

# SEWARD COUNTY LANDFILL

Landfill Gas, Covered Lagoons, City  
Wastewater Treatment Methane

PREPARED FOR  
KANSAS DEPARTMENT OF HEALTH  
& ENVIRONMENT  
WORKS 2010

# SEWARD COUNTY LANDFILL

## TYPICAL MAKEUP OF LANDFILL GAS:

Methane 50-75%

CO<sub>2</sub> – 25-40%

Nitrogen, Hydrogen Sulfide, Hydrogen, Oxygen  
in small %



# SEWARD COUNTY LANDFILL

Seward County has entered into a public/private partnership with National Beef to recover and sell landfill gas to National. This allows National to save money on energy costs and for Seward County to reduce air emissions by utilizing the gas rather than venting to the atmosphere.

# SEWARD COUNTY LANDFILL

The collection and reuse of landfill gas reduces greenhouse gases being vented to the atmosphere. These gases contribute to the global warming problem.







# SEWARD COUNTY LANDFILL

Seward County is recovering gas from two Subtitle D landfill cells. The gas is pulled off the cells by two 25hp blowers and sent to National. The gas at National is injected into the side of a covered lagoon.

# SEWARD COUNTY LANDFILL

Many systems require that the methane be split off. This system is designed so that we can send the entire gas stream to the lagoon and no processing is required. This makes the system more advantageous from a cost standpoint to eliminate any processing of the gas.







# Extraction Piping & Anchor Trench



# Installation of floating covers



# Ballast System



# Seward County Landfill

- ▶ The Seward County Landfill was recipient of the USEPA Community Partner Award for 2008. This award was presented at the 2008 Landfill Methane Outreach Conference in Baltimore , Maryland in January of 2008.
- ▶ The Kansas Department of Health & Environment won the 2009 State Partner of the year award in 2009 for being instrumental and supportive of landfill gas projects across the state.



**LANDFILL METHANE OUTREACH PROGRAM**  
The United States Environmental Protection Agency  
Landfill Methane Outreach Program  
is pleased to present  
**THE HOWARD COUNTY LANDFILL**  
with its  
**2016 COMMUNITY PARTNER OF THE YEAR**  
In recognition of exceptional leadership in  
the area of environmental and economic  
advancements by allowing methane gas to be

**LANDFILL METHANE  
OUTREACH PROGRAM**

# Wastewater Treatment Plant Methane



# Wastewater Treatment Methane

The City of Liberal currently flares methane generated at their wastewater treatment plant. The gas was originally suppose to be fuel for their boiler system but technical difficulties have prevented them from doing that. They are looking at trying to remedy the situation or an alternative source for the gas.



# USEPA RESEARCH DEMONSTRATION & DEVELOPMENT RULE RD&D

- ▶ Signed by USEPA in March 2004
- ▶ Adopted by KDHE on November , 2009

Three major provisions allow states to approve research projects in three major areas.

# RD&D Rule Provisions

- ▶ RD&D Rule provides narrow focus for variances in three major areas.
  - Run-on Control systems
  - Liquid restrictions
  - Final Cover Designs
- ▶ 3 year initial duration(up to three 3 year renewals). 12 year total
- ▶ May require additional financial assurance
- ▶ Allows states authority to allow addition of liquids into landfills constructed with liners and leachate collection systems.

# EPA Research, Development & Demonstration Rule (RD&D)

With Kansas being approved by USEPA, KDHE now has authority to grant permits for projects meeting the criteria of the RD&D Rule. Several entities in Kansas are already working on projects that will meet parts of the criteria as research projects.

Seward County has submitted a permit modification to KDHE for a research project under the liquid addition criteria of the RD&D Rule

# EPA RD&D Rule

Seward County is currently looking at a project to inject liquid into a closed Subtitle "D" cell.

This project would allow us to begin settlement of waste in the closed cell and increase our gas production by three fold. This would allow us to have the potential to generate more revenue from gas collection and carbon credits for gas. This will also allow for adding more waste to a currently lined and permitted cell reducing construction costs.

