UNCOMMON GROUND:
An Architectural Narration of an Oregon Chemical Depot's Embedded History

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INTRODUCTION

For half a century, 3,717 tons of United States chemical weaponry waited dormant in its canisters, buried carefully in the ground. The role of Umatilla Chemical Depot was simple – to keep this controversial collection of the United States' volatile chemical munitions protected and concealed from civilians. In order to reduce risk, the chemicals were stored in a rigid array of storage bunkers, encapsulated by a thick layer of concrete and earth. Since the passing of World War II, these nerve gases and blistering agents have remained hidden within the disfigured landscape, vigilantly guarded by soldiers in gas masks.[1]

In 1990, a global ruling changed the role of this facility forever. An agreement between the US and Soviet governments to cease the production and stockpiling of chemical weapons, required the discarding of Umatilla's entire reserve.[2] The Chemical Weapons Convention was initiated to oversee that this ruling is strictly followed and maintained. This presented the US army with a daunting new challenge to quickly and efficiently facilitate the elimination of the collection they had previously invested so much in protecting.[3] With this historical moment, the architectural program of the army base shifted from a site of fortification to one of disposal.

It was determined that the safest, most efficient method of disposal would be to burn the chemical agents on site, resulting in the erection of an incineration plant among the Umatilla storage igloos in 2001. After a laborious decade of deactivating the stockpile, Umatilla Chemical Disposal Facility has become obsolete, and the military has since initiated the process of decommissioning the army base. The land has been left barren and blemished by the erosion of chemicals and waste water contamination. Although emptied of their original utilitarian function, the built forms remain largely intact as a permanent fixture within the landscape. Without further purpose, the site awaits direction for what it will represent next. The executed reuse of many more traditional military sites across the country has demonstrated the potential of these facilities to serve new roles, from institutional to residential, but the problem in this instance involves finding the proper role of a site that is burdened by a violently afflicted past and land degraded by disastrous contamination.

Parallels can be drawn between this sensitive site affliction and the treatment of similar sites demonstrated within conceptual architectural literature. In his book, *War and Architecture*, designer Lebbeus Woods responds assertively to the rehabilitation of sites that have been devastated and disfigured by human activity. The simple imposition of the built environment is already an act that frequently results in irrevocable damages to the natural and built landscape. The actions of war produce an even more violent impact that call for equally forceful acts of restoration. The theoretical work of Lebbeus Woods seeks to show that architecture can play a central role in this rehabilitation, thus becoming a guiding principle for this project.

This thesis makes the argument that the architectural methods proposed by Woods provide a relevant and effective way to approach the design of obsolete military installment sites like Umatilla that have been scarred by unrelenting human occupancy. This project will reinterpret Woods' theoretical ideas about the reuse of architecture with a hostile past, as a way of interpreting the future of the physical built remains of Umatilla Chemical Disposal facility.

The objective of this thesis is to propose that through an architecture of remediation, sites represented by a violent prior use, like the decommissioned military base in Oregon, should both reveal its blemished past and at the same time heal its damage, by making use of the literary strategies of Lebbeus Woods . It will address the site's historical significance, while responding to the element of contamination and consequential past time of the site. Through a series of selective installations throughout the site, the proposed project will use architecture to

invite the public to encourage their exposure of the contaminant issue and heighten their understanding of the violent history demonstrated throughout the landscape. The design of the built landscape will preserve the permanence of the site's history in a way that allows them to recover and adapt over time.

figure 1: WWII chemical warfare propaganda poster

figure 2: Umatilla Ordnance Depot circa 1942

PROBLEM STATEMENT

The site at Umatilla encapsulates a menacing pastime. Parallels can be drawn between the degradation of this built environment to those in the urban reformation proposals of designer Lebbeus Woods, in his book *War and Architecture,* as a strategy by which to inform the design of this project. Woods' design approach and interest in the preservation of imperfections within the built environment will be referenced as a guiding principle in this design exploration. This thesis investigation takes the stance that the complex history embedded within the site should be preserved, and the treatment of the afflicted landscape exposed, through spatial manipulation of the existing built environment. In order to maximize the significance of the site subject matter and its outstanding views, the design will focus of the manipulation and restructuring of the existing fabric, relative to several concentrated nodes, and will seek to use architectural intervention to aid in the healing process of these selected regions.

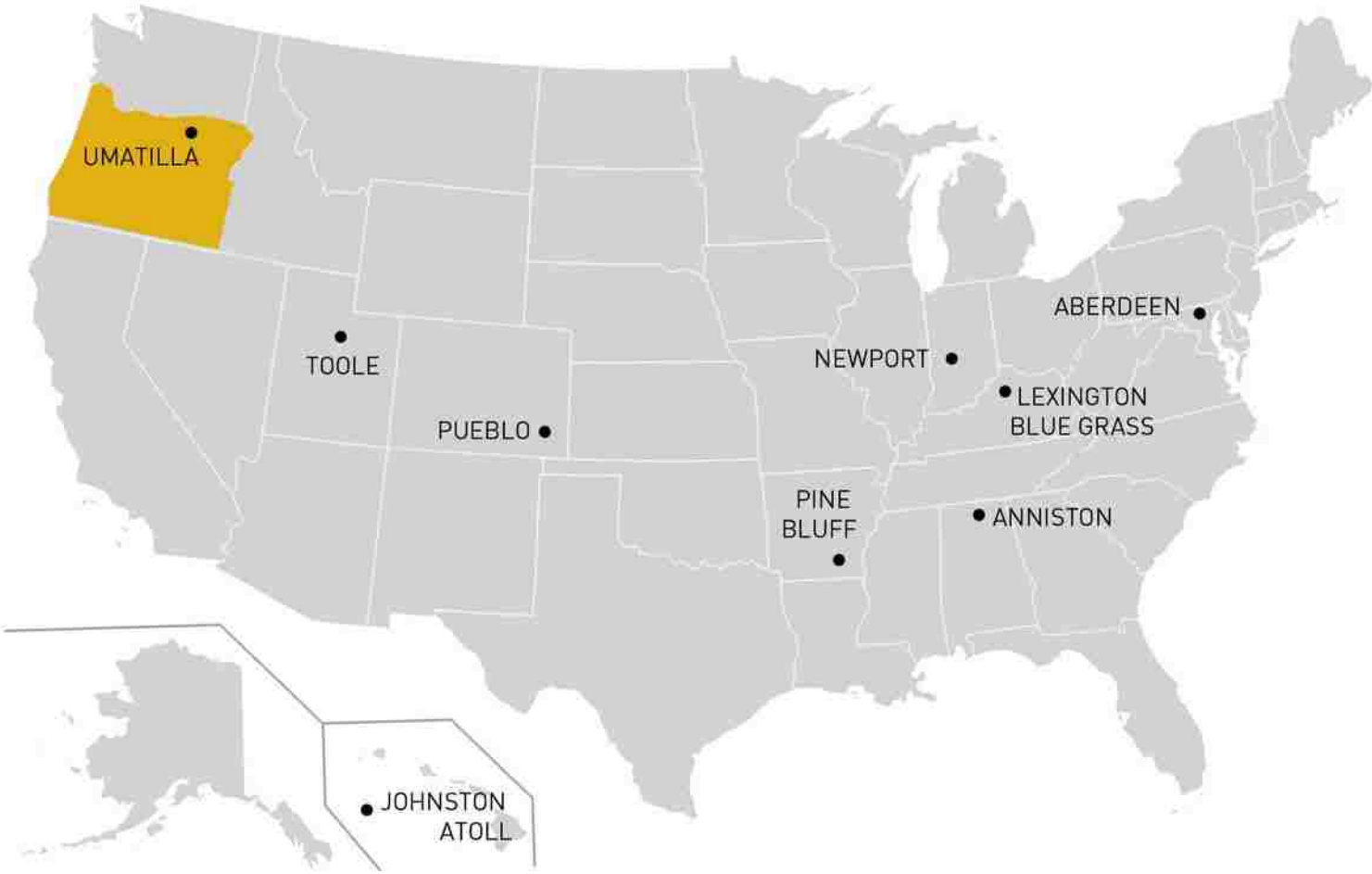


figure 3: US chemical weapon storage facilities in process of closure as of 2013

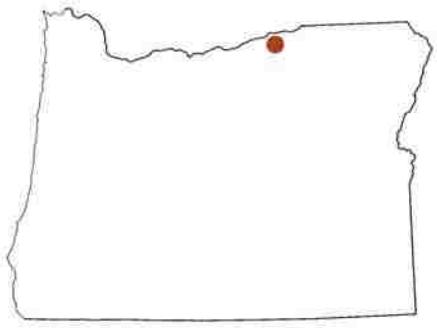
THEORETICAL FRAMEWORK:
The History Embedded Within Umatilla

"The scar is a deeper level of reconstruction that fuses the new and the old, reconciling, coalescing them, without compromising either one in the name of some contextual form of unity."[4]

-Lebbeus Woods

In 1940, the US army selected a 16,000 acre plot of barren Oregon sagebrush land for a new military installation. Construction on the site began in 1941, and within 10 months, the army base was operational. Like other installments of this era, Umatilla Army Depot was established in support of World War II and the increased demand of secure storage facilities for ammunitions and general militia provisions. It stored a wide variety of supplies, from munitions to uniforms and blankets for the troops. Its location just south of the Columbia River and the Washington state border and inland 200 miles from the coast kept these supplies safeguarded in the event of a Pacific Northwest coastal attack.[5]

After the global threat of chemical warfare surfaced during WWII, the US government built up a competitive collection of its own lethal supply. The clandestine efforts of the government to compete with the increasing global supply of dangerous chemical warfare also required that it could maintain this supply within



the homeland without compromising the safety of the nearby civilians. In order to secure the storage of America's chemical weapons, the stockpile was kept in one of nine storage facilities across the country. Each of these was carefully selected for its location that would be safe for adjacent communities, making rural regions a favorable destination. The locations of these facilities were publically known, but were kept under strict surveillance. The army depot at Umatilla became a chemical depot in 1962, and received chemical munitions for storage through 1969. For decades, the storage cells dutifully held 12% of the nation's collection of weaponry safe from its surroundings, ready to be called upon if necessary.[6]

After a government consensus in 1990, Umatilla was required to destroy all the nerve gases and blistering agents it held in storage. In February 1997, the US Army awarded Raytheon Demilitarization Co. a $567 million contract to destroy the depot's chemical weapons by the year 2005.[7] While this deadline was not met, Umatilla Army Base spent four years reconfiguring its built environment around its future role in the disposal of chemical weapons. In 2001, an incinerator was constructed and from 2004 through 2012, the depot burned its entire chemical stock on site.[8] The disposal process at Umatilla has come to an end, and each of the nine former chemical depots are currently undergoing closure or have already completed demilitarization. Now that the disposal era has finally reached completion, each of the decommissioned military bases (fig 3) need to find a new role within the built environment.

Geography

Umatilla Chemical Depot is situated in the central northern edge of Oregon state, just three miles south of the Columbia River and the Washington state border. The depot is bisected by two counties: Morrow and Umatilla. It stretches across 25 square miles encompassed by the adjacent fields of flat farmland. The closest industrial center, Hermiston, is situated 5 miles east of the army operation, whose city limits end abruptly at the eastern property edge of Umatilla Chemical Depot and the interstate.

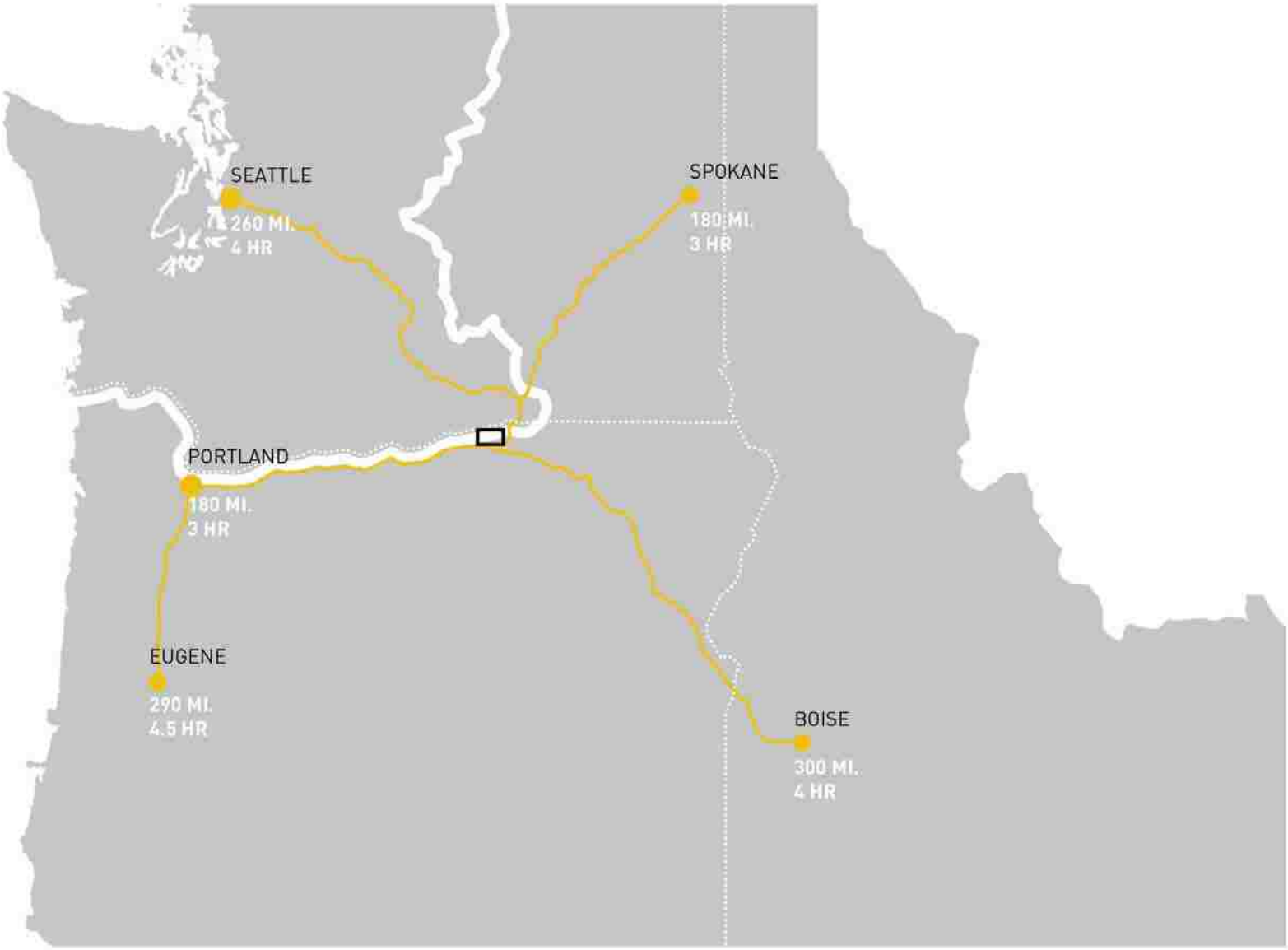


figure 4: regional traffic bypassing Umatilla Chemical Depot

Even today, Umatilla is one of the largest employers in this population of 17,000, but by 2015, the complex is planned to be completely decommissioned, terminating the remainder of future employment on the site. As an active military base, the public is not allowed on site. The edge of the property borders along the junction of interstate 82 and 84, thereby, circulation along the highway is the public's only visual connection to the site (fig 6).[9]

