On the Border

Antagonistic Architectures | Evanescent Territories

by

Shane Walker Neill

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Architecture.

Waterloo, Ontario, Canada, 2014
© Shane Walker Neill 2014

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

The Northern Pass | El Paso del Norte spills through the narrow Rio Grande Valley that separates the southern most extent of the Rocky Mountains from the Sierra Madres, dividing the bi-national metropolis of El Paso, Texas | Ciudad Juarez, Chihuahua. The two halves of this border landscape are interlaced in an intricate choreography of disparities that mine the strategic overlap of territories—physical territories: geological, ecological, built; contextual territories: historical, political, social, legal; and scalar territories: global, regional, local, etc. Regardless of the many forms of interdependence, an extensive, ineffective, and costly new border wall follows the pass, a symptom of an exclusionary and fearful national politic, blind to local realities and histories. Along this border sits the former ASARCO smelter, which for over a century acted as a manifold that tapped into the flow of resources passing through territorial overlaps: labour migration, trade and tariff dispensations, rail lines, to name a few. This thesis takes the remediation of the former ASARCO smelter as a testing ground on which to negotiate the generic global crisis of border politics and architectures against specific shared needs of the region. Skirting the wall and occupying the narrowest gap of the pass, the project approaches the smelter's territory as an archive, wherein excavations become a strategy to point at anthropocene anxieties that are employed toward the subversion and reshaping of politics. Looking deeply into the territory, ecology, and history of the site, I seize upon two ecological flows that the apparatus of the border cannot impede, invasive species and subterranean aquifers, speculating on different ways in which the environment can be tuned to articulate a border crossing as a space of appearance between the two cities.

ACKNOWLEDGEMENTS

I owe much the mentorship, dedication, and thoughtful guidance of my supervisor, Professor Anne Bordeleau. Thank you for so selflessly sharing your knowledge, values, work and curiosity. Your patient encouragement led me to find depths of meaning in the most unexpected places. I am also grateful to my committee members, Maya Przybylski and Robert Jan van Pet for their interest and feedback.

The debt of gratitude to my exernal reader, Scott Sorli, extends well beyond his insightful reading and criticism of my thesis. The compassion and depth of consideration with which you teach is an inspiration. The conversations we have had over the years will long remain with me. Thank you.

Many thanks to Stephanie White of OnSite Review for her personal encouragement. The thesis might never have entered the earth were it not for the avenue that her magazine provided early on. And thanks to Roberto Puga, custodial trustee of the ASARCO remediation, for providing me much information and inviting me to observe the felling of the smelter stack.

To the School of Architecture, and especially to my classmates, thank you for a most unexpected adventure! Your friendship, creativity, manias and quirks are deeply and fondly impressed on me. It has been an extraordinary privilege to learn with and from you. To Virginia I owe far more than I can possibly express. Thank you for the immeasurable help you so generously, so frequently, and so selflessly offered. I am forever grateful for your constant and unwavering friendship.

To my family, you are with me everywhere I go so that where ever I find myself I can always feel at home. Thank you for teaching me to love food and to cook, and for the lesson that happiness can be so easily and simply found.

Finally, to Todd, I am humbled attempting to express my thanks to you. You bring me coffee in bed every morning. Your love and devotion are caffeine. Your imagination and curiosity are sugar.

Contents

Author's Declaration	ii
Abstract	iii
Acknowledgements	v
Contents	vii
List of Illustrations	ix
0 | Arriving [Introduction]	1
1 | Departing [Method]	10
2 | Collecting [Archive]	42
3 | Transgressing [Diagram]	78
4 | Returning [Design]	104
Afterword	145
Bibliography	151

List of Illustrations

pg. *All images by the author unless otherwise noted.*

2 *Fig. 0.0 (prev) Excavation of the stratigraphic landscape*
5 *Fig. 0.1 Affect and Precept: Mapping toxicicity and composite earth*
6 *Fig. 0.2 Contrafact: The informal Mexican barrio of Anapra in ASARCO's shadow*

12 *Fig. 1.00 Stack Demolition*
14 *Fig. 1.01 ASARCO Site from Monte Cristo Rey*
16 *Fig. 1.02 Two Lines, El Paso del Norte*
19 *Fig. 1.03 SUMISSION*
Photos by Santiago Sierra, (accessed August 23, 2014, http://www.santiago-sierra.com/200704_1024.php)
20 *Fig. 1.04 Mexican refugees, Tijuana, Mexico, 1997*
Photo by Sebastião Salgado, (accessed August 23, 2014, http://www.oecd.org/dev/pgd/43089704.pdf)
20 *Fig. 1.05 Movimento Sem Terra*
Photo by Sebastião Salgado, (accessed August 23, 2014, http://www.eco-action.org/dod/no7/88-96.html)
22 *Fig. 1.06 Dropping a Han-Dynasty Urn, 1995 b/w-prints, triptych © Ai Weiwei http://welldesignedandbuilt.files.wordpress.com/2012/03/aw01.jpg*
22 *Fig. 1.07 The Museum of Modern Art, New York, Michael Wesley (accessed August 23, 2014, http://photoslaves.com/wp-content/gallery/michael-wesely/02_12_2009_0472334001259747448_michael-wesely.jpg)*
23 *Fig. 1.08 100 million porcelain sunflower seeds, Ai Weiwei, Photo Reuters (accessed August 23, 2014, http://i.telegraph.co.uk/multimedia/archive/01736/little-girl-runnin_1736638i.jpg)*
23 *Fig. 1.09 Tulpen, Michael Wesley (accessed August 23, 2014, http://www.wesely.org/wesely/gruppe.php?var=tulpen&art=1&show_page=0)*
24 *Fig. 1.10 Santa Maria Maggiori 1, durational image by author*
26 *Fig. 1.11 First Stack Felling, durational image by author*
29 *Fig. 1.12 Days of Heaven, Terrence Malick (1978)*
Screen shots of movie 1:01:40-1:02:13
30 *Fig. 1.13 McLeod Tailings, Geraldton, ON, Martha Schwartz Partners (accessed August 23, 2014, http://www.marthaschwartz.com/)*
30 *Fig. 1.14 Landschaftspark Duisburg-Nord, Peter Latz + Partner (accessed August 23, 2014, http://www.latzundpartner.de)*
31 *Fig. 1.15 Climbing Garden, "Just like being in the Alps" (accessed August 23, 2014, http://en.landschaftspark.de/)*
32 *Fig. 1.16 Santa Maria Maggiori 2, durational images by author*
34 *Fig. 1.17 Departing Anapra, durational image and animation by author, original images compiled from Google Earth 2013*
40 *Fig. 1.18 Approaching the Border from Mexico, durational image and animation, source ibid.*

42 *Fig. 2.00 Manifold Penumbra, photo by author*
44 *Fig. 2.01 El Paso del Norte Topography, GIS map by author*

46 **Fig. 2.02** *Fall Dawning, photo by author*
49 **Fig. 2.03** *ASARCO Landfill Cell and Scrap Sorting in the Ore Handling and Bedding Building Remains, photo by author*
51 **Fig. 2.04** *Tenement for Operatives at El Paso Smelter Works, undated, Historical records of the former ASARCO El Paso smelter site, C.L. Sonnichsen Special Collections, University of Texas at El Paso (UTEP) Library, photo by author, drawing uncataloged at the time of access*
51 **Fig. 2.05** *Plan, Sections, and Elevation of Concrete Tenement, April 18, 1913, source ibid.*
51 **Fig. 2.06** *16 Room Brick Tenement, July 3, 1913, source ibid.*
51 **Fig. 2.07** *Plans for Proposed New Brick Row, May 1897, source ibid.*
52 **Fig. 2.08** *Gatehouse Church and Store, June 12, 1916, source ibid.*
53 **Fig. 2.09** *Sun, Steam and Speed, UTEP, (accessed August 23, 2014, http://cdm15823.contentdm.oclc.org/cdm/singleitem/collection/p15823coll15/id/76/rec/1)*
54 **Fig. 2.10** *Crossing, durational image and animation by author, original images compiled from Google Earth 2013*
56 **Fig. 2.11** *Floor Plans of General Store at Works, July 10, 1914, UTEP, photo by author, drawing uncataloged at the time of access*
56 **Fig. 2.12** *Fragment, Study of Change of Slag Tracks to Copper Furnaces, April 1, 1904, source ibid.*
58 **Fig. 2.13** *Channel shifting of the Rio Grande, 1844-1912, MACK, G.H. & LEEDER, M.R. 1998.*
59 **Fig. 2.14** *Tlaloc Figure, Hueco Tanks, Kay Sutherland, (accessed August 23, 2013, http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_p4501_0095e.pdf)*
60 **Fig. 2.15** *Channels and Gates, durational image from video filmed by author*
62 **Fig. 2.16** *Bird's Eye View of El Paso, Texas, 1886, (accessed August 23, 2014, http://en.wikipedia.org/wiki/El_Paso%E2%80%93Ju%C3%A1rez#mediaviewer/File:Old_map-El_Paso-1886.jpg)*
63 **Fig. 2.17** *Chamizal Territorial Dispute, Map by the author, satellite imagery from Google Maps 2012.*
66 **Fig. 2.18** *La Sala de los pasos perdidos, durational image from video filmed by author*
69 **Fig. 2.19** *Choir Screen, photo by author*
71 **Fig. 2.20** *Nave*
72 **Fig. 2.20** *Transept*
74 **Fig. 2.22** *Cathedral*
76 **Fig. 2.23** *The Fall*

78 **Fig. 3.00** *Agriculture of El Paso del Norte, map by author, satelite imagery from Google Maps 2014.*
81 **Fig. 3.01** *Rio Grande Flows, 1889-1912, map by author, data source: Rio Grande Historical Mean Daily Discharge Data, IBWC: Accessed August 23, 2014, http://www.ibwc.gov/Water_Data/histflo1.htm*
83 **Fig. 3.02** *Rio Grande Flows, 1913-1936, source ibid.*
85 **Fig. 3.03** *Rio Grande Flows, 1937-1960, source ibid.*
87 **Fig. 3.04** *Rio Grande Flows, 1961-1984, source ibid.*

89 *Fig. 3.05 Rio Grande Flows, 1984-2008, source ibid.*
90 *Fig. 3.06 Tamarix ramosissima, drawing by author.*
94 *Fig. 3.07 No More Deaths' work in the Arizona Desert, Photos by Josh Haner, The New York Times. Accessed August 23, 2014. http://www.nytimes.com/2013/08/03/us/group-rooted-in-the-Arizona-desert-looks-out-for-migrants.html?pagewanted=all&_r=0*
95 *Fig. 3.08 Landform Tactics, Satellite Imagery from Bing Maps 2014.*
97 *Fig. 3.09 Guerrilla Tactics for Invasive Species, Staging, drawing by author.*
98 *Fig. 3.10 Guerrilla Tactics for Invasive Species, Rhizomatic Territories, drawing by author.*
100 *Fig. 3.11 Guerrilla Tactics for Invasive Species, Lines of Flight 1*
102 *Fig. 3.12 Guerrilla Tactics for Invasive Species, Lines of Flight 2*

106 *Fig. 4.01 Dry land is so easily–and so deeply shaped by the flows of occasional waters.*
109 *Fig. 4.02 Section Sketch, Surfaces of control: auto gate*
110 *Fig. 4.03 US-Mexico Border Crossings and Deportations*
111 *Fig. 4.04 Rio Grande Water Allocation*
113 *Fig. 4.05 Border and Water Infrastructures*
115 *Fig. 4.06 Urban Archipelago*
116 *Fig. 4.07 Projected Traffic Volumes, Circulation and Trajectories*
118 *Fig. 4.08 Composite Topology*
119 *Fig. 4.09 History is Underground*
121 *Fig. 4.10 Built Form*
122 *Fig. 4.11 Exploded Axonometric,Worm's eye view.*
122 *Fig. 4.12 Solar Desalination Tough Screen*
123 *Fig. 4.13 Exploded Axonometric, Programmatic adjacencies*
124 *Fig. 4.14 Facility Plans*
127 *Fig. 4.15 Time on the border: Filtration and processing times*
133 *Fig. 4.16 West-East Section Persepctive, View North.*
135 *Fig. 4.17 West-East Section 2, Main Auto Gate, View North,*
137 *Fig. 4.18 West-East Section 3, through gym, firing range, auditorium, and courts.*
139 *Fig. 4.19 North-South Section, View East*
141 *Fig. 4.20 Elevation Facing Mexico*

146 *Fig. 5.01 Crossing the Border, Durational Image Series*

History is inseparable from the earth [terre], struggle is underground [sous terre], and, if we want to grasp an event, we must not show it, we must not pass along the event, but plunge into it, go through all the geological layers that are its internal history ... To grasp an event is to connect it to the silent layers of earth which make up its true continuity, or which inscribe it in the class struggle.

Gilles Deleuze[1]



0 ARRIVING [INTRODUCTION]



ASARCO: Anthropocene Anxieties and the Aesthetics of Remediation

Fig. 0.0 *(prev) Excavation of the stratigraphic landscape*

Fig. 0.1 *Affect and Precept: Mapping toxicicity and composite earth*

Arriving at site security, I sign a waiver acknowledging the presence of hazardous materials and heavy metals. I accept responsibility for my presence and actions. Protocols describe how I should avoid touching anything, how I should avoid inhaling or kicking up dust, and how I am to immediately wash my hands, clothes, and boots upon returning home. Soon this entire site will be exhumed, redistributed, capped, and covered with 1.5 meters of new, clean earth.

The original ASARCO lead smelter burned to the ground in 1902 after fifteen years of operation. Reconstruction was fueled by an ambitious expansion of production capacity that required the creation of an expansive flat ground. The terrain was steep and rugged, carved by numerous arroyos that channel runoff from the Franklin Mountains to the Rio Grande during the sporadic but intense seasonal rainstorms. To form a mesa that rises 15 to 20 meters above the previous foundations, the *arroyos* were infilled with any material available on site: molten slag cooled in-place, re-deposited slag, crushed rock, brick, concrete fragments, asphalt, and native soils.[2] Gambling that the waste was inert, the convenient and efficient land forming process continued for almost seven decades as the smelter further expanded. When the plant was shuttered in 1999, the mesa had grown to cover 120 acres.

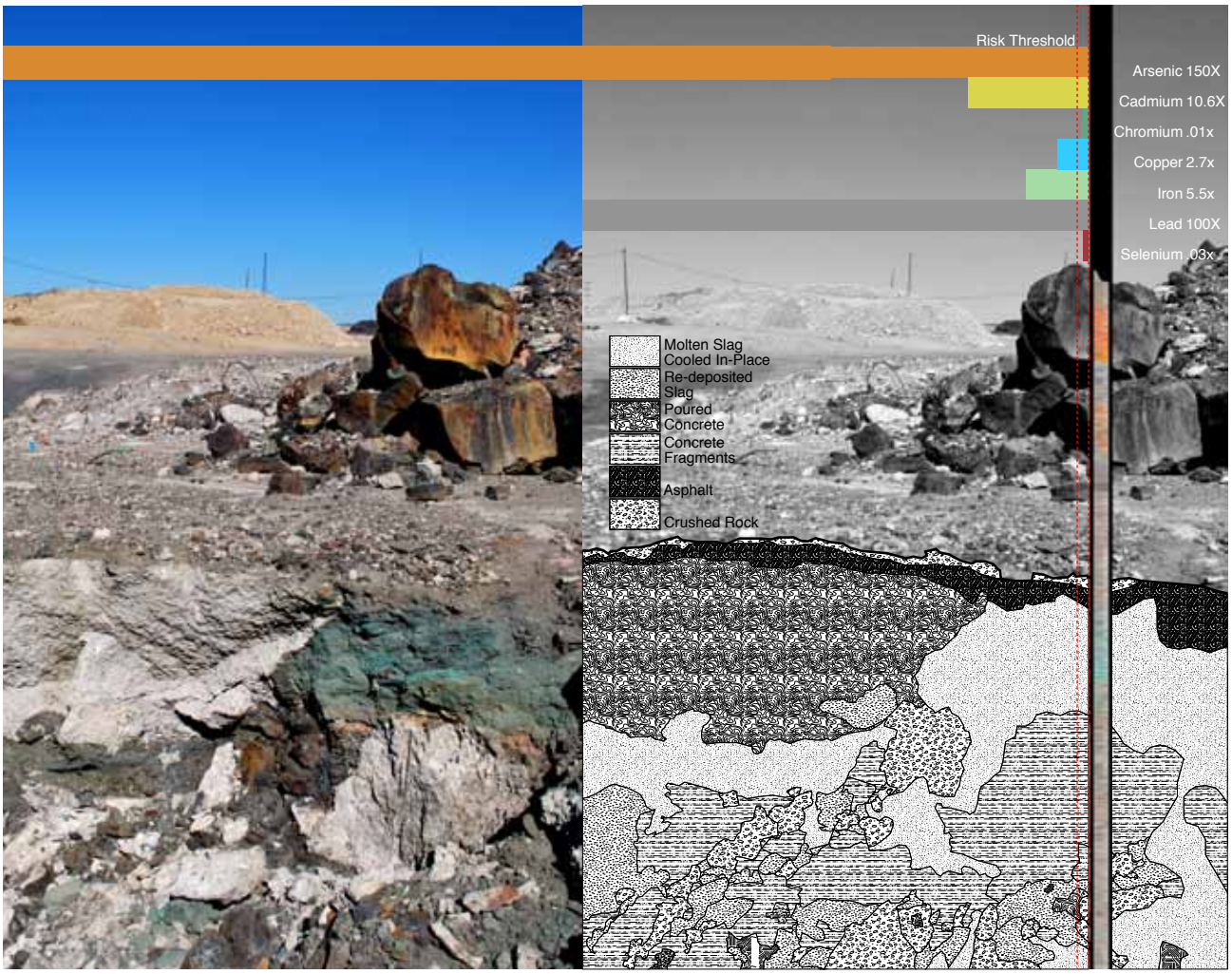
arroyo:
a creek, but in the desert southwest, arroyos are connoted with dry river or flood beds.

Integral to the West's collective imagination is a montage of landscapes subject to the forces and transformations of mobilization in the industrial era: from great urban migrations, to the production of anthropogenic ecologies, to vast networks of infrastructure, transportation, and communication. Images of these landscapes, captured by photographers such as Sebastiao Selgado and Ed Burtynsky, at once uncover and feed latent cultural anxieties that keenly place the body in contrast to political and environmental conflicts.[3] In this context, Doreen Massey posits a new concept of space as a political construct that results from conflict and negotiation. Accordingly, she

1. Gilles Deleuze, *Cinema 2: The Time-Image*, 244.

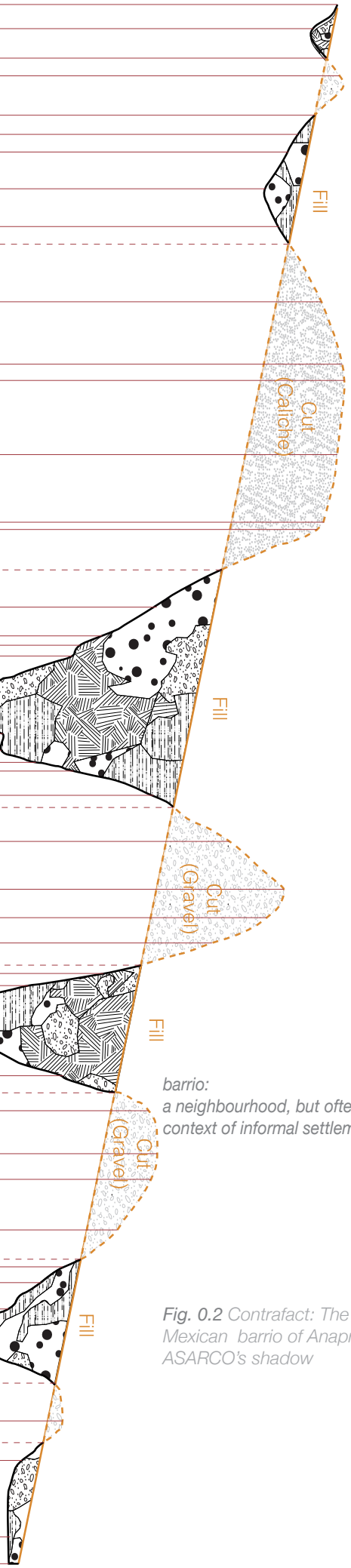
2. Malcolm Pirnie, Inc., "Final Remediation Action Work Plan," 2-4.

3. See for example, Saskia Sassen, "Black and White Photography as Theorizing: Seeing What the Eye Cannot See," 438-443


Risk Threshold
Arsenic 150X
Cadmium 10.6X
Chromium .01x
Copper 2.7x
Iron 5.5x
Lead 100X
Selenium .03x
Molten Slag Cooled In-Place
Re-deposited Slag
Poured Concrete
Concrete Fragments
Asphalt
Crushed Rock

1906 Study

Proposed Change of Tracks
Right: Plan And Horizontal 100=1
Vertical 10=1
Left: All 10=1



barrio:
a neighbourhood, but often in the context of informal settlement.

Fig. 0.2 Contrafact: The informal Mexican barrio of Anapra in ASARCO's shadow

sees landscape as a relational product of crossing 'trajectories' that tie political constructs to natural processes. "That field of yellow oil-seed flower, product of fertilizer and European subsidy, is a moment – significant but passing – in a chain of industrialized agricultural production".[4] The scars of these trajectories are starkly visible in the reclamation of industrial sites.

As cities spread into–and past previously extramural industrial landscapes, and with the decline of industrial production in the US, the need for affodable land forces a confrontation with a collective history of contamination. Engineers have developed creative remediative strategies that satisfy health, environmental, and economic mandates.[5] Correspondingly, the responsibilities of architects and landscape architects have often been marginalized to the aesthetics of the site. Who then is charged with the ethical imperatives that come with the reinhabitation of remediated landscapes? Elizabeth K Meyer calls such sites "disturbed" and notes that even after they have been decontaminated, their unsettling affects remain.[6] Remediated sites require new and imaginative reinhabitations. The present-day remediation of the ASARCO smelter faces additional challenges. It sits on the U.S. border with Ciudad Juárez, Chihuahua, Mexico, and while the toxic territory wrought over a century envelops both sides of the narrow binational valley, the remediation stops at the border. While the EPA and the ASARCO remediation trust lack international jurisdiction, they do not lack culpability. However, their plans do not even acknowledge the informal Mexican *barrio* of Anapra that faces the smelter. Our imagination of the future stops at the border.

The history and transformation of the site, rich with layers of past and present life, is most immediately visible when we cut into the ground. The section's physiography reveals the life that gave form to the material: shards of colourful floor tiles, hand-made bricks stamped "Hecho en Mexico," scraps of twisted 19th-century wrought iron rebar, held in a congealed framework of once fluid molten slag. Even more visually striking are the colours that manifest the chemical

life of the slag. For nearly a century burnt orange (arsenic), yellow (cadmium), cyan (copper), teal (chromium), sea foam (iron), grey (lead), and maroon (selenium) leached into the ground and the Rio Grande.[7]

Our subjectivities are shaped and reshaped by the ways in which we are simultaneously connected to—and separated from—the landscapes we occupy. Rancière's notion of aesthetics as the "distribution of the sensible"[8] offers architects an understanding of remediation not as restoring an abstract environmental order, but as the re-distribution of diverse orders that offer new connections to landscapes.

Rio Tinto, the world's third largest mining group, have purchased a trove of minerals and matte ore recovered through the ASARCO remediation for $8 million USD.[9] Along with other asset liquidation, the speculative value of this mineral wealth is now the key to the restoration of the Parker Brother's Arroyo, the largest arroyo on site and a critical channel for municipal storm drainage. These funds could also allow the site to be covered over with 1.5 meters of new, clean earth in an effort to accelerate the viability of future commercial development. Fortunately, the future of the site is yet undetermined. There is now a critical opportunity to point our imaginations away from preconceived notions of landscape and urbanism, pointing them instead to the life, history, and reality shared underfoot and across the border. To respond to such problems and to critically reimagine how we reinhabit such sites, architects must craft the aesthetics of remediation into a critical tool.

4. See Doreen Massey, *For Space*, (London: Sage Publications Ltd., 2005) "...travelling not across space-as-a-surface (this would be the landscape – and anyway what to humans may be a surface is not so to the rain and may not be so either to a million micro-bugs which weave their way through it – this 'surface' is a specific relational production), you are travelling across trajectories. That tree which blows now in the wind out there beyond the train window was once an acorn on another tree, will one day hence be gone. That field of yellow oil-seed flower, product of fertilizer and European subsidy, is a moment–significant but passing–in a chain of industrialized agricultural production." 119.

5. See e.g. C.N. Mulligan, et al., "Remediation technologies for metal-contaminated soils and groundwater: an evaluation," 193-207.

6. Elizabeth K. Meyer, "Uncertain Parks, Disturbed Sites, Citizens, and Risk Society," 59-83.

7. Malcolm Pirnie, Inc., 2-2

8. Jacques Ranciere, *The Politics of Aesthetics*.

9. Roberto Puga, "Former ASARCO Smelter Site Project Status Presentation," 7.

"[T]erritory," as the law understands it, is a political and legal concept, and not merely a geographical term. It relates not so much, and not primarily, to a piece of land as to the space between individuals in a group whose members are bound to, and at the same time separated and protected from, each other by all kinds of relationships, based on a common language, religion, a common history, customs, and laws. Such relationship became spatially manifest insofar as they themselves constitute the space wherein the different members of a group relate to and have intercourse with each other.

Hannah Arendt[1]

1 DEPARTING [METHOD]





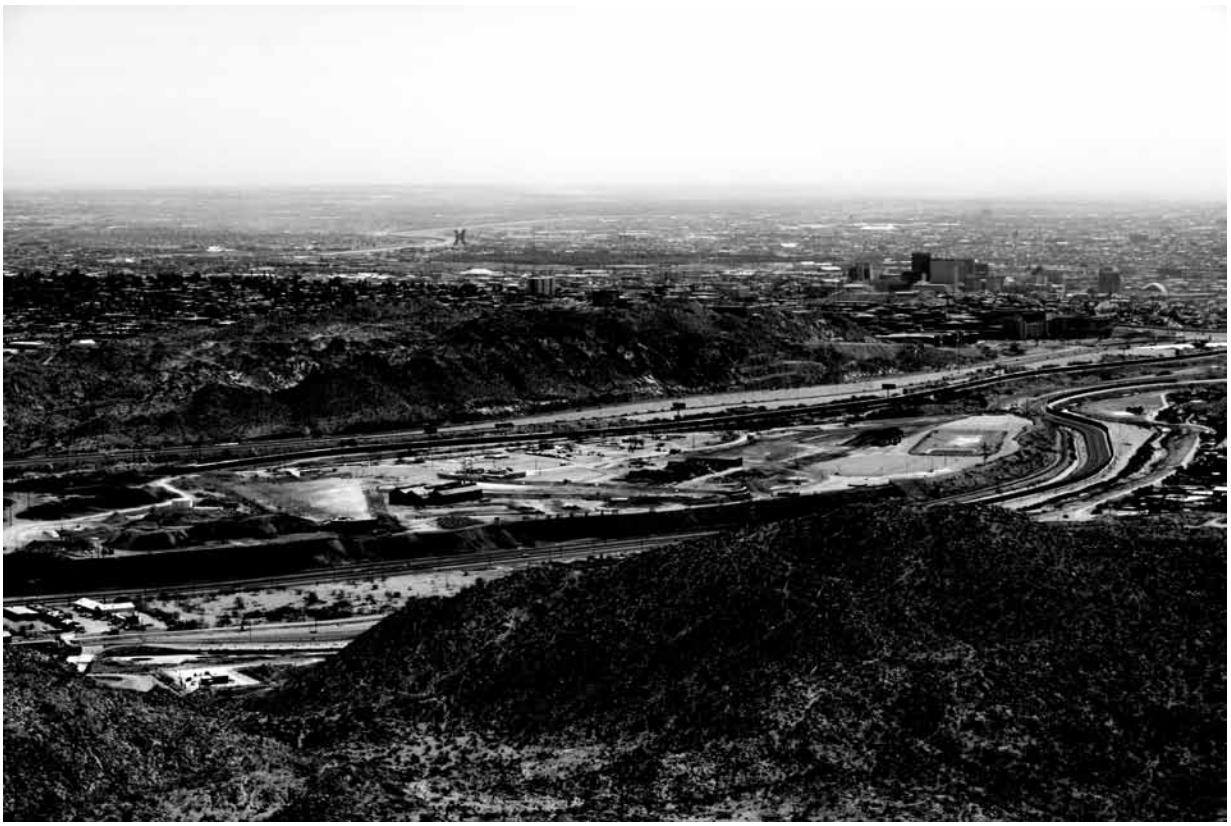


Fig. 1.0 (prev.) Stack Demolition
Fig. 1.1 ASARCO Site from Monte Cristo Rey

A sense of free fall—or vertigo. When I began my study of the border between El Paso and Ciudad Juarez in 2011, the immensity of the problems along the US-Mexico border began to heap precipitously. Even now, attempting to list some of the problems evokes a sense of impotence and dread: a plague of disappearances and murders in Juarez was at the threshold of the violent and society-consuming drug war that is only now beginning to wane; an economic boom and culture clash in El Paso as tens of thousands of military service people were transferred in the expansion of Fort Bliss; precarious informal settlements on both sides of the border; automated wars; identities, cultural memory and amnesia; the politics and economies of extra juridical and extraterritorial archipelagos; a mass migration of unaccompanied minors from Central America—all festering issues abstracted from their context and hungrily metabolized by the auspices of research architecture. While the articulation and dissection of individual issues can be productive, there is something about the heap that is essential to–in the very essence of–the contemporary condition. This chapter is an ontological map of the theory I have amassed in searching for a vantage point from which to survey the heap. It begins by negotiating political ideas of territory with cultural theories of the image, searching for a productive interplay between the two. As a visual commentary on the writing, a photographic series experiments with ideas and acts of heaping in a practice of image making, seeking to simultaneously reveal the conditions of the territories while emancipating them from their stigma. Adopting Deleuze's concept of the stratigraphic landscape as an extension of the ideas of territory, the chapter concludes with a strategy of excavation that will be developed in later chapters to find means to stage border crossings.

1. Leveraging the spatial dimension of culture over that of land, Arendt argues against the use of myriad legal precedents to underpin Israel's sovereignty, positing instead that the Jewish people had maintained sovereignty even without a territorial state by fostering a 'specific in-between space' through the centuries of diaspora. In this way, a concept of territory can be disencumbered from its relationship to a measure of land. Hannah Arendt, *Eichmann in Jerusalem*, 262.

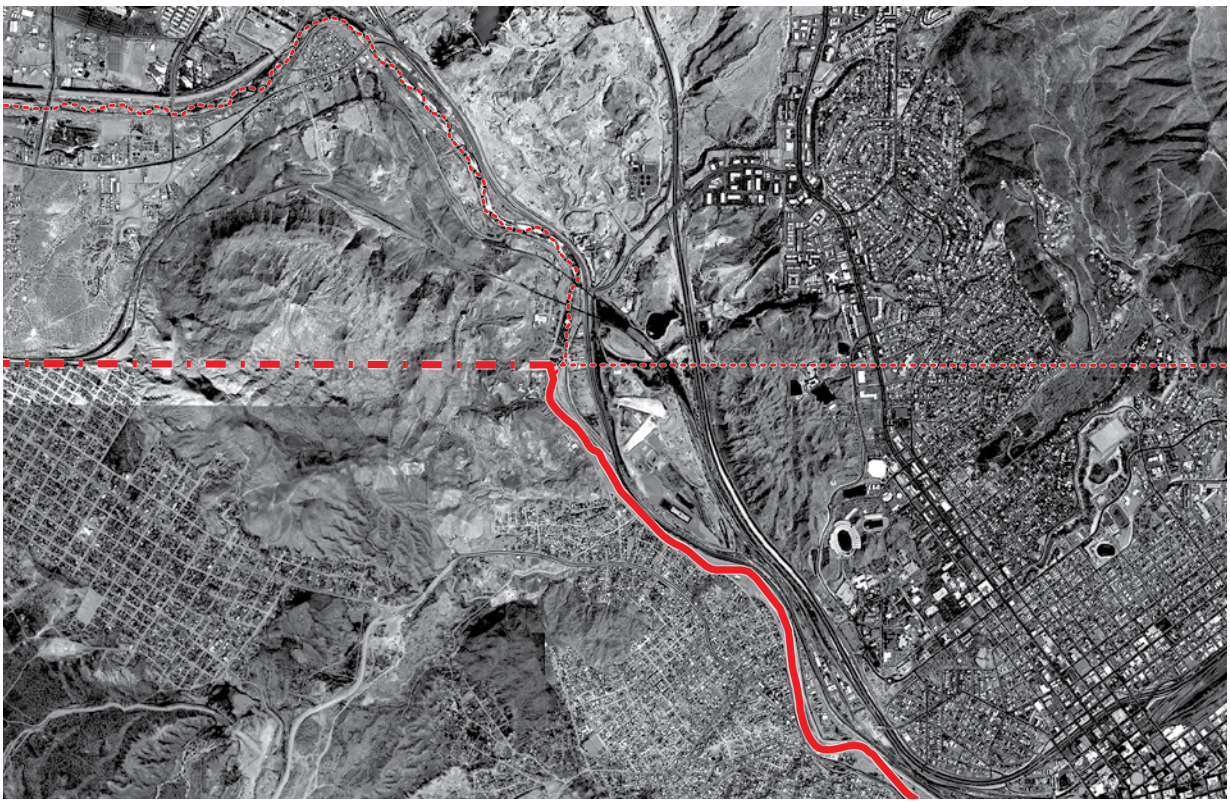


Fig. 1.02 *Two Lines, El Paso del Norte*

Landscapes in the Rupture of Meaning[2]

At a point west of the towering red and white ringed ASARCO smelter stack and south of the pilgrimage statue atop Monte Cristo Rey, two lines intersect along the U.S.–Mexico border. One line twists and writhes in the narrow gap between the mountains, bisecting the Rio Grande/Rio Bravo, following a natural route, adhering to the geological and ecological systems that define the morphology of the site. The other line is artificial, straight, drawing west into the frontera desert an arbitrary 100 miles along latitude 31°47' without regard for the forms it hews in two. On one side of the meandering line, through the ridges of foothills, past a university campus and rounding the Sun Bowl Stadium, my uncle's home sits opposite the intersection of these lines, halfway up the hill on Mesita Drive, nestled in the curving roads of an affluent 1920's vernacular garden city neighbourhood. On the other side of this line, and contained at the north by the straight line, the informal barrio of Anapra shambles up and around the Mexican side of Monte Cristo Rey. While the lines that separate these two neighbourhoods are invisible, the space around them is reified with razor wire and fences, and their effects are omnipresent. Returning every year for American Thanksgiving, I see the border from the safe side, the healthy side, the comfortable side, and I am confounded by the presence of such great inequity fostered by the political will manifest in a line.

