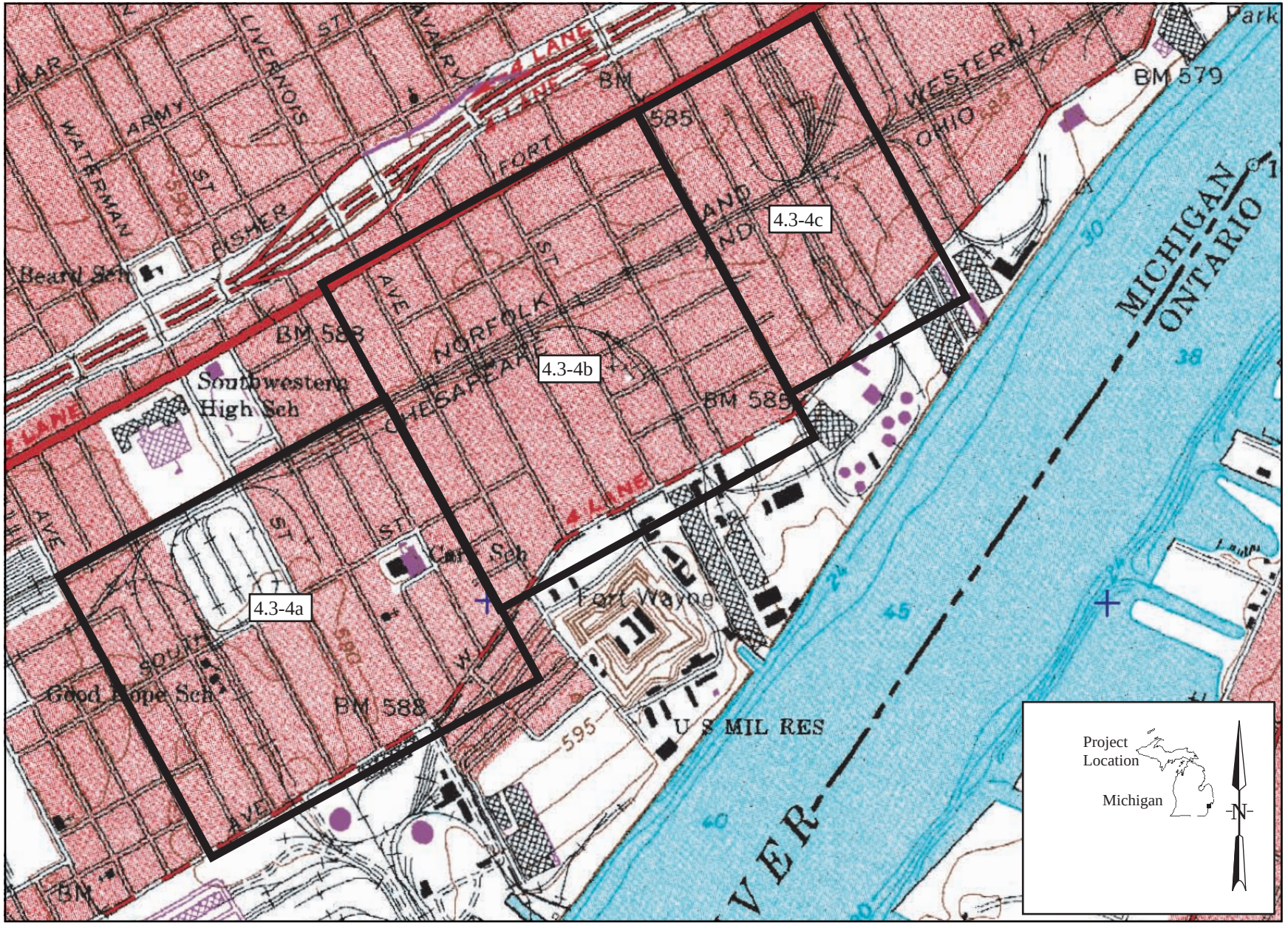


Source: Delorme 2004

Figure 1.4.3-4. DRIC Subdivision Index

Figure 1.4.3-4a. DRIC West Subdivisions

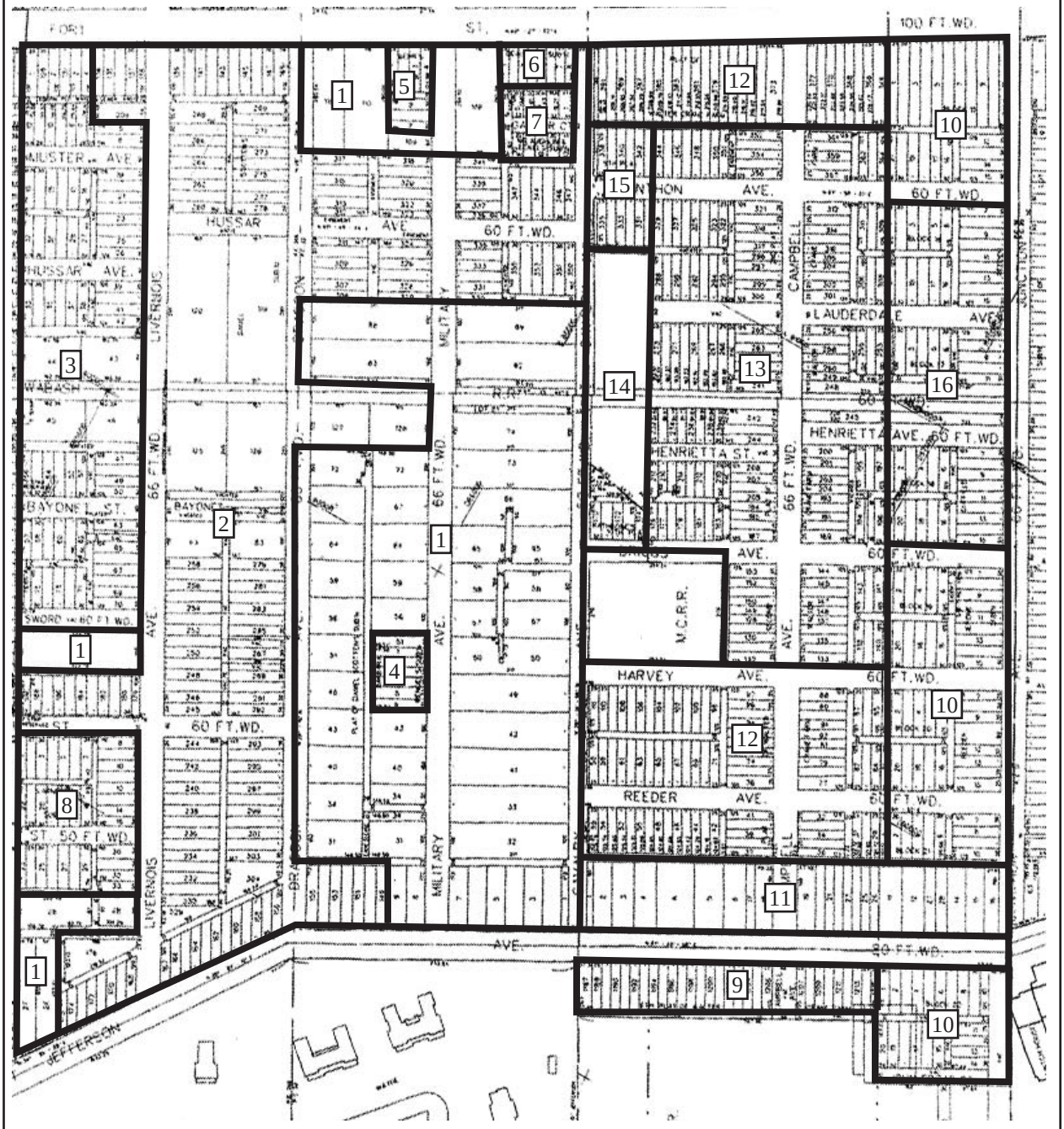


Figure 1.4.3-4b. DRIC Central Subdivisions

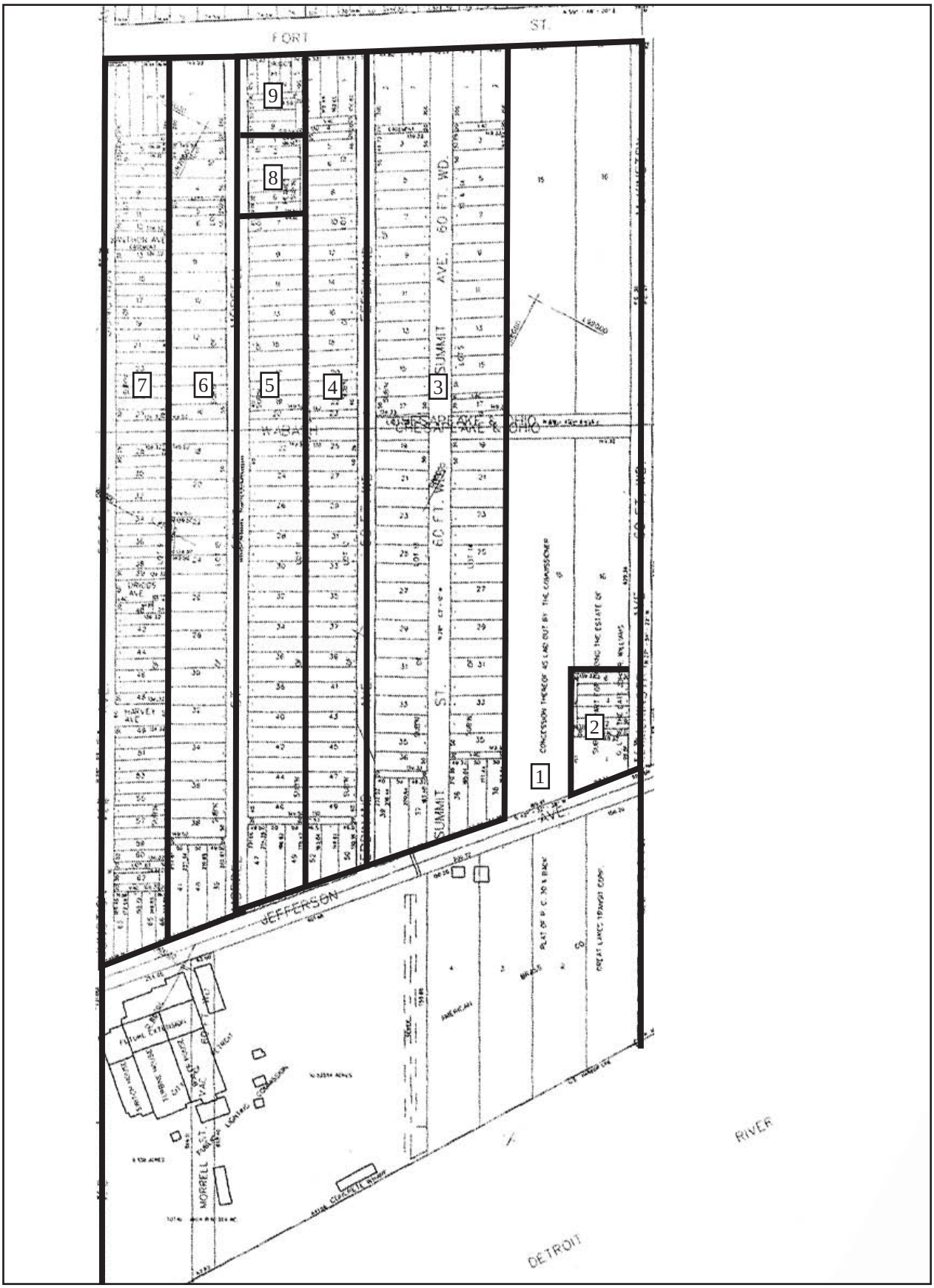
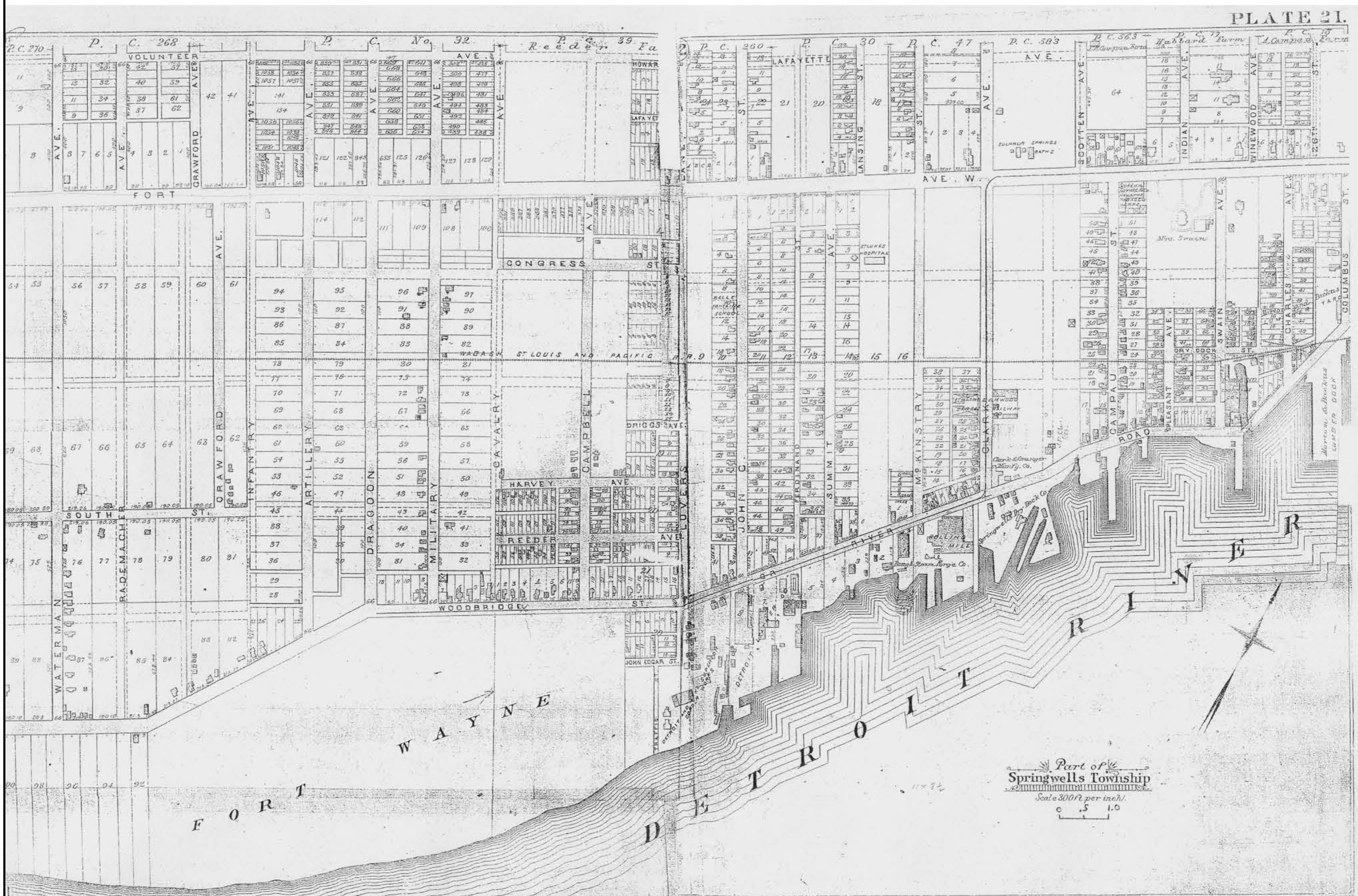


Figure 1.4.3-4c. DRIC East Subdivisions

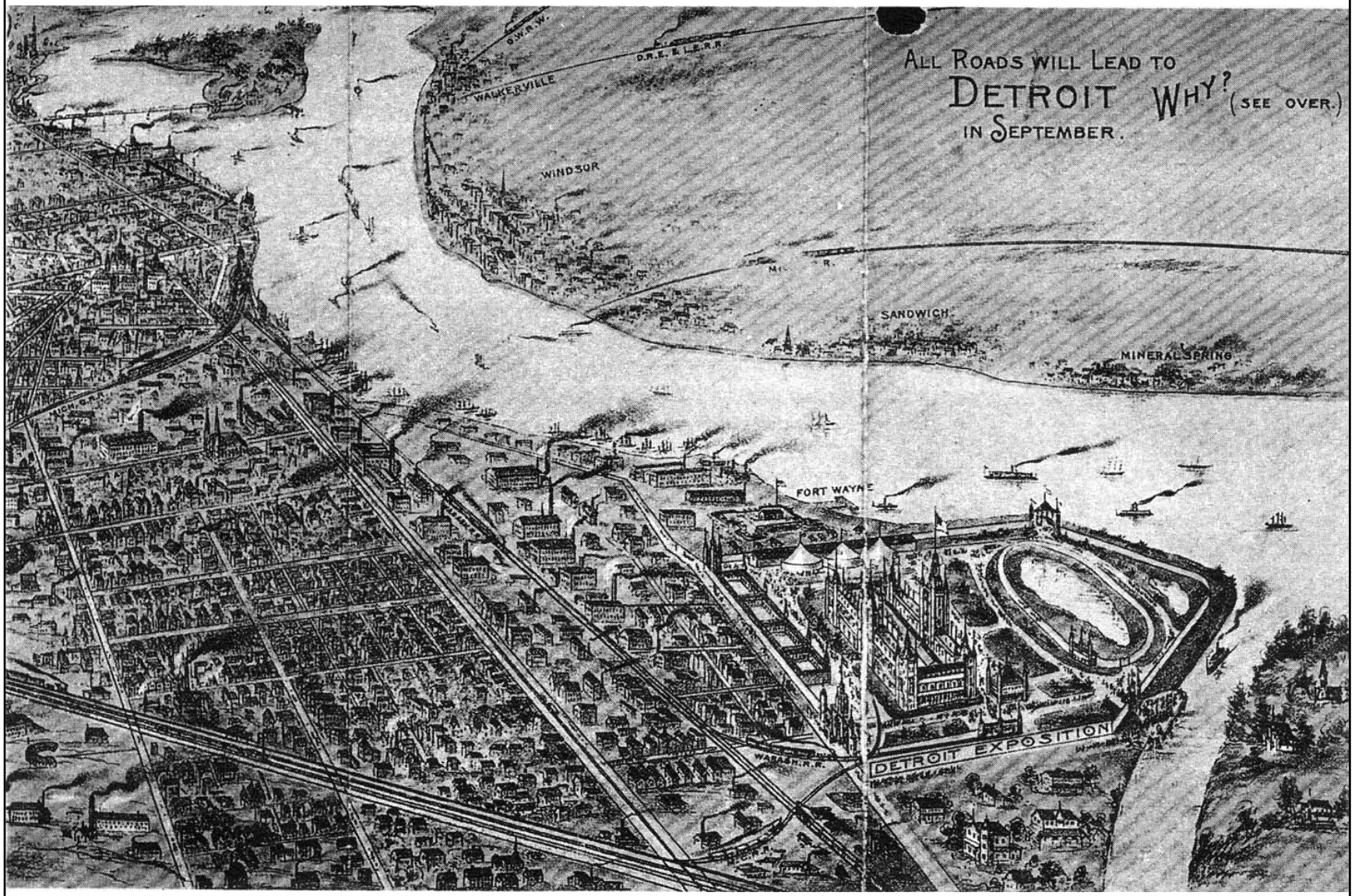


Source: Robonson and Pigeon 1885

Figure 1.4.3-5. DRIC Project Vicinity, 1885

Table 1.4.3-1 DRIC Subdivisions

Map No.	Subdivision No.	Subdivision Name	Date Recorded
4.3-4a	1	Larned, Ducharme, and Schmit Sub	1888
4.3-4a	2	Beard and Kieler Sub	1893
4.3-4a	3	Crawford's Fort Tract Sub	1868
4.3-4a	4	Schroeder's Sub of Lots 73 and 90	1887
4.3-4a	5	Schroeder's Sub of Lots 74 and 89	1885
4.3-4a	6	Driggs and Adams Sub of Lots 75 and 88	1885
4.3-4a	7	Marsten's Sub of Lots 76 an d87	1871
4.3-4a	8	Peter's Sub of Lot 77	1894
4.3-4a	9	Ratigan's Sub of Lots 85 and 86	1898
4.3-4a	10	Russell's Sub Lot 78	1890
4.3-4a	11	Gorman's Sub of Pt. of Hennesey Sub	1894
4.3-4a	12	Gorman's Addition	1906
4.3-4a	13	Hennesey Sub	N.D.
4.3-4a	14	S. Crawford sub of Lots 64, 65, Pt. 66	1888
4.3-4a	15	Pohl's Sub of Lots 62, 63	1875
4.3-4a	16	Rohnert's Sub	1922
4.3-4b	1	D. Scotten's Sub of P.C. 32 and E.PT. P.C. 268	1869
4.3-4b	2	D. Scotten's Resub. Of P.C. 32 and E.PT. P.C. 268	1885
4.3-4b	3	D. Scotten's Sub. of Pt. of P.C. 268	1897
4.3-4b	4	Wendel's Sub	1913
4.3.4b	5	Behr's Sub	1907
4.3-4b	6	Beaudry's Sub of Lots 106 and 107	1891
4.3-4b	7	McLaughlin and Eckels Sub	1910
4.3-4b	8	Larned sub	1892
4.3-4b	9	Sixth Plat of Crane Farm	1880
4.3-4b	10	Reeder, Jerome and Duffield Sub	1881
4.3-4b	11	Plat of Sub of Pt. of P.C. 39	1866
4.3-4b	12	Plat of Crane Farm	1879
4.3-4b	13	Second Plat of Crane Farm	1892
4.3-4b	14	Rathbone's 10^{th} Plat	1901
4.3-4b	15	Ninth Plat of Crane Farm	1901
4.3-4b	16	Jerome, Duffield and Reeder Sub	1887
4.3-4c	1	J.R. Williams Est. Sub of P.C. 30	1857
4.3-4c	2	M.N., J.R., and M.J. Williams Sub of Pt. of Outlot 16	1886
4.3-4c	3	J.C. Williams Sub of Outlots 13 and 14	1871
4.3-4c	4	F. Williams Sub of Outlot 12	1873
4.3-4c	5	T. Williams Sub of Outlot 11	1872
4.3-4c	6	E. and T. Williams Sub of Outlot 10	1870
4.3-4c	7	M.W. McKinstry Sub of Outlot 9	1886
4.3-4c	8	Heames Sub of Pt. of Outlot 11	1888
4.3-4c	9	Driggs Sub of Pt. of Outlot 11	1881



Source: Detroit River 1997

Figure 1.4.3-6. Delray Fairgrounds, 1889

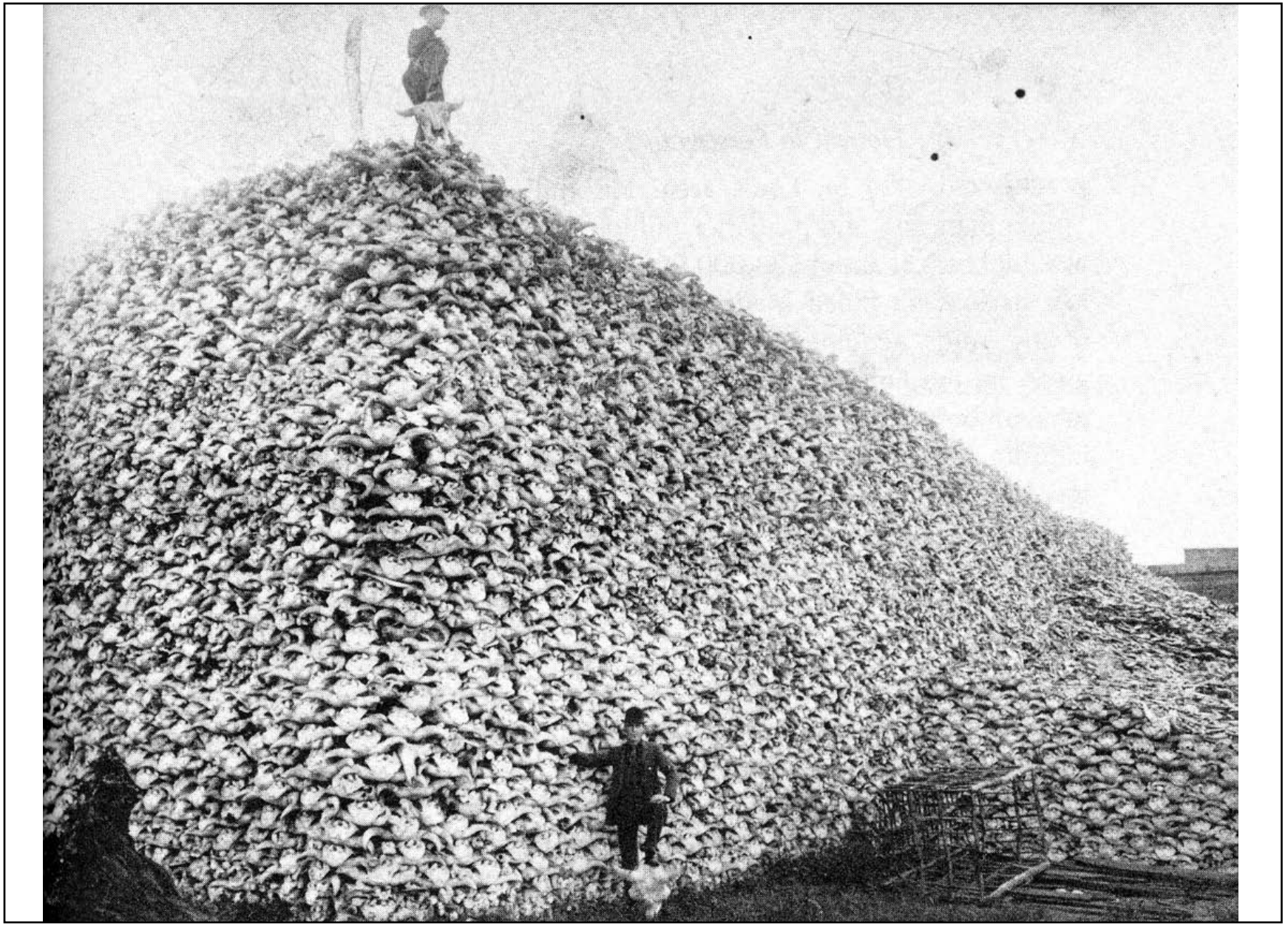
The opening of these Delray-based fairs had followed closely on the heels of the 1881 construction of the Detroit, Butler & St. Louis Railroad (Leake 1912:1031). Later known as the Wabash, St. Louis & Pacific, or simply as the Wabash Railroad, the first through-train of this line from St. Louis reached Detroit on August 14, 1881 (Farmer 1890:907). The near riverfront placement of the Wabash Railroad, coupled with the availability of open farmlands, proved a significant attraction for industrial growth. The Michigan Carbon Works, the business of which depended heavily on bone supplies from the West, took up a location adjacent to the trackage in 1881. By 1895 the facility, located on a 100-acre portion of the Harbaugh Farm (P.C. 340), consisted of a 50-building complex providing work to a force of some 750 employees (Barnett 1975:92). Literally mountains of buffalo bone were rendered into fertilizers, glue, neat's-foot oil, and related bone-char products at this location on the bank of the Rouge River (Figure 1.4.3-7).

In addition to the carbon works, other businesses established in the Delray area during this period were the Delta Lumber Company, Anchor Manufacturing (stoves), Detroit Sulphite Fibre, and the Fisher Brothers Glue Works (Polk 1891:439). In 1895, after the closing of the fairgrounds, the riverfront portion of the Field Farm was sold off to the Solvay Process Company. The property had actually been purchased in 1881 by James McMillan who subdivided the land between West Jefferson and the Wabash Railroad into town lots and a railway spur constructed towards the river adjacent to Springwells Avenue.

In 1885, the westerly limits of Detroit were extended to Pontchartrain/Artillery (Livernois) Avenues (Figure 1.4.3-8). This move placed the industrial hub areas that had grown up around the related Baugh Steam Forge Company and the Detroit Car Wheel and Michigan Car companies directly within the city. All three businesses were under the control of James McMillan, who was elected United States Senator in 1889. After their reorganization as part of the Michigan Peninsular Car Company in 1892, the new corporation figured as the city's largest single employer, with a work force ranging from 5,000 to 6,000, and capital stock amounting to an estimated $8 million (Holli 1969:58; Leake 1912:459). In 1899, the corporate name was changed to the American Car and Foundry Company.

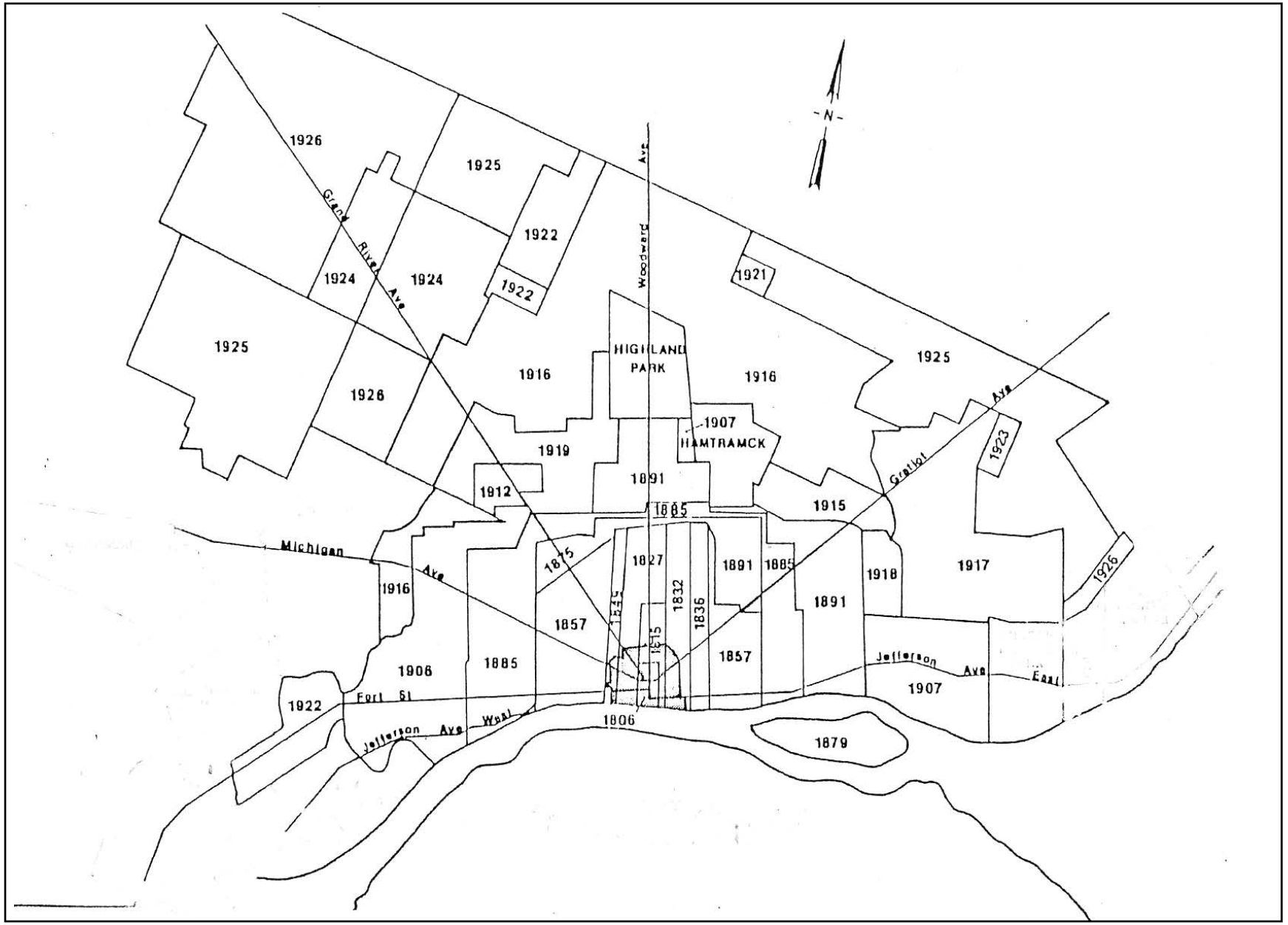
At the turn of the century, Delray, which had been incorporated as a village in 1897, had begun to figure as a center of the region's iron and chemical industries. In addition to the ammonia-soda products of the Solvay plant, other brine and sodium products became available with the opening of the Delray Salt Company works in 1901. During the same period the Michigan Carbon Works was absorbed as a component of the American Agricultural Company, with Detroit Sulphite Fiber transitioning into the Detroit Sulphite Pulp and Paper Company. After having absorbed Anchor Manufacturing, in 1898, the Michigan Malleable Iron Company figured as an important area employer contributing to the establishment of the Hanna Iron Furnace Company (Detroit Iron and Steel) on Zug Island and the Great Lakes Engineering Company (ship building) in River Rouge. The Michigan Malleable Iron Company, as with much of Detroit's ferric metal industry, was a McMillan family enterprise, with the senator's son, William C. McMillan, serving as its president.

Farther to the east, on the up-river side of Fort Wayne, the Detroit and Lake Superior Copper Company (the former Waterbury and Detroit Copper Company) expanded its operations, in 1880, onto the adjoining Reeder Farm (P.C. 39), with Edwin Reeder acting as superintendent of the plant through the early 1890s (Farmer 1890:817). In 1888, the Detroit Copper and Brass Rolling Mill Company (Figure 1.4.3-9) built its works on the property of its president, former Detroit Mayor



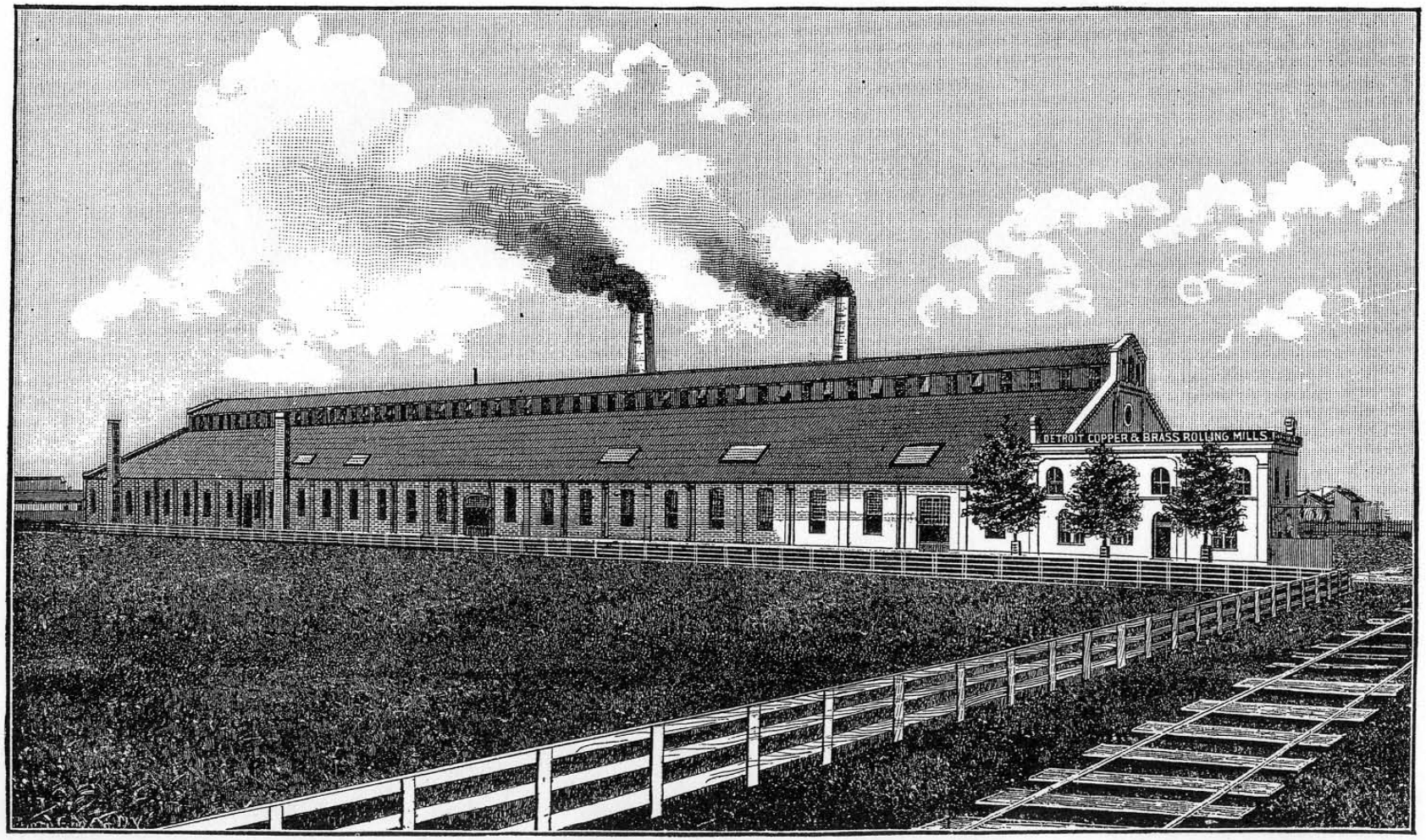
Source: Burton Historical Collection

Figure 1.4.3-7. Michigan Carbon Works Buffalo Bone Stockpile, 1895



Source: Detroit n.d.

Figure 1.4.3-8. Detroit Annexations, 1806 to 1926



Source: Farmer 1890

Figure 1.4.3-9. Detroit Copper and Brass Rolling Mills, 1888

Christian H. Buhl, on the west side of McKinstry Avenue. As of 1890 the facility was reported to possess, "the largest and most complete copper rolling machinery in the country, and can roll larger sheets than any other mill in the United States" (Farmer 1890:809). Buhl had been an important investor in the Wabash Railroad and positioned his mill directly next to this routing. The property was additionally serviced by the Fort Wayne and Elmwood Street railway and had direct access to the Detroit and Sandwich Ferry at the foot of Clark Avenue. With ample room for future expansion, the placement of the facility, directly adjacent to the Baugh Steam Forge and the Clark shipyard, could draw on an existing pool of skilled workers familiar with the metal working trades. In combination with the nearby Detroit and Lake Superior Works, and a number of satellite parts plants, the neighborhood upriver from Fort Wayne had transitioned into an important copper and brass manufacturing center by the close of the nineteenth century. Over the succeeding years the Detroit and Lake Superior properties were acquired, in 1906, by the Michigan Copper and Brass Company, followed, in 1928, by Republic Brass and, in 1936, by Revere Copper and Brass.

With a near-railroad and riverfront location, the production of brass steam fittings figured as an obvious early article of local manufacture. In 1896 William McRae, a resident of Wallaceburg, Ontario, opened one such factory with Dugold H. Roberts, along the railroad at 227-235 Campbell Avenue (Polk 1894:881; 1896:951). A decade later Roberts established the Roberts Brass Manufacturing Company at 1395-1407 West Fort where he produced "High Grade Brass Goods for Steam, Water, and Gas." At about the same time he also held an interest in the newly established Roberts Tube Works, located at 868 Military Avenue (Polk 1911:1816, 1818). In 1911 the President of the Detroit Copper and Brass Rolling Mills, Louis H. Jones, established the Diamond Manufacturing Company on Summit Avenue. Its product line included a wide range of copper and brass "specialties" and "automobile parts" (Polk 1911:933).

The advent of the automobile had an immediate impact on area copper and brass production, which was described in 1915 as the city's fifth most valuable industry, equal to $12 million annually. Copper and brass products were then stated as being "largely used in motor car manufacture" (Polk 1915:33). The point is squarely exemplified by the Diamond Manufacturing Company. Having moved to a new location on the southwest corner of Muster and Artillery Avenues, the plant was listed, in 1915, as a manufacturer solely of "auto parts" (Polk 1913:802, 2323; 1915:2873).

Automotive production in Detroit might reasonably be stated as having begun with the Anderson Electric Car in 1895, followed by the 1899 establishment of the Oldsmobile plant on the city's east side. Although the number of units produced during this initial period was minimal, their potential did not go unrecognized. In the debate over public transportation that dominated city politics during the 1890s, Mayor William C. Maybury cautioned restraint and a wait-and-see attitude in his January 1900 address to the Detroit Common Council. The insight was uncanny:

> Before we pass from this all-important subject, let me call attention, merely as a matter of precaution, to the fast developing automobile, which is bound to be a feature of the century on which we are about to enter. It is an invention not distant, but at our doors, and before either investing in street railways built by others, or before running hastily into building ourselves, the place of this most convenient, cheap and swift-running conveyance, must be given careful–yes, serious consideration. If all that is claimed for it is obtained, even moderately, it will extend and revolutionize the existing modes of transit in cities, and will render apparently valueless, equipment that to-day seems to have a permanent and unchangeable value [Maybury 1900:9].

Oldsmobile production in 1900 was calculated at no more than 400 vehicles. By 1901, the figure ballooned to 4,000 (Burton 1930:1359). Over the next several years the success of Detroit's newly established Cadillac (1901), Packard (1903), Ford (1903), and Lozier (1904) automobile companies proved the accuracy of Maybury's observations. In 1905 the competing Detroit-based firms held their first jointly sponsored auto show, as an open-air affair, in Riverside Park at the foot of Morrell Avenue (Burton 1930:1379). Between 1904 and 1917 the number of Detroit workers employed in the automobile and parts industries grew from 2,034 to 136,576. Its contribution to the City's overall industrial product during this period rose from approximately "one twentieth" to "about one-half" (Burton 1930:1361, 1632). In 1904 manufacturers throughout the United States produced a total of about 25,000 automobiles worth about $28.5 million. It was estimated at that time that roughly half of this product had been built "in or about the city of Detroit" (Pulitzer 1905:552). In 1917 Detroit manufacturers produced one million automobiles valued at about $880 million (Burton 1930:1362).

Automotive plant development in the DRIC project vicinity began in 1909 with the establishment of the Everett, Metzger, Flanders (E.M.F.) Company and the Page-Detroit Motor Car factories along West Fort Street, between Scotten and Ferdinand. The year 1911 witnessed the establishment of the Commercial Motor Car plant farther to the west, between Green and Solvay, and the acquisition of the E.M.F. properties by the Studebaker Corporation (Base 1970; Burton 1930:1379). All of these factories took advantage of sidings located along the Wabash Railroad. The E.M.F. and Page-Detroit plants were additionally positioned immediately adjacent the Detroit Copper and Brass Rolling Mills, with the Commercial plant occupying a site near the Michigan Malleable Iron Works in Delray. All took advantage of an existing industrial infrastructure that included a force of trained factory workers.

While the total value of Wayne County industrial products was calculated at $63,163,499 in 1894, ten years later Detroit's industrial production was individually calculated at $128,761,658. Its position among United States manufacturing cities had shifted from sixteenth place in 1899 to fourth place as of 1910. Over the next seven years, the number of city inhabitants employed in industry grew from 113,000 to 284,000. During the one-year period of 1920 to 1921 the figure reportedly further increased from 320,000 to 385,000 (Catlin 1926:650; Polk 1921:31, 34). The growth of area production during the second decade of the twentieth century was tremendous. During the one-year period from 1915 to 1916, the value of Detroit's industrial products rose from $600 million to $900 million. At the same time, city's population more than doubled, standing at 993,678 as of 1920. The growth witnessed during this decade was credited as being a direct result of the outbreak of World War I. Although the United States did not enter the conflict until 1917, its impact on the city's economy was early and decisive.

Economic boom periods often bracket dramatic collapses wrought by outside circumstances. The initial impact of the outbreak of World War I had been immediate. Its most obvious effect on the North American economy was a dramatic 26 percent reduction in new housing starts during August 1914. That winter, Detroit found itself in the throes of a major economic downturn, with soup kitchens being opened in many parts of the city "...and in the basement of the City Hall itself" (Burton 1917:5). During the next two years, the situation was entirely altered as Detroit businesses geared-up to war-time production for the Allied powers. Writing in January 1917, Clarence M. Burton (1917:6), noted just how dramatically the war had affected the city over a short two-year period:

> Thousands flocked to Detroit from all over the world, for wages were excessive and the demand could not be supplied. Young farmers and persons living in the small cities and villages came, leaving farm houses empty and villages partly deserted.

> The population increased so rapidly that houses could not be built fast enough to accommodate them. More than $50,000,000 was expended in building in the city in 1916. Flats and apartment houses were filled to overflowing, and many people found homes outside the city in Birmingham, Royal Oak, Wyandotte and the surrounding country. Temporary tents were erected where many families lived during the warm weather, hoping to find better quarters for the winter. This is the situation of Detroit at the present time. What will happen when the war ends, no one can foretell.

Burton (1930:1384) later estimated the value of Detroit war contracts, in 1917 and 1918, as having been in the range of $900 million. Production included the Liberty aircraft engine manufactured by a number of Detroit firms led by Packard, Ford, Lincoln, and Cadillac. The American Car and Foundry Company, whose holdings included a new rolling mill at the site of the old Baugh Steam Forge, produced an array of cannon shells, gun caissons, and limbers. Great Lakes Engineering, in River Rouge, launched 61 ocean-going cargo ships under government contract during a 6-month period in 1918. The future site of the Fisher Body–Fleetwood Complex, on West Fort and West End, was developed as a government-owned airplane production plant. Originally built to manufacture the large Italian-designed Caproni bomber, it also produced J-1 Trainers and the British DeHaviland fighter. By November 1918, the firm displayed its one thousandth fighter for public inspection at the Liberty Forum on Cadillac Square (Hyde 1980:37; Burton 1930:1383). The development of Ford Motor Company's Rouge River Complex had received a real boost from a contract for the construction of 112 Eagle Boats (submarine chasers). As of 1919, while the bulk of Ford workers (41,489) were still employed at the Highland Park plant, the number at the Rouge had grown to nearly 17,000. Another 4,013 were employed at the Dearborn Tractor plant (Burton 1930:1373, 1384).

