

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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DATE: October 18, 1977

SUBJECT: Chemical Waste - Love Canal
Niagara Falls, New York

FROM: Lawrence R. Moriarty
Rochester Program Support Branch

TO: William Librizzi
Toxic Substances Coordinator

Attached is the report we discussed a few days ago over the phone. Relative to the above, Gerry McKenna should have given you two copies of the Calspan Report, referred to in my report.

There is no easy or quick solution to this problem because if you go about it in a temporary way it will continue to pop up like PAS. If you go full out, a cleanup will cost a considerable amount. What to do with or how to treat the waste after it is removed may present a major problem

Enc.

cc - W. N. PIERRE - Solid Waste 1/19/78

LOVE CANAL

Problem:

Some 20 to 25 years ago chemical waste in drums and municipal refuse were deposited in an old canal bed. Through the ensuing years the chemicals have leaked out into the water table of the landfill and migrated to the sumps of some nearby homes. The odors coming from the chemicals caused skin irritations from direct contact and hazards from pot holes. This has raised concern for the safety of some 40 - 50 home owners and their families along with children attending grade school on the site. All of this is taking place in East Niagara Falls near the Niagara River.

CONTACTS

On September 27, 1977 the Rochester Program Support Branch was asked by the region in response to Congressman J.J. LaFalce's request to evaluate the site and it's conditions. On September 28, 1977 Mr. Lawrence Moriarty, P.E. of Rochester Program Support Branch visted the site and made contacts with the following people:

1. Joseph McDougall - 716-278-8421
Director, city of Niagara Falls Waste Treatment Facility.
2. Richard T. Lee - 716-432-3324
Representative of Congressman J.J. LaFalce
3. Reporter from the Niagara Gazette
4. A.R. Voorhees - 476 99th St.
(sample)
5. James Almond - 703 97th St.
(pictures)
6. Timothy Moriarty
468 99th St. (on conditions)
7. Mr. O'Hara
City Manager for Niagara Falls, New York
8. Mr. Bernie Carreno - 716-278-7537
Environmental Engineer - Hooker Chemical
Niagara Falls, New York
9. Mr. John McMann - 716-842-5828
Engineer - New York State Department of Conservation Control
Buffalo, New York
10. Mr. John Beecher - 716-842-5828
Industrial Engineer - New York State Department of Conservation Control
Buffalo, New York

11. George Amery
Industrial Engineer - Niagara County Health Department

12. Charles Y. Cain -- September 4, 1977
Vice President of Corporate Officers
Hooker Chemical, Niagara Falls, New York

INVESTIGATION

History:

No one seems to know the history of the how or why of the canal, a 200 ft. by at least 3600 ft. long waterway, averaging about 13 ft. deep. But it was there 25 to 30 years ago. Then, one day about 20 to 25 years ago, Hooker Chemical, Niagara Falls, New York started to dump barrels of chemicals into the pen water of the canal. It is assumed that the barrels were sealed at the time. It is not known if and when the entrance to the Niagara river was sealed off.

As time went on the site was partially full the city of Niagara Falls Board of Education ^{for one dollar} took the property from Hooker Chemicals and I do not know the order of events that followed; however, the city purchased about two-thirds of the property north and south of the school and assumed full liability for the area purchased. Hooker had originally indicated that homes should not be built on the site. The following did happen but not necessarily in the order shown:

- A. The city filled in the remaining area with refuse - also the U.S. Army and many other chemical companies
- B. Streets were laid across the fill
- C. The school and playground came into being
- D. The city sold parcels of land to private individuals
- E. Building started to flourish along the north/south streets (97th and 99th) on either side of the now filled landfill
- F. A major east-west four lane highway was constructed to the south end of the property but north of an area owned by Hooker Chemical.

note
William A. Love began his canal in 1895 in order that shipping could be facilitated by a route from the upper Niagara River extending to the Lower Niagara River cutting through the Escarpment to a harbor in the Lewiston Village. The canal was begun at both ends but after several years of financial difficulties the project was abandoned

