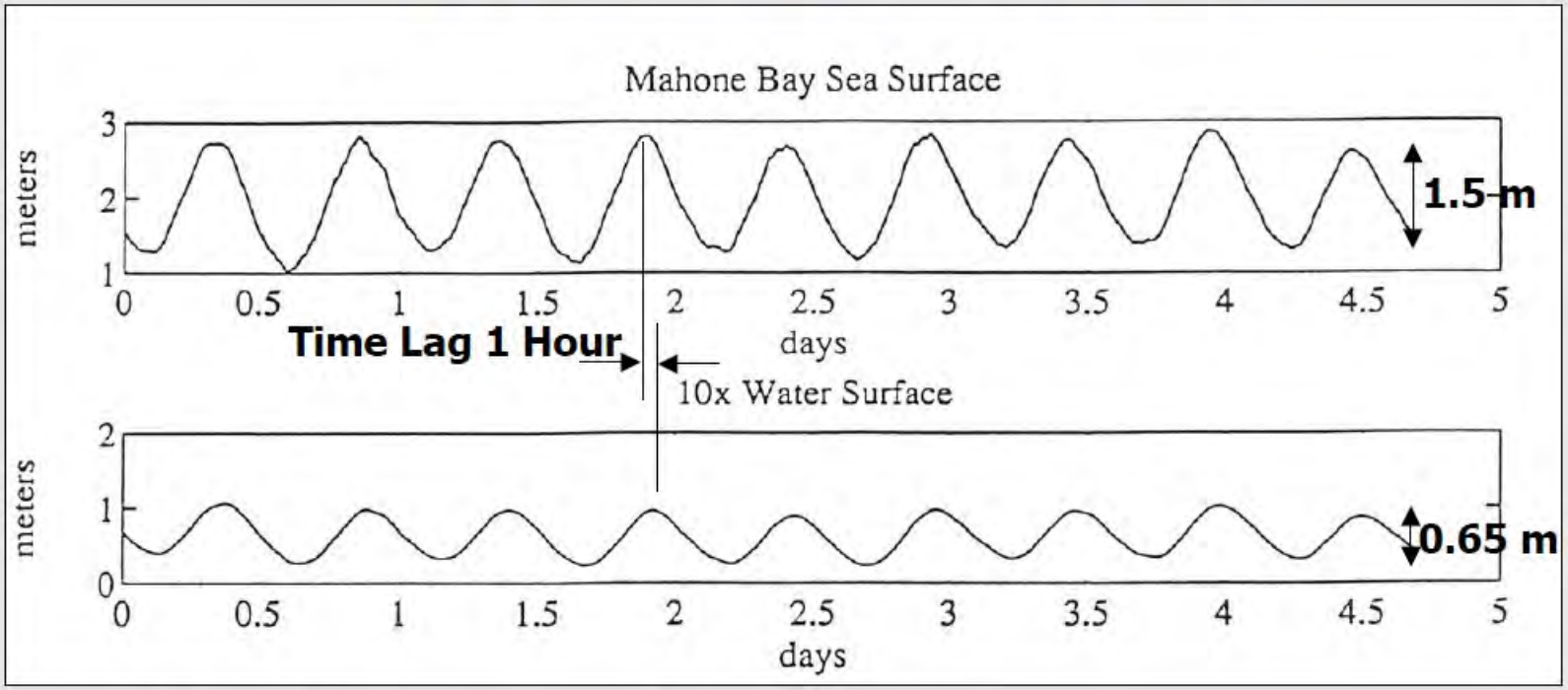
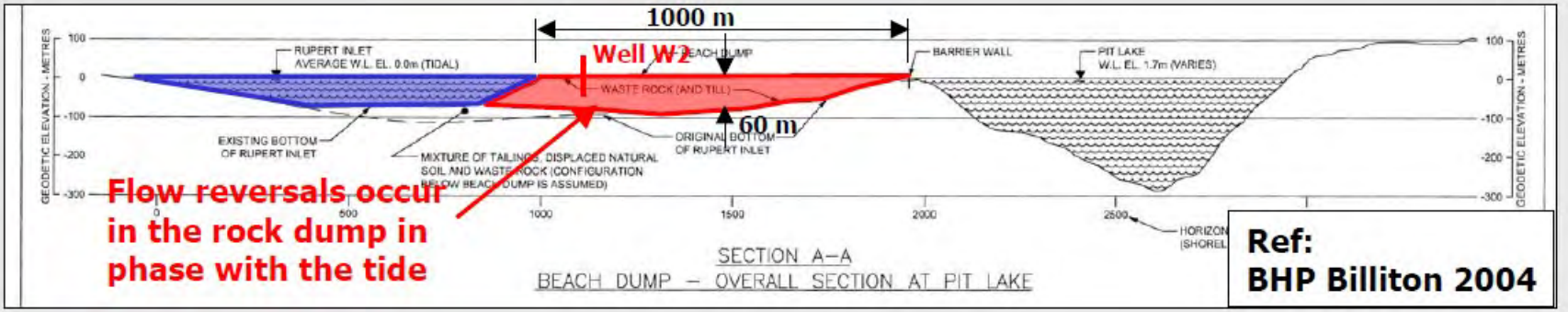
Water Level Variation in 10X from Tidal Variation in Mahone Bay



Time Lag 1 Hour (Between Peaks)
Ratio of Amplitudes = 0.43 (0.65/1.5)

Ref:
Woods Hole Oceanographic Institution 1996
(Measurements made in July 1995)

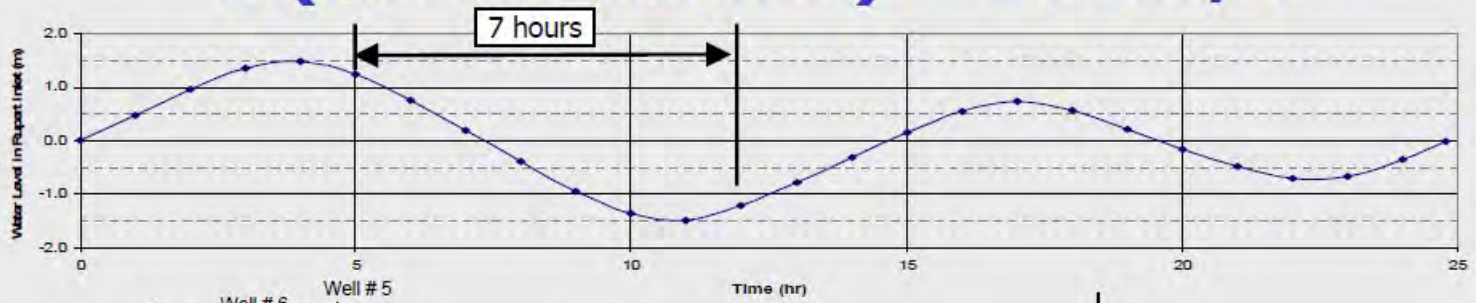
Water Level Variation in Coarse Rockfill Dump from Tidal Variation in Rupert Inlet

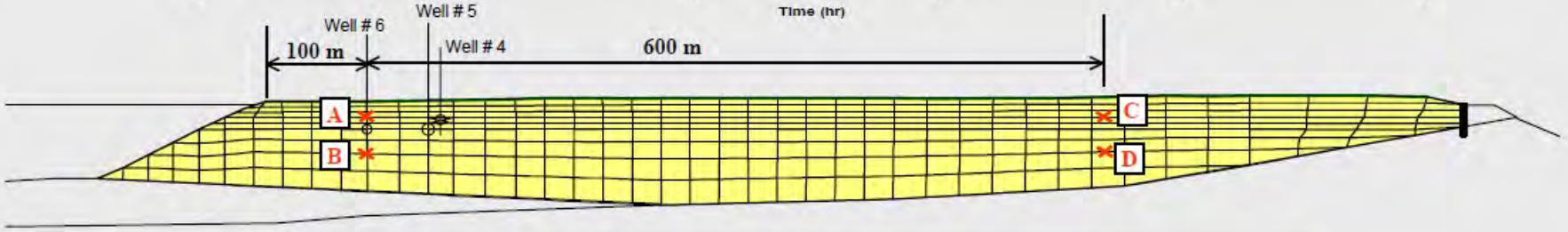


Flow reversals occur in the rock dump in phase with the tide

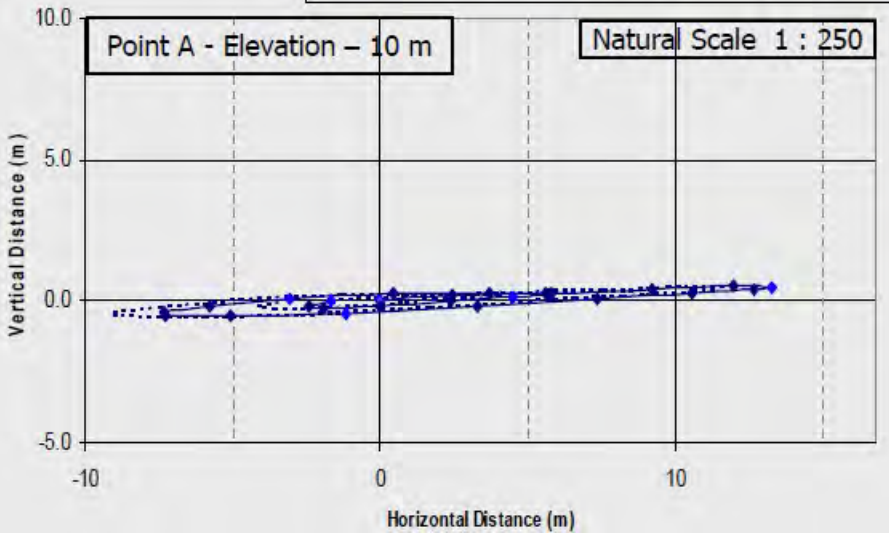
Ref:
BHP Billiton 2004

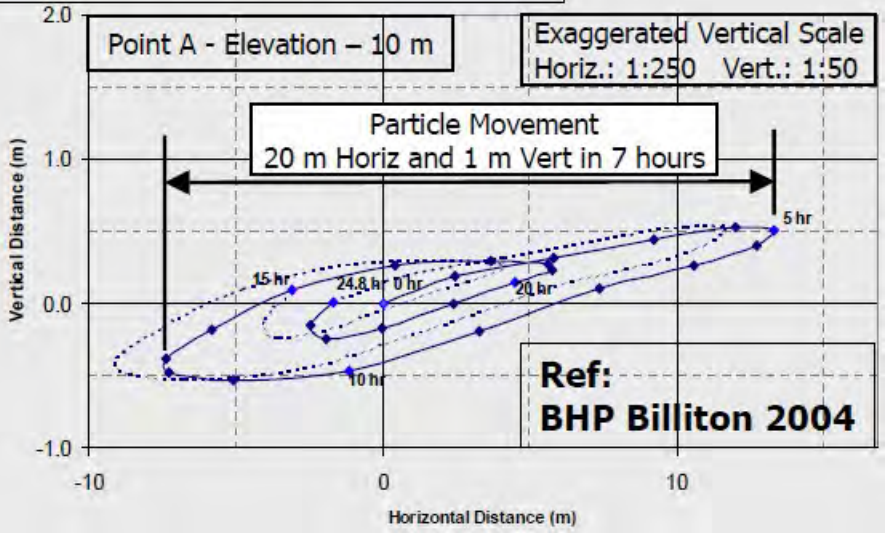
Particle Track El. –10 m at 100 m from Shoreline
k (Coarse Rockfill) = 25 cm/s



