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WALTER H. FLOOD & CO., INC.

ENGINEERS
6102 SO. BLACKSTONE AVE.
CHICAGO 60637

INSPECTION AND TESTING OF MATERIALS AND STRUCTURES
SPECIFICATIONS AND REPORTS
PHYSICAL AND CHEMICAL TESTS
RESEARCH AND CONSULTATION
CONCRETE CORE CUTTING
FOUNDATION INVESTIGATION
FACILITIES INSPECTED BY CONCRETE REFERENCE LABORATORY

OCTOBER 14, 1968

931839

MR. HARRY A. CARLSON
Non Responsive
[redacted]

RE: SOIL REPORT NO. 68050246
PROPOSED SANITARY LAND FILL
111TH STREET AND U. S. ROUTE 45
COOK COUNTY, ILLINOIS

DEAR MR. CARLSON:

INCLUDED HEREIN IS THE PARTIAL REPORT OF THE SUB-SURFACE INVESTIGATION FOR THE ABOVE REFERENCE PROJECT.

WE APPRECIATE THE OPPORTUNITY OF UNDERTAKING THIS INVESTIGATION FOR YOU. SHOULD QUESTIONS ARISE CONCERNING THIS REPORT, OR SHOULD WE BE ABLE TO ASSIST YOU IN ANY WAY, PLEASE DO NOT HESITATE TO CALL UPON US.

WE ARE COMPLETING SOIL CLASSIFICATION TESTS IN OUR LABORATORY. THE RESULTS OF THESE TESTS WILL BE FORWARDED TO YOU UPON COMPLETION.

VERY TRULY YOURS,

WALTER H. FLOOD & CO., INC.

Raymond J. Flood

RAYMOND J. FLOOD
REG. PROF. ENGINEER - #21775 ILL.

RJF:MN
3-

WALTER H. FLOOD & CO., INC.

SOIL REPORT NO. 68050246
PROPOSED SANITARY LAND FILL
111TH STREET AND U. S. ROUTE 45
COOK COUNTY, ILLINOIS

SCOPE

THIS REPORT PRESENTS THE RESULTS OF THE SUBSOIL INVESTIGATION AT THE SITE OF THE PROPOSED SANITARY LAND FILL AT 111TH STREET AND U. S. ROUTE 45, COOK COUNTY, ILLINOIS. THE STUDY WAS MADE TO SECURE AND LOG INFORMATION ON THE SUBSOIL CONDITIONS, TO PERFORM LABORATORY TESTS (NOW IN PROGRESS), TO DETERMINE THE SOIL TYPES AND DEPTHS, TO DETERMINE THE LOCATION OF IMPERVIOUS SOIL TYPES BELOW THE EXISTING GRADE.

SOIL CONDITIONS

REFERENCE IS MADE TO THE ENCLOSED SOIL PROFILE DEVELOPED FROM THE FIVE SOIL TEST BORINGS (1968). PREVIOUSLY 17 TEST BORINGS WERE TAKEN IN 1963 FOR SAND EXPLORATION.

GEOLOGICALLY, THE SITE IS LOCATED ON GLACIAL ~~MORAINE~~ OUTWASH AND GLACIAL TILL OVERLYING GLACIAL RIVER DEPOSITS. THE SITE IS A FORMER SAND AND GRAVEL PIT, AND MOST OF THE GLACIAL TILL AT THE NORTH END HAS BEEN EVIDENTLY REMOVED AS OVERBURDEN, AS WELL AS THE SAND AND GRAVEL OUTWASH SOILS. BOTH SOILS ARE READILY VISIBLE IN THE CUT SLOPES OF THE PIT. AT THE TIME OF THIS REPORT, WATER WAS STANDING IN TWO AREAS, IN THE NORTH AND SOUTH (WATER SURFACE ELEVATIONS WERE 597.6 AND 592.4 ON OCTOBER 12, 1968). THE CENTRAL AREA OF THE PIT WAS ABOVE THE WATER LEVEL, WITH AN ACESSS ROAD ALONG THE WEST SIDE. THE SOILS LEFT IN THE PIT CONSIST ESSENTIALLY OF RELATIVELY FINE GRAINED CLEAN SANDS IN DEPTHS OF A FEW FEET TO OVER 30 FEET. IN THE CENTER OF THE PIT, THREE BORINGS REVEALED LAYERED SILTY CLAY, AND LAYERED CLAYS AND SILTS OF AN IMPERVIOUS NATURE. AT THE NORTH AND SOUTH END OF THE PIT, THESE SILTS AND CLAYS WERE NOT ENCOUNTERED. ALL FIVE BORINGS WERE EXTENDED TO "REFUSAL" (THE RESISTANCE TO FURTHER PENETRATION BY NORMAL DRILLING METHODS) AND THE DEPTH OF REFUSAL IS THOUGHT TO BE THE SURFACE OF THE NIAGRAN DOLOMITE BED ROCK (ALTHOUGH IT COULD BE A BOULDER). IN FOUR OF THE FIVE BORINGS, A THIN LAYER OF VERY DENSE HIGHLY CONSOLIDATED SILT WITH ANGULAR LIMESTONE (DOLOMITE) FRAGMENTS WAS ENCOUNTERED. GROUND WATER WAS ENCOUNTERED IN ALL BORINGS NEAR THE ELEVATION OF THE STANDING WATER IN THE OPEN PITS.

