

**ENVIRONMENTAL ASSESSMENT**

**MODIFICATIONS TO THE  
NONHAZARDOUS SOLID WASTE LANDFILL**

**JOHN C. STENNIS SPACE CENTER  
HANCOCK COUNTY, MISSISSIPPI**

**CONTACT: RONALD G. MAGEE  
NASA ENVIRONMENTAL OFFICER  
NASA CODE GA00, BUILDING 1100  
JOHN C. STENNIS SPACE CENTER  
STENNIS SPACE CENTER, MISSISSIPPI  
(601) 688-7384**

**APRIL 1994**

**ABSTRACT**

NASA is planning modifications to the existing, permitted, onsite nonhazardous solid waste landfill to meet revised State of Mississippi nonhazardous solid waste requirements. The proposed changes will not result in significant effects to the environment. A Finding of No Significant Impact should be prepared.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**TABLE OF CONTENTS**

<b>TABLE OF CONTENTS</b>		<b>Page</b>
		ii
<b>1.0</b>	<b>SUMMARY AND CONCLUSIONS</b>	<b>1</b>
1.1	Proposed Action	1
1.2	Alternative Actions	1
1.3	No Action	2
1.4	Environmental Consequences	2
1.5	Recommendation	2
<b>2.0</b>	<b>PURPOSE AND NEED</b>	<b>3</b>
<b>3.0</b>	<b>DESCRIPTION OF THE NASA/STENNIS SPACE CENTER LANDFILL AND ALTERNATIVE ACTIONS</b>	<b>3</b>
3.1	Proposed Action	3
3.2	Alternative Actions	6
3.2.1	Offsite Alternative Actions	6
3.2.2	Onsite Alternative Actions	6
3.3	No Action	7
<b>4.0</b>	<b>ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND THE ALTERNATIVES</b>	<b>7</b>
4.1	Summary	7
4.2	Air Quality Effects	7
4.3	Water Quality Effects	8
4.4	Wetland and Floodplain Impacts	8
4.5	Fault Areas, Seismic Impact Zones and Unstable Areas	9
4.6	Natural Geology	9
4.7	Threatened and Endangered Species	9
4.8	Hydrocarbon Wells, Water Wells & Public Water Supply	10
4.9	Airport Safety	10
4.10	Noise	10
4.11	Parks and Recreational Areas	10
4.12	Forests, Wilderness Areas, Wildlife Management Areas	10
4.13	Historical, Archaeological and Cultural Impacts	10
4.14	Structures and Residential Areas	11
4.15	Aesthetics and Visibility	11
4.16	Safety Issues	11
4.17	Socioeconomic Impact	11
<b>5.0</b>	<b>INDIVIDUALS AND ORGANIZATIONS CONSULTED</b>	<b>12</b>
<b>6.0</b>	<b>REFERENCES</b>	<b>13</b>

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

Page

**LIST OF FIGURES**

Figure 1	Site Location	
Figure 2	General Layout of Landfill Cells	
Figure 3	Preliminary Design of New Landfill Cells	

**LIST OF TABLES**

Table 1	Individuals and Organizations Consulted	12
---------	---	----

**LIST OF ATTACHMENTS**

Attachment 1	EXISTING SOLID WASTE PERMIT	
Attachment 2	CORRESPONDENCE WITH MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY - SOLID WASTE DIVISION	

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**1.0 SUMMARY AND CONCLUSIONS**

**1.1 Proposed Action**

The National Aeronautics and Space Administration (NASA) is planning modifications to upgrade an existing nonhazardous solid waste landfill located at John C. Stennis Space Center (SSC). SSC has performed landfilling operations in this general area since the early 1960's. This landfilling operation is limited to nonhazardous solid waste generated on the SSC fee area only. The nonhazardous solid waste landfill is currently permitted by the Mississippi Natural Resources Permit Board under the authority of Permit No. SW02401B0376 (Attachment 1). Federal and state regulatory compliance for nonhazardous waste management under the jurisdiction of the Mississippi Department of Environmental Quality - Office of Pollution Control requires SSC to upgrade the existing landfill in order to continue operation of this disposal facility.<sup>1</sup> Current generation rates at SSC are approximately 50 cubic meters daily.<sup>2</sup>

An environmental assessment of the proposed project is being conducted to comply with the requirement of the National Environmental Policy Act (NEPA). The proposed action involves improvements to the existing landfill area and capping of existing, operational landfill cells. New landfill cells will be excavated and constructed to meet regulatory requirements. Specific design elements for the new cells are a composite liner system, a leachate collection and treatment system, a stormwater collection system, improved security fencing and a perimeter roadway. In addition, a new recycling facility will be constructed adjacent to the landfill to facilitate waste minimization and reuse/recycling efforts. Utilities such as power and water will be provided to the area as part of this project.

