

RICE UNIVERSITY

**Houston Needs a Mountain:
Towards a New Monumentality**

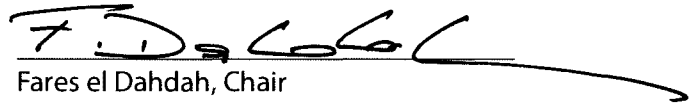
by

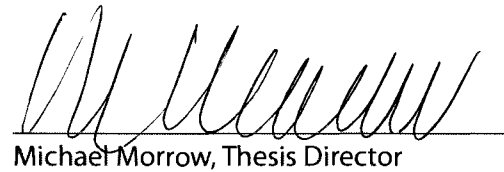
Lysle L. Oliveros

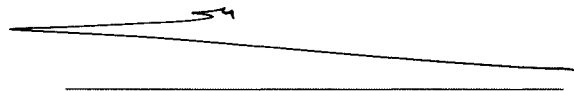
A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

Masters of Architecture

APPROVED, THESIS COMMITTEE:


Fares el Dahdah, Chair


Michael Morrow, Thesis Director


Eva Franch, Wortham Fellow

HOUSTON, TEXAS
MAY 2009

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for making this dream a reality and supporting this habit we call “architecture”

MICHAEL MORROW, EVA FRANCH & FARES EL DAHDAH

for always pushing, teaching, supporting, mentoring, and believing in me

ALLIED WASTE MANAGEMENT

for sharing their expertise, time, and patience

BARTON FAMILY

family friends photographed in the images

SUPPORTERS

JOHN HETTWER & MICHAEL BENHARROSH

for giving up their holidays, time, and putting up with a sleep deprived thesis student,
your help will never be forgotten

MY FAMILY

Kamiko Oliveros, you are truly my better half and my best friend
Kaori, Rori, and Quino who’s unconditional love keeps me wanting more.
My Parents who taught me how to dream.

Thank you, Thank you, Thank you.

ABSTRACT

Houston Needs a Mountain:
Towards a New Monumentality

by

Lysle Oliveros

Garbage is a global problem. In Texas, soft regulations and landfill closures have made way for the dawn of the mega landfill. The reduction of landfill locations multiplied by extreme suburban sprawl, has forced the landfills to take on a vertical mountainous form to accommodate consumption and land boundaries. Such a metamorphosis has spawned coalitions to fight against the visual and sensory upheavals growing in their own communities; ironically it is only due to their own making. This thesis looks at three new paradigms of garbage organization and disposal that produce alternatives and finds positivity in the inevitable we already face.

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MOUNTAIN



WE CONSUME

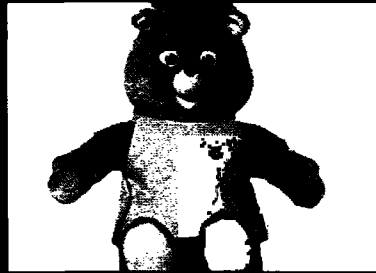
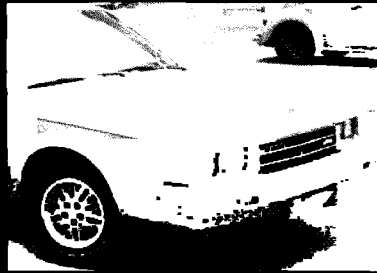
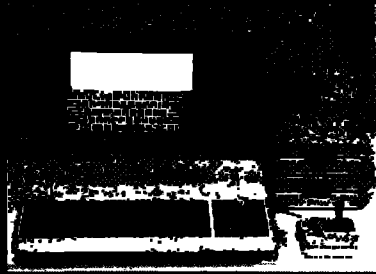
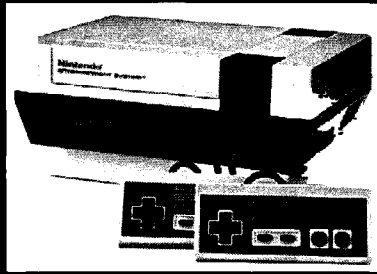
"OUR ENORMOUS PRODUCTIVE ECONOMY DEMANDS THAT WE MAKE CONSUMPTION OUR WAY OF LIFE. THAT WE CONVERT THE BUYING AND USE OF OUR GOODS INTO RITUALS, THAT WE SEEK OUR SPIRITUAL SATISFACTION AND EGO SATISFACTION IN CONSUMPTION. WE NEED THINGS CONSUMED, BURNED UP, REPLACED AND DISCARDED AT AN EVER ACCELERATING RATE"

*-VICTOR LE BOUE
MARKET ANALYST*



IN THE 1950'S

After the Second World War, the American economy was strong and consumer confidence was at an all time high. With the mass amount of consumer goods and a media source present in most households, Americans found themselves in a buying frenzy and living the American dream.



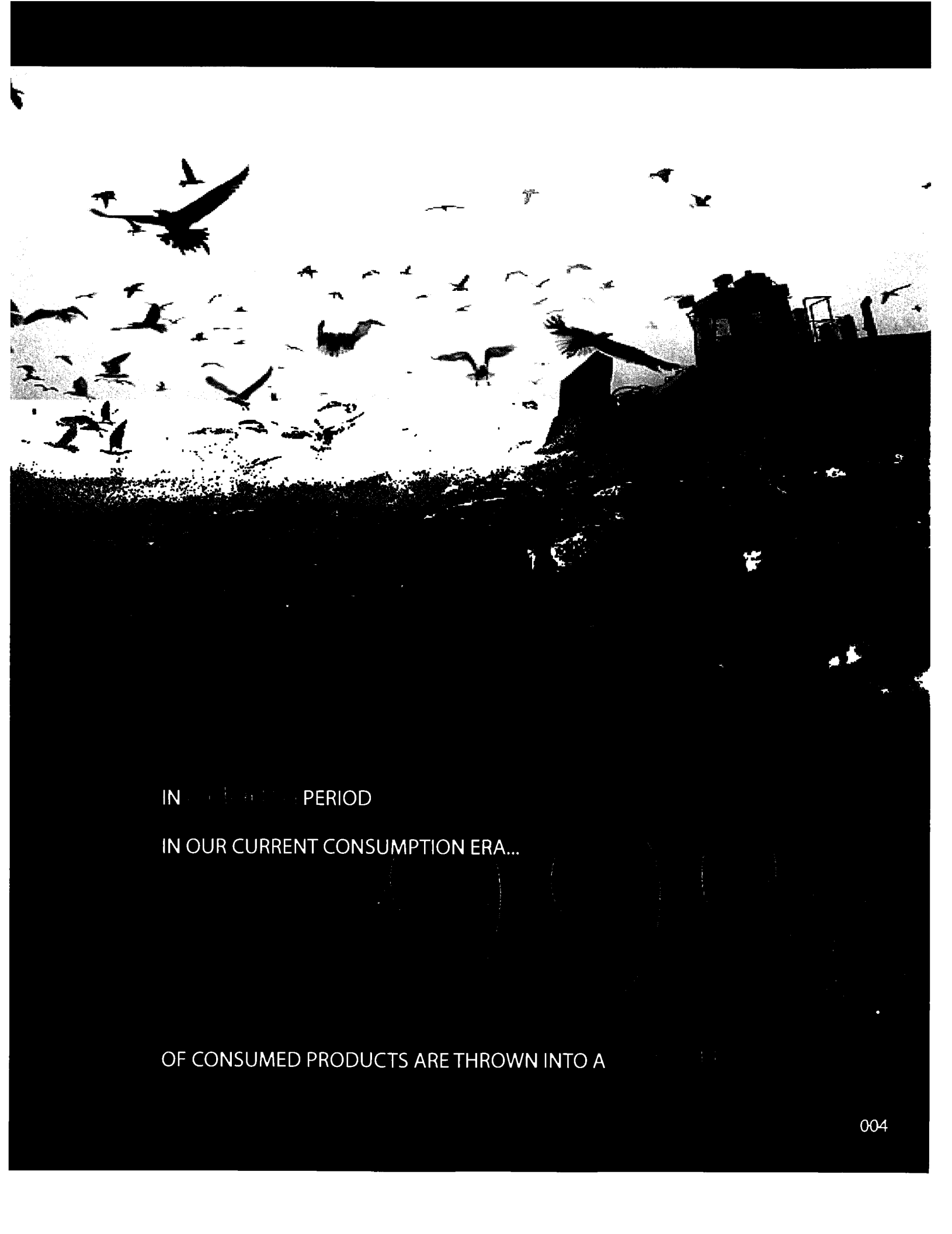
BLK & WHT: ITEMS I HAVE CONSUMED AND EXIST SOMEWHERE IN A LANDFILL

"DESIGNED TO FAIL..."

WE CONSUME AS MUCH SINCE THE

BLK & WHT: ITEMS I HAVE CONSUMED AND EXIST SOMEWHERE IN A LANDFILL

COLOR: GOODS PRESENTLY CONSUMING

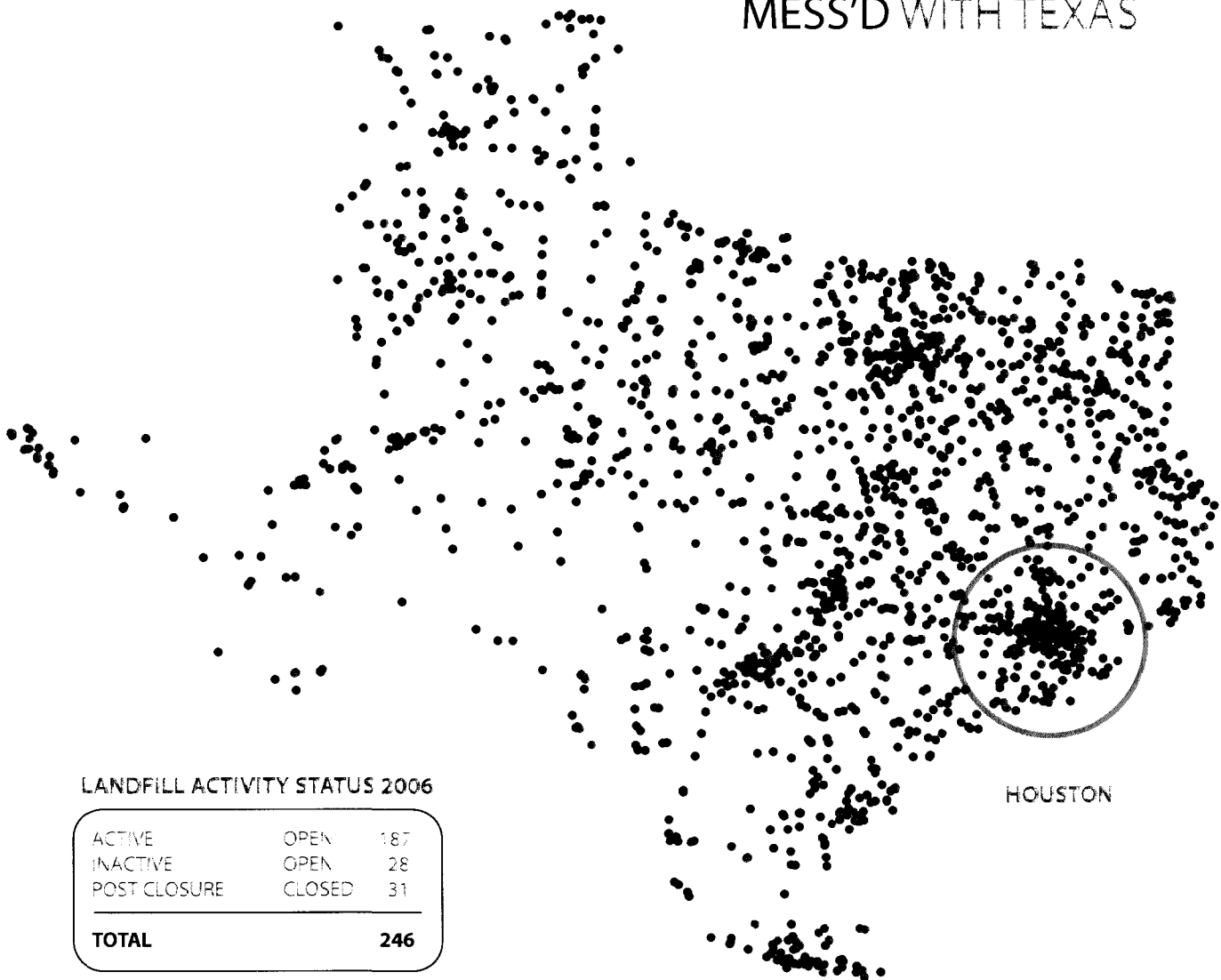


IN THE 1970s PERIOD

IN OUR CURRENT CONSUMPTION ERA...

OF CONSUMED PRODUCTS ARE THROWN INTO A

MESS'D WITH TEXAS



LANDFILL ACTIVITY STATUS 2006

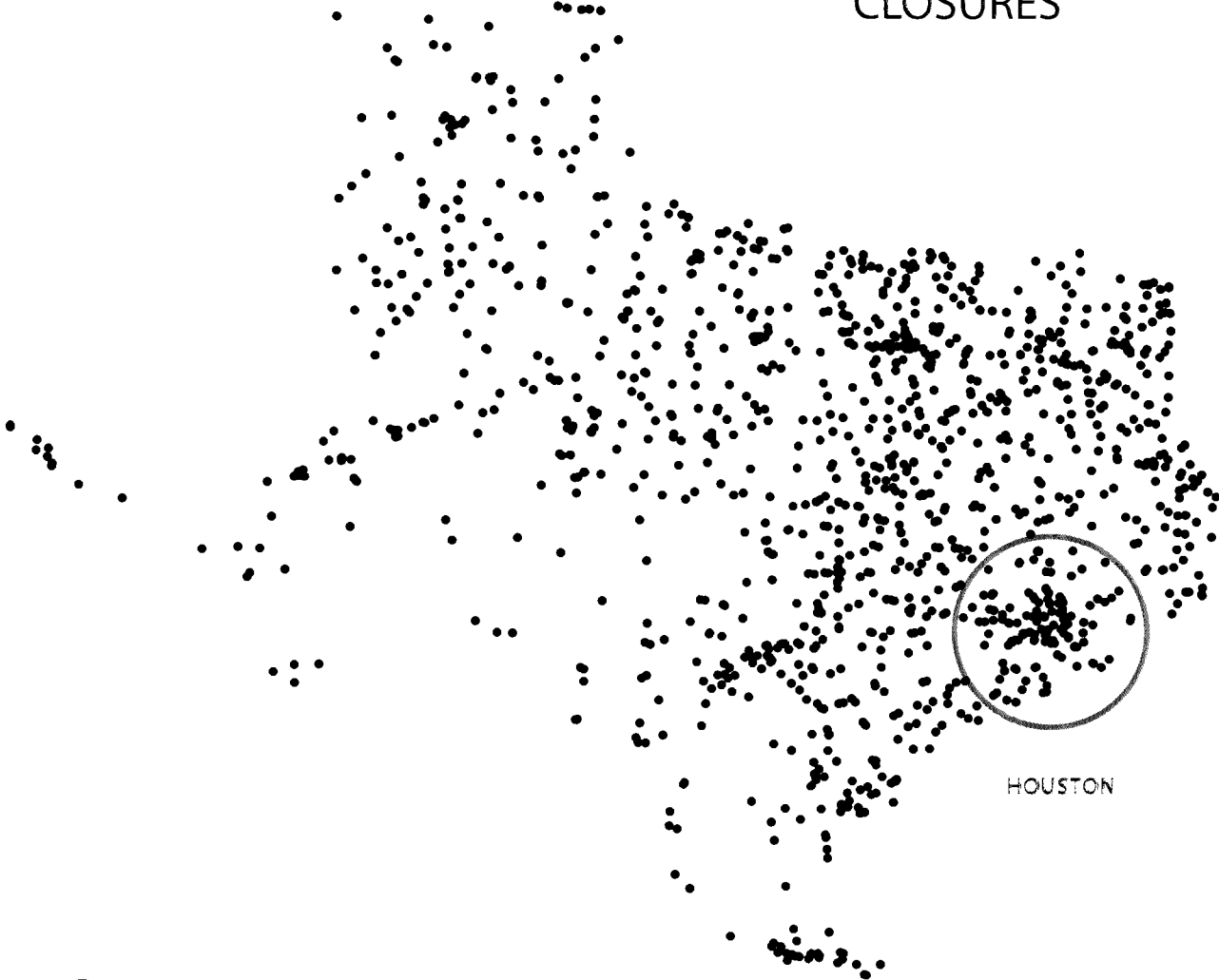
ACTIVE	OPEN	187
INACTIVE	OPEN	28
POST CLOSURE	CLOSED	31
TOTAL		246

- ACTIVE
- CLOSED
- INACTIVE
- MISSING
- NOT CONSTRUCTED
- POST CLOSURE

IN 2006 TEXAS PRODUCED **30,453,702 TONS** OF
GARBAGE WITH **1,366,311,822 TONS** OF AVAILABLE
CAPACITY LEFT (45 YEARS)

TEXAS HAS ONE OF THE **WEAKEST REGULATIONS** OF
WASTE DISPOSAL AND RECYCLING IN THE NATION. OVER THE PAST
12YRS **THE TCEQ* HAS ALLOWED THE SIZE AND HEIGHT**
OF LANDFILL TO INCREASE DRAMATICALLY WORSENING THE
PROBLEMS: WATER CONTAMINATION, NOXIOUS GASES, ODORS,
EROSION, AND DEPRECATING PROPERTY VALUES