Farther to the east along the Detroit River, the Studebaker Corporation, in association with the Timken Detroit Axle Company, had further expanded their holdings towards the riverfront. Studebaker was one of the Allies' largest suppliers of gun carriages, ammunition caissons, and harnesses. In 1917 the Diamond Manufacturing Company building, at the southwest corner of Muster and Artillery (Livernois), was occupied by the International Metal Stamping Company and the Ternstedt Manufacturing Company (Polk 1917:1809). The association continued through 1919, after which the entire facility was taken over by Ternstedt. Originally listed as an auto parts manufacturer, by 1921 its product line was significantly altered to include "Closed Body Hardware" (Polk 1921). Although technically not an integral component of the Fisher Body Corporation at the time, its corporate officers included L. W. Fisher and William A. Fisher. The latter also served as vice president of Hinkley Motors Corporation, which produced "Auto Truck, Tractor and Aeroplane Motors" at a West Fort and 23rd Street location (Polk 1918:962). The president of Ternstedt, John T. Allmand, had earlier served as a vice president of Fisher Body (Polk 1912:970; 1917:1809; 1918:1702). Both were listed with Fisher Body in 1925. William A. was, at that time, president of the firm. L. W. Fisher evades easy identification in city directories of the period; however, Lawrence P. Fisher, a manager at Fisher Body in 1917, may be the person in question. In 1925, he became president of Cadillac Motor Car Company and a vice present of General Motors Corporation (Polk 1917:867; 1925:912). Cadillac become a southwest Detroit area fixture with the 1921 completion of its new plant at 2860 Clark Avenue.

As the role of Cadillac was expanding in southwest Detroit, its former head of production, Wilfred C. Leland, turned up as vice president of Atlas Foundry. Located at 131 S. Artillery (Livernois) Avenue, the foundry had early figured as a manufacturer of grey iron castings and automobile

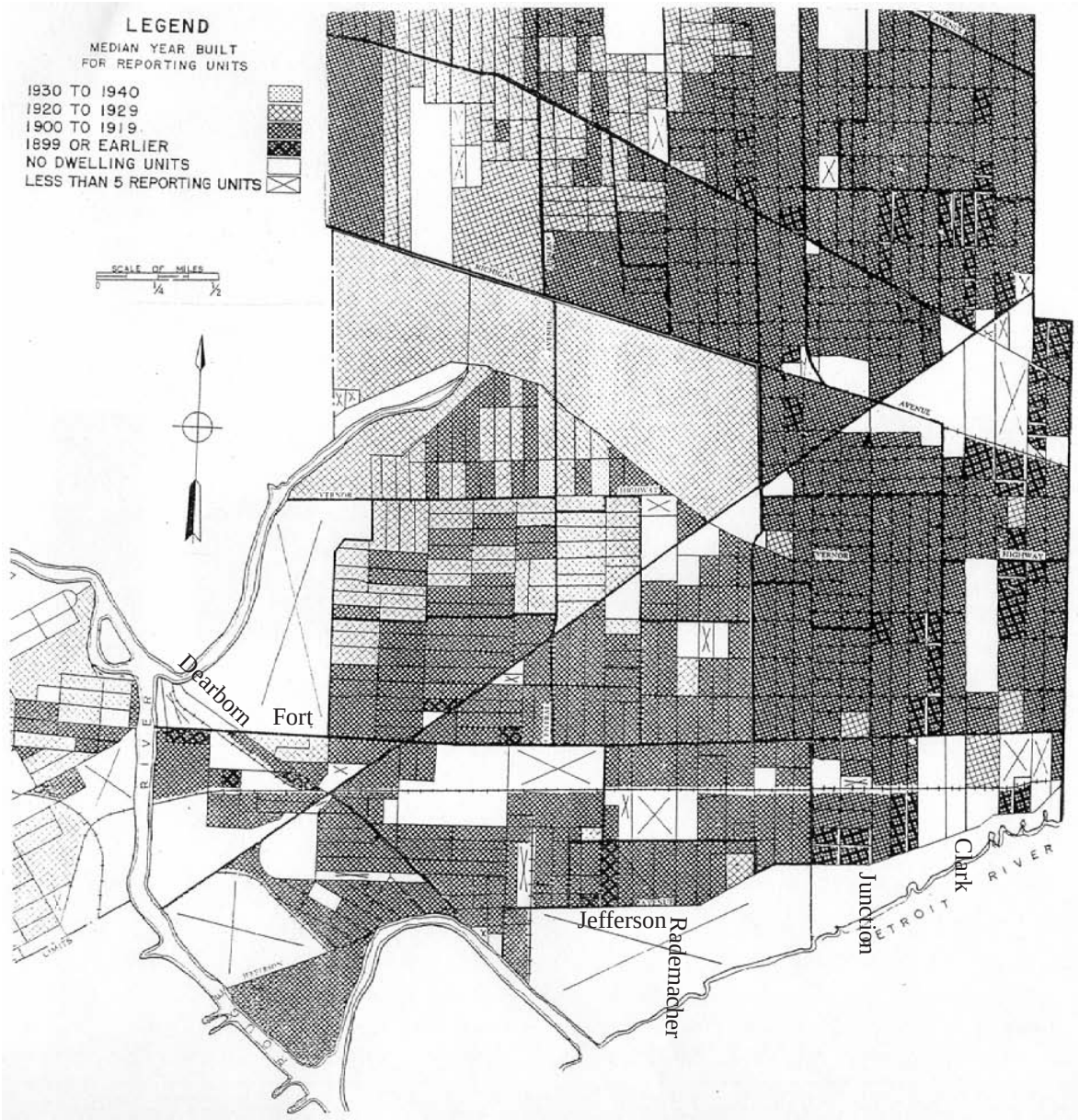
cylinders (Polk 1911:453; 1931:261). Another individual involved in the iron casting industry was Michigan Governor Alexander J. Groesbeck, who served as president of the Stewart Foundry Company on Cavalry Avenue (Polk 1924:1703).

One long-term feature of the industrial growth that resulted from World War I production was the escalating level of the industrial worker's daily wage. In 1910 Detroit's 125,000 workers brought home some $245,090 on a daily basis, averaging out at approximately $1.96 per worker. By 1919 the daily average had risen to $5.30 per worker and then increased to $6.20 the following year (Leake 1912:225; Glazer 1965:94). This growth in earning potential was, however, offset by dramatic increases in the cost of living. Working class housing, for instance, increased in value from an average new home cost of $3,000 in 1918, to between $6,000 and $8,000 in 1920 (Colby 1921:328). New neighborhood growth tended to spread out from the central city following factory development along railroad lines and the waterfront. Residential infilling of the spaces between factories created a dilemma. Neighborhood development witnessed during the second decade of the century had landlocked older industrial plant sites, leading to a race for space along the city's urban fringe. Under the topic heading "Development Hampered," a staff writer for the R. L. Polk Publishing Company noted that the "...lack of segregated factory districts has created a condition where the factories and the railroads now find themselves unable to make the necessary extensions of trackage and warehouse space to take care of enormously increased business. And moreover, residence property values in many sections of the city have been seriously affected by the smoke and noise of factories" (Polk 1921:37).

In the southwest Detroit area bounded by the Detroit and Rouge Rivers, West Fort Street, and Clark Avenue, the impact of this ad hoc variety of expansion was especially evident. Residential and industrial growth had occurred concurrently with little effort made at limiting spill-over from one category of land use into the other. Housing growth, as later determined through federal census block inventories, was primarily a by-product of this early period of industrialization with upwards of 85 percent of all dwellings having been built during the 1900 through 1919 period (Figure 1.4.3-10).

The competition between residential and industrial land uses in this portion of the city was even more pronounced due to the constraints imposed by the natural setting. Growth to the south, west, and east was prohibited by the Detroit and Rouge Rivers. Both of these barriers were further linked on the north by the Wabash Railroad. The condition pre-existed the 1885 and 1906 city annexations of Springwells Township and Delray Village lands.

Between 1915 and 1925 Detroit grew from being a city of approximately 45 square miles to one of 139 square miles. That its future development was seen as requiring a planned design fell in line with a popular trend in urban reform of the period. The adoption of a new city charter in June 1918 made this possible by allowing for the creation of a city plan commission (Colby 1920:162; Glazer 1965:89). As late as 1921, however, Detroit still had not implemented any defining set of zoning ordinances that could serve as a guide to future growth (Colby 1922:155). A pivotal factor of urban design as it emerged during this period was directed at revamping existing transportation networks to accommodate the flow of automotive traffic within the city and the linkage of roadways to promote ease of travel into outlying zones and between cities. Important legislation that contributed to this goal was provided through the grants embodied in the Federal Aid Acts of 1916 and 1921 (Colby 1922:624). A more fully integrated national roadway program was further implemented in 1925 when the Joint Board of Inter-State Highways designated 79,884 miles of road under the heading of United States Highway Routes (Colby 1926:612). The move was fundamental to modern urban-suburban growth. As of 1929, West Fort Street, between the Rouge River and Woodward Avenue, was dedicated as a component of the Dixie Highway (U.S. 25) running from Mackinaw City to



Source: Truesdell 1943b

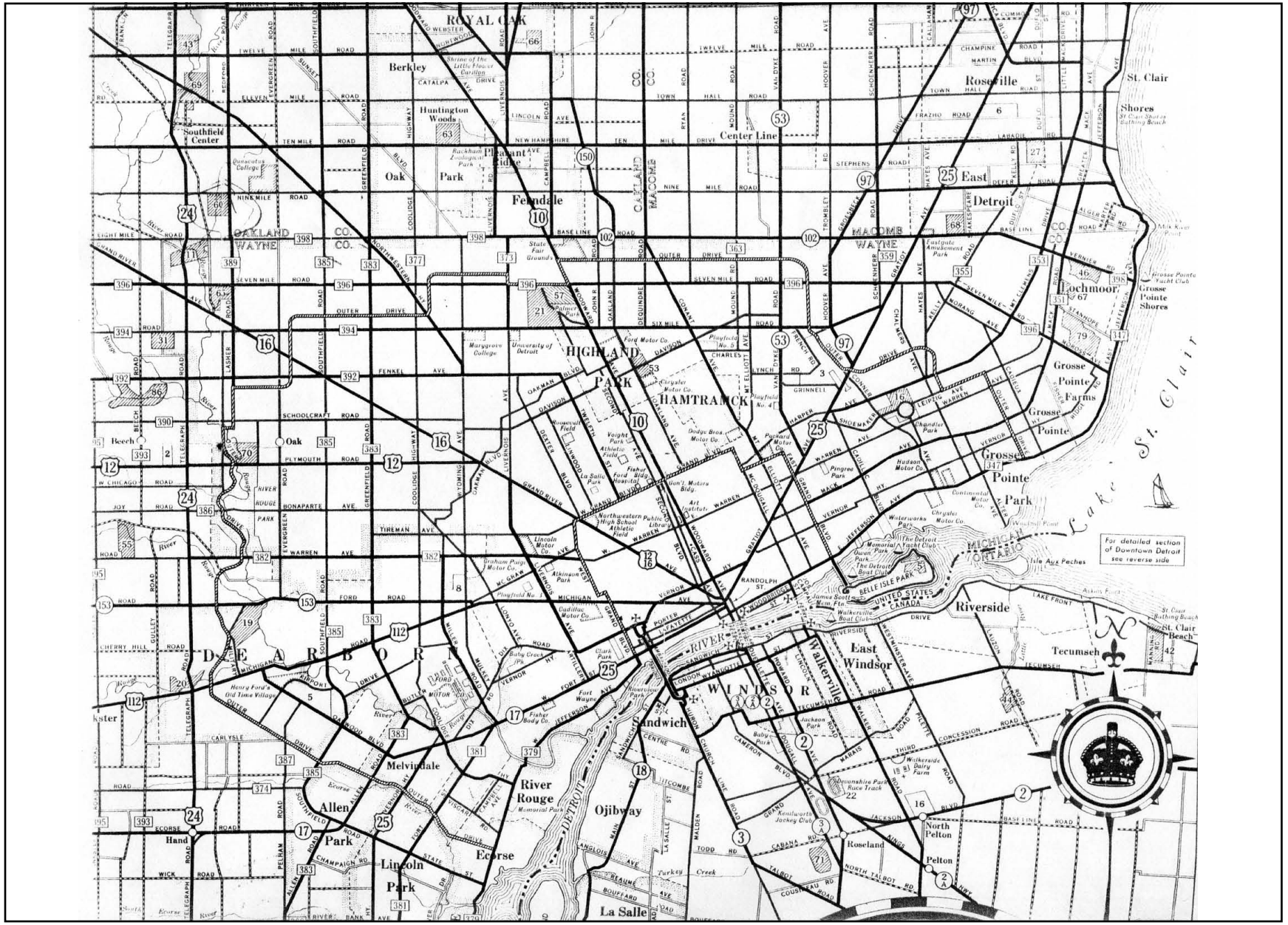
Figure 1.4.3-10. Detroit Age Graded Housing, 1940

Miami (Department of State Highways n.d.:2). The roadway ran directly below the Ambassador Bridge linking the United States to Canada (Figure 1.4.3-11). Originally designed by Charles E. Fowler in 1921 as a double-deck railroad and roadway bridge, the structure was totally reconfigured several years later by G. Lewis Taylor and/or Jonathan Jones, chief engineers of the McClintic-Marshall Company, which had been chosen to build the facility (Colby 1922:101; Burton 1930:1183; Hyde 1980:31). At the time of its November 1929 completion, nine months ahead of schedule, the Ambassador Bridge was advertised as, "the world's longest suspension span" (Burton 1930:1181).

Within Detroit and its surrounding suburban communities, roadway development and redevelopment increasingly adopted wide boulevard or Super Highway formats promoting the regional movement of goods and people. During the limited two-year period from 1924 through 1926, the City of Detroit was individually responsible for paving 187.4 miles (117.13 km) of new growth area streets (Detroit 1926:139-140). While many roadway improvements required the condemnation of private properties, West Fort Street had existed as a 100 feet (30.5 m) wide right-of-way since the 1880s. Its placement along the north side of the Wabash Railroad, coupled with the parallel placement of South Street to the south, could have served as a template for the planned industrial zone recommended by a regional planning Advisory Committee to the City of Detroit. Their proposed design had included the placement of "thoroughfares paralleling the railroads on the sides at 1,200 feet distance." It was felt that this design format could lend, "protection... [to]...industrial sites from encroachment of residential subdivisions, and the protection of highways giving access to the industries from crossing by the railroad service tracks." The idea was to some degree given proof along West Fort Street by the Detroit-Timken Axle Complex, Turnsted's, and the Fisher Body buildings that were spread out between Scotten and Lawndale Avenues.

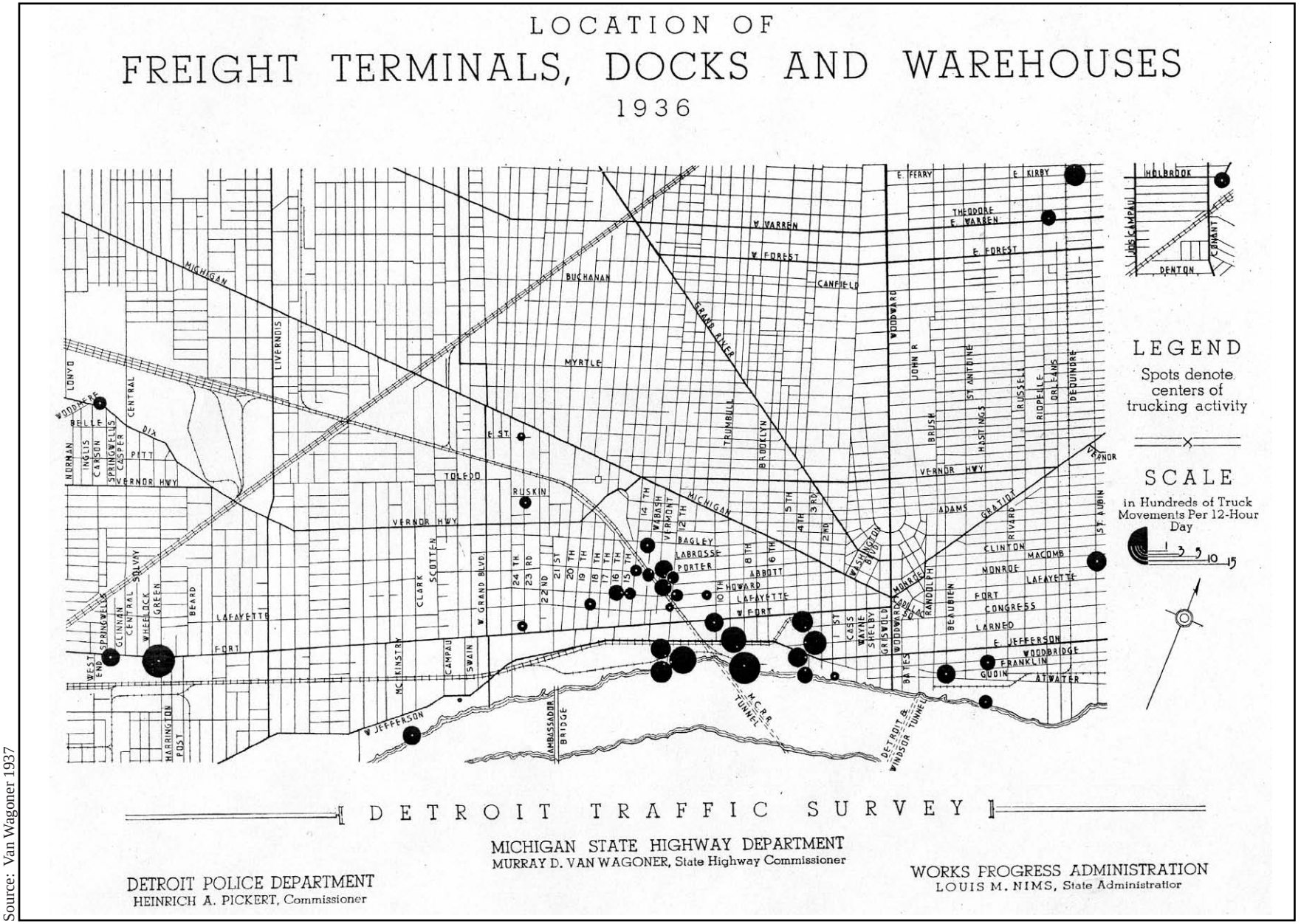
In 1929 the Detroit Union Produce Terminal took up a 40-acre site between West End and Green Avenues. Developed under a partnership agreement between the Wabash, Pennsylvania, and Pere Marquette railroads, the terminal shipping docks were located well beyond those that had earlier spread out around the Detroit port facility and nearby railroad warehouse district adjacent to the MCRR tunnel crossing (Figure 1.4.3-12), which had been opened for regular passenger and freight use on October 14, 1910 (New York Central Railroad System n.d.). The fact that the terminal dealt in perishables made it a primary source for the heaviest movement of truck traffic occurring throughout the city. This, in combination with nearby automotive plant traffic, rendered West Fort and Livernois as the busiest commercial routes within the city (Figure 1.4.3-13).

Other developments occurring along the riverfront at this time included the reconstruction of Detroit Edison's Delray powerhouse and substation facilities located along the downriver side of Fort Wayne. The original facility had been built in 1904. It was subsequently replaced with a new structure in 1908 only to be demolished and replaced once again in 1929 (Burton 1930; Hyde 1980:39). On the upriver side of the Fort, at the foot of Morrell and Junction Avenues, the grounds of Riverside Park were similarly included in the Detroit Public Lighting Commission's Mistersky Power Station. The City had, since 1895, been equipped to furnish the electrical needs of public buildings and street lighting out of its Atwater Street generating plant. This facility remained in operation until June 1927 when it was replaced with the Mistersky Plant. This transition boosted city electrical output from a maximum of 7,350 kW to 75,000 kW. The move was prompted by the public take-over of the privately owned Detroit United Railway. It was estimated that the cost of running this service, based on existing Detroit Edison rates, would have required an additional annual expenditure of $607,500 (Detroit 1922:353; 1930:287).



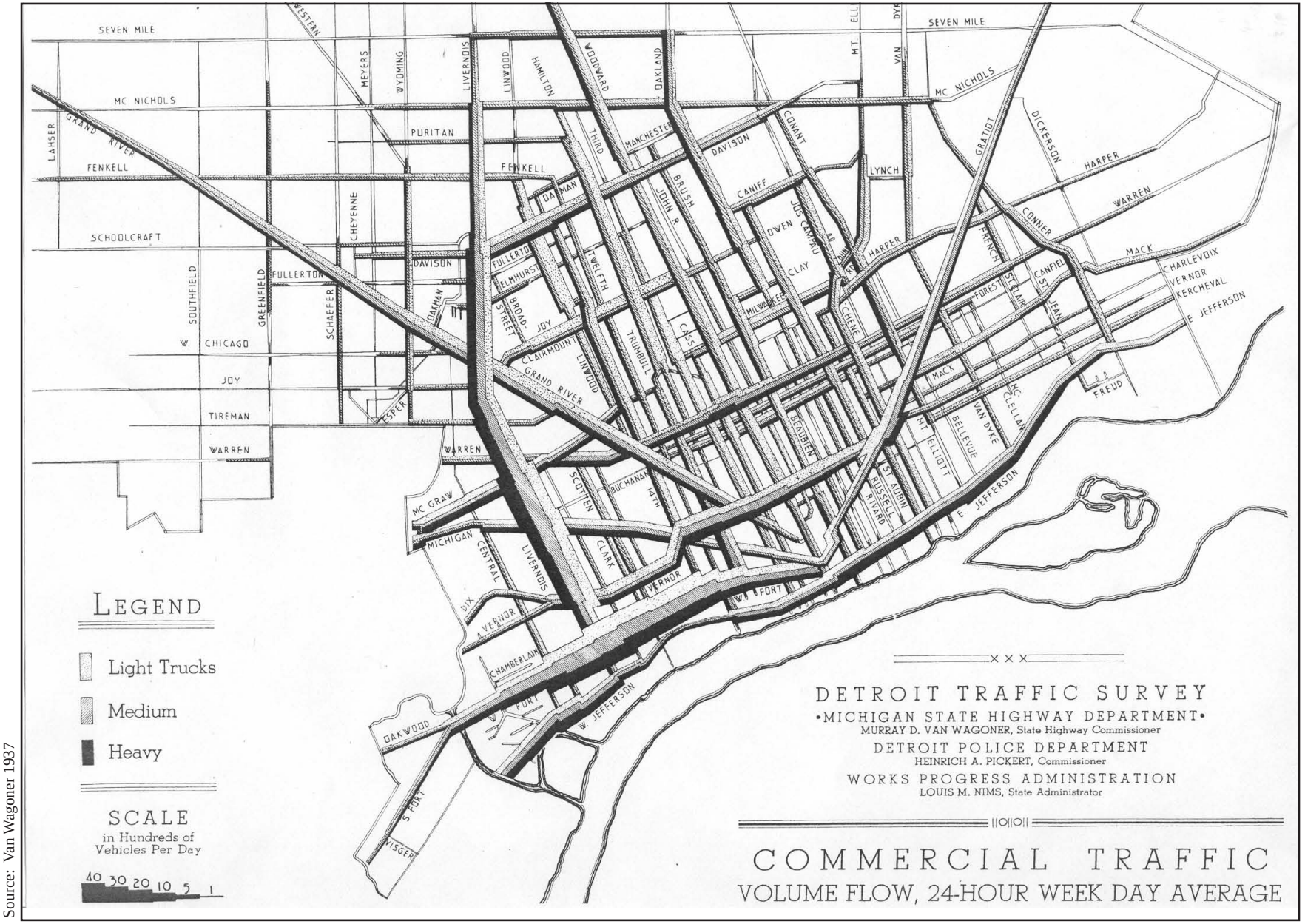
Source: Standard Oil Company 1934

Figure 1.4.3-11. Detroit Metropolitan Roadways, 1934



Source: Van Wagoner 1937

Figure 1.4.3-12. Detroit Terminals, 1936



Source: Van Wagoner 1937

Figure 1.4.3-13. Detroit Truck Routes, 1936

Both the Edison and Public Lighting Commission's power plants were coal fueled, as was virtually all industry of the period. Local steel and iron production had depended on fuels such as wood charcoal and coke. Retort ovens converting coal to coke, coupled with the manufacture of other by-products such as ammonia (ammonium sulphate), coal gas, and light oil, were first established in Solvay's Delray plant in about 1900. Coal was delivered by ship during the summer and by train during the winter. As of 1930, the six oven blocks of the facility were capable of manufacturing 3,000 tons of coke per day. Although early production was far below this level, the use of coke as the primary fuel in iron manufacturing contributed directly to the 1902 creation of the Detroit Iron and Steel Company's works on Zug Island (Burton 1930:721, 1327; Colby et al. 1916:155).

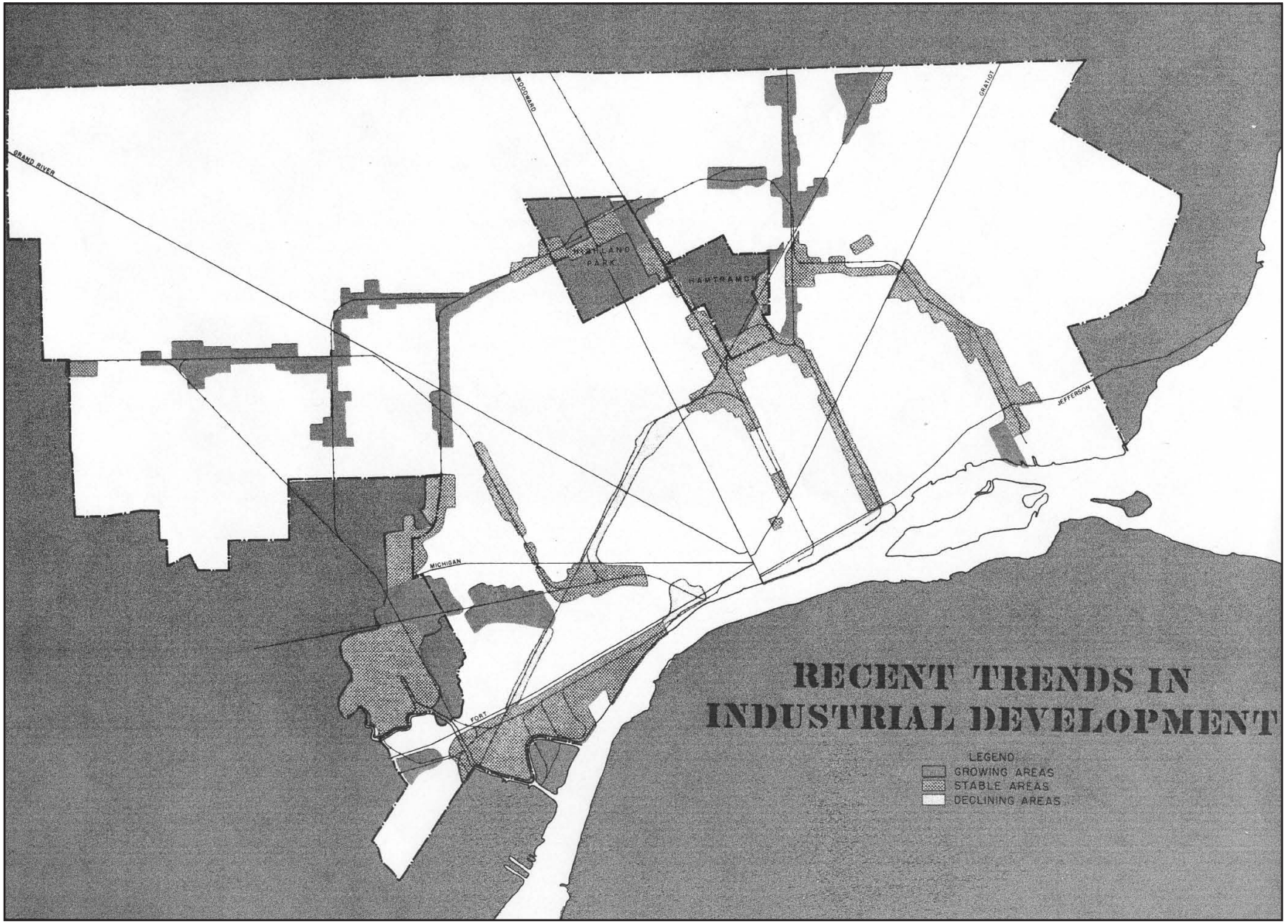
Initially profit margins remained narrow, but the potential value of local production did not go unrecognized. The point became especially significant with the outbreak of World War I. While the construction of blast furnaces on the Rouge River was ongoing in November 1916 by the Ford Motor Company, the effort was almost immediately curtailed due to legal arguments over funding issues among the Ford partners (Burton 1930:1369). By the following year, company activities were focused on the erection of the Eagle Boat plant and related war production. Subsequent deepening and widening of the Rouge River in 1919 was, however, followed by the construction of the multi-structure Dearborn Iron Foundry in 1920/1921. Ford's 1920 acquisition of the Detroit, Toledo & Ironton Railroad soon provided direct access to Ford-owned coal fields in Kentucky and West Virginia. The 240 coke ovens at the Rouge plant produced an average of 3,300 tons of coke per day along with 50 million cubic feet of gas, 40,000 gallons of tar, 110,000 pounds of ammonium sulphate, and 12,000 gallons of light oil.

By 1929 both Ford and the other Detroit automobile companies were identified as the nation's largest consumers of steel, amounting to over 7 million tons, or approximately 18 percent of the total yearly production of the United States (Burton 1930:715, 1392). That same year witnessed the initiation of work on Great Lakes Steel Corporation's $25 million complex in Ecorse. In December 1929, the Zug Island-based Detroit Iron and Steel Company was also merged with Great Lakes Steel. By the following year, the island contained four blast furnaces, coke ovens, and a sintering plant. The environmental setting of the lower Rouge River, and Detroit's lower west side, was completely altered during this period (Figure 1.4.3-14).

While the Great Depression had an overall cooling effect upon area growth, the advent of World War II placed a new emphasis on industrial expansion, which continued throughout most of the succeeding Cold War period. By 1947, in recognition of an already ongoing reality, the Detroit Plan Commission proposed the inclusion of the entirety of the area lying between West Fort Street and the Detroit River within a vast industrially zoned district spread along the complicated network of railroads that crisscrossed the city (Figure 1.4.3-15). By the 1960s the location figured as the northerly hinge-point of a downriver industrial corridor that extended as far south as Trenton (Figure 1.4.3-16).

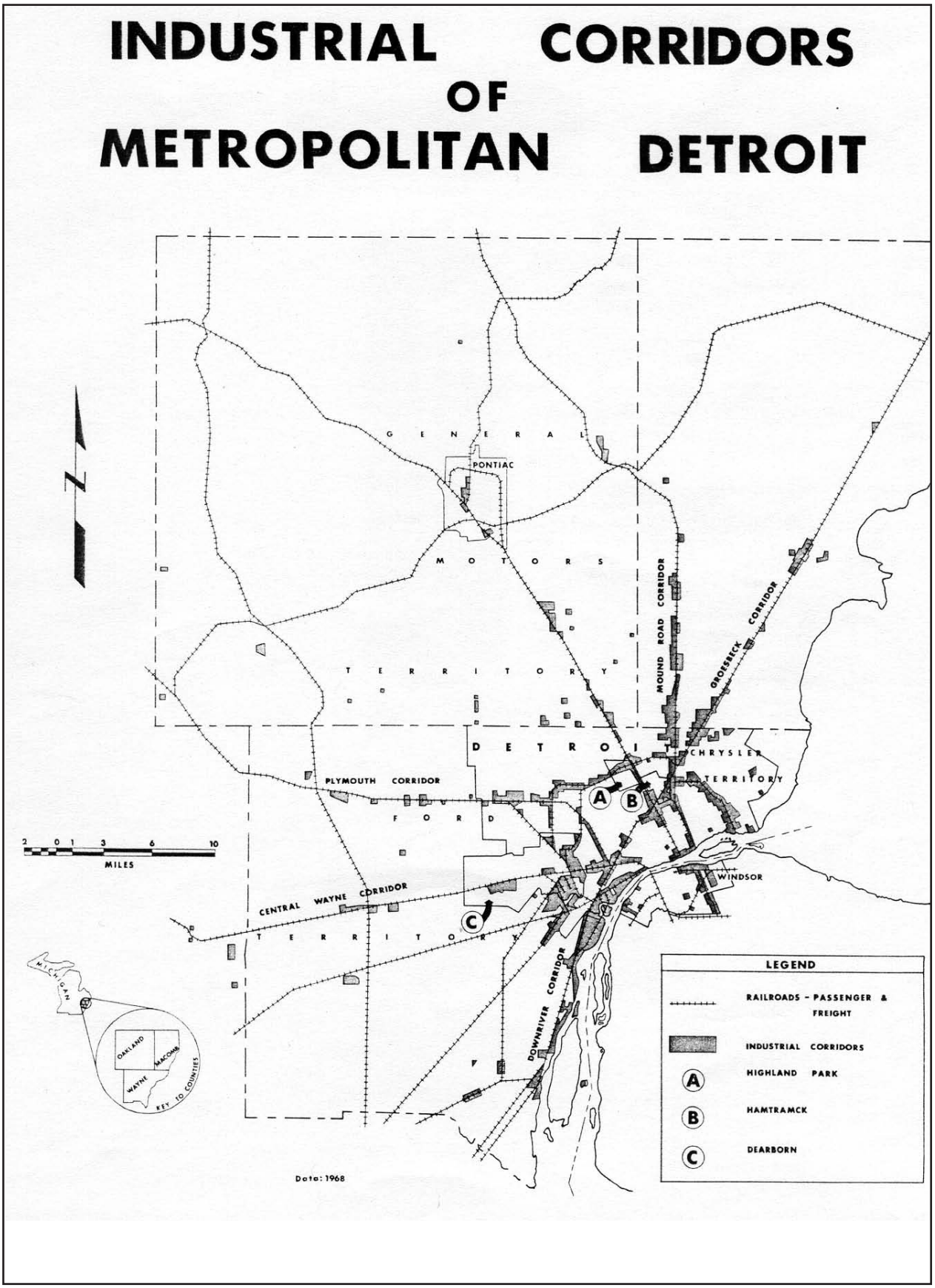
Source: Hyde 1980

Figure 1.4.3-14. Area Industrialization, 1940



Source: Detroit 1947

Figure 1.4.3-15. Detroit Industrial Zones, 1947



Source: Sinclair 1970

Figure 1.4.3-16. Detroit Region Industrial Corridors, 1968

2.0 METHODS

2.1 Archaeological Predictive Modeling

Prior to the initiation of archaeological field investigations an attempt was made to determine the degree of sensitivity that might possibly occur within portions of the overall DRIC study area based upon a range of data associated with both its natural and historical settings. Ultimately, this information is employed in order to focus field efforts within more or less specific zones that appear to possess a high potential for the recovery of prehistoric and/or historic cultural remains. Considering the highly altered urban setting of the study area the importance of both the written record and earlier cartographic depictions were recognized as being of central significance.

2.1.1 Previously Recorded Archaeological Sites

A total of 18 previously recorded archaeological sites are identified in the records of the Office of the State Archaeologist (OSA) in the DRIC study area (Figure 2.1.1-1). [redacted][2-1] are within the boundaries of [redacted]. Of these only four [redacted] have been field studied over the past 65 years. At present, past usage of [redacted] as the [redacted] remains unverified. Similarly, no *in situ* vestiges of the [redacted] have been identified (Halsey 1968:140). This feature was, in fact, reported to have been "removed" during the 1840s phase of fort construction (Halsey 1968). The [redacted] was investigated in 1876 and in 1944 and 1945 (Gillman 1877; Halsey 1968; Holmquist 1946; Pilling 1961; Pilling et al. 1980). The [redacted] within [redacted] is the oldest surviving building component. Multiple excavations were carried out by Wayne State University through the 1980s.

Unverified sites from literature sources comprise the bulk of the [redacted] archaeological site assemblage. These include [redacted], reportedly identified during past construction activities. The content and exact location of these sites remains questionable (Pilling 1961; Pilling et al. 1980). The three remaining historic archaeological sites [redacted] represent reported eighteenth- and nineteenth-century building locations. None have been field evaluated nor have their exact placements been verified (Albers and Demeter 1980; Demeter 1984).

The [redacted] previously recorded archaeological sites located within or near the DRIC project vicinity [redacted] similarly lack precise locational information. Past field examinations have occurred in conjunction with only two sites designated as [redacted] and [redacted]. In both instances excavations took place during the early through late nineteenth century with the resultant findings being poorly documented (Halsey 1968; Pilling 1961; Pilling et al. 1980). Their placements, as depicted in the OAS site files, vary considerably from the positions earlier suggested by [redacted]. The [redacted] is at best an ambiguous resource. While its association with [redacted] is stated, its exact positioning remains a mystery. The [redacted] exhibits a similar problem. The best information available relative to its location occurs in [redacted].

[2-1]In Michigan, archaeological site locations are considered confidential and are not disclosed to the general public. At the request of the State Historic Preservation Office, information regarding archaeological site locations has been removed from this report.

NOT FOR PUBLIC DISCLOSURE

Figure 2.1.1-1

Its placement on the OAS files is depicted within [redacted]. The [redacted] alluded to by [redacted], however, were those of a much earlier vintage. In 1857 this was the [redacted].

The so-called [redacted] was a [redacted] described by several narratives dating to the early through late nineteenth century. The OAS site file fixes its location [redacted], within the [redacted] early discussion of the site, however, places it [redacted]. The existence of [redacted] leading to [redacted] were also noted in several nineteenth-century accounts (Figure 2.1.1-1). These likely formed a component of [redacted] site location (Pilling et al. 1980). The continued survival of either site is doubtful. The [redacted] has been subjected to two building and demolition phases coupled with extensive cut and fill operations connected with riverfront development and the leveling out of a series of swales that once drained the tract. The placement of these latter two sites is well beyond the boundaries of the DRIC study.

Several historical archaeological sites have further been documented for the DRIC study area surrounding Fort Wayne. All are literature sources and none has ever been field examined. Two tentatively identified eighteenth-century sites are located [redacted]. These both appear on the [redacted] and are equated with the [redacted] farms. Another site, [redacted], included in the inventory is the probable location of [redacted] (Figure 2.1.1-1).

The [redacted] makes a short-lived appearance in Detroit city directories of the early 1870s. Although it is invariably placed [redacted] its description is further clarified in the directories as being an unspecified distance [redacted] Neither its location nor actual usage [redacted] can be confirmed through alternative sources. Its descriptive placement, however, is well to the [redacted] of the proposed [redacted]. Its position relative to the proposed [redacted] cannot be determined. Upon the discovery of these inconsistencies, [redacted] was removed from its placement as depicted in the OSA archaeological site inventory (Barbara Mead, personal communication).

2.1.2 Previous Archaeological Studies

Consideration of the archaeological potential within the overall DRIC project area was formulated on the basis of a variety of evidence. In addition to the distribution of previously recorded archaeological sites, other data secured through earlier Phase I field views and literature evaluations was taken into consideration, as was a diverse array of documents and cartographic sources relating to the historical development of this portion of the City of Detroit. The bulk of the past archaeological literature dealing with the Delray DRIC study area has been concentrated on developing a more concise understanding of the [redacted] that once existed [redacted]. These have typically drawn on a wide range of nineteenth-century eyewitness accounts that offer the best available information relative to the locations of these features and the artifacts associated with them (Halsey 1968; Pilling 1961; Pilling et al. 1980). Another broadly directed study dealing with potential archaeological resources in Wayne County and the project area focused on the distribution of historic period cemeteries (Krepps 1981). Other investigations have dealt with cultural resources management

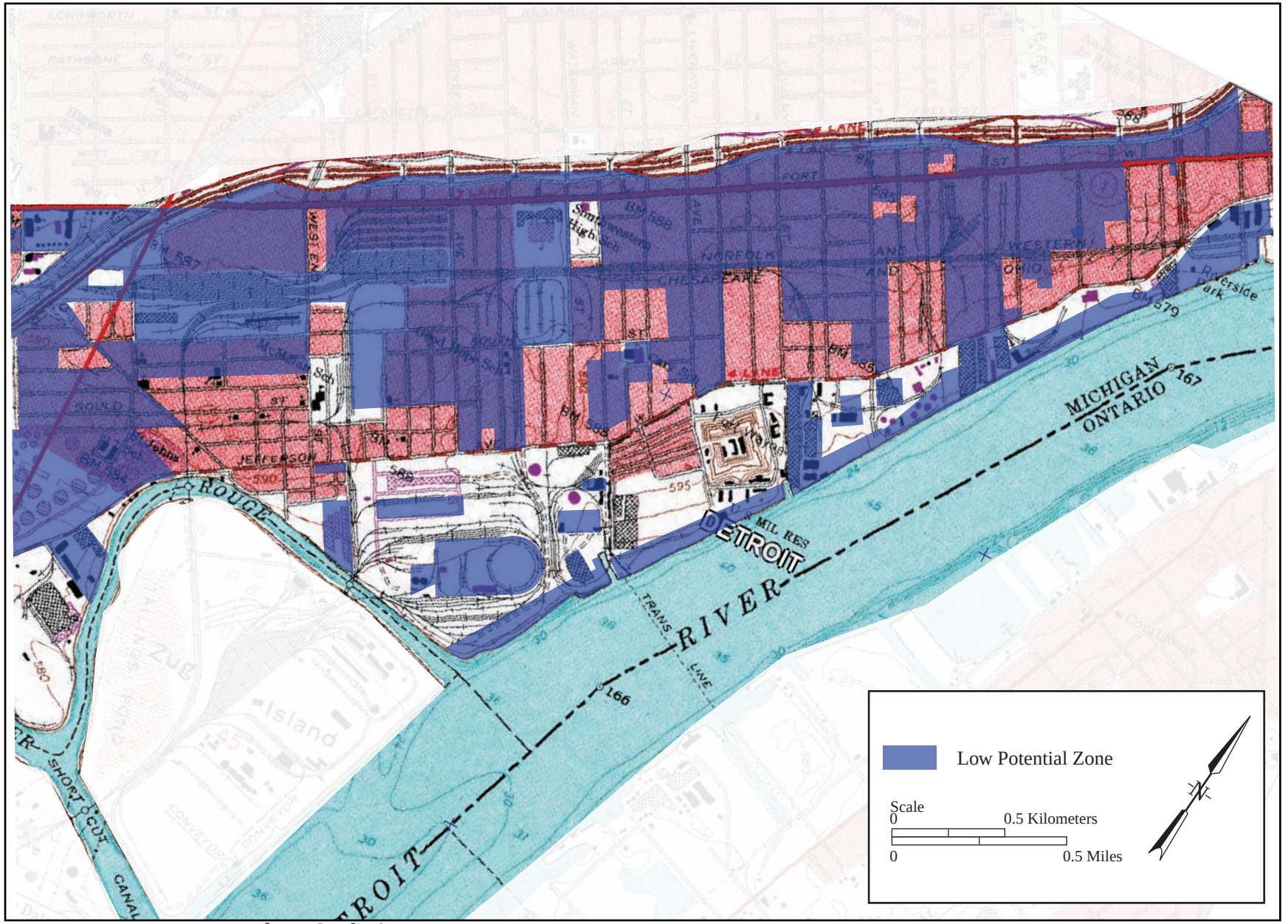
evaluations of site-specific projects associated with the expansion of the proposed Detroit Port facility and the redevelopment of the U.S. Army Corps of Engineers Detroit District Boatyard (Albers and Demeter 1981; Demeter and Albers 1980). The significance of the latter study was heightened by the overall project siting at the southeast corner of the former Fort Wayne U.S. Military Reserve. The fort facility had been deactivated in 1967 and transferred to city possession. As of 1970 it was placed on the National Register of Historic Places Inventory as a historic district.

The early 1980s witnessed a realization on the part of city agencies of the necessity of creating broad planning documents offering some idea of the archaeological potential occurring within Detroit's urban field. Among the earlier of the studies sponsored during this period by the Community and Economic Development Department (CEDD) were two archaeological evaluations of Detroit's near east and west riverfronts (Demeter 1982, 1984). These sought to determine zones of archaeological potential and to define those areas where developmental impacts to archaeological resources would likely be negligible.

The West Riverfront study covered virtually the whole of the Delray DRIC study area extending from the vacated line of Fifth Street (east) to the Rouge River (west), the Detroit River (south) and along the varied alignments of the Jeffries Expressway (I-75) and West Fort Street. Significance ratings were determined on the basis of a combination of developmental factors. These included the distribution of made land along the Detroit Riverfront created subsequent to the establishment of the 1892 harbor lines, the distribution of post-World War I heavy industrial factory building sites, the identification of pre-World War I neighborhood growth areas, and the existence of previously reported archaeological sites. As defined at that time, roughly 60 percent of what now constitutes the DRIC study area was determined to be of low archaeological potential (Figure 2.1.2-1).

Extensive alteration of the built environment has occurred over the past quarter century, entailing the removal of former industrial and residential components, has not affected the overall results of the original West Riverfront evaluation for archaeological resource potential. As the footprint of the present project began to acquire a more definite shape, elements of the earlier West Riverfront assessment were drawn-out in order to accommodate the more narrowed focus of the DRIC study. In its earliest configuration, stretching east-west from the area of the Ambassador Bridge to the line of Dearborn Avenue, a total of about 197 properties had initially been earmarked for possible Phase I/II DRIC archaeological examinations. This number was subsequently reduced to 86 properties as the general area of the plaza component was scaled down to an approximate 310-acre zone extending east-west from Summit Street to Post Avenue (Demeter and Weir 2006). The north-south limits of the proposed plaza additionally fell within a zone of higher archaeological resource potential determined as existing between the Detroit River and the former Wabash Railroad alignment. The suggested number of properties to be investigated within this 310-acre tract has been estimated at about 7 percent of the total number of properties within this practical alternative zone (Dean Anderson and David Ruggles, personal communications September 2006). No properties were slated for archaeological testing within the connector routes between the plaza and along the Jeffries Expressway (I-75). The lack of previously identified archaeological sites within this zone, coupled with the impact of late heavy industrial development and general absence of nineteenth-century settlement, early served to eliminate this project component from consideration for field investigations.