**1.2 Alternative Actions**

Several alternative actions have been evaluated including offsite and onsite disposal options. Closure of the landfill would involve transportation and shipment of wastes to offsite facilities. Alternative onsite disposal operations include incineration and enhanced waste minimization and recycling/reuse activities. Incineration would involve

## ENVIRONMENTAL ASSESSMENT LANDFILL MODIFICATION

additional environmental considerations, including landfilling of ash and or reuse/recycle activities.

The proposed action was deemed the most desirable from the standpoint of cost effectiveness and environmental, health and safety issues such as risk assessment and expediency.<sup>5</sup>

### 1.3 No Action

The no-action alternative would prevent existing landfill operations from being continued and upgraded to meet federal and state regulations. This alternative would cause closure of the landfill and significant costs to the operation of SSC associated with offsite treatment/disposal operations and the environmental risk associated with offsite treatment/disposal operations.

### 1.4 Environmental Consequences

Based on preliminary design requirements, the environmental impacts identified as a result of this assessment are sufficiently minor to preclude the need for an Environmental Impact Statement for the proposed modifications to the SSC landfill. The proposed modifications will reduce the long term environmental impacts of landfill operations by using proper environmental control technology in compliance with federal, state and local regulations. Enhanced design features such as an isolated sensitive materials area, a leachate collection and treatment system, stormwater control, a composite liner system, and environmental monitoring will minimize surface and groundwater contamination. A new recycling facility and improved waste management practices, such as reuse/recycle and waste minimization activities will reduce various waste streams to the landfill.

### 1.5 Recommendation

A Finding of No Significant Impact should be prepared as a result of minimal short-term and long-term environmental impacts of the proposed action. This finding would apply only to the nonhazardous solid waste landfill as an independent facility for disposal of nonhazardous solid waste generated within the SSC fee area and contingent upon compliance with regulatory design requirements.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**2.0 PURPOSE AND NEED**

The modifications to the SSC nonhazardous solid waste landfill will allow compliance with Federal and state regulations for nonhazardous solid waste management units as implemented by the Mississippi Nonhazardous Waste Management Regulations. This action is required in order to continue operation of the landfill.

Nonhazardous solid waste disposal is necessary due to the varied nonhazardous waste streams that are generated as a result of routine operations at SSC. Although waste minimization and reuse/recycle management practices are in practice at SSC, there are still numerous nonhazardous waste streams that are generated at the facility that require immediate disposal. These waste streams include sanitary and food wastes generated from the cafeteria and general housekeeping activities, and, waste from maintenance support activities such as asbestos removal, empty containers, nonrecyclable packaging, etc.

Upgrading of the existing landfill is necessary to maintain compliance with regulations and continue expedient operation of SSC activities. Correspondence with the Mississippi Department of Environmental Quality relative to this matter is provided in Attachment 2.

**3.0 DESCRIPTION OF THE NASA/STENNIS SPACE CENTER LANDFILL AND ALTERNATIVE ACTIONS**

**3.1 Proposed Action**

The current upgrade project covers 8 hectares [20 acres] of a 17 hectare [43 acre] permitted landfill area in the northwest section of the SSC fee area [SE 1/4 Section 37, Township 7 South, Range 16 West, Hancock County].<sup>2</sup> General location is provided in Figure 1. The site is primarily underlain by silty clays and interbedded sand lens to a depth of approximately 10 meters. Water depth at the site ranges from 2 and 7 meters.<sup>3</sup> SSC monitors groundwater and surface water for internal purposes. Detailed groundwater investigations have been initiated relative to previous landfilling operations and associated solid waste management cells and the Comprehensive Environmental Conservation and Liability Act (CERCLA). Groundwater in the area has a

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

tendency to flow to the southwest towards surface drainages located to the south and west of the site and are probably hydraulically connected to Mike's River located to the southwest of the area.

The proposed modifications to the landfill will include capping of two existing landfill cells and construction of new cells. Anticipated life spans of the new cells are approximately 10 years, based on current generation rates and existing waste minimization practices. A revised solid waste permit will be obtained for operation of the new cells and capping, design and operational requirements will adhere to state regulatory requirements and regulations.

In order to secure the two existing cells, each cell will be capped with a minimum layer of 61 centimeters [2 feet] of clay, overlain with a minimum of 15 centimeters [6 inches] of top soil, graded to drain and seeded with grasses indigenous to the area. A leachate collection system for the existing cells will also be installed. The leachate collection system will be located at the proper depth and orientation to capture any leachate generated from the secured cells. The system will consist of a lined, gravel-filled leachate collection trench, sloped to drain. Within the gravel bed of the trench will be a perforated drainage pipe, also sloped to drain and connected to a lift station/sump system. Leachate will collect in the trench, gravity-feed to the lift station/sump system and be pumped from the lift station/sump system to an existing treatment facility.<sup>4</sup> Utilization of the existing sanitary treatment system is planned until sampling and analysis of leachate can be conducted to determine the physical and chemical characteristics. Alternative treatment systems will be installed as required to meet regulatory requirements. Security fencing will be installed to prevent access into the secured areas.

