Railroad

N/F Marathon Chemical Co.

City Of Woburn
Sanitary Landfill
Site

Town Line

Woburn
Wilmington

Proposed
Landfill Site

Eames Street

Boston & Maine

Dewatering Lagoon For
Calcium Sulfate Precipitate

Existing
Liner #1

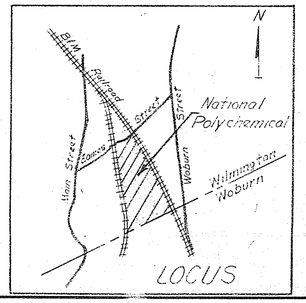
Prop. Liner #2

80

90

100

Boston & Maine Railroad



SITE PLAN
PROP. DEWATERED CAKE LANDFILL
NATIONAL POLYCHEMICALS Inc.
WILMINGTON MASS.

DANA F. PERKINS Reg SONS, INC.
Civil - Sanitary Engineers and Land Surveyors
Reading — Lowell Massachusetts

Drawn:	Ch'k'd:	App'd:	Designed:
F.W.B.	J.M.M.	D.E.M.	John M. Monaco Jr.
Date: August 31, 1973			Surveyor - Engineer:
Div: Environmental	Scale: 1" = 100'	Calc'd:	File/Dwg. No. S-21356.B

SEMS Doc ID 653908

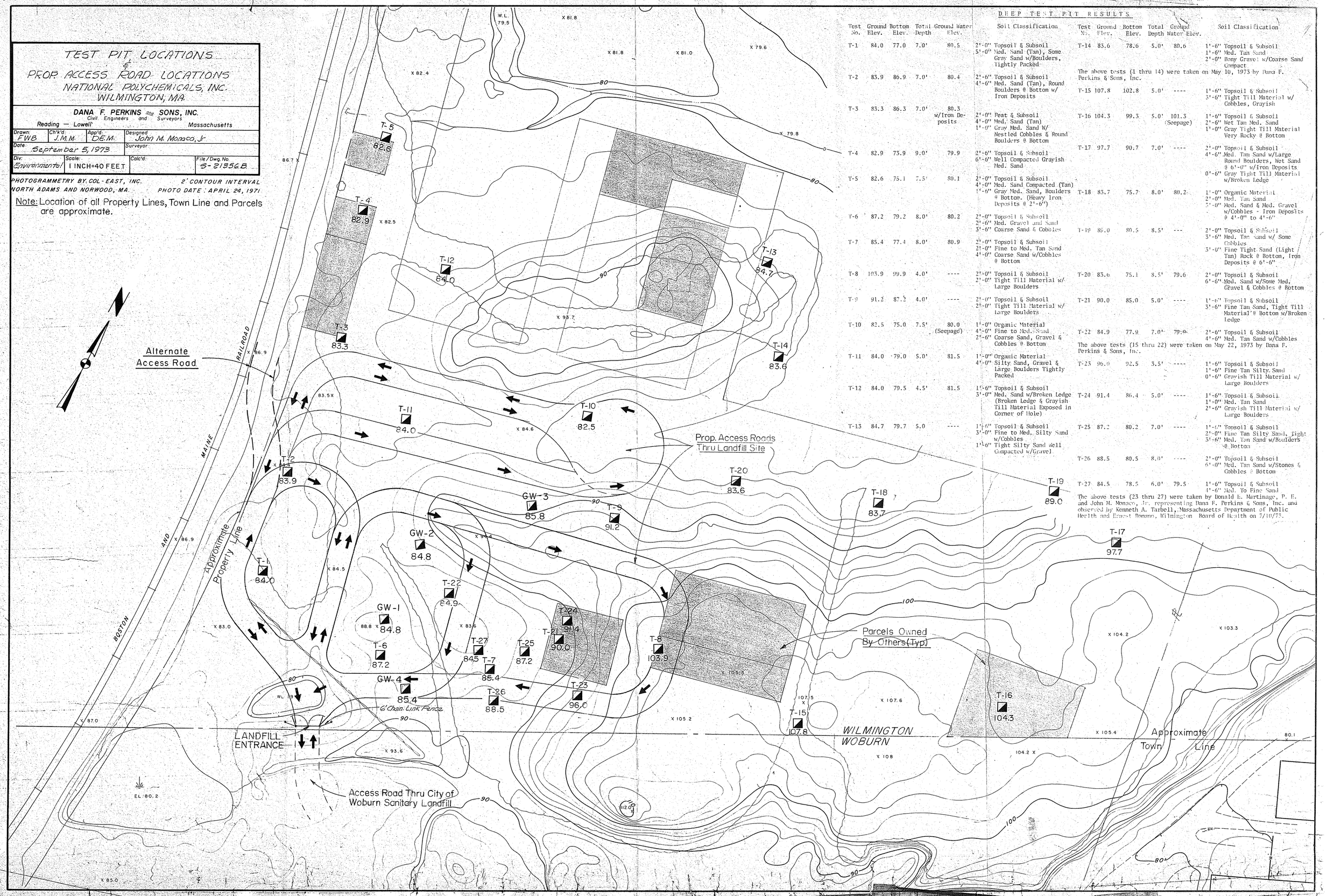
TEST PIT LOCATIONS & PROP. ACCESS ROAD LOCATIONS
NATIONAL POLYCHEMICALS, INC. WILMINGTON, MA.