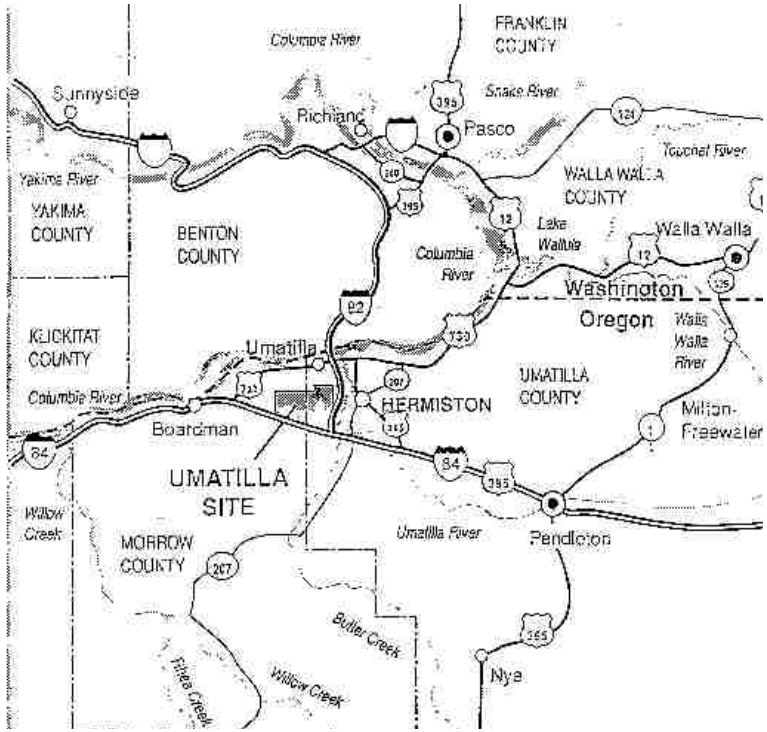
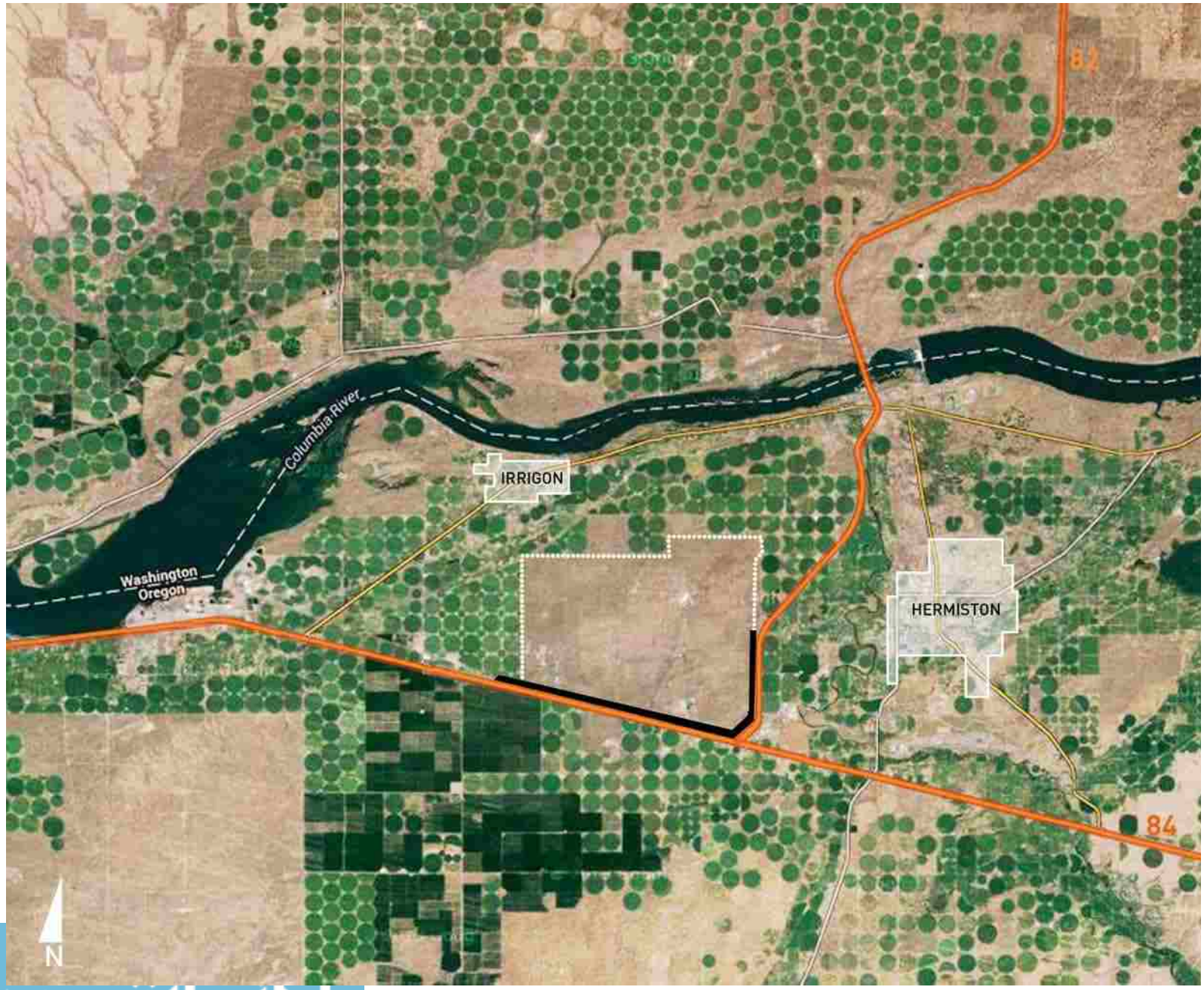
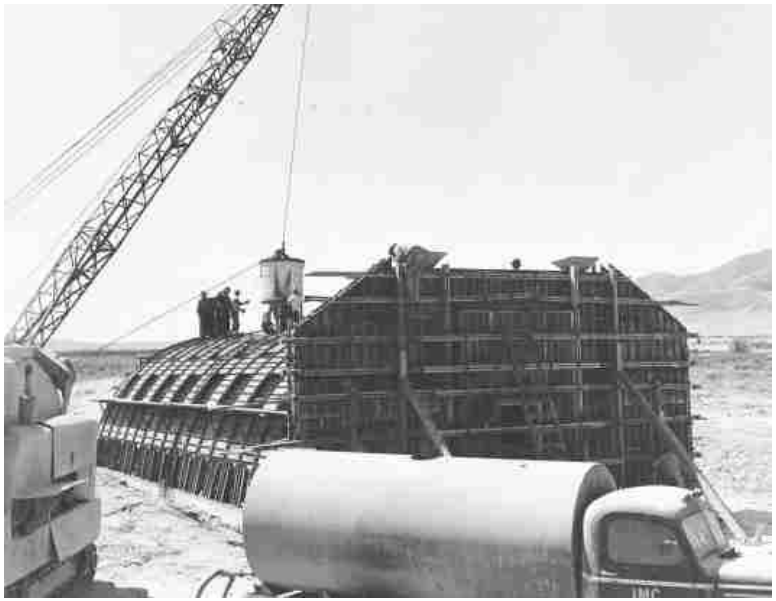


figure 5: regional map
figure 6: Umatilla vicinity map (right)

Climate

Umatilla Chemical Depot is situated east of the Cascade Mountains in north central Oregon. The Cascades serve as an effective moisture barrier, causing storms to dump much of their moisture west of the peaks and leaving areas to the east in a "rain shadow." As a result, the region of Umatilla is a relatively dry climate.[10] Although agriculture is significant to the regional identity of this site, the landscape's undeniable alien form restricts the type of agriculture that it can foster, as does the historic element. The threat of potential contamination of any crops or byproducts that either grow from the site's ground or feed the animals whose byproducts are then collected means that the site cannot support any kind of edible crop or crop that will be used in the fertilization of later grown crops. Despite its obvious adjacencies to an agricultural region, Umatilla cannot be re-graded for conventional farming, and because of the site's history with the noxious blister agents and nerve gases, the land must be treated with extreme haste.





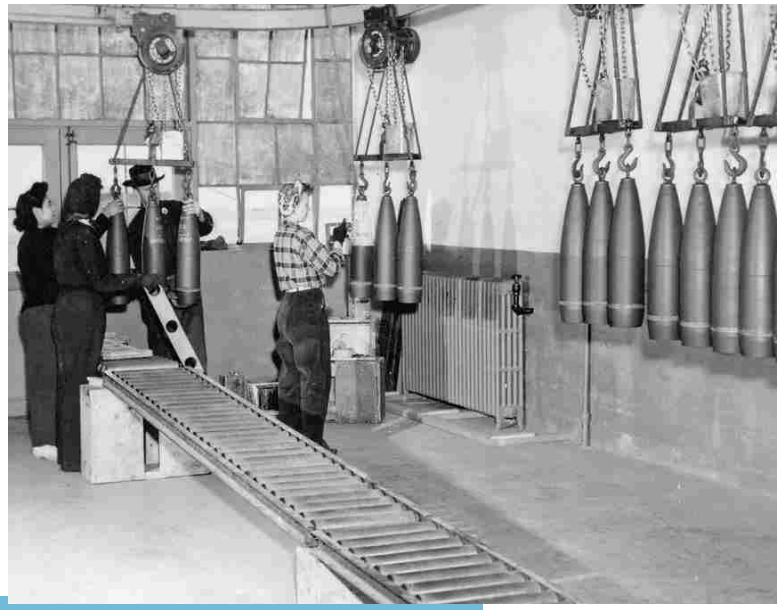


figure 7: construction of storage igloos
figure 8: assembly of chemcial agent canisters

Arrival

Understanding the infrastructure of this army operation is critical in narrowing the scope of a visitor's experience to a cohesive journey. The depot is made up of more than 200 miles of roads and 40 miles of railroad tracks, as well as a series of administrative buildings, machine shops, warehouses, and other structures.[11] Chemical stock would arrive by train, sorted through a switch yard at the south end of the property. The weapons were unloaded from a series of train sheds on the west end of the depot, after which armored vehicles and automated forklifts would distribute the stockpile to one of the storage bunkers, or 'igloos' within the site (fig 10-13). It lay dormant here for decades, precariously sheltered beneath the natural environment, and the manmade fortification beneath its outer skin.

Storage

The uncommon element within the fabricated landscape is the collection of 1,001 storage bunkers, or igloos, buried into the ground. They are made of thick concrete engineered to minimize the blast of an explosion should any of the munitions accidentally detonate. Anchored in a grid within the landscape are 1001

storage igloos that make up the vastness of the site. The storage igloos were built with cement and steel rebar. The igloos are covered with dirt to maintain an interior temperature of 50-60 degrees Fahrenheit year round, helping to maintain safe storage conditions. It has been determined that these are too expensive and too vast to remove, and will ultimately have to remain a part of the landscape, as a substantial component that informs the design programmatically and spatially.[12]

The mass of one thousand storage igloos make up the vast repetition that collectively forms this powerful landscape, and with that, an implied relationship becomes apparent between the earth and sky. Each is vulnerable to the toxicity within the igloos that exist between the elements, and even within their carefully contained cells, both earth and sky have been degraded by the

figure 9: defunct train switch yard (top of page)
figure 10, 11: train sheds recieved chemcial weapons on site

figure 12: stockpile inside storage igloos
figure 13: forklifts transported stockpile

built environment's imposition. This built environment is made up of a hostile landscape. Even today, the site continues to be dominated by the igloos splayed across the landscape. Because of their substantial volume and distinct repetitive form, these ominous figures within the landscape transform the natural topography of the site and alter the way a user experiences it. They evoke the surreal image on an art installation like that of Donald Judd's Untitled in his 1980 Marfa, Texas intervention. The artist's fascination with the climate and desolate landscape that could be understood for miles of uninterrupted horizon is evident in his spatial exploration of the site. An extensive series of large concrete boxes meticulously bring order to the abyss and frame the landscape for viewers. Judd's incorporation of a single module repeated rhythmically many times over contrasts an otherwise flat plane of earth, similar to the storage igloos of Umatilla's landscape. While the artist's installation was for aesthetic effect, and Umatilla's igloos exist solely for functionality, they evoke a similar visual realization. Each man-made instance frames views of the natural in such a way, that it enables an onlooker to relate the built environment back to the landscape, revealing man's impact on the otherwise "pure" landscape.[13]

Significant in both sites is the similarity in the material composure of this built environment, though one was chosen for aesthetic, the other for functionality. The use of concrete has implications

of permanence and durability that will remain a part of the site for an extended period of time. Having the storage igloos as repetitious remnants of the former storage facility results in more than just a preserved relic of the site's history. It also represents a permanent feature so engrained within the landscape that cannot be easily removed, and thereby becomes a significant feature by which the design scheme will be informed.

As noted by a survey of residents local to the Umatilla Depot and Hermiston community, the storage of chemicals at Umatilla carried a serious impact on the environment and residents, presenting a health and safety threat. Even if stored above ground, both the long term storage of chemical weapons, and the subsequent disposal process leave the site at risk for contamination. If an igloo were to explode containing chemical content, the chemical detonation could reach as far as a 12 mile radius around the source.[14]

While much of Umatilla's near-seventy years of operation have been without fatal incident, there have been moments that would indicate concern for the land and its inhabitants. In 1945, an accidental ammunition explosion occurred within one of the storage igloos, killing six workers on the site. Authorities are still unsure as to what caused the unanticipated detonation of a contained explosive. Sources speculate the canister may

figure 14: storage igloos make up the landscape
figure 15: disposal furnace

have been punctured by a fork lift while inventory was being exchanged. In April 1999, an Umatilla employee, Donna Fuzi, recounts how the storage pods reacted:

The igloos are actually designed so they're thicker at the bottom, the cement is, like two feet thick, and they eventually get thinner, up to one foot at the top. So if there is an explosion, everything's forced up, so it doesn't affect the igloos on the sides. And the front wall, it's cement, and it falls forward and then the explosion goes up. Did what it was designed to do. The engineers knew what they were doing.[15]

-Donna Fuzi, Umatilla Army Depot Employee

Though this particular explosion occurred within a storage igloo that did not contain nerve gases at the time, this account exemplifies the perceived risk that locals understand in regard toward having chemical weapons stored and destroyed in their neighborhood. In a much more recent study by J.A. Bradbury called "Community Viewpoints of the Chemical Stockpile Disposal Program," a focus group analysis of local Umatilla residents describes the obvious tension felt by residents who understood the implications of living within close proximity to the depot and its disposal facility.[16] Umatilla Outreach office in downtown Hermiston is available to the public as a resource to disperse information on its chemical weapon storage and disposal practices.[17]

figure 16: aerial view of storage igloos

Disposal

Built in 2001, this is the newest component of the site, but since the completion of the chemical weapon disposal, it has become obsolete. It is contained to the central east side of the site and is made of a network of small buildings around a large scale incinerator facility. The facility is made up of multiple furnace systems to accommodate the multi-step kiln disposal process.

The chemical incineration plant is the area of the site that poses the most risk. The disposal method was largely carried out through automated processing on site. (fig 15, 18) The canisters of gas were retrieved from their storage igloos and placed onto moveable trays. Inside the first automated area, the explosion containment room, explosive components were removed from the containers and burned in a rotating kiln, or the deactivation furnace system. Automated cars transported the containers to the munitions processing bay, where machinery sucked out the noxious liquid agent. The liquid was sent to a series of holding tanks. The nearly-empty items were then inserted into a high-temperature oven called the metal parts furnace, which destroyed the residual agent so that the containers can be safely disposed of as scrap metal. The liquid agent was burned in one of two high-temperature (maximum 2,700 °F or 1,500 °C) ovens.[18] The products of combustion from the ovens and

figure 17: last chemical agent prior to disposal completion, 2012
figure 18: incinerator system

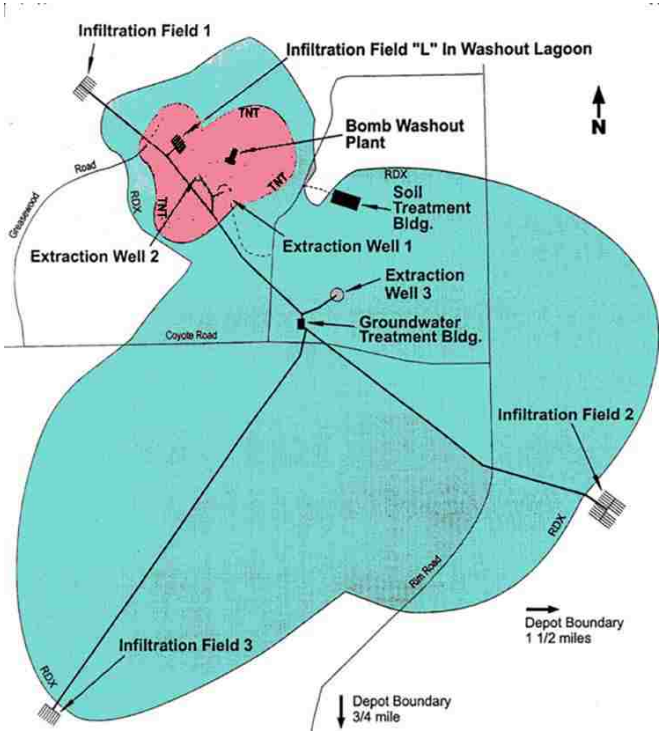


figure 19: waste water lagoon plan
figure 20: waste water drainage and decontamination

kilns passed through extensive pollution abatement systems that catch the airborne products as salts, or brine, which were removed and shipped to out-of-state underground disposal areas.[19]

Clean Up

Despite the destruction of the chemical weapons, the site continues to exhibit a large risk factor, not just to its immediate environment, but to the surrounding community. The delineation of a danger zone, encircling nearly a 12 mile radius around the Umatilla Army Depot boundaries, demonstrates the area that would need emergency decontamination response in the event of an accidental chemical weapon deployment.[20] During the time the site was actively storing the chemical canisters, 33 documented “leakers,” where toxic chemicals were being released throughout the facility, were discovered and supposedly contained over time. Later, at the time when the canisters were transported to the incineration plant, many more were discovered that had unexpectedly activated, attributed to a rise in temperature inside the storage igloos.[21]

In the central region of the depot, are a series of unlined “lagoons” which were used to hold waste water (fig 19-21). In the 1960s a portion of the water being dumped was

unknowingly contaminated, and had the potential to leech into the community's water source. By 1980, the site was determined a Superfund priority project, in urgent response to the risk of contamination of a local drinking water source. The government Superfund agency, a federal program established to clean up the nation's uncontrolled hazardous waste sites, worked through 2005 to decontaminate the lagoon area, which is still monitored today to ensure the damage area has been controlled.[22]

Future Planning

The government had anticipated the closure of Umatilla after the chemical disposal process ended, and published a plan of intention to divide up the land as mixed use in order to service a variety of organizations. The government's current plan for Umatilla includes land allocated to commercial and industrial development, as well as some wildlife refuge.[23]

The post-discharge plan for Umatilla includes the redesign of the complex that includes new programmatic elements that are insensitive to the site's historic significance and its present day contaminant threat. Many sites with similar military typologies are repurposed with little to no regard toward its historical element.[24] This thesis proposal will challenge the projected scheme, and provide a new proposal based on analysis. The

figure 21: waste water lagoon gravel pit cleanup

figure 22: disposal facility, now obsolete
figure 23: owls burrow into Umatilla soil

main architectural idea in this thesis is to creatively address the decommissioning of Umatilla Chemical Depot, by acknowledging rather than ignoring its military industrial past and engaging the surrounding community and encouraging public exposure to it.

