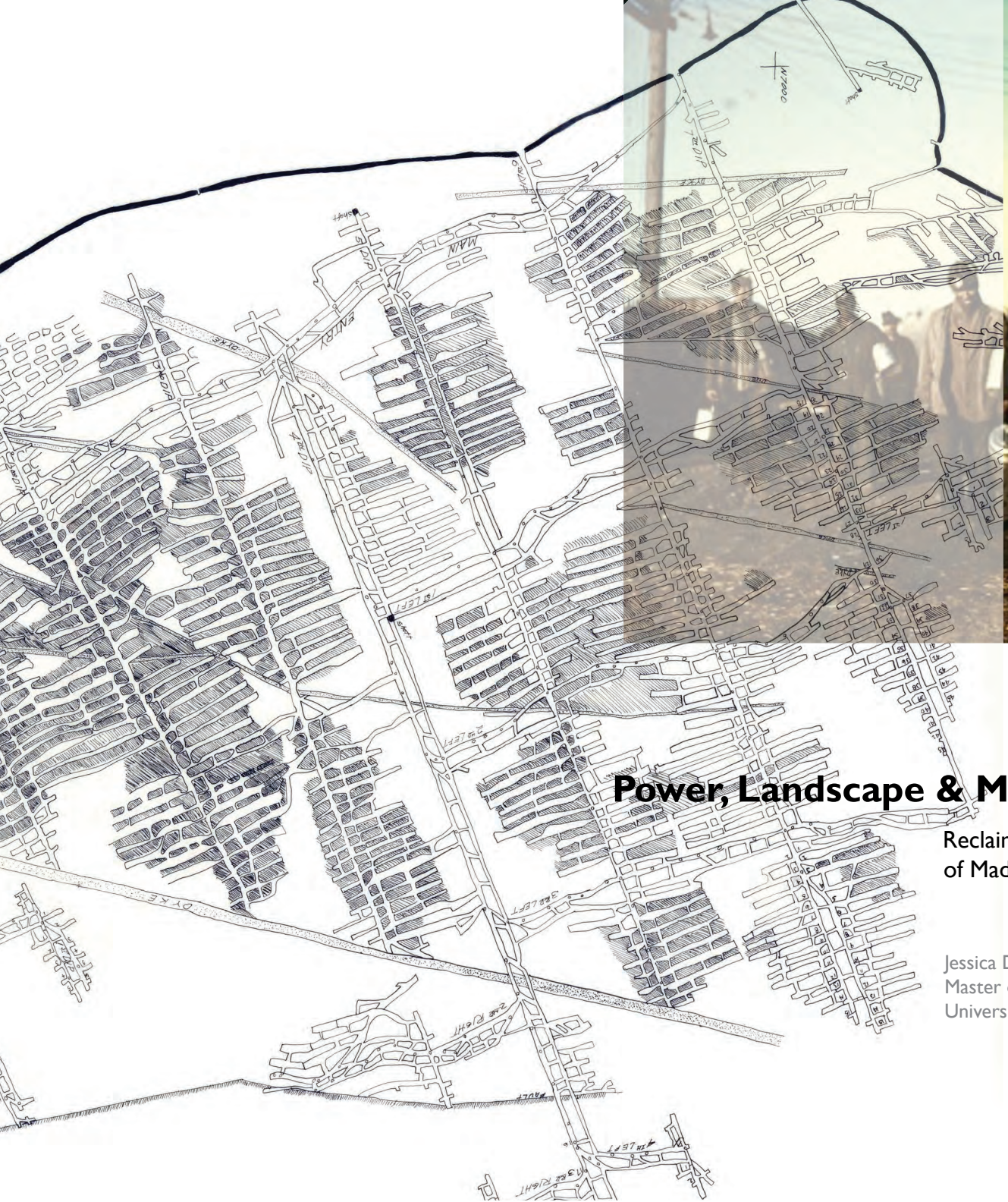

Power, Landscape & Meaning:

Reclaiming the Trans-Industrial Heterotopia of Madrid, New Mexico

Jessica Dunn
Master of Landscape Architecture Thesis
University of New Mexico // May 2010

MASTER OF LANDSCAPE ARCHITECTURE THESIS

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TABLE OF CONTENTS

PART ONE: THEORY

PART TWO: PRACTICE

Thank you to the following people:

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To my family, friends, and classmates who have helped me along the way.

PART ONE: THEORY
1. INTRODUCTION

"Nature is a temple, where the living
Columns sometimes breathe confusing speech;
Man walks within these groves of symbols, each
Of which regards him as a kindred thing."
-Charles Baudelaire, "Correspondences[1]"

"As ecological systems, unknown natures
are places of genesis, adaptation,
evolution, and duration."
-Alan Berger, from Reclaiming the American West.[2]

The ground beneath our feet is impermanent; it is already different, even as we stand upon it. The soil we walk across is already on its way somewhere else; the plants we might ever so carefully step through are already trudging through their seasonal cycle. The ground has the potential at any moment to open up; fissures, cracks, and explosions are a daily occurrence, as the earth moves and shakes within its orbit. We exist in physical landscapes which groan with change and variation. Our locations are temporary. The location of meaning in landscape is just as temporary and subject to circumstance as its physical forms, and the atmosphere in which the meaning of landscape is constituted is just as dynamic as the earth's ever evolving setting of liquid and solid matter. The situating of landscape within the over-arching structure of social orders and discourses is a complex and subjective process, dependent upon the specific social strata being traversed, and the purposes that landscape will serve.

W.J.T. Mitchell describes landscape not as a noun, but as a verb, and '[…] not as an object to be seen or a text to be read, but as a process by which social and subjective identities are formed. (Mitchell, 2002, 1)." Landscape is, all at once, the setting within which we build civilizations, the generator of resources, the place in which we escape, the place which allows us to survive. We are an ordered kind, with definitions, meanings, and language for that which we encounter and experience. Landscape is not exempt from this process, and since landscape is the physical world in which we inhabit, landscape is arguably a locator through which we understand our social identities. Political, national, and environmental identities are also constructed by the experiencing, living, and trading of landscapes. Landscape is a nation, which defines who we are as political subjects. Landscape is a refuge or a threat, which defines who we are as emotional subjects. Landscape is a home, which defines us as a social subject with a larger social order.

In light of the immense work of Michel Foucault in describing the 'order of things,' we construct meaning and we construct subjects through systems of power, which are inescapable to the establishment of a conscious world. How do these systems of power operate and how do they define landscapes? Investigating the many

Fig. 1: Signs along the Berlin Wall.

convoluted and complex ways in which landscapes are intricately connected to systems of power offers the possibility to understand how these modes of power function, and the implications of landscape's meaning to society as a whole. As we are located within systems of power and also located within landscapes, how does the categorization of landscape define sociopolitical identities and cultural ideas of landscape?

Again borrowing from Michel Foucault, as well as Jacques Lacan and Judith Butler, systems of power operate through reinforcing relationships and acknowledged structures, one of which is language. Power is constituted through binary systems of classification, in which opposites are established to create co-constituent meanings. 'Nature' is the opposite of 'culture,' or 'man.' Landscape is the opposite of civilization, or the built environment. What happens when an entity, or a landscape, cannot be defined as an either/or?

In our post modernist existence, with the affects of industrialization, power relationships, and capitalism well-infused into our daily lives, the appearance of undefined landscapes is increasingly prevalent. Landscapes are mined for natural resources, and then

abandoned, leaving spaces which are neither cultural nor natural, in binary terms. Landscapes post-war are traumatic, and are anxious places in which pre-war meaning, in terms of social and political perspectives, is confused and problematized. Landscapes between countries at war become peace parks, in which ecological habitats flourish within the pause that is created as a direct result of adversity. Foucault calls these in-between spaces 'heterotopias,' or places in which multiplicity of meanings exist, causing a disruption and inversion of the normal social order (Foucault, 2008, 13). Lacan calls these places the 'real,' or the unsignified, which are a source of extreme anxiety and chaos, due to their lack of language (Lacan, 1988, 164).

What are the implications that these in-between places, these heterotopias, carry for the reframing of sociopolitical environments and identities, and the dissolution of binary modes of thinking? Just as the earth's tectonic plates, two forces, shift up against one another to literally create a new topography, and a new place, two binaries shift up against one another, producing a heterotopia. New meanings are potentially possible in the spaces that cannot be defined through polarity and comparison, in places that confuse

Fig. 2: Abandoned mine shafts in Belgium.

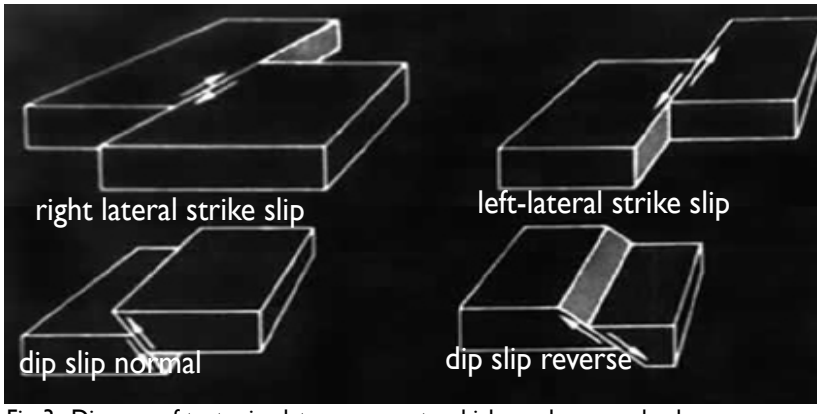


Fig. 3: Diagram of tectonic plate movements which produce new landscapes.

dual classification. Further, what undeveloped, possible latency does the heterotopia carry in terms of agency when viewed through the lens of landscape architecture? In considering landscape architecture through the writings of landscape architect and theorist James Corner, " […] landscape has the capacity to critically engage the metaphysical and political programs that operate in a given society […] landscape architecture is not simply a reflection of culture but more an active instrument in the shaping of modern culture (Corner, 1999, 1)," If Corner's argument proves true, how can landscape architecture offer agency for social, political, and environmental change through engagement with heterotopic, in-between spaces? The cultural power of landscape architecture lies within in its capacity to design, reorder, and create public space, therefore the field and its practitioners play a part in the reframing of meaning. Heterotopias, in their hybrid entailment of contrasting binaries and indeterminate place in power hierarchies, present an immense opportunity for agency and for the redefining of social and political atmospheres. Landscape architecture as a practice carries the capacity to establish new definitions of landscape, new stratifications of sociopolitical identities, and new notions of ecologies through the engagement of heterotopias and in-between places that emerge from within systems of power.

This project explores the link between the post-industrial heterotopia, specifically abandoned mine landscapes, and landscape architecture. Through the study of and engagement with a small town in New Mexico with an immense mining legacy, this project investigates the possibility of landscape architecture design to function as Corner's 'active instrument;' to use design as a tool for

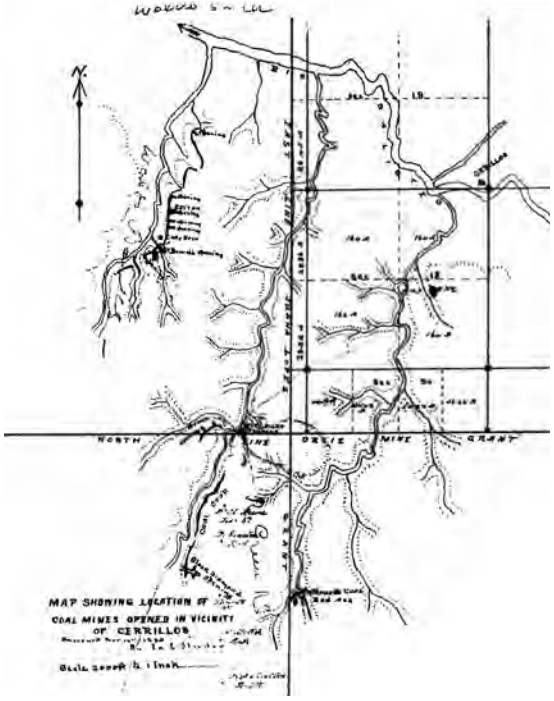


Fig. 4: 1883 Coal Mine Map of the Cerillos Field.

process, change, mutability, and the complication of meaning, and therefore, systems of power.

The town of Madrid, New Mexico, is located halfway between Santa Fe and Albuquerque NM, and is a former company-owned town now mostly inhabited by artists. Madrid's mining past and its current reality have contributed to a place constructed from multiple narratives, power overlays, and subversive reappropriations of place, which exists in a state of many shifting and slippery meanings and manifestations. Due to environmental impacts caused by the traces of mining within the town, such as increased erosion, water sedimentation, and air pollution, the need for reclamation is present, and pressing.

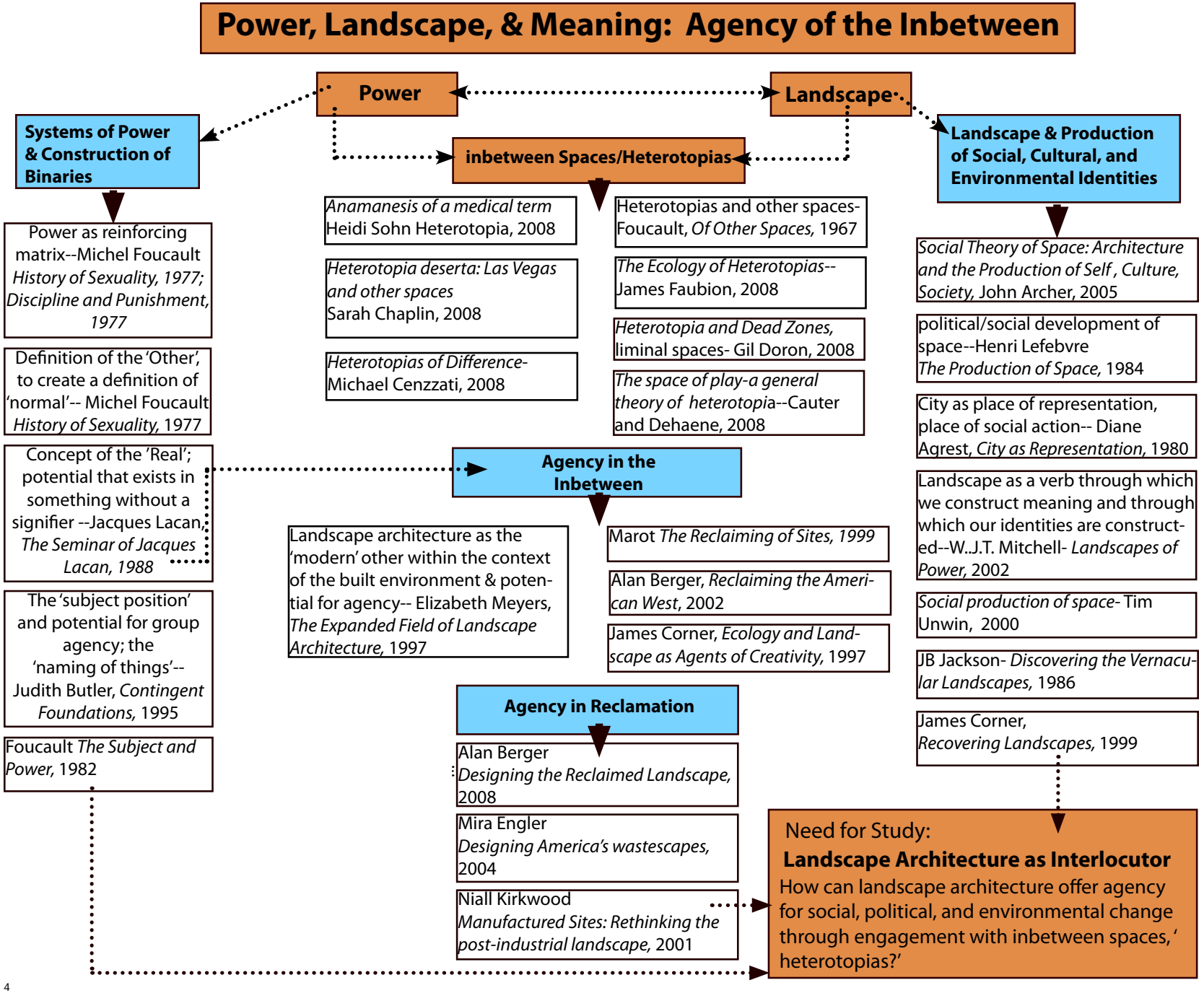
This project, *Power, Landscape, & Meaning: Reclaiming the Trans-Industrial Heterotopia of Madrid, New Mexico,* develops a critical conceptual framework through theoretical research which investigating the development of systems of power, landscapes of power and landscape meanings, and the sociocultural production of inbetween landscapes, or heterotopias. This project then searches for the cultural agency within heterotopic landscapes to complicate and expand sociocultural identities and notions of place, and the link between theory and the practice of landscape architecture. This is achieved through an application of the theoretical position and research to the design of a site in Madrid, New Mexico. The design process attempts to intermesh environmental reclamation of the abandoned mine sites of Madrid with sociocultural reclamation of the site, providing agency for residents of the village within their landscapes.

Madrid presents the challenging opportunity for landscape architecture to become an interlocutor between environmental reclamation and sociocultural engagement. Landscape architecture can reclaim while revealing site history and can constituently develop new spaces where binaries coexist to create new space and new meanings. The cultural power of landscape architecture lies within in its capacity to design, reorder, and create public space, therefore reframing meaning. The ecological power of landscape architecture is its ability to address environmental systems and their issues in innovative ways while also linking humans to their organic environments. The post-mining landscape of Madrid presents the opportunity through the use of landscape architecture for new sites to emerge, that are ecologically and economically productive, which are new hybrids of nature/culture, new 'synthetic' ecologies, and new dynamic spaces that defy dualist, divisive power structures.


Fig. 5: Miners leaving the Madrid breaker, the bituminous coal processor, in the early 1900s.

II. RESEARCH

1. Literature Map



2. Systems of Power, Landscape, and the Construction of Meaning

2.1 Foucault and Power

In The History of Sexuality Vol. I (Foucault, 1978), Michel Foucault provides a definition of power that has been used as a touchstone definition in postmodernist and feminist studies since its first publication in 1976, which also applies to the urban built environment and landscape architecture theories. Foucault discusses power not as a governing entity or faceless oppressor—these, he states, are just symptoms of power--- but instead power is a complex matrix of relationships co-defining the system; power is exuded through and relies on a "multiplicity of force relations immanent in the sphere in which they operate and which constitute their own organization […] (Foucault, 1982, 92)." Foucault argues that power is ubiquitous and it is not localized, therefore power is harder to point out or assign authority to, therefore harder to dislodge.

Foucault's characterization of power is that power is co-constituent, and meanings of power are created on a daily basis through any number of interactions. There is no 'ruled' or 'ruler' but instead an interface of fortifying relationships. For example, societal mores and institutions reinforce systems of power because these conventions are agreed upon as collective norms by a certain society or group, and therefore they are repeated. In *The Subject and Power*, Foucault identifies the creation of subjects as being constituted through 'forms of power,' and systematic repetition of these forms and self-regulating knowledges, as opposed to institutions or powerful elites. He writes,

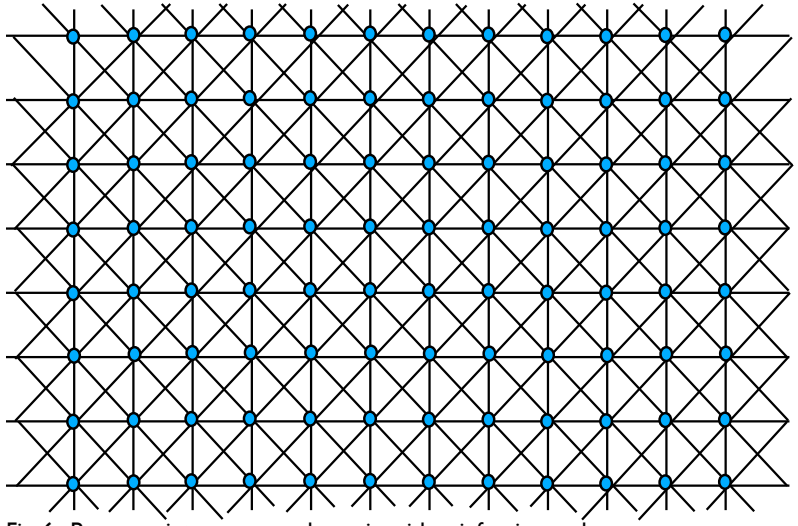


Fig. 6: Power as interconnected matrix with reinforcing nodes.

Fig. 7: "All Things are Delicately Interconnected" from Truisms (1979-1983), Jenny

> "This form of power applies itself to immediate everyday life which categorizes the individual, marks him by his own individuality, attaches him to his own identity, imposes a law of truth on him which he must recognize and which others have to recognize in him. It is a form of power which makes individuals subjects (Foucault, 1982, 781)."