The river crossing corridors flank the east and west margins of the Fort Wayne NRHP Historic District. Both locations abut or pass through contaminated brownfields. The downriver crossings (west) encompass the former Solvay Process Company plant site, with the upriver crossing (east) spanning the easterly margin of the former Revere Copper and Brass facility (Figure 1.0-1).



Source: Demeter 1984

Figure 2.1.2-1. West Riverfront Study Area

2.1.3 Historical Considerations

During the approximate one-century period following the 1780 Potawatomi grant of the 5,000-acre tract extending from the Rouge River, land use transitioned from that of an open hunting and gathering range to that of an urban fringe development zone. Although the establishment of Fort Wayne and the adjacent copper works had by the early 1850s set the direction of area growth, it was not until the Civil War period that any appreciable expansion in this direction actually occurred. By the mid-1870s pockets of neighborhood growth began to emerge along Morrell (John C) Street and Military Avenue (Figures 1.2-5 and 1.4.3-3). Still later, by the early 1880s other neighborhood developments also appeared along Waterman and on Reeder and Harvey Avenues (Figure 1.4.3-5). Throughout this period home and business owners were largely left to their own devices with regard to water supply and sanitation. As of 1884 no sewers beyond the open Prairie Ronde drainage ditch existed in the area. City water was, however, furnished to a limited number of locations through small-bore wood pipes that extended to Clark Avenue along the River Road (West Jefferson) and West Fort Street. A 1,164-foot section of wood pipe similarly ran north from the River Road along Clark Avenue (Detroit 1885:29, 32, 43). The setting altered rapidly over the next several years.

The catalyst for change was directly linked to the expansion of urban infrastructure resulting from the expansion of city limits in 1885 to the line of Artillery (Livernois) Avenue. By the close of 1886 the City Water Department had built an 8-inch iron line from 24th Street to Campbell Avenue along West Fort Street. A 6-inch iron pipe was similarly set along the River Road (West Jefferson) to the foot of Artillery (Livernois). Another 6-inch iron pipe connected the West Fort and River Road segments along John C (Morrell) Street (Detroit 1887a:32, 35, 46). At the same time that this system for neighborhood water supply was being created, the Department of Public Works was building a buried public sewer along Campbell Street capable of handling the run-off and sewage disposal needs of a growing urban district. In 1887 the city possessed 95 miles of public sewer which had been built over the previous 50 years at a cost of over $2.3 million (Farmer 1890:61). Over the two-year period of 1886 through 1888, Detroit was to expand an additional $29,685.62 in the construction of a 3,648.5-foot public sewer running Campbell Street from the north line of West Fort Street to the Detroit River (Detroit 1887b:36; 1888:34). With few exceptions the connection of neighborhood laterals to this sewer were completed, for the blocks to the east of Cavalry Avenue, by 1903. Farther to the west, between Cavalry and Dragoon Avenues this was not accomplished until the 1905 through 1909 period. At about the same time the westerly limits of the city were extended to the Rouge River. Public sewer development followed quickly on the heels of this expansion and included the construction of a 4,467-foot facility along West Fort Street and Waterman Avenue for $22,273.57. The next year another public sewer, running for 4,946 feet along South Street and Schroeder Avenue, was built at a cost of $70,471.83.

Another important component of city sanitation was the disposal and removal of domestic wastes. Trash removal in Detroit was largely a matter of individual householder contract through the late 1880s. As of 1887, the city assumed the problem as a public health issue with removal and disposal activities being carried out through public bid contracts. Businesses that dominated the scene over the next two decades included the Garbage Cremating Company, the Detroit Sanitary Company and the related Detroit Reduction Company which processed refuse shipped out of the city by railroad to French Landing on the Huron River.

On July 1, 1906, Detroit organized a full-time 60-man garbage collection squad under the direction of the Department of Public Works. At the same time, the city was divided into 53 collection districts. Two of the districts, 16 and 50, encompassed the area bounded by the Detroit (south) and Rouge (west) Rivers and Dix (north) and Scotten (east) Avenues. Between 1906 and 1910 the amount of

garbage and rubbish collected annually from two districts increased from 906 tons to 1,152 tons. Garbage was at that time defined as consisting of common kitchen wastes, with rubbish including such diverse items as "tin cans, paper, bottles, rags, broken crockery and glass." What it did not include was demolition debris, the "rubbish from the repair of buildings nor the waste of new buildings."

An additional aspect of waste removal and the potential of on-site primary disposal practices relates directly to the occurrence of privy versus water closet technology. Contemporary literature sources indicate that the water closet had been introduced into Detroit's downtown core community by the early 1850s (Demeter 1994). Its spread into the outlying neighborhoods was limited by factors of cost and the absence of component public services such as sewer and water. Although the vault privy figured as one alternative, other disposal approaches utilized throughout the nineteenth century included a variety of above-ground pail-barrel-pan receptacle forms that required regular servicing. This necessitated the existence of well-organized and regulated maintenance practices. Such is certainly indicated to have been the case after Detroit began to license its scavengers in 1853, and approved the creation of a special squad of sanitary police in 1870 (Demeter 1994). That the effort was totally successful is more than questionable. This is especially true in the poorer districts of the city where, as late as the opening of the twentieth century it was reported that,

> …from four to thirteen families…[use]…a single vault. Into these cess-pools the rain water and house drainage is brought to help keep them clean by washing their contents into the public sewer. Experience in this and other cities show that people who use such conveniences throw everything into them, causing continual stoppage [BH 1903:56-57].

When considering how few privy features have been identified on Detroit archaeological sites dating to a 1870 through 1900 setting, a period during which city population grew from 99,577 to 285,704, the fact that more than 30,000 "vaults" were estimated to have still been operational as late as 1894 represents a startling statistic (Board of Health [BH] 1895:60). Their disappearance from the city's built environment was a slow process. As of 1903, "thousands" were reportedly still in operation (BH 1903:57). These likely dominated the outer fringe areas of the city and quite possibly consisted of above-ground pail or shallow vault varieties. After 1895, however, their numbers dwindled rapidly. In that year, the city refused to issue any further licenses for new vault excavations. Those in need of repair were similarly "…done away with and replaced by better closets" (BH 1903:57). What these "better closets" may have been is not specifically stated, except as implied through the observation that, "while a certain class of tenants will always abuse any closet given them and cause trouble, the inside wash-down closet is the most economical" (BH 1903:57).

In 1890 the Board of Health had called for the removal of all vaults within those areas of the city, "…where there are sewers." It further recommended the replacement of vaults, along with "pan and valve [water] closets," by the cheap enameled cast iron "hopper closet" (BH 1890;21, 22). Also known as the "cottage closet," the hopper was described in one early review as "suitable for the use of persons who cannot be trusted with the better kinds of water-closet" (Anonymous 1878a:73). Its low cost and low maintenance design similarly rendered it within the reach of most working class home owners (Demeter 1994).

The transition from rural fringe to a fully urbanized environment was incremental but steady over the nearly 40-year period spanning the early 1880s through the early 1920s. The shift is recognizable in both the intensity of growth and the introduction of approaches to sanitation technology that constitute a hallmark of modern city development. Within the DRIC study area the adaptation of

these new technological variables can generally be seen as spreading from east to west from old to new neighborhood locations. As a result of this developmental pattern a primary focus of the field study was directed towards the identification and exploration of the earlier neighborhood growth zones generally dating from the 1870s through the 1880s. It was believed that these offered the highest probability for the recovery of *in situ* discard reflective of the initial settlement phases of householder land use. It was also suspected that such old neighborhood growth zones might also have possessed an environmental priority. It could be that within a generally inundated landscape that these early development zones may have actually constituted some of the better drained districts. As such it was felt that, in the absence of more definitive evidence, that these zones might also offer some promise for the recovery of prehistoric cultural remains such as might be associated with short-term procurement and processing sites, flanking the ceremonial center that had once existed in association with the Springwells sand ridge.

In attempting to assess the archaeological potential that might be offered in old neighborhood development zones a review of the historical backgrounds of the six private claims forming the study area was undertaken (Figures 1.0-1 and 1.4.1-6). As discussed below, these indicated a good probability for the recovery of late nineteenth-century domestic remains along certain streets within the overall proposed DRIC plaza component.

2.1.4 Property-Specific Land Use

Private Claim 30

This property was formed by three separate parcels acquired by Matthew Ernst over a three-year period between 1799 and 1802. The eastern 3 arpents (576.75 feet) of the tract was variously owned by Jean Baptiste Deplaine, Joseph Gaudet and Gabriel Godfroy (Wayne County n.d.:659). The 1796 McNeff map indicates that Godfroy had held the property at that time, while Ernst's deed to the adjoining Lafontaine parcel identifies Gaudet as the owner in 1799 (Figure 1.4.2-2). Deplaine's tenure predates Gaudet's but cannot be fixed in time. At the time of its purchase by Ernst on November 4, 1800 for $600.00, the easterly parcel was back in Godfroy's hands.

The adjacent 3-arpent (576.75-foot) wide parcel to the west was purchased by Ernst from Francois Lafontaine for $1,250.00 on May 1,1799. To this he added an additional arpent of frontage in a $200.00 purchase from John Askin, agent for Todd and McGill, on December 22, 1802. At the time of the Federal Land Board review of the Detroit area, Ernst's tenure over the entire 7-arpent (1345.75-foot)-wide tract was recognized on July 20, 1807 (Lowrie and Clarke 1832:310-311). Quite possibly because of his official position as the Collector of Revenues for the Port of Detroit, Ernst was granted a patent deed to the tract from the federal government almost immediately afterwards on December 22, 1807.

Due to outstanding debts amounting to $5,502.95 the property was seized and sold in April 1808 for $2,100.00 to the United States government. The farm was almost immediately rented out to Fr. Gabriel Richard as the new site for St. Anne's church and the Spring Hill Indian Mission School. Richard failed in his attempts over the next two years to get the government to cede ownership to the property. In 1810 the tract was sold at public auction to Judge James Witherell for $5,000.00 (Woodford and Hyma 1958:55-56). Sometime prior to 1812 it was sold to John R. Williams (Wayne County n.d.:659).

Throughout most of the period of Williams' ownership, development on the farm was marginal. The only extant structure was described in the 1890s as having been "…an old style French-built house, with huge chimneys at each end..(with)..an old orchard on the west side.." (Palmer 1906:26). This presumably was the same building occupied by governor Will Hull after his arrival at Detroit in 1805 and likely served as the site of Richard's Mission church and school. Its location would have been near the old River Road to the south of the present line of West Jefferson. In reviewing the cost of the three tracts purchased by Ernst, and remembering that neither Askin nor Godfroy resided on their respective properties, the most likely positioning of the house would be within the Lafontaine parcel. In terms of present day landmarks this would place it somewhere between the extended lines of Summit Street (east) and Morrell Street (west).

In 1850 Williams sold a small 2.80-acre lot at the southwest corner of P.C. 30 to Aaron Benedict, who later (February 18, 1853) transferred the property to the Waterbury and Detroit Copper Company of Connecticut for $2,000.00 (Wayne County n.d.:659). This was the site of Detroit's original copper works development, established at the time of the Benedict purchase.

Upon William's death in 1857 the forward portion of P.C. 30 between Fort Street and the river was divided into 16 out lots with two each going to his surviving children (Figure 2.1.4-1). Besides the buildings associated with the copper works property, the only other structures on the parcel in 1860 consisted of a hotel on Out Lot (O.L.) 9 and another building on the realigned right-of-way of the River Road (i.e., Jefferson) on O.L. 7 (Figures 1.4.3-1 and 2.1.4-1). Although most of the property was eventually subdivided into much smaller town lot subdivisions, the eight riverfront out lots were sold intact as indicated below (Table 2.1.4-1) (Figure 2.1.4-1).

Table 2.1.4-1 Riverfront Out Lot Purchases from the J.R. Williams Estate Subdivision, Private Claim 30:1857-1900

Out Lot No.	Purchaser	Date	Consideration
1	Baugh Steam Forge Co.	1879	$11,000.00
	Michigan Forge and Iron Co.	1890	250,000.00
	Michigan Peninsular Car Co.	1892	–
	America Car and Foundry Co.	1899	–
2	Martin S. Smith	1889	10,000.00
3 (E 2/3)	Detroit Copper & Brass Rolling Mills	1886	28,000.00
(W 1/3)	Thomas Allen	1889	5,500.00
5	Detroit Leather Co.	1894	7,000.00
6	Francis X. Monnier	1870	6,160.00
	John F. LaDue	1872	9,500.00
	Detroit Leather Co.	1876	–
7	John T. LaDue & Co.	1876	5,000.00
	Jewell & Son	1872	10,000.00
	Detroit Leather Co.	1876	–
8	Henry L. Walker	1863	3,415.14
	John T. LaDue & Co.	1866	5,000.00
	Jewell & Son	1872	10,000.00
	Detroit Leather Co.	1876	–

(Wayne County n.d.:659)

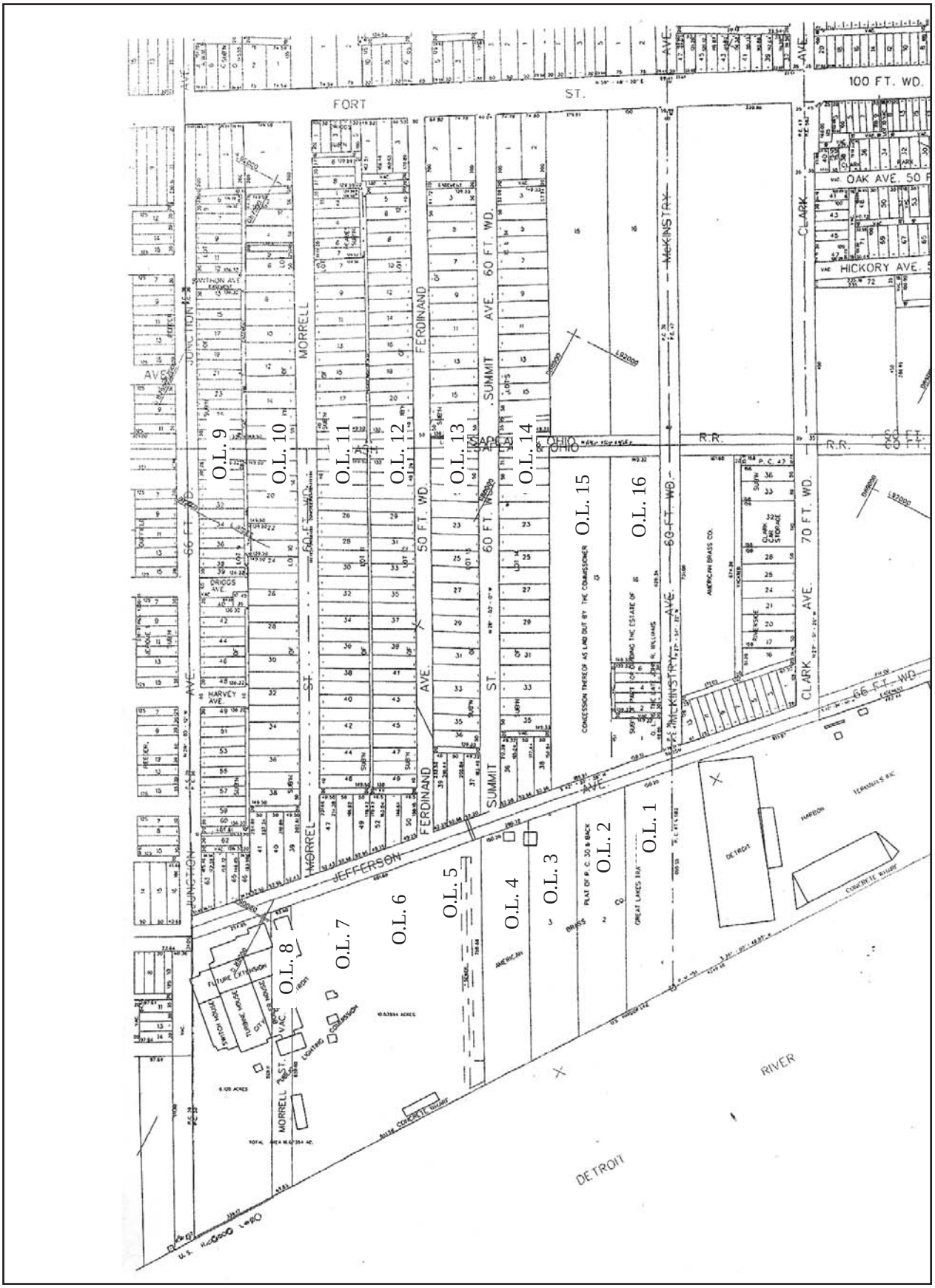


Figure 2.1.4-1. Private Claim 30 Subdivision Outlots 1 through 16

Subsequent to the turn of the century heavy industry took over the entire area, with O.L. 2 going to the Detroit Copper and Brass Rolling Mills in 1915, O.L. 3 and O.L. 4 to the Peninsular Smelting and Refinishing Company in 1918, and O.L. 5 through 8 to the Jewell Belting Company in 1910. Prior to 1876 the Waterbury and Detroit Copper Company was reorganized as the Detroit and Lake Superior Copper Company. In 1917 its grounds were acquired by the City of Detroit. The entire west half of the frontage, inclusive of O.L. 5 through 8, is now held by the Detroit Public Lighting Commission, while the easterly out lots (O.L. 1 through 4) were until quite recently in the possession of the American Brass Company.

As late as 1873 the only development within the area between Jefferson and Fort was in O.L. 10, on the west side of Morrell, with the exception of a single building in the north half of O.L. 15. This was St. Lukes Hospital, built in 1865. As of 1876 structure counts for O.L. 9 through 13 were as follows: O.L. 9 and O.L. 11 were undeveloped, O.L. 10 had 25 structures, O.L. 12 had 4 and O.L. 13 had 12 (Figure 1.2-5). Information provided on an 1885 atlas shows O.L. 9 as still having no structures on it, O.L. 10 with 26, 11 with 8, 12 with 5 and O.L. 13 with 16 (Figure 2.1.4-2).

Out Lots 14, 15, and 16 were devoted to heavy industrial factory development during the 1880s through 1900s by the successive Detroit Copper and Brass Rolling Mill and American Brass companies (Figures 2.1.4-1 and 2.1.4-2). The adjoining out lots extending towards Junction Avenue were subjected to town lot subdivision formats readily designed for mixed neighborhood residential and commercial usage. This approach began with the subdivision of O.L. 10, on the west side of Morrell (John C) Street in 1870. Subsequent subdivisions included O.L. 13 (west side of Summit) in 1871, O.L. 11 (east side of Morrell) in 1872, O.L. 12 (west side of Ferdinand) in 1873, and O.L. 9 (east side of Junction) in 1886 (Table 2.1.4-2) (Figures 2.1.4-1 and 2.1.4-2).

Table 2.1.4-2 Initial Lot Sales in Out Lots 10, 12, and 13 of Private Claim 30: 1870-1890

Out Lot No.	Subdivision Lot No.	Purchaser	Date	Consideration
10	17-18	Jophia Gerloff	4-25-1871	$530.00
	19	Frank Faivre	2-25-1879	350.00
	20-21	Andrew Ketcher	7-11-1875	950.00
	22-23	Edwin Reeder	10-25-187	950.00
	24	John Forhm	5-20-1876	600.00
	25	Frank St. Thomas	12-18-1877	500.00
	26	Charles Erke	9-17-1875	400.00
	27	Gustave St. Thomas	9-17-1875	400.00
	28	John Donnelly	3-29-1879	600.00
	29	Eli Cabinaugh	11-15-1875	266.00
	30	Joseph Cabinaugh	11-15-1873	271.00
	31-32	George W. Rider	11-14-1870	542.00
	33-34	John S. Thompson	11-21-1871	257.40
	35	Theordore Gerloff	11-14-1870	264.55
	36	William Robinson	10-18-1873	286.00
	37	Daniel McCrane	11-21-1871	128.70
	38	James R. Cooper	11-21-1871	128.70
	39	Patrick Godfroy	11-14-1870	712.25
	40-41	Francix X. Monneer	11-14-1870	1,564.00
12	40	Charles Labadie	4-22-1874	550.00
	47-48	Francis L. Thebo	12-15-1874	1,100.00
	49	John Brouty	9-03-1873	600.00

Out Lot No.	Subdivision Lot No.	Purchaser	Date	Consideration
13	22-23	Eugene G. Weber	5-14-1879	490.00
	26-29	Martin Klein	2-05-1878	1,000.00
	30-31	Francis H. Monier	10-13-1873	1,160.00
	32	Fred Zimmermann	10-13-1873	585.00
	33	John Brouty	10-13-1873	575.00
	34-35	Jewell & Son	10-13-1873	1,140.00
	36	Samuel Kempston	10-13-1873	580.00
	37-39	John English	8-12-1873	3,300.00

(Wayne County n.d.:659)

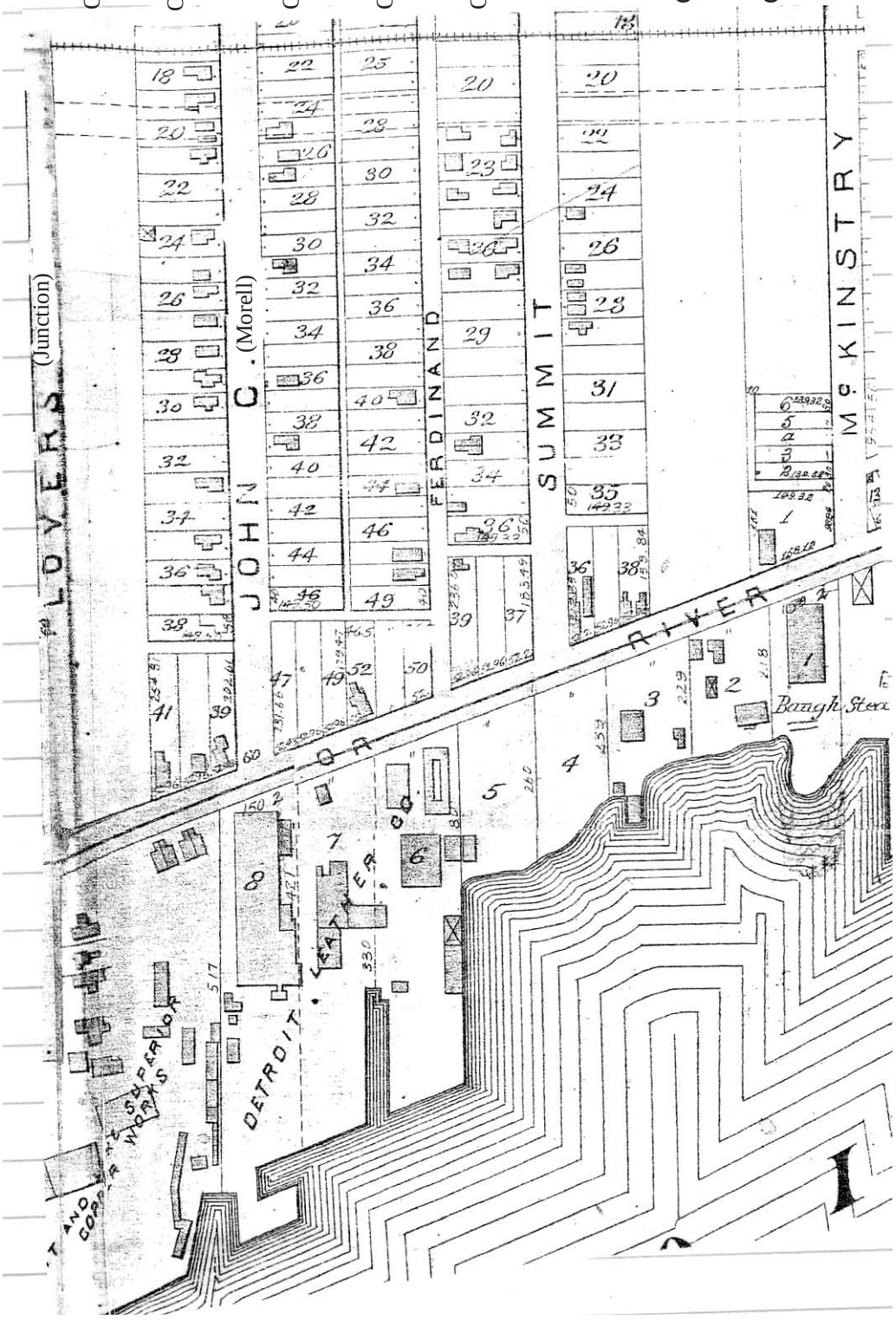
The O.L. 10 subdivision along the west side of Morrell (John C) witnessed a concentrated degree of development during the 1870s (Figures 2.1.4-1 and 2.1.4-2). This represents one of the earliest cohesive neighborhood growth zones occurring throughout the project area. Portions of the block presently exist as vacant ground with a low potential of having been subjected to multigenerational development cycles. As of 1885 roughly 76 percent of the properties were developed between Lots 18 through 38 (Figures 2.1.4-1 and 2.1.4-2). As a result of this situation, it was believed that a good potential existed for the recovery of late nineteenth-century artifacts.

Private Claim 39

Prior to 1801 this claim formed part of an extensive 37-arpent (7113.25-foot)-wide tract held by John Askin and his business partners, Isaac Todd and James McGill. On October 31, 1801, a segment of the property, measuring 6 by 40 arpents, was purchased by John Harvey, a Detroit-based peddler and baker (Wayne County n.d.:536; Burton 1915:181-182). This claim description was submitted by Harvey to the Federal Land Board in November 1805 and approved two years later on July 22, 1807 (Lowrie and Clarke 1832:312). It, however, failed to consider an exclusion listed in the original deed to the parcel. This excluded a 1-arpent-wide (192.25 feet) by 2-arpent-deep (384.50 feet) lot on the southwest corner of the Harvey purchase. The northeast corner of this lot was reportedly marked by the remains of an "…ancient brick chimney..." (Wayne County n.d.:536).

In 1808 Askin submitted a competing claim on this lot. The documentation provided at that time read as follows:

> To the Register of the Land Office at Detroit
>
> August 11, 1808
>
> John Askin, Sen., Claims an acre of ground, on which there was formerly a house and garden; its situation on what is called the race ground, and bordering on the Detroit river; bounded northeast by John Harvey, and in the rear by the same, and on the southwest by what is called the wind mill lands, claimed by
>
> JOHN ASKIN.
>
> This lot of ground contains one square acre, bounded in front by river Detroit, northeast and rear by John Harvey, southwest by what is called the wind mill lands. Whereupon, Alexis Labadi was brought forward as a witness in behalf of the claimant, who, being duly sworn, deposed and said, that, previous to this 1st of July,



Source: Robinson and Pidgeon 1885

Figure 2.1.4-2. Private Claim 30 Development in Out Lots 1-16, 1885

1796, the claimant was in possession of the premises, and that, in 1797 or 1798, he house was demolished, and that, since that time, has remained open, and used as a pasture [Lowrie and Clarke 1832:389].

The "race ground" was a circular horse track. Askin's claim to this parcel was initially postponed and later rejected. Later attempts by his heirs to secure possession of the property met with a similar result; however, witness testimony provided in the 1820s was far more descriptive and provides some very important information relative to occupancy of the "race ground" and "wind mill" tracts.

No. 33-The legal heirs and representatives
of the late John Askin, esq., deceased

The legal heirs and representatives of the late John Askin, esq., deceased, renew the entry made by the said John Askin, esq., deceased, with the former commissioners, on August 11, 1808, recorded in vol. 5, page 63, in the words following, to wit:

To the register of the land office at Detroit:

John Askin, se., claims a tract of land containing one acre, on which there was formerly a house and garden, its situation at what is called the Race Ground, and bordering on the Detroit river, bounded northeast by John Harvey, and in the rear by the same, and on the southwest by what is called the Windmill land, claimed by John Askin.

Testimony filed in 1821 with the now commissioners.

Andrew Lapage, being duly sworn, deposeth and saith that deponent first went to live on said tract, being one square acre, upon which a house was erected a short distance below the wind-mill, in which house he continued to reside three years and six months, and afterwards removed a short distance above where deponent resided the same length of time, during which term of years deponent cultivated the tract in question for and in behalf of John Askin. Deponent at the same time tended the mill. Deponent first established himself there the year after the arrival of General Wayne. The mill and house had both been built four or five years before that time. Deponent knows that Mr. Askin, deceased, had, by purchase, a considerable time before deponent's going there, the right to, or was reputed the owner.

Andrew Lapage, being duly sworn, deposeth and saith that Francois Barron purchased one square acre of Francois Livernois, or his father, on the Detroit river, below and adjoining the wind-mill lot so called; and said Barron exchanged said lot with John Askin, deceased, for a square arpent above the wind-mill lot, on which said east lot said Barron erected a house five or six years previous to the arrival of General Wayne, Which said Barron lived in four years, and then sold said house and lot to said deceased. The deponent occupied it under the deceased three years, and cultivated the land many years after that, when a sale of the land adjoining was made to Harvey. The said deceased reserved the tract last mentioned in said sale.

At the time this claim was under consideration, in eighteen hundred and five claimant filed a deed of conveyance of the above-described tract of land from

> Francois Bernard, dated 1796. He now files a deed of conveyance from Francois Bernard, dated February 18, 1796.
>
> And thereupon it does not appear to the commissioners that possession or cultivation of the land above claimed was continued until eighteen hundred and seven, or for some years prior to that time; and it would seem, indeed, that it was abandoned long before that period. The commissioners do therefore reject this claim [Dickins and Forney 1860:172].

The distribution of these three properties, consisting of a centrally located mill lot flanked by a lower house and an upper house, or Race Ground lot, spanned a contiguous area along the adjoining river frontages of the southwest corner of P.C. 39 and the northeast corner of P.C. 32.

Although certain information appears to indicate that Harvey may have begun the construction of a house on P.C. 39 as early as 1801, no specific evidence exists indicating that he actually resided on the property. A fire that broke out in his bakeshop is generally blamed for the conflagration which leveled Detroit in 1805. In 1810 he is reported to have moved to New York, later relocating to Jeffersonville, Indiana where he died in 1825 (Burton 1915:181). His Detroit properties passed into the possession of his daughter, later passing into the hands of her husband, Edwin Reeder. It was presumably at about this time that Palmer (1906:26) later noted "on the River Road (there was none other at that time), beyond the sand hill, I think, Mr. Reeder lived, on what is now the Crane Farm." The Geil map showing structures on the farm for 1860 illustrates five along the north side of Jefferson with one on the south side (Figure 1.4.3-1). The 1876 Belden map illustrates 12 structures on the north edge of west Jefferson, one on the south and another to the southeast nearer to the riverfront and adjacent to Fort Wayne (Figure 1.2-5). The distribution and number of structures indicated on both maps is basically confirmed by an 1873 Corps of Engineers map of the riverfront which depicts 11 structures on the north side of Jefferson, one on the south and one structure on the southwest part of the farm, adjacent to Fort Wayne and the river (Figure 1.4.3-3). The location of this latter structure likely places it within a 200 ft-wide parcel rental to brick maker John Greusel, on October 21, 1847 (Wayne County n.d.:536).

Although Reeder continued to claim the property through the 1870s, deed records note that as of April 18, 1868, Walter Crane had received a warranty deed and deed of escrow for the tract from the State of Michigan for $4,000.00. This resulted in a long legal battle that ultimately ended with the Reeder heirs selling their interest to Crane through a quit claim dated December 17, 1878.

Development through the early post-Civil War period was fundamentally restricted to the narrow band of lots extending along the northerly edge of Jefferson Avenue. This area was subdivided according to a plat recorded in 1866. The earliest land sales do not emerge as part of the record of area land use until 1871 (Wayne County n.d.:537). A total of 12 properties were sold off along this strip over the next seven-year period, extending through 1878 (Table 2.1.4-3) (Figure 2.1.4-3).

Table 2.1.4-3 Initial Lot Sales from the 1866 Subdivision Plat of Private Claim 39 on the North Side of West Jefferson Avenue

Lot No.	Purchaser	Date	Consideration
1	John S. Thompson	6-29-1871	$1.00
2	Andrew J. Kitcher	6-29-1871	1.00
3	Alexander Gray	6-29-1871	1.00
4	Edwin Reeder	12-18-1878	50.00
5	Ary E. Stewart	12-27-1871	1,000.00
6	Christian Fredericks	6-29-1871	1.00

A	Harriet Child	(not recorded, pre-1877)	–
11	Duffield, Jerome & Reeder	12-18-1878	1,000.00
12	Adam Sheal	6-29-1871	1.00
14-16	John Winterhalter	6-26-1871	1.00

The next large subdivision to be laid out within P.C. 39 was the Walter Crane Farm plat extending to the north of the 1866 plat along West Jefferson towards Harvey Avenue (north), Cavalry Avenue (west), and to a point about 220 feet east of Campbell Avenue (east). Having been platted on July 5, 1879, a total of 51 of the 95 lots forming this subdivision were sold through warranty deed sales between 1880 and 1890 (Table 2.1.4-4) (Figure 2.1.4-4).

Table 2.1.4-4 Pre-1890 Initial Lot Sales from the 1879 Subdivision Plat of the Walter Crane Farm (Private Claim 39)

Lot No.	Purchaser	Date	Consideration
30	Thomas Thorley	10-24-1889	250.00
31	J. Bte. Maloche	6-11-1888	225.00
32	Winifred Ratigan	4-25-1888	275.00
33	Joseph Duge	4-25-1888	–
35	Josia Archer	62401889	225.00
39	Charles Grace	1-02-1888	270.00
41	Richard Barrett	1-03-1888	325.00
48-49, 109	John T. Reeder	10-24-1889	725.00
50	Ellen Ratigan	10-08-1885	225.00
52-61	Univ. of Mich., Board of Regents	3-22-1880	–
62	William Barrett	11-22-1888	300.00
66	Winifred Ratigan	1-25-1886	275.00
67	Bertha Berninger	4-18-1887	275.00
69	Peter Trudo	11-14-1889	310.00
70-71	John Clippert, Jr.	4-25-1888	450.00
74-75	William Hawkins	10-13-1882	450.00
76	Richard Barrett	8-20-1883	350.00
77-78, 81, 92	Christopher Fredericks	2-09-1886	800.00
85-86	Samuel Weller	4-08-1889	450.00
87	Ellen E. Ratigan	5-12-1884	225.00
88	John Murphey	10-07-1884	425.00
93-95	Amos Evarts	(not recorded, pre 1886)	–
96-97	Mary C. Wells	9-27-1880	450.00
98-102	Valeria Campbell	6-22-1880	1,125.00
105	Moses Menard	4-24-1889	225.00
110	Theodore Lentz	1887	225.00
111-112	George M. Kunna	1-12-1887	400.00

(Wayne County n.d.:537)

Subsequent to obtaining sole control over the parcel, Crane sold the eastern third of P.C. 39 (December 18, 1878) to an investor group consisting of D.B. Duffield, George Jerome and Edwin Reeder. In 1879 this group subdivided their purchase into 17 blocks, adding an additional three blocks in 1881. Pre-1890 property sales within blocks 19 through 21, to the south of West Fort Street are presented below in Table 2.1.4-5 (Figure 2.1.4-5). Initial sales within Block 22, to the south of West Jefferson Avenue began with the 1898 sale of Lot 8.

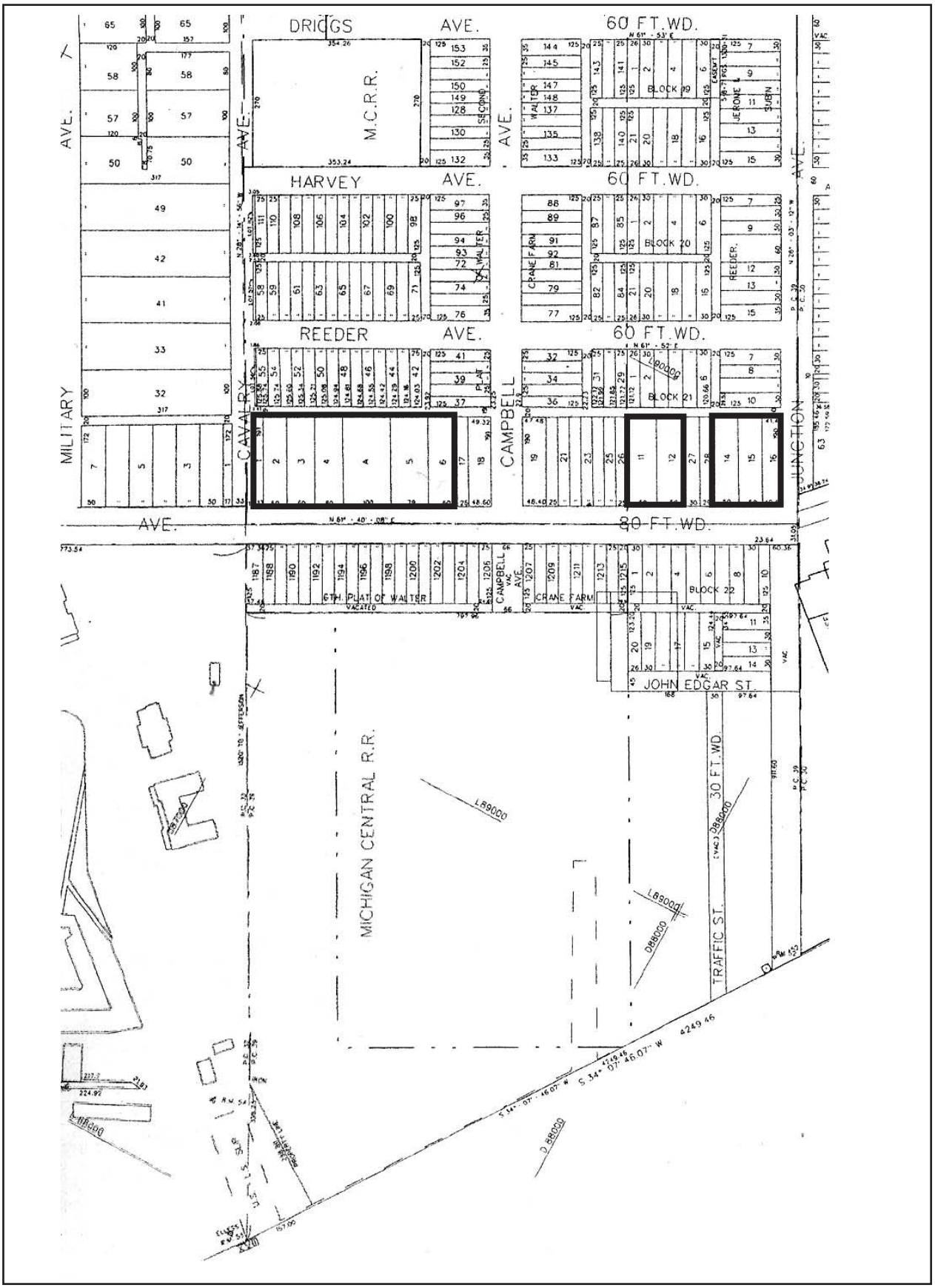


Figure 2.1.4-3. 1866 Plat Initial Land Sales, 1871-1878

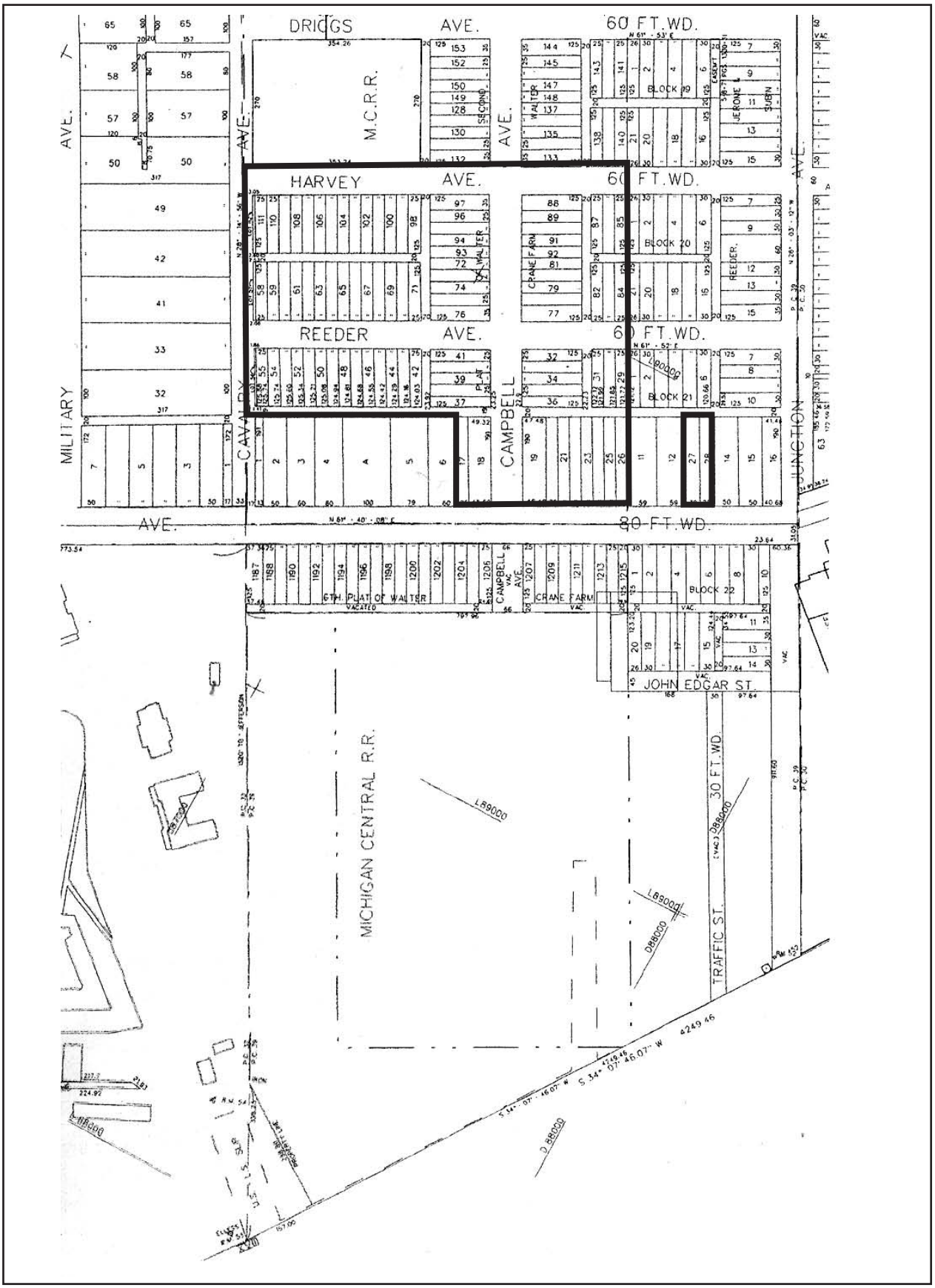


Figure 2.1.4-4. 1879 Plat Plat of Part of the Walter Crane Farm

Table 2.1.4-5 Initial Lot Sales (Pre-1890) in Blocks 19 through 21 of the Duffield, Jerome and Reeder Subdivision

Block No.	Lot No.	Purchaser	Date	Consideration
19	1	Alexander Labute	7-29-1889	385.00
	7-8	James F. Ratigan	12-17-1887	800.00
	9	Mary Morton	5-16-1889	375.00
	16	Louis Cadaret	7-15-1886	300.00
20	7	Barbe Varret	11-16-1883	375.00
	13	Federicka Peters	7-17-1885	400.00
	14	Johanna Duhring	10-16-1886	375.00
	15	Johanna Duhring	10-17-1886	525.00
	16-17	Albert Jenks	5-09-1888	600.00
	Church Lot	First Congregational Society	1879	-
21	1-6	Thomas Thorley	9-29-1883	850.00
	7-10	George Street	8-16-1887	900.00

(Wayne County n.d.:536)

Those grounds lying south of vacated John Edgar Street were purchased in two separate transactions (1880 and 1882) by the Detroit and Lake Superior Copper Company for a total of $26,500.00. The tract was subsequently sold to the United Fuel and Supply Co. (1917), the Detroit Lumber Company (1919), and the Revere Copper and Brass Company (1950).

During this same period the Crane heirs sold off the western 400 feet of their holdings below Jefferson in 1905. These grounds were subsequently purchased by the Michigan Copper and Brass Company (1906) and later transferred to the Republic Brass Company (1928) and the Revere Copper and Brass Company (1936). The remaining frontage was for a time, after 1919, occupied by the Detroit Lumber Company.