DANA F. PERKINS and SONS, INC.
Civil Engineers and Surveyors
Reading — Lowell Massachusetts

Drawn: FWB	Ch'k'd: J.M.M.	App'd: D.E.M.	Designed: John M. Monaco, Jr.
Date: September 5, 1973			Surveyor:
Div: Environmental	Scale: 1 INCH=40 FEET	Calc'd:	File/Dwg. No. S-21356.B

PHOTOGRAMMETRY BY COL-EAST, INC. 2' CONTOUR INTERVAL
NORTH ADAMS AND NORWOOD, MA. PHOTO DATE: APRIL 24, 1971

Note: Location of all Property Lines, Town Line and Parcels are approximate.



DEEP TEST PIT RESULTS

Test No.	Ground Elev.	Bottom Elev.	Total Depth	Ground Water Elev.	Soil Classification
T-1	84.0	77.0	7.0'	80.5	2'-0" Topsoil & Subsoil 5'-0" Med. Sand (Tan), Some Gray Sand w/Boulders, Tightly Packed
T-2	83.9	86.9	7.0'	80.4	2'-6" Topsoil & Subsoil 4'-6" Med. Sand (Tan), Round Boulders @ Bottom w/ Iron Deposits
T-3	83.3	86.3	7.0'	80.3 w/Iron Deposits	2'-0" Peat & Subsoil 4'-0" Med. Sand (Tan) 1'-0" Gray Med. Sand W/ Nestled Cobbles & Round Boulders @ Bottom
T-4	82.9	75.9	9.0'	79.9	2'-6" Topsoil & Subsoil 6'-6" Well Compacted Grayish Med. Sand
T-5	82.6	75.1	7.5'	80.1	2'-0" Topsoil & Subsoil 4'-0" Med. Sand Compacted (Tan) 1'-6" Gray Med. Sand, Boulders @ Bottom. (Heavy Iron Deposits @ 2'-6")
T-6	87.2	79.2	8.0'	80.2	2'-0" Topsoil & Subsoil 2'-6" Med. Gravel and Sand 3'-6" Coarse Sand & Cobbles
T-7	85.4	77.4	8.0'	80.9	2'-0" Topsoil & Subsoil 2'-0" Fine to Med. Tan Sand 4'-0" Coarse Sand w/Cobbles @ Bottom
T-8	103.9	99.9	4.0'	----	2'-0" Topsoil & Subsoil 2'-0" Tight Till Material w/ Large Boulders
T-9	91.2	87.2	4.0'	----	2'-0" Topsoil & Subsoil 2'-0" Tight Till Material w/ Large Boulders
T-10	82.5	75.0	7.5'	80.0 (Seepage)	1'-0" Organic Material 4'-0" Fine to Med. Sand 2'-6" Coarse Sand, Gravel & Cobbles @ Bottom
T-11	84.0	79.0	5.0'	81.5	1'-0" Organic Material 4'-0" Silty Sand, Gravel & Large Boulders Tightly Packed
T-12	84.0	79.5	4.5'	81.5	1'-6" Topsoil & Subsoil 3'-0" Med. Sand w/Broken Ledge (Broken Ledge & Grayish Till Material Exposed in Corner of Hole)
T-13	84.7	79.7	5.0	----	1'-6" Topsoil & Subsoil 3'-0" Fine to Med. Silty Sand w/Cobbles 1'-6" Tight Silty Sand Well Compacted w/Gravel

The above tests (1 thru 14) were taken on May 10, 1973 by Dana F. Perkins & Sons, Inc.

