Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Old Cortland County Landfill Site
Cortland, Cortland County
Site Number 7-12-001

March 1999

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

"Old Cortland County Landfill" Inactive Hazardous Waste Site
Cortland, Cortland County, New York
Site No. 7-12-001

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Old Cortland County Landfill inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Old Cortland County Landfill Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Old Cortland County Landfill and the criteria identified for evaluation of alternatives the NYSDEC has selected Alternative 4: Waste Containment including Capping Plus Relocation of Exposed Scrap Metal Area, Isolated Buried Waste Area, Buckbee-Mears Sludge Area, and Thin Waste Area. The components of the remedy are as follows:

- Capping of the Old Cortland Landfill
- Capping of the Abandoned City of Cortland Landfill
- Capping of the Buckbee-Mears sludge disposal areas
- Excavation and backfilling of exposed scrap metal and isolated buried waste areas, with relocation to the Old Cortland County Landfill; consolidation and proper disposal of any drums encountered containing hazardous wastes
- Institutional controls

- Long-term monitoring; and

- Excavation of the thin waste areas of the City Landfill and the Buckbee-Mears sludge disposal areas with consolidation in the Old Cortland County Landfill.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/11/97
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

TABLE OF CONTENTS

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected the remedy to address the threat to human health and/or the environment created by the presence of hazardous waste at the **Old Cortland County Landfill Site.** As more fully described in Sections 3 and 4 of this document, combined municipal solid waste and construction and demolition debris landfilling operations at the site have resulted in the disposal of a number of hazardous wastes, including volatile organic compounds, inorganics and leachate compounds, at the site, some of which were released or have migrated from the site to surrounding areas, including the surface water and sediments. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- a significant environmental threat associated with the impacts of contaminants to soil, groundwater, surface water and sediment.

In order to address contamination at the Old Cortland County Landfill inactive hazardous waste disposal site, and to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy was selected:

- **Waste containment, which includes providing a Part 360 cap for the landfill, with consolidation of exposed scrap metal, thin waste and isolated disposal areas.**

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in conformity with applicable standards, criteria, and guidance (SCGs) in Section 6 of this Record of Decision (ROD).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Old Cortland County Landfill site is located (see Figure 1-1) on the east side of Abandoned Town Line Road in the northwest corner of the Town of Solon, approximately 5 miles northeast of the City of Cortland, New York. The landfill is part of an approximately 540 acre parcel of land currently owned by Cortland County which encompasses the Old County Landfill, the abandoned City of Cortland landfill, Buckbee-Mears Sludge Disposal Areas, the closed Pine Tree Landfill and the currently active Cortland County Landfill. The lined Pine Tree and the active County Landfill site are not part of the inactive hazardous waste site that is the subject of this investigation. The County property is bordered by Maybury Brook to the east, Mosquito Creek to the west, Heath Road to the south and Parks Road to the north. The unnamed tributary originates at the outflow of the settlement ponds situated south of the Old County Landfill, and flows southward beyond the property boundary to Trout Brook which is located approximately 1.8 miles to the south of the site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Old Cortland County landfill is an approximately 40 acre site and is part of an approximately 540 acre parcel of land which encompasses the abandoned old county and City of Cortland landfills, the Buckbee-Mears Sludge Disposal areas, the closed Pine Tree Landfill, and the currently active Cortland County Landfill. (See Figure 1).

Landfilling activities began at a portion of the site in the 1940's when it was operated as a private disposal site. The City then leased the land in the mid-1960's for use as a landfill until early 1972. The adjacent area, called old County Landfill, was operated as a combined municipal solid waste (MSW) and construction and demolition debris (C&D) landfill until 1992.

It was reported that in the early 1970's, hundreds of 55-gallon drums were disposed of within a portion of the landfill. These drums reportedly contained liquid hazardous wastes which had been generated from local industries.

3.2: Remedial History

The Resource Conservation and Recovery Act of 1976 and the 1984 Hazardous Waste and Solid Waste amendment require the submission of reports of hazardous waste placed in landfills to the Administrator or State agency. As a result of the detailed review of this information, it was determined that hazardous wastes, believed to have been generated by one or more local industrial manufacturing sites, had been disposed at the Old County Landfill site.

This development lead to classification of the site by the NYSDEC as a class 2 inactive hazardous waste site. Cortland County entered into a consent order with the NYSDEC, effective May 31, 1996. This order requires that a Remedial Investigation and Feasibility Study (RI/FS) program be undertaken by Cortland County to address threats to the environment.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, Cortland County has recently conducted a Remedial Investigation/Feasibility Study (RI/FS).

The areas investigated under the RI are shown in Figure 1; these include the Old Cortland County Landfill, the abandoned City of Cortland Landfill (which includes a thin waste area generally less than 10 ft. in depth), the Buckbee-Mears disposal areas, and exposed scrap metal and isolated buried waste areas.

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted in a single phase in 1997 and 1998. A report entitled Remedial Investigation Report, Old Cortland County Landfill and dated March, 1998 has been prepared describing the field activities and findings of the RI in detail.

The RI included the following activities:

- Geophysical exploration
- Conductivity survey
- Hydraulic conductivity (monitoring well slug tests) of the groundwater aquifer
- Installation of soil borings and monitoring wells for analysis of soils and groundwater
- Limits of waste investigations
- Buried drum investigations
- Soil gas survey
- Surface water/sediment sampling

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Old Cortland County Landfill site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. For soils, NYSDEC TAGM 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments"

Based upon the Remedial Investigation results, in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, SCGs are given for each medium.