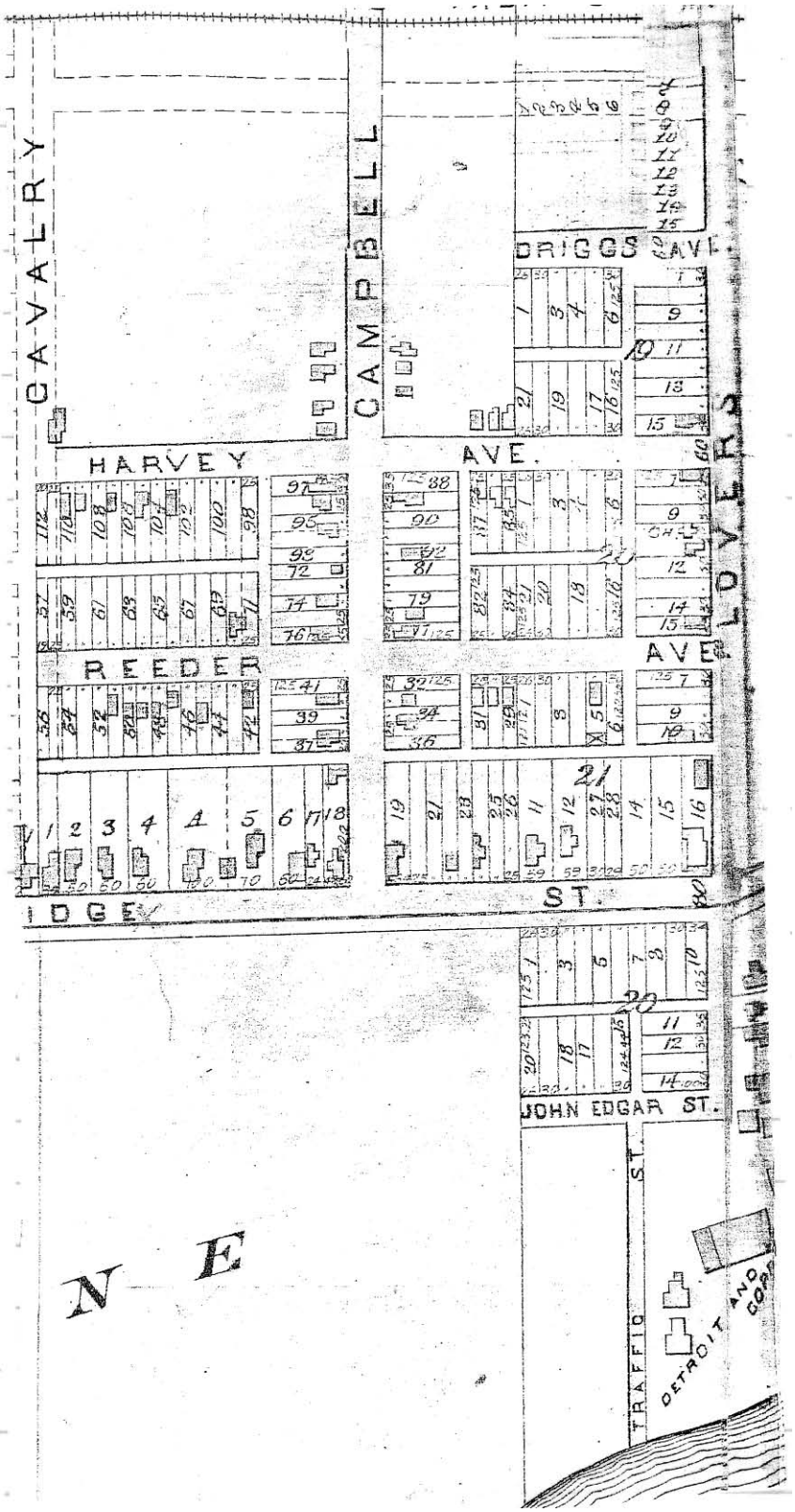
Access to the grounds along the north side of West Jefferson Avenue is problematic due to building, paved parking, and open storage lot development. The adjacent Walter Crane Farm and Harvey and Reeder subdivision lots are, however, largely cleared and were believed to offer a good probability for the recovery of household deposits reflective of the initial phases of neighborhood development (Figures 2.1.4-4, 2.1.4-5, and 2.1.4-6).

The location of the [redacted] had been postulated [redacted] as likely being within or near [redacted] (Figure 2.1.4-5). This approximates the location of the [redacted] depicted on the [redacted] as it existed in 1841 (Figure 1.2-3).

Private Claims 32, 267, 268 and 270

This extensive property once formed the bulk of the 37-arpent (7,113.25-foot)-wide tract popularly recognized as being a possession of John Askin during the late 1790s. Subsequent to his death in 1817, it was the subject of multiple claims by a host of business partners, creditors and purchasers. Although conflicting with each other in their rights over the various tracts within the property, all of the claimants tend to agree that as of the early 1790s that the lands were in the possession of either Joseph Livernois or his son, Francois (Dickins and Forney 1860:171, 172; Lowrie and Clarke 1832:389, 521).

Figure 2.1.4-5. Blocks 19 through 22 of the Duffield, Jerome, and Reeder Subdivision



Source: Robinson and Pidgeon 1885

Figure 2.1.4-6. Private Claim 39 Development, 1885

The Livernois tenure over the property was on a nonresidential basis. During the years 1790 to 1792 Ambrose Riopel fenced and cultivated about 9 arpents on the tract, while from about 1796 to 1799 Simon Drouillard worked abut 4 arpents of ground (Dickins and Forney 1860:171; Lowrie and Clarke 1832:521). The former reportedly held the tract with the acquiescence of Livernois; the latter for John Askin. Isaac Todd's claim to a portion of the property was traced through a purchase from Askin and verified before the Federal Land board by Joseph Livernois, who noted that "…previous to the 1st July, 1796, John Askin, esq. was in possession and occupancy of the premises…" (Lowrie and Clarke 1832:388). Todd's property was described at that time as being 12 arpents back from the river, 2 arpents wide by 38 deep. It reportedly consisted of sandy and wet ground "unfit for cultivation." Its usage was restricted to cutting fire-wood and hay with "…no improvements thereon" (Lowrie and Clarke 1832:388).

In terms of its positioning, Todd's claim directly overlapped the claim of Henry Berthelet, who was able to demonstrate title over the tract in a direct line from Livernois. His application for recognition of title read as follows:

> No. 655. HENRY BERTHELET – The Board took into consideration the claim of Henry Berthelet, grantee of Louis Barthe, to a tract of land, situated on river Detroit, which was entered with the former Commissioners of the Land Office at Detroit, in vol. 1 page 264, under the date of 1st February, 1805.
>
> This tract contains, by estimation, one hundred and sixty arpents, it being four arpents in front by four in depth, bounded in front by river Detroit, in rear, by lands of Joseph Livernois, northeast by lands claimed by John Harvey, and southwest by lands claimed by John Askin.
>
> Whereupon, Ambroise Riopel was brought forward as a witness in behalf of the claimant, who, being duly sworn, deposed and said, that, on the 1st of July, 1796, Joseph Livernois was in possession of the premises, and continued so until he exchanged with Louis Barthe (as per deed recorded) on the 2nd day of February, 1802. The deponent saith that he cultivated part of the premises during three years previous to 1796, that is, in 1790, '91, and '92, with the permission of Joseph Livernois, and that there were then eight or nine arpents under cultivation and enclosed. There are no improvements or enclosures now on the premises – Postponed [Lowrie and Clarke 1832:521].

The postponement of Berthelet's application took into consideration Askin's and Todd's earlier claim to the property. Several months later, on December 4, the Board took further testimony on the claim from witness provided by Berthelet and Askin.

> The Board reconsidered the claim of Henry Berthelet (No. 655) which was postponed on Tuesday, the 2nd day of August last.
>
> Whereupon, Andre Lepage was brought forward as a witness in behalf of the claimant, who, being duly sworn, deposed and said, that, on the 1st July, 1796, one Simon Drouillard occupied the premises for Mr. Askin, and continued thereon three years; that he, the deponent, went on the premises, and remained thereon six years and six months, and cultivated about four arpents; that this tract of land was then the property of Joseph Livernois, who sold the same to Louis Barthe, from whom the claimant has purchased.

> Joseph Weaver, another witness being sworn, deposed and said, that, one year before Andre Lepage left the premises, he, the deponent, was charged with the care of them by Mr. Askin, with instructions to suffer no waste to be committed thereon; that he, himself, together with some other persons authorized by him, or by Mr. Askin, or Mr. Brush, have cut hay every year on the premises; that, five years ago, the improvements were destroyed; that he has seen Indians and boatmen make fire with the fences; and that no improvements have been made since the first were destroyed [Lowrie and Clarke 1832:526].

A decision on the case was once again postponed until February 1, 1811, when the commission rejected both the Berthelet and Todd claims.

In 1823, Berthelet's legal possession to the tract was finally recognized by the new land commission as P.C. 32 (Dickins and Forney 1860:171-2). Almost immediately afterwards, in August 1824, he sold the property under bond pending patent award to Charles Larned. It was not until eight years later, in November 1832, that a patent deed was actually issued for the tract as P.C. 32. The following year Berthelet finalized his conveyance to Larned through a quit claim deed executed on September 25 (Wayne County n.d.:668).

Although information relative to land use on the property during Larned's ownership is sketchy, it is unlikely that he resided on the property. As one of Detroit's major speculators during this early period, Larned's purchase of the property was only one of many real estate investments in which he was involved at the time. Although the tract was probably let out on a tenant basis, no specific information on this subject survives. Reference made to the property in 1826, however, tends to suggest its use for cattle pasture (McKenney n.d.:99).

Shortly after Larned's death his Springwells properties were sold, in 1835, to Major Robert A. Forsyth. Forsyth, a West Point graduate, came from a well established Detroit family. During the 1820s he served as Governor Lewis Cass' private secretary. With Cass' appointment as Secretary of War in the Jackson cabinet in 1831, Forsyth was promoted to Major, and assigned to Detroit as paymaster for the Northwest Military District. After his purchase of the Larned property, Forsyth spent a good deal of time and money clearing title to his holdings among the Askin and Todd heirs. During this period he not only cleared title to P.C. 32 and the still contested windmill lot frontage of this tract, but also to the adjoining Todd and McGill properties designated as P.C. 267, 268 and 270. These purchases were made from Charles Askin, attorney for the Askin estate's claim to P.C. 270, and from Andrew Thornton Todd for P.C. 267 and P.C. 268. Payment to the former amounted to no more than $119.10 and to the latter, $2,666.95 (Wayne County n.d.:668, 793).

In December 1839, Forsyth sold the bulk of his farm, minus the forward part of P.C. 32, to the Bank of Michigan for $10,000.00 (Wayne County n.d.:668, 793). Two years later, on January 1, 1841, he sold this remaining part to his father-in-law, Benjamin B. Kercheval (Wayne County n.d.:668). Kercheval, in turn, sold a 23.36-acre portion of this tract to the United States on June 3, 1842, for $3,500.00 as the future site of Fort Wayne. At about the time this transaction took place the remaining bank-owned portion of the Forysth tract was acquired by one of the Bank of Michigan's principal stock holders, William Dwight of Springfield, Massachusetts. The purchase was not without a certain insight. As of April 15, 1844, Dwight sold off a 41.86-acre chunk of the property to the United States for the downriver extension of the Fort Wayne Military Reserve. The Fort Wayne

tract was subsequently donated to the City of Detroit through two transfers beginning in 1949, and placed on the National Register of Historic Places in 1970 (Wayne County n.d.:668, 793; Westlake 1970).

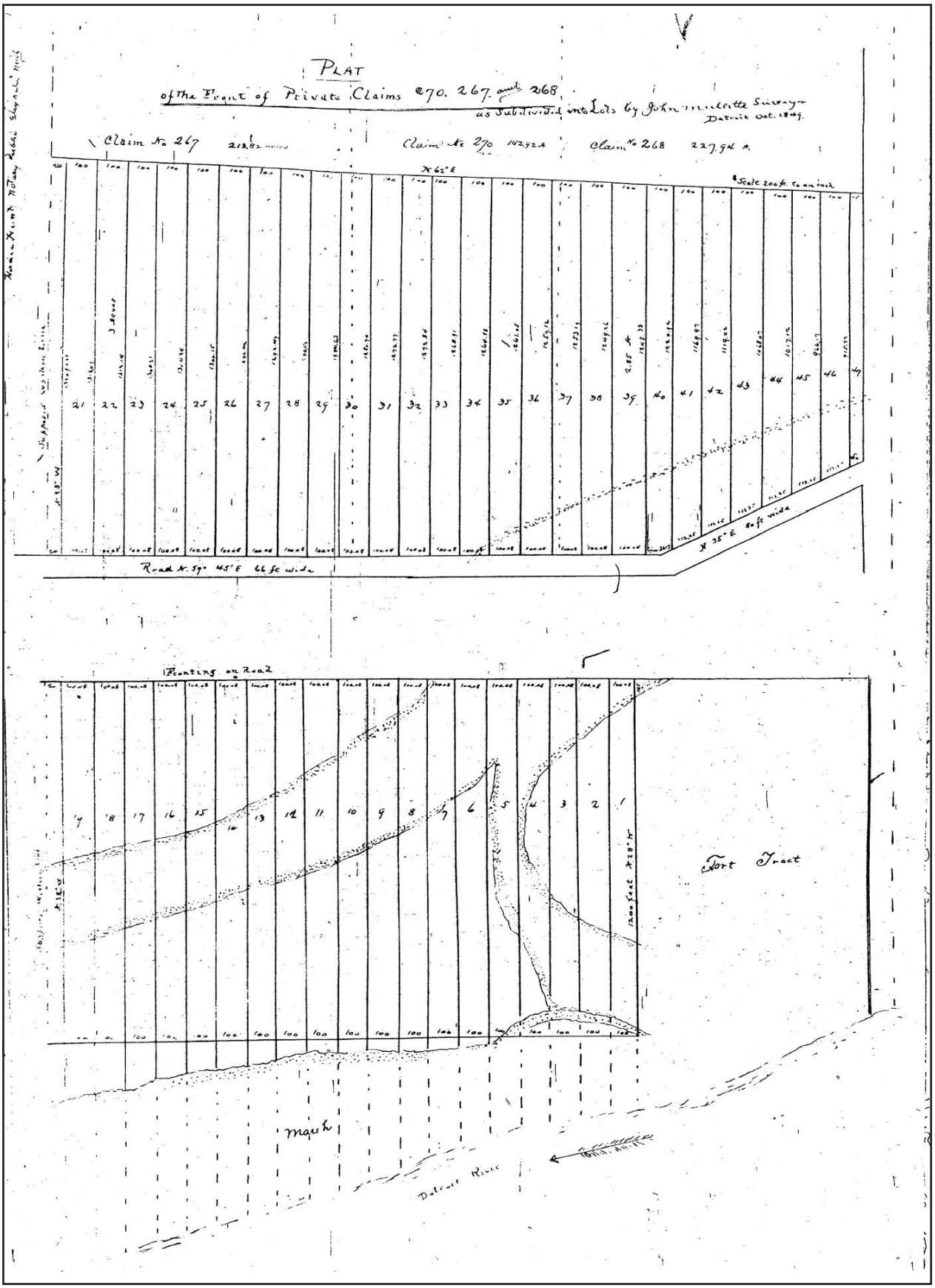
The remaining Dwight holdings were sold off in two separate sales shortly after the construction of the Fort was completed. The earliest of these was made in 1850 to Arthur J. Robertson of Inches, Scotland, a grandson of John Askin. This individual bought portions of P.C. 32 and P.C. 268 (east half) north of Jefferson. The remainder of P.C. 268 (west half), along with P.C. farms 267 and 270 to the west, was purchased by Francis Crawford in October 1852 for $15,000.00. In 1860 Crawford sold off most of P.C. 267 to two real estate developers, Albert Crane and William B. Wesson. Seven years later, Daniel J. Scotten purchased the Robertson tract for $24,000.00 (Figure 1.4.3-1).

Development during the period extending through the third quarter of the century was minimal. The earliest subdivision of any part of the farm occurred in October 1849, when Dwight platted 47 lots on the forward portion of P.C. 267, 268, and 270 (Figure 2.1.4-7). In June 1850, George Weber bought Lots 1 and 2 for $600.00. Eight years later his residence on Lot 1 had been erected (Figure 1.4.3-1).

Waterfront Lots 3 to 18 were picked up in June 1852 by a business partnership founded by George Bancroft, Jonathan Dwight, and George Bliss. In October, Francis Crawford purchased the lots for $15,000.00 and in 1860 transferred them (Lots 13-17) to the Crane and Wesson partnership. These were sold to John P. Clark four years later for $5,277.75 and later (1882) to George W. Fletcher for $2,800.00. The remaining Crawford lots (3-12) were replatted (92-101) in 1868 as part of the Crawford Fort Subdivision tract. Lot 19 passed through the hands of eight different owners between 1851 and 1877. By 1860, when the property was owned by Philo Parsons, a structure had been erected on Jefferson Avenue (Figure 1.4.3-1). Development of this portion of the riverfront was virtually non-existent until 1900 when the Solvay Processing Company purchased the Dwight (Lots 13-19) and Crawford (Lots 92-101) subdivisions, and at a later date (1903) added the Weber property, Lots 1 and 2, to the east. In 1904 this latter property and Lots 92-97 of the Crawford Subdivision were sold to Detroit Edison.

A review of the line of development from the east to west side of the Scotten (P.C. 32 and partial P.C. 268), Crawford (P.C. 270 and partial P.C. 267 and 268) and Crane and Wesson (partial P.C. 267) subdivisions illustrates that portions of the Scotten property achieved relatively intensive land use quite early. This began with the construction of a hotel and two adjoining residences on West Jefferson by 1860 when it was owned by Robertson (Figure 1.4.3-1). In March 1869, the property between the River Road and Fort Street was subdivided into 117 lots (Figure 2.1.4-8).

During the 1870s development in this area of the project was generally confined to the north side of River Road (West Jefferson Avenue) and the east side of Military Avenue (Figures 1.2-5 and 1.4.3-3). Warranty deed sales extending over the 1869 through 1876 period provide a good indicator of area development as it existed into the mid-1880s (Table 2.1.4-6) (Figure 2.1.4-9). Much of the early growth was directed at servicing the nearby military compound. The Darmsteader lots (26 and 27) purchased from the Scotten Subdivision in 1873 were sold the following day to John H. Carstens whose summer garden was a popular entertainment center of the period (Figures 2.1.4-9 and 2.1.4-10).



Source: Wayne County, 1849

Figure 2.1.4-7. Dwight Subdivision of Private Claims 267, 268, and 270

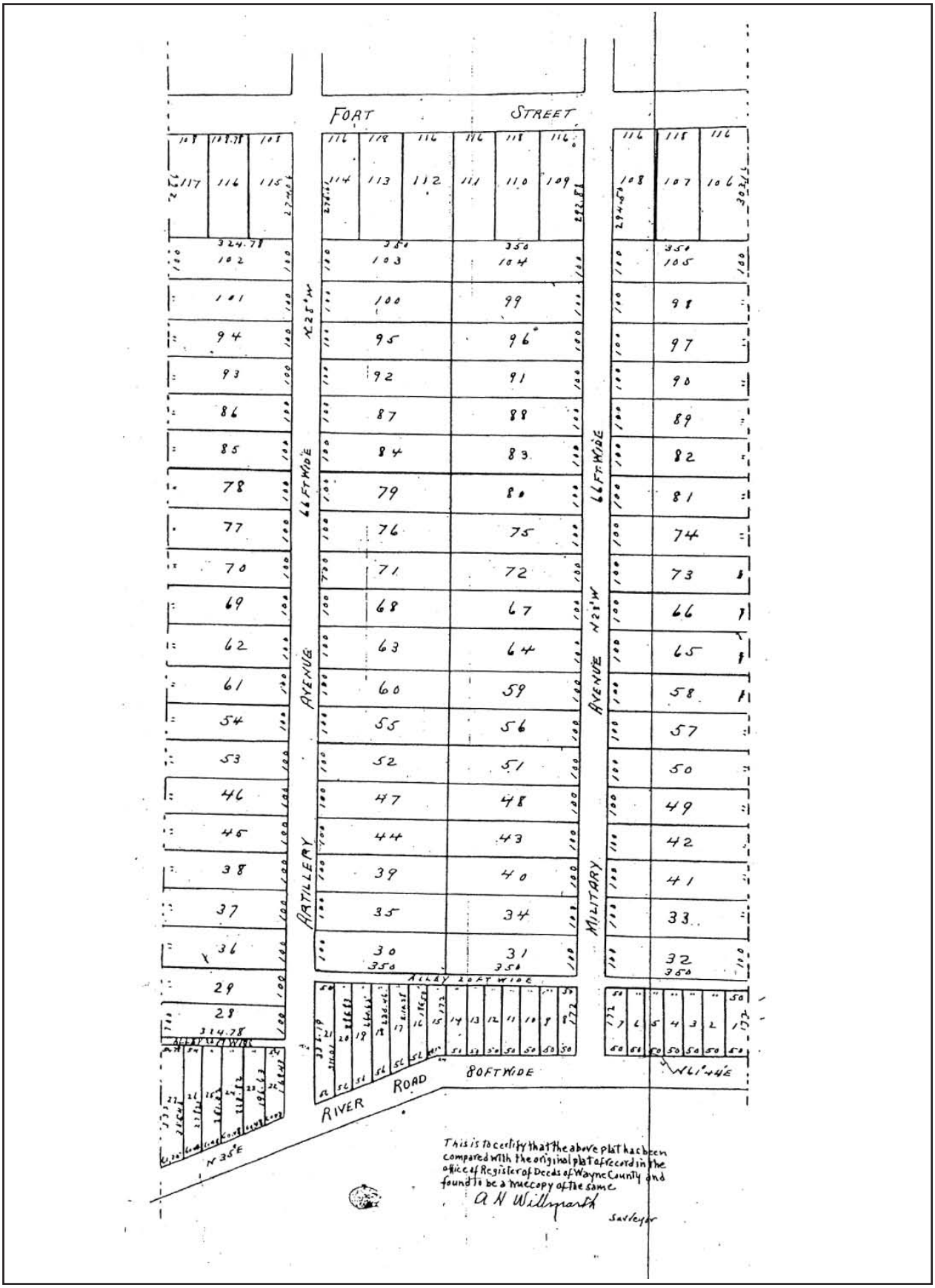


Figure 2.1.4-8. Scotten Subdivision of Parts of Private Claims 32 and 268

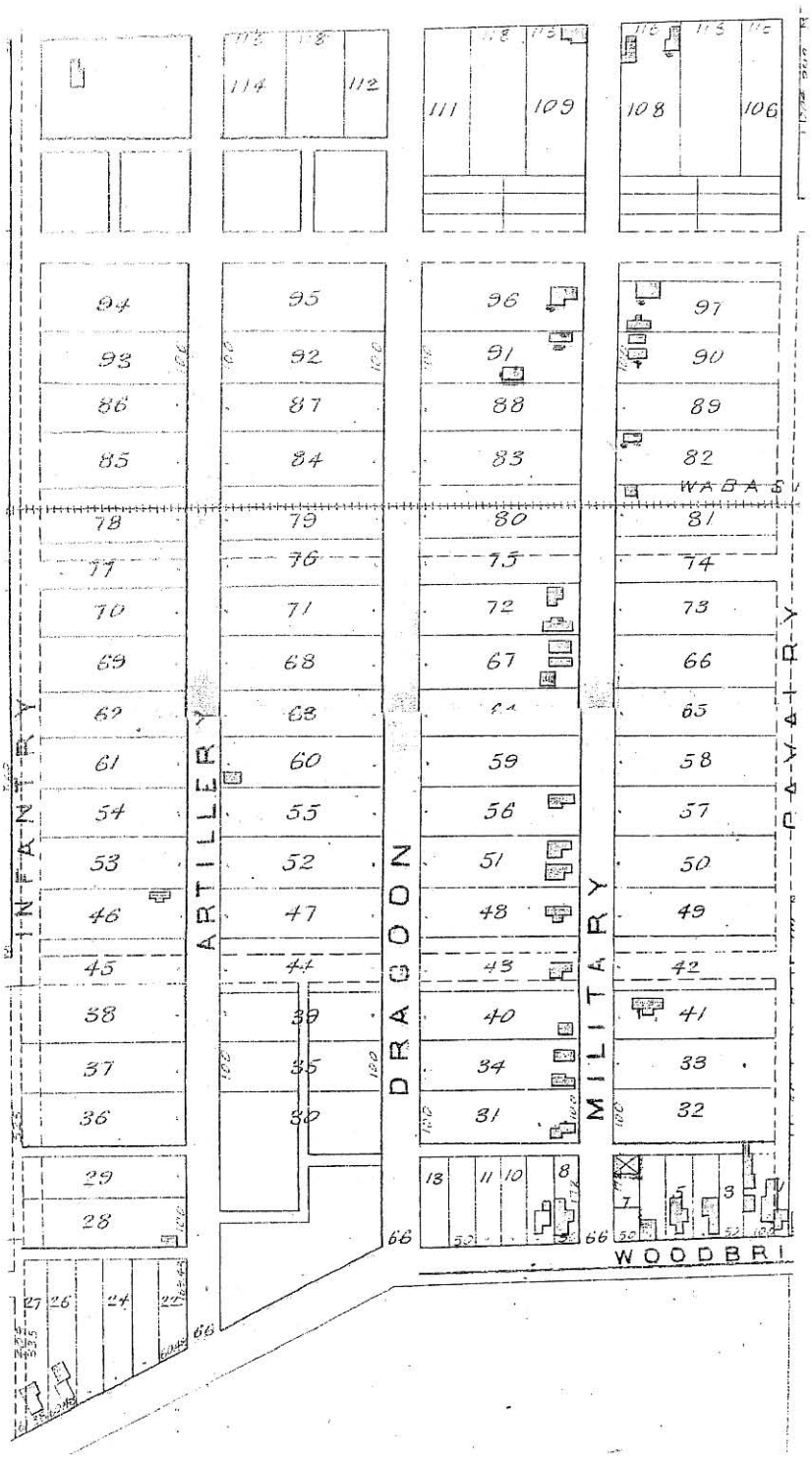
Table 2.1.4-6 Warranty Deed Sales in the Scotten Subdivision, 1869-1876

Lot No.	Purchaser	Date	Consideration
1-2	Frederick Kleinon	9-01-1869	$6,500.00
3	Edmund J. Bolio	5-27-1874	1,513.27
4-5	Adolphe LaRiviere	3-10-1873	2,000.00
6	Patrick Ratigan	10-14-1876	1,500.00
7	Patrick Ratigan	5-02-1870	1,000.00
8	John Hennessy	10-10-1870	1,000.00
9	Oliver Lumphrey	1-16-1871	1,000.00
26-28	William Darmstadter	7-01-1873	2,700.00
31	John Gagnon	1-16-1871	500.00
32-33, 41-42, 49-50, 57-58	Frederick Kleinon	9-01-1869	6,500.00
34 (N½)	Peter Dumas	8-22-1873	250.00
(S½)	Frank St. Thomas	8-22-1873	250.00
40	Jeanette Miller	5-27-1874	500.00
43	Xavier Reichlin	12-14-1872	500.00
44, 51	Nicholas Bertram	3-01-1870	800.00
59	John Murphy	11-08-1870	750.00
64	Thomas Gronchey	6-11-1874	600.00
66, 73	Michael Kennedy	4-05-1876	900.00
67	William Vanham	1-12-1874	600.00
72	John Pinegar	5-17-1875	600.00
74	Ralph Phelps	7-16-1874	600.00
75	Patrick McCarthy	11-08-1870	600.00

(Wayne County n.d.:668)

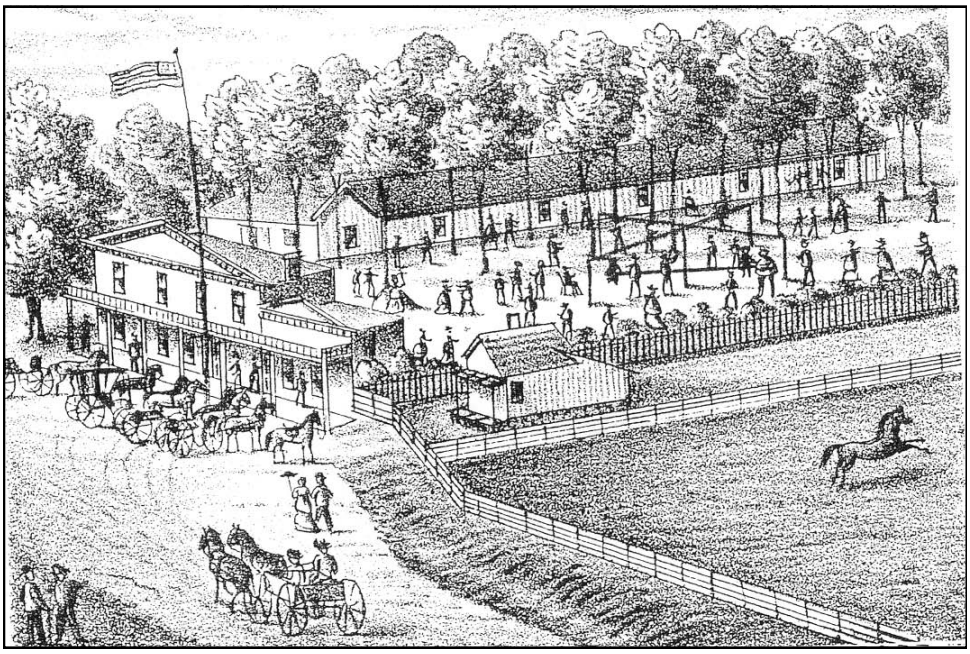
The adjoining Crawford property to the west was subdivided into 101 blocks in 1868. Although most had been sold during the 1870s, few showed even minimal signs of development well into the 1880s. Small pockets of growth were, however, evident along West Jefferson Avenue and in the Pohl (Block 62) and Mahrstens (Blocks 76 and 87) properties along Crawford and Waterman Avenues (Figure 2.1.4-11).

Although not registered until 1871, the Mahrstens tract, along the east side of Waterman Avenue between West Jefferson and South Street, was informally subdivided in 1869. The initial warranty deed land sales of virtually all of its 32 lots took place between 1869 and 1879 (Table 2.1.4-7) (Figures 2.1.4-11 and 2.1.4-12). Farther to the east Block 82 had been rented out on a 10-year lease agreement, in 1865, to John H. Carsten (Pilling et al. 1980:45) (Figure 2.1.4-11). The location served as the nucleus of his popular summer garden recreation grounds (Figure 2.1.4-10). Both blocks 82 and 81 later passed into Carsten's possession (Figure 2.1.4-11). The grounds continued to exist as open tract until being subdivided by his niece, Elenore Rohnerts, in October 1922. The multiple two-story brick dwellings located on the 33 lots forming the subdivision were built after 1923 and represent one of the latest dating residential development blocks within the proposed DRIC plaza area.



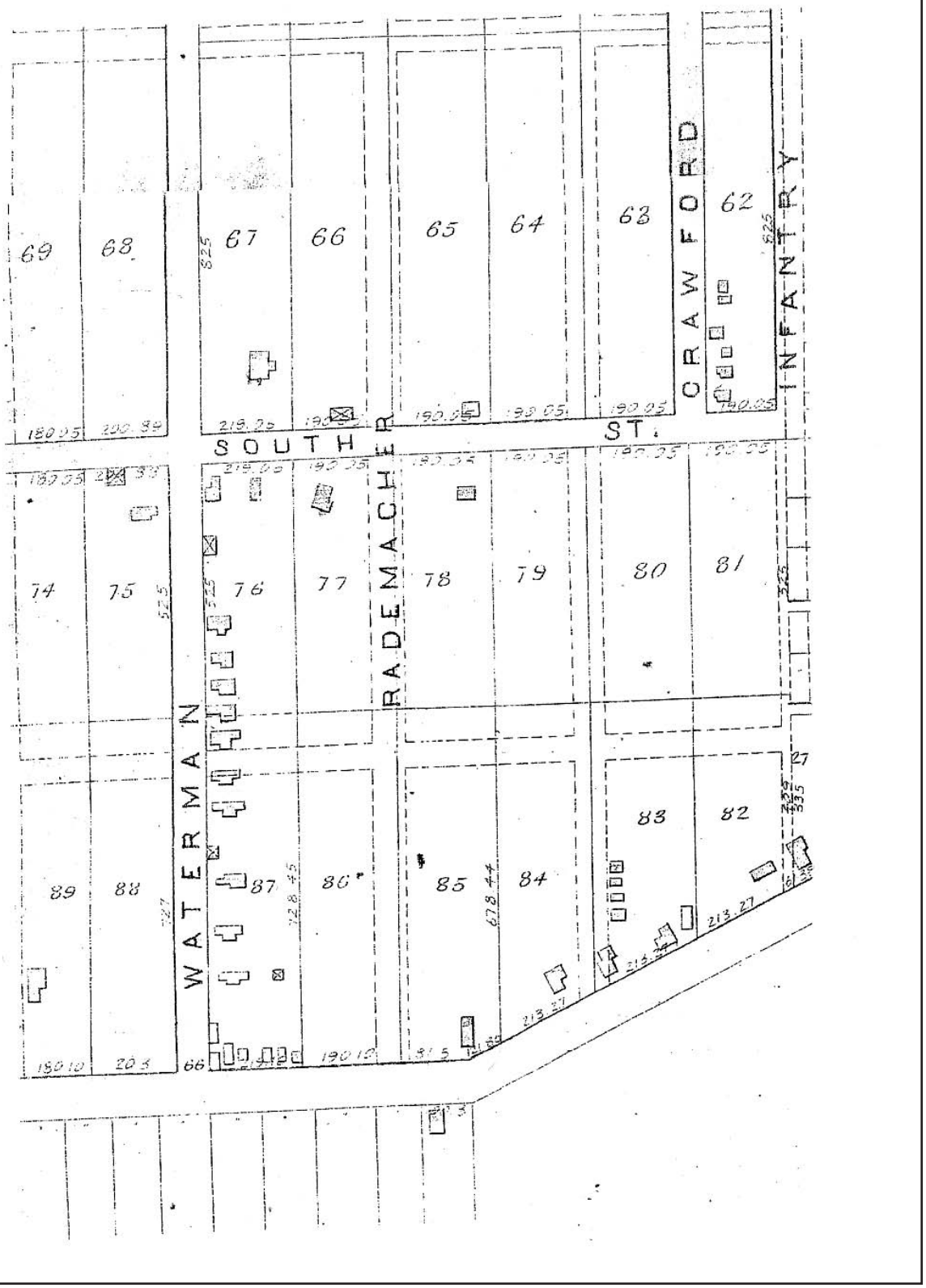
Source: Robinson and Pidgeon 1885

Figure 2.1.4-9. Scotten Subdivision Development, 1885



Source: Belden 1876

Figure 2.1.4-10. John H. Carstens Summer Garden, 1876



Source: Robinson and Pidgeon 1885

Figure 2.1.4-11. Crawford Fort Tract Development, 1885

Table 2.1.4-7 Warranty Deed Sales in the Mahrstens Subdivision, 1869-1879

Lot No.	Purchaser	Date	Consideration
1 (E1/2)	Michael Joyce	6-05-1869	$300.00
(W1/2), 2, 5, 6	Henry Mahrstens	8-21-1872	3,275.00
3-4	William Christoph	10-24-1872	600.00
7-8 (S1/2)	Chris Reimer	4-17-1879	225.00
8 (N1/2)-9	Henry Stute	11-13-1879	1.00
10-11	August Feahm	4-17-1879	300.00
12-13	Casper H. Sheel	4-17-1879	300.00
14-15 (S1/2)	James O'Brien	4-18-1879	378.00
15 (N1/2), 16-17, 18 (S1/2)	John Backman	3-08-1876	600.00
18 (N1/2)-23	John H. Clarke	3-01-1874	1,050.00
24-26	Maria Lambert	2-16-1874	900.00
27-28	Emily Webb	12-22-1871	300.00
29	David Jeffries	1-16-1871	330.00
30	John Christopher	1-16-1871	260.00

(Wayne County n.d.:797)

Historic site archaeological potential within this portion of the DRIC project was focused on the former Marstens tract located along the east side of Waterman Avenue between South Street and West Jefferson Avenue. Due to the early development and seeming lack of multiple rebuilding episodes which have taken place in this zone it appeared to offer field investigators a good possibility for the discovery of intact resources associated with the earliest phases of neighborhood growth (Figures 2.1.4-11 and 2.1.4-12).

Prehistoric site potential was viewed as being largely concentrated within [redacted]. The focus of this interest was necessarily directed at determining the former location of the long-destroyed [redacted] (Figure 2.1.1-1). This was equated by Pilling (et al. 1980) with [redacted] (Figure 1.2-3). This roughly mirrors the position of [redacted], interpreted as likely depicting a pond or borrow pit, [redacted] (Figures 2.1.4-11, 2.1.4-12 and 2.1.4-13).

As surveyed in 1849 the forward portion of [redacted], surrounding the [redacted] margins of the [redacted] was cross-cut by a series of depressed swales feeding into an extensive marshland fronting upon the Detroit River (Figures 1.2-3 and 2.1.4-7). Later (1868) replatted as part of the [redacted] subdivision, portions [redacted] appearing in the 1847 survey were included in [redacted] (Figure 2.1.4-11). The context is significant in that Carstens original 10-year lease to the property, dated November 2, 1865, required him to move an existing building 50 feet forward to the front of the property, and further authorized him, "to use as much sand as he needs to fill up the said lot" (Pilling et al. 1980). The removal of soils and recontouring of ground surfaces was an early component of Carsten property land use. As reported in a September 18, 1870, *Free Press* article entitled "Indian Relics," the discovery of [redacted] was the direct result of such activities. According to this commentary, as quoted by Pilling (et al. 1980), a total of 12 burials had been unearthed, "In excavating through an [redacted] for the purpose of setting a target for the German sharpshooters' Society of this city…"

Figure 2.1.4-12. Mahrstens (A) and Carsten (B) Tracts

NOT FOR PUBLIC DISCLOSURE

Figure 2.1.4-13

The news article further noted that the artifacts recovered at that time could "be seen at the house of Mr. Carstens, [redacted]" (Pilling et al. 1980) (Figures 2.1.4-10 and 2.1.4-14). These were described as consisting of 12 clay pots (2 intact) decorated with cross-hatch rim designs, a large number of "flint arrow heads," 2 "large flint lance points," several large stone axes and a number of stone "tomahawks." Other artifacts included a variety of perforated shell ornaments, stone net sinkers, red ochre, a clay platform pipe, a copper bead necklace and a 14-inch copper awl (Pilling et al. 1980).

2.2 Archaeological Field and Laboratory Methods

2.2.1 Archaeological Field Methods

The entirety of the DRIC study area consists of both privately (residential and corporate) and publicly (City of Detroit) owned lands. Permission for access to the individual properties was obtained by the Michigan Department of Transportation. In approaching this facet of the study, Corradino, CCRG, and all other researchers and heavy equipment operators were keenly aware of liability issues surrounding the mechanical excavation of owned lands outside the anticipated project acquisition area. As a result, certain properties were avoided upon actual field inspections. These included paved and unpaved vehicle parking and tractor-trailer storage lots and impromptu common-use vehicle and footpath tracks through open ground spaces. Similarly, areas of suspected contamination, as suggested through soil aromas, discarded steel drums, and mounded refuse piles, were avoided. In several areas, excavations were abandoned due to excessive woodlot growth intruding into overhead electrical wires.

Phase I/II test excavations were in most instances restricted to vacant backlot areas. These avoided alleyway utilities and the removal of tree and shrub stands. All excavations were carried out with the use of a rubber-tired backhoe. Trench excavations commonly measured from 2 feet (0.6 m) to 3 feet (0.9 m) in width and extended from 10 feet (3.0 m) to upwards of 96 feet (29.3 m) in length. Trenches not subjected to deep test analysis were not excavated to depths extending beyond 3 feet (0.9 m) to 5 feet (1.5 m) in depth. This generally reflected the maximum depth levels at which sterile soil horizons were encountered. In those few instances, such as with Test Trench 5851-17, where buried surface soils were encountered, mechanical excavation was terminated along the buried surface of this buried A horizon. This level was shovel tested (STU) with all units being extended into sterile soils. All spoils were screen sorted through a 0.25-inch metal wire hardware cloth. A-horizon sidewalls and surfaces were additionally trowel examined. Feature deposits identified as a result of this process were further explored in order to gain some insights into their functional usages, in-trench aerial extent and temporal placements. Artifacts recovered from features offered the most reliable mechanism in determining the latter of these attributes. All recovered artifacts were bagged and labeled according to trench, level and/or feature associations.

Due to the exceedingly sensitive nature of the archaeological field study, which was conducted concurrently with deep core drilling geological tests, care was taken to absolutely conform to OSHA requirements with regard to crew safety and excavation design. The sandy to sandy gravelly grounds comprising virtually the entire study area can be ranked, by OSHA standard, along a gradient indicative of Type B (medium stability) through Type C (least stable) soil varieties. As a result of this situation all trenches extending beyond 5 feet (1.5 m) in depth would have required substantial shoring reinforcements or step-backs in order to allow for the entry of field personnel. Operating under the constraints and the limitations of excavation reviewed and approved by the City of Detroit (the primary property owner), shoring and other stabilization activities were beyond the scope of the approved work plan.

NOT FOR PUBLIC DISCLOSURE

Figure 2.1.4-14

2.2.2 Geoarchaeological Field Methods

What follows here is a summary of the methods employed during deep testing investigations. A detailed discussion of the deep testing methods is contained in Appendix C.

Within the DRIC APE, 30 trench exposures were excavated by a backhoe using a 3-foot-wide (approximately 1 m) bucket and boom that extended up to 12 feet (3-4 m). The placement and number of trenches excavated depended on the conditions within existing city block areas, topography, and stratigraphy. In general, trenches were excavated approximately 1 m wide and 4-6 m long. The maximum depth of the trench was also variable and depended mainly on the stratigraphy observed within the trench while excavating. However, no trenches were physically entered, which extended beyond a 5-foot (1.5 m) maximum depth.

During trench excavation, information was recorded concerning the general lithology, sedimentology, and extent of each individual lithological unit. Measurements included the depth below surface of the top and bottom of the unit and general thickness. Sediment characteristics were recorded, including observations of lithology (texture) of each distinct stratum as well as bedding, sorting, grading, deformation and the contacts (boundaries) between strata. Elevation differences were measured as depths below ground surface at each individual exposure. Each exposure location was recorded with a Garmin Etrex GPS receiver, and photographed.

Post-depositional (soil) characteristics were recorded following standard soil descriptive terminology developed by the United States Department of Agriculture, Soil Conservation Service. These included descriptions of texture, color, mottling, structure, consistency, inclusions, intrusions, and transferals. Soil horizon nomenclature followed the U.S. Department of Agriculture Soil Survey Manual (United States Department of Agriculture-Soil Conservation Service [USDA-SCS] 1993) and Birkeland (1984).

2.2.3 Laboratory Analysis

Recovered artifacts were processed at CCRG's Jackson, Michigan, laboratory. Artifacts were cleaned by washing in water or by dry-brushing, and placed in plastic bags labeled with appropriate provenience and cataloging information. To the extent feasible, artifacts were classified according to chronology, cultural affiliation, function, and raw material.

No prehistoric cultural materials were recovered as a product of the DRIC archaeological field studies. Recovered historic artifacts were classified according to function and material using standard terminology employed by archaeologists in the published literature. Primary material categories used include ceramics, glass, metal, non-artifactual faunal remains, and a variety of artifacts made from miscellaneous materials including plastic, wood, bone or shell (e.g., buttons, combs, etc.), leather, rubber, and plaster.

3.0 FINDINGS

3.1 Survey Results

A total of 46 test trenches extending for a combined total length of approximately 1,096 feet (334 m) were excavated within the proposed DRIC plaza component (Figures 3.1-1 and 3.1-2). An expanded stripped block [redacted][3-1] equaling some 1,632-square feet (153.9 sq m) in area was additionally opened in the postulated area of [redacted] site location near [redacted]. All of these test units were labeled according to their various address codes and sequences within each address location (Table 3.1-1) (Figures 3.1-5a, 3.1-5b and 3.1-5c).

Table 3.1-1 DRIC Archaeological Test Unit Designations

NOT FOR PUBLIC DISCLOSURE

Although numerous areas examined during the course of this field study exhibited heavy degrees of disturbance, natural soil sequences nominally consisted of a capping level of sandy black humic soils overlying an extensive clean yellow sand followed by a sandy clay horizon of thickly bedded gravels. Archaeological investigations were concentrated within the living floor horizons that could potentially be represented within the humic soil surface level and intrusive deposits extending into the underlying yellow sands generally representative of either vault privy or pit midden disposal features. In the case of the former, most locations produced little or nothing of archaeological value being generally limited to post-World War II discard or recent demolition episodes. No evidence of prehistoric land use was observed. Evidence of early neighborhood on-site disposal approaches were also extremely rare being limited to occasional individual glass or ceramic sherds. Only three feature deposits evidencing on-site disposal episodes dating to the late nineteenth century were encountered.

3.1.1 Archaeological Results and Historical Associations

A small number of diagnostic historic artifacts were recovered from the near surface level horizons of the upper black sandy humic soils. These invariably lacked distinct feature associations, being more the product of random alley-side discard or as inclusions in land and demolition fills. Finds of possible archaeological interest were rare and uniformly dated to the pre-1900 period. In general, the temporal setting of the debris most commonly encountered was typically associated with the post-World War II period. These consisted of anything from paint cans, auto parts, shoes, articles of apparel, plastic toys, food wrappers and containers, and an array of domestic articles such as plastic and Styrofoam plates, cups and tableware utensils. None of this material was collected. The retention of earlier dating articles from non-feature associated soil and fill levels was restricted to diagnostic forms that might shed further light upon the timing and nature of area habitation during the initial phases of neighborhood development. No artifact producing sheet or pit middens were encountered in this upper soil horizon, nor was any evidence of shallow privy usage noted.

A total of three archaeological features were encountered during the field study [redacted]

[3-1] In Michigan, archaeological site locations are considered confidential and are not disclosed to the general public. At the request of the State Historic Preservation Office, information regarding archaeological site locations has been removed from this report.

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-1

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-2

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-3

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-4

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-5a

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-5b

NOT FOR PUBLIC DISCLOSURE

Figure 3.1-5c

[redacted] All date to the last quarter of the nineteenth century for period of usage, with all units falling within a probable ca. 1885 through ca. 1900 time frame. None of these features exhibit the wood board and timber framing approach common to nearly all identified Detroit area vault and surface privies occurring throughout the nineteenth century. That these likely represented discrete individual householder disposal zones is most plausible. The individual features can be described as follows.

