



BATTELLE

LANDFILL CONSTRUCTION AND OPERATIONS WORKSHOP

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No.	Module	Presenter
1	Importance of Proper Landfill Management	P. Ruesch
2	Landfill Construction Part I	M. Elizondo
3	Landfill Construction Part II	J. Davila
4	Landfill Operations Part I	M. Elizondo
5	Landfill Operations Part II	M. Elizondo
6	LFG Basics and GCCS	J. Davila
7	LFG Utilization Technologies	J. Davila
8	Open Dump Closure	P. Ruesch



BATTELLE

Module 8

Open Dump Closure

Paul Ruesch
USEPA Region 5 – Chicago

Objectives

- Protect public health & environment through proper closure of open dumps and future site use
- Prevent environmental risks and pollution
- Prevent environmental risks and pollution derived from future development

Closure Measures

- Provide adequate cover to avoid waste exposure
- Avoid fires or explosions caused by presence of gases
- Provide for stormwater management
- Minimize environmental impacts caused by leachate
- Prevent groundwater contamination
- Take measures to stabilize waste and cover soil

Management Measures After Closure

- Maintain final cover system
- Ongoing leachate management/treatment
- Continue environmental monitoring
 - Stormwater, LFG and groundwater
- Waste and slope stability monitoring

Closure Levels - ISWM

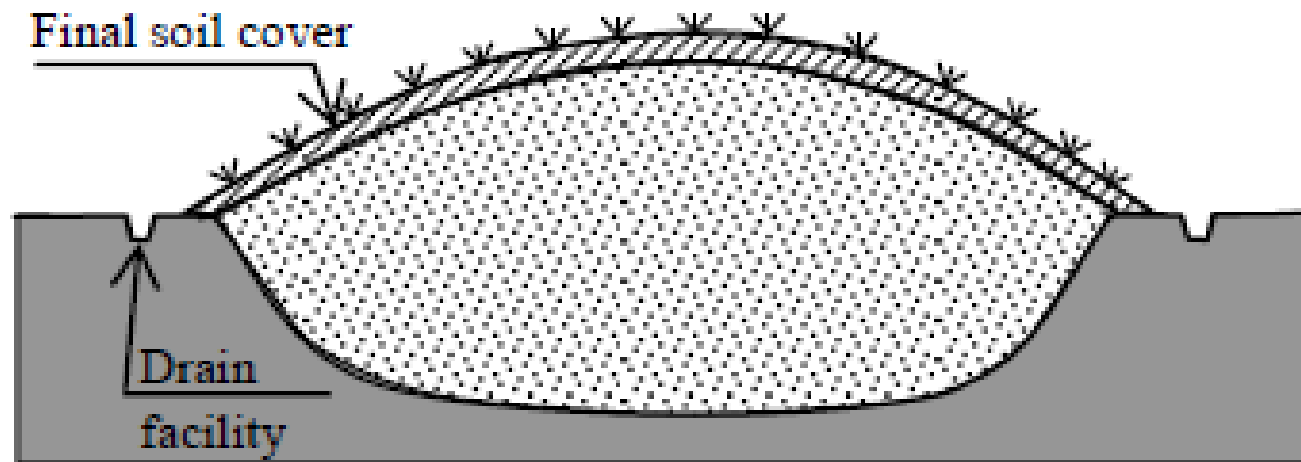
C1 - Minimum – provide final cover system and perimeter drainage system

C2: Low - similar to C1, plus system to maintain slopes with support at toe and LFG venting