FINDINGS

A visit to the site bounded by 97th and 99th St. on the west and east respectively, and between the Niagara river and Colvin Blvd. on the south and north respectively revealed:

1. A landfill does exist and barrels deteriorated by rust are quite visible at the surface of the landfill.
2. Where the contents of barrels have disappeared, top soil sinks into the holes, unless filled with other material the void becomes like empty pot holes or are filled with liquid waste/water.
3. Some pot holes in the lower elevations, for example, in back of 468 99th St., ooze a continuous stream of water/waste that accumulates in the back yards of the adjoining property.
4. Evidence was presented that an area about 100' x 50' x 2' of the accumulated waste was pumped out. (hailed to Hooker Hyde Park landfill collection lagoon) Their waste was in the yard area of 468 99th St. and the two properties south of the same.
5. Local people indicate that different pot holes flow in different colors at times.
6. Chemical odors are prevalent over the landfill and in the basement of the homes. The odors penetrate your clothing and adhere to your footwear. By experience, the odor was still very pronounced in a sweater three days later.
7. The sumps in the home visited, had a chemical odor. The sumps were covered with an oily film.
8. Seepage into the basement of one of the homes, has rotted wood partition and attacked paint on basement walls.
9. Figure 1 locates approximately the distribution of waste in the landfill; however, actual site evaluations show drums in evidence near the surface for the entire length of the fill. Including a portion not shown from Frontier Ave. to the Niagara River.

10. "Old Timers" living near the site indicate that at times deep holes were dug, where and how many couldn't be recollected, but the holes were supposedly 25 to 35 ft. deep and filled with drums.
11. Hooker Chemicals indicates it does not know exactly how much material went into the fill, but they know that the number of chemicals produced at the time was limited. All still bottom residue or sludge from chlorinating processes was sent to the landfill. No exotic chemicals or pesticides, etc. were produced at the time. The company characterizes the waste as chlorinated waxes, toluenes, sulphurs, benzenes, etc.
12. The Calspan Report sent to Mr. Bill Librizzi, somewhat rejects the company's statement by listing PCB and hexachlorobenze as components of the discharge from the fill.
13. New York State Department of Environmental Control has surveyed the area and taken samples. Analysis are inconclusive and they pertain to PCB and chlorinated hydrocarbons.
14. The state is planning additional sampling of the site, the wells, the home sumps and the storm sewers, discharging from the area. (They may ask EPA for aid in laboratory analysis)
15. The New York State Department of Conservation has as close to definite a list of the chemical deposited at the landfill as anyone has.
16. The heavy rain of the past two months has raised the ground water considerably. The people whose sumps are affected, note the dilution of waste coming into the premises. They also indicate that when the area is dry, the character of the waste to the sumps changes. The chemical odor gets stronger and the waste takes on a heavy - tarry - characteristic. Tarry /oil substance floats on top of the water and tends to adhere to anything it comes in contact with it.
17. The waste water from the basement sumps is pumped to the near by storm sewer and then floats to the Niagara River.
18. Local people indicated children that play in the landfill sometimes get skin burns or rashes.
19. The New York State Department of Conservation attorneys in Buffalo have been working with their counterparts in Albany to fathom out the responsibility for the cleanup of the site. They have not reached a definite conclusion as yet, but are -

- A. Leaning towards Hooker Chemical as still having some responsibility
- B. That more sampling is needed to develop a good case against Hooker/ the school board/ and the private owners.

20. Calspan indicates ground water flowing to the west, just looking at the property one would judge that the flow would be to the south towards the Niagara River.

21. The landfill apparently had some kind of cursory covering but it was not a clay - graded to direct runoff away from rather than through the landfill. Drainage is not adequate on the site.

22. The school yard appears to be graded, yet there are a good number of low spots both in the sodded area and the asphalt paved area.

