A study of dereliction and place:
Just north of the Calumet River

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And the mice moved in and stored weed seeds in corners, in boxes, in the backs of drawers in the kitchens. And weasels came in to hunt the mice, and the brown owls flew shrieking in and out again.
Now there came a little shower. The weeds sprang up in front of the doorstep, where they had not been allowed, and grass grew up through the porch boards. The houses were vacant, and a vacant house falls quickly apart.

John Steinbeck, *The Grapes of Wrath*

We were building a 32-foot furnace, but the Japanese had 40-foot furnaces, and they were 50 percent more efficient. We were behind and actually planning to stay behind.

James Talamonti, former United States Steel employee

A building, piece of property or other object created by human beings begins deteriorating the moment it is made. A building, once erected, begins to sag, to rust, to be slowly chipped away by bird nests, insects, skateboarders, and the falling rain. For some structures, this process is rapid, for others, deterioration takes millennia. Differences between environmental conditions, nonhuman interference, building materials, and human maintenance all play a role in how long a building lasts, but as is so beautifully illustrated in Steinbeck's *The Grapes of Wrath*, less tangible environmental, economic, political, and social systems are intertwined with them.

All property has an ideal state. To economists, objects, buildings or property fulfill this state when they are used for the "highest and best use." To a dweller, perhaps they're ideal when they feel just like home. A burr oak may have entirely different conditions under which it flourishes.

In structural terms, even the pristine buildings in the pristine districts have flaws and are slowly moving towards dereliction. But under what conditions does a piece of property become derelict? And do our conceptions of dereliction sufficiently capture the richness of the phenomena?

This paper is a first step on my part in problematizing the concept of dereliction and current understanding of derelict space. Standard economic arguments and other conceptions of derelict space treat the phenomena exclusively in negative terms. A more holistic conception is required, one at which has been hinted but not fully elaborated.

This paper is an exploration of one place – the land, flora, fauna, buildings and, occasionally, people on this site – from the glaciers to the present.[i] Through sketching the history and current configuration of this place, current conceptions of derelict space will be explored, paying special attention to John Jakle and David Wilson's conception of dereliction in order to test their argument about how industrial derelict places are created. The paper concludes with the argument that while dereliction is one account of how one may view places such as the land currently at the northwestern corner of the meeting of the Calumet River and Lake Michigan, a uni-dimensional conception of the place as "derelict" is insufficient to capture its character. With this in mind, suggestions for policies to deal with the phenomenon are offered.

[i] Through the eyes of developers, perhaps we shall also see into the future.

DERELICT SPACE

Surprisingly little has been written about abandoned, destroyed or otherwise derelict space. Three notable exceptions capture a range of views on the subject, including broken window theory, the Chicago School's theory of urban succession, and economic development policy, each of which shall be discussed before continuing to Jakle and Wilson's work and a more complete discussion of dereliction.

Broken Window Theory

Briefly, a number of theorists have elaborated upon broken window theory, perhaps most notably James Q. Wilson[1]. Based on social psychological evidence, Wilson (and his coauthor, Kelling) argue that derelict buildings, cars, and other elements lead to fear, social atomization, and crime in the surrounding community. Even one broken window[ii] signals that people do not care about their building or neighborhood, so breaking more windows "costs nothing."[2] Additionally, the window signifies that the environment is uncontrolled, and that people are free to act as they wish in the environment.

More recently, Sampson and Raudenbush's discussion of disorder builds upon broken window theory through their classifications of physical urban space. They state: "we refer not to disorganization but observable physical and social cues that are commonly perceived to disturb the civil and unencumbered use of public space" … particularly the "ecological concentration of multiple dimensions of public order." Such as physical signs of deterioration which signal "to most observers a perceived threat to public order."[3] While they find that disorder, itself, is not responsible for crime and subsequently turn to their discussion of collective efficacy to improve

[ii] Or "panhandler." This argument is dehumanizing and problematic in ways I do not have time to pursue here.

broken window theory, they maintain their focus on physical signs of disorder as an element of crime.

While insightful, this literature is ultimately about social order and policing practices, not derelict spaces, themselves. While it rightly suggests that the physical environment is an important component of understanding our social world, it does not adequately theorize about the nature and impact of spaces and places, or even what types of things in what states should be placed in the same categories as "broken windows."

The question: "why do derelict spaces develop in the first place?" also remains unanswered by the theory, itself. The deterioration of a parcel of property or neighborhood does not simply develop with the onset of physical abuse or neglect. Important social, political and economic dynamics are at play in the formation and deterioration of all human achievements. To focus simply on psychological reactions to the physical environment does not capture the richness of the phenomenon.

Succession

More developed is the Chicago School's conception of urban succession. The argument was derived from the assumption of the transition of disorganization to reorganization in the city (and social life, in general), which is lucidly laid out in *W.I. Thomas on Social Organization and Social Personality*.[4] An exemplar of this point of view, Ernest Burgess specifically addressed metropolitan expansion. The theory takes its name from the plant ecology term succession, which Burgess compares to the development and eventual eclipse of concentric developmental zones of the city. For example, in his ideal city (which is specifically based on Chicago), the central business district of the 1920s encompassed the other four zones of the city: the zone of transition, the zone of working men's homes, the residential zone, and the commuters zone.

Expansion of the city pushed each zone further out, bleeding into the zone before it, acquiring new uses for old structures.

The primary concern of Burgess was mobility (or the "pulse of the city"), which operated on social, physical, and individual levels. What is the ideal metabolism of the city, and what happens when this mobility is greater or lesser than a healthy rate? Mobility leads to a healthy changing of norms, building structures, and personal attributes, but that rapid mobility and increasing the number and intensity of socially isolated situations led to breakdown in social control and physical chaos. But Burgess does not consider all disorder abnormal. Rather, disorder is simply the natural outcome of a larger, natural order.

Dereliction makes its entrance in Burgess's second zone, or the zone in transition. While all zones are constantly in transition, the second zone is home to transition on an epic scale.

> In the zone of deterioration encircling the central business section are always to be found the so-called "slums' and "badlands," with their submerged regions of poverty, degradation, and disease, and their underworlds of crime and vice… The area of deterioration, while essentially one of decay, of stationary or declining population, is also one of regeneration, as witness the mission, the settlement, the artists' colony, radical centers – all obsessed with the vision of a new and better world.[5]

This zone is the foci of mobility, a process dually played out by human and physical transition – where people of multiple origins and cultures integrate themselves (or dramatically fail to do so) into the city and its culture, as well as where buildings are pressed to their limits, crumble, collapse … and will be eventually replaced. Further linking the human and social worlds, Burgess argues that mobility is best measured by land values, "especially when correlated with differences in rents."[6]

For Burgess and those who followed in his footsteps, physical dereliction is part of the normal functioning of expansion in urban environments. Hoyt builds upon the model, giving it additional complexity and differentiation, especially for our purposes, by explicitly by noting that "[f]orces constantly and steadily at work are causing a deterioration in existing

neighborhoods …"[7] As families age, their abilities to "defend" the neighborhood against deterioration weakens, particularly as the physical structure of buildings falter and are made obsolete by technological advances and housing expansion.

While Burgess and Hoyt focus on rental patterns, Hoyt's characterization of the mammoth abandoned homes of the wealthy as "white elephants," due to the difficulty with which these structures are converted to lower rent uses as they are abandoned for newer houses, can be used to analyze industrial and commercial property.[iii] Following the same logic, the use of industrial facilities is similarly limited by their size and the purposes for which they were built. What does one do when an industrial plant is no longer equipped with a physical layout that is satisfactory for its original intentions? Like the Chicago School's views on palatial homes and central city slums, the buildings can be awkwardly retrofitted for new purposes, razed or simply abandoned. Dereliction is thus a natural state that is unavoidable in the urban environment.

Economic Development and Definitions

Seemingly spring-boarding off of theories of succession, economic models that deal with derelict space share much in common with urban ecological succession. While the Chicago School has a normative, social component that economic models lack, studies of succession look surprisingly like what one might expect from models of economic development. Their focus on rental rates, land values, usage patterns and a "natural" advance of growth in the city has led critics to argue that that succession is really just an overly simplified component of the "growth machine."

[iii] Which Hoyt indicates is among the few uses for which such palatial homes can be resurrected.

Popularized by Logan and Molotch, the growth machine refers to the theory that policy is determined by a local coalition comprised of groups who materially benefit from economic growth. In this scenario, the exchange value of land is privileged over its use value as the coalition presses for ever-further expansion in order to provide members of the coalition with benefits such as increased profits for developers, readership for the media, and expanding power for select politicians.[8] As such, derelict space (and growth, in general) is not the result of a natural progression of development. It is the result of specific parties exerting their will to their material advantage.

But economic development advocates do not speak in these terms. In many ways, they are connected to another dynamic of succession theories: the emphasis on reorganization from disorganization. If one were to simplify the economic development argument to its base, it would be that abandoned and derelict properties are an often-overlooked resource for cities.[9] While economic developers understand at least some of the problems of derelict space, they focus on the use of this "empty" space for economic development through specific policy recommendations to revitalize communities.

Jakle and Wilson insightfully summarize another point about development and dereliction: "[m]any economists and planners see dereliction as the last state in a filtering down process whereby places and their resources are made ready for recycling. With such thinking dereliction signals a well-functioning market as abandonment sterilizes geographical space for subsequent reuse."[10] Without such sterilization the costs of reforming the built environment stand noncompetitive. The recycling of places, they argue, demands the development of "unspoiled" spaces, spaces without history or attachment.

Coleman, a geographer, exemplifies the economic development characterization of such sites as "dead or disturbed space: bare derelict land, roughly vegetated wasteland, abandoned buildings and various temporary uses such as materials dumps and real or supposed construction sites."[11] If one were to take Coleman's analysis and place it in the middle of a policy debate, her argument would be something like: derelict space is a social bad that must be rectified through changes in government policy. And a bad cannot get much more negative than "dead."

In some ways, these theorists and advocates are most concerned about defining space, a problem with the previous theories, so that they can quantify it.[iv] This quantification is almost wholly negative, and is often exclusively discussed in broad terms like taxable value, underutilization, or vacancy.

The benchmark article in the field is R.M. Northam's "Vacant urban land in the American city", wherein he defines vacant land, estimates the amount of vacant land in cities across the country land and attempts to determine what part of the land is developable.[12] Northam classifies vacant land as five types:

- Type 1 – remnant parcels not large enough or the right size for building.
- Type 2 – sites which are undevelopable because of other "physical limitations" such as steep embankments.
- Type 3 – corporate reserve parcels, which are held by companies to provide space for expansion.
- Type 4 – speculatively vacant land, or land that is held with the hope that values will rise.
- Type 5 – institutional reserve land, which are parcels held by public or semi-public organizations with the intention to develop at a later date.

While Northam's classification system is a good start, it overly simplifies vacant land by not referring to previous use.

[iv] Likely because of a focus on large-scale development, these definitions do not explicitly deal with abandoned residential property, although they should obviously be included in any workable definition of vacant (and derelict) property.

Building on Northam's analysis, the Fannie Mae Foundation (hereafter, the Foundation) provides a more recent simplified, but workable, definition of vacant land, which begins to touch on issues of dereliction through the introduction of new categories.[13] Their distinction focuses on four types: unused land, brownfields, *in rem* properties and undevelopable land. The first two are of most use to this project, while the latter two focus on properties whose owners are delinquent in paying property taxes and lands which are physically impossible to develop, respectively, and so are not as useful in this discussion. Interestingly, however, vacant land studies do not include undevelopable land in analyses for the reason that they, by definition, are unsuitable for economic uses.

To the Foundation, "unused land" is operationalized as "odd-sized remnant parcels of land, parcels held for future expansion of businesses or residences, and other vacant land."[14] The Foundation notes that this land is most often found in sprawling cities, which typically have "leapfrog development patterns." Rather than development occurring block by block, slowly expanding the city, leapfrog development occurs when developers or other land users purchase and develop plots that are not contiguous with other developed plots or let other plots sit undeveloped as the land around them is built up. Interestingly, however, the Foundation does not distinguish between previously altered parcels of land and those that have had no direct human alteration. While few sites near major cities meet the latter criteria, clearly the two are distinguishably different. The economic development focus clouds the Foundation's vision on this matter. It does not matter to developers whether the land was and has always been a forest, or if it was used as farmland until twenty years ago and is now somewhat "overgrown."

The category defined by the Foundation that is most obviously relevant to the discussion is brownfields. The Foundation defines these sites as those that were typically used for

"industrial or manufacturing purposes," noting that they are often environmentally contaminated due to previous production processes or the physical materials of the buildings on them.[15] Included in this category are properties of any shape or size with the above attributes. While the Foundation makes an improvement to classification by including the history of the site in classification through previous industrial use, the Foundation does not distinguish between brownfields with and without buildings. A steel factory with all of its buildings standing in a decrepit state is different from one that is devoid of buildings.

Closest to a true study of dereliction, rather than vacant space or brownfield redevelopment, a recent study written for the U.S. Department of Housing and Urban Development focuses on developing "Smart Codes" to deal with the fact that across the country, commercial, industrial and residential buildings are aging and many are becoming derelict. The authors argue that this problem is occurring because of outdated zoning laws and other economic processes. They argue that the problem can be fixed through better use of buildings stock, through maintenance, economic development policies, and other recommendations. Again, here, the ultimate focus of improving property is on economic development.[16] Property is seen as an instrument of growth, and only through improving it can we maintain efficient development.

The above articles illustrate that "empty" or "dead" property can be defined in a number of ways, and that, by definition, economic developers focus on the development potential for sites, not their current value or state. As a result, no effort is made to understand the character or causes of derelict land other than in economic or legal terms. Now turning to Jakle and Wilson, the economic point of view will be further debated in the review of their arguments and the resulting discussion.

Jakle and Wilson: Derelict Landscapes

Jakle and Wilson offer two major improvements for the understanding of dereliction and derelict space. First, they define the term and specifically relate it to industrial, commercial, and residential space. Second, they remind us that most vacant, abandoned, derelict places are the result of social and cultural forces, not simply psychological or economic ones.

Jakle and Wilson are not advocating a conception that is a radical departure from the theories above. In fact, in many ways they are building upon them. Setting up their definition of dereliction, they state: "Decline begins in a landscape when structures, built to contain efficiently and symbolize prescribed functions, prove less efficient."[17] As argued in the succession and economic literatures, Jakle and Wilson argue that physical obsolescence and technological advancement are the leading economic causes of disinvestment, which they define as withholding required maintenance from a building or area when returns to investment decline. It is a last ditch attempt to gain profit from property that is unlikely to otherwise yield increasing returns. This strategy comes at a cost. By deferring or ceasing maintenance, properties deteriorate until they are no longer useable, at which point they are vacated or destroyed.

This is the process of dereliction. Social, political and economic forces, as well as intentional acts of vandalism or support constantly effect properties, whose owners must evaluate the proper investment response to these changes. The *choice* to disinvest leads to dereliction, which is ultimately *subjectively* evaluated. While above theories pigeonhole characterize spaces based on objective criteria, Jakle and Wilson recognize that what is derelict is ultimately a matter of perspective. While dereliction can be quantified, a certain aesthetic evaluation of a place and an understanding of the intentionality of action is necessary to ultimately determine whether a space is derelict. No single element can determine if a space is derelict.

> [A] place may be considered derelict to the extent that the symbols of disinvestment, vacancy, and degradation dominate. Where disrepair litter, emptiness, violation, and other signs of diminished habitat prevail, a derelict zone exists in mind, if not reality.[18]

But what are the social, economic and political forces that underlie dereliction? Jakle and Wilson argue that regions characterized by either growth or decay are the results of seesaw investment patterns in which capital seeks out areas with the highest returns. But these patterns are not simply a function of economics. Jakle and Wilson argue that up until the 20th century, products were used until they were physically unusable. They were mended and maintained until no longer functional. However, in the 20th century, obsolescence shifted to functional obsolescence in the market. For buildings, this means that structures are not continually used and mended but are built for rapidly changing, specific spatial and temporal purposes. [19]

Part of this bipolar investment and production strategy is the result of the capitalist system, which has an insatiable appetite for growth. As a result, companies stimulate change through advertising and even planned obsolescence – by the time you pay off your car, it retains almost none of its original value. But more than capitalism and its market forces are at play.

Cultural values which are a synthesis of residual frontier mentality and secular individualism underlie this tendency toward dereliction.[20] In the United States, Jakle and Wilson argue that part of the reason for continued reluctance to maintain our spaces and resist decay is a residual frontier mentality that was predicated on the perception that if the resources of one location were exhausted, a new location to exploit was simply further west.[21] Tied to this perception is an American obsession with progress,[22] which is perfectly summed up by a description of Henry Ford in 1928. "Ford is an evolutionist… There must be change if there is to be progress. Stagnation he detests. It is inertia, sloth, a sign of impending or actual decay."[23] This philosophy was carried out in the Ford Company's physical plants and led to a dramatic

shift to corporate strategies based on short-term profit taking. After a certain point in a property's life, maintenance is useless; profit and the future will eventually lie elsewhere.[24]

The other major component of this view, individualism, is rooted in the United States' history and culture through a philosophy of self-determination, liberty, freedom of action, and focus on individual happiness rather than on collective goals. The saving grace of American frontier settlement, cooperation, was dropped from collective memory as Puritanism gave way to secular individualism and Bell's psychological eudemonism.[25] As a result, individualism dominates U.S. culture today, stripping responsibility for maintenance of property, whether they be residential or commercial, for the good of a community. Hints of Herbert Spencer's social evolutionism, which was supported by numerous industrialists, also seem relevant here.

These cultural values then made their way into the political and legal systems, enhancing the "widespread reluctance in America to counter deterioration."[26] Tax policies such as depreciation; federal subsidies and tax benefits given to businesses that move operations;[27] and bureaucratic impersonalism, which allows companies to treat communities and other companies as barriers to profit, rather than people, all became important elements of corporate decision-making. In effect, use value and community support becomes subordinated to exchange value and individual gain.

When combined with individualism and a penchant for change, other regulations that otherwise could be considered the duty of a company in a community become taxing economic bads. For example, the authors of the second chapter of *Manufactured Sites*, a text considering environmental and economic considerations for developing industrial sites, argues that there are a number of environmental regulations on the state and federal level, including the Toxic Substances Control Act, the Clean Air Act, the Comprehensive Environmental Response

Compensation and Liability Act, the Resource Conservation and Recovery Act, and Superfund legislation, which are counterproductive to maintenance and redevelopment of a company's property.[28] The authors argue that each law creates disincentives for redevelopment of potentially environmentally contaminated sites because lending institutions, companies and other parties interested in redevelopment projects are wary of assuming liability for known or unknown contaminants on the sites. In spite of agreements such institutions can make with the EPA, including private party indemnifications and tax credits/deductions, multiple authors in the volume argue that the legal terrain is an extremely difficult environment in which to maneuver and is counterproductive for redevelopment and maintenance projects.

Specifically focusing on the industrial property component of dereliction, Jakle and Wilson point to five types of industrial dereliction, about which they note

> [N]othing strikes a sense of pathos more than the ruined factory. Nothing seems so senseless as the neglected industrial plant rundown and abused. Perhaps it's the scale… To see them derelict is to see failed dreams; prosperity gone awry not just for the entrepreneur, but for the collective of dependant individuals.[29]

The list is as follows:[30]

1. Inactivity, wherein plants are mothballed and guarded for future use.
2. Activity persists, but disinvestment and underutilization are dominant.
3. Activity persists, but structural abuse occurs. Locations used in fragmented ways, such as a couple of machine shops using small portions of massive factories.
4. Inactivity, land and buildings are in complete ruin and owner is uninvolved.
5. Demolition

Jakle and Wilson thus provide a differentiated way to understand derelict space, a marked improvement over simply labeling a space "vacant" or abandoned, correcting some of the concerns noted above.

With this definition and theoretical background, the pair argues that dereliction is more pronounced than ever,[31] and should be seen as both a problem and an opportunity.[32] They argue

that Americans must develop tolerance for old things and learn to upgrade them instead of discarding them. Along with these changes, Jakle and Wilson argument for a new understanding of community that includes the built environment.[33] In order for people to make sense of and control their communities, people need leadership, associations which empower their members as well as a decentralized government structure that allows these groups to meaningfully influence their lives. As such, ultimately Jakle and Wilson are concerned with social and community improvement in order to fix dereliction and the social ills which is causes and by which it is caused.

Improvements upon existing theory

While Jakle and Wilson significantly improve understanding of derelict spaces, they still fall prey to some of the same problems as the other theories outlined above.

In terms of conceptualizing the phenomena, their largest fault is that they are still working within a framework that treats derelict space as exclusively negative. A counter view is that of Wilk and Schiffer, who carried out a standard student archeological field exercise on 17 vacant urban parcels in Tucson, Arizona. Instead of finding that vacant lots are "dead spaces" they found multiple uses for the sites including pathways for travel, irregular refuse disposal, play space, sleeping/residential space and general utility space where open space is less usable in the city. The author is currently pursuing an ethnographic field study to get a better feel for these uses.

Wilk and Schiffer additionally suggest that vacant lots allow for positive deviation from the planned city grid through nonlinear foot and bicycle path creation. Nonhuman uses involved vegetation growth, particularly unimpeded around large objects disposed of on the sites, and the corresponding sediment traps/soil accumulation.

In their conclusion, Wilk and Schiffer note the "nebulous" legal position of vacant lots, which are privately owned, but often publicly used with no explicit contract for use. Often distant owners take no responsibility for the site, a chore that is also typically shunned by the public sphere. The authors also note the potential utility of the lots as sites for absorbing destructive social activity in place of sanctioned public parks and speculate what might happen as the lots are filled in with high-density housing.[34]

As part of another, larger project on vacant land, Bowman and Pagano suggest the positive aspects of vacant land: "Vacant land can convey availability, space, opportunity, and informality. For some, vacant land's value rests on its nonproductive use, at least as conventionally measured. That is, its value lies in the indigenous flora and fauna that can be found in these nonmanicured settings."[35]

The other major problem has less to do with their analysis as the subject of their analysis. Rather than exploring the total dynamic of a property's life cycle, Jakle and Wilson merely focused on the process of dereliction. One must understand the full range of the life cycle of a site, in order to adequately understand how dereliction specifically operates. One could add the following categories to their initial analysis (on page 15, above) to create a gradient or cycle, depending on the particularities of the site.

- Pre-development, which is the character of the place before human activity.
- New construction, human disruption of the environment and alteration of the land.
- "Healthy" activity, during which the plant is operating efficiently. Maintenance and replacement dominates, expansion is possible.
- Owner-monitored inactivity, wherein land and buildings are in ruin, but owner still maintains control over grounds, perhaps through a security force.
- Redevelopment, which corresponds to stage 2 above, albeit without the disruption of the undisturbed environment.

The consolidated and gradated spectrum or cycle is as follows:[v]

[v] For a parallel discussion of growth and disinvestment with a different purpose, see Jackson, 1985, p 286.

1. Pre-development, which is the character of the place before human activity.
2. New construction, human disruption of the environment and alteration of the land.
3. "Healthy" activity, during which the plant is operating efficiently. Maintenance and replacement dominates, expansion is possible.
4. Activity persists, but disinvestment and underutilization are dominant.
5. Activity persists, but structural abuse occurs. Locations used in fragmented ways, such as a couple of machine shops using small portions of massive factories.
6. Static inactivity, wherein plants are mothballed and guarded for future use.
7. Owner-monitored inactivity, wherein land and buildings are in ruin, but owner still maintains control over grounds, perhaps through a security force.
8. Owner-absent inactivity, wherein land and buildings are in complete ruin and owner is uninvolved.
9. Demolition.
10. Redevelopment, which corresponds to stage 2 above, albeit without the disruption of the undisturbed environment.