4.1.1 Nature of Contamination:

As described in the RI Report, many soil, groundwater, sediment and leachate samples were collected at the Site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are inorganics (metals), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and leachate indicators. Although the Remedial Investigation failed to locate the drum disposal area, landfill records and photographs show that hundreds of 55 gallon drums of liquid hazardous wastes were disposed at the landfill in the early 1970's.

4.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in the soil, groundwater, surface water and sediment and compares the data with the proposed remedial action levels (SCGs) for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

Subsurface soil samples collected outside the landfill area indicated some impacts from contaminated groundwater or leachate which has migrated to these locations. Elevated leachate indicators included chloride, chemical oxygen demand, ammonia etc. Only one volatile organic compound (VOC), 2-Butanone at concentration in excess of 100 ppb and one semi-volatile organic compound (SVOC), diethylphthalate at an estimated concentration of over 150 ppb, were detected. Detected elevated inorganic parameters which may be associated with landfill leachate include: arsenic, chromium and lead.

Groundwater

Groundwater samples were collected from 16 monitoring wells. Three of the overburden monitoring well locations appear to indicate a mild contaminant influence associated with the landfill with VOC concentrations ranging from 2-23 ppb. One bedrock well indicates a landfill inorganic leachate impact to bedrock groundwater, exceeding SCGs, with concentrations in excess of 350 ppb for arsenic and 450 ppb for lead.

Surface Water

Surface water samples were collected from five locations with three of the locations indicating some influence from the landfill with ammonia concentrations in excess of 82 ppm. No VOCs or SVOCs were detected at any of the locations. Seeps from the landfill to surface water showed little impact primarily due to the effects of dilution.

Sediments

Six sediment locations were sampled with four of these locations showing some inorganic contamination exceeding SCGs (see Table 1). No organic contaminants were detected above the NYSDEC Sediment Guidance Criteria.

Leachate

A number of odoriferous landfill seeps exist both on the landfill mass and on the downgradient edge of the landfill. Landfill leachate sampled in a well constructed within the landfill mass exceeded groundwater standards for a number of parameters including chlorides, total phenols, ammonia, arsenic, lead, sodium, iron and manganese. The landfill leachate also contained total VOCs in concentrations in excess of 700 ppb.

It should be noted, that the data collected during the RI represents a "snap shot" of landfill conditions. Although the hazardous waste drum disposal area could not be located by the magnetic survey and test pits, it is known from landfill records, photographs, and statements from landfill workers that hundreds of 55 gallon drums containing liquid hazardous wastes were disposed of at the landfill in the early 1970s. Given the size of the landfill, the RI results may not reflect the highest concentrations of contamination that may exist at the landfill, nor can the RI determine what future releases there may be if the landfill is left unremediated.

4.2 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 9 of the RI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Pathways which are known to or may exist at the site include:

- Ingestion - The Old Cortland County Landfill is located in a sparsely populated area with the nearest residences down gradient of the site located approximately 3 miles away. There are no homes or businesses using the groundwater at the site for potable water supply.

  For the purpose of evaluations only, residents were assumed to be exposed to chemicals of potential concern in groundwater via ingestion (drinking), dermal absorption (skin contact) and inhalation (breathing during showering and other household uses). The carcinogenic risk calculated under the most likely scenario is lower than the USEPA range of 1×10^{-6} to 1×10^{-4}.

- Inhalation - Soil samples analyzed at the Old Cortland County Landfill site indicates a mild impact of contaminants. Site workers, recreators and trespassers were assumed to be exposed to chemicals of potential concern at the site via dermal exposure to soil, surface water, sediment and incidental ingestion of soil and sediment. The calculated carcinogenic and non carcinogenic risk were within the USEPA acceptable levels.

4.3 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. A Baseline Environmental Risk Assessment (BERA) was performed to characterize the current or potential toxicological impacts from the site related chemicals of potential ecological concern (COPECs) to fish and wildlife resources.

The following pathways for environmental exposure have been identified:

- Fish Community - The conservative screening process of chemicals detected in surface water indicated that barium and/or manganese may impact the fish community inhabiting the Unnamed Tributary, Pond 1 and Maybury Brook. The concentrations of COPECs have not however impacted the reproduction success of the fish nor resulted in acute toxic responses. Potential impacts which may be experienced by aquatic biota in the Unnamed Tributary are likely more dependent on the intermittent nature and the habitat of the stream.

- Herbivorous Wildlife - The screening process identified aluminum and arsenic exposures slightly in excess of lowest adverse effects levels for both whitetail deer and eastern cottontails. The exposure estimates, as a result of the consumption of vegetation and soil are considered highly conservative due to 1) the use of the maximum chemical concentration measured in subsurface soils; 2) the conservative modeling techniques used to predict chemical concentrations in vegetation and; 3) the actual large home range of the receptors which minimizes the exposure from foraging on the small localized areas of subsurface contamination. Any potential impacts to wildlife which may exist on site will however be eliminated due to the installation of a cap on the landfill.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and Cortland County entered into a Consent Order on May 31, 1996. The Order obligates Cortland County to implement a full remedial program and allows reimbursement to the County of up to 75 percent of the eligible remediation cost .