23. The local people are concerned and have been after everyone and anyone that will help. A number of homes are up for sale and it is allged the homes cannot be sold due to the conditions caused by the landfill.

24. Test wells are available for sampling purposes, but no wells have been placed in the chemical deposited area. Six to eight wells were also drilled in the Hooker area between the Niagara River and Fronter Ave.

25. Enough time and samplings have not elapsed to get a good history of what is happening, based on the wells.

26. Soil removed from a number of the well sites, deep and shallow had the characteristic odor of chemical found in the sumps and on the top of the landfill.

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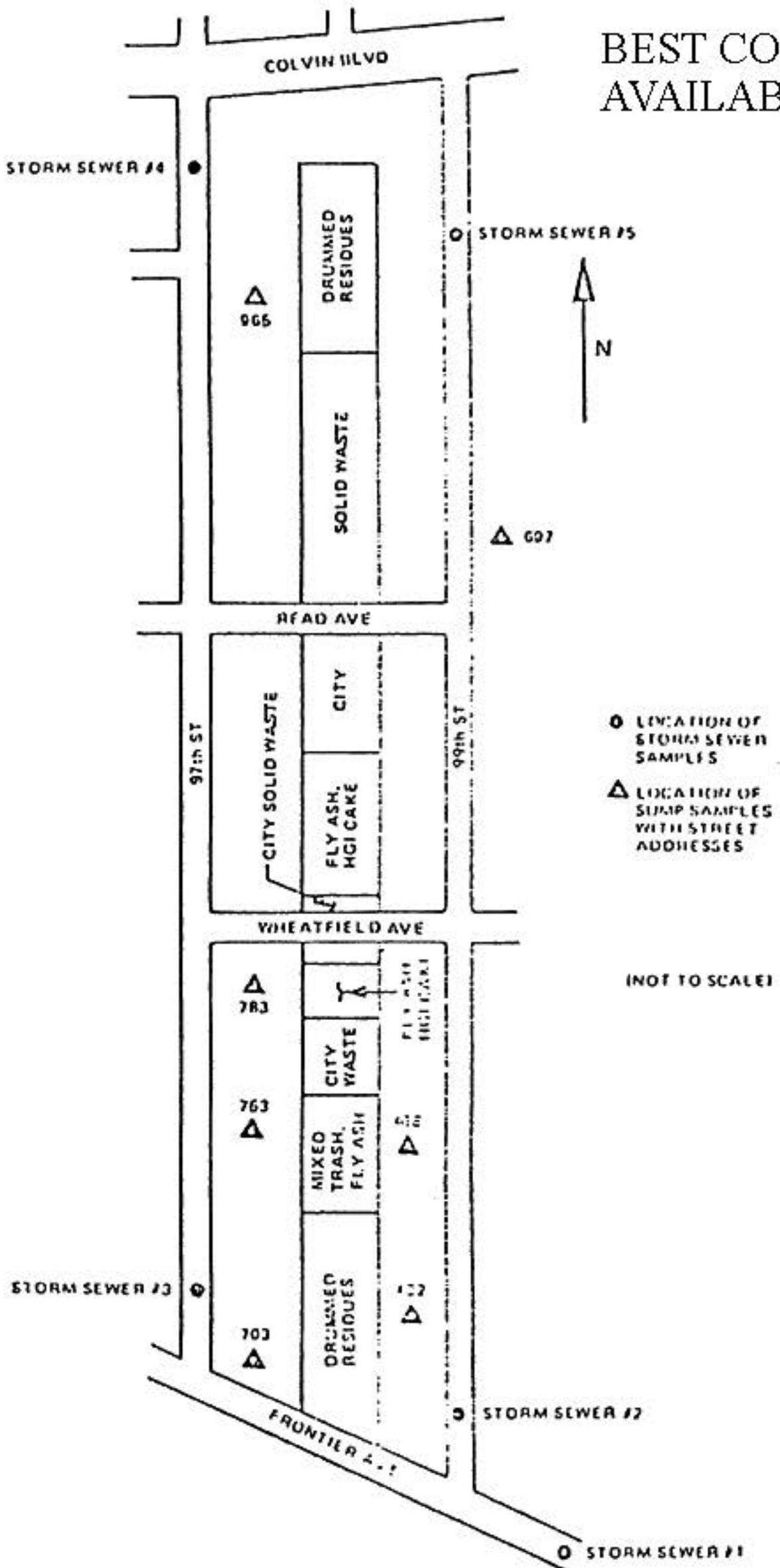


