

Nod Road Landfill

Initial Site Assessment
&

Comprehensive Site Assessment
Scope of Work

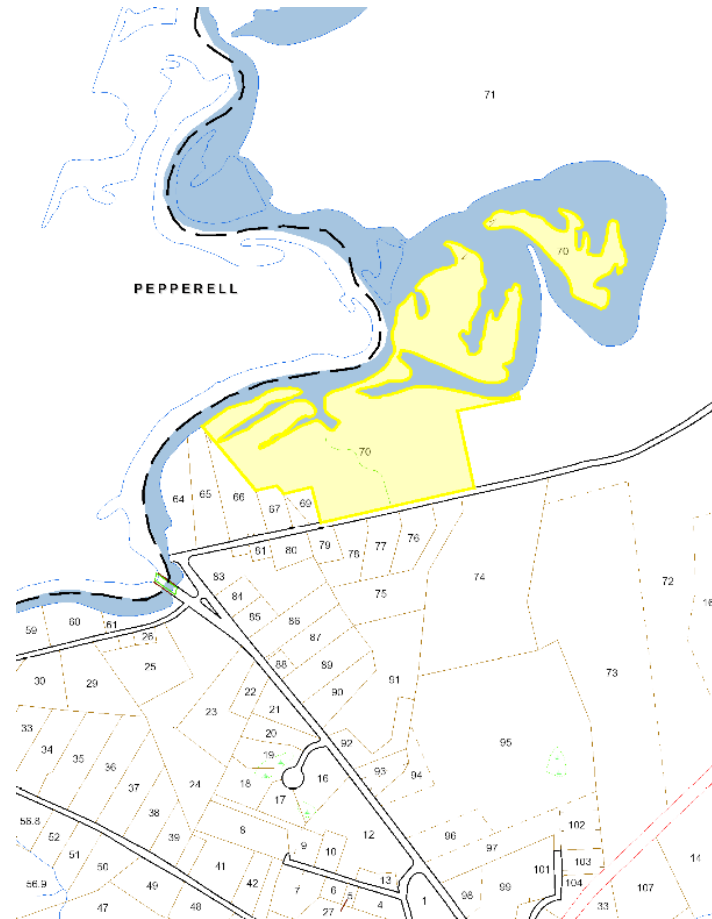
Purpose of an ISA

- Collect available history of the Landfill.
- Identify the current Landfill regulatory status.
- Review available environmental monitoring data.
- Identify potential receptors around the Landfill.
- Assess potential impacts on human health, safety and the environment.
- Develop a Scope of Work for a Comprehensive Site Assessment (CSA) as needed

Sources of Information Reviewed for ISA

- Town Board of Health Records
- Town Conservation Commission Records
- Aerial Photographs
- Historic USGS Topographic Maps
- MASS Mapper GIS
- GoogleEarth
- Site Inspection