The new cells will adhere to nonhazardous waste management design requirements. The proposed areas of excavation are located adjacent and to the east of the existing cells. Figure 2 provides layout details of the landfill cells. A new landfill cell will be constructed for general nonhazardous wastes, adjacent and east of the eastern most secured cell. A separate, but smaller, sensitive materials cell will be constructed east of the new general waste cell. This cell will be used for more sensitive waste materials such as asbestos, approved spill cleanup materials, sandblasting media, etc.

## ENVIRONMENTAL ASSESSMENT LANDFILL MODIFICATION

Approximately 70,000 cubic meters of material will be excavated from the area. The excavated material will be stored in a staging area, adjacent to the new cells. This staging area will be equipped with erosion-reducing materials such as silt fences, liners, etc. to minimize runoff and sedimentation from the area.<sup>4</sup> Runoff from the area will discharge to a stormwater retention surface impoundment.

Each new cell will be constructed with a bottom, composite liner system consisting of a 60 mil thick High Density Polyethylene (HDPE) liner underlain by a 61 centimeter [2 feet] thick clay liner. The composite liner system will have a minimum hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. Within each cell, a leachate collection system will be installed. Details are provided in Figure 3.

Leachate collection in the cells will consist of lined, gravel-filled trenches located centerline of the cell and sloped to drain to the southern end of the cell. Within the gravel bed of the trench will be a perforated drainage pipe, also sloped to drain and connected to a lift station/sump system. The bottom sides of the cells will be sloped to drain to the leachate trench such that any leachate generated will be collected in the leachate collection trench, gravity-feed to the lift station/sump system and pumped from the lift station/sump system to an appropriate treatment facility. Utilization of the existing sanitary treatment system is planned until sampling and analysis of leachate can be conducted to determine the physical and chemical characteristics. Alternative treatment systems will be installed as required to meet regulatory requirements.

Stormwater runoff generated from the new, active cells and associated staging area will be collected in a stormwater retention surface impoundment, located to the south of the new cells. Figure 2 provides the general location of the surface impoundment relative to the landfill cells. Stormwater runoff and leachate generation will be minimized through utilization of liners on inactive portions of the new cells and the staging area. The surface impoundment will be designed to accommodate a 25-year, 24-hour storm event. Discharge from the surface impoundment will be permitted with the Mississippi Department of Environmental Quality under the National Pollutant Discharge Elimination System (NPDES) through the modification of SSC's NPDES Permit Number MS 0021610.

## ENVIRONMENTAL ASSESSMENT LANDFILL MODIFICATION

The new cells will be surrounded by an earthen berm of sufficient elevation and width to support vehicular traffic. Security fencing will be installed around the periphery of the landfill area to prevent entry and reduce windblown materials from leaving the immediate area. To control disease vectors, fires, odors, blowing litter, dusting and scavenging, the active areas of the new landfill cells will be covered with a minimum of 15 centimeters [6 inches] of earthen material at the end of each operating day to meet daily cover requirements. Minimal generation of offgases are expected and no venting systems are anticipated in the design and operation of this landfill.<sup>5</sup>

A recycling facility will be constructed in the general area of the landfill to facilitate reuse/recycle and waste minimization efforts.

### 3.2 Alternative Actions

#### 3.2.1 Offsite Alternatives

Waste could be transported off-site to another permitted landfill, however a cost analysis has shown that this option is undesirable.<sup>5</sup> SSC is currently evaluating alternatives to various waste streams generated at the facility. However, disposal of waste is still necessary to properly operate and maintain the facility.

#### 3.2.2 On-site Alternatives

There is no alternative, permitted on-site location for the SSC landfill. The landfill area that will be modified is within a location that has already been permitted by the State of Mississippi under the Solid Waste Management Permit #SW02401B0376. Incineration of nonhazardous solid waste would require detailed air, water and solid waste permitting and ultimate disposal of ash generated. Waste generation rates, with improved reuse/recycle and waste minimization efforts would likely make this option uneconomical.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**3.3 No Action**

The no-action alternative would result in SSC being out of compliance with the most recent Mississippi Nonhazardous Waste Management Regulations. If this should occur, the SSC landfill would be closed and all nonhazardous solid waste would have to be transported off-site.