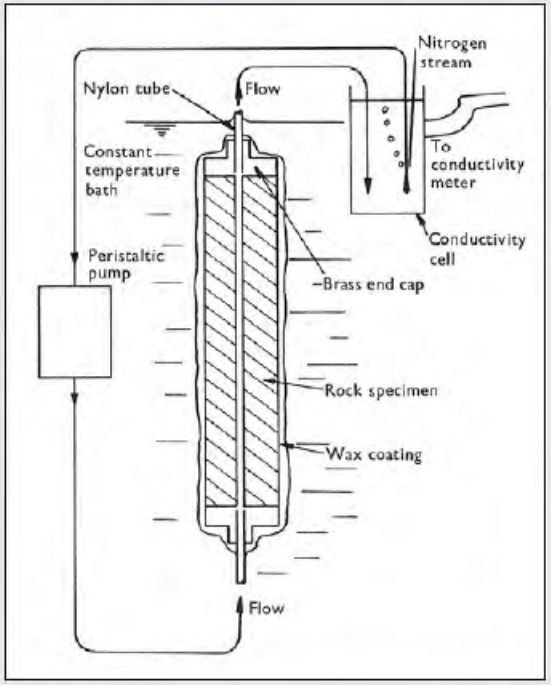


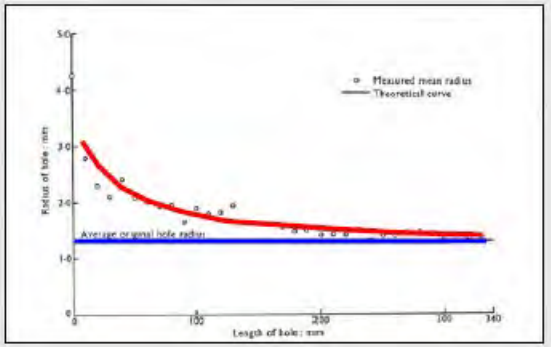
Particle track for two tide cycles ------- Particle track for two additional cycles



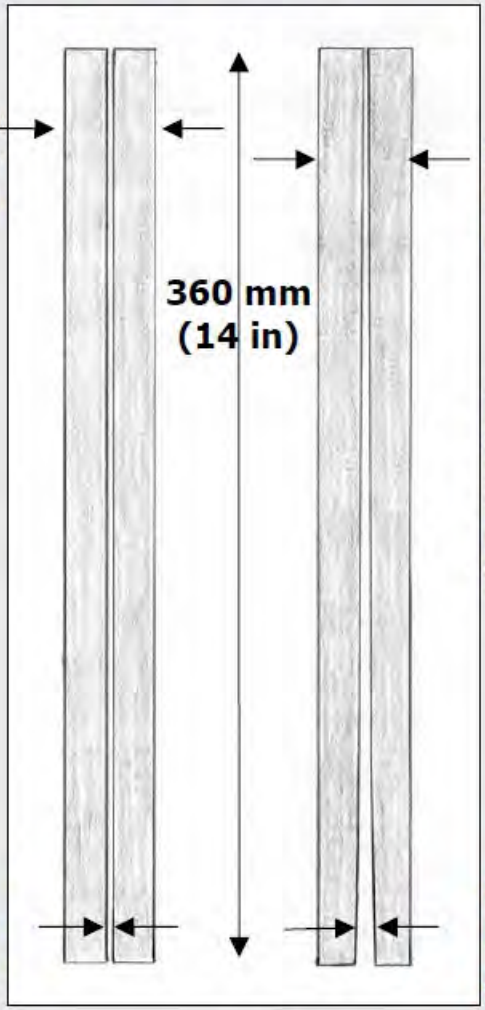


Lab Scale Testing of Anhydrite Solubility





Ref:
James and Lupton 1978



Distilled water flow at 56 ml/day (2 fluid oz/day) for 44 days

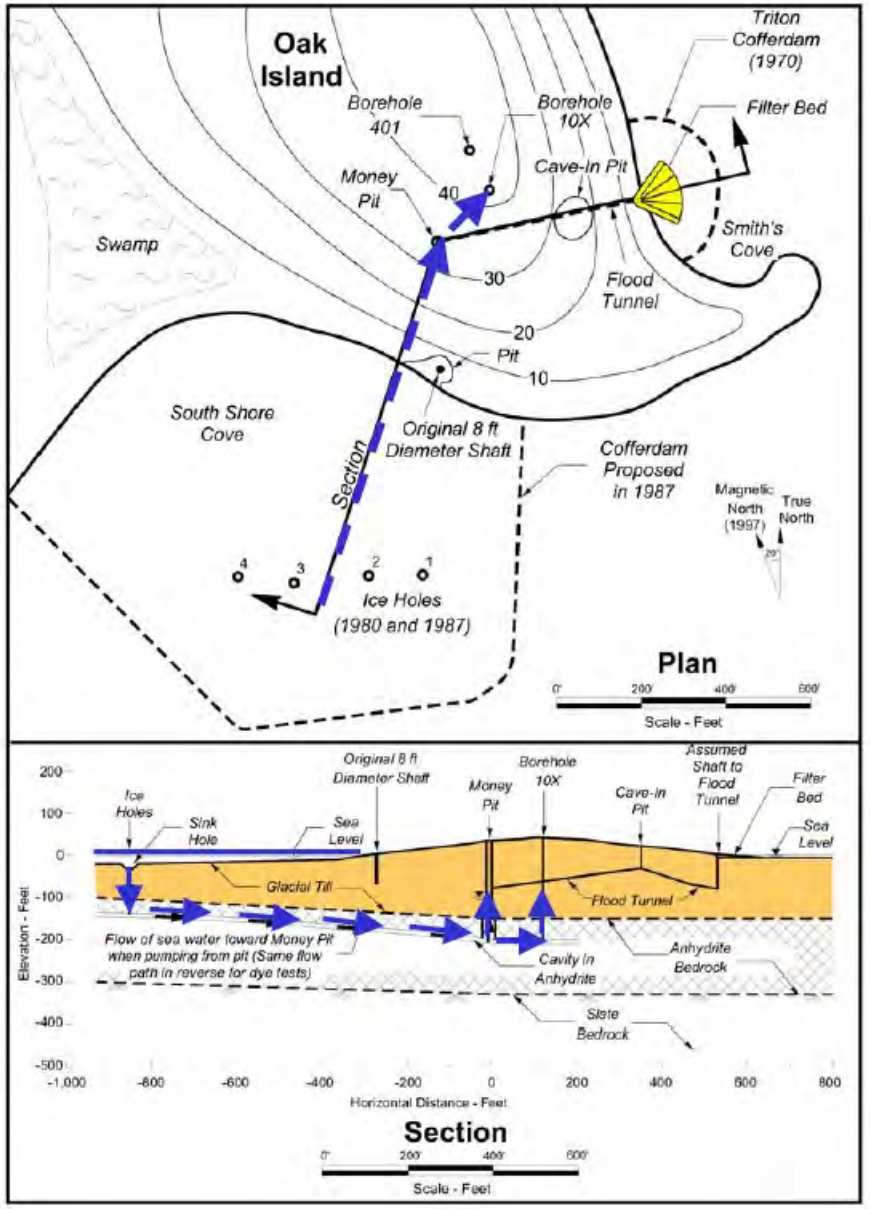
Sketch to Scale

Example Flow System through Anhydrite from Mahone Bay to Money Pit and 10X

The flow system through anhydrite is activated by pumping at the Money Pit or 10X.

When there is no pumping the groundwater in the anhydrite is subject to flow reversals in phase with tidal variations.

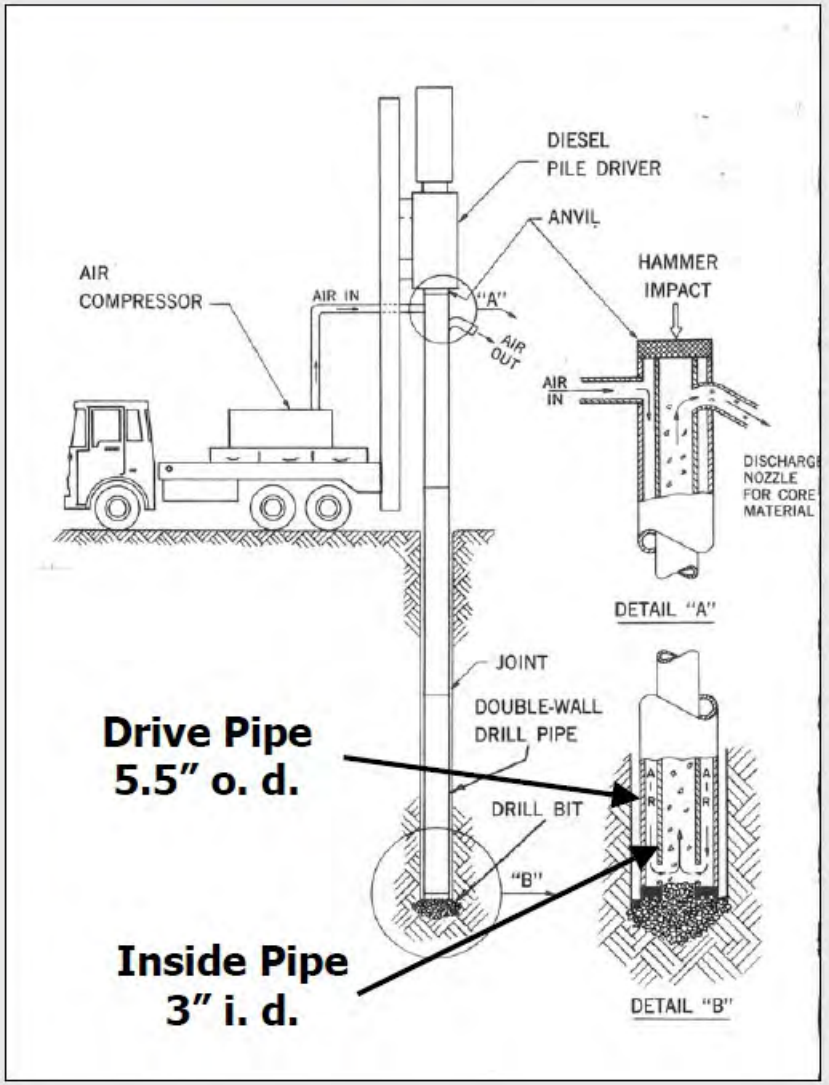
Both of these water movement systems result in dissolution of anhydrite and increasing permeability with time.