Located on a portion of Parcel 216-70





Property Tax Parcels

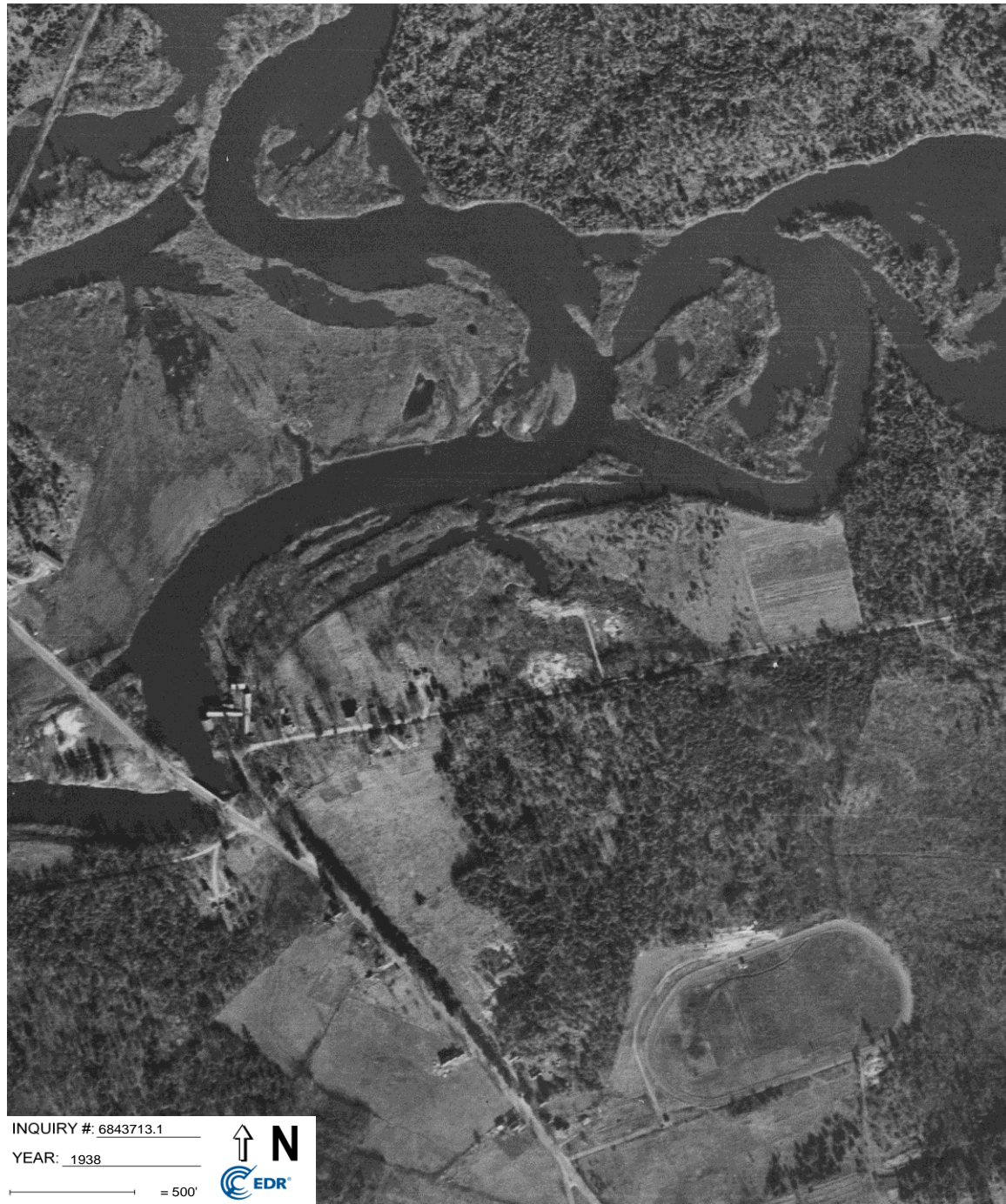
Nod Road Landfill

- Operated from at least 1930's through 1975 as an unlined landfill
- Predates Solid Waste and Site Assignment Regulations
- Received residential solid waste dropped off by residents
- Order to be closed by MADPH in 1974
- Stopped receiving solid waste in 1975
- Capped between 1976 - 1977 with an earth cap approved by MADPH
- Currently listed as Inactive with Incomplete Closure by MADEP which is typical of pre-1987 closures

Landfill Operated from 1930's until 1976

- Aerial Photograph shows activity on the parcel as early as 1938.
- 1944 USGS Map shows driveway access.
- By 1965, ½ the area had been disturbed.
- By 1975 landfill is at its current size.
- Capping plan approved by MADPH in 1976.
- 1977 landfill appears to be graded and capped except for a strip along the Nashua River.
- Approved closure plan did not include any environmental monitoring.