Buried beneath the sands of the Chihuahuan desert a message of submission confronts these lines. In a 2006/07 work, Santiago Sierra began, "In an empty and deserted piece of land in Anapra were excavated each one of the letters that constitute the word SUMISION (submission). The letters, each 15 meter high Helvetica font were excavated as pits whose walls and beds were covered with concrete."[3] This piece stands apart from the main body of his work in several ways that speak to the particular conditions of the site. First,

2. Felix Guatari, *The Three Ecologies*, 56."The Freudians had already detected the existence of vectors of subjectification that elude the mastery of the Self; partial subjectivity, complexual, taking shape around objects in the rupture of meaning, sucha as the maternal breast, faeces, the genitals.... But these objects, the generators of a breakaway or 'dissident' subjectivity, were conceived by Freudians as residing essentially adjacent to the instinctual urges and to a corporealized imaginary. Other institutional objects, be they architectural, economic, or Cosmic, have an equal right to contribute to the functioning of existential production" Ibid., 56.

3. Santiago Sierra,"SUMISIÓN"

the project records hundreds of site photos, documenting geographical conditions. His site images capture the icons and inscriptions emblazoned on the sides of the mountains that orient the locals to the site while revealing the dominant cultural identities: a native-american figure, the message "La Biblia es la verdad: leela," and the names of various high schools in the region. Few other of his projects look so deeply into the physical context for inspiration. Responding to this study, the territorial/geographic nature of the designed work references this practice. Further, the use of Mexican labour reveals no appearances of illicit negotiations in an area whose economy is based on such labour. Unlike most of his other works, the antagonism is intended to register between the viewer and a place. It is a territorial submission. In the relational gap that allows one territory to grow accustomed to the horrific inequities and crime that the border fosters, this work is a semaphore, a plea for recognition of the other. Obstructed by the Mexican federales and local police before it was completed, the work was covered over and forcibly abandoned.

Fig. 1.03 "SUMISSION" project by Santiago Sierra

Sierra's project calls attention to the primal value of the geographic act, a value advanced by Italian theorist, writer, and architect Vittorio Gregotti, for whom the understanding of geography and architecture was reciprocal. First, viewing geography through a historical materialism, reading in the form of the earth and in the environment the signs of history, Gregotti declares it is architecture's role to draw attention to the essence of the environment through the transformation of form. Then, in the act of transforming form, in marking the earth and placing architecture's first stone, geography is created. Gregotti called the reciprocity of geography and architecture the theory of territory. Following on Martin Heidegger's idea, "The taking of measure is what is poetic in dwelling,"[4] Gregotti emphasizes the measure and modification of territory and material to reveal its connection to its context. This is nature, not divined from a prehuman life-force, but a

4. Vittorio Gregotti, "Territory and Architecture," 340.

5. "Territory," Oxford English Dictionary Online.


NOISIVIN








POLICIA





material product revealed through the architectural project. While Gregotti carves out a very specific definition and intention for the idea of territory, its broad and ambiguous use deserves a flushing out of its recondite possibilities. Underlying all the definitions that refer to actual space is the root word "terra," or earth/land that suggests a concept's physical manifestation of an abstract order.





Territory's first definition in the OED determines a relationship between a space (land) and the exercise of power or jurisdiction over it.[5] As such, a territory can be under the discretion of any entity, be it a state, judge, group of animals, goalie, business, criminal gang, etc. In response to the flux of the Israeli/Palestinian frontiers, Eyal Weizman sees territory as a potentially stabilizing force against–or means of subverting– the oppressive agencies of Israel's practice of "military urbanism."[6] As a constituent of vernacular conditions, he underscores territory's coherent spatial manifestation of a law– civil, religious, normative, or behavioural–that defines the use of a specific space. The law and the resulting territory have a boundary beyond which the coherence of the territory ends. Emphasizing the measure of territory through vernacular building traditions over the exercise of military power, Weizman repositions the primacy of cultural boundaries such as the cladding of buildings in Jerusalem stone over the use of fences and razor wire. Of course a territory can be manifest habitually, without force. For Canadian writer Wallace Stegner, growing up on the expansive plains that span the US-Canadian border, territory is expressible not by the imaginary line dotted with iron posts that bisected the unifying dome of the prairie sky, but by the "pressures upon affiliation and belief, custom and costume… and it lay among our loyalties as disturbing as a hair in butter."[7] In its most benign realization, territory can be the place of a practice, of shared stories, of memory.

The second definition portrays an antithesis to the first

6. Eyal Weizman, "The Subversion of Jerusalem's Sacred Vernaculars," *138.*

7. Wallace Stegner, "The Medicine Line," *26.*

8. "Territory," Oxford English Dictionary Online.

9. Saskia Sassen, "Spatialities and Temporalities of the Global: Elements for a Theorization."

Fig. 1.04 *"Mexican refugees, Tijuana, Mexico, 1997"*

Fig. 1.05 *"Movimento Sem Terra"*

definition: a "district of undefined boundaries; a region."[8] Without a juridical boundary, the exercise of power is incidental and fails to establish a correlation to the place of the exercise. Such a territory reveals only divine orders (or their absence), not earthen ones. In the spectrum between the first and second definitions, a Territory can be a subsidiary division of space over which power is exercised by a distant entity. Social geographer Saskia Sassen posits that the boundaries of intrinsically juridical territories are in a process of disintegration under the pressures of global finance-capital on states to partially deterritorialize space within their domains.[9] At its most extreme, a territory is a fluctuating measure of legal domain (or abdication) over a given space within a continuum of conflicting and/or complicit interests. Freeing this concept from the weight and human drama of justice and subjugation, territories are conceptualized spatial relationships within hierarchical structures. Writer and fabulist Italo Calvino cites d'Aurevilly's setting of the ancient legend of a magic ring that makes all who wear it the object of passionate love. For Calvino, the "magic object there forms a kind of force field that is in fact the territory of the story itself. We might say that the [territory] is an outward and visible sign that reveals the connection between people or between events."[10] For geographer Doreen Massey, territory is integrally spatiotemporal. Beyond the lifeless representations of space in a ubiquitous, singular, and rational time, territory is the site of the multiple "stories-so-far," a space continually unfinished or undetermined because of new potential trajectories, juxtapositions and connections.[11] In the engagement of territories' various vectors lies the potential for "surprise." Calvino's magic and Massey's surprise evince a poetic power in the act of relating one figure to another, in the connection between two bodies. What are the possibilities for magic and surprise on the border? Within a gravely serious context, without levity and without suspending antagonistic relations, is there the potential for poetry in the connection between two states, two territories? Can a border architecture

10. Itallo Calvino, *Six Memos for the Next Millenium.*

11.Massey, Doreen. *For Space*, 9.

12. Calvino, *Six Memos for the Next Millenium,* 54.

13. Alberto Pérez-Gomez, "Ethics and Poetics in Architectural Praxis."





Fig. 1.06 *"Dropping a Han-Dynasty Urn"*

Fig. 1.07 *"The Museum of Modern Art, New York,"*

Fig. 1.08 *"100 million porcelain sunflower seeds"*

Fig. 1.09 *"Tulpen", Michael Wesley*

create territories for the exchange and retelling of stories?

The site of this thesis spans many temporalities, from the geological, to the political, to the ecological, to the biological. In the constant modification and retaking of measure, a territory is continually renewed. Adrift in the polyrhythms of multiple temporalities, the practice of seeing and representing an instant across–and in relation to–fluctuating temporalities is vital. In Quickness, Calvino indicates that–

> *A writer's work has to take account of many rhythms: Vulcan's and Mercury's, a message of urgency obtained*









> *by dint of patient and meticulous adjustments and an intuition so instantaneous that, when formulated, it acquires the finality of something that could never have been otherwise. But it is also the rhythm of time that passes with no other aim than to let feelings and thoughts settle down, mature, and shed all impatience or ephemeral contingency.*[12]

The balanced approach to time is novel to architecture, a field that at one extreme strives to represent the relationship of a culture to the immortal and at the other extreme, agitates for the next revolution. Upholding a space in the middle, Alberto Perez-Gomez questions how theory sees architecture, arguing that we look beyond current lenses of technology and efficiency to the ethics and poetics that underlie an object's design. Emphasizing the longitudinal practice (praxis) over the ephemeral object, he discusses poetics and ethics through the stories the object tells, the power or place it creates, the imagination it inspires and evidences, and in the beauty it amalgamates between the individual and the universal.[13] But, the invocation of universalities, and the rejection of ephemerality, evoke the deceitful cunning of sense that the portrait of longevity fosters. What is a productive place for the ephemeral in architecture, and how does one see it?

In Ai Weiwei's Dropping a Han Dynasty Urn, 1995, still photographs trace overlapping temporalities of a discrete antagonistic action: the presence of the 2000-year old vase as it shifts from a monumental to a ephemeral artifact, the narrative of the dropping of the vase, the scene's conception and staging, the unchanging light and Ai's cold stare. These temporal conversions bring to the fore a sense of panicked tipping point to antagonistically challenge values of tradition and cultural history in contemporary China. Ai says in an interview with the Guardian, "China cannot offer any real value to the world except from cheap labour, manufactur[ing], and its own so-called stability. Outside that I don't see any creative values, and creative minds thinking… This is the struggle that China has







Moving long-exposure photographs between the borders of Santa Maria Maggiori. The progression is filmed and then projected and shot in long-exposure from (1) the piazza, (2) narthex, (3) the awkward wooden vestibule, (4) through the nave, and (5) crossing in front of the choir. In the image of the crossing of the piazza, (leftt centre) over the shifting perspective of the streets, the bodily rhythm of walking and ascending the stairs before the narthex is engraved.



Fig. 1.10 *"Santa Maria Maggiori 1"*





Fig. 1.11 *"First Stack Felling"*

to face in the next decades." [14] His Sunflower Seeds project highlights these contemporary Chinese "values," capitalizing on cheap labour to manufacture 80 million, 100 tonnes, of hand-painted porcelain sunflower seeds. The dismaying spectacle of the embodied labour and the staggering human capital China possesses is almost unfathomable. Photographs of the work frequently depict museum goers gazing at a handful of seeds, lounging among them as if on a beach, or children running over the capsulized remains of human labour. In the gap between ponderous meditation on the artifact and play amongst it there is a compiling of images, each of which is a territory–a space, a will, and a cultural articulation that bridges between some duration of past searching for a means of escape or at a moment of change. In contrast to the highly conceptualized works of Ai, the long-exposure photography of Michael Wesley highlights the affective dimension of processes, rhythms, and traces of change. The multiple-month images of construction capture a spectrum of ephemeral activity from the fleeting rhythms of daily life to the traces of the earth's seasonal rotation to the resilience of long-term structures amidst the commotion of life. In juxtaposition, his floral "still-life" traces decay. The curiosity of the moving or temporal still-life image has the immediate effect of transforming the image into a landscape that captures the durational event of decay which acts as standard against which can be measured the other durations present: the table as measured by tree, labour, varnish, light; the vase as sand, heat, transformation; ad infinitum.

As durational-images, these works approach cinema. In one of his more cogent episodes, Gilles Deleuze states that: "A theory of cinema is not 'about' cinema, but about the concepts that cinema gives rise to and which are themselves related to other concepts corresponding to other practices…"[15] As it privileges acts of seeing over doing or speech, cinema lends a productive analogue to architecture for reimagining the landscape–a hermeneutics for seeing both the craft of

Fig. 1.12 "Days of Heaven," Terrence Malick (1978), 1:01:40-1:02:13

14. "Ai Weiwei," The Guardian.

15. Deleuze, *Cinema 2*, 268.

16. Ibid., 236.

17. Tom Conley, "The Strategist and the Stratigrpaher," 196.

18. In the discussion of Malick's films, the terms nature and landscape are often used loosely and interchangeably. I choose to use the term 'landscape' to emphasize both the non-neutrality of natural forces and the specific and purposeful cultivation of spatial and ecological qualities. See Denis Cosgrove, "Landscape and Landschaft."

19. Ben McCann, "'Enjoying the Scenery': Landscape and the Fetishisation of Nature in Badlands and Days of Heaven."



composition and the production of subjects. In *Cinema 2,* Deleuze posits the "stratigraphic" landscape as a temporal image, a section through innumerable durational deposits that accumulate like the matter and strata of geologic formation.[16] In the depths of the stratigraphic landscape are the extents of the sum of its histories as well as the matter whose transformation is the substance of things to come. While the concept of an accumulation of forces is latent in twentieth century philosophy, from Freud's subconscious to Foucault's archive to the landscapes of trajectories that Massey describes, Deleuze underscores the future potentials of the stratigraphic and the "becoming" of the landscape through multiple temporalities.[17] As architecture turns to embrace the growth potential of the landscape as a method of becoming, a project should, as do all of these authors, bring to the surface the multiple temporalities of the geographic or stratigraphic site.

20. "Among its many illusions, the cinema makes available the impression of shared vision, and part of the grandeur of Malick's landscapes comes from his use of that capacity–in our sense of the film's representations of nature as luminous, awe-stricken, and awe-inspiring, returning us to a classical conception of nature as wholeness. ...More often, though, the landscape is seen from a detached or dislocated viewpoint, suggesting a lack of integration between the characters' perception and the blunt, capacious objectivity of the natural world surrounding them." James Morrison, *The Films of Terrence Malick*, 49-50.

Recasting the idea of becoming as a tacit agency within the landscape, the films of Terrence Malick, in which landscapes are constructed with both aura and agency, are pertinent. Broadly described, Malick's films link existential struggles to the landscape to tell stories deeply rooted in place: in The Tree of Life, the trials of youth in Waco, Texas are portrayed parallel to cinematic sequences that link back through the layers of material history to the origins of life; in The Thin Red Line, the American experience of the WWII Pacific war is explored through the analogue of the landscape's poetic evocation and indifference to destruction.[18] Against often abstract plot narratives, atmospheres provide narrative function through the power, clarity, and focus of compositional techniques that render the landscape, establishing a commonality or identification, anchoring the viewer with place.[19] But place is not understood in a Cartesian sense, it is not an object known dimensionally from the exterior. The place and the perspective on the place are integral to each other. "Among its many illusions, the cinema makes available the impression of shared vision".[20] This is technically achieved through the frequent misaligned shifts between landscapes and characters that refract attention back to the landscape at skewed angles to the camera. These shifts unmoor the viewer's ability to link character and perspective, causing a laminating effect among the many perspectives, characters, and landscapes.









Contrasting the compositional techniques that imbricate subjects and landscapes through rhythmic camera work, Malick uses stillness of perspective to evoke atmospheres as subjects of ponder. Stillness issues from the frame's resistance to perspective shifts in addition to its extended durational value. Grasses are perhaps Malick's favourite actors if judged by on-screen time. Across all of his films, Malick indulges grass in long still shots. Grasses sway in the wind, terrestrial waves through which human characters float with a buoyant

Fig. 1.13 *McLeod Tailings, Geraldton, ON, Martha Schwartz Partners*

Fig. 1.14 *Landschaftspark Duisburg-Nord, Peter Latz + Partner (accessed August 23, 2014, http://www.latzundpartner.de)*

Fig. 1.15 *Climbing Garden, "Just like being in the Alps" (accessed August 23, 2014, http://en.landschaftspark.de/)*





innocence. Its indifference to weight also allows characters to sink with despair. Though such metaphors are numerous and intoxicating, what is important here is not the metaphorical reading of the grass, but the presentation of the grass as a subject, conveying to the viewer that it is shaped, along with the characters, by the vertical ruptures in the striation of territories of overlapping external trajectories. Malick poignantly reveals this vertical axis in the sprouting wheat scene from Days of Heaven [Fig. 1]. The scene telescopes through both scale and time, from the individual sprout to the vast field of wheat, instantiating in between the human reliance on a successful harvest. In this way, the wheat is an analogue to the characters' struggles to find self determination among a predicated ecology. The scene at once conveys overlapping cycles of time as measured by the life of the crop, the farmer, and the culture that historically and perpetually interrelate the two. In this way, we can see wheat as emblematic of Deleuze's conflation of earth and history in Cinema 2:

> *History is inseparable from the earth [terre], struggle is underground [sous terre], and, if we want to grasp an event, we must not show it, we must not pass along the event, but plunge into it, go through all the geological layers that are its internal history … To grasp an event is to connect it to the silent layers of earth which make up its true continuity, or which inscribe it in the class struggle. There is something peasant in history. It is therefore now the visual image, the stratigraphic landscape, which in turn resists the speech-act and opposes it with a silent piling-up. Even letters, books and documents, that which the speech-act has torn itself from, have passed into the landscape, with the monuments, the ossuaries, the lapidary inscriptions.*[21]

This scene event depicts the wheat as endemic to a history where the earth is at once the inception and the vanishing point of subjective endeavours, implying an agogic stillness in a cyclical conception of time that negotiates the conflicting boundaries of subjectivity. It is, therefore, in the combination







Fig. 1.16 *"Santa Maria Maggiori 2"*





Devotional portraits at Santa Maria Maggiori begin to evidence the tempos and durations of varying occupants: the engraving of lingering supplicants juxtaposes the ephemeral traces of fast-paced tourists.



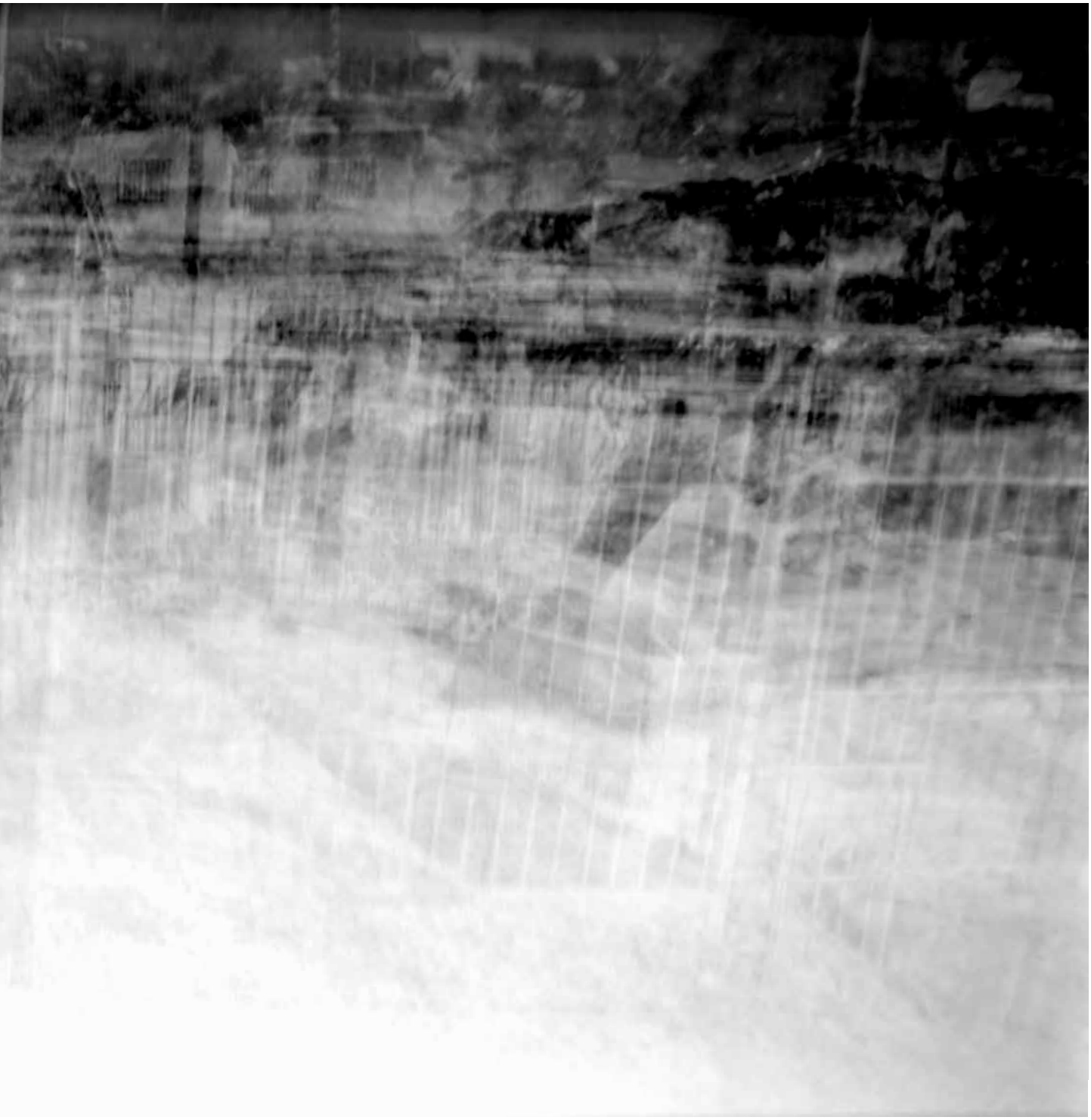


Fig. 1.17 *Departing Anapra*

of the two techniques, between shifting perspective and the stillness of earth, that one may move among layers of collapsed, skewed, and distant times to stage the subject-encounter with contaminated earth.

Aesthetics that emerge from the catastrophe

Given our tools for seeing the relationship between landscape and subjectivity, how then does the architect act to create spaces with these stratigraphic potentials? To see such a space, and more importantly, to design such a space requires a nuanced interpretation and deployment of aesthetics. In remediation, understanding aesthetics as the "distribution of the sensible," a space opens between the surface landscape and the sense of the disturbed, wherein we are at once connected to–and separated from–the landscape. "Any subjectification is a misidentification, removal from the naturalness of a place."[22] This incommensurable space is where the subject is formed. If the role of architecture is to give and to make measure in the landscape, then it must simultaneously unmoor areas of slippage. It is difficult for architecture to deal with the that-which-is-not; the necropolis lies outside the city and the stela is a sculptural type. The production of space, atmosphere, and political subjectivity that well-intentioned designs strive for typically befall objectification as they are consumed by subjects that, like the capped territories of remediated sites, lie isolated or dormant. These are the architect's Achilles heel.

Martha Schwartz's McLeod Tailings project in Geraldton, Ontario references practices of land art to aesthetically treat the remediation of fourteen million tons of gold mine tailings, piling them into "compelling sculptural landforms which serve as a dynamic roadway edge."[23] While serving technical requirements such as drainage and slope stability, they rely on a privileging of relational aesthetics that fails to open a subject space. [Fig. 2] They do not critically reflect back on the occupant and therefore remain in an abstract space of

21. Deleuze, Cinema 2, 244.

22. See: Jacques Ranciere, *Disagreement*, 1-42. Structurally, Ranciere repeatedly processes the gaps that simultaneously connect and separate ideas and people, "it would be better to pause to consider what lies between them..." Ibid., 8. "All political subjectification is the manifestation of a gap of this kind. [...] Any subjectification is a misidentification, removal from the naturalness of a place, the opening up of a subject space where anyone can be counted since it is the space where those of no account are counted, where a connection is made between having a part and having no part." Ibid., 36. The recognition of the gap and the ultimate goal of its processing is to "give it substance as an alterable relationship between the parties, indeed as a shift in the playing field." Ibid., 39. Ranciere's ultimate argument is for the political subject, the individual or group who acts antagonistically against established orders to confront the 'wrongs' that underpin polity. "A political subject...is an operator that connects and disconnects different areas, regions, identities, functions, and capacities existing in the configuration of a given experience" Ibid., 40.

23."McLeod Tailings, Geraldton, Ontario," Martha Schwartz Partners.

24. Bishop sets forth an idea of 'relational antagonism' rejecting the 'microtopian' assertion of relational aesthetics that simulate social|political

conceptual or typological identification. Rejecting the notion that all interactions are equal, Claire Bishop questions the quality or type of relation. A truly democratic work creates the notion of nonidentity, not transcendent empathy: "This is not me."[24] Therefore, the remediated landforms remain unsensible and unreal, little more than spectacles for speeding motorists. Similarly, while Peter Latz's Landschaftspark Duisburg-Nord aims to engage the collective memory of the visitors by leaving decontaminated structures and machinery in situ, this memory is undermined by the fetishization of the machine, heralding the history of production over that of consumption. [25] [Fig. 3]. Though he critically reprograms the spaces, the potentials of misidentification are transferred from the subject to program. Whimsical distractions such as the ore bunker cum climbing wall privilege the role of distraction over memory. [Fig. 4]

Perhaps the most aesthetically effective remediation elements are the objects that allow remediations to live. Beyond their immediate engineered function to exhale the breath of living waste, the methane pumps at Field Operations' Freshkills Park in New York function aesthetically as traces of the seething processes hidden underfoot, in the vertical plane of material transformation and of becoming. [Fig. 5-6] They are a trace, a "break-character" that "catalyze effects from wholly different registers, generating a very different instantiation of the real."[26] They are the lines of escape that produce the encounter of the individual with their past and their culpability, with the forces of erasure, and with the perplexing immensity of the future. Cutting through the earth, to the deep churning of a darkly present unseeable cavity, the pumps collapse the complicity of the thin-skinned bucolic landscape in creating an image of reclaimed or rescued natural orders that are packaged for the pleasure of a leisure economy. In the resonance of the subjectivizing non-identification, it is possible to hear the primal echoes of the landscape within the self.[27] In addition to the subjective space that these objects open up, they also serve

relation among art spectators or between art work and spectator. Antagonism [Rosalyn Deutsche, Laclau & Mouffe] considers intersubjectivity and the incompletedness of identity. Claire Bishop, "Antagonism and Relational Aesthetics," 51-79.

25. "It is tempting for designers of large parks built on abandoned industrial sites to heoricize the buildings and machines that remain. Such strategies, however, privilege the histories of production over the histories of consumption that are also embedded in such sites. This allows visitors to distance themselves from the histories of human, material, and chemical flows on an door the site, and to limit their own culpability in and responsibility for such histories." Meyer, 63-64.

26. "In architecture, there is always something left behind, an architectural remnant of the encounter which runs across the structural-formal realm of an architecturally coded system and the primary territories of architectural imagination, memory, and affect. It is the break-character of the architectural remnant that allows it to catalyze effects from wholly different registers, generating a very different instantiation of the real." Simone Brott, Architecture for a Free Subjectivity, 110.

27. Ibid., 118.

28. Ibid., 119.

to laminate physical space, compressing the immediacy of the foreground against the backgrounded skyline of New York City. The pressure of this spatial collapse evinces the translation of matter through physical space, the political forces in the territorialization of waste, and hopefully, the culpability of the occupant in the cycle of waste and consumption.

For architects, the aesthetic functioning of the methane pumps raises the paradoxical problem of planning out and articulating similar moves among other projects without developing a systematic or self-referential language. If abstracted as a typological or compositional strategy, such aesthetically functional infrastructures could quickly become an aspect of spectacle that hides the abject reality under layers of consumerist play. It is therefore the obligation of the architect to recognize the "figural anonymity or detachment, prior to the formation of details and ornamentation," and to focus on the potentials of transecting the vertical plane of existence, to recognize the blurred edges of life and time and free from each project the excrescent forces and the connective tissues between remediated landscapes and their subjects.[28]

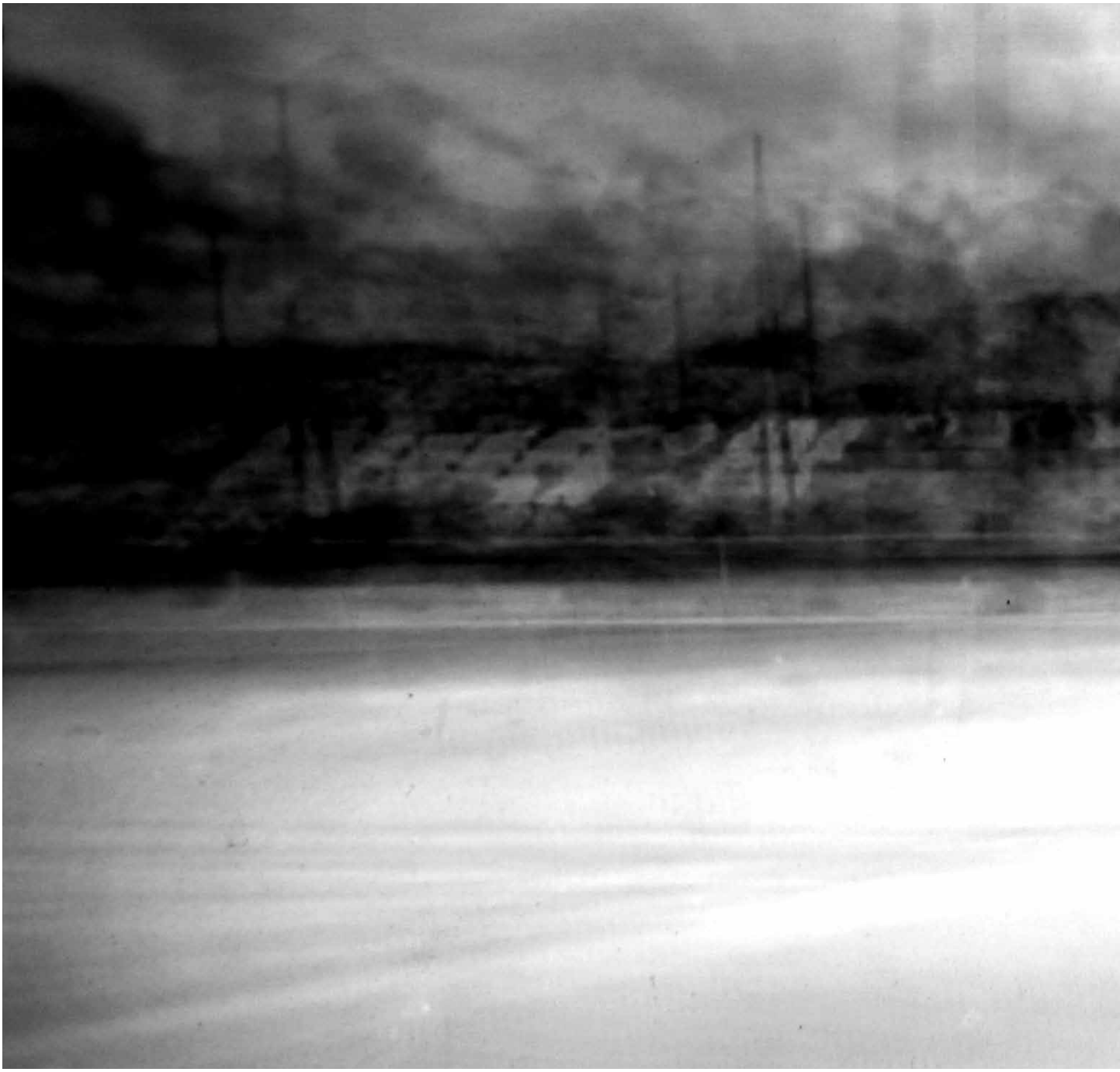
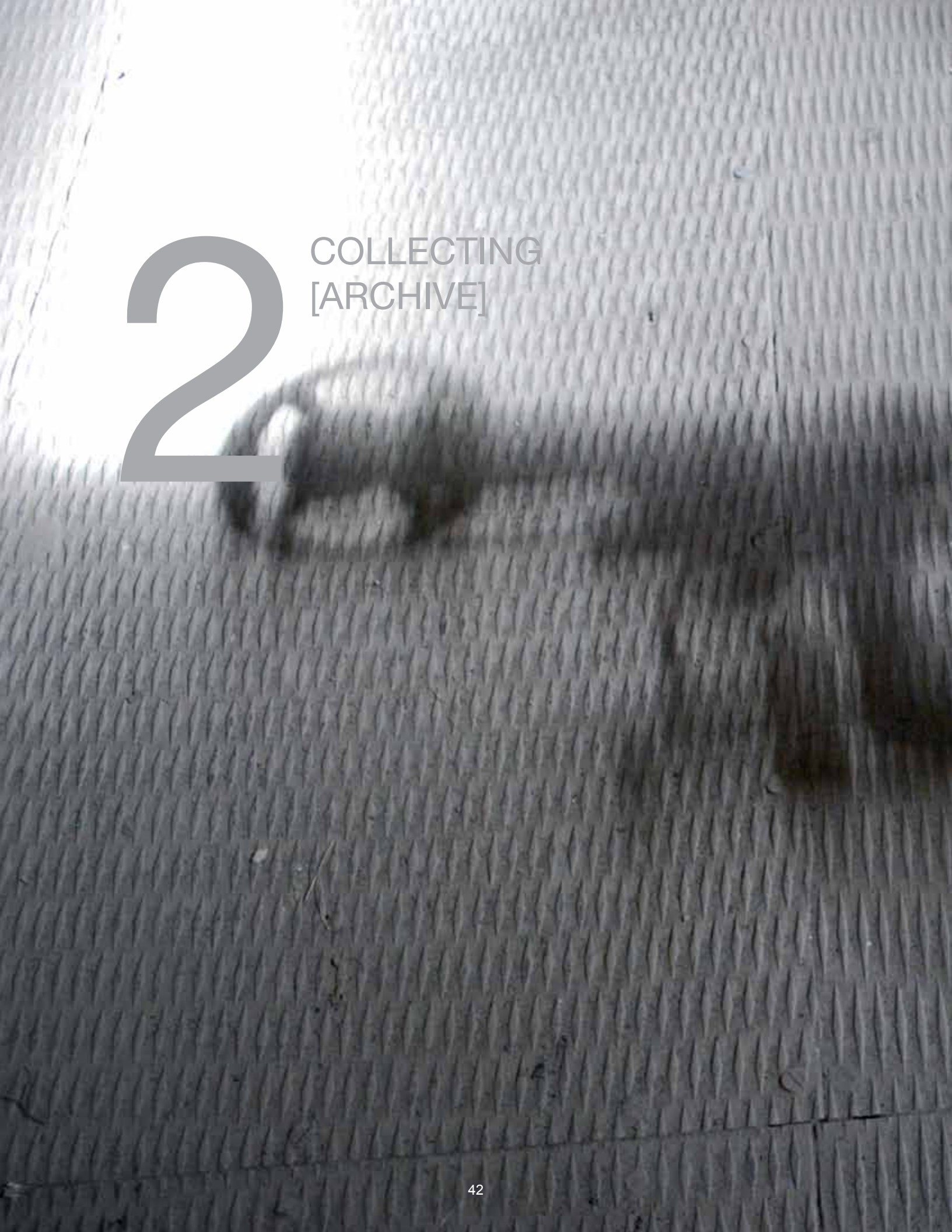




Fig. 1.18 *Approaching the Border from Mexico*



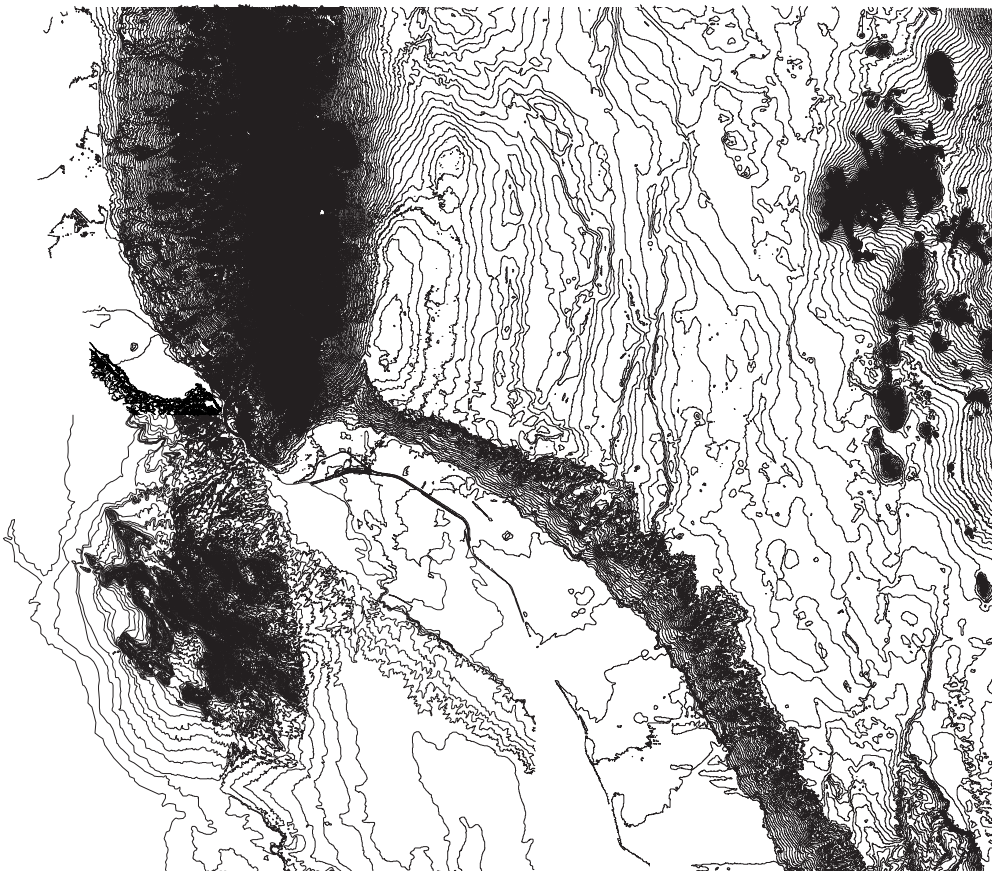
2 COLLECTING [ARCHIVE]



However, the structure of Dante's world, in which only the northern hemisphere is populated, while the miracles of nature and achievements of civilization cover the misery lying directly beneath the fragile layer, does seem significant insofar as it expresses the intimate relationship between 'historia calamitatum' of mankind and what we derive, in cultural terms, from collective misfortune.