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to restore the site to pre-disposal conditions, to the extent feasible and authorized by law. At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Minimize the volume of leachate generation and groundwater contamination;
- Prevent potential dermal contact with or incidental ingestion of exposed waste;
- Minimize migration of contaminated surface water and leachate to downstream locations;
- Minimize future exposure of wildlife to contaminated surface water/sediment; and
- Provide for attainment of SCGs for groundwater quality at the limits of the area of concern, to the extent practicable

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Old Cortland County Landfill site were identified, screened and evaluated in the report entitled Final Feasibility Study Report dated July 1998.

A summary of the detailed analysis follows. As used in the following text, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated soils, sediments and groundwater at the site.

The costs for each alternative have been estimated and present worth values calculated for each to provide a valid basis for cost comparison. Operation and Maintenance (O&M) costs for groundwater monitoring and site maintenance were estimated over a thirty-year period.

Alternative 1: No Action, Long-Term Monitoring

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

The cost to implement Alternative 1 has been estimated as follows:

Present Worth:	$353,000
Capital Cost:	$ 9,000
Annual O&M:	$ 14,850
Time to Implement	6 months to 1 year

Alternative 2: Waste Containment including Capping Plus Relocation of Exposed Scrap Metal Area and Isolated Buried Waste Area.

The components of Alternative 2 (see Figure 1) are as follows:

- Capping of the Old Cortland Landfill
- Capping of the Abandoned City of Cortland Landfill
- Capping of the Buckbee-Mears sludge disposal areas
- Excavation and backfilling of exposed scrap metal and isolated buried waste areas, with relocation to the Old Cortland County Landfill; consolidation and proper disposal of any drums encountered containing hazardous wastes
- Institutional controls; and
- Long-term monitoring

The cost to implement Alternative 2 has been estimated as follows:

Present Worth:	$5,638,000
Capital Cost:	$5,016,000
Annual O&M:	$ 26,850
Time to Implement:	6 to 12 months

Alternative 3: Waste Containment including Capping Plus Relocation of Exposed Scrap Metal Area and Isolated Buried Waste Area, and Buckbee-Mears Sludge Area.

The components of Alternative 3 (see Figure 2) are the same as Alternative 2, except that the Buckbee-Mears sludge disposal area will be excavated and consolidated into the Old Cortland County Landfill.

The cost to implement Alternative 3 has been estimated as follows:

Present Worth:	$5,548,000

Capital Cost:	$4,972,000
Annual O&M:	$ 24,850
Time to Implement:	6 to 12 months

Alternative 4: Waste Containment including Capping Plus Relocation of Exposed Scrap Metal Area, Isolated Buried Waste Area, Buckbee-Mears Sludge Area, and Thin Waste Area.

The components of Alternative 4 (see Figure 3) are the same as Alternative 2, except that thin waste areas of the City landfill, and the Buckbee-Mears sludge disposal area will be excavated and consolidated in the Old Cortland County Landfill.

The cost to implement Alternative 4 has been estimated as follows:

Present Worth:	$5,525,000
Capital Cost:	$4,949,000
Annual O&M:	$ 24,850
Time to Implement:	6 to 12 months

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied to order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. Each of the Alternatives will be evaluated in accordance with their ability to attain action-specific SCGs including landfill cap construction. The final cover for all municipal solid waste landfills must meet the general requirements of NYSDEC 6 NYCRR Part 360. Chemical-specific SCGs are exceeded within areas of the site with respect to soil, groundwater, and sediments.

Alternative 1 would not bring the site into compliance with SCGs for soil, groundwater and sediment. Alternative 1 would not satisfy the closure requirements specified in 6 NYCRR Part 360 for municipal solid waste landfills. Alternatives 2, 3, and 4 would comply with SCGs assuming that chemical-specific SCGs for surface water and sediment would be attained after closure, due to a significant reduction in the volume of leachate generated and expected dilution of future leachate migrating to groundwater. It cannot, however, be determined with any precision how long this will take. Alternatives 2, 3, and 4 would satisfy the closure requirements specified in 6 NYCRR Part 360 for municipal solid waste landfills since these alternatives provide for the construction of a capping system over the landfill.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 would not provide overall protection of human health and the environment. Without the construction of a landfill cap, the constant generation of leachate would result in the continued contamination of the groundwater and surface water. This alternative would allow continued negative impacts on the environment. Alternatives 2, 3, and 4 would provide overall protection due to the construction of the landfill cap systems and the relocation of isolated waste areas which will serve to reduce the volume of leachate generated at the site.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 1 would not have a short-term impact on the project since there is no pro-active action proposed under this Alternative. Alternatives 2, 3, and 4 would provide a short-term effectiveness in the immediate removal of exposed scrap metals and contaminated soil areas. Construction of the capping system would shut off the infiltration of surface water into the waste. Alternatives 2, 3, and 4 would have short term impacts on the operation of the maintenance facility during the construction of the capping system. The short-term attainment of chemical-specific SCGs is however unlikely.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would not provide any long-term effectiveness and permanence. It would not limit, reduce or eliminate the continued generation of leachate, and therefore would not provide a permanent remedy nor would it provide a mechanism to decrease contaminant concentrations to levels approaching SCGs for surface water and sediment. Alternatives 2, 3, and 4 would provide, due to the construction of a capping system, the means to reduce the generation of leachate and therefore, the continued discharge of contaminants to the groundwater and surface water at the site. Over the long-term, Alternatives 2, 3, and 4 would be effective in providing permanent protection to the environment once the capping effects have been realized.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 1 does not incorporate a technology option to reduce toxicity, mobility or volume of contamination and therefore would not limit, reduce or eliminate the volume of leachate generation or the continued uncontrolled discharge of contaminated groundwater to surface water in the area of the leachate contaminated pond. Alternatives 2, 3, and 4 would provide reduction of Toxicity, Mobility or Volume. The construction of the landfill cap under these alternatives would serve to greatly reduce the volume of leachate generated by infiltration through the waste. The toxicity of the leachate generated would be significantly reduced once fresh recharge from upgradient locations is allowed to dilute groundwater concentrations. Capping system provided under Alternatives 2, 3, and 4 would result in lowering groundwater flow velocities. This would enhance the residence time in the subsurface and thereby increase the attenuation effect (e.g.,dilution, dispersion, absorption, biodegradation, etc.) of the contaminants.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness

of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternative 1 would be easily implemented since there is no pro-active remedial activities involved. Long-term water quality monitoring would not impose any implementability constraints. Alternatives 2,3 and 4 would be easily implemented but would require an increased level of remedial activities compared to Alternative 1. Landfill closures have been conducted under similar site conditions by a variety of contractors. Construction equipment and materials such as PVC geomembrane, filter fabric and the gas vents are readily available.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are being presented in Table 2.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. In general the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 4; Waste containment, including capping plus relocation of exposed scrap metal and isolated disposal areas, with consolidation of thin waste areas, as the remedy for this site. Source control remediation under Alternative 4 will limit the volume of new leachate contribution to groundwater and surface water. A properly designed landfill cap will provide satisfactory waste containment while reducing surface water infiltration, control emissions of explosive gases and odors and eliminating possible dermal contact and incidental ingestion of exposed waste by foraging wildlife. In addition, the excavation and consolidation of wastes will result in their complete removal from certain areas, thus allowing the areas to be available for reuse.

Alternative 4 was selected because it is the most cost-effective alternative, while also being compliant with the SCGs and protective of human health and the environment. This alternative provides for the greatest amount of landfill waste consolidation, thus reducing the size, construction cost and O&M costs of the final landfill.

The remedy will meet all of the remedial objectives set forth for this project by implementing specific institutional controls such as deed restrictions and signage, and will institute source control measures through both capping and a waste excavation/relocation activities.

The estimated present worth cost to implement the remedy is $5,525,000. The cost to construct the remedy is estimated to be $4,949,000 and the estimated average annual operation and maintenance cost for 30 years is $24,850.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved.

2. Waste Containment and Consolidation

   a. A Part 360 cap for the Old Cortland County Landfill and the abandoned City of Cortland Landfill

   b. Excavation and relocation of waste in the Buckbee-Mears sludge disposal areas to the Old Cortland County Landfill

   c. Excavation and backfilling of exposed scrap metal area, isolated buried waste areas, and thin waste areas of the City of Cortland Landfill with relocation of wastes to the Old Cortland County Landfill; consolidation and proper disposal of any drums encountered containing hazardous waste;

3. Institutional controls including deed restrictions to prevent future groundwater usage and sign postage to indicate a closed Inactive Hazardous Waste Disposal Site.

4. Long-term monitoring

Since the remedy results in untreated hazardous waste remaining at the site, a long term monitoring program will be instituted. The present array of groundwater monitoring wells situated around the perimeter of the landfill will be used to monitor the effectiveness of the capping system. This will include seven groundwater monitoring wells on the south (down gradient) side of the landfill. All groundwater monitoring wells will be sampled on a quarterly basis. Surface water and sediment grab samples will be collected annually from the leachate seeps, during the period of predominate flow on the southern perimeter, to monitor the effectiveness of treatment within the settlement ponds. This program will allow the effectiveness of the landfill capping to be monitored and will be a component of the operation and maintenance for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for this document pertaining to the site were established at the following loctions: Cortland County Legislature, Planning Department, and Clerk's Office at the County Office Building, Cortland Free Library, Memorial Library at the State University of New York at Cortland, New York State Department of Environmental Conservation, Region 7 (Syracuse), and New York State Department of Environmental Conservation Region 0 (Albany).

- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.

- A Fact Sheet was mailed to all of the people and interested parties included in the site mailing list.

- A public meeting was held on Wednesday, January 20, 1999 at 7:00 P.M. in the Cortland County Office Building. NYSDEC discussed the Proposed Remedial Action Plan (PRAP) for the Old Cortland County Landfill Site. After a brief overview of the RI/FS and the PRAP the NYSDEC entertained a public question and answer period.