Outline of Presentation

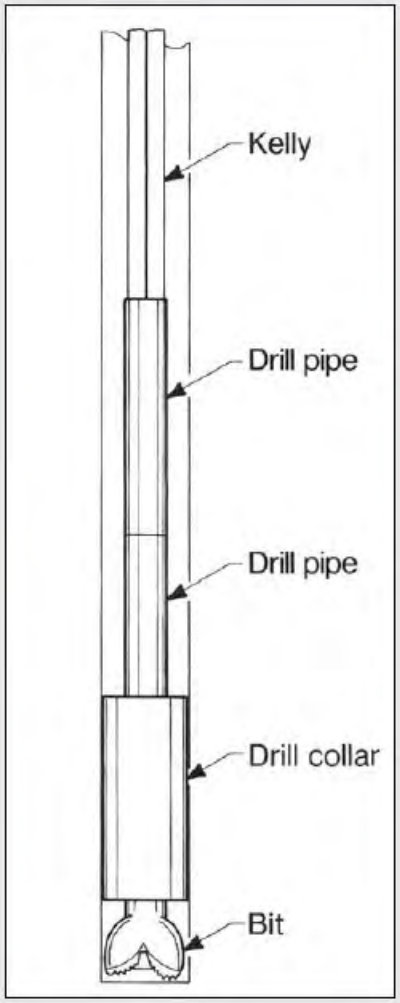
1. Introduction
2. Geological, Geotechnical and Hydrogeological Conditions
3. Archaeological Findings at Money Pit from 1967
4. Search by Ron Aston 1999 to 2001 (North Carolina)
5. Search by Petter Amundsen 2003 (Norway)
6. Main Theories
7. Challenges for Exploration at the Money Pit
8. Challenges for Excavations within the Money Pit

