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September 8, 2009

Mr. Brian Jankauskas
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 11th Floor
625 Broadway
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Subject: **Records Search and Hydrogeologic Evaluation - FINAL (Task 2)**
WAWNC Well 57, Site No. 1-30-191
Work Assignment #D004434-18
MACTEC Engineering and Consulting, P.C., Project No. 3612082117

Dear Mr. Jankauskas:

MACTEC Engineering and Consulting, P.C. (MACTEC) is supporting the NYSDEC at the Water Authority of Western Nassau County (WAWNC) Well 57 Site (Site N0. 1-30-191) in New Hyde Park, New York. This letter documents the scope of work performed for Task 2 Records Search and Hydrogeologic Evaluation of Work Assignment (WA) #D004434-18.

The goal of the WA is to determine the sources of elevated chlorinated organic compounds (CVOCs) impacting the Station 57 well field. Task 2 consisted of record search activities that were conducted to identify properties that could be possible sources of CVOCs within the approximate area of groundwater capture. MACTEC also researched available hydrogeologic information to provide insight on the study area and develop an understanding of the area geology and hydrogeology. The sections below discuss the Study Area, Record Search, and Hydrogeologic Setting.

Study Area

The WAWNC operates two production wells north of 2nd Avenue between South 5th and South 6th Streets in New Hyde Park. The wells, WAWNC-57 (N-7649) and WAWNC-57A (N-7650) comprise the Station 57 well field. Typical annual production for these wells as reported by the WAWNC (e.g. for the 12-month period June 2007 to May 2008) was 278,506,512 gallons (Well 57) and 553,238,424 gallons (Well 57A). The wells are pumped year-round at relatively consistent rates of withdrawal and the annual total volumes cited correspond to averaged rates of approximately 530 gallons per minute (gpm) for Well 57 and 1050 gpm for Well 57A. Well 57 is currently configured with a well screen from 290 to 340 feet below ground surface (ft bgs) and Well 57A is screened from 400 to 440 ft bgs. Drilling logs for these wells are attached.

The permeable nature of the geologic deposits coupled with dense human development has led to widespread groundwater quality impacts across Long Island. Solvents such as tetrachloroethene (PCE) and trichloroethene (TCE), chemicals used historically in dry-cleaning and in industrial de-greasing processes, have been the source of numerous studies due to their persistence in the environment and potential adverse health effects.

MACTEC reviewed groundwater data provided by the WAWNC, Nassau County, the NYSDEC and data presented in various environmental studies in the area, (where available). Time-series plots showing historical trends for TCE and PCE in untreated water from Well 57 and Well 57A are provided as Figures 1 and 2.

Well 57, installed at its current depth in 1986, exhibited relatively consistent levels of TCE (averaging about 150 ug/L) in the decade prior to 2005. PCE exhibited a gradually rising trend over this period with concentrations generally between 25 and 50 ug/L. For the past several years, both PCE and TCE appear to be trending higher with recent detection of TCE above 250 ug/L and PCE above 100 ug/L.

Well 57A, the deeper production well, has generally exhibited lower levels of PCE and TCE in untreated water than those reported in Well 57. For the decade prior to 2005, PCE levels averaged less than 5 ug/L and TCE levels averaged 35 ug/L. Earlier data appear to indicate that a TCE-dominant plume impacted this well in the late 1980s. Since about mid-2005 both TCE and PCE

have been trending higher and moving in concert with similar proportional concentrations as found in Well 57 (i.e. TCE:PCE ratio of approximately 2:1).

The preliminary study area, established by the NYSDEC for the WA, corresponded to the source water recharge area for the Station 57 well field as determined in the Long Island Source Water Protection Program (SWAP). This 2003 study, performed for New York State Department of Health (NYSDOH) by a consultant, used a proprietary modeling approach to map the area contributing recharge to each production well (NYSDOH, 2003).

MACTEC used the SWAP contributing recharge area as a starting point and considered hydrogeologic information, land usage, data from various environmental studies, and other historical data to refine the Study Area.

Models inherently use simplifying assumptions such as constants for the rate of water extraction, recharge and aquifer properties. While the recharge areas developed in the SWAP appear to be reasonable approximations based on recent averaged conditions, several factors lead MACTEC to think that contaminants could migrate towards the Station 57 well field from a source that may be located upgradient of the SWAP contributing recharge area:

1. TCE and PCE have been used for more than 50 years in common industrial processes (e.g., dry cleaning and various manufacturing processes). An aged source could migrate in groundwater for significant distances.
2. Macro-trends in recharge loss have influenced the direction of groundwater flow. For example, from the 1950s to about 1980, overpumping in Queens and Kings Counties to the west, in concert with easterly migration (of installation) of sanitary sewer systems, lowered the water table and created a more westerly gradient in Nassau County and in the vicinity of the Site. After changes in extraction volume in those counties and efforts to promote more recharge via infiltration basins, the water table has rebounded somewhat and the gradient of the water table surface has shifted to a more southerly direction. (NCDPW, 2005). Therefore the footprint of the area contributing flow towards the well field has not been constant over time and the shifting gradients add complexity in understanding plume migration.
3. The glacial overburden varies laterally and vertically in its ability to transmit water. Pumping influences may extend further laterally along layers with greater hydraulic conductivity and groundwater may migrate naturally at a higher rate along these layers than would be represented by averaged formation properties.
4. Most production wells extract water from significant depths (the well screen bottoms at Well 57 and Well 57A are at 340 feet and 440 feet below grade, respectively) and county-wide, production wells extract about 60% of available average annual precipitation

recharge (NCDPW, 2005). Therefore, not all flow is captured at production wells and flowpaths exist that could transmit water into and out of the footprint of the SWAP recharge areas. These could include shallow plumes if deeper confining strata muted the effect of pumping from deeper zones.

These and other factors introduce uncertainty regarding the limits on an area that would define the footprint within which a release occurred.

MACTEC concluded that the SWAP boundary was a logical starting point to the south and west of the Station 57 well field because natural flow gradients and the presence of downgradient extraction wells would limit the capture zone in the downgradient direction. Therefore our proposed boundary of the WA Study Area generally coincides with the SWAP study in those directions. To the northeast, MACTEC concluded that contaminants could potentially reach the well field from a greater distance than represented by SWAP and that the complexities of the hydrogeological setting and historical influences precluded proposing a boundary to the Study Area. Based on our review, MACTEC proposed the WA Study Area boundary limits shown on Figure 3.

Record Search – Potential Industrial Sources.

MACTEC searched current and historical records to identify possible properties that could be the source of release of PCE and TCE.

MACTEC searched the following databases for information on users, releases or Sites with TCE and PCE that are located in New Hyde Park:

1. National technical Information Search (NTIS)
2. Right to Know Network (RTK) that includes the following databases:
    - TRI (Toxic Release Inventory)
    - CERCLIS (Comprehensive, Environmental Response, Compensation, and Liability Information System)
    - ERNS (Emergency Response Notification System)
    - FRS (aka FINDS) (Facility Registry System)
    - ICIS (Integrated Compliance Information System)
    - RCRIS (Resource Conservation and Recovery Act Information)

- ARIP (Accidental Release Information Program)
- PCIS (Permit Compliance System)

3. Resource Conservation and Recovery Act (RCRA) Database Information Area 2

Dry cleaners and other potential industrial sources were also identified in the WA by the NYSDEC, who provided information from the Division of Environmental Remediation Site database and information on RCRA listings.

MACTEC also developed information on dry cleaners that have historically been present in the area by reviewing phone directories (county yellow page directories) from 1958 to present. Dry cleaning businesses that were listed in phone directories were located by street address and cross-checked with cleaners that appeared in the public databases. This type of record search has some inherent uncertainties (e.g. gaps in the records). Businesses may choose not to list in a yellow page directory or listings may lapse. Businesses may continue to operate at a location under a new owner and name without continuing a listing. The various electronic databases generally provide information starting in the 1980s to present but there is not a lot of information from prior decades when chlorinated solvents were routinely used and little tracked. Therefore properties could exist within the Study Area that used and released solvents and were not identified during MACTECs research.

After compiling information from the above sources, MACTEC developed Figure 3, which shows the location of properties of interest in the area surrounding the Station 57 well field. The figure also identifies the general area of industrial and commercial development in the vicinity of Well 57 and to the north and east as interpreted from current satellite imagery. As shown on the figure, most commercial development occurs along several road corridors. Apart from these commercial avenues, most of the land area has dense residential neighborhoods and non-commercial community properties such as schools and churches. While there is no reason to exclude non-commercial properties as a potential source of a chemical release, it seems more probably to MACTEC that solvent release(s) would have occurred from a commercial operation or waste site (e.g. a landfill).

Table 1 provides information on the properties shown within the proposed study area boundary on Figure 3. These represent properties of potential interest and have not been verified as source(s) of the solvent impacts observed at the well field.

Hydrogeologic Setting.

MACTEC compiled and reviewed hydrogeologic information from various sources to develop an understanding of the hydrogeology at the Site and the surrounding area.

Long Island consists of a thick sequence of sediments of glacial origin that overlie bedrock. New Hyde Park and the area surrounding the Station 57 well field is situated on an outwash plain that extends southward from the east-west trending Harbor Hill Moraine which forms a ridge to the north of the study area. The land surface in New Hyde Park is on the Upper Glacial Aquifer (UGA) which is approximately 100 feet thick across the study area. The water table is found within this formation at a depth of about 50 feet below ground surface (bgs). The UGA is generally characterized by highly permeable fine to coarse sand and gravel. Underlying the UGA is the Magothy Formation, the largest hydrogeologic unit beneath Long Island which can be up to 1,000 feet thick. The Magothy consists of fine to medium-grained sand with interbedded lenses of coarse sand and clay and sandy clay. Most municipal production wells are located within higher yielding strata within the Magothy. Both Well 57 and Well 57A are screened in the Magothy. According to the USGS, the average hydraulic conductivity in the UGA is 270 feet per day (ft/d) and in the Magothy is 50 ft/d (Busciolano, 1998).

Approximately 500 monitoring wells are currently maintained by Nassau County to monitor groundwater levels and groundwater quality. A comprehensive summary of data from 2000 to 2003 as well as some historical data are presented in; "Nassau County Groundwater Monitoring Program 2000-2003" (NCDPW, 2005). This report includes maps of water levels in the UGA and the interpreted potentiometric surface of the underlying Magothy and Lloyd aquifers.

The United States Geological Survey (USGS) periodically publishes water table and potentiometric maps for the Long Island aquifers (e.g., Busciolano, 1998). MACTEC obtained a download from the USGS on wells in their database that are located near the Study Area and cross-checked those against Nassau County well listings and NYSDEC environmental Site data. Figure 4 shows the

locations of wells in the area of the Site and identifies the bottom depths and geologic formation that the wells are installed in. Table 2 provides details on well depths.

Environmental investigations that have been conducted in the area provided additional sources of hydrogeologic data. For example, the 150 Fulton Avenue Site, located 8800 feet to the east of the Station 57 well field, has been the subject of a comprehensive NYSDEC Remedial Investigation to identify the extent of a solvent plume emanating from that site (ERM 2005). Locally, other NYSDEC Sites such as the Manfred F, J, Schulte Site, located 1000 feet to the north of the well field, provided groundwater data from monitoring wells and temporary piezometers.

The published county-wide and island-wide water maps used wells that are widely spaced. MACTEC used these maps to extrapolate flow direction within the UGA and Magothy aquifers. Arrows representing the general direction of flow in these aquifers are shown on Figure 5 and Figure 6. These indicate direction based on general aquifer gradients but, as mentioned previously, factors such as geologic variability, temporal changes in aquifer gradients, and pumping influences (which increase with proximity to an extraction well) would alter flow paths and increase the area from which groundwater flow reaches the well field.

Figure 7 presents a geologic cross-section through three production well locations, including Well 57/Well 57A. The cross-section, aligned along the general direction of groundwater flow from northeast to southwest, illustrates the geology at the wells and the spatial relationships of the geologic formations and water table relative to ground surface elevation. The cross-section orientation is plotted on Figure 4. Geologic information is summarized from production well driller logs. The ground surface elevation shown was drawn from USGS topographic maps. Depth to water is generalized based on county flow maps and environmental reports.

The cross-section illustrates the vertical and lateral variability of the Magothy Formation. Sand layers with higher transmissivity are interbedded with layers of clay or silt that are more restrictive to groundwater flow. These layers do not correlate well over distance and therefore introduce some uncertainty regarding plume migration.

Conceptual Findings and Approach

Figure 8 synthesizes data from the sources discussed above to provide some qualitative impressions of groundwater impact at key wells and groundwater profile borings in the study area. MACTEC believes the data suggests the following:

1. A PCE-dominant plume extends from the 150 Fulton Avenue Site southwestward to Garden City Water Supply Wells No. 14 (N-8339) and No. 13 (N-7058). Note that not all groundwater explorations that were completed during the 150 Fulton Avenue RI are shown on the figure.
2. A TCE-dominant plume is present at depth in the Magothy (e.g. 250 to 350 ft bgs) detected by explorations completed between 150 Fulton Avenue Site and the Station 57 Well Field. This TCE-dominant plume may be responsible for the bulk of TCE and PCE impact that is reported at the Station 57 water supply wells.

The source of the TCE-dominant Magothy plume has not been determined. After considering land use patterns, record search results and the hydrogeologic regime, MACTEC believes that the priority for investigation should be industrial/commercial properties along the Denton Avenue corridor between the Denton Avenue Landfill and the Long Island Railroad corridor (see Figure 3). Table 1 includes a column that identifies properties that MACTEC would prioritize for further investigation (Priority 1).