WALTER H. FLOOD & CO., INC.

SOIL REPORT NO. 68050246
PROPOSED SANITARY LAND FILL
111TH STREET AND U. S. ROUTE 45
COOK COUNTY, ILLINOIS

PREPARED FOR: MR. HARRY A. CARLSON
Non Responsive

WALTER H. FLOOD & CO., INC.

SOIL BORING LOG EXPLANATION

TEXTURAL CLASSIFICATION

TEXTURE	SYMBOL	ABBREVIATION
BOULDER		BO
GRAVEL		GR
SAND		S
SILT		SI
CLAY		C

SIZE	ABBREVIATION	SOIL PARTICLE SIZE
		OVER 3.0"
LARGE	L	1.0" TO 3.0"
MEDIUM	M	.38" TO .99"
SMALL	SM	2.0MM TO .38"
COARSE	CO	.75MM TO 1.99MM
MEDIUM	M	.25MM TO .74MM
FINE	F	.074MM TO .24MM
		.005MM TO .073MM
		SMALLER THAN .005MM

COHESIVE SOIL CLASSIFICATION

CLASS	SYMBOL	ABBREVIATION	MAJOR SOIL CONSTITUENT, % OF DRY WEIGHT SAND	SILT	CLAY
CLAY		C	LESS THAN 50	LESS THAN 50	20-100
SILTY CLAY		SIC	LESS THAN 20	50-80	20-50
SANDY CLAY		SC	50-80	LESS THAN 20	20-50

CONSISTENCY	ABBREVIATION	N	QU
VERY SOFT	VS	0-2	LESS THAN 700
SOFT	S	3-4	700-1200
STIFF	ST	5-8	1201-2000
TOUGH	T	9-16	2001-4000
VERY TOUGH	VT	17-30	4001-8000
HARD	H	OVER 30	OVER 8000

IF THE CLAY CONTENT OF A SOIL IS GREAT ENOUGH THE CLAY CHARACTERISTICS DOMINATE THE SOIL MASS. CLAY BECOMES THE SOIL CLASSIFICATION WITH THE OTHER CONSTITUENTS BEING MODIFYING.

NON-COHESIVE SOIL CLASSIFICATION

CLASS	SYMBOL	ABBREVIATION	MAJOR SOIL CONSTITUENT, % OF DRY WEIGHT SAND	SILT	CLAY
SILT		SI	LESS THAN 20	80-100	LESS THAN 20
SAND		S	80-100	LESS THAN 20	LESS THAN 20

DENSITY	ABBREVIATION	N
VERY LOOSE	VL	0-4
LOOSE	L	5-9
MEDIUM DENSE	MD	10-29
DENSE	D	30-49
VERY DENSE	VD	50 AND OVER

IF THE SAND OR SILT CONTENT OF A SOIL IS GREAT ENOUGH THE SOIL BECOMES NON-COHESIVE OR SEMI-COHESIVE. THE SOIL CLASSIFICATION BECOMES SAND OR SILT WITH THE OTHER SOIL CONSTITUENTS BEING MODIFYING.