Environmental Takeover

In contrast to the manmade portion of the landscape exists a unique thriving ecosystem. Many species like prong horn and burrowing owls along with the sagebrush are rapidly taking over the site (fig 22-24). With this, a significant portion of the design concept includes the notion of the site going back to nature. Before the army's intervention, the land that Umatilla covers was a barren sagebrush field. Ecologists explain that the sagebrush plain is a vital fragment of the Oregon ecosystem, and home to a variety of arid climate vegetation and animal species.[25] The ground was a mixture of perennial grasses and low-laying shrubs. The disruption of the soil fertility and human occupancy results in the issue that these organisms cannot currently reside in their intended habitat, and it is evident that nature has been attempting over time to reclaim some of the land it has lost.[26] Therefore, the design will accommodate and respond to the wilderness that has an increased presence on the site.

figure 24: pronghorn overtake the site

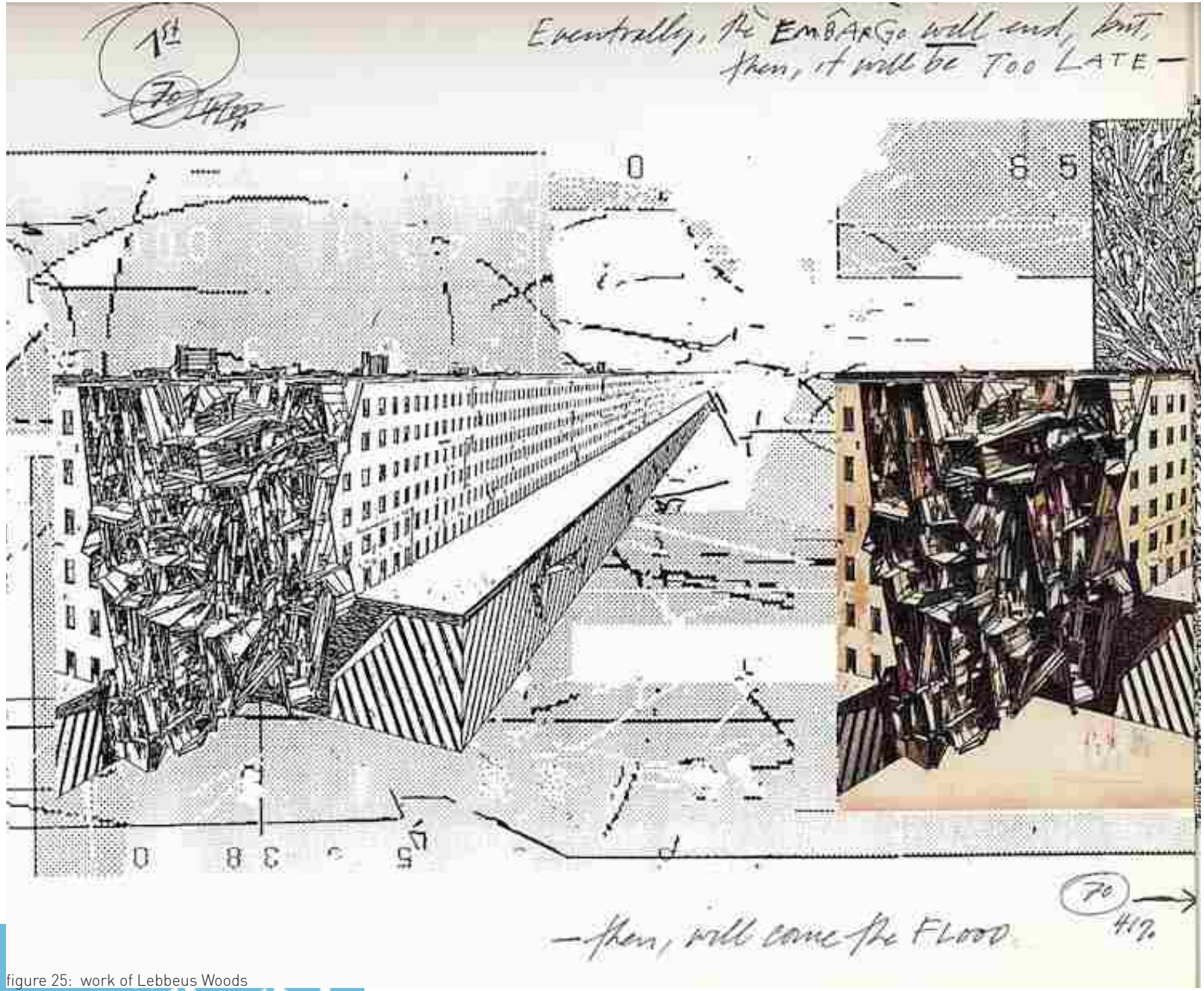


figure 25: work of Lebbeus Woods

SITE ANALYSIS AND DESIGN METHODOLOGIES:
War and Architecture Parallels

"The scar is a mark of pride and of honor, both for what has been lost and what has been gained. It cannot be erased, except by the most cosmetic means. It cannot be elevated beyond what it is, a mutant tissue, the precursor of unpredictable regenerations."[27]

-Lebbeus Woods

The work of Lebbeus Woods, provides a means by which sites like Umatilla can be understood and reimagined. In his book, *War and Architecture*, Woods presents very radical proposals for cities across the world that have come to ruin as a result of global conflict and violence. Many of his chosen sites have been completely ravaged by war or other forms of violence, and their inhabitants must coexist with the terror and trauma induced by the ruins of the former skirmish. His illustrations are fanciful and graphic, riddled with an obvious tension and terror. Through these images, Woods addresses the topic of terrorism and warfare violence without lingering on the trauma associated with such incident of the past, but rather moving forward with life after the physical devastation.[28]

The core of Woods' approach is that infrastructure damaged by global conflict should be preserved deliberately and thoughtfully. Addressing the relics of organized violence, he explains: "Only in confronting it can there be any hope of changing its tragic content."[29] Most of Woods' work was done from 1985 – 1995 in

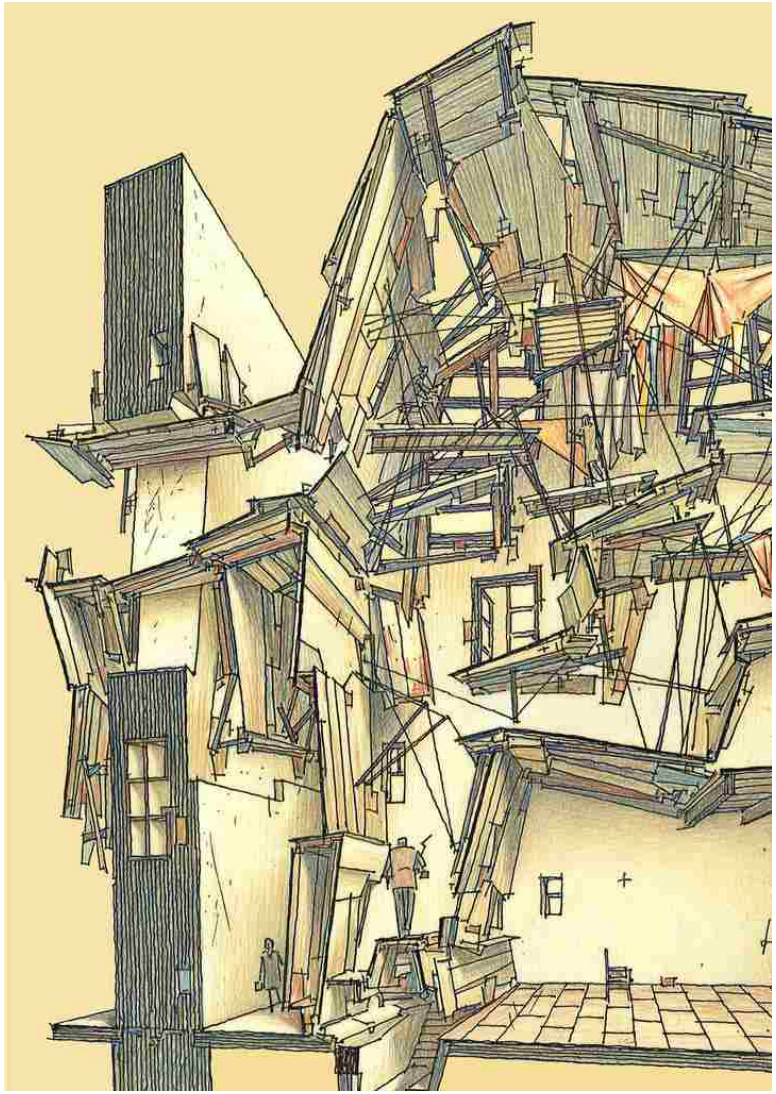


figure 26: Woods, scarring

response to global events at this time including the destruction of Bosnia. While these crises have passed, sites linked to the mechanisms of war, like Umatilla, continue to exist and pose similar challenges.

In each of his post-war renewal projects, Woods proposes that in buildings that have been damaged by violence, the role of architecture is to allow the character from a lifetime of erosion and abuse to become the dominant aesthetic.[30] Woods' ideas, however unrelenting, address specific social issues that link the consequences of war and global conflict with the architecture of the built environment.[31] Like a virus attacks the body, military battle effects primarily the physical environment that the civilians live amongst. A body who dies is inevitably buried in the ground and covered with a plaque of remembrance. The same principle seems to be the most commonly accepted strategy applied by society when their built environment crumbles from some unfavorable burden. Bury the remains, morn the dead, build a new structure that does not remind us of the fallen. Woods challenges these traditional reactions by instead proposing the radical rehabilitation of these buildings. To mend the wounds that transform into a new building form, rather than new buildings all together. Metaphorically, it is putting a band aid on the building, fastening a splint to help it stand again, and stitching

shut the incisions, each of these rituals leaving a permanent scar on the flesh (fig 26-28).

Meyers speaks of the potential a philosophy like this can have in the field of design, "The reconstruction, when it comes, must incorporate in the general rebuilding of damaged structures many spaces that embody the personal and social transformations caused by the siege and the struggle to transcend violence and fear."[32] Woods' work serves to suggest the attitude which we should take when looking upon such built environment elements. This thesis takes the stance that Woods' proposals are timeless, and relevant within a contemporary setting. Woods elaborates:

> The new spaces of habitation constructed on the existential remnants of war do not celebrate the destruction of an established order, nor do they symbolize to commemorate it. Rather they accept with a certain pride what has been suffered and lost, but also what has been gained. They build upon the shattered form of the old order a new category of order inherently only in present conditions, within which existence feels its strengths, acknowledges its vulnerabilities and failures, and faces up to the need to invest itself as though for the first time, thus seizing the means to continuously refresh and revitalize itself.[33]
>
> -Lebbeus Woods

In *The Destruction of Memory: Architecture at War*, Robert Bevan explains the significance of what the built environment stands for in a culture, and the emotional trauma that is suffered by destroying even one element of that space. A culture identifies with its environment, making it in many cases a target for metaphorical extinction during war. Whatever the conflict may be, the fortitude of architecture can represent a culture that copes or one that falters.[34] In turn, the inevitable decay of a built environment is a naturally occurring phenomenon, whether by natural forces or self-imposed by man.

In *War and Architecture*, Woods investigates his theoretical interventions that have been damaged by direct acts of violence against the built environment, though in this exercise, the two present similar challenges. He describes decisive strategies of intervention that can be applied to specific intervention for the rebuilding of architecture that has been damaged.

Injections – An injection into a void is a way to create new space in an existing relic, though it is not exact fit. The action suggests an attitude toward reinstating program for a rehabilitated space.[35]

The Scab – The scab acts as the first healing layer of construction during an intervention or period of transformation

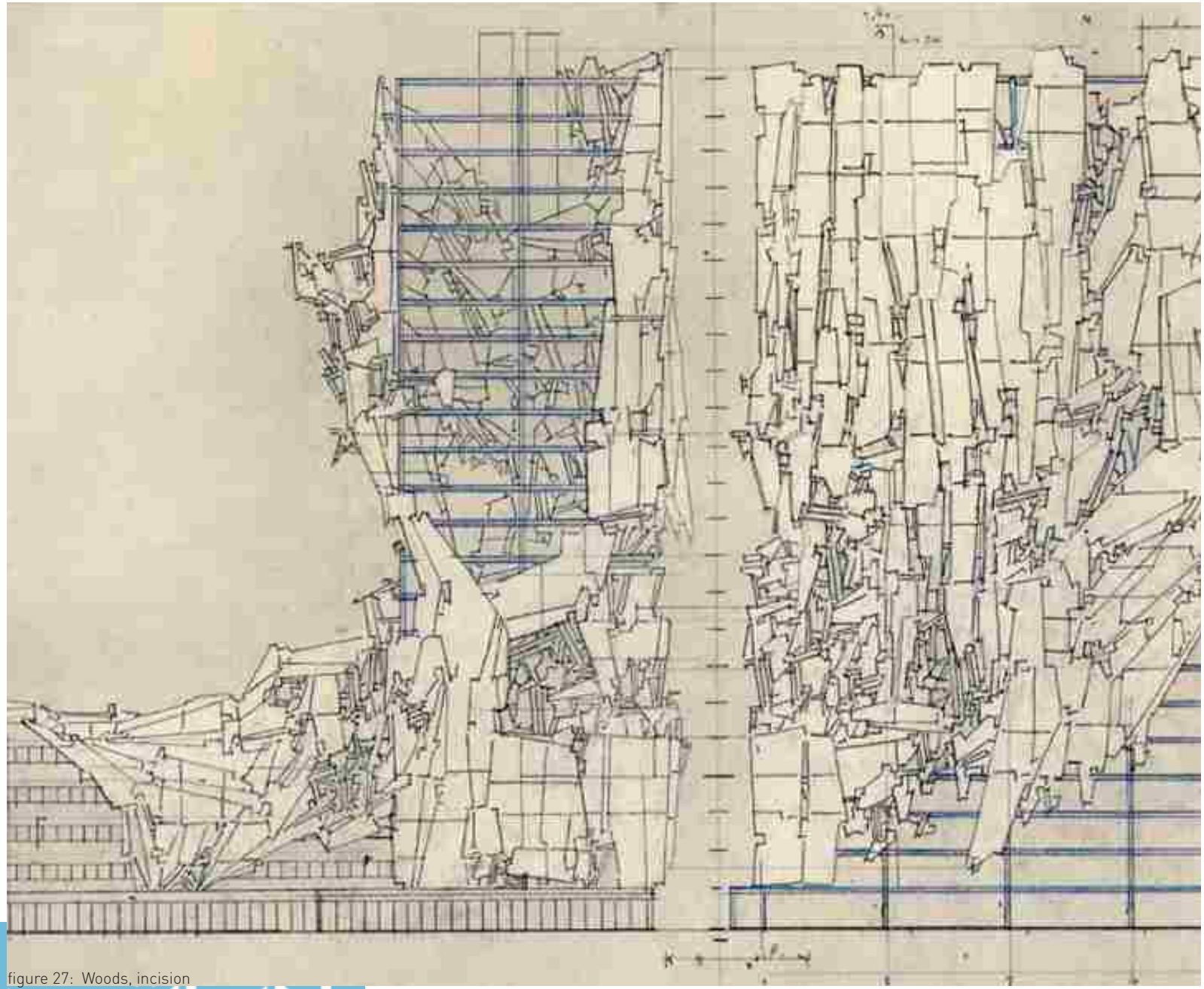


figure 27: Woods, incision

throughout a building's lifespan. It behaves as a barrier from which no further unintended alteration to the structure can occur.[36]

The Scar – Within the scar, "a deeper level of construction fuses old and new, reconciling, coalescing, without compromising either one in the name of a contextual or other form of unity."[37] The most important thing about the scar is that it cannot be undone, only hidden cosmetically but never erased. Woods relates it to a metaphorical, mutant tissue, a type of transfiguration of the building's form that moves it forward in time.