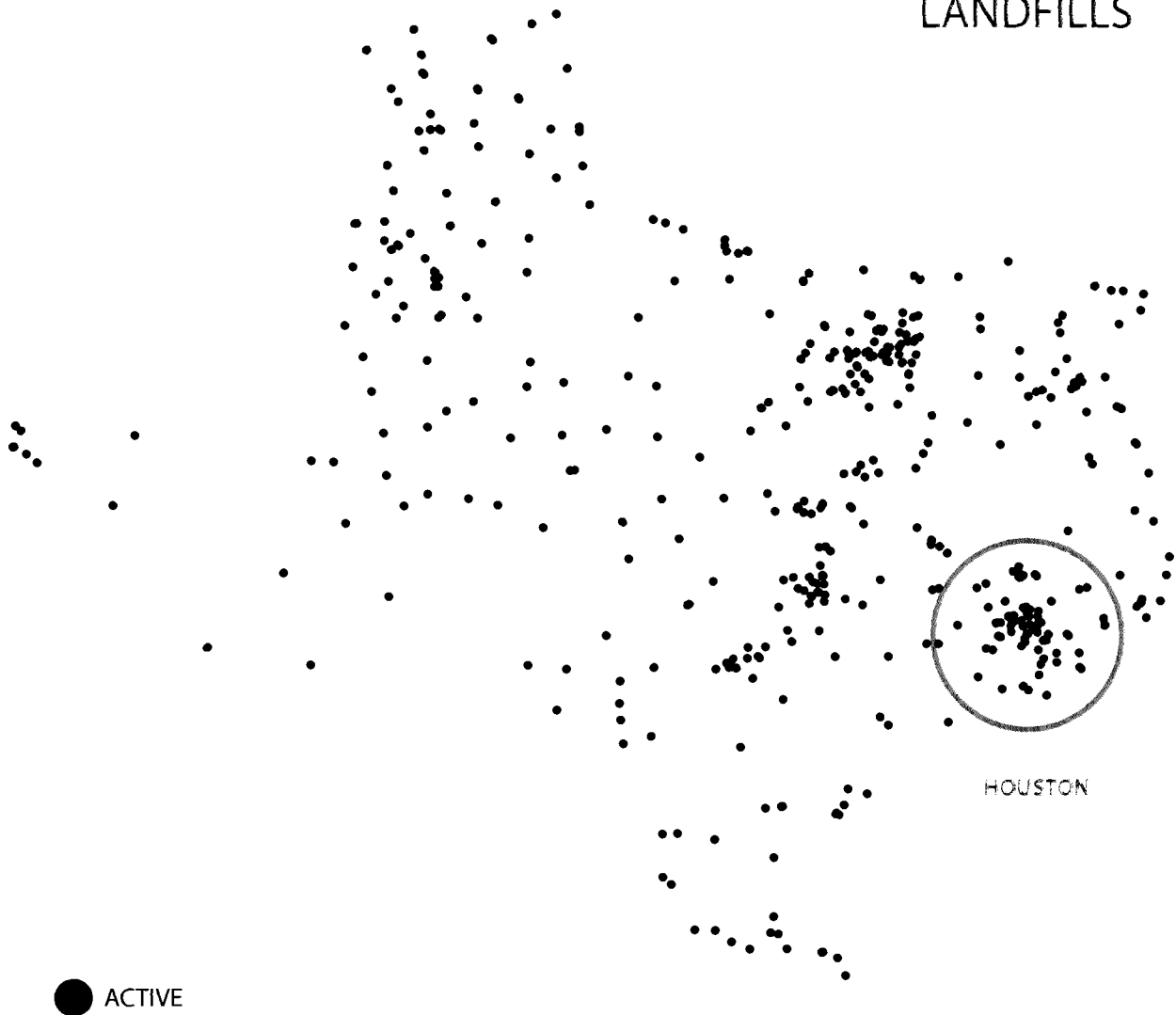
CLOSURES



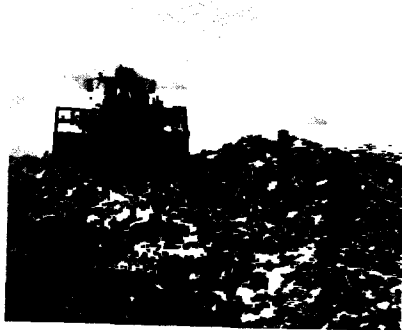
● CLOSED

SINCE 1986 MSW* HAVE CLOSED OVER 700
LANDFILLS

LANDFILLS



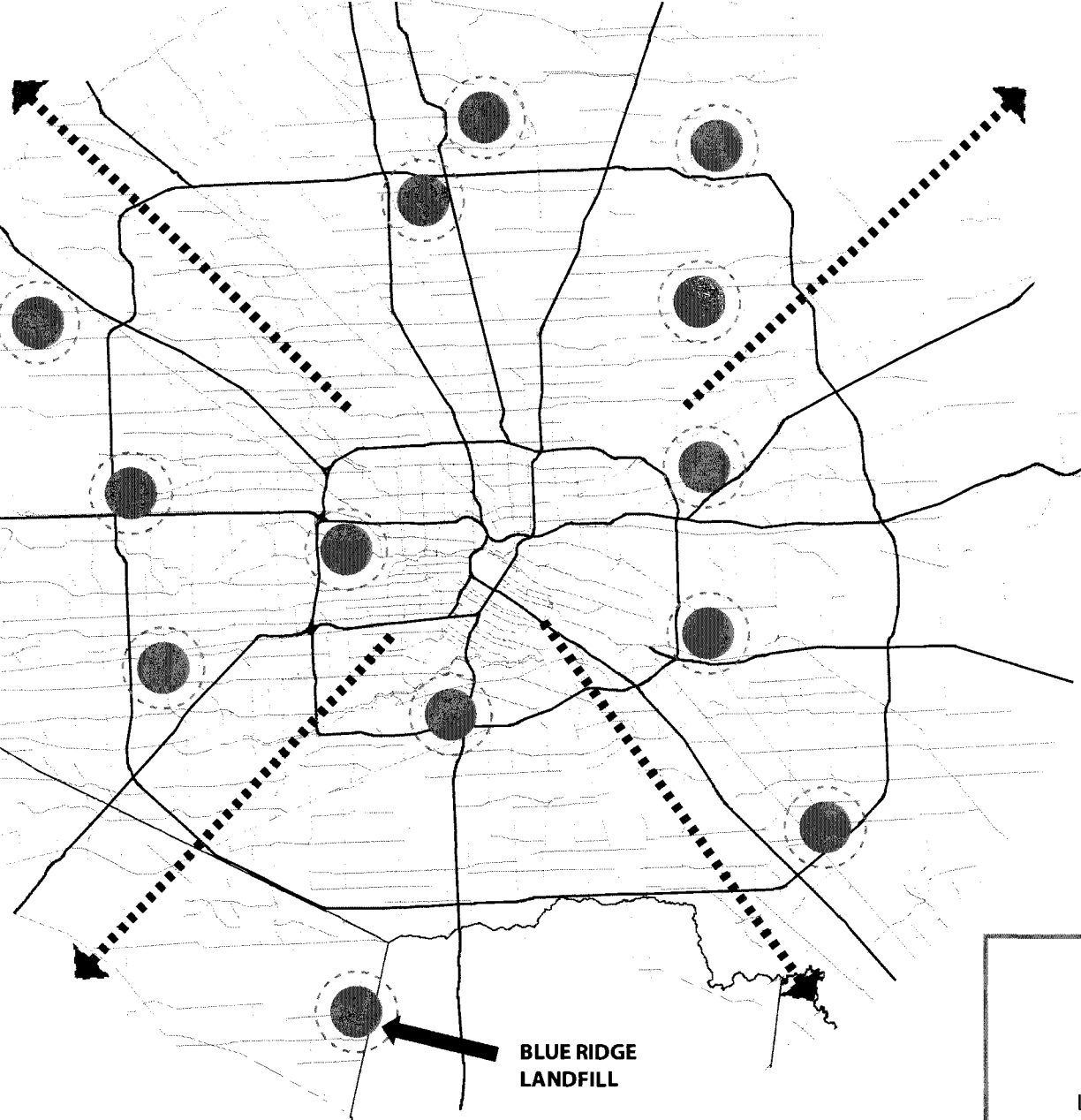
SINCE 1986 WE TRIPLED THE AMOUNT OF
GARBAGE SINCE, OUR LANDFILLS HAVE BECOME
"MEGA LANDFILLS"



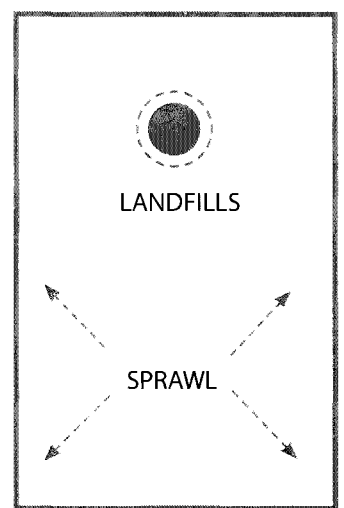
LANDFILLS AREA



● CITY PARKS AREA

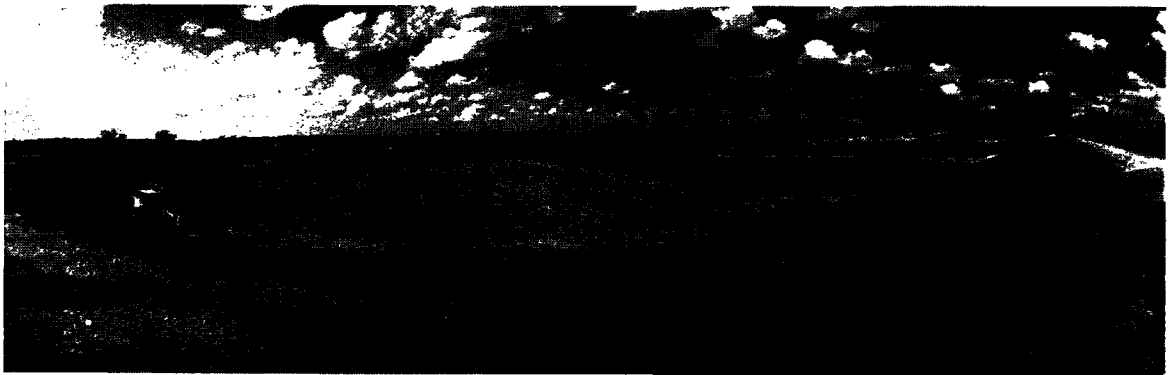


**BLUE RIDGE
LANDFILL**



BY 2010
HOUSTON
 WILL HAVE AN ESTI-
 MATED **POPULATION**
GROWTH OF 40%,
 INCREASING THE
 AMOUNT OF GAR-
 BAGE PRODUCED
 AND REDUCING OUR
 AVAILABLE YEARS OF
 CAPACITY OF 40YRS
 TO UNDER **25YRS.**

HOUSTON'S **POPULATION GROWTH** ARE
 PUSHING HOUSING RIGHT UP TO THE LAND-
 FILL EDGE. IN ADJACENT BRAZORIA COUNTY,
 THEY EXPERIENCED A **GROWTH OF 48%**
JUST LAST YEAR AND HAVE WILL HAVE A
" MEGA LANDFILL."





THE BLUE RIDGE LANDFILL

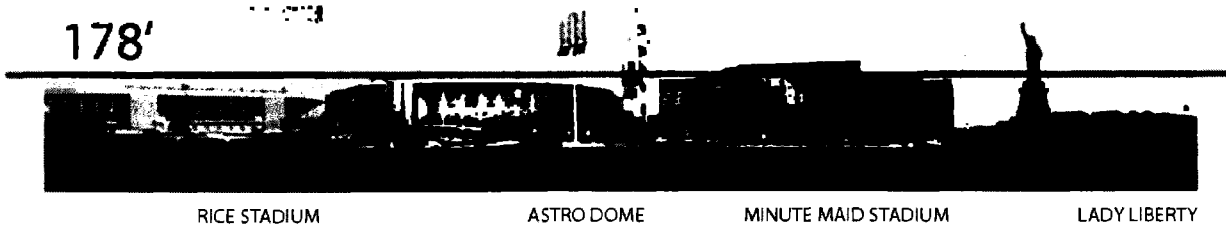
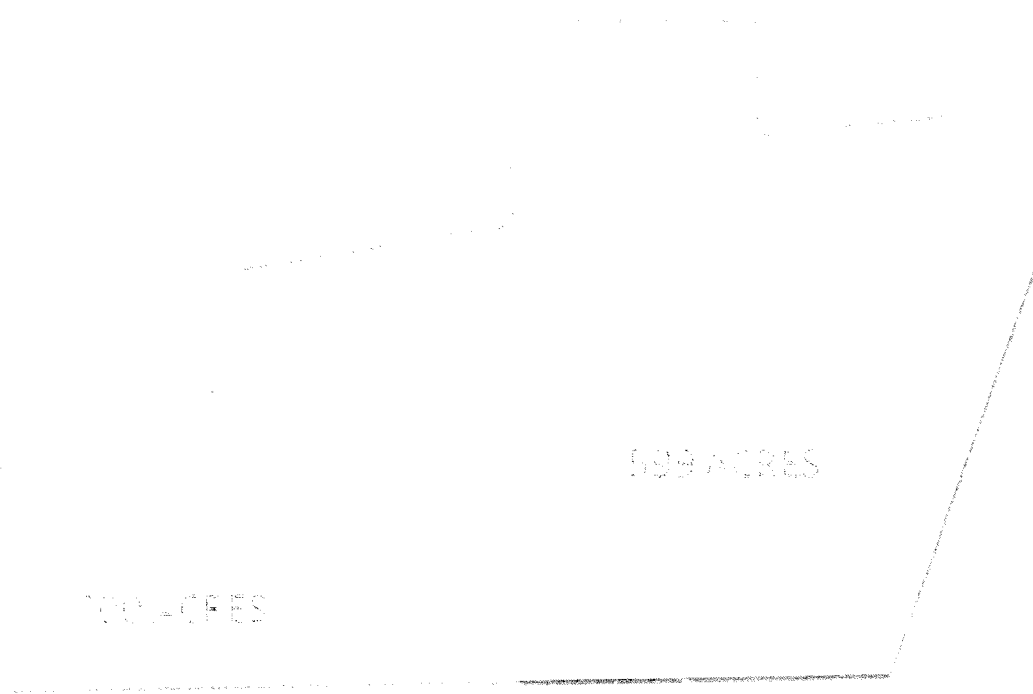
CURRENT FACILITY

FACILITY SIZE	302 ACRES
WASTE DISPOSAL AREA	599 ACRES
MAXIMUM HEIGHT	58 FEET
AIRSPACE CAPACITY	167,878,000 CY

FUTURE EXPANSION

FACILITY SIZE	1345 ACRES
WASTE DISPOSAL AREA	784 ACRES
MAXIMUM HEIGHT	178 FEET
AIRSPACE CAPACITY	26,760,000 CY

SCALES:

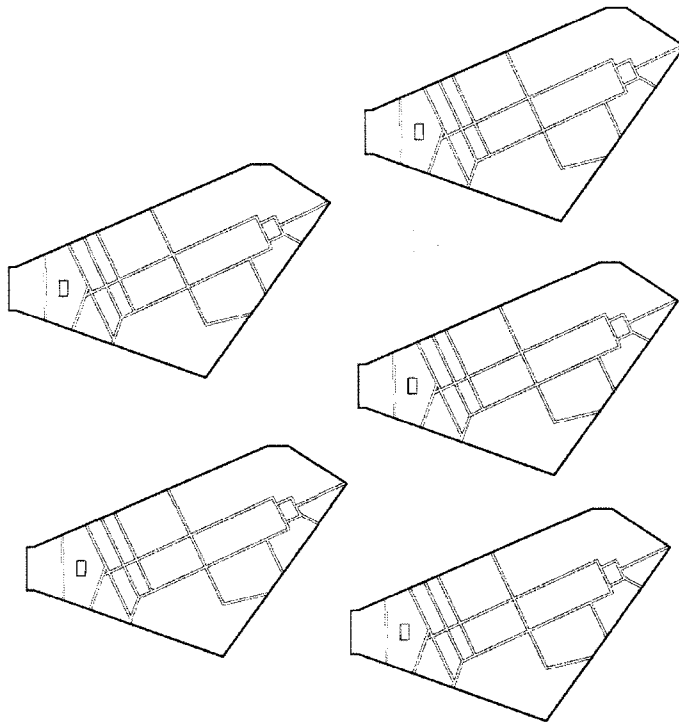


RICE STADIUM

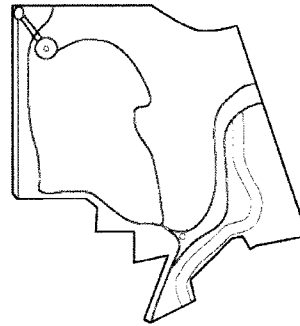
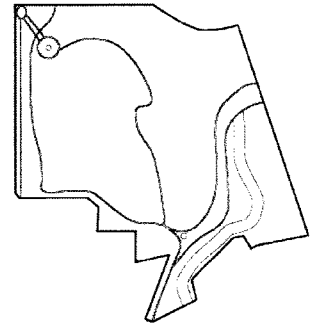
ASTRO DOME

MINUTE MAID STADIUM

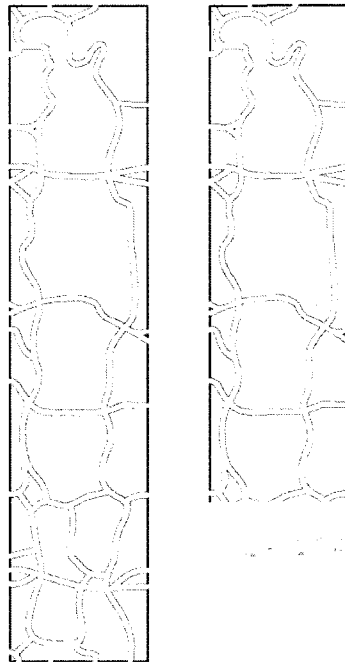
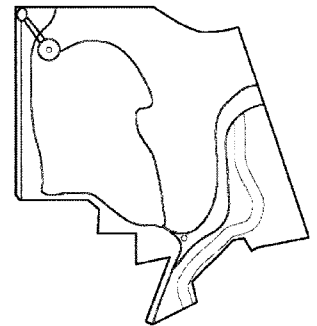
LADY LIBERTY



RICE
UNIVERSITY
CAMPUS



HERMAN PARK



CENTRAL
PARK

Fifth Street

Sugarland Rd

Fort Bend Pkwy

QUAIL VALLEY
DEVELOPMENT

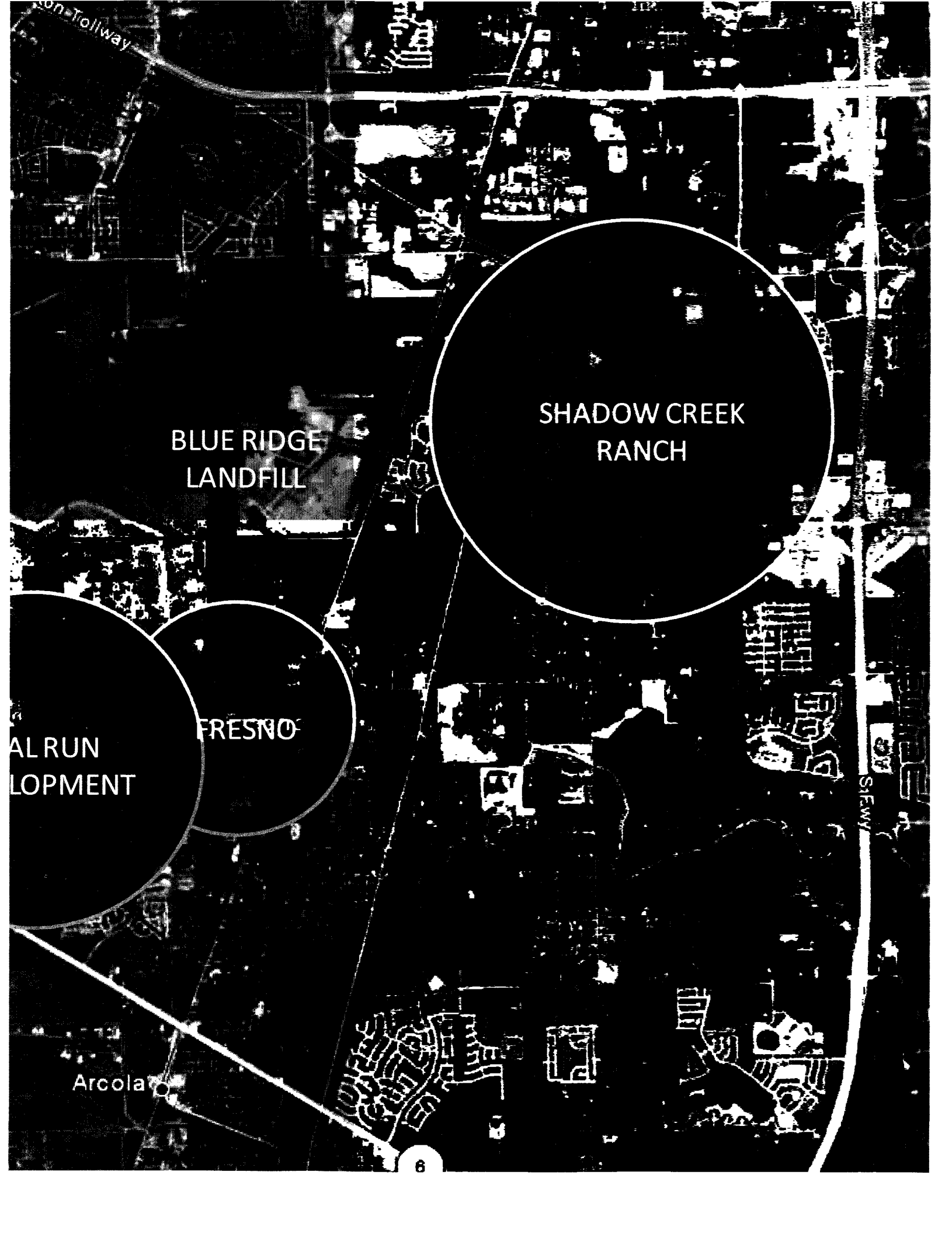
SIENNA
PLANTATIONS

DE

EFFECTS OF EXPANSION

LOWER PROPERTY VALUES
ENVIRONMENTAL COMPLICATIONS
SAFETY OF DRINKING WATER
FLOODING

AESTHETICS OF DEVELOPMENT
SCAVENGER SPECIES
AIR POLLUTION
TRUCK TRAFFIC



SHADOW CREEK
RANCH

BLUE RIDGE
LANDFILL

FRESNO

ALRUN
DEVELOPMENT

Arcola

Siewy





This Thesis looks to confront our inevitability with our own trash problem. The Blue Ridge Landfill is a developing mountain of trash that will become the largest earth formation in all of Houston and southern Texas. As designers and architects the mountain of garbage symbolizes a new paradigm of reinterpreting public green space and the new translation of monumentality.

Landfills have always been the large voids in the city fabric; they are disguised and hidden from public's view. This proposal gives an alternative to the current typology by reorganizing, restructuring, and redesigning the waste 'scapes in order to reinsert it back into the city like grafted new participatory organ.

Landfills are containers of time stamped consumption and local historical events. By studying the cross sections of the cellular land mass, it is possible to trace the archeology of our recent past human life, activities, Technology, fads, and catastrophes. Landfills are no longer smelly piles of trash, they will be the new epicenters of learning, archiving, recreation, migration routes and alternate energy opportunities.