C3: medium – similar to C2, plus leachate treatment or recirculation system

C4: high - similar to C3, plus measures to monitor control groundwater pollution

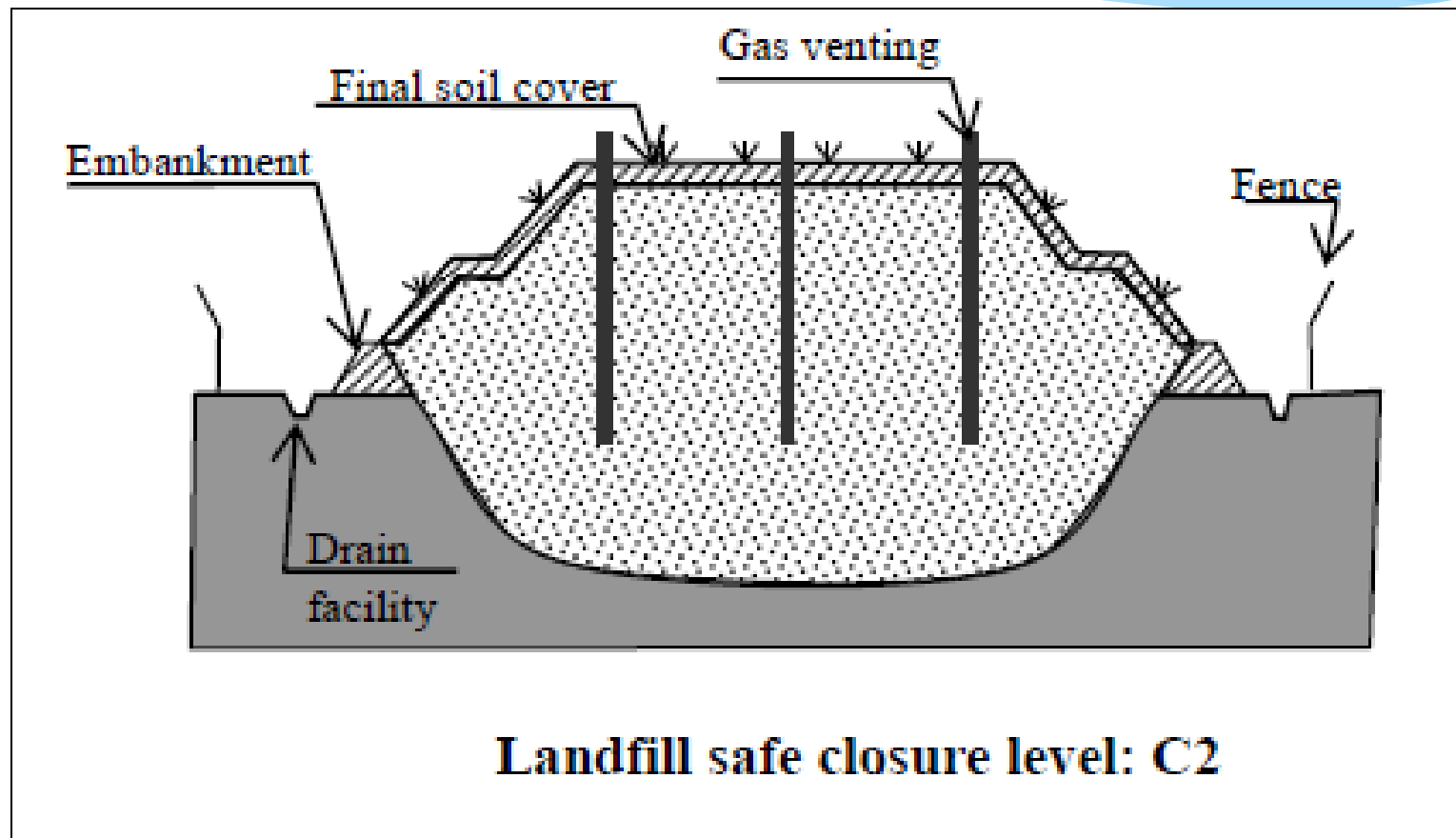
C1 - Minimum – provide final cover system and perimeter drainage system