Each stage need not occur, but they are certainly possible for any site.

These two criticisms will be generally explored below through a discussion of a specific place, which will serve an additional purpose: to explain in general terms how a site specifically developed into what it is today. Only by discussing a site's history can one fully capture its character and take seriously Jakle and Wilson's argument that dereliction is the result of human agency, including social, political, and economic systems, interacting with the environment.[vi] After the history of the site has been laid out, the site will be explored through a field guide of sorts. The guide will demonstrate the current qualities of the site and provide evidence for the argument that derelict space is more than empty space and is certainly not dead. Combined, the two pieces will illustrate that all places have value and push us towards a more well-rounded conception of what derelict space really is.

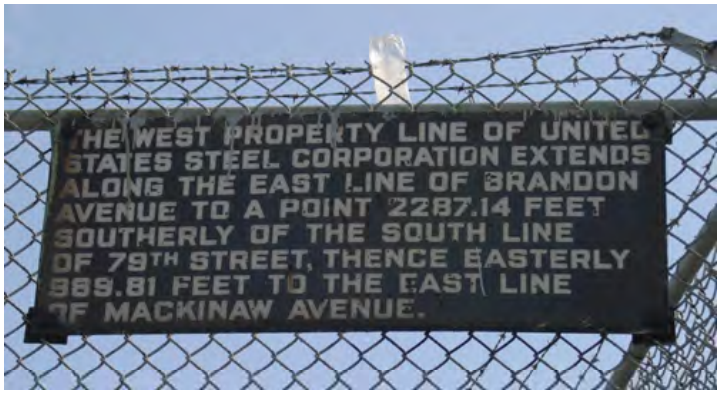
[vi] In order to provide a more parsimonious and lucid history, larger global economic processes and local political coalitions will be discussed but not fully explored in the following section. I believe that the features elaborated below offer ample description of the history of the site and the causes of its gradual dereliction without belaboring points derived from the works of those such as Logan and Molotch, theorists of the Chicago School, and other synthetic urban and global perspectives exemplified by Sassen (2000, 2000a) and Abu-Lughod (1999).

THE HISTORY OF THE SITE

On Chicago's far southeast side is a great industrial district: The Calumet. The Calumet region straddles Illinois and Indiana and bulldozes its way through to USS's delinquent child, Gary. Here, a unique and important ecological landscape is littered with massive factories, landfills, power plants, oil refineries and steel mills. Numerous community and ecologically oriented organizations are involved, protecting neighborhoods and wildlife areas. Likewise, many businesses thrive, but an alarming number of them are shuttered, their gates chained and padlocked.

What better place to discuss dereliction?

On the northern edge of this district, approximately 13 miles south of the Loop on Lake Michigan is a giant field. A sign proclaims:



But the United States Steel South Works (hereafter, Works) is closed, and aside from the occasional signs that punctuate fences, seemingly little remains. All that a quick glance yields is a long chain link fence, a great field, two sets of massive walls, a gatehouse, railroad tracks, and an abandoned power substation – a startling contrast to what dominated this site for more than a hundred years, and what was there before then.

Another contrast occurs at 87th Street, where the former factory site completely disappears into sod, neatly rowed trees, and freshly paved streets (Appendix 2, Photo 1). Here, a new development project is underway … but I get ahead of myself.

Pre-development

Environmental history

As glaciers receded the end of the Wisconsin stage of the Pleistocene Era (Ice Age), between 26,000 and 12,000 years ago, they shaped the character of contemporary northern Illinois, creating moraines and partially determining the shape and size of Lake Michigan for years to come.[36]

While some parts of northern Illinois were almost exclusively shaped by these glaciers and their melting, the Calumet region's topography was shaped more recently by Lake Michigan. The Calumet region, indeed Chicago as a whole, was once part of Lake Michigan (Lake Chicago) and covered by more than 100 feet of water. As a result, the "natural" land upon which much of the city and the Indiana coast sit is really a one-time extension of the lake that is now above lake level.[37] The specific shape of the coast was and is shaped by fluctuations in lake level and the north to south flow of littoral transport, or "the movement of sand and sediment by lake currents."[38] These lake level fluctuations and deposits of sediment caused the development of extensive networks of ridges and swales in the coastal region that were home to a wide variety of plants and animals.[39]

At the southern end of the Lake, the area of land that is the subject of this study was largely constituted by littoral transport and formed into beach, fore-dune and wetland.[40] In fact, from settlement times to this day, dredging is frequently required to fight sediment buildup and maintain adequate depth for freighter transport in the immediate vicinity of the lake via river channels.[41] Pre-build up, the wetland areas would have also transitioned into lacustrine areas

(lake-water regions with sparse, unique vegetation) to the north and east, as well as riverine areas (river-water regions with limited, unique vegetation) to the south. Marshy areas were also likely present, typically characterized by shallow water with a number of emergent plants like duckweed and cattails, although it is unknown whether cattails were present in pre-settlement eras.[42]

Figure 1: Likely forms of Pre-settlement life on the site.[vii]

Type of Land	Plants	Non-human animals
Beach	sea rocket, bugseed, beach pea, cinquefoil, wormwood, sand thistle, cocklebur	crows, herring gulls, flies, predatory ground beetles, sandpiper, piping plover, knots, godwits, curlews, willets, white ants, termites, sand-colored spider
Fore-dune	sand reed grass, marram grass, rye grass, winged pigweed, green milkweed, seaside spurge, mullein, sand cherry, furry willow	beetles, gnats, flies, dragon flies

Source: Downing, Elliot Rowland. 1924. *A Naturalist in the Great Lakes Region*. University of Chicago Press: Chicago.

Early human history

Humans first left their mark on the Chicago area approximately 12,000 years ago when Paleo-Indian groups set fire to prairies, bogs and sloughs to procure food, medicine and other necessary resources from the environment.[43] As time passed through different epochs, including Archaic-Indian (8000 BCE to 600 BCE), Woodland-Indian (600 BCE to 900 ACE) and Mississippian-Indian (900 ACE to 1640), indigenous peoples slowly shifted from nomadic hunting and gathering to semi-permanent, agricultural societies. The remains of numerous villages, campsites and mounds spot the Calumet region, as do signs of trails that traversed the region remain from these eras.[44] Major trails included the Sauk Trail and Vincennes Trace, although many covered the region. Current roads and bridges that were built on the site of old Native American trails include Indianapolis Boulevard, South Chicago Avenue, the Chicago

[vii] Note: Detailed pre-settlement marsh information was not available at time of writing.

Skyway, the 92nd Street river bridge, and several other streets that predate and therefore deviate from the street grid.[45]

Despite French and other exploration and trade, most of which initially was to the north of the Calumet region and our site, permanent "outsider" settlement did not occur in the Chicago region until approximately 1780 with Jean Baptiste Point du Sable.[46] Even with such settlement and its environmental impact, including the building of structures, firefighting (which affected the types of species which could prosper in the region[47]), and other activities, the Calumet region was relatively isolated from large-scale development other than rail traffic until the 1870s. In fact, the area from 39th Street and State Street on the south side of Chicago to the state line and 138th Street was identified as the Village or Township of Hyde Park and "used for recreational purposes such as hunting and fishing." Only in 1875 was a post office established at 103 and Avenue K, at store near where thirteen families lived. But change came quickly. Later in the summer of 1875, the James H. Bowen Iron and Steel Company (later Wisconsin Steel) began construction on the first steel mill in the region. [48]

New Construction

Industry and the Calumet: A dramatic change and a new company

In the mid-1800s, Chicago's iron foundries were located on the north side of the Chicago River, but as the city expanded and demand for metal products boomed, iron and steelmakers sought space to spread out.[49] While some business moved north, many eventually made their way to the Calumet area, which was not incorporated as a part of southeastern Chicago until the late 1880s. Businesses moved south in part due to the efforts of the Calumet Canal and Dock Company, which promoted the region as near industrial paradise.[50] Claimed benefits of the region included lower taxes, access to rail and water traffic, and recent improvements by the Army Corps of Engineers.[51] Among those companies lured were Pullman, which created the

town of Pullman in 1881, and the North Chicago Rolling Mill Company, which bought the parcel in question in 1880.

The North Chicago Rolling Mill Company was founded in 1857 by Captain E.B. Ward to satisfy demand for railroad rails that was fueled by western expansion and a general boom in railroad construction. The company came to prominence in 1865 as the first company to roll steel rails rather than the much less durable iron rails.[52] Despite a number of improvements to the North Works, Orrin W. Potter, President of the Rolling Mill Company, and other business partners realized that the North Works was too cramped to meet ballooning demand for steel rails. As such, they needed to create another works, so on March 28, 1880[viii], the Rolling Mill Company bought 73 acres of land with 1,500 feet of frontage on the Calumet River and 2,500 feet on Lake Michigan and broke ground for what would become the first integrated rail mill in the world.[53]

Useful for envisioning the site at this time is a map created by the Army Corps of Engineers in 1869 (revised in 1871). The clear goal of the 1869 map (See Appendix 1, Map 1; Appendix 3, Map 1) was to "sketch" the Calumet River with a keen eye on reworking it for shipping. The 1871 updates on the map indicate that the region was just starting its radical transformation through "improvements"[ix] made to the waterways and land between the charting and publishing of the map; however, the sandbar was not deep-water-dredged for more than 15 years, and the first real "improvement," the piers one sees on the next map, were only completed

[viii] Despite this purchase date, which is publicized by USS, Army Corps of Engineers communication and Congressional reports discussed below indicate that the Rolling Mill Company began adding material to the site in 1878 at a rate of approximately four acres a year. This discrepancy may be corrected due to the fact that even after land was built by a private party, the State of Illinois still required the party to register and officially buy the property. Perhaps the 1880 date is the point at which this occurred.

[ix] Obvious problems involving the use of the word "improvement" (and later, the word "reclamation") in this context will be overlooked, other than noting that the use of this particular word signifies something limited, awkward, and perhaps sinister, about the anthropocentric worldview of the time (which seems to continue today).

in 1882.[54] The place that is the focus of this study is just north and east of the bend of the river with the lighthouse. Just on the edge of the grid, it is clearly marshier than the land behind it and is almost separated from the small town by these wetlands.

Notable differences between the years indicated on the map include the beginning of the straightening of the channel at the bend in the river and marks that indicate the walling up of parts of the river banks, particularly in the dark, marshy areas.[55] Also of note is that lakeshore has a slight, undisturbed bend at the time of the original mapping, but has already had work to smooth it out as well as the beginning of the construction of the breakwater and sediment trap at mouth of the river the by time of publishing. Other features of which to take note include the low number of roads and structures indicated on the map, the diagonal southwest-to-northeast running street network and the railroad tracks crossing the southwest corner of the map.

After acquisition of the marsh and beach land, the Rolling Mill Company began adding to the littoral transport of sediment that was trapped by the new government pier with "great quantities of slag and refuse from their mills, on the shore and in the lake along it thereby artificially increasing the natural advance of the shore line."[56] By 1882, more than 30 acres of land had been added to the site.

Personal observations in 1881 described a massive hole being dug in sand dunes for what would be the first of many blast furnaces built for the Bessemer-process steel plant and the first of many company-led alterations to the site.[57] Initial construction on the site included a 1000 feet long, 100 feet wide and 40 feet deep slip for ore freighter boats to unload, a massive ore yard, "four 150 ton blast furnaces near the east side of the slip, two 10 ton Bessemer converters and a 40" blooming and rail mill."[58] Within a couple of years, infill and dredging finished on a

swampy area on the south side of the site, on the river, including major "improvements" to the river as a shipping canal, such as the completion of straightening its course and banks.

These alterations are clear in the 1901-dated Rand McNally map of Chicago (Appendix 1, Map 2), including the Calumet region. I believe the map to be based on sketches from the 1880s due to the lack of particular features added in the early 1890s, which should have been included on this map. Comparing this map to the map from 1871, there are profound differences. Immediately one notices that the street grid has a different direction and is considerably more built up than in the twenty or so year old map before it. The grid also extends almost to the lake north of the now complete government pier and straightened river. The lighthouse is still marked on the site, but the size and shape of the area acquired by the Rolling Mill Company has changed. The lakeshore is not as smooth as before, as it has been filled by slag from the Works. Additionally, a streetcar line has been added to the area, as is indicated by the dashed lines. Clearly, the influx of workers to the area and the rapid expansion of industry as changed this landscape almost overnight.

Healthy Activity

The Works and its corporate structure expand

In 1889, to meet competition from rapidly expanding steel mills in the area, the Illinois Steel Company was formed out of the North Chicago works, established in 1857, South Chicago works, established in 1880; Milwaukee works, established in 1868; Joliet works, established in 1870; Union works, Chicago, established, 1863. These processing plants were vertically and horizontally integrated under the corporate umbrella with coal lands, coke ovens, iron ore and limestone mines, and rail companies. Just after its founding, it was noted that 'The main plant is the South Chicago works.'[59]

The passing of 1891 and 1892 saw the construction of four additional blast furnaces on the site and their support structures, including the massive, 2728 feet long, 200 feet wide, and 20 feet deep north slip on Lake Michigan, as well as other plant improvements and rail expansions.[60] The slips and ore yards continue to be important elements of the site to this day.

Viewing the 1894-1897 Sanborn maps of the area (Appendix 1, Map 3), one sees the addition of the north slip just south of the extension of 85th Street, an extension I doubt was ever made, due to the private ownership of the slag-created land. This new view of the site provides other significant changes to the site, particularly the further expansion of the Works out into Lake Michigan. As is indicated by the text identifying the Illinois Steel Company, the Works was concentrated on the southern end of the property, a distinction that would not hold for long.

Despite this dramatic expansion, the plant and company were not necessarily thriving. In fact, the South Works only operated for 8.5 months during 1893, while another Chicago mill of the Illinois Steel Company, the Union Works, was only briefly in operation for one period of pig iron production during the course of that year.[61] In spite of these problems, expansion of the plant continued through the addition of various facilities and infill.[x] Particular attention was given to the placement of new facilities, in order to make future expansion easily accomplished.[62]

After the decline, there was a major boom in demand for steel of which owners of the Works were able to take advantage. Illinois Steel, and the South Works, in particular, were well positioned through geography and product line. Rapid industrial and rail expansion were occurring in the West, and the Company's presence in the Midwest allowed it to capitalize on both fronts. In fact, in 1896, 95% of its output was consumed west of the Indiana-Ohio border.[63]

[x] For specific dates for the opening and closing of all major facilities on the Works, please see the Timeline in the Appendix 9.

This location was a double blessing: it also largely shielded it from the stiff competition of the Carnegie Company, the largest steel company in the country.[64] In spite of this protection, when Carnegie was able to ship rails out to Chicago, they could sell them at a price lower than Illinois Steel's production cost. Elbert H. Gary, general counsel for Illinois Steel and future head of United States Steel Corporation would later remark that Carnegie was clearly attempting to force Illinois Steel into a position where it could be purchased.[65]

During the boom, in 1898, South Works again changed hands to Federal Steel, which was "second only in size and importance to the Carnegie Steel Co."[66] The companies which merged to form Federal Steel included Illinois Steel Company, Minnesota Iron Company, Minnesota Steamship Company, Mount Pleasant Coke Company, Lorain Steel Company, Elgin, Joliet & Eastern Railway Company, and the Johnson Company of Pennsylvania, uniting ore, coke, processing, rail road, steamship and other resources into one corporate body. The South Works was a key component of this company. Only Carnegie's Homestead site had a greater capacity.[67]

At this time, *Iron Age*, summarized the significant elements of the South Works. The works had direct connection with six external railroads and 36 miles of standard gauge track and 6.5 miles of 3-foot gauge track on the site. There was now 2,500 feet of river frontage, 5,200 feet of frontage on Lake Michigan, and both slips in operation. The massive north slip could receive six ships at once and its ore yards could hold more than 400,000 tons of ore. More than 2,000,000 tons of ore could be received during seven months of navigation, and the plant's eight blast furnaces outputted 960,000 tons of steel a year.

An Illinois Steel Company map of the site from 1900 (Appendix 1, Map 4) provides the most detailed early review of the physical structure and building layout of the site. Among other features, one can see the original ore yards and blast furnaces near the south slip and the location

of the newer ore yards and blast furnaces 5-8 just south of the north slip. In addition to the additional infill, which allowed for the building of structures like the cement plant on the southeastern side of the plant, the major alterations to the lakebed and lakeshore are well illustrated. In particular, the dredging of the channel leading to the north slip is shown, as is the new construction of the breakwaters just north of the slip. The addition of the breakwaters and dredging were likely particularly important features due to the aforementioned heavy littoral transport in the region. On the inland side, additional land was acquired since the publication of the Sanborn map (the area marked "20" in Map 3). While railroad tracks are not included in this view of the site, one can still be struck by the relative emptiness of the Works. A great deal of space separates buildings, and the property to the west and north is untouched.

United States Steel and some new problems

Just three years after the creation of Federal Steel, Andrew Carnegie agreed to sell his company to merge with Federal Steel and others to create the United States Steel Corporation (hereafter, USS), the largest private corporation in the world with more than $1 billion in capitalization. On Monday, April 1, 1901 USS began as a business with 213 manufacturing plants, 15 in Illinois and 12 in Indiana.[68] This transfer of ownership would be the last for the South Works.

With its new role at USS came additional complexities. Of course, supply and demand was not just at work in the fluctuations of plant closings and the types of investment occurring at the South Works. Political and other considerations affected the use of a plant. In September 1901, *The Iron Age* reported that due to strikes at Joliet and Milwaukee, USS was evaluating the physical and other advantages of shifting the concentration of production to the South Works. Factoring prominently in this position was the Illinois Steel-owned vacant land north of the

works, along Lake Michigan. This advantage is increased by the fact that Joliet works had not been improved in quite some time and required the shipping of ore 40 miles inland from the South Works. While Milwaukee had been "greatly improved," it relied on output from the other two plants and could be more efficient if shipping time to and from the plant were reduced. Illustrating that more goes into plant health than building quality, if it were not for the major additions of to the South Works in the coming years, this printing could merely be a warning to the workers, as the final paragraph reads as follows:

> The situation is one which should give the striking workmen at Joliet and Milwaukee much food for thought, especially when they reflect upon the result of the strike of the workmen at the Union Steel Works of the same company in 1895. The Union plant was then apparently in good shape and its product was needed. But it never turned a wheel after that strike and its machinery has since been scattered through the other works.[69]

With the transfer of ownership to USS, the South Works underwent a major expansion, taking the opportunity of scarcity of coke (and the resulting inability to fire three furnaces) to announce the creation of the structural mill and the success of the major investment of a new ore-handling system. Additional major expenditures were also needed – between one and two million dollars were spent on the Works during the year, and plans called for "the expenditure of several millions more."[70] A sum that by June 25, 1903 was nailed down to $8 million more (including some improvements at Joliet and North Works) for the creation of an open hearth plant, a blooming mill, a universal plate mill and an electric power plant. Other improvements to the site included those that increase Bessemer output and corresponding transportation increases, as well as improvements to the "finishing end of the 132-inch plate mill". The additions would increase the number of employees by 2,000 and fill the northern side of the property.[71] The construction would require massive amounts of track as well as buildings longer than 550 feet, wider than 125 feet wide and 100 feet tall, severely limiting the ability to expand on the site, as well as increase the human domination of it.[72]

In spite of this development, internal company dynamics kept some major investment from occurring at South Works. USS historian, Kenneth Warren reports "[Charles] Schwab seems to have blocked attempts by Chicago interests to secure major new mill projects there."[73] An example is the initial approval and then delay of construction on a new structural mill for the site, which took more than three years for it to be built. The President of Illinois Steel at the time, Eugene J. Buffington recalled that the Chicago contingent simply sold Pittsburg structural materials in its market until the building of the mill.[74]

Part of the reluctance of the company to further develop the site is related to another important event in the development of the South Works. Gary's statement issued in the New York Tribune on November 23, 1905:

> A large body of land, approximately 2,500 acres, on the shore of Lake Michigan, in Indiana has recently been acquired in the interests of the United States Steel Corporation or its subsidiary companies. The Illinois Steel Company in the near future will probably make important improvements on this property for manufacturing purposes. The extent of the improvements will depend upon the attitude of the public authorities in Indiana and Illinois. Formerly the concentration of plants of this company has been carried out at its location at South Chicago. During the last ten years its works, known as the North Works and Bridgeport Works, within the city limits of Chicago, have been partially removed to the South Chicago location. *This location is well adapted to its business in many ways, and the same would be further developed if there were sufficient room at that point. The disposition of the Indiana officials seems to be to encourage the location of industries in Indiana in every reasonable way, and therefore the recent purchases have been decided upon*. In any event there will probably be erected on this site blast furnaces, open-hearth furnaces, by-product coke ovens, and various mills for a diversity of steel products.[75] (Italics mine.)

USS wanted to expand South Works, but it was unable to do so because of Illinois' hesitancy to allow the company to dramatically expand the plant into the lake, due to the influence of "reformers;" however, the State of Indiana was more than happy to oblige.[76]

A massive expansion

This is not to say that the State of Illinois or the City of Chicago were unwilling to give the company *any* ability to further "reclaim land" from Lake Michigan. Between 1910 and 1925

USS embarked on a major campaign to expand the land upon which the Works operated through infill, although the expansion pales in comparison to the future Gary Works.

Looking at the 1910 USS map of the South Works (Appendix 1, Map 5), the dramatic construction that occurred in the previous decade is immediately evident. While part of the density is attributable to the graphical addition of the overlay of railroad tracks in this mapping, ten years of construction has completely filled the south end of the site, while the north end has little room to spare, except at the margins. The company also smoothed out the site's interior borders through the acquisition of a small amount of land between 84th and 85th Streets to allow for the construction of the rail mill. Infill continued to expand the site, particularly on the north side of the north slip, although the main change of landmass is seen in the targeted boundaries of infill, as represented by the squared off lines around the lake side of the site.

The boundaries were also physical forms, although the date of their construction is unclear. While plans for the river portion of the development are not available, the cribs that surrounded the property on the lake were white oak frames filled with finely broken open hearth slag and surrounded by rocks of two sizes (Appendix 4, FigX1).

Enclosed in these cribs for site expansion was to add just over 166 acres to the north side of the Works and more than 64 acres to the south side.[77] If one were to simply read information in articles like "Steel Yard Blues," through which the *Chicago Tribune Magazine* commemorated the closing of the Works, one would think that these acres either appeared out of thin air or were simply acquired by the plant through ordinary land purchases.[78] What occurred could not be further from the truth. The following maps and accompanying text will illustrate this massive undertaking, which continues to define the site today and was the last successful effort to appreciably increase the size of the Works.

First a quick note about the fill process and composition of infill in the early 1900s. The fill process was composed of three elements on the South Works site, as indicated on numerous maps documenting the infill and explained by John Zaborske, Midwest Regional Manager of USS Real Estate[79]:

1. Miscellaneous dirt and debris – While the contents of this category are unknown by definition, likely elements included dirt and sand trucked into the site for various building projects, such as building foundation under-material. Garbage and organic wastes are not included in this category.
2. Granulated cinders and ashes – These elements were byproducts of various coal and other industrial processes. The size of the material in these deposits is variable, depending on the production process from which they came. Their size and character ranges fine ash to gravel-like material.
3. Hot poured slag – This form of slag, a byproduct of steel production, was taken in molten form by train to the edge of the built land and poured into the lake, effectively creating large and solid stone-like deposits as it cooled. In the Calumet region, additional wastes were occasionally disposed of through burning by the slag's heat,[80] but USS states that the Works did not engage in this practice.