Woods points out that the ruins of war force us to confront the repercussions of organized violence and to face the willful destruction we impose upon ourselves. By embodying a history that must not be celebrated nor denied, the decay of the site itself becomes the project. Woods' theoretical approach to war torn buildings thus forms the basis of the intervention strategy of this thesis. In this case, it is not in response to the suggestion of the victim versus the victor, relative to the fortification of the army base. Instead, it focuses on the notion of accepting what is the existing damage, but seeking to mend it in a way to expose its wounds and flaws so that the natural healing process can become evident.

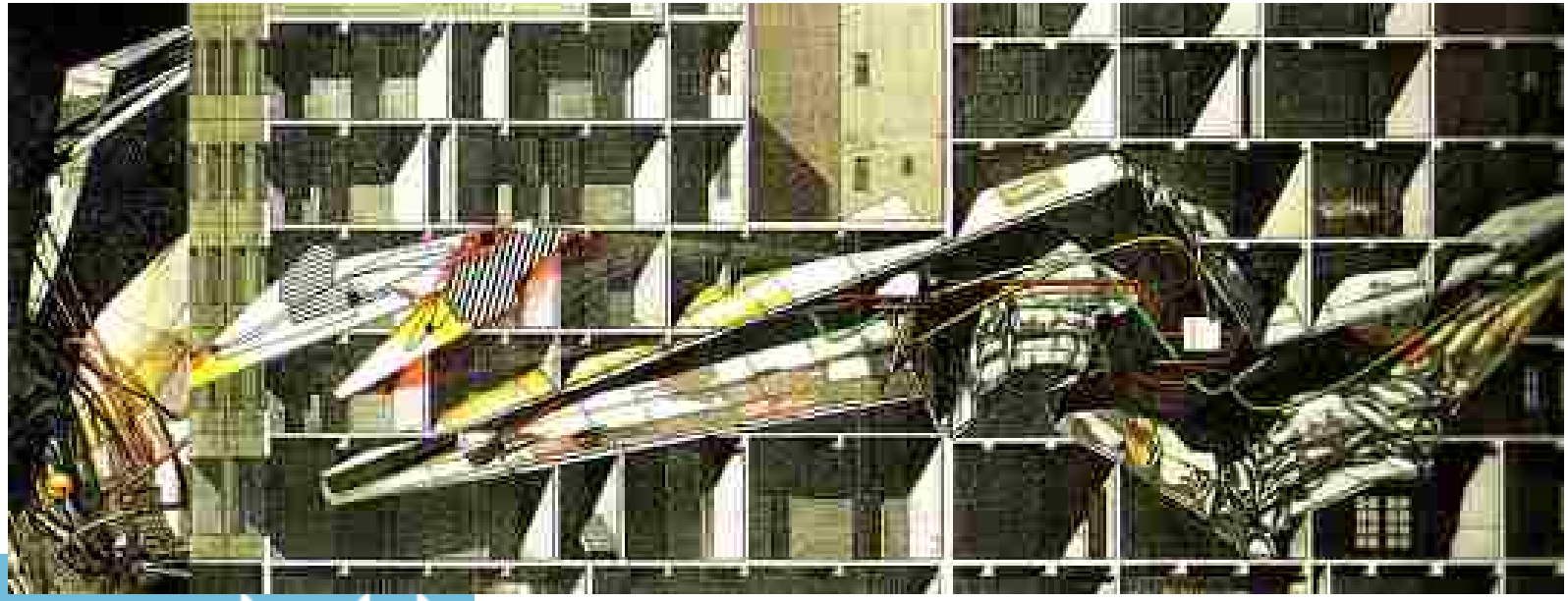


figure 28: Woods, the scab

Overall, this thesis makes the argument that Lebbeus Woods' methods are a relevant way to approach the design of modern sites like Umatilla whose land has been scraped and scared by brutal human activity. This project will extract the attitude he takes toward reusing buildings with a tainted past, and apply it to the battered built environment remains of Umatilla Chemical Disposal facility.

Site Approach

Umatilla as a site is a paradigmatic example of how, in their occupancy of violence, the human species decimates the earth, like parasites. They dig, burrow, harvest, puncture, explode, and incinerate, often without leaving any evidence of their intrusion. The built fabric serves as the scars, blemishes on what was once the perfection of nature. These need to be revealed, as they disclose our inhabitance and inscribe our attendance into the

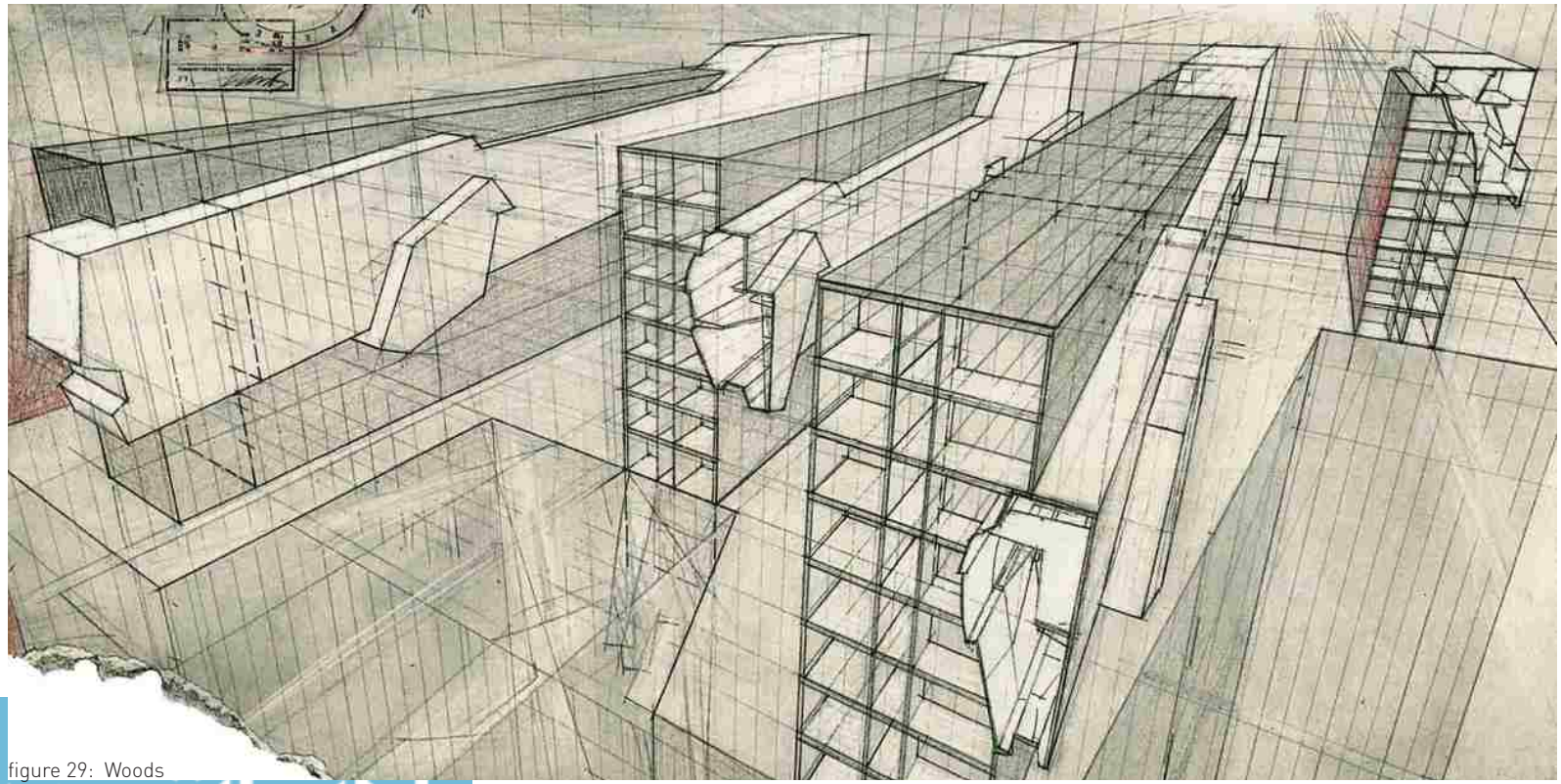


figure 29: Woods

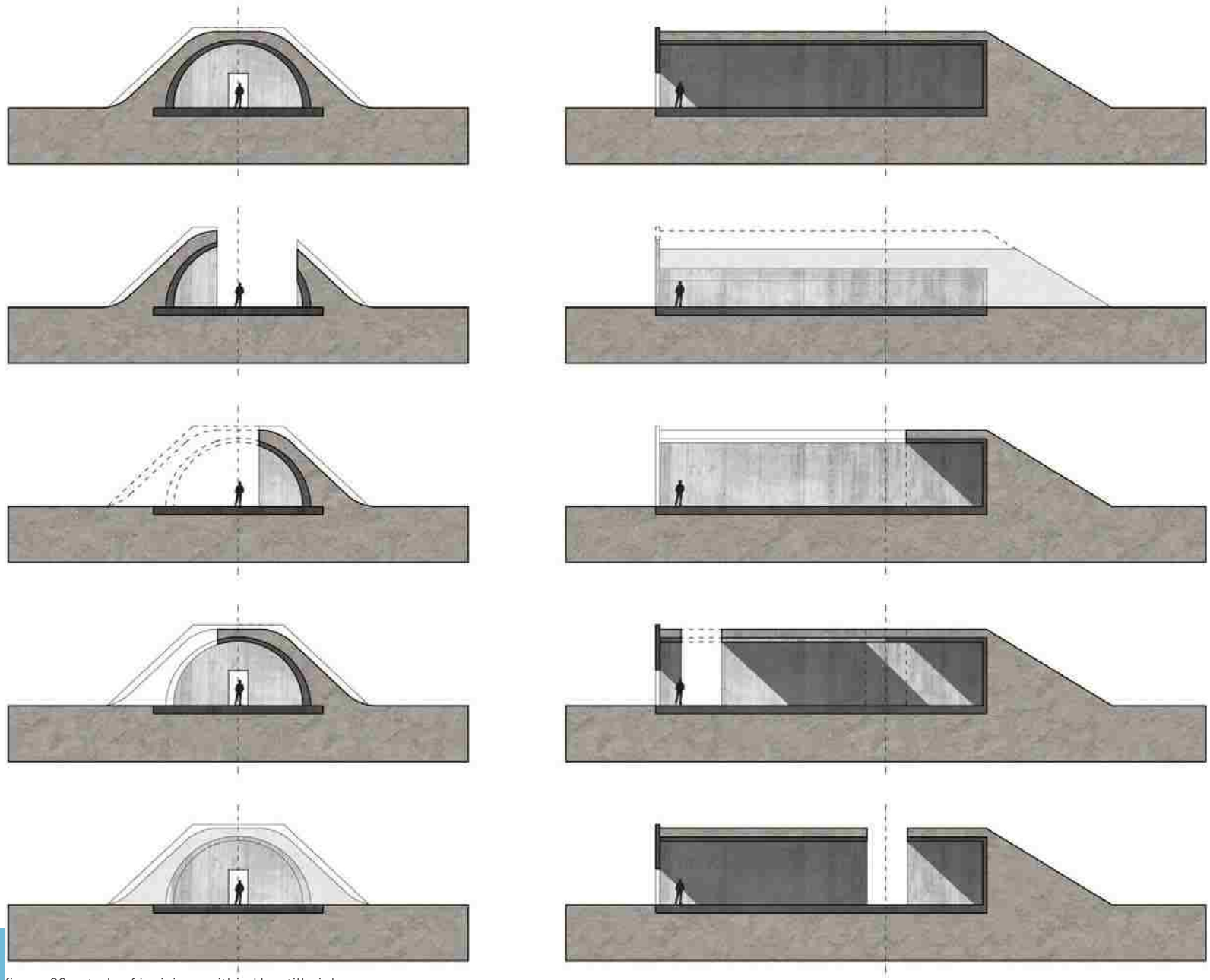


figure 30: study of incisions within Umatilla igloos

earth's skin. The physical landscape of Umatilla is the primary component that informs the design. By analyzing the existing built typologies more closely, it becomes evident that they should remain intact and become integrated into the new scheme that will occupy the site.

These chronological stopping points represent past programmatic processes that took place among the site, which the design proposal will adapt into a new program, and address the network of circulation through the landscape in between that must occur to network these pieces together. The sensitive context of this site offers an array of unusual challenges associated with its unique network of structural form and the difficulty in readapting the building typology. Its strange features have character and presence among the landscape. They boast of strength and fortification. The new scheme should preserve the former vulnerability and pull users into the tension of their former possessions.

Most importantly, these unique spatial and experiential building typologies interrupt the earth's natural form and can be related back to the way Woods demonstrates the built environment impacts its environments. Comparative analysis between the two physicalities demonstrates that Woods' proposals are a viable application for the shared context each of these sites have. The earth is carved to create bunkers and safeguard the volatile material held within the storage igloos (fig 30).
The landscape fractured by wartime in Woods' proposals is relative to the landscape fractured by the explosive detonation at Umatilla that killed several of its guards. And when the site is in need of a programmatic supplement, new pieces are grafted onto the existing fabric like an added appendage. Therefore, Woods' illustrations and proposals are a method of regarding the landscape in the proposal for Umatilla's new scheme.

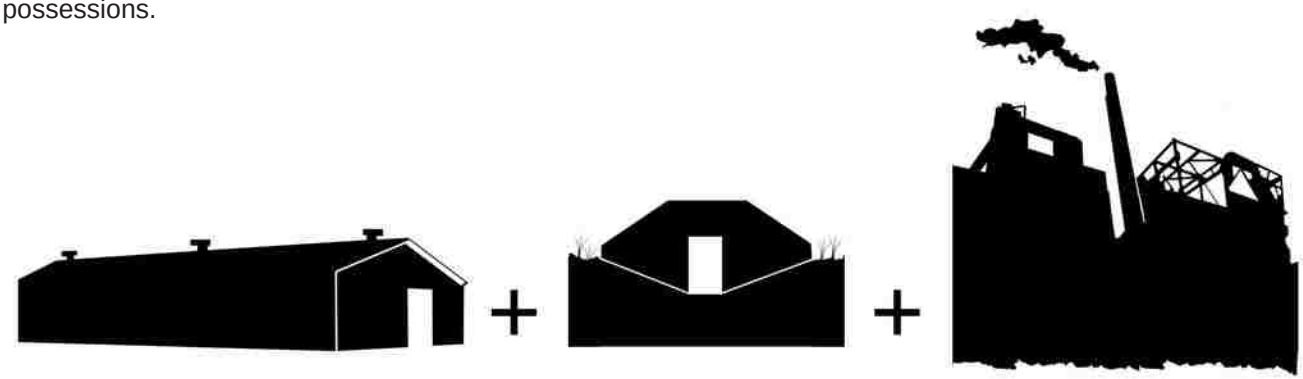


figure 31: existing site built typologies

The new program should therefore seek to address the very visible occupation of the land while moving forward in the effort to rehabilitate it. It should reflect on the fact that the existing building forms were not a place of regular inhabitation but served a functional, pragmatic existence. The physical character of the existing built typologies on site will have a strong impact on the program, maintaining their distinct forms, knowing that they must be kept intact and their uniqueness limits what type of new use that will inhabit them. The theory of Lebbeus Woods reinforces the notion of continued utilitarianism by suggesting that even a site tainted by a deleterious past incident should continue to be inhabited, rather than venerated and become a gallery of memories. The strangeness of the site's specific topography acts as a limitation in determining what its functionality can offer. The proposed program must address the context on three different levels:

Regionalism – The town of Hermiston a few miles to the east has a population of 17,000 and primary occupations relating to agri-business, which should reflect in the type of proposed intervention.