QUANTITY MODIFIERS

TERM	ABBREVIATION	% OF DRY WEIGHT
TRACE OR OCCASIONAL	TR OR OC	0-10
LITTLE	LI	11-20
SOME	SO	21-35
AND OR WITH	& OR W/	36-50

WATER LEVELS

SYMBOL	EXPLANATION
→	FINAL WATER LEVEL
WCI	WET CAVE IN
DCI	DRY CAVE IN
WD	WHILE DRILLING

DRILLING AND SAMPLING SYMBOLS AND ABBREVIATIONS

ST	SHELBY TUBE OR THIN WALL TUBE (ASTM D-1587)	WO	WASHOUT
SS	SPLIT SPOON OR SPLIT TUBE (ASTM D-1586)	C	CORE
A	AUGER BORING OR AUGER SAMPLE	HA	HAND AUGER
HS	HOLLOW STEM AUGER		
QU	UNCONFINED COMPRESSIVE STRENGTH, POUNDS PER SQUARE FOOT		
N	STANDARD PENETRATION, BLOWS PER FOOT OF 140# HAMMER, 30" DROP, 2" O.D. SS		

SOIL BORING #22

SITE 111TH STREET 7 ROUTE 45	PROJECT PROPOSED SANITARY LAND FILL
LOCATION COOK COUNTY, ILLINOIS	FOR MR. HARRY CARLSON

ELEV.	D	S	T	N	L	R	DD	DESCRIPTION
633.2	0.0							GROUND SURFACE
632.2	1.0							BLACK SANDY LOAM
								BROWN & GRAY CLAY, TRACE OF SML. GRAVEL
		1	SS	17				VERY TOUGH
623.2	10.0							
		2	SS	28				GRAY CLAY, TRACE OF SMALL GRAVEL, VERY TOUGH
		3	SS	31				
		4	SS	29				
608.2	25.0							
		5	SS	18				GRAY, FINE SAND, TRACE OF SILT
		6	SS	19				
		7	SS	28				
		8	SS	21				
588.2	45.0							
		9	SS	14				GRAY FINE-MEDIUM SAND, TRACE OF SILT, MEDIUM DENSE
583.2	50.0							
		10	SS	24				GRAY FINE SAND, TRACE OF SILT, MED. DENSE
578.2	55.0							
		11	SS	15				GRAY MED. SAND, TRACE OF SILT, MEDIUM DENSE
		12	SS	23				
568.7	64.5							
								REFUSAL

ELEV	D	S	T	N	L	R	DD	DESCRIPTION

UNCONFINED COMPRESSIVE STRENGTH
2000 4000 6000 8000 10000

10 20
WATER CONTENT PER CENT

D DEPTH IN FEET BELOW GROUND SURFACE
S SAMPLE NUMBER
T TYPE OF SAMPLE
N PENETRATION BLOWS PER FOOT
L SAMPLE LENGTH
R LENGTH OF SAMPLE RECOVERED
DD DRY DENSITY LB PER CU. FT.

WO WASH OUT
A AUGER
ST SHELBY TUBE
SS SPLIT SPOON
DB DIAMOND BIT
C CORE

WATER LEVEL
→ @ ___ hrs.
→ @ ___ hrs.

METHOD OF BORE HS
SPLIT SPOON SIZE 2 IN.
WT. OF HAMMER 140 LB. 30 IN. DROP
CASING USED NONE

SOIL BORING LOG
WALTER H. FLOOD & CO.
6102 SOUTH [illegible]
CHICAGO [illegible]

DATE 10/11/68 BY DL:MN
JOB #68050246 SCALE 1"=10'

FORM 30 5M 9-67 SSP

SOIL BORING #21

SITE 111TH STREET & ROUTE 45 | PROJECT PROPOSED SANITARY LAND FILL

LOCATION COOK COUNTY, ILLINOIS | FOR MR. HARRY CARLSON

ELEV.	D	S	T	N	L	R	DD	DESCRIPTION
602.3	0.0							GROUND SURFACE
600.8	1.5							SAND & GRAVEL, FILL
		1	SS	22				GRAY & BROWN SILT & CLAY, LAYERED, MEDIUM DENSE
597.3	5.0							
		2	SS	9				GRAY FINE SAND, TRACE OF SILT, LOOSE TO MEDIUM DENSE
		3	SS	12				
587.3	15.0							
		4	SS	41				GRAY SILTY CLAY, SOME SMALL TO MEDIUM GRAVEL, VERY TOUGH
		5	SS	35				
577.3	25.0							
		6	SS	60				GRAY FINE SAND, TRACE OF SILT, DENSE
572.3	30.0							
		7	SS	63				GRAY COARSE SAND, SOME SILT WITH SMALL TO LRG STONE FRAGMENTS
567.3	35.0							
		8	SS	84				GRAY SILT, W/SML-LRG. STONE FRAG. VERY DENSE
564.8	38.5							
								REFUSAL