MON TUES WED THUR FRI SATR SUN

DAILY CELL



2040 2042 2044
2030 2032 2034
2016 2018 2020 2022



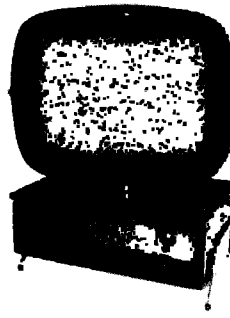
CUTTING A CROSS SECTION THROUGH A TYPICAL LANDFILL:



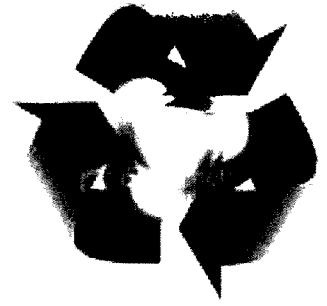
2003
HURRICANE
KATRINA RITA



2008
HURRICANE
IKE



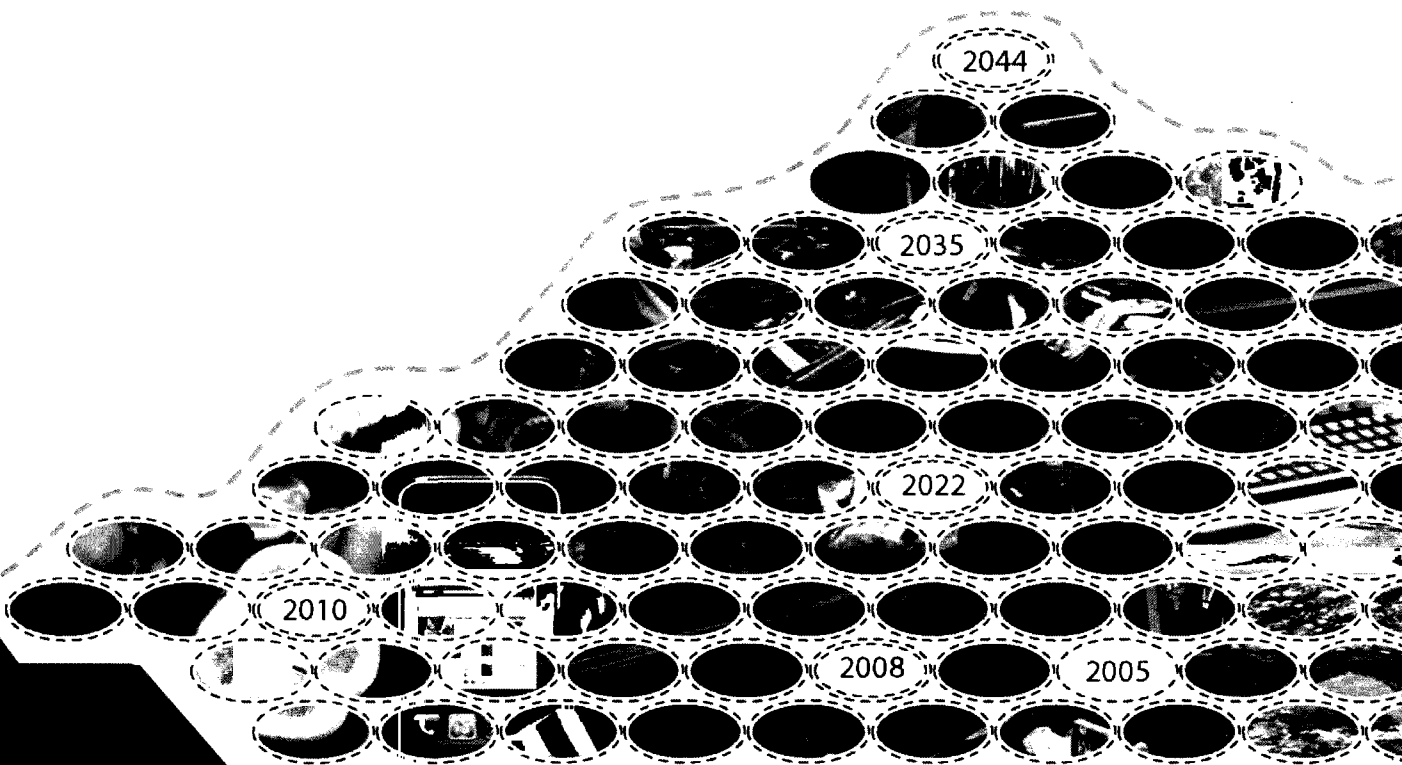
2010
END OF
ANALOG SIGNAL

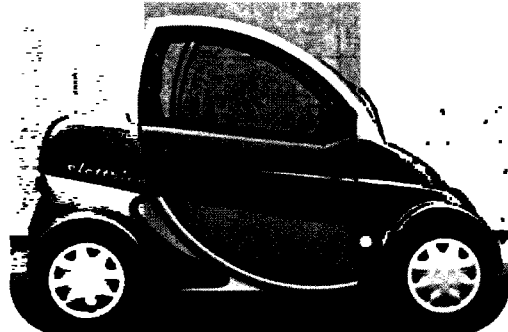
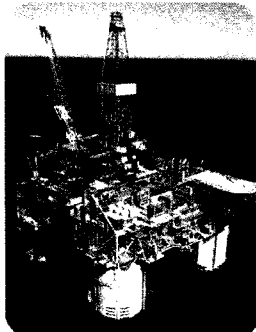
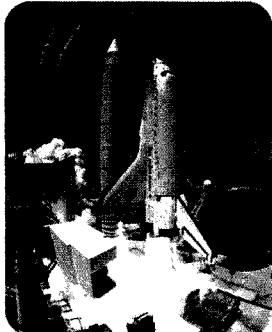
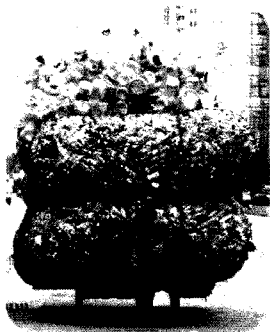


2020
GARBAGE IS
COMPLETELY
PROCESSED



2020
20% OF
CARS RECYCLED





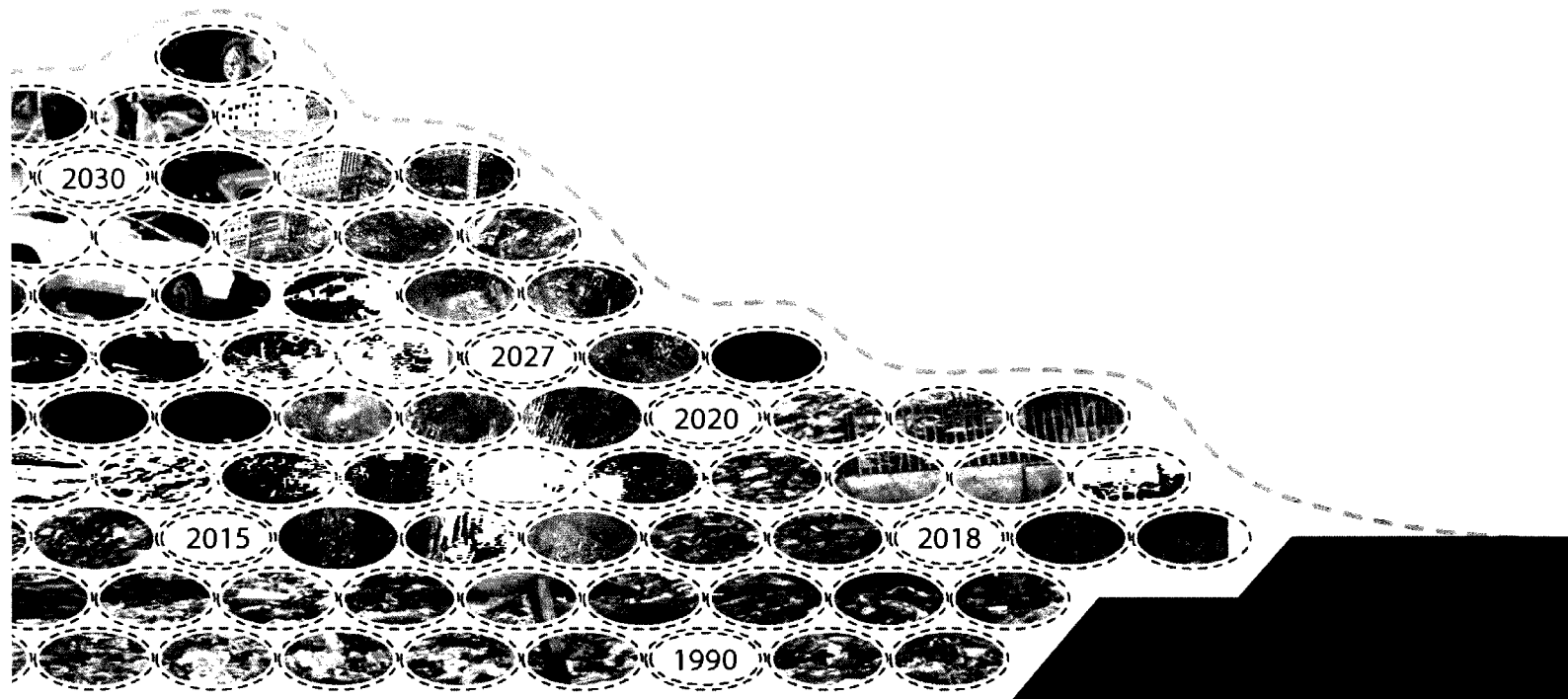
25
BASED
TICS

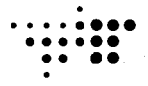
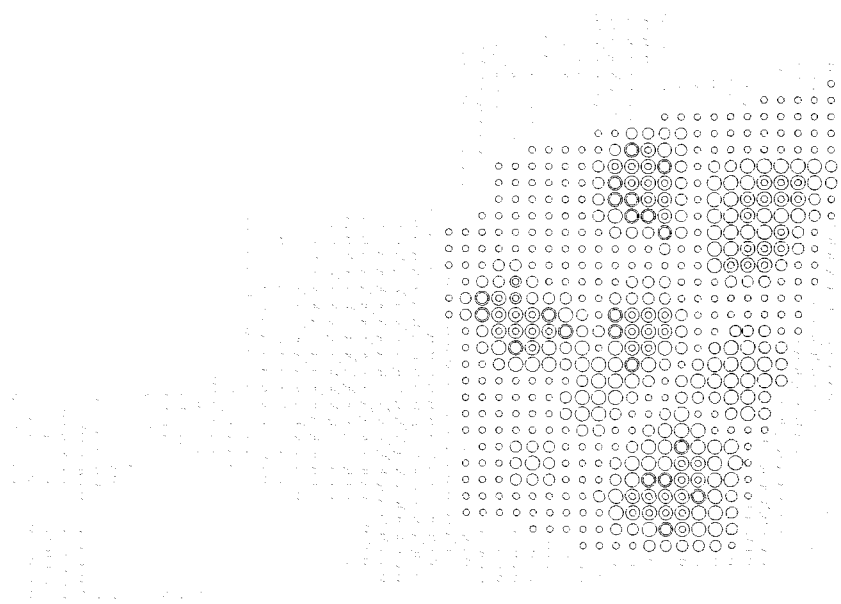
2028
SURPLUS
PLASTIC

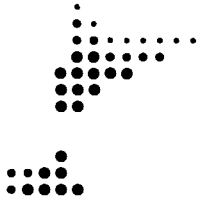
2032
NASA SURPLUS
OF EQUIPMENT

2040
NO PETROLIUM
DEPENDENCY

2044
ELECTRIC
CARS



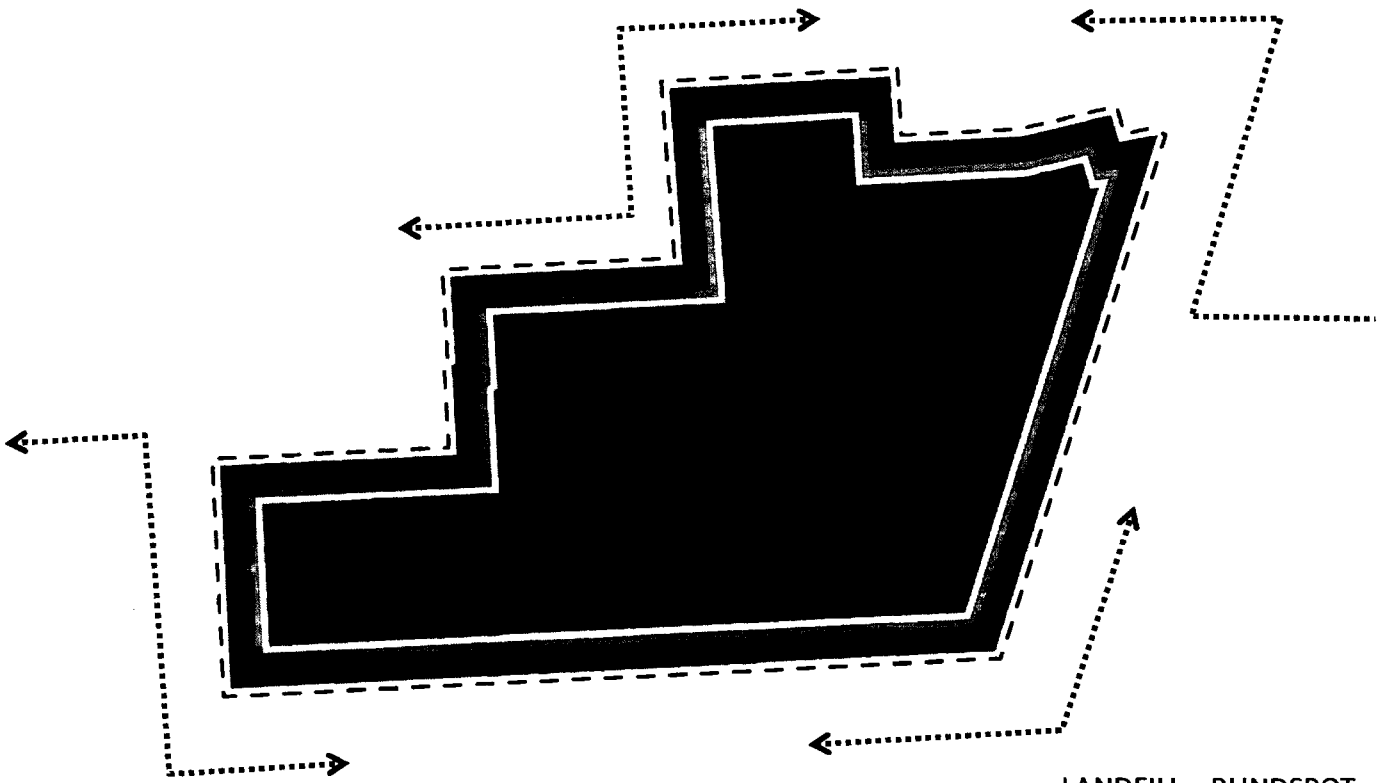




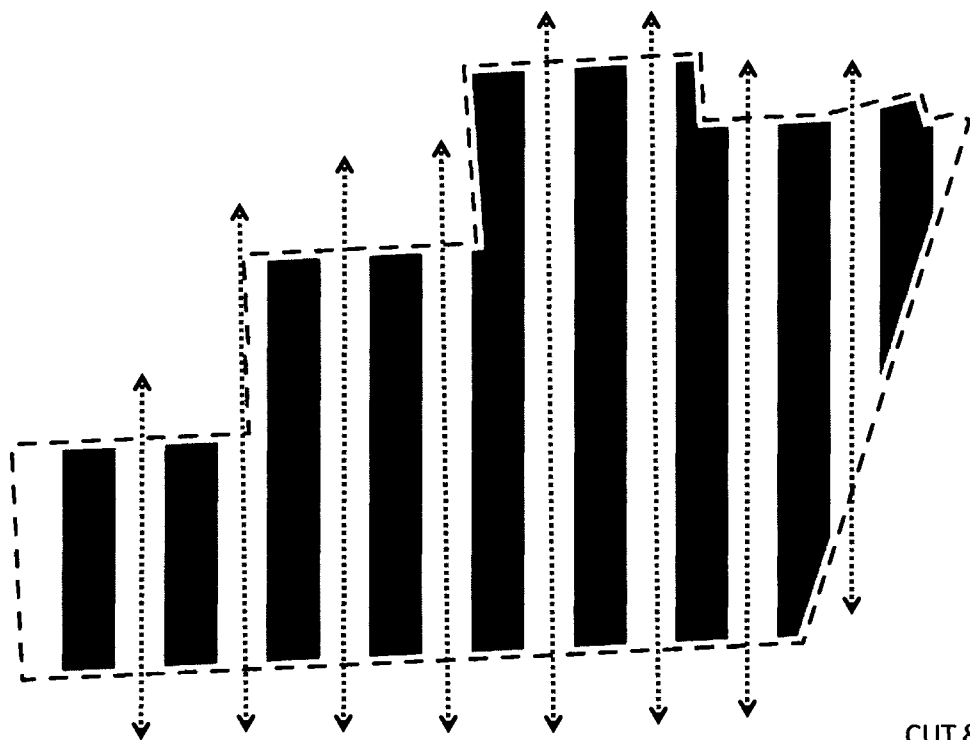
SITE TAXONOMY

ONE MILE RADIUS

RURAL ● RADIO TOWERS RESIDENTIAL FUTURE RESIDENTIAL COMMERCIAL WATER SYSTEM WETLANDS PUBLIC PARK ● SCHOOLS ○ CURRENT LANDFILL ○ LANDFILL EXPANSION



LANDFILL = BLINDSPOT
CITY VOIDS

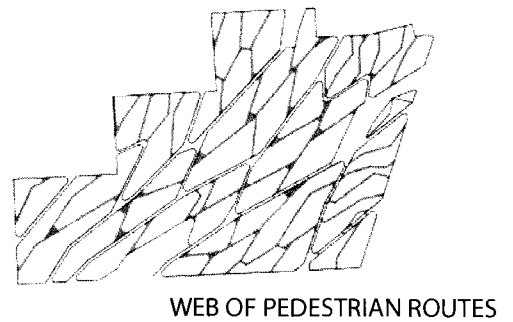
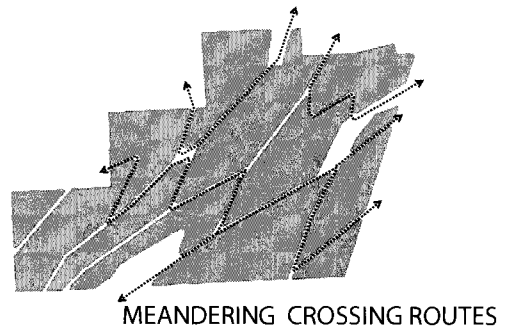
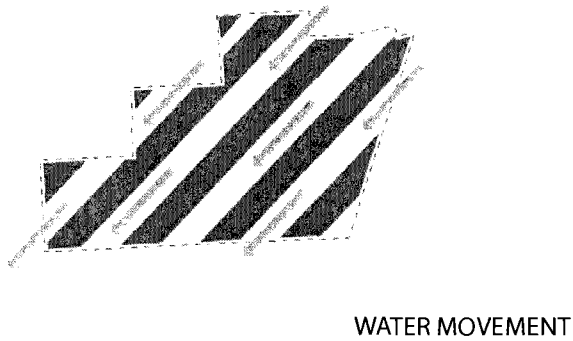
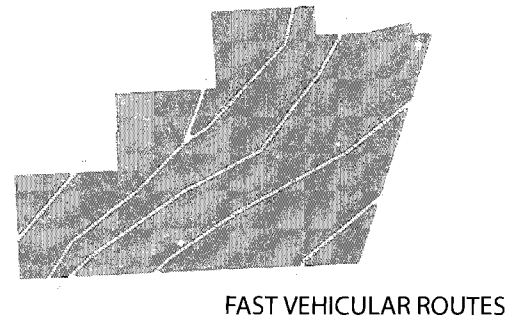
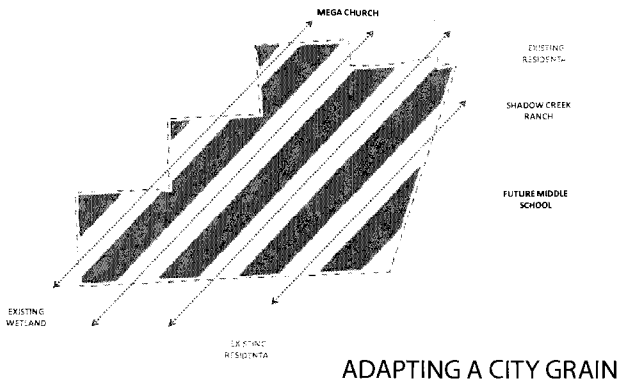