Subjects are established through forms of power such as rituals, processes, mores, traditions, expectations, and spoken and unspoken rules of engagement and behavior that exist within any given social order. According to Foucault, subjects are also created through subtle and accepted mechanisms, such as the development of 'norms' and 'others' through the apparatus of binary thinking. 'Others' are built as defining opposites to 'normals' in order to institute the normals as appropriate, accepted behavior. In The History of Sexuality (Foucault, 1978), Foucault illustrates the 'other' with the example of the development of the 'homosexuality' as a deviant behavior in the field of science from 1870 onward. This classification of a certain type of sexuality as unacceptable through the societal institution of medicine defined an other by which, in comparison, heterosexuality was normalized as the only acceptable form of behavior. 'Others' are an imperative part of 'normals,' in that binary classifications need a concrete opposite which would define what *not* to do (Foucault, 1978, 43).

As these regulations for societal participation are continued, and binaries are constructed, the systems of power constituting them are sustained and supported. Foucault even argues that resistance is itself a form of power, and is not exempt from power relationships, because resistance is defined by the very thing it is resisting against, therefore contributing to the structure of the web, or matrix. However, Foucault describes points of resistance as opportunities to locate origins of systems of power—i.e. the node of resistance reveals the node of power most close in the web, which can be followed to the next node, the next, etc. Resistance defines its opposition, and gives a name or a location to a source of power. This is an opportunity for agency, which will be discussed further in subsequent sections.

2.2 Binaries and Agency

Julian Wolfreys, in his book Critical Keywords in Literary and Cultural Theory (Wolfreys, 2004), synthesizes the triad of consciousness which Jacques Lacan philosophizes as the main ordering system humans use in living experience. Wolfreys points out that Lacan's triad of perception must be spoken all at once, and not as separate parcels (Wolfreys, 2004, 108); the categories of perception rely on each other to comprise meaning, that is, cognition is inextricably tied to perception and recognition. Specifically, Lacan's triad consists of the imaginary, the symbolic, and the real. Wolfreys summarizes the symbolic as that which is named, and signified. This references the field of semiotics, or the study of language, in which things and phenomena are named, and therefore understood. The symbolic is tied intrinsically to language, in which "Lacan envisions a complex system of signifying elements whose meaning is determined by their relation to the other elements of the system […] (Wolfreys, 2004, 109)." The symbolic is the realm of the named, the structure provided by language. Language describes consciousness, and consciousness is shared through language.

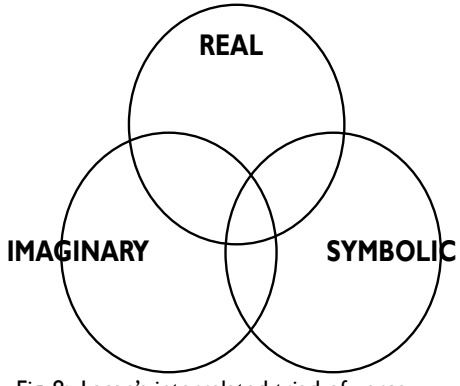


Fig. 8: Lacan's interrelated triad of perception through which we construct cognition and create meaning.

Lacan's imaginary is that which is represented by the signifier—it is the signified, the represented; it is somewhat transitory and alluring in that it needs language to be understood. Lacan attributes the imaginary to the imagination; it is not as concrete and coherent as language. Of most importance to the systems of power discussed by Foucault is that of the 'real' as defined by Lacan. The real is the unrecognized, the unnamed, and the unsignified (Wolfreys, 2004, 112); it is that which escapes language, and which escapes imagination in that it tests the bounds of both classifications. Lacan's identification of the real and the symbolic is similar to Foucault's notions of forms of power, which Lacan would call signifiers, which create a subject through that which is symbolized, named, or repeated.

Judith Butler, a contemporary postmodern feminist theorist, has contributed notably to the contemporary discourse on the creation of the subject. Her article, *Contingent Foundations*, explores the potential for agency and resistance within systems of power. According to Butler, "[…] the subject is constituted through an exclusion and a differentiation […] (Butler, 1994, 162)," which echoes Foucault's 'others' and 'norms.' She theorizes that the subject is shaped through the systems of power it encounters, and since power is shifting and not localizable, the position of the subject is constantly being formed based on the particular atmospheres of power it exists within. For Butler, the capacity for acting within stratagems of power lies within this moment in which the subject is redefined, or reconstituted. In considering binaries, or in considering Lacan's unsignified 'reals,' Butler establishes the possibility for agency within the space in between the either/or, the place of the unsignified. She writes that "[...] it may be only through releasing the category […] from a fixed referent that something like 'agency' is possible. For if the term permits of a resignification, if its referent is not fixed, then possibilities for new configurations of the term becomes possible (Butler, 1994, 167)." The 'fixed' or normalized definition of something is suddenly lost, or problematized, when binaries cannot encapsulate meaning, and this presents an opportunity for a new definition to begin to form. Expanded meanings, or *the loss of words to describe*, leads to agency, the power to act or participate in the social fabric, and the potential for reframing of social orders. This has remarkable implications for the concept of landscape and the field of landscape architecture as a whole; however, the ways in

which landscape is considered and represented through modes of power must first be discussed and defined.

3. Productions of Space, Identities, and Landscape Meaning

How can these discourses be related to the presence of 'landscape' within cultural society? Not landscape in its physical form, evoking matter and organics, but landscape as a definition, a manifestation, a classified entity? In considering the discourse of Foucault and Butler, how is landscape created as a subject, and defined by 'laws of truth' within particular moments and places of society? Through the theories of Lacan, the concept of landscape has been named and signified throughout history, and continues to be 'subject'-ed today. Landscape is viewed through the institution of geography, in which physical forms are catalogued as terrain typologies and countries; invisible borders and boundaries are placed within the tactile world, parceling the concept of landscape through sociocultural frameworks. Categorization of land into public land, Bureau of Land Management land, private land, National Parks, industrial sites and others also contributes to the construction of landscape, and the signifying of meaning. Social orders create landscapes based on symbolic meaning, military zones, or territories. Landscape is a social construction, it is a classified thing, and its significance is developed through networks of power. The following scholars have contributed eminently to this discourse, of how landscape is a tool through which certain social paradigms and hierarchies are established, including the formation of the landscape as a subject as well as how subjects and social identities are created through landscapes.

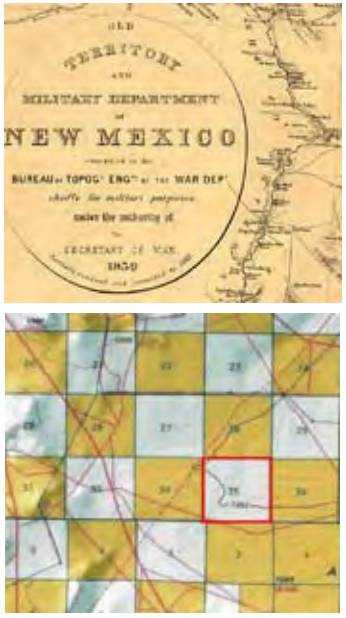


Fig. 9: Maps delineate territory, and define landscapes.

3.1 Lefebvre and the Production of Space

In considering Henri Lefebvre's triad of 'perceived, conceived, and lived' productions of space, space and landscape are foundational elements in the construction of identity and meanings (Lefebvre, 1991). Lefebvre discusses the notion that space is first represented and characterized through city planning, architecture, and the creating of the ideas of cities or lands, and is also created in the larger context of the practice of cartography, which creates countries. These spaces are then built, or named, and become 'conceived,' and concretized. Next, according to Lefebvre, space is actualized, it is 'representational,' moving from planned space to built space to *used* space. In this way, space becomes identified in our daily lives, and we become identified through our uses and associations with space. The same can be said for landscape—when a landscape architect plans a public park, it is constructed with certain ideologies, social values, and programming goals in mind; when that space is built, these values and ideologies are physically manifested, and as the park is used, these values become infused into everyday practice. Thus proceeds the production of space, and the production of landscape.

Lefebvre argues that ideology needs space to survive, to be composed. In The Production of Space, he writes, "What is an ideology without a space to which it refers, a space which it describes, whose vocabulary and links it makes use of, and whose code it embodies (Lefebvre, 1991, 84)?" The three types of spaces, representations of space (i.e. the city plan), spatial practice (i.e. the ways the city plan needs to function insofar as city patterns, infrastructure, etc), and representational space (the city plan in use) are imbued with ideologies and meanings which assemble one another in a fluid, two-way system. These ideologies help inform and produce one another, overlapping immensely, and contribute to the production of space. Lefebvre describes space as active and operational, constantly playing a part in the way the space we live in is constructed, as well as the grounds through which we develop our identities in relationship to the ideologies of cities, places, and landscapes.

More direct examples of this production of space in regards to the city and identity comes from John Archer's article *Social Theory of Space: Architecture and the Production of Space, Culture, and Society.* Archer continues Lefebvre's theorization and links it to those of Foucault's which concern order. Archer examines the ways in which built space functions in creating institutions, places, orders, political centers, etc., which have an effect on the ways that we are organized as subjects in terms of economies, politics, relationships between personal identities, and public spaces. Archer writes, "Built

spaces both shape the dispositions constituting social identity' and naturalize those dispositions within society. (Archer, 2005, 431)." Architecture makes physical sociopolitical schematics and demonstrates political prowess and strength; the buildings we form our cities with also form the meaning of our lives. Diane Agrest conceptualizes this idea, writing, "The city is not only a representation of power […] it is also the scene of power (Agrest, 1980, 1)." Arguably, if, as Agrest and Archer conclude, the construction of architecture creates meaning and establishes ideological frameworks, agency is then possible through the infusion of contrasting implications into architectural forms, and in re-engaging with architectures past, reframing them to connote innovative ideas. However, these 'scenes of power 'are not limited to the built, urban fabric, but bleed out into the lands surrounding our cities and towns; perhaps the most subtlety commanding constructions of our identity occur within the ground upon which we set buildings, the ground upon which we draw lines of ownership-- that space of outside, of landscape, which extends far beyond the physical dimensions of the city, linking us in our cities and compelling vast influence.

3.2 W.J.T. Mitchell and Landscape as a Verb

W.J.T. Mitchell is one of the instrumental theorists on the formation and representation of landscape in response to the shifting social strata; in the introduction to his second edition of Landscape and Power, Mitchell links the theories of Lacan, Foucault, Lefebvre, and others to the conceptualization of landscape, by pointing out these theorists share a common idea of 'space' and the implication that its production has to society as a whole; for instance, Lacan's 'symbolic' is related to Lefebvre's 'representational space,' which both share the construction of meaning through symbols, such as the design of space by the landscape architect and the policy of the city planner which are produced to represent larger societal principles. However, Mitchell calls for the specificity entailed in the idea of 'landscape' as a type of space which produces, reinforces, and potentially disrupts systems of power. Mitchell synthesizes the broad, general theoretical framework entailed in the idea of 'space' or 'place' into a more focused investigation into the significance of landscape.

Mitchell's key concept is his articulation of landscape as a verb instead of a noun, and that landscape should be considered "[…]not as an object to be seen or a text to be read, but as a process by which social and subjective identities are formed (Mitchell, 2002, 1)." Mitchell discusses the landscape as signifier, to build off of Lacan; the names, classifications, orders, calculations, ownerships, and symbols which we attach to landscape dictate that landscape's purpose, and therefore our specific relationship to that landscape. For instance, if a landscape is classified as a military base, we as members of the public are not allowed into that space- it does not belong to us. This associates identity and creates subjects through landscape as a method. Similarly, if a border line is drawn down the center of an area of landscape, this landscape changes into two countries or two states, and our traversal across that line is now limited and mediated, even if the line is physically invisible and only exists on a map.

Landscape is a social construct, in which meaning is created when a landscape is perceived. Landscapes do not contain inherent or essential meanings- we attach meaning to landscape. In relating Mitchell's notion of landscape as a verb to the arguments of Lacan and Butler about the construction of a subject through the attachment of meaning, then social subjectivity is also constructed in the perceiving of landscape, at the precise moment that the landscape is being defined. A social identity and a social subject is necessary to categorize a landscape, because one must be able to be in that landscape, to know how it fits into the unfolding terrain of one's life. The landscape is only known in relationship to the subject (i.e. is it home? Is it a space of play? Of work? Am I free here?) and the definitions are co-constituent and re-enforcing.

Landscape is a vehicle through which we understand ourselves and the orders in which we live, a mediating source and a process which Mitchell calls, "a medium of exchange between the human and the natural, the self and the other. (Mitchell, 2002,

Fig. 10: Surveying has long been used as a method through which landscape is socially constructed. Even oceans are categorized.

5)." Landscape not only creates subjects, but creates power relationships. Landscape is set aside and represented as 'wilderness,' while physically and regionally similar landscapes are sanctioned for building and development, which creates categories of 'natural' and 'urban.' Landscape is considered 'valuable' for the natural and cultural resources it contains, and for its aesthetic or historical content. Value is subjective, and varies dependent on culture, society, region, city, location, class, gender, race, sexuality, age, etc. Value and meaning are essential tools in political frameworks, and to instructional reinforcement of power relationships. As landscape creates subjects and subject identity, landscape also links these subjects into larger social orders, as the value of landscape is seen through the lens of a subject located within a particular place and time. The over-arching political and social nexus through which environments are encountered forms sociocultural identities and definitions about landscape. We create meanings through our relationships with landscape, and within landscape our identities are constructed.

4 Heterotopias, Agency, and the Landscape

4.1 Foucault and Heterotopias

In examining the ways in which meanings and classifications of landscape are organized, and the ways in which they contribute to the production of fixed identities and social relationships, it is imperative to examine the places which problematize these processes, specifically 'heterotopias.' What are these anxious places, these places that exist in between, in our modern society? What are these places without definition?

In *Des espaces autres*, or *Of Other Spaces*, Foucault begins to elaborate on his former scholarship concerning systems of power and points of resistance with the exploration of literally *unknown* territory- that of the heterotopia. Foucault reinvokes his description of power as a matrix of interrelating nodes and networking points, extending the metaphor to conscious life in general, and speaks to the dynamism inherent within those interrelationships and interconnections that hold the system together. He defines heterotopias as:

> […] real places, effective places, places that are written into the institution of society itself, and that are a sort of counter-emplacements […] in which the real emplacements, all the other real emplacements that can be found within a culture, are simultaneously represented, contested and inverted; a kind of places that are outside all places even though they are actually localizable (Foucault, 2008, 17)."

For Foucault, these heterotopias mirror, and subsequently invert, our classification systems, and invert the 'order of things' through the multiplicity of realities which coexist within them. He uses examples of the ship, which is on a body of water which is ever in flux, and which moves throughout time and space even though the physical state of the ship itself is a solid object. He also offers the example of the prison as a heterotopia, a place in which individuals of society are placed who are not considered 'normal,' and should be removed from society; yet the prison still exists within society, and contains social subjects. Cemeteries are yet another example of Foucault's heterotopias, which he calls 'other cities' that withhold the bodies of the dead in a physical order characteristic to a city (grids, plots), yet this 'other city' which exists within the public city contains the dead. Foucault's definition of the term heterotopia is that of a physical space in which contrasting elements converge to produce unknown, unordered realities. Heterotopias invert the 'order of things,' and therefore allow the capacity for play and shift in meanings of place.

Heterotopias are in between places which exist out of time and place and resist categories or binaries; if power is a matrix, in which resistance is encapsulated, then what are the places which exhibit traces of power but now exist as an undefined? They are still parts of the whole, still pauses in the cycling of power; what implications are inherent in such anomalies? Heterotopias are actually produced by systems of power; they function as definers of the normal, and are usually posited as the 'other,' yet they complicate even that contrasting binary definition. Heterotopias contain so many meanings that one meaning cannot be established to categorize this place. Heterotopias are a glitch in the system, yet are still part of the system; they are a place of hesitation between binaries, and contain so many different meanings at once that not one categorization can be determined. In this way they allow in new interpretations and definitions. Heterotopias exhibit symptoms and traces of power, yet are not this or that, and therefore these spaces are unclassified, strange, and uncomfortable. What do we do with these spaces? These are spaces which reveal our humanness, our impacts, and our capacity to alter environments; sometimes we want to forget this. They

are honest places, in which disjunctions and cleavages of desire, of meaning, are left bare and open for us to witness. They expose us and our orders. This is why heterotopias are places of anxiety, in that they complicate our understanding of the conscious world, of the named. They are spaces which dissolve categories, of natural/urban, of peaceful/at war, of resource landscape vs. lived landscape. The agency of heterotopias rests within this refusal to be classified in a binary system, and in this flux of meaning. Where are heterotopias located within the landscape?

4.2 Heterotopic Agency

In response to Foucault's development of 'heterotopology,' which was quite limited, appearing in only a few lectures and articles, a pivotal book of essays was compiled, called Heterotopia and the City (ed. Cauter and Dehaene, 2008). Many theorists wrote articles in critique of Foucault's heterotopias, and many of the articles directly link the heterotopia to agency. In Heidi Sohn's extension of Foucault's heterotopia theory, *Heterotopia: Anamnesis of a Medical Term,* she points to the actual root words of 'heterotopia'—'hetero' meaning different, and 'topos' meaning place (Sohn, 2008, 41). Her article continues Foucault's investigation into heterotopias, but carries forward new definitions and possibilities entailed within the heterotopia's existence. She points out that heterotopias are stages for agency, in that heterotopias defy 'sameness (Sohn, 2008, 48),' and the physicality of heterotopias lends strength for action in the refusal of dialectic categorization, in that "Spatial heterotopias are *exceptions* that differ so greatly from all categories that they cannot be fitted and fixed into any rigid taxonomy (Sohn, 2008, 49)."

In recalling earlier work of Foucault prior to the lectures on heterotopias, Foucault speaks of resistance (or agency) as "[…] a chemical catalyst so as to bring to light power relations, locate their positions, and find out their point of application and the methods used (Foucault, 1982, 780)." Agency is the moment in which a binary is exposed to be inadequate at encapsulating experience within two polar opposing forces; agency is the slippage between these two defined categories, and it occurs when those categories are uncovered and revealed. The very misunderstanding of the binary classification system inherent to social order that is encountered during the contemplation of a heterotopia relies on a pre-existing establishment of defined opposites. A heterotopia is misunderstood equally by those within the specific social order through which it cannot be defined. It is exactly within this shared misunderstanding that agency emerges, in that the misunderstanding leads to the questioning of categories, and the potential for new meanings to emerge. When the naming of things within competing terms of nature/culture is lain bare as a social construct, the 'location of their positions' in the social fabric are mapped, and therefore surmountable. Heterotopias provide this opening up specifically in their resistance to classification, order, and the dual sorting of understanding inherent in binary thinking. Heterotopias are divergent from the correct order of things, from the correct view of 'nature,' and the correct view of 'culture.' They contain so many meanings at once that the either/or is canceled out.

The introduction of Heterotopia and the City relates agency directly ideas and values behind the defining of 'landscapes,' with Dehaene and Carter's insistence that the "[…] Heterotopia embodies the tension between place and non-place that today reshapes the nature of public space (Dehaene and Carter, 2008, 5)." While Foucault begins the epistemology of heterotopology with the description of heterotopias as limited places, with sanctified and policed entrances and exits, Dehaene and Cauter call out heterotopias as 'collective' spaces, experienced in the public. The shared understandings of the ordering of values and meanings associated with landscape and with public spaces are collectively inverted and turned on end with the encountering of a heterotopia. Heterotopias exist because they are viewed through a lens of misunderstanding, of wonder, and of resistance to category. Frequently, heterotopias are landscapes, and stages of meaning.

4.3 Heterotopias and Landscape Architecture

These places of wonder and strangeness are frequently landscapes, and become stages for emergence of novel meanings. One striking example of a physical heterotopia is the demilitarized zone between North and South Korea, which has become a major bird sanctuary in its undisturbed, uncategorized state. This is an example of a peace park, or a Transboundary Protected Area extending across territories, which connects otherwise opposing forces through the attention to protection of a shared bioregion (Hines, 2008, 36). Other examples of heterotopic landscapes are landscapes which change meaning pre- and post-war, such as agricultural zones which convert to habitat during war periods, and then are returned back to agricultural sites once battle has ceased and

Fig. 11: The demilitarized zone between North and South Korea, which has become a major nature preserve.

everyday life is resumed. Another example of a heterotopia is the Rocky Mountain Arsenal in Colorado, which was once a weapon testing range and military base, and is now major site exhibiting uninterrupted high plains ecology (Berger, 2002, 31).

Of most intrigue and interest in terms of heterotopic agency and potency is that of the post-industrial abandoned mine land. One of Foucault's main defining points of a heterotopia is that it is inextricably related to the element of time, which he states with, "The heterotopia begins to function at a full capacity when men arrive at a sort of absolute break with their traditional time (Foucault, 2008, 20)." A post-industrial mine is post-industry, and post previous meanings. What happens when a landscape loses its prior meaning? What exactly is the mining site post-industry? It is not a 'natural' landscape; the flora and fauna that existed pre-industry is gone, lost, and the mountain is without its top. It is not a sentimental of economically viable 'cultural' landscape; there is no longer the potential for commodity, the resources are removed, the landscape is now barren and outside of desire. This landscape has lost the utopic potential the 'wild, unbounded nature' of the American retreat and has lost the utopic possibility of capitalist industry through the extraction of minerals. This place now exists outside of the binary; it is neither the 'nature' other nor the 'cultural' other in the polarizing set—it has become a heterotopia.

