

**DATE:** October 31, 2023

**TO:** Yvette McReynolds  
Treasurer  
Chicago Prairie Tennis Club  
3211 South Ellis Avenue  
Chicago, Illinois 60616

**FROM:** John Helfrich, PE, ENV SP

**SUBJECT:** **Chicago Prairie Tennis Club**  
3211 S. Ellis Avenue, Chicago, Illinois  
Drainage Assessment

TERRA Engineering (TERRA) has completed the following assessment for the Chicago Prairie Tennis Club (CPTC) to assess the condition of the four eastern existing tennis courts at their facility and provide initial recommendations for potential improvements. The purpose of this assessment is to evaluate existing drainage patterns and systems and provide preliminary options for potential drainage improvements, pavement remediation, or further studies. Schedule, cost, and permit considerations will also be outlined for the varying recommendations.

#### **Existing Conditions**

The Chicago Prairie Tennis Club is located at 3211 South Ellis Avenue and consists of a parking lot, with drive access off S. Ellis Ave, and a small building between six tennis courts: two recently resurfaced courts to the west and four on the east side of the building. The four courts on the east side are the main subject of this assessment. The facility also includes a basement level housing decommissioned equipment that formerly supported an ice rink on the four eastern courts. See **Figure 1** for an existing aerial showing the assessment area.

TERRA completed a site visit on September 30, 2023, met with CPTC personnel, and reviewed City sewer atlases and past surveys to evaluate the existing conditions of the courts. The two western courts were recently crack sealed and resurfaced and appear to be in good condition. The four eastern courts have several large cracks and areas of apparent ponding. Per discussions with CPTC personnel, the four courts consist of a variable depth of asphalt pavement (approximately 8-inches throughout, transitioning to 2-inches at the edges) on a concrete slab. The slab contains decommissioned hydronic piping for the old ice rink. Several of the cracks appear to extend down into this concrete slab.

The existing site generally slopes from the north to the south. Immediately north of the courts is an open lawn space that slopes down to the north edge of the courts. It appears runoff from rain events moves overland, and within the subgrade, from the adjacent lawn area and discharges onto the tennis courts. Runoff then moves over the courts before ultimately discharging to the landscape area along the southern edge. Several raised landscape areas along this edge appear to impede runoff and, combined with water intrusion into the cracks, is likely contributing to the poor pavement condition and water ponding. See **Figure 2** for an exhibit highlighting the existing condition and Attachments for City sewer atlases and photos of the existing courts from the 9/30/23 site visit.



