

Anatomy of a Landfill

PROTECTIVE COVER

1 GRASS & FLOWERS

As sections of the landfill are completed, native grasses and shrubs are planted. The area will be maintained as an open space and will resemble a park with rolling hills and meadows of wildflowers, grasses and shrubs.

2 TOP SOIL

The top soil will help establish the root systems and maintain the growth of native vegetation.

3 SOIL, SAND AND GRAVEL

Soil, sand and gravel protect the liner systems from the weather and burrowing animals.

MOISTURE BARRIER CAP

4 FILTERING SYSTEM

A fabric composed of a felt-like plastic acts as a filtration system. The geotextile prevents the overlying soil and small particles from clogging the underlying drainage system. High density polyethylene geo net is a heavy plastic with large mesh-like openings. The geo net allows liquid to flow away from the landfill and helps prevent the infiltration of rainwater.

5 PLASTIC SHIELD

High density polyethylene liner shields the landfill from liquid penetration.

6 CLAY SHIELD

When the landfill reaches its permitted height, a minimum one-and-one-half foot layer of recompacted clay is placed over the waste. This liner is another system which provides an excellent barrier against rainwater infiltration.

WORKING LANDFILL

7 DAILY COVER

At the end of each working day, garbage is covered with a six-inch to one-foot layer of soil. Daily cover reduces odors, blowing litter and helps deter scavengers.

8 GARBAGE

Garbage is compacted into multiple layers every day. The waste is placed in accordance with State Solid Waste Management Regulatory Guidelines and follows a set of plans approved by the ADEQ.

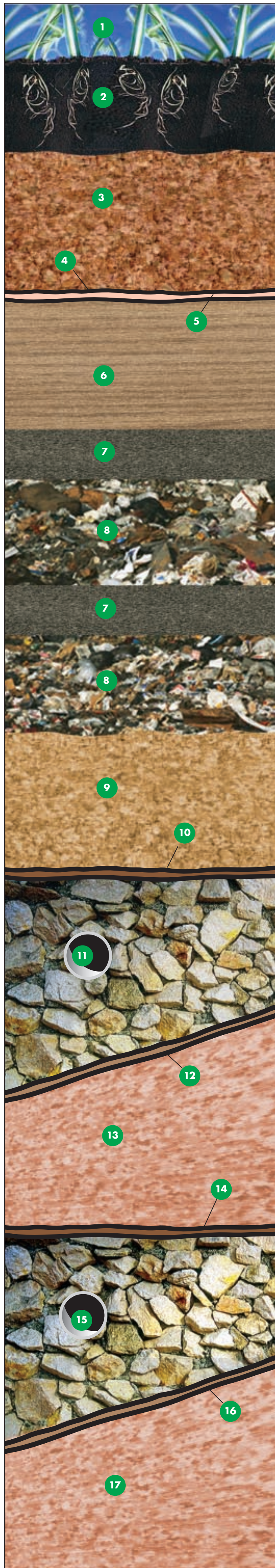
WATER COLLECTION SYSTEM

Leachate is liquid that has filtered through the landfill and is generated from the natural degradation of wastes as well as rainwater. The leachate collection system's job is to control the flow of leachate so it can be properly removed from the landfill and treated. The leachate collection system has the following components.

9 SAND AND GRAVEL

Liquid caused by decomposing garbage or rainwater that has filtered through the landfill is called leachate. The leachate collection system's job is to control the flow of leachate so it can be properly removed from the landfill and treated. A one-foot layer of sand and/or gravel provides a protective cover for the liner and improves the drainage of the liquids into the filtering system.

Please Note: This illustration depicts a cross section of the standard environmental protection technologies of modern landfills. While the technologies used in most landfills are similar, the exact sequence and type of materials may differ from site to site depending on design, location, climate and underlying geology.



10 FILTERING SYSTEM

A blanket of non-woven geotextile fabric, composed of a felt-like plastic fiber is laid below the gravel. This porous material allows liquid to flow downwards while preventing fine particles from clogging the drainage and collection systems. Underneath, a geo net made of mesh-like plastic diverts leachate toward the underlying collection pipes and a low-lying sump area.

11 COLLECTION SYSTEM

Six-inch perforated PVC plastic, surrounded by a bed of porous rock and/or sand directs the leachate to the lowest point of each disposal cell. This liquid is conveyed via the leachate collection system to a sump located at the lowest point of each disposal cell. When a small amount of the liquid has built up, a pump automatically removes the liquid from the landfill to specially designed storage tanks. All leachate is taken offsite to approved wastewater treatment plants.

GROUNDWATER PROTECTION BASE

12 HDPE PLASTIC SHIELD

The primary bottom liner consists of two components. First is a manmade, synthetic, 60 mil high density polyethylene liner. This liner is very impermeable to liquids.

13 CLAY SHIELD

Lies a minimum of two feet of recompacted clay. The clay is the second component of the primary liner system and provides added environmental protection.

MONITORING LINER SYSTEM

14 A blanket of geotextile fabric, composed of felt-like plastic fibers, is laid below the primary groundwater protection base. Underneath, a geonet made of mesh-like plastic is used to allow for any liquids movement. These materials, when used together, prevents the fine clay particles from clogging the monitoring layer below.

15 COLLECTION SYSTEM

Perforated plastic pipe surrounded by a bed of porous rock and/or sand at the lowest point of the liner system. This feature is used to measure the performance of the liner system and groundwater protection base. Regular monitoring is performed to ensure the integrity of the landfill components.

SECONDARY PROTECTION BASE

16 HDPE PLASTIC SHIELD

The secondary bottom liner consists of two components. First is a manmade, synthetic, 60 mil high density polyethylene liner. This liner is very impermeable to liquids.

17 CLAY SHIELD

The second component is a minimum of two feet of recompacted clay. This clay and the above synthetic liner provide an added measure of environmental protection.

GROUNDWATER, SURFACE WATER & METHANE GAS MONITORING

Groundwater monitoring wells surround the perimeter of the landfill and are tested regularly. Methane gas, a natural by-product of decomposing waste, is removed from the landfill by extraction wells and transported via pipeline to a facility where emissions are controlled. Surface water run-off is collected in a sedimentation pond, tested and discharged.