Feature 1 [redacted]

Feature 1 [redacted] was identified [redacted] The upper level of this feature blended into the black sandy humic top soils being distinguishable at 1.4 m (4.6 feet) below the existing ground surface. The deposit is circular in appearance, measuring some 1.95 m (6.4 feet) in diameter (Figure 3.1.1-1). Trowel and screen excavations of the upper 0.3 m (1 foot) of the feature allowed for the collection of an array of domestic artifacts generally assignable to a late 1880s through early 1890s setting. Excavations were terminated at the approximate 5-foot (1.5 m) depth limit dictated by OSHA standard for unsecured excavations in Type B and Type C soil groups. This also represented the maximum approved by the City of Detroit for test trenches on municipally owned properties.

Feature 2 [redacted]

This feature was encountered within the yellow sandy floor of [redacted] The top element of the feature interfaced with the upper black sandy humic soil level at a depth of 1.2 m (4 feet). The deposit runs north-south across the east-west test trench being approximately 0.6 m (2 feet) in width (Figure 3.1.1-2). Approximately 0.3 m (1 foot) of the upper element of the feature was examined via trowel and screen excavation. Cultural materials recovered from the feature consisted of ceramic and glass domestic discard assignable to a broad 1880s setting. As with Feature 1 [redacted] excavations of Feature 2 [redacted] were terminated at the approximate 5-foot (1.5 m) depth limit defined by OSHA standard for units open to personnel entry. This, once again, conformed to the operational maximum approved by the City of Detroit for trenches entered by field personnel on municipally owned properties.

Feature 3 [redacted]

This feature was encountered within [redacted] The subject disconformity was observed along the east wall of the trench approximately 0.6 m (2 feet) below the existing ground surface. It consisted of a 0.3 m (1 foot) thick gray and black banded ash lens overlying a 0.3 m (1 foot) lens of lime mortar and brick fragments (Figure 3.1.1-4). The feature extended some 1.8 m (6 feet) in length being representative of a shallow refuse pit appearing as a truncated cone form in profile. Sampling of the deposit revealed an array of household discard occurring primarily within the overlying ash. This material is primarily assignable to the last decade of the nineteenth century, and included patented porcelain bottle stoppers dating to 1895 and 1897.

NOT FOR PUBLIC DISCLOSURE

Figure 3.1.1-1

NOT FOR PUBLIC DISCLOSURE

Figure 3.1.1-2

NOT FOR PUBLIC DISCLOSURE

Figure 3.1.1-3

NOT FOR PUBLIC DISCLOSURE

Figure 3.1.1-4

Historical Associations

On the basis of the available documentary evidence for residential/ownership patterns [redacted] little can be solidly determined for the pre-1890 period. The use of rental and unrecorded land contract purchase agreements obscures our ability to easily identify the early inhabitants of the neighborhood. No detailed address guide for the roadway was actually offered in city directories until after 1910. What little that can be pieced together is derived from the warranty deed transfers provided to George Kunna [redacted] in 1887 and to Moses Menard [redacted] in 1889 [redacted]. Both individuals turn up as inhabitants of the avenue years prior to these acquisitions. Moses Menard, for instance is first identified as residing on the [redacted] in 1883 (Weeks and Polk 1883:744). This listing is repeated through 1891 when the address number [redacted] is substituted for the earlier [redacted] description (Polk 1891:780). This was, in fact, the [redacted] property acquired by Menard in 1889 six years after he actually first occupied the location.

The data surrounding Kunna's appearance in the neighborhood is slightly different. He first appears in directory listings in 1885 as [redacted]. The warranty deed to this lot was acquired in 1887 by Theodore Lentz, a druggist whose shop and house were located on [redacted] Kunna quickly turns up as the resident of [redacted] where he continues to reside until 1889 [redacted] This number is equated to the [redacted] property purchased by Kunna in 1887. Kunna disappears from Detroit directories throughout most of the 1890s. Menard remained a permanent fixture at the Harvey Avenue location throughout most of this period. Both individuals, however, reappear in 1897 with Kunna residing at [redacted] and Menard at [redacted] Menard is at that time listed as a blacksmith apparently forsaking his earlier long-term profession as a ship's carpenter. Kunna continues to be identified throughout this period as a vessel captain. At the time of their residential occupation [redacted] during the 1880s it is quite possible the neighborhood attracted a number of individuals connected with the area lake shipping and building trades. The nearby Clark boat building yard and dry docks farther to the east along Campau Avenue would have served as an obvious attraction.

The Feature 3 [redacted] deposit is somewhat less evasive in its association with a historically documented householder. Located [redacted] the deposit is within [redacted] The property was originally purchased under a warranty deed by Charles Erke in 1875 (Table 2.1.4-2). The only directory entry for a "Charles Erkey" [redacted] identifies him as a laborer [redacted].

As of 1888 the property is occupied by yet another laborer, Theodore Zimmermann, [redacted] The following year he is listed as a dealer in dairy products and continues along that line through 1908. The single bit of information that might relate to the creation of the Feature 3 [redacted] "demolition" deposit relates to the short term appearance of a certain Theodore J. Block as a co-resident [redacted] Listed as a carpenter it could be that his presence serves as an indicator of an upgrading alteration of the dwelling. It, at any rate, fits neatly within the time setting indicated by the artifact spread associated with Feature 3 [redacted]

3.1.2 Geoarchaeological Results

What follows here is a summary of the results of the deep testing investigations. A detailed discussion is contained in Appendix C.

With the exception of five trenches, all were excavated below the extent of historic disturbance and into pre-Holocene glaciolacustrine and/or glaciofluvial sediments. Every trench exhibited some degree of historic disturbance. In all but one instance, surface soil horizons were buried by at least one distinct unit of fill. Soil profiles exhibited variable drainage conditions across the study area. Most exhibited good drainage with the exception of a strip along the modern riverbank (Area 5851) where lacustrine clays were noted near surface, and an area [redacted] where nineteenth-century sources had indicated the infilling of a section of "wet prairie." At both [redacted] and [redacted], relatively intact soil profiles indicated conditions of formation likely associated with extensive grasslands; no distinct evidence of "prairie" conditions were noted elsewhere. No evidence of prehistoric archaeological occupation was noted in any trench, including disturbed fill strata. Few historic artifacts were noted besides those associated with building debris and coal. Details that include a summation of the depositional context and archaeological content of each trench reviewed in this study are compiled in Appendix C (Table 3.1-1) (Figures 3.1-5a, 3.1-5b and 3.1-5c).

Given the depositional history outlined above, the prehistoric archaeological record tends to be weighted towards a post-4700 B.C. archaeological site formation phase within the project area. Early to mid-Holocene settlement and site formation, while not precluded, is not well documented. Many of the prehistoric sites inventoried on this relic lake terrace (including several mound groups) date to the Woodland period (Demeter and Weir 2006). As with prehistoric settlement, initial historic settlement favored landforms characterized by good drainage (sandy high ground) and/or close proximity to the Detroit River.

Any archaeological site within the study area would likely have existed in a near-surface or surface context prior to extensive early twentieth-century urbanization of the area. The formation of extensive residential and industrial areas favored level, well-drained landforms. This fostered the grading and borrowing of well-drained topographic highs (including sand ridges and extant burial mounds) for use as fill for topographic lows (as noted in several trench exposures), and the probable destruction of archaeological sites upwards of 10 feet (3 m) of the Fort Wayne ridge has been graded away along its easterly boundary (upriver) shared by the former Revere Copper and Brass works.

3.2 Artifact Analyses

One hundred, seventy-seven (177) historic artifacts were recovered during the investigations in the DRIC APE. Ceramics comprise the majority of the DRIC artifacts (*n*=87), primarily white paste (non-porcelain) ceramics. Recovered glass artifacts (*n*=78) included intact specimens of beer and medicine bottles, as well as miscellaneous vessel and flat glass. The remaining historic artifacts (*n*=12) are categorized as miscellaneous and consist of metal kerosene lamp parts, felt pieces, and half of a clam shell.

Test Trench [redacted] contained most of the historic artifacts (*n*=119), followed by Test Trenches [redacted] (*n*=31), [redacted] (*n*=19), [redacted] (*n*=4), [redacted] (*n*=2), [redacted] (*n*=1), and [redacted] (*n*=1). The following sections detail the recovered artifacts by artifact type (ceramic, glass, miscellaneous), and, within each category, by test trench and stratum.

3.2.1 Ceramic Artifact Analysis

[redacted] Feature 1 [redacted]

Feature 1 [redacted] yielded 25 ceramic artifacts including 15 white paste tableware sherds, eight porcelain sherds, a stoneware sherd, and a porcelain door knob (Appendix A). The white paste category consisted of a portion of a serving or butter dish with a copper luster rim (tea leaf pattern) that was produced from the 1860s to the early 1900s. Miller (2004) attributes the tea leaf pattern to sites of the 1890s to ca. 1920 period. Eight articulating undecorated plate sherds marked on the bottom with ROYAL IRONSTONE CHINA/CHARLES MEAKIN/ENGLAND were also recovered. The practice of including the country of origin on ceramics (in this case England) began in 1891 as a result of the McKinley Tariff Act of 1890 (Loomis 2007). Feature 1 (20WN1132) also contained four sherds from a common cream (c.c.) white paste cup exhibiting a brown transfer printed Chinese motif reflective of aesthetic tradition decorative approach of the ca. 1860-1880 period (Figure 3.2.1-1). Samford (1997:20) suggests that brown transfer printed patterns on ivory bodies date to the 1881-88 period. In addition, brown transfer printing has had a long production run, beginning in about 1828 and continuing on a limited basis into the present (Miller 2000:13; Shaw 1829:214). Other ceramic types in Feature 1 [redacted] included eight sherds from an undecorated porcelain saucer and a blue spongeware stoneware rim sherd from a storage or food preparation vessel. Based on the diagnostics, the ceramic household debris from the Feature 1 [redacted] pit midden probably has a *terminus post quem* date of ca. 1888/1890.

[redacted] Feature 2 [redacted]

Feature 2 [redacted] produced 18 ceramic artifacts comprised of 14 white paste specimens, two white paste porcelain toy dolls, and two yellow paste sherds (Appendix A). White paste ceramics included 11 vertical rib molded sherds from a chamber pot, an undecorated sherd with a partial maker's mark of William Flentke, and two undecorated porcelain sherds from a child's toy saucer. According to Gates and Ormerod (1982:46), the Flentke mark dates to the 1882-1886 period. Both of the doll fragments were undecorated with one missing its head and part of its left leg and the other consisting of only a torso (Figure 3.2.1-2). Feature 2 [redacted] also contained two yellow paste vessel sherds with a Rockingham glaze exterior treatment. Rockingham glazed forms were produced during the 1841-1920 period (Honerkamp et al. 1983:124) or the narrower 1845-1900 range suggested by Magid (1984). It is concluded, minimally, that the ceramic household assemblage in the Feature 2 [redacted] pit midden dates to a late 1880s setting.

[redacted] Upper Fills (2'-4')

Nine of the 13 artifacts recovered from the Upper Fills of the [redacted] property consisted of ceramics (Appendix A). This assemblage included five white paste vessel sherds and four sherds from four individual porcelain vessels. The white paste wares consisted of an undecorated basal sherd, a molded handle/rim/body sherd from a chamber pot, three-quarters of an undecorated, rectangular serving dish bottom-marked with ROYAL.SEMI.PORCELAIN/JOHN MADDOCK & SONS/ENGLAND, and two undecorated body sherds from an unidentifiable vessel. The Maddock mark dates to the post-1905 period (Kowalsky and Kowalsky 1999:262). The four porcelain vessels were represented by a post-1902 decalcomania cup or bowl rim/body sherd (Anonymous 1903:22931-2), a sepia or gold lined and molded cup sherd, a decalcomania cup sherd dated to post-1903, and an undecorated cup

Centimeters

Inches

Figure 3.2.1-1. Brown Transfer Printed Cup, Feature 1

Centimeters

Inches

Figure 3.2.1-2. Miniature Porcelain Dolls, Feature 2

sherd bottom-marked with J. S./ BAVARIA/A. The Bavarian maker's mark is likely that of Johann Seltmann of Arzberg and dates to 1911+ (Anonymous 2006b). In addition, decalcomania of the polychrome overglaze type recovered from this context dates to the post-1902 period (Anonymous 1903:22931-2). Given these date ranges, the ceramics in the Upper Fills at [redacted] have a *terminus post quem* date of ca. 1903 extending to at least ca. 1921.

[redacted] Feature 3 [redacted]

A total of 15 ceramic artifacts were collected from the Feature 3 [redacted] deposit. This grouping consisted of six white paste tablewares, seven stoneware sherds, and two porcelain bottle stoppers (Appendix A). The white paste assemblage was comprised of an undecorated rim/body/basal sherd, three refit polychrome hand painted rim and body sherds from a mug or bowl, an undecorated, thin-bodied plate or saucer rim sherd, and a half of a child's toy cup with blue transfer printed decoration. The stonewares from Feature 3 [redacted] were made up of various pieces of storage or food preparation crockery with buff-colored paste and Albany-slip interior treatments. Albany-slip was a popular interior and exterior surface treatment after 1865 that continued well into the twentieth century (Mansberger 1986:10). The porcelain bottle stoppers with partial wire bail closures are known as Lightning stoppers that are associated with bottles with blob-top style finishes. Both of the examples from the deposit exhibited identifiable markings on both the upper and lower surfaces. One of the stoppers exhibited overglaze printing on the top portion that reads CONRAD PFEIFFER/DETROIT MICH. and is labeled on the bottom DREYFUSS BOTTLE...NY/PAT'D/OCT. 18/1897. The other stopper is similarly labeled with CONRAD PFEIFFER/DETROIT... on the top and DREYFUSS BOTTLE & STOPPER CO. NY/PAT'D/OCT.15, 1895. Conrad Pfeiffer is known to have brewed in Detroit at 912 Beaufait Avenue between 1889 and 1901 using his full name on the label (Polk 1890:1569; 1891:1560; 1892:1649; 1893:1732; 1894:1855; 1895:1858; 1896:1917; 1897:1137; 1898:1169; 1899:1192; 1900:1243; 1901:1272). Using these date ranges and the 1895 and 1897 patent dates for the porcelain stoppers as a guide, the ceramic household debris from the Feature 3 [redacted] pit midden dates through a ca.1895 and 1900 setting.

[redacted] Level 1 (0-15")

Three ceramics were recovered from this level. These included two white paste sherds, one undecorated basal sherd from an unidentifiable vessel and with a maker's mark of ...YAL. SEMI. PORCELAIN/...N MADDOCK & SONS/ENGLAND and one post-1902 polychrome overglaze decalcomania cup or bowl rim/body sherd (Anonymous 1903:22931-2). The test trench also yielded a basal sherd from a porcelain plate bottom-marked with O. P. CO./...RACUSE (Appendix A). The Maddock mark dates to ca. 1906+ (Kowalsky and Kowalsky 1999:262), while the O. P. & Co. mark, which stands for the Onondaga Pottery Company, was established in 1871 (Kovel and Kovel 1953:99). The addition of "SYRACUSE" to the mark on pieces made of porcelain did not occur until 1897 (Anonymous 2007b).

[redacted] A Horizon

The A Horizon layer of 5851-4 produced six ceramics that included five white paste types and one terra cotta paste specimen (Appendix A). The white paste sherds were comprised of two undecorated, thick-bodied basal sherds from an unknown vessel, two undecorated body sherds from an unidentifiable vessel, and an undecorated basal sherd from an unknown vessel. The terra cotta paste example is unglazed and likely represents a flower pot fragment. None of the ceramic material in the assemblage could be accurately dated.

[redacted] Level 1 (Brickbats)

Level 1 [redacted] contained three ceramic vessel sherds. In the white paste category, this provenience yielded a polychrome hand painted basal sherd from an unknown vessel and an undecorated plate or saucer rim sherd (Appendix A). The single stoneware example from the assemblage was a body sherd that originated from an unknown vessel with buff paste. Manufacturing and/or use-dates could not be assigned to any of the ceramics.

[redacted] Level 2-3 Interface

The Level 2-3 Interface [redacted] produced eight ceramic sherds, all from stoneware storage vessels with buff and gray pastes (Appendix A). Various exterior surface treatments were observed in this grouping, including saltglazing and cobalt blue decoration. All of the examples featured Albany slipping on the interiors.

3.2.2 Glass Artifact Analysis

[redacted] Feature 1 [redacted]

A total of 36 glass artifacts were retrieved from the Feature 1 [redacted] deposit. These included bottle glass (*n*=10), miscellaneous vessel glass (*n*=1), kerosene lamp glass (*n*=13), pressed glass table ware (*n*=1), and 11 fragments of window glass (Appendix A). Bottle glass from the deposit was represented by a dark olive wine bottle, two refit pieces of an aquamarine wine or champagne bottle with a vent mark in the pushup area, two refit fragments of a light green soda or beer bottle, two colorless fragments from an unknown bottle type, an amber, paneled bottle fragment partially marked with ...CIL... on one side, an aquamarine body fragment from a soda or beer bottle, and an olive-colored wine bottle fragment. Miscellaneous vessel glass consisted of a colorless rim/body fragment. Kerosene lamp glass included a multifaceted, pressed glass kerosene reservoir and square base, 11 colorless chimney fragments, and an aquamarine chimney fragment. Window glass consisted of one colorless, one aquamarine, and nine light green fragments. The nearly intact pressed glass tableware is a marbleize blue and white vessel (missing the rim and part of the body) known as "Marble Vitro Porcelain" or "Malachite Glass" that exhibits a British Registry Mark on the base, indicating that it was registered on January 16, 1877 to George Davidson & Co. of Gateshead-on-Tyne, Great Britain (Anonymous 2005) (Figure 3.2.2-1). Thus, the glass assemblage from Feature 1 [redacted] dates to ca. post-1876.

[redacted] Feature 2 [redacted]

Feature 2 [redacted] yielded 21 glass artifacts, including 11 examples of bottle glass, one section of glass stemware, 8 kerosene lamp specimens, and a glass insulator (Appendix A). The bottle glass was comprised of an intact blue soda bottle with a partial wire bail Lightning type closure on a blob-top finish that was marked JOS. DE GUISE/DETROIT. MICH. on one side and C. & CO. on its base (Figure 3.2.2-2). Joseph De Guise is variously listed in the Detroit directories as a bottler and soda water and pop manufacturer between 1889 and 1894 at 146 Guoin (Polk 1889:449; 1893:402; 1894:430). The C. & Co. maker's mark refers to Cunninghams & Co. of Pittsburgh of the 1879-1907 period (Toulouse 1990:119). Another intact specimen from the glass category was a colorless, cylindrical ink or medicinal bottle marked LETCHFORD/LONDON around the top of the shoulder. No information could be obtained about the manufacturer or period when this bottle would have been produced or its exact function. There were also five pieces of a patent medicine bottle, three of

Centimeters

Inches

Figure 3.2.2-1. Malachite Glass Vase, Feature 1

Centimeters

Inches

Figure 3.2.2-2. DeGuise Soda Bottle, Feature 2

which were marked: ...REED'S... 18.../...GE... unidentifiable markings associated with Reed's/Guilt/Edge (1878) Tonic/Geo. Wm. Reed Bitters Co./New Haven Conn. The date of 1878 on the bottle and its appearance in an 1891 advertisement suggests, minimally, that it was made between 1878 and 1891 (Baldwin 1973:407-408). One nearly intact colorless, paneled patent medicine bottle was also recovered that exhibited the letter T on the bottom. The T mark may be that of Whitall and Tatum but this could not be confirmed. Another patent medicine bottle from this deposit was a colorless, paneled neck finish and body fragment. One of the fragments from this provenience consisted of a colorless neck finish from an unknown bottle type that has been sheared off at the top and bottom. The bottle glass assemblage also included a colorless, wide-mouthed neck finish/shoulder fragment from a condiment bottle. There were also three refit colorless, pressed glass body/basal fragments from a glass bowl and a colorless, paneled body fragment from a miscellaneous glass vessel. A fragment of colorless pressed glass stemware vessel was also found. A nearly intact aquamarine glass insulator embossed with PAT JAN 25 1870/PAT FEB 22 1870/PAT MARCH 20 1877/W BROOKFIELD/55 FULTON ST NY was also recovered. Kerosene lamp glass from the deposit consisted of colorless chimney fragments and chimney fragments with scalloped edges. In summary, diagnostic glass debris in the Feature 2 [redacted] assemblage indicates a ca. 1889-1890s date range.

[redacted] Upper Fill (2'-4')

The Upper Fill context [redacted] produced three bottle glass specimens, two of which are intact (Appendix A). Within this assemblage was an intact dark green beer bottle with a crown finish and a D-in-diamond bottom mark which was manufactured by the Dominion Glass Co. of Montreal beginning in 1928 (Anonymous n.d.). The other intact example consisted of a wide-mouthed condiment bottle with eight facets and an Owens suction scar on the bottom. The bottom is marked with an 11 and a partial paper label near the top of the bottle reads ...AMOND ...RAND. The presence of Owens scars demonstrates that they were produced on an automatic bottle-making machine after 1903 (Baugher-Perlin 1982:265; Miller and McNichol 2002; Miller and Sullivan 1984). An aquamarine paneled body fragment from a patent medicine bottle was also recovered from this context and was embossed with HOOD'S/SARS..., a label which likely belonged to Hood's/Compound/Extract/Sarsi/Parilla/C.I. Hood & Co./Lowell, Mass. and was manufactured between 1845 and 1922 (Fike 1987:217). In total, the glass inventory from the Upper Fill [redacted] can be dated to the ca. post-1903 period.

[redacted] Feature 3 [redacted]

The Feature 3 [redacted] deposit contained 12 glass artifacts that included eight examples of bottle glass, one jar glass, one miscellaneous vessel glass, and two glass jar lid liners. The bottle glass category featured two intact and one nearly intact specimens (Appendix A). The intact examples included a large dark amber beer bottle with a blob-top finish labeled EXPOSITION BREWING CO./TRADE MARK X/REGISTERED/DELRAY, MICH. (Figure 3.2.2-3). According to the Detroit directories, the Exposition Brewing Company was in business between 1891 and 1900 (Polk 1891:1560; 1892:1649; 1893:1732; 1894:1855; 1895:1858; 1896:1917; 1897:546; 1898:562; 1899:574; 1900:594). In 1901 the company changed its name to the American Brewing Company and continued to operate out of Delray through 1905. By 1906, when Delray had been annexed by Detroit, the home base of the company was changed on the bottle label to Detroit (Polk 1901:607; 1902:218; 1904:680; 1905:618; 1906:430). In addition, the practice of requiring that all bottles display the word REGISTER originated with the Trade-Mark Act of 1876 (Busch 1987:71). It prohibited the refilling of bottles that had registered trademarks, and subsequent state laws prohibited

Centimeters

Inches

Figure 3.2.2-3. Exposition Brewing Company Bottle, Feature 3

the sale of these bottles (Anonymous 1878b:36; Busch 1987:71; Peters 1902:24). By 1906, twenty-one states had laws imposing fines for dealing in registered bottles (Anonymous 1906a:30; Busch 1987:71). The laws reduced, but did not eliminate the sale and reuse of registered bottles (Anonymous 1905d:66; Busch 1987:71; Carr 1926: 122). The law was largely a non-issue by about 1938 as bottle reuse was no longer economically feasible (Busch 1987:75). The other intact example was aquamarine with CARTER'S embossed on the bottom to which no date range could be attributed. The nearly intact bottle from this deposit consisted of a colorless, paneled patent medicine bottle, marked ...EVENS & TODD/...RAL DRUG STORE/...1 & 133 WOODWARD AVE./DETROIT on one side and W. T. & CO./B/USA on the bottom. The partial labeling refers to Stevens & Todd/Central Drug Store/131-133 Woodward Ave., Detroit. Stevens & Todd were in business together throughout the 1890s beginning in 1892; however, they were located at the 131-133 Woodward addresses only from 1892 to 1894. In fact, they were also at 273-275 Woodward in 1894 and then solely at that address by 1895; therefore, since the bottle only indicates the 131-133 addresses, it is presumed that it was made between 1892 and 1894 (Polk 1892:1683; 1893:1774; 1894:1894; 1895:1903). Fragmented bottle glass from the deposit included a dark amber beer bottle with a blob-top finish and CONRAD PFEIFFER/DETROIT MICH marked on one side. Bottles marked with the full Conrad Pfeiffer name were produced from 1890 to 1901 (Polk 1890:1569; 1891:1560; 1892:1649; 1893:1732; 1894:1855; 1895:1858; 1896:1917; 1897:1137; 1898:1169; 1899:1192; 1900:1243; 1901:1272). Beginning in 1902, this was shortened to C. Pfeiffer on all bottles (Polk 1902:1347).

Four other dark amber beer bottle fragments were recovered including one with a blob-top finish. The lone miscellaneous vessel glass fragment featured an opaque white and colorless surface treatment. The site also yielded an intact colorless jar with a wide mouth, screw threaded closure, and an etched floral design around the body. It appears to have been manufactured using a semi-automatic bottling machine. Two glass jar lid liner specimens were also found in the deposit. Both are opaque white and one exhibits a partial label of ...UINE PORCELAIN or Genuine Porcelain. Jar lid liners of this type were introduced in 1869 by Lewis Boyd and were used well into the twentieth century to effectively seal jar lids for the preservation of fruits, vegetables, etc. in conjunction with Mason or Ball jars (Toulouse 1990:350); however, home canning achieved its greatest popularity beginning in the first decade of the twentieth century. In fact, the earliest USDA publication dealing specifically with home canning was issued in 1909 (Breazeale 1909); therefore, while lid liners of this type were invented in 1869, they are almost always associated with later sites of the 1900/1910+ period. Based on the diagnostic information, the glass debris in the deposit provides a date range of ca.1890 to 1901.

[redacted] Level 1 (0-15")

Glass from this provenience consisted of a single aquamarine insulator fragment marked ...NGRA.../...NO. 9**,** which indicates Hemingray/No. 9 (Appendix A). The Hemingray company produced the No. 9 model from 1895 to 1955 (Anonymous 2007a).

[redacted] (0-15")

A single intact medicinal bottle was recovered from this context. It is a dark amber bottle with an applied or tooled finish and THE/MALTINE/MFG. CO./CHEMISTS/NEW YORK embossed on one side (Appendix A). Fike (1987:69) indicates that Maltine bottles were manufactured during the post-1899 period. However, Feller and Lloyd (1898) suggest that this bottle, which held a malt extract for curative or medicinal purposes, dates to as early as 1898 (Feller and Lloyd 1898).

[redacted] **A Horizon**

A single fragment of non-diagnostic aquamarine glass belonging to a miscellaneous vessel was collected from this layer (Appendix A).

[redacted] **Level 1 (Brickbats)**

Level 1 [redacted] produced a single intact dark amber beer bottle. It exhibited a crown finish and was marked AMERICAN BREWING CO./DETROIT MICH on one side (Appendix A). The crown-type finish indicates that it was manufactured after 1891 (Ferraro and Ferraro 1966:15-18; Lief 1965:13-19; Lorrain 1968:44). The American Brewing Company was previously known as the Exposition Brewing Company from 1891 to 1900 (Polk 1891:1560; 1892:1649; 1893:1732; 1894:1855; 1895:1858; 1896:1917; 1897:546; 1898:562; 1899:574; 1900:594). By 1901 the company had changed its name to the American Brewing Company and continued to operate out of Delray through 1905. By 1906, Delray was annexed by the City of Detroit and the company continued to brew beer until 1918 or 1919 when the onset of Prohibition led not only to a change in the company name to the American Products Company but also to the production of non-alcoholic products (Polk 1901:607; 1902:218; 1904:680; 1905:618; 1906:430; 1907:521; 1908:521; 1909:520; 1910:523; 1911:525; 1912:527; 1913:432; 1914:484; 1915:462; 1916:541; 1917:489; 1918:427; 1919:52); therefore, the American Brewing Company name occurs on bottles between 1901 and 1919 and reference to Detroit as the manufacturing city equates with bottles made between 1906 and 1919. Given this information, the fragment recovered from Level 1 [redacted] dates to the ca.1906-1919 period.

[redacted] **Expanded Test Trench (0-2' Brickbat Fill)**

Two intact light green beer bottles with crown-type finishes were recovered from the upper two feet of the stripped block (Appendix A). One of these was labeled AMERICAN BREWING CO./DETROIT, MICH on one side. The crown-type finish indicates that it was manufactured after 1891 (Ferraro and Ferraro 1966:15-18; Lief 1965:13-19; Lorrain 1968:44). The American Brewing Company was previously known as the Exposition Brewing Company from 1891 to 1900 (Polk 1891:1560; 1892:1649; 1893:1732; 1894:1855; 1895:1858; 1896:1917; 1897:546; 1898:562; 1899:574; 1900:594). By 1901, the company had changed its name to the American Brewing Company and continued to operate out of Delray through 1905. Subsequent to ca.1905, after Delray had been annexed by the City of Detroit, the label reflected the changeover to Detroit and the brewing of beer continued until 1918 or 1919 when the onset of Prohibition led to the cessation of brewing. The name of the company was changed to the American Production Company and only non-alcoholic products were made (Polk 1901:607; 1902:218; 1904:680; 1905:618; 1906:430; 1907:521; 1908:521; 1909:520; 1910:523; 1911:525; 1912:527; 1913:432; 1914:484; 1915:462; 1916:541; 1917:489; 1918:427; 1919:52); therefore, the American Brewing Company name occurs on bottles between 1901 and 1919 and reference to Detroit as the manufacturing city equates with bottles made between 1906 and 1919. Based on this information, the bottle recovered from Level 1, [redacted] dates to the 1906-1919 period. A second intact light green bottle from this context was marked LBC on one side and REGISTERED on the bottom. It is speculated that the LBC logo is that of the Lansing Brewing Company which was in operation from 1897 to 1914 (Anonymous 2006c), although this cannot be confirmed.

3.2.3 Miscellaneous Artifact Analysis

[redacted] Feature 1 [redacted]

Feature 1 [redacted] yielded a single non-diagnostic miscellaneous artifact, a corroded copper wick mechanism from a kerosene lamp (Appendix A).

[redacted] Feature 2 [redacted]

A single piece of non-diagnostic felt was recovered from Feature 2 [redacted] (Appendix A). It may have originated from clothing, such as a hat, or may have even functioned as lining material for a non-clothing item.

[redacted] Feature 3 [redacted]

Four miscellaneous artifacts were collected from the Feature 3 [redacted] deposit. These included two heavily oxidized spike fragments, a flat copper strap, and a half of a clam shell. Accurate dates could not be assigned to this material (Appendix A).

[redacted]

An oxidized cut nail fragment represents the lone miscellaneous artifact from this layer (Appendix A).

3.2.4 Faunal Analysis

The assemblage is consistent with a mid-late nineteenth-century array of animal bone fragments that we have come to expect from an urban household in southeastern Michigan. Although the assemblage is very small, the identification of domestic cow (*Bos Taurus*) rib and vertebra fragments and domestic pig (*Sus scrofa*) shoulder, arm, and rib elements indicate high quality cuts of meat and these features may relate to a middle-upper class households. Domestic chicken (*Gallus gallus*) is also present in the assemblage and this is a ubiquitous species in virtually every historic period faunal assemblage. There is also a possible additional avian (bird) species, probably a large duck or possibly goose, it is immature and possesses few morphological landmarks that would allow for a more definitive identification to species (Appendix B).

3.3 Conclusions

3.3.1 National Register of Historic Places Evaluation

Phase I/II archaeological field studies of the DRIC study plaza component failed to identify any evidence of prehistoric site use, inclusive of two [redacted] locations [redacted] reported to have been extant up through the third quarter of the nineteenth century. In both instances the context of early documentary presentation implies a high likelihood of site destruction. In the case of [redacted] this may have taken place as early as the 1850s development of the Waterbury and Detroit Copper Company's smelter [redacted]. In dealing with [redacted], the 1870 date of discovery likely evidences the time of site destruction as a result of early sand removal activities. That both sites lack precise information

relative to their exact locations does, however, represent a problem. In the context of twentieth-century impacts due to area urbanization, industrialization and subsequent demolition and earth moving episodes, the overall potential of site survivals is minimal at best.

CCRG's excavations in the postulated area of [redacted] identified residual zones of surviving buried A-horizon surface soils. These, however, had a minimal distribution and were totally lacking in either prehistoric or historic artifact associations. Excavations in the somewhat less well defined area of [redacted] offered a valuable insight into the intensity of area ground moving activities that presumably occurred during the last half of the nineteenth century. Once again the results of field study efforts in this portion of the project proved negative for the recovery of either prehistoric or historic (pre-1900) artifacts or feature associations.

Due to the late setting of area urbanization coupled with the low density of settlement that occurred during the late eighteenth through nineteenth centuries, it was felt that the most significant zones of the project offered, at best, a low to medium potential for historic site recovery. This was precisely the result of the new technologies in sanitation approach which emerged during the period and the infrastructure that augmented their introduction as a vital component of modern city development and growth. Urbanization within the study area generally grew along an east to west axis beginning in the 1870s through 1880s with the actual limits of the City of Detroit being pushed out to Livernois (Artillery) Avenue in 1885 and the Rouge River in 1906. Commensurate with the former event was the implementation of public sewer construction along Campbell Avenue and the advent of municipally contracted trash and garbage removal.

The three pit midden features identified and sampled [redacted] and Feature 3 [redacted] all date to the earlier phases of neighborhood growth in the easterly quarter of the project. They effectively represent an assumed grouping of domestic wastes from a later era not well represented in Detroit area historic archaeological samples. The Feature 1 [redacted] deposit lacks the angular form and wood structural supports typical of Detroit privy vault design throughout the nineteenth century. Its circular horizontal cross-section is more decidedly indicative of a pit midden that likely served the short-term discard requirements of a single household.

Feature 2 [redacted] appears as a linear disconformity cross-cutting the width of Test Trench [redacted]. The form is typical of a utility trench such as might be linked to alley lateral sewer. Explorations of such features at Brush Park and the Ambassador Bridge suggest a potential depth range anywhere from 5 feet (1.5 m) to 12 feet (3.7 m) below the existing surface. Refuse disposal within such a utility cut would have been a very opportunistic behavior within a quite limited time frame.

Feature 3 [redacted] is fundamentally different in usage in that it consists largely of demolition debris. While a wide range of household discard was observed during feature sampling, the dominant artifact type consisted of brown glass beer bottles and bottle fragments

The findings resulting from the DRIC archaeological field studies follow the far low end of a predictive Detroit model for late nineteenth century residential neighborhoods in which feature (intact) occurrence ranges from a potential of from one to three alley side deposits (privy or midden) per city block. As a fringe component of Detroit's expansive urban area the DRIC study area was by the early through mid-1880s already within the realm of a highly developed infrastructure in which waste removal figured as a focal feature of everyday life. Traditional folkway sanitation methods had been quickly replaced with the advent of a new industrialized approach to waste management, one

that depended upon an overall systems planning approach to water distribution and removal (Demeter 1999). The three features encountered during the present study are representative of the transitional shift that was quickly taking place along Detroit's westerly fringe during this period.

Taken as a group the three middens discovered as a result of the present field study are recommended as being eligible for National Register of Historic Places listing under Criterion D, based on the information they may potentially offer relative to urban fringe householder lifeways in Detroit during the last two decades of the nineteenth century.

3.3.2 Recommendations

In the event of property acquisition, the Feature 1 [redacted], Feature 2 [redacted], and Feature 3 [redacted] middens should be subjected to Phase III recovery excavations and analysis. The concentration of these deposits [redacted] points toward the potential significance of this area in the event of its actual future usage as [redacted]. CCRG is of the opinion that additional discrete feature deposits of this variety may likely occur within the properties lying [redacted]. In the event that this area is subjected to development it would be of likely value to make contractors aware of this possibility.

No further studies are recommended for the X-11 bridge approach area in the vicinity of [redacted]. Negative evidence secured from the potential area of [redacted] is somewhat less definitive, in that the actual positioning of the site is for all practical purposed unknown. Considering the degree of disturbance observed as a result of the present study coupled with the intensity of twentieth-century development it is unlikely that further studies of this area would yield significant information.

4.0 REFERENCES CITED

Albers, J. G. and C. S. Demeter
1981 *Archaeological and Historical Investigation of the Detroit Boatyard.* Commonwealth Associates, Inc., Jackson, Michigan.

Albert, D. A.
1991 Overview of the Lakeplain of Saginaw and Lake Erie. Ms. in possession of author.

Albert, D. A., S. R. Denton, and B. F. Barnes
1986 *Regional Landscape Ecosystems of Michigan.* University of Michigan, School of Natural Resources, Ann Arbor.

Amory, C.
1902 *The 1902 Edition of the Sears, Roebuck Catalogue.* Photoreprint (1969) by Bounty Books, New York.

Anonymous
n.d. Glass Factory Marks on Bottles. Electronic document, http://www.myinsulators.com/glass-factories/bottlemarks.html.

1813 *Map of the Detroit River and Adjacent Country*. John Melish, Philadelphia.

1878a Modern Plumbing VII. Water Closets, I. *The Ameican Architect and Building News* 4(140):73-75.

1878b Protect Your Bottles. *Carbonated Drinks An Illustrated Quarterly Gazette* 1(4):36.

1903 Decalcomania. *Scientific American* 55(1431):22931-2.

1905 The Washington Bottle Exchange. *American Carbonator and American Bottler* 25(288):66.

1906 The Bottle Laws of the States. *American Bottler* 26(6):30-31.

2005 Davidson English Pressed Glass. *Angela Bowey's Online Glass Museum*.

2006a Bohemian & Czech Porcelain History & Information. Electronic document, http://www.collectorscircle.com/bohemian/bohemian_china.html.

2006b Porcelain Marks & More: German (and Related) Porcelain Marks. Electronic document, http://www.porcelainmarksandmore.com.

2006c Lansing Brewing Company. Michigan Breweriana & Beer History. Electronic document, http://www.mi-brew.com.

2007a Hemingray, 1848-1933. Electronic document, http://www.angelfire.com/pop2/collectorscorner/USA_bottle_marks.html.

2007b Ruskin Art and Antique Gallery. Electronic document, http://www.rubylane.com/shops/ruskin-gallery/ilist/,cs=Antiques:Ceramics,,+Porcelain,id=1.5.html.

Arnold, J. E.
1977 Early Archaic Subsistence and Settlement in the River Raisin Watershed, Michigan. Appendix II in *The River Raisin Archaeological Survey Season 2, 1976: A Preliminary Report*. Division of Great Lakes, Museum of Anthropology, University of Michigan, Ann Arbor. Submitted to the Michigan History Division, Michigan Department of State, Lansing.

Bald, F. C.
1948 *Detroit's First American Decade: 1796 to 1805*. University of Michigan Press, Ann Arbor.

Baldwin, J. K.
1973 *A Collector's Guide to Patent and Proprietary Medicine Bottles of the Nineteenth Century.* Thomas Nelson Inc., Nashville, Tennessee.

Base, M.
1970 The Development of Detroit 1701-1920: A Planning Document. Unpublished research report. Center for Urban Studies, Wayne State University, Detroit.

Baugher-Perlin, S.
1982 Analyzing Glass Bottles for Chronology, Function, and Trade Networks. *Archaeology of Urban America: The Search for Pattern and Process*. Edited by Roy S. Dickens. Academic Press, New York.

Beld, S. G.
1991 *Two Terminal Archaic/Early Woodland Sites in Central Michigan*. Technical Report No. 22. Museum of Anthropology, University of Michigan, Ann Arbor.

Belden, H.
1876 *Illustrated Historical Atlas of the County of Wayne, Michigan.* H. Belden and Company, Chicago.

Bigony, B. A.
1977 A Brief History of Native Americans in the Detroit Area. *Michigan History* 61(2):135-163. Lansing.

Birkeland, P. W
1984 *Soils and Geomorphology.* Oxford University Press, New York

Board of Health (BH)
1890 *Ninth Annual Report of the Board of Health of the City of Detroit, 1889-1890*. J. W. Morrison, Detroit.

1895 *Fourteenth Annual Report of the Board of Health of the City of Detroit for the Year Ending June 30th, 1895*. Thomas Smith Press, Detroit

1896 *Twenty-Second Annual Report of the Board of Health of the City of Detroit for the Year Ending June 30th, 1895*. Thomas Smith Press, Detroit

Branstner, M. C.
1990 *An Archaeological Testing Program at the Prince Hall Place Development Site, Detroit, Michigan*. Great Lakes Research Associates, Inc., Williamston, Michigan.

Brashler, J. G.
1981 *Early Late Woodland Boundaries and Interaction: Indian Ceramics of Southern Lower Michigan*. Anthropological Series 3(3). Publications of the Museum, Michigan State University, East Lansing.

Brashler, J. and M. Holman
1985 Late Woodland Continuity and Change in the Saginaw Valley of Michigan. *Arctic Anthropology* 22(2):141-152.

Breazeale, J. F.
1909 Canning Vegetables in the Home. USDA Farmer's Bulletin 359. Government Printing Office, Bureau of Chemistry, Washington, D. C.

Bristol, M. A. B.
1908 Reminiscences of the Northwest. *Wisconsin Historical Collections* 8:293-308.

Brose, D. S. and P. S. Essenpreis
1973 A Report on a Preliminary Archaeological Survey of Monroe County, Michigan. *The Michigan Archaeologist* 19:1-182.

Brown, J. E. and C. E. Cleland
1969 The Late Glacial and Early Postglacial Faunal Resources in Midwestern Biomes Newly Opened to Human Adaptation. In *The Quaternary of Illinois*, pp. 114-122. Special Publication No. 14. College of Agriculture, University of Illinois, Urbana.

Burton, C. M. (editor)
1911 *Journal of John Lees*. Society of Colonial Wars of the State of Michigan, Detroit.

Burton, C. M.
1915 *Governor and Judges Journal: Proceedings of the Land Board of Detroit*.

1917 *History of Detroit, Financial and Commercial: 1780-1850*. Report of the Historiographer, Detroit.

1930 *History of Wayne County and the City of Detroit, Michigan*. S. J. Clarke Publishing, Detroit.

Burton, M. A. and J. Greusel
1909 Lewis Bond Papers. *Historical Collections and Researches Made by the Michigan Pioneer and Historic Society* 37:421-507. Michigan Pioneer and Historical Society, Lansing.

Burton Historical Collection (BHC)
1873 Local History File, Drawer 28. Detroit Public Library, Detroit.

Busch, J.
1987 A Second Time Around: A Look at Bottle Reuse. *Historical Archaeology* 21(1):76-80.

Carr, F. P.
1926 How to Operate a Bottle Exchange. *National Bottlers Gazette* 44(528):122.

Catlin, G. B.
1926 *The Story of Detroit*. The Detroit News, Detroit.

Cavallo, J. A.
1987 *Area B [redacted]: Archaeological Data Recovery I-295 and Wetlands Area Interchange*. Louis Berger and Associates Inc., East Orange, New Jersey.

Cleland, C. E.
1976 The Focal-Diffuse Model: An Evolutionary Perspective on the Prehistoric Cultural Adaptations of the Eastern United States. *Midcontinental Journal of Archaeology* 1:59-75.

Coakley, J. P. and C. F. M. Lewis
1985 Postglacial Lake Levels in the Erie Basin. In *Quaternary Evolution of the Great Lakes*, edited by P. F. Karrow and P. E. Calkin, pp. 195-212. Special Paper No. 30. Geological Association of Canada, St. Johns, Newfounland.

Colby, F. M.
1920 City Planning. *The New International Year Book, 1919.* Dodd, Mead, New York.

1921 Housing. *The New International Year Book, 1920.* Dodd, Mead, New York.

1922 City Planning. *The New International Year Book, 1921.* Dodd, Mead, New York.

1922 Bridges *The New International Year Book, 1921.* Dodd, Mead, New York.

1923 Roads and Pavements. *The New International Year Book, 1919.* Dodd, Mead, New York.
1926 Roads and Pavements. *The New International Year Book, 1919.* Dodd, Mead, New York.

Colby, F. M., A. L. Churchill, and H. S. Krans
1916 Coke. The New International Year Book, 1915. Dodd, Mead, New York.

Collot, G. H. V.
1796 *Plan Topographique du Detroit et des Eaux qui Formet la Jonction du lac Erie avec la lac St. clair*. Copies on file, Detroit Public Library and Detroit Historical Museum, Detroit.

Conant, H. A.
1886 *Census of the State of Michigan,* 1884. Department of State, Lansing.

Davies, P. J.
n.d. *Real Estate in American History*. Public Affairs Press, Washington, D.C.

Deloria, V. and K. Kickingbird
1973 Treaty of September 8, 1815 (7 Stat. 131). In *Treaties and Agreements of the Chippewa Indians*, pp. 18-25. Institute for the Development of Indian Law, Washington, D.C.

Demeter, C. S.
1982 *Near East Riverfront: A Cultural Resources Evaluation.* Commonwealth Associates, Inc., Jackson.

1984 *An Archaeological Evaluation of the West Riverfront Study Area.* Commonwealth Associates, Inc., Jackson.

1994 Sanitation Technology in Late Nineteenth Century Detroit. *The Michigan Archaeologist* 40:1-24.

1999 Urban Archaeology. In *Retrieving Michigan's Buried Past: The Archaeology of the Great lakes States*, edited by John r. Halsey, pp. 368-371. Bulletin 64. Cranbrook Institute of Science, Bloomfield Hills, Michigan.

Demeter, C. S. and J. A. Albers
1980 *A Cultural Resources Evaluation of the Proposed Detroit Port Project.* Commonwealth Associates, Inc., Jackson, Michigan.

Demeter, C. S. and D. J. Weir
2006 *Background and Land Use History, Archaeological and Deep Testing of the Detroit River International Crossing (DRIC) Project, Detroit, Michigan.* Commonwealth Cultural Resources Group, Inc., Jackson, Michigan.