Figure 1 – Project Limits

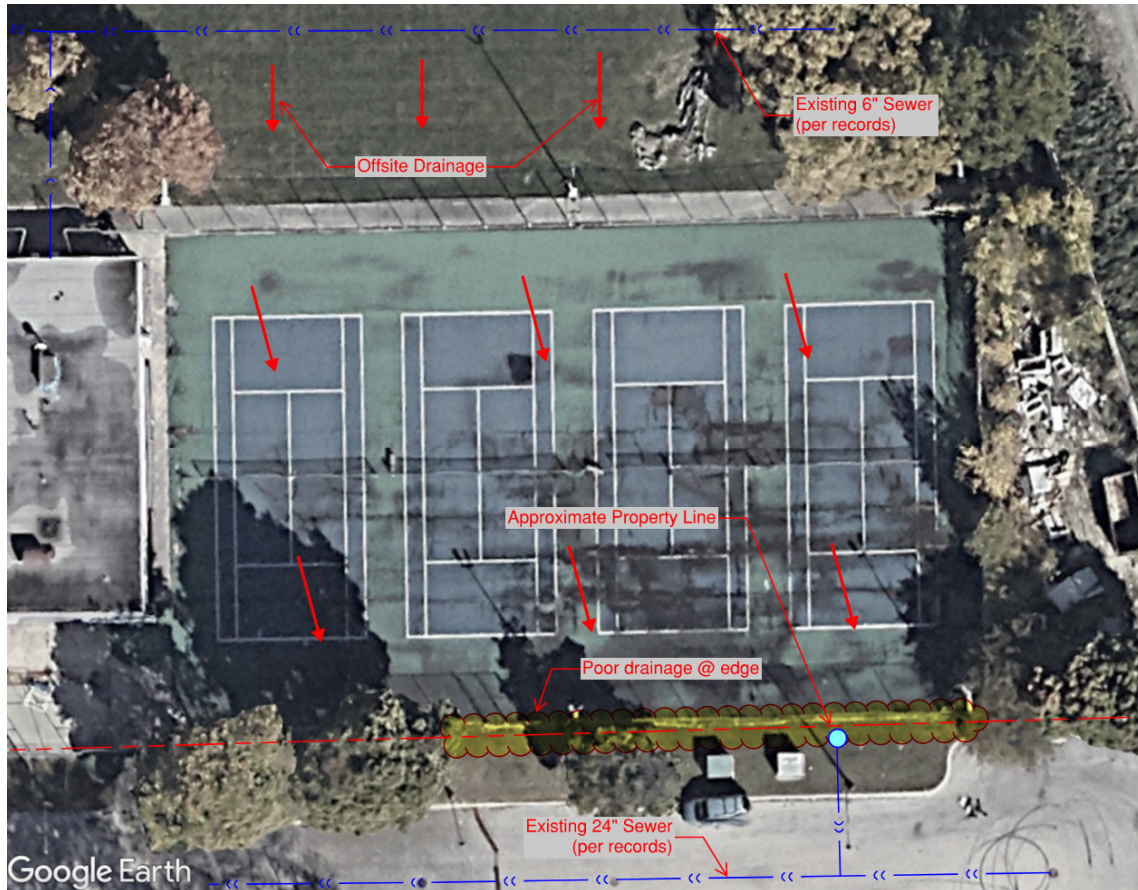


Figure 2 – Existing Conditions

### **Remediation Options**

The key to successful tennis court construction is implementing a holistic design solution that limits the amount of offsite drainage reaching the courts, positively drains both the surface and subbase of the courts and includes a fully design pavement section that provides a smooth and durable surface and allows for easy maintenance in the future. We have provided several options of proposed remediation that consider the unique existing conditions of the current courts (ice rink infrastructure and concrete subbase). The remediation options range in long-term effectiveness and capital costs, high level budget numbers are provided for consideration but should be reevaluated as the planning progresses and more information is made available.

As an immediate next step, TERRA recommends having a topographic/boundary survey completed to confirm location of potential underground facilities, the property boundary, and existing cross slopes of the courts. We also recommend several pavement cores be taken to confirm the existing pavement section. These due diligence items will help further inform the following options, budget, and schedule.

#### **Option 1 – Court Resurfacing**

The first option consists of minor patching of ponding areas with acrylic patching and crack sealing the existing surface. A new acrylic surface, color coating, and game line striping would then be overlaid atop the existing surface. This option would provide a new surface but start experiencing cracking (existing cracks reflecting through the new surface) and failures within a couple of years. We anticipate this option would take about four weeks and recommend a construction budget of approximately \$50,000.

#### **Option 2 – Asphalt Overlay**

The first option only addresses the very top level of surfacing, while this option proposes to replace the top couple of inches of asphalt pavement. This option consists of grinding the two inches off the top of the courts, replacing tennis netting and posts, crack sealing, and then repaving with a new paving fabric and two-inch asphalt overlay. After curing, the court would be surfaced with an acrylic surface and tennis playing lines. This option would provide a more durable new surface but start experiencing cracking and failures within 5-10 years. We anticipate this option will take about six to eight weeks and recommend a construction budget of \$125,000.

#### **Option 2A – Asphalt Overlay with Drainage Improvements**

This option includes the asphalt overlay from Option 2 but expands the improvements to address the offsite drainage concerns identified earlier. Offsite drainage from the north would be intercepted with a new swale and underdrain system that ties into the existing 6-inch site sewer. Another swale and underdrain would be constructed along the south edge of the courts and existing drainage structures will be lowered to further promote drainage away from the courts. This option would provide an even more durable court than Option 2 and should help delay the existing cracks reflecting through the new surface for longer. We anticipate this option would also take six to eight weeks and recommend a construction budget of \$160,000.