CUT & FILL
CITY CONNECTIONS

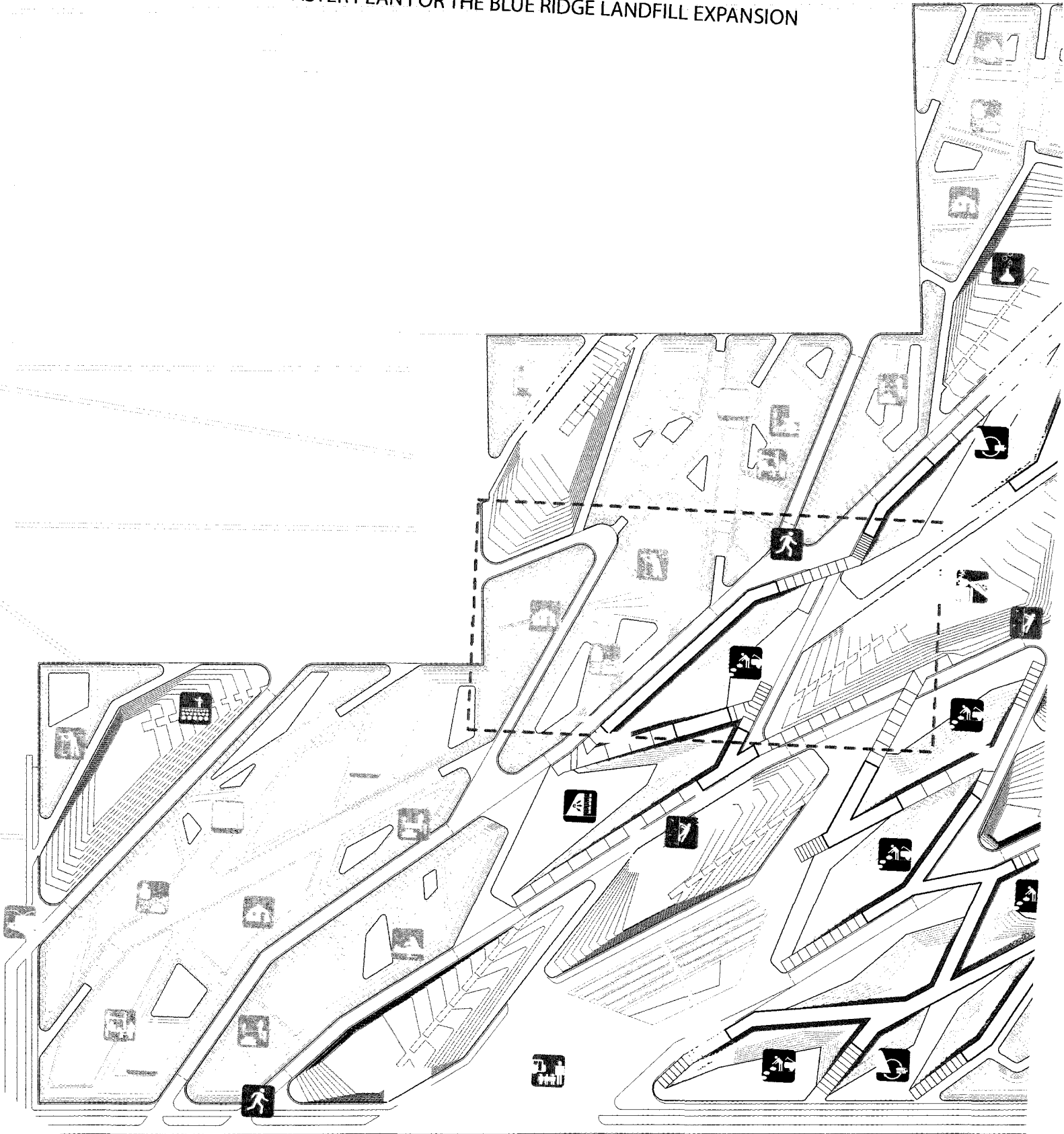


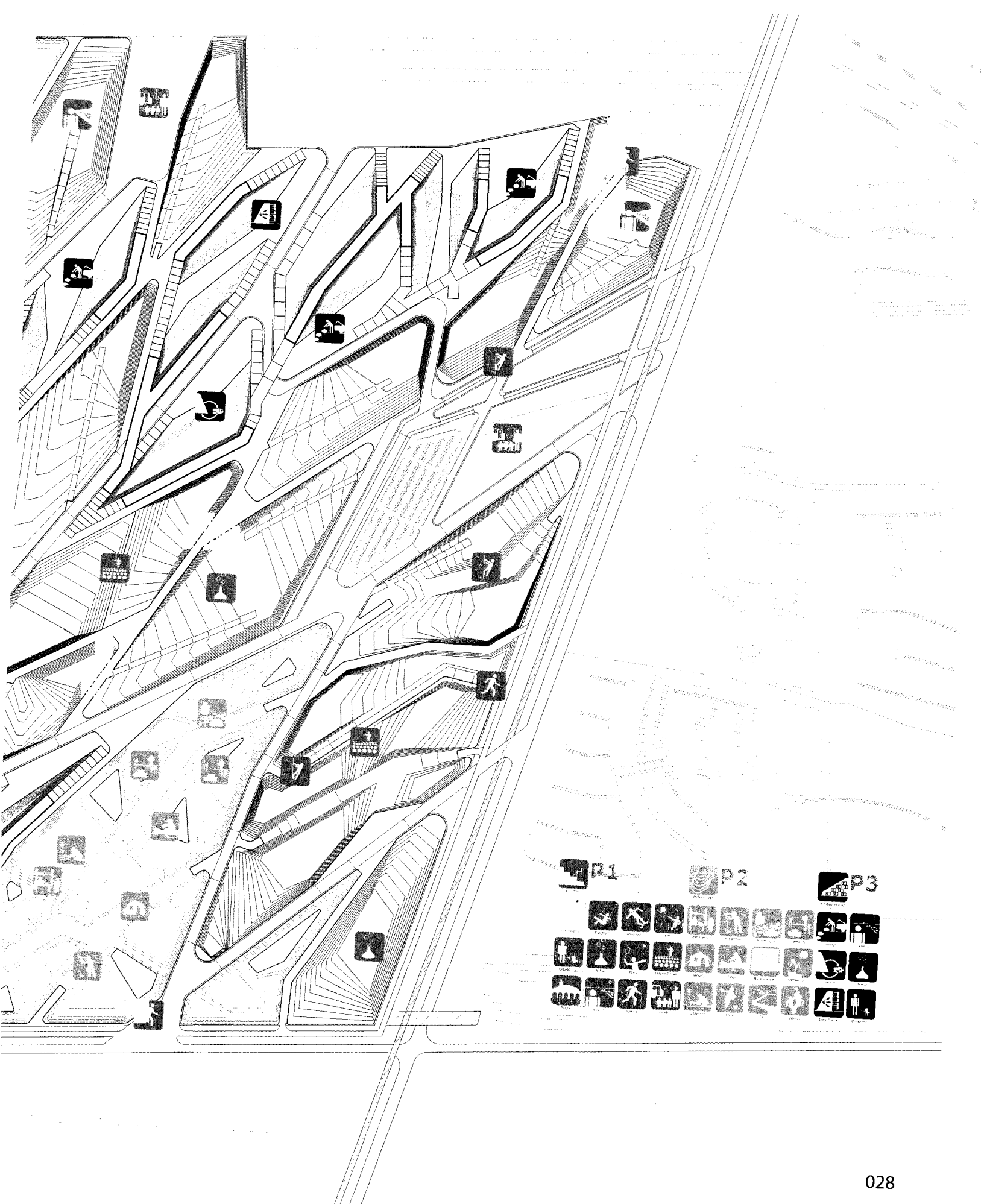
RETHINKING ORGANIZATION

CURRENTLY LANDFILLS ARE VOIDS IN THE CITY FABRIC, THEY ARE BLIND SPOTS THAT ARE HIDDEN FROM PUBLIC VIEW. BY CUTTING AND FILLING THE LANDFILL, THE CITY NOW HAS THE ABILITY TO CIRCULATE THROUGH RATHER THAN AROUND THE LARGE LAND FORMATION. THIS SIMPLE ALTERATION LENDS NEW DISPOSAL TECHNIQUES AND CAN BE APPROPRIATED TO LANDFILLS WORLD WIDE IN A NEW PARADIGM OF GARBAGE ORGANIZATION.



PROPOSED NEW MASTER PLAN FOR THE BLUE RIDGE LANDFILL EXPANSION









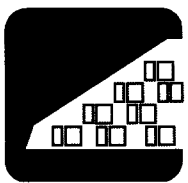
P1

INDEX
MONUMENT



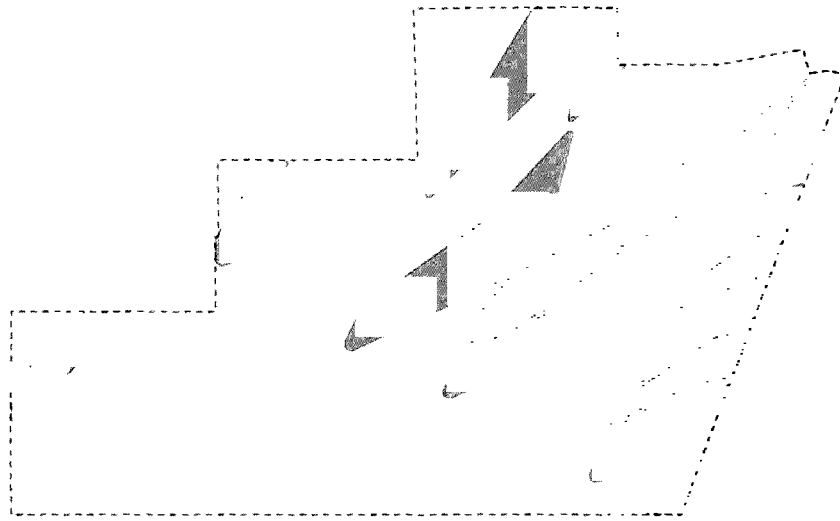
P2

CONCRETE
(FILL)



P3

RITUAL
BEHAVIOR





P1

INDEX MONUMENT

THE TYPICAL LANDFILL TAKES ITS MOUNTAINOUS FORM FROM A CONSTANT STACKING AND LAYERING OF DAILY TO ANNUAL DEPOSITS. THE PROPOSAL OF PHASE ONE IS TO USE THE CURRENT METHODOLOGY, BUT RE-ORGANIZES THE TRASH INTO AN INDEX. EACH TRASH MOUNTAIN IS A SIGNIFIER OF THE REGION'S ANNUAL CONSUMPTION. ITS AUTONOMY NOT ONLY SUGGESTS AN AWARENESS OF THE SHEER VOLUME THE VISITOR IS CONFRONTED WITH, BUT ARE THE NEW MONUMENTS THAT CONTAIN THE HISTORY OF OUR RECENT PAST.

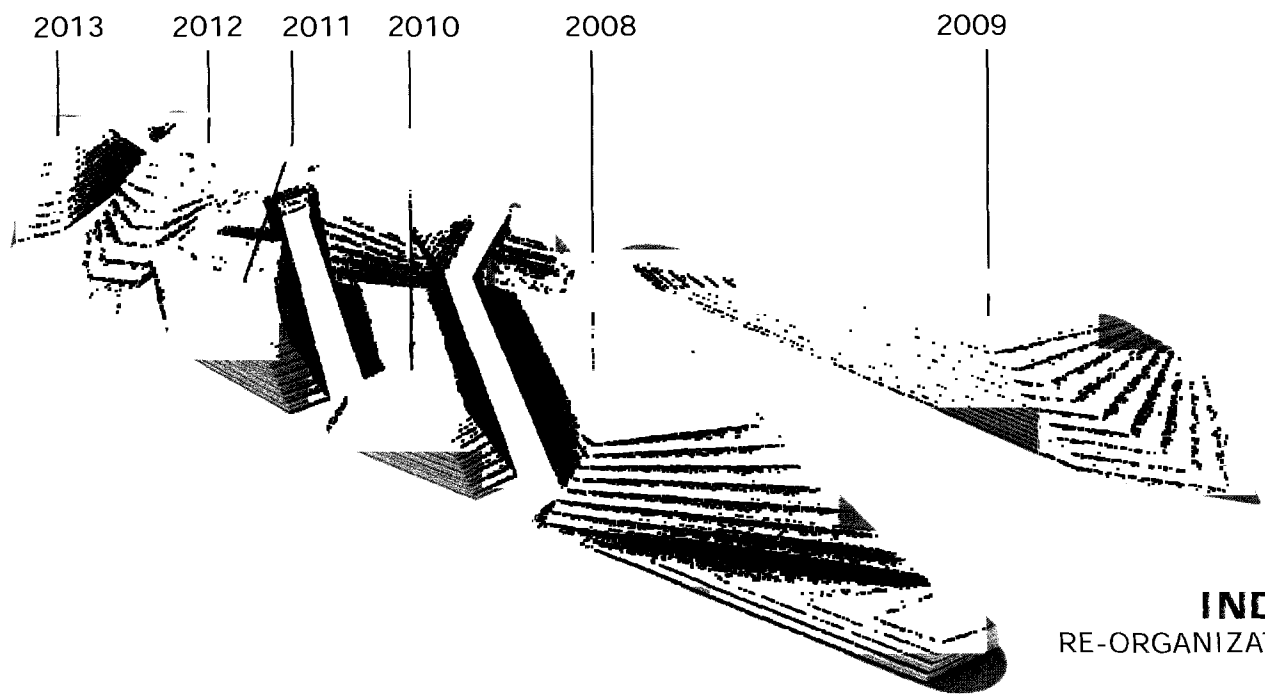
PHASE ONE
TIME DIAGRAM

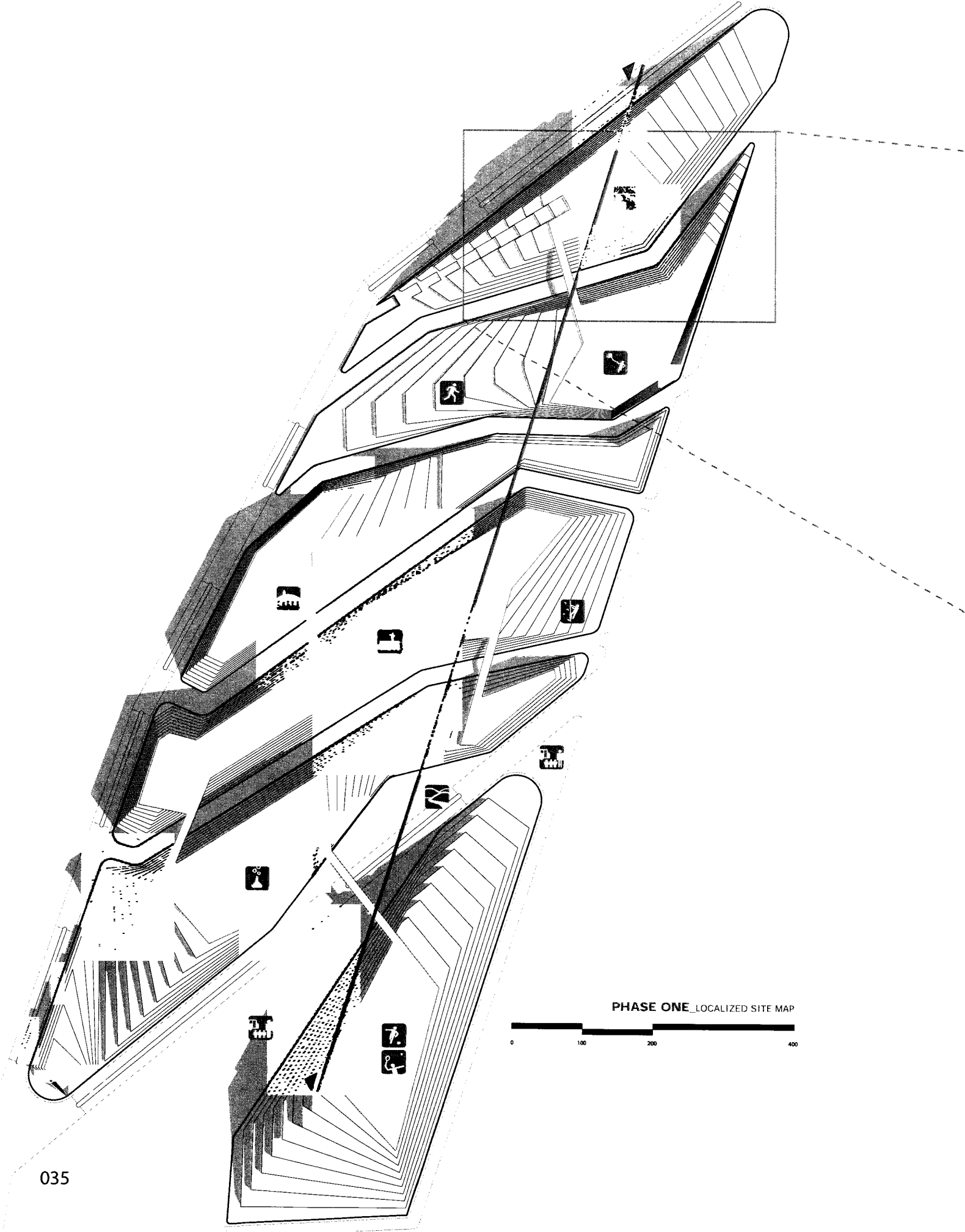
+1 MONTH

+3 MONTHS

+8 MONTHS

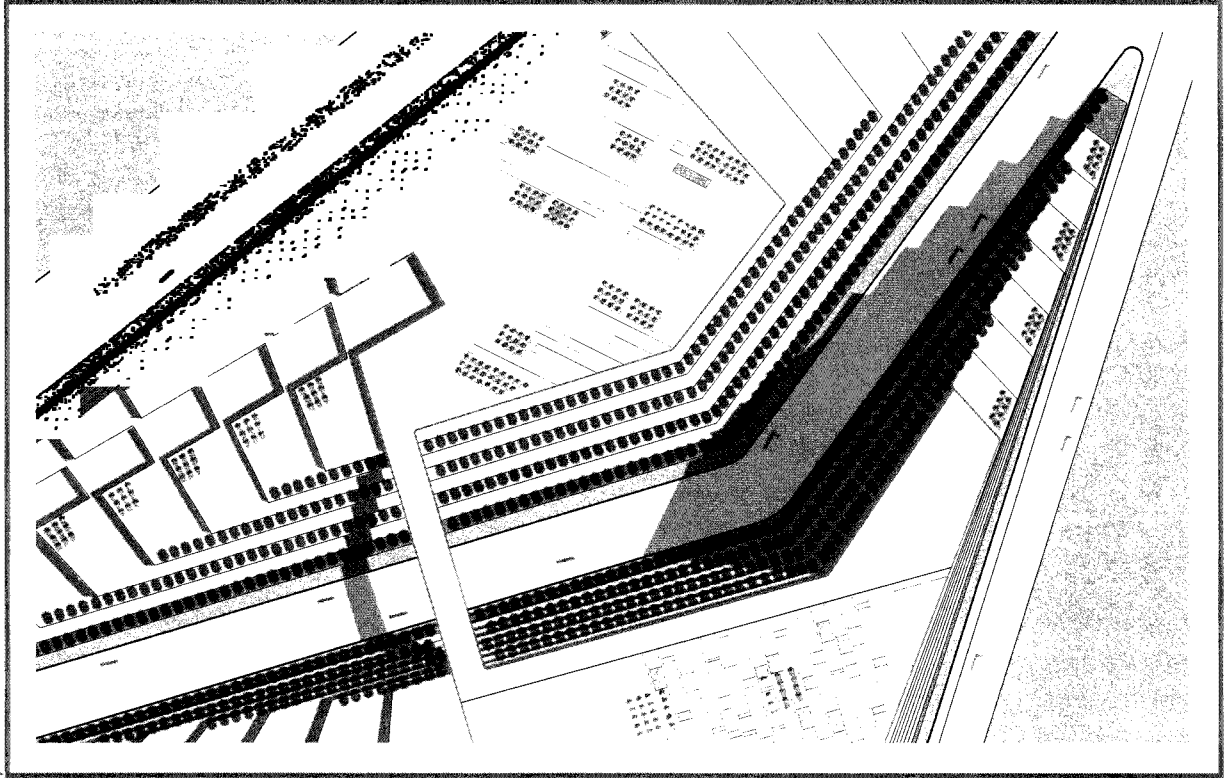
+12 MONTHS

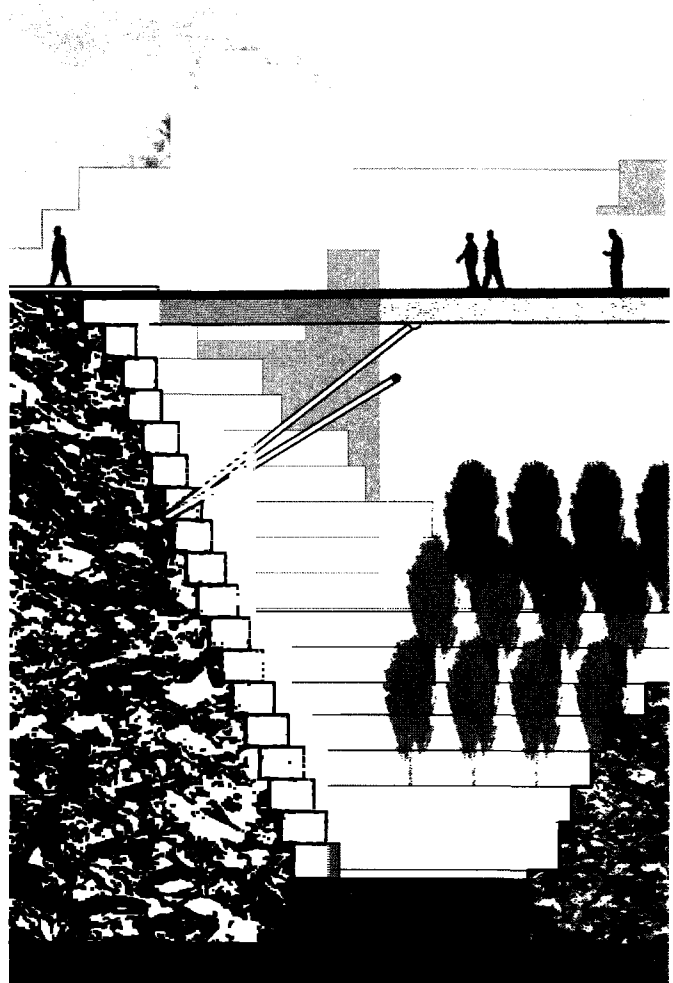
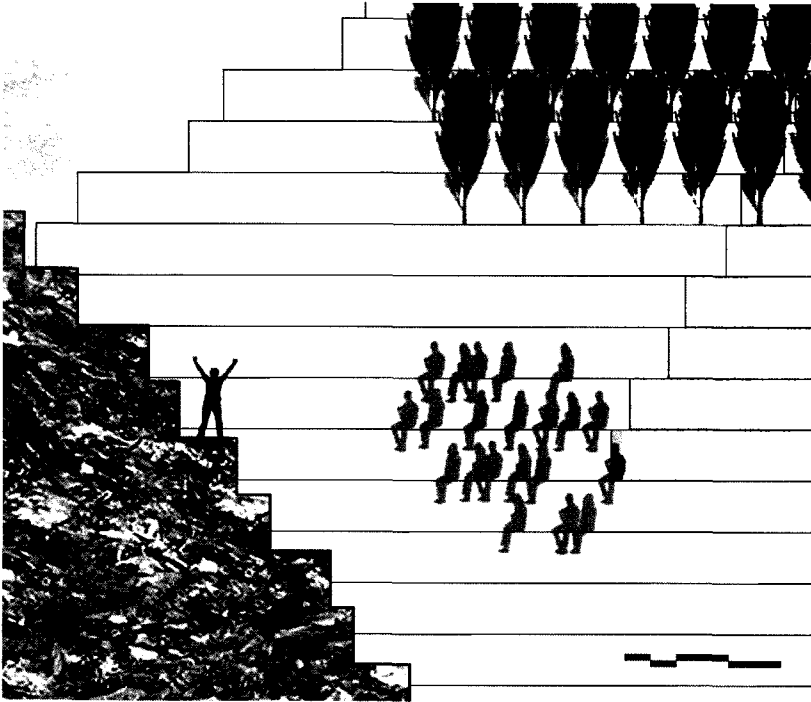
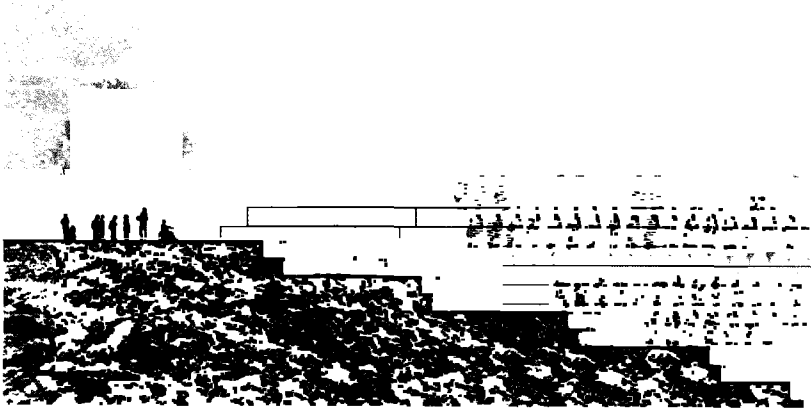


