



NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.
501 SOUTH STREET, BOX E, SUITE 302, BOW, NH 03304
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FAX 603/225-0967

September 28, 1995



Mr. James N. Berg, Waste Management Specialist
Solid Waste Compliance Section
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03301-0509

**RE: North Country Environmental Services, Inc. - Bethlehem, NH
Stage II - Phase I Construction**

Dear Jim:

Following up on our discussions of September 26, 1995, enclosed please find a letter prepared by Sanborn, Head and Associates, Inc. (SHA) describing the conditions encountered during excavation to expose the liner anchor trench along the east side of Stage I at the North Country Environmental Services facility and presenting their recommendations to modify the liner connection detail.

As we discussed, the excavation to expose the anchor trench revealed that fill had been placed above the liner runout. SHA recommends that the additional fill be excavated and that the liner construction detail be modified to provide a small berm as a further means to contain leachate within Stage I until such time as operations begin in Stage II.

This portion off the facility was filled prior to our involvement at the site. In consideration of the conditions encountered, we will be conducting a test pit exploration program at the perimeter of the facility to locate the liner system anchor trench to evaluate whether similar conditions may exist elsewhere. We will make you aware of our findings.

Current our policy with regard to insuring that waste is not placed beyond the limits is placement of posts along the perimeter at a determined distance. The distance from the posts is consistent, logged and checked periodically by the landfill operator.



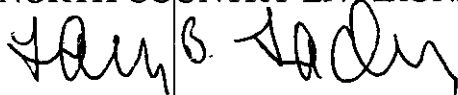
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Mr. James N. Berg
September 28, 1995
Page 2 of 2

We believe SHA's recommended modifications to the detail will constitute an improvement to the design and we have begun excavating fill material to the slope indicated. If you have any questions regarding this issue, please do not hesitate to contact me at (802) 223-7045.

Sincerely,

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.



Larry B. Lackey, Vice President
Permits, Compliance and Engineering

Enclosure

cc: Kevin Hopkins, NH Department of Environmental Services
R. Scott Shillaber, Sanborn, Head and Associates, Inc.
Douglas R. Casella, Casella Construction, Inc.
John W. Casella, New England Waste Services, Inc.
James W. Bohlig, North Country Environmental Services, Inc.
Robert A. Watts, North Country Environmental Services, Inc.

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Sanborn, Head & Associates

Consulting Engineers & Scientists

September 27, 1995
File No. 1177

Mr. Larry B. Lackey
North Country Environmental Services, Inc.
c/o Casella Waste Management
PO Box 548
Montpelier, VT 05602

Re: North Country Environmental Services Landfill
Bethlehem, New Hampshire

Dear Mr. Lackey:

At your request we have prepared this letter describing conditions encountered during excavation to expose the Stage I liner anchor trench along the common bound between Stages I and II, and presenting our recommendations to complete the Stage I/II liner connection. During excavation to locate the anchor trench it was determined that additional fill had been placed on a portion of the east Stage I sideslope such that waste fill had been placed above that portion of the liner at the top of the berm extending from the inside crest of the berm to the anchor trench. Staining was noted beyond the edge of the liner in certain areas indicating that leachate had discharged beyond the liner as a result of this condition. We understand that this portion of the facility had been filled, generally in the late 1980s, by prior owners of the facility. Shortly after exposing the liner, the contractor took steps to excavate additional material along the anchor trench to contain leachate within the lined facility.

At your request, we modified the Stage I/II liner connection detail (detail No. 2 on Sheet 9 of the design plans) to reflect conditions encountered in the field. Our recommended modification is attached as Figure 1. As indicated on Figure 1, we recommend that the existing fill slope be graded to slope not steeper than 2 horizontal to 1 vertical (2H:1V) upward from a point inside the top of the liner on the berm to meet the existing 3H:1V slope. A minimum of 12 inches of intermediate cover should be placed over the excavational material.

To provide an additional measure of containment, we recommend that the liner connection detail be modified so that the Stage II liner system rises up a minimum of 6 inches from the location where the liners are welded together before dropping to the Stage II landfill base. This small berm will provide a further measure of assurance that leachate will be contained within Stage I.

*Paul M. Sanborn ■ Charles L. Head ■ R. Scott Shillaber
Charles A. Crocetti ■ Gregory R. Morley ■ Mathew A. DiPilato ■ Daniel B. Carr*

Sanborn, Head & Associates, Inc.

6 Garvins Falls Road, Suite 1 ■ Concord, New Hampshire 03301
Fax (603) 229-1919 ■ Phone (603) 229-1900

In consideration of conditions encountered at the east edge of Stage I, we recommend that test pits be carefully excavated along the limit of fill on other sides of the facility to confirm that the fill has been placed within the limit of the facility. Going forward, we recommend that permanent monuments be installed along the limits of Stage II so that the edge of the landfill can be determined quickly in the field by operations personnel to assure that the fill slope remains within the permitted grades.

We believe the recommendations presented in this letter adequately address the conditions encountered in the field. Should you have any questions, please do not hesitate to call.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.