#### **Option 3 – Full Reconstruction**

The final option includes the full reconstruction of the courts, fencing, and adjacent drainage improvements. The existing courts would be removed to the concrete base which would then be crack sealed, and a low-profile cross drain system installed between the existing concrete and new asphalt section. A new asphalt pavement section, tennis netting and posts, acrylic surface, fencing, and perimeter drainage system would then be installed. This option provides the most durable solution to the courts, coming short of removing the existing concrete subbase. We anticipate this option would take eight to twelve weeks and recommend a construction budget of \$225,000.

**Permit Considerations**

Site improvements in the City of Chicago are regulated by the Department of Buildings (DOB) and subject to the requirements in the City Code and the Stormwater Management Ordinance. The ordinance identifies any project that impacts impervious areas over 7,500 square feet, or total site area over 15,000 square feet, as a Regulated Development and enforces their stormwater requirements. These requirements can include volume control and detention system. As this site is over this threshold, the improvements should be preliminarily reviewed by the DOB Stormwater group for applicability. It is our opinion that pavement resurfacing, as outlined in this assessment, is unlikely to be considered a Regulated Development.

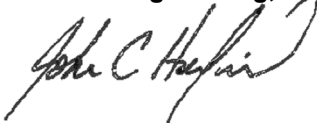
Due to the adjacency of the project site to the 33<sup>rd</sup> Street right-of-way, there is the potential of having to permit improvements through the Chicago Department of Transportation (CDOT) – Office of Underground Coordination (OUC). The Existing Facility Protection (EFP) review is routed through numerous public and private agencies to confirm proposed improvements will not adversely impact existing facilities in the public way. Work within the right-of-way should be avoided since this can be a lengthy review process.

**Summary**

Thank you for including TERRA Engineering in the evaluation of your existing facility. We conducted a site visit, interviewed personnel, and reviewed available record documentation to help assess and provide remediation options at four existing tennis courts on Chicago's south side. There are several paths forward to provide new tennis court surfacing outlined in this assessment and we would be happy to continue assisting CPTC in evaluating these options as the project planning progresses.

Should you have any questions or require any further information, please do not hesitate to reach out via email at [jhelfrich@terraengineering.com](mailto:jhelfrich@terraengineering.com) or via phone at 312-467-0123.