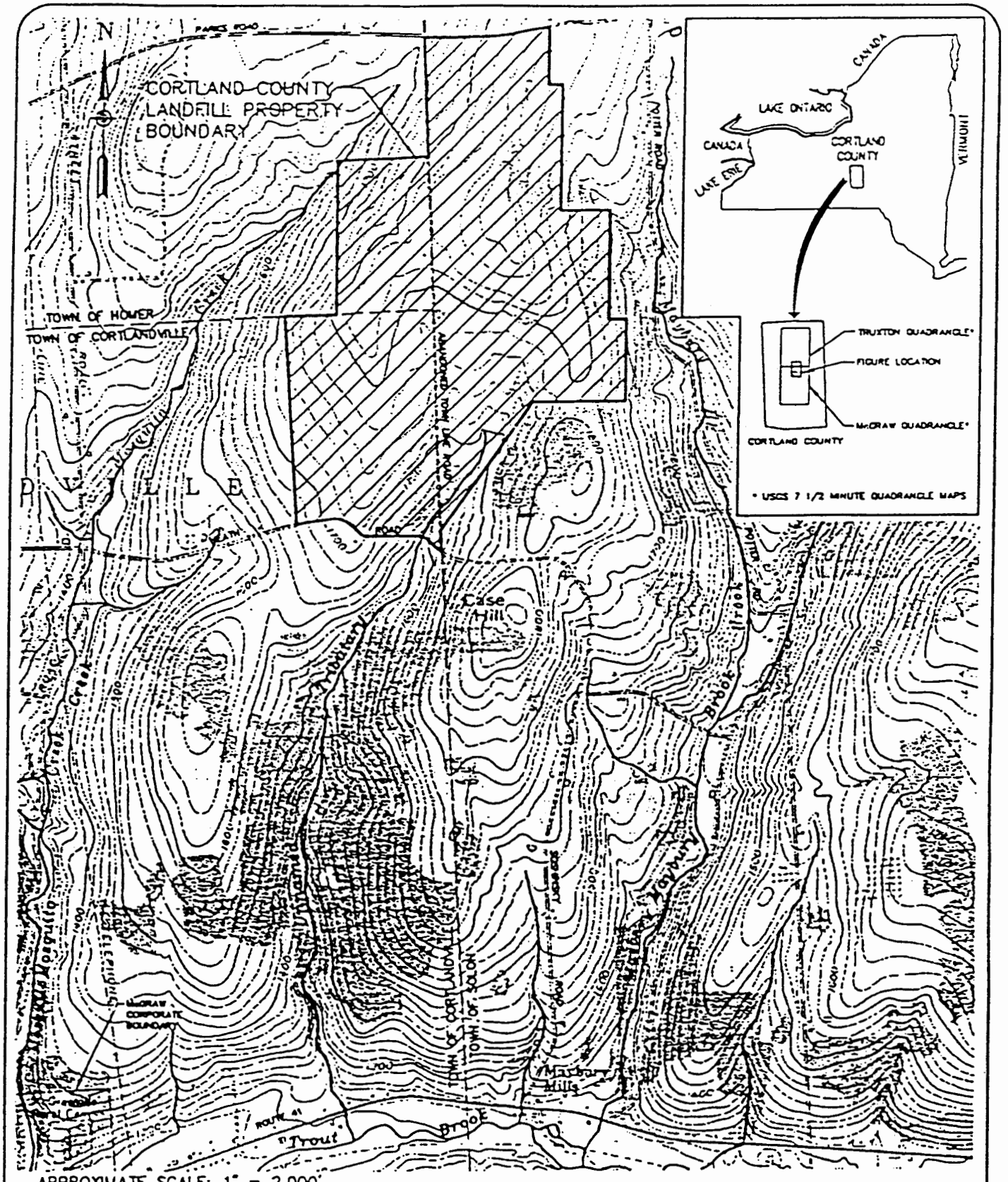
- In March, 1999 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of Exceeding SCGs	SCG (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Benzene	ND to 6	2 of 32	0.7
	Inorganics	Arsenic	3 to 353	6 of 32	25
		Lead	4 to 454	5 of 32	25
Soils	Leachate Indicator	Chloride	ND to 269,000	NA	NA
		COD	ND to 4,000,000	NA	NA
		Ammonia	ND to 21,700	NA	NA
Leachate	VOCs	Xylene (total)	350 to 450	2 of 2	5
		Ethylbenzene	140 to 160	2 of 2	5
		Chlorobenzene	35 to 61	2 of 2	5
	SVOCs	Phenol	ND to 18	1 of 2	1
	Leachate Indicators	Chloride	1220 to 1260	2 of 2	250
		Ammonia	271 to 544	2 of 2	2
		Total Dissolve Solids	2370 to 3660	2 of 2	500
MEDIA	**CLASS**	**CONTAMINANT OF CONCERN**	**CONCENTRATION RANGE (ppm)**	**FREQUENCY of Exceeding SCGs**	**SCG (ppm)**
Sediments	Inorganics	Arsenic	5 to 28	3 of 6	6
		Chromium	16 to 31	2 of 6	26
		Copper	15 to 27	3 of 6	16
		Zinc	73 to 229	2 of 6	120
		Manganese	400 to 26,100	3 of 6	460

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
Alternative No. 1 No Action, Long-Term Monitoring	$9,000	$14,850	$353,000
Alternative No. 2 Waste Containment including Capping Plus Relocation of Exposed Drums and Isolated Buried Waste Area	$5,016,000	$26,850	$5,638,000
Alternative No. 3 Waste Containment including Capping Plus Relocation of Exposed Drums and Isolated Disposal Area	$4,972,000	$24,850	$5,548,000
Alternative No. 4 Waste Containment including Capping Plus Relocation of Exposed Drums and Isolated Disposal Area, with thin Waste Areas	$4,494,000	$24,850	$5,525,000