1938



INQUIRY #: 6843713.1
YEAR: 1938
= 500'
↑ N
EDR

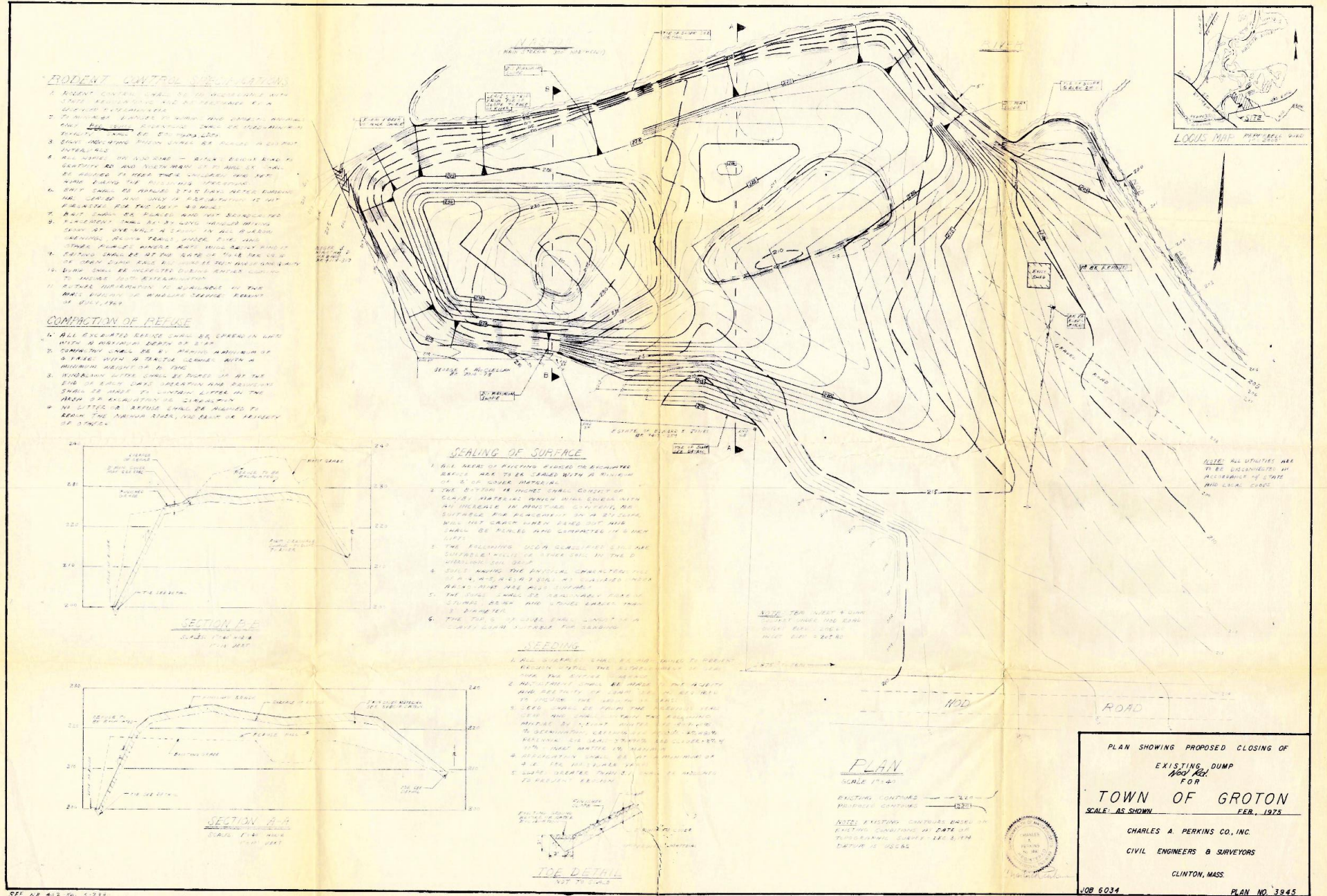
1965



INQUIRY #: 6843713.1
YEAR: 1965
= 500'