The location of the types of deposits is only partially known. Records of the deposits were collected annually (and sometimes more frequently) and noted by the company, but (at least surviving) maps were not cumulative for the process, so only spotty records of the types and times of fill exist. The only way to determine the exact material in the deposits is by direct boring into the ground, which for obvious reasons has not been comprehensively pursued over the entire site.

Additional documentation of the composition of the infill is available via a series of maps of the Calumet region produced by the U.S. Department of Interior's U.S. Geological Survey in cooperation with the U.S. Environmental Protection Agency. The maps illustrate that most of the site was filled at one time or another, with the early, western part of the site filled pre-1900 with 10 to 19 feet of "steel industry waste." The remainder of the site, which included much of the

eastern part of the site, as well as more than half of the northern portion, was filled between 1902 and 1933 with 20 to 39 feet of "steel industry waste."[81]

Three types of maps were made by USS to document the "reclamation"[xi] process. Acreage infill maps, illustrated by a map from 1912; material maps, illustrated by maps from 1919 and 1924; and railroad track position maps, none of which were able to be documented here.

More specifically, as is seen in USS Map 1 from 1914 (Appendix 4), the starting line for this particular expansion was the 1908 shoreline for the site. In a side table listed on the map, advancement in acreage is documented. Between November 1908 and September 26, 1912 30.963 acres had been built, just under half of the total for the south side of the site. The pattern on the south side was an awkward mix of fill that was sporadically dumped. The infill process on the north side appears much more orderly in 1912, although there was much more to expand north of the north slip than on the south side. By 1917 the south side infill was finished.

By 1919, major progress had been made on the north side of the site (as seen in Appendix 4, USS Map 2). Most of the southern half of the north side had been filled and all that remained was effectively a giant pit in the middle of the upper half of the site. The 1919 map provides an excellent view of how and where particular materials were deposited on the site and how they got there. The major areas of fill for the preceding period are indicated by colored pencil marks. Red indicates miscellaneous dirt and debris, yellow indicates granulated cinders and ashes, while green indicates hot slag. In all cases, each deposit has at least one set of railroad tracks that connects various parts of the mill to the fill sites, and in most cases, the tracks continue out onto the recently laid fill to expand the site. While no consistent pattern of fill occurred, dirt and

[xi] As mentioned in footnote ix above, there are obvious problems about using the word "reclamation" in this context.

debris were most likely to be filled into the most northern and eastern areas of the north side of the site, while the other two materials appear to be laid closer to the slip.

The final map of the north side reclamation in the USS on site archive is from 1924 (Appendix 4, USS Map 3), showing the small, green band of infill remaining for completion. Finished that year, by 1925 the fill process was basically complete, although the curiosity in the north slip was not filled until sometime between 1940 and 1954, and then only partially. After 17 years, the plan came to fruition, nearly doubling the amount of land upon which the Works sat.

Confirming the change is a 1929 USGS map (Appendix 1, Map 6) which includes the Works. The distinctive shape of the infill is charted, as is the expansion of rails into the full site and the addition of a number of buildings onto the new slag on both the north and south sides of the Works. A 1933 Army Corps of Engineers map (Appendix 1, Map 7) illustrates major construction throughout the site and the fact that USS had already used up most of its ability to expand on the site by 1933. This layout would not appreciably change until its closing more than 60 years later.

Noting this clutter and built nature of the site, Warren quotes analyses commissioned by USS of the company's operations, which found that compared the Gary Works, the "layout and flow of materials at South works was 'very poor as units have been added without any well defined plan for expansion."[82] In summary of Carnegie-Illinois analyses, the consultants stated: "The facilities range from the very old to the most modern and the use and care of the facilities, as indicated by operating conditions and maintenance, range from very poor to very good."[83] This variation occurred within and between units. Some buildings were pristine while others were decrepit. While I do not have access to additional information about the South Works from

this source during this time period, the maps reviewed above and Madden's "South Works – Story of a Giant" illustrates that major investment had occurred in the plant in the period up to the study, suggesting that at least part of the plant was in good condition, although it was beginning to show signs of its haphazard construction which would continue to affect its operation, efficiency and ability to expand.[84]

Problems, then gains, then problems: Depression, War and post-War

Like most everywhere in the United States, the 1930s brought reduced production to the Calumet region[85] and the Works, causing no major alterations in the physical plant from 1931 to 1941 and the layoff of thousands of workers.[86]

At this point, aerial photography of the site makes its entrance, allowing a true bird's eye view of the site. The photographs are particularly helpful because, the USGS maps, which will be the other main source of information about changes to the site in for the remainder of the text, are not as accurate as one might hope about building placement. The crispness of the maps also distort the messy character of the site in reality. The 1938 photograph of the site (Aerial 1) is especially useful in illustrating the density of the site. No space appears available for expansion of the plant by adding new structures. As it is, creativity has certainly been employed to set even the existing buildings on the site.

In spite of the density, the World War II had a significant effect on the site. The war caused a small resurgence of facility construction and led to the hiring of black workers who had largely migrated from the South, as well as women workers, to keep up with wartime demand and the lack of the traditionally available workforce, who were either off at war or were unable to immigrate to the U.S.[87] High output continued well into the 1950s until the 116-day strike of 1959 and the onset of another national recession, which led to the closing of a number of plants,

including the #5 blast furnace and #2 open hearth, among others.[88] The only major construction registered on the USGS maps in the 1950s is the 53"-34" mills which occurred between 1953 (Appendix 1, Map 8) and 1960 (Appendix 1, Map 9) in the northwestern corner of the site, integrating previously separate buildings into one massive structure, some of which was torn down between 1960 and 1965. The #1 sinter plant was also replaced with the #2 sinter plant during the period.[89] In general, plant structures became boxier and larger during the 1950s and 1960s, as can be seen on both sides of the site, although some buildings were removed and others built.

In the 1960s, land use again became a problem for the South Works site. By this time the fifth largest plant in the country, the South Works was still facing problems due to its haphazard construction, as noted in the 1930s. It was extremely important to USS, but it was also crowded, inefficient and occasionally referred to as a "marginal operation."[90] This was in part due to Chairman Blough's lack of investment across the board at USS. Only late in his term did he begin major funding for capital upgrades.[91] This was true of the industry as a whole. In 1970s, Real Estate Analysis found that "capital expenditures made between 1956 and 1976 have been on piecemeal improvements and have not had the effectiveness that would have resulted had the money been invested in integrated facilities." [92] But South Works also had other problems.

In 1963, the South Works applied for and was approved "reclamation" of 194 acres of land in Lake Michigan. Like in the early 1900s, the Illinois state government (in this case, the Illinois Supreme Court) intervened, delaying the expansion by deeming the purchase of the land for $100 an acre unconstitutional. Eventually it received approval that was never used. With the ability to expand in the Works in the air, it held off construction of major improvements it planned in the early 1960s until the summer of 1967, which included a new basic oxygen process

shop, a continuous caster plant and a rod mill that were built over the next several years. The additions are indicated in purple in the 1977 map (Appendix 1, Map 11), the greatest change in construction on the site since the great expansion of the 1920s and 1930s. The cost of the additions was well over $100 million.[93] But as former USS employee James Talamonti observed, "[w]e were building a 32-foot furnace, but the Japanese had 40-foot furnaces, and they were 50 percent more efficient. We were behind and actually planning to stay behind."[94] Clearly, a company does not invest over $100 million in a facility that it expects to begin closing in just over a decade, but Ferral, USS's public affairs director, said "company officials did not expect the final announcement to get anywhere near the attention it did. For the company, the handwriting on the wall had been visible for a long time."[95] The events of the next few years would make the handwriting crystal clear.

Disinvestment and underutilization, Demolition

Rapid Decline

The Works had another loss a year after groundbreaking: A.O. Smith, the pipe company which ordered "about 35%" of the 96" plate mill output was lost, nearly crippling the mill, which never rebounded from this loss in output.[96]

Continuing the line of loss from the A.O. Smith contract, despite the boost in morale and technology at the Works, the delay in improvements put the plant further behind in production, relative to other works, and left it with a greater percentage of outdated technologies and buildings. By this time, this relative inefficiency was even greater because United States steel (and USS) no longer dominated the world markets. By the beginning of the 1970s, world steel production was led by other countries with newer and more efficient facilities, particularly

Japan.[97] This international disparity was particularly important because world transportation costs were rapidly decreasing and average shipping distances were increasing.[98xii]

By the 1970s, the property tax rate for the site was approximately $20 million a year – a sum so large that USS researched and published a five-volume reassessment of its properties that was then presented to the Cook County Auditor in an attempt to have them reduced. The conclusion, made by market, land value, cost, depreciation and other analyses was that the property was taxably valued at $164.5 million as of January 1, 1977.[99] The outcome did not appreciably reduce the tax load of USS, from its point of view. John M. Zaborske, Midwest Regional Manager for USS Real Estate, the property management and real estate division of USS, argues that this fixed cost was a contributor to the eventual closing of the Works.[100]

Of the information contained the report, analysis of effective age, economic life and remaining economic life, as defined by the *Appraisal Terminology and Handbook*, published by

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[xii] This is not to say that foreign competition in the face of inefficiencies was the sole cause of the fall of the United States' steel industry. While the causes are still debated, an analysis conducted for the Office of the Mayor of Chicago in 1985 argued that three arguments for the collapse of U.S. steel and corresponding job loss – foreign competition, substitutes for steel, and worker wage issues – have been overstated. The author points to additional factors such as exchange rates that disadvantage U.S. steel, Reagan-era shifts to military investment that may be as important. A regional issue that specifically affected the decline of the Illinois portion of the Calumet region is its relatively high energy costs, providing further incentive for steel and other energy-intensive firms to look elsewhere to maintain and create investments.[F1] Based on more recent interpretation, nationally, a series of economic crises led to reductions in demand for steel, which when combined with lower shipping costs, led the steel industry to almost continually request protection through tariffs, voluntary restraint agreements, trigger prices and other methods until the early 1990s.[F2]

Other reasons for lack of proper investment in large, integrated U.S. mills can be traced to "largely unneeded" investments in new mining and iron palletizing facilities, like those that fed the South Works starting in the 1970s and competition from minimills which affected US competition and, therefore, prices. [F3] While a discussion of minimills would be important for a review of the current state of the steel industry[F4], more relevant in the case of the South Works is the role of investment in non-plant-based facilities.

Barnett and Crandall argue that the new facilities were constructed as an investment strategy: rather than investing in current plants for increased efficiency, in order to meet an expected rapid expansion in demand that never materialized in the 1980s, integrated steel companies poured billions into facilities that would produce uniform raw materials in the 1970s.[F5] This interpretation is problematic for the overarching view of industrial dereliction advanced by Jakle and Wilson. Industrial plant dereliction may have been caused by lack of investment in the Works, but larger investment strategies must be considered, rather than simple, localized analysis.

[F1] Markusen, Ann. November 1985. P. 297.
[F2] Barnett, Donald F. and Robert W. Crandall. 1998. Pp. 126-127.
[F3] *Ibid.* 128-131.
[F4] *Ibid.* 131-140.
[F4] *Ibid.* 128-140.

the American Institute of Real Estate Appraisers may be helpful in fully determining the degree of disinvestment, and therefore dereliction, in the Works. Although a full analysis of the report is too cumbersome for this paper, a brief mention of the contents of these reports would be helpful for future projects in this vein.

The three terms noted above, effective age, economic life and remaining economic life should be most useful for any study of dereliction. They are defined as follows:[101]

> *Effective age*: "The number of years of age that is indicated by the condition of the building. If a building has had better than average maintenance, its effective age may be less than the actual age; if there has been inadequate maintenance, it may be greater. A 60-year-old building may have an effective age of 20 years due to rehabilitation or modernization."
>
> *Economic life*: "The estimated period over which it is anticipated that a property may profitably be utilized. The period over which a property will yield a return on and of the investment, over and above the economic rent due to land. This period can never exceed and generally is shorter than the physical life of the property."
>
> *Remaining Economic Life*: "The period of time (years) from the date of the appraisal to the date when the improvements become economically valueless." The auditors argued that the rule of thumb for the steel industry in measuring remaining economic life is that steel industry buildings have a life of approximately 60 years, during which they hold two different sets of production equipment, which last between 20 to 30 years.

A quick review of the documents found a high number of buildings that rated high on effective age and low on the other two measures, indicating a general pattern of disinvestment and dereliction, although no definitive statement of the quality of building stock can be presently stated. That said, of thirteen major facilities documented, nine had a remaining economic life of less than half of the economic life of a building. Seven would need to be replaced in eight years or less, and all would have needed to be replaced by today.[102]

Other information contained in the assessment books includes detailed descriptions (including photographs, tables and text) of the site, its buildings and its history, as well as a brief

history of steelmaking. This source is an especially important document because of the events that would soon follow its study and publication.

By 1978, dramatic decline for the South Works was "clearly underway," and was exacerbated by the collapse of the United States steel industry from 1981 to 1983.[103] The South Works was especially hit hard by a decline in demand from other USS factories as they rapidly closed. By 1983, the plant was mostly idle, although its physical structure remained in tact, as seen in Aerial 3. The one area of the plant which saw major demolition between Aerial 2 (between 1965 and 1977) and Aerial 3 is the southwest corner of the site, which lost what appear to be the first blast furnaces on the site, hardly a major loss for production; significantly, however, is the loss of the southern ore yard, that appears to have lost its cranes by 1983.

There was some hope for expanded operation for the Works through a plan announced in April 1981 to expand the Works through the addition of a six-strand, 1.2 million tpy bloom caster for a bar mill and a rail mill[104] that was initially set to employ more than 1,000 people. Later plans put the number at 2,000 new employees.

However, a number of delays occurred which held up the building of the "New South Works." Warren argues that delays occurred because of national "malaise," company-union bargaining, tax abatement procurement and environmental liability issues. On December 27, 1983, the company announced that the unions had not made the necessary concessions for the expansion of the site. There would be no "New South Works," and the plant would largely close. Further legal battles ensued, with the union winning a restraining order against demolition of several key buildings at the Works in 1984, although ultimately a federal judge found that USS had done nothing illegal by refusing to build the new works and shutting the plant, so plant

closure proceeded. After 1983, only two steel-related productive elements were left open, rail manufacture and structural steel.[105]

Concurrently with the above events, USS diversified along with many other US corporations in the late 1900s. In 1982, it acquired Marathon Oil and entered the energy business, which it later expanded. In 1986, after the acquisition of Texas Oil & Gas Corp, it changed its name to USX, representing a fundamental change in its corporate strategy. Jakle and Wilson argue that this change, which was assisted by U.S. banks investing in Japanese steel and US steel companies focused on diversifying and the profit motive, in general, rather than plant modernization led to the downfall of steel (and USS) in the U.S.[106] The pair raise the case of the U.S. Department of Justice's prediction that Lykes, a company which acquired steel companies in Youngstown, would not have enough money for necessary modernization because the company was diversifying, an event Jakle and Wilson argue occurred. Disinvestment because of diversification, rather than globalization, environmental regulations and other typical explanations is their smoking gun.[107]

In this context, after a variety of changes in the 1990s, USX split into two independent companies: United States Steel Corporation and Marathon Oil Corporation. By this point, the South Works was all but a memory. Within 22 years starting in 1970, the Works changed from a major steel operation with a rated annual steel capacity of over seven million tons and more than 10,000 employees to a plant with a capacity of only 44,000 tons and 690 employees at its closing in April 1992.[108]

Owner-monitored inactivity, Demolition
After the closing – operations

While the South Works closed in 1992, USS/USX has continued to derive income from its remaining facilities to the present. It is not publicly known whether the income derived from

the site has offset its operation and tax costs, but what appears to be an abandoned site at first glance is still fiscally productive.

The final operating element of the Works was a power plant and associated water intake that was intermittently operated from plant closing until 1999. During operation of the Works, the plant, which ran off of steel production byproducts (particularly gas), was used to supplement power needs from utility companies as well as used as a bargaining tool with energy companies in Indiana and Illinois. The cross state benefit was possible due to power transmission lines connecting the two works along railroad right of ways.[109]

Despite the demolition of the remainder of the productive structures, the plant continued to be useful to USS as leverage for bargaining with Northern Indiana Public Service Company (hereafter, NIPSCO) for the Gary Works. Because there was no use for the plant at South Works, the full output of the power plant could be sent to the Gary Works, reducing its external power demand needs through the cost of purchasing power through NIPSCO. However, in 1999, USS and NIPSCO reached a settlement that was suitably lengthy and cost-effective for USS. As a result, the power plant was put on the market, where its six boilers, two generators and air compressors were examined. As Zaborske stated about the plant, "While there was initial interest, it was too small, too inefficient by today's standards to be of interest to the major power producers. And the small producers came to pretty much the same conclusion." As a result, the plant was demolished, although the water intake structure ("screen house") was left standing on Lake Michigan for potential future use. At time of writing, USS is "under contract" for the development of a new power plant on the site of the antiquated structure, although its development is in tension with plans for the site that will be discussed below. In short, there is a

tension between City of Chicago desires for job creation and others' visions of the site as a mixed-use development.[110]

Despite the lack of productive operating buildings on the site, the parcel continues to generate value for USS. Since the demolition of the power plant, USS has connected its transmission lines to ComEd's terminal at the South Works, where it has the ability to take electricity purchased in Chicago from ComEd and transmit it to Gary, taking the place of the leveraging position of the power plant at the South Works through interstate competition between utility companies.[111]

Additional revenue and control of the site is generated through the leasing of the slips a barge and freight companies.[112] While the water in the slip is technically public space, USS leases the use of the slip walls to the boat company, where the lessee assembles, anchors, and repairs barges, in addition to other activities. In through the lease, USS effectively transfers monitoring from its security force to the boat companies, who necessarily monitor the slip for trespass, although USS retains ownership of all land, wall and remaining facilities on the site, requiring those who use the slip walls to receive permission ultimately from USS.

Both government maps from this time period [1997 USGS (Appendix 1, Map 12) and 2003 Nautical map (Appendix 1, Map 13)] lagged behind the demolition of buildings, as is evidenced by the 1994 aerial photograph (Aerial 5) and the 1996 photograph of the site as seen above. The only additional information gained from them is that the nautical map shows that at some point, the north slip was dredged to a deeper level than its initial depth. On the other hand, the photographs illustrate that even by 1994, the majority of the buildings on the site had been demolished, and by 1996 all but the power plant, ore walls, a storage tank of some sort and three minor buildings remained.

Environmental Contamination Assessment

Pollution and Chicago seem to go hand-in-hand. From the sludge and waste that caused numerous epidemics and led the city to reverse the Chicago River in 1900, to the infamous Union Stockyards which was responsible for massive amounts of pollution and non-human animal waste in the southwestern portion of the city, industry and Chicago have not always treated the environment with the utmost of care. As a testament to the role of waste in Chicago's history, Donald Miller's *City of the Century* devotes an index item and 21 pages (almost 4% of the text of the book) to "sewage," even without including other waste discussions.

As far as iron and steel waste was concerned, records documented in 1874 that "[s]melting works, sawdust and sewage released into the Lake Michigan were harming fish" in Chicago.[113] Further south, the Calumet Region's industrial pollution history is varied, but "iron and steel, chemicals, construction materials, and grain-handling activities" have been the core industries for more than a decade. Among their hazardous wastes have been arsenic, lead, DDT and "a variety of acids," municipal wastes, and steel industry wastes. Steel industry wastes include phenols, cyanides, naphthalene, lube oil and slag.[114] Those specifically interested in the water of the region state: "The Calumet region has unfortunately inherited the traditional legacy of contamination brought on by poor management of industrial waste. A half million acre-feet of slag (a steel processing byproduct) and fill remain in space that once contained wetlands. This slag is extremely basic, causing any water that flows through it to have pH levels of 10-11."[115]

Evidence is widely available about the environmental situation of the Calumet region in general, but data on the South Works are not easily accessed, due to a single owner during much of the course of concern about the environment in the U.S. Despite these limitations, in 1985,

Colten identified the still operational South Works as a "medium risk" site due to its waste disposal practices from its founding to 1967[xiii].[116]

After the plant closing, in December 1993, USX entered the Works into the Illinois Pre-Notice Site Cleanup Program, which provides guidance, assistance and oversight of the IEPA (Illinois and U.S. Environmental Protection Agencies) to owners and operators of industrial and commercial property performing "environmental site assessments and/or site remediation for the purpose of selling/redeveloping the property."[117] Shortly after entry in the IEPA program, USS (and its subcontractors) removed sediments from various sewer lines and removed underground storage tanks formerly used to store fuels throughout the site. This entry was a continuation of a three-phase investigation that had already begun. The three periods of time were: Phase I: between July 1992 and January 1993; Phase II: during March and April 1993; and, after entry in the IEPA program, Phase III: between June and July 1994. Each phase was described in its own report, which are summarized below. These results were approved by the IEPA.

> Phase I Soil and Ground samples: Low level cyanide in 33 soil samples, total petroleum hydrocarbons in 42 soil samples, low levels of heavy metals, volatile organic compounds, semi-volatile organic compounds, and PCBs which were removed. [118]
>
> Phase I Water samples: Low levels of total petroleum hydrocarbons, lead, toluene, and high pH levels. The lead level was above drinking level standards, as was pH use. "It is important to note that groundwater from beneath the South Works site is not used as a water source for residential or industrial use." [119]
>
> Phase II, which was designed to confirm and supplement Phase I findings, found lower or equivalent levels or contaminants in all cases, likely due to "natural degradation" of the substances. Using "U.S. EPA 'screening criteria' showed that the only chemicals found at levels above 'screening criteria' in soil samples during Phase II were lead and cadmium." One sediment sample had high levels of cadmium, the other had high lead sewer deposits that were treated.[120]

[xiii] For information about Colten's rating techniques, see Colten, Craig E. *Industrial Wastes in the Calumet Area, 1869-1970: An Historical Geography*. Illinois State Museum. Champaign, Illinois: Hazardous Waste Research & Information Center. 1985. Pp. 84-85.

> Phase III found six heavy metals and five semi-volatile organic compounds in soil samples and beryllium and manganese above risk-based screening criteria for residential use in the slips. High levels of phenolics, iron, sulfate, high pH levels, beryllium, cadmium, lead, manganese, and antimony were also found in various wells. Many of these problems were above Class I and II levels. The tests in this phase were geared toward understanding what types of activities could be healthily pursued on the site (e.g. play, work, residential living).[121] Lead was shown to be the only non-carcinogen higher than acceptable levels for children to be living in homes on the site, as well as one location for construction workers was also surpassed. [122]

A fourth, more detailed fact sheet was also produced which stated no carcinogens had levels that were unacceptable at any level, although review of the extended fact sheet four shows that beryllium, which is classified as a carcinogen was rated on a different scale than the others because USS argues that it has never been proven to cause cancer in humans or nonhuman animals. If the same scale is employed across all contaminants, beryllium is considered a risk.[123]

As a result of the study, USS and its subcontractors needed to deal with lead levels in the soil through "remedial activities," to bring the site up to standards under four scenarios with varying degrees of stringency (listed in Figure 2) after which, the site would "not pose a health risk for any site uses."[124]

USS complied, and on July 31, 1997, the Illinois Environmental Protection Agency issued a "No Further Action" letter, stating that the site had been cleaned to residential development standards.[125]

Figure 2: Exposure risk assessment scenarios, pathways and media standards.

	Residential Scenario	**Recreational Scenario**	**Industrial/Commercial Scenario**	**Construction Scenario**
Exposure Pathways	Incidental Ingestion (surface soil) Dermal Contact (surface soil)	Incidental Ingestion (surface soil) Dermal Contact (surface soil)	Incidental Ingestion (surface soil) Dermal Contact (surface soil)	Incidental Ingestion (surface soil) Dermal Contact (surface soil) Inhalation of Suspendent Particulates (Surface/subsurface soil)

ChemRisk. *Expanded Fact Sheet 4 – Human Health Risk Assessment*. January 24, 1996. P. 6.