Alan Berger is an instrumental theorist in looking at heterotopias in the American West, which he instead calls 'reclaimed landscapes.' His book, Reclaiming the American West, searches for the potential and implications within the process of reclaiming abandoned American landscapes for the development of new cultural and ecological frameworks. He specifically points to the power of reclamation in redefining cultural/natural meanings, writing:

> "Reclaimed landscapes, if thought of as liminal realities of the symbols for organic and technological natures (because they would not be categorized as natural nor technological landscapes), can influence how we think of organic and technological natures. Reclaimed landscapes are liminal places in the cognitive sense as well as the physical sense, because they suspend our judgment of what organic and technological natures might become in our culture (Berger, 2002, 182)."

Berger argues that reclaimed landscapes produce 'synthetic ecologies (Berger, 2002, 61),' which are reclaimed places in which predetermined meanings of nature and culture are fused and complicated. In a reclaimed mine site, the reinstitution of 'natural' elements will not recreate the historical land use in that area; technology and ecology are used in mining reclamation to counter the negative impacts of mining, producing a new, indeterminate space. He specifically assigns the responsibility of 'reordering the landscape' to reclamation (Berger, 2002, 61), and applies agency to the practice of reclamation in that mining sites contain disturbed occurrences of cultural and natural meanings which can be shuffled, examined, investigated, regrouped and redefined as entirely new presences which baffle dualism. Reclamation uses organic systems and human-made technologies to treat the damage of industry to the environment and the human memory. When a mine site, which contains a multitude of pasts and a hesitant future, is reclaimed, there is potential to generate unique, unprecedented places which combine ecologies and cultures within one dynamic site. Landscape architecture is inescapably a crucial component in this possibility. What role does the heterotopia, the undefined place, the landscape of multiple meanings, play in the larger cultural and environmental nexus in terms of landscape architecture? Conversely, how does landscape architecture engage the heterotopia?

5. Agency and Landscape Architecture

How can landscape architecture provide agency for ecological and cultural subjects through the re-fitting and re-structuring of heterotopias, particularly the heterotopic abandoned mine land? Theorist and landscape architect James Corner defines landscape architecture as "[…] not simply a reflection of culture but more an active instrument in the shaping of modern culture (Corner, 1999, 1)." In the introduction to the book Recovering Landscapes, Corner advocates for landscape architecture as a practice which establishes cultural places and societal frameworks because landscape architecture is the design and constitution of the landscapes surrounding us. He calls landscape architecture a 'critical social practice (Corner, 1999, 1),' in that landscape architecture bridges a vast spectrum of not only cultural and social needs, but also environmental demands. Landscape architecture creates designs in which ecology, program requirements, user needs, sociocultural identities, ideas of place, political desire, governmental policies, etc. are co-constituent, and co-defining; how can this process be applied to heterotopias in which sociocultural and ecological identities can be reclaimed or new ones can be established?

Elizabeth Meyers, in her article, *The Expanded Field of Landscape Architecture,* links the agency of non-dualist strategies of language precisely to the field of landscape architecture, building an argument that landscape architecture presents unique and distinctive opportunities for the creation of 'hybrid' landscapes as opposed to binaries. Meyers discusses the historical positing of landscape architecture as the 'other' to the field of architecture (again, the binary opposition of the built/natural environment), and she urges for practitioners in the field of landscape architecture to design outside of binaries and instead in 'in-betweens' and 'hybrids,' particularly the "[…] investigation of new systems of order through the particulars of its unique medium and materials (Meyers, 1997, 50)."

The specificity within the medium and materials of landscape architecture which Meyers mentions can be read as the peculiar and remarkable aspects encompassed within the design of organic and cultural systems, which is the fundamental basis of landscape architecture. Landscape architecture fuses the binary oppositions of nature and culture through design, incorporating both ideologies into one site, with varying needs and contributions to both schemas. For instance, in landscape architecture, wetlands may be constructed to treat greywater from urban sites, cleaning the water for groundwater recharge or for crop irrigation. In landscape architecture, certain plants may be incorporated into a design to treat contaminated soils. Landscape architecture is used for habitat restoration and also for improving social health with the inclusion of parks. These are just some examples of the broad range of techniques and methods that landscape architecture incorporates in practice.

Fig. 12: The sublime heterotopic landscape produced from copper open-pit mining at the El Chino mine in Silver City, NM.

Landscape architecture is arguably also an integrative medium with a hybrid approach, in that the design of organic and natural components must allow flex and response to the unfixed, ever-evolving processes of these systems. Landscape architecture moves with the seasons, with the weather, with sociocultural needs, with time, and, in the case of heterotopias, with meaning. Landscape architecture is subject to the elements, as well as to its users. Landscape architecture then is responsible for the provision of places and spaces in which social subjects and subjective landscapes are composed simultaneously, and together. Social and cultural identities are defined through landscapes, as described earlier, and landscapes are defined by social frameworks; since landscape architecture is the design of the built and natural environment, landscape architecture also plays a role in the construction and production of sociocultural identities as well as definitions of landscape. Landscape architecture, in its capacity to reconstruct, and its potential to design a human space and an ecological space simultaneously, therefore offers agency through the consideration of heterotopic

spaces, particularly through such processes as reclamation, and the re-framing of cultural/natural in-between spaces, such as abandoned mines. Landscape architecture as a field also has the potential to reclaim landscapes for sociocultural purposes, creating diverse places of cultural significance, ritual, pleasure, and personal and/or collective meaning.

6. Conceptual Framework

The role heterotopias play in the definitions and manifestations of landscape within systems of power is that of an active agent in reframing sociopolitical, cultural, and environmental binaries. Systems of power operate and define landscapes through binary classifications, through the order of language, through signifiers and the signified, all of which are interconnected, reinforcing elements in an overarching matrix of power. The categorization of space defines sociopolitical identities and cultural ideas of landscape through these tools of power, through the establishment of geographical delineations such as boundaries, the identification of land ownership and use, and the commodification of the landscape through methods of industrialization. These methods create social subjects, and also demarcations of landscape meaning.

Power relationships, however, create heterotopias, through abandoned spaces which no longer provide resource, through political grey areas, and through hybrid landscapes. These are places of contrasting and manifold meanings, which defy binary modes of thinking and offer potential for agency and the transformation of social orders. Agency is the power to act, to confront the social structure. If, as Foucault states in The History of Sexuality, resistance is enacted by locating modes of power, heterotopia's resistance, or agency, is the recognition of binaries through which it cannot be defined. Heterotopias present unique opportunities of resistance, in that an array of meanings defies binary classification, which allows the heterotopia a place outside of language. This place, when taken up by landscape architecture, can potentially challenge and reframe socio-ecological meanings. Landscape architecture as a medium is defined as the engagement with social edifices and ecological environments, therefore landscape architecture is a vehicle for agency.

7. Praxis

7.1 Linking Theory and Practice into Design

If landscape is part of the system of power in which cultural identities are formed, if it is a stage upon and through which we create our societal rules of engagement or belonging, than landscape is an instrumental means through which to redefine and reframe the construction of cultural identity. If landscape is the signifier of the organic world, the perceived symbol of that which is flux, fluid, and 'natural,' then landscape is also the vehicle through which new ecologies and new relationships can emerge and flourish. Landscape architecture has the potential as a field to mediate, to inter-locate, to act as an agent of change dispelling dichotomies and allowing for overlap. Specifically, the landscape architecture technique of reclamation can accomplish these goals.

Reclamation requires encounters with places of prior purpose which once contained pre-existing categorizations, and are now in the state of being undefined. Reclamation, then, is the practice which links landscape architecture, agency, and heterotopias together into a transgressive process which develops alternative subtexts that complicate the broader network of order inherent in binary classification and systems of power. Landscape architecture can be used to reveal site history, disclose previous memories of place while simultaneously instilling new definitions of place, and to cultivate new spaces where binaries coexist as amalgams, creating new meanings and new hybrids of nature/culture. Reclamation provides the opportunity as a procedure to fuse urban and ecological spaces into new diverse synthetic ecologies. Reclamation can turn post-industrial landscapes into trans-industrial landscapes, 'post' meaning after or subsequent, and 'trans' meaning beyond and through. Trans-industrial landscapes created through the practice of landscape architecture and integrative reclamation can breach dialectical oppositions and definitions of nature/culture, urban/wild, engendering places which emerge from the tectonic orders of language and social stratagems and pass through and beyond fixed meanings and limits into a realm of shifting possibility.

These heterotopic landscapes are liminal spaces which allow for new social and political identities to be created, as well as new definitions of landscape, such as Berger's synthetic ecologies. There is immense opportunity for the reconstitution of meaning within social orders when the theoretical frameworks which explain

Fig. 13: Plan drawing of Parc des Buttes Chaumont, which opened in 1864.

how these locations come to be, and what they signify are infused into the practice of landscape architecture. If the role of landscape architecture is that of designing the environments of our social and ecological fabrics, it is therefore the responsibility of a landscape architect to examine the meanings of space, the construction of landscape, and the transgressive possibilities inherent within a field that exists to connect ecological and cultural places. Through such practices as reclamation, landscape architects and designers have the significant, valuable opportunity to reframe, and to contest prior notions of the order of things.

Landscape architecture has a history of reclamation, and of the transformation of space. Parc des Buttes Chaumont, for example, a pioneer project in landscape architecture's history from the late 1800s, was created from a derelict rock quarry in Paris, France. However, even Parc des Buttes operated through binary modes of production and classification, erasing the history of the rock quarry with a design that mimicked an English Romantic Landscape. Today, most reclamation projects are done by civil engineers and contractors, and these projects involve basic 'ecological' principles such as revegetation, soil reinstation, hydroengineering—tools of science alone. Most reclamation projects focus on the re-creation a 'natural' and undisturbed look to the landscape, as if a mine, a quarry, or a factory was never there.

The question to be put to design, and to fuse theory with practice (praxis) is as follows: how can we move away from pastoral landscapes, from supposed 're-naturalized' environments which cover up industrial damage to the land, further reinforcing the divide between nature/culture, normal/other? How can abandoned sites, or heterotopias, be a sort of modern ruin, without the nostalgia? How can these sites create new hybrids, new 'synthetic' ecologies, and new dynamic spaces which defy dualist, divisive power structures? How can landscape architecture create ground-breaking discourse complicating conventional ideologies of place, landscape, and power through the making of trans-industrial landscapes? This question is valuable not only to the larger sociopolitical nexus, but also to the field of landscape architecture itself. The responsibility of the field of landscape architecture is to overwhelm the dualistic polarity of organic and machinic systems, conflating these systems into hybrid places of the unaccustomed and the unnamed, places in which we will inquire into the foundations of the structured world.

III. Conclusions

The Heterotopic Design Approach

The unavoidable question in the undertaking of a praxis that incorporates theoretical discourse on systems of power and the construction of landscapes is as follows: How can the design of a heterotopia avoid fixing the identity of this new, integrated place, and therefore turning the place into a named site, or an ordered place? How can design approaches encourage a continued flux of meaning within this site, which do not end with the construction of the design? The praxis component of this research endeavor focuses on working through these questions, and finds a potential approach in the notion of **activating these landscapes as opposed to naming them**.

This task of developing discourse about landscapes, power relationships, and meanings within a design project is accomplished through the inclusion of reclamation not as an engineering practice, and not just reclamation in regards to natural systems, but sociocultural systems as well. Key to the development of a design which successfully engages a heterotopia is an integrated approach. An integrated approach in reclamation is one which defies the masking of meaning, and the covering up of a site's history with 'natural' appear-

ances, and attempts instead to incorporate and celebrate opposites, contrasts, and site multiplicity, therefore producing a space of hybrid meaning.

Design of a heterotopia is about process, flexibility, and mutability, This project, *Power, Landscape, & Meaning: Reclaiming the Trans-Industrial Heterotopia of Madrid, New Mexico* aims to interact with the heterotopia, of Madrid, New Mexico, and to develop design strategies that celebrate the current heterotopic qualities of such places, while providing flexible design that can evolve and change in response to time and space. The exposure of the multiple meanings within a heterotopia through the task of design will provoke dialogues about the site's history, its present, and the potential future significance that will emerge from the design of this place. Integrated reclamation will utilize organic systems to remediate industrial waste and damage, that complicates oppositional positions of nature/culture. Many contrasting meanings will coexist in congruence with the heterotopia as a public landscape, as the potency of the heterotopia as an adversary to binary thinking lies in its potential to mean many different things at once, not in the assimilation of meanings. Integrated reclamation and design will encompass the arts and sciences, through engagement with the cultural and ecological histories and memories inherent in the site's former constitution, and will merge these pasts together in a new manifestation of the site as a hybrid of natural and cultural space, abandoned and reclaimed space, and post-industrial space and metamorphic, trans-industrial space.

The displacement of located binary oppositions within the heterotopia offers immense possibility when aligned to the field of landscape architecture, which formulates designs that merge organic and social systems. The heterotopia, and its diverse array of many meanings which defy categorization, carries immeasurable implications for the unsettling of the ordered ground upon which we live, build and exist. When the heterotopic landscape is intervolved with the field of landscape architecture, the heterotopia can produce environments which make us question the naming of landscapes, and potentially the naming of ourselves.

ENDNOTES

1. Charles Baudelaire, "*Correspondences,*" from The Flowers of Evil, Trans. by James McGowan. New York: Oxford University Press, 1993.19.
2. Alan Berger, from Reclaiming the American West,. New York: Princeton Architectural Press, 2002. 183.

PART TWO: PRACTICE

I. SITE SELECTION

Madrid, New Mexico was selected as the subject site based on a series of criteria that were developed through the theoretical research to support the conceptual framework of a heterotopia, which is a place that contains a complex aggregation of many meanings and identities, and exists outside of the binate system of categorization that constructs landscapes of power. The five main criteria for this site were as follows:

1) the site must be located in the Southwest, for research and field study access,
2) the site must be of a measurable scale, so that design strategies can be developed fully; the site can then operate as a prototype for other potential heterotopic explorations,
3) the site must a non-productive mining site, with visible or known ecological or cultural traces of the past industrial landscape
4) the site must be pre-reclamation, in order for the design to introduce new and experimental approaches to reclamation, and
5) the site must contain an overlapping interface of urban and ecological factors; a site too rural would negate the theoretical proposal that landscape architecture can interlocute organic and cultural systems.

These criteria are essential to the process of using the medium of landscape architecture to interplay past, present, and future manifestations of the site, and to reframe the heterotopia as a landscape of myriad meanings.

The town was created as a company-owned town in 1891, for the purpose of coal mining, and Madrid flourished until the mid 1950s, when coal became less attractive in the competitive market which favored natural gas and fuel oil. By 1954, the entire former company town was for sale by the son of the original mining superintendent; when no interest was shown, the surface properties were sold off individually to various buyers in the 1970s. Most people who moved into Madrid were considered 'counter-culture,' artists and people escaping from urban areas, and this population has subverted and reclaimed Madrid's mining history for productive use. The remnants of the landscape of power, mining, that occurred

within this town, have become the economic engine for the residents of Madrid; one of the main sources of Madrid's economy is its appeal as a tourist attraction due to the history of mining, that draws people who arrive to partake in the nostalgic artifacts of the mining era in the West. Artisans and artists sell their wares to the tourist demographic, which provides the second contributor to the village economy. Gob piles (coal waste piles) which were formed during the mining period are currently sculptural anomalies and historical monuments referencing a past era, even used by residents to display sculptures upon. The ghost town turned artist colony is imbued with contrasts; the people who moved into the abandoned town were moving away from the streaming lights of cities and industries, yet the economic viability of the town in the middle of the desert is its very industrial past. The traces of the mining/power landscape become highly valuable.

Madrid, with its current water shortage and its omnipresent mining past, exhibits the reality of what becomes of a place once the force of industrial capitalism has tapped all of its extractive resources, and the town is no longer 'naturally' seductive (it reveals the scars of mining) or 'culturally' productive (it no longer contains natural resources). Madrid has also developed the multi-faceted heterotopic quality of being a prior company town owned by the mining operations that is now populated by a counterculture of artists and urban escapees who reappropriate the legacy of mining for economic and creative means. The layers and overlaps within the physical and cultural constructs of the site, which will be detailed in ensuing pages, reveal the site of Madrid to be a pulsing heterotopia, poised between two of New Mexico's major cities and alive with complexity and the fusion of many meanings. The environmental and social traces of the town's mining past have developed into a current urgency and need for reclamation; this site's heterotopic qualities are ideal for experimentations in linking theory to practice through design that celebrates the subversive importance of the heterotopia in problematizing power landscapes.

II. SITE ANALYSIS

HISTORY

Madrid is located along Highway 14, the Turquoise Trail, within the Ortiz Mountain region, which is one of the oldest mining stretches in New Mexico, and has been called "Coal Gulch." Native Americans in the Galisteo Basin have mined the coal for various purpose for thousands of years, and there is evidence of early formalized mining in the mid-1850s. Madrid was originally called "Coal Bank," but was officially founded as a mining company town in 1891, as coal production became highly productive. In 1892, a railroad spur was built to Madrid from Waldo, a town north of the village, and the town flourished with its extraction and processing of both bituminous and anthracite coal, taken from three main coal seams in the immediate area. The town's main story was coal, but its second dominating factor was water. The town always had a serious water shortage, and during mining operations there was reportedly 88,000 gallons of water pumped out of the mines a day, as underground seeps and springs were punctured. Water quality in Madrid has also

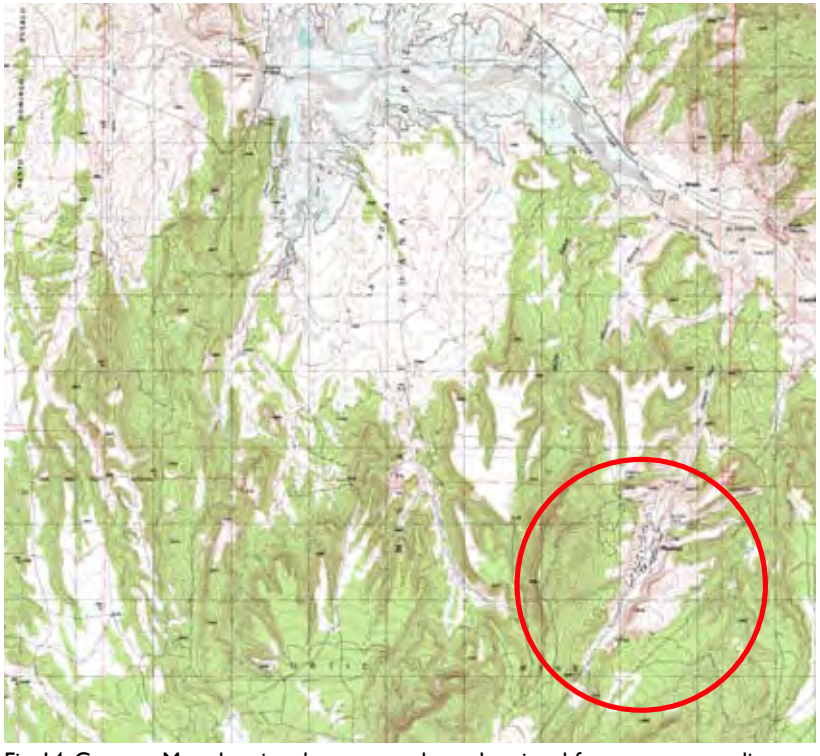


Fig. 14: Context Map showing the topography and regional features surrounding Madrid, NM.

always been poor, and drinking water was imported into the village on the railroad.

MINING

The company that oversaw Madrid was the Albuquerque and Cerillos Coal Company, owned by George Kaseman, who hired Oscar Huber to run the town as superintendent in 1919. The mining in Madrid was done in the **room-and-pillar method**, which involved the extraction of coal along the seam through the construction of rooms that were carved out and extracted, and pillars of coal were left in the tunnels to maintain structure. When one long area was mined, the miners would go in and start collapsing the pillars for extraction as well, known as 'retreat mining.' Mining in Madrid was extremely dangerous; there were many explosions from methane buildup, multiple floods, and deaths from subsidence.

There are 120 mine openings in the area that have been documented; the mines extended1000' below the surface, and once extended 1mile north and east of Madrid. Madrid had an estimated reserve of 46.5 million tons of bituminous coal, and only 4.7 million tons were mined. The town's anthracite coal reserves were estimated at11.4 million tons, with only 5.7 million mined.