MACTEC obtained Sanborn map coverage for this corridor which included the years 1950, 1961, 1969 and 1980 (attached). The maps identify general business type and therefore provide some additional insight as to potential properties of interest. For example, in addition to the properties noted on Falmouth and Gilford Avenues on Table 1, other business types include several machine shops, a plumbing supply company and an iron works. In the vicinity of Nassau Terminal Road, in addition to the property identified on Table 1 (50 Nassau Terminal Road), businesses include a gyroscope manufacturer, an aluminum products company, a newspaper/magazine corporation, machine shops, woodworking shops, and auto wrecking yards. Many of these businesses might have used degreasing solvents such as TCE in the 1960s and onward.

MACTEC recommends an investigative approach that profiles groundwater along transects located between the impacted wells and potential sources. The record search showed that, while there are dry cleaners located in an area that contributes groundwater flow to the Station 57 wellfield, there are also known and unknown properties that may have been historical users of solvents. Most past

and present commercial properties are located along road corridors that can be used to focus the transects. The data from the profiles will address uncertainties regarding the nearness of the source and the direction of flow. An initial focus on the upper portion of the aquifer should either reveal sources (since residual shallow impacts would indicate a nearby release) or help rule out properties of interest.

The scope of the groundwater investigation will be developed in a meeting with NYSDEC and documented in a Work Plan (WA Task 3) that will direct the next WA tasks.

Thank you for the opportunity to assist the New York State Department of Environmental Conservation on this project.

Sincerely,

MACTEC Engineering and Consulting, P.C.

Eric C. Sandin
Project Manager

John W. Peterson
Principal Professional

Enclosures (2)

REFERENCES

Busciolano, R.J., 1998. Water Table and Potentiometric-Surface Altitudes of the Upper Glacial, Magothy, and Lloyd Aquifers on Long island, New York, in March-April 1997, with a Summary of Hydrogeological Conditions: United States Geological Survey Water-Resources Investigations Report 98-4019.

ERM, 2005. Operable Unit 1 (OU1) Remedial investigation Report, 150 Fulton Avenue Site, Garden City Park, New York.

NCDPW, 2005. Nassau County Groundwater monitoring Program 2000-2003 With Historical Information, Nassau County Department of Public Works

NYSDOH, 2003. Long Island Source Water Assessment Summary Report, New York State Department of Health

Table 1: Properties of Interest

Map Name	Street Address	Business Type	Date Range (where known	Alternate Names	Information Source	Priority[1]	Notes / Priority Rationale
Boulevard Cleaners	608 2nd Ave	Dry Cleaners	ca. 1958 to 1960	no others known	Yellow Pages	1	Limited timeframe but proximity to well field warrants some characterization to rule out contributing impact.
Clean Street USA	1824 Gilford Ave	Dry Cleaners	cleaners unknown	no other cleaners; chemical warehouse	Dry_Cleaners_DER_Subset; Sanborn Maps show "Chemical W. Ho."	1	Directly upgradient of detected deep TCE-impact and Well 57. No prior characterization data.
Techem DER Site	1840 Falmouth Avenue	DER Site	1973 to 1994; 1950s to 1970s	no others known; machine shop	Remediation_Sites.dbf; Sanborn Maps identify as "machine shop"	1	DER Site 130097; Electroplating 1973 to 1994; No VOCs indicated in Remediation Database but location is upgradient of TCE plume and well field.
USEPA Denton Ave Landfi	Denton & Hillside Ave	RCRA Landfill	early 1950s to 1980s?	no others known	RCRA_Site-Partial.dbf	1	Previous NYSDEC investigation found few solvent impacts but large areal footprint
Dakon Corp	1836 Gilford	Manufacturer (pumps/ medical equip.)	1960s to 1980s?		NYSDEC (Manfred RI Report); Sanborn Maps identify as "Medical Equip Mfg"	1	Shown as TCE user Table 3-7 of Manfred RI Report (NYSDEC); source listed as NCHD Industrial Survey. Location is upgradient of TCE plume and well field.
Petrometer Corp	1807 Gilford	Manufacturer (tank gauges)	1980s (Petrometer); 1960s to 1980s (machine shop)		NYSDEC (Manfred RI Report); Sanborn Maps identify as "Machine Shop"	1	Shown as TCE user Table 3-7 of Manfred RI Report (NYSDEC); source listed as NCHD Industrial Survey. Location is upgradient of TCE plume and well field.
Zoe Chemical Company	1801 Falmouth Ave	Chemical Company Chemical Company	1960s to present	Zoe Chemical Co. Magnum Research CDC Products (current)	USEPA TRI and Sanborn Maps Yellow Pages (ca. 2000) Yellow Pages (ca. 2008)	1	No PCE/TCE indicated in researched databases but Air Emissions listed 1987 to 1990 include 111-TCA so some solvent presence. Location is upgradient of TCE plume and well field.
Nostro MFG Corp	50 Nassau Terminal Rd	Manufacturer (mattresses, beds)	Current business. Building has industrial use since at least the mid-1980s	Castro Convertibles	Toxic_Release_Inventory_Subset	1	No PCE or TCE indicated in researched databases. 111-TCA listed from 1987 to 1994 as air emissions and solid or liquid waste. General industrial area may warrant characterization due to proximity to detected TCE plume.
La Via Cleaners	253 Jericho Tpke	Dry Cleaners	ca. 1964 to 1970	no others known	Yellow Pages	1	Limited business timeframe but no previous characterization data and could contribute impact to well field (not as primary TCE source)
Lily Cleaners	1003 Jericho Tpke	Dry Cleaners	unknown	no others known	Dry_Cleaners_DER_Subset	1	Not enough information on timeframe; no data directly downgradient
DeLux Cleaners	1113 Jericho Tpke	Dry Cleaners	ca. 1958 to 1970	no others known	Yellow Pages	1	Higher probability timeframe for potential release; downgradient wells have minor shallow impact (MW-10MS) but data is from 1999
Ampholith Inc	1010 Jericho Tpke	Printing	1978 to present	no others known	RCRA_Site-Partial.dbf	1	Lithographic Printer; RCRAINFO database does not list specific chemicals for this property. Property is upgradient from monitoring wells with little shallow impact but data is from 1999 (MW-10MS)
Jericho Hope Cleaners	1519 Jericho Tpke	Dry Cleaners	ca. 1958 to present	Jericho Hope Cleaners Neighborhood Tailor J & G Cleaners	Yellow Pages Yellow Pages RI_Nassau_Subset	1	Long-term presence. Used PCE (switched to alternate agent at some point). No characterization data downgradient.
Continental Cleaners	1309 Jericho Tpke	Dry Cleaners	current business	no others known	Yellow Pages	2	GW profile to the southwest indicated little shallow impact (MW-10 cluster)
The Clean Spot	18 Jericho Tpke	Dry Cleaners	ca. 1958	no others known	Yellow Pages	2	Limited early business presence. Shallow groundwater more likely to migrate beyond Well 57 capture zone. No previous characterization data.
Andall's Cleaners	260 Jericho Tpke	Dry Cleaners	1995 to present	no others known	Dry_Cleaners_DER_Subset	2	Recent business. No previous characterization data.
Rona-Tech Corp	1215 2nd Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used.

Table 1: Properties of Interest

Map Name	Street Address	Business Type	Date Range (where known	Alternate Names	Information Source	Priority[1]	Notes / Priority Rationale
Artcraft LTD	1333 2nd Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used.
Satco Casting Inc	1400 Plaza Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used.
General Fiber Products Cor	170 Nassau Terminal Rd			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used.
Acupath Laboratories	6 Lowell Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used. Groundwater less likely to be captured by Well 57 due to westerly location
Sirex USA Inc	900 3rd Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used.
Elite Cleaners	2101 Hillside Ave	Dry Cleaners	ca. 1984 to 1996	no others known	Dry_Cleaners_DER_Subset	2	Low probability due to distance from well field
Holiday Cleaners	2213 Hillside Ave	Dry Cleaners	ca. 1964 to 1985	no others known	Dry_Cleaners_DER_Subset	2	Low probability due to distance from well field
Golden Plaza Cleaners	2333 Jericho Tpke	Dry Cleaners	1988 to present		Dry_Cleaners_DER_Subset	2	Upgradient but distant from well field. Switched from PCE to HC cleaning agent (date not known)
Prestige Laundry	2337 Jericho Tpke	Dry Cleaners	current listing		Yellow Pages	2	No information other than current business listing. Upgradient but distant from well field.
Star Carting DER Site	94 Denton Avenue	DER Site	1985 to 1986	no others known	Remediation_Sites.dbf	2	DER Site 130039; waste compaction in 1985 and 1986 generated liquid which discharged to sump. VOCs detected include PCE, TCE, 1,2DCE. NFA decision issued in March 2001.
Hyde Park Chemical	1855 Imperial Ave	Chemical Supplier	ca. 1965	no others known	Yellow Pages	2	Listed at Dupont St in Plainview in 1972; Limited potential timeframe; no other internet records identified
Manfred F. J. Schulte	405 Jericho Tpke	Dry Cleaners	ca. 1974 to 2001	Manfred F.J. Schulte Sonja Cleaners T & S Cleaners F & S Cleaners	DER Site Name Yellow Pages Dry_Cleaners_DER_Subset Remediation_Sites.dbf	2	DER Site 130047. Groundwater results are low and PCE dominant - not likely to be source of recent Well 57 TCE/PCE impact
Fine Line Graphics Inc	1401 4th Ave			no others known	RCRA_Site-Partial.dbf	2	No information that solvents were used. May be same building as Weba (see listing for Weba under "Others")
AFP Inc. (Alusuisse Flexible Packaging)	1403 4th Ave.	Manufacturer	<1987 to present	Lawson Mardon; ALCAN; Cellu-Craft	Toxic_Release_Inventory_Subset	2	No PCE or TCE indicated in regulatory databases. 1987 to 1992 (air emissions and liquid wastes: methanol/MEK) 2001 (Ammonia and ethyl benzene)
Weba. Inc	1301 4th Ave	Aircraft Parts	1970s (?) to present		NYSDEC (Manfred RI Report)	2	Shown as TCE user Table 3-7 (Manfred RI Report from NYSDEC) source listed as NCHD Industrial Survey.

Notes:

[1] Priority as potential investigative target as recommended by MACTEC after review of all Task 2 findings.

Table 2: Study Area - Exisiting Wells

USGS Well No.	Well No. (MACTEC Figure)	Ground Elevation	Well Bottom Depth	Top of Screen (depth)	Bottom of Screen (depth)	Recorded Depth to Magothy	Screen Formation (interpreted)	Notes
N 15.1	N 15	114	106	72	102	107	Upper Glacial	
N 16.1	N 16	89	444	379	439	86	Magothy	
N 1104. 2	N 1104.	125	101				Upper Glacial	
N 1105.22	N 1105	108	87	84	87		Upper Glacial	
N 1106. 3	N 1106	91	78	75	78		Upper Glacial	NCDPW D-6
N 1126. 3	N 1126	86	73	70	73		Upper Glacial	NCDPW E-10
N 1425. 2	N 1425.	82	54				Upper Glacial	
N 1460. 2	N 1460	82	55				Upper Glacial	
N 1472. 3	N 1472	85	66	48	51		Upper Glacial	
N 1475. 2	N 1475	85	69	66	69		Upper Glacial	
N 1498. 1	N 1498	115	82	69	75		Upper Glacial	
N 1683. 3	N 1683	83	58	49	58		Upper Glacial	NCDPW X-15
N 1830. 1	N 1830	95	67				Upper Glacial	
N 1914. 1	N 1914	65	250				Magothy	
N 2219. 1	N 2219	125	110	89	110		Magothy	
N 2227. 1	N 2227	98	76	65	76		Upper Glacial	
N 2584. 1	N 2584	96	47	36	47		Upper Glacial	
N 5440. 1	N 5440	98	72	63	72		Upper Glacial	
N 5441. 2	N 5441	84	86	76	86		Upper Glacial	
N 6134. 1	N 6134	98	75	70	75		Upper Glacial	
N 6334. 1	N 6334	128	208	203	208	104	Magothy	
N 6865. 1	N 6865	87	301	280	301	76	Magothy	
N 7088. 1	N 7088	100	70	65	70		Upper Glacial	
N 7799. 1	N 7799	65	81	60	81		Upper Glacial	
N 8026. 1	N 8026	105	119	111	119		Magothy	
N 8306. 1	N 8306	98	94	79	89		Upper Glacial	Triangle Sheet Metal Works Property
N 8584. 1	N 8584	109	73	70	73		Upper Glacial	
N 8585. 1	N 8585	108	107	102	107		Magothy	
N 8694. 1	N 8694	96	63	58	63		Upper Glacial	NCDPW E-9A
N 9080. 1	N 9080	107	111	106	111		Magothy	
N 9944. 1	N 9944	96	80	72	77		Upper Glacial	
N 9949. 1	N 9949	107	100	91	96		Upper Glacial	
N 9982. 1	N 9982	120	112	104	109		Magothy	
N 9983. 1	N 9983	108	99	91	96		Upper Glacial	
N 10056. 1	N 10056	109	120	110	120		Magothy	
N 10057. 1	N 10057	110	95	85	95		Magothy	
N 10058. 1	N 10058	122	100	90	100		Upper Glacial	
N 10059. 1	N 10059	109	95	85	95		Upper Glacial	
N 10060. 1	N 10060	110	114	104	114		Magothy	
N 10332. 1	N 10332	80	60	50	60		Upper Glacial	
N 10333. 1	N 10333	97	63	53	63		Upper Glacial	
N 10334. 1	N 10334	79	62	52	62		Upper Glacial	
N 11172. 1	N 11172	77.5	460	435	455		Magothy	NCDPW M-5
N 11577. 1	N 11577	45.5	725	700	720		Lloyd	NCDPW L-15
N 11580. 1	N 11580	44.5	455	430	450		Magothy	
MW-7S	MW-7S	96.1*	68	57	67		Upper Glacial	Monitoring well near Site 1-30-047
MW-7D	MW-7D	95.8*	128	118	128		Magothy	Monitoring well near Site 1-30-047
MW-8S	MW-8S	98.4*	68	57	67		Upper Glacial	Monitoring well near Site 1-30-047
MW-8D	MW-8D	98.3*	116	106	116		Magothy	Monitoring well near Site 1-30-047