1976 Closure Plan

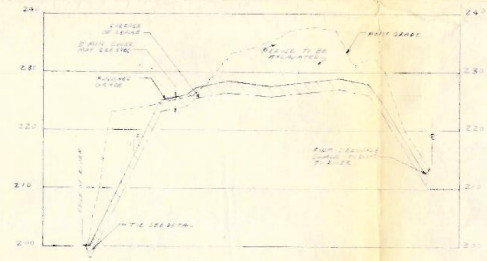


RODENT CONTROL MEASURES

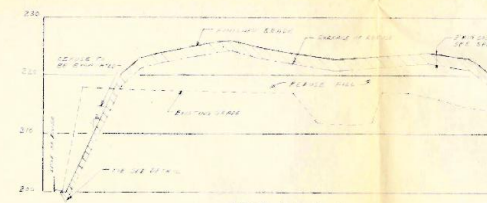
1. RODENT CONTROL SHALL BE IN ACCORDANCE WITH STATE REGULATIONS AND BE PERFORMED BY A LICENSED VERMIN CONTROL OPERATOR.
2. TO MINIMIZE RISK OF DISEASE AND OTHER HAZARDOUS EFFECTS, VERMIN CONTROL SHALL BE PERFORMED WITH THE FOLLOWING PRECAUTIONS:
 - a. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - b. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - c. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
3. VERMIN CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING PRECAUTIONS:
 - a. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - b. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - c. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
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10. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
11. ALL WORK SHALL BE DONE IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.

COMPACTION OF REFUSE

1. ALL EXCAVATED REFUSE SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95%.
2. COMPACTION SHALL BE BY MEANS OF A TRACTOR EQUIPPED WITH A RUBBER TIRE DRUM OR BY MEANS OF A TRACTOR EQUIPPED WITH A RUBBER TIRE DRUM.
3. RUBBER TIRE DRUMS SHALL BE OPERATED AT THE END OF EACH DAY'S OPERATION AND EQUIPMENT SHALL BE WASHED TO REMOVE ALL REFUSE FROM THE TIRE SURFACE.
4. NO LITTER OR OTHER DEBRIS SHALL BE ALLOWED TO REMAIN ON THE SURFACE OF THE DUMP OR NEARBY AREAS.



SECTION A-A
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.



SECTION B-B
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.

SEALING OF SURFACE

1. ALL AREAS OF EXCAVATED REFUSE TO BE SEALED SHALL BE SEALED WITH A MINIMUM OF 2" OF COVER MATERIAL.
2. THE COVER SHALL BE IN ACCORDANCE WITH THE FOLLOWING PRECAUTIONS:
 - a. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - b. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - c. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
3. THE FOLLOWING COVER MATERIALS SHALL BE USED:
 - a. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - b. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - c. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
4. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
5. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
6. ALL COVER SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.

SEEDING

1. ALL AREAS OF EXCAVATED REFUSE TO BE SEEDING SHALL BE SEEDING WITH A MINIMUM OF 2" OF COVER MATERIAL.
2. THE SEEDING SHALL BE IN ACCORDANCE WITH THE FOLLOWING PRECAUTIONS:
 - a. ALL SEEDING SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
 - b. ALL SEEDING SHALL BE OPERATED IN SUCH A MANNER AS TO AVOID CONTACT WITH VERMIN.
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TOE DETAIL
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.

PLAN

SCALE: 1" = 10'

EXISTING CONTOURS 1" = 10'
PROPOSED CLOSURE 1" = 10'

NOTE: EXISTING CONTOURS BASED ON PHOTOGRAMMETRIC DATA OF PHOTOGRAMMETRIC SURVEY, DEC. 8, 1968, DATED 10/15/68.

PLAN SHOWING PROPOSED CLOSING OF
EXISTING DUMP
FOR
TOWN OF GROTON
SCALE: AS SHOWN FEB., 1975

CHARLES A. PERKINS CO., INC.
CIVIL ENGINEERS & SURVEYORS
CLINTON, MASS.