**4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND THE ALTERNATIVES**

**4.1 Summary**

This section summarizes the environmental effects resulting from the proposed modification and upgrading of the SSC nonhazardous solid waste landfill. Only minor short-term impacts due to excavation and construction are anticipated. Long-term impacts are minimal and overall improvements to the landfill should provide better monitoring, collection and treatment of leachate and stormwater runoff, thus providing improved protection of surface and ground water.

**4.2 Air Quality Effects**

Short-term fugitive air emissions will result from the excavation and construction of the new landfill cells, capping and grading of the two existing landfill cells and construction of the surface impoundment and perimeter roadway system. In addition, fugitive air emissions will occur as a result of daily operation of the landfill and excavation and daily cover activities.

Methane emissions from the landfill will not change significantly from use of the existing landfill cells to the use of the new landfill cell. Due to the quality of waste disposed of at the landfill and the size of the landfill cells, it has not been necessary to collect offgases and measure emissions.<sup>5</sup> Standard operating procedures for daily covering of the solid waste will be continued to reduce any odoriferous effects.

## ENVIRONMENTAL ASSESSMENT LANDFILL MODIFICATION

### 4.5 Fault Areas, Seismic Impact Zones and Unstable Areas

SSC is located on the eastern edge of the Mississippi Embayment which is an area of some faulting and seismic activity further north in Missouri.<sup>2</sup> The landfill is not within 60 meters (200 feet) of a fault that has had displacement in Holocene time. The facility is listed as seismic zone 0 by the Uniform Building Code, which indicates no specific design considerations.<sup>2</sup> The SSC landfill is not located in an unstable area. Unstable areas are defined as locations that are susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill.

### 4.6 Natural Geology

The landfill site is underlain by several thousand feet of Miocene through Holocene sedimentary deposits which consist primarily of interbedded layers of quartz sand, silt and silty clays. At the surface there is a one to two foot thick sandy top soil layer underlain by gray to brown silty clay. The water table beneath the site was encountered in sandy sediments at depths from approximately 2 to 5 meters [6 to 17 feet] below the surface.<sup>3</sup>

The area will be excavated and suitable existing clays will be stored in a staging area for use as daily cover material. A clay liner system will be installed in the bottom of new landfill cells and overlain with a synthetic liner system. Groundwater monitoring wells will be utilized to determine groundwater impacts.

### 4.7 Threatened and Endangered Species

Threatened and endangered species surveys for terrestrial fauna in the vicinity of the landfill have been reported by Drs. Edmund Keiser and Paul Lago.<sup>9</sup> There have not been any documented sightings of threatened or endangered species within the site boundaries of the landfill.<sup>2</sup> A 1992 fall survey of flora at the landfill site did not uncover any threatened or endangered botanical species.<sup>10</sup> Proposed construction and modification of the SSC landfill should not adversely affect any species or species habitat possibly known to exist in the SSC fee area.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**4.8 Hydrocarbon Wells, Water Wells and Public Water Supply**

The SSC landfill is not located above an active or inactive hydrocarbon well nor is it above an active or inactive water well. The closest potable water well is beyond 300 meters [1000 feet] as required by the Mississippi Department of Environmental Quality.

**4.9 Airport Safety**

The SSC landfill is not within 8 kilometers [5 miles] of any airport and therefore does not pose a bird hazard to aircraft.

**4.10 Noise**

Noise impacts due to proposed construction will be short term. Noise levels from normal waste management operations will not affect any single family dwelling since a restricted easement surrounds the NASA Fee area and no inhabited structures are allowed within an approximate 8 kilometer [5 mile] radius.

**4.11 Parks and Recreational Areas**

The SSC landfill is not located within 0.8 hectares [0.5 miles] of a national park, county or city designated park or an outdoor recreational area. Unauthorized access is not allowed in the landfill area and security is strictly enforced by daily patrols of the area.

**4.12 Forests, Wilderness Areas, Wildlife Management Areas**

The SSC landfill is not located within a national forest land, wilderness area or wildlife refuge nor is it within a state wildlife management area, game management area or other natural area.

**4.13 Historical, Archaeological and Cultural Impacts**

During 1988, the Mobile District of the U.S. Army Corps of Engineers conducted an archaeological survey and

## ENVIRONMENTAL ASSESSMENT LANDFILL MODIFICATION

reconnaissance of lands within the SSC fee area<sup>11</sup>. No archaeological resources were located on any of the land surveyed. The Mississippi Historic Preservation Office and the Archaeological Services Branch of the National Park Service concurred with these findings.

### 4.14 Structures and Residential Areas

The SSC landfill is not within 0.8 kilometers [0.5 miles] of any licensed school, day-care center, hospital or nursing home or within 650 meters [1000 feet] of any church. It is also not within 1.6 kilometers [1.0 miles] of any residential area.