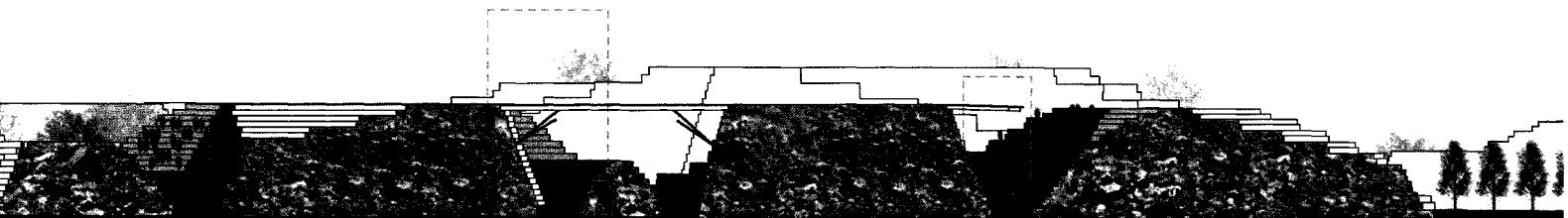
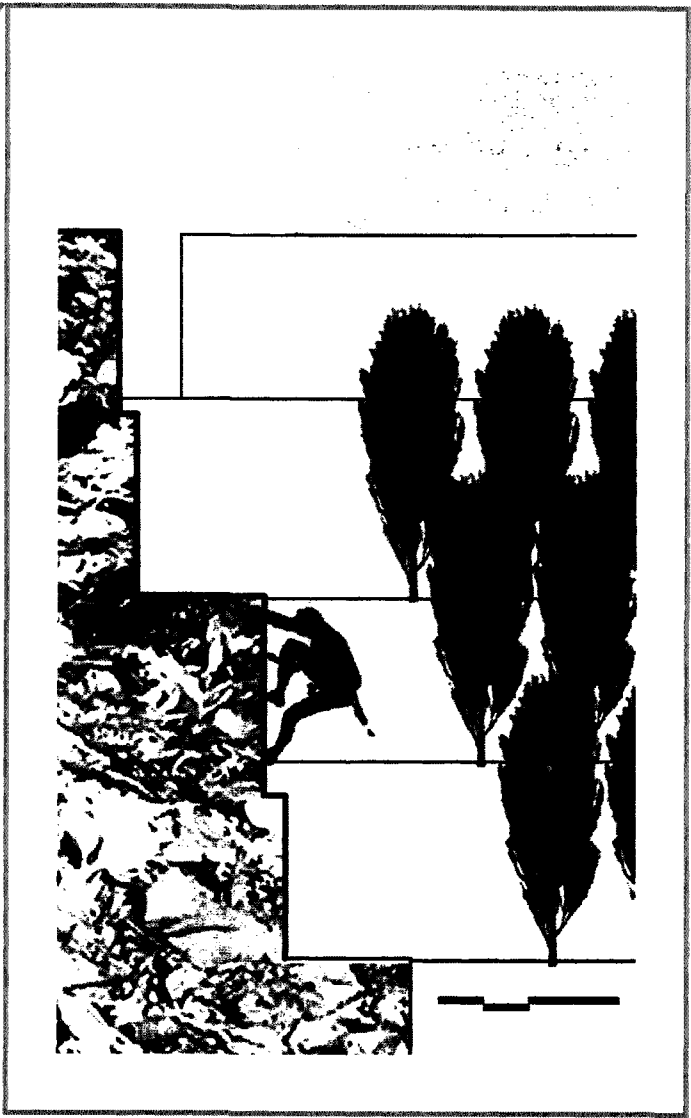
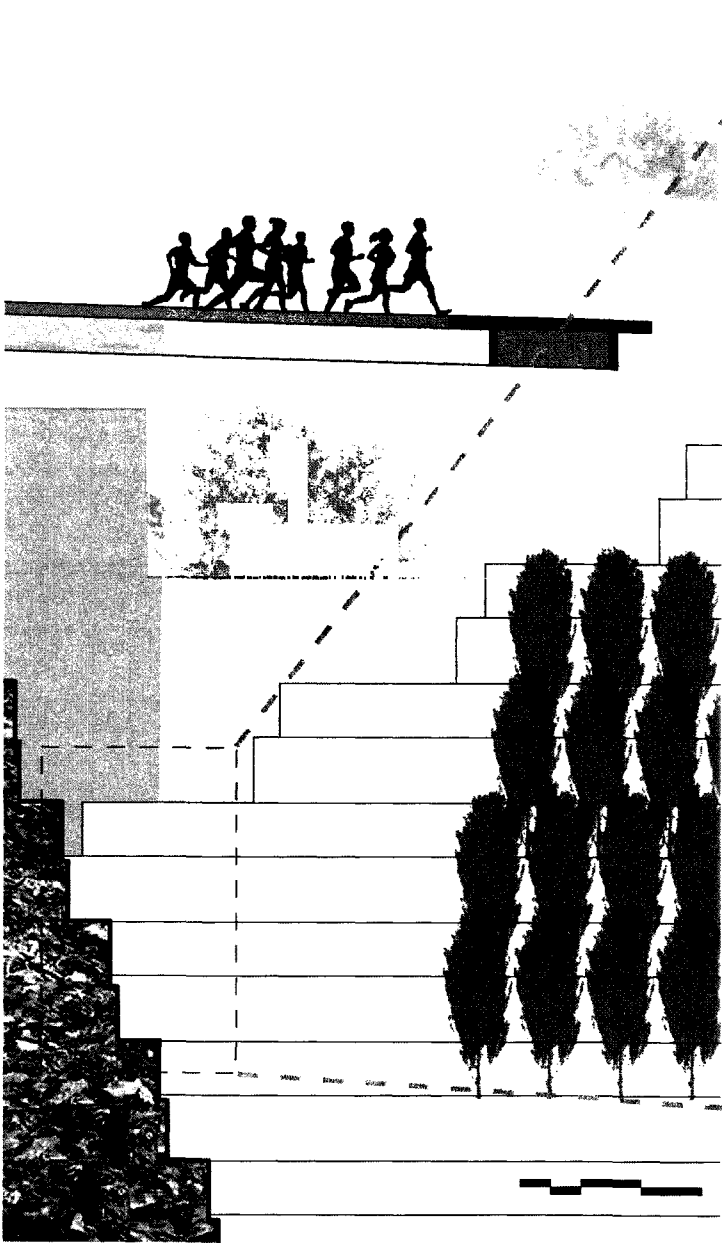


PHASE ONE LOCALIZED SITE MAP

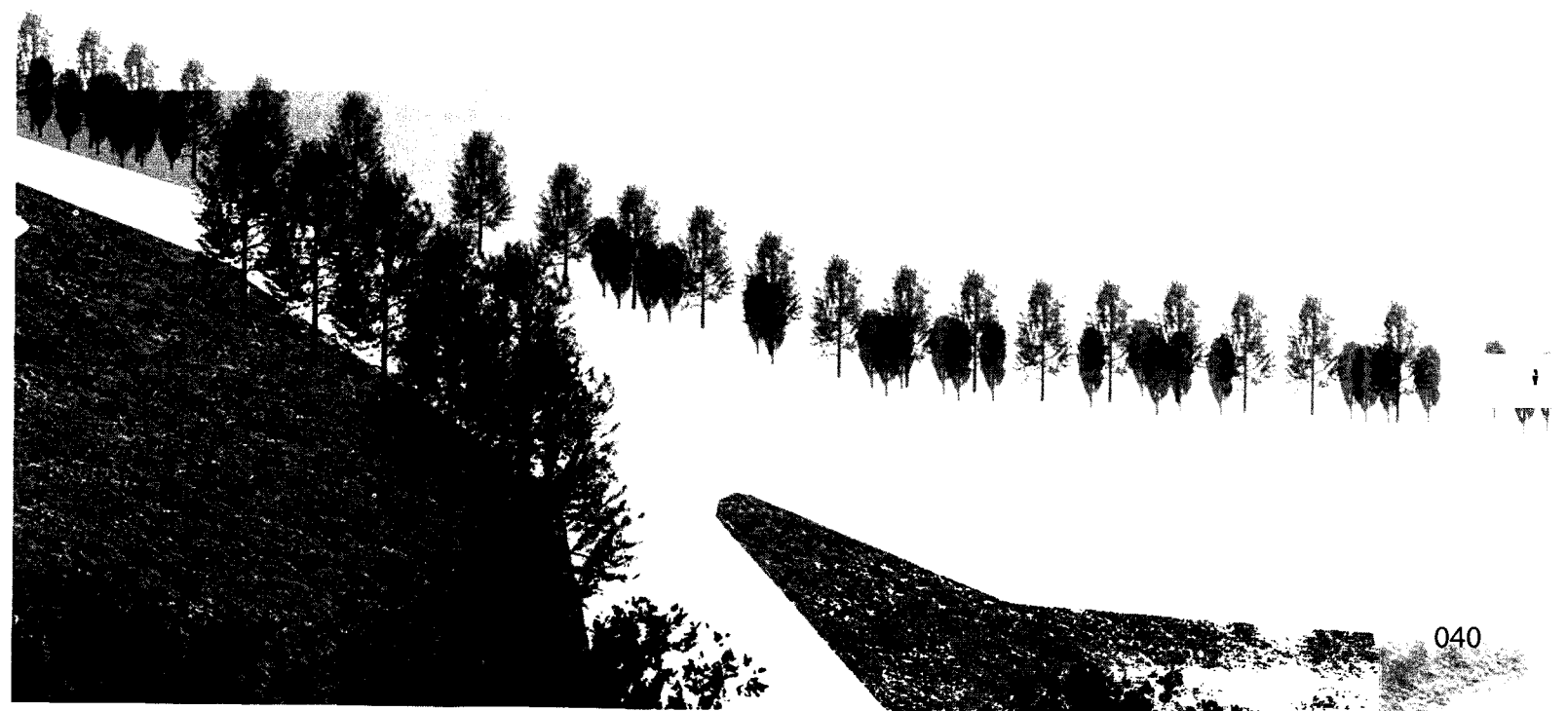
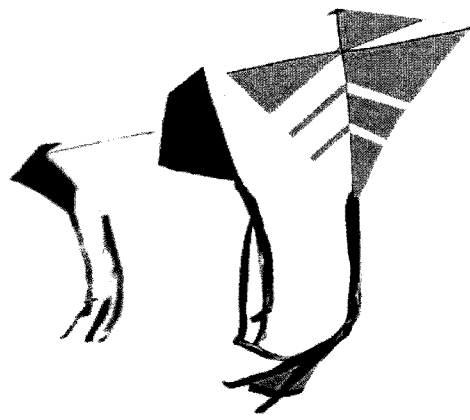


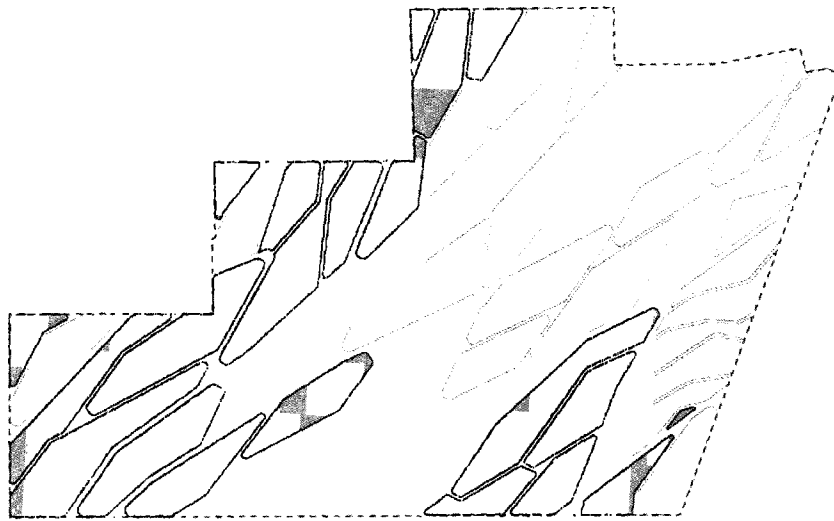










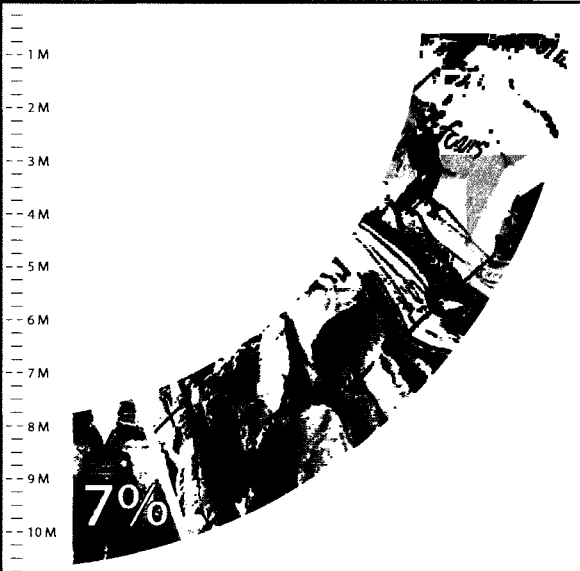
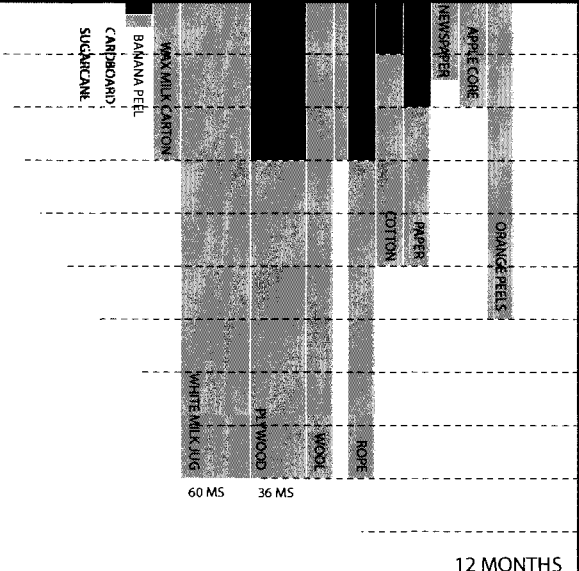
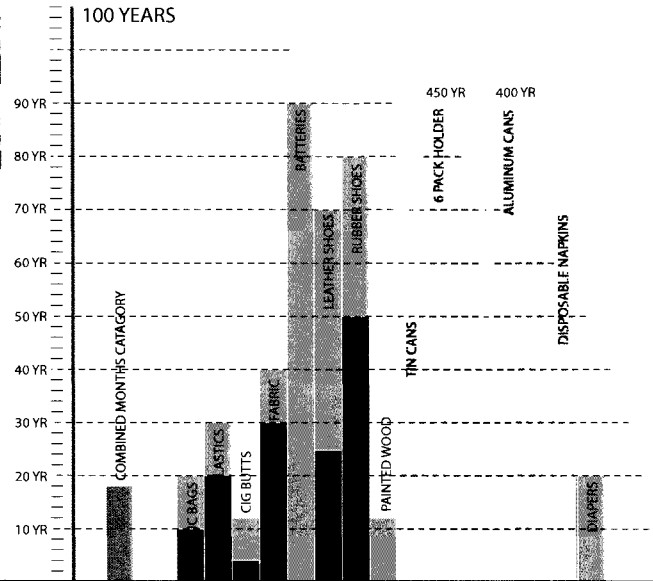




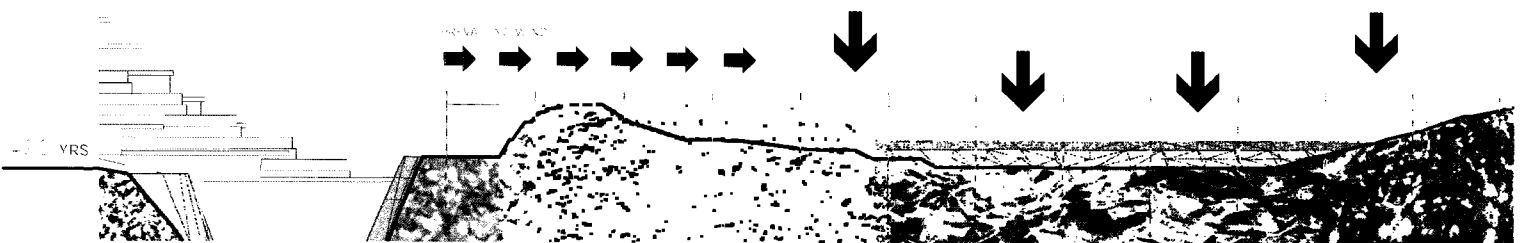
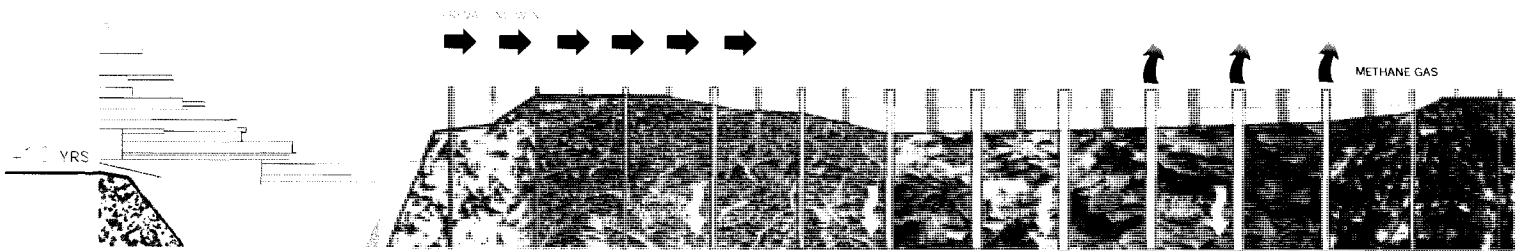
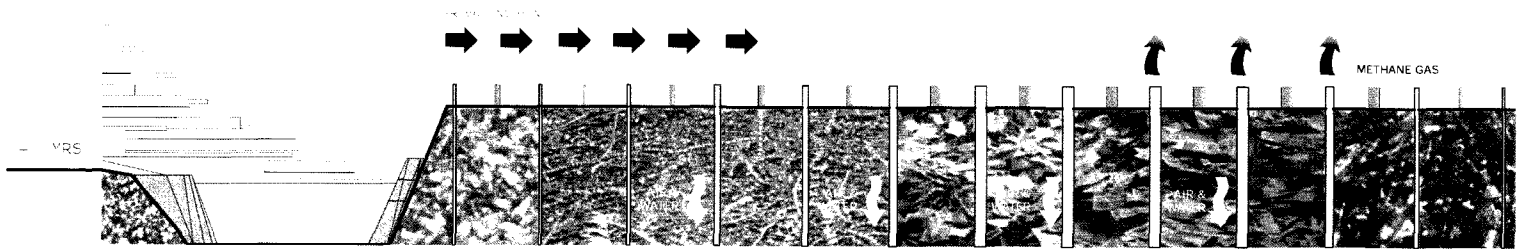
P2