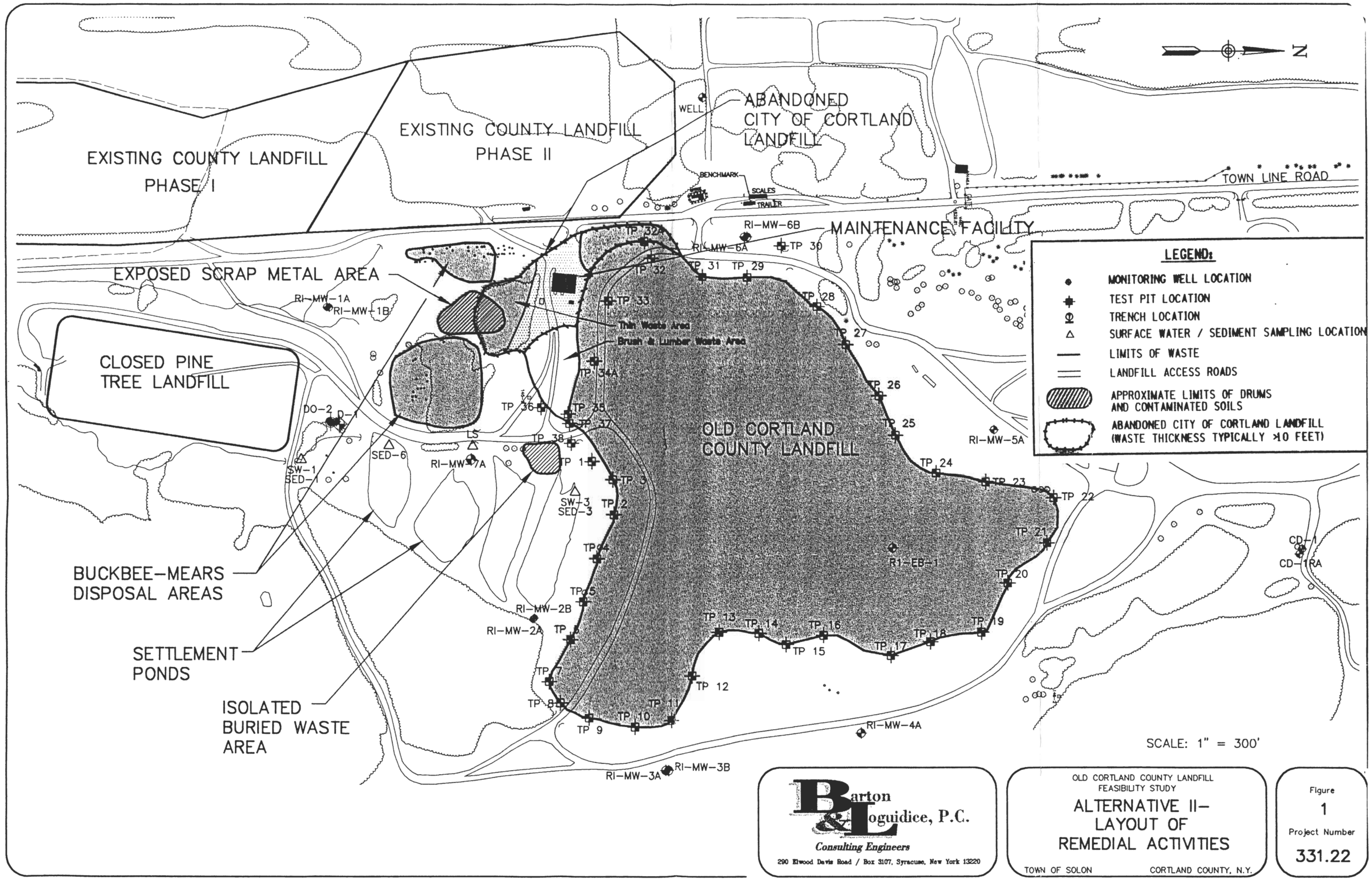
Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