W. G. Sebald[1]





The geography and topography, though parched and ancient, evinces an archive of flow and morphology. The topography sears with hot energy, a fleeting image caught in the midst of a change in physical state.

Fig. 2.00 (prev) Manifold Penumbra

Fig. 2.01 El Paso del Norte Topography



Fig. 2.02 *Fall Dawning*

A photo captures my vantage among the invited spectators, from which the tall tapering figure of the red and white-ringed smoke stack rises in the middle ground of a dark and scrubbed landscape. In the fore, and seemingly underfoot, the last inhabited structures built as housing by ASARCO workers burrow through Calavera Canyon, which renders the scene in an almost allegorical tone; day labourers carry oversized lunch coolers and thermoses to their pickups in the quiet glow of amber streetlights. To the left, a cloud of mist sprayed to keep down dust meets the base of the smaller stack, the two poised as if pausing along a path turning in farewell, the letters ASARCO addressing the viewers. The clearing around them and the haze of mist mixed with Juarez's distant lights renders them weary and heavy over the black shadows of the canyon walls that contrast the dawning light, drawing the figures down. The felling is over quickly, and though the fall is slower than I had anticipated, it is so brief that it passes into memory in only the most abstract form, sound–maybe like touching a stethoscope, the feel of light sand blowing against my cheek and the pass of a wave, the smell of cactus blossoms, desert sage and chemicals–perhaps sulphur and something else. The gravity of the tableau pulls downward and expresses the need to enter the earth to find meaning for this place, to find lines of flight that maintain some memory

1. W.G. Sebald, "On Memory and Cruelty in the Work of Peter Weiss," 189.

2. The opening is written as a contrafact to W.G. Sebald's lyrical prelude to "On Memory and Cruelty in the Work of Peter Weiss." He begins: *Peter Weiss's picture… painted in 1940, shows a dark industrial landscape rising in the middle ground. Encamped in front of it is a small circus which lends the whole scene a curiously allegorical tone*. Ibid., 171.

Fig. 2.03 *ASARCO Landfill Cell and Scrap Sorting in the Ore Handling and Bedding Building Remains*


CAUTION
DO NOT ENTER

of the past.[2]
Two days later, I am in a thin-walled ten by eight foot room in a library basement with tens of thousands of drawings recently recovered from ASARCO and entrusted to the University of Texas El Paso. Sturdy boxes and cabinets provide a base strata onto which piles continue rising five to six feet; a small hollow carved out of the centre provides claustrophobic access. An archivist shows me to this room where she will spend the coming years sorting, cataloguing, and storing the documents that record the planning, engineering, and construction of every building and machine that composed the smelter's hundred-year interlude. The piles are haphazard, an aleatoric section of history given form through the labour of movers. I have two hours with the documents, a generous allowance given the lack of library resources, so I grab as many oversized drawings as I can carry and drag them into the hallway to see what Fortune or her younger half-sister, Chance, has willed for me.

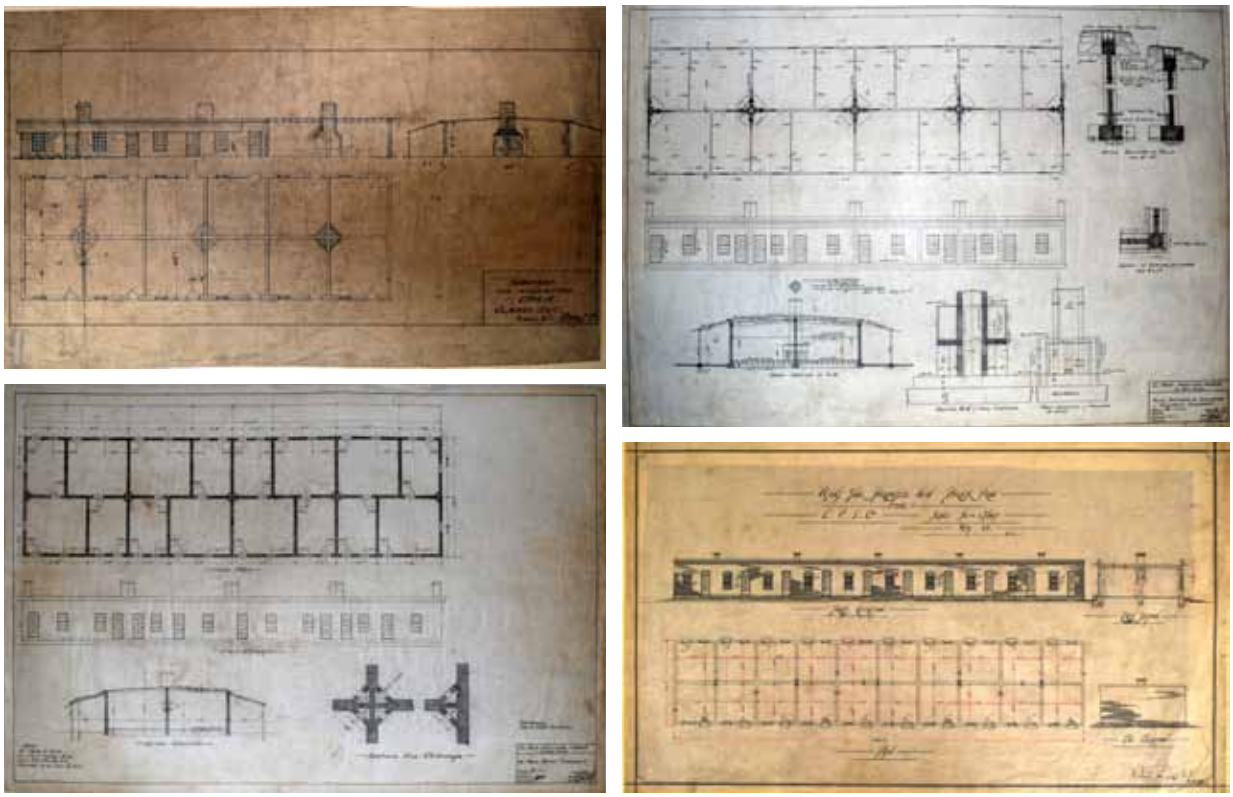
Among many undated and partial shop drawings for machinery I find larger fragments of engineered works: *Hydraulic Elevator for Roasters 1-2-3-4*, August 26, 1909; *Section thru Centrifugal Blower*, September 28, 1983; *Ore Handling Area Bedding Building, Exterior Elevations and Floor Plans*, August, 29, 1977–I know this building from photographs and from my tour of the site eight months previously, its foundation walls used to stage the sorting and recycling of scrap from debris; *Power House for Converter Plant*, April 1901; *Reverb Bott. Iso, Elevation, and Sections*, January 6, 1992; *Half Elevation and Half Section Showing Wislicenus Tubes in Top of Stack, 4400 Tubes*, November, 22, 1917–I believe this was the smaller stack felled two days ago. A page clipped to another document notes that this 300-foot stack was built in 1917 at a cost of $18,522.23. At intervals, the oldest drawings punch through the pile before me, their dimming paper coated with a thin layer of wax. Of these, drawings of worker housing evoke a sense of a sparse domestic life. In *Location of Houses*

Fig. 2.04 Tenement for Operatives at El Paso Smelter Works, undated

Fig. 2.05 Plan, Sections, and Elevation of Concrete Tenement, April 18, 1913

Fig. 2.06 16 Room Brick Tenement, July 3, 1913

Fig. 2.07 Plans for Proposed New Brick Row, May 1897



and Shacks in Arroyo N.W. of Cemetery, September 13, 1917, a collection of structures drift heedlessly across a square grid, their arrangement the only indication of the arroyo. Many months later I am able to piece together that the trench in which the largest stack was felled, was excavated from this arroyo. Between *Plan, Sections, and Elevation of Concrete Tenement*, April 18, 1913 and *Plans for Proposed New Brick Row*, May 1897, worker housing grew from one–to two–room apartments as migrant workers brought or made families to share in the opportunities afforded by their hard labour. *Tenement for Operatives at El Paso Smelter Works*, undated, *16 Room Brick Tenement*, July 3, 1913, and *Location of Houses and Shacks* (1917) demonstrate an acceleration in growth as the structures shift from slow and expensive double wythe brick construction to rapidly assembled curtain walls

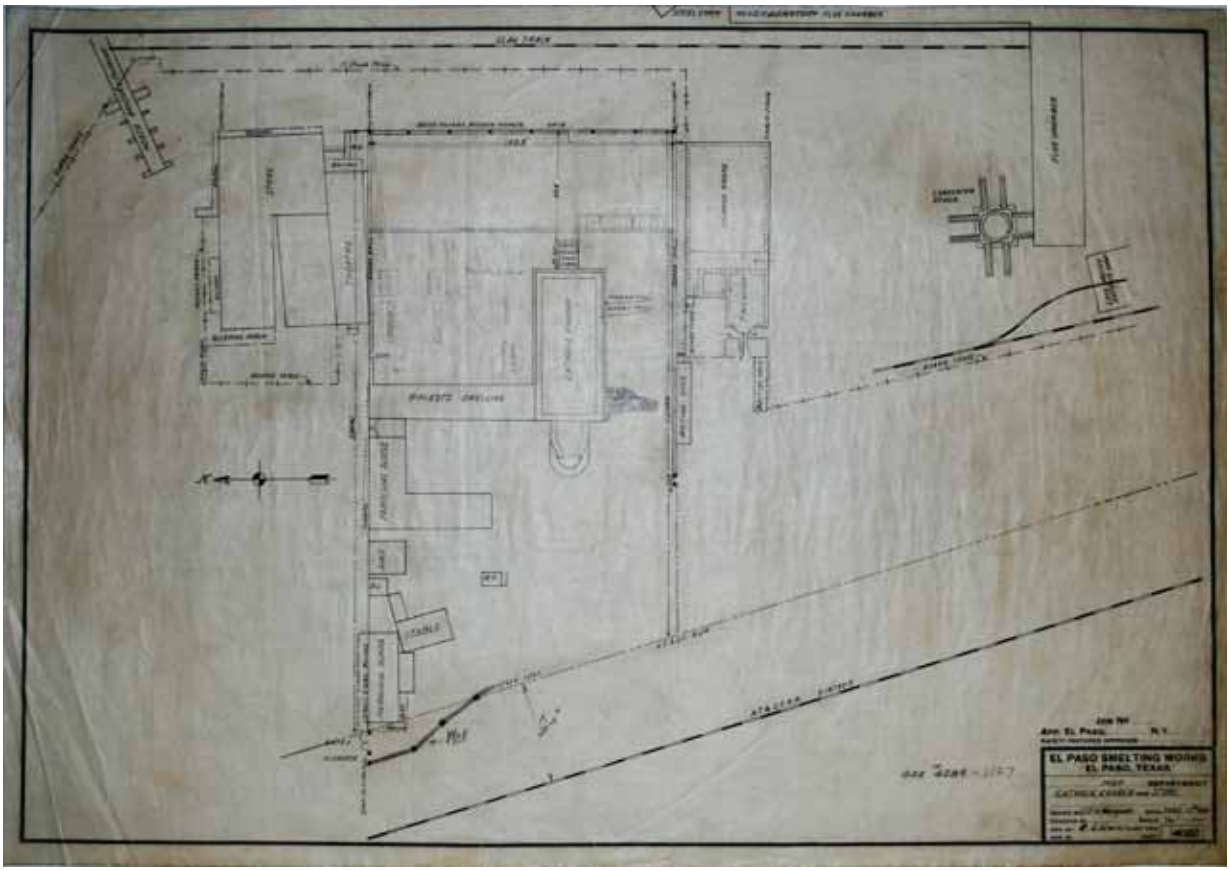


Fig. 2.08 *Gatehouse Church and Store, June 12, 1916*

Fig. 2.09 *Sun, Steam and Speed*







Fig. 2.10 Crossing

infilled between pre-cast concrete columns; the back rooms now reduced, mirrored, and syncopated, a generous energy of ingenuity to outfit greater numbers of people in a smaller footprint. Support buildings intersperse the pile sketching fleeting moments of daily life: *Floor Plans of General Store at Works*, July 10, 1914, shows the addition of a 'moving picture theatre' and a second floor assembly room over the general store, though there was some indecision as to whether to subdivide the assembly space to provide eight additional boarding rooms; *Assay Office and Laboratory*, April 3, 1917; *Proposed Waiting Station & Bridge over Santa Fe Tracks at West Gate*, December 30, 1915; *Time Office, West Gate*, November 26, 1915–this is the only building that will survive the remediation–at the time of its construction, sloppy scribbles abruptly reduce the size of the building by half. *Catholic Church and Store*, June 12, 1916 shows the proximities ofthe slag tracks, the time office, the church and parochial school, the store and theatre, and the converter stack, which in a subsequent expansion will be photographed silently roaring past the church steeple as if accidentally double exposed. The most evocative drawings are the site plans. Writhing topographic contours were so slowly and diligently traced

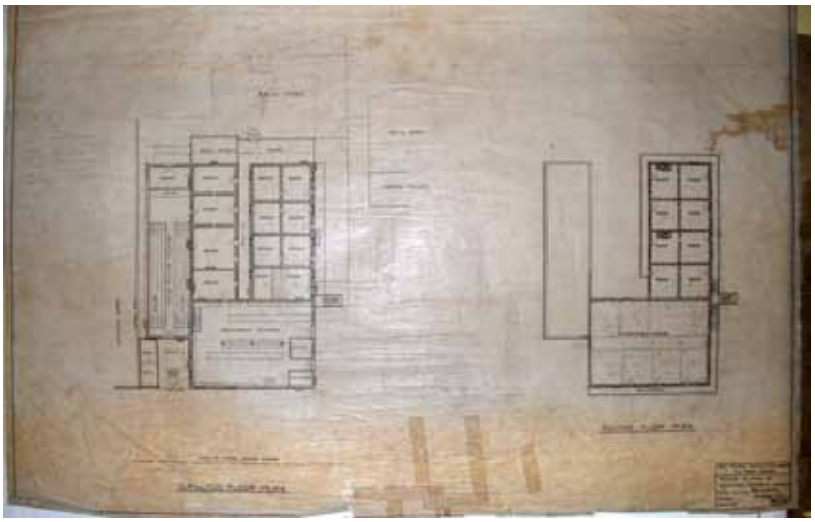




Fig. 2.11 *Floor Plans of General Store at Works, July 10, 1914*

Fig. 2.12 *Fragment, Study of Change of Slag Tracks to Copper Furnaces, April 1, 1904*

out by hand that they deeply impregnated the page with ink, leaching slightly opaque clouds of pigment into the waxen film covering each ciphered line. These echoes from the depths call out, each drawing a geological striation: *Study of Change of Slag Tracks to Copper Furnaces*, April 1, 1904; *Study of Proposed Change of Tracks*, March 31, 1904; *Smoke Survey: lands subject to irrigation within 10 miles of Smelter*, December 6, 1917; *Topographical Map of the El Paso Smelting Works*, February 26, 1897; untitled *Drawing No. 627* which shows the topographic plan and approximate cross sections on tracks 3&4, June 4, 1900; *[Part of] Contour Map of Proposed Site for the New Sampling Works, Mexican Ore Co., Chihuahua*, Janurary 17, 1900; *Map of the Works, 1914*, September 27, 1914–an extensive drawing, among its descriptions is the damming of the arroyos for water reservoirs. The next day the detailed map was copied out by hand for *Insurance Map, 1914*, September 28, 1914. All of these drawings, the names and images of traces and memories whisper to my imagination as I climb the low mountains that surround the site to survey the abject flatness of the site's erasure.

On the mesa below me, in place of the stacks, two perfectly round *huecos* shimmer with wet earth still damp from dust misting. Soon they will be filled and covered over to prevent runoff collecting in the contaminated hollows and leaching poisons into the ground water. Such places where water can collect are rare and indeed extraordinary in the desert, emanating a sacred order–a vertical axis from earth to heaven to survival. Language reflects this transactional relationship; nowhere is the symbiotic adaptation of cultures so penetrating as in the names related to water. With few exceptions, English has adopted the Spanish names in use upon arrival. In the case of the double naming of the *Rio Grande/Rio Bravo*, the split comes not because of language, but from the distance of colonial separation–the Rio Grande being the name of the river that emptied into the Gulf of Mexico; the Rio Bravo del Norte being the river that flowed

through El Paso del Norte–the river often running dry in between. *Acequillas*–a system of Spanish colonial irrigation canals; *arroyos*–ephemeral creeks and their dry beds; canyon; *jornada*–as in Jornada del Muerto or Jornada Mogollon, an expanse of waterless desert–a journey of death. On occasion, names are made bilingually redundant, as in cases with the Mesilla *Bolson* Aquifer or the Hueco *Bolson* Aquifer, or *Hueco* Tanks–an erratic geologic outcropping fifty kilometres east of El Paso that salvages rain water from the expansive drainage plane surrounding it. Amongst the archipelago's diverse ecology are traces of passing civilizations that span a millennia, journeyers having long tagged the soft porphyritic syenite rock walls in effigy of their course. Many figures left by the Jornada Mogollon culture depict *Tlaloc*, a trans-Mesoamerican rain deity attributed with a step and fret pattern that represents the flowing energies of water, earth, and lightning.[3] One oversized Tlaloc at Hueco Tanks dates to about 450 AD, and is exceptional in its intricate and complex patterning. I trace over and over the irregular sequencing of three continuous meandering lines, pulsing and pausing, each ending abruptly. They are the story of a people's intimate experience of life shaped by haphazardly shifting flows—seasons of drought and the shifting courses of a mercurial river. The icon is remarkably true to the map. Geologist G.H. Mack and M.R. Leeder mapped the channel shifts and avulsions of the Rio Grande in the Upper Mesilla Vally using historic documentation that begins in 1844 and spans until the river was dammed in 1912.[4] In this short period, the river recorded extensive lateral migration, even jumping more than four kilometres in a single event during the spring of 1865.[5] But the river also straightens and simplifies its course: *Neck and chute cutoffs of meander loops are common processes of channel straightening by sinuous rivers*.[6]

As a result of sediment build up, the Rio Grande changed course around the Chamizal meander along El Paso's southwest border during the flood of 1864. International law recognizes

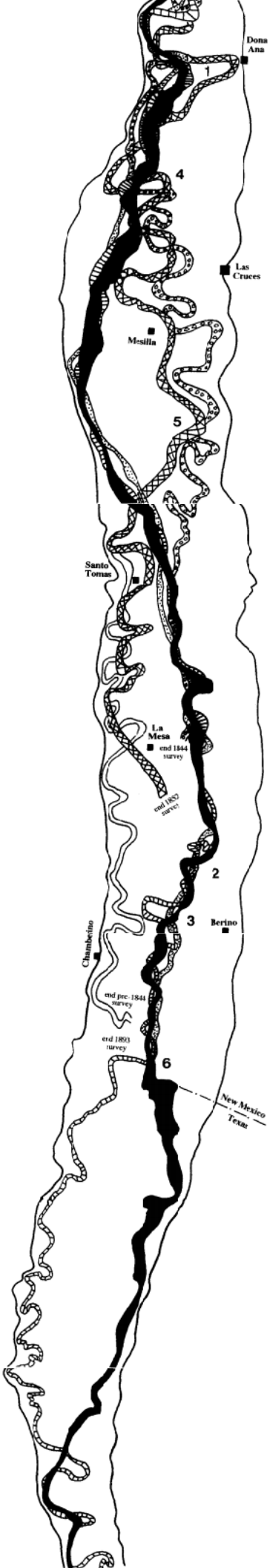


Fig. 2.13 *Rio Grand River Channels, 1844-1912*

Fig. 2.14 *Tlaloc Figure, Hueco Tanks*



3. Kay Sutherland, “Rock Paintings at Hueco Tanks State Historic Site,” Ed. Georg Zappler, Texas Parks & Wildlife, p. 14, Accessed August 23, 2014, http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_p4501_0095e.pdf

4. *Avulsion*: a large-scale shift greater in length scale than two meander loops of a channel across its floodplain, a process that in the historical Rio Grande took one flood season or less to complete. The best documented avulsion of the historical Rio Grande in the Mesilla Valley… took place in the spring of 1865, relocating the river from a few hundred metres east of Mesilla to a position…as much as 4 km from the town, where it has since remained. See G.H Mack and M.R. Leeder, “Channel shifting of the Rio Grande, southern Rio Grande rift: implications for alluvial stratigraphic models,” *Sedimentary Geology*, 117, (1998): 216.

5. Ibid., 216.

6. Ibid., 215

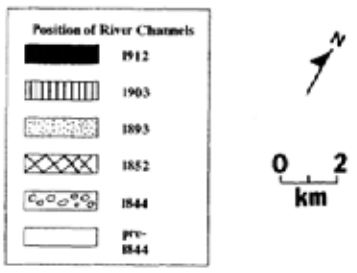






Fig. 2.15 *Channels and Gates*

that with such an alluvial shift, the boundary relocates with the river, a fact that was disputed for 99 years amid a contentious political milieu. Mexican territory situated to the north of the new river channel became a no-man's land locally referred to as Cordova Island, a haven during the prohibition era for smuggling, bootlegging, and rampant crime. At one point, a wall was built along the previous river channel to prevent the illegal running of spirits. However, holes soon appeared in the wall so that American-bound bodies could be intoxicated by mouths made wet in Mexico.[7] The anecdote is remarkably true to a quote by the sociologist Georg Simmel: *The finitude into which we have entered somehow always borders somewhere on the infinitude of physical or metaphysical being*.[8] Colonial El Paso was a watering hole and strategic supply stop along *El Camino Real de Tierra Adentro* (Royal Road of the Land Within). An agricultural town, the urban form grew out of the development of acequias along the southern banks of the Rio Grande, an infrastructural foundation that gave the town traction that more ephemeral mining and trade towns lacked

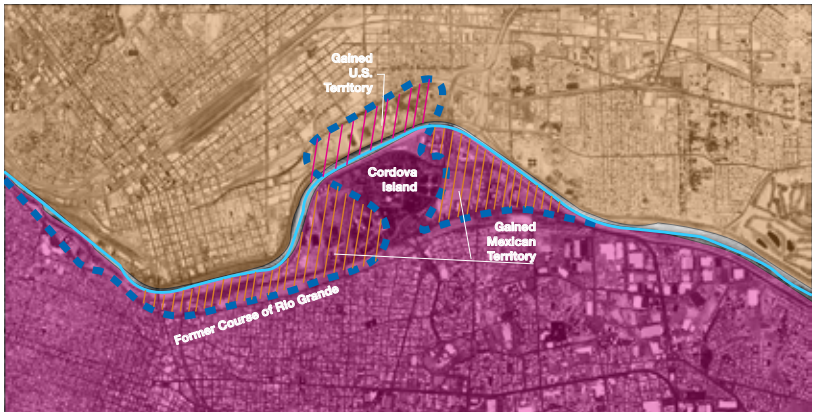


7. S. Saenz-Rivera, "Centers and bordertowns: Tracing the origins of cooperation at the mexico-united states border (1521--1994)," 148.

8. Georg Simmel, "Bridge and Door," 7.

Fig. 2.16 *Bird's Eye View of El Paso, Texas, 1886*

Fig. 2.17 *Chamizal Territorial Dispute*



in the frontier.[9] Fifty years after concluding the Texas War for Independence [from Mexico], the 1886 Panorama shows a burgeoning new urban machine seizing its destiny from the future, eschewing the mature trees of the Mexican river bank to distinguish itself as a transportation hub, its attribute being the urban grid transposed by the intersections of primary axes of rail lines traversing the pass and bridges spanning the nascent political boundary. As the major urban armatures, the bridges archive cultural undercurrents, indexing shifting means toward the beacon of progress. Technologies that allowed for steadier and faster flows across the border came and went or took over; automobiles and electric streetcars were given dedicated lanes, and rail lines were added or erased over the ebbing of the twentieth century. And as the bridges accreted the palimpsest of the advance of smooth space, so too was the river channeled and partitioned. In 1963, the Chamizal dispute was diplomatically settled through the mechanism of the bi-national institution, the International Water and Boundary Commission (IBWC). By appealing to a third party to resolve the issue, the U.S. and Mexico "transformed the symbolic decision of giving territory into merely a technical question," avoiding the political theatre wherein the successive nationalist governments of Mexico from the 1920's until the 1960's regarded El Chamizal as a matter of national pride and as a symbol of resistance to American imperialism

9. Gladys Arlene Hodges, "Juarez, Chihuahua, 1880-1930: A Material Culture Study of Borderlands Interdependency," 127.

and dominance over Latin America.[10] (Saenz-Rivera) A concrete channel was constructed to stay the course of the Rio Grande between El Paso and Cd. Juarez that soon became an armature to delaminate the river's overlapping functions; the American Canal was affixed to separate US from Mexican water supplies, and layers of fencing extended the border's territory of exception. Beyond the scope of the Chamizal, and behind the scenes of national politics, the IBWC continues the work of resolving border disputes along the Rio Grande. By 1970 American and Mexican boundary commissions had sliced through 241 meanders by straightening the river, exchanging more than 30,000 acres of land; territory encompassed by meanders that protruded into Mexico were granted to Mexico, and vice versa.[11] Even as embodied in the technocratic mechanisms of land surveys and resource accounting, the shifting tensions between the symbolic roles of territory and technology–the tension between the flag and the map–points to the subjugating tendencies of technology whose focused light shines so brightly toward the future that it orders culture like an ersatz religion.[12]

The ASARCO powerhouse is a temple, an affect intensified by the curation of our site tour eight months prior to the felling of the stacks. After surveying the remediation's ravaged landscape of heaps and craters, amongst which our imaginations strain between the spectacle of the outsize foundations, a guidebook we are given consisting of a few inky pages of poorly photocopied images, and the personal stories offered in the kindly drawl of an old engineer who accompanies us, we enter the echoey body of the powerhouse with disquiet and an expectation of almost religious revelation, hoping to discover some secret or key to bridge the ontological lacuna of the landscape. One of two buildings still standing, it is a refuge for machinery deemed worthy of salvage. Light dapples through a choir screen of layered coloured pipes into the expansive interior, the sharp contrast of bright and dark foreshadowing an impending loss of vision brought about by

10. Saenz-Rivera, 148.

11. Ibid., 153.

12. Anne Bordeleau, "Geography and Architecture: Theories Terrorizing Territories," 13

the building's future demolition. In the fragmented darkness, a collage of great machines, some dating to the civil war, tie together a story of material flows traced out by gathering and diverging pipes that bridge the machines to the many holes in this body without organs and to the severed limbs whose phantoms lie in the landscape. The remediation of ASARCO exhumes a microcosmic history of the industrial, urban, material, and cultural transformations of the twentieth century. It is a history about the U.S.-Mexican border, "but it does not begin on the banks of the Rio Grande. It begins deep in the ground, in the mineral-rich mines of Santa Rita, Santa Barbara, and Ahumada. It was there that thousands of tons of copper and lead-silver concentrates began their journey to El Paso on the intricately interlaced tracks that wove their way to this West Texas town."[13]

The social transformation that made the extraction of Mexican mineral resources possible began equally deep in the landscape. The land and economic policies of the thirty-five year regime of Mexican president Porfirio Diaz resisted liberal reforms to maintain political loyalties. Patrones held vast consolidations of agricultural lands in a near-feudal hacienda structure of peon tenant farmers. At the same time, Diaz courted American investment interests to modernize transportation and communication lines that would eventually cultivate Mexico's mineral wealth. To an American political and capital apparatus that sought extended power and influence over the continent, Diaz further ceded rights to federal lands, speculation, and tax and duty exemptions.[14] The arrival of transportation development coincident with increasing social strife unmoored rural populations and prompted the first wave of a great northern migration.[14] Monica Perales comments that the coupled development of railroads and mining, "were a part of the carefully constructed machinery forged by American capitalist development that drew Mexicans northward, making them crucial pieces that kept the machinery in motion."[16]

13. Oral historian, Monica Perales, demonstrates the polyvalent connections between material and social trajectories that gave rise to the largest customs smelter in the United States along with the complex but vibrant community that housed the Mexican employee community at the foot of ASARCO. Monica Perales, *Smeltertown: Making and Remembering a Southwest Border Community*, 21.

14. Perales, 35.

15. Between 1900 and 1930, 1.5 million Mexicans immigrated to the United States.





Fig. 2.18 *La Sala de los pasos perdidos*

Fig. 2.19 Choir Screen

ASARCO's siting took advantage of this machinery. The easily traversable Rio Grande flows through a narrow pass, El Paso del Norte, banked by the rugged arroyos of the steeply ascending Sierra Madre and Rocky Mountains. Through this pass, Colonial Spain had connected Mexico City to Santa Fe via El Camino Real de Tierra Adentro since the end of the sixteenth century. After the loss of its northern claims to the United States in the Mexican-American War, the arrangement of the international border through this pass amplified the strategic importance of the route as each state sought the latent advantages of territorial disparity. At the height of industrial transformation, El Paso del Norte was an important hub for railroads that established a transcontinental compass reaching in every cardinal direction. Seven railroads negotiated El Paso del Norte, the three largest of which serviced the ASARCO unloading yards: the Mexican National, the Santa Fe, and the Southern Pacific. Though the siting strategy profited from the proximity of the rail lines, the topography proved difficult to negotiate.[17]

In 1900 the original smelter burned and was rebuilt with the expressed aim of expanding capacity to utilize abundant and cheap Mexican labour.[18] Trains arrived from Mexican mines with ores and departed for the U.S. east coast where the smelted metals would be processed into finished products. At both ends of this cycle, manual labour unloaded and reloaded every ton of material that entered and left the facility. The laborious contact was not simply an ephemeral stage in a larger logistical process. By 1914, the smelter produced a combined 850,000 tons of lead and copper charge annually. ASARCO grew rapidly across the rugged terrain on an expanding mesa of slag and debris-filled arroyos. The tide of anthropogenic land formation over which the smelter's expansion flowed is a diagram of the material, physical, and human forces that ASARCO consumed. This solid mass is the constructed political landscape of crossing trajectories

16. Perales, 36.

17. Ibid., 21.

18. Richard H. Vail, (1914), "El Paso Smelting Works – I," 466.



that Massey describes – movement, economy, and biology. Present-day contaminate exhumation and asset mining reveal this landscape unlocking the material histories whose penumbra bridge through the layers and shifting perspectives of the past to confront the contemporary.[19]

Like the prey of Walter Benjamin's "Butterfly Hunt," ASARCO and the river and territories on which it was constructed, often elluded my capture and caused much meandering. The collection of my efforts archived here recall the bends and shifts in my path and are an attempt to deconstruct the totality of the socio-political problem and polemics that the site entails. Building on Eyal Weizman's concept of transgressive intervention that "seeks in the existing legal order its potentials, contradictions, and loopholes," my research underlines the specific cultural and geographic contexts on which the laws are negotiated, the assumption being that lying beneath the articulation of the law, there are potentials in the landscape that the border cannot address.

Fig. 2.20 Nave

19. "The diagram is indeed a chaos, a catastrophe, but it is also a germ of order or rhythm. It is a violent chaos in relation to the figurative givens, but it is a germ of rhythm in relation to the new order of the painting. As Bacon says, it 'unlocks areas of sensation.'" Gilles Deleuze, Francis Bacon, 83. "The diagram is a possibility of fact – it is not the Fact itself. To emerge from the catastrophe... functions like a local 'whiplash' that makes us emerge from the catastrophe rather than submerging us further." Ibid., 89.