Sincerely,  
**TERRA Engineering, Ltd.**



John C. Helfrich, PE, ENV SP  
Senior Project Manager

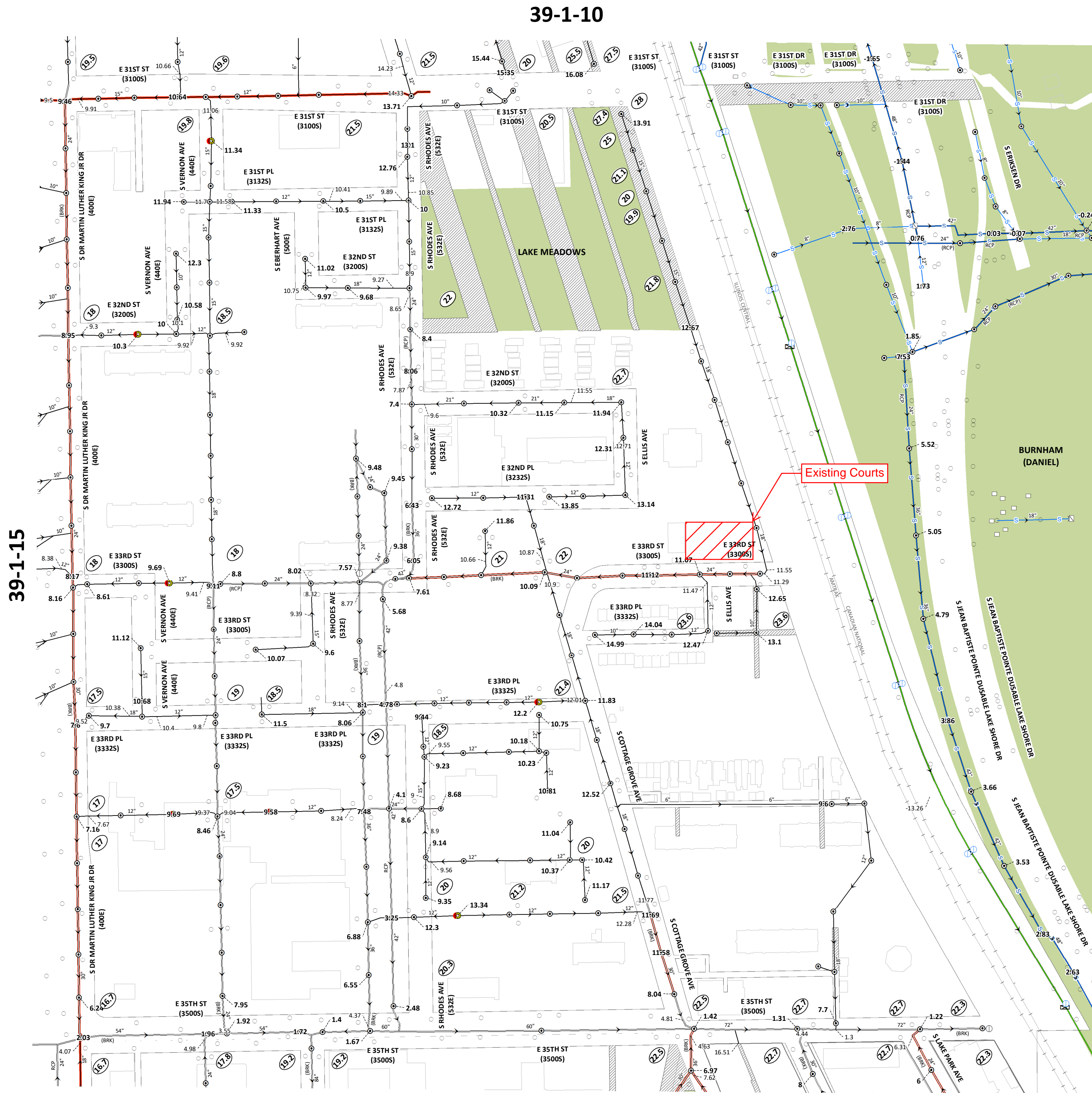
## ATTACHMENTS





# Sewer Atlas: 39-1-11

Department of Water Management,  
Bureau of Engineering Services



39-1-15

39-1-10

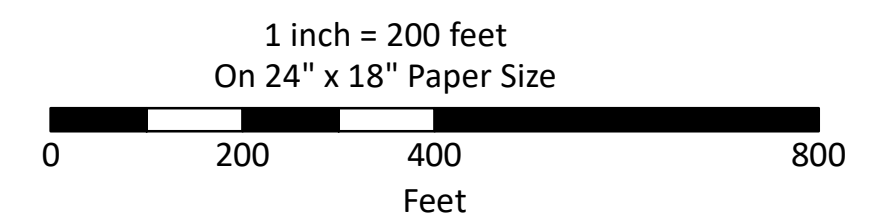
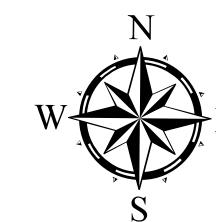
39-1-12