1977



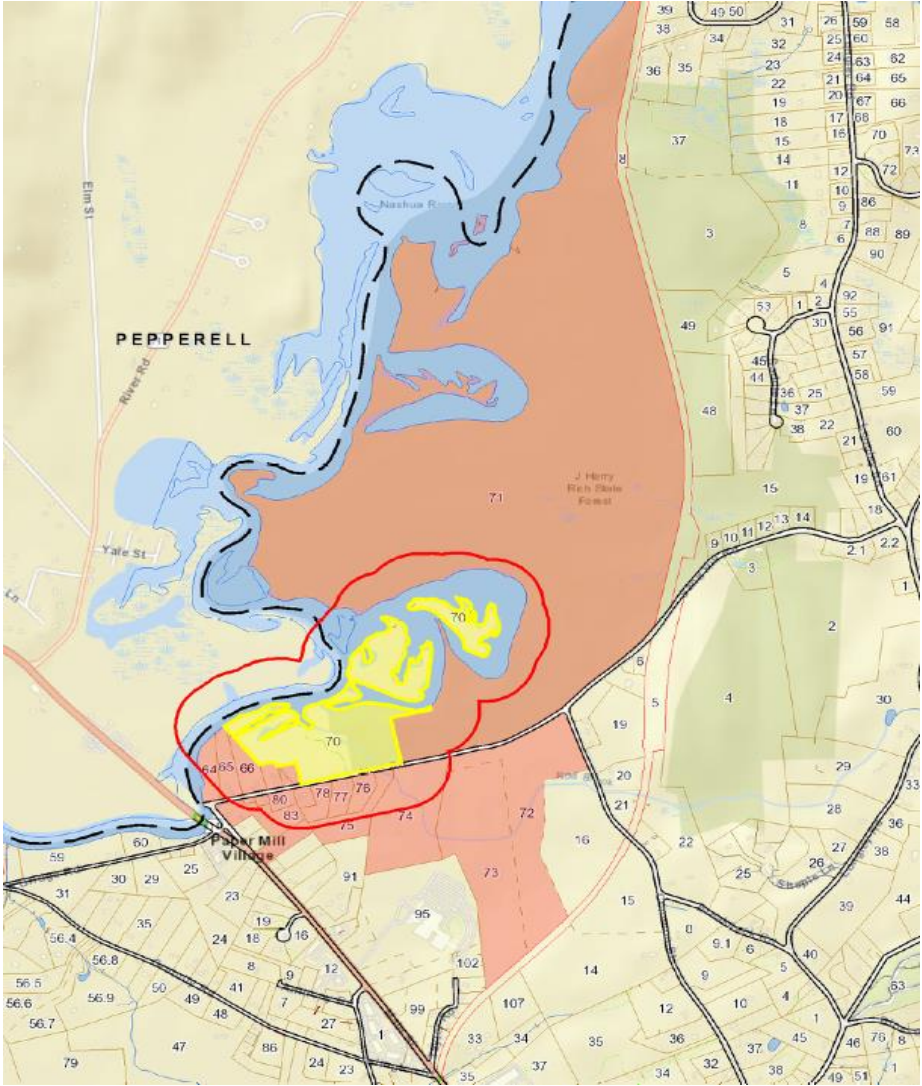
INQUIRY #: 6843713.1

YEAR: 1977

_____ = 500'



Review of Receptors within 500-Feet



Potential Human Receptors- 500-Feet

- No Public Drinking Water Supplies
- Residential Dwellings to the west and south
- No Private Domestic Wells
- No Day Care Centers
- No Schools
- No Elderly Housing
- No Hospitals
- On-site hikers

Closest Private Wells



Upland Resource Areas

- Farmland located across Nashua River
- Conservation Land –Town owned Conservation Land across Nod Brook
- J. Harry Rich State Forest
- No Sensitive Terrestrial Habitats

Surface Water and Wetland Resources

- Landfill abuts surface water features and wetland resource areas on northern and eastern borders
- Oxbow lake off of the Nashua River to the north
- Nod Brook to the east.
- 100-Year floodplains on northern and eastern borders
- Rare and Endangered Species Habitats on northern and eastern borders
- No Certified Vernal Pools
- Potential Vernal Pools
- Located in the Petapawag Area of Critical Environmental Concern (ACEC)
- Abuts the Squannassit ACEC, which shares the Nashua River corridor