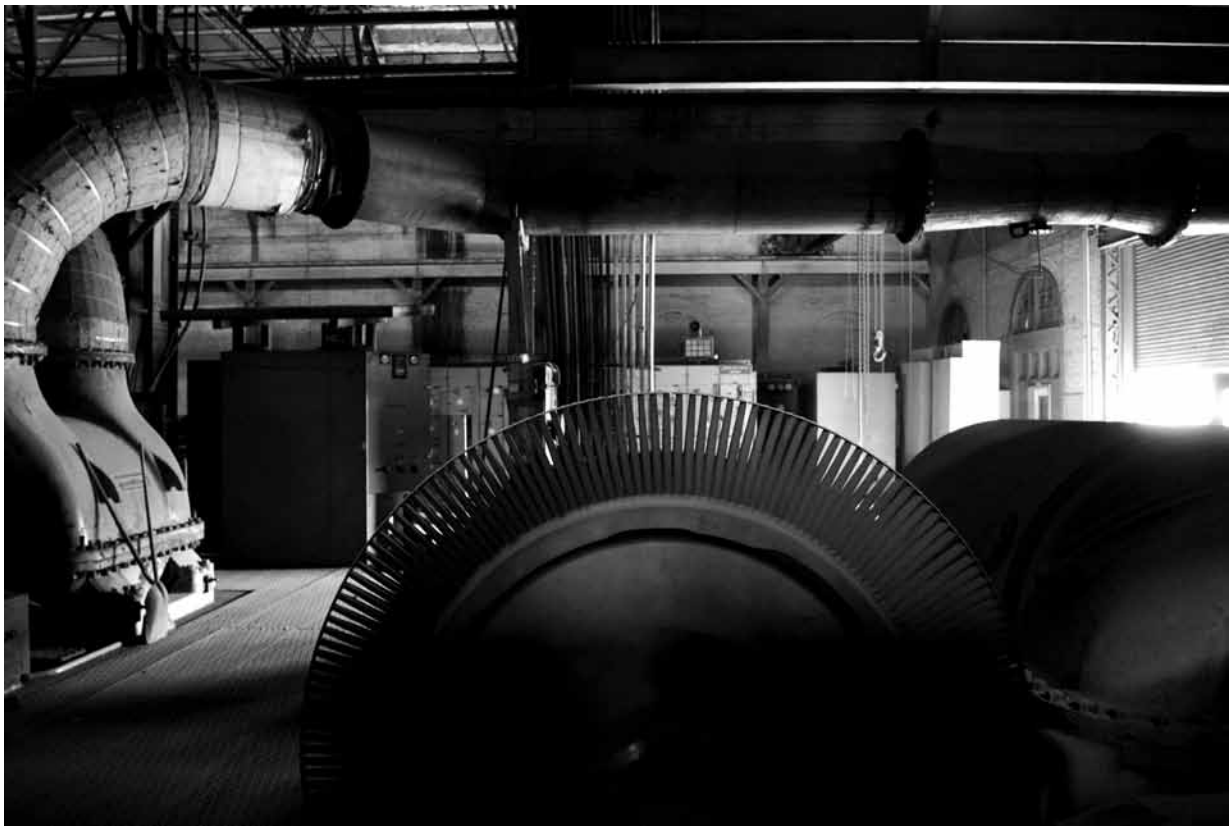


Fig. 2.20 *Transept*



Fig. 2.22 *Cathedral*







Fig. 2.23 The Fall

3 TRANSGRESSING [DIAGRAM]

The basic error of all materialism in politics... is to overlook the inevitability with which men disclose themselves as subjects, as distinct and unique persons, even when they wholly concentrate upon reaching an altogether worldly, material object.

Hannah Arendt[1]

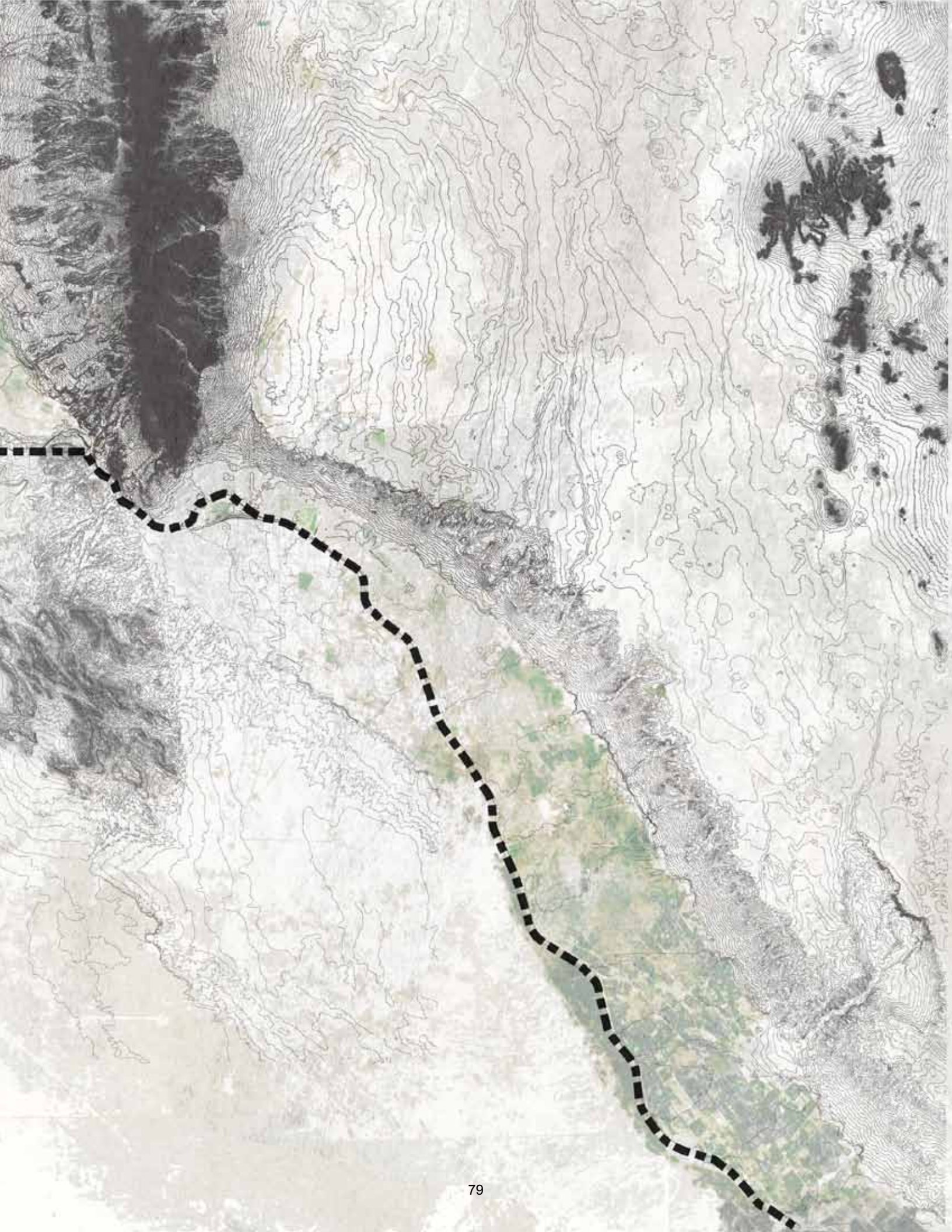


Fig. 3.00 *(prev) Agriculture of El Paso del Norte*

Average monthly flow measured at the American Diversion Dam, El Paso, TX.

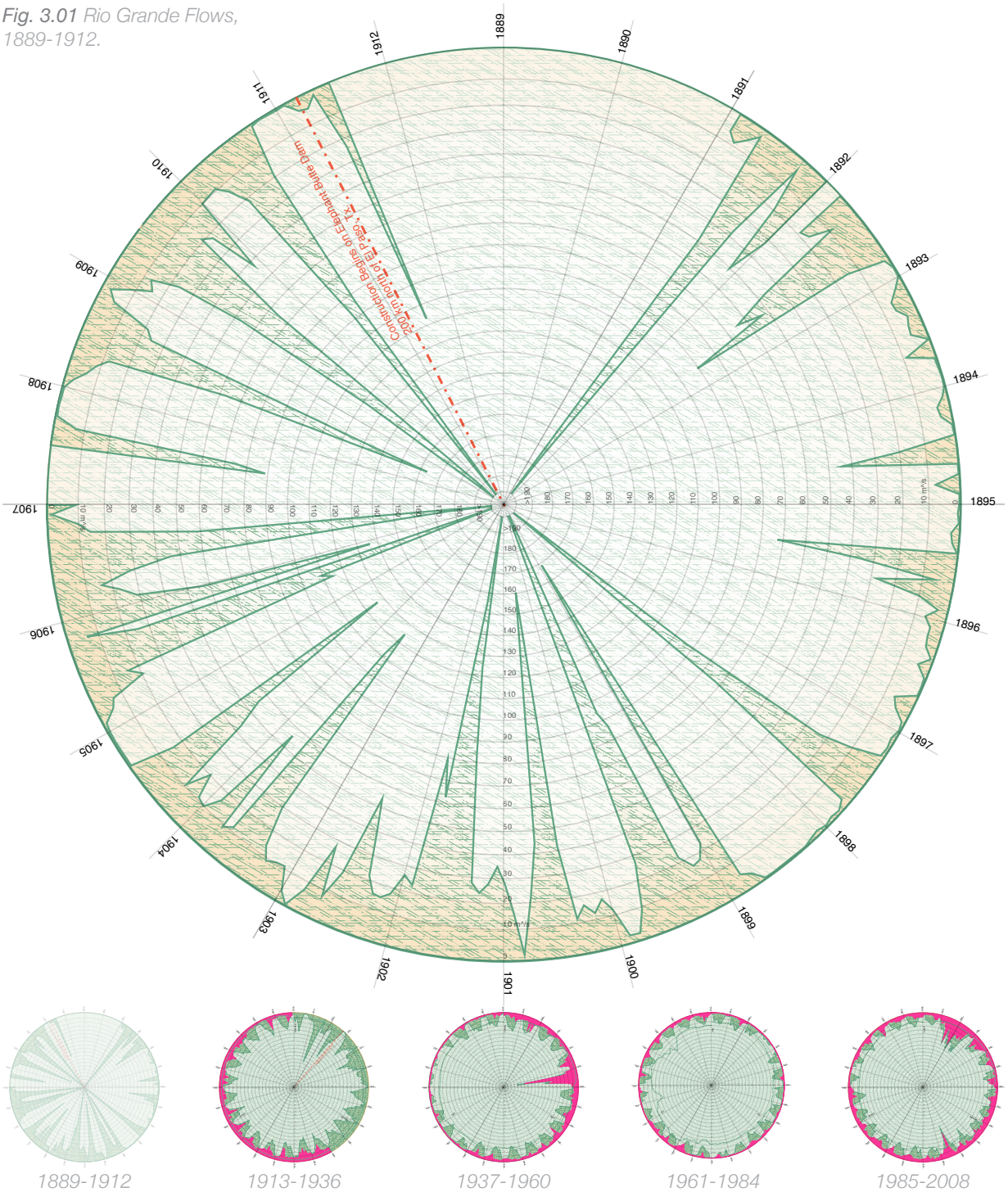
Average monthly flow measured at Fort Quitman, TX 125km down stream from El Paso.

Average historical daily flow measured out seasonally, across four maps.

(Rio Grande Historical Mean Daily Discharge Data, IBWC: Accessed August 23, 2014, http://www.ibwc.gov/Water_Data/histflo1.htm)

From 1911-1916, Elephant Butte Dam was constructed 200 kilometers upstream from El Paso as a project of the 1902 US National Reclamation Act. To entice farmers to the west, the act sold federal lands to finance the construction of the dams needed to provide a regular supply of water to agriculture. The effect of these projects was to carve a temporally regulated space for civilization out of the cycles of seasonal and hydrological flux that are the foundation of desert ecology. Today, The river's water is almost completely allocated in the El Paso Valley, frequently running dry in Fort Quitman, Texas, just 125 kilometers down stream of El Paso. The void left by these actions is not a catastrophe but a space of potential to be filled by those organisms well-suited to the new ecology.

Fig. 3.01 *Rio Grande Flows, 1889-1912.*



1889-1912 | 1913-1936 | 1937-1960 | 1961-1984 | 1985-2008

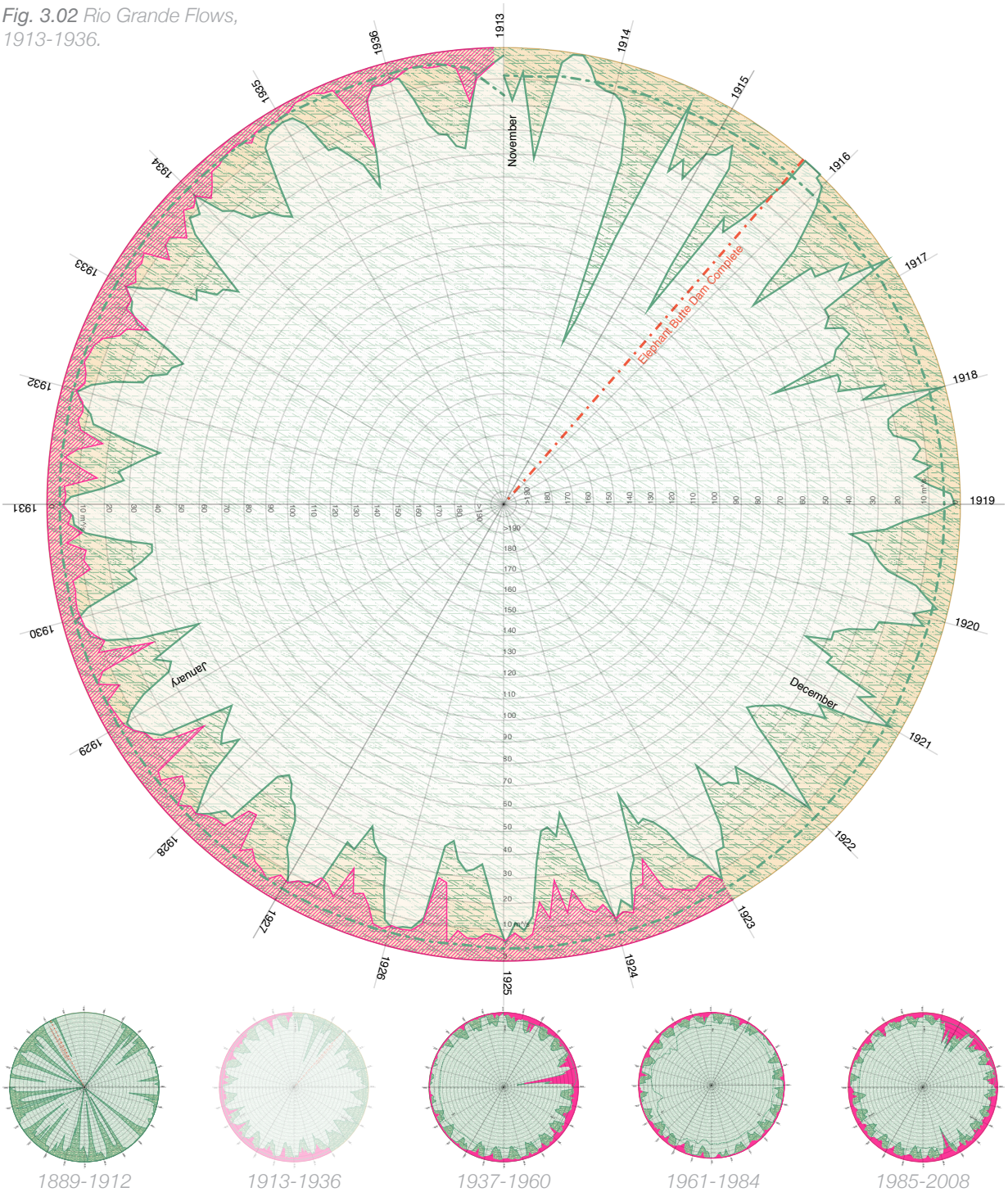
A memorandum from the International Boundary and Water Commission (IBWC) titled *Finding of No Significant Impact: Non-native Plant Control and Re-establishment of Riparian Habitats Along the Rio Grande*, describes in bureaucratic language how the non-native Saltcedar (*Tamarix, spp.*) plant will be removed from a small parcel of land owned by the Commission through mechanical extraction and herbicide use, resulting in no significant impact to the local environment.[2] Regardless of the protocols that address conceived stakeholders, the document contains no trace of the depths of the Tamarisk's stratigraphy, only recently excavated from the affects of pseudo-scientific language. Accused of inter species competition, the history of the Tamarisk renders a political ecology in which the plant thrives in the shadow of human intervention that reorders the desert's seasonal rhythms of drought and flow. The unforeseen failings of managed containment systems are frequent epicycles in the history of technology's progressing path. This chapter takes measure of the history of the Tamarisk against the role of organized crime in contemporary trans-border migration trends, two case studies in which resource scarcity predicates an ecological takeover. From this foundation, a proposal speculates on a guerrilla tactic that champions the use of a botanical invader to undermine the border's large-scale formal organizations and to excavate a safer space of passage for the individual border crosser.

Two concomitant effects of globalization have created an ecology in which organized crime has come to thrive: increased consumer demand and increased border security.[2] A site of confrontation, the US border security apparatus shapes the environment against which the action of traversing the border results in individual distinction, initiating the story of the acting agent, the border crosser. However, in the buildup of post 9-11 border security, the US has created an entropic imbalance where neither Mexican institutions nor individuals are able to act in self interest, a space in which organized

1. Hannah Arendt, *The Human Condition*, 183.

2. Luis Rubio, *In the Lurch between Government and Chaos: UnconsoLIdated Democracy In MexIco*, 1

Fig. 3.02 *Rio Grande Flows, 1913-1936.*



1889-1912 1913-1936 1937-1960 1961-1984 1985-2008

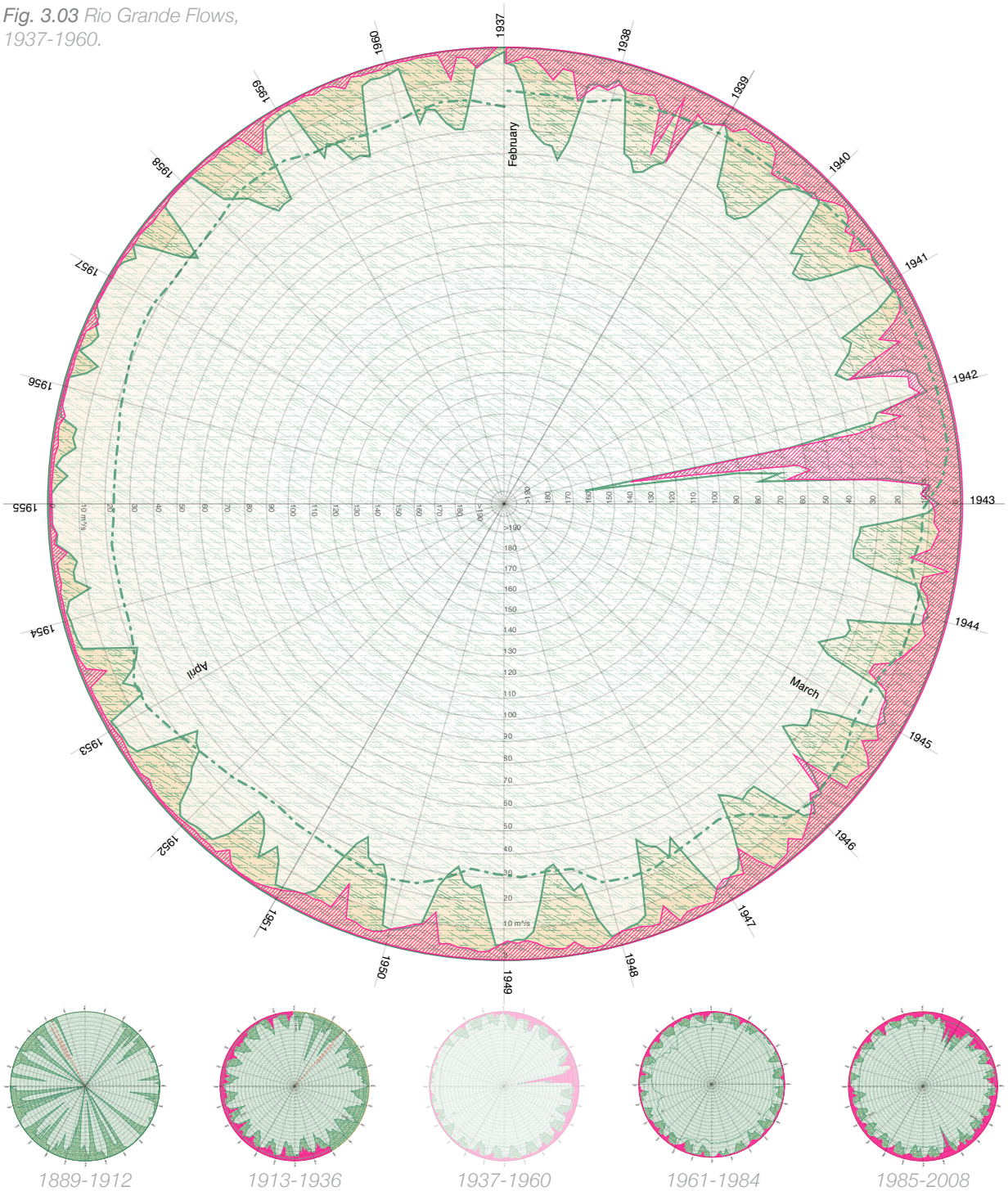
crime has risen to smooth over this disparity, resulting in a reign of violence and terror that has seized Mexico for nearly a decade. With a formal economy unable to meet growing consumer demands from its extensive lower middle classes for affordable goods, Mexico's informal economy was a medium for the growth of organized crime. Some 59% of the population lives and works in the informal economy, supplying a vast metabolic resource for organized crime, which grew and thrived with little abatement from Mexico's institutions that were unsuccessfully negotiating attempts at reform after a century of one-party governance.[3] In the power vacuum of Mexico's weak institutions, organized crime quickly gained size and strength that allowed it to act with little resistance; the criminal sphere of society quickly eclipsed capacities of Mexican law enforcement. Accelerating the hardening of borders as dictated in the 2004 National Border Patrol Strategy, the US invested upwards of eight billion dollars on tactical border infrastructures including 700 miles of fencing, over 18,000 personnel, along with costly and dubious surveillance networks. The effect was to largely stifle instances of informal migration, creating a demand for 'professionalized' smuggling, an unintended monopoly for organized crime whose scalar networks and capacities could match the efforts of Customs and Border Patrol.[4]

As the Partido Revolucionario Institucional (PRI) retook control of the government in December 2012, a sudden period of truce overtook Mexico. In its wake, there has been a precipitous increase of illegal immigration to the United States. Figures touted by US officials to demonstrate the effectiveness of border security measures are matched and undermined by statistics from the Secretaría de Gobernación de México (SEGOB). In 2012, the US touted a 50% reduction in illegal immigration since the enactment of the 2004 National Border Patrol Strategy. However, US statistics only account for those persons caught at the border. Data from the SEGOB indicates a decrease in internal migration that

3. Eduardo Rodriguez-Oreggia, Eduardo, "The Informal Sector in Mexico: Characteristics and Dynamics," 89-175.

4. Rubio, 3.

Fig. 3.03 *Rio Grande Flows, 1937-1960.*



1889-1912 1913-1936 1937-1960 1961-1984 1985-2008

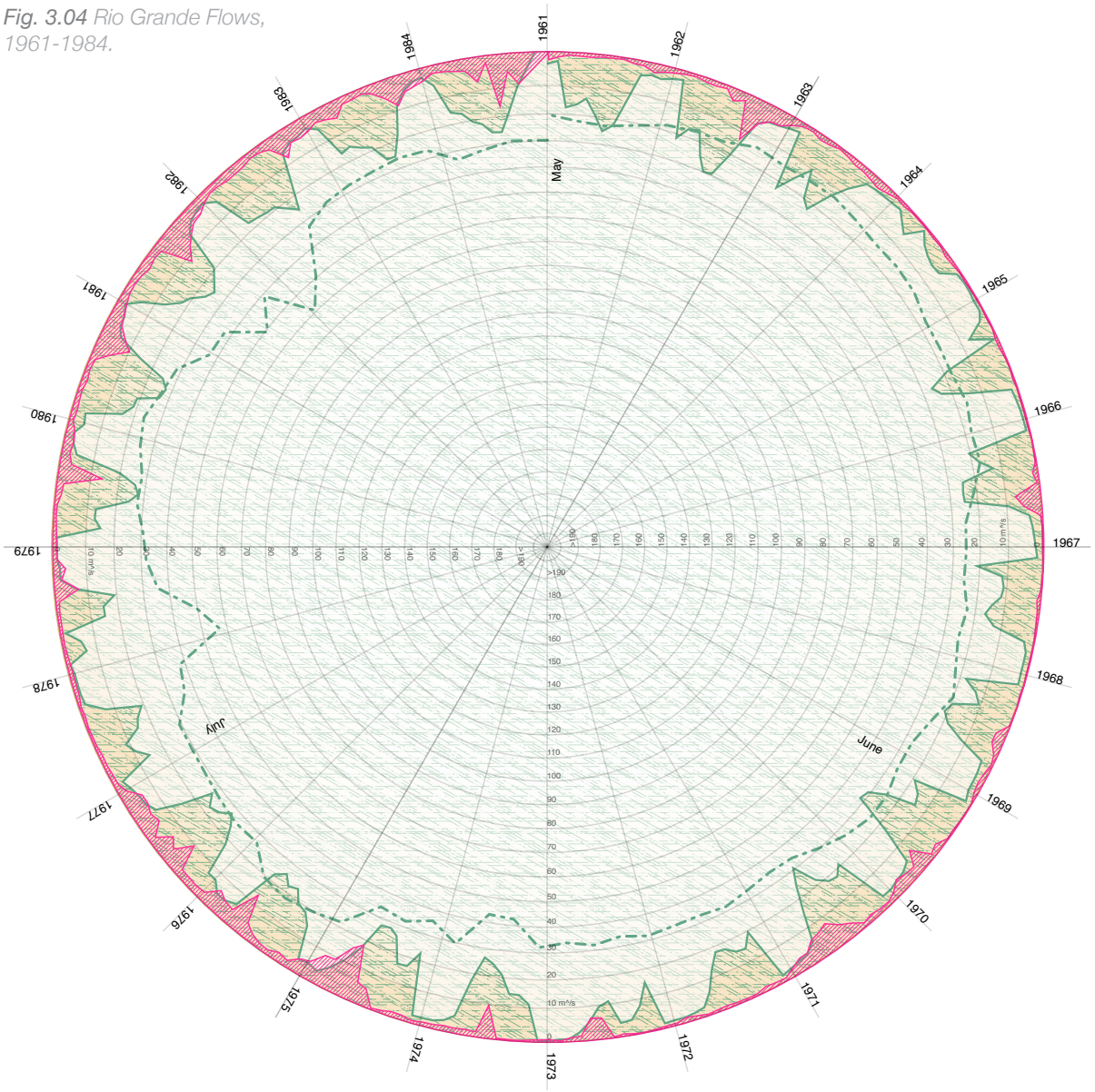
closely correlates to the slope of the US data. The message of the statistics is that the fear of violence and corruption was a serious impediment to regional mobility during the years of the drug wars. With this fear now waning, migration has exploded, attenuating any US claim to the efficacy of border infrastructure.

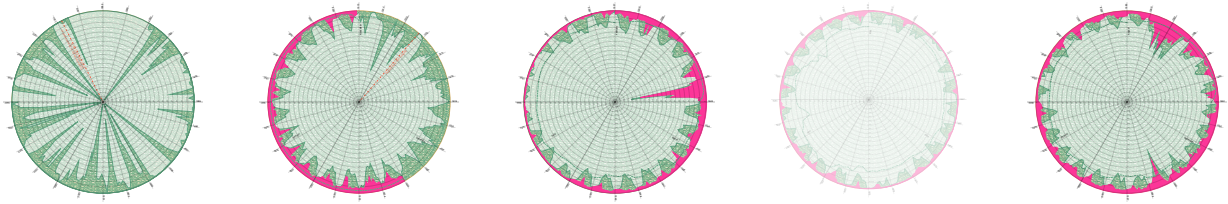
Arendt's notion of the 'boundlessness' of action is founded upon to the inability of material borders and territories to contain immaterial action. She argues that action cannot be constrained to a closed circle of actors, but instead ripples outward, being countered only through moderation or the act of staying in bounds. With the renewed potential to safely increase migration within Mexico, the US border reemerges as a site of tremendous potential for both nations. Accordingly, the border is not merely the land or security structure, it is a power potential that issues forth in the act of crossing the territory of the border–plunging through the landscape–and that, following Arendt, "exists only in its actualization."[5] The border is waiting for its opportunity to act, the indeed rare act of individual distinction and disclosure which transcends the evanescence of the place of passage. In *Cinema 2*, Deluze draws forth the importance of the speech-act–a filmic analogue perhaps to Barthes' 'punctum' of the photo–that which wrenches forth to momentarily transcend both the event (passage) and the context (stratigraphy). It is an act of resistance. The irreducibility of the event of passage from the ecology of its occurrence, the stratigraphic landscape, magnifies the sublime contradiction between the geological time of the landscape and the evanescent place of the passage or capture by la migra. The instantaneity of the speech-act, both in terms of the moment of the transformation and the evanescence of the transformation effuses an almost magical or mythical affect.

The borderland abounds with mythology and superstition. *For some unexplained reason, the Devil has always kept a high*

5. Arendt, 200.

Fig. 3.04 *Rio Grande Flows, 1961-1984.*





1889-1912 1913-1936 1937-1960 1961-1984 1985-2008

profile along the Texas portion of the border between Mexico and the United States.[6] A symptom of the overlap of territories and their adjacent *terrae incognitae*, saints and demons–miracles and monsters–reside in the shadows that result in a multiplication of borders delimiting realms of knowledge and experience, each accompanied by the *hic sunt dracones* of the unknown. The landscape is the reflection of the archetypical struggles between Guadalupe and the Devil–symbols of hope and faith against corruption and greed–and where the trickster Coyote finds opportunities in the spaces between.[7] Heroes and monsters alike need a foundation myth. Given the Tamarisk's ability to thrive in dry and highly saline environments, one origin could render it the offspring of Athena and Poseidon, or the speed of its reproductive flight could attribute it to Apollo. But, the Tamarisk's categorization as an invasive species is much more biblical than Greek; it begins with the word—*phreatophyte*—and it is in the slippages between the innocuity of a word and the mobilization of political will that a 'monster' was made out of a plant.

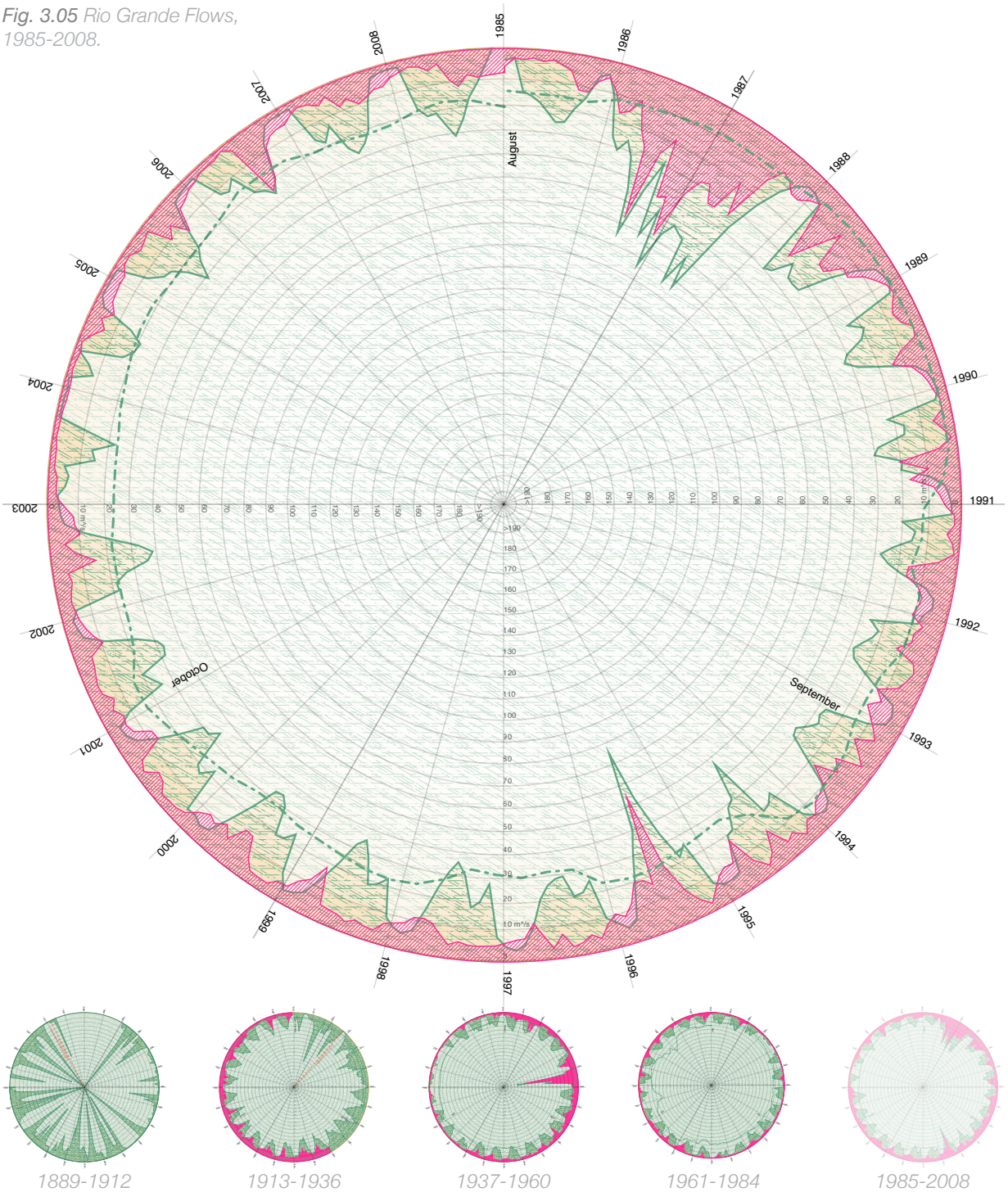
Tamarisks (*Tamarix spp.* including (evergreen) *Tamarix aphylla*, and (deciduous) *Tamarix chinensis, Tamarix gallica, Tamarix parvifolia,* and most commonly *Tamarix ramosissima*) are typically shrubs growing up to 18 meters tall in dense, amorphous stands that reproduce both through seed and through roots or submerged stems. Before their transplantation to New England in the early nineteenth century, they were found throughout the deserts of Africa and Eurasia. The vernacular name, Saltcedar, derives from the plant's ability to thrive in highly saline environments which causes salt secretions to form on overlapping scale-like leaves that form stems densely covered in small (3 to 5mm) pink flowers from spring to early fall. To thrive in arid environments, Tamarisks draw moisture from an expansive territory; tap roots may extend to a depth of 30 meters and surface roots may spread up to 50 meters laterally.[8] The neologism *phreatophyte*–the well plant–was coined in 1923 and developed through a series

6. Patricia L. Price, *Dry Place: Landscapes of belonging and exclusion*, 136

7. "But the figures – the Devil and the Virgin – are perhaps not so clear as we might like them to be. They both blur boundaries geographic and metaphoric. They cross lines. These archetypes are notable for their mobility; they gain their meaning through passage rather than stasis. The Virgin works both horizontally – across space, across oceans and rivers and deserts – and vertically, spanning heaven and earth, divine and profane. The Devil plays on our fears, both real and imagined , about what living in a borderless world really means. He inhabits shadowy areas, those profound borders between life and death, the free fall between chaos and order in space and time, the vertiginous sense of having come unhinged." Ibid., 144.