Table 2: Study Area - Exisiting Wells

USGS Well No.	Well No. (MACTEC Figure)	Ground Elevation	Well Bottom Depth	Top of Screen (depth)	Bottom of Screen (depth)	Recorded Depth to Magothy	Screen Formation (interpreted)	Notes
MW-9S	MW-9S	97.4*	68	57	67		Upper Glacial	Monitoring well near Site 1-30-047
MW-9D	MW-9D	97.4*	126	115	125		Magothy	Monitoring well near Site 1-30-047
MW-10D	MW-10D	99.9*	117	106	116		Magothy	Monitoring well
MW-10MS	MW-10MS	100.0*	193	183	193		Magothy	Monitoring well
N-11171	N-11171		230	210	230		Magothy	next to N-11172
N-4151	N-4151		68	63	68		Upper Glacial	40' W of Nassau Terminal Rd; 170' S of Jericho Tpke; 2099 Jericho Jasco Aluminum Products Property
N-11170	N-11170		390	373	390		Magothy	NCDPW M-8 coordinates not corroborated
N-12430	N-12430		64				Upper Glacial	NCDPW X-15A coordinates not corroborated
Production Wells								
N 14. 1	N 14	99.2	103	78	103		Upper Glacial	WAWNC Well 9 (sporadic summer use only)
N 17. 2	N 17	104	470	405	465	125	Magothy	WAWNC Well 20
N 1958. 1	N 1958	116.9	737	667	727	100	Lloyd	WAWNC Well 16A. Top of Lloyd at 607 ft bgs
N 3881. 1	N 3881	86	470	426	466	100	Magothy	Garden City Well
N 4077. 1	N 4077	85	538				Magothy	WAWNC Well 35
N 4077. 2	N 4077	85	90	70	90		Upper Glacial	shallow well near WAWNC 35
N 4298. 1	N 4298	85	390	349	384		Magothy	WAWNC Well 35A
N 7058. 1	N 7058	80	445	380	440		Magothy	Garden City Well 13
N 7649. 1	N 7649	100	340	290	340		Magothy	WAWNC Well 57
N 7650. 1	N 7650	97	445	400	440		Magothy	WAWNC Well 57A
N 8339. 1	N 8339	80	363	308	358		Magothy	Garden City Well 14

Notes:
1. Default data set is from USGS and supplemented by well information in reports from NYSDEC Sites 1-30-047 and 150 Fulton Ave Site.
2. The formations shown as the "Screen Formation" were interpreted by MACTEC based on the limited data on depth to the top of the Magothy aquifer unit.
"*" Elevation of Inner Well Casing (Manfred Schulte RI Report)

Figure 1: Well 57 - TCE and PCE in Untreated Water
Well 57 (N-7649)

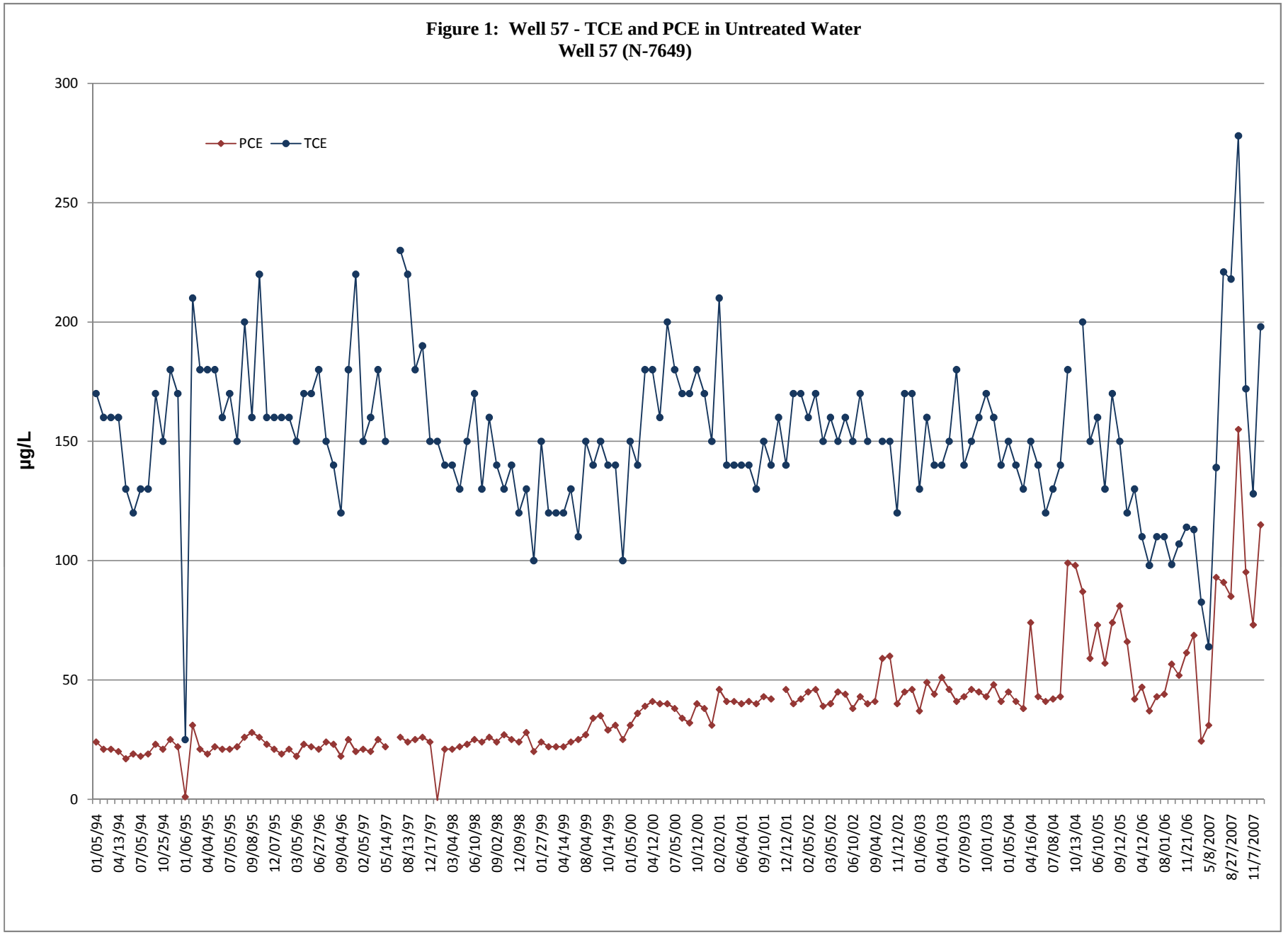
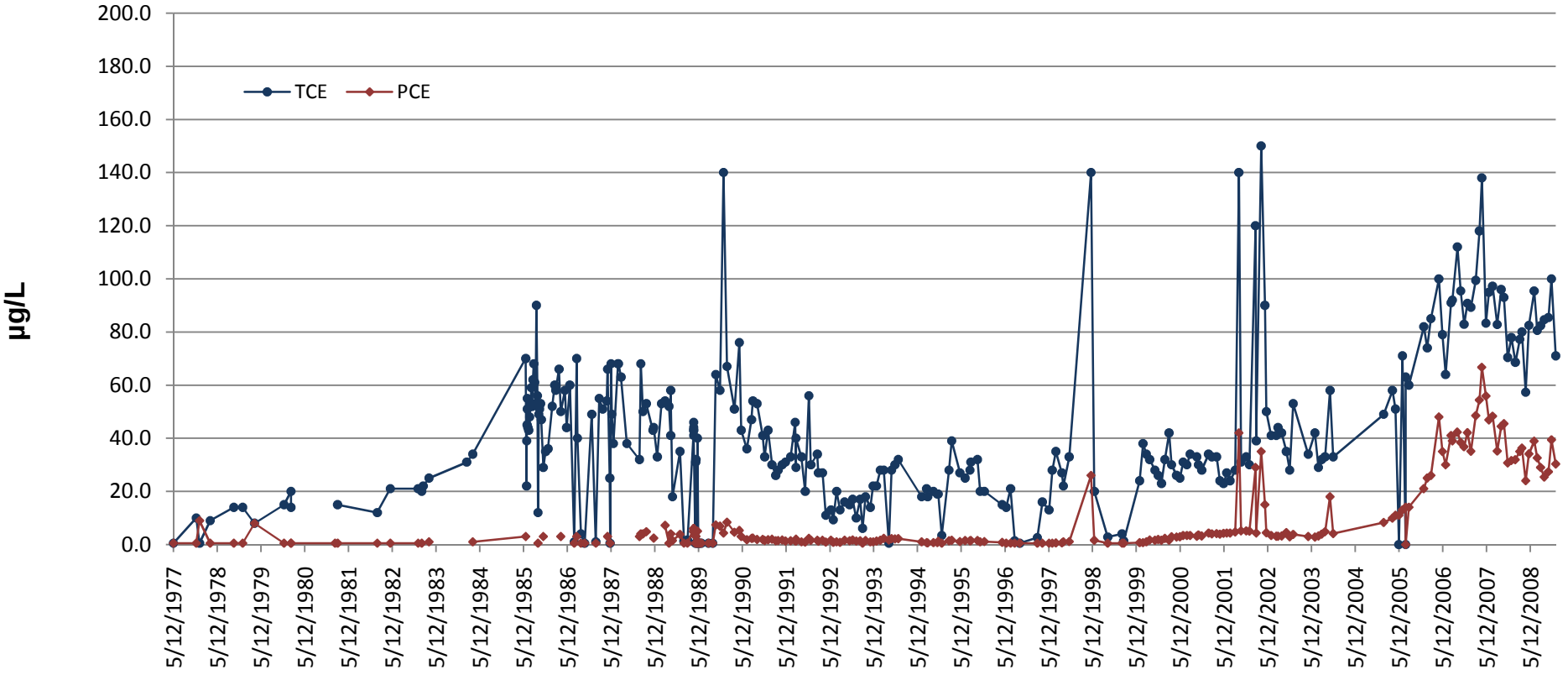


Figure 2: Well 57 A - TCE and PCE in Untreated Water

Well 57A (N-7650)



1632 MARCUS AVE
1536 UNION TPK
27118 UNION TPK
2101 HILLSIDE AVE
2213 HILLSIDE AVE
N 10056
N 10057
DENTON AVENUE LANDFILL NORTH SITE
N 10058
N 2584
1636 HILLSIDE AVE
1652 HILLSIDE AVE
N 6334
N 2219
1607 HILLSIDE AVE (1618 HILLSIDE AVE)
1594 HILLSIDE AVE
DENTON & HILLSIDE AVE (LANDFILL)
NCDPW RECHARGE BASIN
N 1104
N 8585
N 8584
N 10059
N 10060
DENTON AVENUE LANDFILL SOUTH SITE
RECHARGE BASIN
N 1498
HILLSIDE AVE
N 17
N 9982
779 HILLSIDE AVE
1801 FALMOUTH AVE
1840 FALMOUTH AVE
N 6865
1836 GILFORD AVE
1824 GILFORD AVE
N 10332
1807 GILFORD AVE
1855 IMPERIAL AVE
2333 JERICHO TPK
2337 JERICHO TPK
677 HILLSIDE AVE
82-11 264TH ST
N 15
N 1958
608 LAKEVILLE RD
NEW HYDE PARK ROAD
94 DENTON AVE
DENTON AVE
N 8026
NASSAU BLVD
N 9949
N 16
150 Fulton Ave New Hyde Park
941 N 3RD ST
N 9080
N 14
LAKEVIEW ROAD
N 7088
VP-15
N 9944
N 8694
CHERRY LANE
N-4151
JERICHO TURNPIKE
N 6134
50 NASSAU TERMINAL RD
N 9983
N 1105
N 10333
1519 JERICHO TPK
1309 JERICHO TPK
N 10334
N 2227
170 NASSAU TERMINAL RD
1003 JERICHO TPK
1113 JERICHO TPK
6 LOWELL AVE
260 JERICHO TPK
MW-8S
MW-8D
VP-10
LONG ISLAND RAILROAD
253 JERICHO TPK
1010 JERICHO TPK
405 JERICHO TPK
RECHARGE BASIN
N 11172
N-11171
1400 PLAZA AVE
N 8306
N 5440
MW-10MS
MW-10D
1333 2ND AVE
VP-11
295 JERICHO TPK
295 JERICHO TPK
18 JERICHO TPK
MW-7S
MW-9S
MW-9D
MW-7D
1215 2ND AVE
20 TYSON AVE
199 JERICHO TPK
181 JERICHO TPK
278 JERICHO TPK
360 JERICHO TPK
302 JERICHO TPK
900 3RD AVE
1403 4TH AVE
1301 4TH AVE
1401 4TH AVE
VP-16
608 2nd AVE
N 7649
N 7650
1 NORTH TYSON AVE
192 JERICHO TPK
242 JERICHO TPK
184 JERICHO TPK
WELL 57 / 57A
N 1472
COVERT AVE
N 1830
107 S TYSON AVE
PLAINFIELD AVE & TERRACE AVE
135 TULIP AVE
N 1475
N 1106
148 TULIP AVE
N 1460
N 1425
173 TULIP AVE
21 COVERT AVE
N 1683
ROOSEVELT FLD
N-12430
STEWART AVE
102 TULAMOR RD
N 1126
N 11577
N 11580
N 4298
N 4077
N 4077
51 COVERT AVE
77 COVERT AVE
STEWARD AVE & TANNERS POND RD
N 3881
N 5441
N 1914
N 7799
N 8339
N 7058
104 MARSHALL AVE
56 FLORAL PKY
90 COVERT AVE
160 COVERT AVE
57 NEW HYDE PARK RD #59
48 NEW HYDE PARK RD
52 NEW HYDE PARK RD