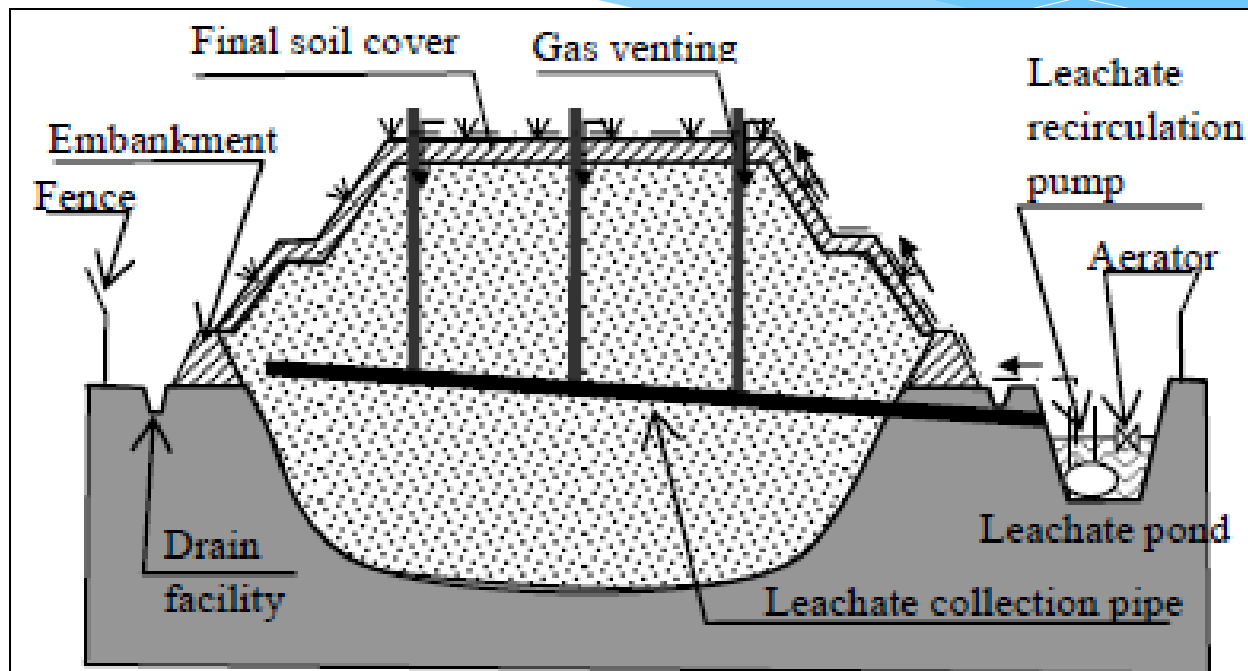
Landfill safe closure level: C1

C2: Low - similar to C1, plus system to maintain slopes with support at toe and LFG venting