### 4.15 Aesthetics and Visibility

The SSC landfill is not visible from Mississippi State Highway 607, the closest highway to the landfill site. Proposed modification and upgrade of the landfill site will not change this status. Final elevation of the new landfill cells are under negotiation with the Mississippi Department of Environmental Quality.

### 4.16 Safety Issues

To control disease vectors, fires, odors, blowing litter, and scavenging the active areas of the new landfill cells will be covered with a minimum of 15 centimeters [6 inches] of earthen material at the end of each operating day.

### 4.17 Socioeconomic Impacts

There will be no change in the number of jobs at the landfill following modification and upgrading, therefore there will be no socioeconomic impact.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**5.0 INDIVIDUALS AND ORGANIZATIONS CONSULTED**

Table 1 provides information on the individuals and organizations consulted in the preparation of this environmental assessment document.

Individual	Organization	Area of Information
Anne Johnson	NASA - SSC Center Operations - Environmental Staff	Environmental Concerns
Ronald Magee	NASA - SSC Center Operations - Environmental Staff	Environmental Concerns
Andrew Clarke	NASA - SSC Center Operations - Construction	Engineering Design
Ellen Eagan	Sverdrup Technology, SSC Group	Environmental Regulations
Carolyn Kennedy	Sverdrup Technology, SSC Group	Environmental Concerns
Cindy King	Sverdrup Technology, SSC Group	Botanical Surveys
Carl Williams	Johnson Control World Services	Engineering Design
Jenette Gordon	Johnson Control World Services	Environmental Health
Mark Williams	Mississippi Department of Environmental Quality - Special Waste Section	Waste Management

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**6.0 REFERENCES**

- 1 State of Mississippi. Department of Environmental Quality. Nonhazardous Waste Management Regulations. Adopted September 23, 1993.
- 2 National Aeronautics and Space Administration. Environmental Resources Document. John C. Stennis Space Center. September 1992.
- 3 EBASCO. Final Screening Site Inspection Report. John C. Stennis Space Center. December 1993.
- 4 Williams, C. Johnson Control, Inc. Telephone communications with C. Kennedy of Sverdrup Technology, Inc., SSC Group. March 25, 1994.
- 5 Gordon-Stokes, J. Johnson Control, Inc. Telephone communications with C. Kennedy of Sverdrup Technology, Inc., SSC Group. March 3, 1994.
- 6 McGregor, E. G. U.S. Army Corps of Engineers, Vicksburg District. Correspondence to R. G. Magee, NASA. Jurisdictional Wetland Determination of SSC. June 1991.
- 7 Fish and Wildlife Service, Environmental Protection Agency, Department of the Army and Soil Conservation Service. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. December, 1991.
- 8 Federal Emergency Management Agency, Flood Insurance Rate Map: Hancock County, Mississippi, Panel 125 of 195. Community Panel Number 285254 0125 C, Map Revised, September 18, 1987.
- 9 Keiser, E. and P. Lago. Survey of the Amphibians, Reptiles, Birds, and Mammals on the 3,000 Acre Space Center ASRM site, Final Report. October, 1991.
- 10 King, C. Sverdrup Technology Inc., SSC Group. Telephone communications with C. Kennedy, Sverdrup Technology Inc., SSC Group. April, 6, 1994.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

- 11 U.S. Army Corps of Engineers. Cultural Resources Investigations for National Aeronautics and Space Administration at National Space Technology Laboratories, NSTL, Mississippi. U.S. Army Corps of Engineers, Mobile District. May, 1988.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**ATTACHMENT 1  
EXISTING SOLID WASTE PERMIT**



MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES  
Bureau of Pollution Control  
P. O. Box 10385  
Jackson, Mississippi 39209  
(601) 961-5171



August 3, 1987

CERTIFIED MAIL NO. P 494 298 152

Dr. B. C. Wolverton  
NASA  
Building 2423  
NSTL, Mississippi 39529

Dear Dr. Wolverton:

Re: Operating Permit No. SW2401B0376  
37 Acres in SE 1/4 Sec 37, T7S, R16W,  
Upper Gainsville Road, NSTL  
Hancock County, Mississippi

Enclosed is Operating Permit No. SW2401B0376 for the operation of a Solid Waste Disposal Facility at the above mentioned location. Please note the conditions of the permit, particularly the site specific requirements of paragraph E.(11).

This permit is issued in accordance with the provisions of the Mississippi Solid Wastes Disposal Act of 1974 (Sections 17-17-1, et. seq., Mississippi Code of 1972) and the Mississippi Air and Water Pollution Control Law (Sections 49-17-1, et. seq., Mississippi Code of 1972).