Legend

- Water Supply Well
- Non-Production Well
- Proposed limit of Well 57/57A Study Area
- Approximate industrial/commercial development within Study Area*
- Dry Cleaner Location **
- Chemical Company or Supplier ***
- New York State DER Site
- RCRA Listing
- Toxic Release Inventory (USEPA)
- Nassau County Industrial Survey
- Vertical GW Profile (ERM 150 Fulton Ave RI)

* = Interpreted from current satellite imagery
** = Current and historical locations from regulatory databases and phonebook records
*** = Phonebook records

N
0 250 500
Feet

Nassau County color digital orthoimagery (2007) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 08/20/09
Checked/Date: ECS 08/20/09

NYSDEC
WAWNC WELL 57 Study - Site 1-30-191
New Hyde Park, NY

MACTEC

PROPOSED STUDY AREA AND PROPERTIES OF POTENTIAL INTEREST
Task 2 - Record Search
Project 3612082117 Figure 3

Document: P:\Projects\nysdec1\projects\WAWNC Well 57 Dry Cleaner Study\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\Well57_30x32P.mxd PDF: P:\Projects\nysdec1\projects\WAWNC Well 57 Dry Cleaner Study\4.0_Deliverables\4.1_Reports\Records Search and Hydrogeologic Eval\Figures\Figure3.pdf 08/20/2009 11:35 AM brpeters

Legend

Water Supply Well:

- Upper Glacial Aquifer
- Magothy Aquifer
- Lloyd Aquifer

Non-Production Well:

- Upper Glacial Aquifer
- Magothy Aquifer
- Lloyd Aquifer

Depths shown are bottom of well screen (where available)

- Cross Section A-A'
- Proposed limit of Well 57/57A Study Area

Nassau County color digital orthoimagery (2007) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N 1498 82
N 9982 112
N 15 106
N 1958 737
N 8585 107
N 8584 73
N 10059 95
N 10060 114
N 17 470
A
N 6865 301
N 10332 60
N 8026 119
N 9949 100
N 16 444
N 9080 111
N 14 103
N 7088 70
N 9944 80
N 8694 63
N-4151 68
N 6134 75
N 9983 99
N 1105 87
N 10333 63
N 10334 62
N 2227 76
MW-8S 68
MW-8D 116
N 11172 460
MW-9S 68
MW-7S 68
MW-9D 125
MW-10D 110
N 8306 94
N 5440 72
N-11171 230
MW-7D 128
MW-10MS 193
N 7649 340
N 7650 445
N 1472 66
N-11170 390
N 1830 67
N 1475 69
N 1460 55
N 1425 54
N 1683 58
N-12430 64
N 1126 73
N 1106 78
N 11577 725
N 11580 455
N 4298 395
A'
N 4077 538
N 4077 150
N 5441 86
N 3881 470
N 8339 363
N 1914 250
N 7799 81
N 7058 445

Prepared/Date: BRP 08/20/09
Checked/Date: ECS 08/20/09

N

0 500 1,000 Feet

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New Hyde Park, NY

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WELL LOCATIONS AND DEPTHS

Project 3612082117 Figure 4

Legend

- Flow Direction in Upper Glacial Aquifer*
- Non-Production Well

Water Supply Well:

- Upper Glacial Aquifer
- Magothy Aquifer
- Lloyd Aquifer
- Proposed limit of Well 57/57A Study Area
- Dry Cleaner Location **
- Chemical Company or Supplier ***
- New York State DER Site
- RCRA Listing
- Toxic Release Inventory (USEPA)

* = flow lines are interpreted based on the following sources:
1. U.S.G.S. Water Resource Investigations Report 98-4019, 1998
2. Nassau County Groundwater Monitoring Program 2000-2003, Department of Public Works
3. ERM, Operable Unit 1 Remedial Investigation Report, August, 2005

** = Current and historical locations from regulatory databases and phonebook records
*** = Phonebook records

Nassau County color digital orthoimagery (2007) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N 1958
N 14
N 17
N 7650
N 7649
N 4298
N 4077
N 4077
N 3881
N 7058
N 8339

Prepared/Date: BRP 08/20/09
Checked/Date: ECS 08/20/09

N
0 500 1,000 Feet

NYSDEC
WAWNC WELL 57 Study - Site 1-30-191
New Hyde Park, NY

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GENERALIZED FLOW DIRECTION
UPPER GLACIAL AQUIFER
Project 3612082117 Figure 5

Legend

Flow Direction in Magothy Aquifer*

Non-Production Well

Water Supply Well:

- Upper Glacial Aquifer
- Magothy Aquifer
- Lloyd Aquifer

Radial Flow near Production Well:

- Lloyd Aquifer
- Magothy Aquifer

Proposed limit of Well 57/57A Study Area

Dry Cleaner Location **

Chemical Company or Supplier ***

New York State DER Site

RCRA Listing

Toxic Release Inventory (USEPA)

* = flow lines are interpreted based on the following sources:

1. U.S.G.S. Water Resource Investigations Report 98-4019, 1998
2. Nassau County Groundwater Monitoring Program 2000-2003, Department of Public Works
3. ERM, Operable Unit 1 Remedial Investigation Report, August, 2005

** = Current and historical locations from regulatory databases and phonebook records

*** = Phonebook records

Nassau County color digital orthoimagery (2007) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N 17
N 1958
N 14
N 7650
N 7649
N 4298
N 4077
N 4077
N 3881
N 7058
N 8339

Prepared/Date: BRP 08/20/09
Checked/Date: ECS 08/20/09

N

0 500 1,000 Feet

NYSDEC
WAWNC WELL 57 Study - Site 1-30-191
New Hyde Park, NY

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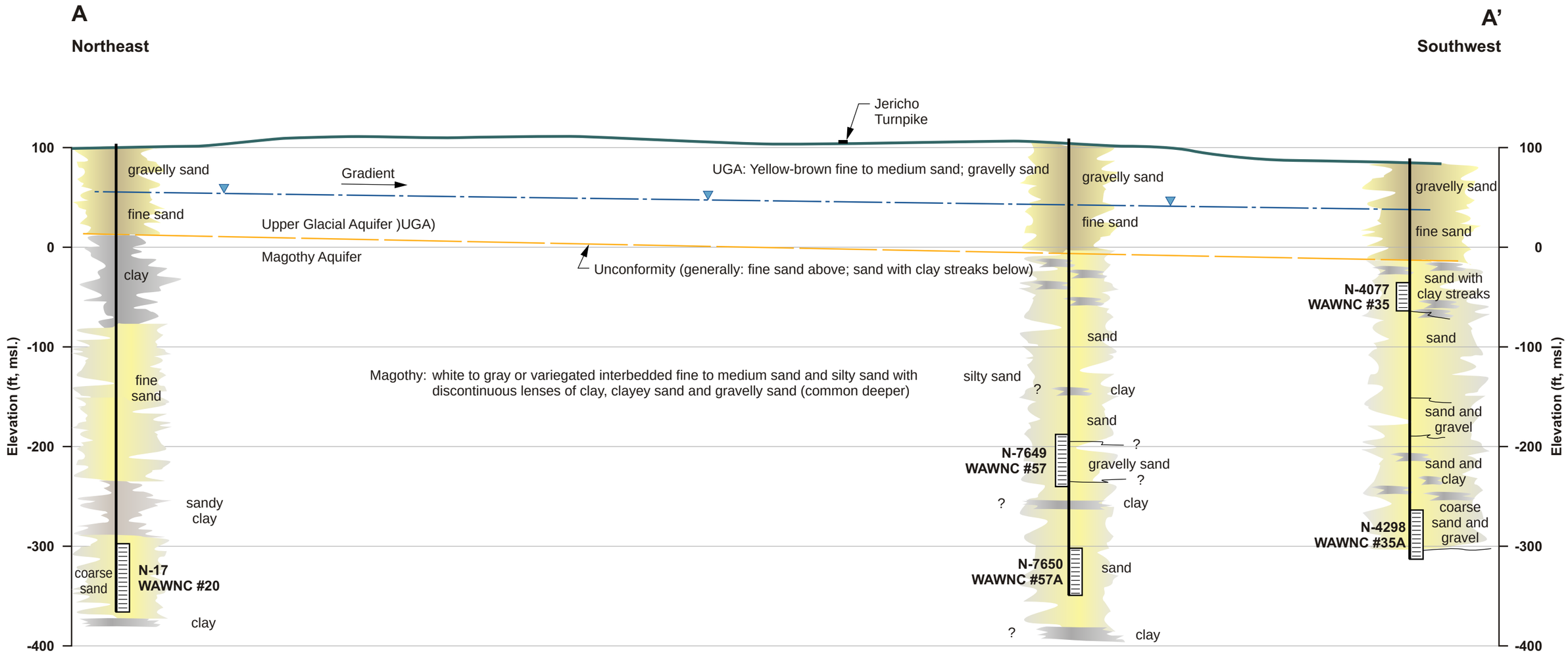
GENERALIZED FLOW DIRECTION
MAGOTHY AQUIFER
Project 3612082117 Figure 6



SCALE

Horizontal: 1" = 500'
Vertical: 1" = 100'

LEGEND

- Ground Surface
- Water Table (approximate gradient 0.0012 ft/ft NE to SW)
- Contact between upper Glacial and Magothy Formations
- Production well screen interval

NOTES:

1. Lithology represented at production wells is summarized from drilling logs.

Prepared/Date: JPH 05/05/09
Checked/Date: ECS 05/05/09

NYSDEC
WAWNC Well 57 Study - Site 1-30-191
New Hyde Park, N.Y.

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Geological Cross Section A - A'
3612082117
Figure 7

PORT2009016a.cdr

Legend

- Water Supply Well
- Non-Production Well
- Proposed limit of Well 57/57A Study Area
- Vertical GW Profile (ERM 150 Fulton Ave RI)
- TCE levels are generally greater than PCE
- PCE levels are generally greater than TCE
- Dry Cleaner Location **
- Chemical Company or Supplier ***
- New York State DER Site
- RCRA Listing
- Toxic Release Inventory (USEPA)
- Nassau County Industrial Survey
- Landfills
- Approximate industrial/commercial development within Study Area*

Text boxes highlight groundwater impact at select locations. Notes on impact use data from multiple sources and dates.

* = Interpreted from current satellite imagery
** = Current and historical locations from regulatory databases and phonebook records
*** = Phonebook records

Nassau County color digital orthoimagery (2007) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N 17
Water Supply Well
Wellscreen 400-470'
Low Impact
TCE > PCE

150 Fulton Ave Site
Source Area
PCE > TCE
High concentrations
in shallow groundwater

VP-15
Groundwater Profile
Low shallow impact
TCE > PCE
Deep Plume (310-370')

VP-10
Groundwater Profile
Low shallow impact
TCE > PCE
Deep Plume (310-370')

MW-10MS, MW-10D
GW Profile & Monitoring Wells
No Shallow Impact
TCE > PCE
Highest in Deeper Well (190')

Manfred Schulte Site
Dry Cleaner Release
PCE > TCE
Lower levels than in
deep plume to east

VP-08
Groundwater Profile
PCE > TCE
High Concentrations
(50-350')

VP-11
Groundwater Profile
Low shallow impact
TCE > PCE
Deep Plume (300-340')

N 7649, N 7650
57 wellscreen 290-340'
57A wellscreen 400-440'
TCE > PCE

VP-16
Groundwater Profile
Low shallow impact
TCE > PCE
Deep Plume (200-350')

N 4077, N 4298
Water Supply Wells
Wellscreen 345-395'
PCE > TCE
Low concentrations as compared
to 57/57A and deep plume to NE