8. Bernard R. Baum, *The Genus Tamarix*, 3.

Fig. 3.05 *Rio Grande Flows, 1985-2008.*



1889-1912 1913-1936 1937-1960 1961-1984 1985-2008

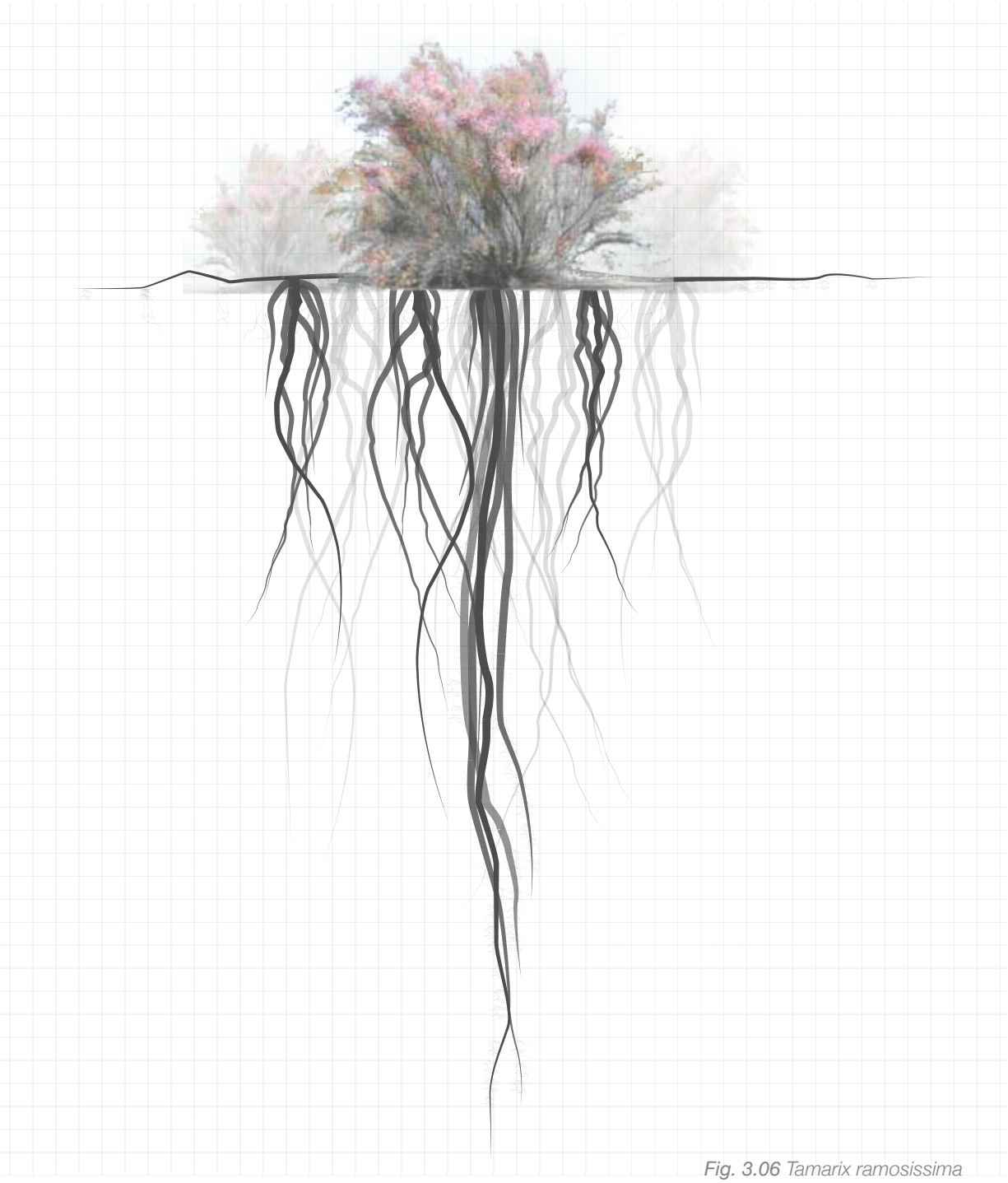


Fig. 3.06 *Tamarix ramosissima*

of four papers by United States Geological Survey (USGS) scientist Oscar Edward Meinzer. Using language that imparted an agency of competition with farmers for scarce water resources, the plant was described with anthropomorphic intentions that ranged from "habitually feeding on ground water," to describing them as self-aware machines, "a natural well with pumping equipment, lifting water from the zone of saturation."[9] Having been brought to the US less than a century earlier, the Tamarisk was originally championed for its ability to thrive in marginal environments and for its many uses, most notably in erosion and sediment control. Attitudes soon changed though when deliberate anthropogenic alterations to the environment created conditions that accelerated its spread. The 1902 US Reclamation Act mandated the construction of numerous hydrological dams to predicate and engineer urban colonization of the US southwest. Greatly altering the deserts' seasonal rhythms, "rivers that had previously flooded in early spring or briefly in midsummer were converted to de facto canals or to dry washes that ran only when the new storage infrastructure was overwhelmed. Riparian trees phenologically adapted to the effects of spring flooding were left without the annual renewal of bare sediments their seeds needed for germination, and then subjected to prolonged, drowning flows released from reservoirs during summer agricultural irrigation."[10]

In the twilight of World War II, the Phelps Dodge Corporation (PDC) held the rights to a body of ore in Arizona's Safford Valley, a tributary of the Gila River. Though they also owned the water rights to the valley's Eagle Creek, flows were insufficient to supply the mine's operations.[11] US water law and much of the economy of the southwest is shaped by three principles: the rights to surface waters do not legally extend to deep groundwater resources, 'beneficial' uses of water can be defined by statute while 'non-beneficial' uses of water can be denied legal standing, and rights to surface water are governed by way of prior appropriation–'first in time, first

9. Chew, Matthew K. "The Monstering of Tamarisk: How Scientists made a Plant into a Problem," 245.

10. Ibid., 247.

11. Ibid., 255.

12. Ibid,, 249.

13. Ibid., 255.

14. Ibid., 256.

15. Stromberg, J. "Dynamics of Fremont cottonwood (Populus fremontii) and saltcedar (Tamarix chinensis) populations along the San Pedro River, Arizona," 133-155.

in right.'[12] In 1939 the US War Department and the US Geological Survey began an attempt to quantify the 'non-beneficial' water use by phreatophytes. A paper published in 1941 drew, through dubious methods, the conclusion that completely killing riparian vegetation in the Safford Valley would serendipitously avail 70,000 acre-feet of water, the amount needed by the PDC's operation. Thus the water resources needed by the war effort were invented in an act of legally–and scientifically–based fiction.[13] After the war, USGS scientist Thomas Robinson went still further, publishing a 1950 report that clearly distinguished Saltcedar from eighteen other phreatophytes as a non-native plant, stating that it "thrived and spread at the expense of nearly all the native plant life." By puncturing through the clean clinical language of science into the politics of heightened postwar patriotism that permeated every strata of culture, Robinson turned the Tamarisk into something that acted in opposition to American values and Nature–a convenient coupling.[14]

Though the contemporary image of the Tamarisk is still defined by Robinson's language, in the last two decades researchers have found that once-declining species are able to take hold after floods that require the unexpected release of dam and diversion overflows. Better reflecting pre-Reclamation Act environmental engineering, seasonal floods wash away tamarisk seeds and other debris, allowing more species to germinate in fresh alluvial sediment. It is our own thirst for water–the altered flow of desert rivers to support urban centres and desert agriculture–that allows the Tamarisk monster to thrive.[15] The analogy to contemporary anti-immigration politics is not a subtle one. The ecology of American demand for cheap labour to supply consistently cheap food and consumer goods is tinged with xenophobia and fear of migrant overrun. De-monstering the Tamarisk allows for an ungendered reading of its potentials as a catalyst of change within a given political ecology. The revealed relationship between its environmental dominance and the

manipulation of interstate water flows reveals the potential for the propagation of Tamarisk to be used as a guerrilla tactic to strategically alter the environment. Already, the clearance of small Tamarisk groves along the border is a matter of cooperated consent administered by the IBWC, each side agreeing to the means of control, whether it is through the grant of physical access to a territory that spans the border, or through the consent to use powerful herbicides. There is already considerable contention between Mexico and the US over the use of 'biological control' methods that release saltcedar leaf beetles to consume whole stands of trees, and Mexico is in considerable deficit in water deliveries from the Rio Conchos to the US. Given this milieu, can the Tamarisk be employed strategically to tip the balance of political and anthropocene anxieties required for the renegotiation of US–Mexico water treaties?

DESIGN: An Ecology of Resistance

If Santiago Sierra can hire day labourers to excavate the letters of a terrestrial submission from the desert floor, who or what is the public that can act to make provisions for a terrestrial resistance in the form of safer informal border crossing? No More Deaths is an organization of the Unitarian Universalist Church of Tucson whose mission is to prevent migrant deaths along Arizona's unforgiving desert. It provides provisions such as food, water, clothes, and some basic medical treatment, in addition to services ranging from whiteness and response to resources for tracking disappeared persons.[16] During the summer of 2013, some 85 volunteers navigated the terrain the Papalote wash in the Buenos Aires National Wildlife Refuge along Arizona's border with Mexico. Every week, the volunteers manually drop hundreds of gallons of water and supplies among the network of immigrant trails they've discovered or forged.[17] Though they operate with some friction from law and border enforcement, recent legal

Fig. 3.07 No More Deaths' work in the Arizona Desert

Fig. 3.08 Landform Tactics are abstracted from observations of the ways in which the Army Corps of Engineers' flood control measures transform desert ecology. Earthen weirs retain water and collect top soil sediments as foundation allowing a relatively thick growth of plant life. Scaled down, this tactic is used to predicate a distributed network of small-scale landscape interventions.









precedent supports the distribution of survival materials on public land. In United States v. Millis, an appeals court voted 2-1 in favour of a No More Deaths volunteer charged with littering when caught leaving full water bottles for migrants in the wildlife refuge. The court majority argued that purified water could not be considered "garbage."[18]

US border infrastructures have slowly spread eastward since 2004, spurring the eastward push of migration paths. Texas is now the site of the greatest migration flow. Speculating on how such an organization can better provide safe passage

16. No More Deaths. Accessed August 23, 2014. http://forms.nomoredeaths.org/about-no-more-deaths/

17. Santos, Fernanda. "Group Rooted in the Desert Looks Out for Migrants." T*he New York Times.*

18. *United States v. Millis*, Case No. 09-10134 (United States Court of Appeals for the Ninth Circuit, 2010)

through the harsh environment and contested territory, this project seizes on the guerrilla propagation of Tamarisk as the means to provide cover, shade, and navigation to migrants traversing the Rio Grande. At first, small Tamarisk groves are propagated from stem cuttings to provide cover for supply drop boxes. During the wet season, Tamarisk will quickly sprout from cut branches left in the softened earth. Volunteers are instructed on identifying and harvesting branches to transplant to areas for strategic cover. Sites are chosen by evidence of frequent passage and based on the courses available for the Tamarisk to easily spread given available water sources and prevailing winds. Drop boxes are brightly coloured to stand out against the Tamarisk groves. Solar-powered LED's flash throughout the night as beacons, the flash of each drop box calibrated to correspond with a position on a map. Available resources include: water, food, foil survival blanket, electrolyte capsules, alcohol wipes and bandages to address basic medical needs. An emergency whistle is included at each drop, should anyone need to disclose their position to receive assistance.

In subsequent seasons, feral stands of Tamarisk spread to nearby agricultural land where its competition with crops and livestock for water increases the need for additional low-wage manual labourers to remove the plants. Harnessing the media's anxiety-lust for 'invasive' or 'non-native' species, the paradoxical case could be made to create a class migrant labourer visas to help combat the pink menace. In the long term, an epidemic of tamarisk could raise questions about the practice of resource allocation and refocus attention on the broader causes of riparian depletion.

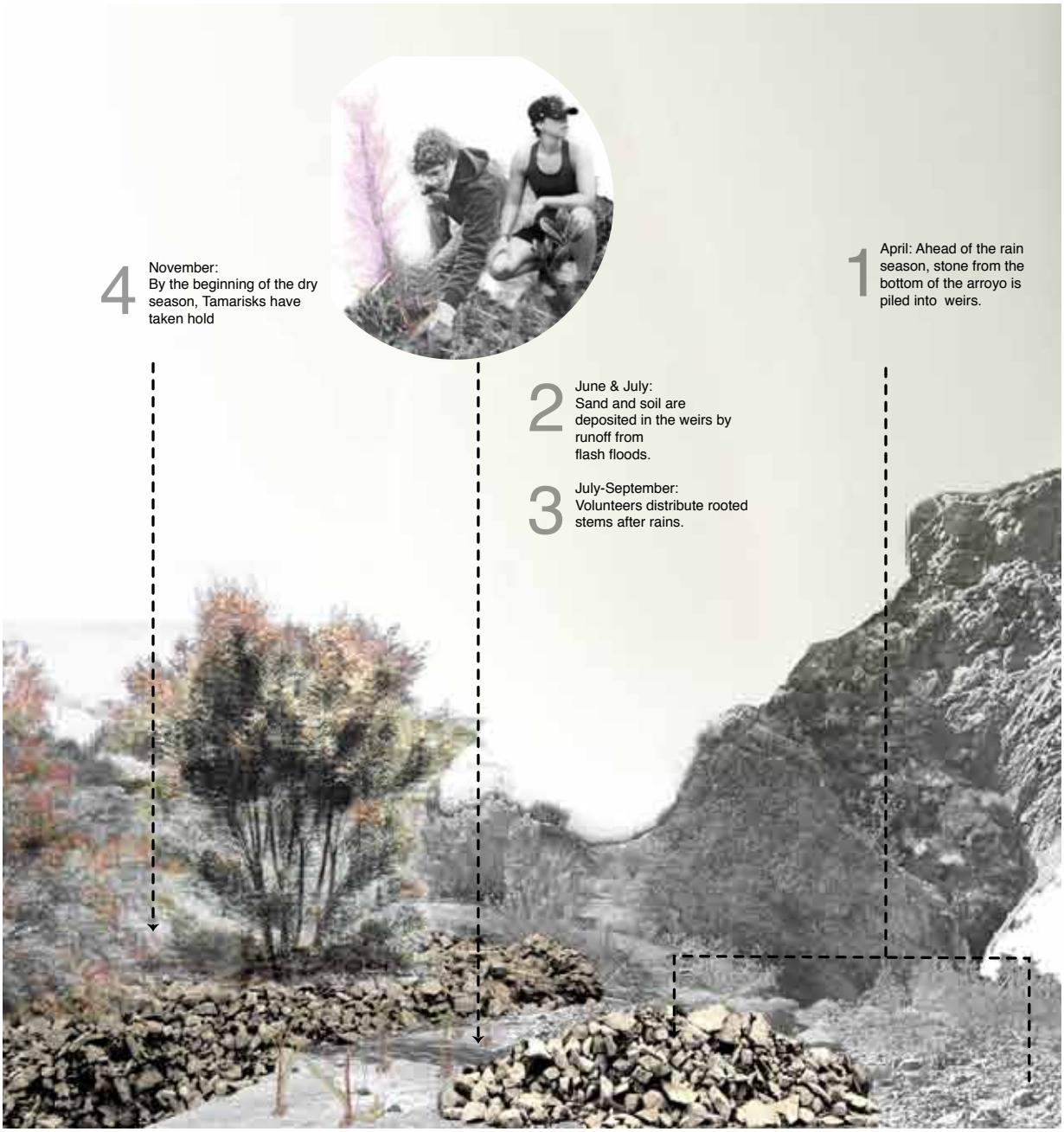
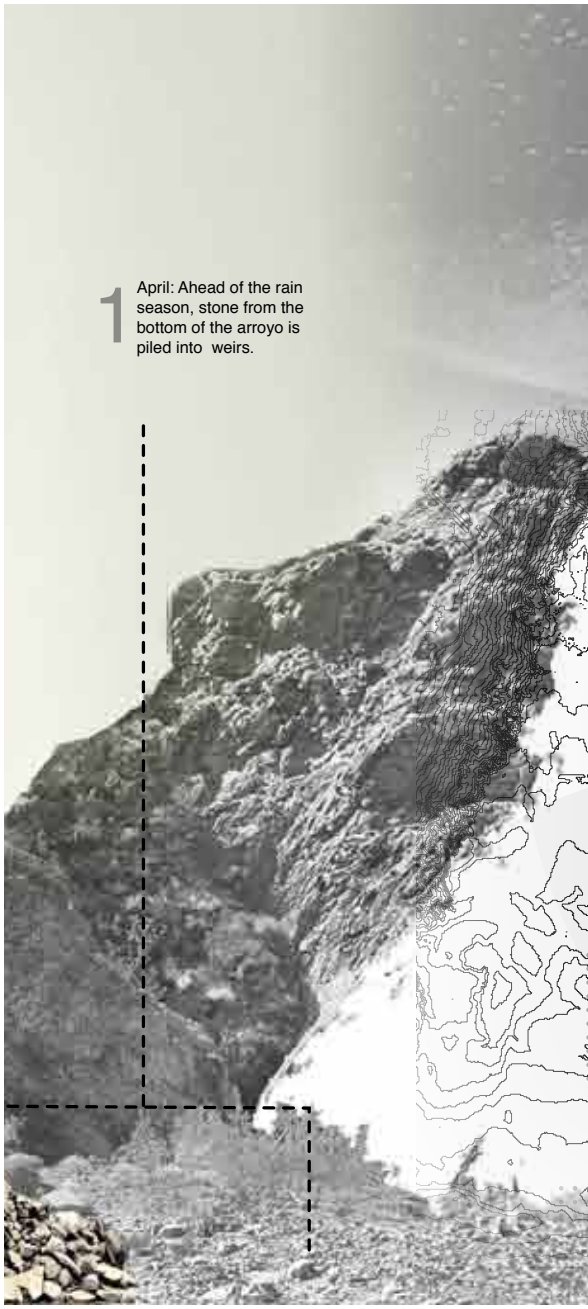


Fig. 3.09 *Guerrilla Tactics for Invasive Species, Staging.*


1
April: Ahead of the rain season, stone from the bottom of the arroyo is piled into weirs.

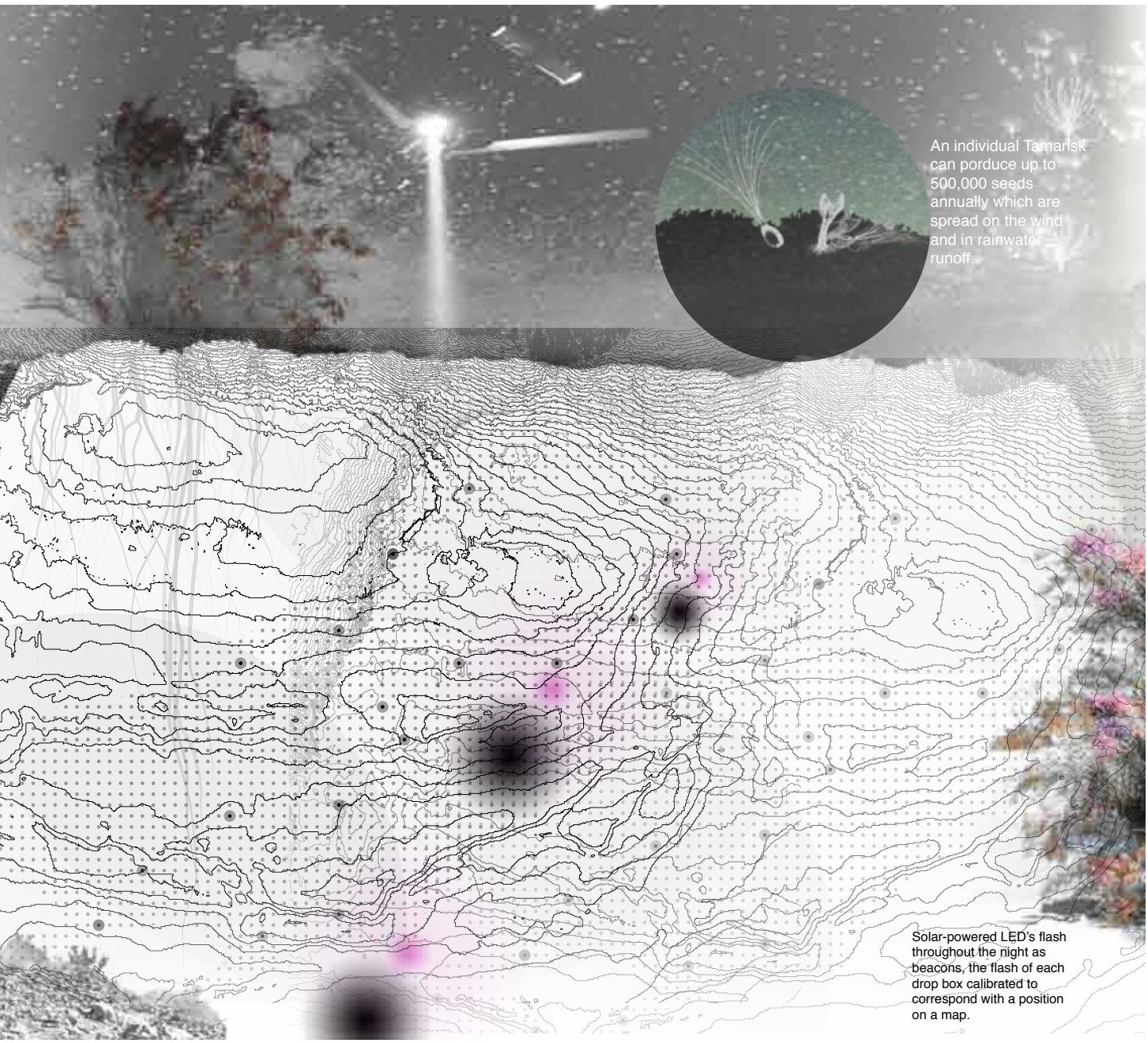


Fig. 3.10 *Guerrilla Tactics for Invasive Species, Rhizomatic Territories*

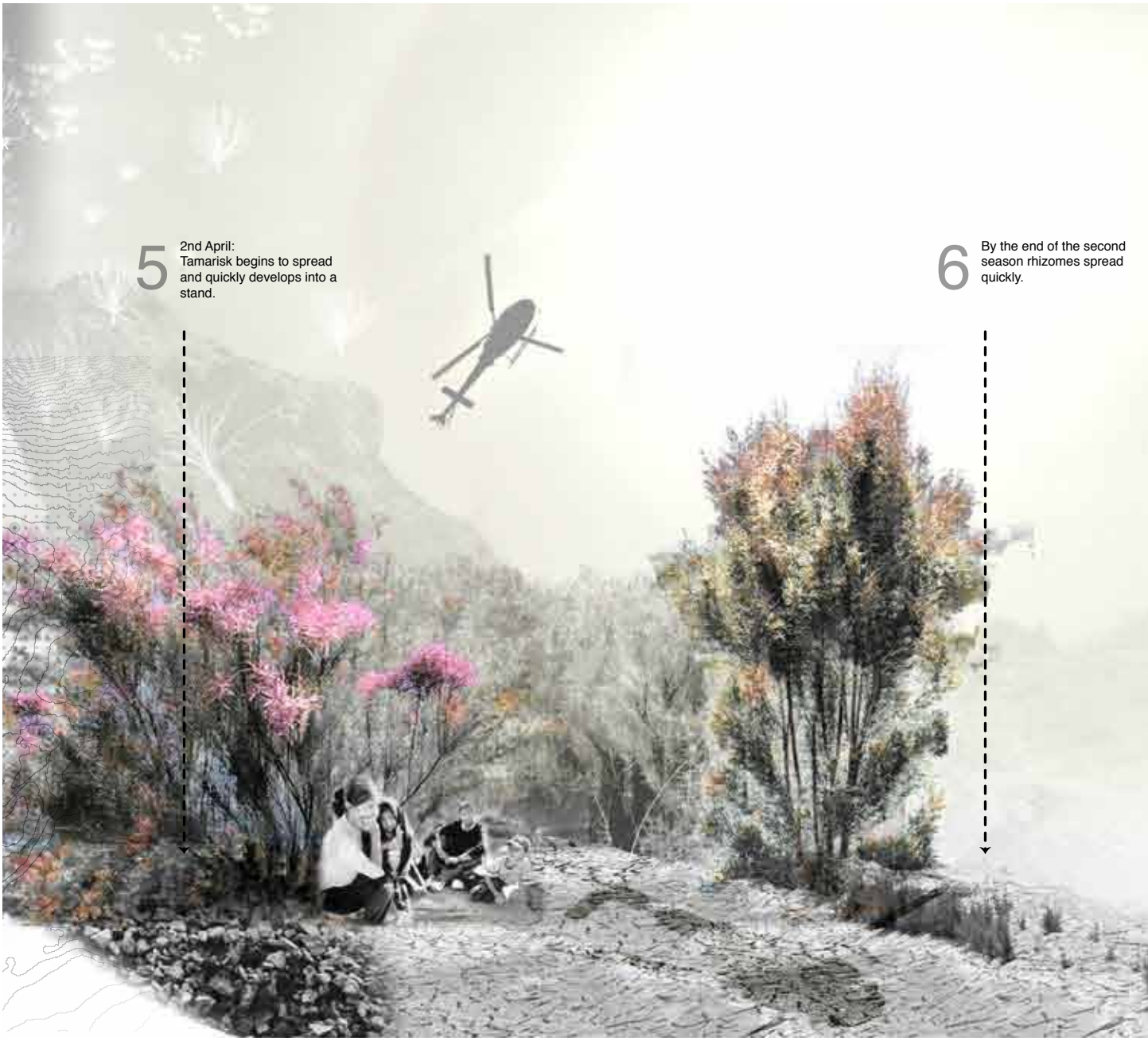


Fig. 3.11 *Guerrilla Tactics for Invasive Species, Lines of Flight*







4 RETURNING [DESIGN]

A su retrato

To her portrait

Este que ves, engaño colorido,
This colourful counterfeit that you see
que, del arte ostentando los primores,
ostentatious with the craftiness of art,
con falsos silogismos de colores
is, in false syllogisms of colour,
es cauteloso engaño del sentido:
not but a cunning deceit of sense;

éste en quien la lisonja ha pretendido
this in which flattery has undertaken
excusar de los años los horrores
to excuse the horrors of the years,
y venciendo del tiempo los rigores
and, overcoming the rigours of time,
triunfar de la vejez y del olvido:
to triumph over age and forgetting,

es un vano artificio del cuidado;
is an empty artifice of care,
es una flor al viento delicada;
is a fragile flower in the wind,
es un resguardo inútil para el hado;
is a paltry sanctuary from fate,

es una necia diligencia errada;
is a foolish sorry labour lost,
es un afán caduco, y, bien mirado,
is a weakened zeal doomed to perish and, well taken,
es cadáver, es polvo, es sombra, es nada.
is a corpse, is dust, is shadow, is nothing.[1]

Sor Juana Inés

1. Author's adaptation of Samuel Bechett's translation.

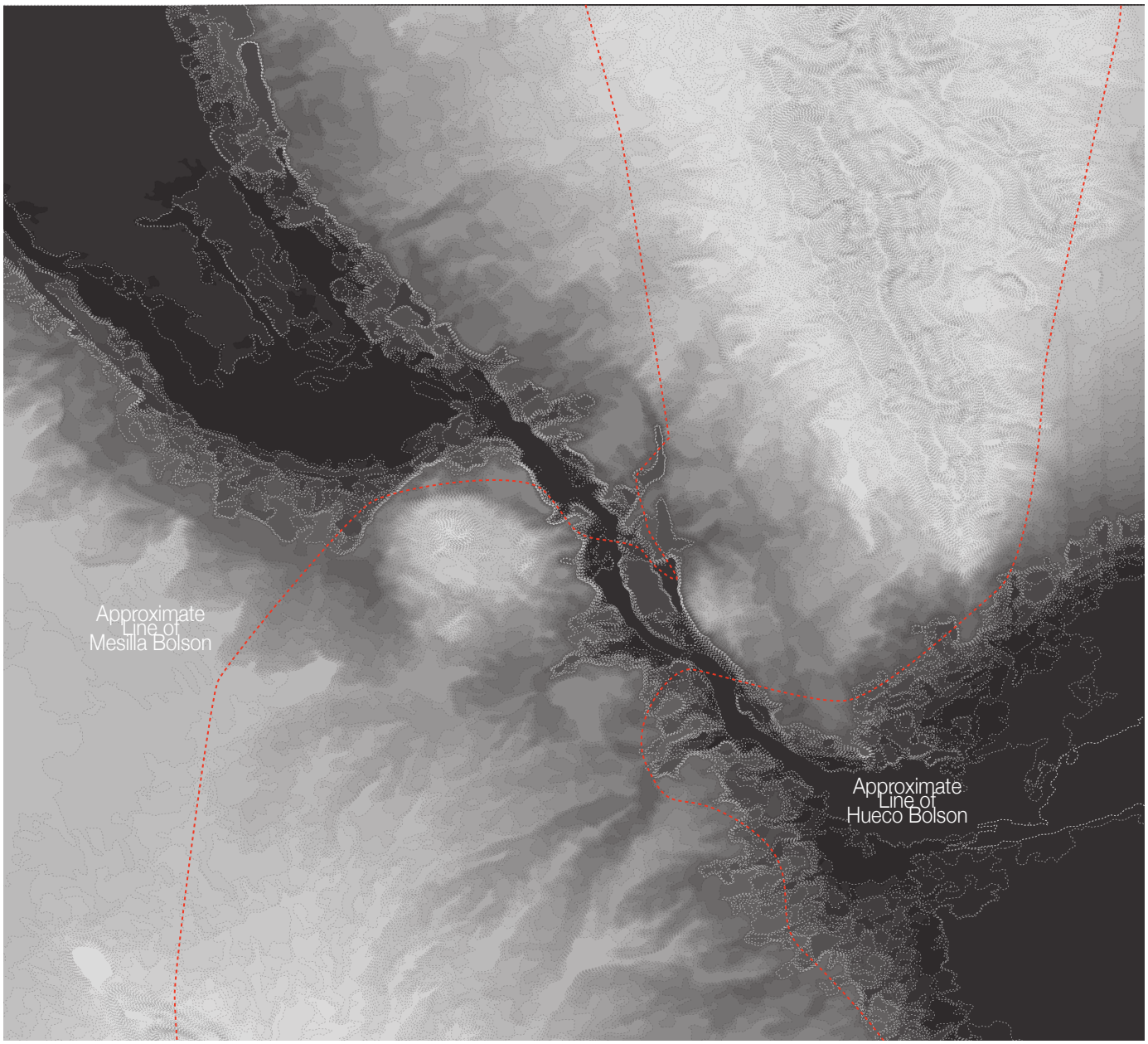


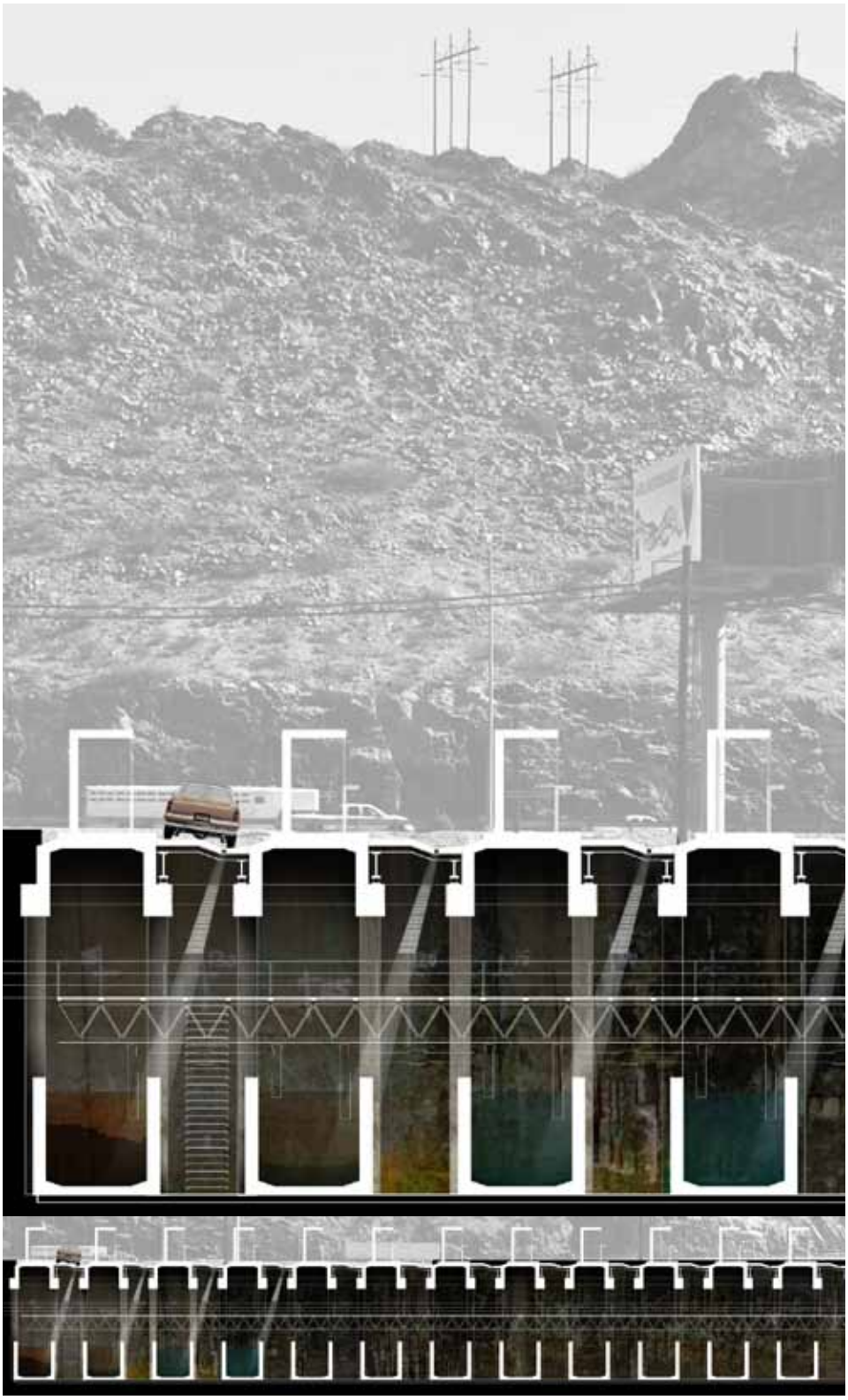
Fig. 4.01 Dry land is so easily–and so deeply shaped by the flows of occasional waters.

The mere dynamics of motion, in whose particular reality the 'purpose' of the bridge is exhausted, has become something visible and lasting, just as the portrait brings to a halt, as it were, the physical and mental life process in which the reality of humankind takes place and gathers the emotion of that reality, flowing and ebbing away in time, into a single timelessly stable visualization which reality never displays and never can display.