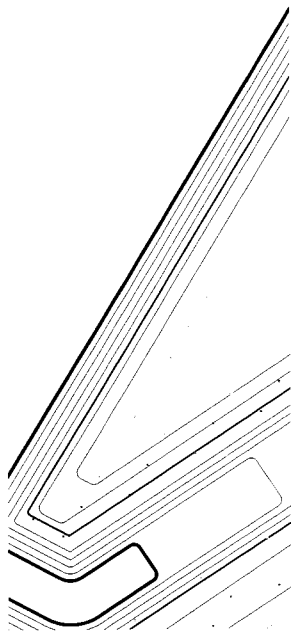
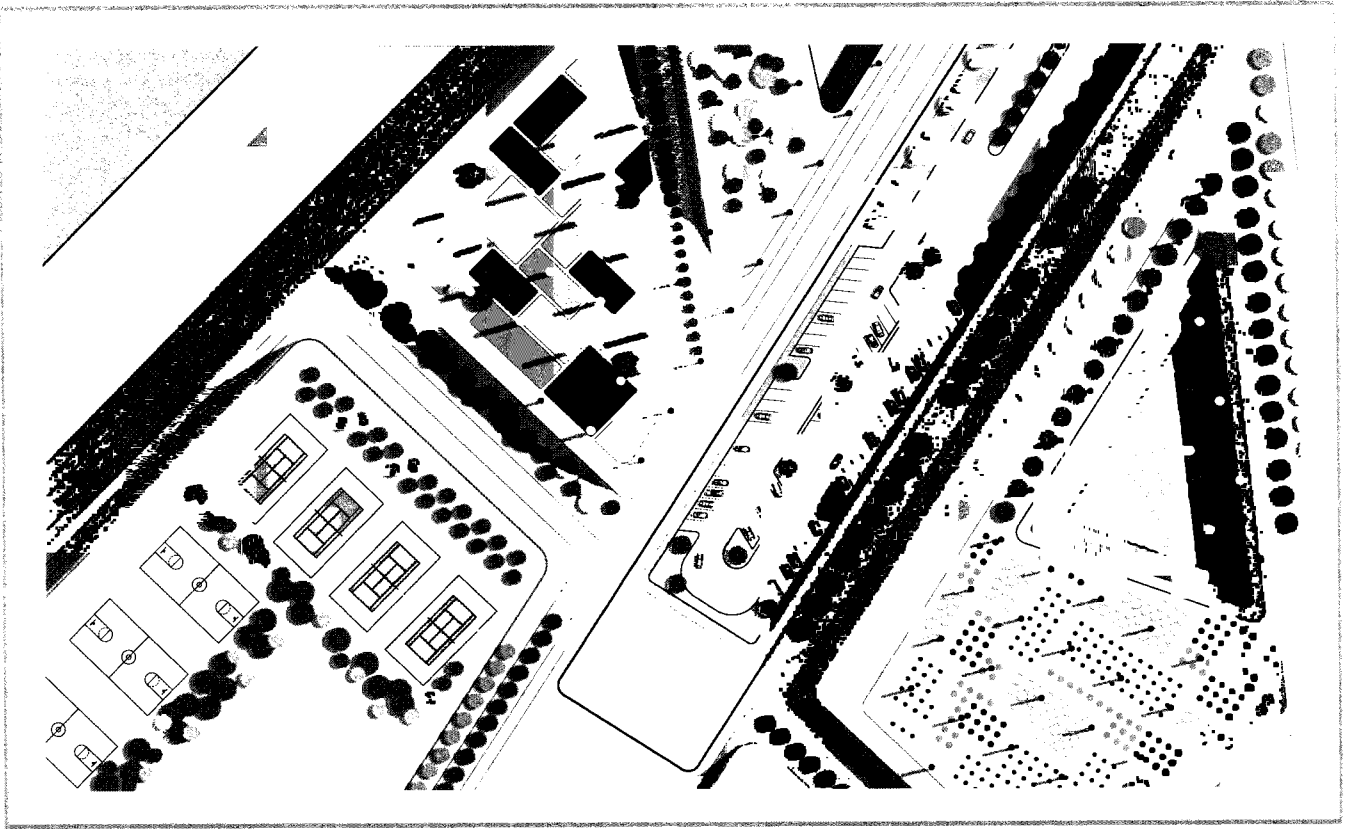
PHASE TWO
LANDFILL (FILL)

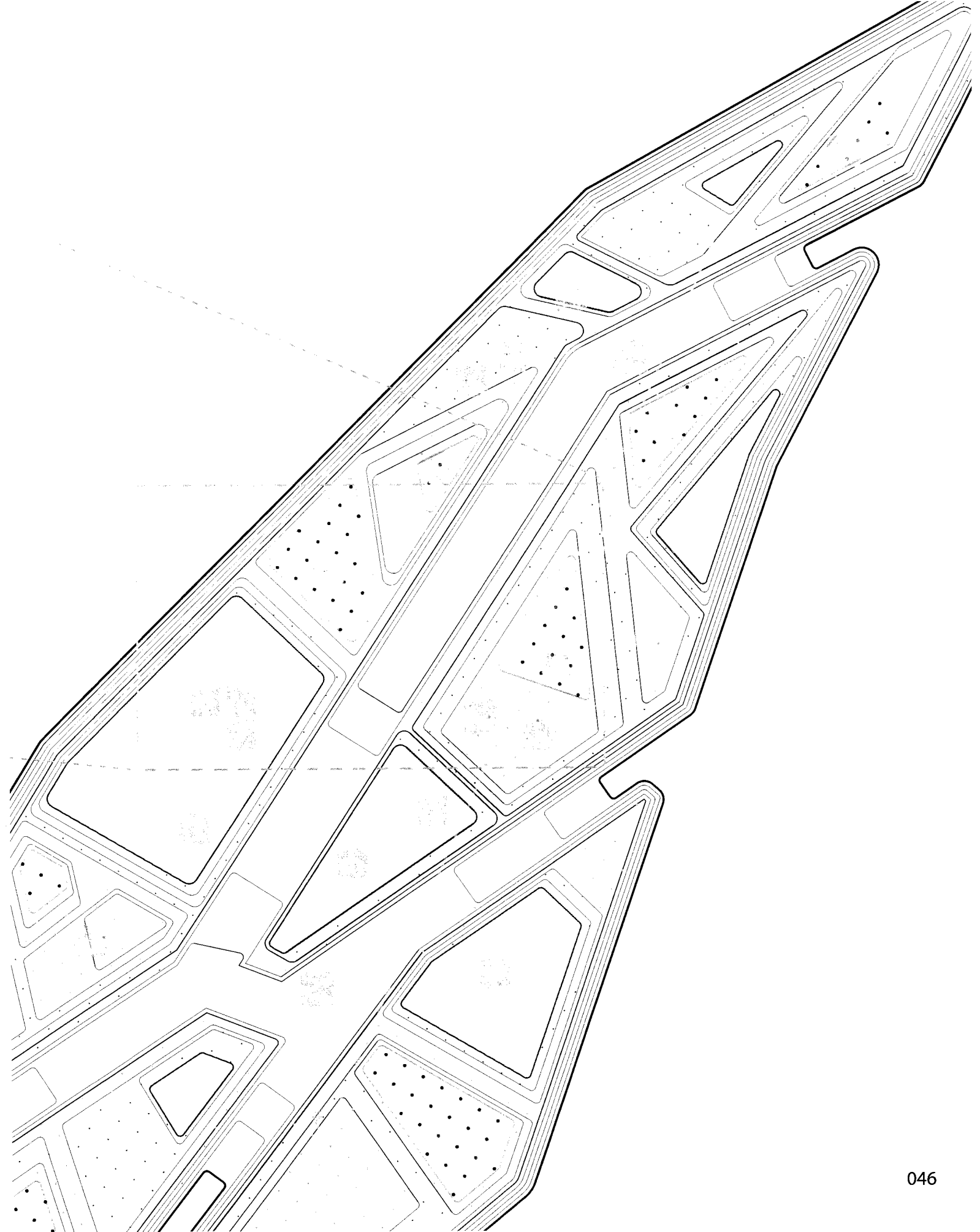
PHASE TWO PROPOSES THE SEPARATION OF GARBAGE TYPES INTO DESIGNATED LOCATIONS IN THE LANDFILL. THE STRATEGY PLACES GARBAGE IN SPECIFIC LOCATIONS ACCORDING TO THEIR ANTICIPATED DECAY LIFETIMES. DUE TO THE LACK OF OXYGENATION UNDER 35 FEET THAT IS NEEDED FOR DECAY, THE ARCHITECTURE BUILT INTO THE GARBAGE BRINGS AIR AND WATER INTO THE DEPTHS OF THE FILL. WITH THE ABILITY TO CHANGE DIAMETERS, APERTURES AND CONTAINMENT, THE WASTE'SCAPES CAN BE CHOREOGRAPHED FOR MULTIPLE PROGRAMMATIC USES AND INTRODUCE NEW NATURAL PROCESSES. PHASE TWO IS REGARDED AS THE GARDEN OF THE PROJECT, CONTAINING WETLANDS, MIGRATIONS STOP-OFFS, LOT FARMING, FLOWER CULTIVATION, AND BECOMES THE LEISURE SPACE FOR THE THIRD PHASE TO COME.

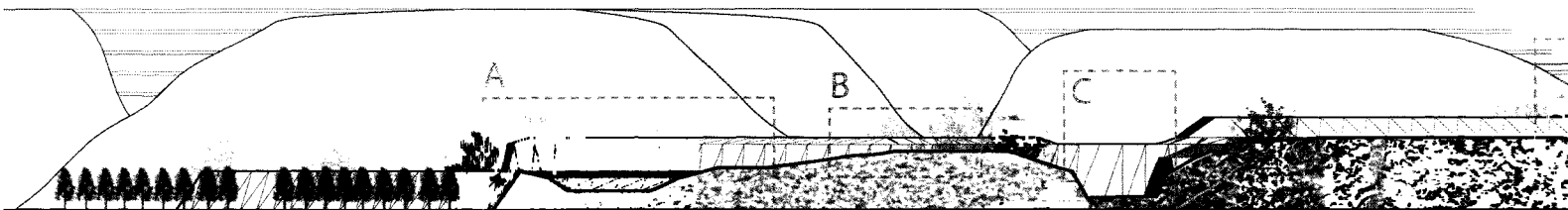
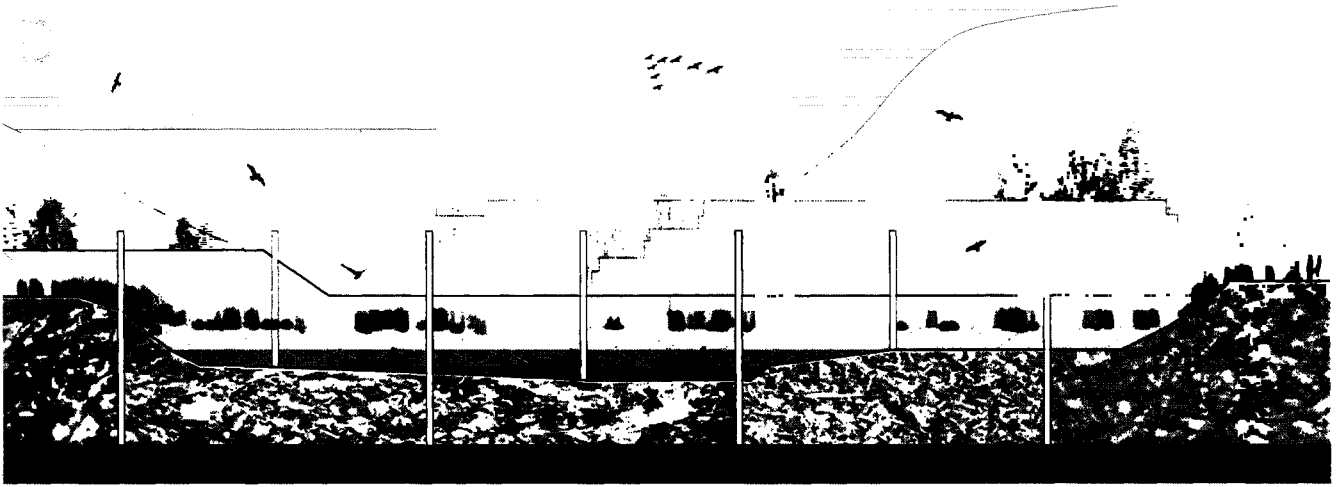
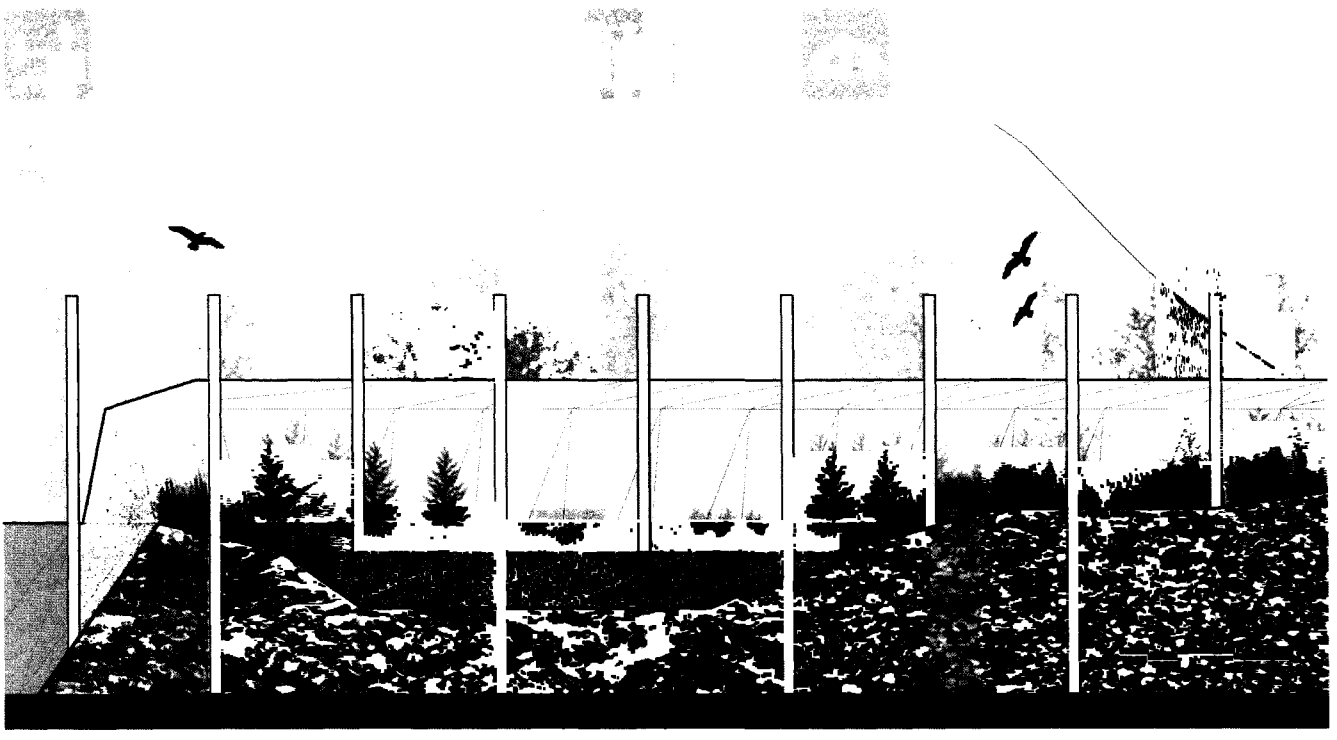


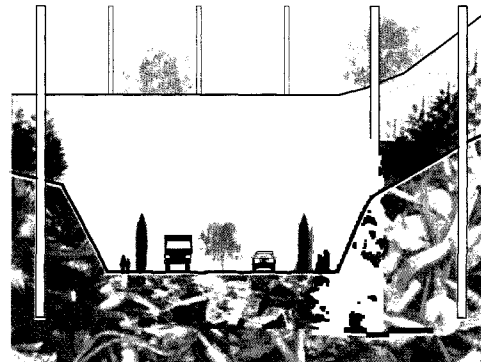
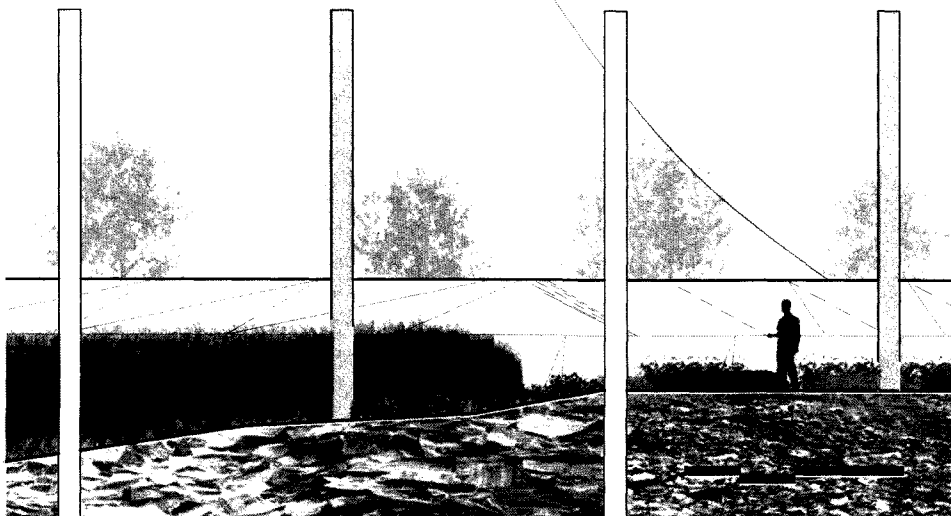
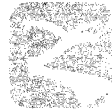
12 MONTHS



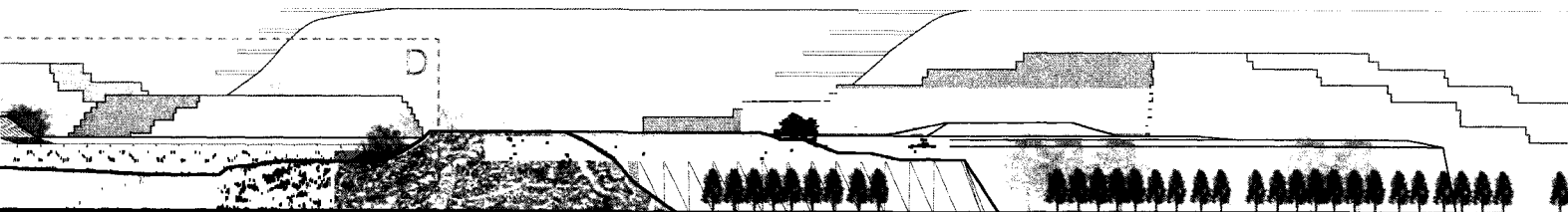






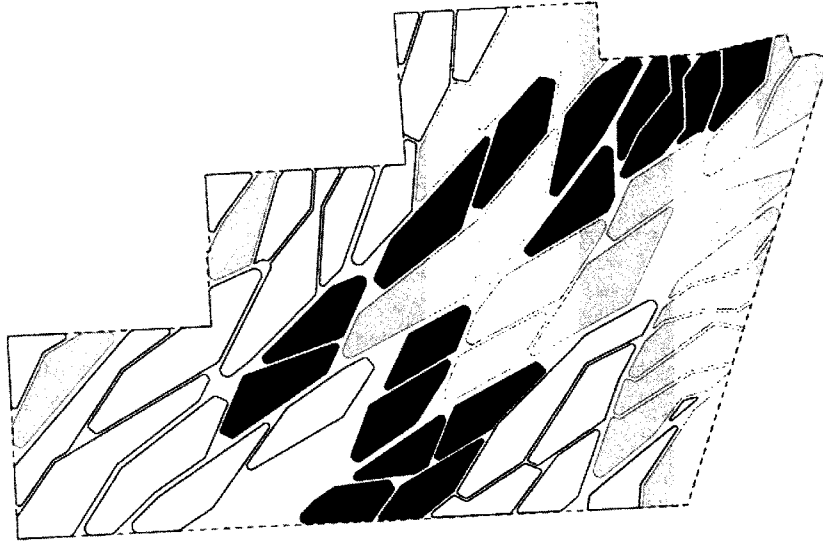


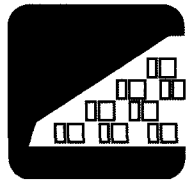
SECTION TWO _ DETAILED SECTIONS







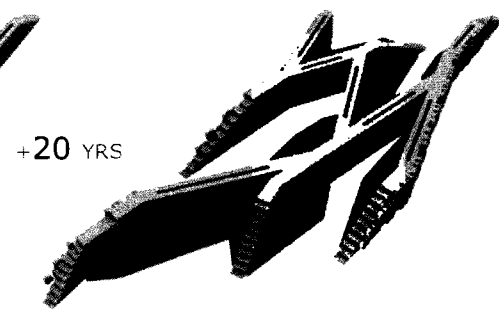
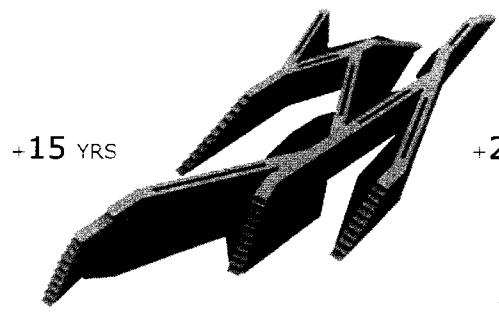
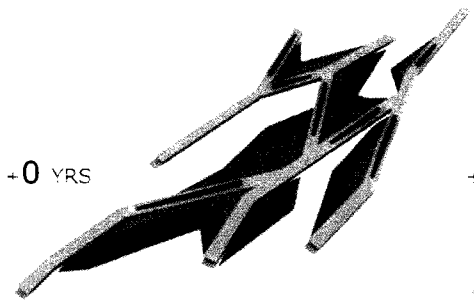