Detroit, City of
1885 *Thirty-Third Annual Report of the Board of Water Commissioners to the Common Council of the City of Detroit for the Year 1884*. Post and Tribune Book and Job Printing, Detroit.

1887a *Thirty-Fifth Annual Report of the Board of Water Commissioners to the Common Council of the City of Detroit for the Year 1886*. Post and Tribune Book and Job Printing, Detroit.

1887b *Thirteenth Annual Report of the Board of Public Works of the City of Detroit, Showing Work Done, and Expenditures for the Fiscal Year Ending June 30, 1887*. Wm. F. Moore, City Printer, Detroit..

1888 *Fourteenth Annual Report of the Board of Public Works of the City of Detroit, Showing Work Done, and Expenditures for the Fiscal Year Ending June 30, 1888.* Wm. F. Moore, City Printer, Detroit..

1922 *Annual Report for the City of Detroit for the Year 1922*. City of Detroit, Detroit.

1926 *Annual Report for the City of Detroit for the Year 1926*. City of Detroit, Detroit.

1929 *Annual Report for the City of Detroit for the Year 1929*. City of Detroit, Detroit.

1930 *Annual Report for the City of Detroit for the Year 1930*. City of Detroit, Detroit.

1947 *Proposed Generalized Land Use Plan.* City Planning Commission, Detroit.

Detroit River, Friends of

1997 *Detroit River Current: Newsletter by the Friends of the Detroit River*. 1(4):18.

Detroit Tribune

1872 *The Michigan Almanac, 1872.* The Detroit Tribune, Detroit.

Dickins, A., and J. W. Forney

1860 *American State Papers: Public Lands*, Vol. 5. Gales and Seaton, Washington.

Dunnigan, B. C.

2001 *Frontier Metropolis: Picturing Early Detroit, 1701-1838*. Wayne State University Press, Detroit.

Edwards, R.

1880 *Industries of Michigan: City of Detroit*. Historical Publishing Company, New York.

Edmunds, R. D.

1987 *The Potawatomis: Keepers of the Fire*. University of Oklahoma Press, Norman.

Egan, K. C.

1988 Middle and Late Archaic Phytogeography and Floral Exploitation in the Upper Great Lakes. *Midcontinental Journal of Archaeology* 13:81-107.

1990 Archaeobotanical Remains From [redacted]. In *The Bridgeport Site: Archaeological Investigations* [redacted], *Saginaw County, Michigan*, edited by M. J. Shott and J. O'Shea, pp. 203-231. Anthropological Papers No. 81. Museum of Anthropology, University of Michigan, Ann Arbor.

1993 Hunter-Gatherer Subsistence Adaptation in the Saginaw Valley, Michigan. Ph.D. Dissertation, Michigan State University, East Lansing. University Microfilms, Ann Arbor.

Ellis, C. J. and D. B. Deller
1990 Paleo-Indians. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 37-64. Occasional Publication of the London Chapter, Ontario Archaeological Society, London, Ontario.

Ellis, C. J., I. T. Kenyon, and M. W. Spence
1990 The Archaic. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 65-124. Occasional Publication of the London Chapter, Ontario Archaeological Society, London, Ontario.

Farmer, S.
1890 *History of Detroit and Wayne County and Early Michigan*. Silas Farmer and Company, Detroit.

Feller, H. W. and J. U. Lloyd
1898 King's American Dispensatory - Extract of Malt. Electronic document, http://www.herbal-magic-k.com/kings/Kings-American-Dispensatory.htm.

Ferraro, B, and P. Ferraro
1966 *A Bottle Collector's Book.* Western Printing and Publication Company, Sparks, Nevada.

Fike, R. E.
1987 *The Bottle Book: A Comprehensive Guide to Historic Embossed Medicine Bottles.* Gibbs M. Smith, Salt Lake City, Utah.

Finley, J. B.
1868 *Life Among the Indians.* Curts and Jennings, Cincinnati.

Fischer, F. W.
1972 Schultz Site Ceramics. In *The Schultz Site at Green Point: A Stratified Occupation Area in the Saginaw Valley of Michigan*, edited by J. E. Fitting, pp. 137-190. Memoir No. 4. Museum of Anthropology, University of Michigan, Ann Arbor.

Fitting, J. E.
1965 *Late Woodland Culture of Southeastern Michigan.* Anthropological Papers No. 24. Museum of Anthropology, University of Michigan, Ann Arbor.

1975 *The Archaeology of Michigan*. Bulletin 56. Cranbrook Institute of Science, Bloomfield Hills, Michigan.

Fitting, J. E., J. DeVisscher, and E. J. Wahla
1966 *The Paleoindian Occupation of the Holcombe Beach.* Anthropological Papers No. 27. Museum of Anthropology, University of Michigan, Ann Arbor.

Forsyth, J. L.
1973 Late Glacial and Post Glacial History of Western Lake Erie. *The Compass of Sigma Gamma Epsilon* 51:16-26.

Garland, E. B.
1986 Early Woodland Occupation in Michigan: A Lower St. Joseph River Valley Perspective. In *Early Woodland Archeology*, edited by Kenneth B. Farnsworth and Thomas E. Emerson, pp. 47-83. Kampsville Seminar in Archeology No. 2. Center for American Archeology Press, Kampsville, Illinois.

Garland, E. B. and C. P. Clark
1990 Occupational History of the Eidson Site. In *Late Archaic and Early Woodland Adaptation in the Lower St. Joseph River Valley*, edited by E. B. Garland, pp. 414-415. Michigan Cultural Resource Investigation Series, vol. 2. Michigan Department of Transportation, Michigan Department of State, and Federal Highway Administration, Lansing.

Gates, W. C. and D. E. Ormerod
1982 The East Liverpool, Ohio, Pottery District. *Historical Archaeology* 16 (1-2):1-358.

Geil, J. F.
1860 *Map of Wayne County, Michigan.* Geil, Harley and Siverd, Philadelphia.

George, R. L. and C. E. Davis
1986 A Dated Brewerton Component in Armstrong County, Pennsylvania. *Pennsylvania Archaeologist* 56:12-20.

Gillman, H.
1877 Investigation of the Burial Mound at Fort Wayne, on the Detroit River, Michigan. *American Association for the Advancement of Science* 25:311325.

Glazer, S.
1965 *Detroit, A Study in Urban Development.* Bookman Associates, Inc., New York.

Greeley, A.
1810 *Plan of Private Claims in Michigan Territory*. Copy maintained at the Burton Historical Collection, Detroit Public Library, Detroit.

Greusel, J., Jr.
1915 Joseph Greusel. *Michigan Historical Collections* 39:378-386. Michigan Historical Commission, Lansing.

Halsey, J. R.
1968 The Springwells Mound Group of Wayne County, Michigan. *Contributions to Michigan Archaeology, Anthropological Papers* 32:75-159. University of Michigan, Museum of Anthropology, Ann Arbor.

1976 *The Bussinger Site: A Multicomponent Site in the Saginaw Valley of Michigan with a Review of Early Late Woodland Mortuary Complexes in the Northeast Woodlands*. Ph.D. dissertation, University of North Carolina at Chapel Hill. University Microfilms, Ann Arbor.

1981 The Wayne Mortuary Complex: A New Chapter in Michigan's Prehistoric Past. *Michigan History* 65(5):17-23.

Holli, M. G.
1969 *Reform in Detroit: Hazen S. Pingree and Urban Politics.* Oxford University Press, New York.

Holman, J. A.
1990 Vertebrates from the Harper Site and Rapid Climatic Change in Mid-Holocene Michigan. *Michigan Academician* 22:205-217.

Holmes, G. K. and J. S. Lord
1896 *Report on Farms and Homes: Proprietorship and Indebtedness in the United States at the Eleventh Census, 1890*. Census Office, Department of the Interior. Washington, D.C.

Holmquist, C. E.
1946 *The Fort Wayne Mound.* Detroit Aboriginal Research Club, Detroit.

Honerkamp, N., R. B. Council, and C. H. Fairbanks
1983 *The Reality of the City: Urban Archaeology of the Telfair Site, Savannah, Georgia.* Archeological Services Branch, National Park Service, Atlanta.

Hyde, C.
1980 *Detroit: An Industrial History Guide*. Detroit Historical Society, Detroit.

Justice, N. D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States.* Indiana University Press, Bloomington.

Kelly, R. L. and L. C. Todd
1988 Coming into the Country: Early Paleoindian Hunting and Mobility. *American Antiquity* 53:231-244.

Kovel, R. M. and T. H. Kovel
1953 *Dictionary of Marks - Pottery and Porcelain.* Crown Publishers Inc., New York.

Kowalsky, A. A. and D. E. Kowalsky
1999 *Encyclopedia of Marks on American, English, European Earthenware, Ironstone, and Stoneware.* Schiffer Publishing Company, Atglen, Pennsylvania.

Krakker, J.
1983 *Changing Sociocultural Systems During the Late Prehistoric Period in Southeast Michigan*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Michigan, Ann Arbor.

Krepps, K. L.
1981 Historic Cemetery Survey of Wayne County, Michigan. Manuscript maintained at Wayne State University, Museum of Anthropology, Detroit.

Lamson, A. C.
1873 *Detroit River: Survey of N-NW Lakes*. U. S. Army Corps of Engineers, Chicago District.

Lanman, J. H.
1839 *History of Michigan, Civil and Topographical, in a Compendius Form: With A View of the Surrounding Lakes*. Publisher Unknown, New York.

Leake, P.
1912 *History of Detroit.* Lewis Publishing Company, Chicago.

Lief, A.
1965 *A Close-up of Closures.* Glass Container Manufacturers Institute, New York.

Lindley, J.
1910 Jacob Lindley's Account. *Michigan Pioneer and Historical Collections* 17:566-632.

Lodge, J. C.
1949 *I Remember Detroit*. Wayne State University Press, Detroit.

Loomis, F. F.
2007 Proper Dating. *Art & Antiques.* Electronic document, http://www.artsandantique.net/Articles/Appraisals/Proper-Dating.asp.

Lorrain, D.
1968 An Archaeologist's Guide to Nineteenth Century American Glass. *Historical Archaeology* 2:35-44.

Lovis, W. A. (editor)
1989 *Archaeological Investigations at the Weber I and Weber II Sites, Frankenmuth Township, Saginaw County, Michigan*. Michigan Cultural Resource Investigations Series 1. Michigan Department of Transportation, Michigan Department of State, Federal Highway Administration, and Saginaw County Road Commission, Lansing.

Lovis, W. A.
1990 Accelerator Dating the Ceramic Assemblage from the Fletcher Site: Implications of a Pilot Study for Interpretation of the Wayne Phase. *Midcontinental Journal of Archaeology* 15:37-50.

Lovis, W. A. and J. A. Robertson
1989 Rethinking the Archaic Chronology of the Saginaw Valley, Michigan. *Midcontinental Journal of Archaeology* 14:226-260.

Lowrie, W. and M. St. Clair Clarke
1832 Land Titles in Michigan Territory. In *American State Papers: Public Lands*, vol. 1, pp. 305-557. Gales and Seaton, Washington, D.C.

Macomb, J. N. and W. H. Warner
1841 *Map of Springwells and Its Vicinity*. Negative photocopy maintained by the Burton Historical Collection, Detroit Public Library.

Magid, B. H.
1984 Ceramic Code Book. Ms. on file, Archaeological Services Consultants, Inc., Columbus, Ohio.

Mansberger, F.
1986 *Changing Patterns in Nineteenth Century Ceramics.* Nineteenth-Century Historic Archaeology in Illinois. Illinois Cultural Resources Study No. 2, T. E. Emerson and C. L. Rohrbaugh, compilers. Illinois Historic Preservation Agency, Springfield.

Mason, R. J.
1981 *Great Lakes Archaeology*. Academic Press, New York.

Maybury, W. C.
1899 *Second Annual Message of William C. Maybury, Mayor of Detroit, to the Common Council.* The Thomas Smith Press, City Printers, Detroit.

Michigan Pioneer and Historical Society [MPHS]
1886 Miscellaneous Documents. *Michigan Pioneer and Historical Collections* 8:449-669.

1892 Haldimand Papers. *Michigan Pioneer and Historical Collections* 19:296-675.

1904 Cadillac Papers. *Michigan Pioneer and Historical Collections* 33:36-715.

1905 Cadillac Papers. *Michigan Pioneer and Historical Collections* 34:11-214.

1908 The Haldimand Papers. *Michigan Pioneer and Historical Collections* 10:210-672.

Miller, G. L.
2000 Telling Time for Archaeologists. *Northeast Historical Archaeology* 29:1-22.

2004 Re: Tea Leaf Question. Manuscript in possession of the author.

Miller, G. L. and T. McNichol
2002 *Dates for Suction Scarred Bottoms: Chronological Changes in Owens Machine-Made Bottles*. Paper presented at the Annual Meeting of the Society for Historical Archaeology, Mobile, Alabama.

Miller, G. L. and C. Sullivan
1984 Machine-Made Glass Containers and the End of Production for Mouth-Blown Bottles. *Historical Archaeology* 18(2):83-96.

Moulton, T.
2007 Kissin Cousins: A History of Insulator and Fruit Jar Manufacturers. Electronic document, http://www.insulators.com/articles/fruitref.htm.

New York Central Railroad System
n.d. History of the Michigan Central Railroad Company, Detroit River Tunnel Company. From the 1913 Annual Report of the New York Central Railroad System. Electronic document, http://web.archive.org/web/20011115074648/www.railroad.net/nyc/mc.html, accessed June 28, 2007.

Ozker, D.
1982 *An Early Woodland Community at the Schultz Site 20SA2 in Saginaw Valley and the Nature of the Early Woodland Adaptation in the Great Lakes Region*. Anthropological Papers No. 70. Museum of Anthropology, University of Michigan, Ann Arbor.

Palmer, F.
1906 *Early Days in Detroit*. Hunt and June, Detroit.

Peebles, C. S., M. Schoeninger, and M. Shott
1979 *The River Raisin Archaeological Survey Season 3, 1977: A Preliminary Report*. Division of the Great Lakes, Museum of Anthropology, University of Michigan, Ann Arbor.

Peters, W. A.
1902 Trade Marks in the Bottling Industry. *American Carbonator and American Bottler* 22(251):24.

Phenix, William P.
1981 Never a Shot in Anger. *Michigan History Magazine* May/June 1981.

Pilling, A. R
1961 Six Archaeological Sites in the Detroit Area. *Michigan Archaeologist* 7:13-30, 33-54.

Pilling, A. R., J. J. Gram, C. S. Demeter
1980 Springwells Sites, Detroit, Michigan, and a Pre-1811 Excavation. Unpublished manuscript maintained at the Office of the State Archaeologist, Lansing.

Polk, R. L.
1885 *Detroit City Directory for 1885.* R. L. Polk and Company, Detroit.

1889 *Detroit City Directory for 1889.* R. L. Polk and Company, Detroit.

1890 *Detroit City Directory for 1890.* R. L. Polk and Company, Detroit.

1891 *Detroit City Directory for the Year Commencing August 1st, 1891.* R. L. Polk and Company, Detroit.

1892 *Detroit City Directory for the Year Commencing August 1st, 1892.* R. L. Polk and Company, Detroit.

1893 *Detroit City Directory for the Year Commencing August 1st, 1893.* R. L. Polk and Company, Detroit.

1894 *Detroit City Directory for the Year Commencing August 1st, 1894.* R. L. Polk and Company, Detroit.

1895 *Detroit City Directory for the Year Commencing August 1st, 1895.* R. L. Polk and Company, Detroit.

1896 *Detroit City Directory for the Year Commencing August 1st, 1896.* R. L. Polk and Company, Detroit.

1897 *Detroit City Directory for the Year Commencing August 1st, 1897.* R. L. Polk and Company, Detroit.

1898 *Detroit City Directory for the Year Commencing August 1st, 1898.* R. L. Polk and Company, Detroit.

1899 *Detroit City Directory for the Year Commencing August 1st, 1899.* R. L. Polk and Company, Detroit.

1900 *Detroit City Directory for the Year Commencing August 15th, 1900.* R. L. Polk and Company, Detroit.

1901 *Detroit City Directory for the Year Commencing August 1st, 1901.* R. L. Polk and Company, Detroit.

1902 *Detroit City Directory for the Year Commencing August 1st, 1902.* R. L. Polk and Company, Detroit.

1903 *Detroit City Directory for the Year Commencing August 1st, 1903.* R. L. Polk and Company, Detroit.

1904 *Detroit City Directory for the Year Commencing August 1st, 1904.* R. L. Polk and Company, Detroit.

1905 *Detroit City Directory for the Year Commencing August 1st, 1905.* R. L. Polk and Company, Detroit.

1906 *Detroit City Directory for the Year Commencing August 1st, 1906.* R. L. Polk and Company, Detroit.

1907 *Detroit City Directory for the Year Commencing August 1st, 1907.* R. L. Polk and Company, Detroit.

1908 *Detroit City Directory for the Year Commencing August 1st, 1908.* R. L. Polk and Company, Detroit.

1909 *Detroit City Directory for the Year Commencing August 1st, 1909.* R. L. Polk and Company, Detroit.

1910 *Detroit City Directory for the Year Commencing August 1st, 1910.* R. L. Polk and Company, Detroit.

1911 *Detroit City Directory for the Year Commencing August 15th, 1911.* R. L. Polk and Company, Detroit.

1912 *Detroit City Directory for the Year Commencing August 15th, 1912.* R. L. Polk and Company, Detroit.

1913 *Detroit City Directory for the Year Commencing August 15th, 1913.* R. L. Polk and Company, Detroit.

1914 *Detroit City Directory for the Year Commencing August 15th, 1914.* R. L. Polk and Company, Detroit.

1915 *Detroit City Directory for the Year Beginning September 1st, 1915.* R. L. Polk and Company, Detroit.

1916 *Detroit City Directory for the Year Beginning September 1st, 1916.* R. L. Polk and Company, Detroit.

1917 *Detroit City Directory for the Year Beginning September 1st, 1917.* R. L. Polk and Company, Detroit.

1918 *Detroit City Directory for the Year Beginning September 1st, 1918.* R. L. Polk and Company, Detroit.

1919 *Detroit City Directory for the Year Beginning September 1st, 1919.* R. L. Polk and Company, Detroit.

1921-1922 *R. L. Polk's Detroit City Directory 1921-1922.* R. L. Polk and Company, Detroit.

1921 *Polk's Detroit City Directory, 1921*. R. L. Polk and Company, Detroit.

1924 *Polk's Detroit City Directory, 1924*. R. L. Polk and Company, Detroit.

1925 *Polk's Detroit City Directory, 1925*. R. L. Polk and Company, Detroit.

Prahl, E.
1980 The Transitional Zone of the West-Central Portion of the Southern Peninsula of Michigan-The Muskegon to the Manistee River Drainages. In *Phase II Completion Report for Conference on Michigan Archaeology: Major Problem Orientations in Michigan Archaeology: 1980-1984*. Commonwealth Associates, Inc., Jackson, Michigan.

Pulitzer, J.
1905 *The World Almanac and Encyclopedia 1905*. Press Publishing, New York.

Ritchie, W. A. and R. E. Funk
1973 *Aboriginal Settlement Patterns in the Northeast.* Memoir 20. New York State Museum and Science Service, Albany.

Robertson, J. A.
1987 *Inter-assemblage Variability and Hunter-Gatherer Settlement Systems: A Perspective from the Saginaw Region of Michigan.* Unpublished Ph.D. dissertation, Department of Anthropology, Michigan State University, East Lansing.

Robinson, E. and R. H. Pidgeon
1885 *Atlas of the City of Detroit and Suburbs.* E. Robinson, New York.

Ross, R. B. and G. B. Catlin
1898 *Landmarks of Wayne County and Detroit.* The Evening News Association, Detroit.

Samford, P. M.
1997 Response to a Market: Dating English Underglaze Transfer-Printed Wares. *Historical Archaeology* 31(2):1-30.

Schurr, M. R. and B. G. Redmond
1991 Stable Isotope Analysis of Incipient Maize Horticulturalists from the Gard Island 2 Site. *Midcontinental Journal of Archaeology* 16:69-84.

Shane, O. C., III
1967 The Leimbach Site: An Early Woodland Village in Lorain County, Ohio. In *Studies in Ohio Archeology*, edited by O. H. Prufer and D. H. McKenzie, pp. 98-120. Western Reserve University Press, Cleveland.

Shaw, S.
1829 *History of the Staffordshire Potteries and the Rise and Progress of the Manufacture of Pottery and Porcelain; with Reference to Genuine Specimens and Notices of Eminent Potters.* Reprinted 1968. Beatrice C. Weinstock, Great Neck, New York.

Sherzer, W. H.
1916 *Geologic Atlas of the United States: Detroit Folio*. Field edition. U.S. Geological Survey, Washington, D.C.

Sinclair, R.
1970 *The Face of Detroit: A Spatial Analysis.* Department of Geography, Wayne State University, Detroit.

Smith, B. A. and K. C. Egan
1990 Middle and Terminal Archaic Faunal and Floral Exploitation at the Weber I Site [redacted]. *Ontario Archaeologist* 50:39-54.

Spence, M. W. and W. A. Fox
1986 The Early Woodland Occupations of Southern Ontario. In *Early Woodland Archeology*, edited by Kenneth B. Farnsworth and Thomas E. Emerson, pp. 4-46. Kampsville Seminar in Archeology No. 2. Center for American Archeology Press, Kampsville, Illinois.

Spence, M. W., R. H. Pihl, and C. Murphy
1990 Cultural Complexes of the Early and Middle Woodland Periods. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 125-170. Occasional Publication of the London Chapter, Ontario Archaeological Society, London, Ontario.

Stamps, R. B. and R. Zurel
1980 *A Pilot Survey of Archeological Resources of Oakland County, Michigan*. Working Papers in Archeology Technical Report Series 27. Oakland University, Rochester, Michigan.

Standard Oil Company
1934 *Standard Oil Company (Indiana) 1934 Official Road Map, Detroit and Environs*. H. M. Gousha, Chicago.

Stothers, D. M.
1975 The Western Basin Tradition: A Preliminary Note. *Toledo Area Aboriginal Research Bulletin* 4:44-48.

Stothers, D. M. and G. M. Pratt
1981 New Perspectives on the Late Woodland Cultures of the Western Lake Erie Region. *Midcontinental Journal of Archaeology* 6:91-121.

Stothers, D. M. and R. A. Yarnell
1977 An Agricultural Revolution in the Lower Great Lakes. In *Geobotany*, edited by R. C. Romans, pp. 209-232. Plenum Press, New York.

Thwaites, R. G. (editor)
1902 The French Regime in Wisconsin I:1634-1727. *Wisconsin Historical Collections* 16:1-514.

1908 The British Regime in Wisconsin: 1760-1800. *Wisconsin Historical Collections* 18:223-468.

Toulouse, J. H.
1990 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

Truesdell, L. E.
1943b *Housing Analytical Maps, Block Statistics*. Detroit, Michigan. Bureau of the Census, Department of Commerce. WPA War Services, New York.

United States Department of Agriculture, Soil Conservation Service (USDA-SCS)
1993 *Soil Survey Manual.* USDA Handbook 18, U.S. Government Printing Office, Washington.

Van Wagoner, M. D.
1937 *Street Traffic: City of Detroit, 1936-1937*. Michigan State Highway Department, Lansing.

Walker, F. A.
1872 *The Statistics of the Population of the United States from the Original Returns of the Ninth Census (June 1, 1870)*. Department of the Interior, Census Office, Washington, D. C.

Walker, F. A. and C. W. Seaton
1883 *Statistics of the Population of the United States at the Tenth Census (June 1, 1880)*. Department of the Interior, Census Office, Washington, D. C.

Wayne County
n.d. Askin, Todd and McGill Tracts (Private Claims 267, 268 and 270): Libers 793 and 797. Wayne County Tract Index Department, Detroit.

n.d. Berthelet Farm (Private Claims 32, 33, 269, 270 and 655): Liber 668. Wayne County Tract Index Department, Detroit.

n.d. Walter Crane Farm (Private Claim 39): Libers 536-537. Wayne County Tract Index Department, Detroit.

n.d. Ernst Farm (Private Claim 30): Liber 659. Wayne County Tract Department, Detroit.

Weeks, J. W. and R. L. Polk
1877 *Detroit City Directory for 1877-1878*. J. W. Weeks and Company, Detroit.

1883 *Detroit City Directory for 1883*. J. W. Weeks and Company, Detroit.

Westlake, D. W.
1970 Fort Wayne. National Register of Historic Places Inventory Nomination Form.

Witherell, B. F. H.
1884 Mounds of the Dead, on Springwells Sand Hill. *Michigan Pioneer and Historical Collections* 5:4-5.

Wobst, M. H.
1965 The Stone School Site: A Discussion of a Large Surface Collection from Washtenaw County, Michigan. *The Michigan Archaeologist* 11:59-70.

Woodford, F. B., and A. Hyma
1958 *Gabriel Richard: Frontier Ambassador*. Wayne State University Press, Detroit.

ARCHAEOLOGY
GLOSSARY

Adena. Culture centered in the Ohio Valley, existing from 1000 B.C. to A.D. 1 (Early to Middle **Woodland** periods), characterized by burial mounds and elaborate grave goods, such as copper beads and ceremonial stone knives.

Adena Stemmed Point

Adena Stemmed point. Lanceolate shaped projectile point type dating to between 800 B.C. and 300 B.C.

altithermal. Climatic period (10,000 B.C. to 6000 B.C.) characterized by warm and dry conditions.

area of potential effects (APE). Geographic area or areas within which an **undertaking** may cause changes in the character or use of historic properties, if any such properties exist.

Archaic. Culture period dating between 8000 B.C. and 550 B.C. in Michigan.

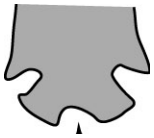
arpent. Old French unit of land measure, equal to approximately 0.85 acre (0.34 hectare).

artifact. Material remains of human activity.

atlatl. Spear-throwing device, usually made of wood or bone.

bannerstone. Grooved or drilled stone used as an **atlatl** weight; may also have been used as a ceremonial object.

basal notch. Indentation on the base of a projectile point.



Basal Notch

bed. Geological term commonly meaning layer or stratum.

bedding. Process of creating a **bed**.

biface. Chipped stone tool that exhibits two thinned edges.

bifurcate base. Forked base.

Bifurcate Base

biotic community. Naturally occurring assemblage of interdependent plants and animals that live in the same environment.

birdstone. Bird-shaped stone used as an **atlatl** weight; may also have been used as a ceremonial object.

Birdstone

ARCHAEOLOGY
GLOSSARY

bladelet. Small, sharp-edged tool; also referred to as a microblade.

Brewerton point. Projectile point type dating to between ca. 2980 B.C. and 1723 B.C.

Brewerton Point

brickbat. Fragment of a brick.

building. Resource created principally to shelter any form of human activity.

ca. circa; with reference to time, approximately.

Canadian biotic province. Region that includes New England, southern Quebec, southern Ontario, and parts of the western Great Lakes. The Canadian biotic province is characterized by northern hardwoods (sugar maple, birch, and white pine, for example) and northern fauna (chipmunk, beaver, muskrat).

Carolinian-Canadian transition zone. Region between the Canadian biotic province to the north and the Carolinian biotic province to the south, containing plants and animals from both provinces.

Carolinian biotic province. Region from New Jersey south to the Carolinas and west to Oklahoma and South Dakota. The Carolinian biotic province is characterized by beech-maple and oak-hickory forests, as well as a wide variety of mammals, mollusks, and amphibians.

castellated. Ceramic rim decoration of square indentations, reminiscent of those on a castle turret.

celt. Axe-like stone tool, usually hand-held, used for cutting and chopping wood and wooden materials.

coke. Byproduct of coal firing used in industrial processes such as iron smelting.

collar. Part of a ceramic vessel that surrounds the opening but does not restrict its opening.

conical mound. Cone-shaped or oval-shaped mound that may contain human burials

cordmarked. Ceramic surface treatment made by pressing cord into wet clay before firing.

corner notch. On a projectile point, indentations on each side of the point at the base, used to accommodate hafting; compare **side notch**.

Corner Notch

^{14}C. Carbon-14; test used to determine the age of prehistoric artifacts.

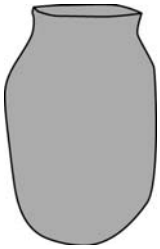
Decatur point. Projectile point type characterized by triangular, corner-notched forms, dating to between ca. 7500 B.C. and 7000 B.C.

deformation. Alteration of shape.

dentate. Ceramic decoration of pointed, tooth-like projections.

district. Collection of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Elkton. Glacial Great Lakes stage (i.e., levels) geographically located in the Lake Huron and Lake Erie basins, dating to ca. 11,000 B.C. to 10,000 B.C.; also called Lundy.



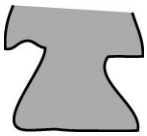
Elongate Vessel

elongate. Having a long shape; compare **globular.**

Eva point. Projectile point type dating to between ca. 6000 B.C. and 4000 B.C.

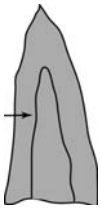
Eva Point

expanding stem. Having a base that flares out.



Expanding Stem

feature. Evidence of human activity without artifacts; often characterized by soils that differ from surrounding soils in color and texture; a patterned cluster of artifacts.



Flute

flute. Groove on stone tools, a result of the chipping process, which aids in hafting.

global positioning system (GPS). Interconnected network of satellites, computers, and receivers used to determine the latitude and longitude of a location.

Globular Vessel

globular. Having a round shape; compare **elongate.**

grading. Gradual reduction of land to a level surface.

Grassmere. Glacial Great Lakes stage (i.e., levels) geographically located in the Lake Huron and Lake Erie basins, which immediately preceded **Elkton.**

graver. Small stone tool with a sharp tip, used to engrave stone, bone, wood, and other materials.

Groundstone Axe

groundstone. A stone tool manufactured in whole or in part by abrasion.

haft. (*v*) to provide a tool with a shaft or handle; (*n*) the bottom or base of a tool designed to accommodate attachment to a shaft or handle.

Hi-Lo Point

heat sum. Sum of the average (mean) daily temperature for any given period; used to calculate and predict growing seasons.

Hi-Lo point. Large, lanceolate projectile point type dating to between ca. 8500 B.C. and 8000 B.C.

historic property. Any prehistoric or historic district, site, building, structure, or object, listed in, or eligible for listing in, the National Register of Historic Places.

Holocene. Geological epoch that began about 9500 B.C. and continues to the present day.

Hopewell. Prehistoric culture dating to between ca. 100 B.C. and A.D. 500 (Middle **Woodland** period), centered in Illinois and Ohio; characterized by burial mounds; obsidian, mica, and copper grave goods; and walled villages.

hypsithermal. Period from 7000 B.C. to 500 B.C. characterized by relatively warm climate.

incise. To cut; a method of ceramic decoration where lines are drawn in wet clay with a sharp instrument

isostatic. Pertaining to a shift in altitude relative to sea level.

Jack's Reef Corner-Notched point. Projectile point type exhibiting thin, wide blades, dating to between ca. A.D. 500 and A.D. 1200.

Kanowha Stemmed point. Triangular projectile point type dating to between ca. 6200 B.C. and 5800 B.C.

Kirk point. Projectile point type generally characterized by triangular blades with serrated edges; dates to between ca. 7500 B.C. and 6900 B.C.

Kramer point. Projectile point type exhibiting long, straight stems; dates to between ca. 500 B.C. and A.D. 1.

LeCroy Point

LeCroy point. Bifurcate-based projectile point type dating to between ca. 6500 B.C. and 5800 B.C.

lacustrine. Pertaining to the environment of a lake.

lanceolate. Long, narrow projectile point type shaped like the head of a lance; pointed at one or both ends.

Laurentian. Referring to the most recent ice sheet (i.e., glacier) to cover North America.

Leimbach Cordmarked ceramic. Grit- or sand-tempered ceramic type named for the Leimbach site, located on the Vermilion River, Lorain County, Ohio; dates to the Middle Woodland period (ca. 200 B.C. to A.D. 500).

Leimbach Thick Ceramic

Leimbach Thick ceramic. Thick, crude ceramic type named for the Leimbach site, located on the Vermilion River, Lorain County, Ohio; dates to the Middle Woodland period (ca. 200 B.C. to A.D. 500).

Levanna Point

Levanna point. Typically triangular projectile point type, as wide as it is high; dates to between ca. A.D. 700 and A.D. 1200.

lithology. Description of the physical character of rocks.

MacCorkle point. Bifurcate-base or basally notched projectile point dating to between ca. 7000 B.C. and 6500 B.C.

Madison Point

Madison point. Triangular point type with straight or slightly concave base; dates to between ca. A.D. 800 to the time of European contact (in Michigan, ca. A.D. 1600).

maize. Tall cereal grass grown in Mexico, South America, and the U.S.; sometimes used as a synonym for corn.

Meadowood Point

Marion Thick ceramic. Thick, hand-coiled pottery dating to the Early Woodland period (ca. 600 B.C. to 200 B.C.).

Meadowood point. Thin, delicate trianguloid projectile point type exhibiting wide side notches; dates to between ca. 1300 B.C. and 500 B.C.

megafauna. Large, Ice-Age animals, now extinct, such as mammoth, mastodon, giant sloth, and giant beaver; also refers to bison and caribou.

mesic. Pertaining to a temperate (not too hot or cold), moist (but not wet) climate.

Morrow Mountain point. Small projectile point type with a broad triangular blade; dates to between ca. 4800 B.C. and 4100 B.C.

Morrow Mountain Point

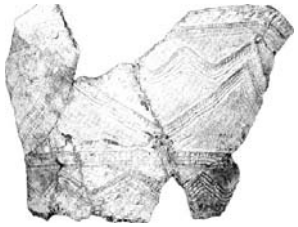
National Register of Historic Places (NRHP). Federal list of buildings, structures, objects, sites, and districts deemed significant to the nation's history or prehistory.

object. Construction, primarily artistic in nature or relatively small in scale and simply made, such as a statue or milepost.

ovate. Oval shaped.

Paleoindian. Culture period dating between 10,000 B.C. and 8000 B.C. in Michigan.

Parker Festooned ceramic. Shell-tempered ceramic type exhibiting elaborately decorated, dentate rims; dates to between ca. A.D. 1220 and A.D. 1420.



Parker Festooned Ceramic

patent deed. First transfer of land title from a federal or state government to a private party.

Phase I. In archaeology, the initial survey designed to identify areas that could contain important artifacts or features; characterized by visual inspection of the ground surface and excavation of small holes (called shovel tests) along and within a measured grid.

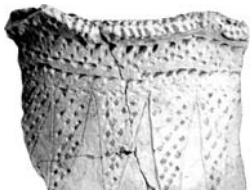
Phase II. In archaeology, survey following a Phase I survey and characterized by excavations of straight-sided pits (usually square or rectangular); designed to examine areas that had been previously identified as containing or likely to contain artifacts or features.

plat. Plan, map, or chart illustrating one or more parcels of land; often contains boundary lines, streets, structures, parcel numbers, and other identifying information.

Pleistocene. Geological epoch beginning about 1.8 million years ago and succeeded by the Holocene; the Ice Age.

private claim (P.C.). Property division of numbered lots granted to individuals. In Detroit, private claims were granted by the French crown, and they are situated on major waterways, such as the Detroit River. The parcels are deeper than they are wide, allowing many properties access to waterfront property. They are also called **ribbon farms.**

projectile point. Sharp tool manufactured of stone, bone, antler, or shell, attached to a spear or arrow; also called an arrowhead.


Vase Punctate Ceramic

punctate. Ceramic decoration consisting of small, circular indentations.

retort oven. Chamber that distills or decomposes materials with heat.

ribbon farm. Farm tracts situated along a waterway, with the parcel's water frontage narrower than its depth; see **private claim.**

rim. Upper portion of a ceramic vessel, including the lip.

Riviere Ware ceramic. Ceramic type found in Macomb County, Michigan, that was most commonly produced between ca. A.D. 900 and A.D. 1100.

Robbins Stemmed point. Broad-bladed, straight-stemmed point type dating to between ca. 500 B.C. to A.D. 200.

rocker stamp. Ceramic decoration using a curved (convex) stamp "rocked" back and forth to impress a design.

St. Albans point. Triangular projectile point type dating to between ca. 6900 B.C. and 6500 B.C.

St. Charles point. Lanceolate, sometimes **ovate**, project point type dating to between ca. 8000 B.C. and 6000 B.C.


St. Charles Point

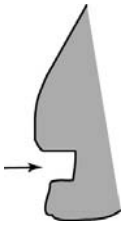
Satchell point. Projectile point type characterized by broad blades; dates to between ca. 2000 B.C. and 1000 B.C.

Scioto tradition. Culture commonly associated with the **Hopewell** culture in Ohio.

Schultz Stemmed point. Small- and large-stemmed projectile point type that datea to between ca. A.D. 200 and A.D. 300.

Schultz Thick ceramic. One of the oldest known ceramic types in Michigan, dating to the Early Woodland (ca. 600 B.C. to 200 B.C.).

side notch. On a projectile point, indentations on both sides of a point near the base, used to accommodate hafting; compare **corner notch.**


Side Notch

site. Location where there is material evidence of human activity.

Springwells Net Impressed Ceramic

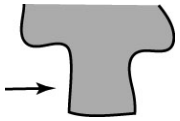
sorting. Deposition of sediment in order of size and weight.

Springwells Net Impressed ceramic. Ceramic type from Wayne County, Michigan, decorated by pressing netting onto the vessel's wet clay; dates to between ca. A.D. 1100 and A.D. 1250.

shoulder. Upper part of a ceramic vessel between the maximum diameter and the mouth.

Stanley Stemmed point. Project point type characterized by broad, triangular blades and narrow, straight stems; dates to between ca. 6000 B.C. and 5000 B.C.

stem. Extension at the base of a projectile point, used for hafting.



Stem

structure. Functional construction made for purposes other than creating shelter, such as a bridge.

Thebes point. Stone tool thought to be a dart point or knife; dates to between ca. 8000 B.C. and 6000 B.C.

trail. Method of decoration where lines are drawn in wet clay with a blunt instrument; compare **incise**.

Turkey-tail point. Projectile point designation used to describe three subtypes that date to between ca. 1500 B.C. and 500 B.C.; long, thin, delicate forms of Turkey-tail blades likely represent ceremonial objects.

Turkey-Tail Point

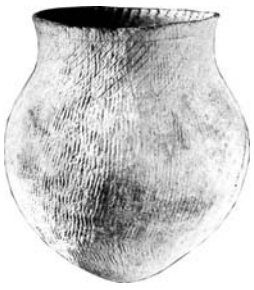
uniface. Tool or weapon that exhibits one thinned edge.

Upper Mississippian. Late Woodland (A.D. 900 to 1600) culture geographically located, in part, in southwestern Michigan.

Vinette ceramic. Thick-walled, interior and exterior cordmarked ceramic type that contains two distinct styles (Vinette 1 and Vinette 2); Vinette 1 marks the beginning of ceramic usage in southern New England, approximately 3,000 years ago.

undertaking. Federally licensed, funded, or permitted project, activity, or program that could result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects.

Wayne tradition. Regional manifestation of the Late Woodland period (A.D. 500 to A.D. 1600) in Lower Michigan.



Wayne Ware Ceramic

Wayne Ware ceramic. Small- to medium-sized globular vessels found on southeastern Michigan sites associated with the **Wayne tradition.**

Wolf phase. Culture phase in Michigan dating from ca. A.D. 1000 to A,D. 1200; part of the **Wayne tradition.**

Woodland. Culture period dating between 2000 B.C. and 1600 A.D. in Michigan.

xerothermic. Characterized by heat and dryness.

Younge tradition. Culture phase in southeast Michigan dating to between ca. A.D. 1300 and A.D. 1400.

zonation. Ceramic technique that constrains decoration in discrete areas (or "zones").