UNCONFINED COMPRESSIVE STRENGTH (LB. PER SQ. FT.)
CALIBRATED PENETROMETER READING
2000 4000 6000 8000 10000

WATER CONTENT PERCENT DRY WEIGHT
10 20 30 40 50

ELEV	D	S	T	N	L	R	DD	DESCRIPTION

D DEPTH IN FEET BELOW GROUND SURFACE
S SAMPLE NUMBER
T TYPE OF SAMPLE
N PENETRATION BLOWS PER FOOT
L SAMPLE LENGTH
R LENGTH OF SAMPLE RECOVERED.
DD DRY DENSITY, LB PER CU. FT.

WO WASH OUT
A AUGER
ST SHELBY TUBE
SS SPLIT SPOON
DB DIAMOND BIT
C CORE

METHOD OF BORE HS
SPLIT SPOON SIZE 2 IN.
WT. OF HAMMER 140 LB. 30 IN. DROP
CASING USED NONE

WATER LEVEL
4.5' ▶ ⊗ 0 hrs.
▶ ⊗ ___ hrs.

SOIL BORING LOG
WALTER H. FLOOD & CO.
6102 SOUTH BLACKSTONE AVE.
CHICAGO 37

DATE 10/11/68 | BY DL:MN
JOB #68050246 | SCALE 1"=10'

FORM 30 5M 9-67 SSP

SOIL BORING #20

SITE 111TH STREET & ROUTE 45 | PROJECT: PROPOSED SANITARY LAND FILL

LOCATION COOK COUNTY, ILLINOIS | FOR MR. HARRY CARLSON

ELEV.	D	S	T	N	L	R	DD	DESCRIPTION
599.8	0.0							GROUND SURFACE
		1	SS	22				BROWN MEDIUM TO COARSE SAND, SOME SILT, WITH SMALL TO LARGE GRAVEL MEDIUM DENSE
589.8	10.0	2	SS	19				GRAY SILTY CLAY, TRACE OF SML.-MED. GRAVEL, VERY TOUGH
584.8	15.0	3	SS	29				GRAY CLAY AND SILT, LAYERED
		4	SS	59				
		5	SS	35				
		6	SS	27				
		7	SS	25				
559.8	40.0	8	SS	41				GRAY SILT, W/SML-LRG STONE FRAGMENTS, DENSE
555.3	44.5							REFUSAL

● UNCONFINED COMPRESSIVE STRENGTH LB. PER SQ. FT.
○ CALIBRATED PENETROMETER READING
2000 4000 6000 8000 10000

⊗ 10 20 30 40 50
WATER CONTENT PER CENT DRY WEIGHT

ELEV	D	S	T	N	L	R	DD	DESCRIPTION

D DEPTH IN FEET BELOW GROUND SURFACE
S SAMPLE NUMBER
T TYPE OF SAMPLE
N PENETRATION BLOWS PER FOOT
L SAMPLE LENGTH
R LENGTH OF SAMPLE RECOVERED
DD DRY DENSITY LB. PER CU. FT.

WO WASH OUT
A AUGER
ST SHELBY TUBE
SS SPLIT SPOON
DB DIAMOND BIT
C CORE

METHOD OF BORE HS
SPLIT SPOON SIZE 4 IN.
WT. OF HAMMER 140 LB. 30 IN. DROP
CASING USED NONE

WATER LEVEL
5.0' ▶ @ 0 hrs.
▶ @ ___ hrs.

SOIL BORING LOG
WALTER H. FLOOD & CO.
6102 SOUTH BLACKSTONE AVE.
CHICAGO 37

DATE 10/11/68 | BY DL:MN
JOB #68050246 | SCALE 1"=10'

FORM 30 5M 9-67 SSP

DETAILED PLAN OF OPERATION OF A SANITARY LANDFILL ON SITE LOCATED AT 107TH TO 111TH STREETS ON EAST SIDE OF LAGRANGE ROAD, IN PALOS TOWNSHIP, STATE OF ILLINOIS.