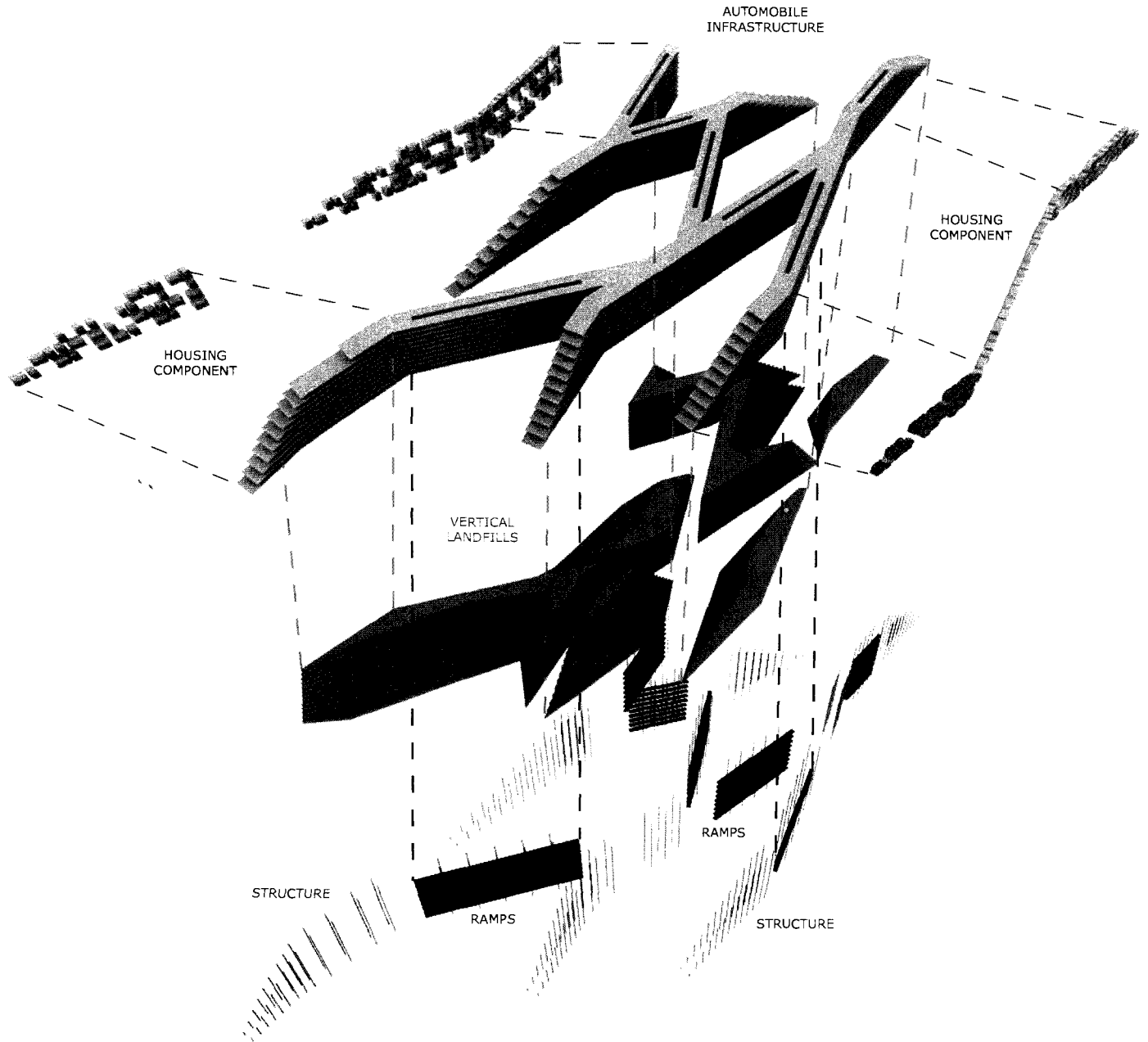


P3 RITUAL

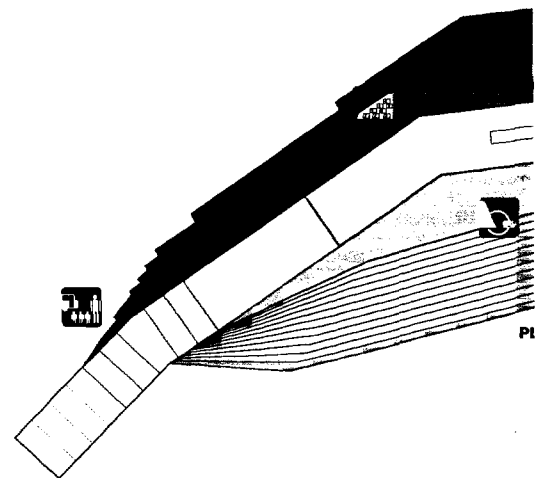
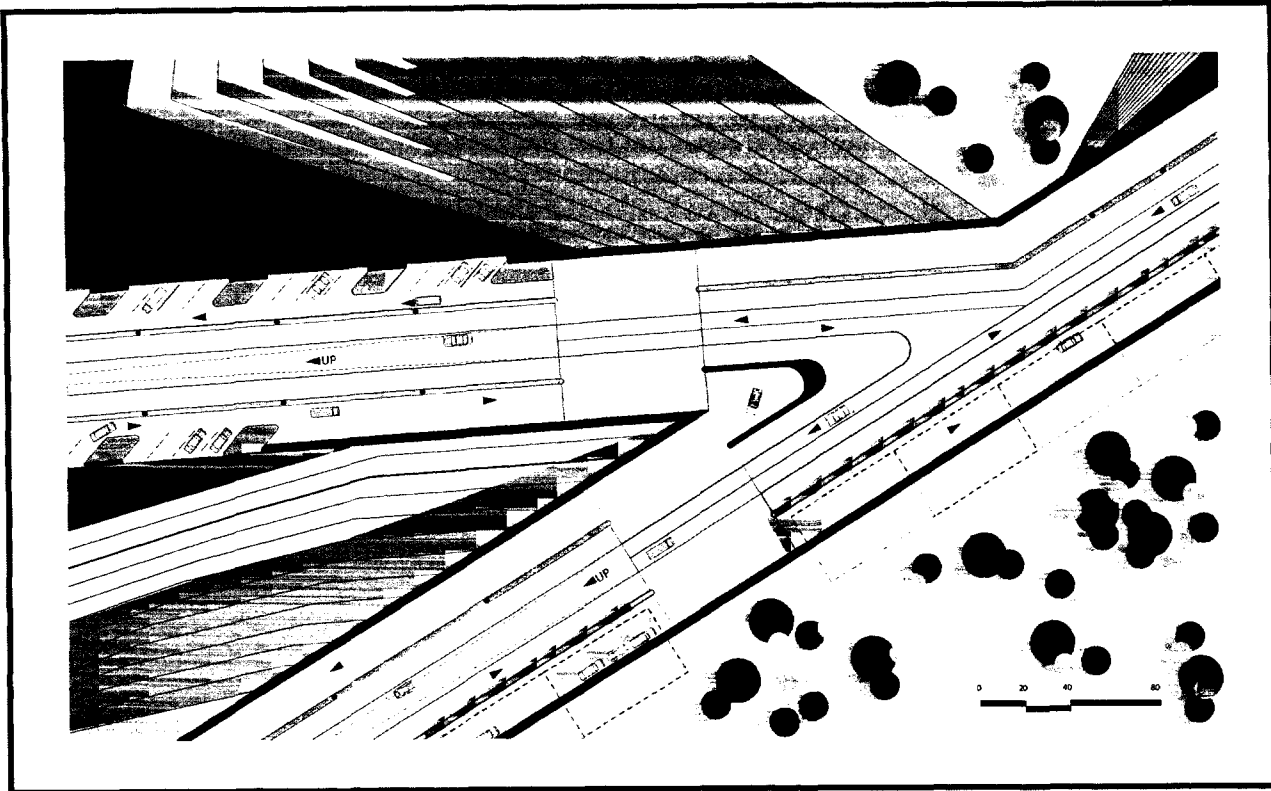
CHANGE BEHAVIOR

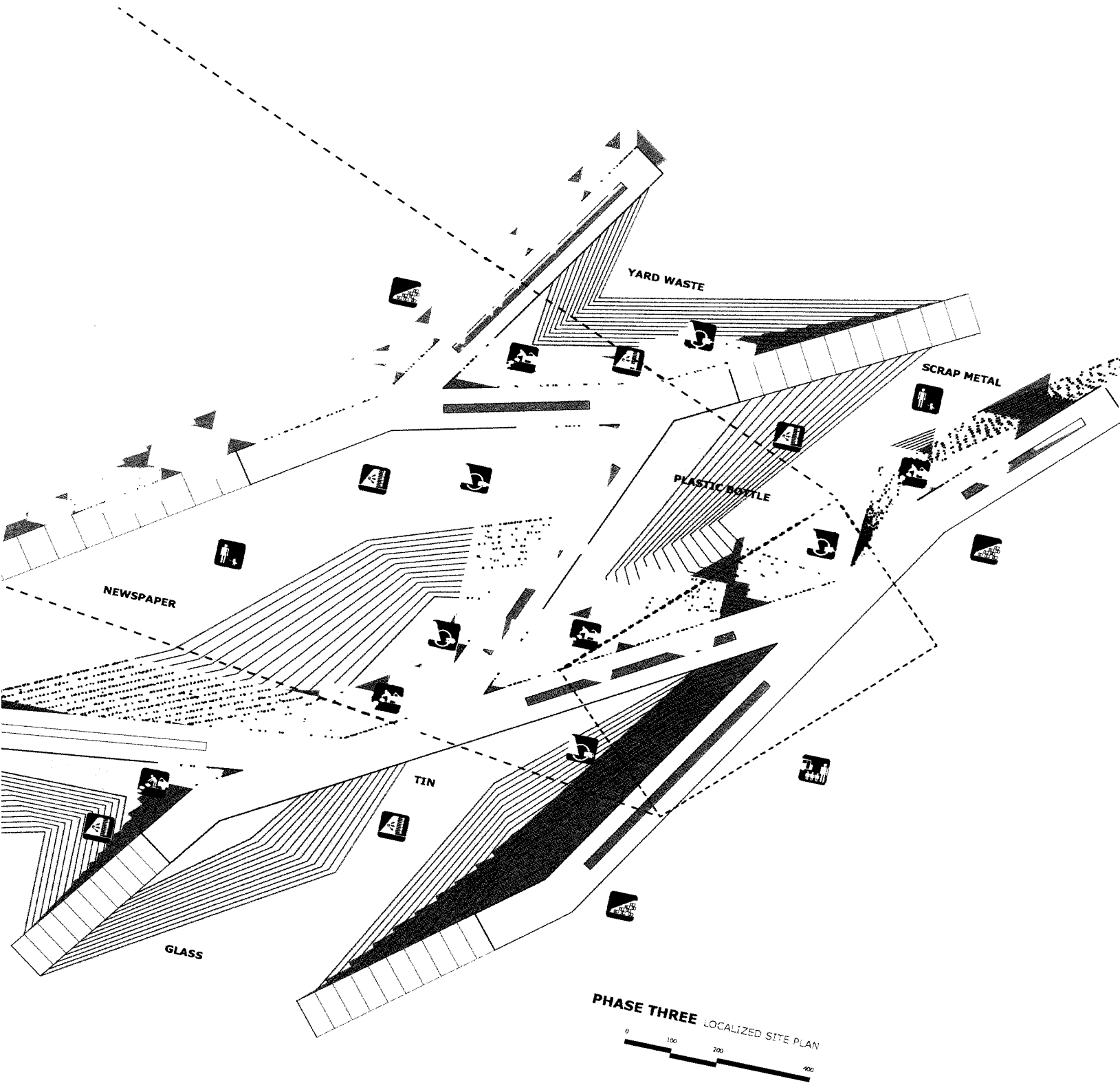
THE DAYS OF LEAVING TRASH ON THE CURB ARE OVER. PHASE THREE PROPOSES A NEW RITUAL OF GARBAGE DISPOSAL. AS THE COMMUNITY CAN SEE THE TRANSFORMATION THE LANDFILL HAS PRODUCED, THEY THEMSELVES WANT TO BE PARTICIPANTS IN ITS CREATION. THE BUILT INFRASTRUCTURES ARE DESIGNED FOR THE AUTOMOBILE AND EACH TENDRIL OF THE STRUCTURE SEGREGATES DIFFERENT TYPE OF GARBAGE THAT CAN BE REUSED AS RESOURCES OR CONVERTED INTO ALTERNATE ENERGIES. THE ONCE CITY DEAD ZONES OF ROTTING GARBAGE AND OFF GASSING WASTELAND IS NO LONGER, WHILE THE STEREOTYPES OF DUMP YARDS HAVE BEEN REVERSED BECOMING AN ASSET TO THE COMMUNITY. THE VERTICAL LANDFILLS CREATE DENSITY AND SHRINK THE FOOTPRINT OF THE OLD HORIZONTAL TYPOLOGY, URBAN HOUSING UNITS ARE ATTACHED TO THE BUILT INFRASTRUCTURES WHICH OFFERING SPECTACULAR VIEWS OF HOUSTON, WETLANDS, GARDENS, ACTIVITIES, AND LEARNING.



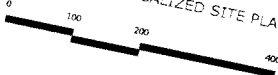


PHASE THREE_EXPLODED AXON

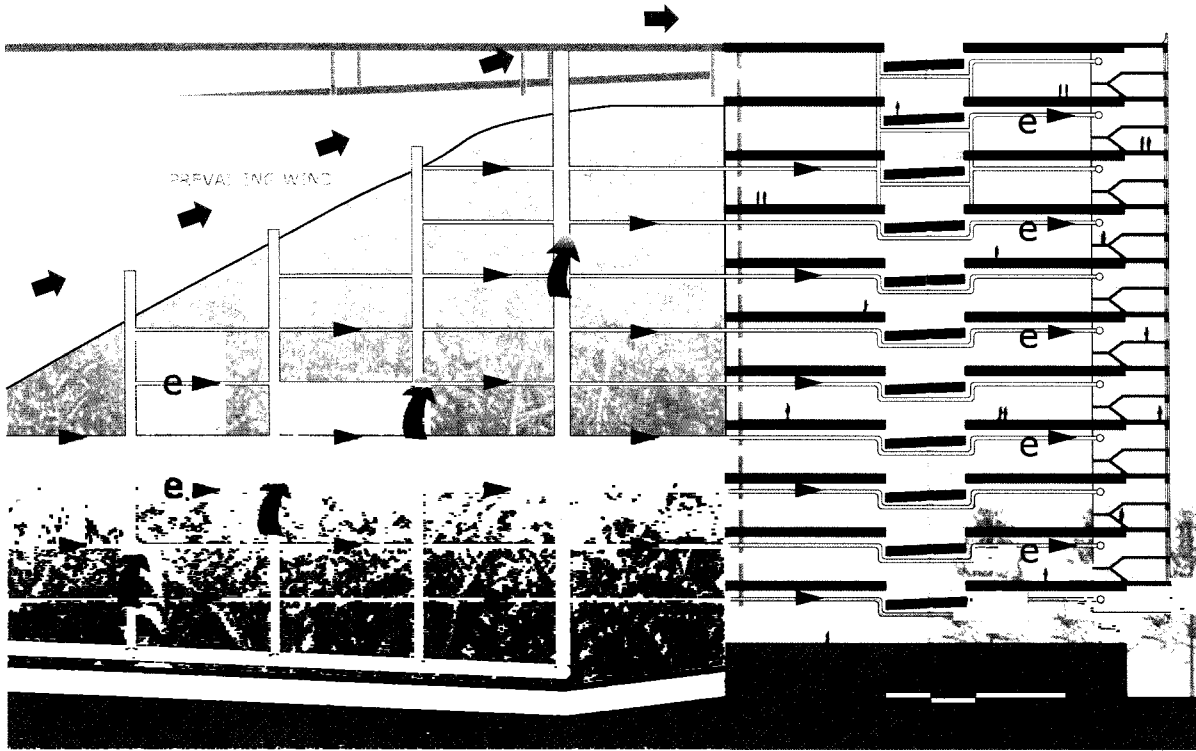




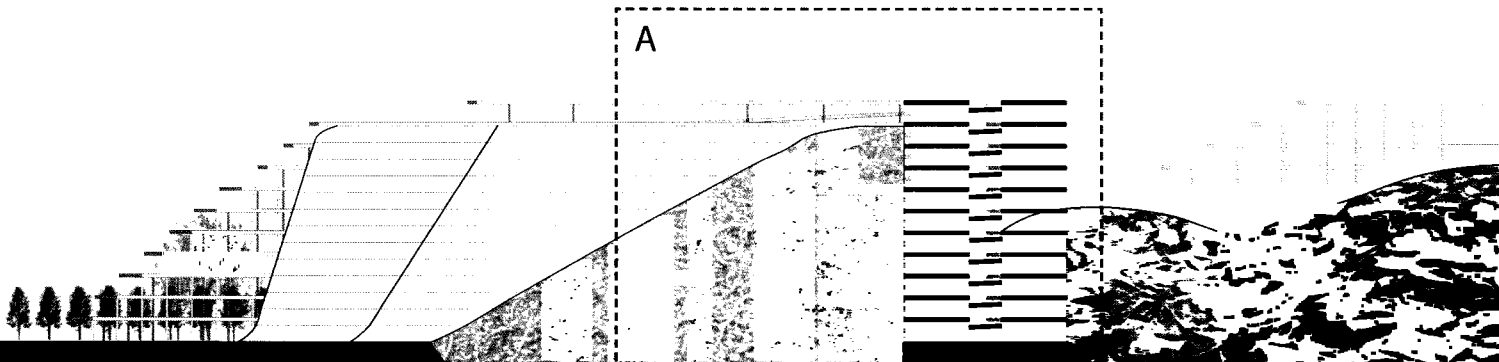
PHASE THREE LOCALIZED SITE PLAN

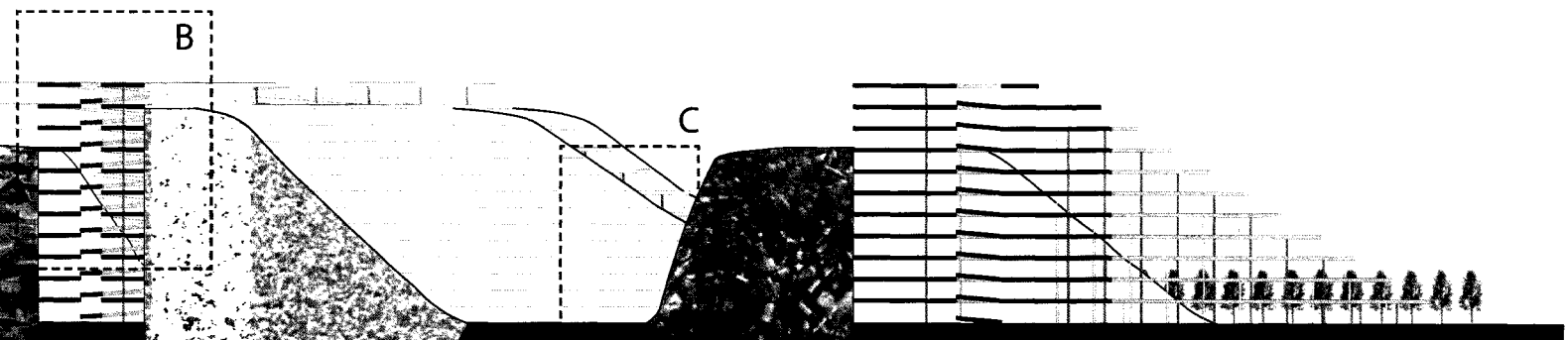
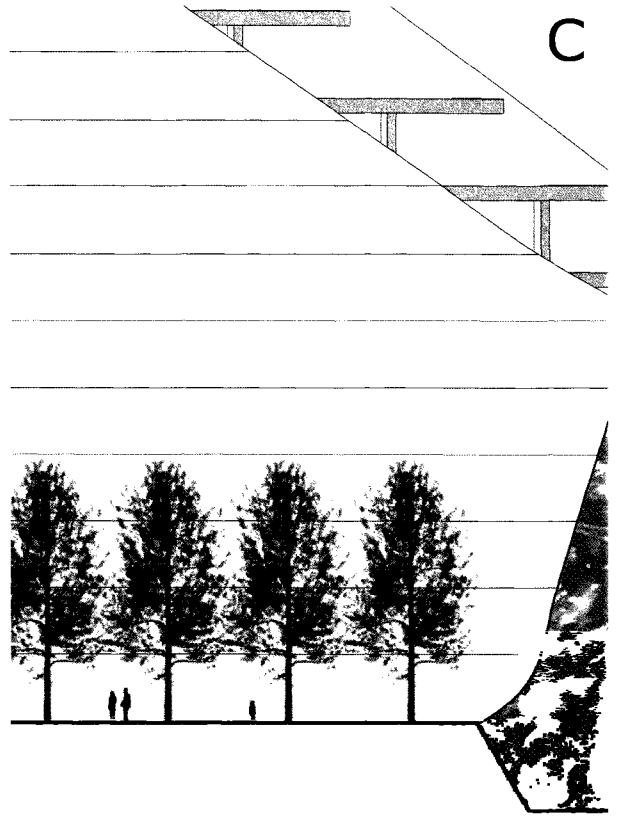
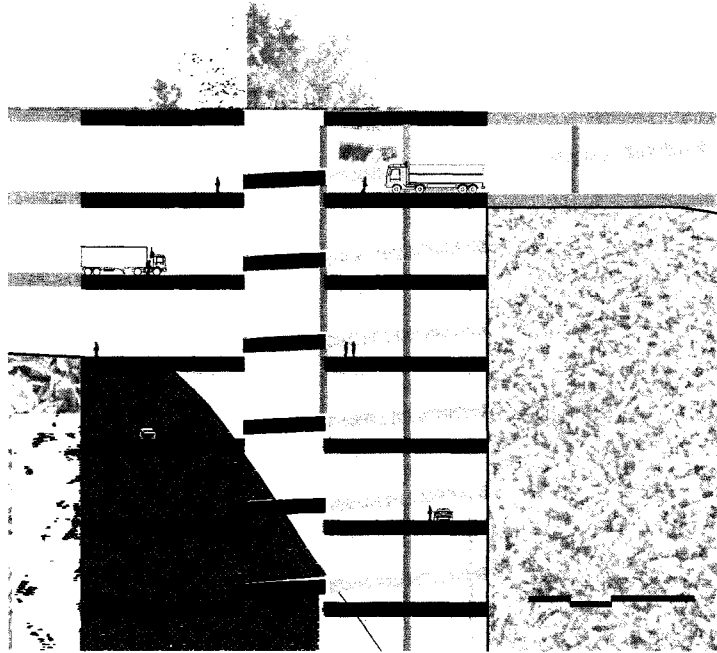