Figure 1 LOVE CANAL LOCATION AND SAMPLING POINTS

CONCLUSIONS

1. Unhealthy and hazardous conditions exist at the landfill and in some of the homes adjoining the site.
2. Surface drainage is poor, surface water goes through the landfill rather than over and away from it.
3. Unknown chemicals in containers of dubious condition permeate the landfill in unknown numbers and locations.
4. The city of Niagara Falls, The New York State Department of Conservation and Congressman LaFarce want to help the people affected.
5. To correct the problem will be expensive and will draw on the resources of several levels of government. It is estimated a long range complete cleanup program will cost in excess of a million dollars.
6. Temporary measures to clean up the area will only result in a continuing reoccurrence of the problem.
7. The legal ramifications as to who is responsible, the initial users or present property owners are quite complicated and may take some time in court.
8. When and if cleanup procedures start, it may be many years before property owners get adequate relief. The saturated private property surround the homes if not removed may take many fluctuations of the ground water to remove the present conditions from the sumps.
9. A number of homes of affected people up for sale could be purchased.
10. The passage of waste from the household sumps to the storm sewer to the Niagara River constitutes water pollution.

RECOMMENDATIONS

1. Serious thought should be given to the purchases of some or all of the homes affected, or at least to those willing to sell. Resulting in the homes being torn down and the basements filled in. This would minimize complaints and prevent further exposure to people. This action would compliment partial or minimal cleanup.

2. Minimal Cleanup Method -

A. Install drain tile system completely covering the whole landfill and connect to city sanitary system. Drain system to be installed to drain ground water away from the homes.

B. Place adequate cover for surface drainage to keep surface water from percolating down through the fill. The surface water system to be connected to the storm water system.

C. Institute a maintenance program whereby the site would be inspected at least monthly and the surface grade maintained for good surface drainage.

D. An alternate to "A" but more expensive would be the installation of sumps throughout the landfill along its center line for the installation of pumps that would discharge to the city sanitary sewers.

3. Maximum Cleanup Method -

A. Remove all chemical fill, contaminated earth and debris in the area.

B. Either refill with clean earth or create a series of ponds north and south of the school, or maintain a gully that naturally drains to the Niagara River.