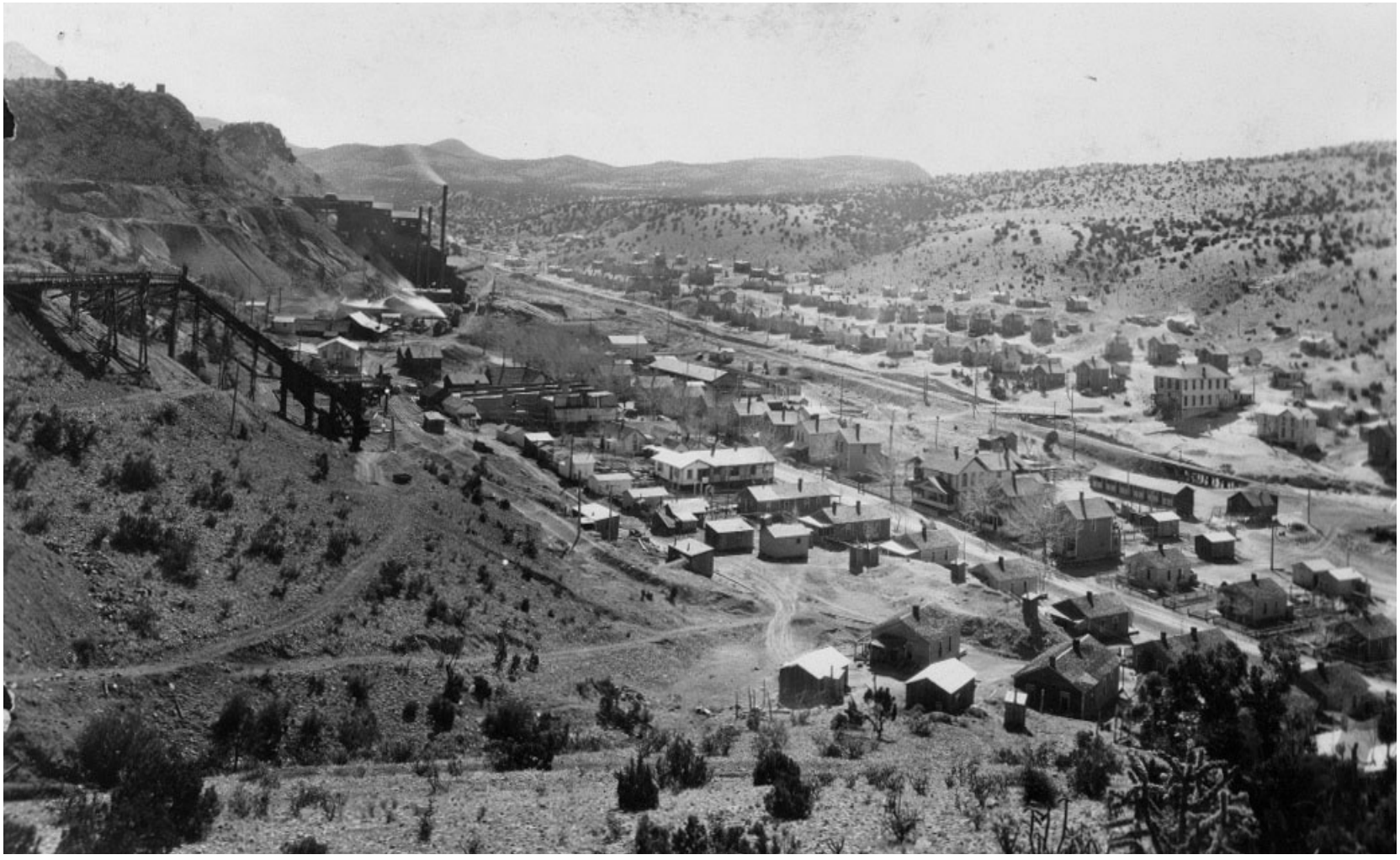


Fig. 15: Historical birds-eye photograph looking south into the town of Madrid. The breaker, or coal processor, can be seen in the far background.

Fig. 16: This diagrammatic map shows the extent of underground mining that occurred within the village of Madrid.

MADRID TODAY

Oscar Huber remained the town's major figure until mining dwindled in the 1950s from the popularity of natural gas and petroleum. By 1954, the entire town of Madrid was for sale. After repeated failed attempts at selling the town as a package, Joe Huber, Oscar's son, sold the surface properties.

He sold individual lots to artisans and 'counterculture' bohemians in the1970s for a very low price. The Huber family still retains the mineral rights. Madrid's economic engines are the artisan wares and mining tourism; 300 people make Madrid home, with a few restaurants, a popular tavern, numerous galleries, shops, and a mining museum.

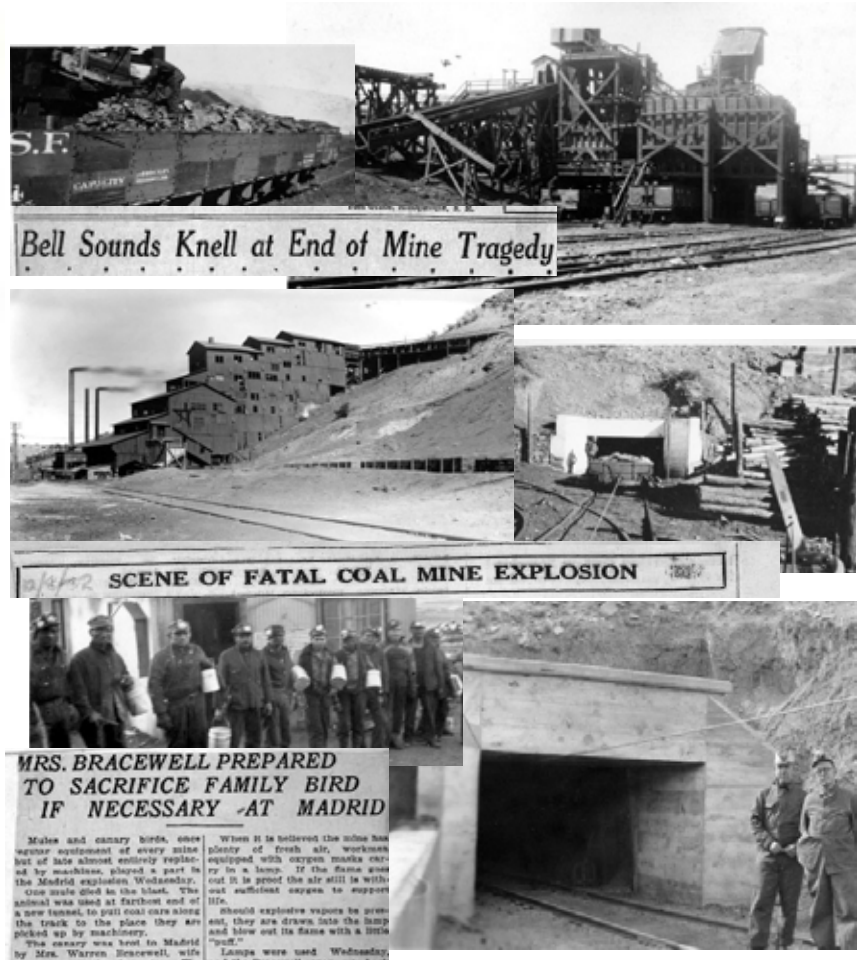


Fig. 17: A collection of historical photographs depicting the mining life of Madrid.

SITE CONDITIONS AND CONSTRAINTS

The town of Madrid is a destination along the Turquoise trail for its creative shops and its mining history. One of the contributing elements to the mining tourism in Madrid are a number of large coal waste piles that are found throughout the town, called 'gobs.' These gob piles are viewed by Madrid residents and visitors alike as sculptural monuments to Madrid's past as a company mining town, making history largely visible.

The town of Madrid is located within a valley, bookended by two ridges on the east and west sides of town. An arroyo, known as Madrid Gulch, bisects the town, dividing the main street corridor from the more residential part of town. This arroyo was once an informal class division during the era of mining, with the Main Street housing the mine bosses and owners, and "Back Road" housing workers in shacks without water. The railroad spur was also located in the Gulch, and remnants of the raised railroad bed still exist. This arroyo is used currently as an informal trail and recreation site, and is also a wildlife corridor. The town of Madrid purchased this area as an open space, which is referred to as "The Greenbelt." North of the town and the arroyo corridor is an area of 45 acres that Santa Fe County purchased as open space, now known as the "Wilderness." There are documented archeological features in the Wilderness area, as well as mine ruins and an archaeological-notable trash dump.

The town of Madrid has a moratorium on water hookups, as the town operates on one current well. In the mining era, 88,000 gallons of water were pumped out of mines a day in 1924, and now the town depends on one well with an expiration date of 2024. Historically, Madrid has had poor water quality: it is undetermined if water quality is linked to underground mining, but residents believe there is a definite connection. Extensive studies have not yet been conducted to research the water quality in Madrid.

The Galisteo Basin, where Madrid is located, has a complicated hydrology that is not completely known. Madrid's water supply is controlled by fracturing of geological formations, which creates pockets of water. This fracturing cannot be predicted or located, so there is unfortunately no potential for deliberate recharge of the well water source in Madrid.

Fig. 18: A billboard advertising the entire town of Madrid for sale in 1972.


Fig. 19: Various images of Madrid, NM, today taken during site analysis.

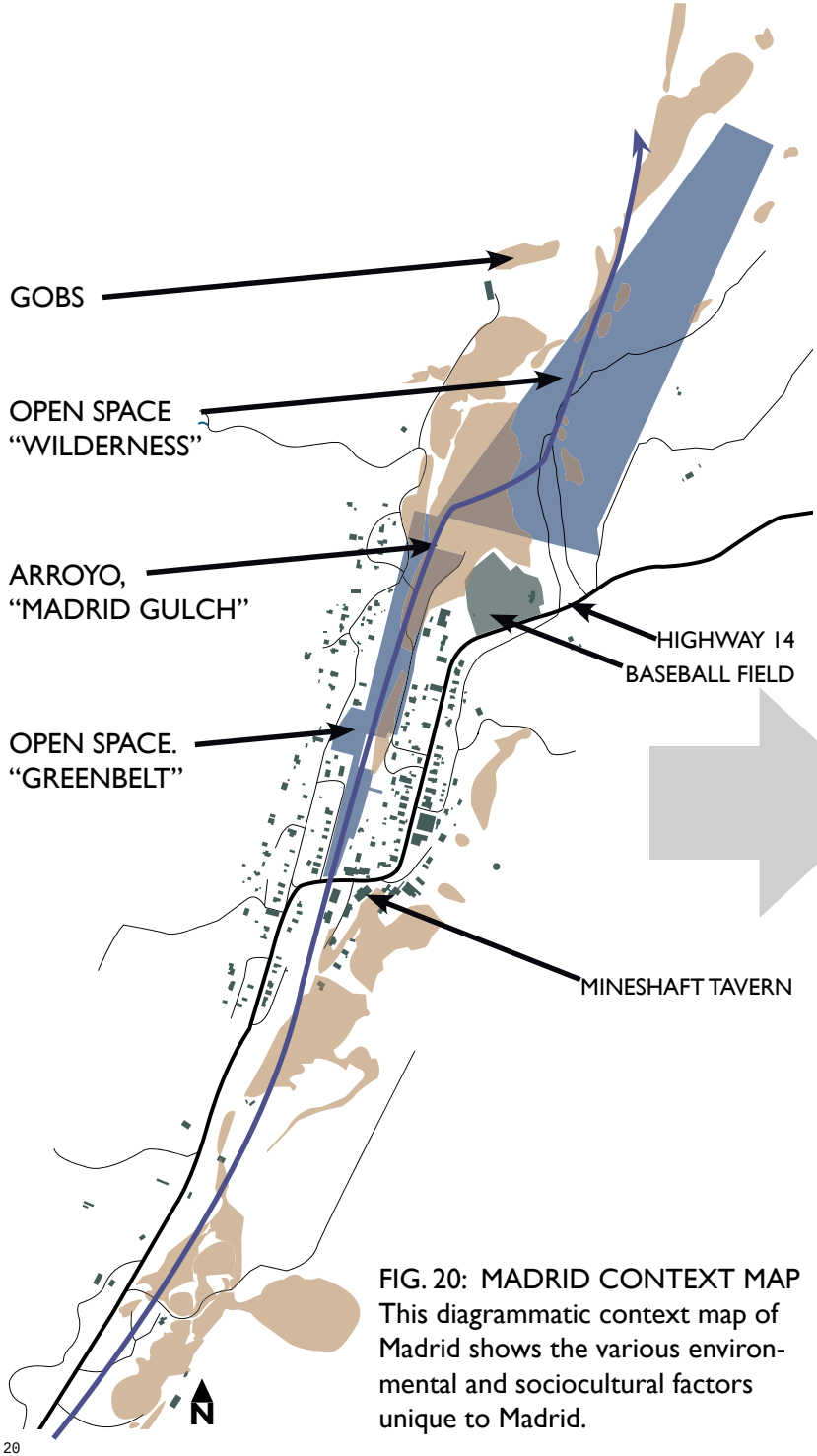


FIG. 20: MADRID CONTEXT MAP
This diagrammatic context map of Madrid shows the various environmental and sociocultural factors unique to Madrid.

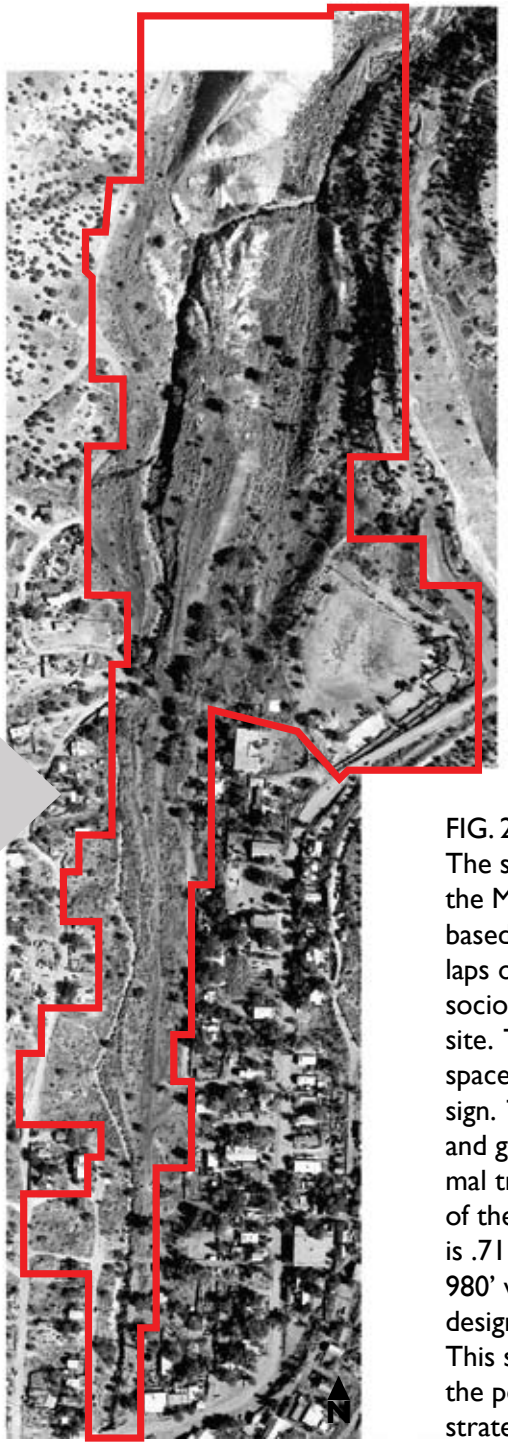


FIG. 21: SITE BOUNDARY
The site chosen for the project focus, the Madrid Gulch, was determined based on the occurrence and overlaps of Madrid's environmental and sociocultural constraints within the site. The site is mainly public open space, which makes it available to design. The site contains many gob piles and gob waste, the arroyo, and informal trail networks that the residents of the town use frequently. The site is .71 miles long, and ranges from100-980' wide, making a wide variety of design interventions available.
This site, with its many layers, has the potential for heterotopic design strategies.

FIG. 22: MAP OF MINING REMNANTS

GOB HISTORY

The gob piles throughout Madrid were created through the tipping of rail cars full of waste; the town once has rail lines that connected mine to mine. Therefore, where gob piles occur within the village correlates to where mine rail beds used to run. The gobs consist of mainly noncoal materials that needed to be removed from underground to make way for mining; some of the gobs contain coal of a quality too low to sell mixed with some good coal. Chemical testing of the gob material has determined they are below EPA action levels.

Wind and human activity have spread the gob materials over large areas over time, and the gob material occurs both as fill and as monumental large mounds. Gob was used in the mining era to reinforce the railroad bed. The gob material has weathered, with shale turning to clay and sandstone to sand. Some piles have caught on fire from spontaneous combustion and produced "red dog," or clinker, which a red colored, low-fired clays. Residents of the town use this red dog clay for pottery, and it could be used as surfacing materials for roads or trails. The average pH of the gobs is 4.6, which makes them highly acidic. The red dog piles are too acidic for revegetation, but the other gobs in Madrid show signs of minimal vegetation, especially those that are mixed into regular soils.

Fig. 23: Historical photograph of the rail lines that ran from mine to mine, from which the gob piles were created.

Fig. 24: Gob piles present an interesting aesthetic contrast to the fairly undeveloped, 'natural' ecoregion of Madrid.

GOB CONSTRAINTS

The gobs, while aesthetically desired by the residents, do cause adverse environmental impacts and have a need for reclamation. The gobs' steep slopes, fine soil particles, and little vegetation contribute to exasperated erosion, stormwater intensity, and sedimentation of water courses, which affects downstream sites. There is also potential contamination of groundwater from gob piles, but this has not yet been determined. There is little possibility of acid mine drainage, as there are no constant water flows or seeps in Madrid; the arroyo is an ephemeral streams. The gobs also contribute to air pollution, with residents complaining of "black dust" during the spring winds.

Residents of the village of Madrid want the gobs to remain, as they are contributors to a sort of 'outdoor museum' feel to the town's mining allure. However, the environmental impacts of the gobs need to be addressed, particularly those gobs along the arroyo, which cause sedimentation of downstream sites. Madrid Gulch drains into Galisteo Creek, which eventually ends up in the Rio Grande, so the impact of the gobs extends beyond Madrid.

Fig. 25: Red Dog, or 'clinker' gob piles along the arroyo in Madrid; red dog piles are gob piles which have caught on fire through spontaneous combustion.

Fig. 26: Typical gob piles along the arroyo in Madrid. The piles' erosive qualities are visible in this image.

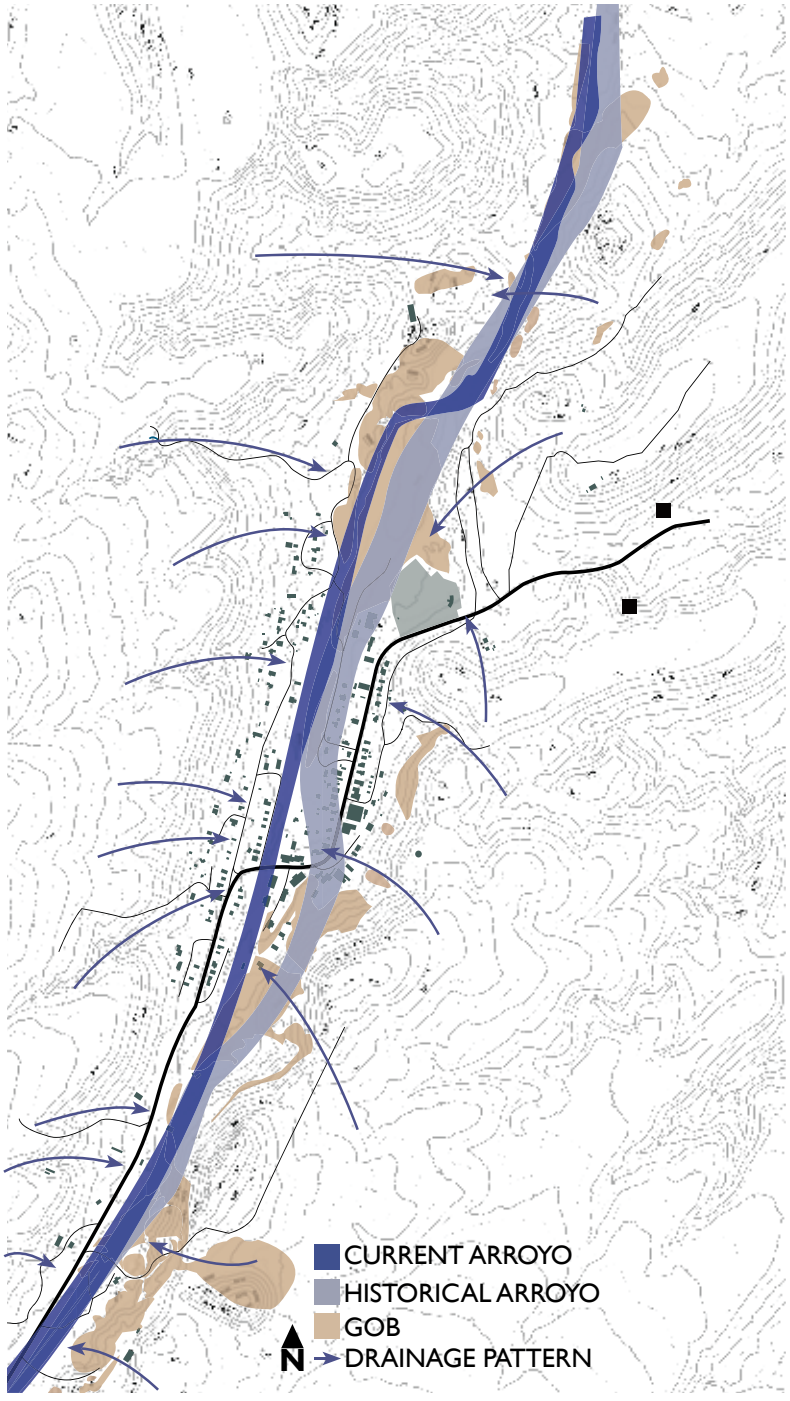


FIG. 27: MAP OF DRAINAGE PATTERNS

WATER CONSTRAINTS

Madrid not only suffers from a limited water supply, but also major flooding problems. Channelization of the arroyo channel in 1892 to build the railroad bed has produced historical and current flooding in the main street of the town. The drainage that used to cross the main street before this channelization now floods the village, as drainage patterns are now completely disconnected from the arroyo. There is increased sedimentation of flooded stormwater because drainage patterns flow through eroding gob piles, with residents reporting that the water is 'blackened' by sediments from the gobs.