A FIELD GUIDE TO THE CURRENT SITE[xiv]

(Owner-monitored inactivity and Redevelopment)

The preceding discussion has brought our understanding of the site more or less to the present. In the last 130 years, humans and other forces totally transformed the site from marsh, dune and lake to a massive industrial complex, then to an "empty" plot of land larger than the Loop. But, of course, the site is not empty.

The following section is a field guide to the site, offering as comprehensive documentation as I can provide, given my limited time on the grounds and a wary USS. This review will illustrate the complexity and density of life in this derelict space and further explain to the curious explorer why the site is the way it is today. By documenting the current state of the site, I wish to dually illustrate that statements like those from a recent article in the *New York Times* that claimed "grass will not grow"[126] on the site are simply incorrect and that the site is more than a blank canvas upon which real estate developers may paint. In concert with the sociological, historical, pictorial, cartographical, and environmental research provided above, photographs, maps, interviews and personal experiences are utilized below to build a case for this reconceptualization. While the specific attributes of this place will be used to make my argument, my hope is both that similar explorations will be pursued on other sites and that lessons learned through studying the former South Works will be generalizable to such places.

Method

The majority of the observations and materials presented below are the result of six visits to the site in November and December 2003 as well as two visits during January 2004. While the length of time I spent with each visit to the site varied, on each instance I spent at least two

[xiv] Retrieving the Photo Index (Appendix 2) and the 11x17 map "Development Plans" (Appendix 8) is recommended for this section.

and as many as four hours in the field. On two occasions I interviewed Mr. Zaborske about the current state and history of the site. I also visited the site on numerous occasions preceding and following the formal period of study, providing knowledge of the site in different seasons as well as an additional photograph or two. Explorations of the site were chosen during different weather conditions, from warm and clear days to overcast, snowy evenings – unfortunately night visits were not permitted by USS.

With the blessing of USS's legal staff, I was granted access to the site under the guidance of John Zaborske and the site maintenance manager of the USS South Works. With escort, I was able to drive over the entirety of the northern 2/3rds of the site's deteriorating road system, as well as stop at my convenience to venture off road, including entering the ore yards. The below discussion follows the same counterclockwise path I took through the site during most of my visits.

With the goal of documenting as much of the site as possible, I snapped more than 1,000 photographs, including a number of 360-degree panoramas. I paid special attention to areas with interesting plant formations and nonhuman animal life as well as areas with blatant signs of human and nonhuman animals (e.g. tracks, litter, feces). While my documentation is by no means complete, I believe I captured the basic essence of the current site during autumn and winter. I hope to supplement these images and observations with others from the spring and summer, as well as a review by biological scientists.

The Site

Now that the land has been formed, the site is generally level and varies between 7 and 25 feet above mean lake level. The thickness of fill "varies from 4-12 on the southwestern part of the plant to between 25 and over 35 feet at the eastern and northern parts of the plant."[127] It

otherwise varies because the fill is much more porous in the top 10 to 15 feet below ground level than below.[128]

While the land has likely been reshaped in some way since the publishing of the 1939 USGS survey of the site, future maps do not contain easily identifiable elevation information, so the 1939 map (Appendix 1, Map 7) will be used as a benchmark for site elevation. The map shows that the northern end is generally ten or so feet higher than the southern side, which is generally 590 feet above sea level. The northern end is generally five to ten feet higher, between 595 and 600 feet on than the southern side. The major topographic feature is to the immediate northeast of the northern slip, where a small hill was built, from which one can see most of the northern half of the site. The view to the south is blocked by the ore walls across the slip (Appendix 2, Photo 3).

Adding to the general uniformity of the site is that buildings were leveled as they were no longer necessary. Bulldozer tracks can still be seen from the leveling process, both in the concrete (Appendix 2, Photo 5) and in the ground, presumably from more recent missions (Appendix 2, Photo 6). Interestingly, the concrete and asphalt were streaked by the bulldozing process, leaving thousands of gouges in the surface of the material (Appendix 2, Photo 7). As a result, concrete building foundations and floors now make up a significant amount of the groundcover on the northern part of the site, which had the densest concentration of buildings, while the southern part of the site is considerably freer from concrete slabs. All pits and holes associated with buildings that were below grade were filled. The result is a landscape that alternates between concrete (Appendix 6, XPhoto 1) and slag and other matter that has collected and grown through the two (Appendix 2, Photo 8). It was relayed to me that the site is so

consistently flat that one could drive the entire site – if one had tires that wouldn't be punctured by various nails and pieces of steel and other waste littered throughout the site.[129]

From the street on the northwestern side, the site is a surprising intrusion in the urban landscape. Its tall whitewashed walls and fences set it apart from the houses just on the other side of the street. The walls and fences are in a dramatic state of disrepair, and while not yet falling down, are certainly crumbling. Various plants including sumac trees, small shrubs and flowers grow from the rusted and peeling painted concrete (Appendix 6, XPhoto 2). Birds find the fences a place to perch (Appendix 2, Photo 9) or build a nest.

Climbing the wall north of the new Sullivan elementary school, one sees a massive field of low plants, small trees, and the water treatment facility in the distance (Appendix 2, Photo 10). Further to the south, starting just before the security station and main office for the site (Appendix 2, Photo 11), the white walls drop away and chain link fence dominates the border of the site until one rounds the jog in the property (Appendix 2, Photo 12) and is greeted by the juxtaposition of recently cleared but still unkempt land, rocks, and plant growth side by side with freshly laid sod, brand new power poles and cables, white sidewalks, pristine light posts, glaringly red fire hydrants, and jet black pavement (Appendix 2, Photos 1 and 2). Further to the south, new fence abuts rusting metal siding, and even iron posts (Appendix 2, Photo 13) until one reaches the southernmost edge of the property.

This dramatic range of external experiences of the site is due to the quickly changing character of the site at the present.

Legally, the site is currently divided into more than 25 different parcels of varying shapes and sizes. The largest of which is 117.41 acres while the smallest is 0.67 acres. Six (and potentially seven) parcels along the Lake Michigan coast will be 98.87 acres of City of Chicago

parkland, connecting to Rainbow Beach and the Water Treatment Center on the north and continuing down to just shy of the southeastern corner of the site, where two Army Corps of Engineers lakefront restoration repairs material storage sites are currently located. The majority of the site is still owned by USS, but that reality is rapidly changing.

In the past few years, the site has been owned by three different bodies: USS, the Army Corps of Engineers and EJ&E Railroad. Recently, however, a fourth owner, Solo Cup Company (hereafter, Solo), has emerged, and the city will gain ownership of much of the lakefront in the immediate future. Within the last six months, Solo began construction on its 117.41 acre parcel on the majority of the south side of the site (Appendix 2, Photo 14). At least two major facilities will be built at the site, which will create 450 new jobs and retain 550 jobs from another south side location. Approximately $44 million will be contributed to the development of the facilities, from City of Chicago though Tax Increment Financing, Illinois FIRST programs for site development, Illinois job training monies, and $18 million through new and improved streets and necessary hardware, landscaping and major sewer work. Action is also currently proceeding to get approval to fully move the Army Corps of Engineers to parcels 20, 23, and 24, giving them a larger area to stockpile materials, access to rail lines, the city parkland, and Solo a squared off parcel.

The remainder of the site is owned by USS, which is hoping for a single buyer to develop its holdings (Appendix 7, USS Plans 1 and 2),[130] although other improvements are proceeding which will further bisect the USS property, including a major relocation of US-41, sending it southeast through the northeastern section of the site and further south along the edge of the current property line until it bows west to reconnect with the existing US-41 route south of 87th

Street. The plans for the rerouting can be seen on the 11x17 "Development Plans" in Appendix 8.

The proposed city park will run an average of 300 feet wide along 1.5 of Lake Michigan coastline on the property. The Chicago Park District sees the primarily as "bird and wildlife habitat as well as providing biking and hiking trails."[131] In July 2000, the Park District began four experimental gardens using "biosolids (the solid remaining after wastewaster treatment)" from the Metropolitan Water Reclamation District to test what types of plants can grow on the enriched slag.[132] The success of these experiments is leading the Chicago Park District to use a $2 million grant from the State of Illinois to develop a 16 acre section of the park on the southern part of the site by using dredge material from Peoria Lake at the base to place on top of the slag.[133]

Interestingly, despite plans to hand the parkland to the city in the near future, USS is holding onto one tract of land as leverage, in case development does not proceed as planned.[134] One may currently enter the north side of the future parkland from inside the former works site via two gates at the southeast (Appendix 6, XPhoto 3; Appendix 2, Photo 15) and northwest (as exiting, Appendix 2, Photo 16), although entry to the site is currently off limits (Appendix 2, Photo 17). The three foot tall fence seen in the photographs runs the entirety of the future border of the park.

Nevertheless, with an official guide, I was able to gain access to the area. A single, deteriorating road currently cuts through the parkland (Appendix 2, Photo 18), which I used as my primary route, although frequent trips were made off of the road on foot. As discussed above, a considerable amount of the parkland is currently composed of building foundations, although the area on the northeastern side of the site was largely composed of rail lines, and is

therefore much freer of building foundations. As one would expect, plant growth is more active in areas without building foundations (Appendix 2, Photo 19). As seen above in Photo 8, dramatic lines often mark building edges. In the picture, note the grasses, the rubble on the building site, and variation in foundation condition.

Even though much of the future parkland does not have buildings on it, human presence is felt through an occasional manhole (Appendix 2, Photo 20), various debris (Appendix 2, Photos 21 and 22) and small holes that have not been filled in (Appendix 2, Photo 23). While the site is generally clear of litter, likely due to the fences around perimeter (except at the lakeshore), recreational human garbage is occasionally found on the site, such as this Solo(!) plastic cup which was found in the northern park area (Appendix 2, Photo 24). Just outside the fence is one of the few remaining signs from the site, although its purpose is not clear today (Appendix 2, Photo 25). Nonhuman presence is hinted at through numerous animal tracks (Appendix 2, Photo 26) and birds chirping and fluttering about. Coyotes have been seen on the site, although not recently. It is assumed that they traveled the railroad right of ways to the site from less urban environs.[135]

The lakeshore is an impressive northern and eastern border to the site. As detailed above, throughout the site, the human-made lakeshore is a mix of boulders, slag and other debris, some the size of cars. Plant and animal life have taken up in the rubble, with birds using the rocks for shelter and plants even growing out of the slag (Appendix 2, Photos 27 and 28). Presumably in the water below, fish and other aquatic life use the fill as "incidental habitat."

Views from the southern and northern edges of the northern parkland are dramatic. From the south, one sees the uniformly rocky and debris-covered shoreline with the government breakwater in the "midground" and industrial landscape in the distance (Appendix 2, Photo 29;

Appendix 6, XPhoto 4). From the north, one looks over boulders and the water treatment facility to the skyline of the Loop in the distance (Appendix 2, Photo 30).

As one continues northeastward, just outside of the park the main road briefly widens and a former Works entrance is observed beyond a major tributary (Appendix 2, Photo 31). Because the entrance has a controlled environment to its north and west, and has presumably seen some traffic, judging by the lack of plants on the south side of the street, it is in much better shape than the roads elsewhere on the site.

As the road continues past the now closed entrance, it loops around to head south, coming within a couple of hundred feet of the houses just beyond the site's fence and walls (Appendix 2, Photo 32). Following the road a few hundred feet to the southeast, a small grove of trees (Appendix 2, Photo 33) is one hundred or so feet off of the road to the east. The trees are particularly noteworthy as the only cluster of trees in the middle of the fields. While trees grow throughout the site, only along edges of buildings or other protected areas do they cluster. They appear to be near (or in) a relatively low basin on the 1939 USGS map (Appendix 1, Map 7), perhaps it is collecting a critical mass of water and other nutrients not consolidated elsewhere in the slag. Elsewhere on the site, most plant life is small and relatively low to the ground (Appendix 2, Photos 34 and 35).

South of the open fields of the northern section of the site is the north slip, which is flanked by roads on the north, south, and west, as well as a network of catwalks above the water on the west. Standing on the site, the slip's tall metal walls separate it from the water below. On my forth day visiting the site, not only were three commercial boats in the slip, but five private fishing boats (Appendix 6, XPhoto 5). A brief discussion yielded that the two men on one boat had caught 50 fish by 10:30am that day, 10 of which were "keepers" – perch of 10 pounds or

more.[136] While one fisherman's report of his and his buddy's catch is not a substitute for a scientific survey of the health of the slip, the high yield indicates that the slip is at least inhabitable for aquatic life, not to mention a recreation destination for humans.

Just south of the east end of the slip is one of the two remaining buildings on the site, the "screen house" that was partially described above (Appendix 6, XPhoto 6). The building is a low, boarded up brick building that has land on one side and the lake on the other. One window in a door is broken open, allowing one to see in the structure (Appendix 2, Photo 37), which houses pumps and other machinery to intake water from Lake Michigan. On the east side of the building is a catwalk that crosses part of the intake area (Appendix 2, Photo 38). From a white tank to its north, one may survey the building and much of the land and water around the building, including the north slip and the north ore walls (Appendix 6, XPhoto 7). Medium sized nonhuman animal prints were seen around the screen house, similar to those shown in (Appendix 2, Photo 26).

To the west of the screen house is the northern ore yard, which is actually composed of three distinct compartments and four major walls. The northernmost bin is the smallest, while the bins get larger as they move south. In stark contrast to the structure-less remainder of the site, the tallest ore walls are 45 feet high, concrete structures that are a half-mile long. Because the cost of removing the walls has been estimated to be $13 million, they still stand. USS, the city, and others are working on a way to integrate them into development plans.[137]

On the east end of the walls are trees, railroad tracks, a road and various forms of low-lying plant life (Appendix 2, Photo 39). Due to its proximity to the slip and the lake, birds, especially seagulls are common on the eastern side of the ore yards (Appendix 2, Photo 40). Signs of other nonhuman animal life included additional medium-sized mammal tracks and a

small trail along the side of one of the ore walls (Appendix 2, Photo 41). Other notable elements of the east side of the ore walls include a major portion of the wall that has collapsed (Appendix 2, Photo 42).

A section of wall just before the east end of the southernmost and second southernmost ore walls, which define the largest ore yard, were intentionally demolished by a demolition contractor in order to remove the ore moving cranes that once sat upon the walls. (Appendix 2, Photos 43 and 44 illustrate the northern cranes and ore yards in operation in 1977. Photo 45 illustrates the south ore yard, also in 1977.[138]). Because the cranes were approximately 150 feet tall, when they sat upon the walls, the wall and crane structure reached approximately 200 feet in the air. This height was deemed impractical and unsafe for removal, so an alternate strategy was needed for demolition. Because the site was still operational when the mid to late 1980s when the cranes were to be recycled, the companies involved decided that it would be safest for and least intrusive on the remainder of the plant operations to dismantle the cranes in the ore yards. As a result, the demolition company destroyed the above-mentioned sections of wall and then pulled each crane into the hole, where it could be dismantled and shipped off site.[139] Aerial 4 verifies that the demolition and dismemberment had already taken place on both ends of the site by 1990.

Today, the demolition of the wall sections allows a glimpse into the base of the wall, revealing a tunnel that apparently runs the second southernmost wall's length (Appendix 2, Photo 46). A similar tunnel is not visible on the southernmost wall's base. The demolition also spread giant chunks of the wall into the ore yard, many of which are pile atop one another – a giant's building block set. Trees and grasses fill many gaps between boulders, and the spaces between them likely make for ideal rodent habitat (Appendix 2, Photo 47).

On the west end of the ore yards is a small dirt parking area, a ramp that takes one to an overlook of the southernmost ore bin, a small room, and easy access to the other two bins. Medium sized mammal feces were located in the parking area, despite the fact that it is most barren and heavily human trafficked of the unpaved areas surrounding the ore yards (Appendix 2, Photo 48). Closest to the parking area is the smallest of the ore bins (Appendix 2, Photo 49; Appendix 6, XPhoto 8), a narrow, dark yard with some small plant growth, which was largely covered in water due to the rains which had occurred in the week before. No animal traces were identified inside the westernmost portion of this small bin, but the deep shadow made examination difficult. Seagulls were seen overhead.

On the southern wall enclosing the parking lot, which is the divider between the two large ore bins, is a musty, narrow, deep room that is currently used to store a small push lawnmower and other various tools. Because the area has no electricity or windows, it was impossible to see more than fifteen or so feet into the room with the naked eye. By setting my camera to a ten second exposure, I was able to capture a deeper image of the room (Appendix 2, Photo 50). The chamber extends approximately 50 feet into the wall, is covered in severely peeling blue paint, contains a rusting lighting system, and has what appear to be storage containers on either side of the tunnel and along the back of the room. The floor is covered in rubble, pipes, a tire, dust, and other unidentifiable objects. There were no nonhuman animal prints in the dust or other signs of life, animal or otherwise.

Before continuing about the ore yards, it should be mentioned that at least two different kinds of ore with dramatically different textures and colors were used at the Works and are visible today. Until the 1960s, an extremely pure iron ore was brought to the Works from a Minnesotan range; however, after the mines closed, USS had difficulty securing a consistently

high grade of iron ore, so it shifted its raw materials to a different process which allowed the use of much lower grade ore. Instead of being minimally processed before delivery, the new ore product was concentrated and then shipped to the Works as small, round black ore pellets.[140] These two types of ore can be found in large amounts in the ore yards today.

From the west end, the middle ore yard is a sea of rust. When the ore yards were cleared during their closing, the deep red ore at the base was exposed, leaving a large sheet of formerly unseen early ore. The west end of the yard is basically barren, in part because it appears to flood easily, but more may be at work here. Limited plant life occurs along the walls and in patches in the middle of the bin. At least one mouse was observed racing to the wall with my approach. Plant life gradates to a thicker, more diverse set of plants towards the east end. A number of holes in the southern wall used to be used for ground access to the bins, both for early material hauling that was sometimes done by hand as well as for cleaning and ore transfer processes.[141] These have been filled to separate this bin from the one to the south, but the ore and dirt which fills each of these holes is beginning to deteriorate, opening up internal connections between the two, as can be seen in from the southern ore yard (Appendix 6, XPhoto 9) and in a detail of the peak of the eroding hole shown in Photo 51.

Including the above hole, a human can access the largest, southernmost bin (Appendix 6, XPhoto 10) in the northern ore yards three main ways by foot. Entrances which require the smallest amount of work are the include through one of many holes in its southern walls (Appendix 2, Photos 52 and 53), which are typically further eroded than the holes between the ore yards, or from the east end, which is totally open, in spite of the boulders covering either side of the yard (Appendix 2, Photo 47).

The inside of this ore yard is the most developed in terms of plant and animal life. A number of different species of trees and ground-covering plants inhabit this yard, although one particular kind of wetland plant that grows more than eight feet tall and shoots runners out for nutrients and to expand (Appendix 2, Photo 54) composes much of the marshy, boggy area in the yard (Appendix 2, Photos 54; Appendix 6, XPhoto 11). In addition to hearing and seeing seagulls and numerous "little brown birds" in the yard, animal life that was not seen elsewhere on the site was documented, including a rabbit, a large owl, and a skull of a small to mid-sized mammal, perhaps a fox (Appendix 2, Photo 56).

While it is not immediately clear why more diverse plant and animal life consistently occupies the south yard and is less present in the two to the north, the larger size of the yard allows access to more sunlight, and the ground appears to be less intensely red as in the two yards to the north. The holes in the southern wall allow a closer look at the character of the soil in this area, which appears finer and darker in color (Appendix 2, Photos 57 and 58). This bin was also closest to blast furnaces 5-8, so it is possible that some byproduct of that production is enhancing the soil in this bin, although one might expect proximity to the blast furnaces to provide additional exposure to more noxious byproduct output than further north.

Other than the screen house, the only other permanent building currently on the site is a 4,000 or so square foot building that is due west from the ore yards (Appendix 2, Photo 11). The only building in use by USS, it is multifunctional, housing the security outpost on the first floor, the site mechanic's space in the basement, and the main office area, which is divided into a number of rooms and houses the site secretary as well as the Regional Manager for USS Real Estate, in addition to storage and conference rooms for visitors to the site. Around the building are a gravel parking lot, some small plants, a bulldozer, and trucks for surveying the property.

The south site

Because Solo is currently building its facilities on the southern portion of the site, I was unable to gain access to the area for documentation other than along the rail yard on the southwestern side of the property, along the southern slip and ore yards (Appendix 2, Photo 59). From this area, the large cranes and earth moving equipment which are involved in the early stages of the construction of the factory are plainly visible, as is the field trailer/office for the construction. The ground cover in this area does not appear to be different than that to the north, other than, at present, a huge amount of slag has been exposed through site preparation.

The rail yard is still active, although it is narrow and only a terminus for traffic (Appendix 2, Photo 60). A number of trains were in the yard at the time of my visit, although it was quiet except for the sound of a barge on the river several hundred feet to the south. Trains have been active in this area during previous visits to the site. Because night had fallen by the time a visit to the south slip and ore wall was possible, the only documentation of this still monumental portion of the site is of the slip at sunset with ore walls to the left, trains to the right, the river beyond the slip, and the monstrous rail bridge to the south (Appendix 6, XPhoto 12), a fitting end to a review of the site.

A comparison: the environment, plants and animals

While my limited knowledge of botany, zoology and sciences of non-human subjects inhibited my ability to provide confirmation of a variety of non-human life forms on the site, a comparison site may provide clues about what may inhabit the Works.

In the Summer of 2002 a biological diversity "blitz" was led by teams from The Field Museum for twenty-four hours on the 23rd and 24th of August. Over 2,000 species were documented on four different sites in the Calumet Region. [142] Among those sites sampled was an

abandoned Nike missile site "that supports scattered clumps and trees upon slag landfill."[143] While the site sits south of a small woods, unlike the Works, the actual composition of the site is similar and was recommended as a similar case by scientists working on the study. In many ways, the Nike site is more challenging an environment for life, as it is small, does not have access to a large body of water, and the human-made groundcover is in considerably better shape at the Nike missile site than at the Works. On the other hand, it likely does not have the same history of domination as the USS site, and as such, may not have the same history of contamination. Under partly cloudy to overcast conditions, at least 100 species were documented on the site, including a variety of vascular plants, small mammals, mollusks, insects, and other species in forest, open/grassy, prairie, and thicket conditions.[144] While the diversity on the Nike site was not as great as in other locations in the blitz, my brief summary of life on the site as well as the former Works clearly illustrates that diverse life is possible on slag-filled sites, even in the midst of an industrial district.

POLICY CONSIDERATIONS

Following the above discussion, subsequent adjustments to the conceptualization of derelict space ultimately suggest redefining public policy decision-making processes and reevaluating the role such space plays in human and nonhuman societies. Although this text is not a policy paper, this section will be utilized to offer a type of policy that might arise out of this newfound conceptualization.

At a minimum, economic models of exchange and use value must be altered to account for the loss of positive "externalities" which are associated with derelict space when making transaction and development decisions involving such property. These externalities include the value of nonhuman animal and plant life, plant and nonhuman animal uses of the site, and informal human uses of the site. Again, how exactly to measure the value of such life on and use of the site is largely beyond the scope of this text, although a quick stab at the matter shall be made below. The documentation provided above should be kept in mind as a first step towards evaluating these unintended uses. Such documentation is, of course, essential before such a calculation is possible.