Test No.	Ground Elev.	Bottom Elev.	Total Depth	Ground Water Elev.	Soil Classification
T-14	83.6	78.6	5.0'	80.6	1'-6" Topsoil & Subsoil 1'-6" Med. Tan Sand 2'-0" Bony Gravel w/Coarse Sand Compact
T-15	107.8	102.8	5.0'	----	1'-6" Topsoil & Subsoil 3'-6" Tight Till Material w/ Cobbles, Grayish
T-16	104.3	99.3	5.0'	101.3 (Seepage)	1'-6" Topsoil & Subsoil 2'-6" Wet Tan Med. Sand 1'-0" Gray Tight Till Material Very Rocky @ Bottom
T-17	97.7	90.7	7.0'	----	2'-0" Topsoil & Subsoil 4'-6" Med. Tan Sand w/Large Round Boulders, Wet Sand @ 6'-0" w/Iron Deposits 0'-6" Gray Tight Till Material w/Broken Ledge
T-18	83.7	75.7	8.0'	80.2	1'-0" Organic Material 2'-0" Med. Tan Sand 5'-0" Med. Sand & Med. Gravel w/Cobbles - Iron Deposits @ 4'-0" to 4'-6"
T-19	89.0	80.5	8.5'	---	2'-0" Topsoil & Subsoil 5'-6" Med. Tan Sand w/ Some Cobbles 5'-0" Fine Tight Sand (Light Tan) Rock @ Bottom, Iron Deposits @ 6'-6"
T-20	83.6	75.1	8.5'	79.6	2'-0" Topsoil & Subsoil 6'-6" Med. Sand w/Some Med. Gravel & Cobbles @ Bottom
T-21	90.0	85.0	5.0'	----	1'-6" Topsoil & Subsoil 3'-6" Fine Tan Sand, Tight Till Material @ Bottom w/Broken Ledge
T-22	84.9	77.9	7.0'	79.9	2'-6" Topsoil & Subsoil 4'-6" Med. Tan Sand w/Cobbles

The above tests (15 thru 22) were taken on May 22, 1973 by Dana F. Perkins & Sons, Inc.

Test No.	Ground Elev.	Bottom Elev.	Total Depth	Ground Water Elev.	Soil Classification
T-23	96.0	92.5	3.5'	----	1'-6" Topsoil & Subsoil 1'-6" Fine Tan Silty Sand 0'-6" Grayish Till Material w/ Large Boulders
T-24	91.4	86.4	5.0'	----	1'-6" Topsoil & Subsoil 1'-0" Med. Tan Sand 2'-6" Grayish Till Material w/ Large Boulders
T-25	87.2	80.2	7.0'	----	1'-6" Topsoil & Subsoil 2'-0" Fine Tan Silty Sand, Tight 3'-6" Med. Tan Sand w/Boulders @ Bottom
T-26	88.5	80.5	8.0'	----	2'-0" Topsoil & Subsoil 6'-0" Med. Tan Sand w/Stones & Cobbles @ Bottom
T-27	84.5	78.5	6.0'	79.5	1'-6" Topsoil & Subsoil 4'-6" Med. To Fine Sand

The above tests (23 thru 27) were taken by Donald L. Martinage, P. E. and John M. Monaco, Jr. representing Dana F. Perkins & Sons, Inc. and observed by Kenneth A. Tarbell, Massachusetts Department of Public Health and Ernest Romano, Wilmington Board of Health on 7/10/73.

PROP. DRAINAGE & GRADING PLAN

NATIONAL POLYCHEMICALS, INC.
WILMINGTON, MA.