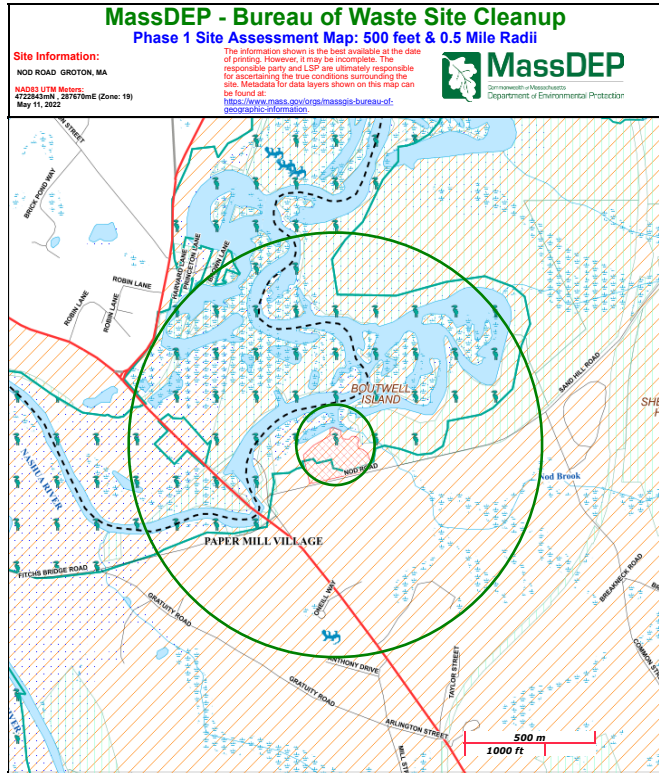
MADEP Priority Resource Map

MassDEP Phase 1 Site Assessment Map

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Priority Resources Map

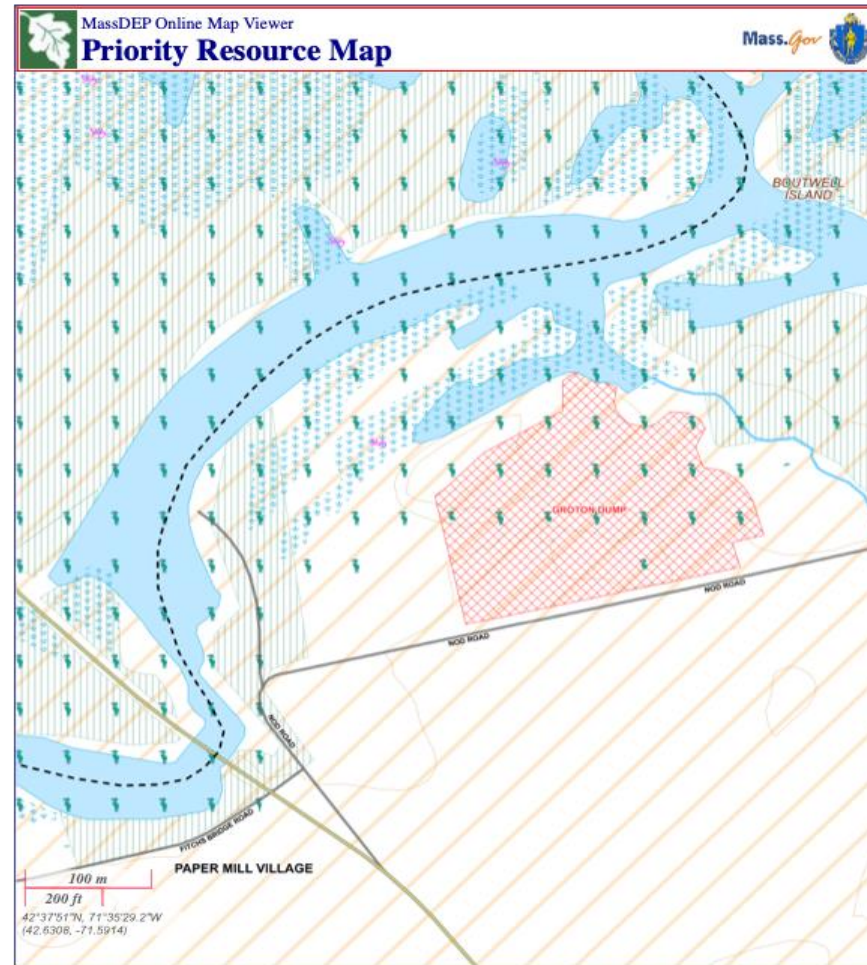
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Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, WPA, Zone A
Boundaries: Town, County, DEP Region, Train, Powerline, Pipeline, Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat
Basins: Major PWS, Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain, Protected Open Space, ACEC
Non Potential Drinking Water Source Area: Medium, High Yield	NHESP PII-Hub of Rare Species: Vernal Pool, Cert, Potential
	Solid Waste Landfill, PWS: Com, GW, SW, Emerg, Non-Com