* * *

AREA INVOLVED: SAND PIT COVERING APPROXIMATELY THIRTY ACRES OF LAND

I propose and agree to operate a landfill on this site in the following manner:

1. Dewater the pit and maintain pit in a dry condition so that fill will not be deposited in water.

2. Build intercepting drainage ditches all around the pit to prevent runoff from rain water from draining directly into pit.

3. Provide pumping equipment so that any rain water that may collect can be immediately and constantly removed from filling

compacted clay. These side wall clay seals will be placed as the land fill operation proceeds so long as the seals are maintained five feet above the line of compacted refuse.

D. A vertical five (5) foot compacted clay blanket will be placed at the south end of the pit beginning at a point where the impervious "clay and silt layered" formation is at least five (5) feet thick, extending vertically throughtthe sand layer and then follow the present pit bottom south to the south end of the pit, then vertically upward to the undisturbed natural ground surface.

E. The compacted clay seals will be composed of impervious clay at least five feet thick, and will effectively join the silty clay layer in the bottom of the pit.

5. Provide a final cover consisting of two (2) feet of impervious clay.

6. Fill to grade elevations and maintain contours as shown by attached map prepared by the Engineering Department of the Forest Preserve District of Cook County, Illinois.

7. I adopt as part of this plan, and agree to comply with, all Rules and Regulations promulgated by the Department of Public Health of the State of Illinois now in effect concerning Sanitary Landfills.

8. I propose to start filling this pit at the north end and work southward, maintaining a grade constantly sloping to the south so that rain water will quickly run off and into drainage ditch at south end of pit which carries water to the Cal-Sag Canal two blocks south of the site.

9. I also propose to build a clay dyke along the east side of pit to prevent surface water from draining into pit, as terrain to east of pit has a decided slope downwards toward the pit.

Thomas C. Jackson

December 3, 1975

C. E. Clark

Rene Van Someren

COOK COUNTY - Land Pollution Control 0312400l
Palos Hills/Carlson

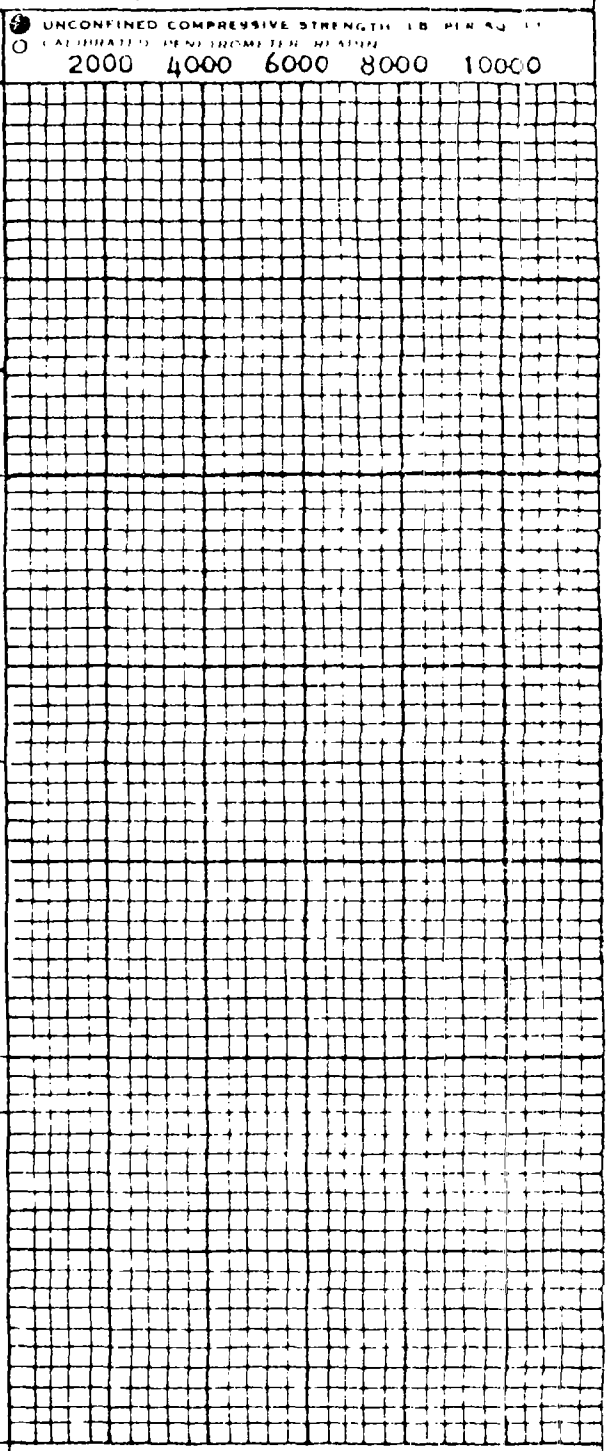
On the above date, I met Mr. Harry Carlson, Mr. Douglas Andrews, P.E. and a representative of the Cook County Forest Preserve. The purpose of the meeting was to discuss final closing requirements at the subject site relative to Rule 318, Chapter 7 of the Pollution Control Board Rules and Regulations on Solid Waste. Mr. Carlson was advised that quarterly well analyses would have to be sent to this Division for a period of three years following closure. In order to ascertain which wells would have to be sampled, I pointed out that a blueprint of the landfill designating the locations of all wells available should be submitted to our Permit Section for review. The Permit Section would then indicate which wells would have to be sampled and for what specific parameters. Mr. Carlson was agreeable to this, although at first he was a little reluctant. He did indicate that Doug Andrews would be drawing up the appropriate plans as required in Rule 318. Mr. Carlson is also going to send the Agency a copy of the plat that is going to be submitted to the County Recorders Office.