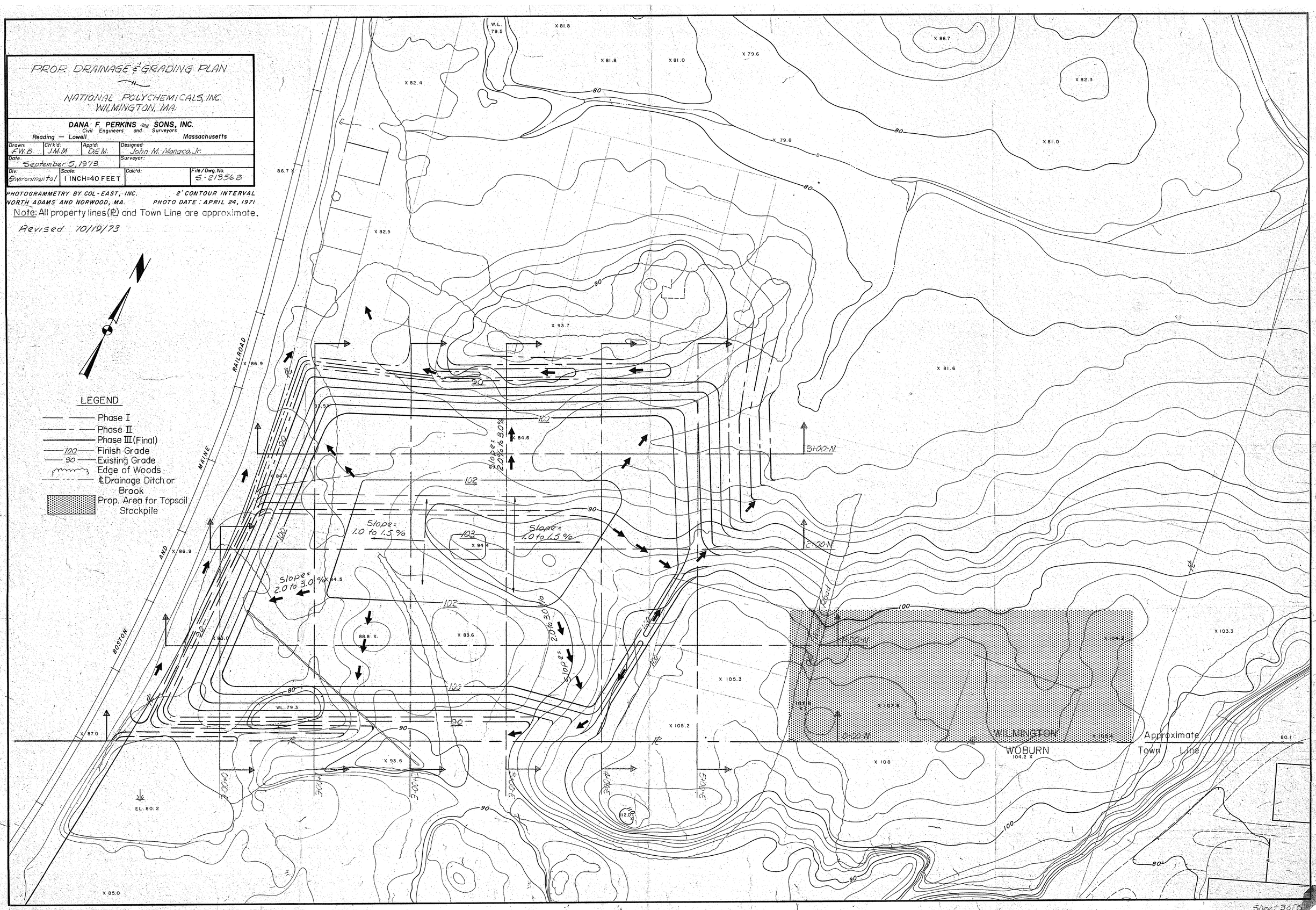
DANA F. PERKINS and SONS, INC.
Civil Engineers and Surveyors
Reading — Lowell Massachusetts

Drawn: F.W.B.	Ch'k'd: J.M.M.	App'd: D.E.M.	Designed: John M. Monaco, Jr.
Date: September 5, 1972			Surveyor:
Div: Environmental	Scale: 1 INCH=40 FEET	Calc'd:	File/Dwg. No. 5-21356 B

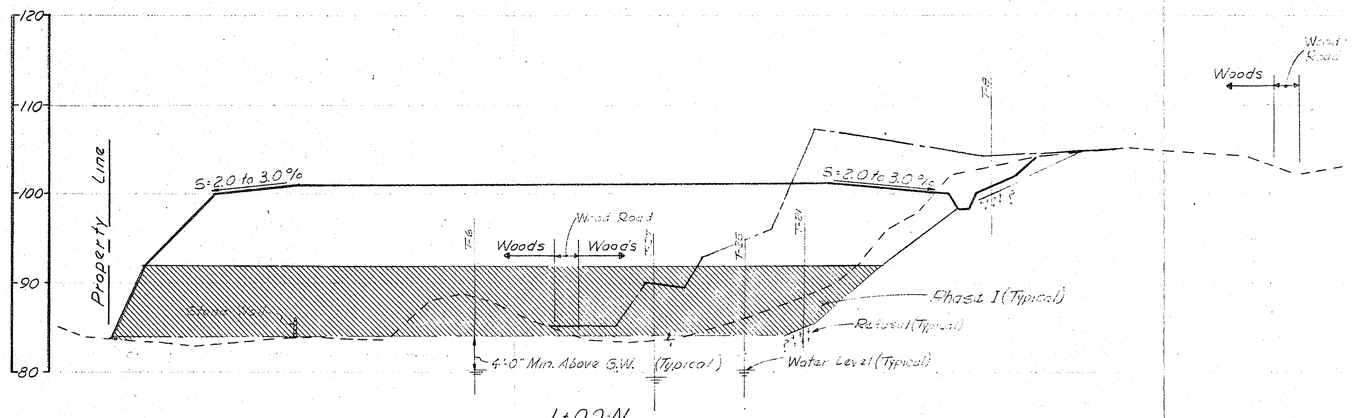
PHOTOGRAMMETRY BY COL-EAST, INC. 2' CONTOUR INTERVAL
NORTH ADAMS AND NORWOOD, MA. PHOTO DATE: APRIL 24, 1971