Built into this critique is a somewhat functionalist assumption that these uses for the site arise for a reason. To the extent human or nonhuman agency is involved, a path through a derelict place develops through cumulative action because the path serves a purpose, whether pleasurable or pragmatic. If we grant nonhuman animals agency (and maybe even without it), we can assume that they select particular places to feed or rest because they are at least adequate for fulfilling those goals. On a different scale, plants grow in areas because the environment is hospitable to growth. Each use suggests that these environments are valuable and might be worth preserving. But to human societies, those which largely determine the character of the

built environment, not all uses are equal in value, regardless of the unit of measurement. A derelict industrial facility may be a fantastic place for dumping waste, but such a use doesn't mean we should have to preserve a corner of a site for a landfill! As with other preservation activities, positive uses are maintained.

In an ideal world, assuming that environmental contamination is inconsequential, my druthers would be to leave the land to "redevelop" on its own. In this laissez-faire environment, what grew on, lived on, and used such sites would be free from formal human control, except for the obvious systematic human regulations that would keep it developing on its own, especially via the police and politics. Doing so would simply rely on what could be considered historically revealed preferences as the final word on property use.

To most, such a policy would not provide anything near the "highest and best use" for such sites. As such, my compromise (but hardly uncontroversial) proposal is a change in property law that acknowledges economic, environmental, social and other values. Rather than relying on the old standby of tax reform to adjust behavior, I offer a different route: tie the amount of development allowed on a piece of property to an assessment of the ecological and community use value of the site after dereliction has occurred. Like squatter laws, which turn property rights over to people who have occupied property for extended periods of time without reprisals, extended unsanctioned human, nonhuman animal, and plant use of sites should establish a certain claim over the property.

Ecological and sociological assessments of derelict property would determine the amount and "quality" of unsanctioned use on a site and would consequently derive the points of value to these interested parties of the property in question. When sold and redeveloped, at least certain elements of the site would need to be maintained or a percentage of the property would need to

be dedicated to particular positive prior uses that developed when the property was derelict. Once developed, if the property owner can demonstrate that the features are no longer used due to no fault of the owner or formal user of the property, the owner may petition to have the featured aspects of property ceded back to the owner. Such a stipulation will allow property use, which is nearly irrelevant in current property law, to adjust to the dynamism of the social and ecological environments.

Following Richard Epstein, a "regrettably necessary" solution to the human valuation problem may be contingency valuation, which attempts to determine a monetary value of non-market goods through survey work.[145] Despite its tremendous faults, including a lack of practical and social context,[146] its rational choice-based logic has a "hardness" that is welcome in policy debates. In practice, individuals who use the site would be polled over a set period of time to determine their valuation of the site. To help correct some of the problems of contingency valuation, these analyses could then be supplemented with ethnographic research to recontextualize the survey results.

For nonhuman value, biologists and ecologists seem best prepared to evaluate the quality of environments for the types of animals and plants that currently inhabit the sites. An obvious potential test for non-human value (albeit from a human perspective) is biodiversity.[147] While the merits and definition of biodiversity are contested, I accept that it is valuable and follow Groves' definition, which combines the work of Redford and Richter[148] and Whittaker[149]. Basically, Groves defines biodiversity as the functional, structural, compositional elements of genetic diversity, population/species diversity, community/ecosystem diversity distinguished by degrees of geospatial specificity.[150] The relative biodiversity and healthiness of plants in the area may even be used as an approximate test of contingency valuation, for those desiring such a

measure.[xv] In this vein, the greater the biodiversity, uniqueness, or healthiness of the site, the greater the claim for preservation of its nonhuman attributes.

As such, use value would be a larger component of a property's market value than that in the current system.[151] Perhaps an estuary or a public shortcut to a store would need to be retained, a view maintained, a baseball field built, or a garden planted. What is key is that important former values of the site would be preserved or even enhanced, in effect formally securing resources needed, as indicated by informal use patterns in these places. Such a proposal doesn't mean that what many see as a scraggly field of weeds would need to be conserved on a piece of sold property; instead, while the new property owner may still utilize the site for her own profit or enjoyment, a place for a small park specifically designed for the children, birds, insects, and small mammals that formerly utilized the site would need to be reserved. In extreme cases, if the valuation process determined that the property's value in its derelict state is greater than its salable value, the property owners would be minimally compensated by the government that has primary jurisdiction over the parcel, and the parcel would be transformed into "parkland" following the criteria above.[xvi]

It is easy to see how this would play out on a small, corner lot with a path across it, but a major site like the Works is a somewhat different matter. As documented above, the Works teems with life, human and nonhuman, although security forces limit most living activity to the site to the nonhuman kind. So what to do? One answer is what landscape architect and industrial park development expert Peter Latz did in the German Landschaftspark Duisburg-

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[xv] As Epstein points out with preservation and wildlife conservation, a problem with this type of system is that when extremely divisive issues like wildlife preservation, are on the table, there is binary oppositional cleavage: either one wants development or does not. Although similar to preservation activities, because this plan is a compromise by nature, I expect that such bifurcations will be unusual. In their event, following the precedent of use, the current positive use should win out.

[xvi] Such government action could build upon current redevelopment law allowing for government action for "redevelopment" when property is "blighted."

Nord, which at 570 acres is a near match to the South Works. While still a work in progress, the former mill integrates still standing former operational elements of the steel mill with trails, gardens, and water features, which simultaneously leach environmental contaminants from the ground and provide recreational space for humans and nonhumans, alike.[152] Specific features include promenades that were once railways, climbing walls that were once ore walls, and gardens in former ore bins. Areas which are not totally environmentally clean are cordoned off, and fresh paint indicates appropriate walkways.

In the case of the South Works, of which few structures remain, such a strategy would possibly mean following the lead of the Landschaftspark Duisburg-Nord: the ore walls could be converted to giant climbing facilities, gardens, and sculptural art galleries, fulfilling ecological and recreational uses of the site. Another valuable suggestion for human use for the site that is outside the demands of my proposed property law restrictions is including Blair Kamin's redevelopment suggestion of a steel worker's museum to the site.[153] Such a museum would provide important additional details of what the site and surrounding community was like before its closing and its importance in American economic development and the history of Chicago's South Side.

But from an ecological standpoint, we can do even better.

In addition to such public access areas, sections of the former Works could be cordoned off as nature sanctuaries in the city. Even in a city as large and dense as Chicago, there exists precedent. In the name of ecological preservation, the Chicago Park District has temporarily closed off substantial areas of parks including pieces of Montrose Point and the Wooded Island, and human access to areas like the South Shore Cultural Center Nature Sanctuary is limited to walkways. More importantly, the Chicago Park District operates at least one area that is

permanently closed off to the public, the Lincoln Park Addison Migratory Bird Sanctuary, which is surrounded by an eight-foot tall fence. As the Park District states: "The public is not allowed in because the area is strictly for birds, plants, and other wildlife."[154] The Addison Sanctuary is not simply a "wild" place, but one that is maintained by the Park District through elimination of exotic species, the spreading of indigenous plant seeds and monitoring of plant and animal species. But only Park District employees and working volunteers are allowed inside, and the place, itself, is envisioned as one for exclusive nonhuman use. That said, the Park District does note that looking into the site is excellent for bird watching and has even built fences that are intended to improve such human recreational activities.

Back to the model, compelling such changes through law would clearly increase the cost of acquiring and selling derelict property. Acknowledging that uses of derelict space are not always in the public's or other's best interests, this system therefore would provide an incentive environment in which property owners would have good cause to construct buildings designed for more than one use and maintain them once constructed. If their particular use of the property is no longer cost-effective, rather than allowing owners to derive benefits by letting property deteriorate, the change in law would provide a reason for owners to sell their parcel and whatever structures it may contain to someone who could better use the property as it is.[xvii]

While this proposal has a number of problems, such as how to treat existing derelict property which has been allowed to deteriorate under the existing property law and tax system;

[xvii] Doing so aligns the structure and maintenance of buildings with their actual contemporary temporal use horizons. As Ludwig Mies van der Rohe said in a 1959 interview with the BBC, "Sullivan said 'form follows function' – I think that has changed in our time very much. The function is very short lived today, and our constructions last much longer. So it makes only sense to make plan[s] very flexible."[F5] Creating this legal and fiscal environment in which Mies's advice is the natural outcome would likely reduce the prevalence of "white elephants" in commercial, industrial and residential fields and their subsequent costs. This is not to say that every activity can take place in a flexibly structured building, but integrating awareness of functional obsolescence into architectural plans would be a step in the right direction.

[F5] Meis van der Rohe, Ludwig. October 6, 1959.

how to consistently define dereliction; or how to fully live up to the promise of promoting biodiversity, such a revision of property law would promote a radically different perspective on property use and community investment in property for sustainable land uses. The result would be a more responsible development structure that would go a step beyond the community based action and cultural shift paradigm offered by Jakle and Wilson.[155] As they admit, such mobilization-based dereliction reduction strategies may be unable to restrict dereliction caused by agents outside of a community, such as absentee landlords and corporate holdings. But building anti-dereliction incentives into property law would constrict dereliction perpetrators and would provide equal protection for neighborhoods with both high and low collective efficacy.[156] The result could be a more livable community for plants and animals of all kinds, ourselves included.

CONCLUSION: Derelict space and the site

Through this history of the site and a review of its current contents, it is elucidated that a location's specific history is a necessary component of understanding why a site has a particular character at the time of study. Without such study, major historical or otherwise unapparent details may be overlooked to the detriment of an analysis. This is especially so today; almost nothing, no place on earth, is without some form of human contact or alteration, whether it be direct or indirect, or in a positive or negative sense.

The site of the former South Works is an extreme example of this case. Not only were buildings constructed, but the land, lake and river were transformed to create the site. These actions were not just the result of human agency – nonhuman elements: the lake, plants and nonhuman animals all assisted in the process. Without such knowledge, a study of dereliction could never be complete.

These conditions also raise special questions about dereliction. When the land, itself, is the subject of dramatic human construction, what does it mean for a site to be derelict? As the water laps at the shore, slowly rounding the edges of human-placed rocks, is this part of dereliction, or has something transformed a human creation into something that is more properly considered part of the nonhuman environment? When does an entire site make that transformation? If development were left unchecked on the land for 50 years, would the site still be derelict, or would it be considered something more?

These types of questions also illuminate the fine line between derelict space and the "natural" world. As the field guide illustrates, the site is not a wasteland. While it may not have the "purity" and biodiversity of a nature preserve, it is certainly not dead space. This fact is true of all derelict sites, everywhere, regardless of contamination or specific circumstances. As such,

any conception of derelict space must include this positive side of dereliction. The positive aspects need not be romanticized, but should at least be recognized. After all, many derelict landscapes are filled with poisonous chemicals and damaged plant and animal life.

This positive conception reinforces the multiplicity of relationships and systems that act upon and are returned by derelict sites. While politics and economics are important systems for understanding dereliction and development, Jakle and Wilson make an important contribution when they include cultural and social factors in their argument about derelict space.

Using their standards, it is clear that the site is derelict, and that their interpretation of industrial dereliction of the 1980s is at least partially correct. When combined with other factors, the particular investment patterns of USS and the haphazard layout and eventual overcrowding of the site led to a special kind of dereliction which were ultimately major reasons the plant closed. Also important to note is that Hoyt and Jakle and Wilson make a significant point about specialized uses for particular types of building. What does one do with a "white elephant" like the South Works but tear it down? Steel production buildings are not easily transformed into loft apartments or offices like old textile factories. As such, demolition and even dereliction may make sense as a mammoth steel production building is reaching the end of its productive life in the current system of property ownership and taxation. If a building cannot be used after it is no longer useful for the one task for which it was designed, investing in its maintenance is illogical, other than perhaps making it a park like the Landschaftspark Duisburg-Nord. For this reason, we must be more aware of our methods and styles of construction as well as how our governmental policies affect our relationship with buildings and space.

Other lessons learned from the study include applying the revised cycle of development and dereliction has already illustrated the limitations of any system of classification. In this case,

because dereliction and development are so spatially and temporally contingent, the application of the summary device is overly simplistic. For example, the post-war years were a complicated period of time for the Works, during which many positive events were eclipsed by negative ones, but no dominant theme developed. In fact, some of the positive events, such as the final spate of construction, have an almost ironic character to them. Without changing the characterization of the site in real-time and rendering the summary device worthless, it is difficult to capture the subtleties of a change in a site. Regardless, the device provides an additional level of detail left undescribed by Jakle and Wilson and therefore a more refined shorthand.

What will happen to the remainder of the site that is not already under contract is up in the air. Likely, within a couple of years, some form of development will proceed on the northern half of the site and its history will be obscured and its social and ecological value will be altered. Regardless of what the plans are, what is certain is that the character of the site will again change. New construction will occur, and active human domination will again be instituted on the site, which will start the process of dereliction all over again. How we will understand that dereliction and what we will do with it is what is unknown.

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[110] *Ibid.*
[111] *Ibid.*
[112] Personal interviews, John M. Zaborske. December 4, 2003 and December 8, 2003.
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[119] *Ibid.* P. 2.
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[121] Waste Technology, Inc. September 1994.
[122] Waste Technology, Inc. September 1994. Pp. 9-11.
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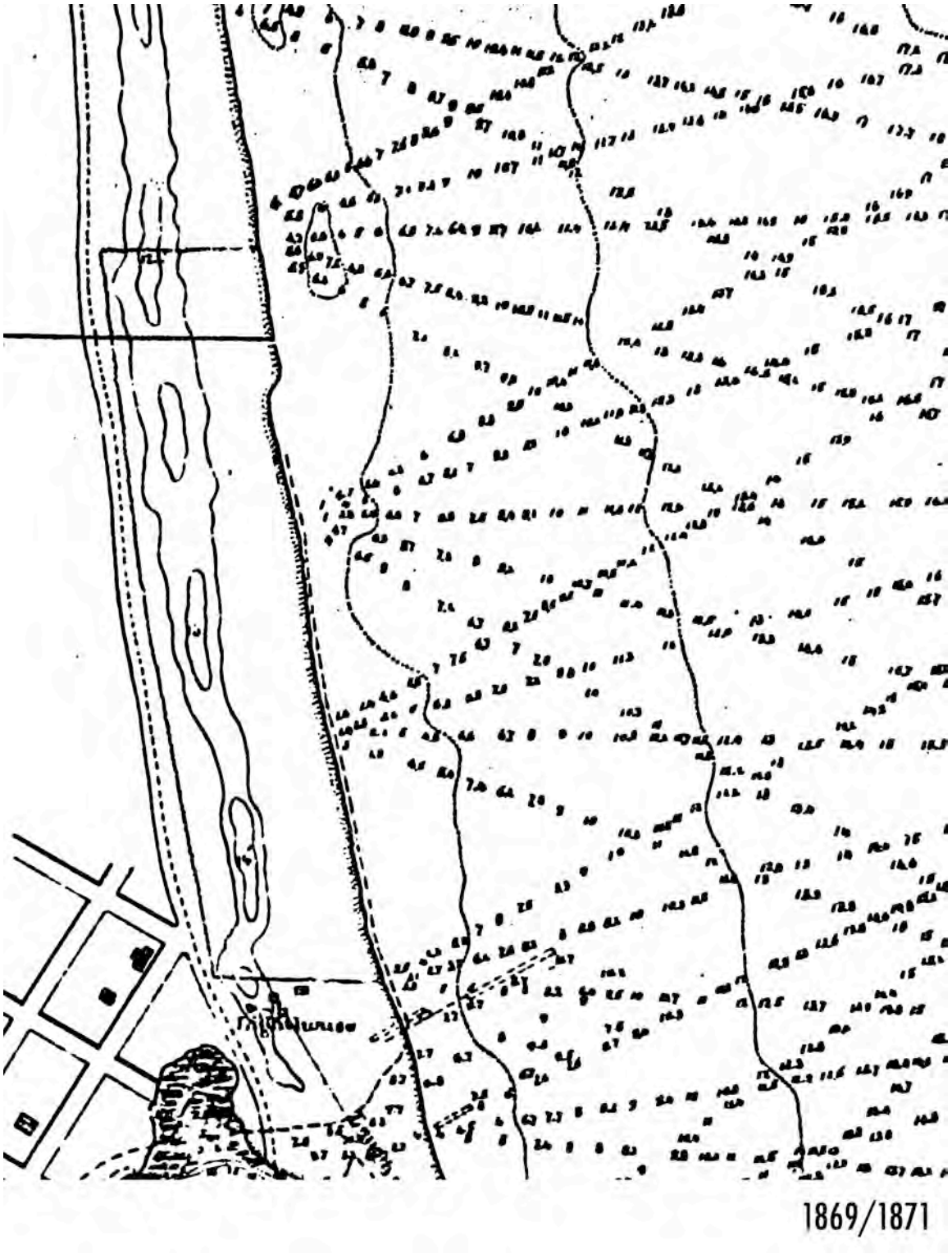
APPENDICES

Appendix 1: Maps 1-12

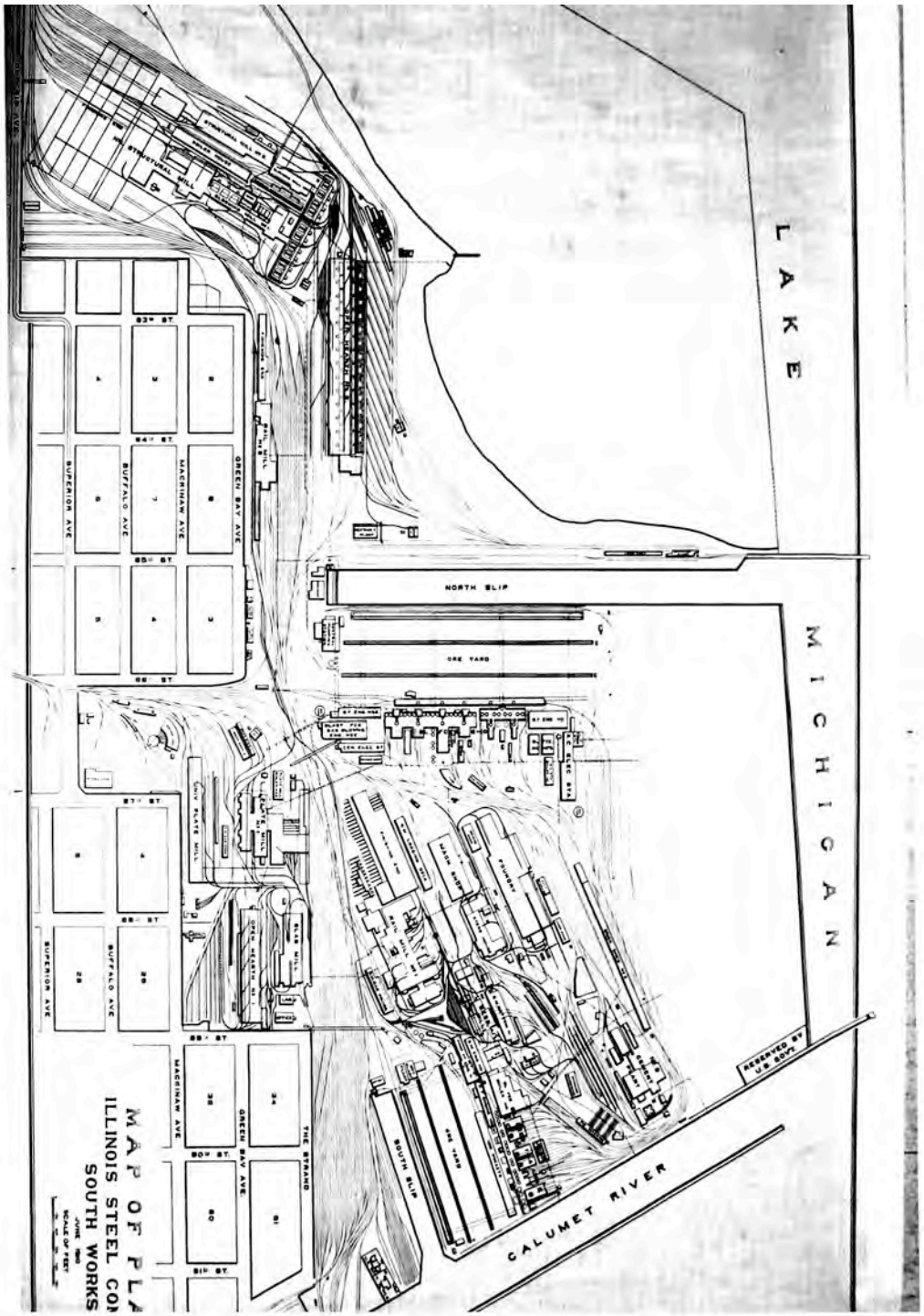


Map 1


Ontario
Superior
Buffalo
Mackinaw
Ave.
Bay
St.
Round House
Shops
Light House
Government Pier
Government Pier
1880s