A



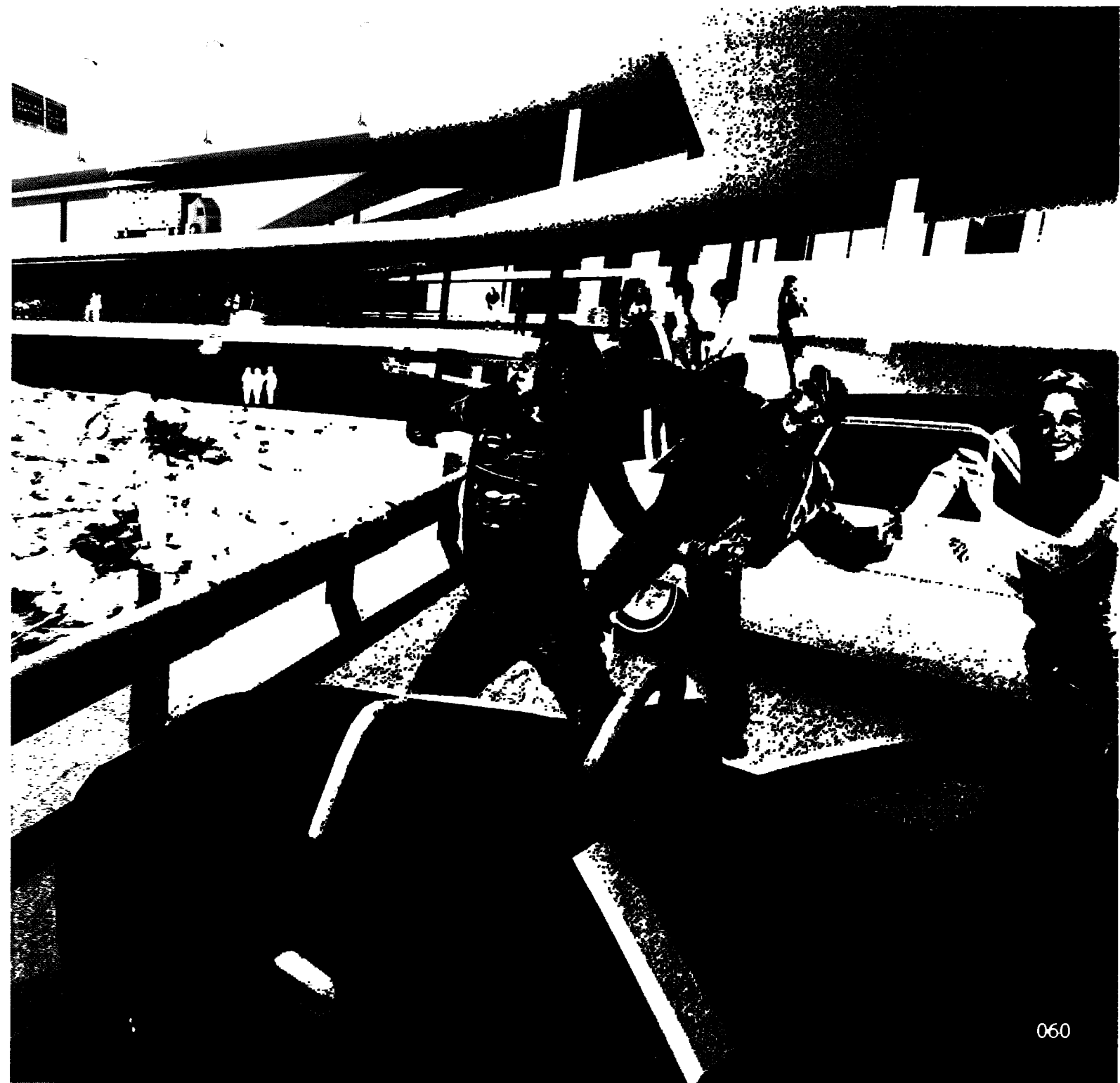
A





South
75 65
Macon
Montgomery





1962

1963

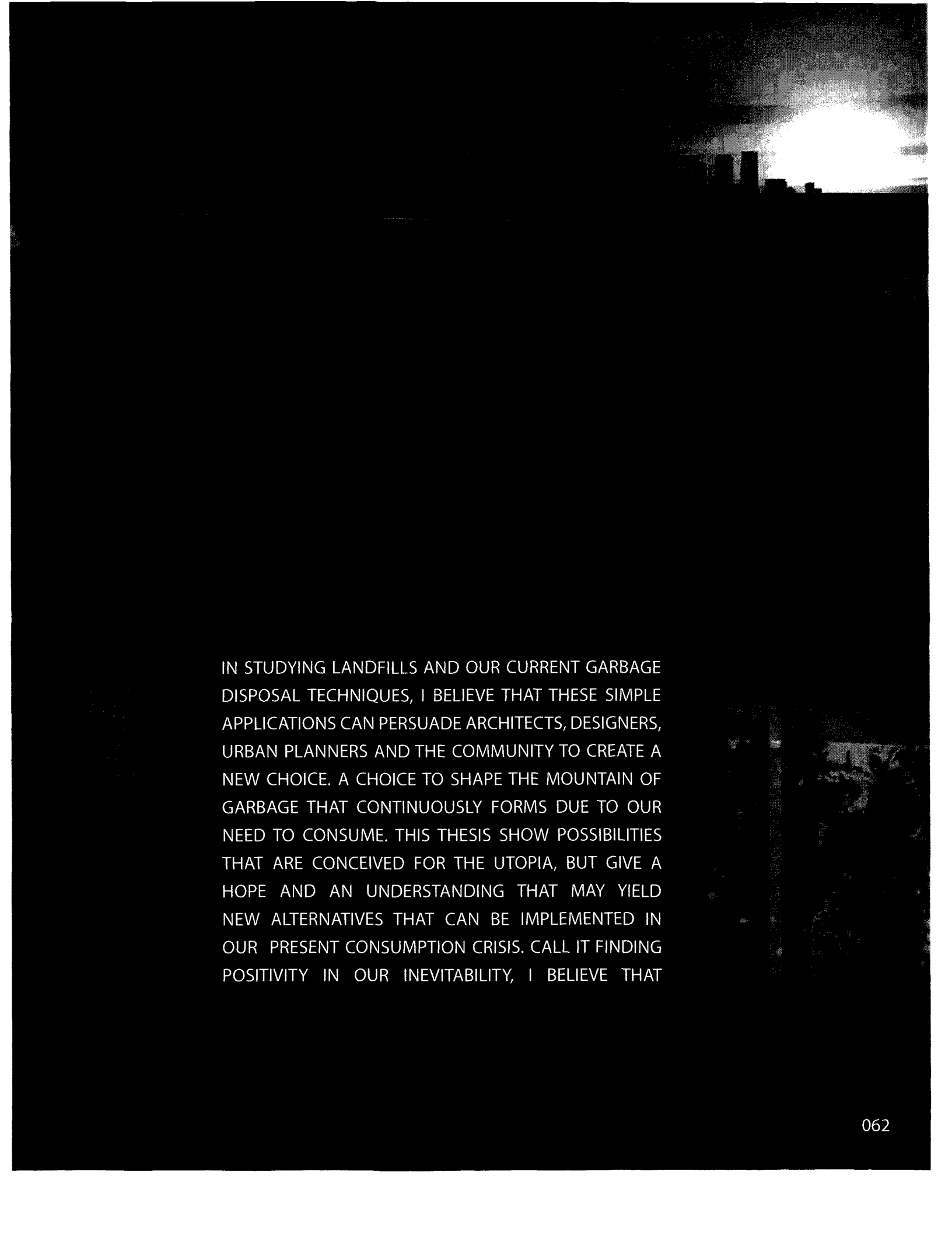
1964

1965

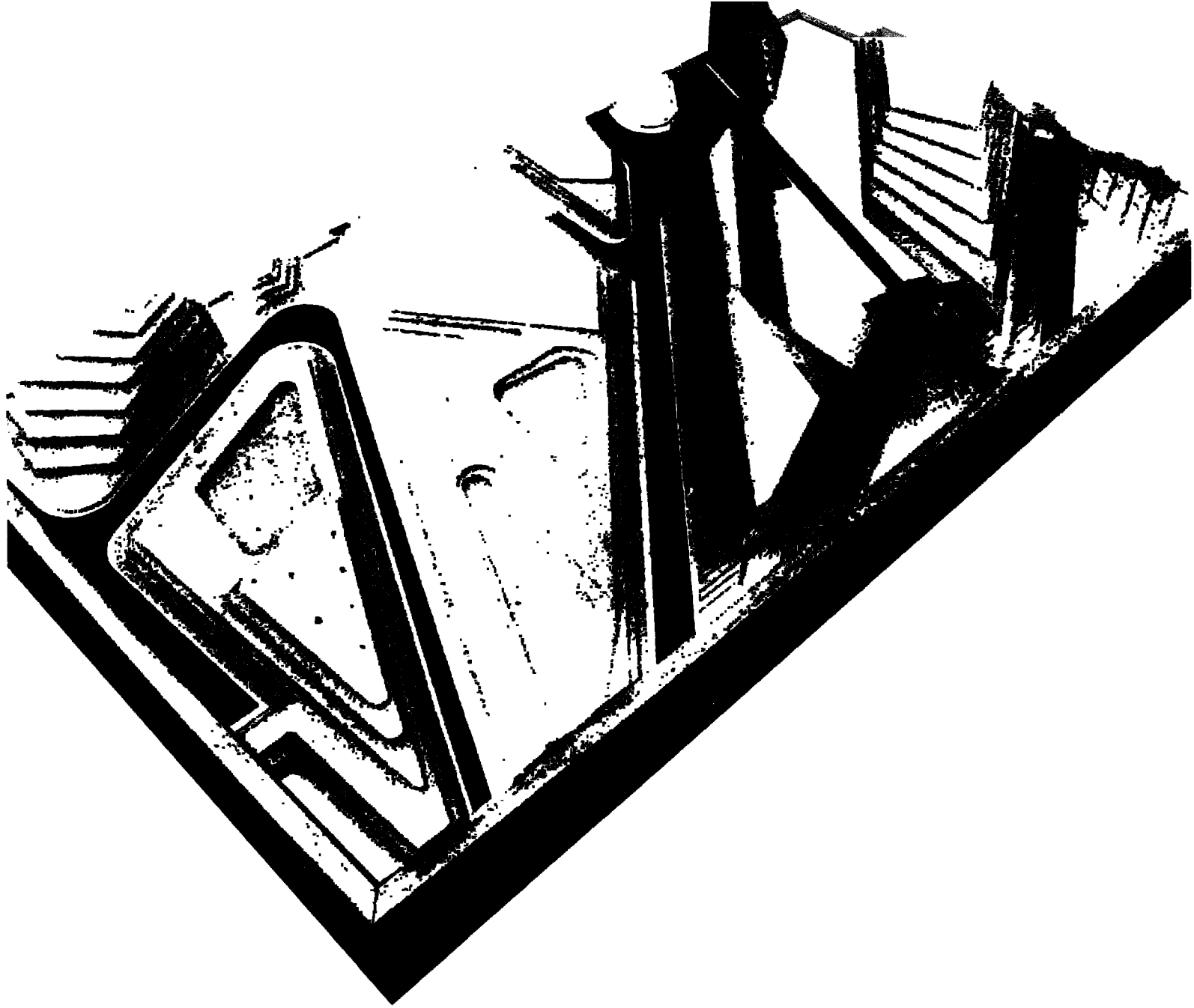
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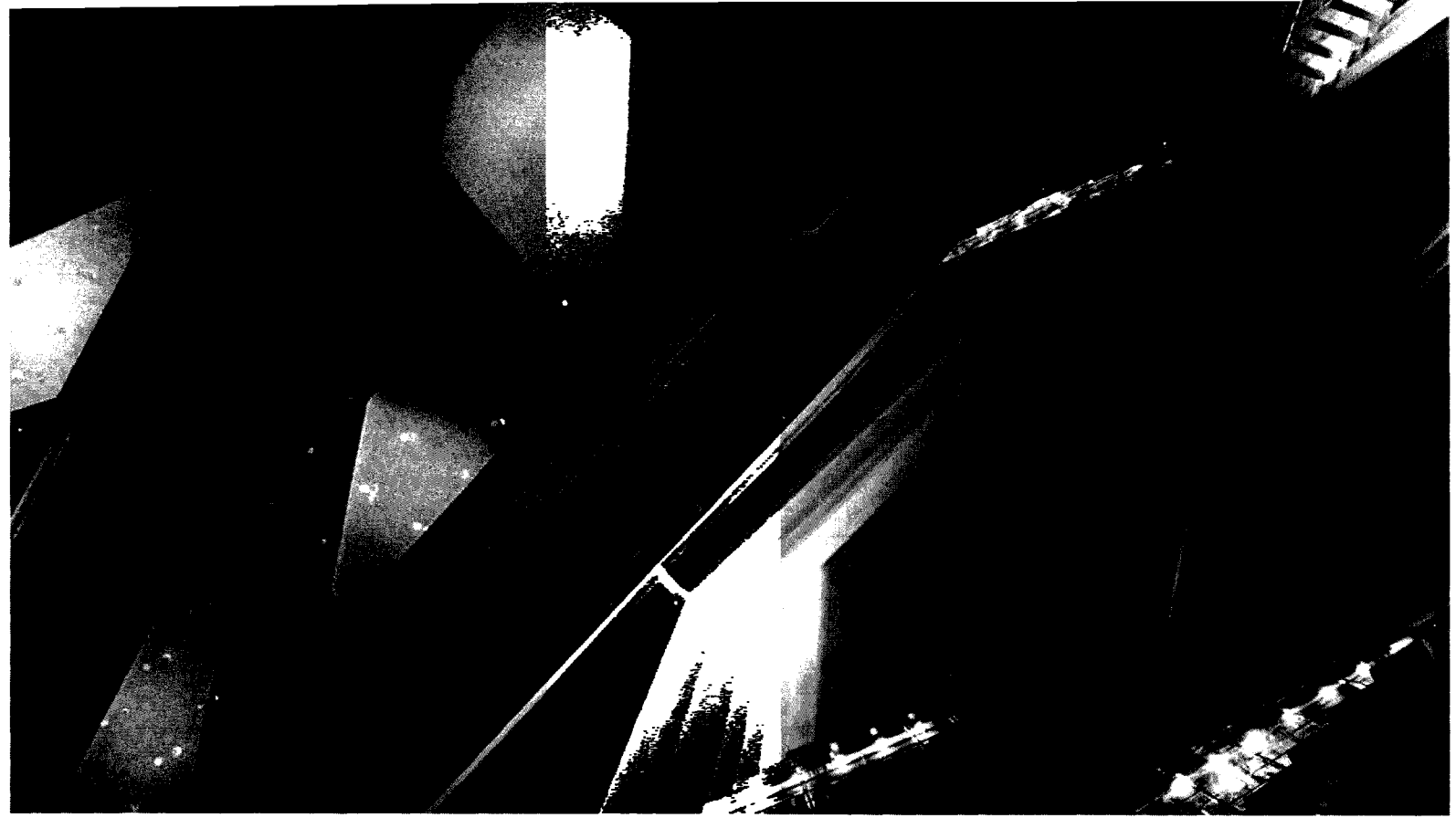
1967

1968



IN STUDYING LANDFILLS AND OUR CURRENT GARBAGE DISPOSAL TECHNIQUES, I BELIEVE THAT THESE SIMPLE APPLICATIONS CAN PERSUADE ARCHITECTS, DESIGNERS, URBAN PLANNERS AND THE COMMUNITY TO CREATE A NEW CHOICE. A CHOICE TO SHAPE THE MOUNTAIN OF GARBAGE THAT CONTINUOUSLY FORMS DUE TO OUR NEED TO CONSUME. THIS THESIS SHOW POSSIBILITIES THAT ARE CONCEIVED FOR THE UTOPIA, BUT GIVE A HOPE AND AN UNDERSTANDING THAT MAY YIELD NEW ALTERNATIVES THAT CAN BE IMPLEMENTED IN OUR PRESENT CONSUMPTION CRISIS. CALL IT FINDING POSITIVITY IN OUR INEVITABILITY, I BELIEVE THAT





BIBLIOGRAPHY

BOOKS:

Vroom, Mico J. *"Fieldwork"*. Basel, London, Berlin: Birkhauser, 2006

Velinni, Albert A. *"Landfill Research Trends"*. New York: Nova Science Publishers, 2007

Mitchell, R.J. Earth *"Structures Engineering"*. Boston, 1983

Trenter, N. A. *"Earthworks: a guide."* London: Thomas Telford, 2001

Ferrater, Carlos. *"Office Architecture in Barcelona."* Spain: Mané Padura, 2006

McDougal, Forbes. *"Integrated Solid Waste Management: a Life Cycle Inventory"*. Pittsburgh: Blackwell Science 2001

Reed, Peter *"Ground Swell"*. New York: Museum of Modern Art, 2005

Friends of the Highline. *"Designing the High Line, Gansevoort Street to 30th Street."* New York, 2008

Wast E. *"Earth Moves"*. Basel: Birkhauser, 2003

Websites:

Texas Campaign for the Environment. Bridget Brown. TCE News March 16, 2006.
www.texasenvironment.org/news_story.cfm?IID=300
(accessed March 2008)

Houston Chronicle. Zen Zheng. Should Blue Ridge Landfill be Expanded.
http://blogs.chron.com/fortbend/archives/2006/12/should_blue_rid_1.html
(accessed Feb 2008)

Half Empty. HAL. Blue Ridge Landfill Expansion Would Block Doppler Weather Radar.
<http://halfempty.blogspot.com/2007/04/blue-ridge-expansin-would.html>
(accessed Feb 2008)

BNET. Bullard Robert. Environmental Justice for all.
http://findarticles.com/p.articles/mi_qa3812/is_200301/ai_n9212731
(accessed April 2008)

City of Houston. Diposal Sites.
<http://www.houstontx.gov/solidwaste/disposal.html>
(accessed April 2008)

Waste Management. Think Green. Community page
<http://www.wm.com/wm/community/resources.asp>

Websites Cont:

Wikipedia. Anaerobic Digestion.
http://en.wikipedia.org/wiki/Anaerobic_digestion
(accessed April 2008)

Blackwell Synergy. Bullard, Robert. Sociological Inquiry. Solid Waste Sites in Black Houston.
<http://www.blackwell-synergy.com>
(accessed March 2008)

Other References:

TECQ. Waste Permits Division. Municipal Solid Waste in Texas: A Year in Review 2006 Data Summary and Analysis. November 2007

TECQ. Waste Permits Division. Municipal Solid Waste in Texas: A Year in Review 2006 Data Summary and Analysis. November 2006

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"The Sociables prefer Pepsi." The Saturday Evening Post. November 19, 1959
http://farm1.static.flickr.com/140/398622074_f0e5e96c49_b.jpg

"Steam rises as a compator rolls over freshly dumped garbage at Freshkills landfill 2001."
Photo by: Michael Falco, Photographer.
http://www.faicophoto.com/landfill_index.html