Georg Simmel, 6

Fig. 4.02 *Section Sketch, Surfaces of control: auto gate*

There is a tacit affinity between the site El Paso del Norte and the idea of crossing: the geology, culture, and history of the site all point toward this fundamental aspect. In many ways, ASARCO was a border crossing for the duration of its existence. In addition to the resources (both human and material) that crossed the border on their journey to the smelter, ASARCO was notorious for increasing production when wind shifted to the southwest, allowing the yellowish smoke of the stacks to drift into Cd. Juarez, taking advantage of the lack of legal jurisdiction to oppose the operations. (Burnett) In 2009, the site crossed by legal order into custodial protectorship. Now undergoing remediation, the conditions of its environmental isolation are resonant with developments in the contemporary extra-juridical isolation of border stations. International border crossings are legal and spatial islands where a citizen's guarantee of state protection is suspended. Demarcated by a perimeter fence that indicates a zone of legal exception, border crossers have no protection of law until a border guard officially recognizes them as a citizen or deems that a visiting person has proven they have the means and the aims to return to their state of origin within a finite time frame. In this way, the border crossing is an extraordinary condition, outside the legal territory of the state even though it resides within its borders. Rather than acceding to the models of containment that predicate a generic form for a border apparatus, this project employs the stratigraphy of the river that separates the nations to leverage new models of resource management and international cooperation.



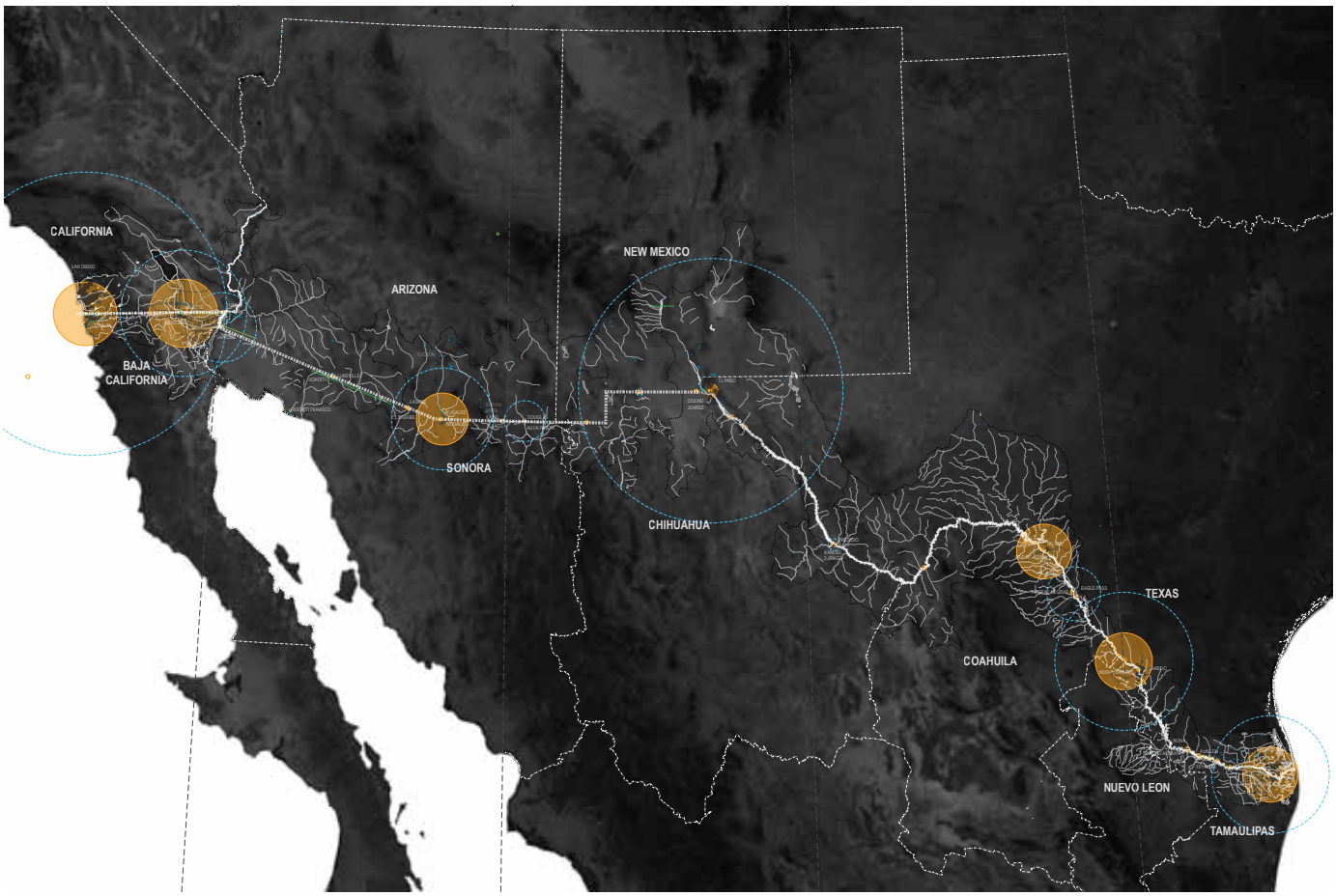


Fig. 4.03 *US-Mexico Border Crossings and Deportations*

Annual Border Crossings

Annual Deportations

The border between El Paso and Cuidad Juarez is the second busiest in the world. In 2013, 17,545,433 vehicle passengers crossed the border along with 6,015,421 pedestrians, 370,797 bus passengers, and 738,914 transport trucks. The vast majority of this crossing is commuter and visitor traffic.
(Data from Bureau of Transportation Statistics (BTS))

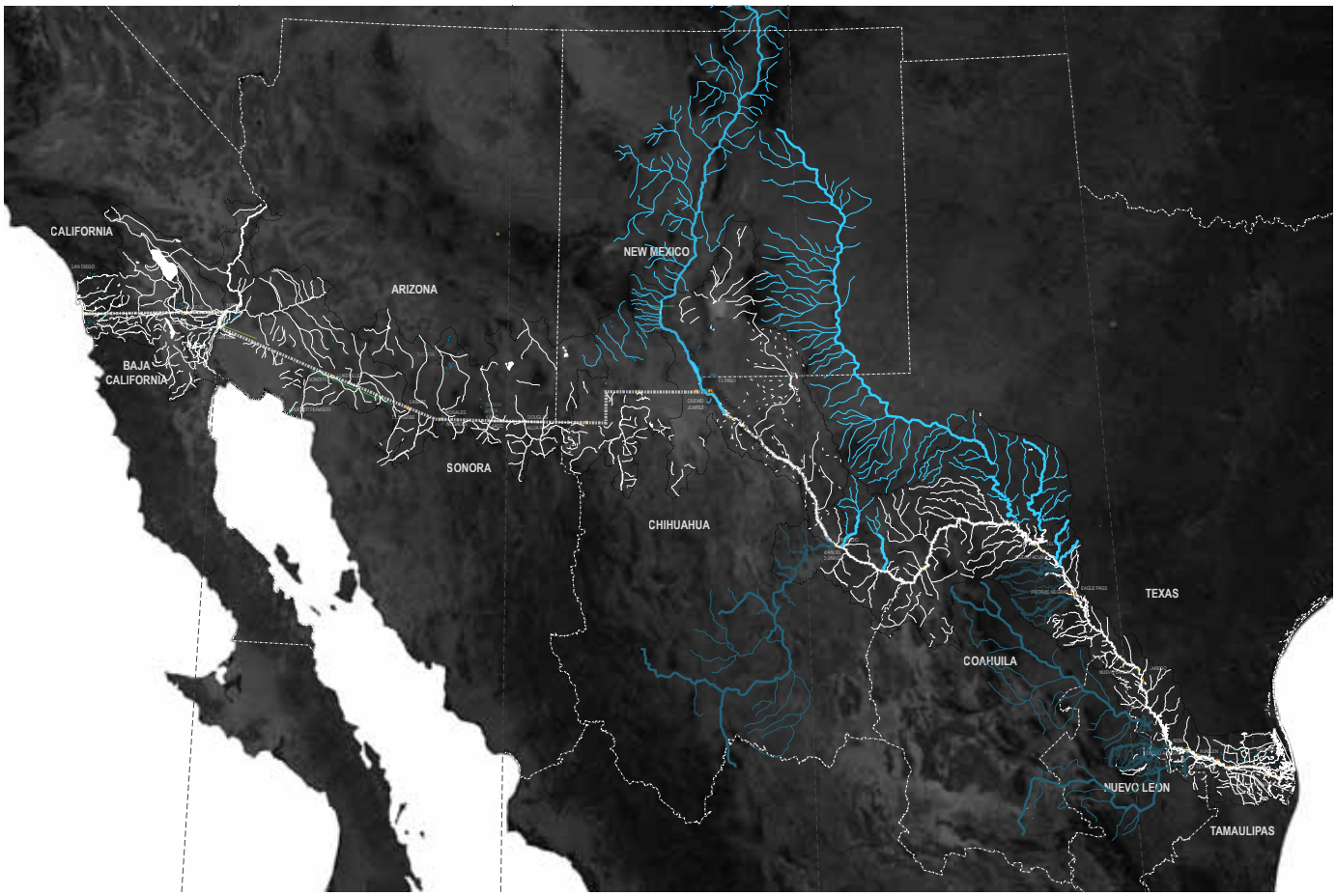


Fig. 4.04 Rio Grande Water Allocation

100% of river flows allocated to the US

66% of river flows allocated to Mexico

According to treaties signed between the US and Mexico, the United States retains rights to 90% of the water flowing into El Paso, TX; 100% of the flows of the Pecos and Devils Rivers, Goodenough Spring and Alamito, Terlingua, San Felipe and Pinto Creeks; and 33% of the Conchos, San Diego, San Rodrigo, Escondido and Salado Rivers, and the Las Vacas Arroyo. Mexico retains 66% of these last six rivers and splits the remaining Rio Grande tributaries with the US. (Source: Water Treaty of February 3, 1944, International Boundary and Water Commission)

During the wet season that lasts from March through September, the Rio Grande arrives at the American Diversion Dam which abuts the ASARCO site, forty-three meters short of Mexico's northern border. Here the river's volume and rate of flow are recorded and graphed to ensure that about one tenth of the water, and not less than 74 million cubic meters (mcm) in a given season, is returned to the stream bed of the Rio Grande in fulfillment of the delivery required of the US according to the Convention of May 21, 1906: Equitable Distribution of the Waters of the Rio Grande. The rest of the river's water is diverted into the parallel concrete channel of the American Canal that stretches ninety miles until its flows are exhausted by irrigation ditches. At the time of the 1906 convention, the agreement must have seemed fair to Mexico. Ciudad Juarez was one-fifth the size of El Paso with fewer than 10,000 residents, and a guaranteed minimum delivery of water was alluring for the development of agriculture given that the historical flows of the river were sporadic. But today, 74 mcm of water represents one-quarter of the combined household water consumption across the bi-national metropolis–150 mcm used on each side of the border–most of which is drawn from the Mesilla Bolson and the Hueco Bolson trans-boundary aquifers that flow unimpeded beneath the measures of the border. Aquifer depletion is a current topic of alarm given the shared reliance on the resource and that water levels of the aquifers have been drawn down by thirty meters in the last twenty-five years.[1] Given the precarity of the situation and the demands of both cities' growing populations, El Paso and the state of Texas have invested significantly in diversifying its water resources. During the period from 1990-1994, El Paso decreased its aquifer draws by 24% by adding surface water treatment to its supply.[2] Additionally in 2012, $91 million USD was spent to build a desalination plant that only has the capacity to supply between one and four percent of the city's annual water consumption. Surface water purification is a far less expensive and proven technology. To build a water purification plant that would purify 50% of both cities'

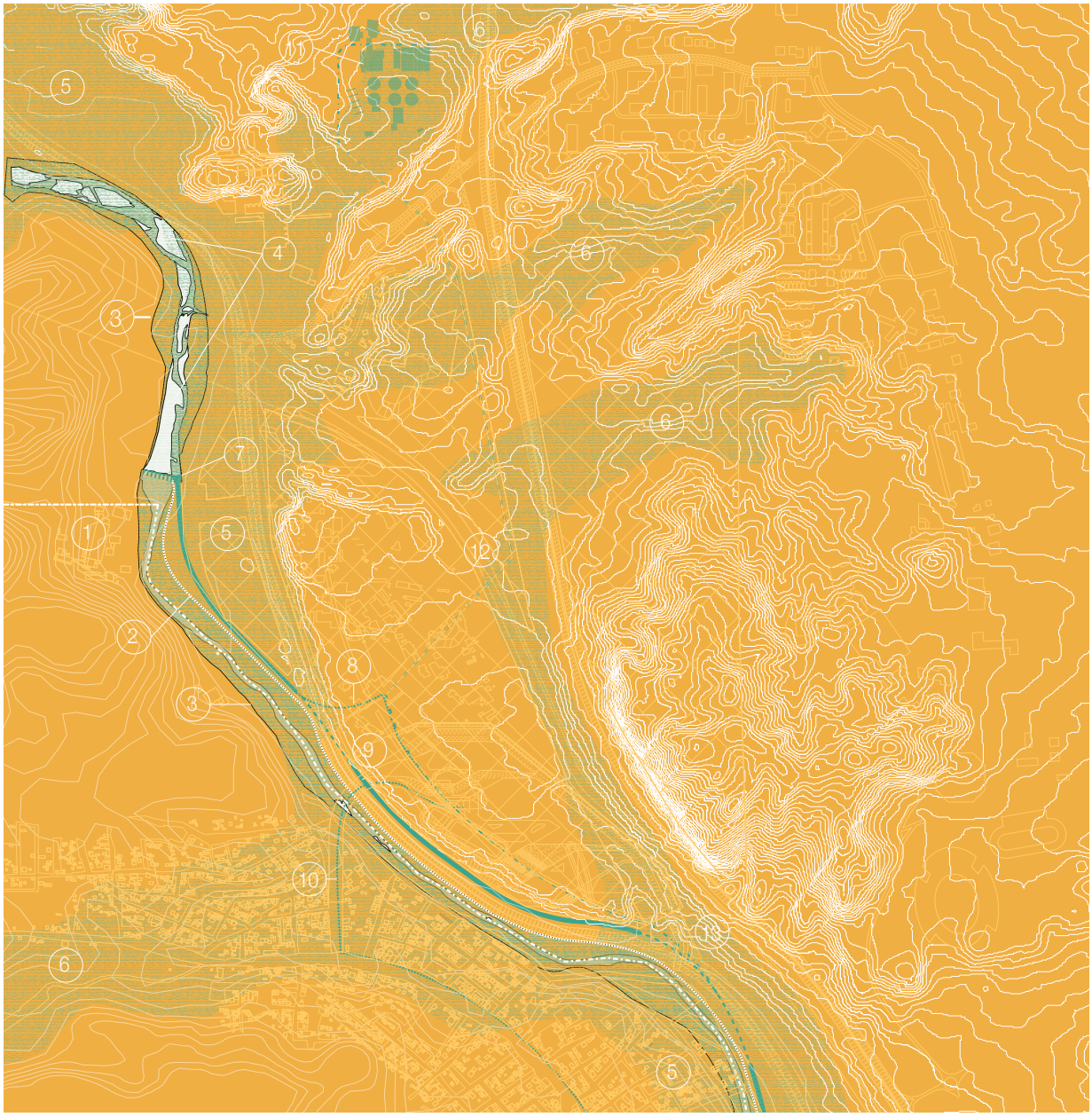


Fig. 4.05 Border and Water Infrastructures

1. Border
2. Border Wall
3. Rio Grande River Channel
4. Sediment Buildup
5. Flood Plane
6. Flood Paths (Arroyos)
7. American Diversion Dam & Canal
8. Drinking Water Diversion & Pump House
9. Water to American Irrigation Canals
10. Purified Water Delivery to Mexico
11. El Paso Central Waste Water Treatment (old)
12. Waste Water Delivery to New Treatment Facility
13. Treated Water Returned to American Irrigation Canals

water supply would cost little more than twice the amount of the desalination plant if El Paso were to purify the 74 mcm delivery of water to Cd. Juarez rather than simply releasing it back into the Rio Grande.[3]
Given the extraordinary condition of the site, the environmental, geographical, and political exceptions that simultaneously isolate it from and bind it to its context, the former ASARCO site provides a stage on which to test the institutional sympathies and limits of international resource management and the human drama of border crossing and immigration.

Sitting at the border between Mexico and the United States, between Ciudad Juarez and El Paso, the ASARCO site becomes a landscape of border crossing, water filtration and flows. Locking into existing flows such as that of the Bulevar Ignacio Bernardo Norzagaray, which leads the city's southwestern expansion and its sprawling circumscription of the Sierra, the proximity of the US interstate system, and the infrastructure of the American Diversion Dam, the proposal is structured around a new bridge, a customs building and a set of integrated programs including sewage treatment, water filtration and site capping and remediation. Facilitating the growth of Juarez and acting as a catalyst for Anapra's development, the infrastructures and institutions the bridge brings have a stabilizing potential for the informal barrio. Street lights and sewers provide some small sense of safety and health in an area long plagued by drug wars and disappearances. Furthermore, the inevitable clog of northbound traffic is a tremendous economic potential for small-scale and informal economies. Property values will quickly rise as an array of border economies from street vendors to medical services take advantage of the new proximities the border crossing engenders. The bridge rises fourteen meters over the dry riverbed and crosses many layers of separation: the line of the border, the layers of American security fencing, Highway 85 (the Paisano), the American Canal, and the Santa Fe Rail

1. Campos, Nat & Acosta, Jesse. "Water Consumption Patterns in El Paso: An Economic Development Strategy for the Sustainable Use of Water in the Paso del Norte Region, June 1997." Accessed August, 23, 2014. http://www.utep.edu/rio/water_consumption_patterns_in_el_paso.htm

2. Ibid.

3. The cost [of the plant] is extrapolated from a similar water purification plant constructed recently in Austin, TX for $508 million USD which treats 414.5 cmc?? [what is that??] annually. The combined needs of El Paso and Cd. Juarez are 150 mcm??, or about 36% that of the Austin plant; so the El Paso plant is estimated to be 36% of the cost, or approximately $185 million USD.

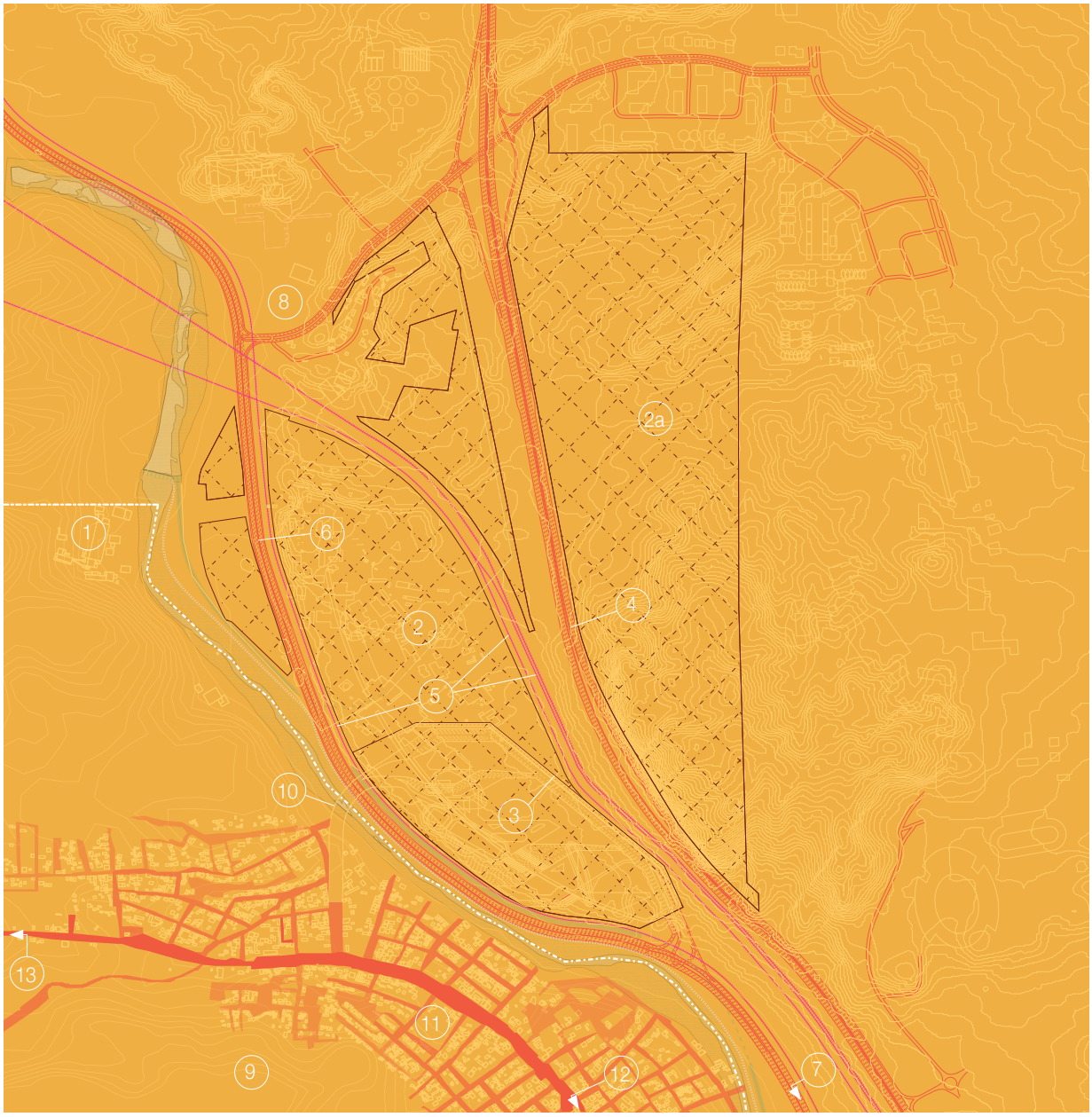


Fig. 4.06 Urban Archipelago

1. Border
2. ASARCO Site
2a. ASARCO North
3. Customs & Border Patrol Security Fence
4. Interstate 10 (8-Lane Freeway)
5. Rail Lines
6. US Highway 85 or Paisano Drive (6 to 7-Lane Highway)
7. Way to Downtown and University of Texas El Paso Campus
8. Freeway access
9. Colonia de Anapra
10. International Bridge
11. Bulevar Ignacio Bernardo Norzagaray
12. Way to Downtown Ciudad Juarez
13. Way to New Residential Developments



Line. Before landing at the US border station, the bridge splits to separate flows of different classes of border crossers: Mexico-bound export traffic, buses and NEXUS or specially permitted crossers, regular vehicular traffic, and commercial goods.



Fig. 4.07 Projected Traffic Volumes, Circulation and Trajectories

Export Traffic
Nexus and Bus Traffic
Main Regular Auto Traffic
Commercial Traffic

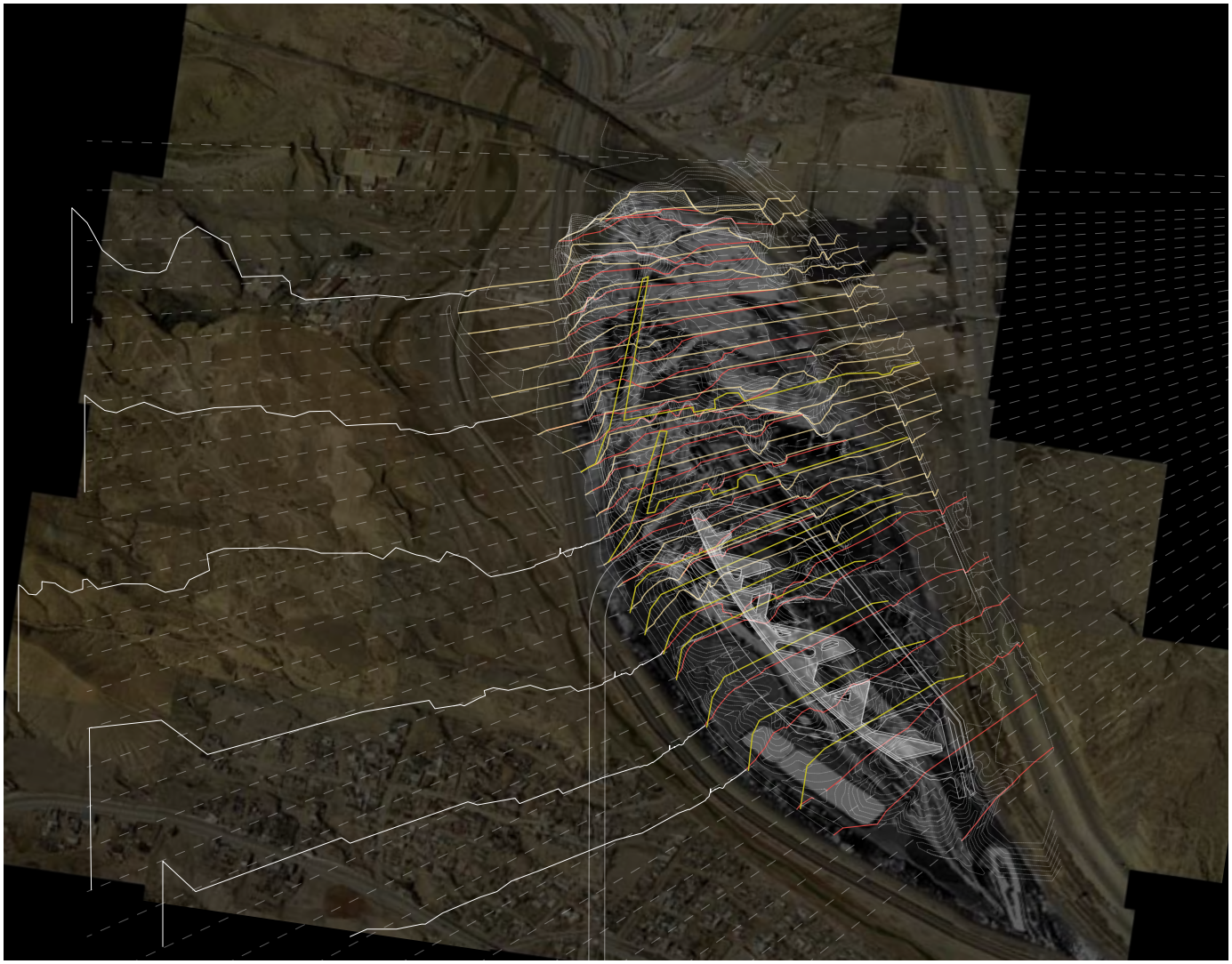


Fig. 4.08 Composite Topology

The ASARCO remediation has greatly expanded funding by developing a parasitic economy to productively metabolize the waste and inefficiencies of the past. In addition to scrap reclamation of smelter materials, the excavation and marketing of slag veins rich with minerals has substantially financed the otherwise scarcely-funded project. Excavation creates a prosthetic topography reconstituting the folds and voids of the site's original form, revealed through a chronological mapping derived from archived ASARCO topography maps. The proposed US facility latches onto the excavated topography, further moulding its contours into a machine to accommodate and filter the migrations of traffic, people, and water. A surface water treatment plant and a storm water treatment plant settle into the large voids at the base of the arroyos. Buildings anchor to the arroyo walls, leaving the voids to channel and accommodate the varying volumes and speeds of border crossing.



Fig. 4.09 History is Underground

The advance of the slag mesa is traced through the topographic reconstruction of the site using archived drawings dating to 1897. Infilled arroyos are excavated of their mineral resources. The Land Port of Entry leverages this artifically-restored landscape to channel diverging classes and volumes of traffic to organize the facility's form.

1. Fissure and Infrastructural Spine
2. Sculpted Landfill Cells create a backdrop for the Time Office

An arcing fissure transects the site as the basis of an organizing order. To the north it is left as a void, an open wound whose cut walls serve as a mnemonic or museum that reveals the history of the site in the stratigraphy of its walls. Tamarisk are planted in the bottom of the fissure to act as a sponge, abating downward filtration of contaminants into the ground water. In an effort to stay their aggressive spread, every year at the end of the wet season, the tamarisk are cut and supplied to a ladrillera to briefly fire its kilns. The ritual is a faint semaphore that accompanies a change in the taste of the water, as each city switches its supply from from surface waters to those of the brackish aquifers. Abutting the open fissure and addressing the border facility's entrance, a public transportation hub and ASARCO park services centre is anchored to a capped landfill cell. To the south, the fissure accommodates an infrastructural spine that spans three prosthetic arroyos.

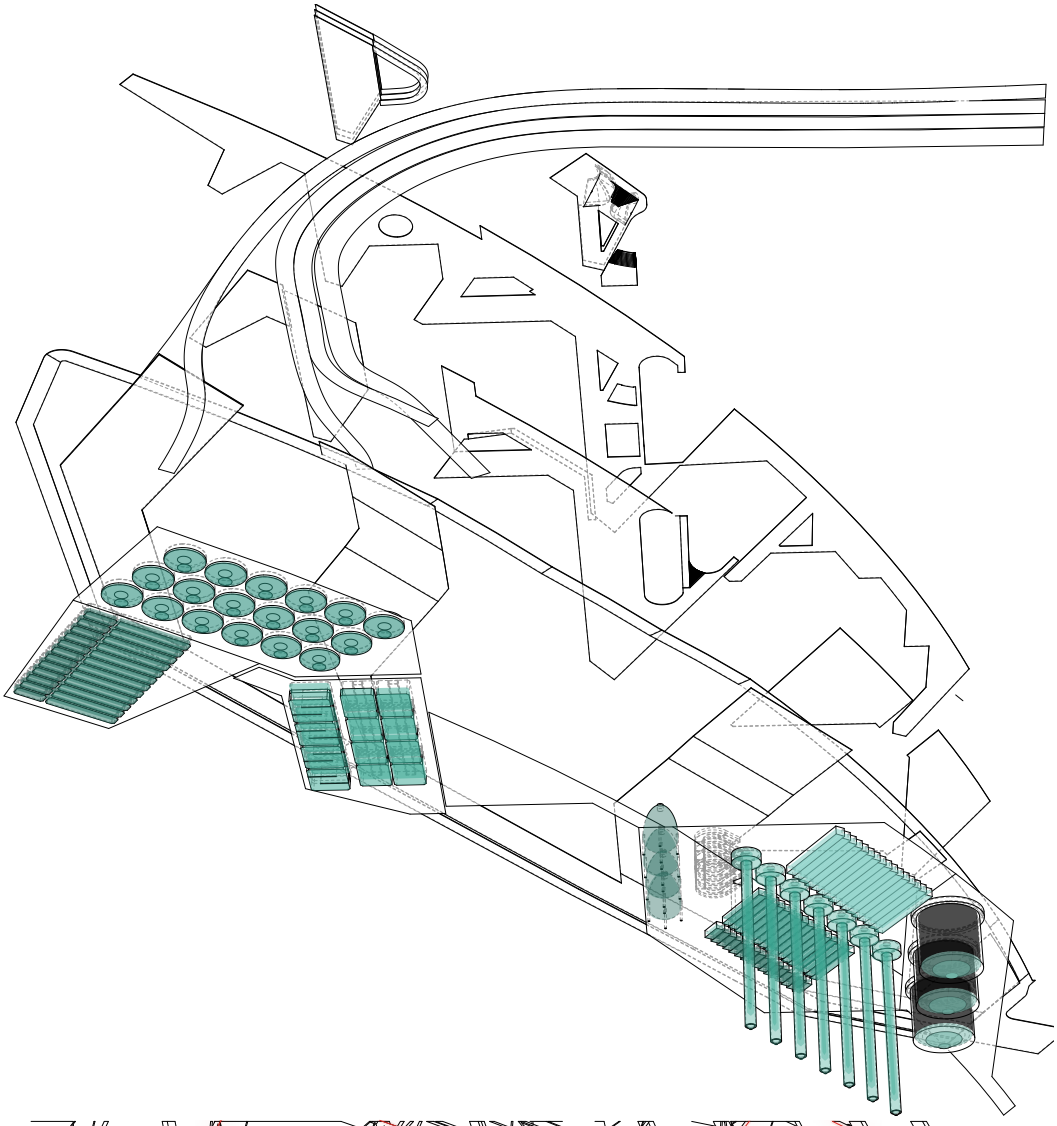
The constant hum of a pump house is a tacit indicator of the confluence of the city's waste and drinking water. At the head gate of the facility's spine, beneath the pedestrian entrance, influent channeled from the American Dam is pumped ten meters up into a pipe that feeds the water treatment plant. Beneath this pipeline, waste water flows past the initial plant to the sewage treatment facility. Seven cubic meters of water per second are directed to the surface water treatment plant by pipeline where the water is filtered and treated for drinking after which it is again divided; half is pumped across the international bridge into the water infrastructure of Cd. Juarez, the other half feeds the supply of central El Paso. Excess water flows down the American Canal to serve the city's south side and agricultural demands of the lower valley.