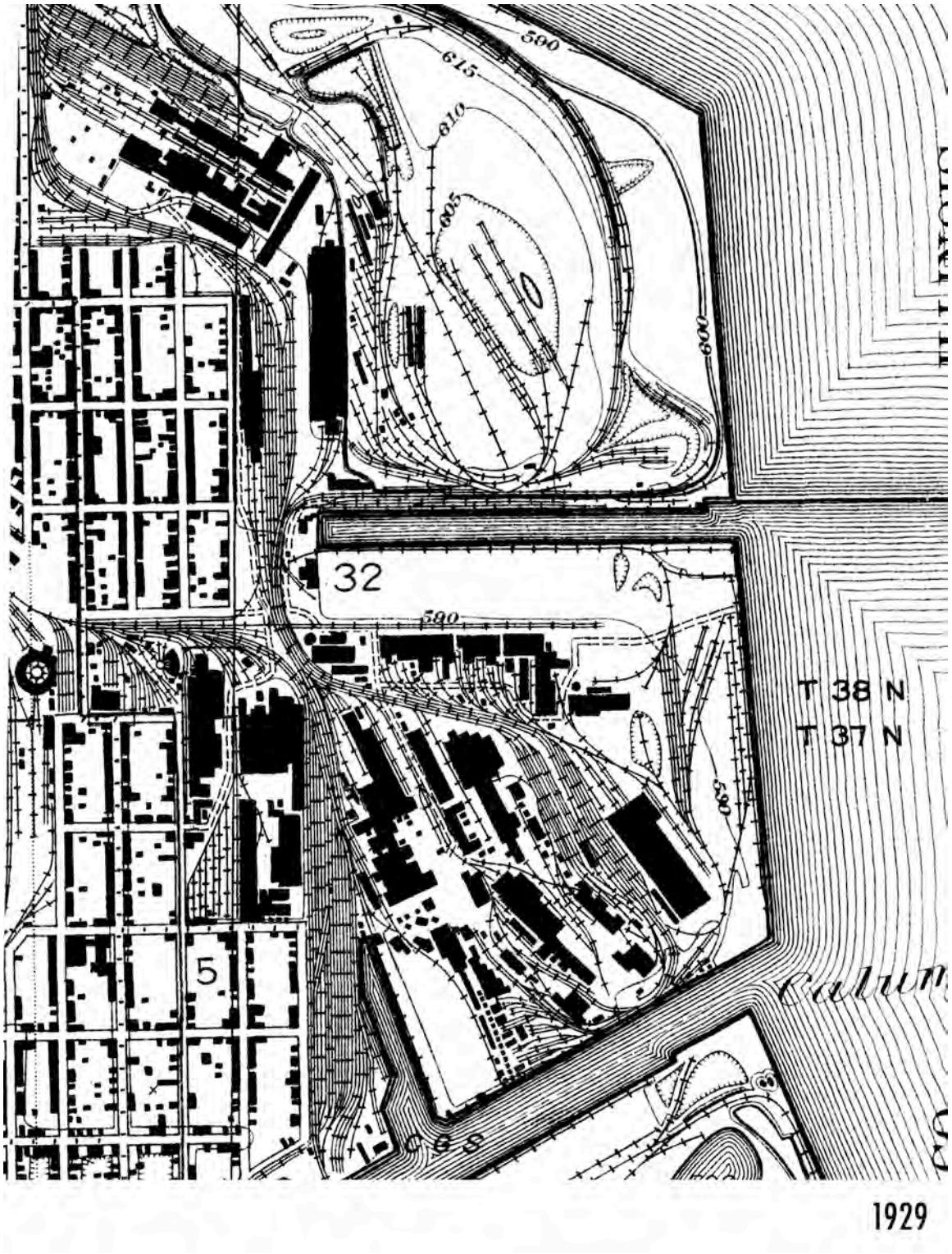
Map 2

Map 3

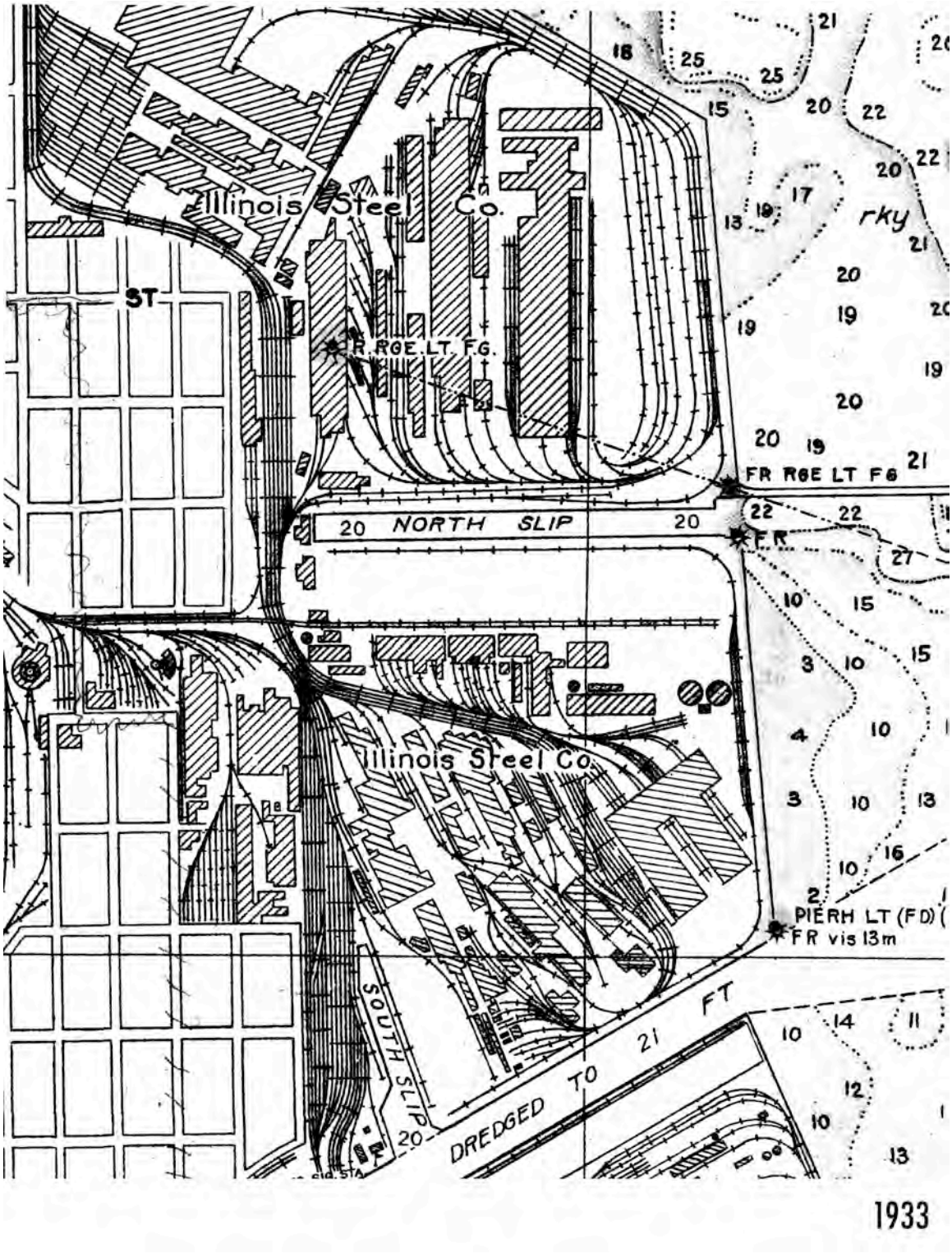

LAKE
MICHIGAN
NORTH SLIP
ORE YARD
SOUTH SLIP
ORE YARD
CALUMET RIVER
RESERVED BY U.S. GOVT.
THE STRAND
GREEN BAY AVE.
MACKINAW AVE.
BUFFALO AVE.
SUPERIOR AVE.
83rd ST.
84th ST.
85th ST.
86th ST.
87th ST.
88th ST.
89th ST.
90th ST.
91st ST.
MAP OF PL
ILLINOIS STEEL CO
SOUTH WORKS

1910

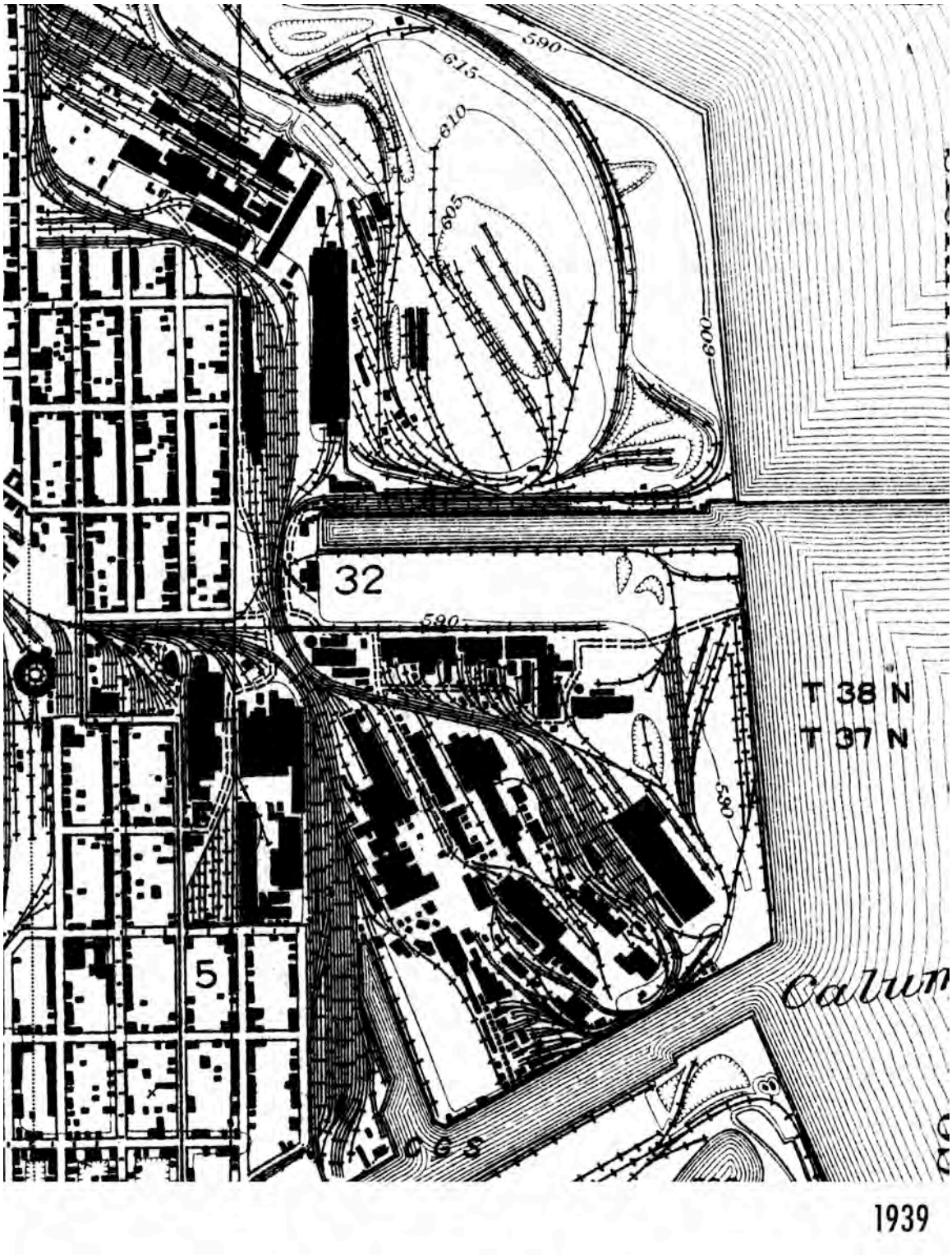
Map 4



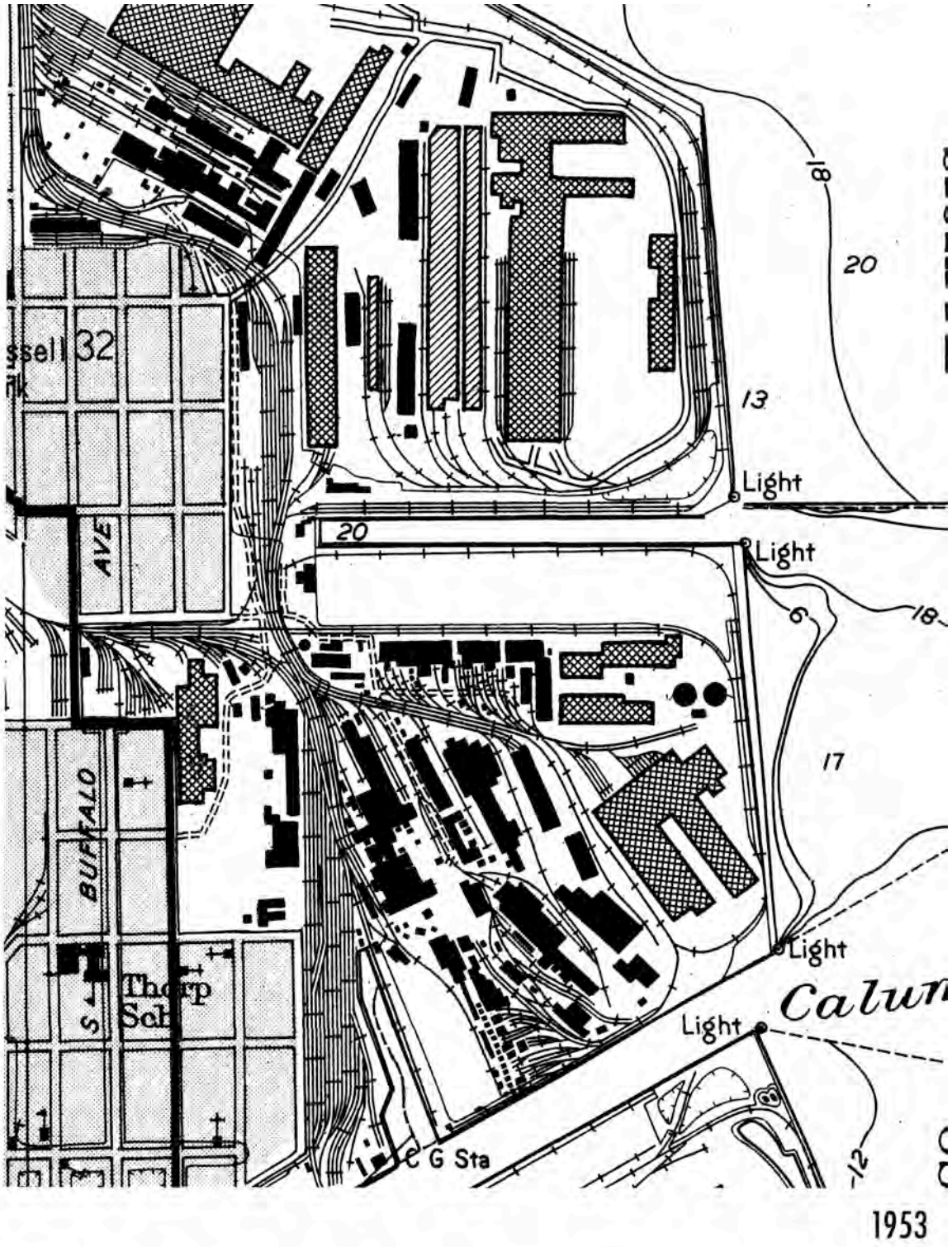
Map 5


Illinois Steel Co.
ST
R RGE LT F.G.
20 NORTH SLIP 20
FR RGE LT F6
FR
Illinois Steel Co.
PIERH LT (FD)
FR vis 13m
SOUTH SLIP
DREDGED TO 21 FT
1933

Map 6



Map 7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BUFFALO
Thorp
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20
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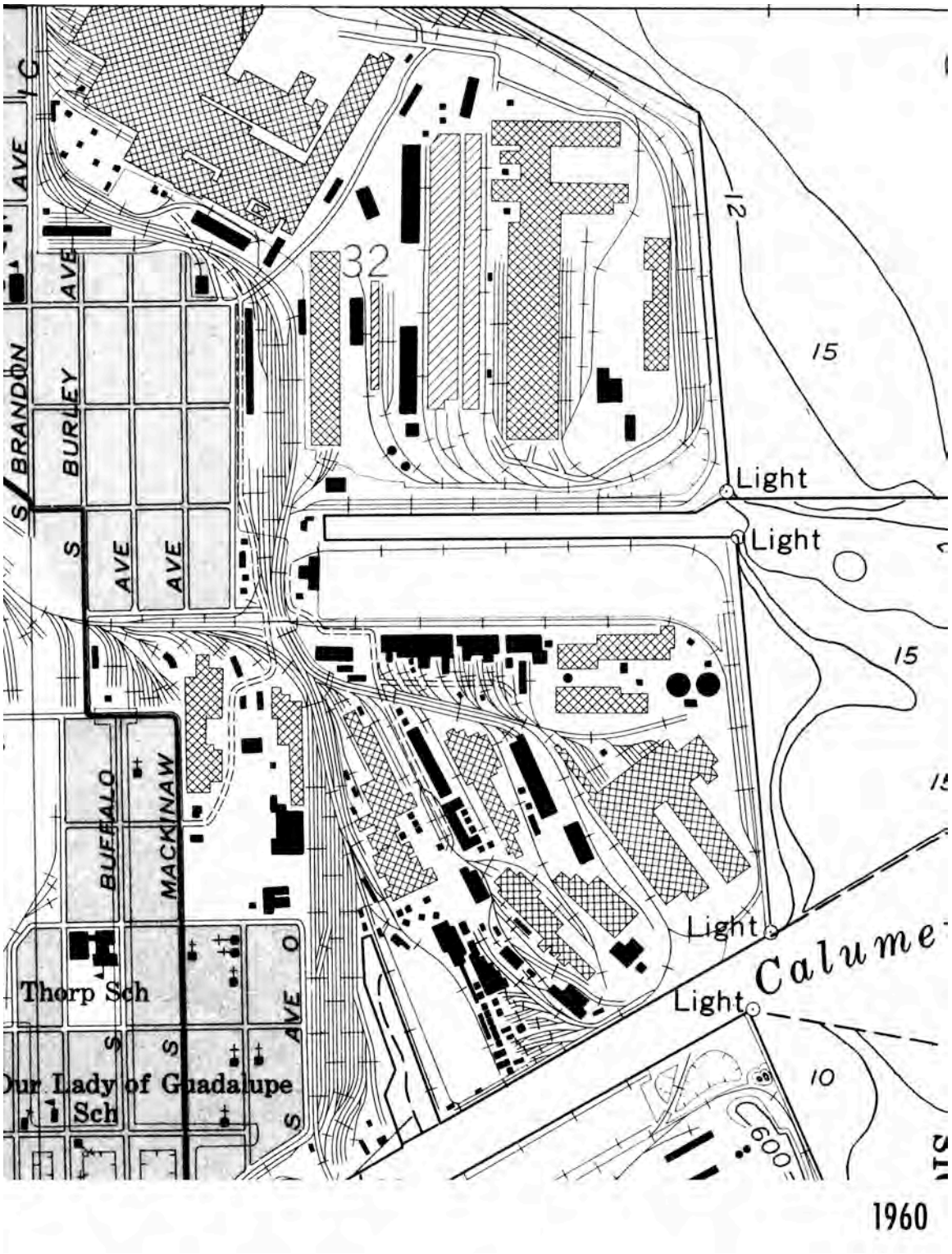
C G Sta
12
1953

Map 8


AVE
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Our Lady of Guadalupe Sch
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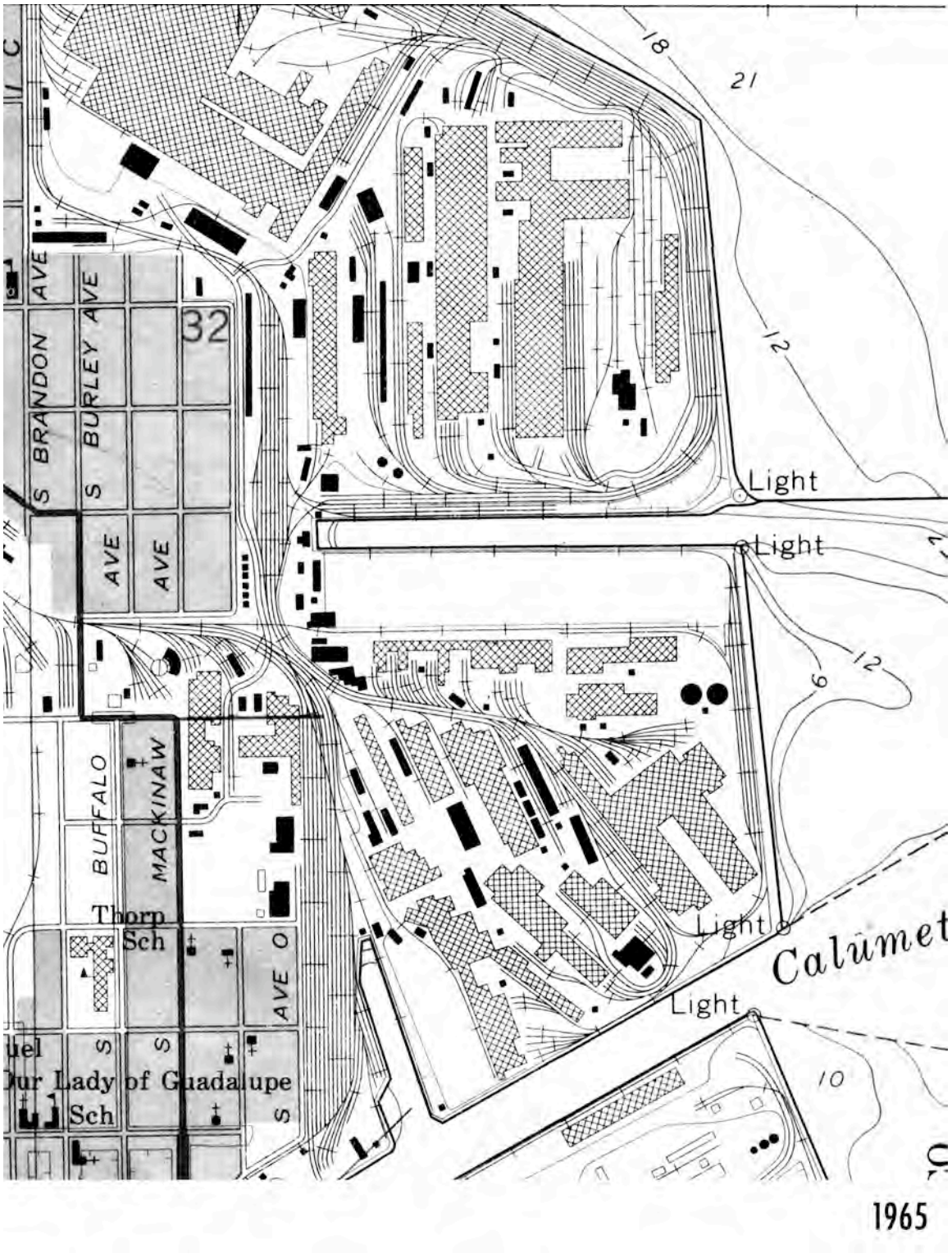
Calume
1960

Map 9


18
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S BRANDON AVE
S BURLEY AVE
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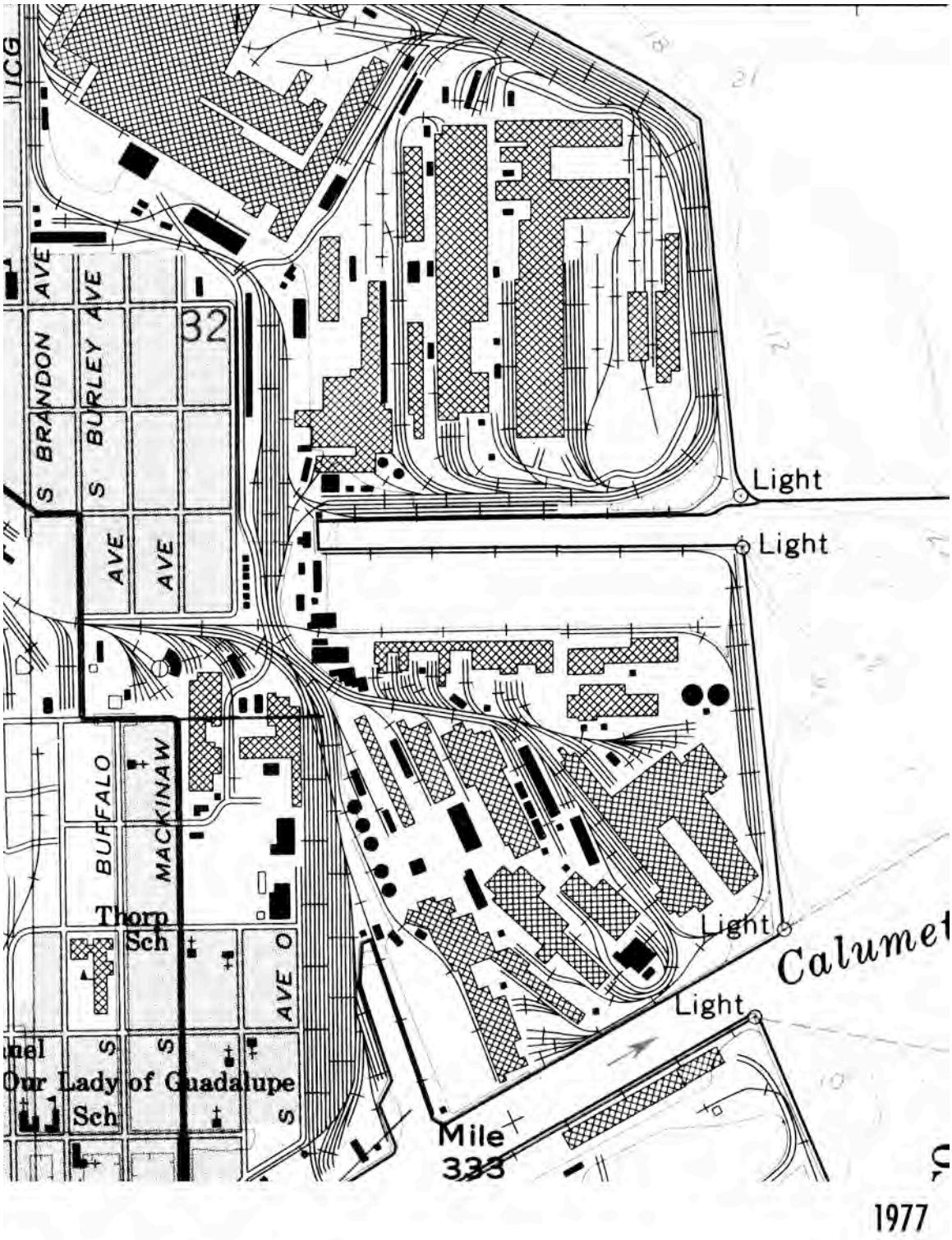
BUFFALO
MACKINAW
Thorp
Sch
AVE O
Our Lady of Guadalupe
Sch
1965