Note: All property lines (℞) and Town Line are approximate.

Revised 10/19/73



Sheet 3 of 6



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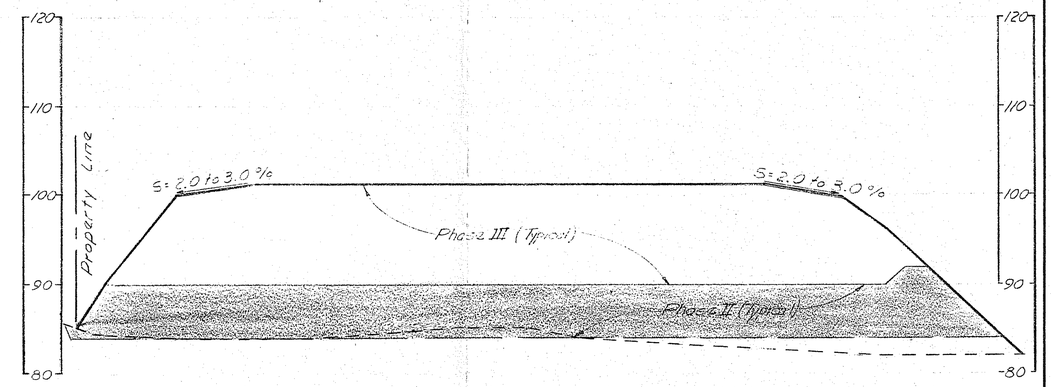

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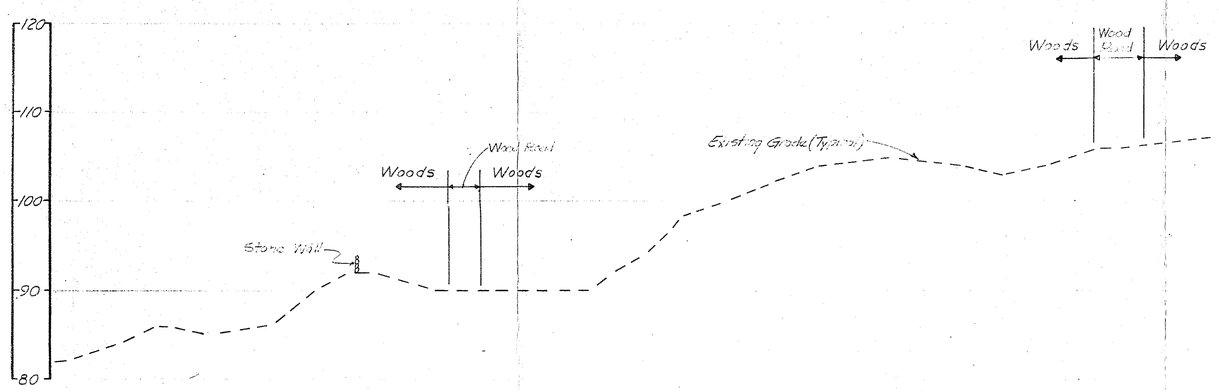

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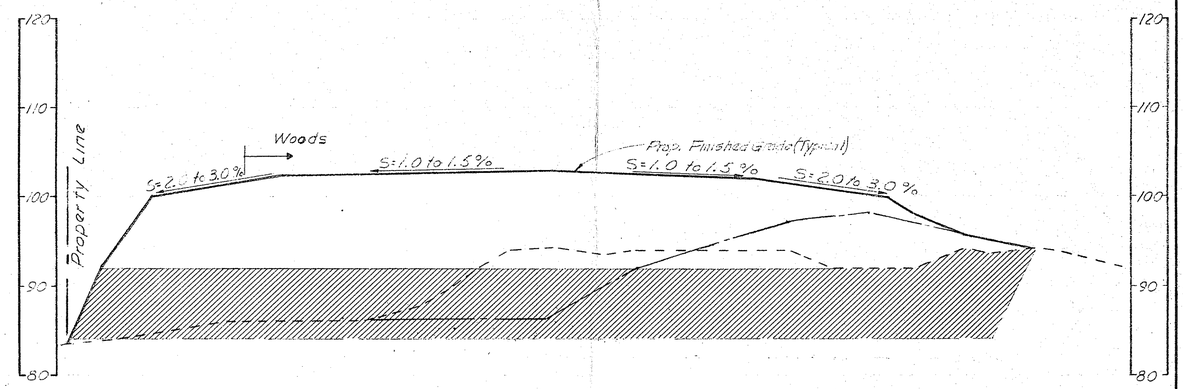