Channelization of the arroyo has also led to erosion and bank destabilization, causing sedimentation in downstream sites. Rapid water flows through the straightened channel of the arroyo are another issue. which, when coupled with erosion problems, leads to dam-forming.

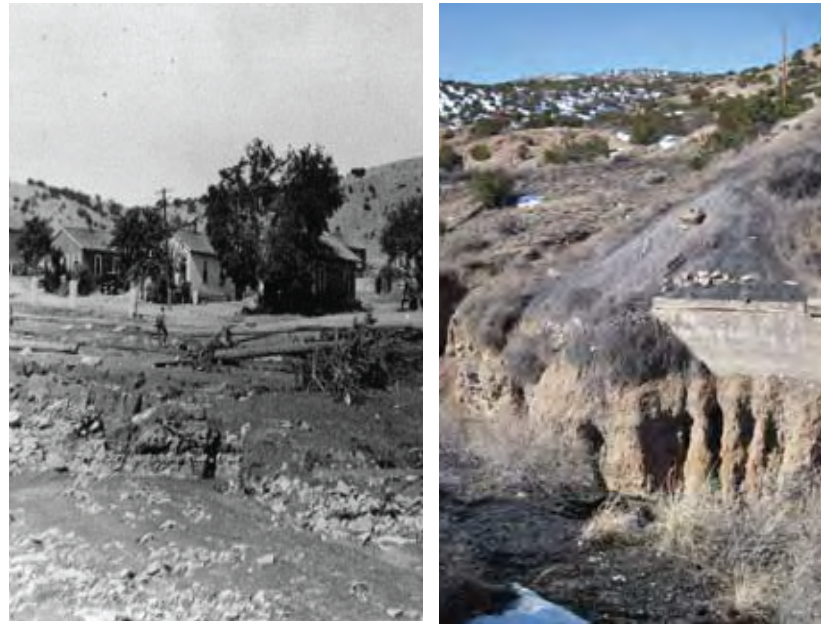


Fig. 28: *Left:* Flooding has been a historical problem in Madrid, as evident in the mining era photograph. *Right:* Current erosion along the arroyo banks is visible in this image.

III. PROCESS

DESIGN DIRECTION AND PROGRAMMING SOLUTIONS:

Within the site of the Madrid Gulch, opportunities are presented in the overlaps. The open space of the arroyo incorporates all of the afore-mentioned environmental and sociocultural issues within Madrid that are suitable for reclamation. This site is already used currently as a recreational link between the two social hubs of the village, the baseball field and the main street's Mineshaft Tavern, through informal trails along the old railroad grade. There is opportunity for these trails to be formalized into horse-back riding, hiking, and mountain-biking trails, which could extend to a larger trail network north and south of Madrid. Also, this site would be an excellent place for an extension of the artisan main street, through an outdoor art park and living museum.

Particularly, this site offers the chance to for experimenting in how to design within a heterotopia. The historical and contemporary layers inherent within the site make it ideal for praxis of design and theory praxis, and potential to reclaim this site, which contains traces of power, as a sociocultural and ecological heterotopia.

Initial programming ideas presented themselves in the form of revegetation to combat erosion and sedimentation, a programming strategy of keeping the monumental sculpture quality of the large red dog gobs through potential material harvesting and the building of studios, and obvious recreation opportunities. Also, the large open nature of the site lends itself beneficially to the idea of including performance spaces, galleries, and art studios to create and

Fig. 29: Various images of the Madrid Gulch. *Top:* Looking north from the west side of the site. *Middle:* The historic railroad grade. *Bottom:* Looking into the Gulch from the Baseball Field.

outdoor art park. However, the design challenge of designing within a heterotopia is to figure out a way to celebrate and build upon the existing and future stratified character of the heterotopia site, without negating the existence of the heterotopia through fixed, static design solutions. The design approach has to be fluid, flux, and responsive, and focused on contributing to the already variable and transformable landscape.

PRECEDENTS

In struggling with this theory-to-practice question of how to design within a heterotopia, a place of many meanings, without anchoring one meaning or manifestation of the site through a design, the examination of successful and unsuccessful precedents is necessary.

The Yankee-Vukonich Mine Reclamation Project in Raton, New Mexico, is very similar in context and appearance to Madrid. The area was once also mined for coal, and has a channelized water course that was causing drainage and erosion problems. The Abandoned Mine Land Program (AML), funded through the Energy, Minerals, and Natural Resources Department (ENMRD) of the state, did a reclamation project there which was based on revegetation of gob piles to mitigate environmental impacts. The approaches were traditional reclamation strategies, including reseeding, regrading, straw bale terracing designed to capture water in replanted areas of gob piles, the inclusion of mycorrhizal an fertilizing supplementation, and reconstruction of stream meanders. Recreational trails were also designed in the site with a mining interpretation theme, intended to take the visitor along a path through history.

AML also did some revegetation of two gob piles in Madrid, behind the Mineshaft tavern. This was done in 1999; AML regraded the piles, and added lime and compost additions to combat the acidic quality of the gob materials, and reseeded with native seed. This project had some success, and AML has an interest in developing a

Fig. 30: Images of the Yankee-Vukonich Mine Reclamation Project in Raton, New Mexico.

Fig. 31: *Left:* The author harvesting the same clay that sustains the entire village of Mata Ortiz through pottery wares. *Right:* The many clay colors of the El Indio Mountains.

planning strategy for Madrid's gob piles as a whole; Dekker, Perich, and Sabatini, an architecture, landscape architecture, and planning firm in Albuquerque, is currently working on this project.

Revegetation is a strategy which can be included in the large scale approach to Madrid Gulch, on areas which are not readable as gob piles, but instead the gob waste that occurs as fill. Revegetation as an overall strategy for treating the gob piles in this design project is not suitable to the heterotopic design process specific to Madrid, as the gob piles must remain readable in the landscape, as they are an essential part of the Madrid heterotopia. For this reason, the idea of visibly and consciously engaging with the gob piles as sculptural, harvestable objects is an ideal strategy for sociocultural reclamation. The gobs can be transformed over time into economically-contributing works of art, which is already happening in Madrid today. Residents use the red dog clinker clay in local pottery arts, and this practice can be formalized to become a staple of the design. A precedent for this program comes from Mata Ortiz, a small town in Mexico that survives entirely on the pottery arts. A famous, traditional Meso-American style of pottery made from the differently colored clays of the El Indo Mountain was revived in the village after it was at the brink of economic collapse. The entire Pueblo makes a living off of the making and selling of the pottery, which is coveted and sold in international art markets and has connected Mata Ortiz to the tourism industry.

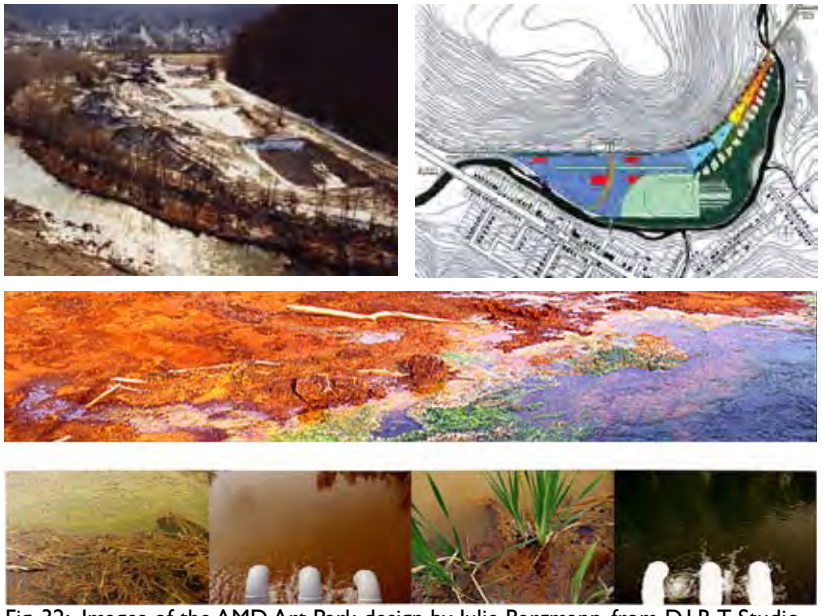


Fig. 32: Images of the AMD Art Park design by Julie Bargmann, from D.I.R.T. Studio, 2010.

While the previously mentioned precedents are viable options for Madrid in terms of ecological and socioeconomical reclamation, designing within a heterotopia requires a multi-pronged approach, which incorporates the many varying overlaps and layers specific the site of study. In the case of Madrid, there is a strong presence of history, of both the pre-mining and mining era. There is also a current focus on an artisan-based economy, and a unique, creative sociocultural fabric. There is also the layer of Madrid's ecoregion, which is a transition zone between where the pinyon-juniper grassland and pinyon-juniper woodland vegetation communities meet. Madrid also contains traces of the mining landscape which are negatively affecting its environment and the landscapes of downstream sites-- the gob piles. Yet these gobs are desired, and residents want them retained. In searching for a precedent which could be used as a model for the Madrid Gulch heterotopia design, Julie Bargmann and D.I.R.T. Studio were an obvious choice, particularly the reclamation project done in Vintondale, Pennsylvania-- Appalachian coal mining country.

Julie Bargmann was only one part of a diverse interdisciplinary team of scientists and artists who worked on creating a landscape that reclaimed acid mine drainage while celebrating community heritage in an abandoned coal mine site. This project, called AMD/ART Park treats acid mine drainage visibly on site for educational purposes, through wetland treatment pond that releases clean water back into the river. The project is also supported by the community and various public grants and funds, and the site's design was largely designed through community input. One of the main focuses of the park's programming is on art, with sculptures and installations appearing throughout the site which speak to the mining history. Interpretive exhibits and trails also educate the visitor on the mining history of the region and the strenuous life of the miner (AMD& ART, 2010, http://www.amdandart.org/).

The AMD/ART Park has the advantage of treating the heterotopic nature of the site through the field of landscape architecture with the treatment of acid mine drainage through designed ecological systems- wetlands. Madrid's water course is perennial. and the affects of the gob pile erosion and sedimentation are not clearly visible on a daily basis. Education and creative artistic reclamation approaches trough landscape architecture are therefore more challenging in a desert climate like Madrid.

Another interesting precedent for heterotopic design, specifically, the reuse and complication of meaning, is Vancouver's Southeast False Creek Olympic Village, which uses large scale art installations and found objects to exhibit the area's history. The design reuses historical stormwater piping as an art bridge, and art installations use maritime aesthetics to evoke the history of the region (http://vancouver.ca/olympicvillage/index.htm).

Fig. 33: Infrastructure reuse; *Left:* Vancouver's Southeast False Creek Olympic Village. *Right:* Refuse from the historical tipple, or anthracite coal processor, in the Madrid arroyo.

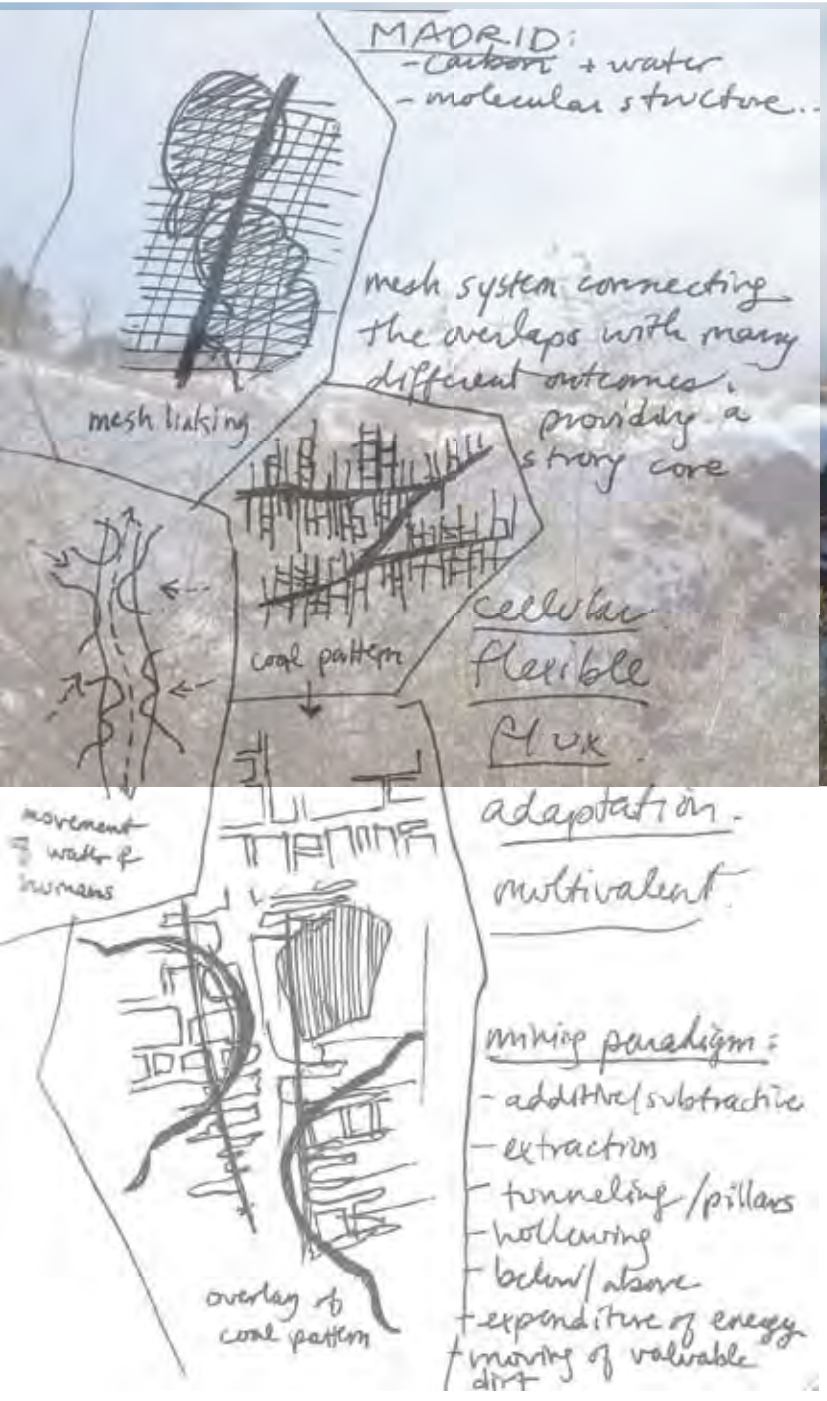


Fig. 34: *Left:* Process diagrams by the author. *Right:* A sculpture displayed atop a gob pile in Madrid, 2010.

PRAXIS

The challenge with the praxis design approach is finding a perspective that does overcomes the typical design approaches used within heterotopic landscapes. These design approaches vary between the dissolution of the heterotopic elements of the site through the fixing of the site's identity with large scale 'interpretation' programming, and/or turning the site into a sort of Disneyland theme park of mining history and art exhibits.

It was necessary for the fusion of theory and practice within this project to present design ideas and suggestions which will socioculturally and environmentally reclaim this landscape covered in traces of power. The design must be focused on the reframing of cultural and organic systems present on site into adaptive, flexible, ambiguities beyond a classifying scope, which are not fixed or univalent.

The flux of meaning must be a design strategy, with programming and design elements subject to change and growth of the site itself and the surrounding community. The design must be

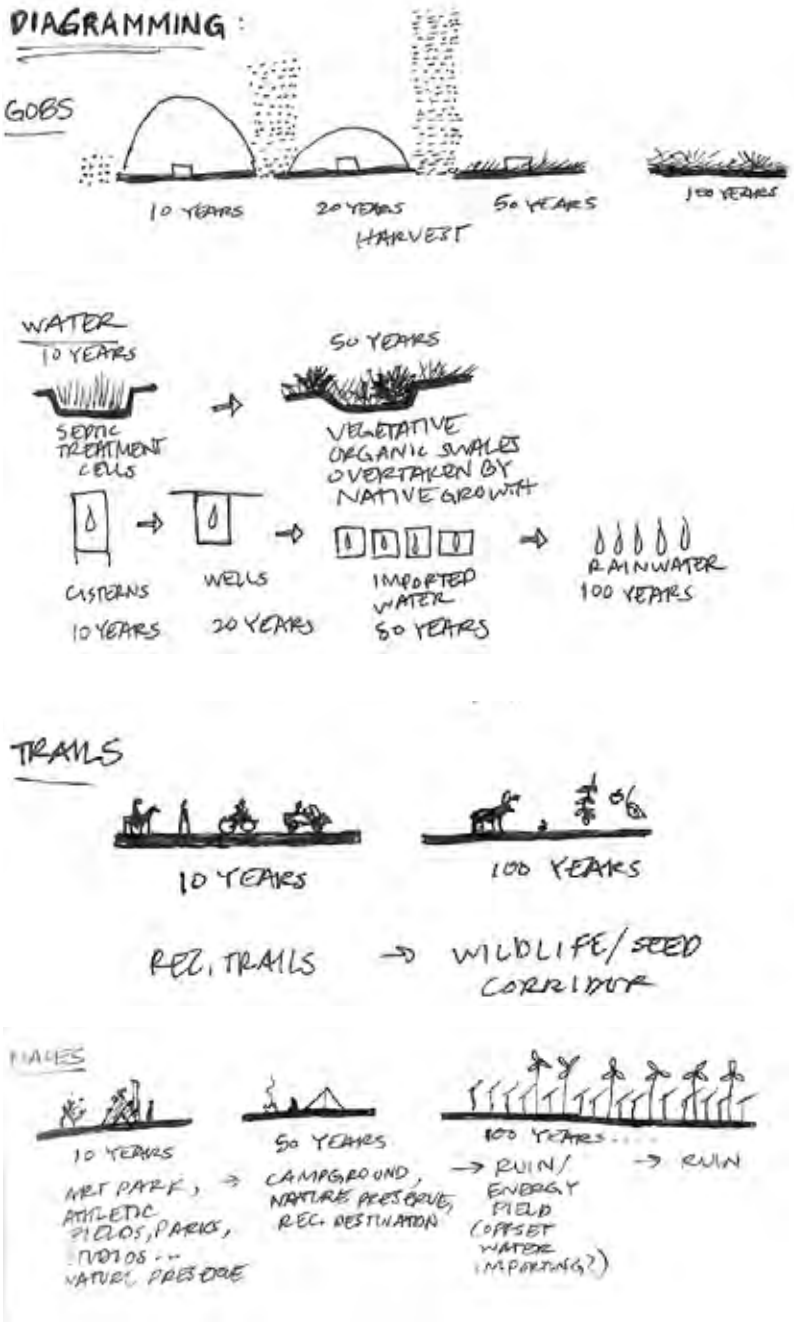


Fig. 35: Drawings and diagrammatic timelines investigating design strategies for a heterotopia, which focus on flux, mutability, and change.

Fig. 36: The gobs create an entirely new ecology on site, and contribute to the aesthetics of the historic mining landscape.

able to respond to the needs and desires of the community in this present time, but also be functionable enough to change meaning and use throughout different times and perhaps contrasting needs developed by the community over time. Any design interpretation must be done through activating elements and interactive processes which educate the visitor to the site through experience and awareness, as opposed to didactic signage or exhibition. The site must also belong to the user, and be a space in which a visitor can construct their own meanings of landscape through an experiential involvement with the site. These goals are imperative to designing within a heterotopia, in order to avoid negating the existence of the heterotopia with traditional, inert design solutions that 'fix' environmental problems and provide determined places for interaction. Designing within a heterotopia demands an integrated approach, in which the multitude of layers and meanings of the place emerge and contrast, collide and divide, move and shift.

IV. DESIGN

PARTI: ROOMS, SEAMS, AND PILLARS

Mining happens along coal seams, and in Madrid, the form of mining used was called room-and-pillar. In room-and-pillar mining, rooms were carved out of the coal seam and harvested for coal. Pillars of coal were left as support beams. Miners would later remove these pillars for coal, and subsidence would occur, therefore changing the mining landscape and turning it into a new space.

The proposed design functions in a similar way, providing a flexible landscape which can collapse, transform, and change depending on the day, month, or year. This happens through three design concepts taken from the historical mining methods of Madrid itself-- rooms, seams, and pillars.

Rooms are spaces within the design that are created out of topography and site boundaries. The design's layout is dependent on the various different types of 'rooms' created by the different types of gobs; some gobs are sculptural mounds, others are fill within the landscape, and spaces begin to form out of their intersections. The site boundary is defined based on the gulch and open space overlaps, and obvious linkages that can be made from the village into the site.

Seams reference the coal seam of Madrid, which has made the village so attractive for mining; however, the design extends this metaphor, and seams take the form of existing features, such as the arroyo and roads, but are extended to design interventions, such as trails, art rails, vegetation seams, planting filter strips, and contour plantings. Like the seam of coal running the length of the region, these design seams connect all elements of the design site together into one system, as well as the different parts of the town as well. The design is sustained by the seams, much like the mines were dependent on the coal seam; the trails bring visitors to varying sections of the site, the arroyo functions as an organic link, and revegetation seams reclaim disturbed soils.