g

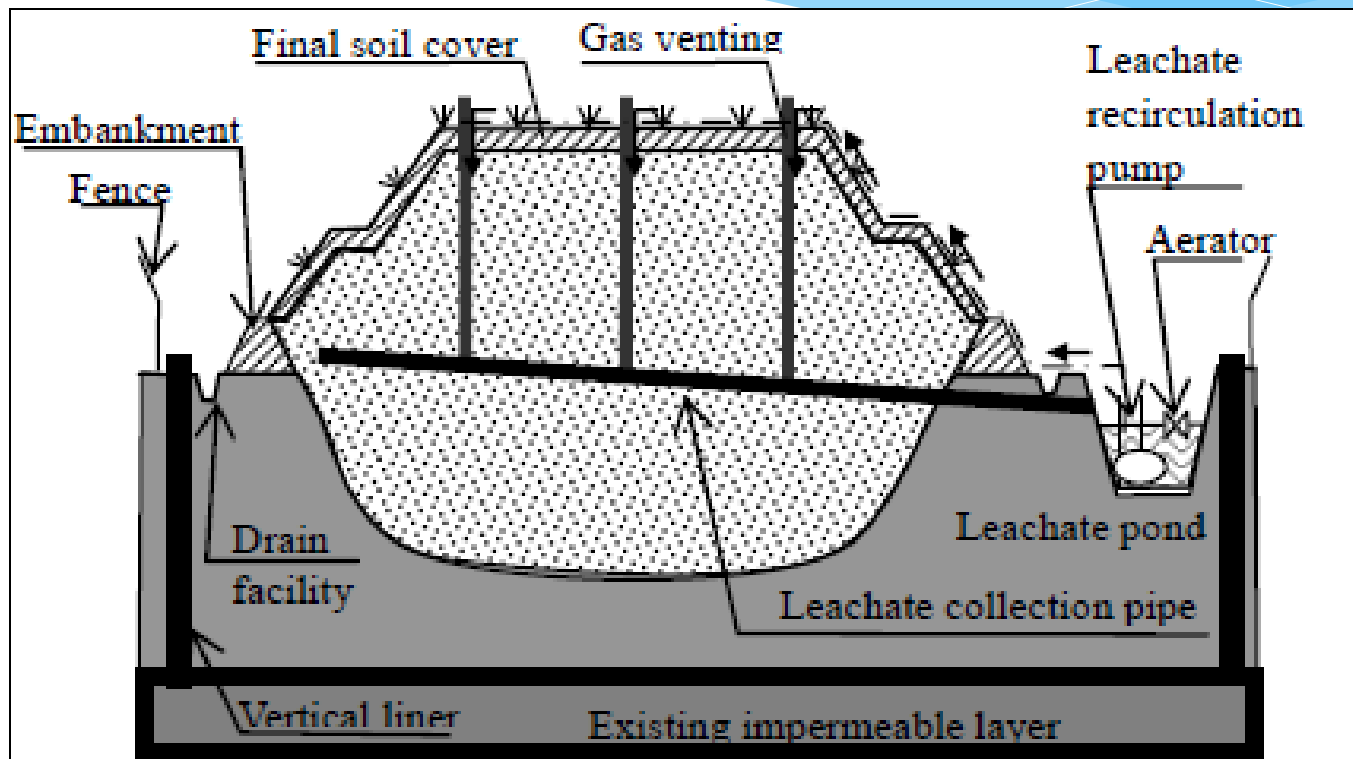


C3: medium – similar to C2, plus leachate treatment or recirculation system



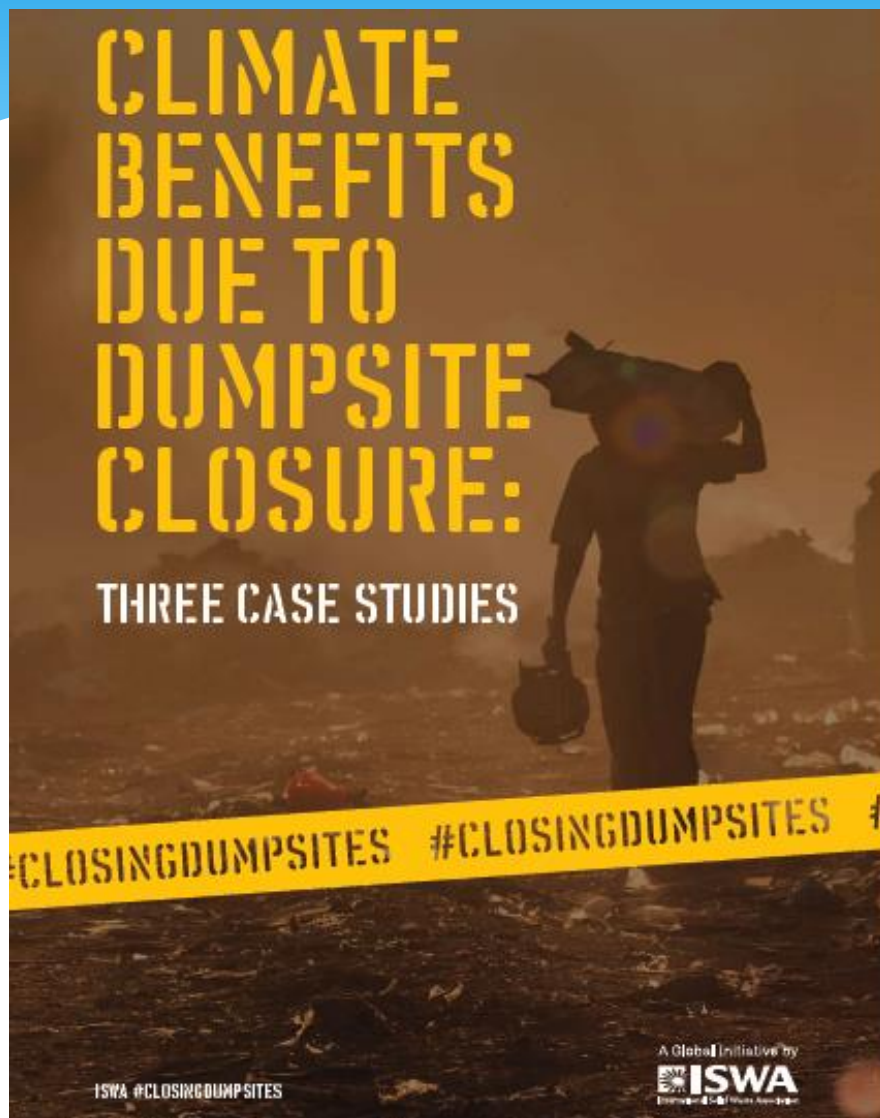
Landfill safe closure level: C3

C4: high - similar to C3, plus measures to monitor control groundwater pollution



Landfill safe closure level: C4

References



A Guide for the Management of Closing and Closed Landfills in New Zealand

Published in May 2001 by
Ministry for the Environment
PO Box 10-362, Wellington, New Zealand

ISBN 0-478-24021-X
ME number 390

This document is available on the Ministry for the Environment's Web site:
<http://www.mfe.govt.nz>



Ministry for the
Environment
Māori Mō Te Taiao

Example: San Cristobal, DR



Site Visits/Public Comment

July 2017



Mayor José Nelson Guillén Valdez
San Cristóbal Municipality



Community Meeting

Work Plan

- **Needs Assessment**
- **Dump Improvement Plan**
 - Obtain & review historical information
 - Estimate waste volume
 - Immediate recommendations/actions to improve current operations and conditions
 - Conceptual design including conceptual drawings