N 3881
Water Supply Well
Wellscreen 430-470'
TCE > PCE
Plume arrived about 2000

N 7058, N 8339
Water Supply Wells
PCE > TCE
Deep Plume

Prepared/Date: BRP 09/08/09
Checked/Date: ECS 09/08/09

N
0 500 1,000
Feet

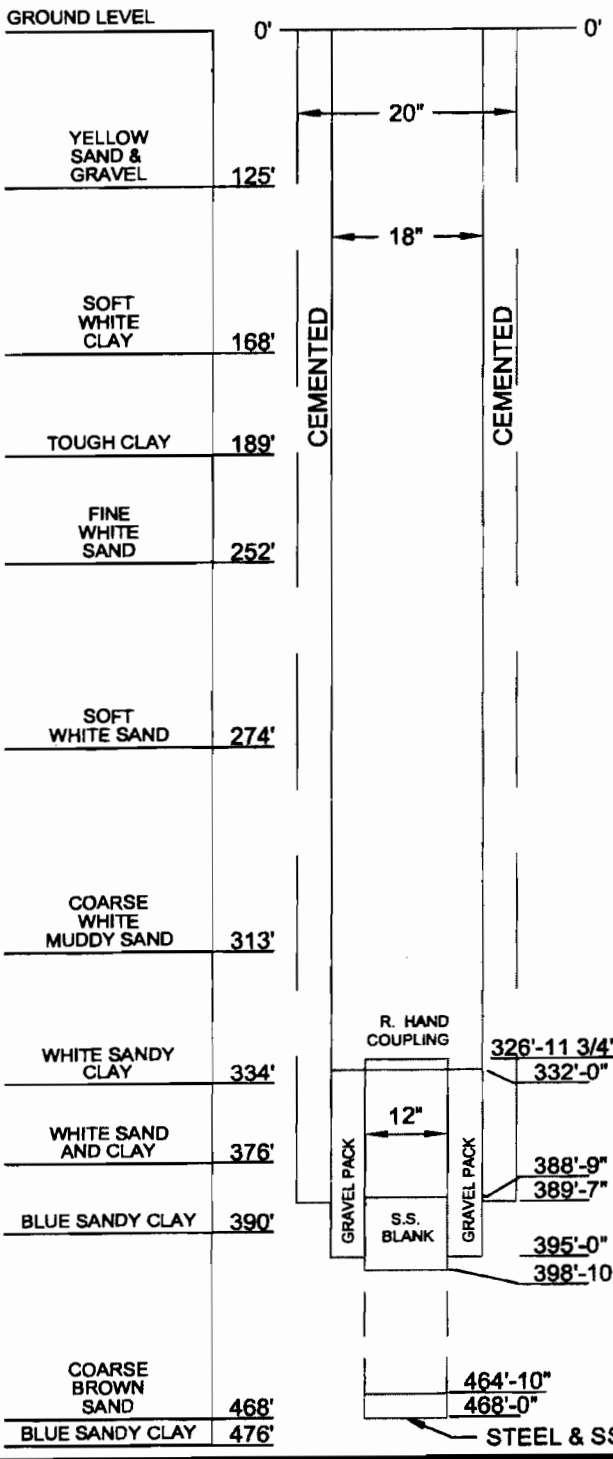
NYSDEC
WAWNC WELL 57 Study - Site 1-30-191
New Hyde Park, NY

MACTEC

QUALITATIVE ASSESSMENT:
GROUNDWATER IMPACT
Project 3612082117 Figure 8

ATTACHMENT 1

DRILLING LOGS



MATERIAL

OUTER CASING	389'-7" OF 20" BLACK STEEL PIPE, WELDED 395'-0" OF 18" (3/8" WALL) BLACK STEEL PIPE, WELDED
INNER CASING	61'-9.25" OF 12" (3/8" WALL) BLACK STEEL PIPE, WELDED
RISER	10'-1" OF 12" 316L SS TW BLANK
SCREEN	66'-0" OF 12" NOM WW JOHNSON 316L SS, #50 SLOT
SUMP	3'-2" OF 12" NOM WW JOHNSON 316L SS TW BLANK WITH STEEL & S S PLATES WELDED ON BOTTOM
GRAVEL	32" DIA GRAVEL PACKING #1 & #2 MORIE MIX, 75% RETAINED ON US #16 SIEVE, UC<= 1.7

PUMP

TYPE	12TLC	YEAR NEW	(B) 1994
MAKE	LAYNE	TDH	248'
LUBE	WATER	SHOP No.	13789
SETTING	176'-7"	SIZE	12"
SUCTION	9'-10" x 10"	STAGES	5
BASKET	NONE	IMPELLERS	BRONZE (5B- TRIMMED)
DISCHARGE	10" x 10' T&C	DISCH HEAD	GOULDS
LAST MAINT.	1994	PRES SETPT.	42 PSI
TUBING	NONE	FLOW RATE	1200 GPM
SHAFTING	1-1/2" SS	AIR LINE	186'-5"

MOTOR

YEAR NEW	1988	LAST MAINT.	1988
MAKE	US MOTOR	TYPE	RUE
VOLTS	220	RPM	1780
PHASE	3	FORM	VHS
CYCLE	60	SERIAL No.	RO2P3620356R-1
AMP.	256	FRAME	404TP WPI
MODEL		H.P.	100

WELL

OVERHAULED			
CAP.	1200 GPM	GUAR.	1200 GPM
STARTED	1/4/85	PUMPED	1205

DRAWN BY: P.Miloscia | DATE: 2/4/99 | CHECKED BY: J. Corbisiero

ACCEPTED 3/4/86

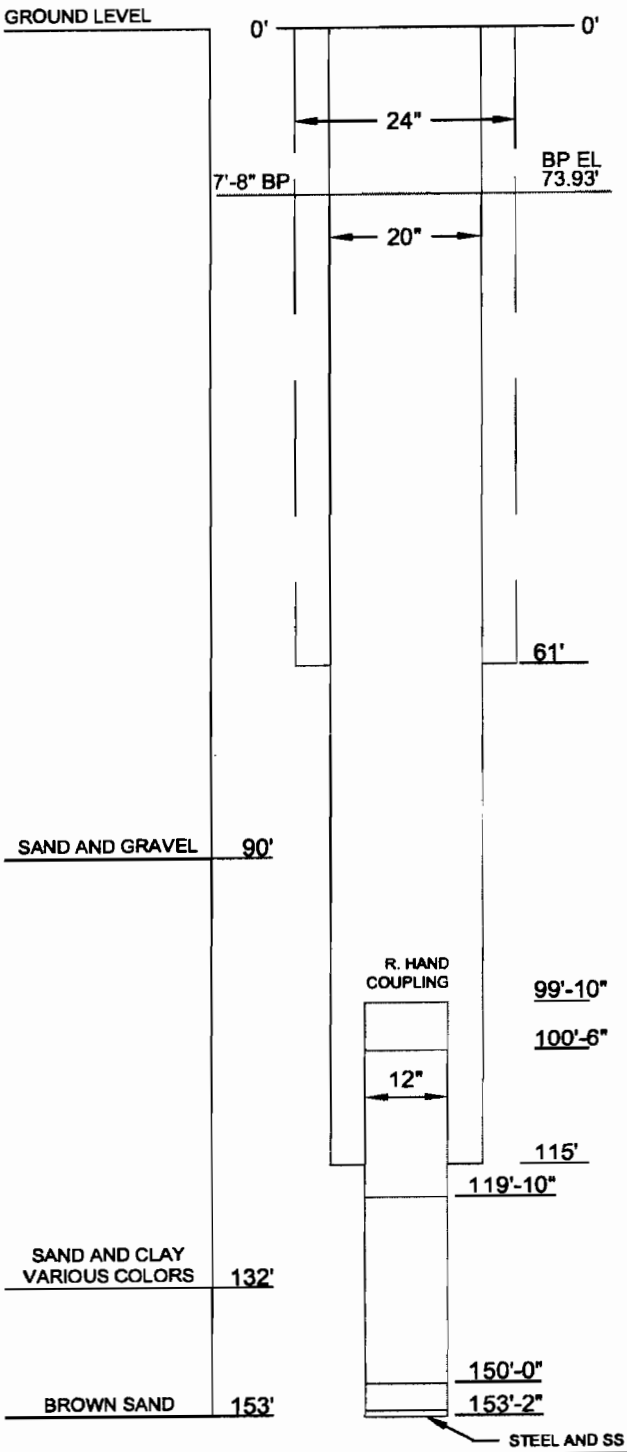
WATER AUTHORITY OF WESTERN NASSAU COUNTY

WELL No. 20

N17

ELEV. 104.68' B.P.

DATE: 2/4/99



MATERIAL NEW SCREEN 1988

OUTER CASING	61' OF 24" STEEL PIPE, WELDED 115' OF 20" (1/4" WALL) 304 SS PIPE, WELDED
INNER CASING	0'-8" OF 12" (3/8" WALL) STEEL PIPE, WELDED
RISER	19'- 4" OF 12" NOM JOHNSON 316L SS TIGHT-WOUND
SCREEN	30'- 2" OF 12" WW JOHNSON 316L SS #50 SLOT
SUMP	3'-2" OF 12" NOM JOHNSON 316L SS TIGHT-WOUND WITH STEEL & SS PLATES WELDED ON BOTTOM
GRAVEL	30" DIA GRAVEL PACK #1 & #2 MORIE MIX 75% RETAINED ON US #16 SIEVE UC ≤1.7

PUMP

TYPE	RKBL	YEAR NEW	1988
MAKE	LAYNE & BOWLER	TDH	174'
LUBE	WATER	SHOP No.	26352
SETTING	88'-10"	SIZE	12"
SUCTION	9'-10" OF 10"	STAGES	3
BASKET	NONE	IMPELLERS	BRONZE
DISCHARGE	10"	DISCH HEAD	TF 1025
LAST MAINT.		PRES SET PT.	45#
TUBING	WL	FLOW RATE	700 GPM
SHAFTING	1-1/2" SS	AIR LINE	(2) 3/8" @ 88'-10" (2) 3/4" @ 88'-10"

MOTOR

YEAR NEW	1950's	LAST MAINT.	1992
MAKE	US	TYPE	CFU
VOLTS	208/416	RPM	1800
PHASE	3	FORM	VERTICAL
CYCLE	60	SERIAL No.	2308113
AMP.	51.8/104	FRAME	404
MODEL	XXXX	H.P.	40

WELL

OVERHAULED	1961, 65, 70, 83, 88		
CAP.	700	GUAR.	1400
STARTED	10/7/53	PUMPED	XXXX

CLEAR DEPTH 82' BP.

DRAWN BY: P.Miloscia | DATE: 2/11/99 | CHECKED BY: J. Corbisiero

ACCEPTED 7/14/54
REDRILL 8/9/88

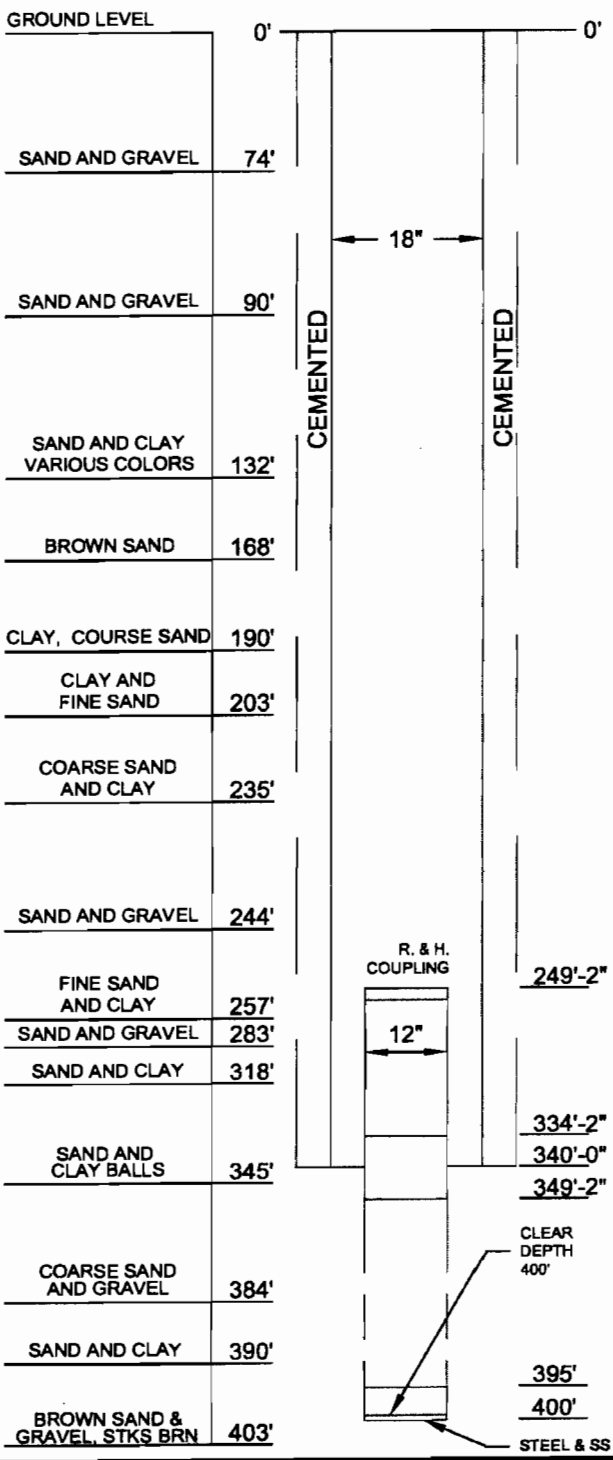
WATER AUTHORITY OF WESTERN NASSAU COUNTY

WELL No. 35 (REDRILL)

ELEV. 73.93' BP

N4077

DATE:2/11/99



MATERIAL

OUTER CASING	340' OF 18" (3/8" WALL) BLACK STEEL PIPE, WELDED
INNER CASING	85' OF 12" (3/8" WALL) BLACK STEEL PIPE, WELDED
RISER	15' OF 12" (3/16" WALL) 316L SS
SCREEN	50' OF 12" WW JOHNSON 316L SS, #50 SLOT
SUMP	5' OF 12" EVERDUR WITH STEEL AND SS STEEL PLATES WELDED ON BOTTOM
GRAVEL	NO DATA

PUMP

TYPE	THC	YEAR NEW	(B) 1984
MAKE	LAYNE	TDH	180'
LUBE	WATER	SHOP No.	2653C
SETTING	143'-10"	SIZE	12"
SUCTION	9'-4" x 10"	STAGES	3
BASKET	NONE	IMPELLERS	BRONZE (3A)
DISCHARGE	10"x 10" FLANGED	DISCH HEAD	TF 1025
LAST MAINT.	1993	PRES SET PT.	53 PSI
TUBING	NONE	FLOW RATE	1800 GPM
SHAFTING	1-1/2"	AIR LINE	143'-10"

MOTOR

YEAR NEW	7/93	LAST MAINT.	7/93
MAKE	GE	TYPE	KS
VOLTS	230/460	RPM	1790
PHASE	3	FORM	VHS
CYCLE	60	SERIAL No.	THG252009
AMP.	226/113	FRAME	L404TP16
CODE	G	H.P.	100