Pillars refer to programming, or design 'supports,' which are constantly in flux; every program in the design can be appropriated and changed depending on user needs. The art trolleys move based on the day or even hour, and the solar studios move with the sun and with purpose of use, and all programming elements on site can be changed according to the shifts in the cultural landscape of the community. The landscape can collapse into itself, and become something else.

Fig. 37: This historical map of Madrid's Cook and White Seam mine illustrates the room-and-pillar mining method.

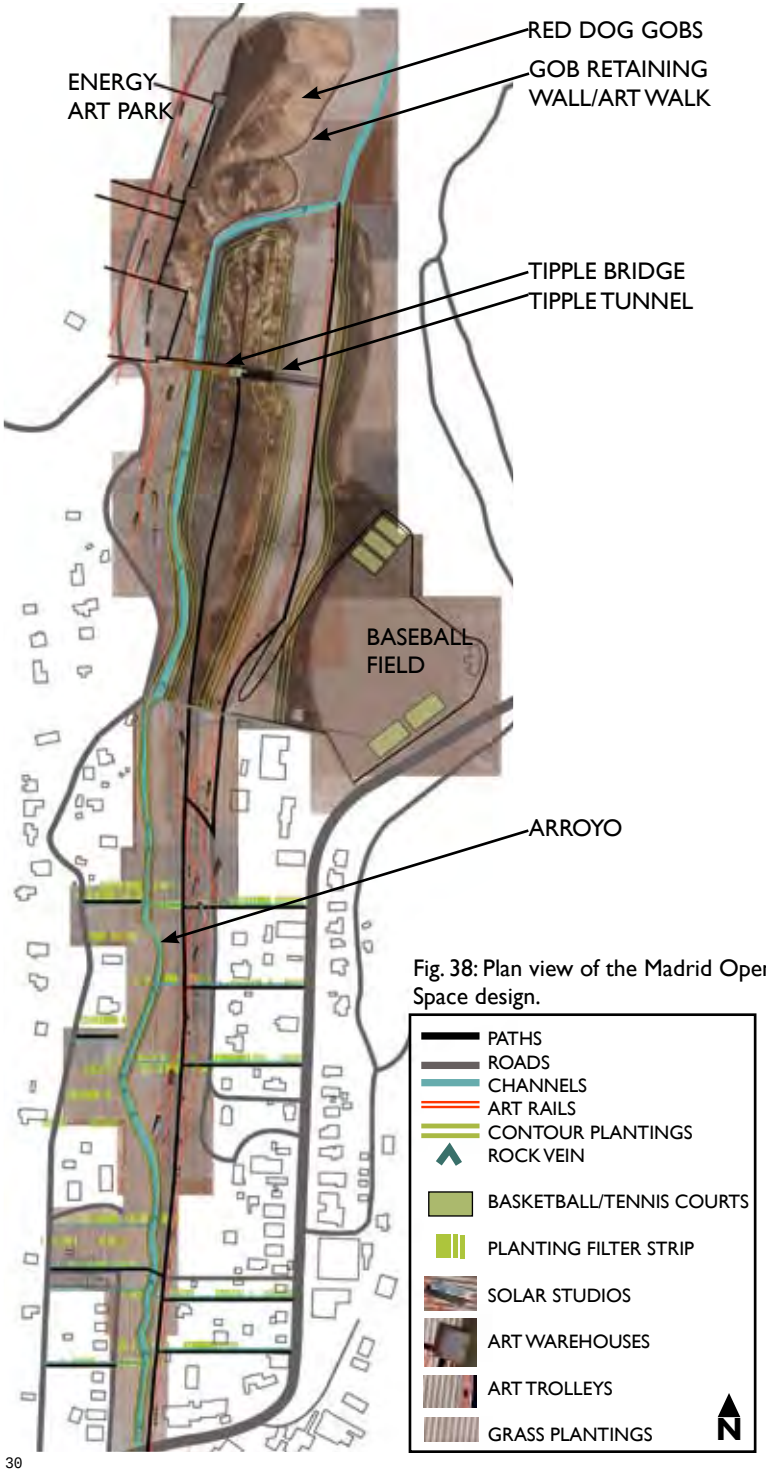


Fig. 38: Plan view of the Madrid Open Space design.

PLAN VIEW

For descriptive and programming purposes, the plan for the Madrid Open Space design is separated into three zones. Within each of these three zones are unique design features, but each zone also contains the overarching, connecting elements that are consistent throughout the whole design, such as revegetation grass seams, trails, art rails, and the arroyo. The three zones are the North Strata, the Middle Strata, and the South Strata. These three varied places that take place throughout the design are referred to as 'strata' spaces, due to the condensed layering and overlapping of design elements that create and inform each individual place. The places are informed by their many parts and heterotopic qualities, much like the earth itself is formed out of many layers to form a comprehensive whole. Each strata focuses on particular issues specific to Madrid; the North Strata contains the gob mounds, so speaks to the history of mining and the future of energy,; the Middle Strata connects both sides of town through the site, with a board-walk feature that references mining Madrid's wooden sidewalks; and the South Strata addresses the flooding issues involving sedimented stormwater. Most of the programming elements overlap and appear throughout the entire space, across and through the three strata--all spaces are linked by trails, art rail lines, and revegetation strategies.

ROOMS: PLACES
Gobs, site boundary.

PILLARS: PROGRAMMING
Art trolleys, tipple bridge, recreation courts, boardwalk.

SEAMS: VEGETATION
Filter strips, grasses.

SEAMS: CIRCULATION
Rail lines, paths, arroyo and channels, roads.

Fig. 39: Exploded axons of the design's varying elements.

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Fig. 40: Plan View of Madrid Open Space Design.

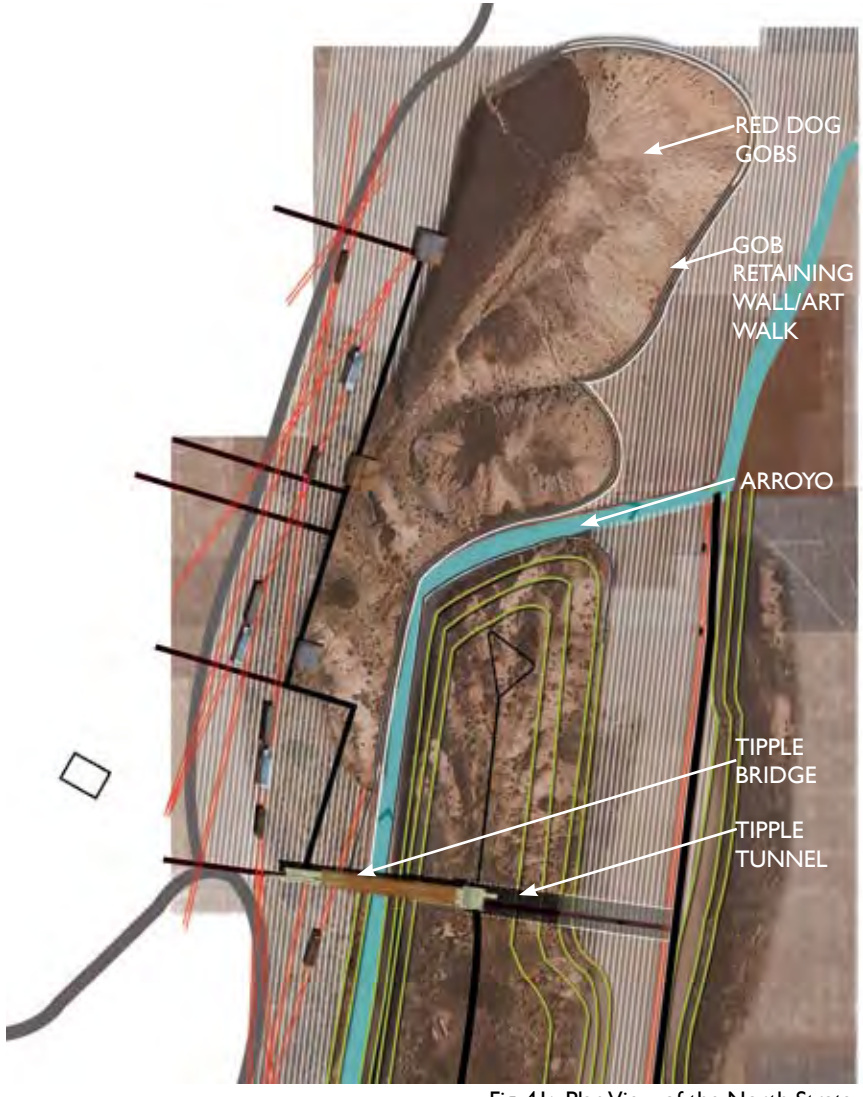


Fig. 41: Plan View of the North Strata.

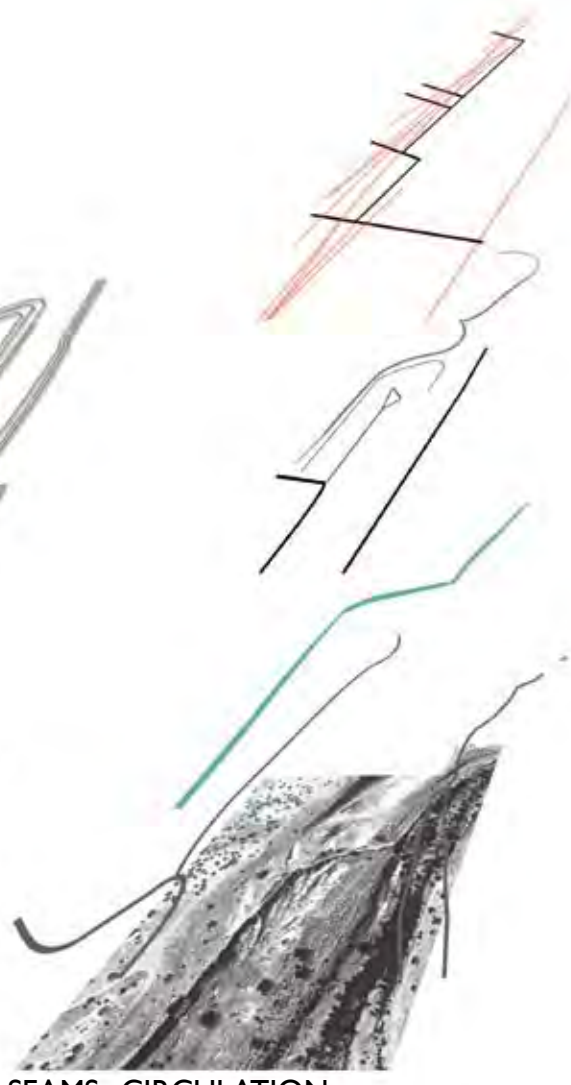
NORTH STRATA

The main focus of the North Strata of the Madrid Open Space design is energy and art. This place features experiential historical references, a large scale energy art park, and a gob art walk. Within the Energy Art Park, the red dog gobs located in the area become sculptural monuments, and are harvested for pottery and landscaping uses (such as surfacing material for trails or roads). The visitor can also experience the gobs through a Gob Walk atop a retaining wall which wraps around the gobs to minimize sedimentation of the arroyo water course. The North Strata also contains the Tipple Bridge, which is a reconstruction of the Jones Tipple, the anthracite coal processor which used to process coal along the railroad in Madrid. The Tipple Bridge links the Energy Art Park into the other parts of the site over the arroyo.

ROOMS: PLACES
Gobs, site boundary.

PILLARS: PROGRAMMING
Art trolleys, tipple bridge.

SEAMS: VEGETATION
Grasses.



SEAMS: CIRCULATION
Rail lines, paths, arroyo, roads.

Fig. 42: Exploded axons of the design elements of the North Strata.

GOB WALK

The red dog gob in this area of the site is especially vulnerable to erosion and sedimentation of ephemeral stream, as it is located on the edge of the arroyo without any vegetation. It is important to the heterotopia of Madrid to maintain the gob piles' meanings and histories, which are very important to the residents, and to not simply revegetate them to produce attractive hills that contain no trace of what they once were, or how they came into existence. For this reason, environmental impacts from the gobs are treated sculpturally through design; retaining walls mitigate erosion and sedimentation, but also become art walks, framing the gobs themselves, providing a sort of outdoor, lived museum.

The retaining walls are made of gabion, and are planted with drought-tolerant native species that act as filters and barriers, trapping sediments that erode off of the gob during storm events. The art walk can contain art exhibits or mining history displays, depending on the village's concerns and urges. This design strategy maintains the sculptural, monument quality of the gob pile while also minimizing erosion/sedimentation of downstream sites. The gob is reclaimed in a way that does not mask its meaning, but instead celebrates it.

Fig. 43: The Gob Walk is simultaneously an educational path and a functional mitigation tool, and relates art to infrastructure.

Fig. 44: Production out of waste: the gob pile is turned into an experiential art site, and the Tipple Bridge is constructed as a physical and historical connecting link, with tunnels that connote the life of the miner.

TIPPLE BRIDGE

THE TIPPLE BRIDGE

The tipple bridge is constructed as a reference to the coal processing tipple, called the Jones Tipple, that once stood on the exact site upon which it is reframed; however, instead of the tipple's original function of shipping and sending away from the site, the reconstructed tipple bridge links elements of the site together, and literally bridges different physical spaces.

Further interweaving complexity, the tipple bridge is the climax of an above/below experience the visitor takes through a tunnel-like underground gallery which is constructed out of rammed earth structures within the existing 30' tall gob pile located within the Gulch. The tunnels are outfitted with skylights and have monitored hours, so as to minimize risk and misuse. This design element also contributes to the site's heterotopic nature; these tunnel galleries create productivity and use out of the very waste product of the mines-- the gob piles.

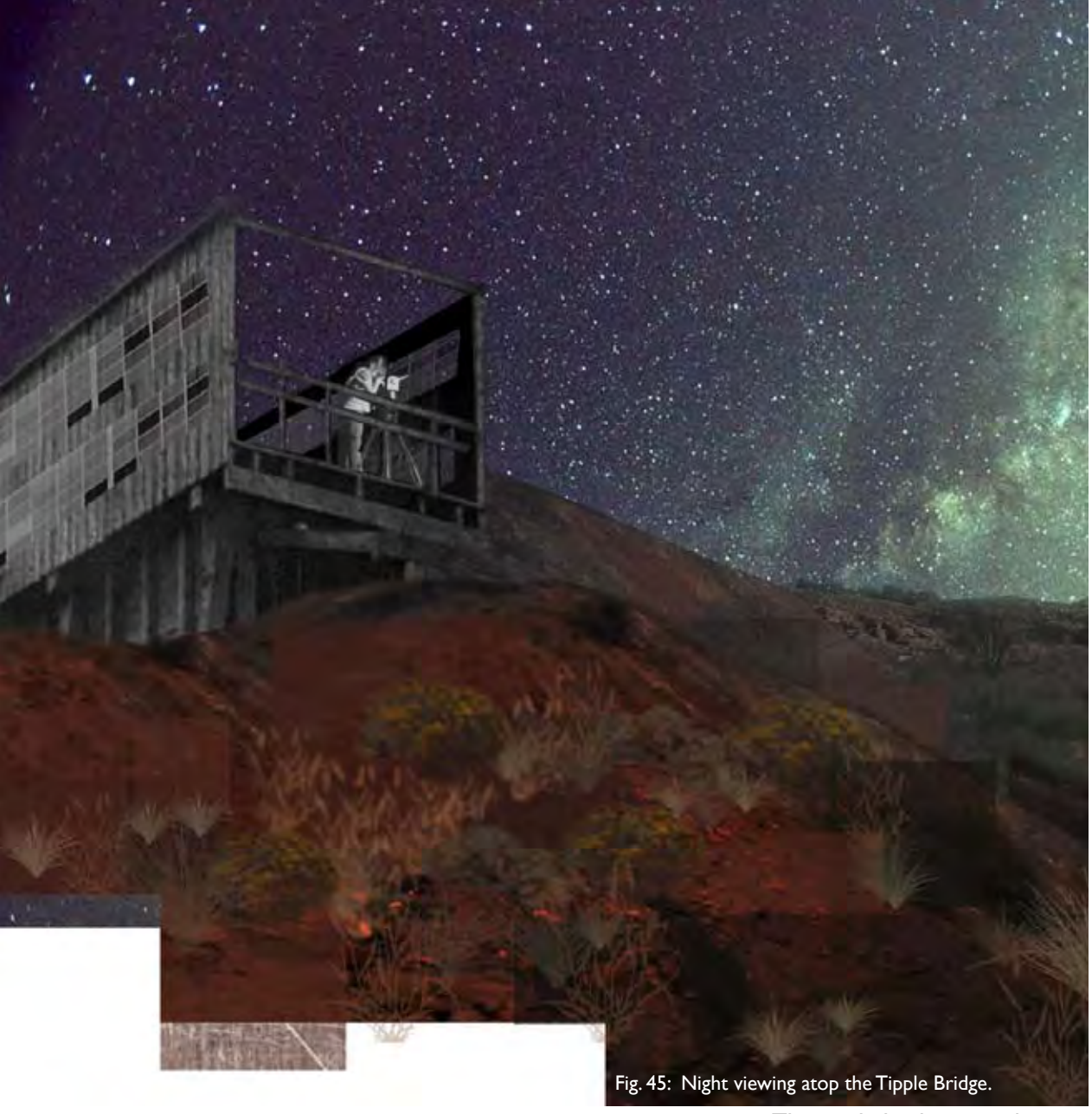


Fig. 45: Night viewing atop the Tipple Bridge.

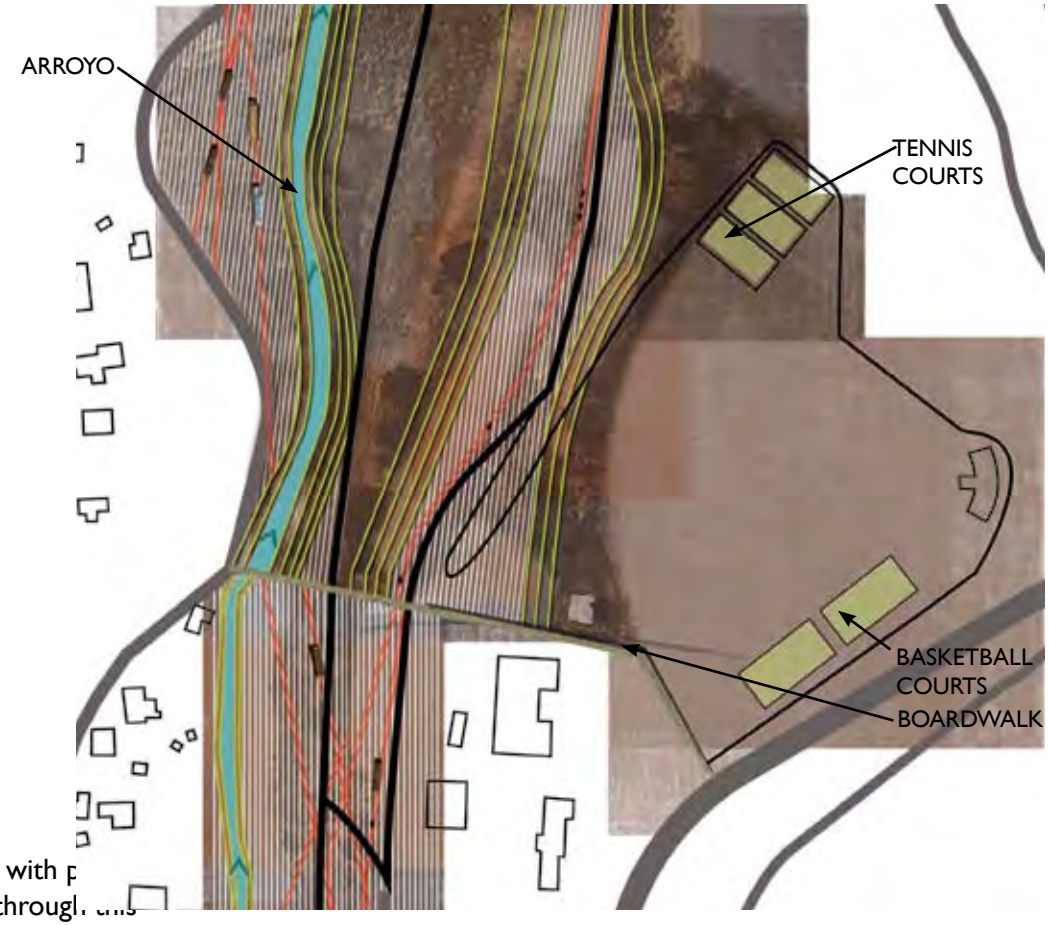
The tipple bridge provides an experience of height and view at an above point, while the tunnels provide an experience of the underground, which connotes the life of the miner. The above experience can be experienced alone or through organized stargazing events and also gives a 360 degree view of the canyon, the village, and the site as a whole.

Fig. 46: Rendering of the solar art park, showing the solar studios, and red dog warehouses.