Becker Drill Setup 1967

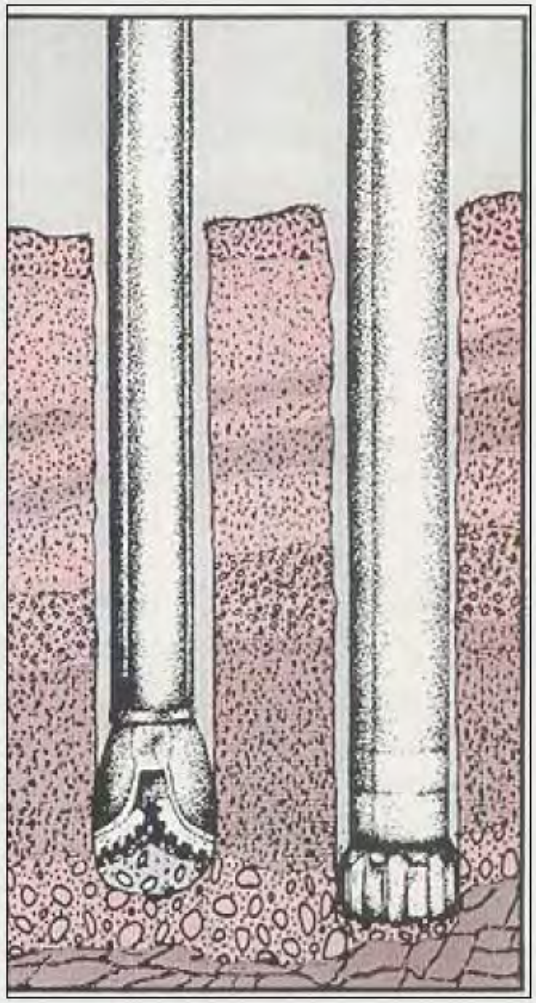


Rotary Drilling

Rotary Drill

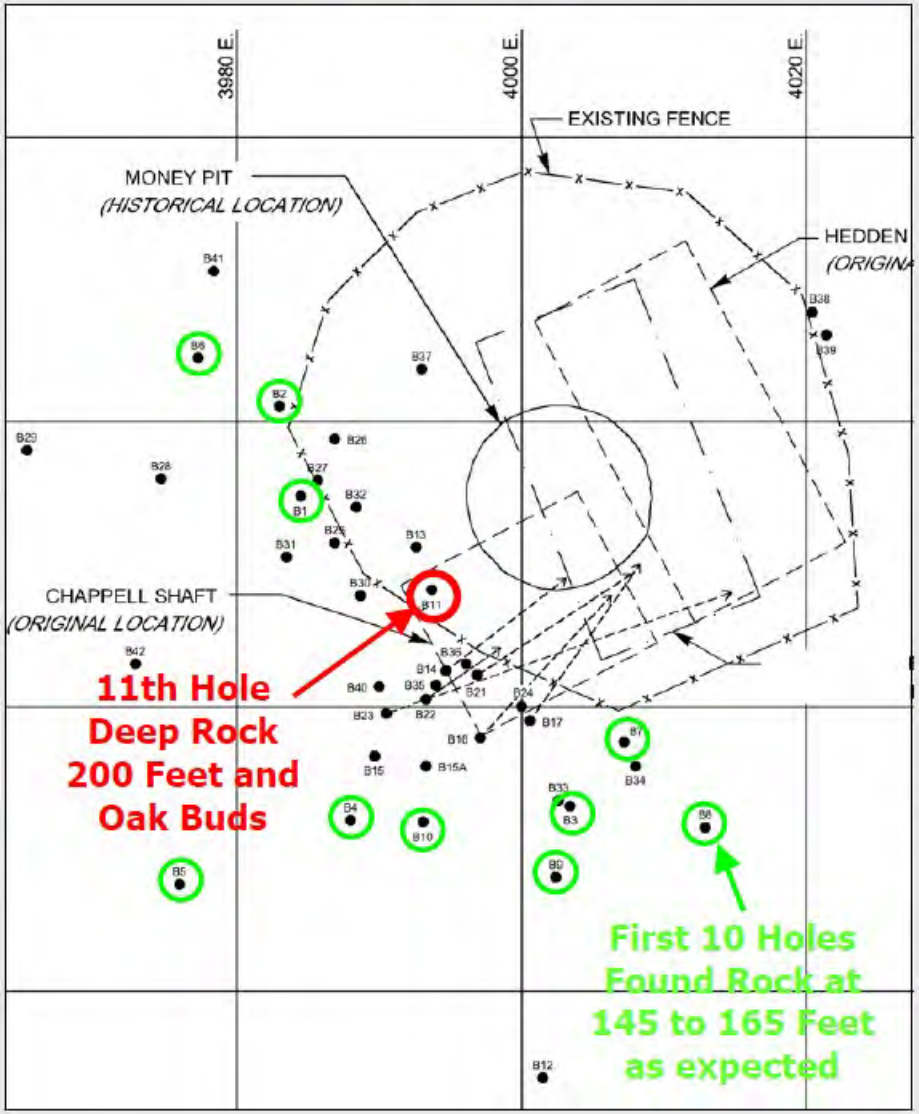


Rotary Drill String



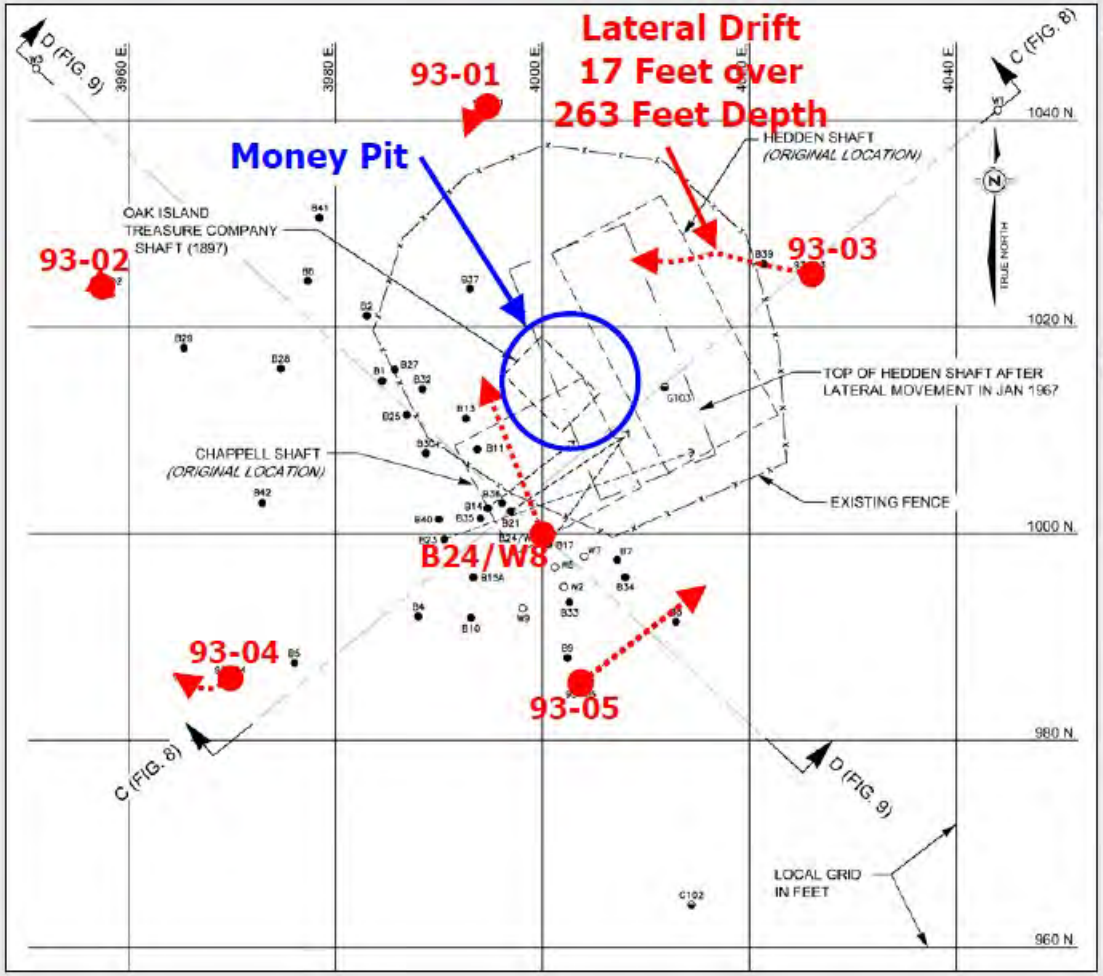
Schematic of Rotary Drilling

Becker Drilling Program at Money Pit 1967



1. The objective of the Becker drilling program was to drill through overburden to bedrock surface in search of the presumed treasure chests at 100 and 150 feet.
2. The first 10 holes extended to bedrock surface at depths of 145 to 165 feet.
3. The 11th hole (B11) extended to a depth of 200 feet before bedrock was encountered. Puddled clay was found from 184 to 200 feet and two oak buds were found embedded in the puddled clay at 196 feet.
4. This singular finding initiated the extension of all holes to 200 feet with the use of tricone drilling in bedrock.
5. 40 holes were drilled at the Money Pit from January to June 1967.
6. The drilling resulted in the major milestone of finding man made cavities in the bedrock at 200 feet and this was completely unexpected.
7. Lateral drift measurements were not made in the Becker holes but were made in 5 deep detection holes done in 1993

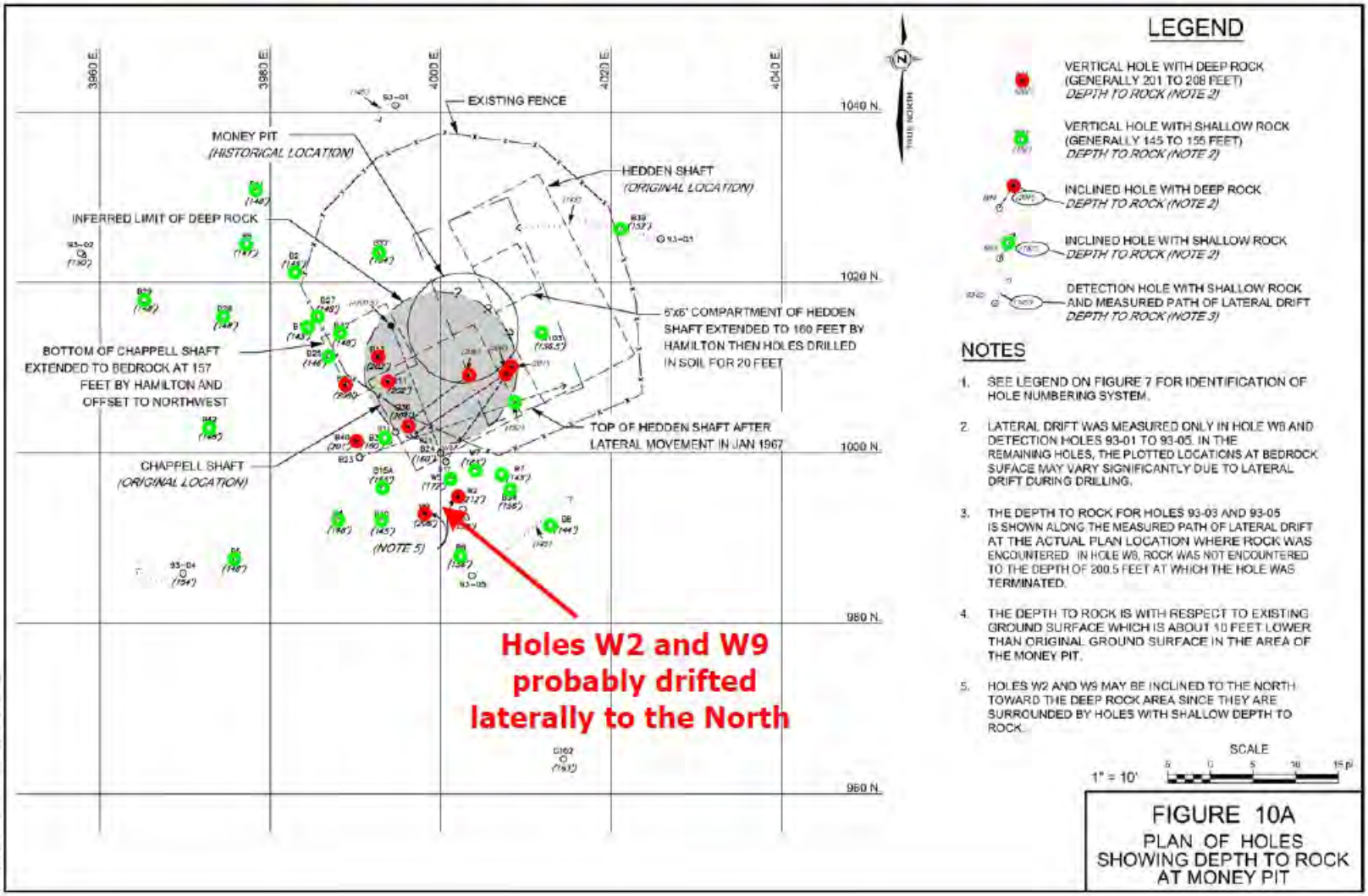
Lateral Drift in Deep Detection Holes 1993



1. Five deep holes to about 250 feet were put down in 1993 for a geophysical detection program.
2. Lateral drift was measured in the 5 detection holes and in Hole B24/W8.
3. This provided an understanding of the importance of lateral drift which was not measured in the previous Becker Holes.

Hole No.	Depth (Feet)	Lateral Drift (Feet)
93-01	240	2.6
93-02	240	1
93-03	263	17
93-04	240	6
93-05	225	14.5
B24/W8	190	15

Plan of Deep Rock Area at Money Pit



LEGEND

- VERTICAL HOLE WITH DEEP ROCK (GENERALLY 201 TO 208 FEET) *DEPTH TO ROCK (NOTE 2)*
- VERTICAL HOLE WITH SHALLOW ROCK (GENERALLY 145 TO 155 FEET) *DEPTH TO ROCK (NOTE 2)*
- INCLINED HOLE WITH DEEP ROCK *DEPTH TO ROCK (NOTE 2)*
- INCLINED HOLE WITH SHALLOW ROCK *DEPTH TO ROCK (NOTE 2)*
- DETECTION HOLE WITH SHALLOW ROCK AND MEASURED PATH OF LATERAL DRIFT *DEPTH TO ROCK (NOTE 3)*

NOTES

1. SEE LEGEND ON FIGURE 7 FOR IDENTIFICATION OF HOLE NUMBERING SYSTEM.
2. LATERAL DRIFT WAS MEASURED ONLY IN HOLE W8 AND DETECTION HOLES 93-01 TO 93-05. IN THE REMAINING HOLES, THE PLOTTED LOCATIONS AT BEDROCK SURFACE MAY VARY SIGNIFICANTLY DUE TO LATERAL DRIFT DURING DRILLING.
3. THE DEPTH TO ROCK FOR HOLES 93-03 AND 93-05 IS SHOWN ALONG THE MEASURED PATH OF LATERAL DRIFT AT THE ACTUAL PLAN LOCATION WHERE ROCK WAS ENCOUNTERED. IN HOLE W8, ROCK WAS NOT ENCOUNTERED TO THE DEPTH OF 200.5 FEET AT WHICH THE HOLE WAS TERMINATED.
4. THE DEPTH TO ROCK IS WITH RESPECT TO EXISTING GROUND SURFACE WHICH IS ABOUT 10 FEET LOWER THAN ORIGINAL GROUND SURFACE IN THE AREA OF THE MONEY PIT.
5. HOLES W2 AND W9 MAY BE INCLINED TO THE NORTH TOWARD THE DEEP ROCK AREA SINCE THEY ARE SURROUNDED BY HOLES WITH SHALLOW DEPTH TO ROCK.

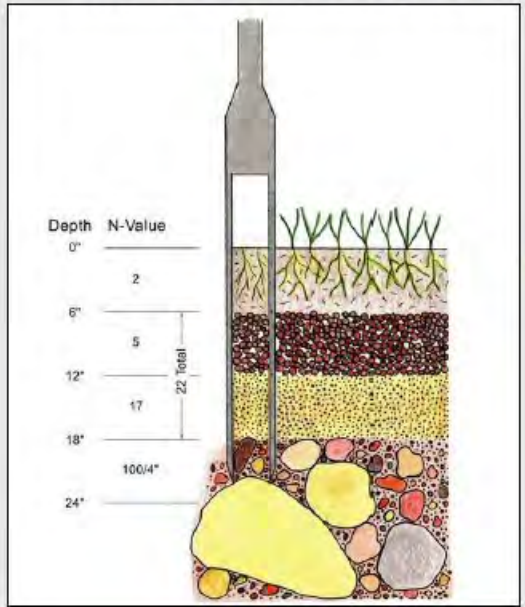
SCALE
1" = 10'