### Legend

- |                        |                                     |                             |
|------------------------|-------------------------------------|-----------------------------|
| ○ Manhole              | — Sewer Main ≥ 24" Diameter         | — Tide Gate                 |
| ⊙ Drop Manhole         | — Sewer Main < 24" Diameter         | — MWRD Sewer Main           |
| ⊙ Summit Manhole       | — Relined Sewer Main ≥ 24" Diameter | — Siphon                    |
| ⊙ Diversion Chamber    | — Relined Sewer Main < 24" Diameter | — Force Main                |
| ⊙ Junction Structure   |                                     | — Storm Main < 24" Diameter |
| ⊙ Siphon Chamber       |                                     | — Storm Main ≥ 24" Diameter |
| ⊙ Drop Shaft           | PS Pump Station                     |                             |
| ⊙ Plug                 | LS Lift Station                     |                             |
| ⊙ Bulkhead             | Storage Tank                        |                             |
| ⊙ Restrictor           | Ordnance Grade                      |                             |
| ⊙ Tumbling Basin       | 12" Sewer Main Diameter             |                             |
| ⊙ Catch Basin          | RCP Sewer Main Confirmed Material   |                             |
| ⊙ Grate Basin          | (RCP) Sewer Main Assumed Material   |                             |
| ⊙ Inlet                | > Sewer Main Flow Direction         |                             |
| ⊙ Access Point         | ⊙ Railroad                          |                             |
| ⊙ Outfall              | ⊙ Park                              |                             |
| ⊙ Right-Of-Way         | ⊙ State Boundary                    |                             |
| ⊙ Vacated Right-Of-Way | ⊙ City Boundary                     |                             |
| ⊙ Building Footprint   | ⊙ Adjacent Municipality             |                             |

### Materials

- |       |                          |
|-------|--------------------------|
| BRK   | Brick Pipe               |
| CIP   | Cast In Place Pipe       |
| CON   | Concrete Pipe            |
| DIP   | Ductile Iron Pipe        |
| RCP   | Reinforced Concrete Pipe |
| STEEL | Steel Pipe               |
| VCP   | Vitrified Clay Pipe      |
| UNK   | Unknown Material         |