<http://maps.massgis.state.ma.us/images/dep/mcp/mcp.htm>

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<http://maps.massgis.state.ma.us/images/dep/omv/mcpviewer.htm>

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April Site Inspection

- Parking is available off Nod Road by the Pump station.
- Landfill Cap is vegetated with heavy ground cover, bushes and small trees.
- Walking trail leads to top of landfill and foot bridge to state forest.
- Top of landfill has dense grass cover.
- No erosion observed. One animal borrow.
- Random tire and other pieces of solid waste.
- Neighbors mow a portion of the side slope.
- One neighbor accesses the landfill via ATV trail.









- Turning right trail leads to foot bridge crossing Nod Brook on to Conservation land and the State Forest.
- No leachate breakouts were observed in Nod Brook east of bridge.
- Visual evidence of leachate breakouts west of Nod Brook and in Oxbow lake off Nashua River.
- Leachate evident by iron staining.









ISA Summary

- Nod Road Landfill operated from 1930-1976.
- Wetlands were filled on the eastern side along Nod Brook.
- The Landfill was closed in 1976 prior to the current regulations so it is listed by MADEP as an Inactive Landfill with an Incomplete closure.
- An “As-built Design” is not available.
- The cap appears to be intact with no erosion.
- There are no drinking water supplies or exposed waste.
- Potential human exposures appear limited to the “trespasser scenario”.

ISA Summary continued...

- The landfill is located in an ACEC where there is rare and endangered species habitat.
- Wetland resource areas are present along the northern and eastern boundaries.
- Leachate breakouts with iron staining are visible at the toe of slope on the north and east sides.
- Breakouts are immediately adjacent to the landfill and do not extend out into the surface water features.
- There has been no environmental monitoring.

Recommendations to Maintain Current Use

- Post signage in parking area and along property access points notifying people that it a landfill.
- Prohibit digging or disturbing the cap.
- Prohibit use by motorized vehicles.
- Prohibit access to the water from the Landfill.
- Conduct annual inspections to ensure cap integrity.
- For any uses beyond a walking path a Comprehensive Site Assessment followed by a Corrective Action Alternative Design would be required.