R. Scott Shillaber, P.E.
Principal

RSS:kmd

cc: James Bohlig, New England Waste Systems

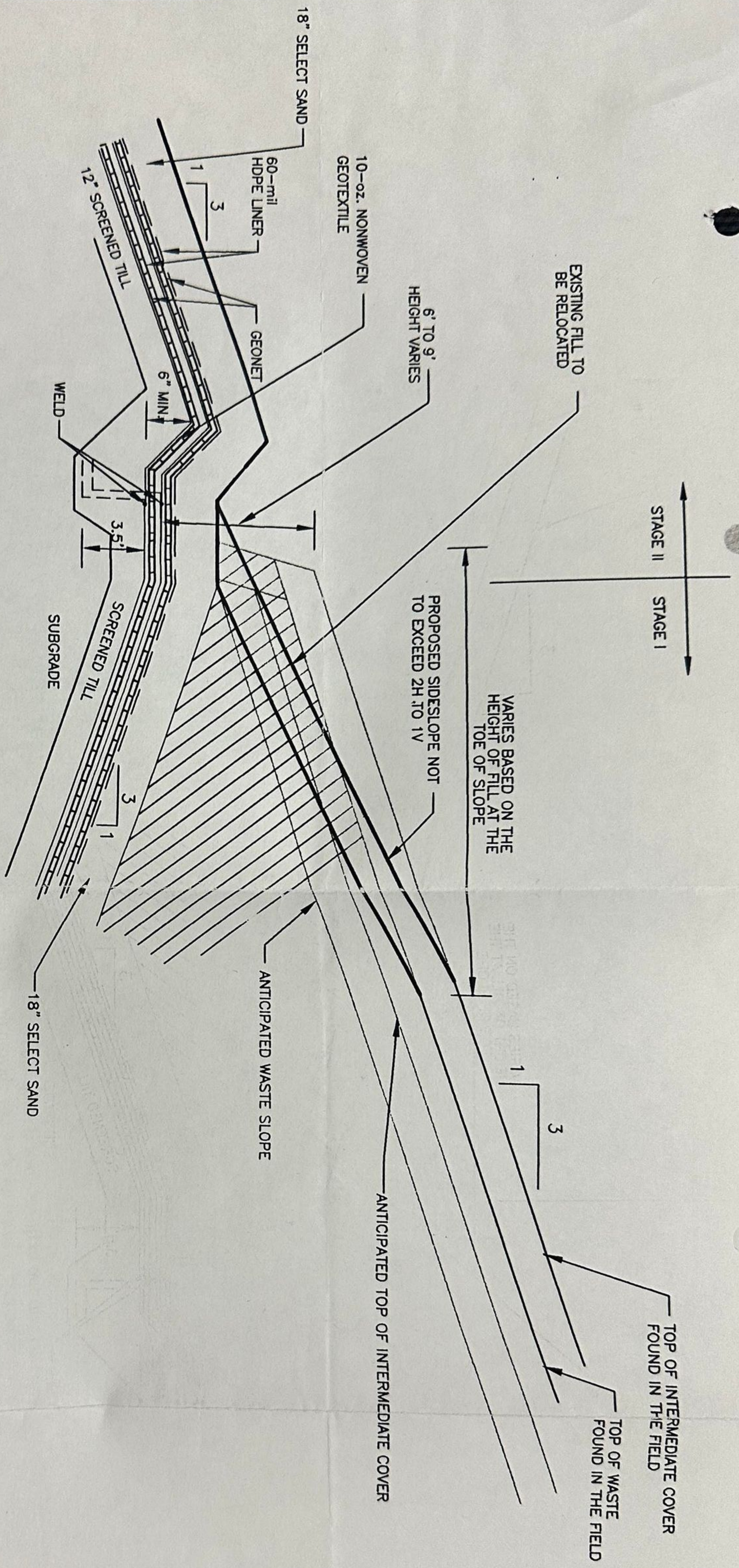
Attachment: Figure 1 - Revised Liner Connection Detail

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LINER CONNECTION DETAIL - COMBINED LANDFILL

N.T.S.

1. EXCAVATE STAGE I ANCHOR TRENCH TO EXPOSE THE PRIMARY AND SECONDARY LINER AND LEACHATE COLLECTION SYSTEMS.
2. CAREFULLY CUT THE PRIMARY LINER AND FOLD BACK TO EXPOSE SECONDARY LINER.
3. WELD STAGE II SECONDARY LINER TO STAGE I SECONDARY LINER.
4. INSTALL SECONDARY GEONET.
5. WELD STAGE II PRIMARY LINER TO STAGE I PRIMARY LINER.
6. INSTALL PRIMARY GEONET, 10-oz. NONWOVEN GEOTEXTILE AND 18" SELECT SAND.



**NORTH COUNTRY
 ENVIRONMENTAL SERVICES
 BETHLEHEM, NEW HAMPSHIRE**

**STAGE II - CONSTRUCTION
 REVISED LINER CONNECTION DETAIL**

DRAWN BY: MRP
 DESIGNED BY: RSS/MRP
 CHECKED BY:
 REVIEWED BY:
 PROJECT MGR: RSS
 PIC: RSS
 DATE: SEPT 95

SCALE
 SEE ABOVE

SHA
Sanborn, Head & Associates
 Consulting Engineers & Scientists

PROJECT NUMBER:
 1177

FIGURE NUMBER:
 1 OF 1