RVS:ch
cc Northern Region
Enforcement Services
File

SOIL BORING #19

SITE 111TH STREET & ROUTE 45	PROJECT PROPOSED SANITARY LAND FILL
LOCATION COOK COUNTY, ILLINOIS	FOR MR. HARRY CARLSON

ELEV.	D	S	T	N	L	R	DD	DESCRIPTION
595.2	0.0							GROUND SURFACE
		1	SS	18				BROWN FINE TO COARSE SAND, SOME SILT, SML. TO LARGE GRAVEL BOULDERS, FILL
585.2	10.0	2	SS	36				GRAY FINE SAND, TRACE OF SILT, TRACE OF SMALL TO LARGE GRAVEL
		3	SS	79				
		4	SS	58				
570.2	25.0	5	SS	53				GRAY CLAY AND SILT, LAYERED, DENSE
		6	SS	41				
		7	SS	48				
555.2	40.0	8	SS	42				GRAY SILT, W/SML.-LRG. STONE FRAG., DENSE
552.2	43.0							REFUSAL



ELEV	D	S	T	N	L	R	DD	DESCRIPTION

D DEPTH IN FEET BELOW GROUND SURFACE
S SAMPLE NUMBER
T TYPE OF SAMPLE
N PENETRATION BLOWS PER FOOT
L SAMPLE LENGTH
R LENGTH OF SAMPLE RECOVERED.
DD DRY DENSITY, LB. PER CU. FT.

WO WASH OUT
A AUGER
ST SHELBY TUBE
SS SPLIT SPOON
DB DIAMOND BIT
C CORE

METHOD OF BORE HS WO
SPLIT SPOON SIZE 2 IN.
WT. OF HAMMER 140 LB. 30 IN. DROP
CASING USED NONE

WATER LEVEL
3.0' → @ 0 hrs.
→ @ ___ hrs.

SOIL BORING LOG
WALTER H. FLOOD & CO.
6102 SOUTH BLACKSTONE AVE.
CHICAGO 37

DATE 10/11/68	BY DL:MN
JOB #68050246	SCALE 1"=10'

FORM 30 5M 9-67 SSP

SOIL BORING #18

SITE 111TH STREET & ROUTE 45 | PROJECT PROPOSED SANITARY LAND FILL

LOCATION COOK COUNTY, ILLINOIS | FOR MR. HARRY CARLSON

ELEV.	D	S	T	N	L	R	DD	DESCRIPTION
602.6	0.0							GROUND SURFACE
								BROWN MEDIUM SAND, SMALL TO MEDIUM GRAVEL, FILL
597.6	5.0	1	SS	4				BLACK FINE SAND & SILT LOOSE
595.6	7.0							BROWN FINE SAND, TRACE OF SILT, LOOSE
		2	SS	2				
587.6	15.0							
		3	SS	13				GRAY FINE SAND, TRACE OF SILT, MEDIUM DENSE
		4	SS	21				
		5	SS	21				
572.6	30.0	6	SS	75				GRAY SILT, WITH SMALL TO LARGE STONE FRAGMENTS, TRACE OF CLAY, VERY DENSE
		7	SS	58				
572.6	37.0							REFUSAL