ENERGY ART PARK

ENERGY ART PARK: SOLAR STUDIOS

This design element involves the reuse of historical features that juxtapose the mining history in Madrid with the future of sustainable energy in solar power. Also, the mutability of this design inclusion allows for agency for Madrid residents; the studios are on rail tracks, and can be positioned based on need/whim. They can be rented out, turned into living quarters or hospitality amenities, or can be clustered for gallery shows. The solar studios can also be used directly on site as workshops for pottery classes teaching locals and visitors alike the processing of red dog clinker clay and turning it into marketable products. If landscaping materials, such as base course or fill which can be created out of the red dog clays, become the focus of the gob harvesting site, then the solar studios can be storage sites or construction support units. The gobs in this strata are also given larger warehouse-type studios to formalize the already-occurring extraction of the red dog clay provided by these red gob piles.



MIDDLE STRATA

The Middle Strata's main focus is recreation, with p
and active programming. Art rails and trails extend through
strata, offering passive activity and interactivity, and new tennis courts and basketball courts are proposed for inclusion within the site's existing recreation hub, the Madrid baseball field.

The Madrid baseball field is where the Madrid Blues Festival is held in the summer time, and it functions as the main locus of the village for public events. New additions to the baseball field provides more recreational opportunities for the younger residents of Madrid, a concern expressed by the town.

The visitor is brought into the Madrid Open Space from the baseball field via a boardwalk which is modeled after the wooden sidewalks that once lined Madrid's main street. Within the Madrid Open Space, the design presents a more self-guided, self-determined experience; the programming is undefined and open, giving the visitor the power to construct their own experience, to meander and explore.

Fig. 47: Plan View of the Middle Strata.

ROOMS: PLACES
Gobs, site boundary.

PILLARS: PROGRAMMING
Art trolleys, recreation courts, boardwalk.

SEAMS: VEGETATION
Grasses.

SEAMS: CIRCULATION
Rail lines, paths, arroyo, roads.

Fig. 48: Exploded axons of the design elements of the Middle Strata.

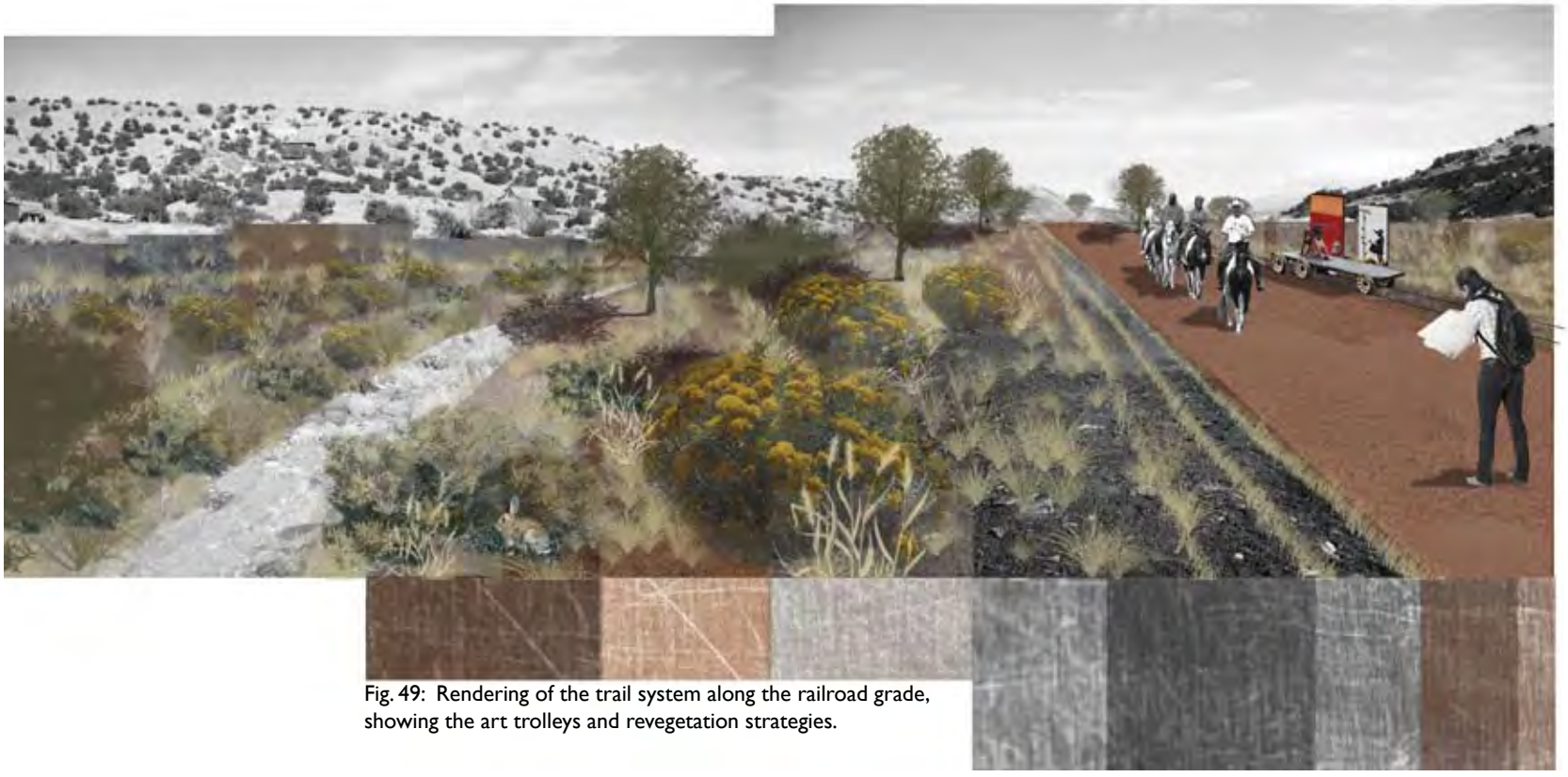


Fig. 49: Rendering of the trail system along the railroad grade, showing the art trolleys and revegetation strategies.

ART TROLLEYS

The art rail line follows the designed trail, which is formalized out of existing user-created trails within the site, responding to site history. The juxtaposition of the rail line with the trails metaphorically discloses the trails' prior iteration as a railroad bed, contributing even further to the complication of singular meaning or use within the design.

The rail line art trolleys are designed after historical pump trolleys, which can be operated by hand. The art trolleys offer an opportunity for the appropriation of space, which problematizes systems of power and fixed notions of place. The space is owned by the visitors; residents can easily access and define the space through repeated visits, as their backyards open up into the site. This design element offers links beyond the town of Madrid as well; Sites Santa Fe exhibits or the UNM MFA Juried Exhibition could be displayed on the trolleys. The trolleys could also be used for mining history exhibits or as moveable classrooms. The content and intent of this design element remains receptive to the village's necessities.

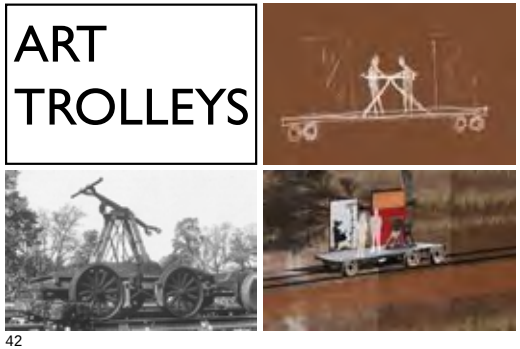


Fig. 50: Section of Boardwalk Path referencing historic Madrid wooden sidewalks

BOARDWALK

The boardwalk is a historical reference to the wooden sidewalks of Madrid's mining past, and brings the visitor from the Madrid baseball field or from Back Road on the west side of town, and into the Madrid Open Space design. The grade from the baseball field into the site is steep, and the boardwalk assists in providing an easy entrance into the site through a series of stairs. This boardwalk is a link across the site, and applies a suggestive aesthetic gesture to a part of the village's history.

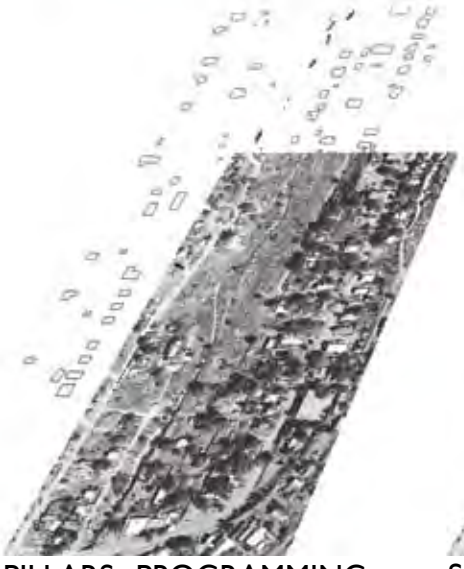
Fig. 51: Plan View of the South Strata.

SOUTH STRATA

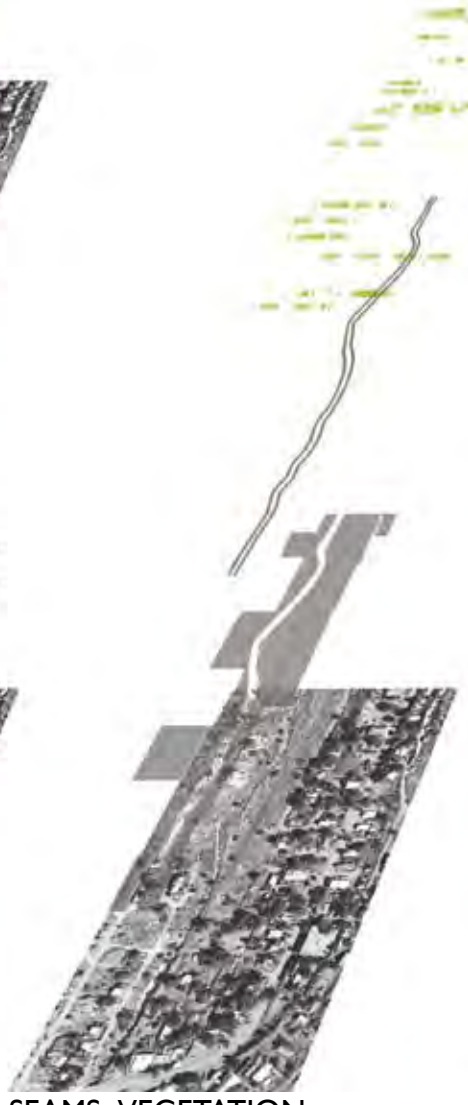
The South Strata's main focus is water. There are two issues concerning water within Madrid-- its scarcity and the flooding of the main street with stormwater. Due to the complicated hydrology of the Galisteo Basin, in which Madrid is located, the possibility of well recharge is not possible through large scale design interventions; for this reason, a programming suggestion of residential cisterns and water harvesting systems would be most beneficial and productive in combating water scarcity.

Flooding and stormwater issues, however, are addressed through design. The stormwater that floods the main street runs through gob piles on the east side of town, filling the runoff with gob material. The South Strata addresses this problem with drainage rehabilitation, and the reconnection of historical drainage patterns to the arroyo. Drainage channels bring water back to the arroyo, while filtering the water along the way through plantings and slowing it with checkdams; the channels also act as trails and links into the site from the east and west sides of the village.

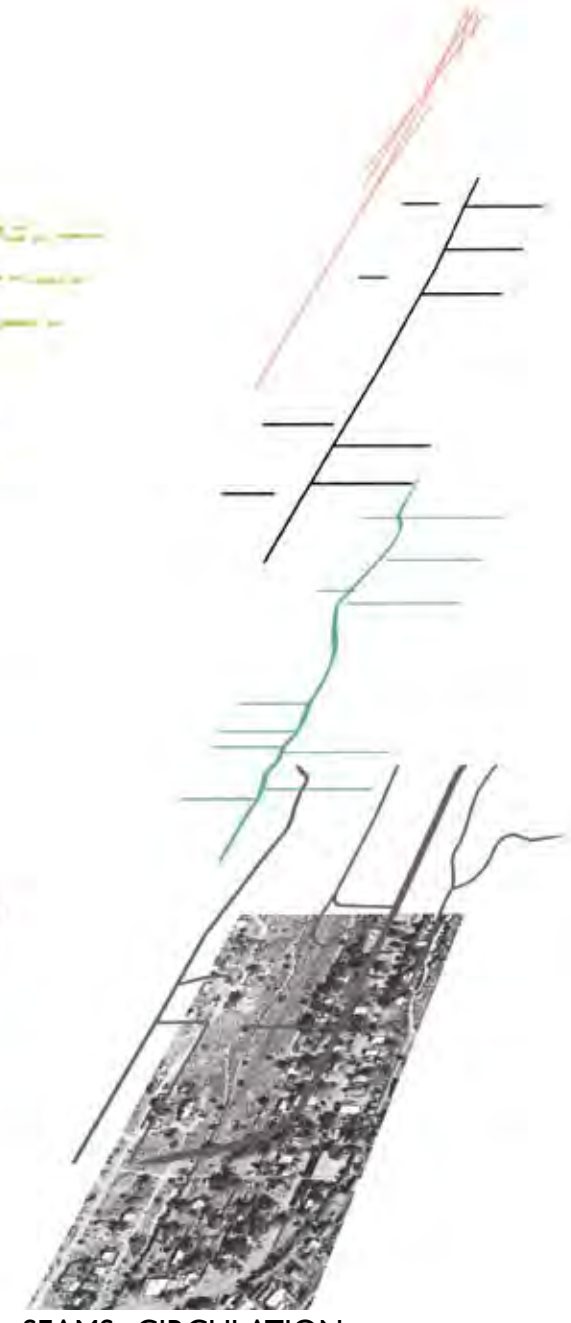
ROOMS: PLACES
Gobs, site boundary.



PILLARS: PROGRAMMING
Art trolleys.



SEAMS: VEGETATION
Filter strips, grasses.



SEAMS: CIRCULATION
Rail lines, paths, arroyo and channels, roads.

Fig. 52: Exploded axons of the design elements of the South Strata.

CHANNELS

On the east and west sides of town, drainage channels reconnect water to the arroyo, bringing stormwater runoff off of the mainstreet of Highway 14 and Back Road and into the arroyo. Checkdams are included in the channels, spaced between 120'-300' apart, depending on channel slope; these mitigate sedimentation and trap some of the gob materials within the runoff from reaching the arroyo. Native vegetation which can handle ephemeral flows, such as alkali sacaton, are planted as well, to filter some of the sedimentation. The checkdams and native plantings also slow water flows during storm events, lessening erosion of the main arroyo and the drainage channels. The channels also act as informal trails bringing people into the site from the main street.

Alleviating Madrid's flooding issues through design strategies contributes to the agency of the village residents, as flooding of their main business and commercial establishments, as well as residential homes, is decreased, which reduces economic strain. The

Fig. 53: Perspective looking west from Highway 14 along a drainage channel that reconnects stormwater to the arroyo, and offers informal trails linking the site to the main street.

Fig. 54: Proposed drainage channels with checkdams and native plantings bring water and people into the Gulch. Rock veins placed in the arroyo slow down stormwater flows.

filtering of runoff also contributes to a healthier watershed at large, as the Madrid arroyo drains into downstream water courses.

On the west side of the arroyo, drainage channels specifically funnel water from existing swales and into the arroyo. Rock veins, another form of checkdam, are placed within the arroyo itself to slow down peak water flows and minimize erosion of the main arroyo channel.

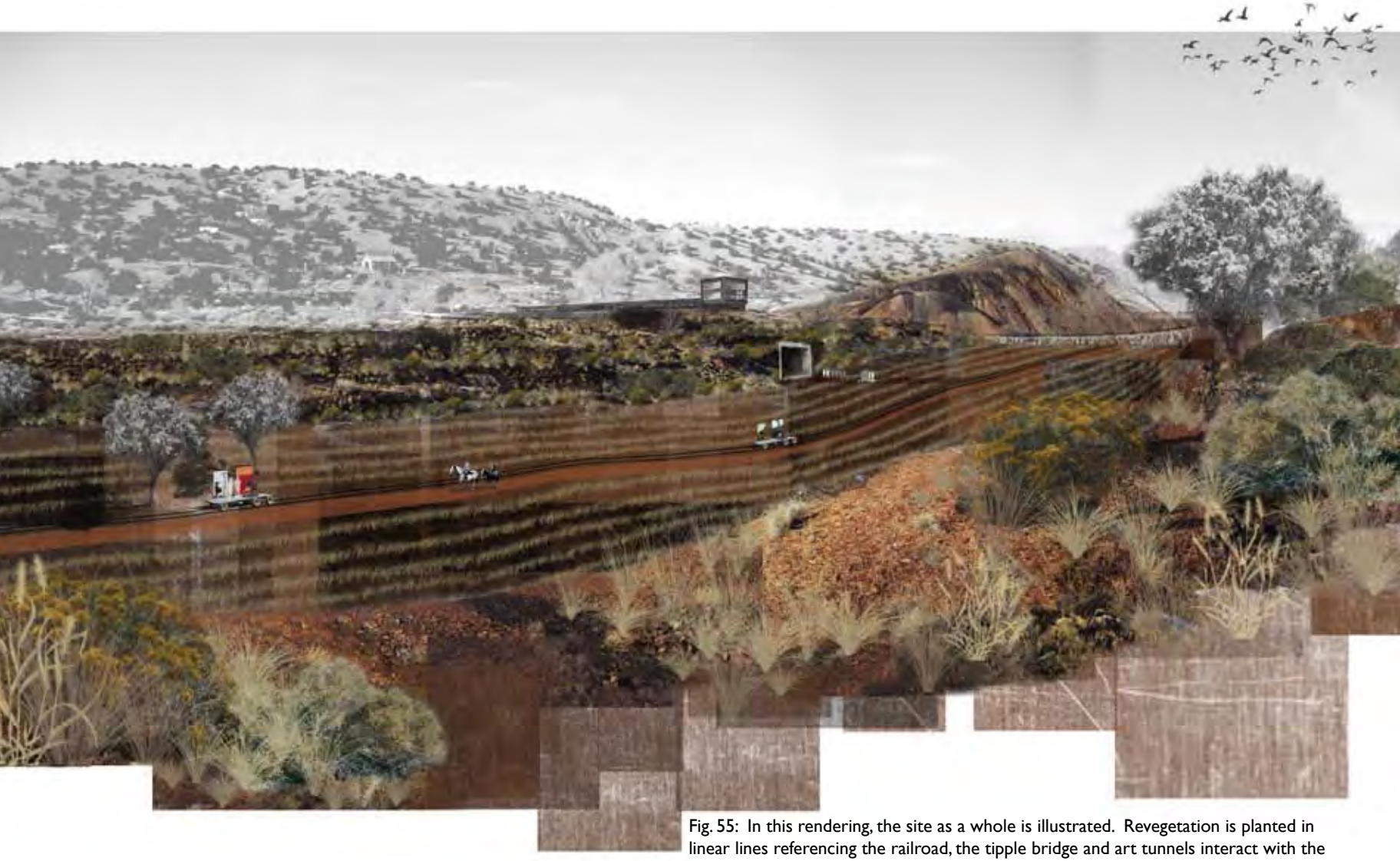


Fig. 55: In this rendering, the site as a whole is illustrated. Revegetation is planted in linear lines referencing the railroad, the tipple bridge and art tunnels interact with the existing gobs, and the art trolleys line the multi-user trails.

V. CONCLUSIONS

The design in wthe heterotopia cannot be a fixed approach, or a solution-oriented focus, but instead a site-specific investigation along the shifting faultline of meaning inherent to a heterotopia. The heterotopic design must be a living elocular, without partition or division of space. Like a living being, the heterotopic design maintains the ambivalent and fluctuating elements of a heterotopia by being in continuous fluidity and motion. The Madrid Open Space project aims to fulfill this objective, with parts and pieces of the design collapsing into new displays and different landscapes dependent on time and space.

REVEALING OF PLACE AND COMPLICATION OF MEANING

The heterotopic design must reveal and peel away layers of meaning within the site, celebrating and presenting these facets through the design, while also contributing new stratum to the heterotopic context. Trails are formalized out of existing user-created trails within the site, responding to site history, and the art rail line following the trail metaphorically discloses the trails' prior iteration as a railroad bed, contributing even further to the complication of singular meaning or use.

HISTORY

The many layers of history and meaning of the village of Madrid are revealed through the design, with a non-didactic, experiential approach. The user experiences referential history instead of determined interpretive displays, and a sense of the past, present, and future of the region is gained through the movement through and interaction with the site design.

The mining legacy of Madrid is expressed on site through sculptural design interventions, such as the tipple bridge and the historical boardwalk, which are intended to allow the visitor to create their own version of history, through an interchange between themselves and place. The contemporary artisan-based economic genus of the town is encountered in a similar manner on site, through elements such as art trolleys and solar art studios, which are designed to function through a reciprocal relationship. Madrid's past is entrenched in the production of energy, and the historical extraction of coal for energy use is contrasted to Madrid's potential energy future, with the inclusion of solar energy programming.

Native vegetation is used to reclaim areas of gob piles which occur within the arroyo, as well as to mitigate stormwater sedimentation and arroyo channelization. This vegetation refers to the ecological history of the site, and reintroduces native plant associations to the once 'wild' corridor of the Madrid gulch. This intervention fuses current reclamation practices and process-based design with historical knowledge of place- ecological as well as cultural.