If you desire that a Permit Board hearing be held regarding this permit, you must make written application to the Permit Board within thirty (30) days of receipt of this notice; otherwise, the terms and conditions of this permit become final.

Sincerely,

*Bill Lee*

Bill Lee  
Non Hazardous Waste Section

BL:cm  
Enclosure  
cc: SRO (w/enclosure)



State of Mississippi  
Solid Waste Management

PERMIT

TO OPERATE A SOLID WASTE MANAGEMENT FACILITY IN ACCORDANCE  
WITH THE REGULATIONS GOVERNING SOLID WASTE MANAGEMENT

THIS CERTIFIES THAT

NATIONAL AERONAUTICS SPACE ADMINISTRATION

has been granted permission to operate a solid waste management facility located  
Section 37, Township 7S, Range 16W, Hancock County

under the name of

NSTA Solid Waste Landfill

This permit is issued in accordance with the provision of the Solid Waste Disposal Law  
(Section 17-17-1 et seq, Mississippi Code of 1972), and the regulations and guidelines  
adopted and promulgated thereunder.

MISSISSIPPI NATURAL RESOURCES PERMIT BOARD

*Charles E. Brown*  
\_\_\_\_\_  
DIRECTOR, BUREAU OF POLLUTION CONTROL  
MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Issued: July 30, 1987

Expires: When Permitted Area  
Is Completed

Permit No. SW02401B0376

MPC-SW-2

(See Conditions Inside)

## CONDITIONS

### A. EFFECT OF PERMIT

The permittee shall operate the solid waste disposal facility in accordance with the Mississippi Nonhazardous Waste Management Regulations and conditions of this permit. Any disposal of unauthorized solid waste listed in this permit is prohibited. Compliance with this permit constitutes compliance, for purpose of enforcement, with the Mississippi Solid Waste Disposal Law. However, compliance does not constitute compliance with other state or federal laws or regulations.

### B. PERMIT ACTIONS

This permit may be modified, revoked, and reissued, or terminated for noncompliance with the terms and conditions of the permit. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

### C. SEVERABILITY

The provisions of the permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

### D. DUTIES AND REQUIREMENTS

- (1) **Duty to Comply.** The permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance as authorized by an emergency permit. Any permit noncompliance constitutes a violation of the solid waste law and regulations promulgated thereunder and is ground for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.
- (2) **Duty to Reapply.** If the permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 180 days before this permit expires.
- (3) **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
- (4) **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all equipment and systems which are installed or used by the permittee to achieve compliance with the conditions of this permit and application as submitted and approved by the Bureau.
- (5) **Duty to Provide Information.** The permittee shall furnish to the Bureau of Pollution Control, within a reasonable time, any relevant information which the Bureau may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

- (6) **Inspection and Entry.** The permittee shall allow an authorized representative upon the presentation of credentials and other documents as may be required by law to:
- (a) Enter at reasonable times upon the permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;
  - (b) Have access to and copy at reasonable times any records that must be kept under the conditions of this permit;
  - (c) Inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under this permit;
  - (d) Sample or monitor at reasonable times for the purposes of assuring permit compliance.
- (7) **Monitoring and Records.**
- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - (b) The permittee shall retain records of all monitoring information, including copies of all reports and records required by this permit.
  - (c) Records of monitoring information shall include:
    - (i) The dates, exact place, and time of sampling or measurements;
    - (ii) The individuals who performed the sampling or measurements;
    - (iii) The date(s) analyses were performed;
    - (iv) The individual(s) who performed the analyses;
    - (v) The analytical techniques or methods used; and
    - (vi) The results of such analyses.
- (8) **Anticipated Noncompliance.** The permittee shall give thirty days notice to the Bureau of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (9) **Transfer of Permits.** This permit may be transferred to a new owner or operator only after the new owner or operator has been notified in writing by the permittee of the requirements of the new permit and the acceptance by the Natural Resources Permit Board.

#### E. OPERATIONAL STANDARDS

The permittee shall operate the landfill to comply with the following in that:

- (1) Open burning of solid waste is prohibited.
- (2) Unloading of solid waste shall be confined to as small an area as practical.
- (3) Uncontrolled access and dumping of unauthorized materials shall be prevented.
- (4) Litter control shall be maintained by means of a portable fence or operator picking up waste and returning waste to the disposal area.
- (5) Special provisions shall be made for the disposal of large, heavy, or bulky items that cannot be incorporated into the regular spreading, compaction, and covering operation.
- (6) Approved insecticides shall be used for vector control when necessary.
- (7) Scavenging shall not be allowed.
- (8) Solid waste shall be spread and compacted evenly followed by a daily earth covering of the solid waste, unless inclement weather prohibits application.
- (9) Final cover of 24 inches of earth shall be applied to each completed portion of the landfill within 30 days after completion unless inclement weather prevents the application of dry cover material.
- (10) Final cover shall be graded and seeded to establish vegetation which will minimize erosion. Erosion shall be repaired by restoring the covered material and reseeding.
- (11) At least 60 days prior to completion of disposal operations or closing of the site, the permittee shall notify the Bureau and provide a closure plan for closing the facility in accordance with the Mississippi Nonhazardous Waste Management Regulations.
- (12) The permittee is not authorized to dispose of the following wastes:
  - (a) Hazardous waste in quantities exceeding that which is allowed for in the Mississippi Hazardous Waste Management Regulations.
  - (b) Large volumes of liquid waste which will hamper the daily operation.
- (13) The solid waste landfill must be designed and operated in accordance with the plans submitted as approved by the Natural Resources Permit Board.

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**ATTACHMENT 2**

**CORRESPONDENCE WITH  
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
SOLID WASTE DIVISION**



STATE OF MISSISSIPPI  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
JAMES I. PALMER, JR.  
EXECUTIVE DIRECTOR

December 15, 1993

Mr. Ronald G. Magee  
Environmental Officer  
National Aeronautics and Space Administration  
John C. Stennis Space Center  
Stennis Space Center, MS 39529-6000

Dear Mr. Magee:

We have received and reviewed the supplemental information that you submitted dated November 8, 1993, regarding the waste streams currently being disposed at the on-site NASA landfill. Based on this review and our internal discussions, we do not believe that this facility would be subject to the full requirements for a Municipal Solid Waste Landfill unit (MSWLF) under the State of Mississippi Nonhazardous Waste Management Regulations. However, the landfill would be subject to those requirements applicable to other landfills, which does require a composite liner system, leachate collection system, groundwater monitoring system, and other controls comparable to those of a MSWLF unit. As you know, the State of Mississippi Nonhazardous Waste Management Regulations does allow for some variance from these requirements, based upon the ability of the permittee to demonstrate that the alternate proposal would offer sufficient protection for regional ground and surface waters.

We are currently finalizing our existing landfill upgrade and/or new landfill application forms. If NASA is seeking to continue operating areas that are currently permitted under the existing Solid Waste Management Permit #SW02401B0376, then the agency will need to proceed through the upgrade process. If NASA intends to continue operating existing areas but also intends to expand the existing permitted disposal area, at this time, the agency would need to proceed through the process for a new landfill. Please advise our Department as to your agency's intent regarding this matter, so that we may provide you with the appropriate guidance information.

Mr. Ronald G. Magee  
December 15, 1993  
Page 2

Should you have questions or comments concerning this matter,  
contact our office at 961-5171.

Sincerely,

A handwritten signature in cursive script that reads "Mark Williams".