Scavengers



Leachate Management



Site Plan



Site Characterization



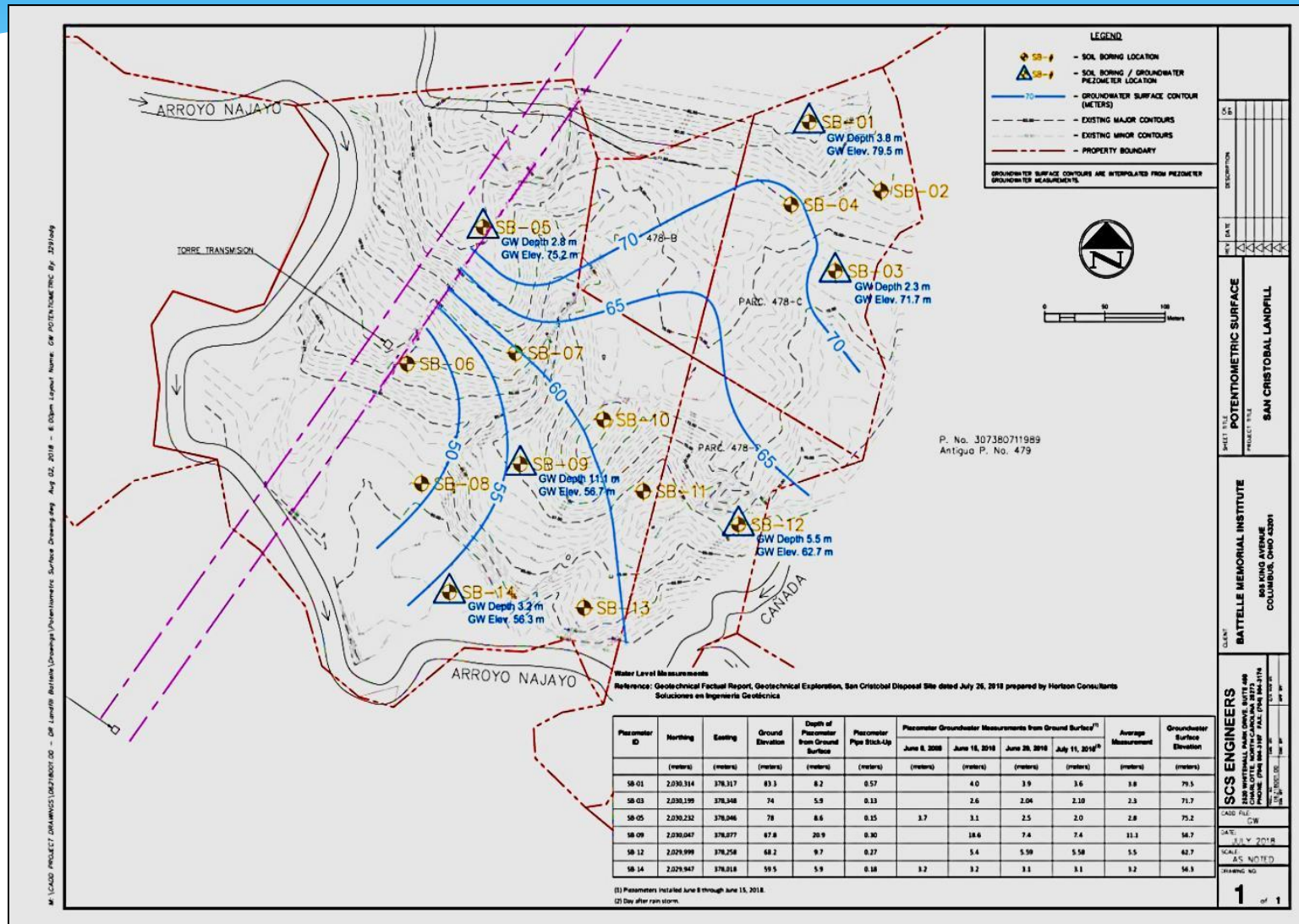
Groundwater Testing



Soil Samples



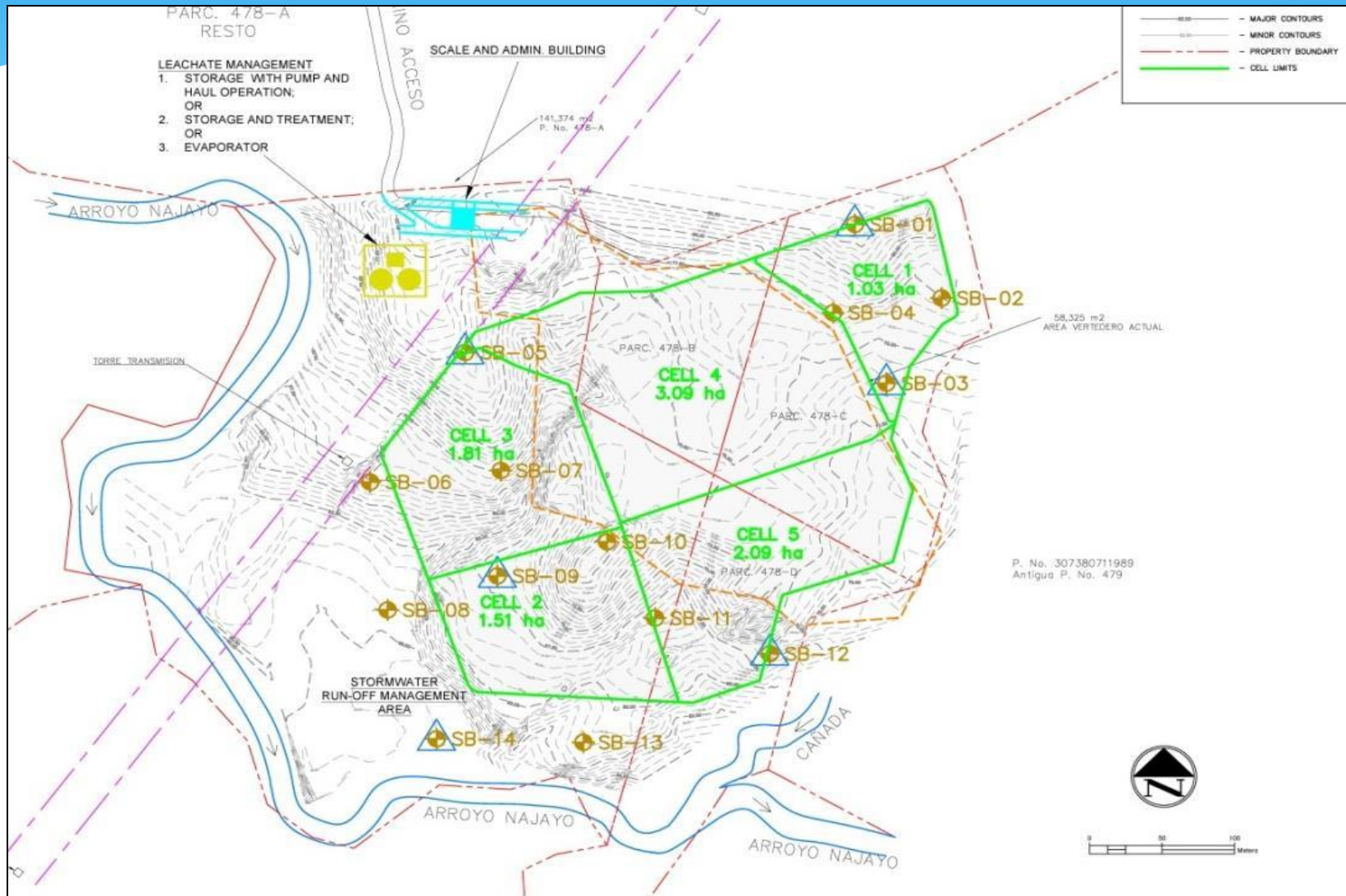
Potentiometric Surface



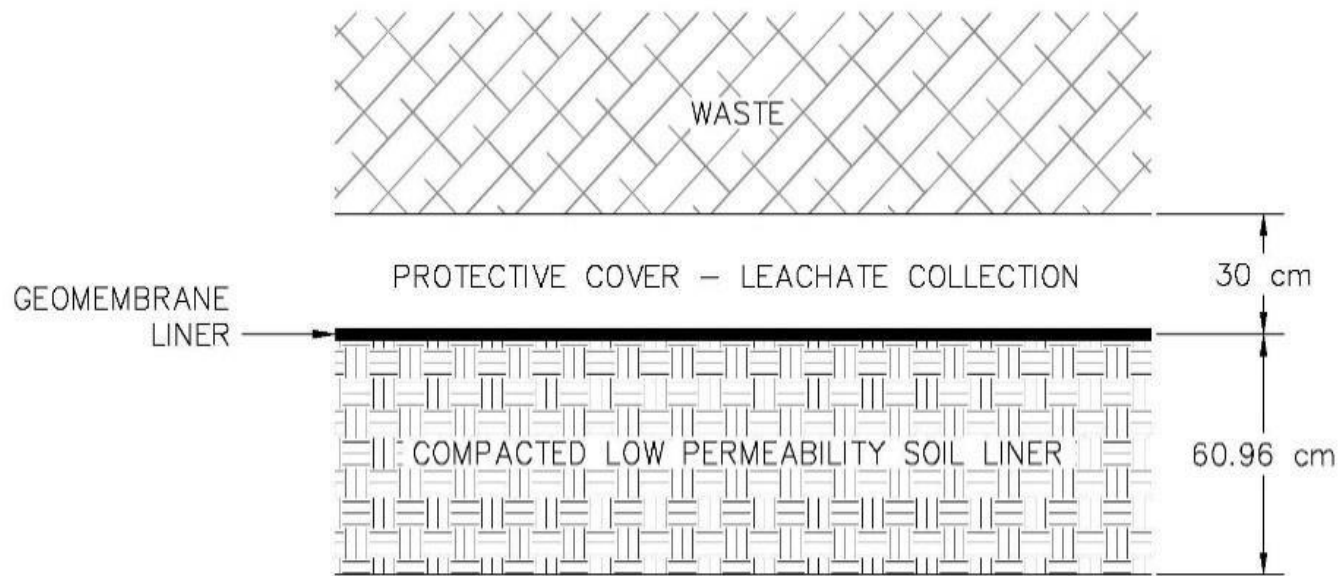
Best Practices

- Access road and access control
- Active disposal area
- Heavy equipment
- Records
- Stormwater and leachate management
- Fire control
- Scavengers
- Operations and maintenance

Conceptual Cell Layout



Liner System



Report

- I. Introduction
- II. Site background
- III. Design & operational objectives
- IV. Immediate actions/considerations to improve operations
- V. Improvement plan/landfill expansion
- VI. Open dump improvement plan
- VII. Estimated capital costs
- VIII. Contract guidance
- IX. Bibliography/reference documents

Thank You

Module No. 8 Open Dump Closure

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