APPENDIX A

ARTIFACT INVENTORY

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Feature 1	1	HCer	White Paste Serving or Butter Dish	Copper Lustre (Tea Leaf) Rim/Body/Basal Sherd
Feature 1	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Blue Spongeware Rim Sherd
Feature 1	1	HCer	Porcelain Door Knob	One-Half of Door Knob
Feature 1	8	HCer	Porcelain Saucer	Refit Rim,/Body/Basal Sherds
Feature 1	4	HCer	White Paste Cup	C. C. Glaze, Brown Transferprint Rim/Body/Basal Sherds with Chinese Motif
Feature 1	8	HCer	White Paste Plate	Refit Undecorated Rim/Body/Basal Sherds; MM - ROYAL IRONSTONE CHINA/CHARLES MEAKIN/ENGLAND
Feature 1	1	HGlass	Kerosene Lamp	Multifacted, Pressed Glass Kerosene Reservoir & Square Base
Feature 1	1	HMetal	Kerosene Lamp Wick Mechanism	Corroded Copper Kerosene Lamp Wick Mechanism
Feature 1	1	HGlass	Wine Bottle	Dark Olive Tooled Neck Finish & Body Fragment; Base is Missing
Feature 1	2	HGlass	Wine or Champagne Bottle	Refit Aquamarine Basal Fragments w/ Vent Mark in Pushup Area
Feature 1	1	HGlass	Table Ware	Blue & White Marbleized "Marble Vitro-Porcelein" or "Malachite Glass" Table Ware (Rim & Part of Body Missing); British Registry Mark Dated January 16, 1877
Feature 1	2	HGlass	Soda or Beer Bottle	Refit Light Green Tooled Neck Finish & Shoulder Fragments
Feature 1	1	HGlass	Miscellaneous Bottle	Colorless, Faceted Body/Pushup Basal Fragment
Feature 1	1	HGlass	Miscellaneous Bottle	Colorless Body Fragment
Feature 1	3	HGlass	Kerosene Lamp	Colorless Chimney Fragments
Feature 1	1	HGlass	Miscellaneous Bottle	Amber, Paneled Body/Basal Fragment w/ ...CIL... Marked on One Side
Feature 1	1	HGlass	Wine Bottle	Olive Body Fragment
Feature 1	1	HGlass	Soda or Beer Bottle	Aquamarine Body Fragment
Feature 1	9	HGlass	Window Glass	Light Green Fragments
Feature 1	2	HCer	White Paste Saucer	Refit Undecorated Rim/Body/Basal Sherds; Illegible Impressed MM
Feature 1	8	HGlass	Kerosene Lamp	Colorless Chimney Fragments
Feature 1	1	HGlass	Kerosene Lamp	Aquamarine Chimney Fragment

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Feature 1	1	HGlass	Miscellaneous Glass Vessel	Colorless Rim/Body Fragment
Feature 1	1	HGlass	Window Glass	Colorless Fragment
Feature 1	1	HGlass	Window Glass	Aquamarine Fragment
Feature 2	11	HCer	White Paste Chamber Pot	Refit Vertical Rib or Flute Molded Rim, Body, Basal, & Handle Sherds
Feature 2	1	HGlass	Soda Water Bottle	Intact Blue Soda Water Bottle w/Partial Lightning Stopper Closure on Blob Top Finish, Marked JOS. DE GUISE/ DETROIT, MICH
Feature 2	1	HGlass	Glass Insulator	Aquamarine Insulator Fragment w/Inner Screw Thread, Marked PAT JAN 25 1870/ PAT FEB 22 1870/ PAT MARCH 20 1877/ W BROOKFIELD/ 55 FULTON ST NY
Feature 2	1	HOther	Felt	Miscellaneous Felt Fragment
Feature 2	5	HGlass	Patent Medicine Bottle	Refit Light Amber Medicinal, Paneled Bottle Fragments; 3 Pieces Marked - 1) ...REED'S... 2) 18.../...GE... 3) Unreadable Markings
Feature 2	1	HGlass	Patent Medicine Bottle	Nearly Intact Colorless, Paneled Bottle w/ Piece Missing from Body; T Mark on Base
Feature 2	1	HGlass	Miscellaneous Bottle	Colorless Neck Finish Fragment; Sheared or Broken Off at Top & Bottom
Feature 2	1	HGlass	Ink or Medicinal Bottle	Colorless, Small, Cylindrical or Barrel-Shaped Bottle, Marked LETCHFORD/LONDON on Top of Shoulder
Feature 2	1	HCer	Yellow Paste Vessel	Rockingham Decorated Body Sherd
Feature 2	1	HCer	Yellow Paste Vessel	Rockingham Decorated Body Sherd
Feature 2	1	HCer	White Paste Saucer	Undecorated Rim/Body/Basal Sherd w/ Partial MM of William Flentke
Feature 2	2	HCer	Toy White Paste Saucer	Refit Undecorated Rim/Body/Basal Sherds
Feature 2	1	HOther	White Paste Doll	Undecorated Doll's Torso
Feature 2	1	HOther	White Paste Doll	Undecorated Doll; Missing Head & Part of Left Leg
Feature 2	2	HGlass	Kerosene Lamp	Colorless Chimney Rim Fragments

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Feature 2	3	HGlass	Kerosene Lamp	Colorless Chimney Body Fragments
Feature 2	3	HGlass	Kerosene Lamp	Miscellaneous, Colorless Kerosene Lamp Fragments w/ Scalloped Edges
Feature 2	1	HGlass	Glass Stemware	Colorless, Pressed Glass Stem/Basal Fragment
Feature 2	1	HGlass	Patent Medicine Bottle	Colorless, Paneled Tooled Neck Finish & Body Fragment
Feature 2	1	HGlass	Miscellaneous Glass Vessel	Colorless, Paneled Body Fragment
Feature 2	1	HGlass	Condiment Bottle	Colorless, Wide-Mouthed Neck Finish/Shoulder Fragment
Feature 2	3	HGlass	Glass Bowl	Refit Colorless, Pressed Glass Body/Basal Fragments
Upper Fills 2'-4'	1	HCer	Porcelain Plate	Decalcomania Basal Sherd w/ Partial MM - ...MADE IN GERMANY
Upper Fills 2'-4'	1	HCer	White Paste Plate	Undecorated Basal Sherd
Upper Fills 2'-4'	1	HOther	White Paste Serving Dish	Undecorated, Rectangular Serving Dish; Missing One End; MM - ROYAL.SEMI.PORCELAIN/JOHN MADDOCK & SONS/ENGLAND
Upper Fills 2'-4'	1	HCer	White Paste Chamber Pot	Mold-Decorated Handle/Rim/Body Sherd
Upper Fills 2'-4'	2	HCer	White Paste Vessel	Undecorated Body Sherds
Upper Fills 2'-4'	1	HCer	Porcelain Cup or Bowl	Decalcomania Rim/Body Sherd
Upper Fills 2'-4'	1	HCer	Porcelain Cup	Sepia or Gold Tinted & Molded Rim/Body Sherd
Upper Fills 2'-4'	1	HCer	Porcelain Cup	Decalcomania Body/Basal Sherd
Upper Fills 2'-4'	1	HCer	Porcelain Cup	Undecorated Body/Basal Sherd; MM - J. S./BAVARIA/A
Upper Fills 2'-4'	1	HGlass	Beer Bottle	Intact Dark Green Bottle w/ 3-Piece Mold & Crown Finish; D-in-Diamond Bottom Mark
Upper Fills 2'-4'	1	HGlass	Condiment Bottle	Intact Colorless, Wide-Mouthed Bottle w/8 Facets & Owens Suction Scar; Marked 11 on Base; Partial Paper Label Near Top Reads ...AMOND ...RAND
Upper Fills 2'-4'	1	HGlass	Patent Medicine Bottle	Aquamarine Panel Fragment, Marked HOOD'S/SARS...
Feature 3	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Tan Glaze Ext, Albany-Slip Int Rim Sherd
Feature 3	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Tan Glaze Ext, Albany-Slip Int Rim Sherd

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Feature 3	3	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Refit Tan Glaze Ext/Albany-Slip Int Body/Basal Sherds
Feature 3	2	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Refit Tan Glaze Ext/Albany-Slip Int Body/Basal Sherds
Feature 3	1	HCer	White Paste Plate	Undecorated Rim/Body/Basal Sherd
Feature 3	1	HCer	Toy White Paste Cup	Blue Transferprinted 1/2 Cup w/ Handle
Feature 3	3	HCer	White Paste Mug or Bowl	Refit White, Brown, Pink, Light Green Handpainted Motif w/ Mold Decorated Ext/ Pink-Slip Int Rim & Body Sherds
Feature 3	1	HCer	White Paste Plate or Saucer	Undecorated, Thin-Bodied Rim Sherd
Feature 3	1	HGlass	Beer Bottle	Dark Amber Beer Bottle; Base Missing. Blob-Top, 2-Piece Mold, Marked - CONRAD PFEIFFER/DETROIT MICH. on Side
Feature 3	1	HGlass	Beer Bottle	Intact Large Dark Amber Beer Bottle w/ Blob-Top. Marked - EXPOSITION BREWING CO./TRADE MARK X/REGISTERED/DELRAY, MICH.
Feature 3	1	HGlass	Miscellaneous Glass Jar	Intact Colorless Jar w/Screw Threads & Etched Floral Design; Semi-Automatic Bottle Machine-Made
Feature 3	1	HGlass	Ink Bottle	Intact Aquamarine, Squat Ink Bottle; Applied or Tooled Finish; 2-Piece Mold; Marked - CARTER'S on Base
Feature 3	1	HGlass	Patent Medicine Bottle	Nearly Intact Colorless, Square-Rounded Corners, Paneled Bottle w/ Piece Missing from Body; Marked - ...EVENS & TODD/...RAL DRUG STORE/...1 & 133 WOODWARD AVE./DETROIT on Side and W. T. & CO./B/USA on Bottom
Feature 3	1	HGlass	Beer Bottle	Dark Amber Beer Bottle Shoulder Fragment
Feature 3	1	HGlass	Beer Bottle	Dark Amber Beer Bottle w/ Blob-Top Finish
Feature 3	2	HGlass	Beer Bottle	Dark Amber Beer Bottle Body Fragments
Feature 3	1	HGlass	Jar Lid Liner	Intact Opaque White Glass Jar Lid Liner

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Feature 3	1	HGlass	Jar Lid Liner	1/2 Opaque White Jar Lid Liner Fragment, Marked - ...UINE PORCELAIN
Feature 3	1	HGlass	Miscellaneous Glass Vessel	Opaque White & Colorless Body Fragment
Feature 3	2	HMetal	Spikes	Unidentified, Corroded Spike Fragments
Feature 3	1	HMetal	Copper Strap	Miscellaneous, Flat Copper Strap Fragment
Feature 3	1	HFauna	Clam Shell	1/2 Clam Shell
Feature 3	1	HOther	Porcelain Bottle Stopper	Porcelain Blob-Top Bottle Stopper w/Partial Lightning Stopper Closure & Overglaze Printing on Top: CONRAD PFEIFFER/DETROIT MICH; Printed on Bottom: DREYFUSS BOTTLE ...NY/PAT'D/OCT.18/1897
Feature 3	1	HOther	Porcelain Bottle Stopper	Porcelain Blob-Top Bottle Stopper w/Partial Lightning Stopper Closure; Overglaze Printing on Top: CONRAD PFEIFFER/DETROIT...; Printed on Bottom: DREYFUSS BOTTLE & STOPPER CO. NY/PAT'D/OCT.15/1895
Level 1 0-15"	1	HCer	White Paste Vessel	Undecorated Basal Sherd; MM - ...YAL.SEMI.PORCELAIN/...N MADDOCK & SONS/ENGLAND
Level 1 0-15"	1	HCer	Porcelain Plate	Undecorated Basal Sherd; MM - O. P. CO./...RACUSE
Level 1 0-15"	1	HCer	White Paste Cup or Bowl	Decalcomania Rim/BodySherd
Level 1 0-15"	1	HGlass	Glass Insulator	Aquamarine Fragment; Marked ...NGRA.../...NO. 9
0-15" B.S.	1	HGlass	Medicinal Bottle	Intact Dark Amber Bottle; 2-Piece Mold & Applied or Tooled Finish; Marked on One Side Panel THE/MALTINE/MFG. CO./CHEMISTS/NEW YORK
A Horizon	2	HCer	White Paste Vessel	Undecorated Body Sherds
A Horizon	2	HCer	White Paste Vessel	Refit Undecorated, Thick-Bodied Basal Sherds
A Horizon	1	HCer	White Paste Vessel	Undecorated Basal Sherd
A Horizon	1	HCer	Red Paste Vessel	Unglazed Body Sherd; Possibly From a Flower Pot
A Horizon	1	HGlass	Miscellaneous Glass Vess	Aquamarine Body Fragment
Level 1 Brickbats	1	HCer	White Paste Vessel	Green, Blue, Pink, Purple Handpainted Overglaze Basal Sherd

Appendix A. Artifact Inventory

Coordinates	Cnt	Class	Artifact	Material/Description
Level 1 Brickbats	1	HCer	White Paste Plate or Sauc	Undecorated Rim Sherd
Level 1 Brickbats	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Light Brown Ext Slip/Dark Brown-Black Int Body Sherd
Level 1 Brickbats	1	HGlass	Beer Bottle	Intact Dark Amber Beer Bottle; 3-Piece Mold, Crown Finish; Marked AMERICAN BREWING CO./DETROIT MICH on Side
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Gray Paste	Cobalt Blue Decorated, Saltglazed Ext/Albany-Slip Int Body Sherd
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Large Tan Ext/Albany-Slip Int Rim Sherd
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Large Tan Saltglazed Ext/Albany-Slip Int Rim Sherd
Level 2-3 Interface	2	HCer	Stoneware Storage or Food Preparation Vessel, Gray Paste	Tan Ext/Albany-Slip Int Body Sherds
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Gray Paste	Tan-Brown Saltglazed Ext/Albany-Slip Int Body Sherd
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Buff Paste	Tan-Brown Saltglazed Ext/Albany-Slip Int Basal/Body Sherd
Level 2-3 Interface	1	HCer	Stoneware Storage or Food Preparation Vessel, Gray Paste	Tan Ext/Albany-Slip Int Basal Sherd
Ab d	1	HMetal	Cut Nail	Corroded Cut Nail Fragment
Stripped Block; 0-2' Brickbat Fill	1	HGlass	Beer Bottle	Intact Light Green Beer Bottle w/Crown Finish; Marked AMERICAN BREW CO./DETROIT, MICH. on Side
Stripped Block; 0-2' Brickbat Fill	1	HGlass	Beer Bottle	Intact Light Green Beer Bottle w/Crown Finish; Marked LBC (script) on Side & REGISTERED on Base

APPENDIX B

FAUNAL INVENTORY

Appendix B. Faunal Inventory

Feat. No.	Cat. No.	Date	Spec. No.	Taxon ID	Element	Side	NISP	Comments
	"Ab" d	4/15/2007	1	Mammal sp.	fragment	-	2	broken
	"Ab" d	4/15/2007	2	Aves sp.	fragment	-	1	broken
1	1890	1/31/2007	1	*Sus scrofa*	rib 1	L	1	major portion; immature; epiphyses of head & tubercle missing
1	1890	1/31/2007	2	Aves sp. sm-med.	femur	R	1	distal end; juvenile bone
1	1890	1/31/2007	3	cf. *Sus scrofa*	vertebra	M	1	fragment; partially saw cut, mainly broken
1	1890	1/31/2007	4	cf. *Bos taurus*	rib	-	2	fragments
1	1890	1/31/2007	5	Mammal sp. med.+	fragment	-	3	1 is saw cut fragment
1	Trench	1/31/2007	1	*Sus scrofa*	scapula	R	1	major portion of scapular blade; chopped at neck; also major breaks to blade
1	Trench	1/31/2007	2	Aves sp. med-lg	femur	-	1	highly immature; probably large duck species
2	1886	1/31/2007	1	*Sus Scrofa*	humerus	R	1	distal condyles portion; visible epiphyseal line, i.e. immature; chopped at diaphysis
2	1886	1/31/2007	2	*Sus Scrofa*	ulna/radius	R	1	trochlar notch & portion of diaphysis of ulna; recent break at olecranon process; proximal end of radius; both recent break at diaphysis
2	1886	1/31/2007	3	*Sus Scrofa*	molar 1 upper	L	1	whole; moderate wear; incl. fragment of alveolus of maxilla
2	1886	1/31/2007	4	*Gallus gallus*	humerus	R	1	major portion; distal end broken off

Appendix B. Faunal Inventory

2	1886	1/31/2007	5	*Bos taurus*	vertebra thoracic	M	2	lower thoracic; saw cut through body; rel. young individual; no arthritis
2	1886	1/31/2007	6	cf. *Bos taurus*	rib	-	3	broken fragments
2	1886	1/31/2007	7	Mammal sp.	fragment	-	10	prob. rib fragments

APPENDIX C

REPORT OF GEOARCHAEOLOGICAL INVESTIGATIONS

Phase I Geoarchaeological Field Investigations
of the Detroit River International Crossing (DRIC) Project,
City of Detroit, Michigan.
(v.06.12.07)

For

Commonwealth Cultural Resources Group, Inc.
2530 Spring Arbor Rd
Jackson, MI 49203

Submitted By

Daniel R. Hayes and G. William Monaghan
Hayes & Monaghan, Geoarchaeologists LLC
125 Bennington Road
Charlottesville, VA 22901
(434) 295-3610
www.geoarchaeologyconsult.com

June 12, 2007

Contents of Report

Primary Report: (Word File: *44PM12.13 Geo.Drftv.1*)

- Introduction and Site Setting
- Geologic Background and History
  - *With* *Figure GeoDRIC-1: Surficial Geologic Map of the Study area*
    Table: LH
- Methods
- Results and Discussion
- References
- Appx GeoDRIC-DSC (profile descriptions)

Figures with captions:

Figure Geo-1: Surficial Geologic Map of the Study area

Introduction and Site Setting

Introduction

Phase I geoarchaeological field evaluations associated with the proposed Detroit River International Crossing Project (DRIC) in Detroit, Michigan were conducted during January and April, 2007. The project area included a section of remnant lake plain located just upstream of the confluence of the Detroit River and River Rouge, north and west of historic Fort Wayne. It lies within an area that reportedly included several prehistoric earthworks and archaeological sites as well as early historic sites (Demeter and Weir, 2006). Much of this area had been heavily modified through development of industrial and residential sites throughout the 19-20th centuries. The exact location and condition of most of these reported sites are not well documented.

Geomorphological testing within the Area of Potential Effect (APE) centered upon the examination of backhoe trenches excavated to pre-Holocene sediments. These investigations intended to determine the depositional history of the APE, formulate an initial model of landform history, and assess the preservation potential and context of any surficial or buried archaeological sites. Of particular concern was the potential identification of prehistoric burial mounds and/or any related fills and sites, previously reported to exist in the area.

The Detroit River borders the project area to the east and serves as the southern end of the outlet channel for the Upper Great Lakes basin (Lakes Superior and Michigan-Huron). At the project area, the Detroit River is about 600 m wide, has a broad, very shallowly incised (5-6 m deep) valley, and has a very low gradient (<3 cm/km; altitude of water level at bridge about 175.2 m [575 ft] asl [above sea level]). It discharges into Lake Erie (lake level ca. 174.6 m [573 ft] asl) at Grosse Isle, about 15 km south near Trenton, Michigan. The original bank of the Detroit River has been obscured by fill deposition: prior to the mid-19th century, shallow marsh-like conditions occurred between the bank and main river channel. Many of these infilled areas along the riverfront served as industrial and transportation sites and are now selectively abandoned. The modern ground surface across the study area is generally level at ~178.3 m (585 ft amsl and rises gently to the west (USGS, 19xx). A linear topographic high that hosts Fort Wayne borders the riverbank and measures ~181.3 m (595ft) amsl.

The surficial geology in the DRIC study area generally consists of sediments related to a glaciolacustrine plain that has been partly incised and buried by late Wisconsinan-age channel and delta features of the ancestral Detroit River. The plain was also reworked by shoreline processes related to post-glacial antecedent of Lake Erie (Leverett and Taylor 1915, Sherzer 1916). In general, the lake plain near the study area is composed of thick, bottom clay and silt that overlie, and probably interdigitate with waterlain deposits of the Detroit Interlobate Moraine (Leverett and Taylor 1915; Sherzer 1916). Thin patches and ridges of sand, which apparently formed as beaches, near-shore bars, and delta splays within the younger, more-shallow, post-glacial lakes, also discontinuously overlie the incised lake plain (Sherzer 1916) and comprise the surface of most pre-settlement landforms within the study area (including the Fort Wayne topographic high, or “sand ridge”).

The procurement and deposition of fill sediments and other anthropogenic disturbances associated with 19th and 20th century urbanization of the lake plain have both disturbed and removed sections of original ground surface and selectively buried much of the area a variably thick cap of fills. These alterations were made to prepare and finish building and transportation sites and extend landforms, fill in low and wet areas, improve drainage by excavation of ditches etc. Fills included local and imported sand and gravel, building debris, coal cinders, concrete and asphalt, etc. In the vicinity of the Ambassador Bridge located just upstream of the project area an earlier investigation (Demeter and Monaghan 1997) located an apparently intact pre-settlement soil surface developed on a possible "fossil beach" buried beneath historic fills. In places like this, where relatively extensive fill deposition preceded urbanization, the "historic fill cap" commonly sealed the pre-development ground surface and, therefore, may have preserved *in situ* prehistoric archaeological remains. Thus, a significant goal of this investigation was to determine whether any such relic surfaces might still exist within the DRIC study area.

The preservation of buried prehistoric, archaeologically-significant ground surfaces or other buried soils in urban landscapes has been demonstrated elsewhere in Michigan. For example, at the Chane Park II site [redacted] Late Woodland artifacts were preserved under a historic fill sequence (Demeter and Weir 1983). Extensive Late Woodland sequences were discovered under sidewalks ([redacted] Hambacher *et al.* 1995) and several meters of industrial fill ([redacted] Demeter et al 1994; [redacted] Lovis ed. 2002) in downtown Bay City as well as under relatively extensive historic yard waste and industrial debris in central Grand Haven ([redacted] Dunham *et al.* 1999). Significant prehistoric midden deposits that included Late Archaic through protohistoric occupations were preserved directly under a 19th century foundry in downtown Grand Rapids (Hambacher et al 2003). This setting is particularly apt for the DRIC study area because the major occupation was Middle Woodland and included a set of Hopewell period mounds that were destroyed by Euroamerican settlers during the mid-19th century. Similarly, several prehistoric mounds were also destroyed within or near the study area during the 19th century.

Geological Background and History

Physiography and early glacial lake history

The DRIC study area occurs along the northern margin a large, topographically low lake plain, informally called the "Maumee Lake plain." The Maumee plain was molded largely by glacial and glaciolacustrine processes related to late Wisconsinan ice-marginal advances and retreats of the Huron and Erie Lobes of the Laurentide Ice Sheet. These ice lobes initially flowed south and west from the Lake Huron (Huron Lobe) and Lake Erie (Erie Lobe) basins and merged in southeastern Michigan to form the Huron-Erie Lobe. This sequence of glacial and Holocene lakes is exceptionally complex and is therefore only sketched below. For details of the sequence readers are referred to Calkin and Feenstra (1985), Eschman and Karrow (1985), Monaghan and Hansel (1990), and Monaghan and Lovis (2005).

Except possibility for a few brief intervals, such as during the Erie and Mackinaw Interstades (Table LH), the Detroit area was either covered by ice of the Huron-Erie Lobe

Table LH Correlation and Time-Stratigraphic Relationships of Glacial and Postglacial Lakes in the Upper Great Lakes Region (after Monaghan and Lovis 2005)

West Outlet	Lake Michigan[1, 2, 5]	Connecting Channel	Lake Huron[2, 3]	Connecting Channel	Lake Erie[2, 4]	East Outlet	Glacial and Other Events Controlling Lake Levels	Time kyBP
	Michigan (176.5 m)	Straits of Mackinaw	Huron (175.6 m)	Port Huron Outlet (St. Clair River)	"Modern" Lake Erie (rising to 173 m)	Niagara River	**Holocene** Port Huron sill eroded to modern level.	3.0
	Algoma (181 m)[6]						Port Huron outlet erodes below bedrock sill at Chicago. Nipissing II phase initiated.	3.5
Chicago Outlet	Nipissing I & II (184 m)[6, 7] (used east & west outlets)						North Bay outlet rebounds above Port Huron and Chicago (all outlets briefly used).	5.0
	Chippewa (<107 m)	Straits of Mackinaw	Stanley (<80 m)	North Bay Outlet[8] (Erie bypassed)		Ottawa River	Marquette Readvance in Superior Basin. Minong outlet along St. Mary's River. Ice margin retreats north of Ottawa River.	9.9–10.3
	Post-Main Algonquin[6, 9] ("Lower Group"; <177 m)			Fossmill & South River (Erie Bypassed)			**Greatlakean Stade** Huron Lobe retreats from Algonquin Highlands. Drainage through Ottawa River to Ontario.	10.9
	Main Algonquin[7, 10] ("late Upper Group"; 184 m)			Port Huron Outlet?	Early Erie (166 m)?	Niagara River	Kirkfield rebounds above Port Huron? Drainage may have transferred south.	11.0
	Kirkfield-to-Main Algonquin transition (rising levels)			Kirkfield/Fenelon Falls outlet (Erie basin bypassed; isostatic rebound of outlet controls level in Huron & Michigan basins)		Early Trent River	Michigan Lobe retreats north of Straits of Mackinaw. Michigan & Huron basins confluent.	11.2
Chicago Outlet	Calumet[11] (189 m)		Kirkfield Low of Algonquin (low and rising levels; <177 m)				Michigan Lobe advances to Two Rivers Moraine; Huron & Michigan basins separated.	11.5
	Two Creek low (<177 m)	Straits of Mackinaw					**Two Creeks Interstade** Michigan Lobe retreats north of Straits of Mackinaw. Michigan & Huron basins confluent.	11.8
Chicago outlet	Glenwood II (195 m)						Huron Lobe retreats north of Trent River valley. Drainage to Erie basin bypassed.	12.2
			Early Lake Algonquin (184 m)	Port Huron outlet (Early Lakes St. Clair and Rouge in Detroit River)	Early Lake Erie (166 m?)	Niagara River? Mohawk Valley?	**Port Huron Stade** Ontario Lobe retreats to St. Lawrence Valley, lowers Ontario & Erie basin lakes. Sill at Port Huron controls Huron basin lake level.	12.2-12.4
			Grassmere & Lundy (Elkton) (195-189 m)			Mohawk Valley?	Erie/Ontario Lobe retreats from Niagara escarpment near Niagara Falls, N.Y.	12.6
		Glacial Grand River	Warren & Wayne (210–205 m)				Huron/Saginaw Lobe retreats from Michigan "Thumb." Erie-Huron basin lakes confluent.	12.8
			Saginaw (212 m)	Ubly Channel	Whittlesey (225 m)		Ice readvance to Port Huron Moraine throughout the Great Lakes region.	13.0
	"Intra-Glenwood Low" (<177 m)	Straits of Mackinaw	"Arkona Low" (<177 m)	Buried channel of "Trent River"?		Mohawk Valley?	**Mackinaw Interstade** Michigan Lobe retreats north of Straits of Mackinaw; Huron Lobe retreats north of Trent Valley; Michigan & Huron basins confluent; Erie Lobe retreats north of Niagara Falls.	13.4
				"Port Huron"?	Ypsilanti (166 m?)	Niagara River?		
Chicago Outlet	Glenwood I (195 m)	Glacial Grand River	Arkona (216–121 m)				**Port Bruce Stade** Huron Lobe retreat north of Michigan "Thumb"	13.7
			Saginaw (215 m)	Imlay Channel	Maumee III (238 m)		Saginaw Lobe retreats north of Imlay Channel and then into Saginaw Lowland	14.0

Sources and Notes: [1]Hansel et al. (1985); [2]Fullerton (1980); [3]Eschman and Karrow (1985); [4]Calkin and Feenstra (1985). [5]Lake-phase water-plane elevation shown in parentheses under phase name. [6]Lake extended into Lake Superior basin. Lakes Algoma and Nipissing discharged through narrow straits formed along the St. Mary's River near Sault Ste. Marie. [7]Lake Nipissing also briefly used North Bay outlet during the earliest phases. [8]Level of Lake Minong was initially controlled by a "drift barrier" between Gros Cap, Ontario, and Nadoway Point. [9]Wyebridge, Penetang, Cedar Point, Payette, and Sheguiandah levels in the Lake Superior basin. [10]The 184-m level of Main Algonquin may not have been reached in the southern end of the basin and therefore may not have used the Port Huron outlet. [11]Calumet level may have been achieved before the Two Creeks Interstade.

or was submerged under a series of proglacial lakes throughout most of the late Wisconsinan (Eschman and Karrow 1985). At its greatest extent (about 15-17,000 BP) the Huron-Erie Lobe covered most of southeastern Michigan, northwestern Ohio, and northeastern Indiana. However, as the ice margin retreated during the later part of the Port Bruce Stade (15,000-13,500 BP) and the Mackinaw Interstade (13,500-13,000 BP), a sequence of high-level, westward draining, proglacial lake phases, Maumee and Arkona, was impounded in the lowlands surrounding the Lakes Erie and Huron basins (Table LH). Lake Maumee is the oldest and highest of these lakes and was formed while the Huron Lobe covered the Thumb of Michigan. The earliest phase of Maumee (I) drained southwestward into the Wabash River through an outlet near Ft. Wayne, Indiana, while the later phases (II and III) drained northwestward through the Imlay Channel into the Glacial Grand River (Table LH). When the ice margin retreated from the thumb of Michigan at 13,500-14,000 BP, however, Maumee spread into the Lake Huron basin and merged with proglacial lakes that also developed in the Lake Huron and Saginaw Bay region. As a result, the level of Maumee fell and a single lake, Arkona, was formed (Table LH). Arkona covered most of eastern and southeastern Michigan, including the Saginaw Bay region and the study area, and discharged westward through the glacial Grand River into the Lake Michigan basin (Table LH).

During the beginning of the Port Huron Stade, about 13,000 BP, the Huron Lobe readvanced southward across the Thumb of Michigan and formed the Port Huron Moraine. During this time, the Lake Huron basin was covered with ice and southeastern Michigan was again separated from the Lake Huron and the Saginaw Bay lowland. As a result, a high-level, proglacial, Lake Whittlesey formed within the old bed of Lake Maumee (Table LH). Whittlesey drained northwestward, through the Ubly Channel, and into proglacial lakes that occupied the Saginaw Bay lowlands. These discharged into the Lake Michigan basin via the Glacial Grand River (Table LH). As occurred with the Maumee-Arkona sequence, the margin of the Huron Lobe again retreated from the thumb of Michigan and formed a single confluent lake, Lake Warren, within the southern part of the Lake Huron basin (Table LH). Warren covered a similar area to Lake Arkona and, like Arkona, also discharged into the Lake Michigan basin via the Glacial Grand River.

Early (Wisconsinan) St. Clair-Detroit Valley: Lakes St. Clair and Rouge

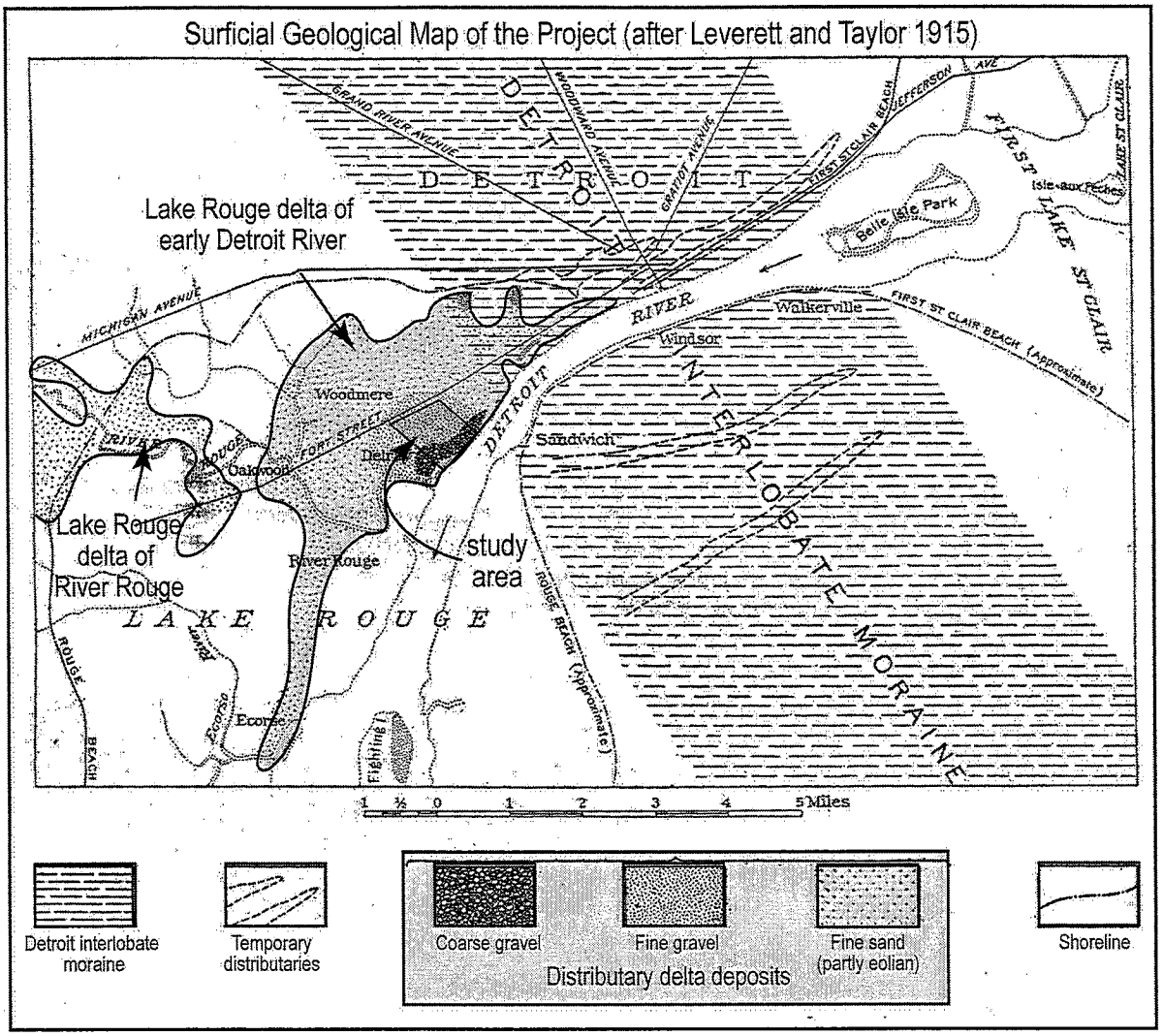
While the margin of the Huron Lobe continued to retreat northward in the southern part of the Lake Huron basin, the margin of the Laurentide Ice Sheet also retreated from the Niagara Region and uncovered a lower drainage way across western New York State. Consequently, discharge shifted eastward, across New York, to the Mohawk Valley and the level of Lake Warren fell. This initiated a short-lived series of eastward draining lakes (Grassmere, Dana, and Elkton) that extended throughout both the Lakes Huron and Erie basins (Table LH). Each of these lakes fell to the next progressively lower level as a new, isostatically depressed channel was exposed north and east of Batavia, New York. As the lower outlets were exposed and lake level fell, the land surface near the study area began to emerge. Beaches related to Elkton (ca. 190 m [620 ft] asl) and Grassmere (ca. 186 m [610 ft] asl) occur within a few km of the project area (Sherzer 1916). Ultimately, when the isostatically depressed Niagara gorge channel was exposed near Lewiston, New York, water level in the western Lake Erie basin fell to its lowest level, Early Lake Erie, which was at least 40 m below the modern lake

(Coakley and Lewis 1985). The Erie and Huron basins were separated by upland related a few moraines that cross the Detroit-St. Clair valley, and the Lake Algonquin sequence was initiated in the Lake Huron basin (Table LH). The first of these lakes, Early Lake Algonquin, flowed southward into the Lake Erie basin and marks beginning of modern development of the ancestral St. Clair-Detroit River Valley.

Because no actual channel existed for the St. Clair or Detroit Rivers during the beginning of this separation, however, drainage developed first as a chain of broad shallow lakes dammed by the valley-crossing moraines. These lakes, which were connected by numerous distributary channels that flowed across topographic sags within the morainal uplands, include Early Lake St. Clair and Lake Rouge. These shallow post-glacial lakes were generally floored with glaciolacustrine clay and silt but in select areas variably thick deposits of coarser-grained sand and gravel formed as beaches and near-shore bars along lake margins, and as channel bars and delta splays in and amongst distributary channels (Figure (Leverett and Taylor 1915, Sherzer 1916). Early Lake St. Clair extended somewhat beyond the present shore of Lake St. Clair and was dammed by the Detroit Interlobate Moraine, whose topographic axis occurs just north of the study area (Figure: GeoDRIC-1). The lake had two mapped levels: the "Highest" stood about 9 m higher than present while the "Lower" was about 3 m higher (Sherzer 1916). Lake Rouge was dammed by the Gross Isle Moraine near Trenton and occupied a broad, few-kilometer-wide band between Detroit and Trenton on both sides of the river. It also had two levels: the "Higher" or "First" was about 5 m (181-180 m [595-590 ft] asl) above the present level of the river while the "Lower" or "Second" was about 1.5 m higher (177 m [580 ft] asl) higher than today (Leverett and Taylor 1915; Sherzer 1916). Although the absolute age of Lake Rouge is unknown, based on ^{14}C age estimates from bracketing and correlative lakes the Highest (or First) Rouge beach must have developed just before 12,000 BP. For example, Early Lake Erie, whose onset coincides with Lake Rouge, formed after 12,500 BP (Coakley and Lewis 1985). Additionally, Early Lake Algonquin, which also coincides with Early Erie, formed prior to 11,500-12,200 BP (Karrow *et at* 1975; Monaghan and Schaetzl 1994; Monaghan and Lovis 2005). More precise timing exists for Early Lake St. Clair, which is correlative with Highest Lake Rouge. A ^{14}C age estimate of 12,000±200 BP (S-127; Dreimanis 1964) on Early Lake St. Clair deposits in Canada further supports the notion that Lake Rouge formed just before 12,000 BP.

Late (Holocene) St. Clair-Detroit Valley

Early Lake St. Clair and Lake Rouge were relatively short lived and drained when the early-Detroit River channel downcut through the Gross Isle and Detroit Moraines (respectively) and established its initial drainage configuration. Erosion of these moraines was probably rapid because of high discharge from Early Lake Algonquin (and the upper Great Lakes) and a high stream gradient that resulted when Early Lake Erie became established. The transitory nature of the lakes is also necessitated because by about 12,000 BP further retreat of the Huron Lobe exposed a series of isostatically depressed outlets through Ontario and directly into the Lake Ontario basin (Dreimanis 1964; Karrow *et al.* 1975; Eschman and Karrow 1985; Monaghan and Schaetzl 1994). This initiated a series of low-level phases for Lake Algonquin whose discharge bypassed the St. Clair-Detroit Valley and consequently greatly diminished drainage through the


Surficial Geological Map of the Project (after Leverett and Taylor 1915)
Lake Rouge delta of early Detroit River
Lake Rouge delta of River Rouge
study area
DETROIT
RIVER
INTERLOBATE MORAINE
LAKE ROUGE
LAKE ST CLAIR
Windsor
Walkerville
Sandwich
Woodmere
Oakwood
River Rouge
Ecorse
Belle Isle Park
Isle-aux-Peches
Fighting I.
MICHIGAN AVENUE
GRAND RIVER AVENUE
WOODWARD AVENUE
GRATIOT AVENUE
FIRST ST CLAIR BEACH (Approximate)
FIRST STCLAIR BEACH
JEFFERSON AVE
FORT STREET
ROUGE BEACH (Approximate)
1 ½ 0 1 2 3 4 5 Miles
Detroit interlobate moraine
Temporary distributaries
Coarse gravel
Fine gravel
Fine sand (partly eolian)
Distributary delta deposits
Shoreline

valley (Table LH). The first of these low phases, Kirkfield, drained eastward across an isostatically depressed outlet near Fenlon Falls, Ontario, through the Trent River valley and into the Lake Ontario basin (Eschman and Karrow 1985). While the ice margin retreated further northward and Lake Algonquin expanded, lake level progressively rose in the south end of the basin as the Kirkfield-Fenlon Falls outlet rebounded. During its waning stages, Algonquin may have briefly flowed southward through the St. Clair-Detroit valley and into the Lake Erie basin. By 10,500 BP, however, the margin of the Huron Lobe had retreated far enough north to uncover a series a low-level, isostatically depressed outlets across the Algonquin Highlands (Table LH). These occurred near and just south of North Bay, Ontario (Leverett and Taylor 1915; Larsen 1987). Lake level ultimately fell ("upper-group Beaches") to some 100 m below present (Lake Stanley) as drainage was transferred to these depressed outlets, through the Ottawa River, and finally into the Lake Ontario basin.

The upper Great Lakes continued to bypass the St. Clair-Detroit River for the next 5000 years because they discharged through the isostatically depressed North Bay outlet. As the outlet rebounded, however, water level within the Huron Lake transgressed and ultimately achieved a level about 7 m above present (Table LH). This high level lake, Nipissing, came into existence at 4500 to 5000 BP when the controlling sill at North Bay rose first above the bedrock sill in the Des Plaines River at Chicago and later above the floor of the St. Clair River at Port Huron, Michigan (Eschman and Karrow 1985; Larsen 1985; Monaghan *et al.* 1986). As a result, drainage was shifted south and the northern outlet was abandoned. The St. Clair-Detroit River soon became the sole outlet for the basin as the channel at Port Huron was incised below the elevation of the bedrock sill at Chicago. This channel incision resulted in a progressive regional regression of lake level in the basin. By 3500 BP water level fell to form Lake Algoma and by 3000 BP essentially modern levels were achieved (Eschman and Karrow 1985; Monaghan 1994; Monaghan and Schaetzl 1994).

Ongoing isostatic uplift of the Niagara Falls area also resulted is progressive transgression of the western portion of Early Lake Erie during most of the Holocene, as evidenced by drowned river valleys and back-flooded shorelines along Lake Erie in southeastern Michigan. From a low of about 40 m below present, the Early Lake Erie rose to <10 m below present by 8,000 BP and remained near that level until 4500-4000 BP (Coakley and Lewis 1985). At that time, because Lake Nipissing outflow returned to the St. Clair-Detroit valley, lake level in the Lake Erie basin briefly "spiked" about 5 m above present. By 3500 BP, however, lake level fell a few meter below modern and continue its Holocene transgression. The "Nipissing spike" in lake level is attributed to hydraulic reconfiguration of the outlet channel at Niagara resultant from the initially high inflow as discharge of the upper Great Lakes returned to the Lake Erie basin (Coakley and Lewis 1985). Although speculative, a lower (or second) Lake Rouge "beach" may have formed as a mid-Holocene terrace of the Detroit River related to the "Nipissing spike" in the western Lake Erie basin.

Soils

With stabilization of any landform a recognizable soil (or weathering profile) forms. Soil formation is contingent upon the lithology, relative age, micro-topography, biotic community, climate and drainage characteristics of host landforms. Soil

classification nominally reflects these variables. Soil types can vary across a contiguous landform and may include remnant soils preserved in modified (e.g. truncated) or buried contexts.

Most local soils in Detroit formed primarily within weathered late Wisconsinan glacial deposits, or stream bottom (alluvial) deposits related to subsequent developing drainage networks. Modern soil mapping of the study area was precluded by intense urbanization of the study area that began in the 19th c. However, historic records describe much of the study area to have consisted of prairie and savannah-like vegetation at the time of historic settlement (Demeter and Weir, 2006). In the Windsor, Ontario area, prairie-like soils are reported to have formed in sandy sediments, particularly sand plains associated with Lake Rouge and the deltaic deposits of the early St. Clair River (Langendown and Maycock, 1982): these prairie soils reportedly exhibit mollic-like epipedons (relatively thick and organic-rich near-surface horizons).

Methods

Riparian resources are often recognized as key factors in site selection. Discovery and evaluation of archaeological sites located near stream and lake settings are often contingent upon the preservation conditions of host landforms, and the investigative techniques employed. Many relic alluvial and lacustrine landforms include stratified arrays of water- and wind-deposited sediments deposited over time (that are sometimes reconfigured by subsequent episodes of erosion and redeposition). Urban areas often undergo extensive landscape modification that includes the redistribution of local and imported sediments through associated cut and fill episodes. Geoarchaeological investigations within such settings often focus on a systematic reconstruction of formation history as indicated by sediment, soil and archaeological characteristics.

Sedimentological characteristics are most useful in determining conditions of landform formation, and soil characteristics are most useful in determining conditions of post-depositional changes, both natural and cultural (Waters 1992, Foss et al 1995). Important distinctions exist between sediments and soils: soils are pedogenically-modified sediments; sediments include unweathered and unconsolidated deposits (in this case, glacial-related lake and stream sediments) and are not soils, even when derived from former eroded soils (Hassan 1978; Ferring 1986, 1992). Soils develop in sediments through processes of weathering (transformation, translocation, and removal of both physical and chemical components), and additions of new physical and chemical components (both geo- and biochemical), through infusions of new sediment, organic matter, precipitation, and atmospheric gasses (Birkeland 1984, Ciolkosz et al 1989, Holliday 1990).

Archaeological materials introduced to a site landscape may also be considered a type of “sediment”, each with its own set of genetic, physical and chemical traits. Archaeological sediments and residues may stand out in contrast with “natural”, non-anthropogenic site sediment. For example, any inclusion of pebble-size clasts in a stratum dominated by fine-grained alluvial or eolian sediments may represent a depositional mode outside of the norm (possibly cultural). Consideration of the relative characteristics and distribution of such “anomalous” sediments may provide key indicators of both landform history and archaeological site formation processes.

The relative development and preservation of sedimentological, pedological and archaeological characteristics within any stratum are strongly influenced by residence time in a near-surface environment. An actively aggrading landform environment favors preservation of sediment characteristics (including archeological sediments). A relatively stable environment (with little net accumulation of sediment) favors long-term pedogenic weathering and accumulation of organic matter and possibly anthropogenic debris, sometimes in a midden-like surface soil. Actively degrading (or eroding) conditions may result in truncation of surfaces, selective erosion and displacement of both alluvial and archeological sediments, a general deflation of the stratigraphic record, and accumulation of a surface "lag" of archaeological materials.

Within the DRIC area of potential effect a series of 30 trench exposures were excavated by a backhoe using a 3 ft (ca 1 m) wide bucket and boom that extended up to 12 ft (3-4 m). The placement and number of trenches excavated were variable depending on the conditions within existing city block areas, topography, and stratigraphy. In general, trenches were excavated approximately 1 m wide and 4-6 m long. Occasionally, the trenches were extended to clarify the sedimentological and stratigraphic relationship of the subsurface units and contacts. The maximum depth of the trench was also variable and depended mainly on the stratigraphy observed within the trench while excavating. Because the major objective of excavation was to locate areas of potential burial and preservation of prehistoric archaeological information, the definition of the Holocene age sediments was very important. With this goal in mind, trenches were excavated to within basal late Wisconsinan-age glaciofluvial or glaciolacustrine units.

During trench excavation, information was recorded concerning the general lithology, sedimentology, and extent of each individual lithological unit. Measurements included the depth below surface of the top and bottom of the unit and general thickness. Sediment characteristics were recorded that included observations of lithology (texture) of each distinct stratum as well as bedding, sorting, grading, deformation and the contacts (boundaries) between strata. Elevation differences were measured as depths below ground surface at each individual exposure. Each exposure location was recorded with a Garmin Etrex GPS receiver, and photographed.

Post-depositional (soil) characteristics were recorded following standard soil descriptive terminology developed by the United States Department of Agriculture, Soil Conservation Service (USDA-SCS 1974). These included descriptions of texture, color, mottling, structure, consistency, inclusions, intrusions, and transferals. Soil horizon nomenclature followed the U.S. Department of Agriculture Soil Survey Manual (USDA-SCS 1993) and Birkeland (1984). [In a departure from the norm, surficial A-horizons that had undergone distinct disturbance *in place* are noted as *Ad* horizons (rather than use an *Ap* designation which suggests a particular mode of disturbance, *ie cultivation*). No clear distinction in regards to mode of disturbance is implied here.]

Results and Discussion

A primary goal of this stage of investigation was to examine the depositional history of the project area to formulate a refined model of landform genesis, assess both the surficial- and buried-site potential of these landforms, and evaluate the potential for preservation within this setting of any preexisting archaeological resources. This was

accomplished with a review of map and published resources (discussed previously), followed by field investigations focused upon the geoarchaeological evaluation of 30 backhoe trenches distributed across the study area.

With the exception of five trenches, all were excavated below the extent of historic disturbance and into pre-Holocene glaciolacustrine and/or glaciofluvial sediments. Every trench exhibited some degree of historic disturbance. Relic, pre-contact surface soil horizons (A horizons) were noted in 11 trenches and were often impacted by historic mixing (disturbance) or partial truncation: in all but one instance these surface soil horizons were buried by at least one distinct unit of fill. Fill units sometimes consisted of exhumed and redeposited soils. Soil profiles exhibited variable drainage conditions across the study area: most exhibited good drainage with the exception of a strip along the modern river bank [redacted] where lacustrine clays were noted near surface, and an area immediately west of Fort Wayne [redacted] where 19th c sources had indicated the necessary infilling of a section of "wet prairie". At [redacted] relatively intact soil profiles with mollic epipedons indicated conditions of formation likely associated with extensive grasslands: no distinct evidence of "prairie" conditions were noted elsewhere; it appears possible that forest or savanna-like conditions may have prevailed (but this determination is partially handicapped by a dearth of undisturbed soil profiles). No evidence of prehistoric archaeological occupation was noted in any trench, including disturbed fill strata. Few historic artifacts were noted besides those associated with building debris and coal. Details that include a summation of the depositional context and archaeological content of each trench reviewed in this study are compiled in Appendix GeoDric-DSC.

The study area was initially formed as a result of late-Wisconsinan deglaciation events. Sustained inundation by expanded glacial lakes (Lake Maumee and/or Whittlesey) infused with outwash sediments resulted in deposition of dense clayey silts laminated with very fine sands. Development of the initial Detroit River channel incised the lake plain and resulted in deposition of coarse fluvial sediments within distributary channels and deltaic deposits associated with short-lived Lake Rouge that largely blanketed the project area with fluvial gravels and sands that formed at least one topographic high in the location of Fort Wayne. These sediment units were probably all in place by ~11,500 yr BP. Abandonment of the Detroit River channel as a primary outlet for the great lakes occurred by ~10,500 yr BP and Lake Rouge ceased to exist. Throughout the subsequent early to middle Holocene the study area was relatively higher in elevation than the underfit Detroit River channel and not susceptible to major flood events: during this time any redistribution of surficial fine-grained sediment across the study area was likely restricted to colluviation and sheetwash associated with any remaining topographic highs (such as sand ridges), and possible reworking by eolian processes (particularly during dry periods). After ~4500 yr BP progressively rising river discharge--resultant primarily from reestablishment of the St. Clair-Detroit River corridor as the primary outlet channel for the upper Great Lakes—likely lowered stream gradients of any tributary streams draining the study area while raising the water table, possibly retarding drainage capabilities in low areas, particularly where underlain by shallow deposits of glaciolacustrine clayey silt.