FIGURE 10A
PLAN OF HOLES SHOWING DEPTH TO ROCK AT MONEY PIT

Geotechnical Drilling and Split Spoon Sampling

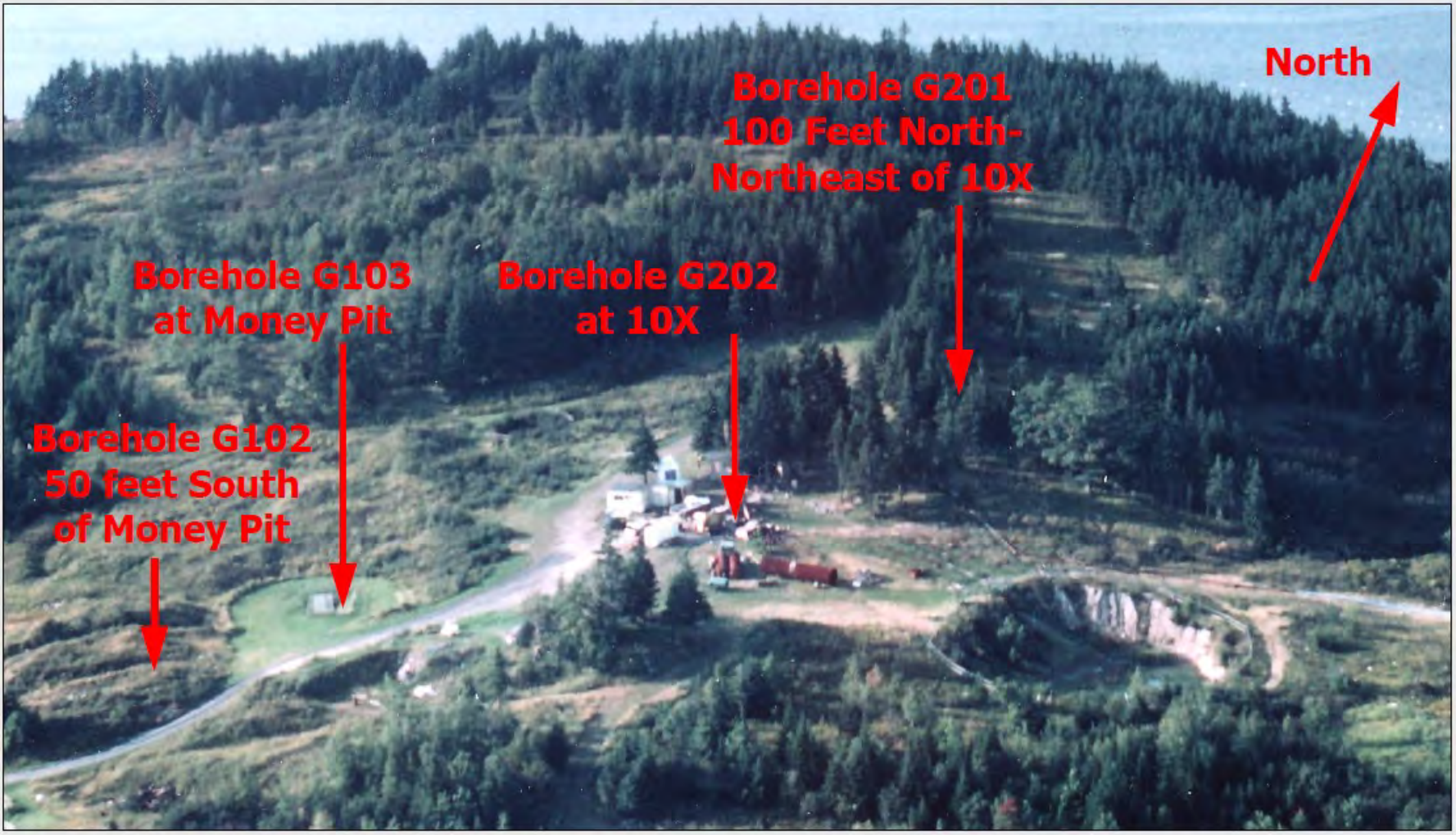
Geotechnical Drill at Oak Island

Split Spoon Sampler in Open Condition Showing Recovered Sample

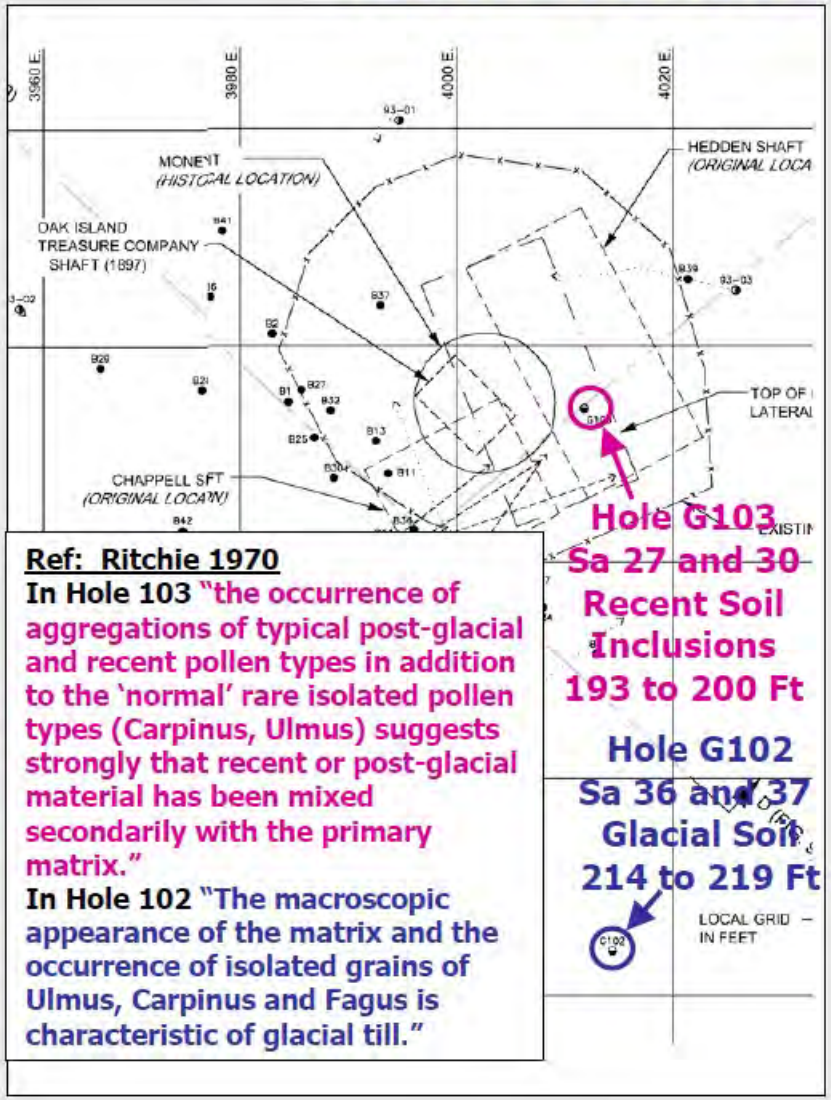


Schematic of Split Spoon Sampling

Golder Holes of Archaeological Interest



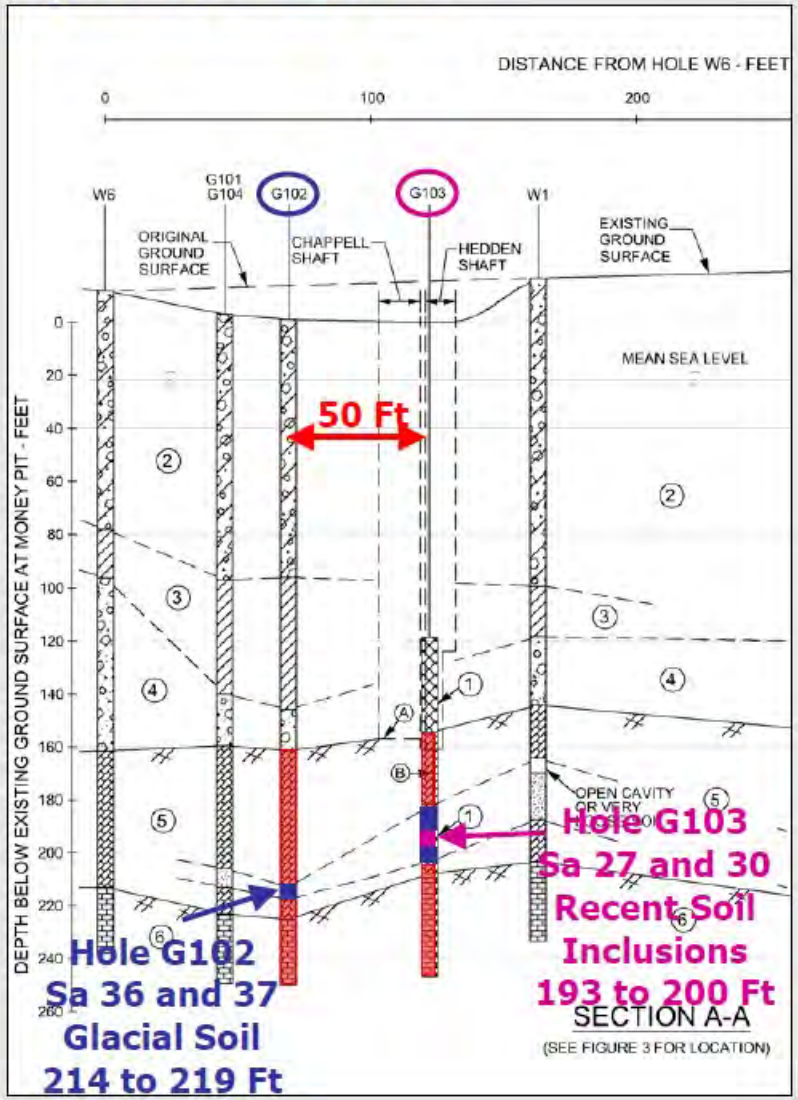
Pollen Count Results for Soil Samples from Broken Anhydrite 1970



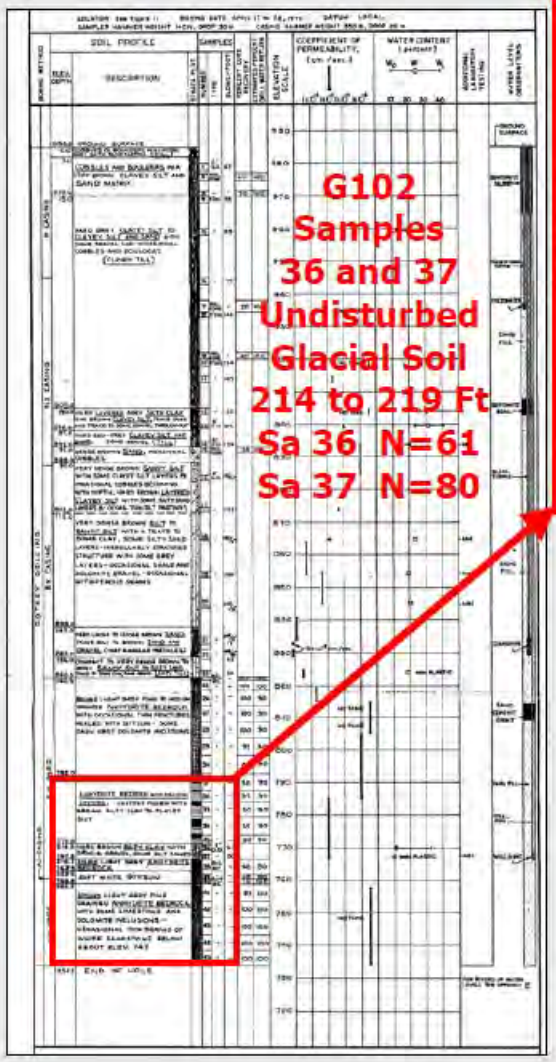
Ref: Ritchie 1970

In Hole 103 "the occurrence of aggregations of typical post-glacial and recent pollen types in addition to the 'normal' rare isolated pollen types (Carpinus, Ulmus) suggests strongly that recent or post-glacial material has been mixed secondarily with the primary matrix."