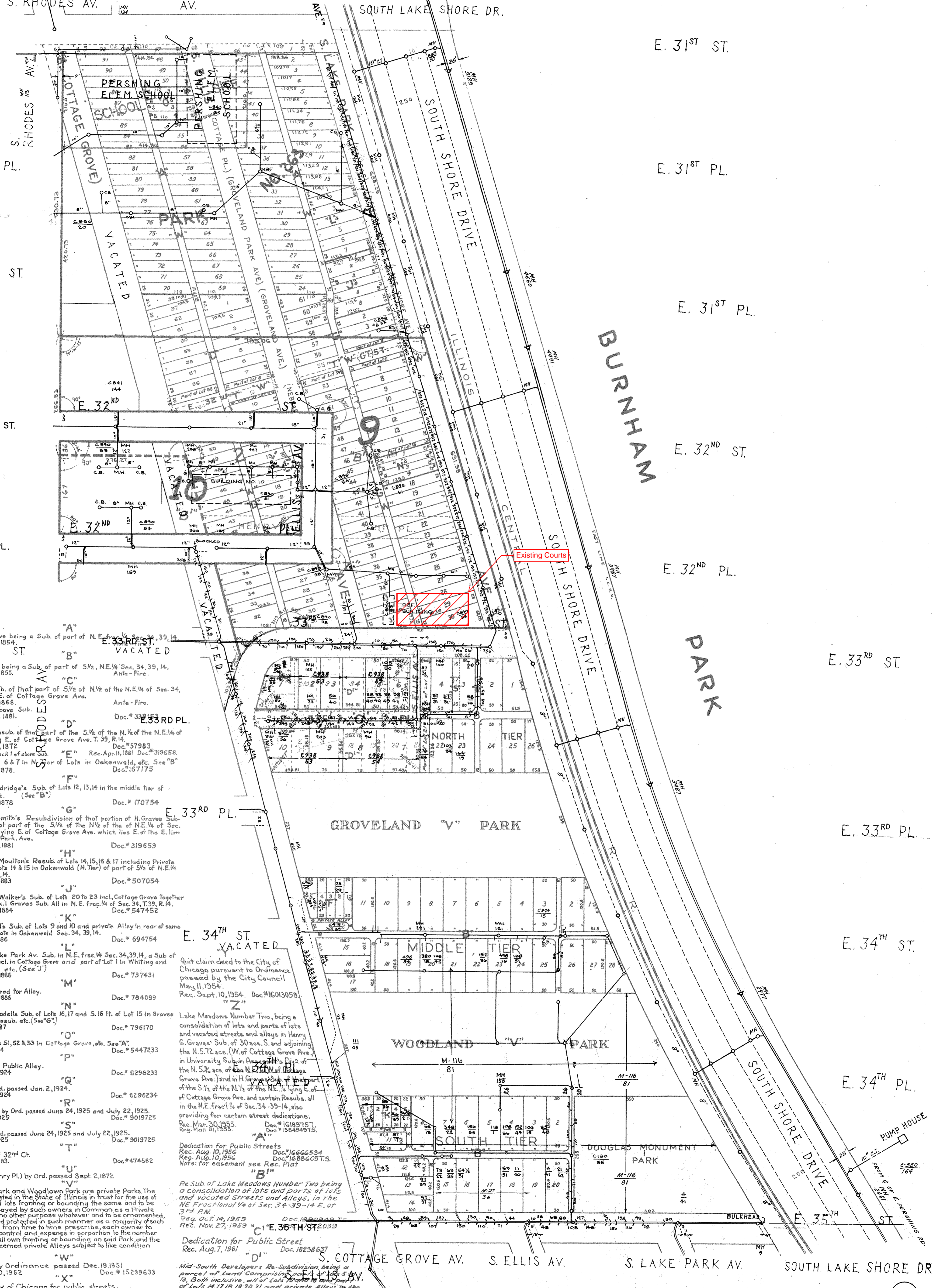
### GIS Liability Statement

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S-/ S. COTTAGE GROVE AV. S. ELLIS AV. E. 1/2 N.E. 1/4 FRAC. SEC. 34-39-14



Cottage Grove being a Sub. of part of N.E. 1/4 of Sec. 34, 39, 14. Rec. June 6, 1854. E. 33<sup>RD</sup> ST.

Oakenwald; being a Sub. of part of 1/2 of N.E. 1/4 Sec. 34, 39, 14. Ante-Fire. Rec. July 9, 1855. E. 33<sup>RD</sup> ST.

H. Graves' Sub. of that part of S. 1/2 of N. 1/2 of the N.E. 1/4 of Sec. 34, 39, 14, lying E. of Cottage Grove Ave. Ante-Fire. Rec. Nov. 18, 1866. Vacated above Sub. Rec. July 23, 1881. E. 33<sup>RD</sup> PL.

H. Graves' Resub. of that part of the S. 1/2 of the N. 1/2 of the N.E. 1/4 of Sec. 34, lying E. of Cottage Grove Ave. T. 39, R. 14. Ante-Fire. Rec. Sept. 26, 1872. Vac. of Block 1 of above Sub. Rec. April 11, 1881. Doc. # 319658. Sub. of Lots 6 & 7 in North Tier of Oakenwald, etc. See "B" Rec. Jan. 26, 1878. Doc. # 167175.

C.W. & E. Partridge's Sub. of Lots 12, 13, 14 in the middle tier of Oakenwald, etc. (See "B") Rec. Feb. 27, 1878. Doc. # 170754.

Graves and Smith's Resubdivision of that portion of H. Graves' Sub. division of that part of the S. 1/2 of the N. 1/2 of the N.E. 1/4 of Sec. 34, T. 39, R. 14, lying E. of Cottage Grove Ave. which lies E. of the E. line of Groveland Park. Ave. Rec. April 11, 1881. Doc. # 319659.

Warren and Moulton's Resub. of Lots 14, 15, 16 & 17 including Private Alley E. of Lots 14 & 15 in Oakenwald (N. Tier) of part of S. 1/2 of N.E. 1/4 of Sec. 34, 39, 14. Rec. Nov. 10, 1883. Doc. # 507054.

Whiting and Walker's Sub. of Lots 20 to 23 incl. Cottage Grove together with Lot 1, Blk. 1 Graves Sub. All in N.E. 1/4 of Sec. 34, T. 39, R. 14. Rec. May 21, 1884. Doc. # 547452.