OLD CORTLAND COUNTY LANDFILL
FEASIBILITY STUDY

SITE LOCATION MAP

TOWN OF SOLON CORTLAND COUNTY

Figure
1-1
Project No.
331.22



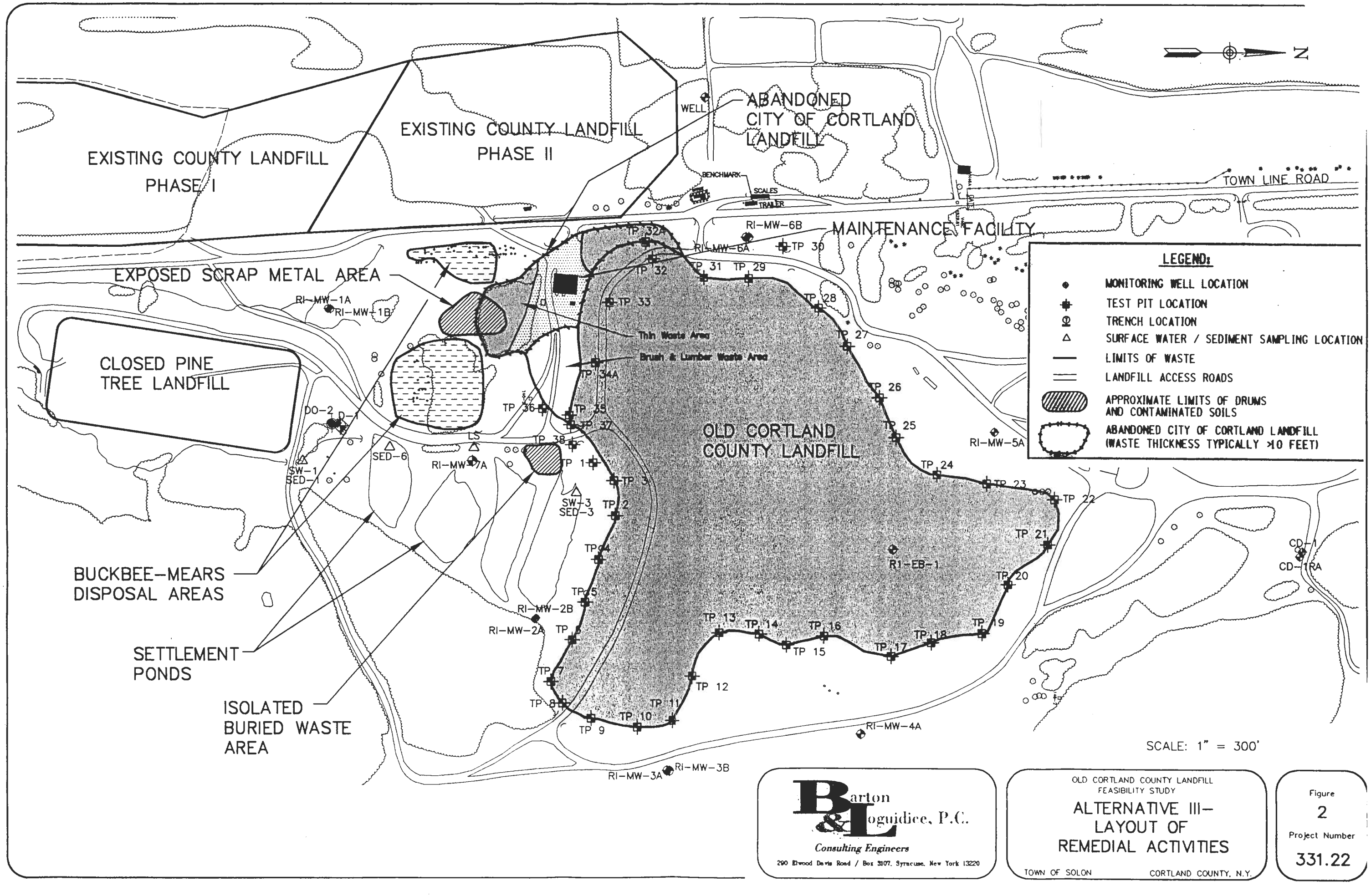
Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

OLD CORTLAND COUNTY LANDFILL
FEASIBILITY STUDY

ALTERNATIVE II– LAYOUT OF REMEDIAL ACTIVITIES

TOWN OF SOLON CORTLAND COUNTY, N.Y.

Figure
1
Project Number
331.22



Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

OLD CORTLAND COUNTY LANDFILL
FEASIBILITY STUDY

ALTERNATIVE III– LAYOUT OF REMEDIAL ACTIVITIES

TOWN OF SOLON CORTLAND COUNTY, N.Y.

Figure
2
Project Number
331.22

EXISTING COUNTY LANDFILL PHASE I

EXISTING COUNTY LANDFILL PHASE II

ABANDONED CITY OF CORTLAND LANDFILL

WELL

BENCHMARK

SCALES

TRAILER

TOWN LINE ROAD

MAINTENANCE FACILITY

EXPOSED SCRAP METAL AREA

CLOSED PINE TREE LANDFILL

OLD CORTLAND COUNTY LANDFILL

Thin Waste Area

Brush & Lumber Waste Area

BUCKBEE-MEARS DISPOSAL AREAS

SETTLEMENT PONDS

ISOLATED BURIED WASTE AREA

RI-MW-1A
RI-MW-1B
RI-MW-2A
RI-MW-2B
RI-MW-3A
RI-MW-3B
RI-MW-4A
RI-MW-5A
RI-MW-6A
RI-MW-6B
RI-MW-7A
R1-EB-1

TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
TP 7
TP 8
TP 9
TP 10
TP 11
TP 12
TP 13
TP 14
TP 15
TP 16
TP 17
TP 18
TP 19
TP 20
TP 21
TP 22
TP 23
TP 24
TP 25
TP 26
TP 27
TP 28
TP 29
TP 30
TP 31
TP 32
TP 32A
TP 33
TP 34A
TP 35
TP 36
TP 37
TP 38

DO-2
D-1

SW-1
SED-1

SED-6

LS

SW-3
SED-3

CD-1
CD-1RA

N

SCALE: 1" = 300'

LEGEND:

- MONITORING WELL LOCATION
- TEST PIT LOCATION
- TRENCH LOCATION
- SURFACE WATER / SEDIMENT SAMPLING LOCATION
- LIMITS OF WASTE
- LANDFILL ACCESS ROADS
- APPROXIMATE LIMITS OF DRUMS AND CONTAMINATED SOILS
- ABANDONED CITY OF CORTLAND LANDFILL (WASTE THICKNESS TYPICALLY >10 FEET)

Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

OLD CORTLAND COUNTY LANDFILL
FEASIBILITY STUDY

ALTERNATIVE IV- LAYOUT OF REMEDIAL ACTIVITIES

TOWN OF SOLON CORTLAND COUNTY, N.Y.

Figure 3

Project Number 331.22

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Old Cortland County Landfill
Proposed Remedial Action Plan
Cortland, Cortland County
Site No. 7-12-001

The Proposed Remedial Action Plan (PRAP) for the Old Cortland County Landfill, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repositories (listed in Section 9 of this document) on December 30, 1998. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil at the Old Cortland County Landfill. The preferred remedy is Alternative 4: Waste Containment including Capping Plus Relocation of Exposed Scrap Metal Area, Isolated Buried Waste Area, Buckbee-Mears Sludge Area, and Thin Waste Area.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on Wednesday, January 20, 1999 in the Cortland County legislative chamber. There were a total of 17 people present at the public meeting: 2 from the Cortland County Department of Health, a Cortland County Legislator, the Cortland County Director of Solid Waste, the county attorney, 2 representatives from Barton & Loguidice, P.C. Consulting Engineers, 3 representatives from the NYSDEC, 2 members of the media, and 5 members of the general public. This meeting included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. There were no written comments received from the public. The public comment period for the PRAP ended on February 5, 1999.