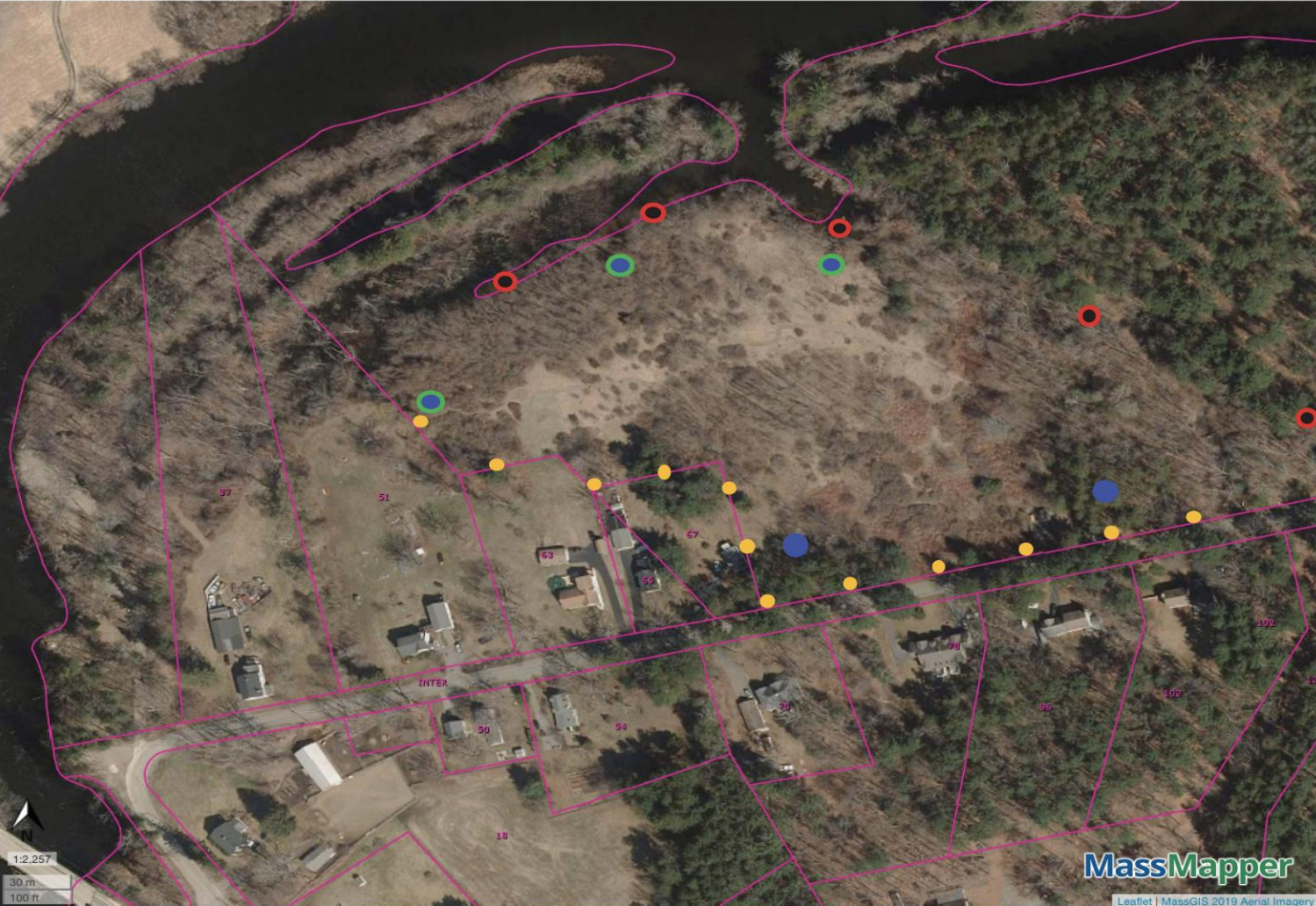
Comprehensive Site Assessment

- Purpose of CSA is to quantify potential human and environmental risks.
- Components of a CSA
 - Base Map showing property lines, wetland resource areas, topography, utility easements, abutting properties.
 - Evaluation of ground and surface water and sediment quality.
 - Evaluation of cap thickness and extent
 - Evaluation of extent of waste.
 - Evaluation of landfill gas production.
 - Evaluation impact of tree growth on cap.
 - Qualitative Risk Assessment for human health
 - Stage I Ecological Screening Evaluation

CSA Tasks

- Identification of wetland resources by wetland scientist.
- Installation and sampling of ground water monitoring wells.
- Hydraulic conductivity testing of aquifer.
- Establishing and sampling surface water and sediment sampling locations.
- Installing landfill gas monitoring wells.
- Excavation of test pits around perimeter and through the cap.
- Update base map.
- Report preparation.

Figure 5



- Property Tax Parcels
- Landfill Gas Probes
 - Surface Water/Sediment Locations
 - Monitoring Well Couplet
 - Water Table Monitoring Well