Time is the key measure to water filtration, to sizing the tanks to detain water long enough to precipitate suspended solids from the water. After initial screening, the first interval is thirty seconds: water passes through a flash mixer where flocculants are added that adhere to suspended elements, to eventually



Fig. 4.10 Built Form

Industrial
1a Cemex Cement Plant
1b Ladrilleras (Brickworks)
1c American Diversion Dam Buildings
2. Capped Landfills
3a ASARCO Industrial Foot Prints
3b Copper Smelter Stack
Residential/Business
4a Calavera Canyon (last inhabited Smeltertown housing)
4b *El Bajo* (Lower Smeltertown) Worker Community
4c *El Alto* (Upper Smeltertown) Worker Housing and Tenements
5. Cemetery
Institutional
6a Time Office (only building remaining after remediation)
6b Church, Parochial School, General Store & Theatre
6c University of Texas El Paso Campus
6d Sun Bowl Stadium



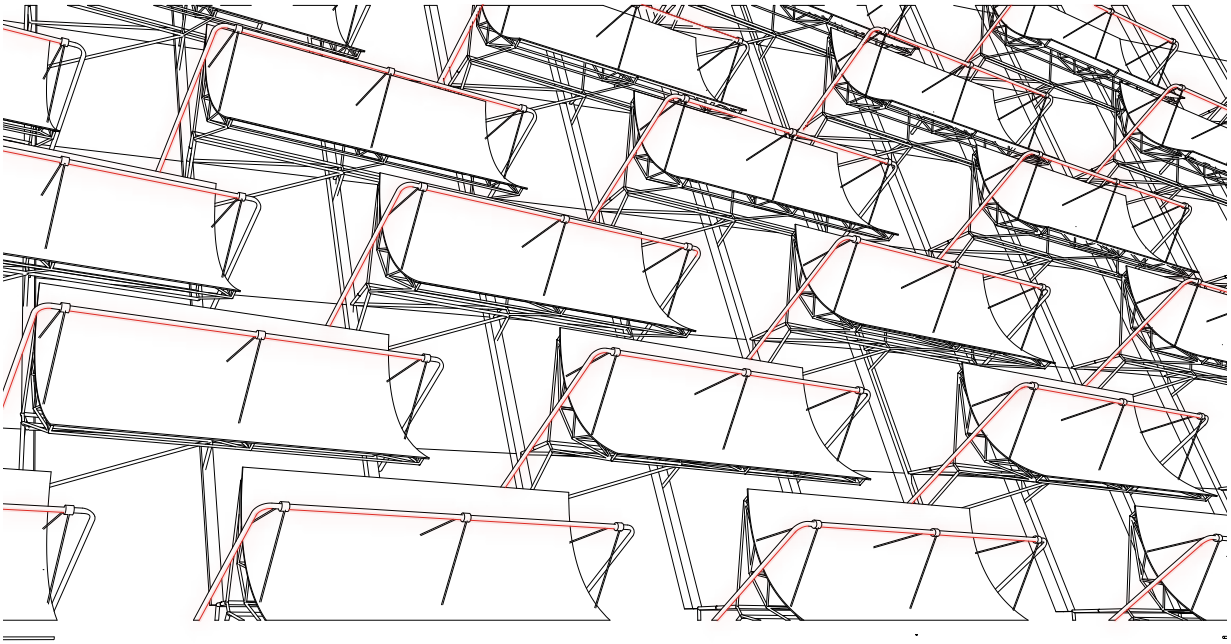
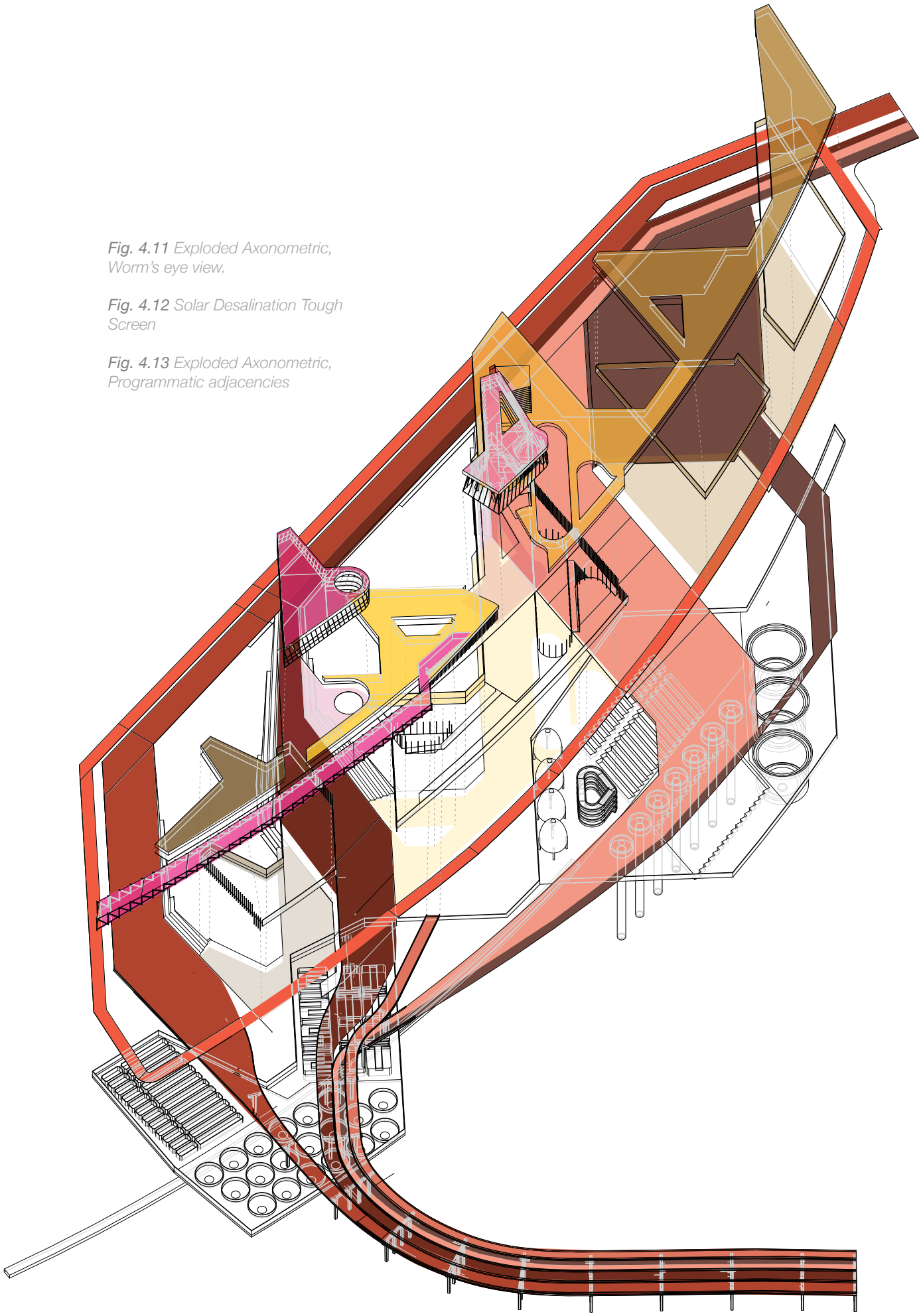


Fig. 4.11 *Exploded Axonometric, Worm's eye view.*

Fig. 4.12 *Solar Desalination Tough Screen*

Fig. 4.13 *Exploded Axonometric, Programmatic adjacencies*



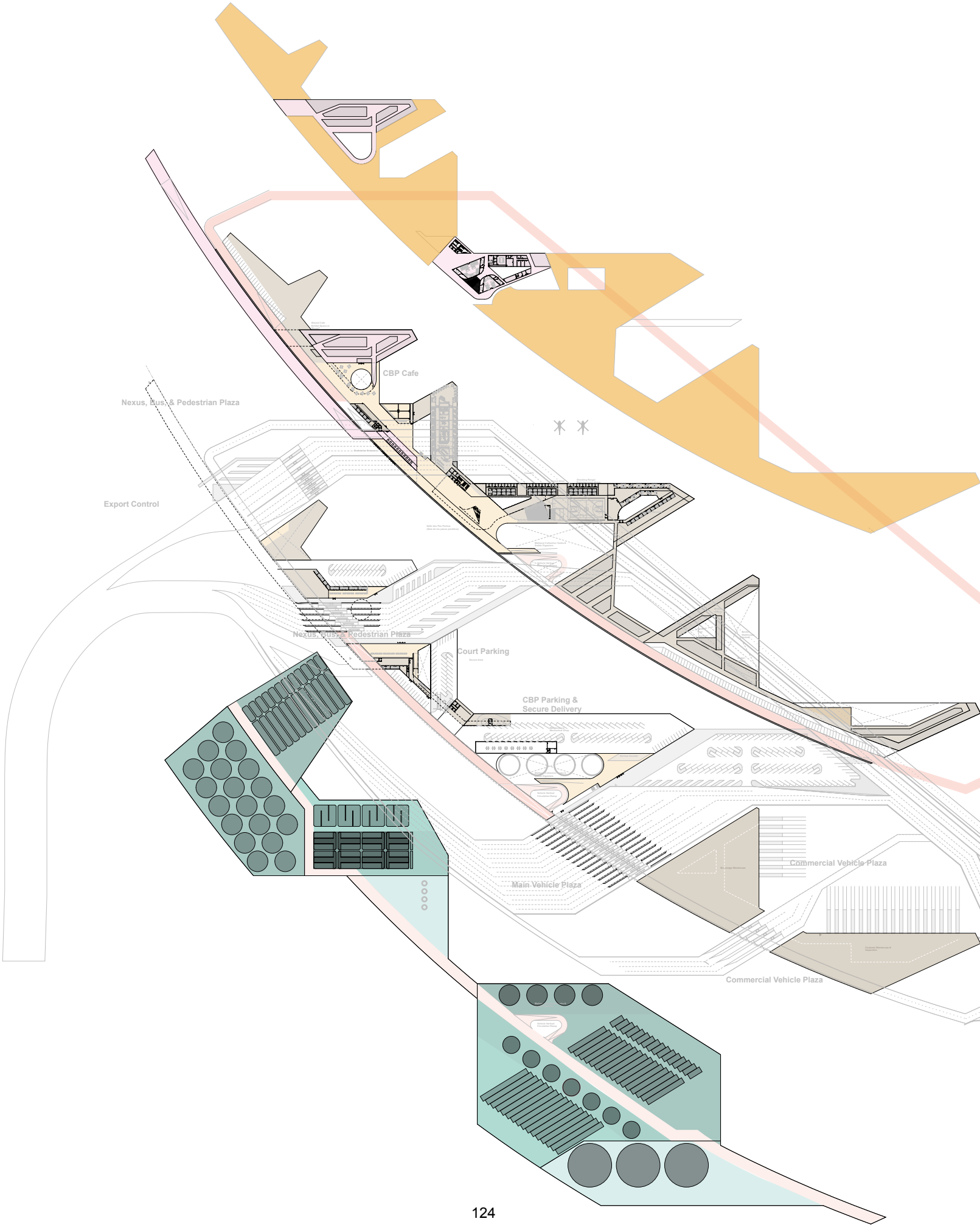
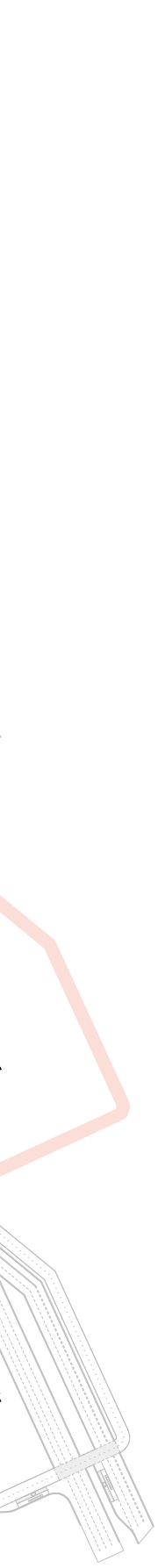

CBP Cafe
Nexus, Bus, & Pedestrian Plaza
Export Control
Nexus, Bus, & Pedestrian Plaza
Court Parking
CBP Parking &
Secure Delivery
Commercial Vehicle Plaza
Main Vehicle Plaza
Commercial Vehicle Plaza

Fig. 4.14 *Facility Plans*



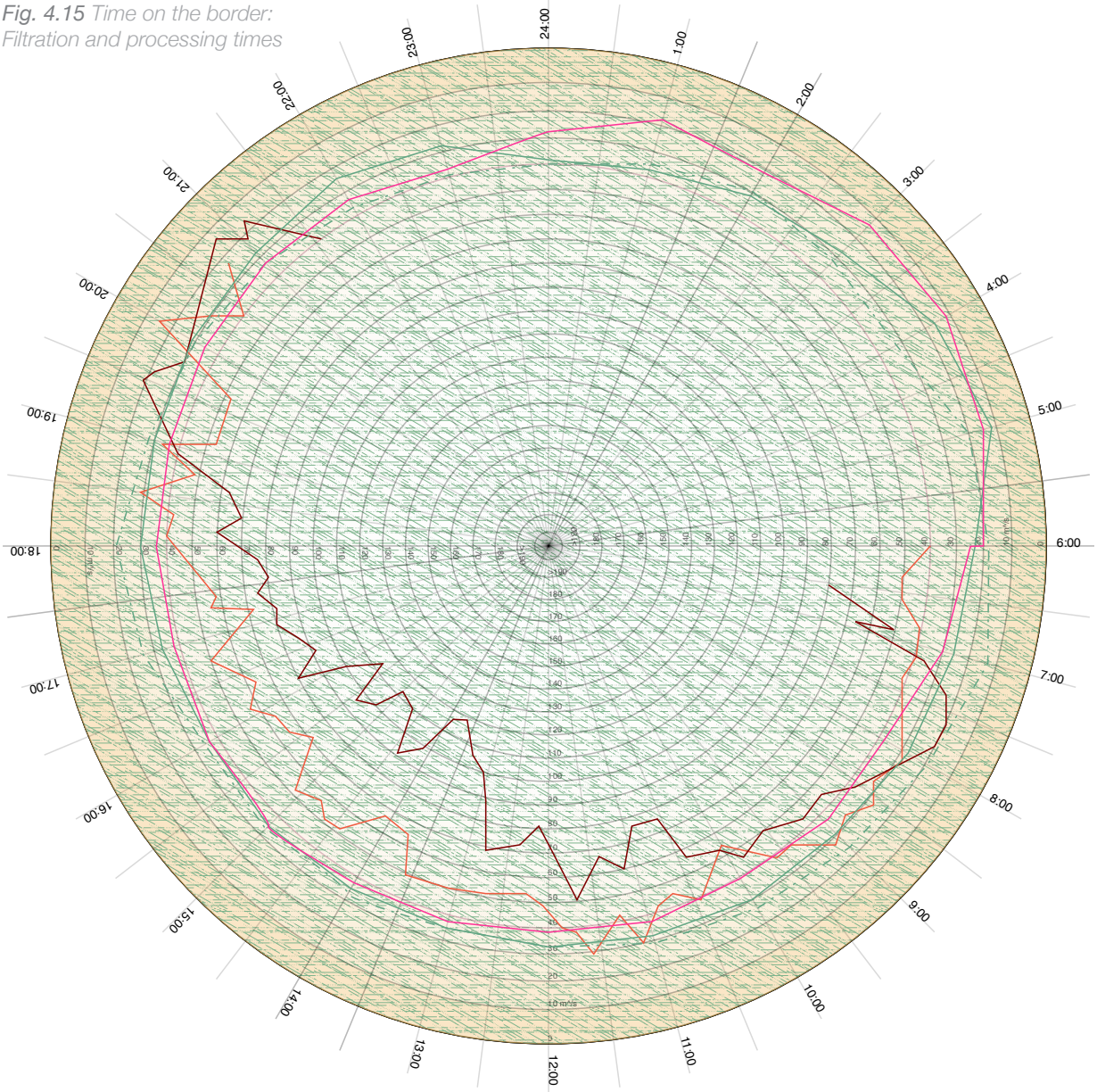
Land Port of Entry

Site Perimeter
Perimeter Secure Access Road
Mexico-bound Bridge
Nexus & Bus Bridge
Main Auto Bridge
Commerical Truck Bridge
Pedestrian Causeway (U.S. Territory)
CBP Export Inspection
CBP Staff Support Space
IBWC Parking
IBWC Offices
Nexus Primary Inspection
Nexus Secondary Inspection & Service Centre
Bus Inspection Centre & Passport Control
Bus Passenger Secondary Processing
Ramp
CBP Security Vehicle Parking
Court Parking (U.S. Territory)
Secure Detainee Delivery
CBP Staff Parking
CBP Auto and Maintenance Shop
Narcotics Vault
Water Treatment Vehicle Maintenance Ramp
Methane Collecter Tanks
Ramp
Main Passport Control Service Hall
Main Auto Inspection and Passport Control
Secondary Auto Inspection
Service Hall Parking
Customs Broker Offices and Warehouse
Primary Commercial Truck Inspection
CBP Cargo Processing
CBP Dock and Warehouse
CBP Violator Processing (Commercial)
Narcotics Vault (2)
Anti-terrorism Contraband Enforcement Team
CBP Agriculture (Offices)
FDA (Offices)
Vehicle XRay
Veterinary Services Inspection
FDA Laboratories
CBP Laboratories
Administration
Family Social Services & Documentation Centre
Family & Unaccompanied Minor Detention Area
Youth Group Activity Room
Youth Outdoor Playground
Kitchen
Women's Secure Temporary Detention Area
Men's Secure Temporary Detention Area
CBP Gymnasium, Exercise Room, & Lockers
CBP Firing Range
Auditorium
CBP Kennel and Dog Courtyard
Sala de los Paso Perdidos
Medical Clinic and Quarantine Facility
Detention Catering Services
Pedestrian Passport Control and Service Hall
Secondary Pedestrian Inspection
Bookstore & Convenience Shop
Cafe & Cafeteria
Occulus and IBWC Ramp
IBWC Archives and Exhibition
Export CBP Service Spaces
IBWC Offices and Meeting Areas
Immigration Court (Civil)
Criminal Court
Judge's Chambers & Legal Offices
Public Washrooms
Public Elevator

cause them to settle out. Over a period of thirty minutes, the water is detained in flocculation tanks where it is agitated to increase particle aggregation. Sedimentation tanks further detain the water for four hours while particles settle to the bottom where they are drained, dried in centrifuges, and sent to landfill. From this point the water gradually regains speed, passing through a granular bed filter and finally through an ozonation tank that disinfects the water.

Sewage and stormwater treatment is more passive and slower than potable water purification. Instead of adding chemicals to precipitate out impurities, sewage treatment engineers a staged metabolic ecology to digest organic matter in the water. After screening, sewage immediately begins primary sedimentation. Here, oils and scum are slowly scraped from the top of the tank and directed to fermenters where organic material is converted into volatile fatty acids (VFAs). Solids that settle to the bottom in primary sedimentation are continually dredged and channeled to digesters where microorganisms break down solids into gases and biosolids. From sedimentation, water flows into bioreactors where a spectrum of microorganisms are introduced into the water and controlled to consume carbon, phosphorus, and nitrogen. Feeding the microorganisms VFAs from the fermenters, and controlling the availability of oxygen, water is phased through anaerobic, anoxic, and aerobic environments where a series of chemical reactions release oxygen, carbon dioxide, and methane which is captured for energy. Employing deep shaft bioreactors that descend 100 vertical meters into the site increases the volume of water that can be treated on site in addition to increasing the efficiency of oxygen solubility. Sewer overflow and stormwater catchment reservoirs also dig deep into the site. Water collected from the ASARCO site is collected in vast subterranean retention tanks that remain dry most of the year. Water cached here is pumped into pretreatment tanks where chemicals are added to precipitate the separation of dissolved heavy metals that may have become mobilized at the site.

Fig. 4.15 *Time on the border: Filtration and processing times*



Secondary clarification is another sedimentation process where the microorganisms from the bioreactor and any remaining solids settle to the bottom. Flowing from the top of the tank, clarified effluent is finally disinfected with ultraviolet light before it is released to the American Canal. Most of the microorganisms separate out from the solids and are harvested and fed back into the bioreactor. Solids are sent to the digesters where over a period of twenty days they are further consumed by microorganisms, releasing methane gas and producing biosolids. Methane is collected as fuel to power the facility. As a form of 'payment' in receipt of purified water, Mexico agrees to accept the biosolids from the waste water treatment facility. Though rich in nutrients and a potent fertilizer, biosolids are largely destined to capped landfills in the US. Even in the sparsely populated rural west of zoning-averse Texas, biosolid fertilizers have been curtailed as the result cultural anxieties and NIMBY politics.[4]

As the Mesilla and Hueco Bolsons recede and wells continue drilling deeper, the water of the aquifers becomes increasingly brackish as a result of the geology's naturally elevated salt content. Recent technologies in solar desalination offer a sustainable and cheaper alternative to costly reverse-osmosis processes like the ones that are operated in the aforementioned desalination plant. In solar desalination, solar troughs focus the sun's energy to heat a pipe filled with mineral oil that is used to heat an evaporation system to harvest freshwater condensate. The remaining saline concentrates are transported to remote injection wells on Fort Bliss Army Reserve where they are deposited at a depth of 1150 meters into a strata of existing greater salinity.[5] The solar troughs are deployed as a screen along the extent of the southwest facing facade.

The General Services Administration (GSA) is the US federal agency that oversees the construction of government buildings, including border crossings. In 1994 the GSA developed the

Design Excellence Program to overhaul the dreary utilitarian buildings that were quickly thrown together in the 1980s to serve its borders. Policies and procedures emphasize the need for border stations to be welcoming and distinguished.[7] But in the post 9-11 era, the GSA has taken actions to obscure and screen its buildings, eschewing architectural moves that attract undue attention. In 2009, the GSA removed the oversized yellow lettering spelling UNITED STATES from the newly constructed land port of entry in Massena, New York. Even though it was discretely obscured by layers of architectural screening, the GSA feared that it could potentially attract negative attention, creating a target that could endanger the safety of border officers.[6]

The Land Port of Entry (LPOE) complex houses and facilitates a whole alphabet of agencies involved in contemporary border and customs security: Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), Veterinary Services (VS), the Food and Drug Administration (FDA), the Fish and Wildlife Service (F&WS), the General Services Administration (GSA), the Public Buildings Service (PBS). These institutions require a prodigious variety of support program and diverse space types: auditoria, automated data processing, conference rooms and classrooms, a firing range, food services, laboratories, libraries, light industrial including X-ray, medical inspection, offices, parking, physical fitness, retail, secure detention areas, and warehouses.[7] Additionally, the International Border and Water Commission headquartered in El Paso is brought to the facility as an institutional presence to oversee the water filtration processes and the delivery of water to Cd. Juarez. Programming for the IBWC includes offices for one hundred staff, engineers, and government officials, meeting and conference space, historical archives, and exhibition space.

To this standard collection of program, a court facility is added to address the overflow of cases presently in the criminal and

civil courts immigration courts. On one hand, criminal courts and the prison systems are backlogged and overcrowded by migrant detention due to reasons too numerous to list. Accelerated legal processing at the border could prevent the criminalizing potential of extended detention—Mexican drug cartels are well represented in US prisons and frequently recruit drug runners among short-term detainees. On the other hand, even though the civil court system releases migrants that seek asylum until their case can be heard, there is little legal support provided. Because they are not citizens, foreign asylum seekers, even children, are not guaranteed legal representation. This crisis is further escalated as tens of thousands of unaccompanied minors from Central America, brought by the popularly-rumoured—though false—promise of asylum, are arriving at the border where they freely surrender themselves to border agents. Forty-eight percent of the children that appear to plea their immigration case appear alone with no legal assistance. While children with an attorney have a fifty percent chance of being granted asylum, only ten percent of unrepresented minors are allowed to stay in the US.[9] Responding to these contexts, the LPOE has an on-site court facility to expedite criminal proceedings and office space to host a network of social assistance organizations to help civil immigration plaintiffs find family members already in the US, legal documents from their countries of origin, and legal assistance.

The sala de los pasos perdidos is the culminative experience of the whole facility, a concourse serving the courts and connecting the Main Auto Service Hall and the Bus Service Hall. The typology of the salle des pas perdus, a grand waiting hall outside French courtrooms that takes its name from the salle in the medieval Palais de Justice de Poitiers, so named because it was perceived so vast that one would lose the sound of footsteps.[10] In the seventeenth and eighteenth centuries, this typology was abstracted to transit waiting halls, spaces with sparse furnishing and no purpose outside

4. See http://www.nytimes.com/2001/07/27/us/new-york-s-sewage-was-a-texas-town-s-gold.html See also B. L. Carlile and Tom Gillane, Applying New York City Biosolids on a West Texas Ranch: Eight years of operation and results, Proceedings of the Water Environment Federation 12/2000; DOI: 10.2175/193864701784993272

5. William R. Hutchinson, "Deep-Well Injection of Desalinatin Concentrate in El Paso, Texas," in Southwest Hydrology: March/April 2008, pp. 28-30. http://www.swhydro.arizona.edu/archive/V7_N2/feature7.pdf

6 "Design Excellence Policy and Procedures," http://www.gsa.gov/portal/content/103738

7. Nicolai Ouroussouff, "At a Border Crossing, Security Trumps Openness," in The New York Times, published July 26, 2009. http://www.nytimes.com/2009/07/27/arts/design/27border.html?pagewanted=all&_r=0

of hosting that transitional static time that precedes spatial or juridical dislocation. At the same time, by way of translation into Spanish and given the context of the site, history, and program of the LPOE, the name carries especially poignant resonance. Exhibiting the salvaged machinery and historical documents that trace the history of the ASARCO site and the lives sustained and spent in its operation, the sala de los pasos perdidos is a place of memory and meditation, of hope and of lost paths. A theatre for the myriad program and surrounded by the processes of machined material transformation, the sala is a place eerily both in and out of time.

8. Land Port of Entry, Whole Building Design Guide, http://www.wbdg.org/design/land_port.php

9. Trac Immigration: New Data on Unaccompanied Children in Immigration Court. Accessed August 23, 2014. http://trac.syr.edu/immigration/reports/359/

10. Palais de justice de Poitiers, http://www.ca-poitiers.justice.fr/ca/dynic/stdcont33p.php?Dtopic=2&idart=1&fpage=1



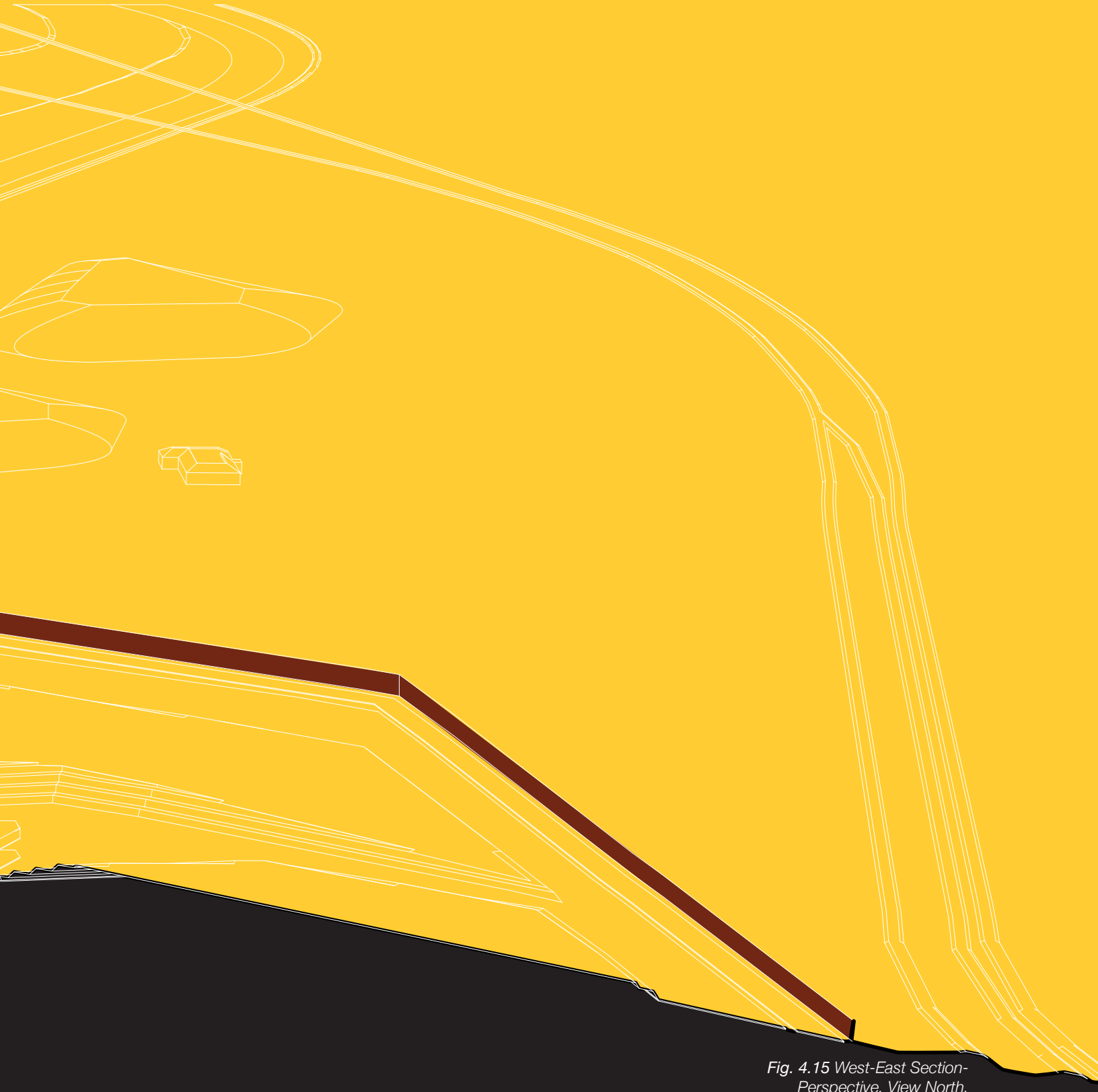
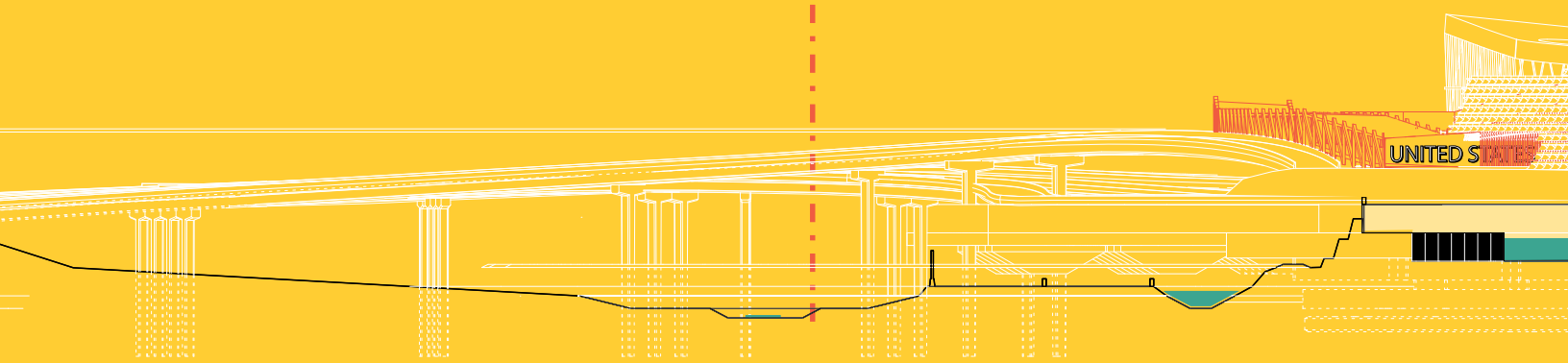
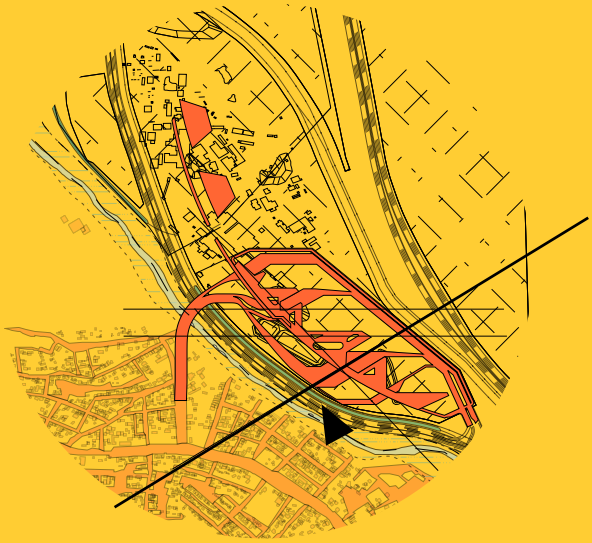