Given the depositional history outlined above, the prehistoric archaeological record may be weighted towards post 4500yr BP settlement and archaeological site formation in the study area (following rejuvenation of the Detroit River as primary outlet corridor): early to mid Holocene settlement and site formation, while not precluded is not well documented. Many of the prehistoric sites inventoried on this relic lake terrace---including several mound groups---date to the Woodland Period (Demeter and Weir, 2006). As with prehistoric settlement, initial historic settlement and archaeological site formation would expectedly favor landforms characterized by good drainage (sandy high ground) and/or close proximity to the Detroit River.

Any archaeological site within the study area would likely have existed in near-surface or surface context prior to extensive 19th c. urbanization of the area. Urbanization—the formation of extensive residential industrial areas---favored level, well-drained landforms. This apparently resulted in the eventual grading and borrowing of well-drained topographic highs (including sand ridges and extant burial mounds} for use as fill for topographic lows (as noted in several trench exposures), and the probable destruction of archaeological sites.

References

Birkeland, Peter W
1984 *Soils and Geomorphology.* Oxford University Press, New York

Calkin, P.E., and Feenstra, B.H.
1985 Evolution of the Erie-Basin Great Lakes. in: P.F. Karrow and P.E. Calkin [eds], *Quaternary evolution of the Great Lakes,* Geological Society of Canada Special Paper 30, p. 149-170.

Ciolkosz, Edward J., William J. Waltman, Thomas W. Simpson and Robert R. Dobos
1989 Distribution and Genesis of Soils of the Northeastern United States. *Geomorphology,* 2(1989) 285-302.

Coakley, J. P. and C. F. M. Lewis
1985 Postglacial lake levels in the Erie Basin. In *Quaternary Evolution of the Great Lakes,* edited by P. F. Karrow and P. E. Calkin, pp. 195-212. Special Paper 30. Geological Society of Canada, St. John's, Newfoundland.

Deimanis, Alexis
1964 Lake Warren and the Two Creeks Interval. *Journal of Geology* 72: 247-250.

Demeter, C. Stephan and Donald J. Weir
2006 *Background and Land Use History, Archaeological and Deep Site Testing of the Detroit River International Crossing (DRIC) Project, Detroit, Michigan.* Commonwealth Cultural Resources Group, Inc., Jackson Michigan. Report R-0644.

Demeter, S. C., J. A. Robertson, and K. C. Egan
1994 Phase I/II Archaeological Investigations of the Environmental Protection Agency Center for Ecology Research and Training, Bay City, Michigan. Report No. R-0175. Commonwealth Cultural Resources Group, Jackson, Michigan. Report on file with the Office of the State Archaeologist, Lansing, Michigan.

Demeter, C. S., and D.Weir
1983 *A Cultural Resources Investigation of the Chene Park II Site, Detroit, Michigan.* Report No. R-2523. Commonwealth Associates, Jackson, Michigan. Report on file with the Office of the State Archaeologist, Lansing, Michigan.

Demeter, C.S., and G.W. Monaghan
1997 A Phase II/III prehistoric Site Evaluation of the Ambassador Bridge-Detroit Welcome Center, Detroit, Michigan. Commonwealth Cultural Resources Group, Jackson, Michigan. 47 p.

Dunham, S. B.,M. J. Hambacher, T.M. Branstner, and M. C. Branstner
1999 Cultural Resource Surveys: US-31 Corridor Alternates, Allegan, Ottawa and Muskegon Counties, Part 1: 1995 Alternate Corridor Surveys. Report submitted to the Michigan Department of Transportation, Lansing. Great lakes Research Associates, Inc., Williamston, Michigan. Report on file with the Office of the State Archaeologist, Lansing, Michigan

Eschman, D.F. and Karrow P.F.
1985 Huron Basin Glacial Lakes: A Review. in: P.F. Karrow and P.E. Calkin [eds], *Quaternary evolution of the Great Lakes,* Geological Society of Canada Special Paper 30, p. 79-93.

Ferring, C. Reid
1992 Alluvial Pedology and Geoarchaeological Research. In, V.T. Holliday, ed., *Soils in Archaeology.* Smithsonian Institution Press, Washington.

1986 Rates of Fluvial Sedimentation: Implications for Archaeological Variability. *Geoarchaeology,* 1:259-274.

Foss, John E., R.J. Lewis and M.E. Timpson
1995 Soils in Alluvial Sequences: Some Archaeological Implications. *I*n, *Pedological Perspectives in Archaeological Research.* Soil Science Society of AmericaSpecial Publication 44, Madison.

Fullerton, D. S.
1980 *Preliminary Correlation of Post-Erie Interstadial Events (16,000–10,000 Radiocarbon Years Before Present), Central and Eastern Great Lakes Region, and Hudson, Champlain, and St. Lawrence Lowlands, United States and Canada.* Professional Paper 1089. United States Geological Survey, Washington, D.C.

Hambacher, M. J., J. G. Brashler, K. C. Egan-Bruhy, D. R. Hayes, B. Hardy, D. G. Landis, T. E.Martin, G.W.Monaghan, K.Murphy, J. A. Robertson, and D. L. Seltz
2003 *Phase III Archaeological Data Recovery for the U.S.-131 S-Curve Realignment Project, Grand Rapids, Michigan.* Report No. R-0446. Submitted to Michigan Department of Transportation, Lansing. Prepared by Commonwealth Cultural Resources Group, Jackson, Michigan. Report on file with the Office of the State Archaeologist, Lansing, Michigan.

Hambacher,M .J., S. B. Dunham, and M. C. Branstner
1995 *Cultural Resource Investigations of the Broadway/Washington Avenue Corridor Project Area, Bay City, Michigan.* Report No. 95–21. Submitted to HNTB Michigan, Inc, Okemos, Michigan and the Michigan Department of Transportation. Great Lakes Research Associates, Inc., Williamston, Michigan. Report on file with the office of State Archaeologist, Lansing, Michigan.

Hansel A. K., D. M. Mickelson, A. F. Schneider, and C. E. Larsen
1985 Late Wisconsinan and Holocene History of the Lake Michigan Basin. In *Quaternary Evolution of the Great Lakes,* edited by P. F. Karrow and P. E. Calkin, pp. 39–53. Special Paper 30. Geological Society of Canada, St. John's, Newfoundland.

Hassan, Fekri A.
1978 Sediments in Archaeology: Methods and Implications for Paleoenvironmental and Cultural Analysis. *Journal of Field Archaeology* 5:197-213.

Holliday, Vance T.
1990 Pedology in Archaeology. In, N.P. Lasca and J. Donahue, eds., *Archaeological Geology of North America.* Centennial Special Volume Number 4. The Geological Society of America, Boulder.

Karrow, P.F., Anderson, T.W., Clarke, A.H., Delorme, L.D., and Sreenivasa, M.R.
1975 Stratigraphy, paleontology and age of Lake Algonquin sediments in southwestern Ontario. *Quaternary Research*, 5:49-87.

Langendoen, Don and Paul F. Maycock
1982 Preliminary Observations on the Distribution and Ecology of Tallgrass Prairie in Southern Ontario. In, R. Brewer, ed., *Proceedings of the Eighth North American Prairie Conference.* Department of Biology, Western Michigan University, Kalamazoo, Michigan.

Larsen, Curtis E.
1987 Chronological history of glacial lake Algonquin and the upper Great Lakes. U. S. *Geological Survey Bulletin* 1801:1-36.

1985 Lake level, uplift and outlet incision, the Nipissing and Algoma Great Lakes. *in*: P.F. Karrow and P.E. Calkin [eds], *Quaternary evolution of the Great Lakes*, Geological Society of Canada Special Paper 30, p. 63-77.

Leverett, Frank, and Taylor, F.B.
1915 The Pleistocene of Indiana and Michigan and the history of the Great Lakes*: United States Geological Survey Monograph* 53, 527 p.

Lovis, W.A. (editor)
2002 *A Bridge to the Past: The Post-Nipissing Archaeology of the Marquette Viaduct Replacement Project Sites 20BY28 and 20BY386.* Michigan State University Museum and Department of Anthropology, Michigan State University, East Lansing.

Mickelson, D.M.
1983 The late Wisconsin glacial record of the Laurentide ice sheet in the United States. In: *Late Quaternary environments of the United States*, Edited by Lee Clayton, D.S. Fullerton, H.W. Borns and H.E. Wright. Univ. Minn. Press, Minneapolis. pp 3-37.

Monaghan, G.W. and W.A. Lovis
2005 *Modeling Archaeological Site Burial in Southern Michigan: A Geoarchaeological Synthesis*. Michigan State University Press, East Lansing, Michigan. (v+278 pp, figures, tables, bibliography, appendices, 8.5 x 11, CD-ROM). 2005. (ISBN 0-87013-738-7)

Monaghan, G.W., Lovis, W.A. and Fay, L.
1986 The Nipissing transgression in the Thumb Area of Michigan: *Canadian Journal of Earth Sciences*, 23:1851-1854.

Monaghan, G.W., and Hansel, A.K.
1990 Evidence for the intra-Glenwood (Mackinaw) low-water phase of glacial Lake Chicago: *Canadian Journal of Earth Science*.

Monaghan, G.W.
1993 Geology of the Third Street Bridge Right-of-Way, Bay City, Michigan, In W.A. Lovis [ed.], *The Archaic, Woodland and Historic Period Occupations of the Liberty Bridge Locale: Bay City, Michigan*, Michigan Cultural Resources Investigations Series, Volume 3, Michigan Department of Transportation, Lansing.

Monaghan, G.W., and Schaetzl, R.
1994 Geology and Geochemistry of the Study area. **in**: M.C. Branstner and M.J. Hambacher [eds], 1991 Great Lakes Gas transmission limited Partnership Pipeline Expansion Projects: Phase III investigations at the Shiawassee River (20Sa1033) and Bear Creek Sites (20Sa1043), Saginaw County, Michigan (FERC docket no. CP89-892-000. Great Lakes Research Associates, Inc., Williamston, MI., pp. 5-32.

Sherzer, W.H.
1916 Geological atlas of the United States: Detroit folio 205 -- field edition, United States Geological Survey, Washington, D.C., 162 p.

USDA-SCS (United States Department of Agriculture, Soil Conservation Service)
1974 Definitions and Abbreviations for Soil Descriptions. West Technical Service Center, Portland.

USDA-SCS (United States Department of Agriculture, Soil Conservation Service)
1993 *Soil Survey Manual.* USDA Handbook 18, U.S. Government Printing Office, Washington.

USGS (United States Geological Survey)
19xx *Detroit, MI. 7.5' Quadrangle Map*, United States Department of the Interior-Geological Survey, Reston Virginia.

Waters, Michael R.
1992 *Principles of Geoarchaeology.* University of Arizona Press, Tucson.

Appendix: DRICGeo-DSC

Phase I Geoarchaeological Investigations: Detroit River International Crossing
PROFILE DESCRIPTIONS

Location: [redacted]

Date:	1/22/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 4.6 m long, 1.1m wide, 2.0 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been truncated and replaced with mixed cinder fill. Underlying soil development is weakly expressed.
	No archaeological materials were recovered from this unit..

Base:	*Lithology and Description (west wall)*
0.37	Mixed sand, coal dust and cinder, black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; *Fill.*
----	abrupt, irregular and truncated lower boundary
0.55	Silty very fine sand, yellowish brown (10YR5/4) *moist;* includes occasional root/burrow cast filled with overlying fill sediment including ash and cinder; weak, fine-medium platy structure; common very fine and fine roots, friable; *Bw Soil Horizon.*
----	gradual and wavy lower boundary
1.00	Silty very fine sand (95-75% sand), brown (10YR5/3) and strong brown (7.5YR56) *moist* with common medium and distinct red (2.5YR4/6) Fe inclusions; massive; no roots, friable; *BC Soil Horizon.*
----	abrupt and smooth lower boundary
1.65	Clayey silt, dark grayish brown (10YR4/2) and very fine sand, light gray (10YR7/2) with occasional dark brown (7.5YR4/4) Fe staining, *moist;* laminated; no roots, very firm; *C Soil Horizon.*
----	abrupt and smooth lower boundary @ water table
1.80	Gravels (<5cm diameter) in very fine sand, dark yellowish brown (10YR4/3) *moist;* poorly sorted; no roots, very friable; *Cg2 Soil Horizon*
----	abrupt and smooth lower boundary
2.00+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg3 Soil Horizon.*

Location: [redacted]

Date:	1/22/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 4.9 m long, 1.1m wide, 1.4 m deep
	Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed cinder fill.
	No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (west wall)*
0.30	Mixed sand, coal dust and cinder; black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; *Fill horizon.*
----	abrupt, irregular and truncated lower boundary
0.45	Pebbly (<30mm) silty mixed sand, dark grayish brown (10YR4/2) with common strong brown (7.5YR4/6) Fe mottling *moist;* includes occasional root/burrow cast filled with overlying fill sediment including ash and cinder; disturbed; few very fine and fine roots, very friable; *Bw Soil Horizon.*
----	abrupt, erode and irregular lower boundary
0.62	Silty very fine sand (95-75% sand), brown (10YR5/3) and strong brown (7.5YR5/6) *moist* with common medium and distinct red (2.5YR4/6) Fe inclusions; massive; no roots, friable; *BC Soil Horizon.*
----	abrupt and smooth lower boundary
1.40+	Clayey silt, dark gray (10YR4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *C Soil Horizon.*

Location: [redacted]

Date:	1/22/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 4.6 m long, 1.1m wide, 1.0 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace likely capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been truncated and replaced with mixed cinder fill.
	No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (west wall)*
0.75	Mixed sand, coal dust, cinder, brickbat and gravel; black (10YR2/1) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon.*
----	abrupt, wavy and truncated lower boundary *(water table @ 50cm)*
1.00+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg2 Soil Horizon.*

Location: [redacted]

Date:	1/23/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft))
	Mapped Soil: *Unmapped*
Exposure:	Trench: 9.1 m long, 1.1m wide, 2.65 m deep
	Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been truncated and replaced with mixed cinder fill: intervening stratum consists of an organic matte that likely represented a short-term historic-age surface (O horizon). Historic archaeological materials (glass, stoneware) were recovered from this unit.

Base:	*Lithology and Description (west wall)*
0.55	Mixed sand, coal dust, cinder, brickbat and gravel; black (10YR2/1) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon.*
----	abrupt, irregular and truncated lower boundary
0.60	Organic-rich, silty very fine sand, black (10YR2/1) *moist;* infused with coal dust and decayed vegetation; weak, no structure; common very fine and fine roots, few historic artifacts, very friable; *O Horizon.*
----	gradual and smooth lower boundary
0.90	Pebbly (<3cm diameter) very fine sand, olive brown (2.5Y4/3) to light olive brown (2.5Y5/4) *moist;* poorly sorted; no roots, very friable; *Bwg Soil Horizon*
----	abrupt, smooth and eroded lower boundary *@ water table*
2.65+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg Soil Horizon.*

Location: [redacted]

Date: 1/23/07
Landform: Level Fill Terrace adjacent to Detroit River
Elevation: ~178.3 m amsl (585ft))
Mapped Soil: *Unmapped*
Exposure: Trench: 4.3 m long, 1.0m wide, 2.1 m deep
Description: Trench located in a within a poorly-drained fill terrace that represents late historic efforts to extend and stabilize the original riverbank.

Historic archaeological material (glass slag) was recovered from this unit.

Base:	*Lithology and Description (south wall)*
0.40	Mixed sand, coal dust, cinder, brickbat and gravel; black (10YR2/1) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt and smooth truncated lower boundary
1.55	Mixed sand, clay, glass slag, brickbat, timbers etc; mixed; *Fill Horizon2.*
----	lower boundary obscured by water @ 60cm
2.10+	Bedded modern river channel sand infused with glass slag and brick fragments.

Location: [redacted]

Date: 1/23/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft))
Mapped Soil: *Unmapped*
Exposure: Trench: 3.7 m long, 0.9 m wide, 1.0 m deep
Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been truncated and replaced with mixed gravelly fill.

No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (east wall)*
0.25	Loamy gravel fill; very dark grayish brown (10YR3/2) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt and smooth lower boundary
0.51	Loamy gravel fill; very dark gray (10YR3/1) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 2.*
----	abrupt and smooth lower boundary

0.60	Brick dust fill unit; red (2.5YR); massive, no roots, very friable; *Fill horizon 3.*
----	abrupt and smooth lower boundary
0.72	Loamy gravel; dark gray (10YR4/1) underlain with a 3 cm thick layer of coal cinder, no roots; friable; *Fill horizon 4.*
----	abrupt, smooth and truncated lower boundary
0.80	Silty very fine sand (95-75% sand), brown (10YR5/3) and strong brown (7.5YR5/6) *moist* with common medium and distinct red (2.5YR4/6) Fe inclusions; massive; no roots, friable; *BC Soil Horizon.*
----	abrupt and smooth lower boundary
1.00+	Clayey silt, dark gray (10YR4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *C Soil Horizon.*

Location: [redacted]

Date:	1/23/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 4.2 m long, 1.1m wide, 2.25 m deep
Description:	Trench located in a within a moderately well-drained section of relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been disturbed and buried with possible basement spoil (derived nearby) and capped with mixed cinder fill. Underlying natural soil development (within glaciofluvial deposits) is fairly well expressed and resembles a prairie soil (Mollisol) characterized by relatively thick (~50cm) and organic-rich, near-surface (A, AB) horizons. The exposure is underlain with glaciolacustrine clayey silt and sand at depth. Archaeological materials noted in this unit included brick fragments, cinder and bottle glass from upper 55cm (fill and disturbed surface strata).

Base:	*Lithology and Description (east wall)*
0.23	Mixed sand, brickbat, coal dust and cinder, very dark gray (10YR3/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt, irregular and truncated lower boundary
0.49	Mixed silty very fine sand; consists of blended substrata (AB, BC and C1 strata) likely derived as spoil from local basement or footer excavation; relatively devoid of artifacts although occasionally cinder clinker and bottle glass was noted; very few very fine roots, friable, disturbed; *Fill horizon 2.*
----	abrupt and smooth lower boundary

0.70	Silty very fine sand, black (10YR2/1); weak medium prismatic structure; many fine to medium roots, occasional brickbat, friable; *Ab Soil Horizon.*
----	clear and wavy lower boundary
1.00	Silty very fine sand, very dark gray (10YR3/1); weak medium prismatic breaking into weak coarse platy structure; includes occasional root/burrow cast filled with overlying 2Ab sediments; few very fine roots, friable; *AB Soil Horizon*.
----	clear and wavy lower boundary
1.25	Silty very fine sand, yellowish brown (10YR5/4) with few medium and distinct strong brown 7.5YR4/6 and distinct red (2.5YR4/6) Fe inclusions *moist;* includes occasional root/burrow cast filled with overlying AB horizon sediments; weak, large prismatic breaking into weak, coarse platy structure; very few fine roots, friable; *BC Soil Horizon.*
----	gradual and wavy lower boundary
1.90	Silty very fine sand (95-75% sand), pale brown (10YR6/3) *moist;* weak coarse platy structure (bedded); no roots, very friable; *C1 Soil Horizon.*
----	abrupt and smooth lower boundary
2.08	Gravels (<5cm diameter) in very fine sand, dark yellowish brown (10YR4/3) *moist;* poorly sorted; no roots, very friable; *C2 Soil Horizon*
----	abrupt, smooth and eroded lower boundary
2.25+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg3 Soil Horizon.*

Location: [redacted]

Date:	1/23/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 2.9 m long, 0.9 m wide, 1.37 m deep
Description:	Trench located in a within a moderately well-drained section of relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been truncated and buried with possible basement spoil (derived nearby) and capped with mixed building rubble. Underlying natural soil development is fairly well expressed and resembles a prairie soil (Mollisol) characterized by relatively thick (~50cm) and organic-rich, surface (A, AB) horizons. Archaeological materials noted in this unit included brick fragments from upper 50cm (fill strata).

Base:	*Lithology and Description (west wall)*
0.51	Mixed building rubble and sand; many fine roots, disturbed; *Fill horizon 1.*
----	abrupt, and wavy lower boundary

0.62	Mixed silty very fine sand; consists of blended substrata (AB, BC and C1 strata) likely derived as spoil from local basement or footer excavation; relatively devoid of artifacts although occasionally cinder clinker and bottle glass was noted; very few very fine roots, friable, disturbed; *Fill horizon 2.*
----	abrupt, wavy and truncated lower boundary
0.77	Silty very fine sand, black (10YR2/1); weak medium prismatic structure; many fine to medium roots, occasional brickbat, friable; *Ab Soil Horizon.*
----	clear and wavy lower boundary
1.10	Silty very fine sand, very dark gray (10YR3/1); weak medium prismatic breaking into weak coarse platy structure; includes occasional root/burrow cast filled with overlying Ab sediments; few very fine roots, friable; *AB Soil Horizon.*
----	clear and wavy lower boundary
1.20	Silty very fine sand, yellowish brown (10YR5/4) with few medium and distinct strong brown 7.5YR4/6 and distinct red (2.5YR4/6) Fe inclusions *moist;* includes occasional root/burrow cast filled with overlying AB sediments; weak, large prismatic breaking into weak, coarse platy structure; very few fine roots, friable; *BC Soil Horizon.*
----	gradual and wavy lower boundary
1.37+	Silty very fine sand (95-75% sand), pale brown (10YR6/3) *moist;* weak coarse platy structure (bedded); no roots, very friable;*2C1 Soil Horizon.*

Location: [redacted]

Date:	1/23/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 2.6 m long, 0.9 m wide, 1.1 m deep
	Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed sand and cinder fill. A concrete footer was noted in south wall.
	No archaeological materials were recovered from this unit.
Base:	*Lithology and Description (east wall)*
0.30	Mixed sand, gravel, coal dust and cinder; black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; *Fill horizon.*
----	abrupt, irregular and truncated lower boundary
0.45	Silty mixed sand including coal dust, black (10YR2/1) and strong brown (7.5YR5/6) *moist;* disturbed; few very fine and fine roots, very friable; *Fill Horizon 2.*

----	abrupt, eroded and irregular lower boundary
0.70	Clayey silt, dark brown (7.5YR4/2) and very fine sand, light gray (10YR7/2) *moist;* laminated; no roots, very firm; *C1 Soil Horizon.*
----	abrupt and smooth lower boundary
1.10+	Clayey silt, dark gray (10YR4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *C2 Soil Horizon.*

Location: [redacted]

Date:	1/23/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft))
	Mapped Soil: *Unmapped*
Exposure:	Trench: 3.0 m long, 0.9 m wide, 0.95 m deep
	Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed sand and cinder fill.
	No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (east wall)*
0.30	Mixed clayey silt fill, derived from substrate and redeposited, disturbed; *Fill horizon 1.*
----	abrupt and irregular lower boundary
0.45	Silty mixed sand including coal dust, with occasional clasts of cinder and concrete, black (10YR2/1) and strong brown (7.5YR5/6) *moist;* bedded with a 2-3 cm thick organic matte at the base; few very fine and fine roots, very friable; *Fill Horizon 2.*
----	abrupt, eroded and irregular lower boundary
0.95+	Clayey silt, dark brown (7.5YR4/2) and very fine sand, light gray (10YR7/2) *moist;* laminated; no roots, very firm; *C Soil Horizon.*

Location: [redacted]

Date:	4/10/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft))
	Mapped Soil: *Unmapped*
Exposure:	Trench: 5.0 m long, 0.9 m wide, 0.5 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with building demolition debris which precluded further excavation.

No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (south wall)*
0.50+	Mixed building demolition debris and cinders, disturbed; *Fill horizon 1.*

Location: [redacted]

Date: 4/10/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 2.3 m long, 0.8 m wide, 0.9 m deep
Description: Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed gravel fill which overlies a truncated soil sequence weathered within coarse-grained glaciofluvial sediments.

No archaeological materials were recovered from this unit.

Base:	*Lithology and Description (west wall)*
0.28	Mixed crushed gravel, disturbed; *Fill horizon.*
0.35	Mixed silty very fine sand with gravel and infused with coal dust, black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; truncated *Ab horizon.*
----	abrupt to clear and smooth lower boundary
0.43	Silty very fine sand with gravel, yellowish brown (10YR5/4) *moist;* weak, fine-medium platy structure; common very fine and fine roots, friable; *BC Soil Horizon.*
----	gradual and wavy lower boundary
0.90+	Gravels in silty mixed sand (45% sand), brown (10YR5/2) to pinkish gray (10YR6/2 and 7/2) *moist;* bedded gravels; no roots, very friable; *C Soil Horizon.*

Location: [redacted]

Date: 4/10/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 11.0 m long, 0.9 m wide, 1.25 m deep

Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed gravel fill which overlies a truncated soil sequence weathered within coarse-grained glaciofluvial sediments that exhibit an eroded contact with basal glaciolacustrine clayey silt and sand. Archaeological materials including bone and metal fragments were recovered from the Ab horizon.

Base:	*Lithology and Description (west wall)*
0.20	Gravelly loam fill, very dark grayish brown (10YR3/2), disturbed; *Fill horizon 1*.
----	abrupt and smooth lower contact
0.30	Mixed silty gravel fill, derived from substrate (BC) and redeposited, disturbed; *Fill horizon 2.*
----	abrupt, wavy and eroded lower boundary
0.40	Mixed silty very fine sand with gravel and coal dust, black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; truncated *Ab horizon.*
----	abrupt to clear and smooth lower boundary
0.73-94	Gravel in silty mixed sand, yellowish brown (10YR5/4) and dark yellowish brown (10YR4/4) *moist;* weakly bedded, devoid of roots except for lower contact that exhibits many medium roots, very friable; *BC Soil Horizon.*
----	abrupt, irregular and eroded lower contact
1.25+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg Soil Horizon.*

Location: [redacted]

Date:	4/10/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft) Mapped Soil: *Unmapped*
Exposure:	Trench: 3.6 m long, 0.9 m wide, 1.1 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been buried with fill, mixed and caps a truncated soil sequence weathered within coarse-grained glaciofluvial sediments that exhibit an eroded contact with basal glaciolacustrine clayey silt and sand. Archaeological materials including whiteware and metal fragments were recovered from the disturbed Ab horizon.

Base: *Lithology and Description (east wall)*

0.30	Gravel and sand fill with coal dust, black (10YR2/1), disturbed; *Fill horizon.*
----	abrupt and wavy lower contact
0.60	Mixed silty fine sand with gravel, very dark grayish brown (10YR3/2) *moist;* massive; many very fine and common fine roots, very friable, disturbed; truncated *Adb horizon.*
----	abrupt, irregular and eroded lower boundary
0.75	Silty medium to fine sand, yellowish brown (10YR5/4) with few medium and distinct strong brown 7.5YR4/6 and distinct red (2.5YR4/6) Fe inclusions *moist;* includes occasional root/burrow cast filled with overlying Ab sediments; weak, large prismatic breaking into weak, coarse platy structure; very few fine roots, friable; *BC Soil Horizon.*
----	abrupt and wavy lower boundary
0.90	Gravels (<5cm diameter) in very fine sand, dark yellowish brown (10YR5/2) *moist;* weekly bedded; no roots, friable to firm; *C Soil Horizon*
----	abrupt, wavy and eroded lower boundary
1.10+	Clayey silt, gray (2.5Y5/1) and very fine sand, light gray (10YR4/4), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg2 Soil Horizon.*

Location: [redacted]

Date:	4/10/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 2.9 m long, 0.9 m wide, 0.85 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed gravel fill which overlies a truncated, soil sequence weathered within coarse-grained glaciofluvial sediments that exhibit an eroded contact with basal glaciolacustrine clayey silt and sand. Archaeological material that includes whiteware was recovered from the base of the disturbed surface fill horizon.

Base:	*Lithology and Description (north wall)*
0.40	Mixed sandy gravel fill with cinders; very dark grayish brown (10YR3/2) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt, wavy and truncated lower boundary
0.48	Silty very fine sand, grayish brown (10YR5/2) to yellowish brown (10YR5/6) *moist;* faintly laminated; few roots, very friable; *BC1 Soil Horizon.*
----	abrupt and smooth lower boundary

0.70	Silty mixed sand with pea gravel; brown (10YR4/3) faintly bedded, no roots; firm; *BC2 horizon.*
----	abrupt, wavy and eroded lower contact
0.85+	Clayey silt, dark gray (2.5YR4/1) and very fine sand, dark grayish brown (10YR4/2), including many fine distinct Fe-dendrites of dark yellowish brown, *moist;* laminated (4-8mm thick); no roots, very firm; *Cg Soil Horizon*

Location: [redacted]

Date:	4/10/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 3.7 m long, 0.9 m wide, 1.46 m deep
Description:	Trench located in a within a poorly-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and replaced with mixed gravel fill which overlies a truncated soil sequence weathered within fine-grained glaciolacustrine clayey silt and sand. Archaeological materials that include window glass were recovered from the disturbed surface fill horizon.

Base:	*Lithology and Description (north wall)*
0.30-50	Mixed sandy clay gravel fill with cinders; very dark grayish brown (10YR3/2) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt, wavy and truncated lower boundary
0.40	Clayey silt, dark gray (2.5YR4/1) *moist;* weak coarse platy to weak medium angular blocky structure); common very fine roots, friable; *BCg horizon.*
----	clear and smooth lower boundary
1.46+	Clayey silt, dark grayish brown (2.5YR4/2) and olive brown (2.5YR4/3) with interbeds of very fine sand, light brownish gray (10YR6/2) and light gray (10YR7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg Soil Horizon*

Location: [redacted]

Date:	1/24/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 3.9 m long, 1.0 m wide, 1.4 m deep (includes 380-1)

Description:	Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been mixed and overlies a soil sequence weathered within coarse-medium grained glaciofluvial gravels and sand. No archaeological materials were recovered.
Base:	*Lithology and Description (east wall)*
0.30	Silty very fine sand; very dark grayish brown (10YR3/2) *moist;* weak medium prismatic structure; common very fine and fine roots, very friable, disturbed; *Ad horizon.*
----	abrupt and wavy lower boundary
0.70	Silty very fine sand; strong brown (7.5YR4/6) and yellowish brown (10YR5/4), with few medium distinct strong brown (7.5YR5/8) Fe mottles *moist;* weak medium prismatic structure; few very fine and fine roots, very friable; *Bw horizon.*
----	clear and smooth lower boundary
1.40+	Gravelly, silty very fine sand; dark grayish brown (10YR4/2) and yellowish brown (10YR5/4) *moist;* faintly bedded; gravels are poorly sorted and increase in frequency with depth and measure <5cm; few very fine and fine roots, very friable; *C horizon.*

Location: [redacted]

Date:	1/24/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 12.2 m long, 1.0 m wide, 2.75 m deep
Description:	Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been mixed and overlies a soil sequence weathered within glaciofluvial sands and gravels that incise glaciolacustrine clayey silt and sand at depth. The soil profile is very well drained and exhibits strong B-horizon formation. No archaeological materials were recovered.
Base:	*Lithology and Description (east wall)*
0.10	Mixed spoil derived from exhumed A and Bw substrata; *Fill horizon 1.*
-----	abrupt and wavy lower contact
0.25	Silty very fine sand (~30% silt) with additions of coal dust; very dark gray (10YR3/1) *moist;* weak medium prismatic structure; common very fine and fine roots, very friable, disturbed; *Adb1 horizon.*
----	abrupt and wavy lower contact

0.45	Silty very fine sand (~30% silt), dark brown (10YR3/3) with common medium prominent strong brown (7.5YR5/6) Fe-mottles *moist;* weak medium prismatic structure; few fine and medium roots, very friable, disturbed; *Adb2 horizon.*
----	abrupt and wavy lower contact
0.80	Silty very fine sand (~30% silt), yellowish brown (10YR5/4) moist; weak medium prismatic structure; root and worm casts filled with Ad horizon sediments; very few very fine roots, friable; *Bw horizon.*
----	clear and smooth lower boundary
1.10	Silty very fine sand (~25% silt); very pale brown (10YR7/4) with 3-4cm thick strong brown (7.5YR4/6) Fe-indurated pedogenic lamellae *moist;* structure; no roots, sands are friable, lamellae are firm; *Bt horizon.*
----	abrupt and smooth lower boundary
1.40	Very fine and fine sand (~15% silt); light brown (7.5YR6/4) and reddish yellow (7.5YR6/6) *moist;* faintly bedded (8-10mm); no roots, very friable; *BC horizon.*
----	gradual and smooth lower boundary
2.55	Very fine sand; light gray (10YR7/2) *moist;* faintly bedded; no roots, very friable; *C1 horizon.*
----	clear and smooth lower boundary
2.65	Pebbles (<3cm diameter) in very fine sand; *C2 Soil Horizon*
----	abrupt, smooth and eroded lower boundary
2.75+	Clayey silt, gray (2.5Y5/1) and very fine sand, light gray (10YR4/4), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg3 Soil Horizon.*

Location: [redacted]

Date:	1/24/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 7.3 m long, 1.1m wide, 2.4 m deep
Description:	Trench located in a within a moderately poorly-drained section of relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been disturbed and buried with locally-derived fill. Underlying natural soil development (within glaciofluvial deposits) is fairly well expressed and resembles a wet prairie soil (Mollisol) characterized by relatively thick (~50cm) and organic-rich, near-surface (A, AB) horizons. The exposure is underlain with glaciolacustrine clayey silt and sand at depth. Archaeological materials noted in this unit included brick fragments, cinder, and bottle and milk glass from upper 60cm (fill and disturbed surface strata).

Base:	*Lithology and Description (east wall)*
0.20	Mixed silty sand with brickbat, coal dust, cinder and concrete; black (10YR2/1) *moist;* massive; many very fine and common fine roots, very friable, disturbed; *Fill horizon 1.*
----	abrupt and irregular lower boundary
0.45	Mixed silty fine sand; very dark gray (10YR3/1) *moist;* massive; consists of redeposited surface sediments (A, AB strata) that served as late-historic surface horizon; occasional historic artifacts including metal fragment and glass were noted; very few very fine roots, friable, disturbed; *Fill horizon 2.*
----	abrupt and wavy lower boundary
0.60	Mixed very fine and fine sand (~15% silt); light brown (7.5YR6/4) and reddish yellow (7.5YR6/6) *moist;* consists of fill sediments derived from a well-drained, off-site location; includes occasional root/burrow cast filled with overlying Fill sediments; few very fine roots, friable; *Fill horizon 3.*
----	abrupt to clear, smooth and eroded lower contact
0.72	Silty very fine sand, very dark gray (10YR3/1) *moist;* weak medium prismatic structure; few medium prominent and fibrous inclusions of carbon; many fine to medium roots, occasional brickbat, friable; *Ab Soil Horizon*.
----	clear and wavy lower boundary
1.35	Silty very fine sand, very dark gray (10YR3/1) and light olive gray (2.5Y6/2) *moist;* variegated along thin (10-20mm) depositional beds (weak coarse platy structure); includes occasional root/burrow cast filled with overlying Ab sediments; few medium roots, friable; *ABg Soil Horizon*.
----	clear and wavy lower boundary
1.25	Silty very fine sand, light olive gray (2.5Y6/2) grading near base to increased yellowish brown (10YR5/4) mottling *moist;* includes occasional root/burrow cast filled with overlying Ab/AB sediments and a discontinuous stringer of pebbles at 121 cmbs; weak, large prismatic breaking into weak, coarse platy structure; very few fine roots, friable; *BCg Soil Horizon.*
----	gradual and smooth lower boundary
1.80	Silty very fine sand (95-75% sand), light olive gray (2.5Y6/2) *moist;* weak coarse platy structure (bedded); no roots,very friable; *Cg1 Soil Horizon.*
----	abrupt and smooth lower boundary @ water table
2.00	Gravels (<5cm diameter) in very fine sand, olive gray matrix(2.5YR) with common, large and prominent strong brown Fe-staining (7.5YR5/6) *moist;* poorly sorted; no roots, loose; *Cg2 Soil Horizon.*
----	abrupt, smooth and eroded lower boundary
2.25+	Clayey silt, dark gray (2.5Y4/1) and very fine sand, light gray (2.5Y7/2), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg3 Soil Horizon.*

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.0 m long, 1.0 m wide, ~1.0 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Exposure revealed building rubble likely associated with a former school building and excavation was suspended.

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.0 m long, 1.0 m wide, ~0.6 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Mixed gravelly, 20th c fill was noted cover a concrete pad—probably a former driveway: excavation was suspended.

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.0 m long, 1.0 m wide, ~0.6 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Mixed gravelly, 20th c fill was noted cover a concrete pad—probably a former driveway: excavation was suspended.

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.4 m long, 1.0 m wide, 3.10 m deep

Description:	Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been mixed and buried and overlies a soil sequence weathered within glaciofluvial sands and gravels that incise glaciolacustrine clayey silt and sand at depth. The soil profile is very well drained and exhibits moderate B-horizon formation. Historic archaeological materials (glass, wire, plastic, coal) were recovered from near-surface Fill and Ad horizons.
Base:	*Lithology and Description (east wall)*
0.30	Loamy, mixed gravel, black (10YR2/1) to very dark grayish brown (10YR3/2); locally derived fill; weak medium prismatic structure; common very fine to fine roots, friable; *Fill horizon 1*
-----	abrupt and wavy lower contact
0.49	Pebbly, silty very fine sand (~30% silt) with additions of coal dust; very dark gray (10YR3/1) to black (10YR2/1) *moist;* weak medium prismatic structure; common very fine and fine roots, very friable, disturbed; *Adb horizon.*
----	clear and smooth lower contact
0.60	Pebbly, silty very fine sand (~30% silt), dark yellowish brown (10YR4/4, 4/6) moist; weak medium prismatic structure; root and worm casts filled with Ad horizon sediments; very few very fine roots, friable; *Bw horizon.*
----	clear and wavy lower boundary
0.88	Gravel in mixed sand (~15% silt); very pale brown (10YR7/4) to yellowish brown (10YR5/4); poorly sorted; no roots, very friable; *BC horizon.*
----	abrupt and wavy lower boundary
2.90	Pebbly fine sand (~15% silt); light gray (10YR7/2), light brown (7.5YR6/4) and reddish yellow (7.5YR6/6) *moist;* bedded with pockets of crossbedded pebbles; no roots, very friable to loose; *C1 horizon.*
----	abrupt, smooth and eroded (?) lower contact
3.10+	Clayey silt, gray (2.5Y5/1) and very fine sand, light gray (10YR4/4), *moist;* laminated (4-8mm thick); no roots, very firm; *Cg2 Soil Horizon.*

Location: [redacted]

Date:	1/25/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 3.0 m long, 1.0 m wide, 1.2 m deep
Description:	Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Mixed gravelly, 20th c fill was noted to extend to 0.9mbs and into glaciofluvial gravelly sand.

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.5 m long, 1.0 m wide, 1.0 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been mixed with fill and overlies a soil sequence weathered within glaciofluvial sands and gravels (that likely incise glaciolacustrine clayey silt and sand at depth). The soil profile is very well drained and exhibits moderate B-horizon formation.

Historic archaeological materials (glass, wire, etc) were recovered from the near-surface Fill and Ad horizons.

Base:	*Lithology and Description (east wall)*
0.30	Loamy, mixed gravel, very dark grayish brown (10YR3/2); locally derived fill; weak medium prismatic structure; common very fine to fine roots, friable; *Fill horizon 1*
-----	abrupt and smooth lower contact
0.60	Pebbly, silty very fine sand (~30% silt) with additions of coal dust; very dark gray (10YR3/1) to black (10YR2/1) *moist;* weak medium prismatic structure; common very fine and fine roots, very friable, disturbed; *Adb horizon.*
----	abrupt and wavy lower contact
0.85	Silty very fine sand (~30% silt), dark yellowish brown (10YR4/4, 4/6) moist; weak medium prismatic structure; root and worm casts and intrusive "pit" feature filled with Ad horizon sediments; very few very fine roots, friable; *Bw/BC horizon.*
----	clear and wavy lower boundary
1.00+	Gravel in mixed sand (~15% silt); very pale brown (10YR7/4) to yellowish brown (10YR5/4); poorly sorted; no roots, very friable; *BC horizon.*

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.4 m long, 1.0 m wide, 1.4 m deep

Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Mixed gravelly, 20th c fill was noted to extend to >1.4mbs and excavation was suspended.

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.0 m long, 1.0m wide, 1.25 m deep
Description: Trench located in a within a moderately poorly-drained section of relic glaciolacustrine (lake) terrace capped with sandy glaciofluvial (river) deposits. The original Contact period surface has been disturbed and buried with locally-derived fill. Underlying natural soil development (within glaciofluvial deposits) is fairly well expressed but truncated.

Archaeological materials noted in this unit included 20th c. materials and a concrete footer in the upper 63cm (fill and disturbed surface strata).

Base:	*Lithology and Description (east wall)*
0.48	Mixed pebbly silty fine sand infused with coal dust and historic debris; black (10YR2/1) and very dark gray (10YR3/1) *moist;* massive; consists of redeposited surface sediments (A, AB strata) that served as late-historic surface horizon; occasional historic artifacts including metal fragment and glass; very few very fine roots, friable, disturbed; *Fill horizon 1.*
----	abrupt and wavy lower boundary
0.63	Mixed very fine and fine sand (~15% silt); light brown (7.5YR6/4) and reddish yellow (7.5YR6/6) *moist;* consists of fill sediments derived from a well-drained, off-site location; includes occasional root/burrow cast filled with overlying Fill sediments; few very fine roots, friable; *Fill horizon 2.*
----	abrupt, wavy and eroded lower contact
0.82	Silty very fine sand, very dark gray (10YR3/1) *moist;* weak medium prismatic structure; few medium prominent and fibrous inclusions of carbon; many fine to medium roots, occasional brickbat, friable; *Ab Soil Horizon*.
----	clear and irregular lower boundary
0.95	Silty very fine sand, light olive gray (2.5Y6/2) with many large distinct yellowish brown (10YR5/6) and strong brown (7.5YR5/6) mottling *moist;* includes occasional root/burrow cast filled with overlying Ab sediments; weak, large prismatic breaking into weak, coarse platy structure; very few fine roots, friable; *BCg Soil Horizon.*
----	gradual and irregular lower boundary
1.25+	Silty very fine sand (95-75% sand), light olive gray (2.5Y6/2) *moist;* weak coarse platy structure (bedded); no roots,very friable; *Cg Soil Horizon.*

Location: [redacted]

Date: 1/25/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 15.2 m long, 1.0 m wide, 1.8 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. Mixed gravelly, 20th c fill was noted to extend to <1.5mbs in contact with glaciofluvial gravels in silty mixed sand

Location: [redacted]

Date: 1/26/07
Landform: Level Terrace above Detroit River
Elevation: ~178.3m amsl (585ft)
Mapped Soil: *Unmapped*
Exposure: Trench: 3.4 m long, 1.0 m wide, 2.8 m deep
Description: Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been mixed and buried and overlies a soil sequence weathered within glaciofluvial sands and gravels. The soil profile is very well drained and exhibits moderate B-horizon formation.

Historic archaeological materials were noted in disturbed strata to depths ~95cmbs.

Base:	*Lithology and Description (east wall)*
0.15	Sand, light gray (10YR7/1); imported fill; common very fine to fine roots, loose; *Fill horizon 1*
-----	abrupt and smooth lower contact
0.43	Pebbly, silty mixed sand, black (10YR2/1) to very dark grayish brown (10YR3/2) with a 8cm lens of gravel at the base; locally derived fill; weak medium prismatic structure in upper 35 cm; few very fine to fine roots, friable; *Fill horizon 2*
-----	abrupt and wavy lower contact
0.77	Pebbly, silty very fine sand (~30% silt) with additions of coal dust and lenses of cinder; very dark gray (10YR3/1) to black (10YR2/1) *moist;* weak medium prismatic structure; common very fine and fine roots, very friable, disturbed; *Adb horizon.*
----	abrupt and wavy lower contact

0.95	Pebbly, silty very fine sand (~30% silt), dark yellowish brown (10YR4/4, 4/6) moist; weak medium prismatic structure; root and worm casts filled with Ad horizon sediments; very few very fine roots, friable; *Bw horizon.*
----	clear and wavy lower boundary
2.80+	Pebbly mixed mixed sand (~15% silt); brown (10YR4/3) to yellowish brown (10YR5/4) to light brown (7.5YR6/4); poorly sorted to crossbedded; no roots, very friable to loose; *C horizon.*

Location: [redacted]

Date:	1/26/07
Landform:	Level Terrace above Detroit River
Elevation:	~178.3m amsl (585ft)
	Mapped Soil: *Unmapped*
Exposure:	Trench: 7.6 m long, 1.0 m wide, 2.6 m deep
Description:	Trench located in a within a well-drained relic glaciolacustrine (lake) terrace. The original Contact period surface has been truncated and buried with fill: substrate consists of glaciofluvial sands and gravels.
	No archaeological materials were recovered from this excavation.

Base:	*Lithology and Description (east wall)*
0.50	Pebbly mixed sand, black (10YR2/1) to very dark grayish brown (10YR3/2); locally derived fill; weak medium prismatic structure; common very fine to fine roots, friable; *Fill horizon 1*
-----	abrupt and irregular lower contact
0.65	Pebbly, silty very fine sand (~30% silt) with additions of coal dust; very dark grayish brown (10YR3/2) to black (10YR2/1) *moist;* massive; few very fine and fine roots, very friable, disturbed; *Fill horizon 2.*
----	abrupt and irregular lower contact
0.85	Mixed gravel with coal in silty very fine sand (~30% silt), dark yellowish brown (10YR4/4, 4/6) moist; massive; friable; disturbed; *Bw horizon.*
----	abrupt and wavy lower boundary
1.30	Silty very fine sand (~20% silt), brown (10YR5/3) to dark yellowish brown (10YR5/8) with strong brown (7.5YR4/6) mottles, *moist;* massive; very friable; *C1 horizon*
----	abrupt and smooth lower boundary
2.60+	Pebbly mixed mixed sand (~15% silt); brown (10YR4/3) to yellowish brown (10YR5/4) to light brown (7.5YR6/4); poorly sorted to crossbedded; no roots, very friable to loose; *C horizon.*