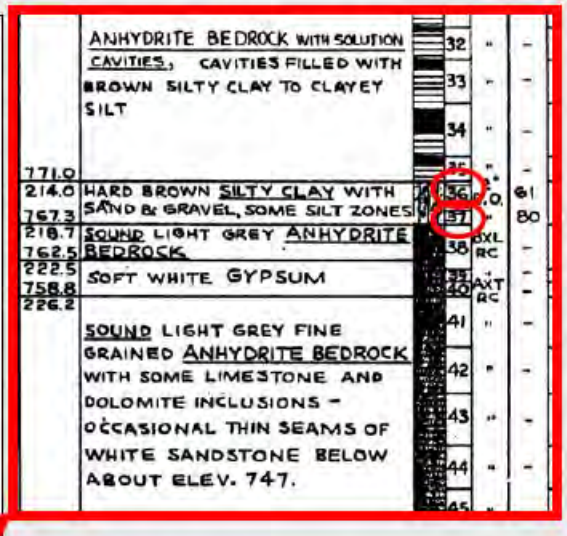
In Hole 102 "The macroscopic appearance of the matrix and the occurrence of isolated grains of Ulmus, Carpinus and Fagus is characteristic of glacial till."

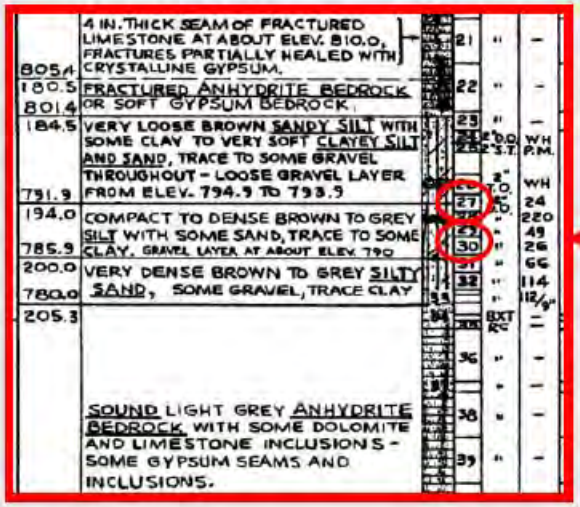


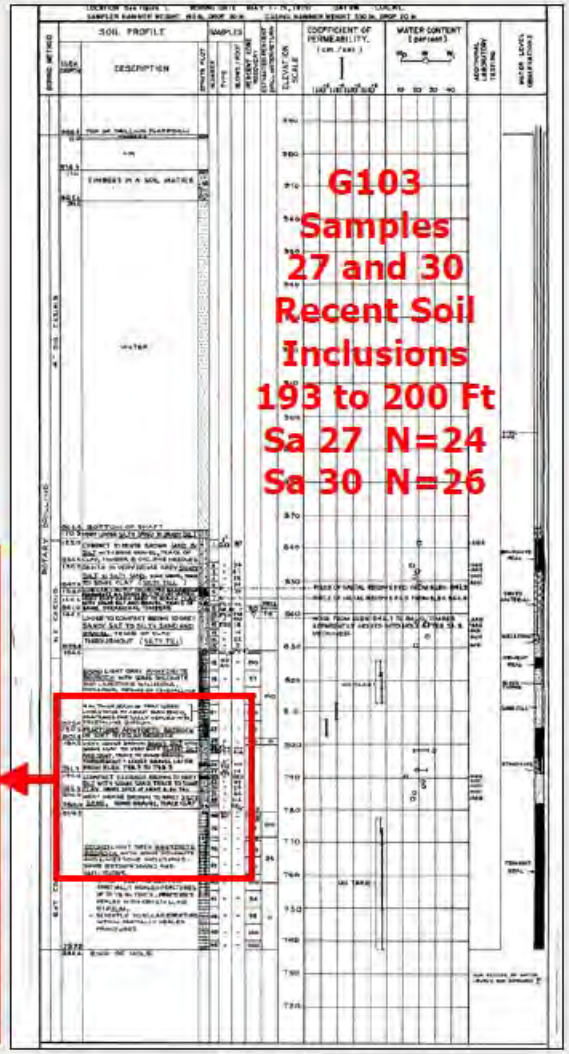
Pollen Count Samples from G102 and G103



G102
Samples
36 and 37
Undisturbed
Glacial Soil
214 to 219 Ft
Sa 36 N=61
Sa 37 N=80



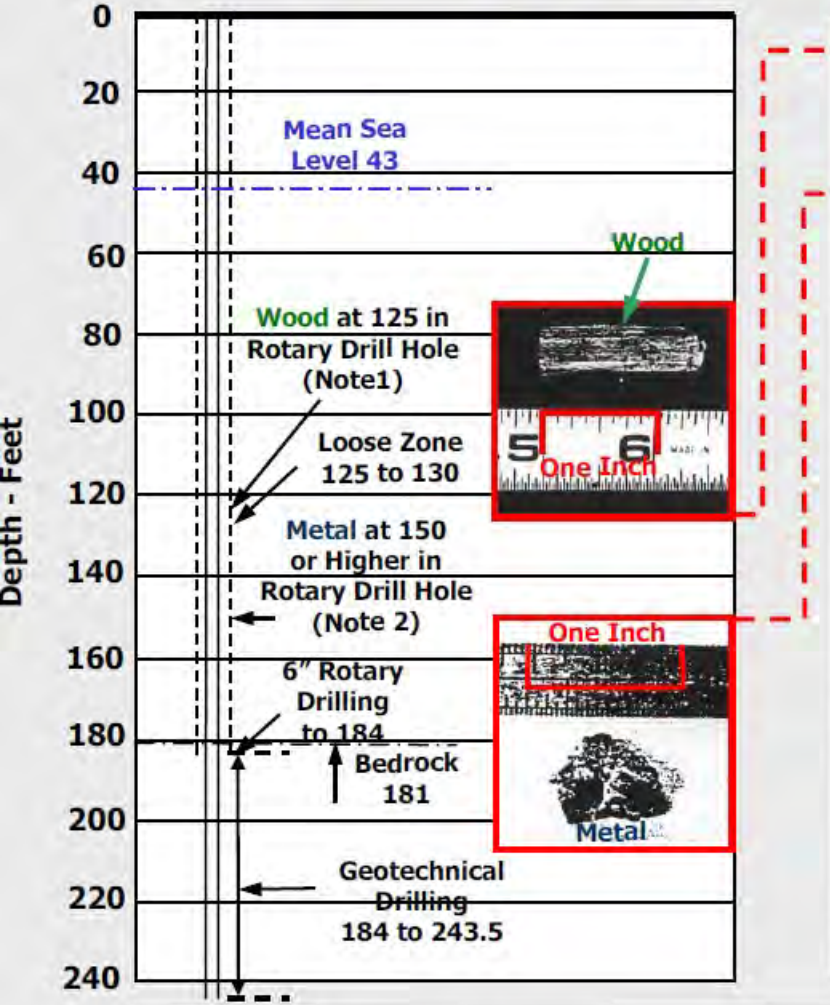


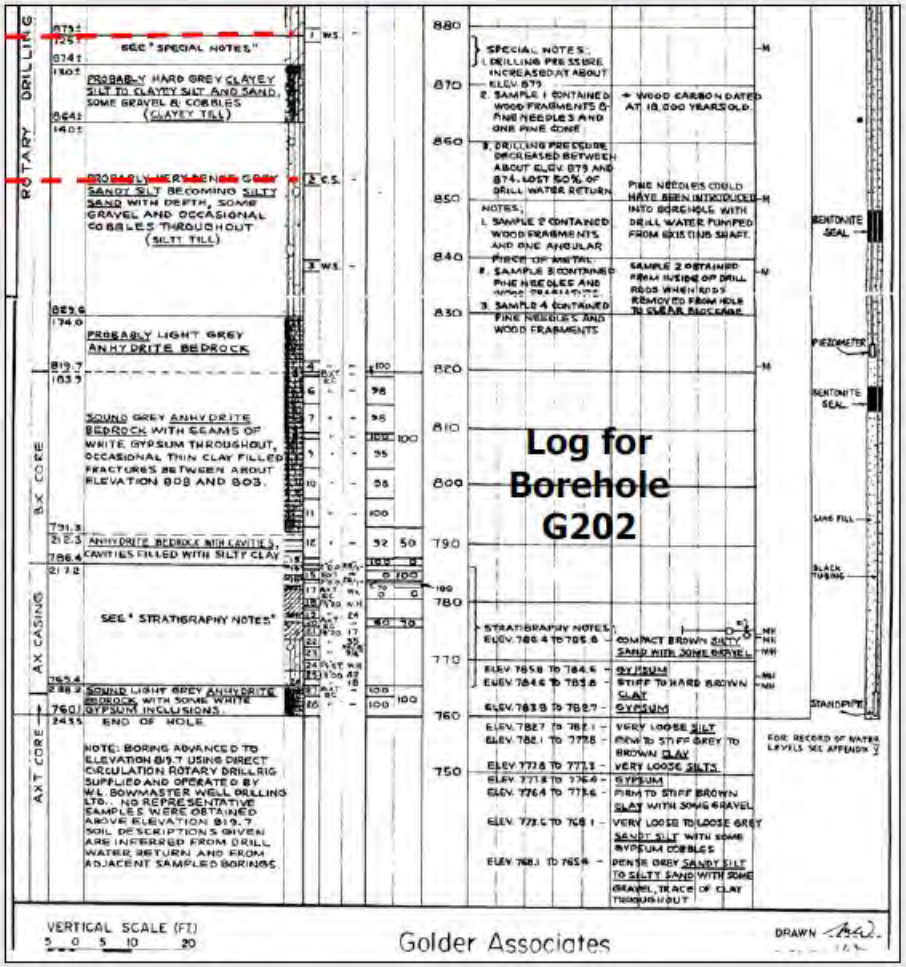


G103
Samples
27 and 30
Recent Soil
Inclusions
193 to 200 Ft
Sa 27 N=24
Sa 30 N=26