WELL

OVERHAULED	1961, 66, 71, 81		
CAP.	1970	GUAR.	1500
STARTED	1/17/84	PUMPED	12/71

DRAWN BY: P.Miloscia | DATE: 2/11/99 | CHECKED BY: J. Corbisiero

ACCEPTED 3/10/84

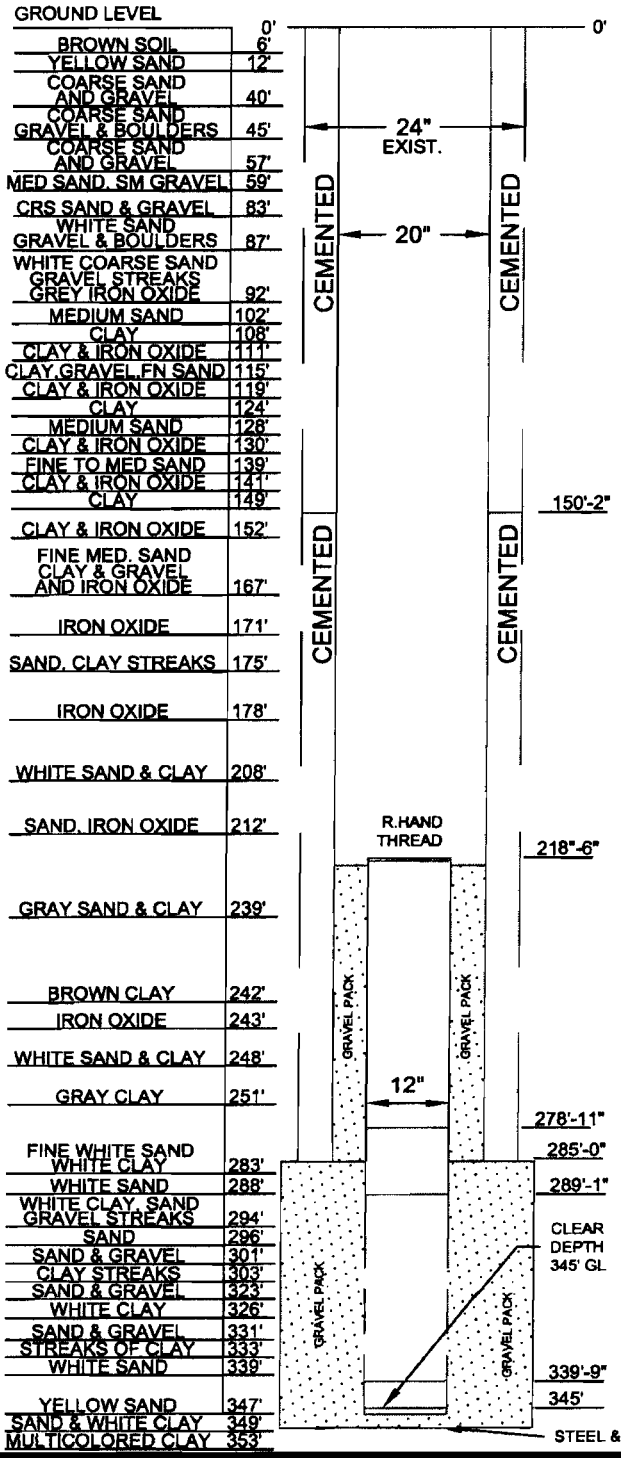
WATER AUTHORITY OF WESTERN NASSAU COUNTY

WELL No. 35A REDRILL

N4298

ELEV. 73.92' BP

DATE:2/11/99



MATERIAL WELL REDRILLED 1986

OUTER CASING	150'-2" OF 24" BLACK STEEL PIPE, WELDED 285'-0" OF 20" (3/8" WALL) BLACK STEEL PIPE, WELDED
INNER CASING	60'-5" OF 12" (3/8" WALL) BLACK SREEL PIPE, WELDED
RISER	10'-2" OF 12" (3/16" WALL) 316L SS BLANK, WELDED
SCREEN	50'-8" OF 12" OF WW MUSTANG 316L SS, #60 SLOT
SUMP	5'-3" OF 12" (3/16" WALL) 316L SS BLANK, WELDED WITH STEEL & SS PLATES WELDED ON BOTTOM
GRAVEL	32" DIA GRAVEL PACKING #2 & #3 MORIE MIX

PUMP

TYPE	TLC	YEAR NEW	(B) 1994
MAKE	LAYNE	TDH	142'
LUBE	WATER	SHOP No.	404-13811
SETTING	103'-9 1/2"	SIZE	12"
SUCTION	8'-3" x 10"	STAGES	3
BASKET	NONE	IMPELLERS	BRONZE (3B - TRIMMED)
DISCHARGE	10" x 10' T&C	DISCH HEAD	TF-1025
LAST MAINT.	1994	PRES SET PT.	28 PSI
TUBING	NONE	FLOW RATE	1200 GPM
SHAFTING	1 11/16"	AIR LINE	112'- 0 1/2"

MOTOR

YEAR NEW	1986	LAST MAINT.	1988
MAKE	US MOTOR	TYPE	RUE
VOLTS	230/460	RPM	1780
PHASE	3	FORM	VHS
CYCLE	60	SERIAL No.	94000043-806R2113794
AMP.	120/60	FRAME	326TP-WPI
CODE	G	H.P.	50

WELL

OVERHAULED			
CAP.	1200 GPM	GUAR.	1200 GPM
STARTED	2/5/86	PUMPED	11/70

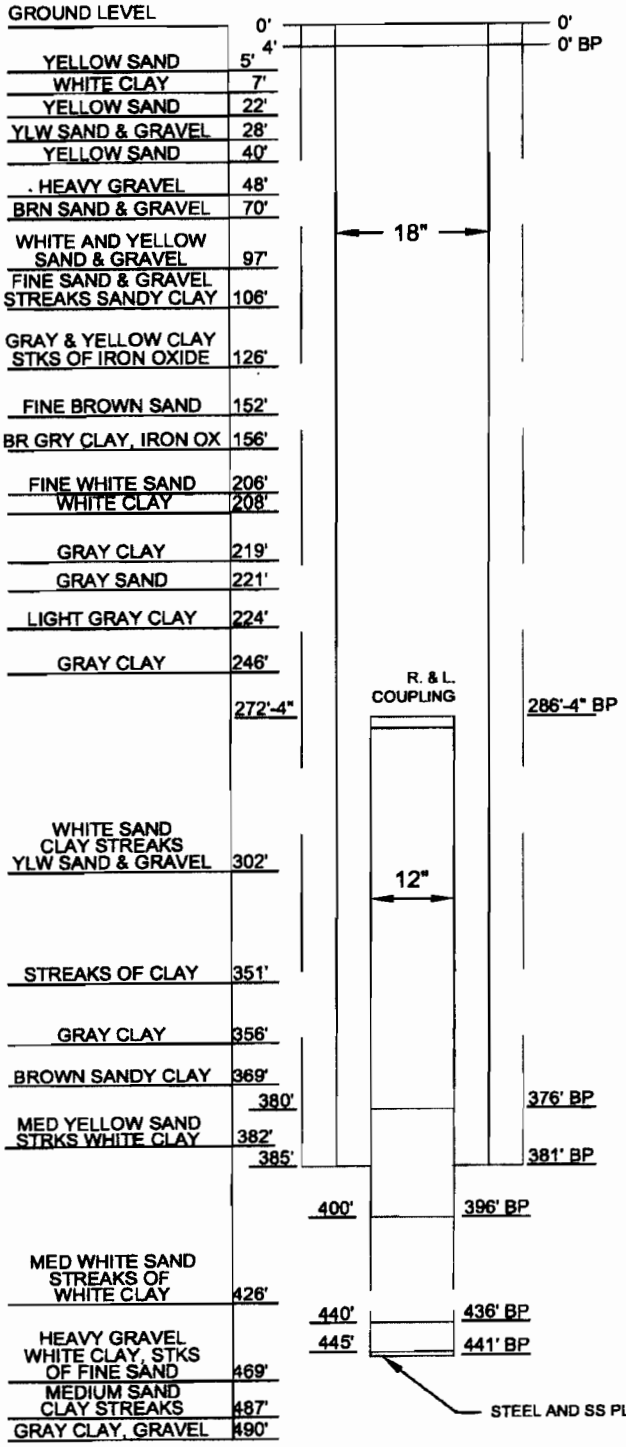
DRAWN BY: P.Miloscia | DATE: 2/22/99 | CHECKED BY: J. Corbisiero

ACCEPTED 2/23/65 REDRILL 6/24/86

WATER AUTHORITY OF WESTERN NASSAU COUNTY

WELL No. 57 (REDRILL)

ELEV. 93.66' BP N7649 DATE:2/18/99



MATERIAL

OUTER CASING	385' OF 18" STEEL PIPE
INNER CASING	107' OF 12" STEEL PIPE
RISER	20' OF 12" SS PIPE
SCREEN	40' OF 12" SS #6 OPENING
SUMP	5' OF 12" SS PIPE WITH STEEL AND SS PLATES, WELDED ON BOTTOM
GRAVEL	NO DATA

PUMP

TYPE	TLC	YEAR NEW	(B) 1995
MAKE	LAYNE	TDH	142'
LUBE	WATER	SHOP No.	8G504381
SETTING	113'-9 1/2"	SIZE	12"
SUCTION	8'-7" x 10"	STAGES	3
BASKET	NONE	IMPELLERS	BRONZE (3B-TRIMMED)
DISCHARGE	10" x 10' FLANGED	DISCH HEAD	TF-1025
LAST MAINT.	1995	PRES SET PT.	22 PSI
TUBING	NONE	FLOW RATE	1200 GPM
SHAFTING	1 11/16"	AIR LINE	122'-4 1/2"

MOTOR

YEAR NEW	1991	LAST MAINT.	1991
MAKE	US MOTOR	TYPE	RUE
VOLTS	230/460	RPM	1775
PHASE	3	FORM	VHS
CYCLE	60	SERIAL No.	B408/T09T057 RO10R-2
AMP.	138/69	FRAME	365TP WPI
CODE	F	H.P.	60

WELL

OVERHAULED	1973, 82, 85		
CAP.	1200 GPM	GUAR.	1200 GPM
STARTED	8/3/64	PUMPED	

DRAWN BY: P.Miloscia | DATE: 2/19/99 | CHECKED BY: J. Corbisiero

ACCEPTED 2/17/65

WATER AUTHORITY OF WESTERN NASSAU COUNTY

WELL No. 57A

N7650

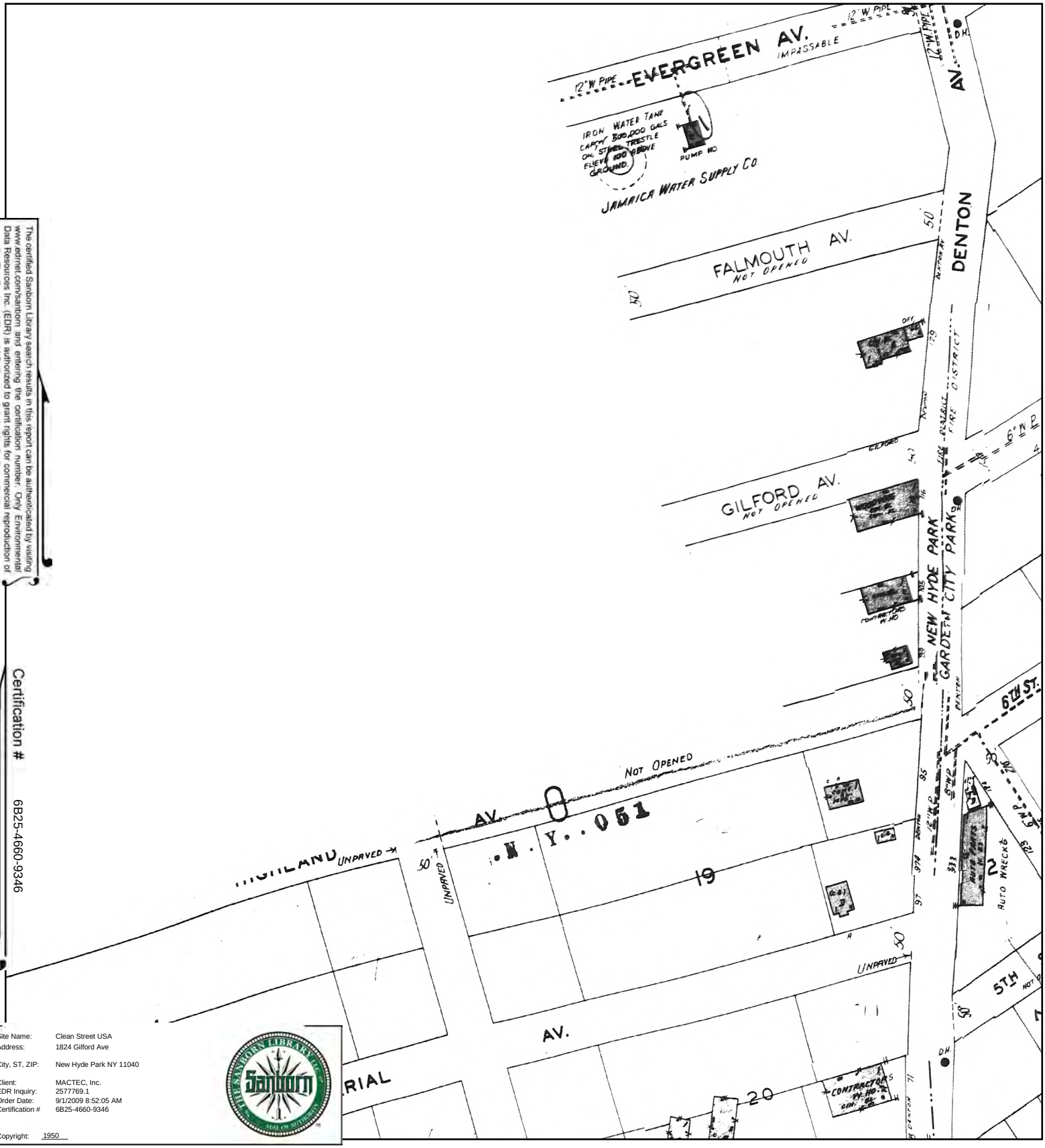
ELEV. 93.74' BP

DATE: 2/19/99

ATTACHMENT 2

SANBORN MAPS

1950 Certified Sanborn Map



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Certification # 6B25-4660-9346