UNCONFINED COMPRESSIVE STRENGTH LB. PER SQ. FT. (ALTERNATE PENETROMETER READING)

O 2000 4000 6000 8000 10000

⊗ 10 20 30 40 50

WATER CONTENT PERCENT DRY WEIGHT

ELEV	D	S	T	N	L	R	DD	DESCRIPTION

D DEPTH IN FEET BELOW GROUND SURFACE
S SAMPLE NUMBER
T TYPE OF SAMPLE
N PENETRATION BLOWS PER FOOT
L SAMPLE LENGTH
R LENGTH OF SAMPLE RECOVERED.
DD DRY DENSITY, LB. PER CU. FT.

WO WASH OUT
A AUGER
ST SHELBY TUBE
SS SPLIT SPOON
DB DIAMOND BIT
C CORE

METHOD OF BORE HS WO
SPLIT SPOON SIZE 2 IN.
WT. OF HAMMER 140 LB. 30 IN. DROP
CASING USED NONE

WATER LEVEL
10.5' → @ 0 hrs.
→ @ ___ hrs.

SOIL BORING LOG
WALTER H. FLOOD & CO.
6102 SOUTH BLACKSTONE AVE.
CHICAGO 37

DATE 10/12/68	BY DL:MN
JOB #68050246	SCALE 1"=10'

FORM 30 5M 9-67 SSP

SOIL CHARACTERISTICS

THE LAYERED CLAYS AND SILTS THAT WERE ENCOUNTERED IN BORINGS 19 AND 20 ARE CONSIDERED HIGHLY IMPERVIOUS TO WATER FLOW PERPENDICULAR TO THE LAYERS. THE SILTY CLAYS ENCOUNTERED IN BORINGS 20 AND 21 ALSO ARE CONSIDERED IMPERVIOUS TO WATER FLOW IN THE VERTICAL DIRECTION. THE SILT AND GRAVEL OVERLYING THE BEDROCK IN BORINGS 18, 19, 20, AND 21 IS CONSIDERED MODERATELY IMPERVIOUS BUT IS A RELATIVELY THIN LAYER. AT THE TIME OF THIS REPORT, CLASSIFICATION TESTS ARE BEING CONDUCTED TO ASCERTAIN GRAIN SIZE DISTRIBUTION OF THESE SOILS.

CONCLUSIONS

IT WOULD APPEAR THAT THE CENTRAL PORTION OF THE PIT IS UNDERLAIN BY IMPERVIOUS SOILS THAT WOULD PREVENT SURFACE WATER SEEPAGE FROM PERCOLATING THROUGH TO THE BEDROCK. IF THESE IMPERVIOUS LAYERS ARE CONTINUOUS, THE NORTH AND SOUTH ENDS OF THE PIT COULD BE LINED WITH AN IMPERVIOUS CLAY ABOUT FIVE FEET THICK TO PREVENT SURFACE WATER SEEPING THROUGH IN THESE NORTH AND SOUTH AREAS.

FIELD INVESTIGATION

THE SUBSURFACE FIELD INVESTIGATION WAS STARTED ON OCTOBER 11, 1968, AND COMPLETED ON OCTOBER 12, 1968. FIVE BORINGS WERE MADE. THESE BORINGS WERE PERFORMED BY MEANS OF A HOLLOW AUGER TYPE DRILL. SPLIT TUBE (ASTM D1586-64T) TYPE SAMPLING WAS USED IN THE BORING AT 5 FOOT MAXIMUM INTERVALS AND AT SOIL STRATA CHANGES. THE STANDARD PENETRATION VALUE N (NUMBER OF BLOWS PER FOOT OF A 140 LB. HAMMER FALLING 30" TO DRIVE THE 2"O.D., 1 3/8 I.D. SPLIT SPOON) WAS OBTAINED DURING THE SAMPLING AND RECORDED IN THE LOG. SAMPLES OF THE SOIL WERE SEALED IN THE FIELD AND TRANSPORTED TO THE LABORATORY FOR TESTING AND FURTHER CLASSIFICATION.