Ref: Golder 1971

Wood and Metal in Golder Hole G202
Located 3 Feet West of Hole 10 June 1970



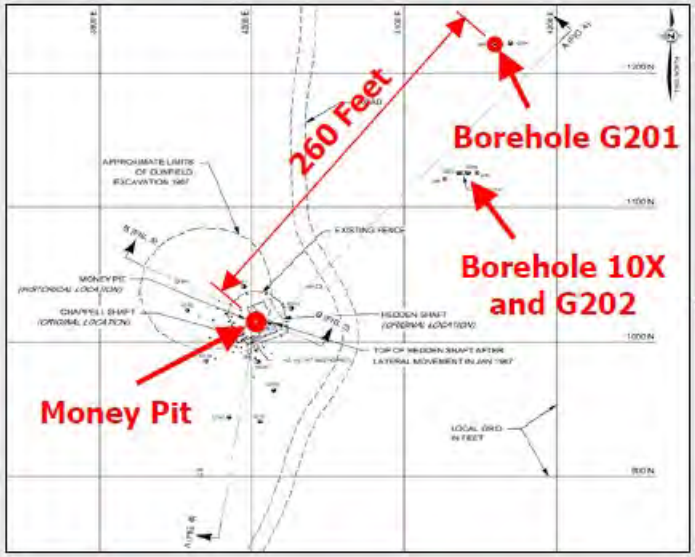


Notes:

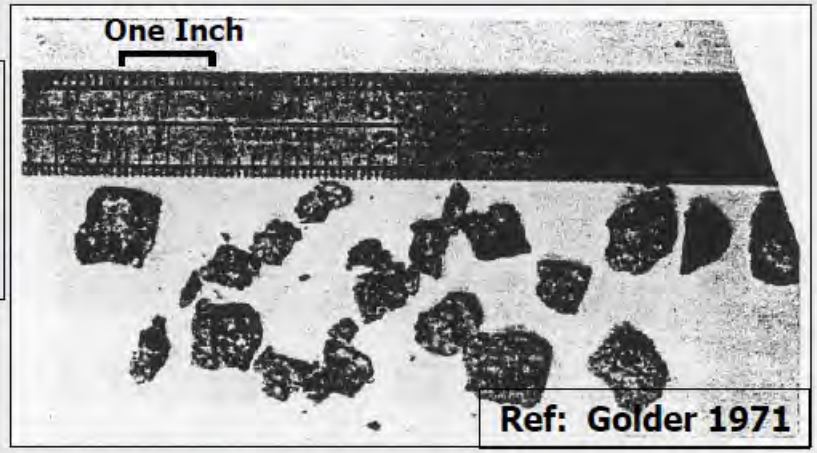
1. **Wood** sample was carbon dated to 25,000 years BP (Terasmae 1970) and was identified as Eastern Spruce (University of Toronto 1970).
2. **Metal** was identified as iron which consisted of much siliceous replacement material, the sample was of considerable age (Stelco 1970b – Nov 19).

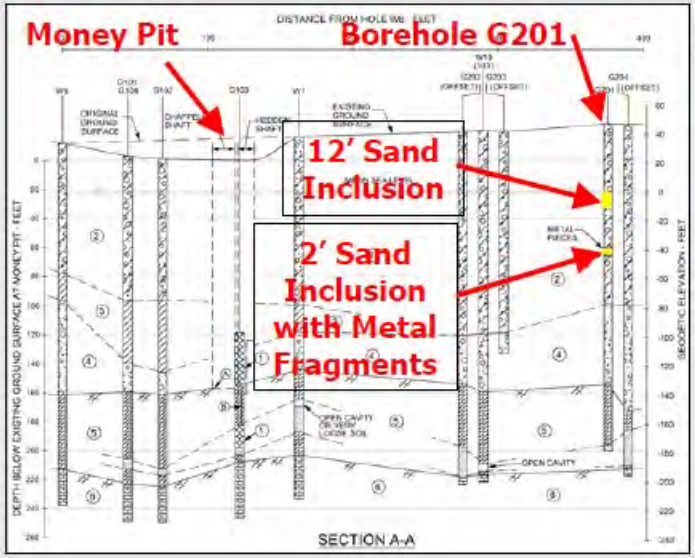
Ref: Golder 1971

Metal Fragments in Golder Borehole G201

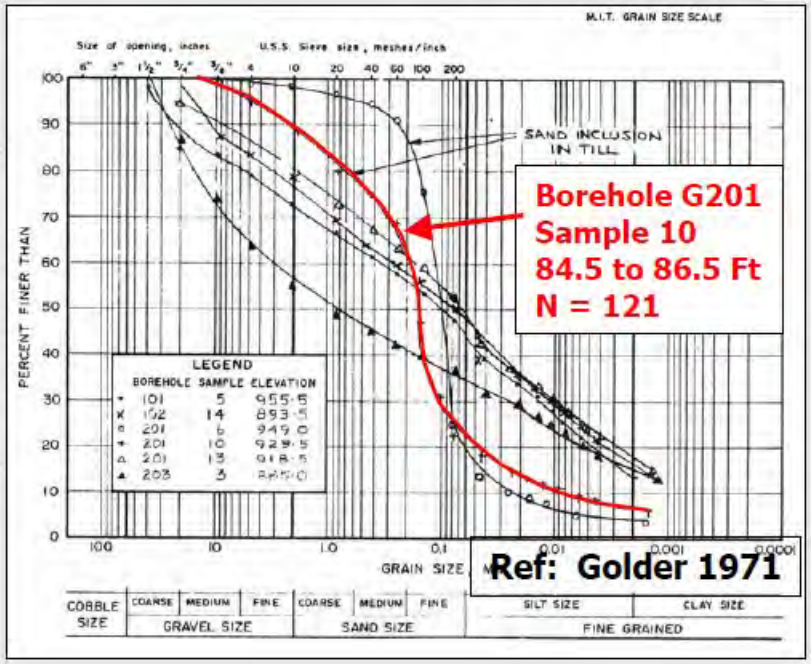


Metal fragments are friable wrought iron dating prior to 1800 (Stelco 1970b)

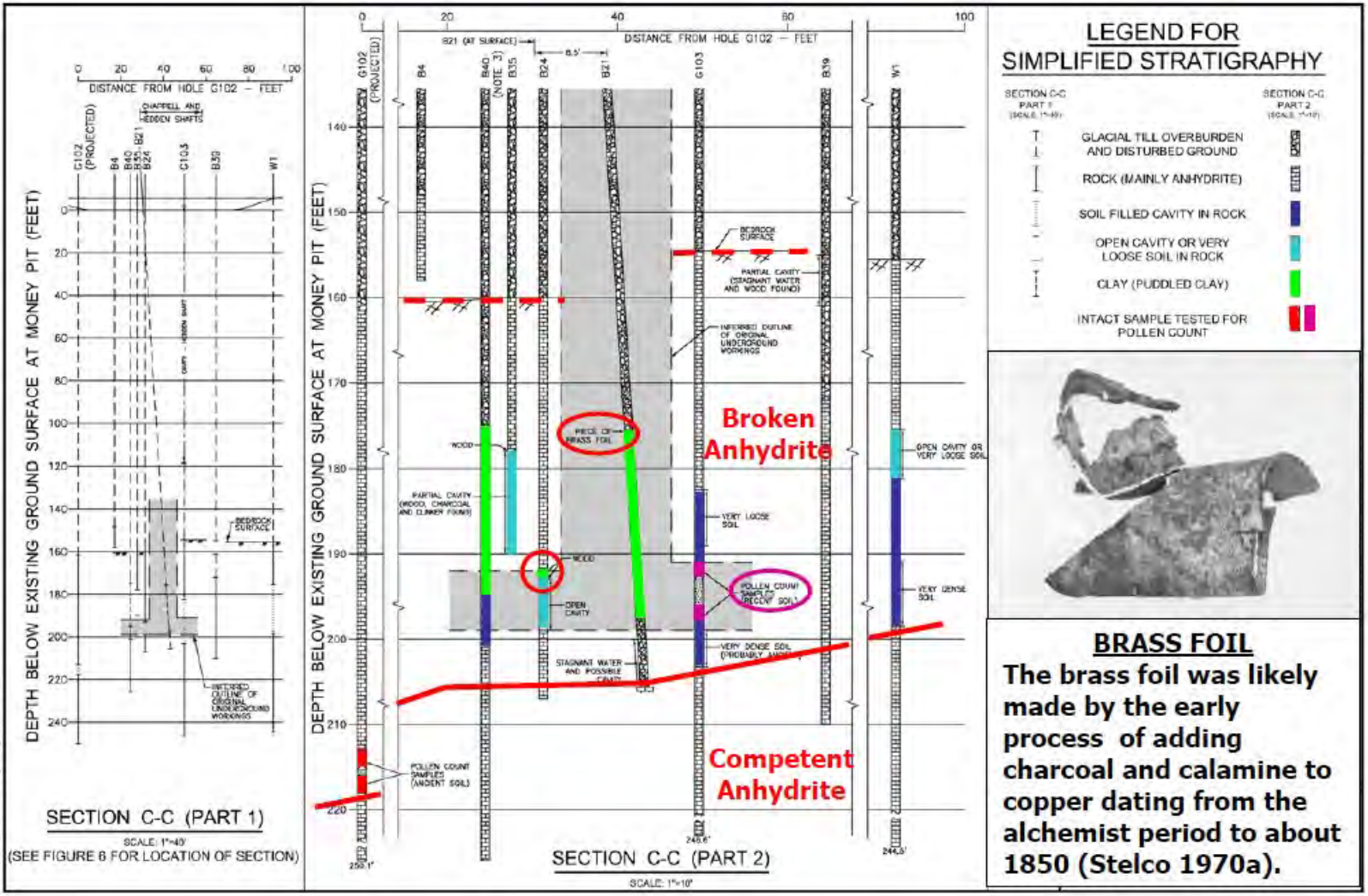




Metal fragments found embedded in sand sample during sieve analysis (Golder 1971)



Archaeological Section C-C at Money Pit



BRASS FOIL

The brass foil was likely made by the early process of adding charcoal and calamine to copper dating from the alchemist period to about 1850 (Stelco 1970a).