2+00-N

NOTE:
Deposited Ca SO4 Shall Not Be Allowed To Be Within 4'-0" Vertical Depth Of Ground Water. In Places Where 4' Vertical Distance Is Not Met, Coarse Fill Material Shall Be Used To Grade Site To The Required Depth Above High Spring Ground Water (High G.W. To Be Established Spring Of 1974.)

NOTE:
——— Denotes Landfill Grade Sept 1980.

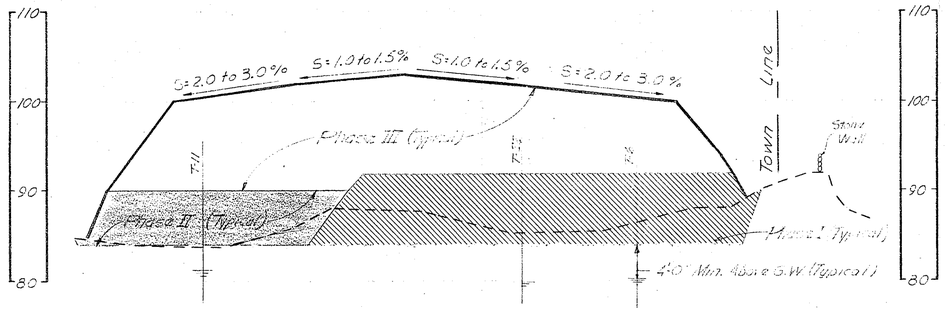
SECTIONS
Scale: Horiz. 1"=40'
Vert. 1"=8'

Revised 12/19/73
Revised 10/19/73

DANA F. PERKINS and SONS, INC.
Civil - Environmental Engineers and Land Surveyors
Reading - Lowell Massachusetts

SECTIONS
LANDFILL SITE
NATIONAL POLYCHEMICALS, Inc.
WILMINGTON, MA.

SCALE	As Shown
DATE	9/7/73
DRAWN	FWB
CHK'D	JMM
DES.	John M Murphy
JOB NO.	3-21856B
SHEET NO.	4 of 6



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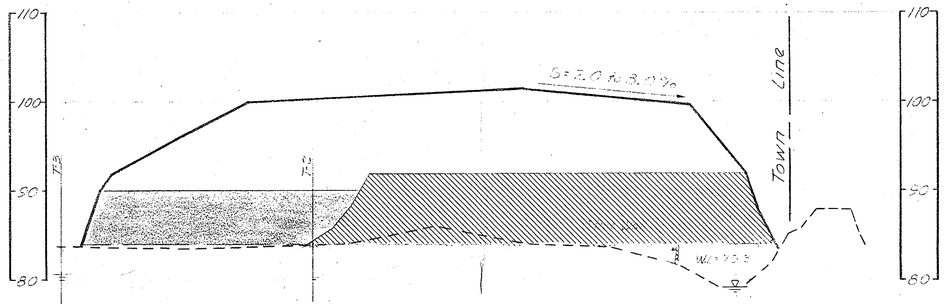

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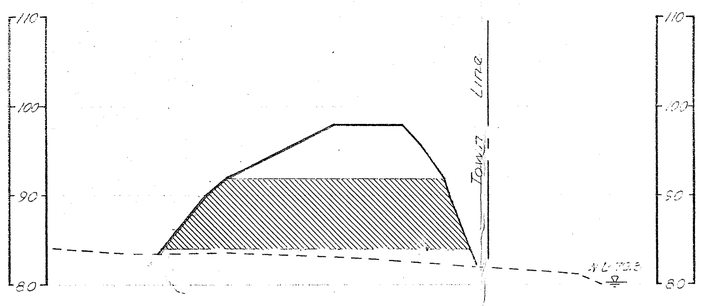