Landscape – Umatilla offers a challenging and unique topography, both at the surface and below ground, and contaminants within the soil. Umatilla was a deemed a Superfund site in the 1980s because of waste water that was

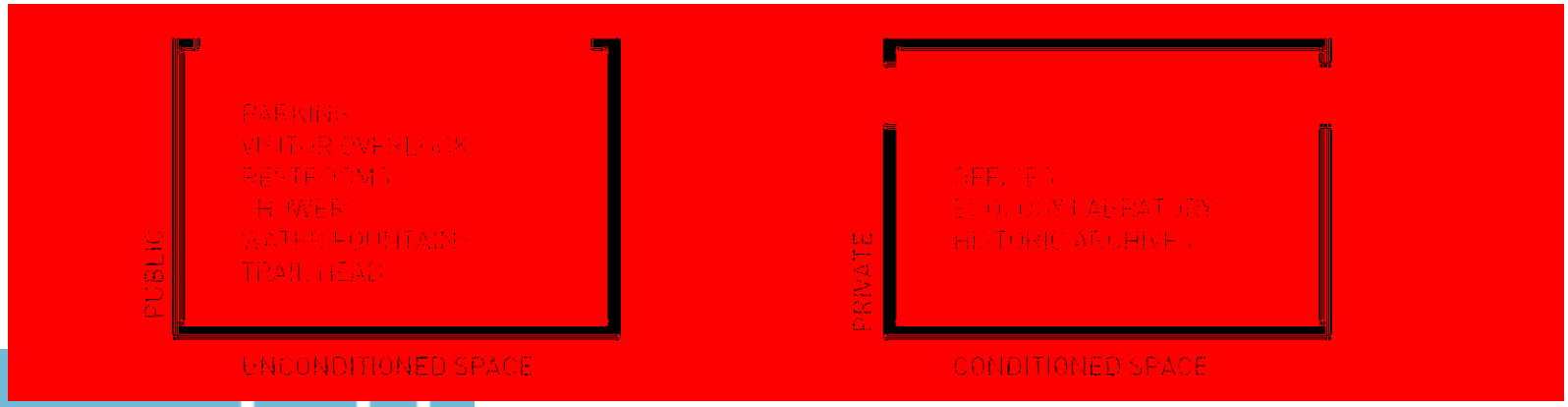


figure 32: interpretive center program division

dumped regularly into on site lagoons on site had contaminants that may leech into the nearby drinking supply.[38]

History – The past occupation of the site will be preserved, but not memorialized. The site should highlight its utilitarian history, but at the same time, the new use must advance efforts to revitalize the problems with the site. The design intent is to continue use of the Umatilla landscape not just exploit it, but revitalize it. The proposed design intention will magnify the issue of brownfield clean up, and support the science that looks to rectify the contamination of the soils and aid in the environmental healing process.

The storage igloos are a severe abnormality to a traditional landscape and represent a sense of a forbidden built typology, not designed to be inhabited by people. Their mysteriousness begs the question: How can a visitor begin to occupy these igloos and experience their relationship to the landscape and historical significance?

The resulting program will be focused on an interpretive center at the threshold of the site, followed by a self-guided trail system to help visitors engage with the historical and modern day context of this subject matter. The primary architectural program will focus on an interpretive center. Visitors, students, historians and ecologists will come to the site to learn about the impact this era of chemical weapon usage has had within history, and interpret how it impacts the future. Program will include historical archives that will continue the ongoing collection of information and artifacts from this site. Additionally, the program will include a laboratory that will accommodate ecologists that must periodically monitor the site's level of soil contamination (fig 32).

Users

The primary users of this intervention will focus on the general public who visit the site to learn about it or experience its ironic beauty. Additional program will include conditioned space for environmentalists tasked with monitoring the contamination levels and safety of the wildlife existing within the site. Administrative and research area will afford ecologists the opportunity to aid in returning the land to the environment that has already begun to take over.

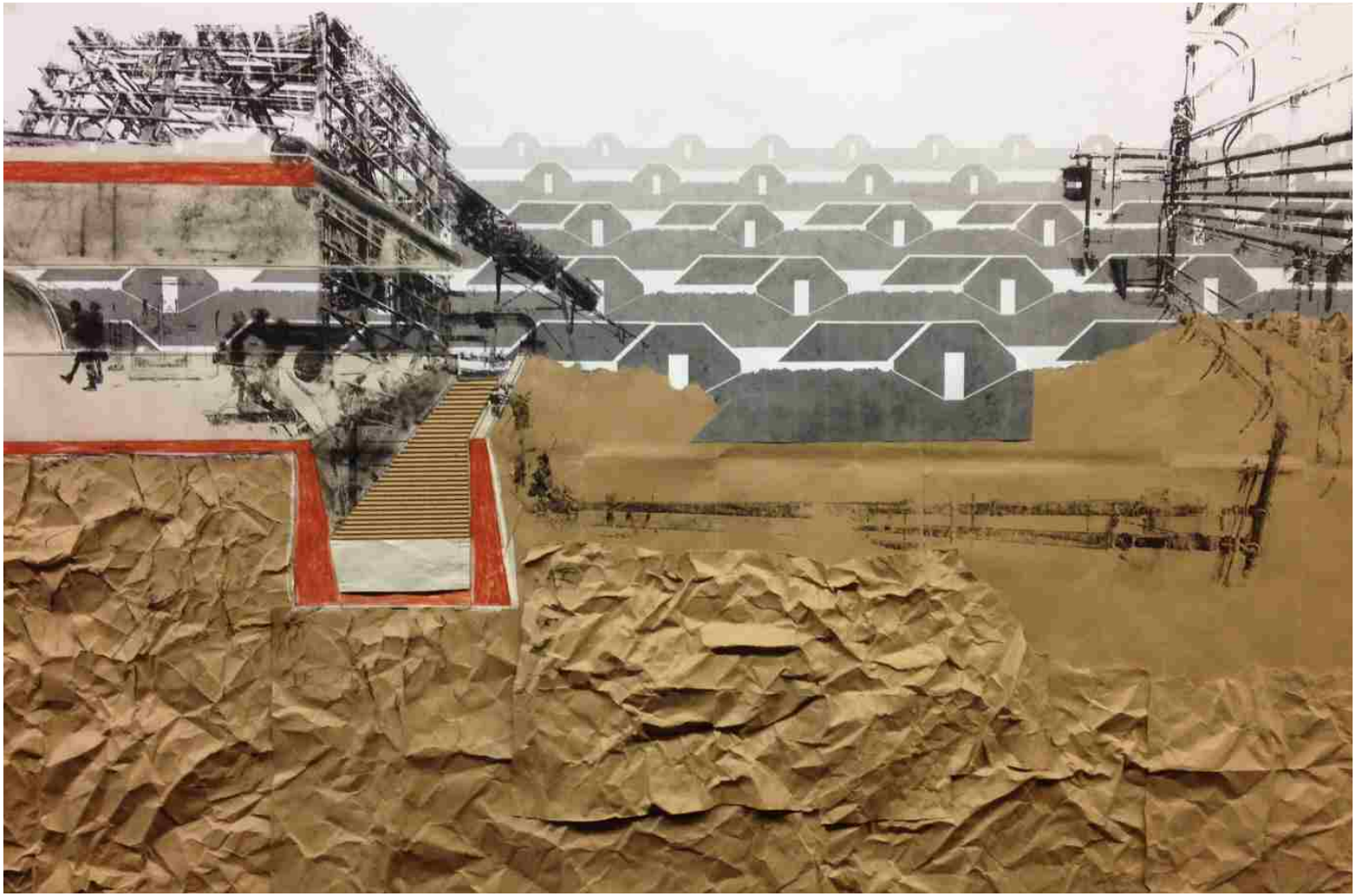


figure 33: process image, intervention aesthetics

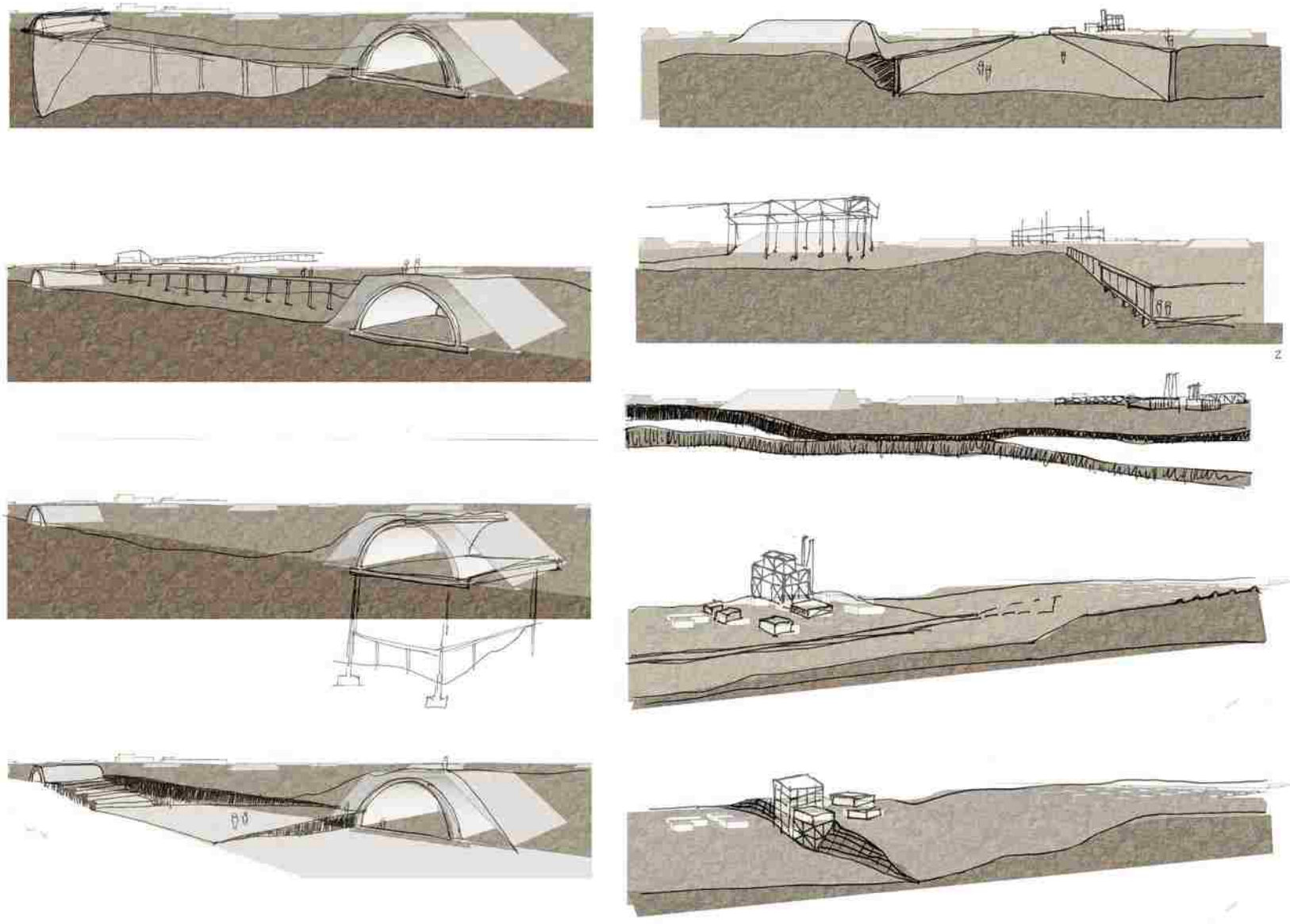


figure 34: process sketches, interventions

DESIGN RESPONSE: Architectural Narration

"Healing is not an illusory, cosmetic process, but something that -by articulating differences- both deeply divides and joins together."[39]

-Lebbeus Woods

In order to take on a project of such enourmous scale, the design strategy will encircle both a macro and micro level of project detail by ordering a series of several focal points at which visitors will pause throughout their jouney. Users drive their vehicle on a predetermined path, along which they will arrive at sequential points along the site represented by the chronological lifecycle the chemcial weapons on the site experienced. As visitors explore each stopping point on foot, they also encounter a predetermined gravel path, which cuts aggressively into the igloo clusters, slicing through any that are situated in the path's way. The incisions though the existing igloos provide a place to pause for rest and shade from the sun. This gives individuals a new vantage point with which to explore and understand the scale of the chemical storage areas, occupying the same space they one did, and intensifying the landscape along the way.

The property will be designated as a wildlife refuge region, as a place of sanctuary for the thriving nature already coexisting with the landscape alterations, amidst the surrounding acrage of heavily controlled farmland. The west half of the site will

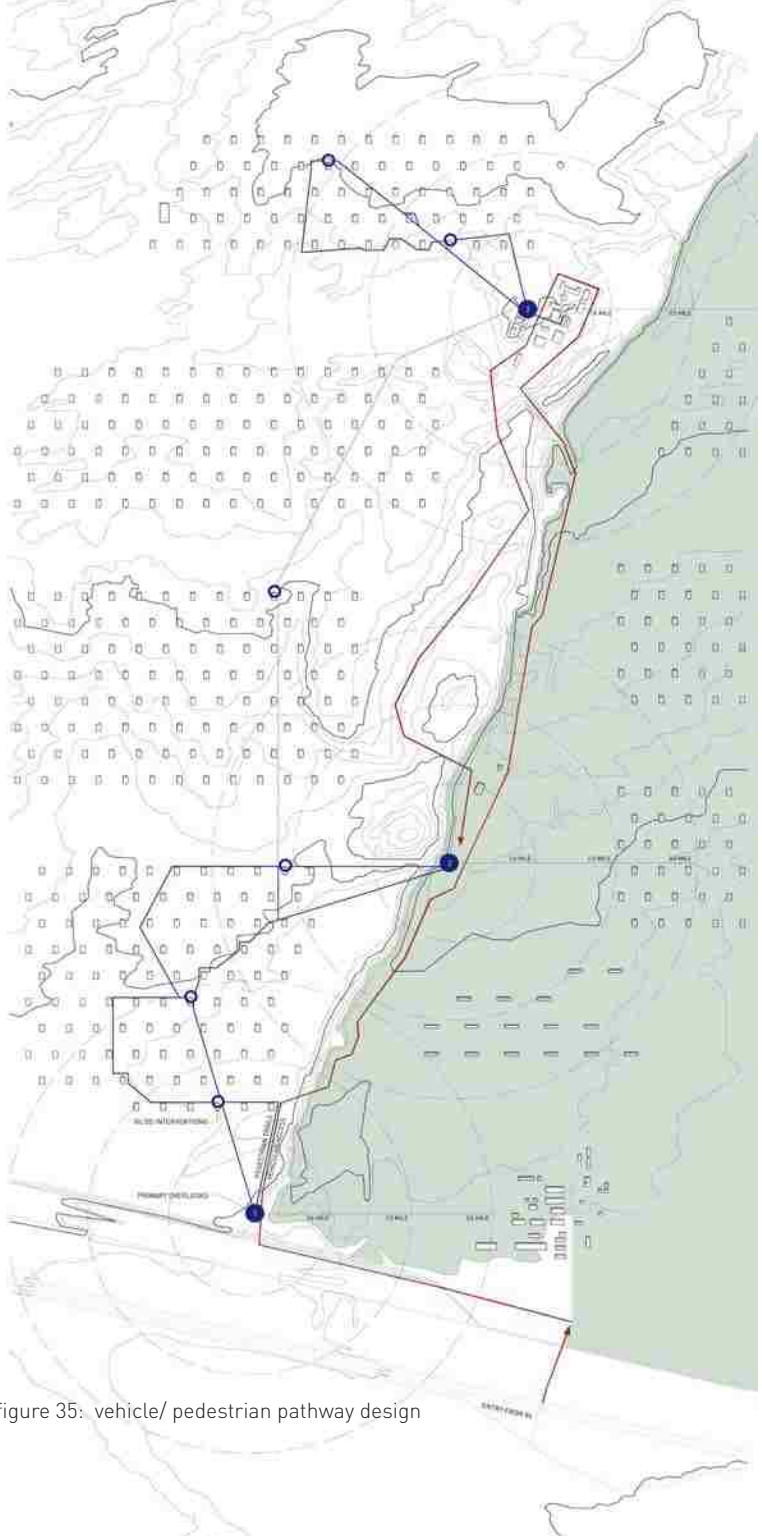


figure 35: vehicle/ pedestrian pathway design

withstand the planned architectural interventions and continued human contact, while the east half will be declared unoccupied by people, as an experimental variable to monitor nature's overtaking.