Site Name: Clean Street USA
Address: 1824 Gilford Ave
City, ST, ZIP: New Hyde Park NY 11040

Client: MACTEC, Inc.
EDR Inquiry: 2577769.1
Order Date: 9/1/2009 8:52:05 AM
Certification # 6B25-4660-9346

Copyright: 1950

This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

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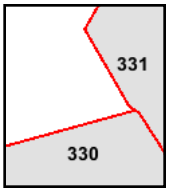

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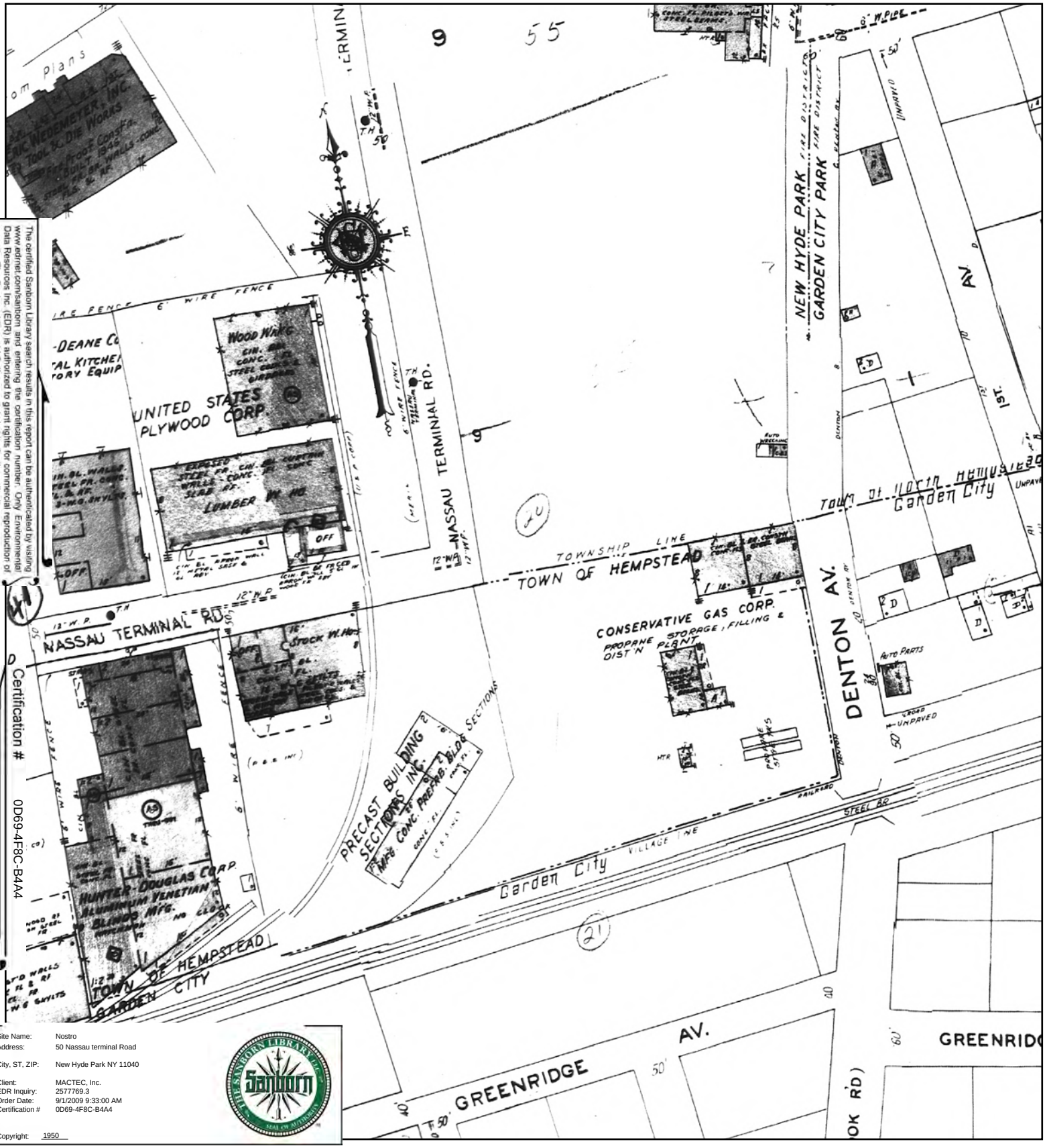
N

1950 Certified Sanborn Map



Certification # 0D69-4F8C-B4A4

Site Name:	Nostro
Address:	50 Nassau terminal Road
City, ST, ZIP:	New Hyde Park NY 11040
Client:	MACTEC, Inc.
EDR Inquiry:	2577769.3
Order Date:	9/1/2009 9:33:00 AM
Certification #	0D69-4F8C-B4A4
Copyright:	1950

This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

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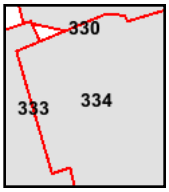

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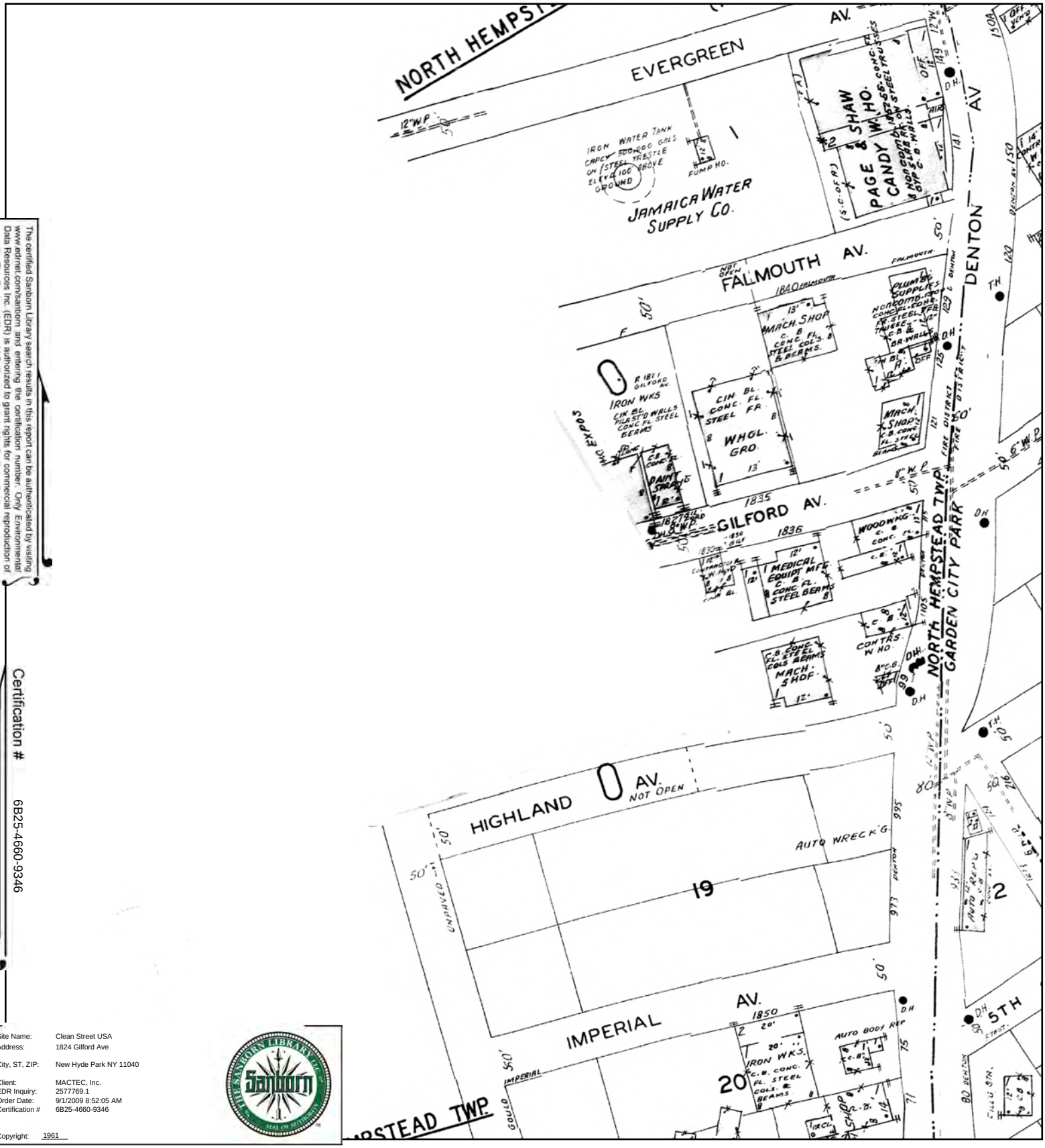
N

1961 Certified Sanborn Map



Certification # 6B25-4660-9346

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Client: MACTEC, Inc.
EDR Inquiry: 2577769.1
Order Date: 9/1/2009 8:52:05 AM
Certification #: 6B25-4660-9346

Copyright: 1961

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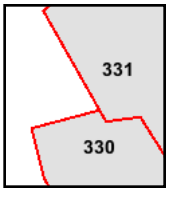

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N

1961 Certified Sanborn Map

Certification # 0D69-4F8C-B4A4

Site Name:	Nostro
Address:	50 Nassau terminal Road
City, ST, ZIP:	New Hyde Park NY 11040
Client:	MACTEC, Inc.
EDR Inquiry:	2577769.3
Order Date:	9/1/2009 9:33:00 AM
Certification #	0D69-4F8C-B4A4

This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

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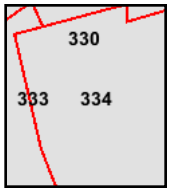

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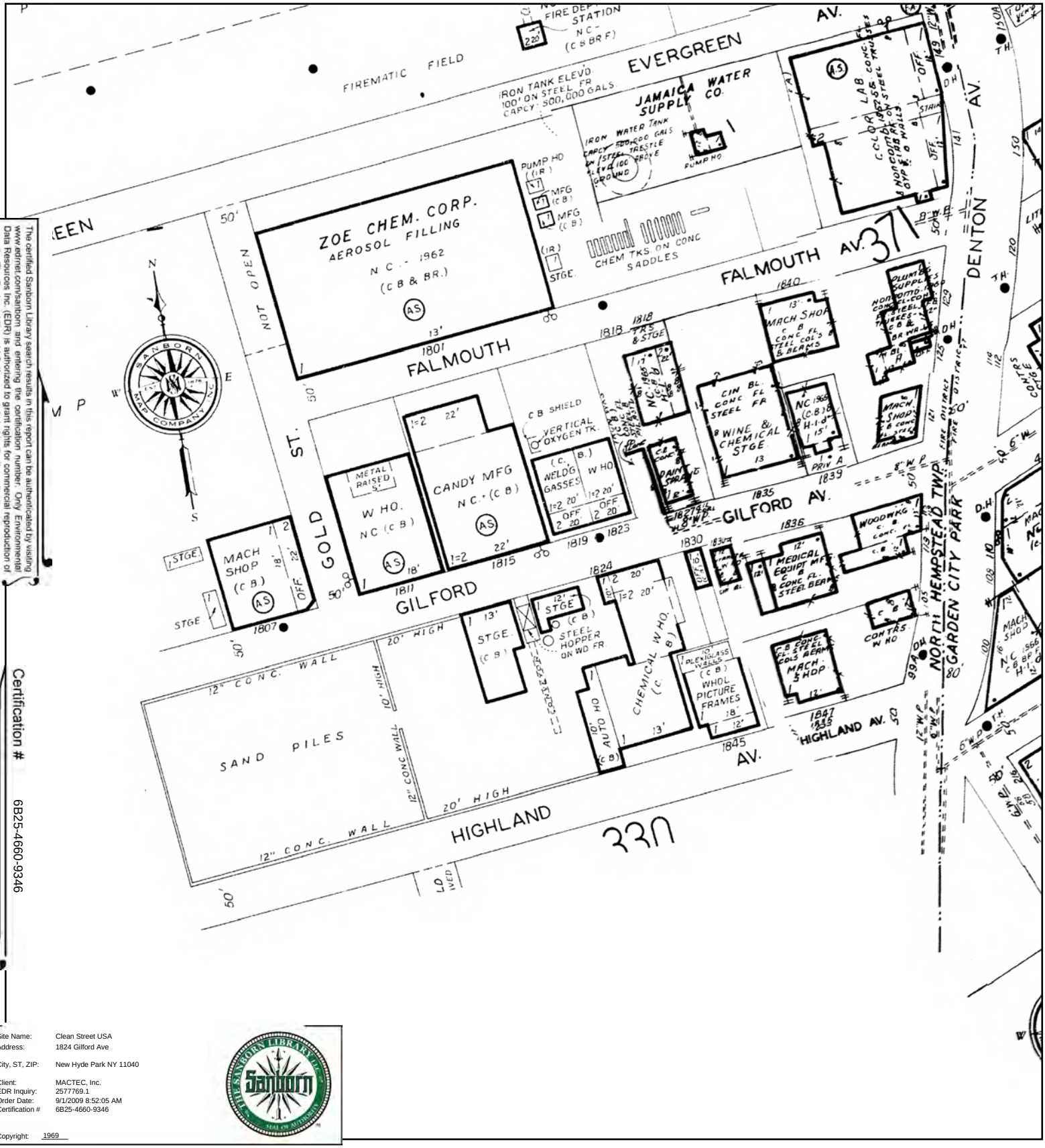
N