# EPA RD&D Rule

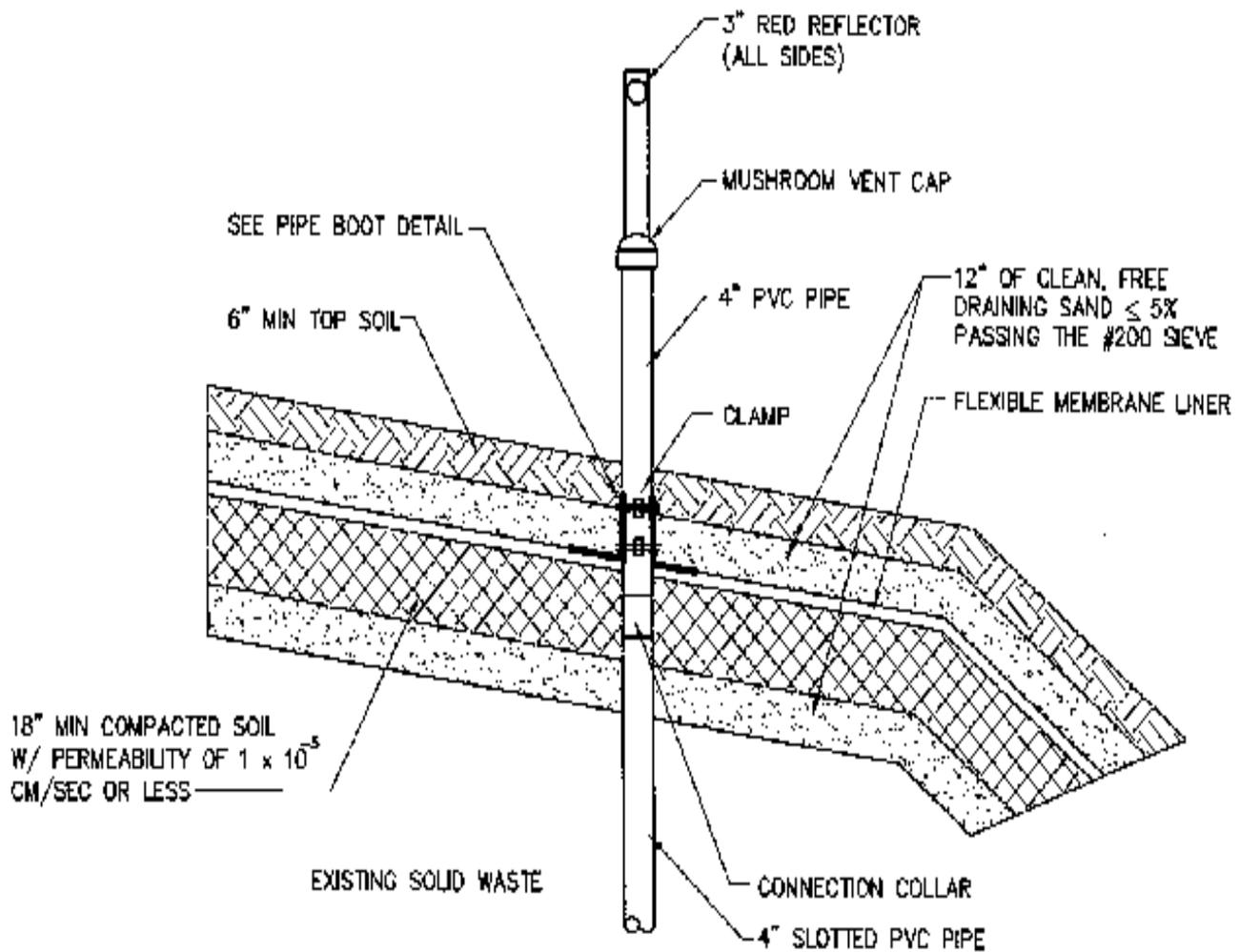
The current waste stream being looked at is an industrial waste stream generated by manufacturing process by area producer. This company currently takes this waste stream to Amarillo. This project will enhance our ability to increase our working relationship with this company both with the liquids and other sources of waste streams.