David Smith of the Bureau of Central Remedial Action opened the meeting at 7:00 P.M. by introducing the representatives from Barton & Loguidice, Cortland County's engineering consultant, and the representatives from the NYSDEC. Mark Chauvin of Barton & Loguidice then presented an overview of the RI/FS. This presentation was followed by a question and answer period.

This Responsiveness Summary responds to all questions and comments raised at the January 20, 1999 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's responses:

COMMENT 1: A citizen feels that the drums that are in the landfill should remain in the landfill. The old drums are not posing an immediate threat to health and the environment therefore, these drums should be left undisturbed so no further problems are encounter during excavation or disposal.

RESPONSE 1: The remedy will leave in place the drums that are already buried in the landfill. The cap will isolate the contamination by inhibiting rainwater from infiltrating the landfill, which will carry the contamination out, and will lower the water table under the landfill to limit the contamination from migrating to the groundwater. However, during the consolidation of parts of the landfill, any drums that are encountered with residual contamination will be removed from the site and disposed at an approved hazardous waste landfill.

COMMENT 9: Will the slopes of the landfill need to be graded to fill in any low areas?

RESPONSE 9: Overall the slopes and the grade of the surface can remain as they are. However there are a few low areas which will need to be filled in.

COMMENT 10: Who is supplying the soil with a permeability of 10^{-7}?

RESPONSE 10: This soil is not needed since a PVC geomembrane is being used in the cap design.

COMMENT 11: Is the water in the unnamed tributary safe for cattle to drink?

RESPONSE 11: There is mild contamination in the unnamed tributary near the landfill, however this contamination attenuates downstream of the landfill. The risk assessment was performed for surface and groundwater. The results concluded that there were not any exposure pathways that were a threat to humans or wildlife.

COMMENT 12: There is an abundance of wildlife on the landfill. Is the meat of deer, that have been grazing on the landfill, a potential pathway of exposure if eaten by humans?

RESPONSE 12: Through a possible pathway, consumption of meat from deer foraging in the area of the landfill is not expected to be a pathway of significance. Given that the surface soil and surface water contamination concentrations at the site are not significantly elevated, and the average forage area for a whitetail deer is 27 acres (deer will not derive all their vegetation and surface water needs from areas of localized contamination), the impact to the meat of deer in this habitat range will be inconsequential. Even if deer meat was affected human exposure to harmful substances would be minimal because deer meat would constitute only a small percentage of the meat consumed by one person over a year.

COMMENT 13: Has it been determined what firm will perform the construction?

RESPONSE 13: Presently the project construction has not been awarded to a construction firm. The project construction costs have been estimated. Cortland County will perform a detailed design phase cost estimate with plans and specifications. The project will be awarded to the lowest responsive/responsible bidder.

COMMENT 14: Are there provisions in the contract which will mandate the engineering firm, who performs the construction work, to hire local residents?

RESPONSE 14: The state assistance contract provides special consideration only for the use of minority, small, and women owned businesses.

COMMENT 15: Is the County of Cortland assured to receive the funds which were applied for?

RESPONSE 15: Yes, the 1986 Environmental Quality Bond Act provides a 75% reimbursement of the total cost of the RI/FS, Design, and Construction phases of the project. When New York State gives approval to Cortland County for the funds applied for in the "Application to Amend the Existing State Assistance Contract for Closure of the Old Cortland County Landfill" the money is taken out of the bond and set aside for the project. As long as the costs of the project stay within the estimated amount, stated in the application, this sum of money is guaranteed under the contract for the Cortland County Landfill project.

APPENDIX B

Administrative Record

Site Name: Old Cortland County Landfill

Site Number: 7-12-001

Administrative Record

1. Record of Decision - March 1999
2. Proposed Remedial Action Plan, Old Cortland County Landfill - November 1998
3. Final Feasibility Study (FS) Report, Old Cortland County Landfill - July 1998
4. Remedial Investigation (RI) Report, Old Cortland County Landfill - March 1998
5. Draft Remedial Investigation (RI) Report, Appendices (Volume II), Old Cortland County Landfill - March 1998
6. Draft Remedial Investigation (RI) Report, Appendix L Data Validation (Volume III) Old Cortland County Landfill - March 1998
7. Cortland County Landfill Remedial Investigation/Feasibility Study (RI/FS) Analytical Data - August 1997
8. Final Work Plan, Old Cortland County Landfill Remedial Investigation/Feasibility Study (RI/FS) - December 1996
9. Final Work Plan - Appendix A, Sampling and Analysis Plan - Old Cortland County Landfill Remedial Investigation/Feasibility Study (RI/FS) - December 1996
10. Final Work Plan - Appendix B, Health and Safety Plan - Old Cortland County Landfill Remedial Investigation/Feasibility Study (RI/FS) - December 1996
11. Final Work Plan - Appendix C, Citizen Participation Program - Old Cortland County Landfill Remedial Investigation/Feasibility Study (RI/FS) - December 1996