Mark Williams  
Environmental Administrator  
Special Wastes Section

MW:yb

**ENVIRONMENTAL ASSESSMENT  
LANDFILL MODIFICATION**

**FIGURES**



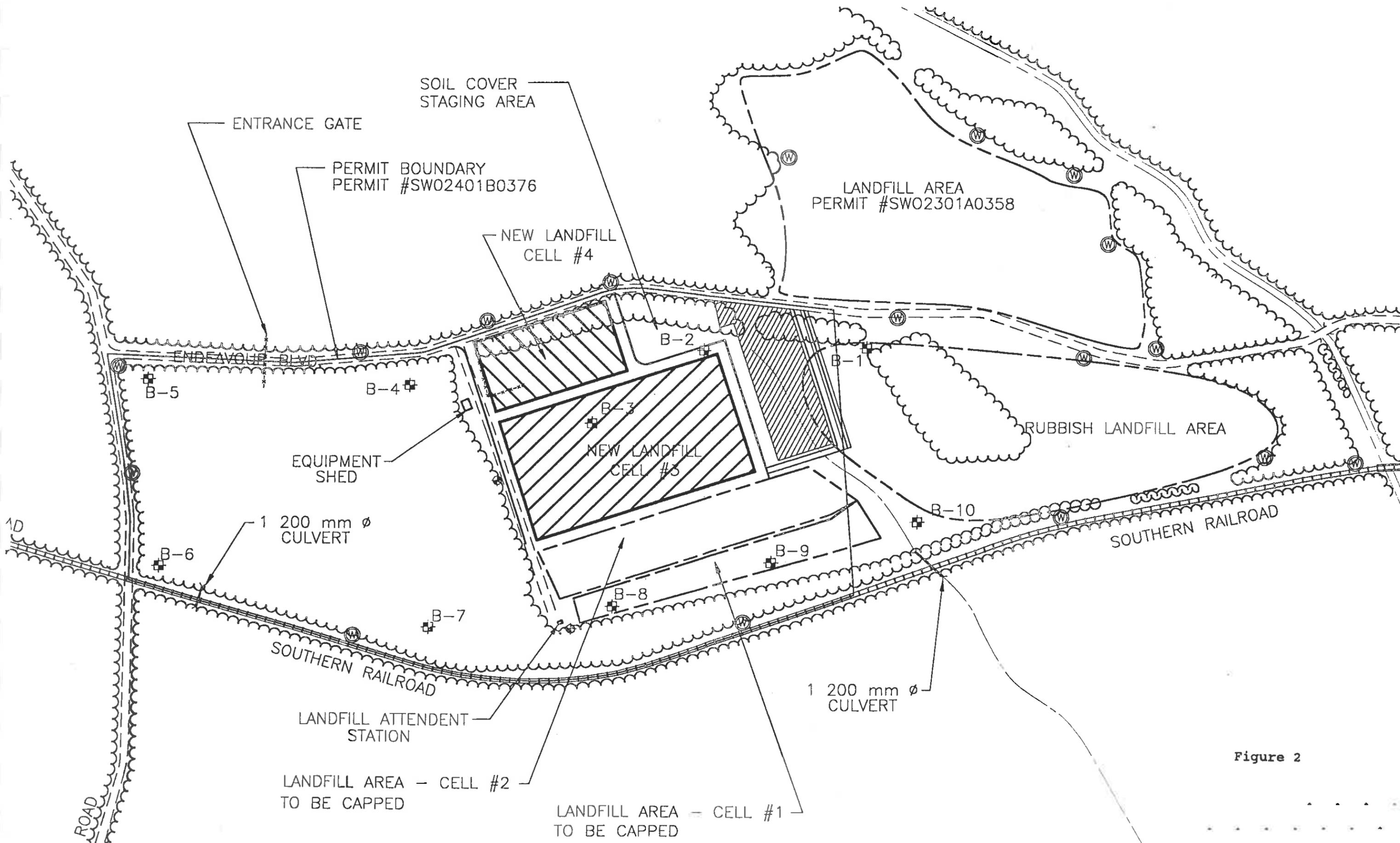


Figure 2

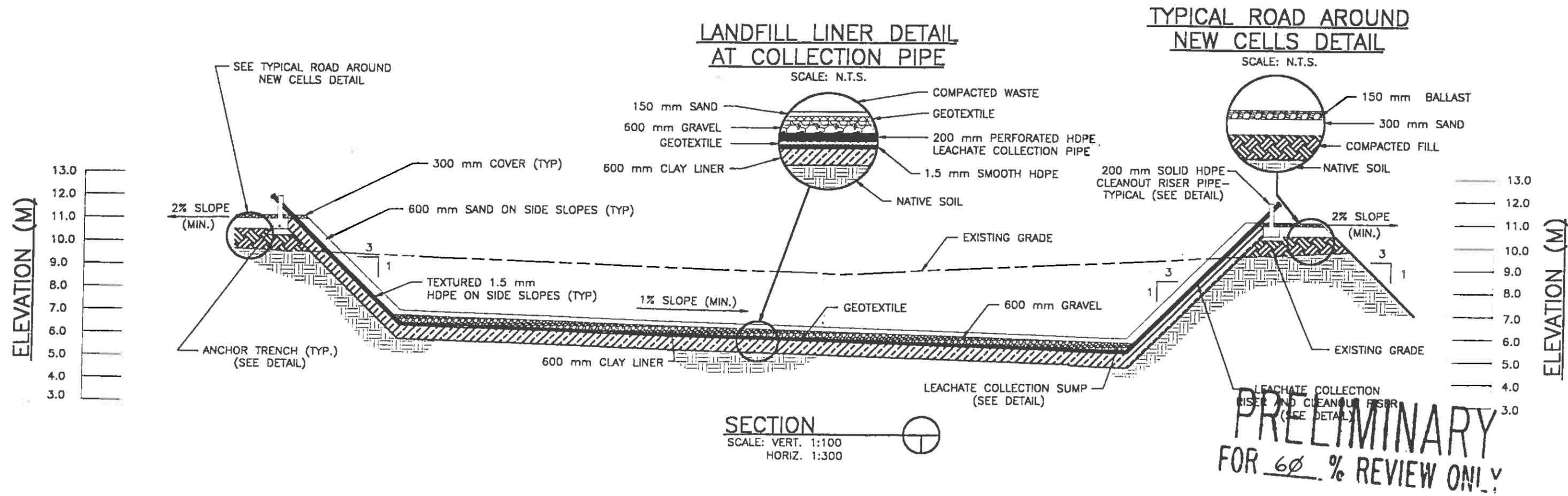


Figure 3