Intervention Responses

Visitors will have the option of stopping at any or all of the following three overlook points determined the describe the lifecycle sequence of the former chemcial weapons stored on site. Each node is connected to the vehicular circuit as well as the pedestrian gravel paths that guide adventurers deeper into the vast untamed fields of igloos.

The Threshold

The preliminary and most frequented stop within this narrative begins at train switch yard, where each canister containing chemcial weapons also first entered the depot. Its location lets visitors begin their expereince relative to how the chemcial stock also arrived, and is also located adjacent to the highway, so that it can be accessed in an efficeint and timely manner for busy travelers. At this intersection, visitors encounter an interpretive center, and the primary architectural element of the project. The challenge of creating a built structure that would evoke the severity of the site's chemcial volatility informed the aesthetics of this structure. The form is intented to break the monotony of the landscape by creating an enviornment of chaos and disorder, just as the application of chemical warfare would. The space embeds its inhabitants into the cut landscape, as the igloos do, and juxtaposes spatial compression with sharp material edges. Shard-like fragments of corten steel form mamoth retaining walls to hold back the cut earth and filter out views of the adjacent landscape. The large scale of these pieces provides shade from the sun as users traverse deeper into its length. There is no conditioned space, and only a rough concrete shell offers shelter from the elements. Service elements for visitors in this block include restrooms, water fountains, and showers for hikers. Beyond this programed area, two steel walls separate

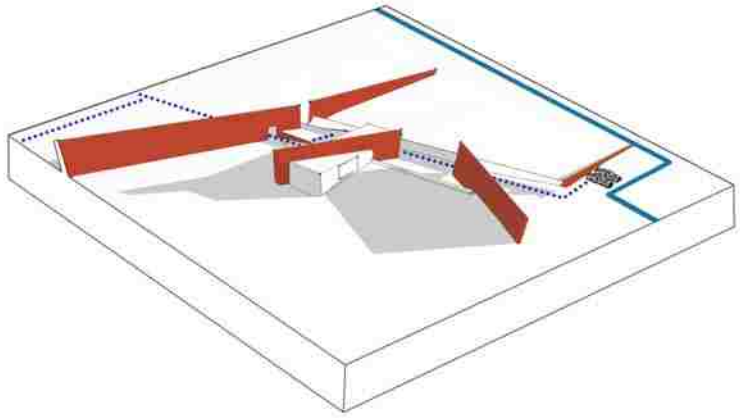


figure 36: the threshold node

and visitors slip past, through the threshold and finally to an elevated overlook, reavealing an overwhelming view of the 1,001 igloos that occupy the ground as far as can be seen. After the overlook, visitors can depart from the interpretive center on foot, out into the landscape where the igloos await (fig 36).

Latent Danger

As visitors move throughout the landscape, a set of pathways carve through the existing environment. The pathway prevails through any piece of an igloo that interrupts it, creating an intersection unique to each instance. This landscape element

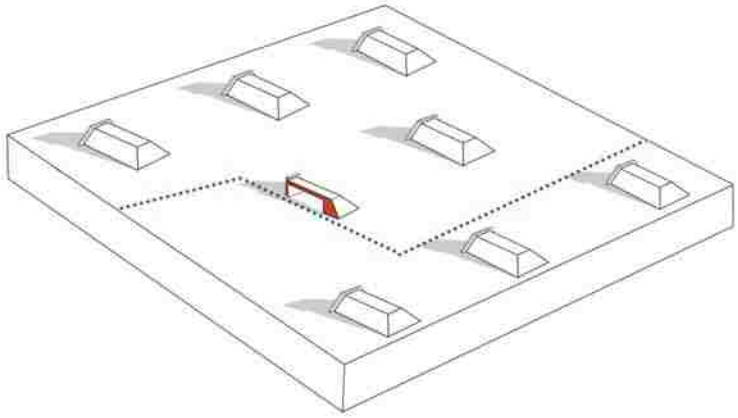


figure 37: exploration of igloo interventions on foot

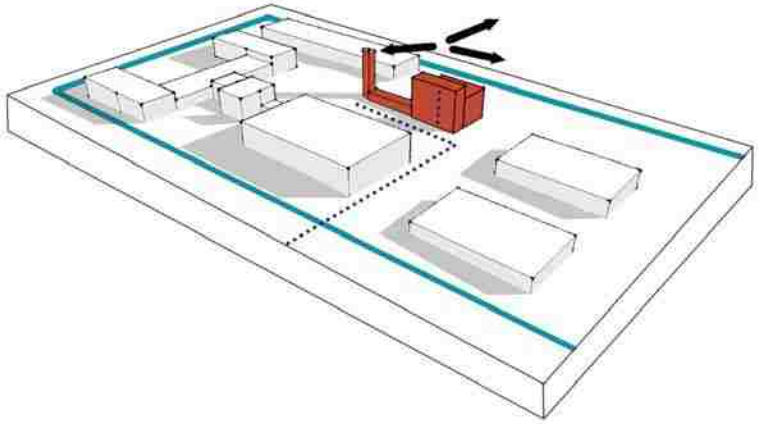


figure 38: disposal node

represents where the chemcials were held dormant for decades, a danger to all surrounding life, and carefully protected within the igloos. These interventions allow for visitors to better interpret the physicality of the igloo structure relative to how they are permaently engrained in the earth, like a scar tissue that fades but never fully vanishes. As time pases, nature will continue to take over these features, just as a body would continue to heal its tissue, but the alien topography the igloos form and the fractured pieces of concrete left behind will always remain visible to some extent (fig 37).

Disposal

On the north end of the site, the disposal facility awaits in ruin. Visitors traverse toward the expired collection of furnaces used to dispose of the chemcial agents. The smoke stacks are a beacon for the primary builidng and can be seen from the pathways. Walking paths in this area are elevated to reinforce the chemical incineration's relationship with the air and sky. Atop the steel structure that make up the furncaces, visitors can climb to an existing lookout tower for a 360 degree of the depot (fig 38).

The Aftermath

The final point of interest represents the aftermath of the chemical weapon presence on the site. This vantage point is at the peak of the natural ridge running through the site, that overlooks the remnants of a manmade wastewater lagoon that is the source of an EPA clean up site. The soils in this region of the site have withstood extensive decontamination since the 1980's and are still being monitored regularly. This point of interest within the site is significant in projecting the long term risk that the presence of the chemical agent bestowed upon the earth. It looks to the future in which nature attempts to heal the damage that the manmade built enviornment has imposed on the natural conditions (fig 39).

Materiality and the Passage of Time

The passage of time was a vital concpet in telling the story of the Umatilla chemical depot in past, and in anticipating its future. Material considerations reinforce the concept of the built elements going back to nature, through its evolution over an extended duration. Selection of materials that are susceptable to the elements elevate the conflict of nature prevailing over man's injection into it. The unconditioned spaces eventually show signs of decay as the corten steel leaves rust stains along the concrete below. Ground trampled by visitors flows through the structure in place of a finished floor (fig 50). As the building resides within the site over time, its ephemerality becomes more aparent, and nature will fracture and erode its pieces, taking it back to its original environmental state. The building remnants will be reduced to a minimal scar tissue within the landscape, a fragment of the past.

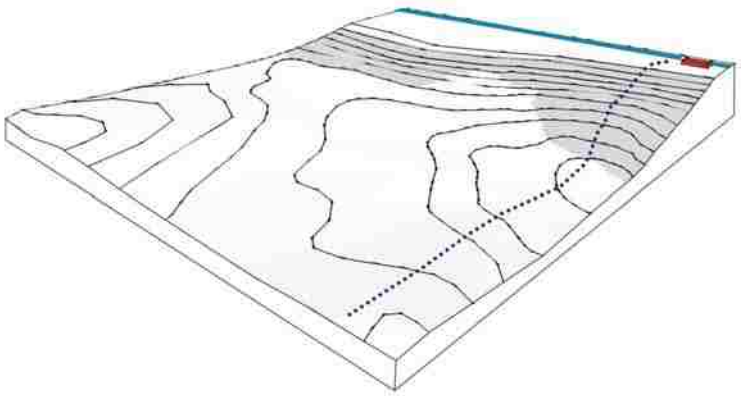


figure 39: the aftermath node

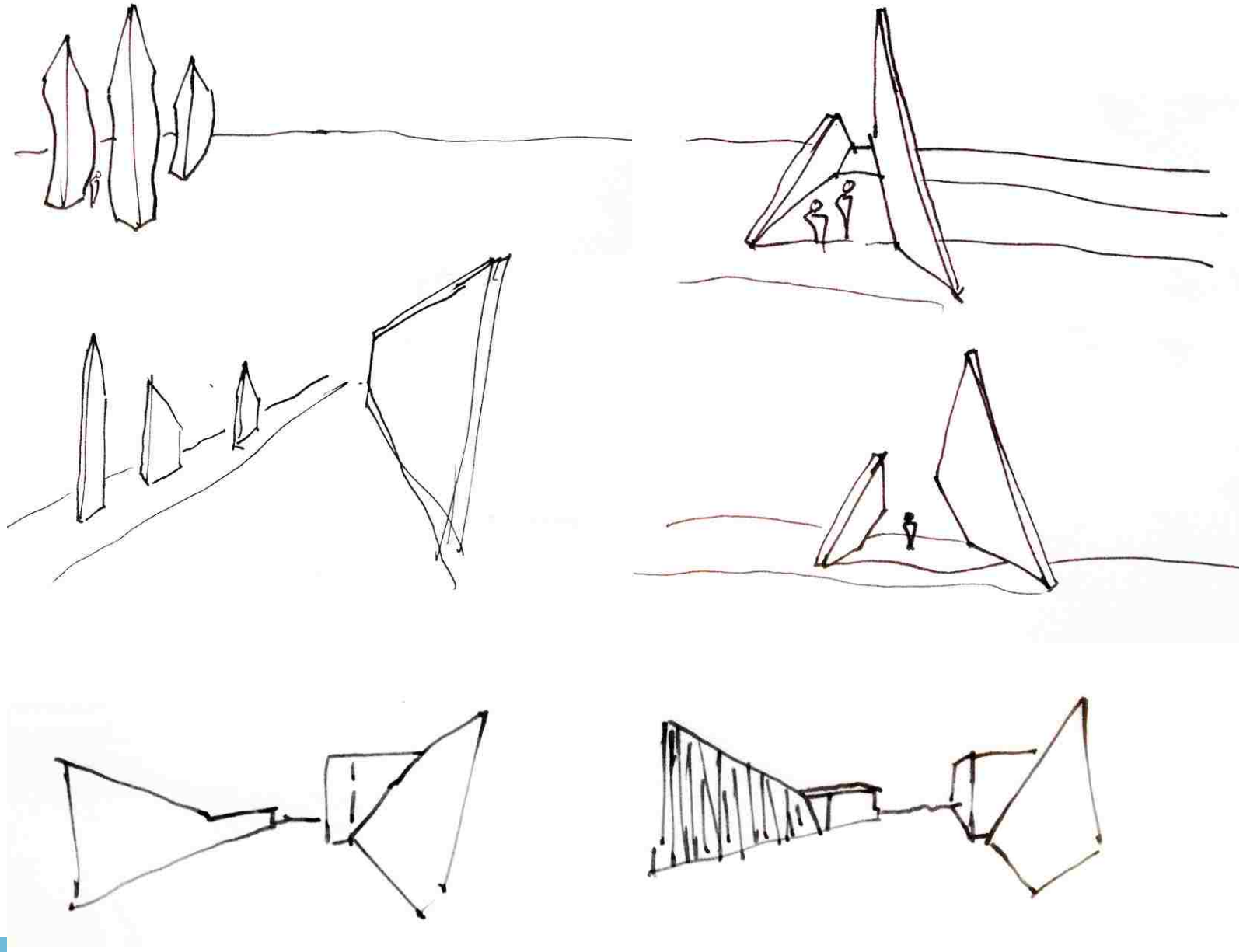


figure 40: process sketches, design of the threshold
figure 41: depot map (right)

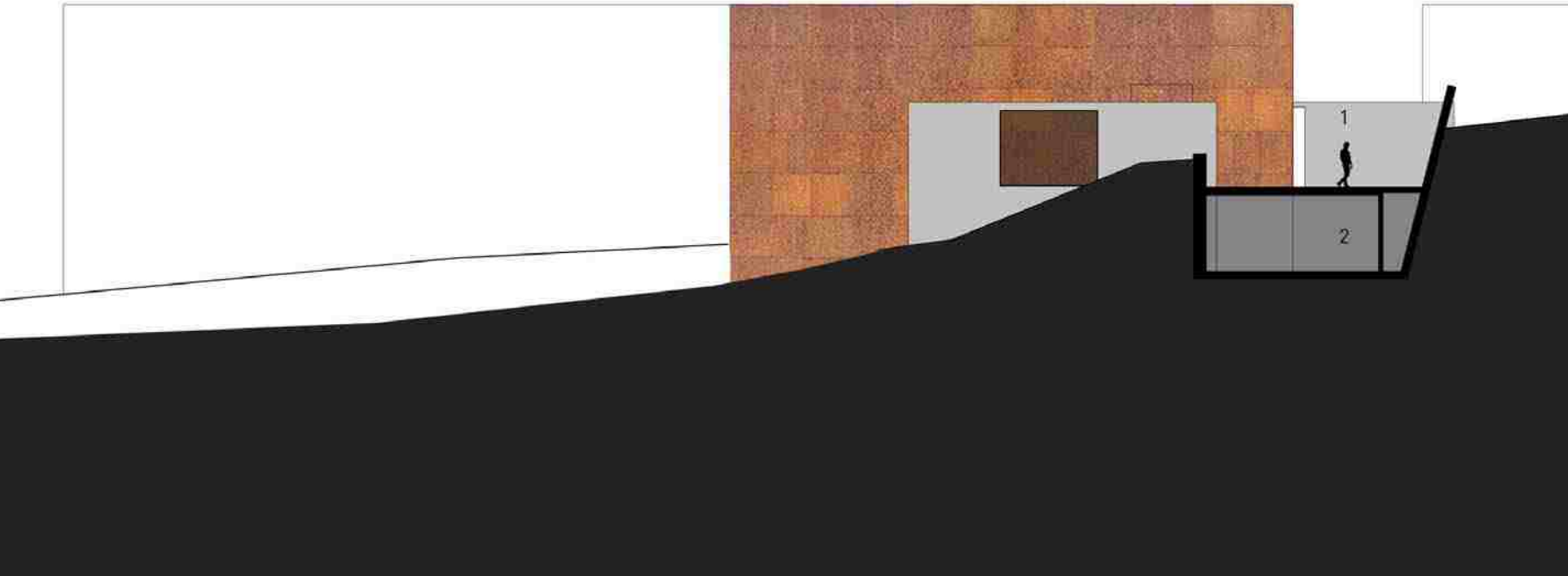
THE THRESHOLD

figure 42: interpretive center site section

figure 43: the threshold, site plan (right)