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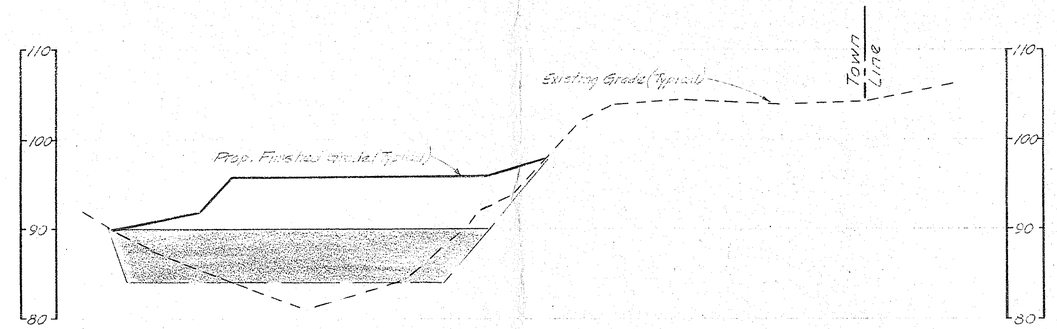

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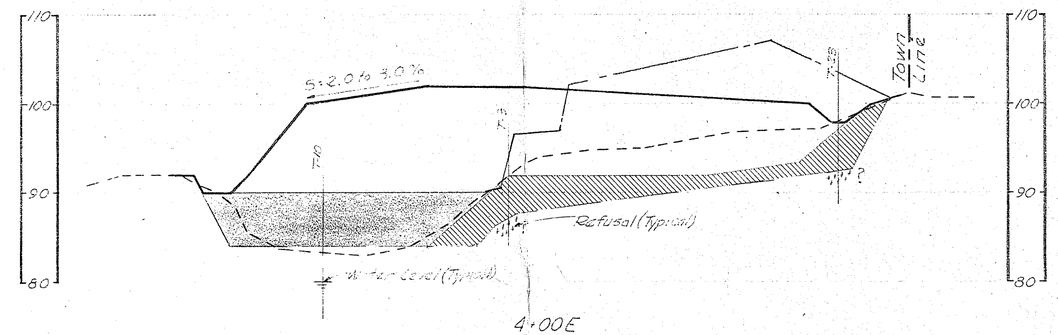

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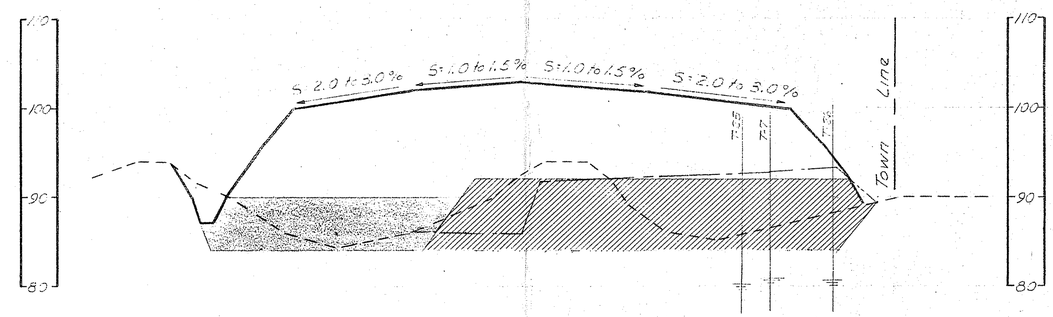

3+00E

NOTE:
Deposited $CaSO_4$ Shall Not Be Allowed To Be Within 4'-0" Vertical Depth Of Ground Water. In Places Where 4' Vertical Distance Is Not Met, Coarse Fill Material Shall Be Used To Grade Site To The Required Depth Above High Spring Ground Water (High G.W. To Be Established Spring Of 1979.)

NOTE:
—·— Denotes Landfill Grade Sept 1980.

SECTIONS
Scale: Hor. 1"=40' Vert. 1"=8'

Revised 12/19/73
Revised 10/19/73

DANA F. PERKINS and SONS, INC.
Civil - Environmental Engineers and Land Surveyors
Reading - Lowell Massachusetts

SECTIONS
LANDFILL SITE
NATIONAL POLYCHEMICALS, Inc.
WILMINGTON, MA.