Archaeological Section D-D at Money Pit

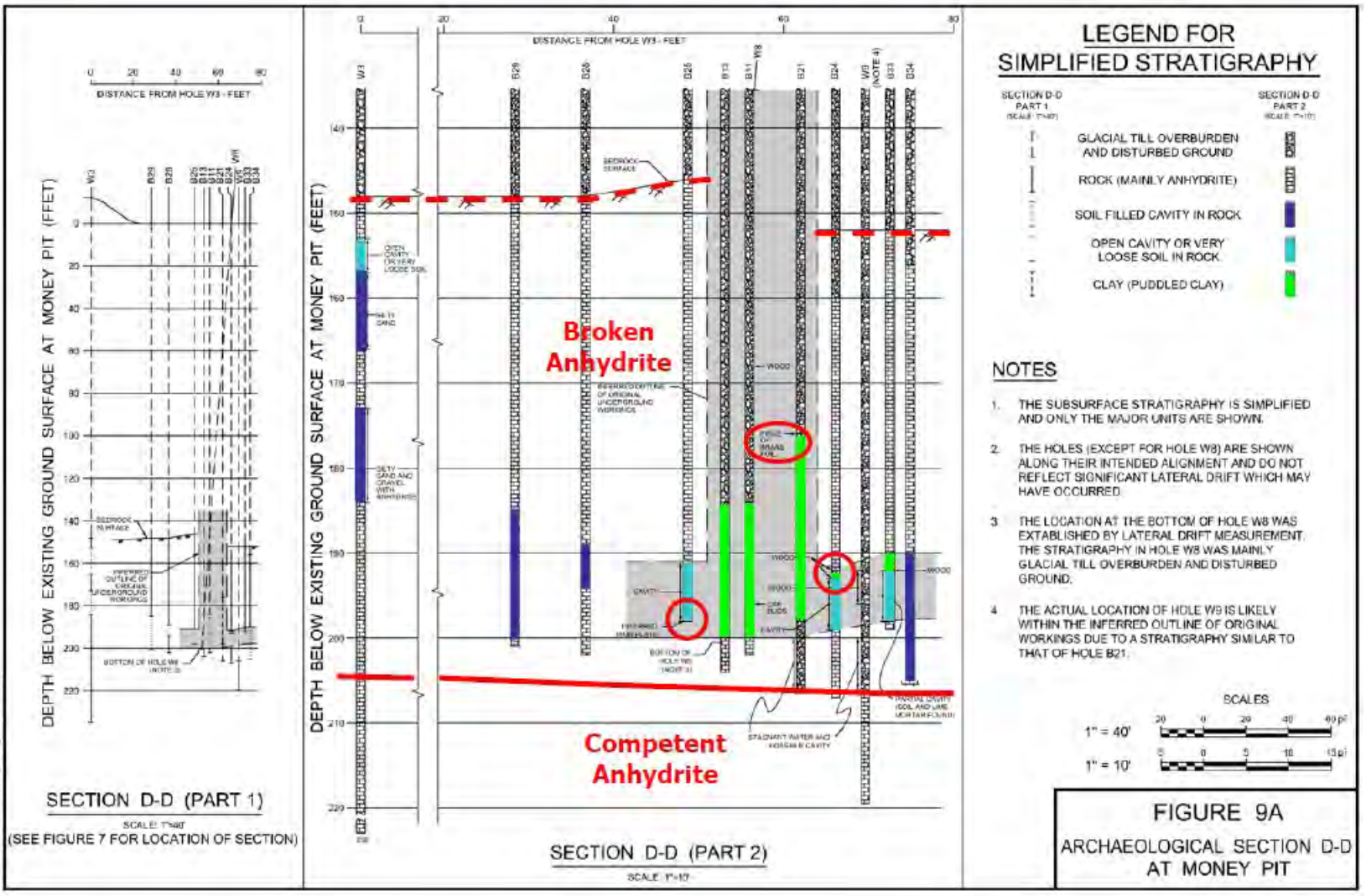
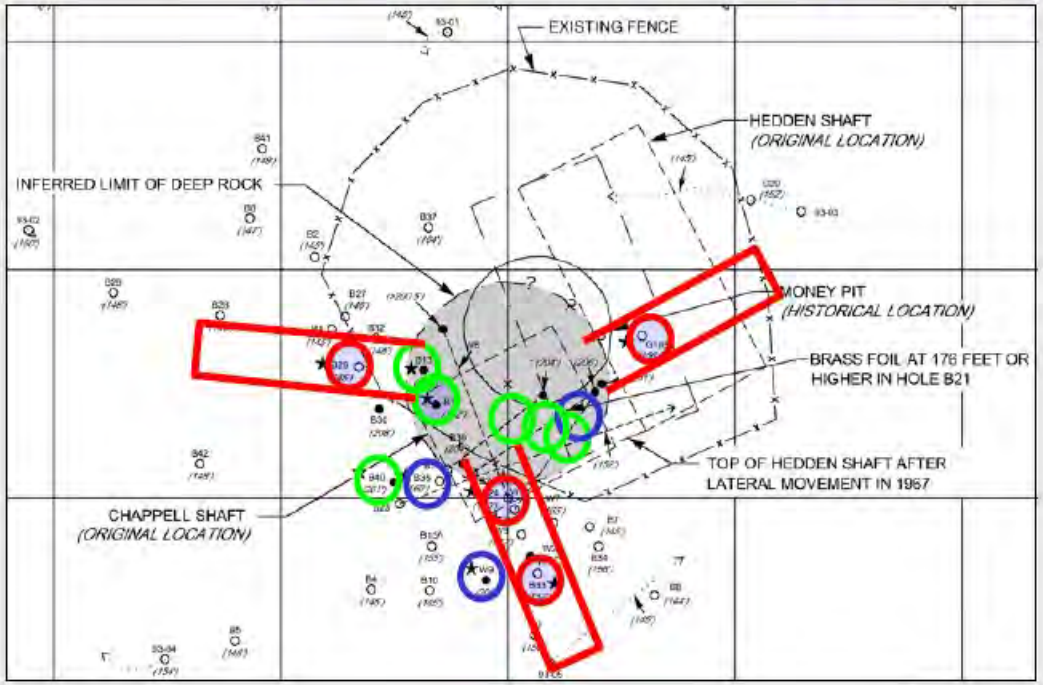


FIGURE 9A

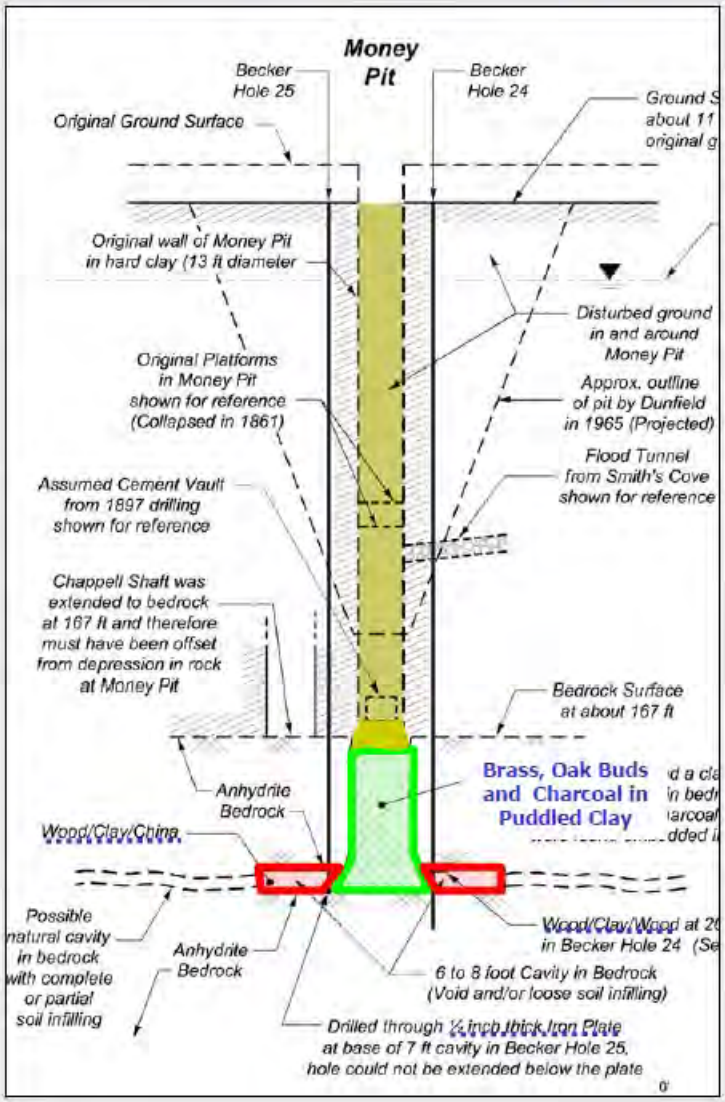
ARCHAEOLOGICAL SECTION D-D AT MONEY PIT

Summary of Archaeological Features at Money Pit



★HOLES WITH ARCHAEOLOGICAL FEATURES

HOLE	FEATURES	DEPTH
B11	PUDDLED CLAY, OAK BUDS	184-200
B13/14	PUDDLED CLAY	184-200
B17	PUDDLED CLAY	176-198
B21	BRASS FOIL, PUDDLED CLAY, STAGNANT WATER	176-205
B24	INFERRED CHAMBER, CHINA FRAGMENT, WOOD	192-199
B25	INFERRED CHAMBER, IRON PLATE	191-198
B33	INFERRED CHAMBER, WOOD, LIME MORTAR	190-198
B35	WOOD, CHARCOAL, CLINKER	178-190
B40	PUDDLED CLAY	175-195
W9	WOOD, STAGNANT WATER	192-206
G103	REWORKED RECENT SOIL (INFERRED CHAMBER)	191-198



Do We Have Proof of Original Work at the Money Pit According to the Criteria of Othello?

Othello: So prove it

That the probation leave no hinge nor loop

To hang a doubt on

"OTHELLO, The Moor of Venice" (Shakespeare)

Conclusions for the Money Pit

1. **There are chambers at 200 feet depth at the Money Pit. Possibilities:**
   - The chambers were made and nothing was put in them
   - The chambers were made, something of great value was put in them and then taken away
   - The chambers were made, something of great value was put in them and is still there

2. **We don't know who did it or what is there, the mystery remains unsolved.**

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Ron Aston and Others 2001

Murray MacPhie | Jim Harvey | David Tobias | Ron Aston

David Tobias

Ron Aston Drilling Program August 2001

Boulder in Glacial Till Exposed by Aston 2001