N
0
500'
1000'

figure 44: interpretive center section



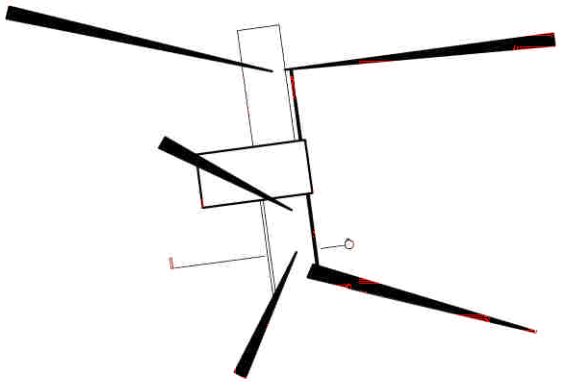
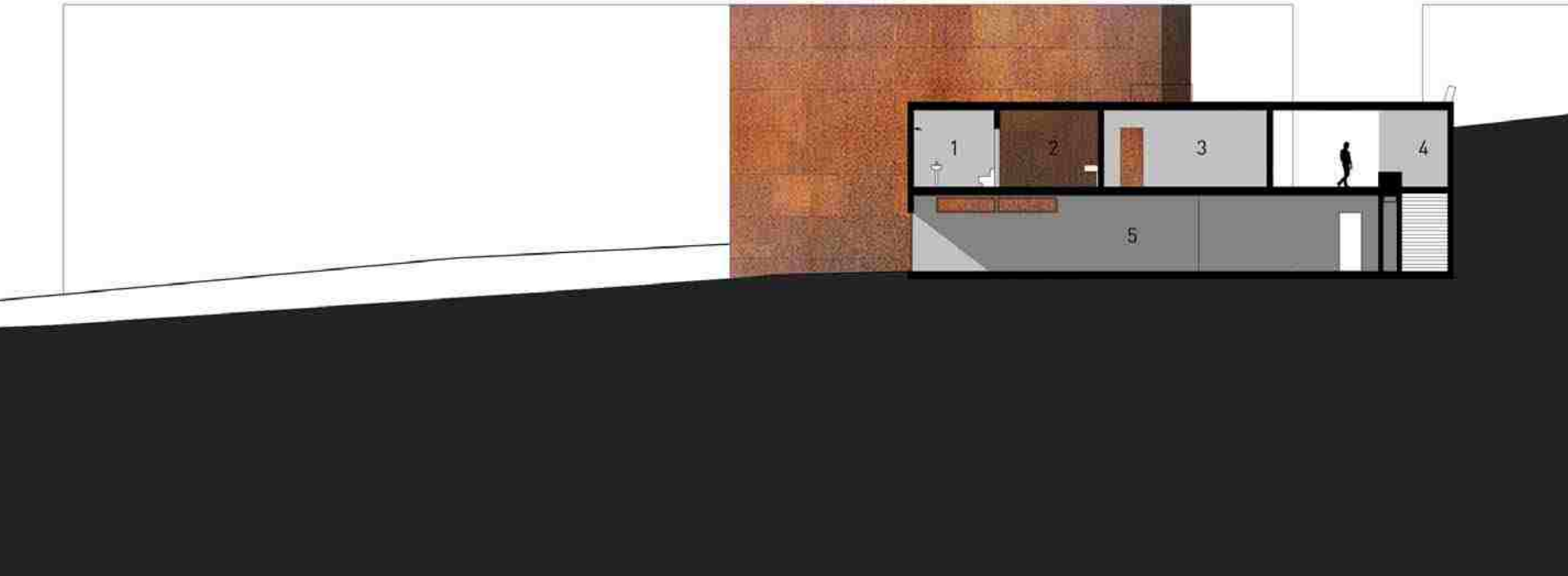
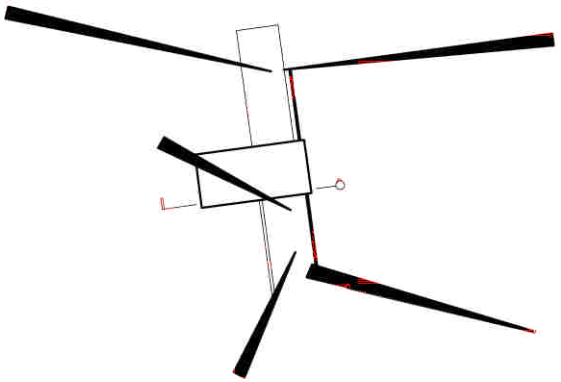


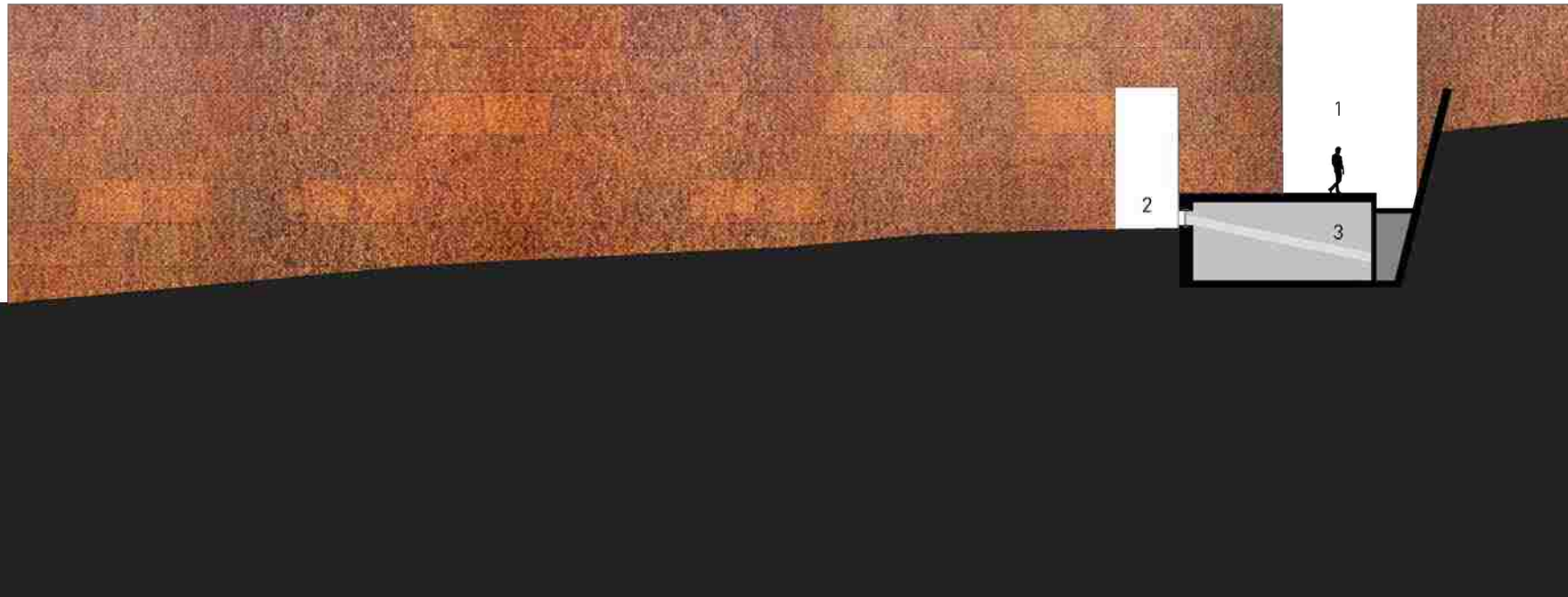
figure 45: interpretive center section

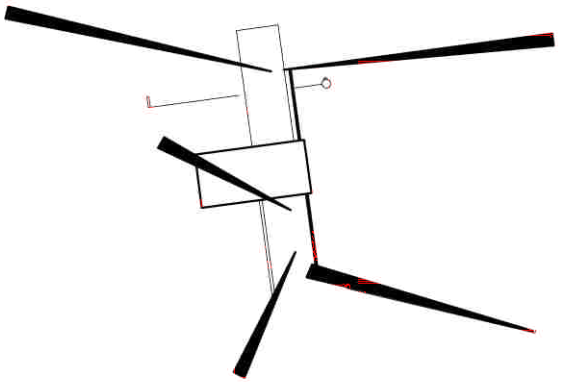




1 restroom/ showers
2 water fountains
3 mechanical
4 stair
5 ecology offices

figure 46: interpretive center section





1 threshold to overlook
2 passageway to footpath
3 ecology research labs

figure 47: interpretive center plan, upper level (right)

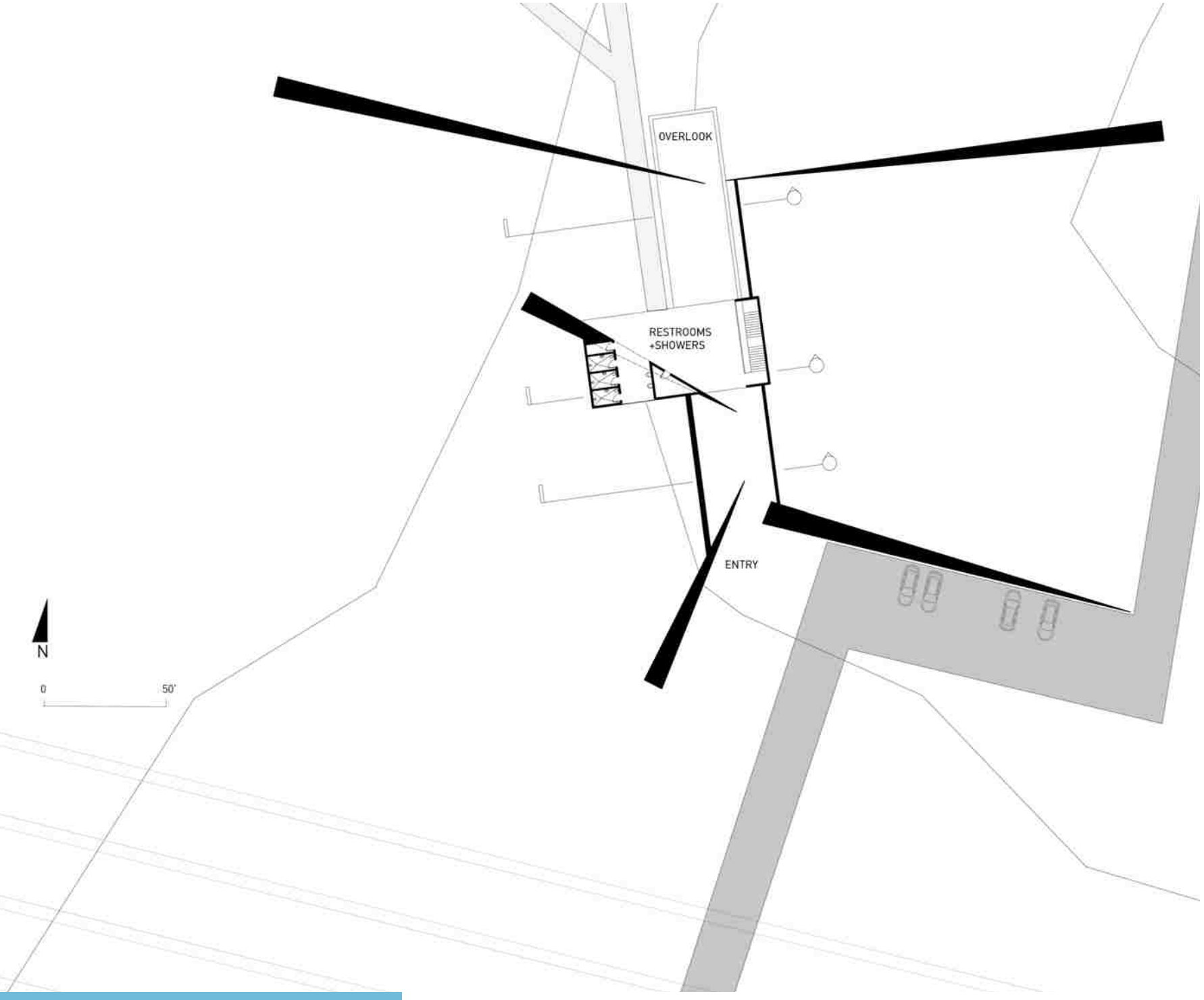

OVERLOOK
RESTROOMS
+SHOWERS
ENTRY
N
0
50'

figure 48: interpretive center plan, lower level (right)

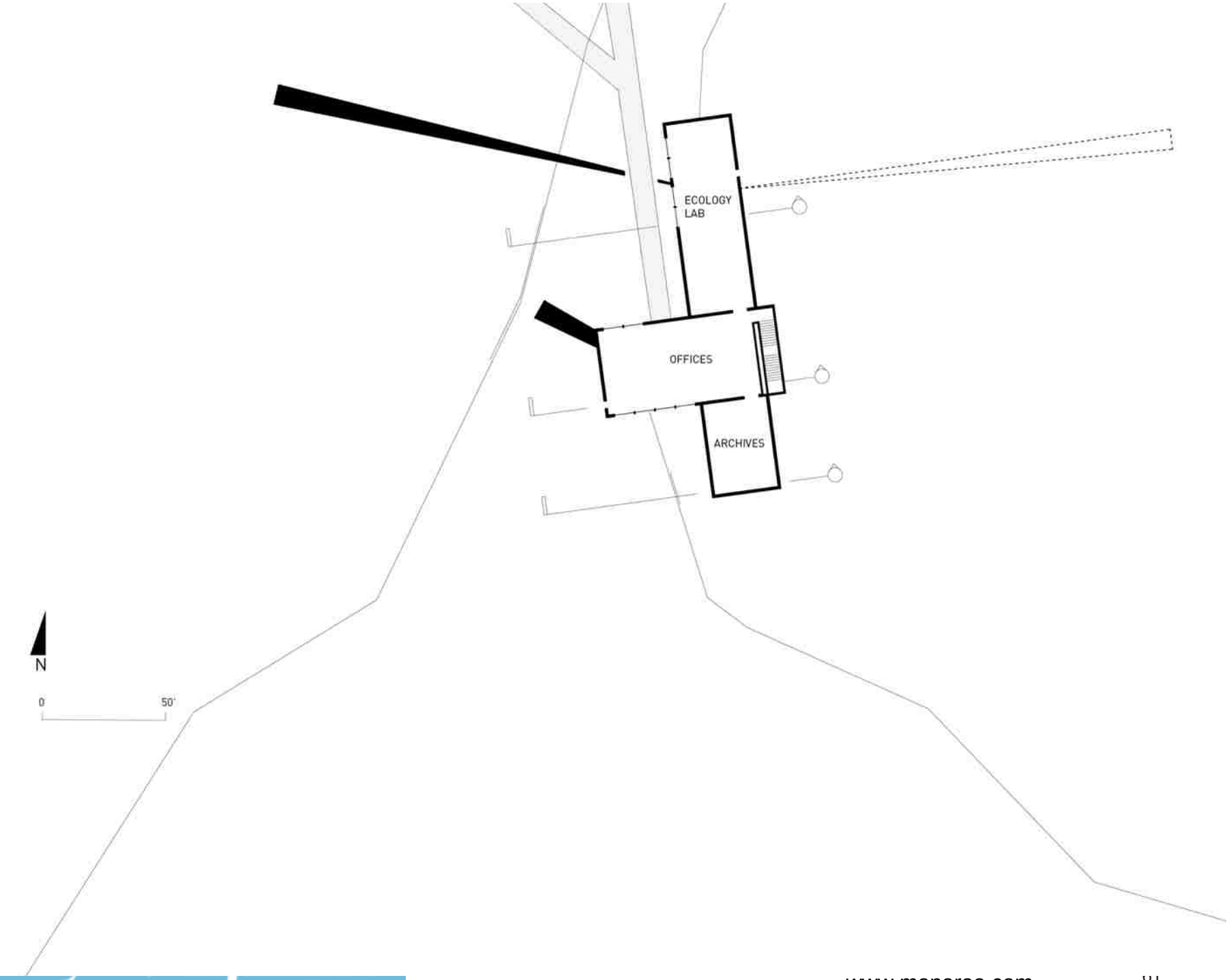

ECOLOGY
LAB
OFFICES
ARCHIVES
N
0
50'

figure 49: interpretive center entry [right]