Engineering Solutions & Design is doing the engineering on this project.

# EPA RD&D Rule

The liquids in question will be injected through existing vertical gas vent wells. There is a possibility of having to add an additional well or two depending on the flow of the liquid. The liquid contains a certain amount of fats and we are engineering the injection as not to plug screens. The liquid in this case is a perfect scenario for the degradation process as it contains the perfect ingredients for that process with a high BOD contents.

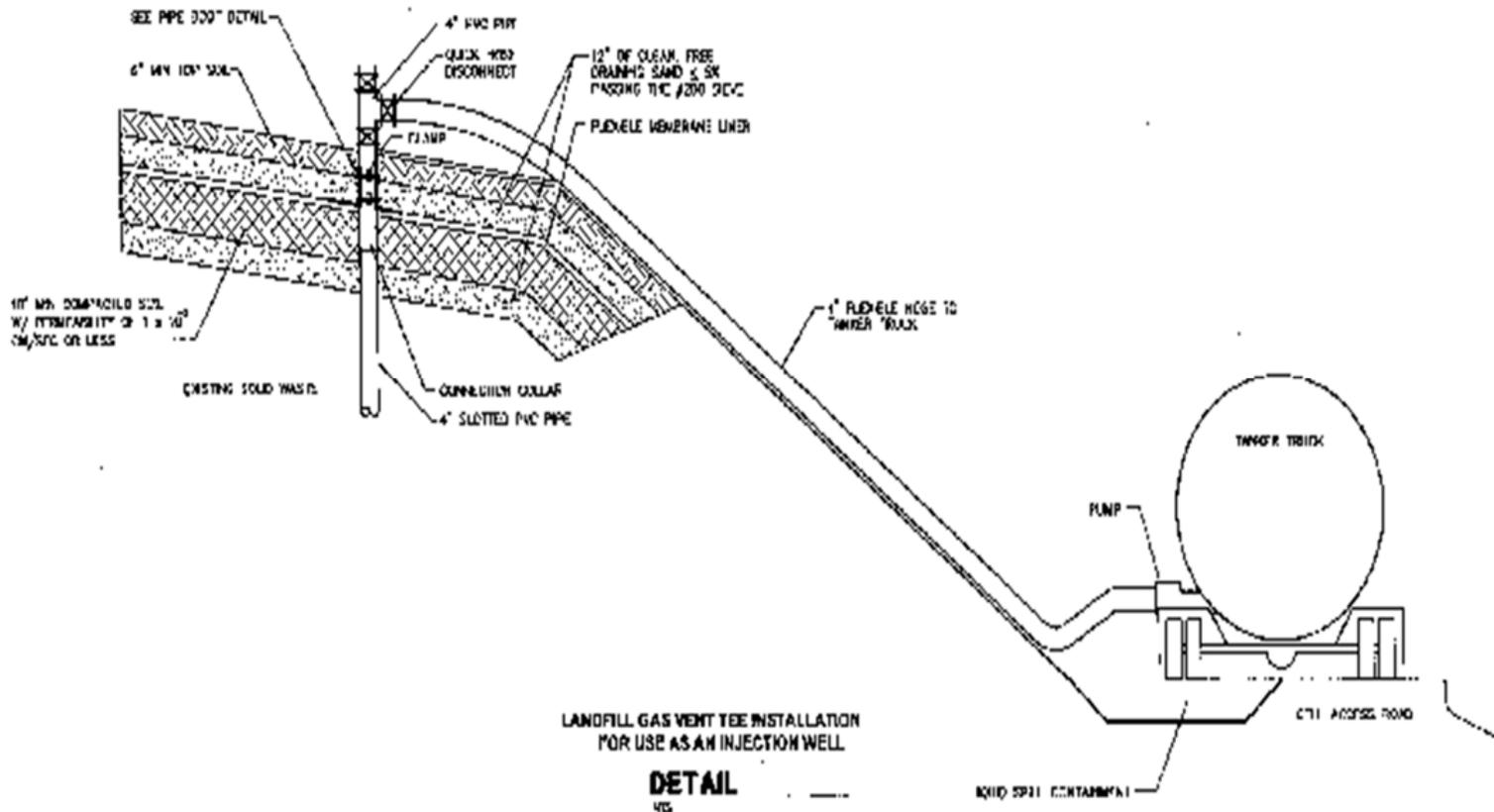




METHANE GAS VENTING DETAIL

**DETAIL**

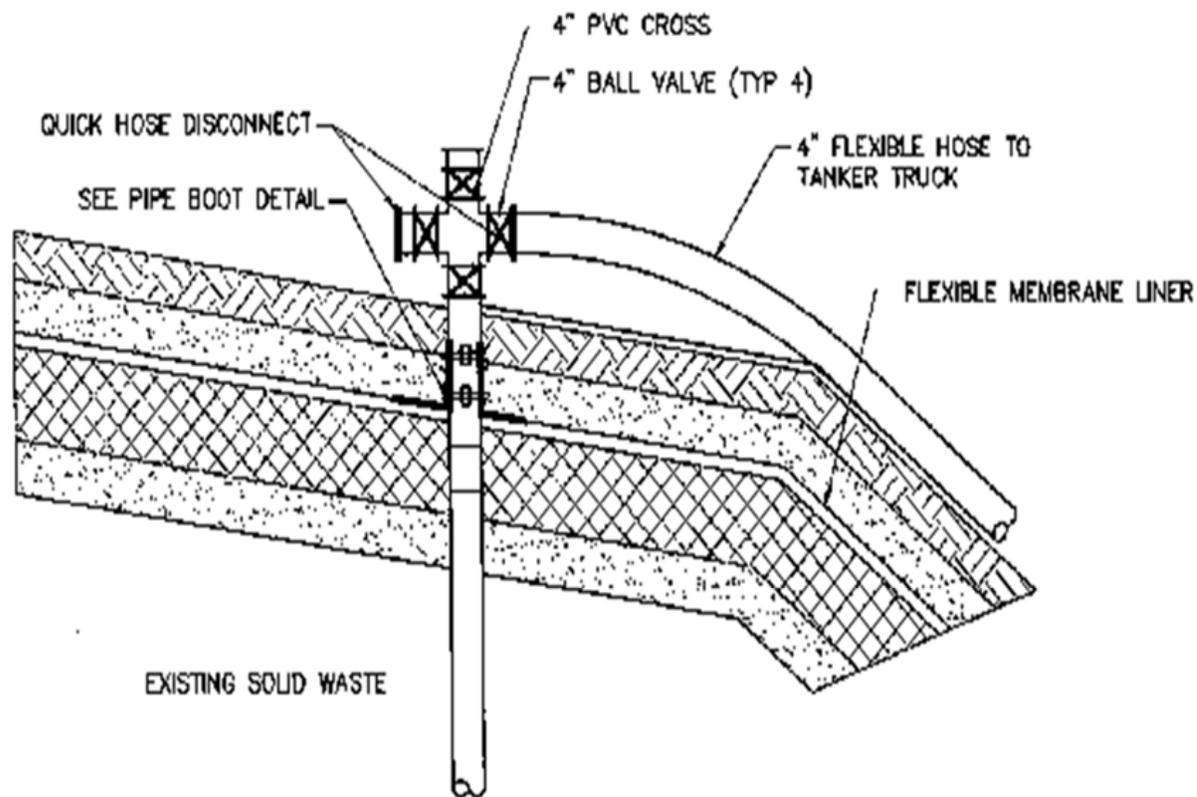
NTS



LANDFILL GAS VENT TEE INSTALLATION  
FOR USE AS AN INJECTION WELL