Map 10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S BURLEY AVE
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Our Lady of Guadalupe
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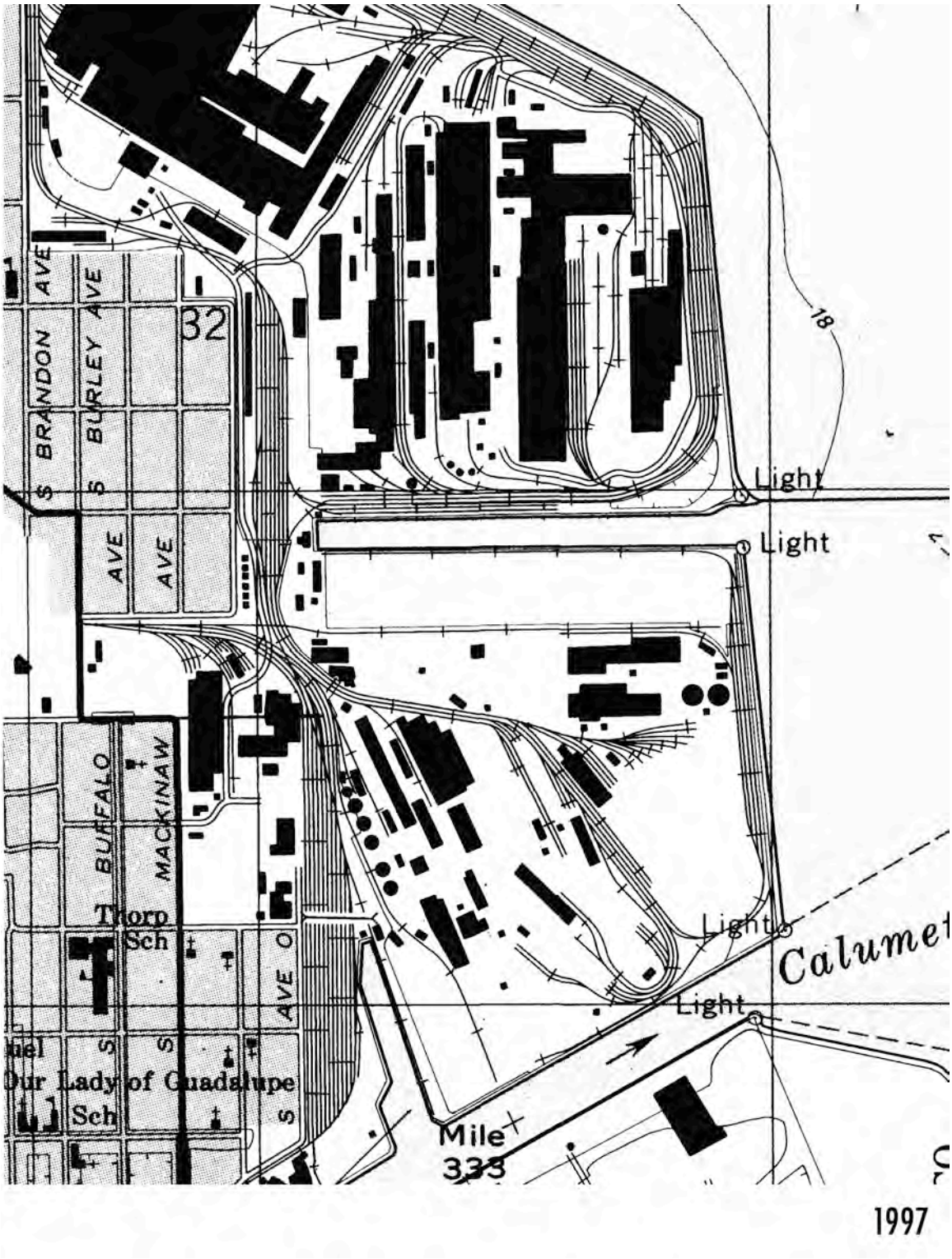
Light
Calumet
Mile
333
1977

Map 11


S BRANDON AVE
S BURLEY AVE
32
AVE
AVE
18
Light
Light
BUFFALO
MACKINAW
Thorp
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AVE O
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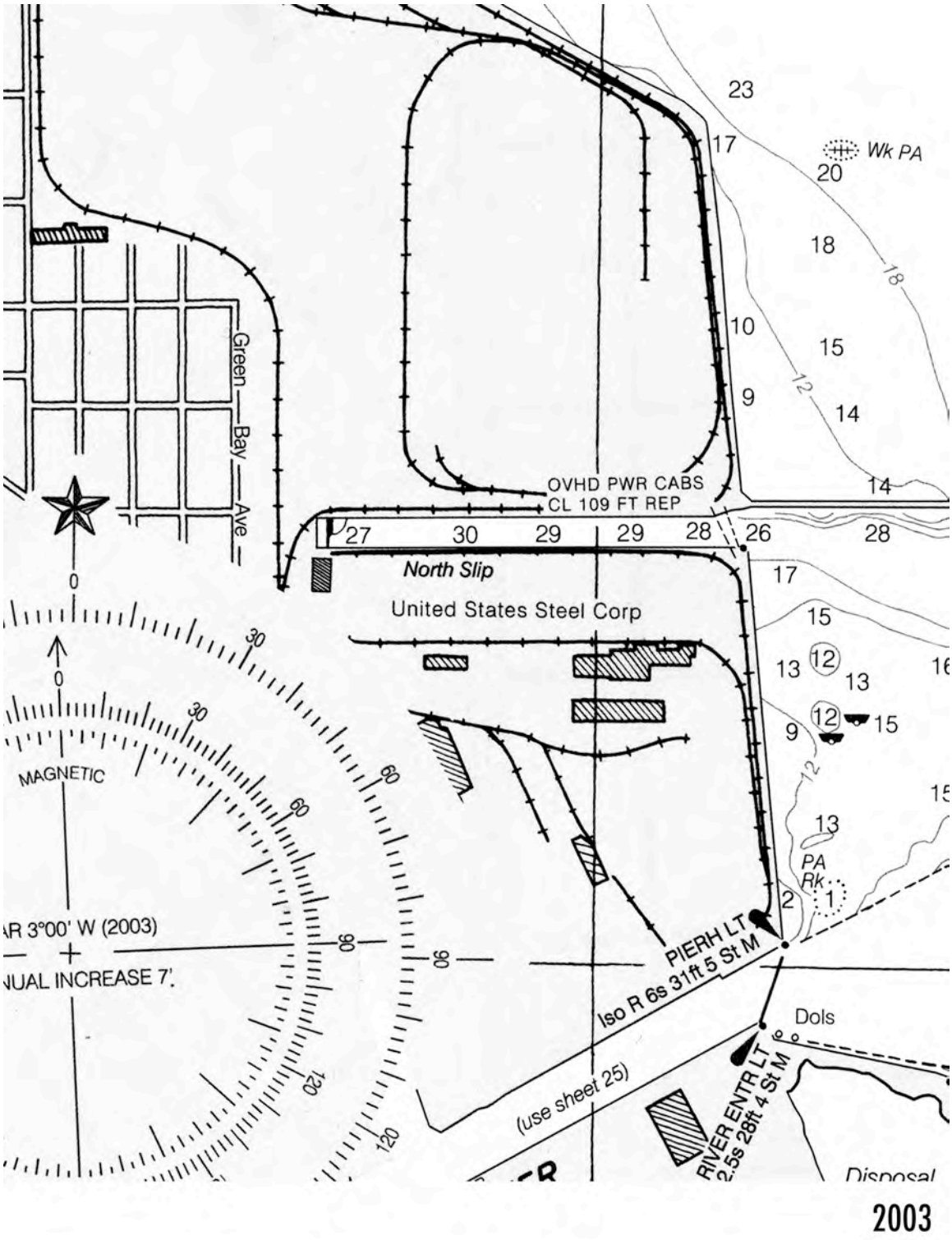
Calumet
Light
Our Lady of Guadalupe
Sch
Mile
333
1997

Map 12


Green Bay Ave
OVHD PWR CABS
CL 109 FT REP
North Slip
United States Steel Corp
Wk PA
PA
Rk
PIERH LT
Iso R 6s 31ft 5 St M
RIVER ENTR LT
2.5s 28ft 4 St M
Dols
(use sheet 25)
MAGNETIC
AR 3°00' W (2003)
NUAL INCREASE 7'.
2003

Map 13

Appendix 2: Photos 1-60

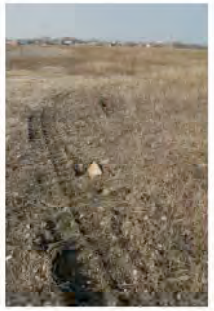
1. Land and sod

2. New landscaping and streets

3. Through walls to power plant

4. Winter plants with ore wall

5. Bulldozer tracks



6. Bulldozer tread

7. Streaked pavement and rocks

8. Cement to plants with church

9. Bird

10. North from sullivan

11. Security house

12. Into the jog

13. Old southern fence

14. Solo cup

15. Southern gate to park

16. West gate to park (leaving)

17. Keep out of the park

18. Street through and into grass

19. Odd plants

20. Manhole

21. Metal object

22. Metal discs

23. Small hole

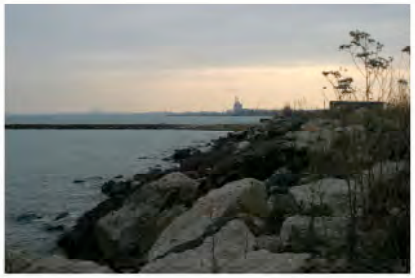
24. A solo cup!

25. White and red sign

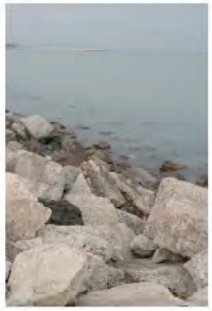
26. Nonhuman animal prints

27. Plant in slag

28. Plants in slag



29. Looking south on lakeshore



30. Looking north on lakeshore

31. Old entrance

32. Nearby residential area

33. Grove of trees

34. Winter plants

35. Green plants

36. Screen house

37. Interior of screen house

38. USS stairs on lakeshore

39. Trees, wall, slip and church

40. Seagull over ore wall

41. Small animal trail

42. Collapsed ore wall

43. Operational north ore yard

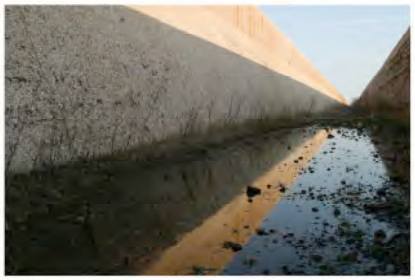
44. Operational north ore yard

45. Operational south ore yard

46. Tunnel in ore wall

47. East end of North ore yard

48. Mid-size mammal feces



49. Smallest ore bin

50. Inside ore wall

51. Detail of eroding wall barrier

52. Hole in ore wall

53. Into the main ore yard

54. Plant runners towards pond

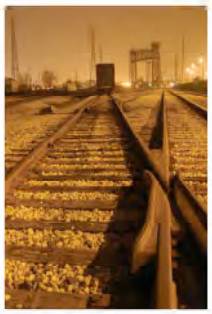
55. Large ore bin pond

56. Fox skull?

57. Ore soil

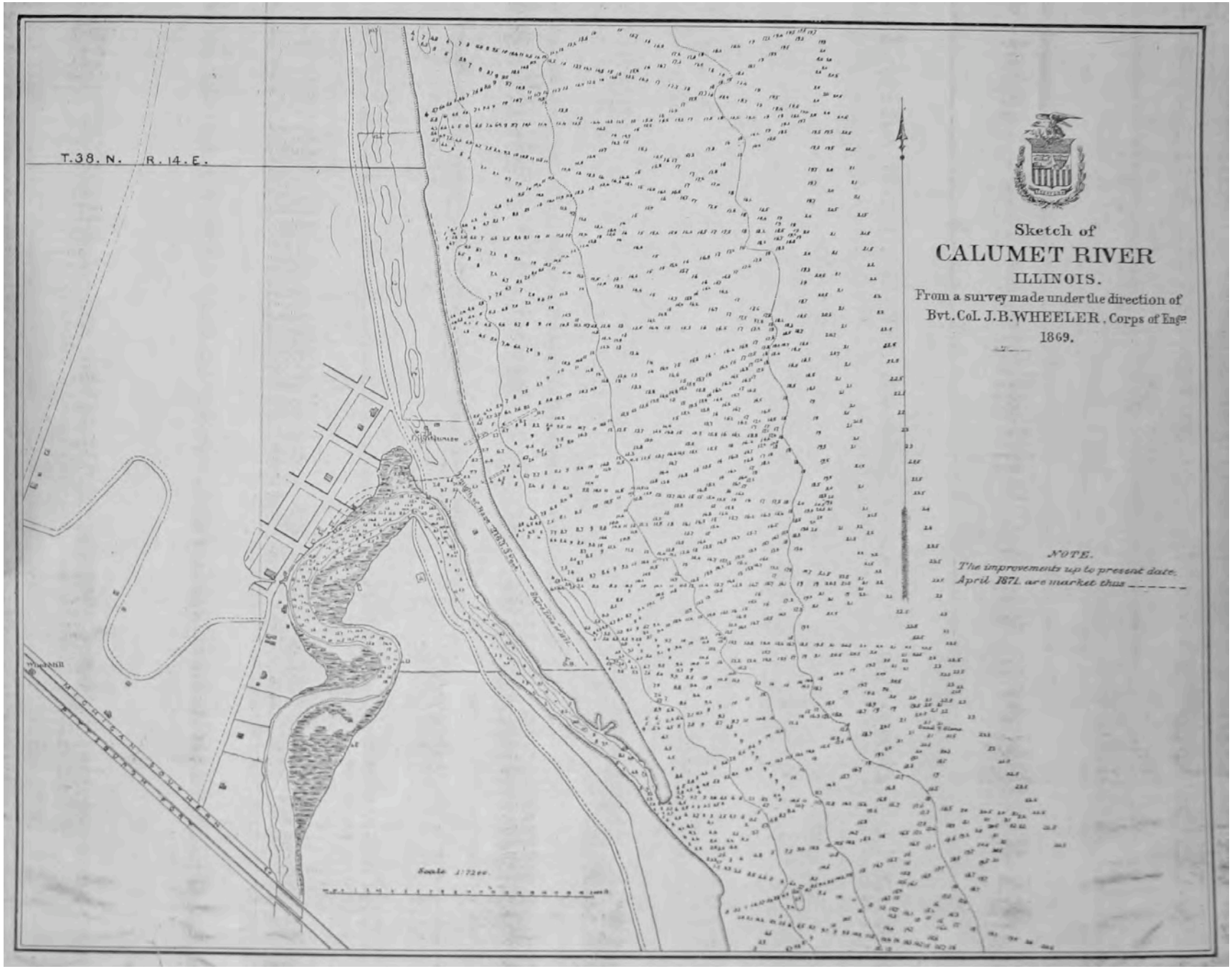
58. Ore soil with small trees

59. Through fence towards site



60. Towards river bridge

Appendix 3: Map 1


T.38. N. R. 14. E.
Sketch of
CALUMET RIVER
ILLINOIS.
From a survey made under the direction of
Bvt. Col. J.B. WHEELER, Corps of Engrs
1869.
NOTE.
The improvements up to present date,
April 1871, are marked thus

Appendix 4: FigX1, USS Maps 1-4

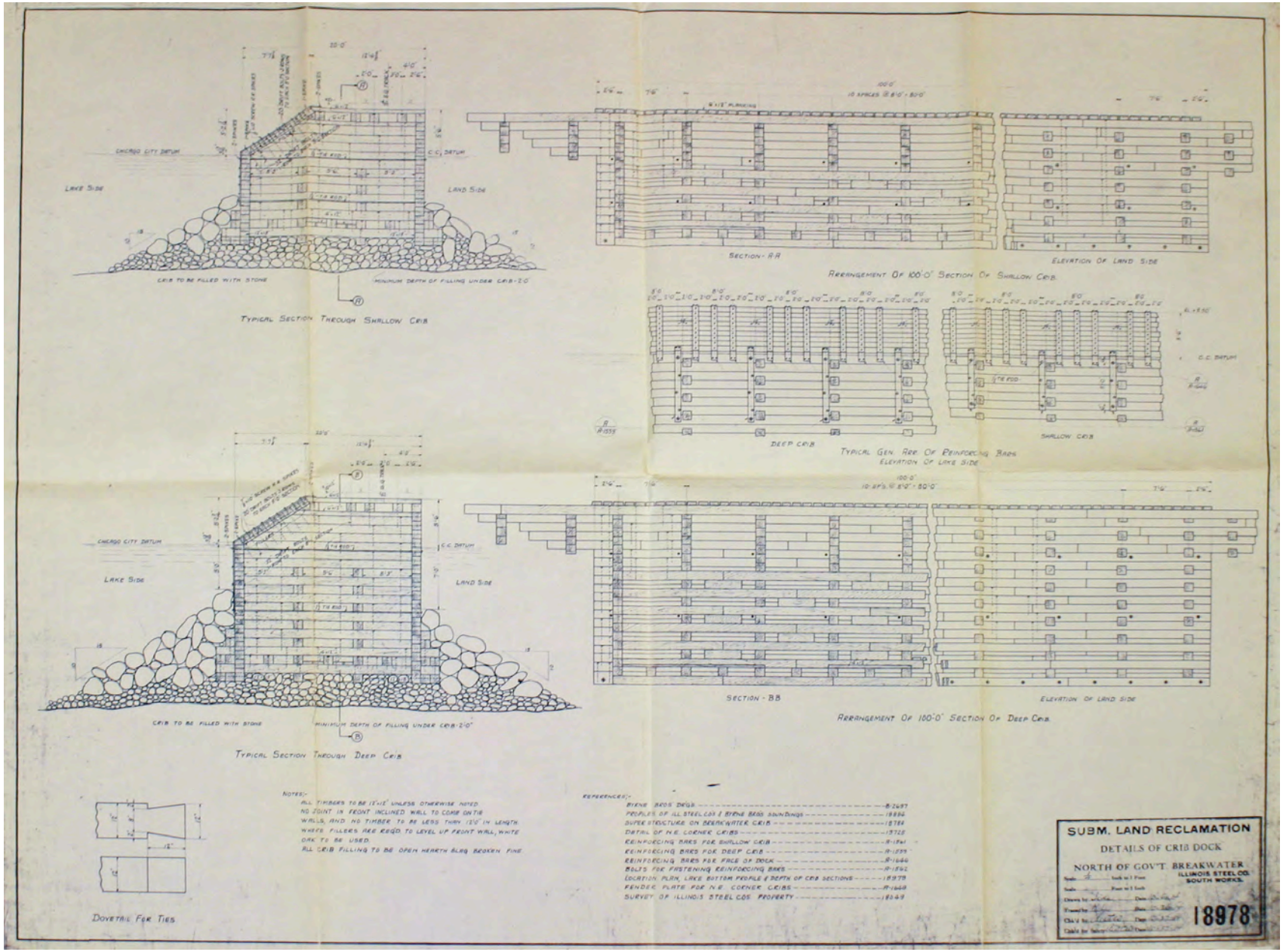
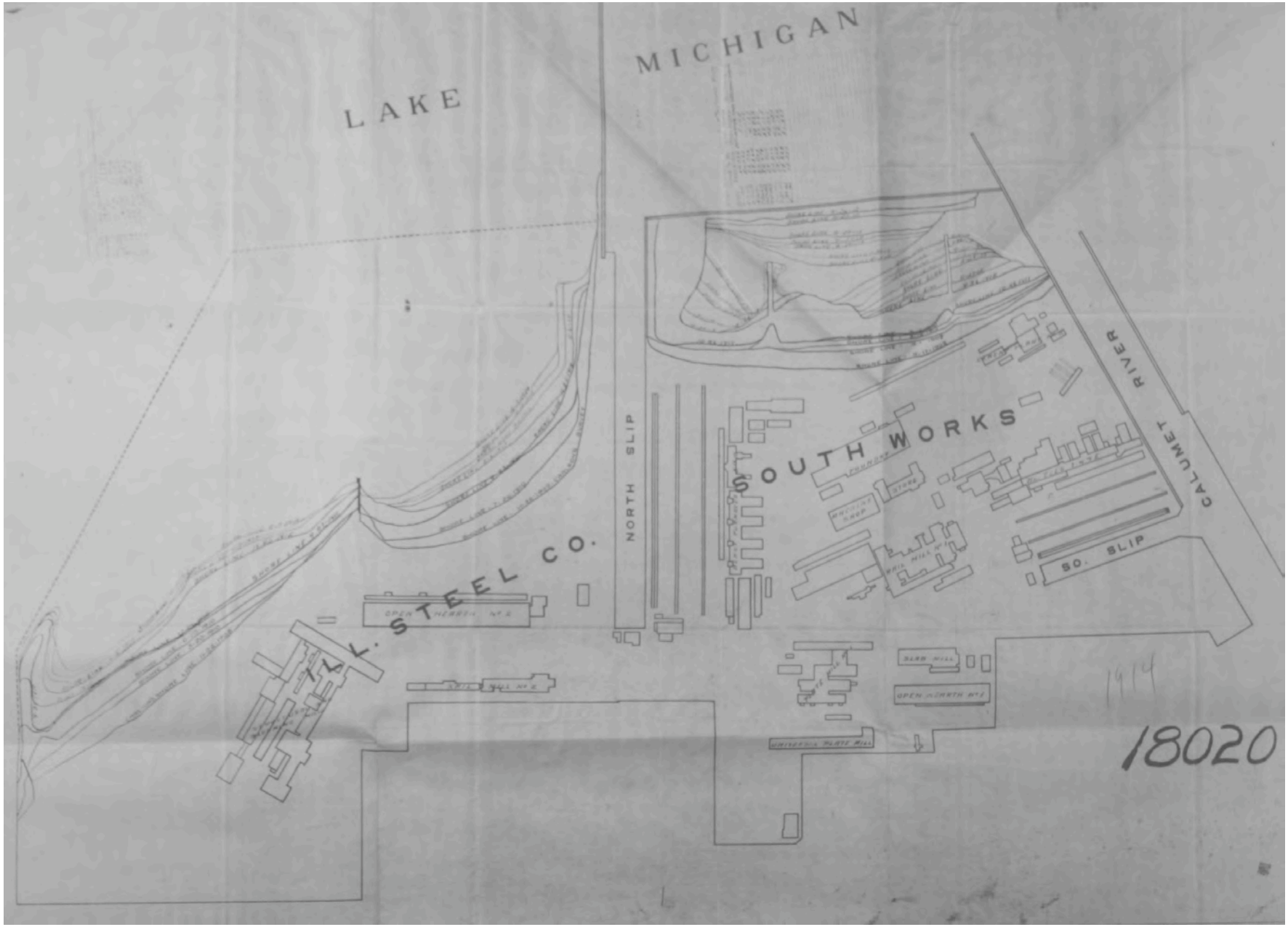
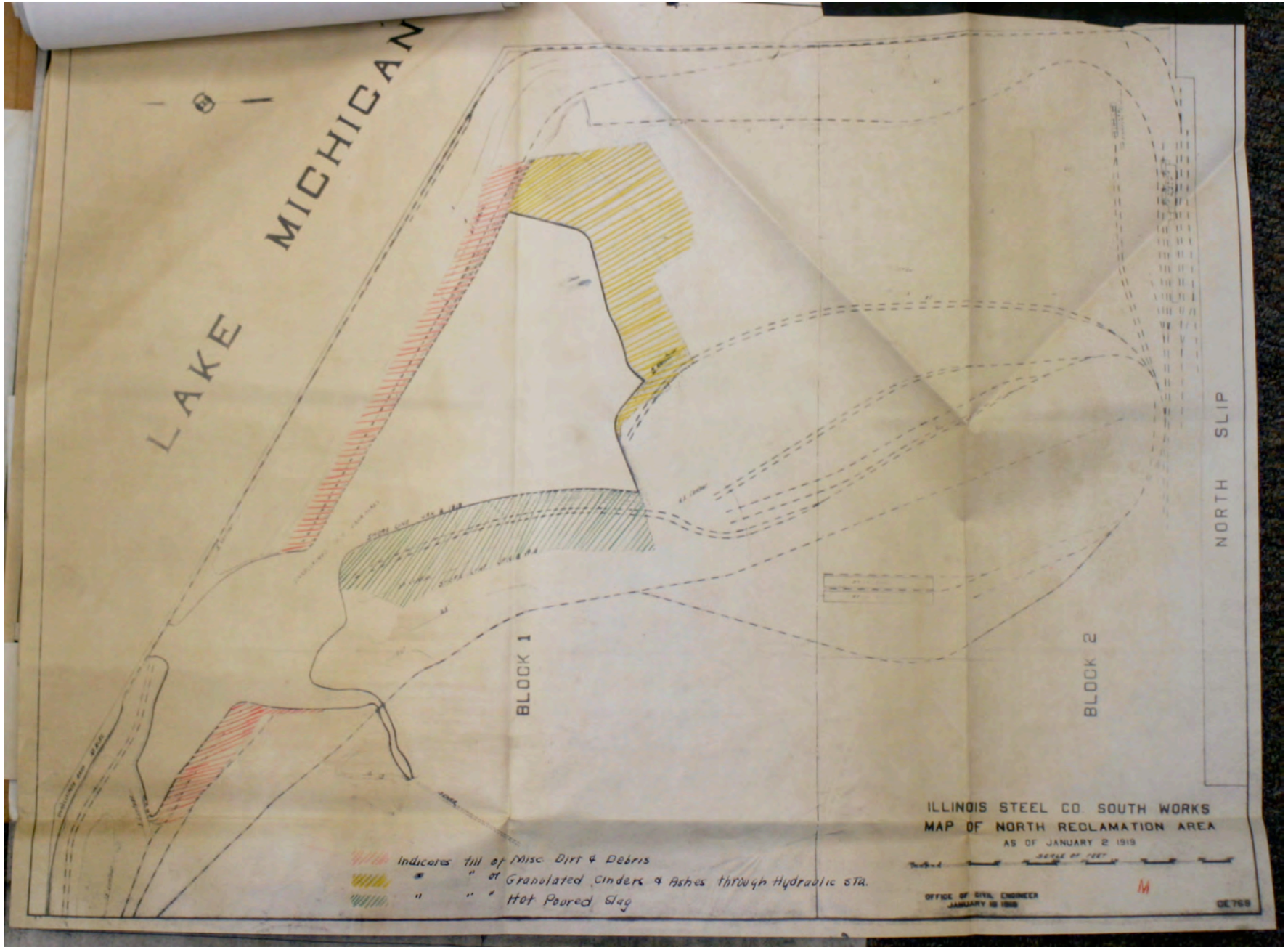