GOBS

One of the biggest challenges in a heterotopic, integrated approach to design in Madrid was the complications of the coal gob piles. The residents of Madrid positively regard the existence of the gob piles, as they function as monuments and relics of the mining past, and residents see them as part of the draw for tourists. However, the residents also are affected by the gob piles' environmental impacts, such as air pollution, stormwater sedimentation. Downstream sites are affected by the erosion and sedimentation of the water coursing through the arroyo.

It was important to the continuing heterotopicness of Madrid to maintain the gob piles' meanings and histories, and not simply revegetate them to produce attractive hills. For this reason, the gobs were treated differently according to their site-specificity and impacts. Also, some gob piles, the red dog clinker piles, are too acidic to revegetate, so they needed to be treated differently. Environmental impacts from the gobs were treated sculpturally through design; retaining walls mitigate erosion and sedimentation, but also become art walks, framing the gobs themselves. Gobs become connectors and inhabitable spaces, and offer experiential education of Madrid's mining heritage.

THE TIPPLE BRIDGE

The tipple bridge is reconstructed as a conceptual link between Madrid's present and its past, as well as a physical link between two sites within the design, the arroyo and the Energy Art Park. The tipple bridge is expanded upon, however, with the inclusion of an underground tunnel gallery which brings the visitor from one area of the site into another, through the experience of entering into an existing 30' tall gob pile, and then up from within the gob pile onto the bridge and over the arroyo. This tipple, which once processed coal and sent it away from the village, now functions as a connector for cohesion between physically separated parts of the

design. The tunnel acts as an underground gallery as well as thoroughfare, while also giving the visitor the sense of the underground mining experience. When one goes through the tunnel and up into the tipple bridge, one is exposed to the above/below relationship of the site's past (mines and tunnels), and the visitor is also given a 360 degree view of the site, the village, and the region itself. The tipple bridge references history through its form and placement, and contributes to a lived, physically-encountered sense of place. These design elements also make use of the 'waste' product of the gob pile, expanding and subverting the gobs' association with refuse, instead capitulating on the approach to the gobs that Madrid residents have had for years-- that these gob piles should be celebrated as part of the mining past, and as sculptural contributors to the cultural landscape.

ENERGY ART PARK

Art studios are created out of railcars, a precedent taken directly from existing railcar studio site created by some residents in Madrid. These studios contain solar panels and harvest solar energy, which provides a unique and postmodern contrast to the history of mining coal for energy in the town. These solar studios are on moveable tracks, allowing a sinuosity and flow of change within the site. Most of the solar studios are clustered within the north quadrant, and the gobs in this quadrant are also given larger warehouse-type studios to formalize the already-occurring extraction of the red dog clay provided by these red gob piles. These gobs can also be mined for surface course material, in which case the studios can convert to construction support units.

The intent of these functional, mobile design interventions are developed from the current cultural needs of Madrid, which relies heavily on an art-based economy and consists of a mainly artisan community. These particular design elements, railroad cars, are incredibly adaptable and malleable in their use and purpose, however, so the programming of these features can be changed as Madrid's community needs fluctuate. The railroad cars can become residences, cisterns, classrooms, food carts, gardens-- depending on what the residents of the village desire.

CHANNELS

The two stories of Madrid concerning water are its scarcity and its flooding. The scarcity of water cannot be addressed directly on site, as there is no potential for well recharge due to complicated hydrology. However, a suggested programming of individual, resident-based rainwater cisterns is recommended for water reuse and sustainabiity. Flooding, however, is an aspect of Madrid's water issues that can be addressed through the design.

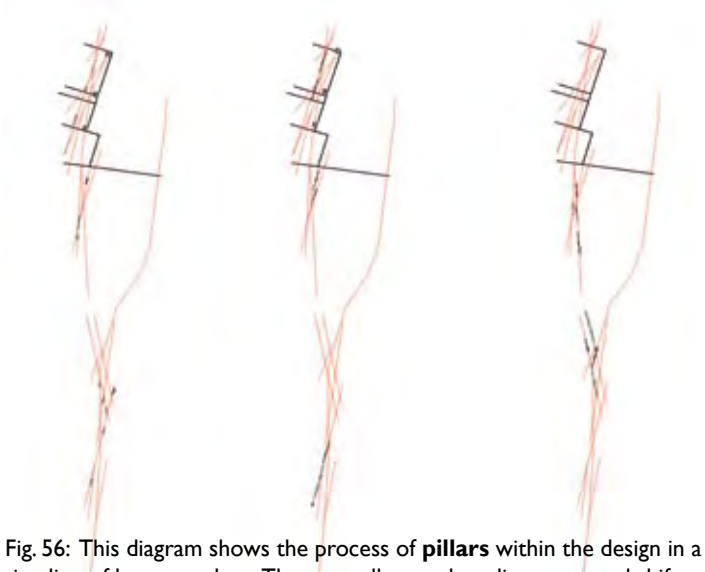


Fig. 56: This diagram shows the process of **pillars** within the design in a timeline of hours or days. The art trolleys and studios move and shift as demand changes.

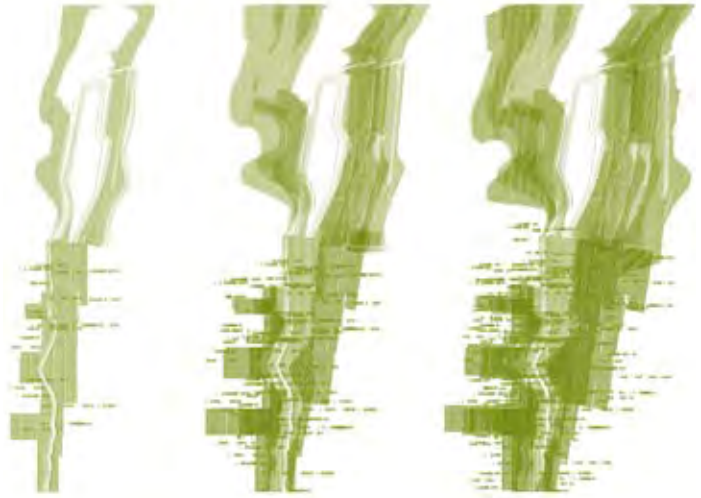


Fig. 57: This diagram shows the process of **seams** changing over time, in weeks or months, as grasses grow and expand beyond their linear plantings.

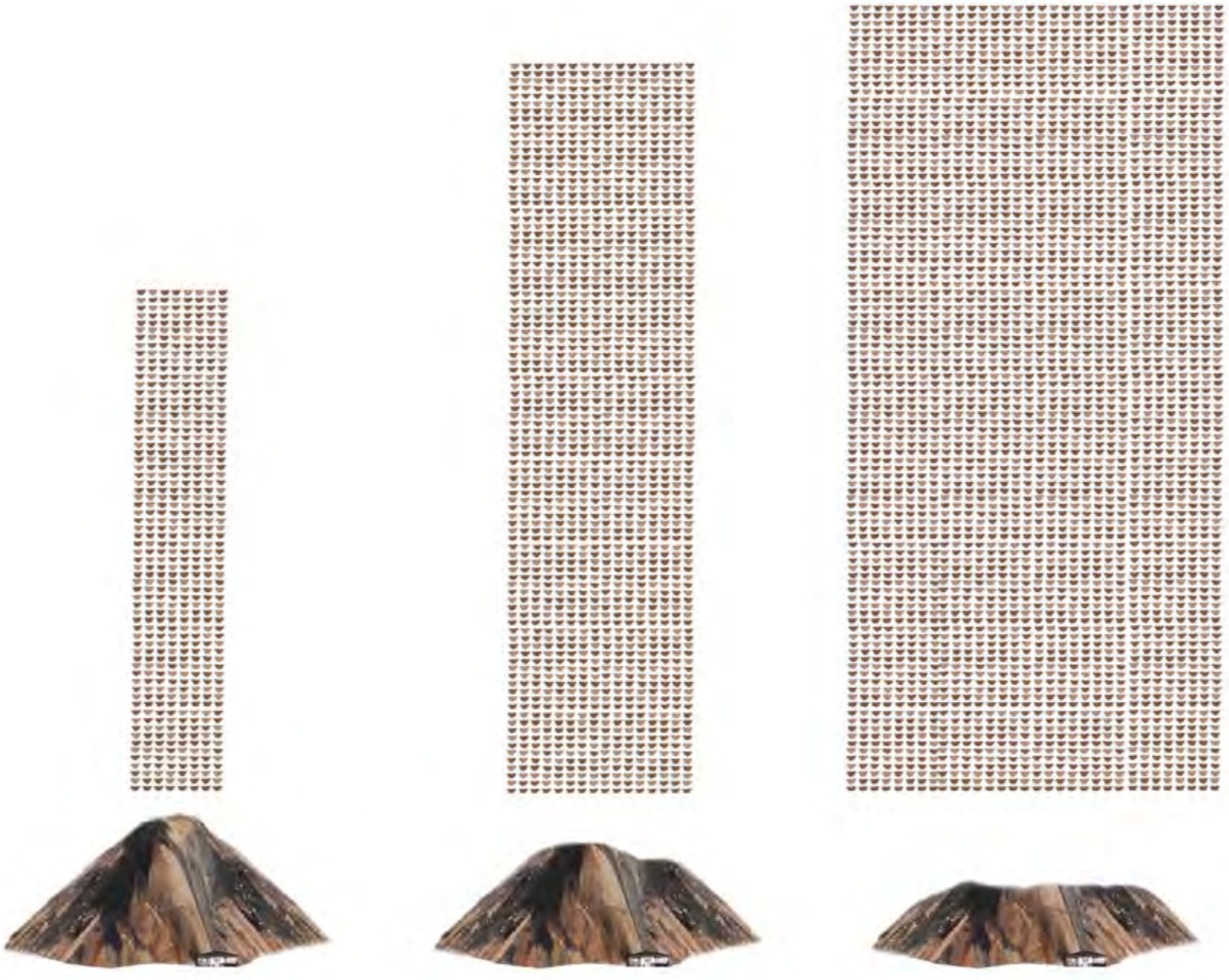


Fig. 58: This diagram shows the process of **rooms** developing along a timeline of years or decades. As the gob piles are harvested for pottery, their form changes as production grows.

The main street is consistently flooded during storms, due to the arroyo's channelization and subsequent disconnection of the historic drainage patterns. The water running into the main street is filled with sediment from gob piles, so it also needs treatment. The design deals with this issue through the introduction of drainage channels that bring the water off of the street and through check-dams and vegetation filtering and into the arroyo. These channels, which occur on the west and east sides of the site, also bring users into the main site corridor through paths that follow the channels. Infrastructure contains multiple meanings, contributing to the confusion of binaries on site (i.e. the separation between functional infrastructure and enjoyable 'place' is combined into one design entity). The design shifts beyond its site boundaries and into the other parts of town, and then back again, through paths and systems that draw people and water in and then back out; these elements expand and contract the meanings, limitations, and manifestations of the site, enhancing the heterotopia of Madrid.

PROCESS-BASED DESIGN

The art programming on site is suggestive and adaptive, with the potential for various modulations over time, dependent on community and visitor interests. The solar studios respond to sun patterns as well as user needs, and can become classrooms, galleries, or exhibit spaces. Art trolleys offer a similar flexibility of use, and can consistently change physical location and formation along the art rail, as well as content. Because of the moveability and flux of the art elements within the design, the site has a different character and materialization on a daily and even potentially hourly basis, subject to the desires and objectives of the visitors within the site.

Environmental reclamation is addressed on site through process-based design, that adds to the metamorphic qualities of the heterotopia. Planned revegetation acts as a barometer for process, progress, and time on the site, as well as ecological historical reference. Native grasses are planted in linear strips (again referencing the linearity of the railroad lines) that, over time, will expand beyond the rows to revegetate certain areas in alignment with the pinyon-juniper savannah and woodland vegetation types in the surrounding area. These plantings will act as barometers of process and change on a daily basis during the growing season, as well as on a monthly and yearly basis as they begin to move beyond the linearity of their planting. Plantings of regional upland plant associations along the contours of the gob piles function as filters for runoff sedimentation, while marking the form and edges of the gob piles themselves. Semi-riparian plants included along the edges of the arroyo in similar linear strips aid in slowing down flow in the ephemeral water course, and decrease erosion along the banks. The development of the revegetation plan over time and its overt visibility provides education about the changing landscape, and does not disguise or inhibit the traces of the power history this location contains, but instead **activates and engages** visitors in the process of transformation and reclamation.

The gob piles are harvested over time as well , acting as longer-spanning time keepers of process and movement. As material is extracted for use in pottery or as surface material for trails or roads, the form of the gob pile will change over time, in response to use and production. This process will take longer to become visible, more likely in the range of years to decades, depending on the demand of the material.

AGENCY

Agency is enacted through the process-oriented design which activates the space in different ways. The art rail which runs along the existing path is operated by the visitor, and provides agency for those inhabiting the space at that particular moment, giving visitors to the town a sense of participation and appropriation of their construction of the experience of this place. The residents of Madrid develop a different kind of agency, one long-standing, through the frequent and repetitive activation of their local space.

The experience of water offers agency for residents as well, reconnecting the historically problematized drainage of stormwater back to the arroyo through channels. This lessens flooding of the main street, minimizing damage to the area that is the hub of activity in town. These channels also filter out sedimentation of gob materials in the drainage which leads to less impacts in downstream sites, helping to keep the watershed healthy. Revegetation of gob materials in the arroyo also accomplishes this. Plantings along the arroyo banks lead to less erosion, keeping the system functioning. Agency can be further accomplished for residents through extensive water harvesting programs, which should be connected to individual housing units for most beneficial use; this programming is suggested in the project, and needs to be addressed in other projects, as it is beyond the scope of the Madrid Open Space project.

The treatment of the gob piles allows agency for the residents of the town; any change or activation of these gob piles to mitigate environmental affects is highly visible and productive, and engages residents of the town as active participants in the making of meaning for the gob piles. The harvesting of the gob material turns the quality of the gob from waste to product, providing creative and economic gains from these monumental occurrences. The gob art walk educates viewers about the anatomy of the gob, how it was created and what it is, linking history to present, and also allowing for artistic appropriation of the gobs, treating them as sculptures and experiential museums. The gob that occurs within the arroyo as fill, which once acted as the railroad bed, is animated and stimulated for use simultaneously as a trail, gallery site, viewing portal, and connector.

HETEROTOPIC DESIGN

Terry Eagleton discusses the transformative role of art in the eradication and complication of binary oppositions, writing:

> "When Friedrich Nietzsche looked for a practice which might dismantle the opposition between freedom and determininism, it was to the experience of making art that he turned, which for the artist feels not only free and necessary, creative *and* constrained, **but each of these in terms of the other, and so appears to press these rather tattered old polarities to the point of undecidability** (Eagleton, 2000, 5; emphasis added)."

Landscape architecture is undeniably a practice of the arts, and the 'undecidability' of which Eagleton refers to can be defined as the many layers and strata that create a heterotopic landscape, which occurs more frequently as our civilization pulses and grows. The challenge and success of designing within the heterotopic landscape is that the approach must be one which presents contrasts and opposite meanings so that they are understood 'in terms of the other,' as Eagleton writes. The design within the heterotopia must focus on disputing polar opposite classification systems and one-named master narratives of place. Design within a heterotopic landscape should instead reveal and honor the many categorizations and identities of a particular landscape, all at once, so that the heterotopia's qualities are superimposed and stratified. This approach will retain the multifaceted, multivalent quality of the heterotopia, which exists as an imperative antithesis to named places and fixed notions of landscape.

Heterotopias in the landscape, through their very existence, provide the occasion for the opening up of meanings, the explosive deconstruction of language, and the reordering of things. Heterotopias are places in between systems of classification, places with diversified purposes and layered meanings, and therefore are places which are a sort of pause in power structures, as they are outside of a singular classifying order. When these landscapes are stimulated and activated through the design process, it is possible to extol and strengthen the heterotopia's potential for agency and the subversion of defining codifications and power structures.

The Madrid Open Space design combines ecological and sociocultural reclamation through introduced modifiable programming elements and through the magnification and perpetuation of existing heterotopic qualities of the site. The many meanings of places are exalted and reconstructed in a design schema that proposes and encourages change, evolution, and vicissitude. All the design elements shift and move, dependent on the user, season, year, or even moment. In the Madrid Open Space design, meaning is mercurial, and place is realized through interactivity and through self-deciphering of many faceted knowledges. New synthetic ecologies are established through the use of landscape architecture practices to fuse sociocultural and environmental reclamation. This occurs through design approaches that address ecological impacts of the town's history with the use of organic and artistic systems. Design components also refigure the Madrid Gulch as a place of meaning, pleasure, historical referent, and the cultural significance of this site is enriched.

The heterotopia of Madrid, New Mexico is embraced and amplified through the adaptable design features of the Madrid Open Space project, which contributes yet another new place and new layer to the already richly variegated heterotopic landscape of this former mining town turned artisan community. The Madrid Open Space project acts as a model for designing within the heterotopic landscape, as it is through the synthesis of theory and practice in the field of landscape architecture that the 'tattered old polarities' within the order of things are deconstructed, and the post-industrial landscape becomes the trans-industrial, transcendent landscape.

Appendix A: Works Cited

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Appendix B: Consulted Sources, Documents, and Websites

John Kretzmann, Program Manager, New Mexico Abandoned Mine Land Program- provided site analysis assistance, historical information, map sources, information and analysis input, and continued support throughout the project.

Daisy Levine, Cultural Resources Coordinator, New Mexico Abandoned Mine Land Program- provided historical information and imagery.

Lloyd Moiola, Project Manager/Archaeologist, New Mexico Abandoned Mine Land Program- provided Madrid documents and maps.

Colleen Baker, Program Manager, Santa Fe County Open Space- provided historical information and review of reports.

Bill Baxter, area historian- provided information on regional and village history.

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Appendix C: Figures

All drawings, images, renderings, and photos were created by the author with the following exceptions:

Cover images: Historical photo of miners and historical map of Cook and White coal seam, courtesy of AML.
Fig. 1: Signs along the Berlin wall. Left: <http://channel.nationalgeographic.com/episode/berlin-wall-2521/> Right: <http://north.iwm.org.uk/server/show/conMediaFile.80804
Fig. 2: Abadoned mine shafts in Belgium. < http://upload.wikimedia.org/wikipedia/commons/7/7a/Abandoned_mine_shafts_-_Maasmechelen.jpg>
Fig. 3: Tectonic plates diagram. <http://www.geog.nau.edu/courses/alew/ggr346/text/chapters/ch10.html>
Fig. 4: Historical map of Madrid Coal Seams, courtesy of AML.
Fig. 5: Historical photos of miners, courtesy of AML.
Fig. 7: Jenny Holzer "All Things are Delicately Interconnected," 1983. < http://synapticstimuli.com/wp-content/uploads/2009/03/2434275-jenny-holzer-0.jpg>
Fig. 9: Historical surveying maps. <https://www.theamericansurveyor.com/storefront/view_item.php?&x_item_id=151>
Fig. 10: Surveying buoy <http://www.photolib.noaa.gov/htmls/cgs00563.htm>
Fig. 11: Images of North and South Korea from "Can Parks Promote International Peace?" *Landscape Architecture Magazine*, Vol. 98, No. 3: March 2008. 37.
Fig. 12: El Chino mine, Silver City. Image from Google Earth.
Fig. 13: Parc des Buttes Chaumont. <http://www.gardenvisit.com/history_theory/library_online_ebooks/ml_gothein_history_garden_art_design/public_parks_europe_america>
Fig. 14: Topographical map of the Cerillos region, courtesy of AML.
Fig. 15: Historical photo of Madrid, courtesy of AML.
Fig. 16: Topographical map courtesy of AML.
Fig. 17: Historical photos of mining in Madrid, courtesy of AML; collaged by author.
Fig. 18: Madrid for sale. <http://www.flickr.com/photos/7262667@N06/3267626183/>
Fig. 21: Aerial image of Madrid courtesy of AML.
Fig. 23: Historical photo of rail lines, courtesy of AML.
Fig. 27: Topographical map of Madrid, courtesy of Debra Garcia, GIS cartographer, Santa Fe County Open Space Department.
Fig. 28: Historical photo of flooding courtesy of AML.
Fig. 30: Images of Yankee Vukonich reclamation project. < http://www.emnrd.state.nm.us/mmd/aml/>
Fig. 32: Images of AMD/ART Project, Julie Bargmann of D.I.R.T. Studio. <http://www.dirtstudio.com/>
Fig. 33: Image of stormwater pipe bridge from Vancouver's Southeast False Creek Olympic Village. < http://media.photobucket.com/image/Vancouver%2525E2%252580%252599s%20Southeast%20False%20Creek%20Olympic%20Village%20pipe/oct2gon/OPVHingeParkPipeBridge.jpg>
Fig. 37: Detail of historical map of pillar-and-room mining along the Cook and White Seam in Madrid. Map courtesy of AML.
Gob title image: Historical photograph of the Madrid gobs, courtesy of AML.
Tipple title Image: Historical Photograph of the Jones Tipple in Madrid, courtesy of AML.
Energy Art Park title image: Historical photograph of the Madrid railroad line, courtesy of AML.
Art Trolley title image: Historical photograph of a pump trolley. < http://www.warwickshirerailways.com/gwr/gwrsf964.htm>
Boardwalk title Image: Historical photograph of the wooden sidewalks of Madrid, courtesy of AML.
Channels title image: Historical photograph of flooding in Madrid, courtesy of AML.