SCALE	As Shown
DATE	9/17/73
DRAWN	J.W.B.
CHK'D	J.W.B.
DES.	John W. Nowicki
JOB NO.	5-213-06B
SHEET NO.	5 of 6

SEQUENCE OF LANDFILL OPERATIONS

A. SITE PREPARATION:

1. All trees and brush shall be cleared, chipped and stockpiled for future use. All tree stumps shall be buried off site. There will be no open burning allowed!
2. All topsoil shall be stripped and stockpiled at the area indicated on the grading plan and shall be used for final grading upon final completion of landfill operations.
3. The area to be worked shall be graded to Elevation 29.0' for to ledge (if ledge is encountered) after clearing and stripping has been completed. All excess material shall be stockpiled adjacent to immediate working area in order that it may be used for cover after each yearly operation has been completed. All excess materials (topsoil, subsoil, granular materials, etc.) shall remain on-site.
4. All ditches, access roads and other appurtenances shown on the approved plans and all equipment needed for the operation shall be constructed, installed and obtained, respectively, before the landfill site is placed into operation.
5. All of the above mentioned shall be repeated for each Phase of the Landfill Operation. The existing ground within the Phase II Area shall not be stripped until the available area in Phase I is filled and brought to the proper grade.

B. OPERATIONS PROCEDURES:

1. The dewatered calcium sulfate cake shall be loaded onto trucks at the dewatering lagoons by the use of a clamshell crane or equivalent. Before a truck leaves the lagoon area, its tires shall be hosed off so as to minimize the depositing of excess waste material onto the public roadway enroute to the landfill site. This washing procedure should be repeated upon leaving the landfill site if conditions warrant it.
2. The access roadway shall be minimum of 25 feet wide so that trucks may move in, out and around the landfill site without any interruptions. The operator of the landfill site shall direct the trucks where to dump at the working face and keep records of the number of loads dumped daily. The entrance to the landfill shall have a six (6) foot high chainlink fence and gate (20' wide) across the entrance roadway and extend an additional ten (10) feet out on both sides of the roadway as shown on the final contract drawings.

   The entrance gate to the landfill area shall be closed and locked at the end of each day's operation and at the completion of each year's operation.
3. A four foot (4') high snow fence shall be constructed around the perimeter of landfill area shown as Phases I, II & III on final contract drawings and a sign attached every 100' to the fence reading as follows: "DANGER, DO NOT ENTER, PRIVATE PROPERTY".
4. An attendant or equipment operator must be on duty during landfill operations. No waste materials other than the dewatered calcium sulfate cake shall be hauled onto and dumped into the landfill area.
5. The waste material shall be dumped as close to the working face as possible; e.g., the sloping face along the easterly side of Phase I, without interfering with the spreading operation. The waste material shall be dumped and spread in layers to a depth not greater than four feet (4') unless, during actual operation, the characteristics of the waste material are such that lifts greater than four feet (4') could be accomplished without creating problems in handling and spreading.
6. The operation of the landfill shall be under the overall supervision and direction of an engineer or specialist qualified and experienced in the matter of solid waste disposal. The operations shall be inspected by this person on a weekly basis or even daily if required. This person (or persons) shall be approved by the Board of Health and the name included on the permits issued by the Board.

C. TERMINATION OF PERIODIC LANDFILL OPERATIONS:

1. A minimum of six (6) cover material shall be spread over the entire section worked during that year's operation. This procedure may be waived by the Board of Health (both State and Local).
2. Adequate slopes and drainage swales must be constructed to minimize surface water runoff onto and into the fill area, to prevent erosion of the fill, to drain off rain water falling on the fill and to prevent the collection of standing water.
3. A copy of all daily log sheets listing operational information such as quantity of waste received, equipment breakdown, the portion of the landfill in operation, etc., shall be submitted to the engineers supervising the operation for review and to further assist them in scheduling the following year's operation.
4. Upon completion of Phases I, II & III of the landfill operations, the entire area as shown on the final grading plan shall be covered with nine (9) inches of cover material and a minimum of three (3) inches of topsoil. Final grading and drainage shall be constructed in accordance with final approved plans. Necessary measures shall be taken to assure that the final graded area be seeded with appropriate grasses to promote stabilization of the topsoil cover. On side slope, wood chips shall be spread after seeding to stabilize topsoil until the grass grows. The cover material shall be checked during the following year for cracks, erosion and settlement and all corrective repairs completed before the landfill area can be accepted as complete by the Approving Authorities.

Revised 12/18/75

DANA F. PERKINS and SONS, INC.
Civil - Environmental Engineers and Land Surveyors
Reading - Lowell Massachusetts

PROPOSED
DEWATERED CAKE LANDFILL
NATIONAL POLYCHEMICALS, INC.
WILMINGTON MASS.

SCALE	
DATE	9/14/75
DRAWN	F.W.S.
CHK'D	J.M.M.
DES.	John M. Manning
JOB NO.	S-2-2008
SHEET NO.	6 of 6