**DETAIL**  
45

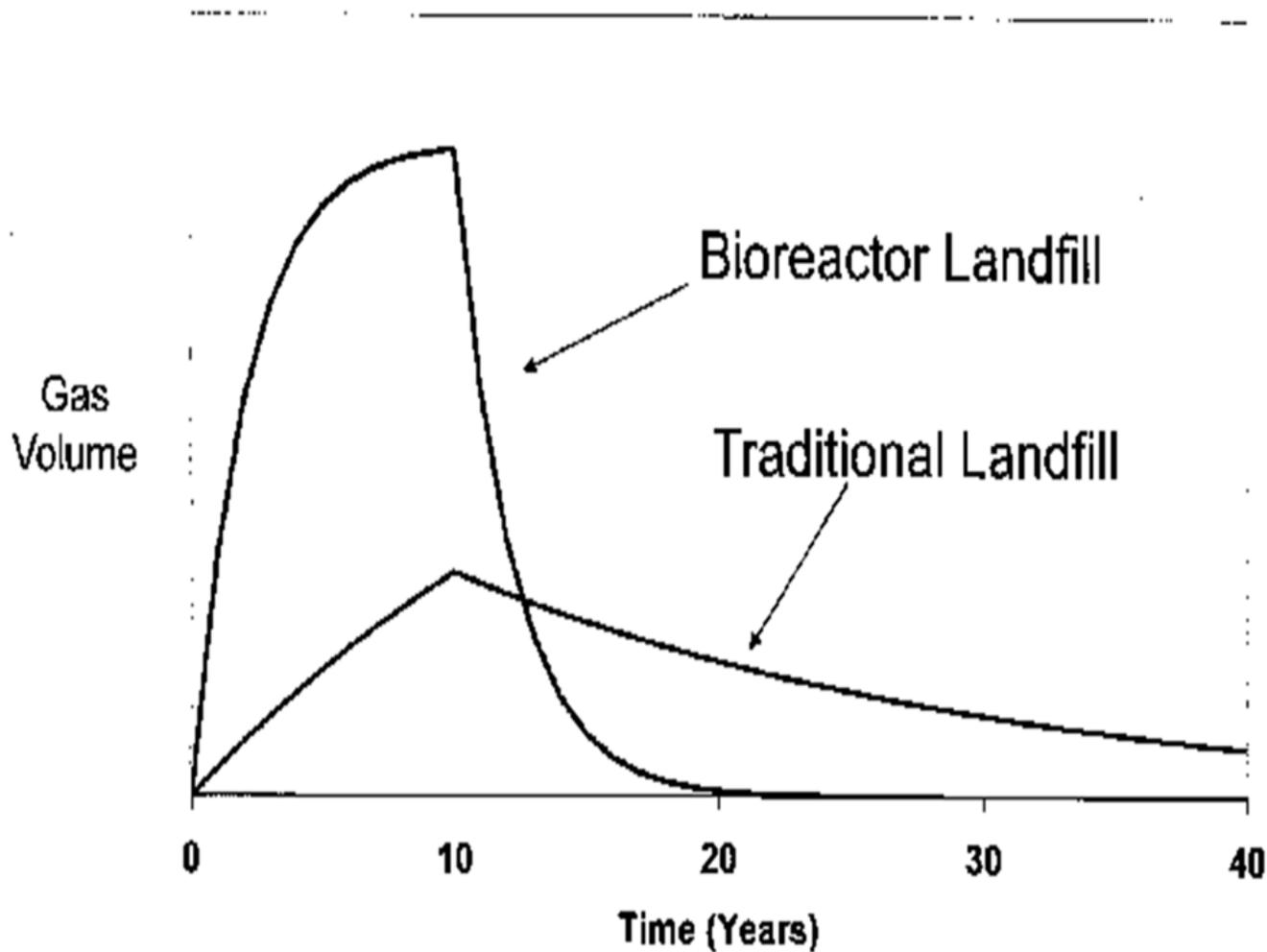
LIQUID SPILL CONTAINMENT



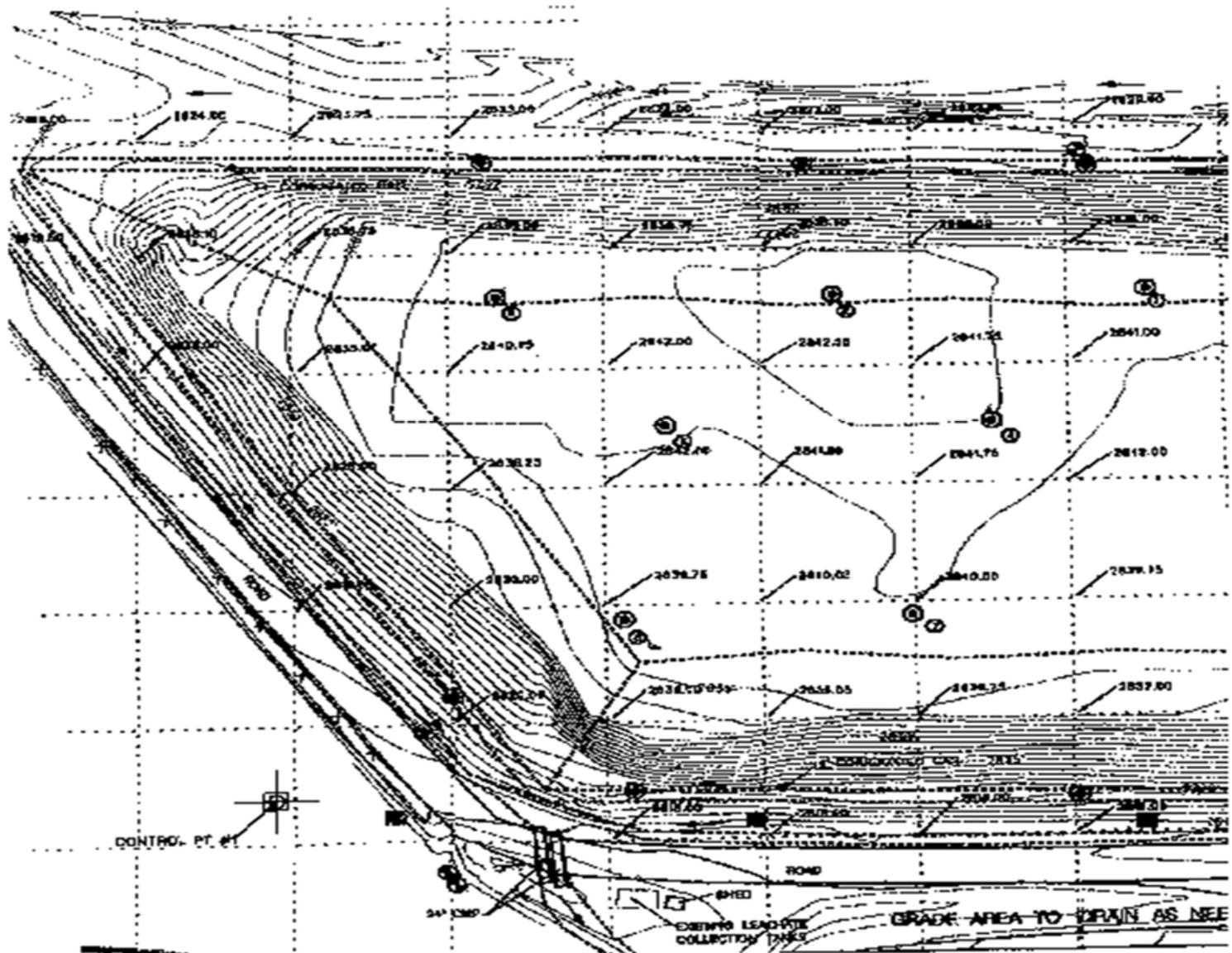
LANDFILL GAS VENT CROSS INSTALLATION  
FOR USE AS AN INJECTION WELL

**DETAIL**

NTS



# CELL 1





Questions ???????????