C. Fill in area surrounding school with clean fill.

D. Regrade for proper drainage to storm sewers.

E. Maintain property until settlement has been completed and proper surface drainage is assured.

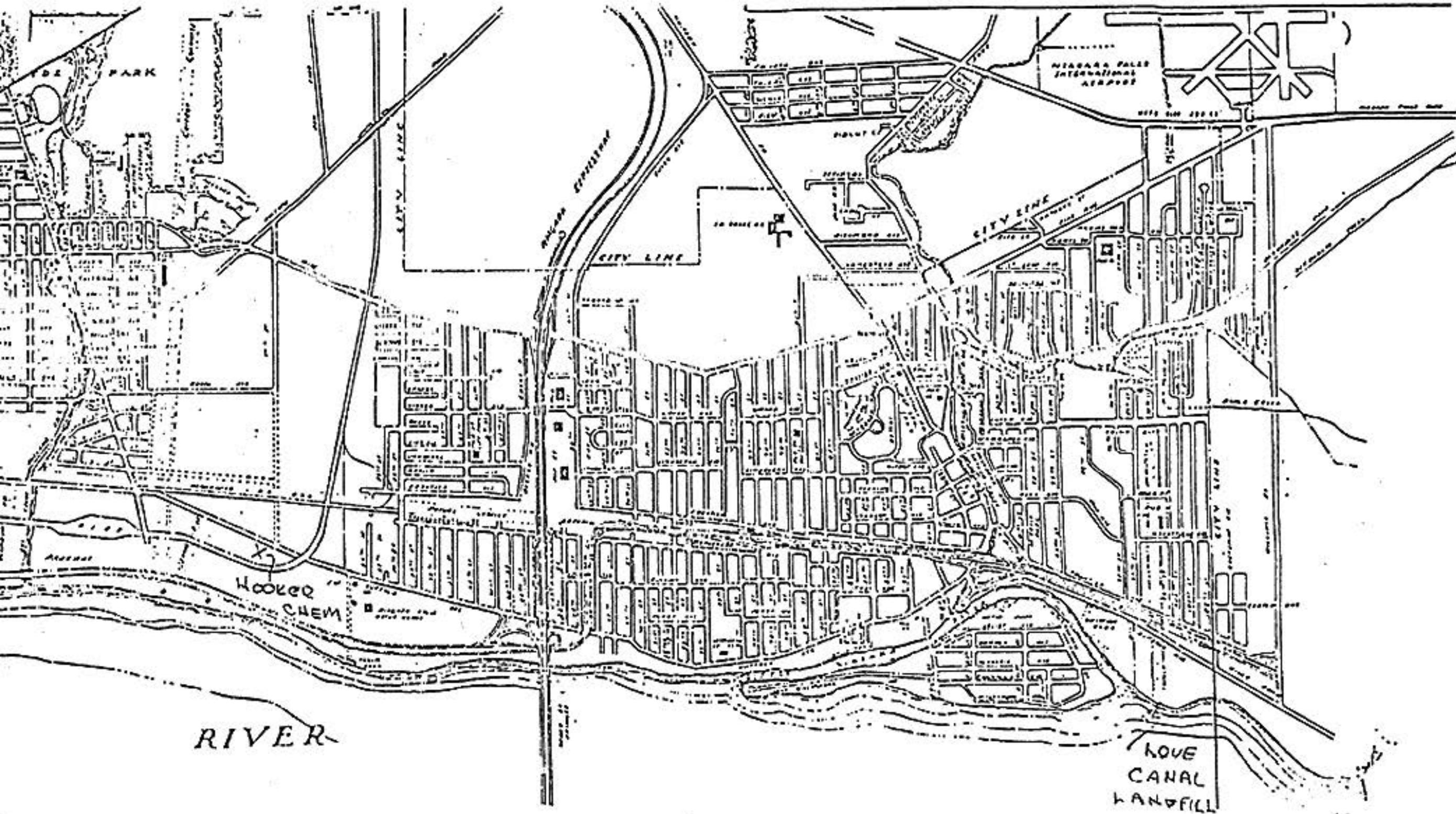
4. Temporary Measures -

- A. Determine the extent and depth of fill and fill contents constituents.
- B. Determine feasibility of treating waste at the new Niagara Falls waste treatment plant by use of the Environmental Protection Agency's "Blue Giant" - this should be done early if consideration is given to draining or pumping liquid waste to the Niagara Falls waste treatment plant and before any design or construction is started to lower the water table.
- C. Meet with New York State Department of Environmental Control attorneys and engineers in Buffalo to coordinate efforts.

In Conclusion

There is no immediate relief for the people concerned, other than moving them out by buying their homes or placing them in other facilities until the problem is corrected. The problem will not be corrected unless the fill and the surrounding earth around the private property are totally removed and ground water flow is directed away from the homes. Any other measures will only be permanent as long as they work or maintenance does not regress to zero.

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