1969 Certified Sanborn Map



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EDR Inquiry: 2577769.1
Order Date: 9/1/2009 8:52:05 AM
Certification # 6B25-4660-9346

Copyright: 1969

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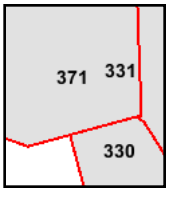

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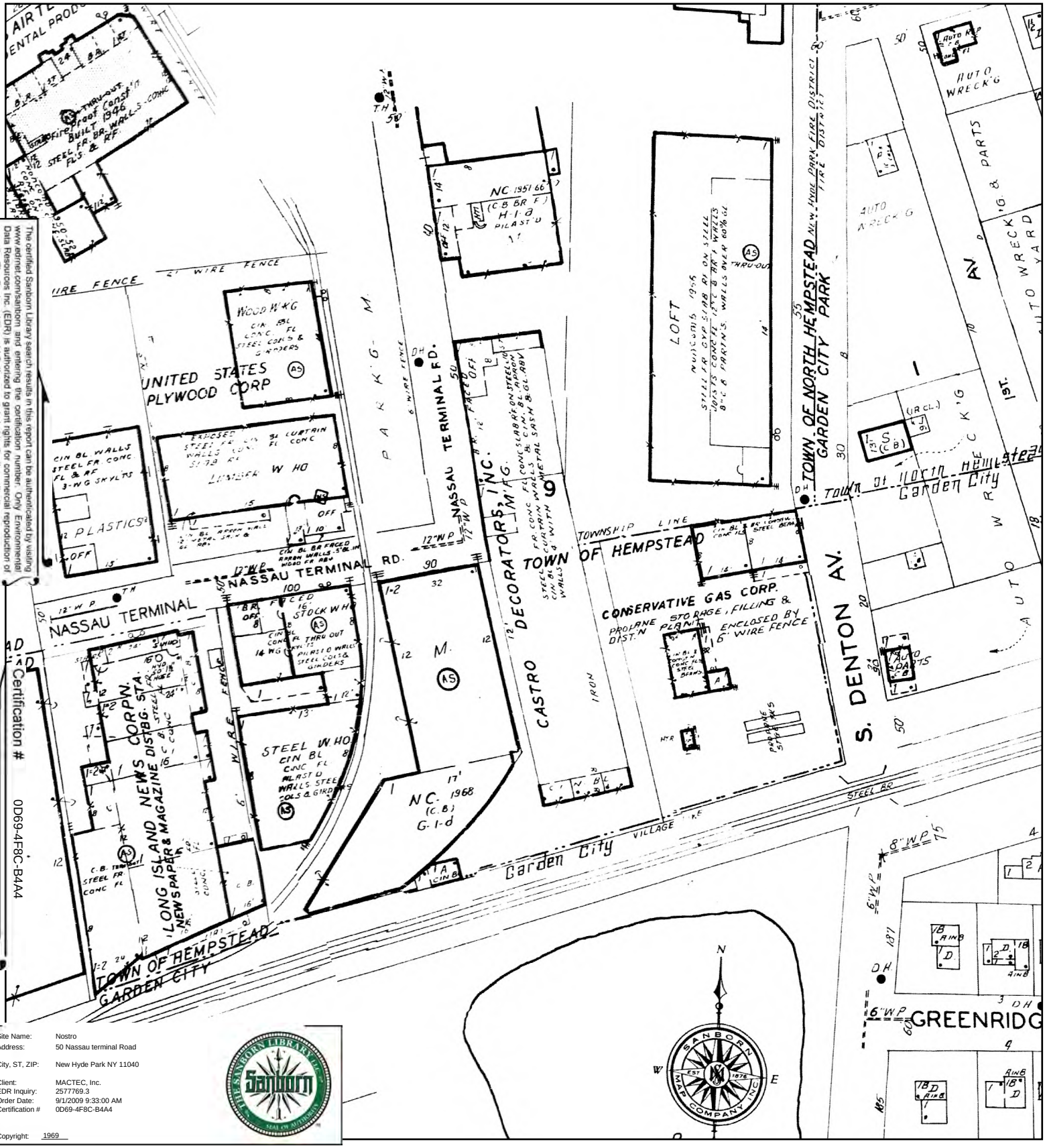
Volume 3, Sheet 371

N

1969 Certified Sanborn Map



Certification # 0D69-4F8C-B4A4

Site Name: Nostro
Address: 50 Nassau terminal Road
City, ST, ZIP: New Hyde Park NY 11040

Client: MACTEC, Inc.
EDR Inquiry: 2577769.3
Order Date: 9/1/2009 9:33:00 AM
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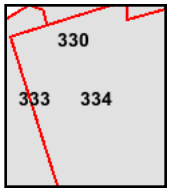

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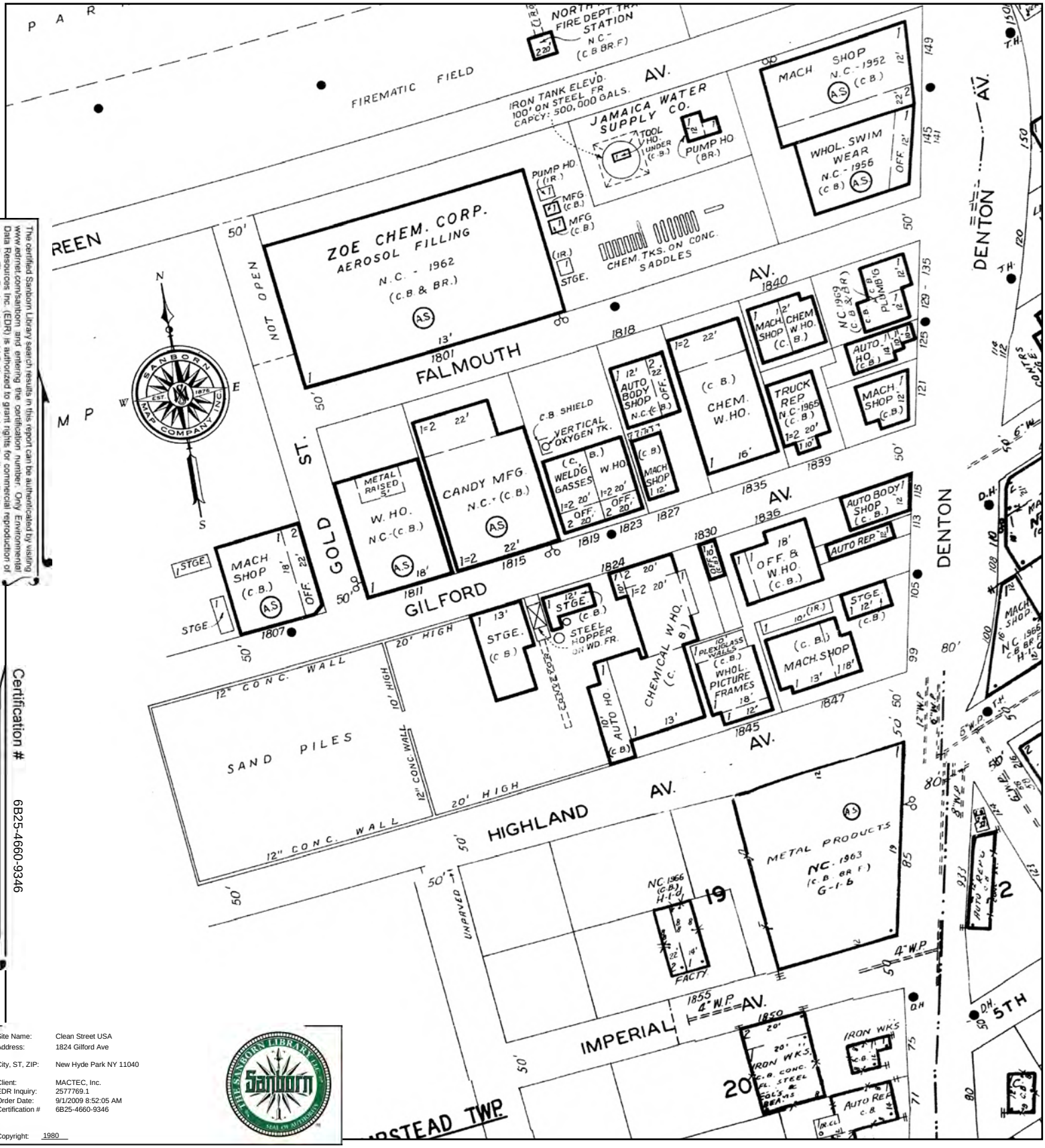
N

1980 Certified Sanborn Map



Certification # 6B25-4660-9346

Site Name: Clean Street USA
Address: 1824 Gilford Ave
City, ST, ZIP: New Hyde Park NY 11040

Client: MACTEC, Inc.
EDR Inquiry: 2577769.1
Order Date: 9/1/2009 8:52:05 AM
Certification #: 6B25-4660-9346

Copyright: 1980

This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

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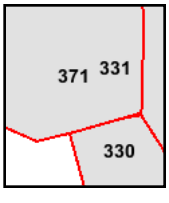

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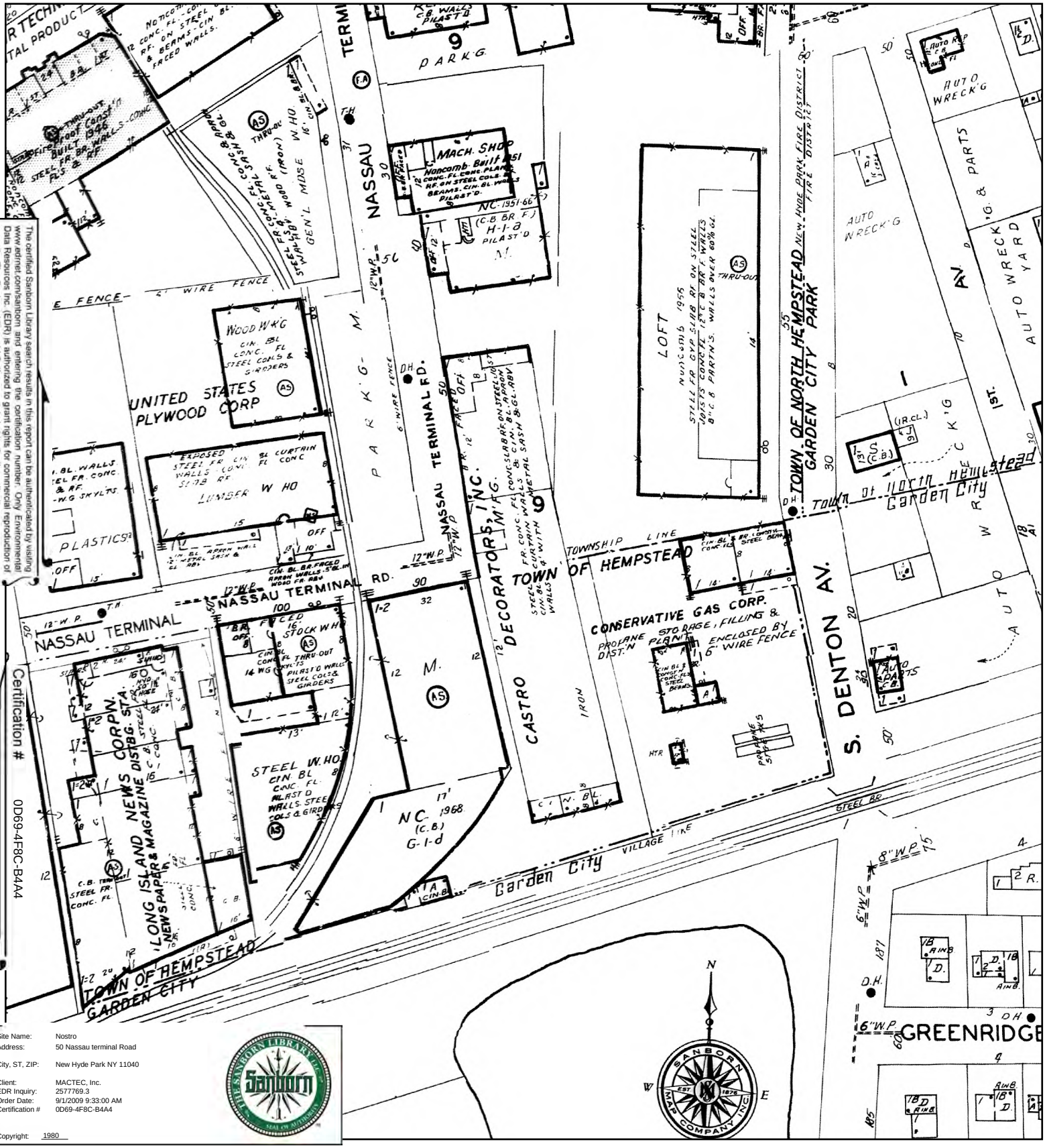
Volume 1, Sheet 371

N

1980 Certified Sanborn Map



Certification # 0D69-4F8C-B4A4

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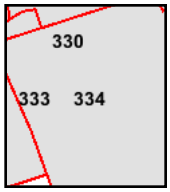

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Volume 1, Sheet 334

N