R.S. Critchell's Sub. of Lots 9 and 10 and private Alley in rear of same in S. Tier of Lots in Oakenwald Sec. 34, 39, 14. Rec. Mar. 1, 1886. Doc. # 694754.

Pullman Lake Park Av. Sub. in N.E. 1/4 of Sec. 34, 39, 14, a Sub. of Lots 14 to 19 incl. in Cottage Grove and part of Lot 1 in Whiting and Walker's Sub. etc. (See "J") Rec. July 22, 1886. Doc. # 737431.

Quit Claims Deed for Alley. Rec. Dec. 22, 1886. Doc. # 784099.

Griffiths & Wadells Sub. of Lots 16, 17 and S. 16 ft. of Lot 15 in Graves and Smith's Resub. etc. (See "G") Rec. Feb. 5, 1887. Doc. # 796170.

Resub. of Lots 51, 52 & 53 in Cottage Grove, etc. See "A" Rec. July 1, 1914. Doc. # 5447233.

Dedicated for Public Alley. Rec. Feb. 26, 1924. Doc. # 8296233.

Vacated by Ord. passed Jan. 2, 1924. Rec. Feb. 26, 1924. Doc. # 8296234.

Alley restored by Ord. passed June 24, 1925 and July 22, 1925. Rec. Aug. 29, 1925. Doc. # 9019725.

Vacated by Ord. passed June 24, 1925 and July 22, 1925. Rec. Aug. 29, 1925. Doc. # 9019725.

Dedication of 32<sup>ND</sup> Ct. Rec. June 9, 1883. Doc. # 474562.

Vacated (Henry Pl.) by Ord. passed Sept. 2, 1872.

Groveland Park and Woodlawn Park are private Parks. The title being vested in the State of Illinois in trust for the use of the owners of lots fronting or bounding the same and to be used and enjoyed by such owners in common as a Private Park and for no other purpose whatever and to be ornamented, regulated and protected in such manner as a majority of such owners shall from time to time prescribe, each owner to share in the control and expense in proportion to the number of feet he shall own fronting or bounding on said Park, and the Alleys to be deemed private Alleys subject to like condition and use.

Vacated by Ordinance passed Dec. 19, 1951. Rec. Mar. 20, 1952. Doc. # 15293633.

Deed to City of Chicago for public streets. Rec. May 4, 1953. Doc. # 15607879.

Quit claim deed to the City of Chicago pursuant to Ordinance passed by the City Council May 11, 1954. Rec. Sept. 10, 1954. Doc. # 16013058.

Lake Meadows Number Two, being a consolidation of lots and parts of lots and vacated streets and alleys in Henry G. Graves' Sub. of 30 acs. S. and adjoining the N. 5.72 acs. (W. of Cottage Grove Ave.) in University Sub. in Ass'n. of the Div. of the N. 5.72 acs. of the N.E. 1/4 of Sec. 34, 39, 14, also providing for certain street dedications. Rec. Mar. 30, 1955. Doc. # 1689757. Reg. Mar. 31, 1955. Doc. # 158484975.

Dedication for Public Streets Rec. Aug. 10, 1956. Doc. # 16666534. Reg. Aug. 10, 1956. Doc. # 168860575. Note: for easement see Rec. Plat.

Re Sub. of Lake Meadows Number Two being a consolidation of lots and parts of lots and vacated Streets and Alleys, in the NE 1/4 of Sec. 34-39-14 E. of 32<sup>ND</sup> PL. Rec. Oct. 14, 1959. Doc. # 180000000. Reg. Nov. 27, 1959. Doc. # 180000000.

Dedication for Public Street Rec. Aug. 7, 1961. Doc. # 18238637.

Mid-South Developers Re-Subdivision being a portion of parcel comprising parts of Lots 13, 14, 15, 16, 17, 18, 19, 20, 21 and private Alleys in the North Tier of Oakenwald, a Subdivision of part of the South 1/2 of the Northeast 1/4 of Sec. 34-39-14. Rec. Aug. 31, 1966. Doc. # 19331810.