Fig. 4.15 *West-East Section-Perspective, View North.*


UNITED STATES



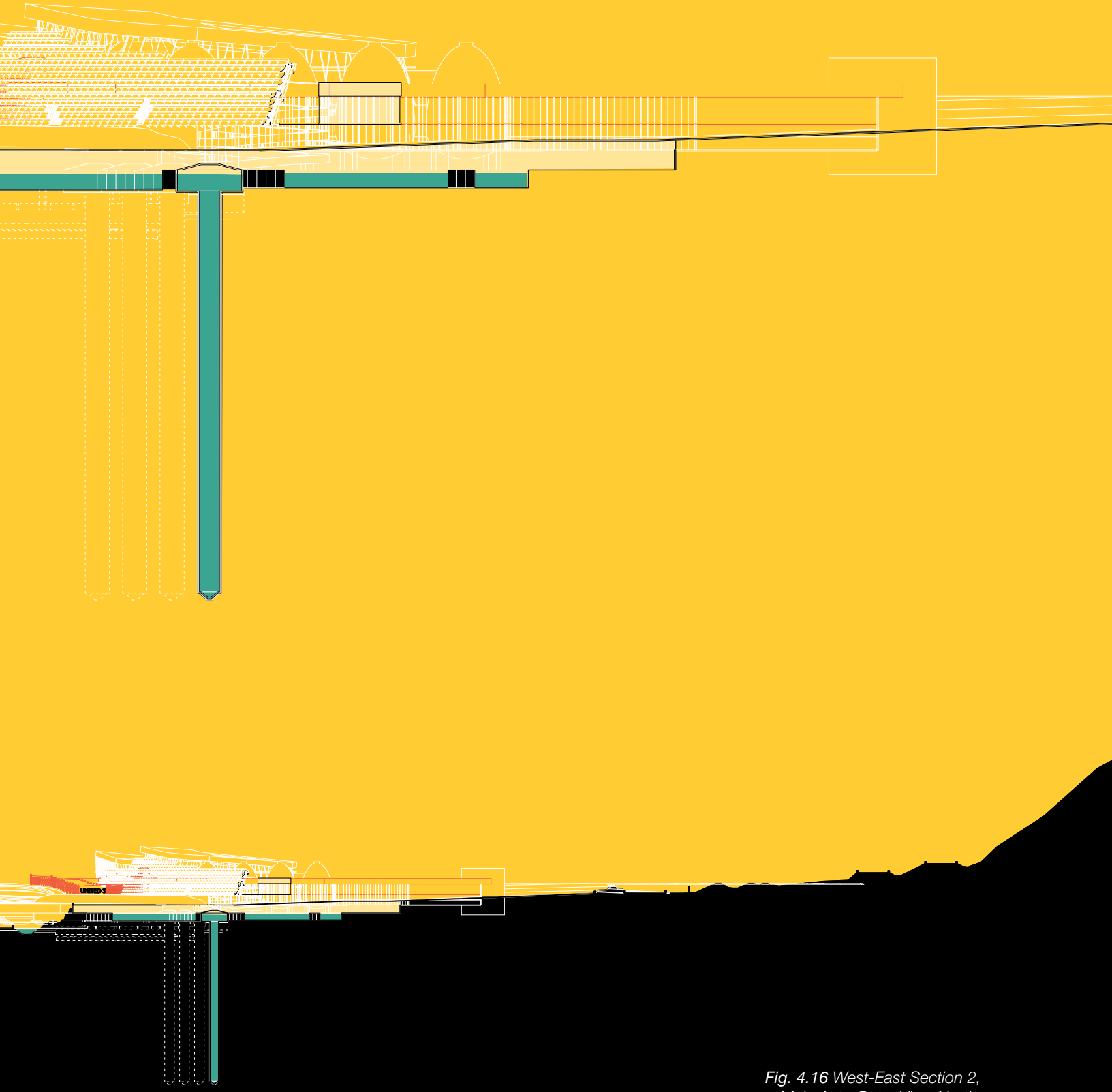


Fig. 4.16 *West-East Section 2,*
Main Auto Gate, View North,

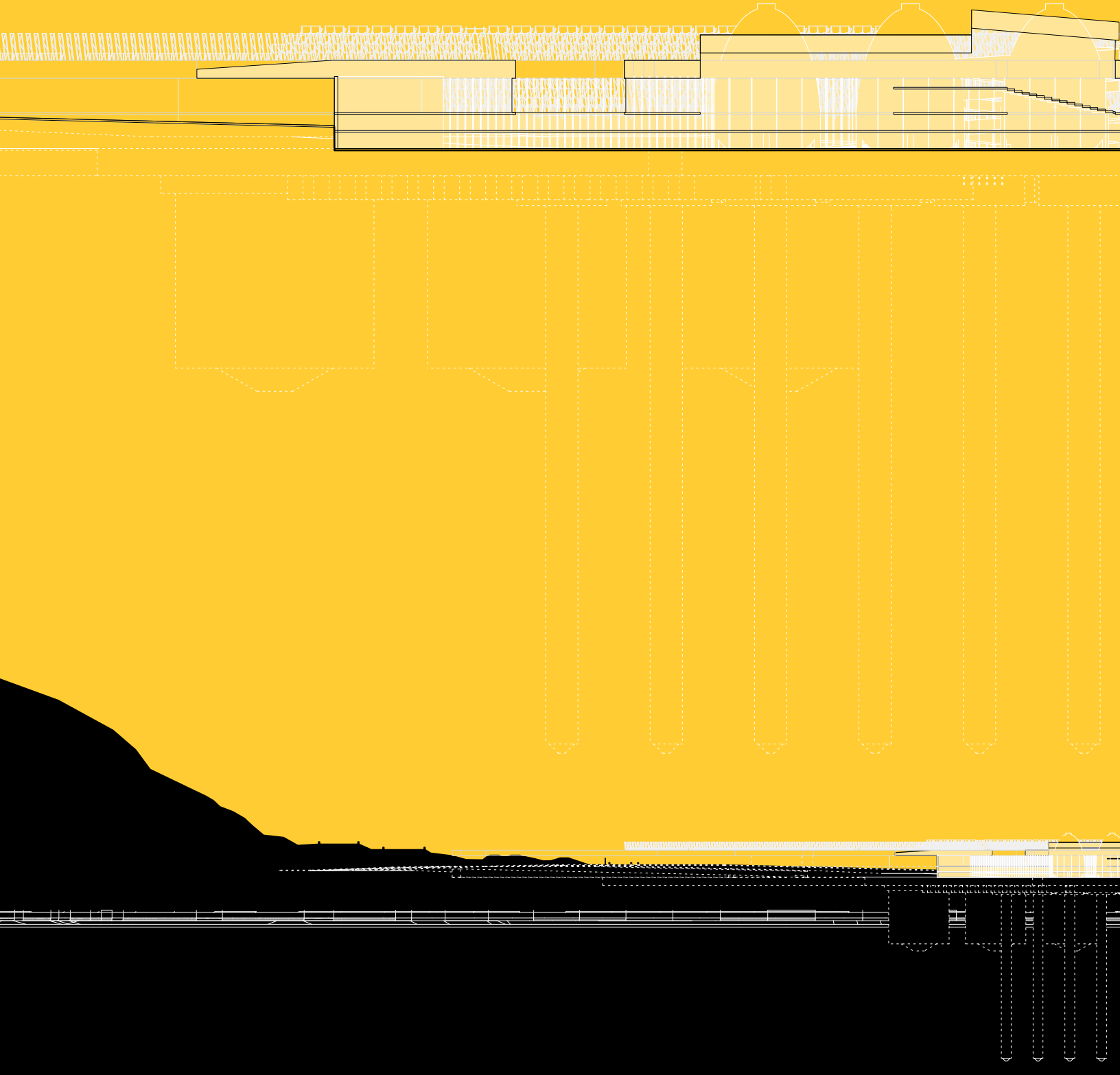
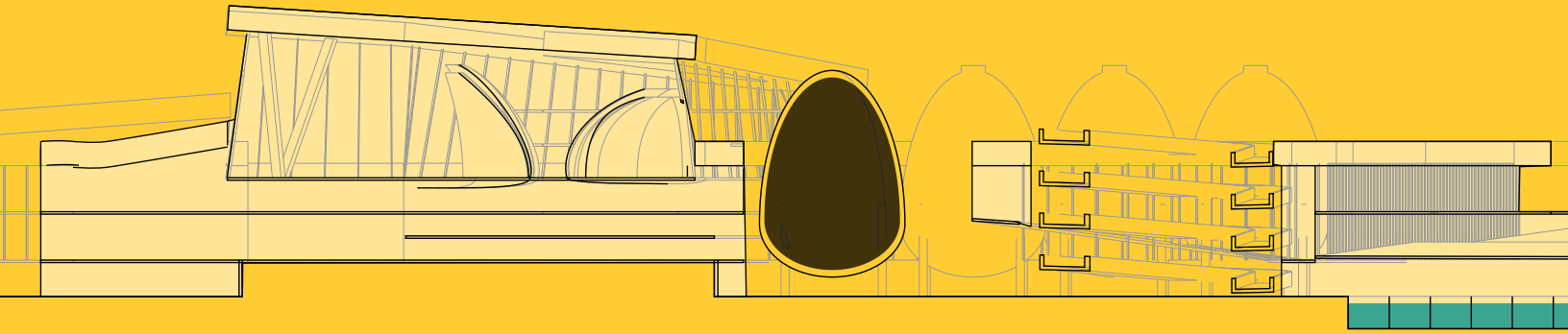
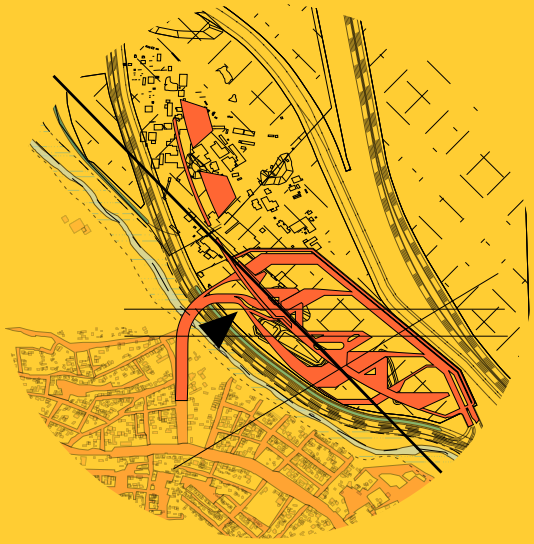
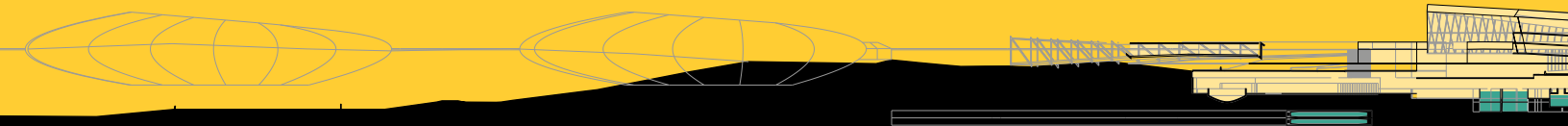




Fig. 4.17 West-East Section 3, through gym, firing range, auditorium, and courts.







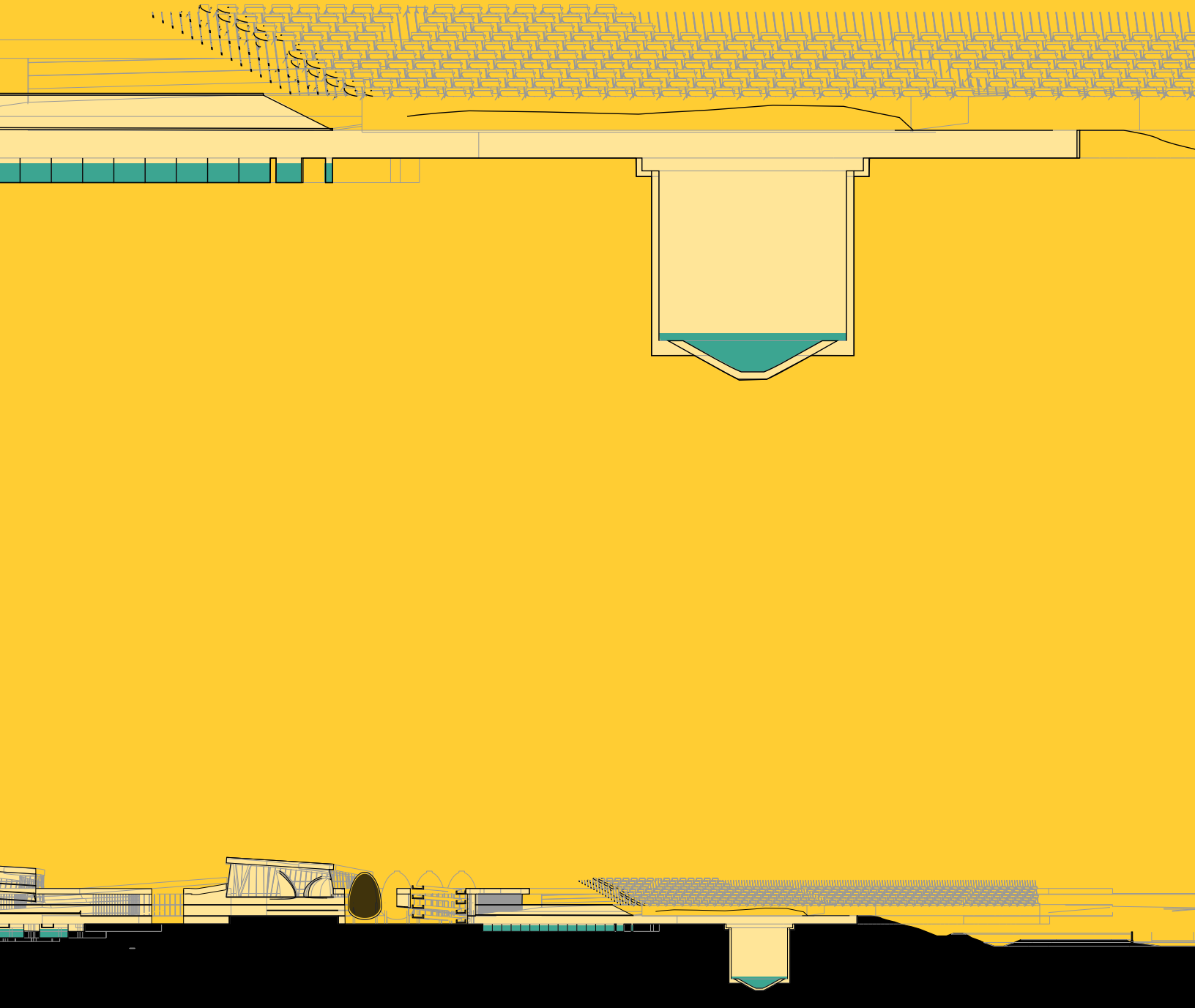
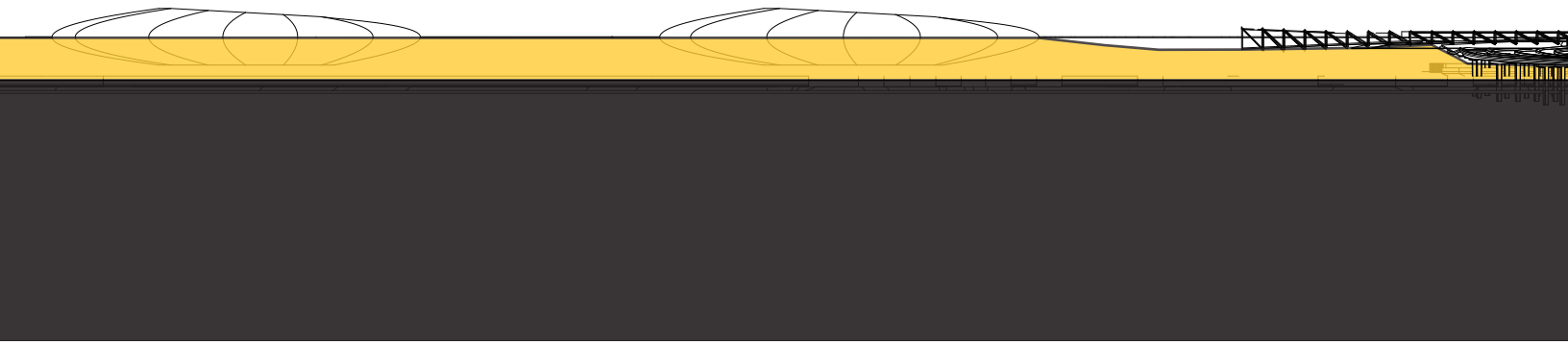


Fig. 4.15 North-South Section,
View East



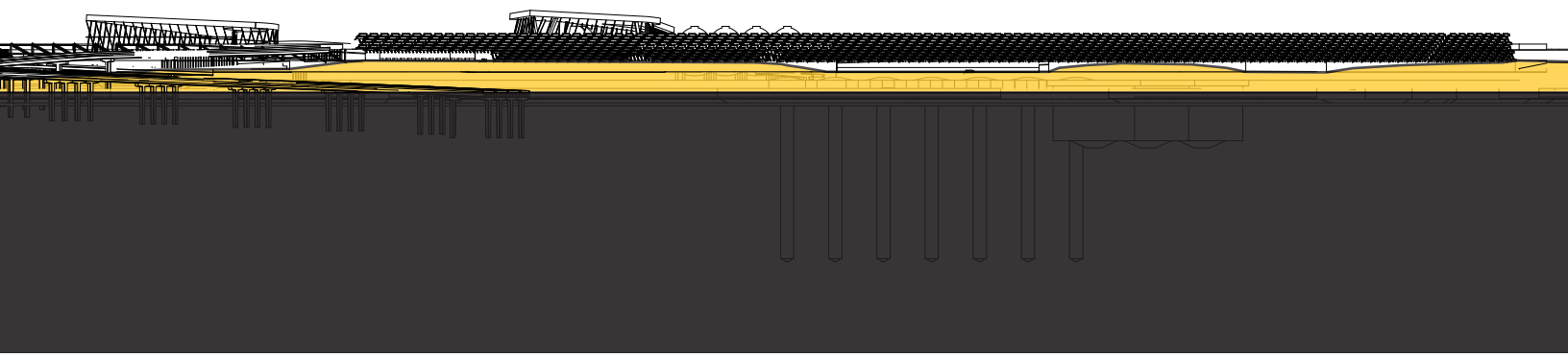


Fig. 4.19 Elevation Facing Mexico

Afterword

Politics exists because those who have no right to be counted as speaking beings make themselves of some account, setting up a community by the fact of placing in common a wrong that is nothing more than this very confrontation, the contradiction of two worlds in a single world…[1]

In the first line of *A su retrato*, Samuel Beckett takes poetic license translating the familiar *tú* form of *ver–ves* into the English formal, t*hou beholdest*, assuming perhaps that Sor Juana is addressing a reader who shares her vision of the portrait. However, the use of the informal, ves, to address a reader is indeed extraordinary and disarming in Sor Juana's era; it is a break-character, a clue that the author is addressing less the reader, than the portrait. In this way, Sor Juana imbues the portrait with the agency of sight–of seeing her, and thus provides a double reading of the text. In the surface reading, which Beckett takes to, the image is seen as an attempt to deceive the senses, a representation which fails to capture the fullness of reality. The second reading overturns this relationship; from the perspective of the portrait, all that grounds our perceptions of reality is seen as a sensual deceit of a deeper essence bound to duration. The physical world, our bodies, our experiences, all evanesce in time. Well taken, the images we produce are more than passive representations or even reflections of the contents we design them to communicate, but in fact they have the potential to actively return our gaze and show us the depths of a world unblinkered by social norms, to which we are not yet fully attuned.

1, Jacques Rancière, *Disagreement*, 27.







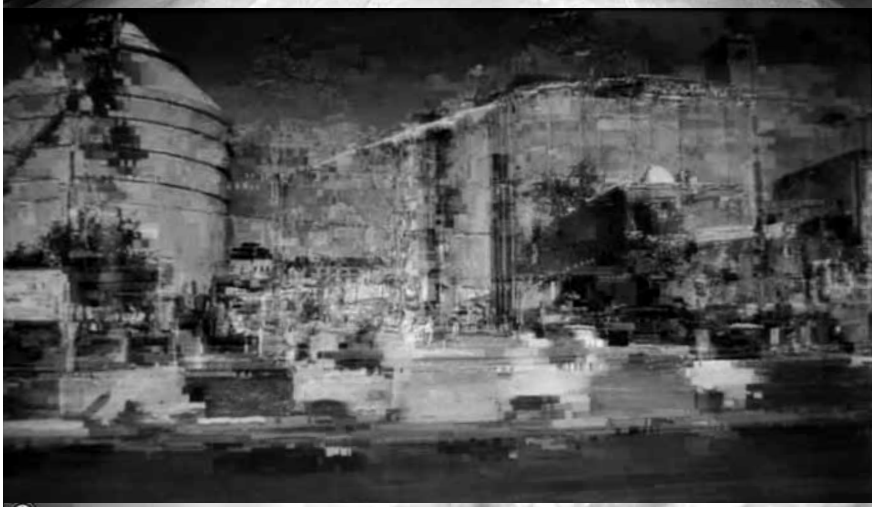




Fig. 5.01 *Crossing the Border, Durational Image Series*

This thesis used a series of long exposure photographs as a point of departure, exploring the potential of the architectural image to reveal some aspect of character or essence that is otherwise not assayable by standard graphic practices. Deploying this technique to prefigure a sequence of experiences that might describe a border crossing between Anapra and the ASARCO site, the images layer video footage shot during site visits with animations made from Google Street View. In their temporal superimposition the images reveal a territory transitioning from a landscape of barricades and fortifications through a highly mechanized smooth space. Though the symptomatic reading is striking and deeply moving, the images remained elusive. Armed with only a method, I struggled to find an architectural means to address the symptoms that the images revealed. Only later, by collecting an archive of cultural readings of the site and of the river on which the border is drawn, was I able to address these images strategically with program to foster and shape an architectural intervention.

There are several struggles imbedded in my thesis. At a level of practice, I struggle to find some relevance for history, theory and cultural iconography to contemporary design—a relevance that goes beyond an indexical relationship to collective identity or memory, to become a meaningfully functional tool to both understand and reshape the contemporary environment. More deeply, I struggle to find ways that architecture, and more personally, I as an architect, have some capacity to act in the context of border politics outside of the forces by which architecture is too frequently employed as a tool of control. My perspective was framed between a distrust of theory and historiography that too frequently colonizes political problems for the advancement of discourse without offering a means of egress back into the material world, and a deep cynicism toward utopian proposals that too easily rely on a confidence in progress and the distance rendered between

the resolution of the future and the polemics of the present. Overcoming self-criticality and doubt, I position architecture in a middle ground wherein confidence lies not in a building's ability to solve problems, but in the capacity to transcend mere commentary by drawing—synthesizing, projecting, and transgressing—the sum of the conditions that are its inception. As aesthetic constructs, images have the capacity to reorder the divisions and modes of perception that determine what is visible or invisible—to re-distribute the sensible—following on the ideas of Jacques Rancière. In this way, there is a political dimension to the mysticism of Sor Juana and a magical dimension to the politics of disagreement. At a critical moment in my historiography of El Paso del Norte, I was captivated by the temporal rupture captured in the distinctiveness of the large aperiodic Hueco Tanks Tlaloc. Repeatedly tracing over the figure's abstract encoding of seasonal rhythms of drought and flow revealed the fundamental essence of thirst as a prima materia in the formation of territories and politics in the desert. Thus, the agency that I sought in architecture originates beneath the surface of the finished image in the agency of the historian that questions the assumed or prevalent world view and builds in its place a very personal collection that seeks to make connections among diverging or antagonistic layers of knowledge. In this way, history becomes a practice of negotiation and a means to build a culturally deep territory as a place of departure equally for the diagrams of transgression and the design of buildings.

As they negotiate divisions of scale and participation, from the informal guerrilla tactic to the formal interplay of institutions, the projects connect and make legible a constellation of vectors derived from thirst. The tamarisk project uncovers the ways in which science can be entangled in an environmental-political determinism used to maintain political order through resource allocation. Acting in opposition, the individual or group can contravene this entanglement by abstracting and inverting the terms and methods of science to reshape the en-

vironment as a manifestation of altered distributions of power. The land port of entry design operates within architecture's symbolic capacities to transform a contaminated extraterritorial site into the font of a shared bi-national water resource, giving voice to the shared experience endemic to the pass. At the same time, the facility's programmatic indeterminacy speculates on the political potentials of Lacaton & Vassal's idea of "extra space"–including the court facilities and the space for the International Boundary and Water Commission–to bring a public and critical presence to oversee the uncanny juxtaposition of filtration processes with the regulation of population flows.

This thesis is built on the premise that territory is not fixed in space, but is authored by the actions of individuals and groups who, in motion and in time, derive meaning and significance from their trajectories among the layers of the stratigraphic landscape.

Select Bibliography

Books

Aira, César. *An Episode in the Life of a Landscape Painter*. Translated by Chris Andrews. New York: New Directions Books, 2000, trans. 2006.

Arendt, Hannah. *Eichmann in Jerusalem: A Report on the Banality of Evil*. New York: Penguin Books, 1994.

Arendt, Hannah. *The Human Condition*. Chicago: University of Chicago Press, 1998.

Arendt, Hannah. *Men in Dark Times*. New York: Harcourt, Brace & World, 1968.

Baum, Bernard R. *The Genus Tamarix*. Jerusalem: The Israel Academy of Science and Humanities, 1978.

Benjamin, Walter. *Berlin Childhood around 1900*. Translated by Howard Eiland. Cambridge: The Belknap Press of Harvard University Press, 2006.

Blackler, Deane. *Reading W.G. Sebald: Adventure and Disobedience*. Rochester: Camden House, 2007.

Brott, Simone. *Architecture for a Free Subjectivity*. Surrey: Ashgate Publishing Ltd., 2010.

Calvino, Itallo. *Six Memos for the Next Millenium*. New York: Vintage Books, 1988.

Cache, Bernard. *Earth Moves: The Furnishing of Territories*. Translated by Anne Boyman, Edited by Michael Speaks. Cambrige: The MIT Press, 1995.

Chacón, Daniel. *Hotel Juàrez: Stories, Rooms and Loops*. Houston: Arete Pùblico Press, 2012.

Chacón, Daniel. *Unending Rooms*. New York: Black Lawrence Press, 2008.

De Boever, Arne. *States of Exception in the Contemporary Novel: Martel, Eugenides, Coetzee, Sebald*. London: Continuum, 2012.

Deleuze, Gilles. *Cinema 2: The Time-Image*. London: Continuum, 2005.

Deleuze, Gilles. *Francis Bacon*, translated by Daniel W. Smith. Minneapolis: University of Minnesota Press, 2003.

Dwork, Debòrah & Van Pet, Robert Jan. *Flight from the Reich: Refugee Jews, 1933-1946*. New York: W.W. Norton & Company, 2009.

Focault, Michel. *Security, Territory, Population: Lectures at the College de France, 1977-1978*. Edited by Michel Senellart, translated by Graham Burchell. New York: Palgrave MacMillan, 2007.

Guatari, Felix. *The Three Ecologies.* London: Continuum, 2005.

Levi, Primo. *The Periodic Table*. Translated by Raymond Rosenthal. New York: Schocken Books, 1984.

Massey, Doreen. *For Space*. London: Sage, 2005.

Morrison, James. *The Films of Terrence Malick*. London: Praeger, 2003.

Negarestani, Reza. *Cyclonopedia: complicity with anonymous materials*. Melbourne: re.press, 2008.

Perales, Monica. *Smeltertown: Making and Remembering a Southwest Border Community*. Chapel Hill: The University of North Carolina Press, Chapel Hill, 2010.

Pérez-Gómez, Alberto. *Architecture and the Crisis of Modern Science*. Cambridge: The MIT Press, 1983.

Price, Patricia L. *Dry Place: Landscapes of belonging and exclusion*. Minneapolis: University of Minnesota Press, 2004.

Ranciere, Jacques. *Disagreement*. Translated by Julie Rose. Minneapolis: University of Minnesota Press, 2004.

Ranciere, Jacques. *The Politics of Aesthetics*. Translated by Gabriel Rockhill. London: Continuum, 2004.

Romero, Fernando. *Hyper-Border: The Contemporary US-Mexico Border and its Future*. New York: Princeton Architectural Press, 2008.

Sebald, W.G. *Austerlitz*. Translated by Anthea Bell. New York: Modern Library, 2011.

Sontag, Susan. *On Photography*. New York: Picador, 1977.

Vesely, Dalibor. *Architecture in the Age of Divided Representation: The Question of Creativity in the Shadow of Production*. Cambridge: The MIT Press, 2004.

Vidler, Anthony. *Claude-Nicolas Le Doux: Architecture and Social Reform at the End of the Ancien Règime*. Cambridge: The MIT Press, 1990.

Vitruvius. *The Ten Books on Architecture*. Translated by Morris Hicky Morgan. New York: Dover Publications, 1960.

Chapters in Books

Conley, Tom. "The Strategist and the Stratigrapher." In *Afterimages of Gilles Deleuze's Film Philosophy*, edited by D. N. Rodwick, 193-212. Minneapolis: University of Minnesota Press, 2010.

Gregotti, Vittorio. "Territory and Architecture." In *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, edited by Kate Nesbitt, 338-344. New York: Princeton Architecture Press, 1996.

McCann, Ben. "'Enjoying the Scenery': Landscape and the Fetishisation of Nature in Badlands and Days of Heaven." In *The Cinema of Terrence Malick: Poetic Visions of America*, edited by Hannah Patterson. New York: Columbia University Press, 2007.

Meyer, Elizabeth K. "Uncertain Parks, Disturbed Sites, Citizens, and Risk Society." In *Large Parks*, edited by Julia Czerniak and George Hargreaves, 59-83. New York: Princeton Architectural Press, 2007.

Pérez-Gomez, Alberto. "Ethics and Poetics in Architectural Praxis." In *Crossover: Architecture Urbanism Technology*, 676-87. Rotterdam: 010 Publishers, 2006.

Sebald, W.G. “On Memory and Cruelty in the Work of Peter Weiss” In *On the Natural History of Destruction*, translated by Anthea Bell, 169-191. New York: Random House, 1999, trans. 2003.

Stegner, Wallace. “The Medicine Line,” In *From Ink Lake*, edited by Michael Ondaatje, 24-42. Toronto: Vintage Canada, 1990.

Weizman, Eyal. “The Subversion of Jerusalem’s Sacred Vernaculars.” In *The Next Jerusalem: Sharing the Divided City*, edited by Michael Sorkin, 120-145. New York: The Monacelli Press, 2002.

Books Published Electronically

Malcolm Pirnie, Inc., “Final Remediation Action Work Plan” (technical report to Texas Custodial Trust, El Paso, TX, April 2011, accessed August 19, 2014, http://www.recastingthesmelter.com/wp-content/themes/recastingasarco/downloads/site_documents/asarco-final-rawp-with-appendices-04-2011.pdf), 2-4.

Design Excellence Policy and Procedures. U.S. General Services Administration. Accessed August 23, 2014. http://www.gsa.gov/portal/content/103738

Conway, Brian. *Land Port of Entry, Whole Building Design Guide*. The Planning Site, LLC. Accessed August 23, 2014. http://www.wbdg.org/design/land_port.php

Puga, Roberto. “Former ASARCO Smelter Site Project Status Presentation.” Rreport to Committee for a Future El Paso, El Paso, TX, September 2012. Accessed August 19, 2014. http://www.recastingthesmelter.com/wp-content/themes/recastingasarco/downloads/site_documents/presentations/asarco-future-el-paso-2012-09-15.pdf

Rubio, Luis. *In the Lurch between Government and Chaos: UnconsoLIdated Democracy In MexIco*. Migration Policy Institute, 2013.

Sutherland, Kay. “Rock Paintings at Hueco Tanks State Historic Site.” T*exas Parks & Wildlife*, edited by Georg Zappler. Accessed August 23, 2014. http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_p4501_0095e.pdf

United States Land Port of Entry, Alexandria Bay, New York: Final Design Concepts Report. Government Services Administration, 2008. Accessed August 23, 2014. http://web.stanford.edu/group/narratives/classes/08-09/CEE215/Projects/gsa-border-station-ny/FinalConceptsNarrative.pdf

Journals

Bishop, Claire. "Antagonism and Relational Aesthetics", *October* (2004) 110: 51-79.

Bordeleau, Anne. "Geography and Architecture: Theories Terrorizing Territories," (2012): 13

Carlile, B. L. & Gillane, Tom. "Applying New York City Biosolids on a West Texas Ranch: Eight years of operation and results" *Proceedings of the Water Environment Federation* (2000) 12: Accessed August 23, 2014. DOI: 10.2175/193864701784993272

Chew, Matthew K. "The Monstering of Tamarisk: How Scientists made a Plant into a Problem" *Journal of the Hisotry of Biology* (2009) 42: 231-266.

Cosgrove, Denis. "Landscape and Landschaft." Lecture delivered at the *Spatial Turn in History Symposium*, University of California, Los Angeles, GHI Bulletin (2004) no. 35: 57-71.

Hutchinson, William R. "Deep-Well Injection of Desalinatin Concentrate in El Paso, Texas" *Southwest Hydrology* (2008) March/April: 28-30. Accessed August 23, 2014. http://www.swhydro.arizona.edu/archive/V7_N2/feature7.pdf

Lambert, Lèopold. "Abject Matter: The Barricade And the Tunnel." *Log: Reclaim Resi[lience]stance//…..R^2* (2012) No. 25, Summer: 93-99.

Li, Weiqiang et. al. "Rooting and shoot growth of stem cuttings of saltcedar (tamarix chinensis lour)." *Pakistan Journal of Botany* (2010), 42(6): 4133-4142. Accessed August 23, 2014. http://www.pakbs.org/pjbot/PDFs/42(6)/PJB42(6)4133.pdf

Mack, G.H. & Leeder, M.R. Channel shifting of the Rio Grande, southern Rio Grande rift: implications for alluvial stratigraphic models. *Sedimentary Geology* (1998) 117: 207-219.

Mulligan, C.N. et al. "Remediation technologies for metal-contaminated soils and groundwater: an evaluation." *Engineering Geology* (2001) Vol. 60: 193±207.

Pérez-Arlucea, M, Mack, G.H. & LeederR, M.R. "Reconstructing the ancestral (Plio-Pleistocene) Rio Grande in its active tectonic setting, southern Rio Grande rift, New Mexico, USA." *Sedimentology* (2000) 47: 701-720.

Rodriguez-Oreggia, Eduardo. "The Informal Sector in Mexico: Characteristics and Dynamics." *Revista Perspectivas Sociales/ Social Perspectives* (2007) Primavera/Spring, Vol. 9 No. 1: 89-175.

Sassen, Saskia. "Black and White Photography as Theorizing: Seeing What the Eye Cannot See." *Sociological Forum* (2011) Vol. 26, No. 2: 438-443.

Sassen, Saskia. "Spatialities and Temporalities of the Global: Elements for a Theorization." *Public Culture* (2000) 12(1): 215-232.

Simmel, Georg. "Bridge and Door." *Theory, Culture & Society, SAGE, London, Thousand Oaks and New Delhi* (1994) Vol. 11: 5-10. Accessed August 23, 2014. http://tcs.sagepub.com/content/11/1/5.citation

Stromberg, J. "Dynamics of Fremont cottonwood (Populus fremontii) and saltcedar (Tamarix chinensis) populations along the San Pedro River, Arizona." *Journal of Arid Environments* (1998) 40: 133-155.

Vail, Richard H. "El Paso Smelting Works – I," *Engineering and Mining Jounal* (1914) 98, no. 11: 464-68.

Vail, Richard H. "El Paso Smelting Works – II," *Engineering and Mining Journal* (1914) 98, no. 12: 515-18.

PhD Dissertations

Saenz-Rivera, S. “Centers and bordertowns: Tracing the origins of cooperation at the mexico-united states border (1521--1994).” PhD diss., University of Texas, 2010.

Hodges, Gladys Arlene. “Juarez, Chihuahua, 1880-1930: A Material Culture Study of Borderlands Interdependency.” PhD diss., University of Texas, 2010.

Legal Documents

Boundary: Solution of the Problem of the Chamizal. Convention Between the United States of America and Mexico. Signed at Mexico City August 29, 1963, T.I.A.S. 5515. Accessed August 23, 2014. http://www.ibwc.gov/Files/ChamizalConvention1963.pdf

Equitable Distribution of the Waters of the Rio Grande. Convention between the United States and Mexico. Signed at Washington, May 21, 1906, 34 Stat. 2953, TS no. 455. Accessed August 23, 2014. http://www.ibwc.gov/Files/1906Conv.pdf

Finding of No Significant Impact (FONSI): Non-native Plant Control and Re-establishment of Riparian Habitats along the Rio Grande. International Boundary and Water Comission, 2012. Accessed August 23, 2014. https://www.federalregister.gov/articles/2012/08/16/2012-20016/availability-of-the-final-environmental-assessment-and-finding-of-no-significant-impact-for

United States v. Millis, Case No. 09-10134 (United States Court of Appeals for the Ninth Circuit, 2010). Accessed August 23, 2014. http://media.phoenixnewtimes.com/5292841.0.pdf

Newspaper Articles

“Ai Weiwei.” The Guadian. Accessed April 2012. http://www.guardian.co.uk/artanddesign/ai-weiwei

Burnett, John. “A Toxic Century: Mining Giant Must Clean Up Mess.” *NPR News*. Accessed August 23, 2014. http://www.npr.org/templates/story/story.php?storyId=122779177

Ouroussouff, Nicolai. “At a Border Crossing, Security Trumps Openness.” *The New York Times*, July 26, 2009. Accessed August 23, 2014. http://www.nytimes.com/2009/07/27/arts/design/27border.html?pagewanted=all&_r=0

Santos, Fernanda. “Group Rooted in the Desert Looks Out for Migrants.” *The New York Times*, August 2, 2013. Accessed August 23, 2014. http://www.nytimes.com/2013/08/03/us/group-rooted-in-the-Arizona-desert-looks-out-for-migrants.html?pagewanted=all&_r=0

Yardley, Jim. “New York’s Sewage Was a Texas Town’s Gold.” *The New York Times*, July 27, 2001. Accessed August 23, 2014. http://www.nytimes.com/2001/07/27/us/new-york-s-sewage-was-a-texas-town-s-gold.html

Dictionary

“Territory,” *Oxford English Dictionary Online*. Accessed August 19, 2014. http://www.oed.com.proxy.lib.uwaterloo.ca/view/Entry/199601?rskey=M7omqM&result=1#eid

Websites

Sierra, Santiago. “SUMISIÓN.” Accessed August 19, 2014. http://www.santiago-sierra.com/200704_1024.php 6

Martha Schwartz Partners, ”McLeod Tailings, Geraldton, Ontario.” Accessed May 5, 2013. http://www.marthaschwartz.com/projects/reclamation_tailings.php#.

Merino, John L. “Summary of Biological Control of Saltcedar Along the International Reach of the Rio Grande.” International Border and Water Commission. Accessed August 23, 2014. http://www.ibwc.gov/Files/CF_URG_Bio_Control_SS_121310.pdf

No More Deaths. Accessed August 23, 2014. http://forms.nomoredeaths.org/about-no-more-deaths/

“Palais de justice de Poitiers.” Accessed August 23, 2014. http://www.ca-poitiers.justice.fr/ca/dynic/stdcont33p.php?Dtopic=2&idart=1&fpage=1