SUBM. LAND RECLAMATION
DETAILS OF CRIB DOCK
NORTH OF GOV'T. BREAKWATER
ILLINOIS STEEL CO.
SOUTH WORKS.
18978
TYPICAL SECTION THROUGH SHALLOW CRIB
TYPICAL SECTION THROUGH DEEP CRIB
SECTION - A-A
SECTION - B-B
ELEVATION OF LAND SIDE
ELEVATION OF LAKE SIDE
DEEP CRIB
SHALLOW CRIB
LAKE SIDE
LAND SIDE
CHICAGO CITY DATUM
C.C. DATUM
CRIB TO BE FILLED WITH STONE
MINIMUM DEPTH OF FILLING UNDER CRIB-2'0"
DOVETAIL FOR TIES
NOTES:-
ALL TIMBERS TO BE 12"x12" UNLESS OTHERWISE NOTED.
NO JOINT IN FRONT INCLINED WALL TO COME ON THE WALLS, AND NO TIMBER TO BE LESS THAN 12'0" IN LENGTH WHERE FILLERS ARE REQ'D TO LEVEL UP FRONT WALL, WHITE OAK TO BE USED.
ALL CRIB FILLING TO BE OPEN HEARTH SLAG BROKEN FINE.
REFERENCES:-
BYENE BROS DRGS. B-2697
PROFILES OF ILL. STEEL CO'S BYENE BROS SOUNDINGS 18896
SUPERSTRUCTURE ON BREAKWATER CRIB 18788
DETAIL OF N.E. CORNER CRIBS 18726
REINFORCING BARS FOR SHALLOW CRIB R-1541
REINFORCING BARS FOR DEEP CRIB R-1539
REINFORCING BARS FOR FACE OF DOCK R-1646
BOLTS FOR FASTENING REINFORCING BARS R-1562
LOCATION PLAN, LAKE BOTTOM PROFILE & DEPTH OF CRIB SECTIONS 18979
FENDER PLATE FOR N.E. CORNER CRIBS R-1648
SURVEY OF ILLINOIS STEEL COS PROPERTY 18349

Fig X1



USS Map 1, 1914



USS Map 2, 1919

USS Map 3, 1924

Appendix 5: Aerial 1-5

Aerial 1: 1938

Aerial 3: Unconfirmed date

Aerial 3: 1983

Aerial 4: 1990

Aerial 5: 1999

Appendix 6: XPhotos 1-12

XPhoto 1

XPhoto 2

XPhoto3

XPhoto 4

XPhoto 5

XPhoto 6

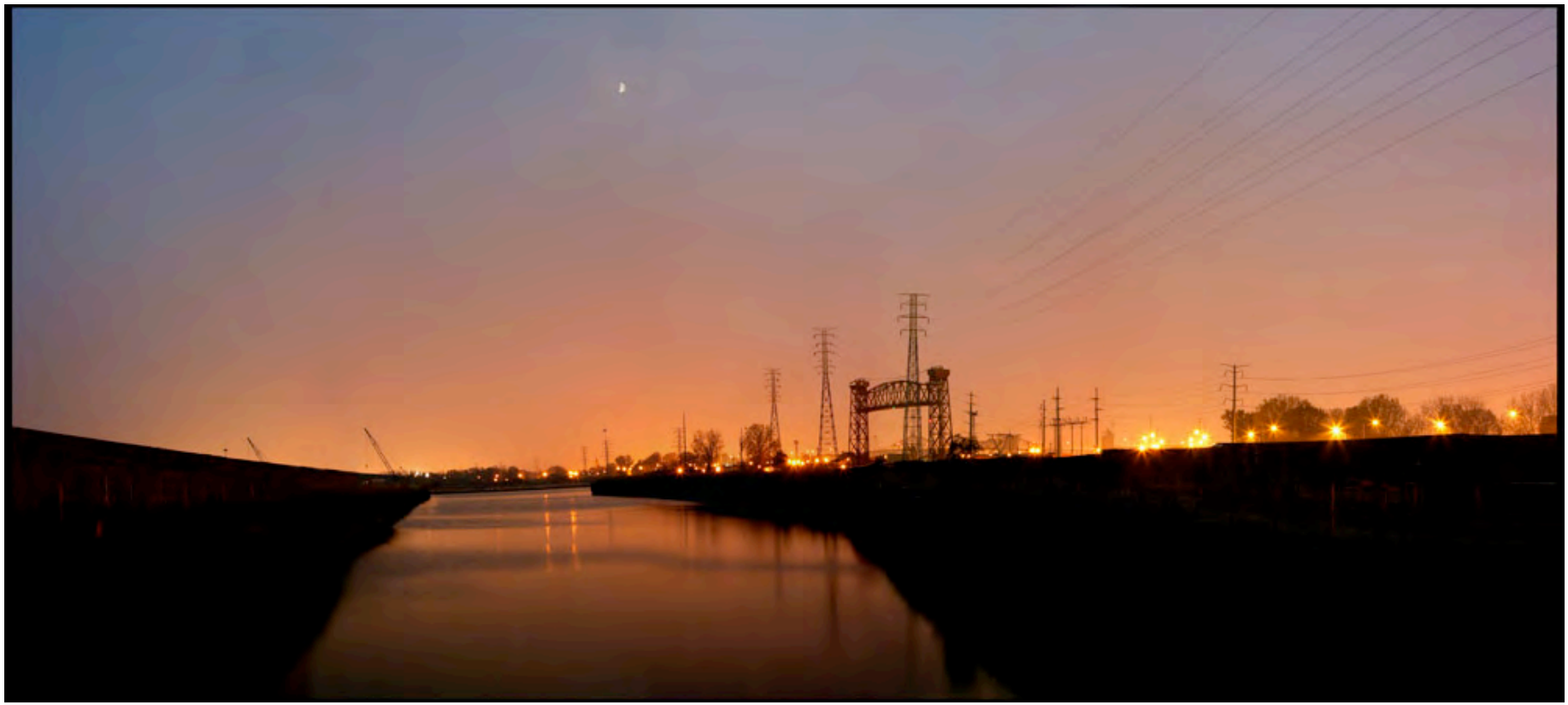
XPhoto 7

XPhoto 8

XPhoto 9

XPhoto 10

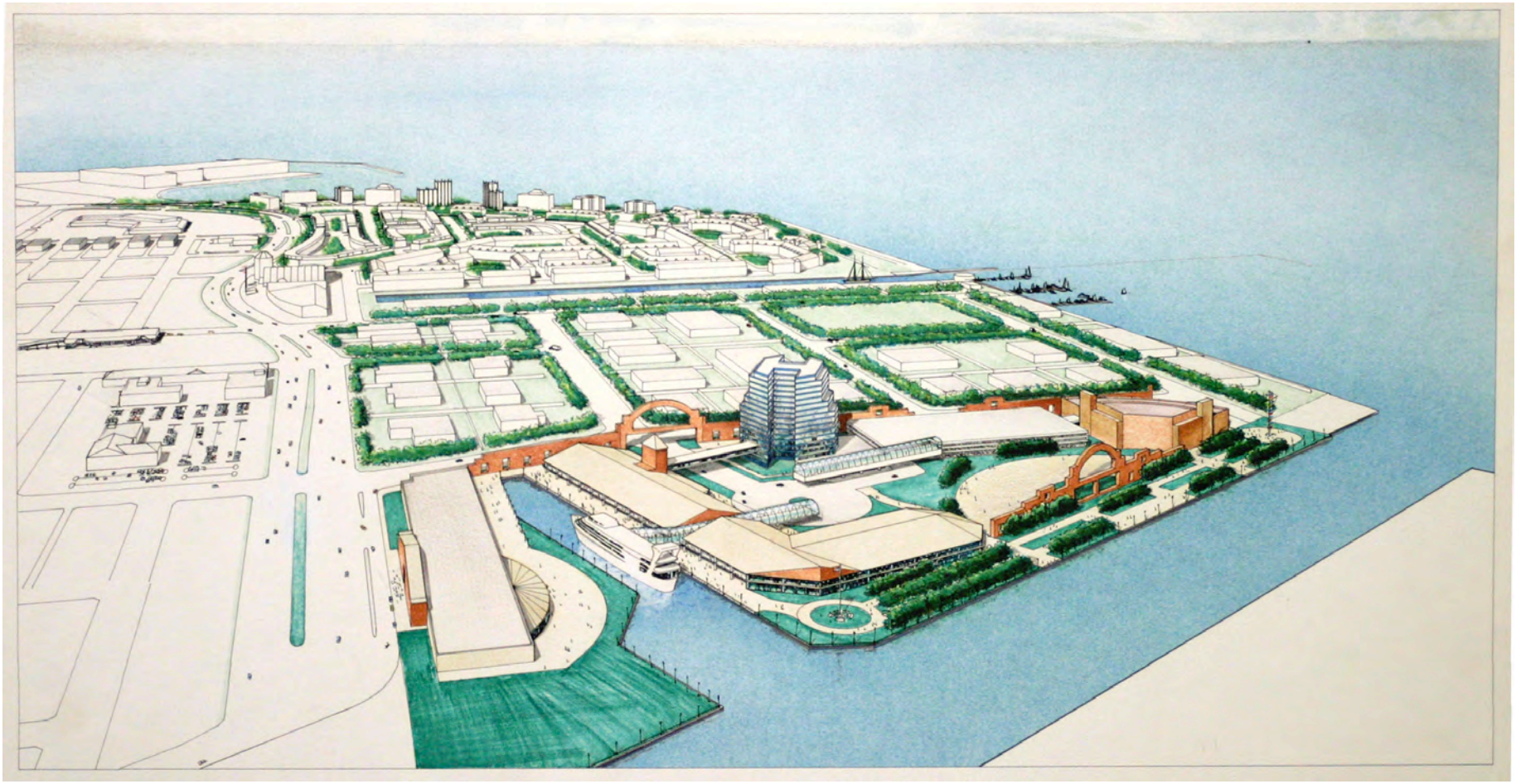
XPhoto 11



XPhoto 12

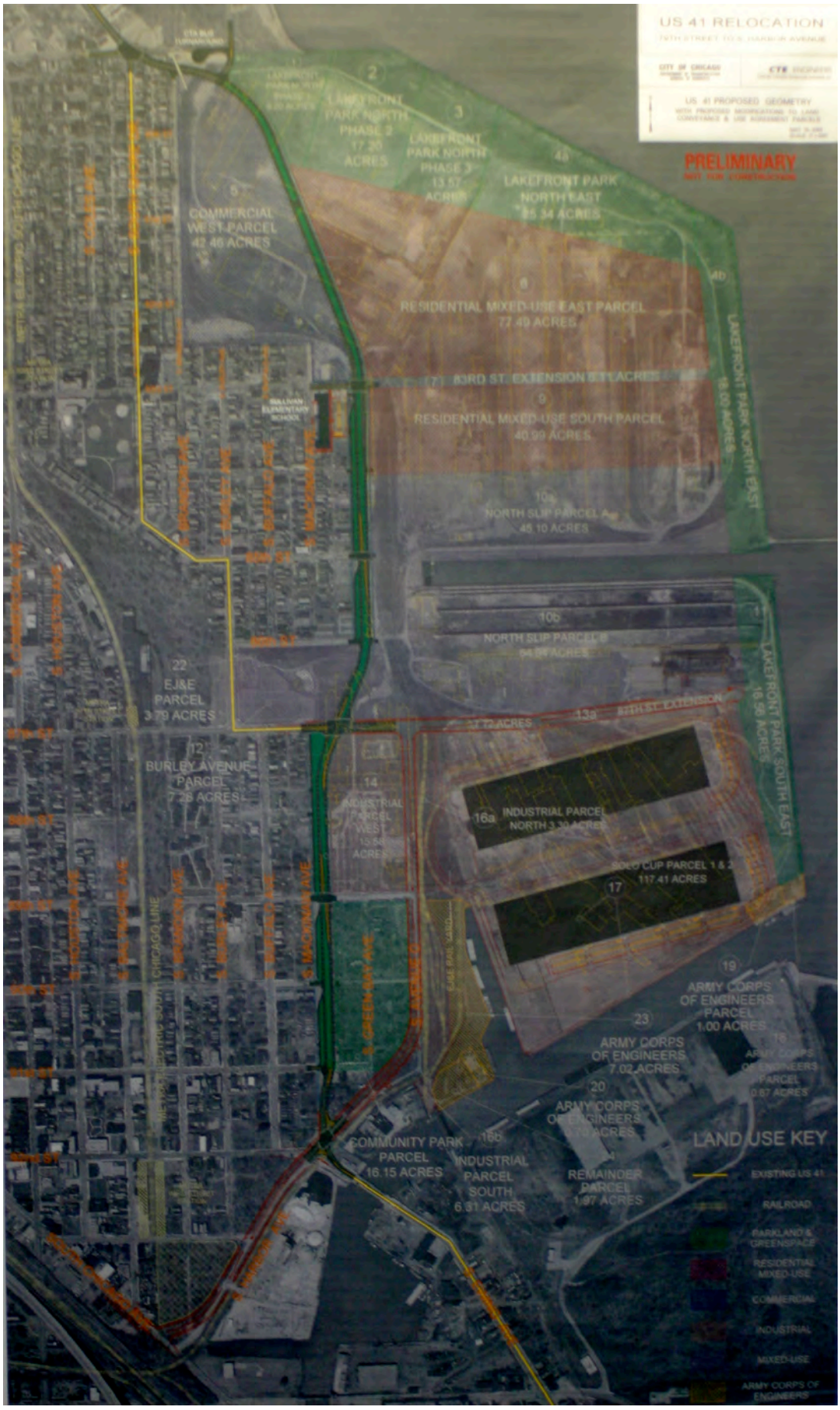
Appendix 7: USS Plans

USS Plan 1



USS Plan 2

Appendix 8: Development Plans


US 41 RELOCATION
PRELIMINARY
US 41 PROPOSED GEOMETRY
2
LAKEFRONT PARK NORTH PHASE 2 17.20 ACRES
3
LAKEFRONT PARK NORTH PHASE 3 13.57 ACRES
4a
LAKEFRONT PARK NORTH EAST 35.34 ACRES
5
COMMERCIAL WEST PARCEL 42.46 ACRES
6
RESIDENTIAL MIXED-USE EAST PARCEL 77.49 ACRES
7
83RD ST. EXTENSION 5.71 ACRES
8
RESIDENTIAL MIXED-USE SOUTH PARCEL 40.99 ACRES
4b
LAKEFRONT PARK NORTH EAST 16.00 ACRES
10a
NORTH SLIP PARCEL A 45.10 ACRES
10b
NORTH SLIP PARCEL B 94.09 ACRES
LAKEFRONT PARK SOUTH EAST 16.58 ACRES
22
EJ&E PARCEL 3.79 ACRES
13a
83RD ST. EXTENSION
12
BURLEY AVENUE PARCEL 7.28 ACRES
14
INDUSTRIAL PARCEL WEST 15.88 ACRES
16a
INDUSTRIAL PARCEL NORTH 3.30 ACRES
SOLO CUP PARCEL 1 & 2 117.41 ACRES
17
19
ARMY CORPS OF ENGINEERS PARCEL 1.00 ACRES
23
ARMY CORPS OF ENGINEERS 7.02 ACRES
18
ARMY CORPS OF ENGINEERS PARCEL 0.87 ACRES
20
ARMY CORPS OF ENGINEERS 1.97 ACRES
COMMUNITY PARK PARCEL 16.15 ACRES
16b
INDUSTRIAL PARCEL SOUTH 6.31 ACRES
REMAINDER PARCEL 1.97 ACRES
LAND USE KEY
EXISTING US 41
RAILROAD
PARKLAND & GREENSPACE
RESIDENTIAL MIXED-USE
COMMERCIAL
INDUSTRIAL
MIXED-USE
ARMY CORPS OF ENGINEERS
S. COMMERCIAL AVE
S. INDUSTRIAL AVE
S. BALTIMORE AVE
S. MARION AVE
S. MAPLE AVE
S. MAGNOLIA AVE
S. MOUNT AVE
S. GREEN BAY AVE
S. ARGYLE ST
CHICAGO LINE
83rd ST
87th ST
91st ST
95th ST
99th ST

Appendix 9: USS Timeline

SOUTH WORKS MAJOR MOMENTS

1857 - North Chicago Rolling Mill Company established.

1880 - North Chicago Rolling Mill Company begins construction of South Works.

1881 - Two blast furnaces begin production.

1882 - Two more blast furnaces begin operating along with a Bessemer furnace and a rail mill.

1895 - First commercially successful open hearth steel produced and 90"-132" plate mill completed.

1898 - Judge Gary forms Federal Steel Company with help of J.P. Morgan.

1901 - U.S. Steel Corporation organized with the merger of Federal Steel, Carnegie Steel and six other companies.

1905 - New blooming mill and structural mills completed.

1909 - First electric furnace built.

1911 - Gary Works built and Andrew Carnegie inaugurates the first steel industry old age pension plan.

1917 - Duplex shop built along with #1 electric furnace plant and 90" plate mill.

1927 - Alloy bar mill built. Construction begins on #2 open hearth shop.

1929 - First stainless steel produced.

1930 - 54"-52" beam mill built.

1931 - 44" slab mill and 96" plate mill built.

1937 - U.S. Steel recognizes Steelworkers Union. Sixteen people killed during Memorial Day riot at Republic Steel.

1944 - Employment peaks at 20,000, during World War II.

1953 - Steel industry employment peaks at 650,000.

1959 - 116 day strike.

1968 - Loss of A.O. Smith pipe orders.

1969 - Last open hearth furnaces shut down.

1974 - Rod mill begins operation.

1979 - U.S. Steel announces shutdown of all or part of 16 facilities, including most operations in Waukegan and Joliet.

1981 - U.S. Steel announces plans to build a rail mill and caster at South Works. They were later cancelled in 1983.

1982 - All South Works producing facilities shut down, except the #4 electric furnace and the beam mill. Employment drops to 700.

1992 - Last ingot rolled on February 11th. Plant shuts down on April 10th.

APPENDIX A - FACILITY RECAP

Blast Furnace	Initial Opern.	Terminated
1	1881	1969
2	1881	1975
3	1882	1960
4	1882	1974
E	1906	1975
5	1891	1965
6	1891	1973
7	1891	1944
8	1891	1969
8(New)	1970	1981
9	1901	1948
10	1901	1981
11	1948	1982
12	1948	1982
Sinter		
Rotary Kiln	1902	1930
Down drft	1931	1962
Down drft	1959	1982
Pig Machine		
Orig.	1900	1941
Replacemt.	1941	1969
Foundry		
At Bess.	1882	1899
Present	1899	1979

	Initial Opern.	Terminated
Bessemer		
Original	1882	1917
Replacement	1917	1957
Open Hearth		
No. 1	1895	1930
No. 2	1905	1965
No. 3	1917	1960
No. 4	1931	1969
At Fdry.	1911	1919
Electric		
At Fdry.	1909	1920
No. 1 Arc	1917	1949
No. 1 Induction	1931	1948
No. 2 Arc	1941	1971
No. 4 Arc	1971	1992
Basic Oxygen		
B.O.P.	1969	1982
Cont. Cast.	1971	1981
Cement Plant	1901	1914
Forge Press	1917	1948

	Initial Opern.	Terminated
40" Bloom(Orig.)	1882	1926
Heavy Rail & 28" Billet	1882	1953
#1 - 90" - 132" Plate	1895	1931
40" Slab	1899	1931
#1 - 40" Bloom	1905	1960
28-32" Strl.	1905	1960
35" Bloom	1907	1956
Light Rail	1907	1942
30" Univ. Plt.	1907	1982
22" Strl.	1911	1956
#2 - 90" Plate	1918	1930
#2 - 40" Bloom	1927	1965
12"-16" Bar	1927	1975
54" Bloom	1930	1992
52" Strl.	1930	1992
10" Bar	1931	1937
44" Slab	1931	1982
96" Plate	1931	1982
53" Bloom	1958	1981
34" Strl.	1959	1981
Rod	1974	1981