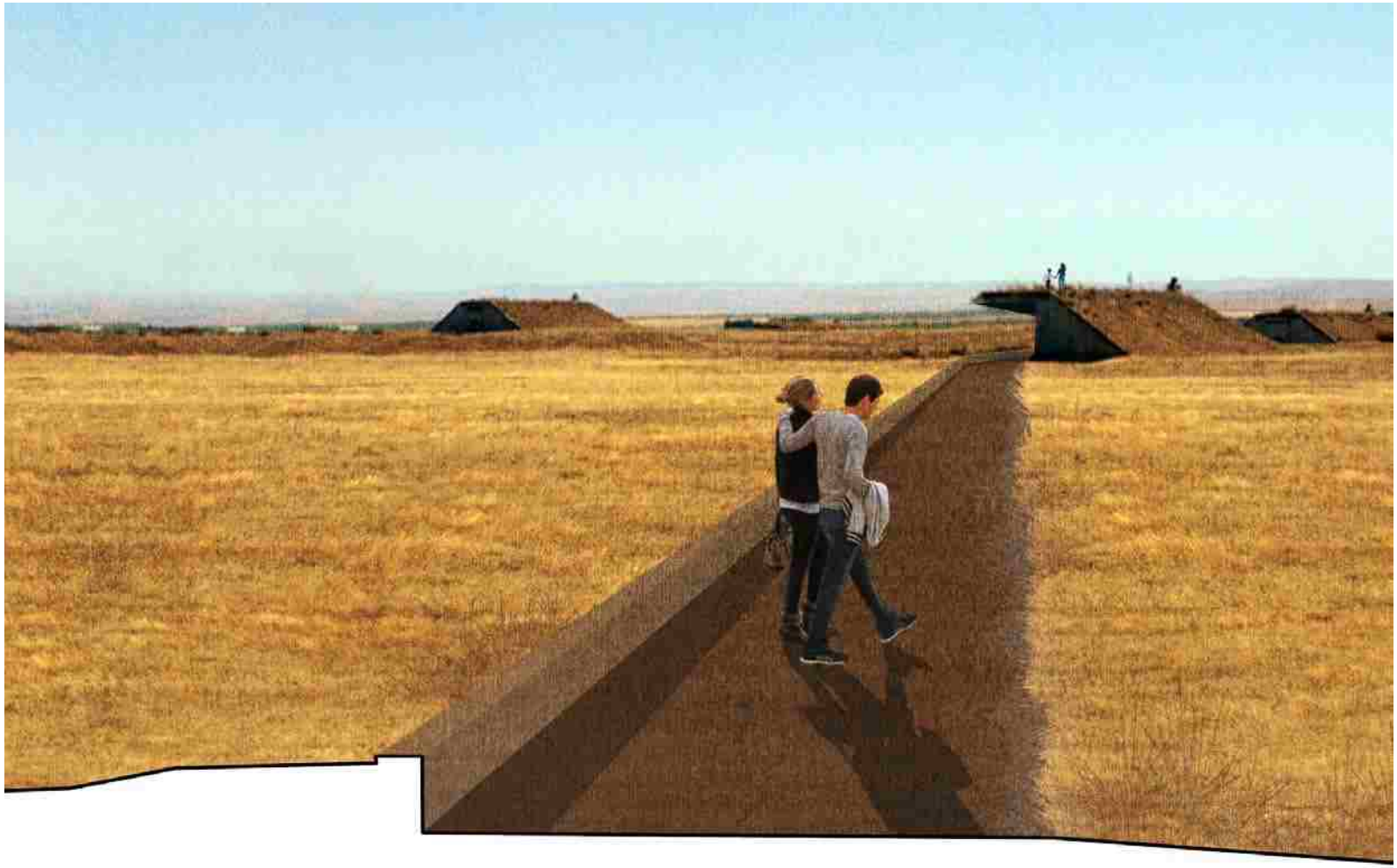
figure 50: materiality and spatial compression upon entry (right)

figure 51: shelter from the elements (right)

figure 52: approaching the threshold (right)

figure 53: return to the overlook (right)

figure 54: pathway to igloo interventions (right)



DISPOSAL

figure 55: disposal facility site section

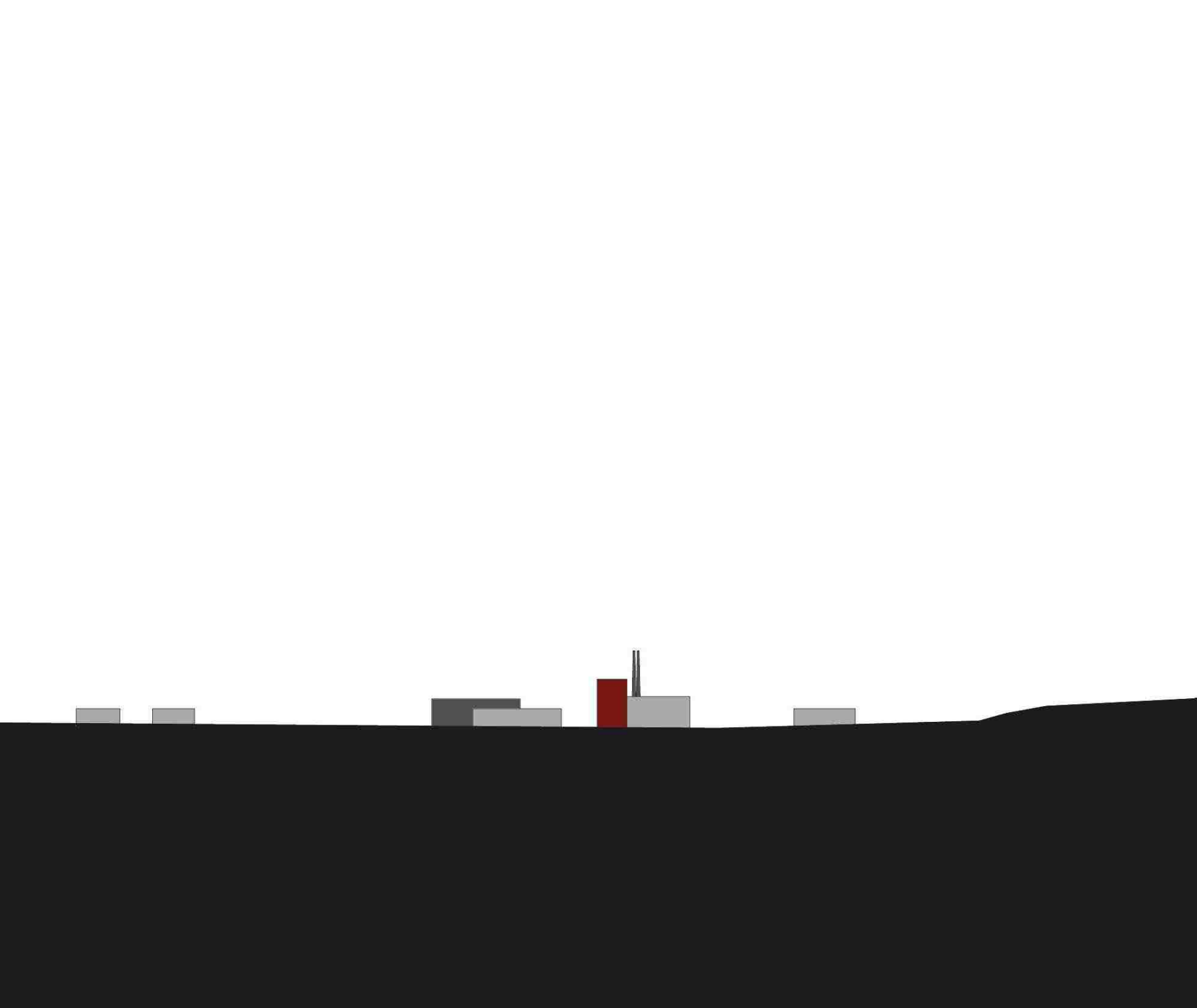


figure 56: disposal facility site plan (right)

figure 57: elevated path to disposal facility

figure 58: overlook from top of furnaces

THE AFTERMATH

figure 59: waste water contamination site section

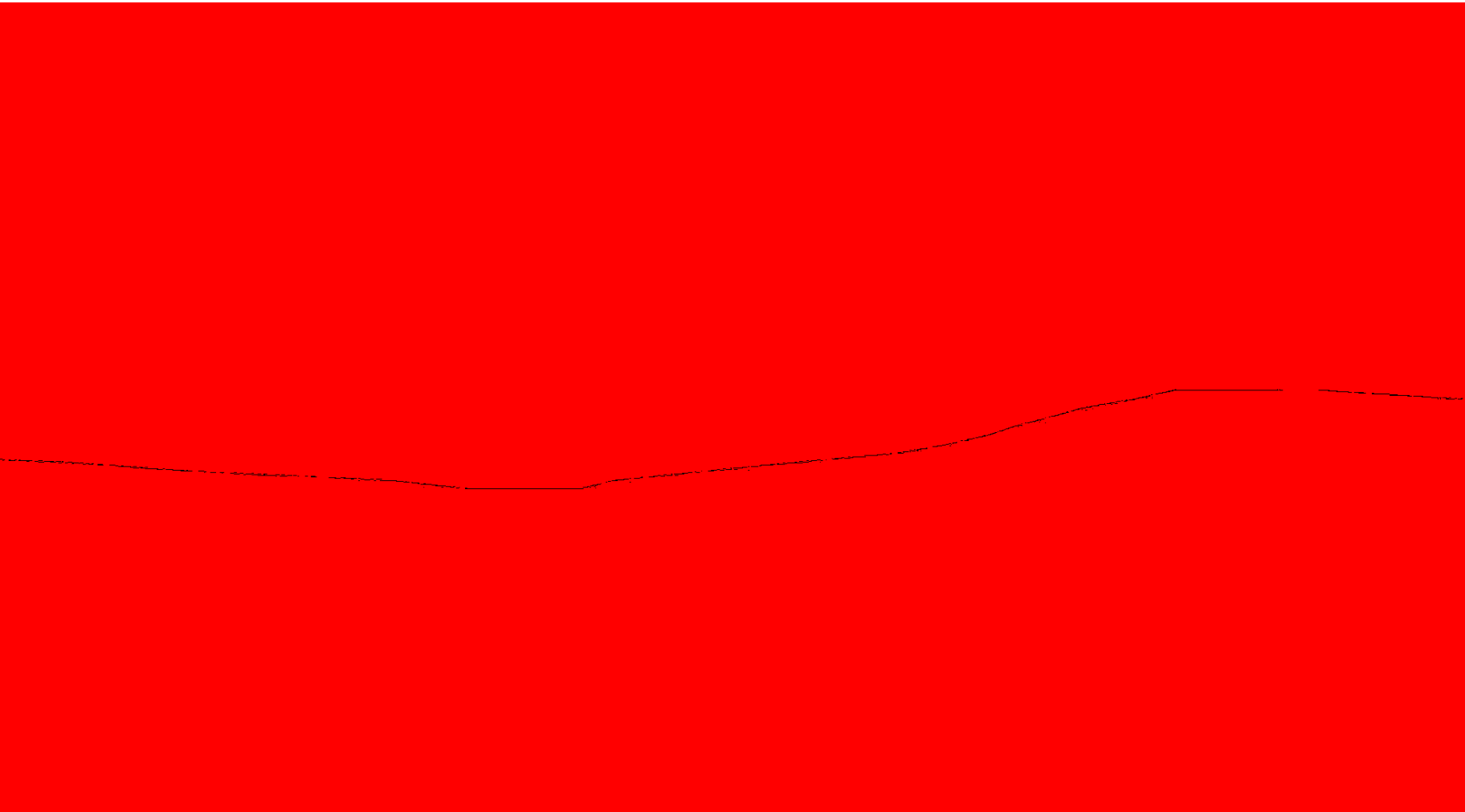


figure 60: waste water contamination site plan (right)

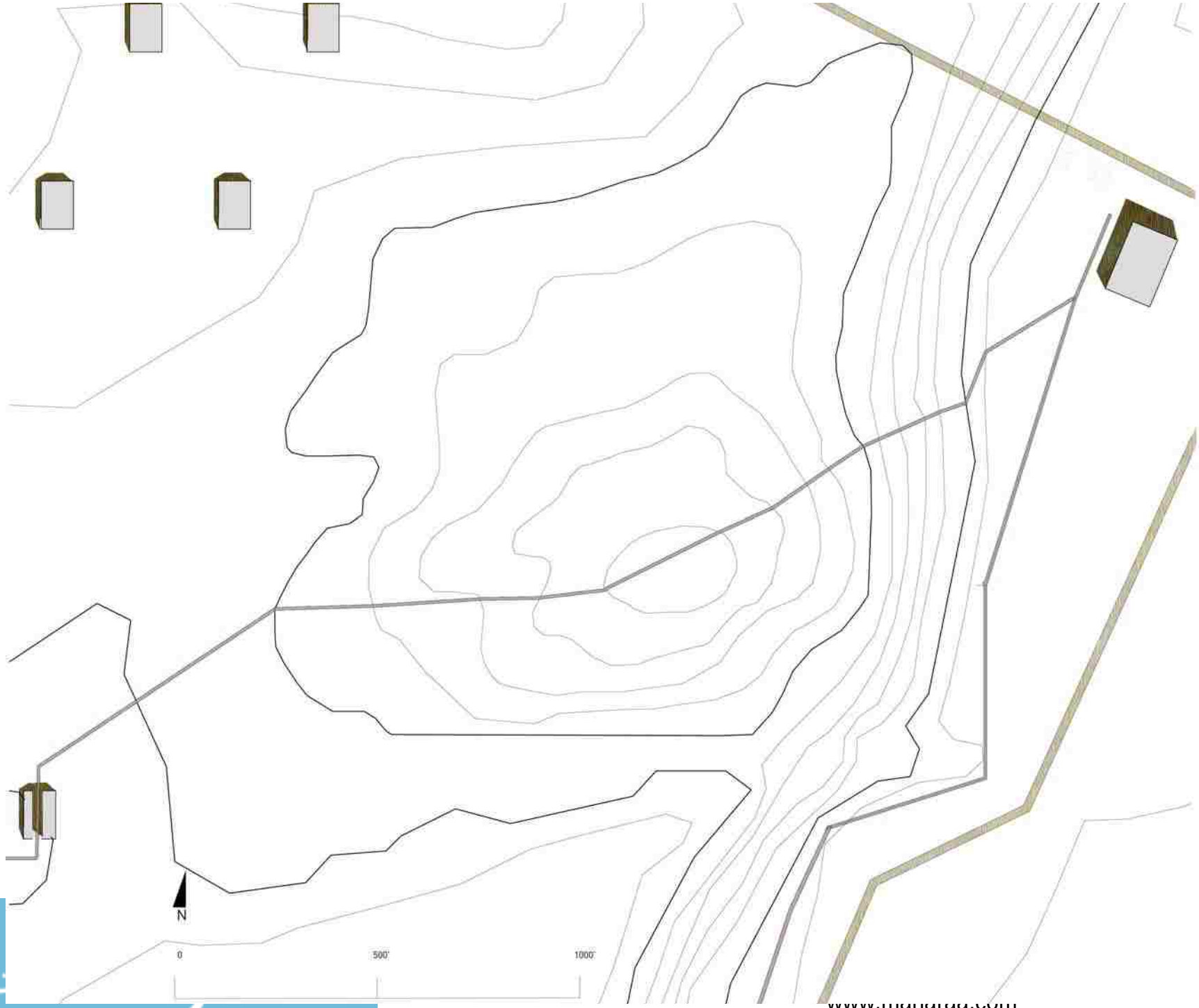


figure 61: intersection of igloo intervention and wildlife

CONCLUSION

"Resist the idea the architecture is a building."[40]

-Lebbeus Woods

This thesis began with studying the imposition of a hostile built typology. The compairson between the site at Umatilla and those studied by architect Lebbeus Woods helped to generate strategies by which the landscape could be manipulated by human intervention. Cut and carved by concrete, splintered by steel, and trampled by pedestrian pathways, the coexistence of man and nature is violent. The interventions explored within this project help to amplify such certainties. The addition of an aggressive built form by which visitors can spatialy experience evokes a tactile understanding of the intense site context. Placement of the pathways that allow visitors to traverse the site are still somewhat in question, and call for further investigation of an umlimted number of ordered and disordered solutions.

Taking on a project of this scale involved a great deal of problem solving at large, and in multiple levels of finite detail. The project focus thus far has been primarily the intervention of individual igloos and existing site elements, as well as an understanding of circulation between these features, in less detail. In consideration of future investigation of this site, the next phase might involve stepping back to look at the project on a more regional level. Getting a sense of the larger picture would be a significant impetus in helping to inform the design and future planning of a site of this magnitude. The Columbia River runs only several miles from the site and is a window into a much

larger network of historical and ecological issues that could be tied back to the environment at Umatilla. Questions still remain about the effectiveness of the site's cleanup, and to what extent this potential threat could effect its surrounding community.

Furthermore, the eight additional chemical depot sites across the country are within the greater scope of investigation. Exhibiting the same unique chemical weapon typology as Umatilla, each of these locations are undergoing the unprecedented process of closure and re-adaptation to the natural and built environments. Research of each of these sites could contribute to a more informed design at Umatilla, particularly if it were to represent the prototype of how the remainder of these sites would adapt to their next role.

An architectural site of aggression is one that must be treated with sensitivity and haste. The landscape and built remnants of Umatilla Chemical Depot represent a collective relic of its dreaded past time and potential threat to the surrounding community and ecosystem. Its wildlife has thrived and begun overtaking the now fractured pieces of nature. The storage igloos will remain a permanent blemish within the earth's skin, like a scar that never fully fades.

ENDNOTES

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2 Borg, 1992

3 Mauroni, 2000, p. 49

4 Woods, 1993, p. 31

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