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**Planning & Zoning Commission
Agenda
Wednesday, November 16, 2022, 7:00 p.m.
Kirkwood City Hall
139 S. Kirkwood Road
Kirkwood, MO 63122
Posted November 11, 2022**

I. ROLL CALL

II. APPROVAL OF THE OCTOBER 19, 2022 MEETING MINUTES

III. UNFINISHED BUSINESS

- 1. PZ-5-23 MAJOR SITE PLAN PARTIAL AMENDMENT FOR SPECIAL USE PERMIT (SUP) – GREENBRIAR HILLS COUNTRY CLUB, 12665 BIG BEND BLVD**
Submitted: 8-19-22 Automatic Recommendation Date: 12-19-2022
Petitioner's Agent Aidan Delgado, McConnell & Associates
(Subcommittee – Commissioners Evens, Feiner and Salzer-Lutz)
Opportunity for Public Comment

IV. NEW BUSINESS

- 1. PZ-07-23 SPECIAL USE PERMIT (SUP) FOR ANIMAL FACILITY, MAJOR WITH OUTDOOR USE – NVA CLARK ANIMAL HOSPITAL, 10320 MANCHESTER ROAD (GREENTREE CENTER)**
Submitted: 10-28-22 Automatic Recommendation Date: 2-27-23
Petitioner's Agent Patrick Wittenbrink, Carmody MacDonald, PC

V. COMMISSION/STAFF (INTERNAL) ITEMS

1. DEVELOPMENT PROJECT UPDATE

VI. PLANNING AND ZONING SCHEDULE:

1. DECEMBER 7 AND DECEMBER 21, 2022 – 7:00 P.M.

Staff Liaison: Jonathan Raiche; Phone: (314) 984-5926; Email: RaicheJD@kirkwoodmo.org

Kirkwood Planning and Zoning Commission: Chairman Jim Adkins, Commissioners James Diel, David Eagleton, Ron Evens, Tom Feiner, Sandy Washington, Mary Lee Salzer-Lutz, Darrell Scott, and Allen Klippel.

Accommodation: The City of Kirkwood is interested in effective communication for all persons. Persons requiring an accommodation to attend and participate in the meeting should contact the City Clerk at 314-822-5802 at least 48 hours before the meeting. With advance notice of seven calendar days, the City of Kirkwood will provide interpreter services at public meetings for languages other than English and for the hearing impaired. Upon request, the minutes from this meeting can be made available in an alternate format, such as CD by calling 314-822-5802.



**CITY OF KIRKWOOD
PLANNING AND ZONING COMMISSION
MEETING MINUTES
October 19, 2022**

PRESENT:

Tom Feiner, Vice Chair
David Eagleton, Secretary/Treasurer
James Diel
Ron Evens
Allen Klippel
Mary Lee Salzer-Lutz
Sandy Washington

ABSENT:

Jim Adkins, Chair
Darrel Scott

Pursuant to notice of meeting duly given, the Planning and Zoning Commission convened on Wednesday, October 19, 2022, at 7:00 p.m. in the City Hall Council Chambers. Planning and Development Services Director Jonathan Raiche, Planner II Amy Lowry, and Permit Clerk Danielle Johnson also attended the meeting.

1. Vice Chair Feiner, filling in for Chair Adkins, called the meeting to order at 7 p.m. and informed the audience of the Speaker Cards and procedures for making comments regarding items on the agenda for Public Hearing and requiring Site Plan Review. Vice Chair Feiner announced that Commissioners Adkins and Scott were absent and their absences were excused.

**2. PUBLIC HEARING - MINOR TEXT AMENDMENTS TO THE ENVISION
KIRKWOOD 2035 COMPREHENSIVE PLAN: 5-YEAR REVIEW**
(Subcommittee – Commissioners Eagleton, Evens, Feiner, and Salzer-Lutz)
City Initiated

Vice Chair Feiner recessed the meeting for purposes of holding a public hearing on this topic. Mr. Raiche entered the following exhibits into the record for the public hearing: 1) an affidavit of publication in the St. Louis Countian on October 3, 2022, as exhibit 1; 2) an affidavit of publication in the Webster-Kirkwood Times on October 7, 2022 as exhibit 2; 3) The Planning & Zoning Subcommittee report dated October 19, 2022, as exhibit 3; and 4) The EnVision Kirkwood 2035 Comprehensive Plan, as exhibit 4.

Mr. Raiche then made a presentation to the Commission and to the public regarding the process that was undertaken for the 5-year review of the Comprehensive Plan as well as a summary of the resulting recommendations from the subcommittee. The various suggested revisions are summarized in the

Subcommittee report.

The Commission had no questions for Mr. Raiche regarding the process and information presented. However, Commissioner Klippel suggested to amend a portion of the report, “Recommendations w/o Text Revisions”, Chapter 5, Bullet #3. He suggested that the word “devoted” be replaced with “dedicated” with regard to staff.

Upon conclusion of Mr. Raiche’s presentation, Vice Chair Feiner opened the floor for public comment. No public comment was made. After hearing no public comment, Vice Chair Feiner closed the public hearing and noted that this item would be further discussed and considered by the Commission under the New Business portion of tonight’s agenda.

3. Motion was made by Commissioner Eagleton and seconded by Commissioner Klippel to approve the minutes for the October 5, 2022, meeting as written. The minutes were approved by six of the seven members present, with Commissioner Salzer-Lutz abstaining from the vote.
4. **PZ-06-23 ZONING MAP AMENDMENT (R-4 TO B-3), SPECIAL USE PERMIT FOR DAY CARE, AND MAJOR SITE PLAN – HIGHER GROUND EDUCATION, 10551 & 10557 BIG BEND BLVD**
(Subcommittee – Commissioners Klippel and Scott)

Planner II Amy Lowry provided the Commission with a presentation including an update on the application since the item was introduced at the October 5, 2022 meeting. Ms. Lowry reported that one bike rack was added to the site plan as required. She also reported that the St. Louis County Department of Transportation, after reviewing of the Technical Memorandum for Traffic Impacts that was provided by the applicant based upon the proposed right-in/right-out access point, did not see the need to require the applicant to investigate further the possibility of adding a fourth leg to the adjacent signalized intersection as this scenario would have likely had significant impact for the on-site and off-site design. Ms. Lowry said that a revised lighting plan is still needed. Due to the subcommittee’s concerns with safe ingress and egress from the site because of high rates of vehicular speed and limited sight distance on Big Bend, the landscape plan was revised to move trees east of the proposed access drive to the west for better visibility. Additional shrubs were also added as required in the residential buffer to the east property line.

Vice Chair Feiner asked if there was anyone from the public wishing to speak, but no public comments were made. Commissioner Klippel read the underlined sections of the Subcommittee Report recommending approval:

[INSERT REPORT]

Motion was made by Commissioner Klippel and seconded by Commissioner Diel to approve the rezoning of 10557 Big Bend Boulevard (PZ-6-23) from R-4 to B-3.

There being no discussion, the seven members present unanimously approved the motion.

A second motion was made by Commissioner Washington and seconded by Commissioner Salzer-Lutz to approve the Special Use Permit and Major Site Plan (PZ-6-23) for construction of a new day-care center located at 10551 and 10557 Big Bend Boulevard, subject to the conditions contained in the Subcommittee Report. Commissioner Eagleton requested that the St. Louis County Department of Transportation be contacted regarding “traffic calming” and that the Complete Streets Checklist be added to P&Z packets in future. There being no other comments or discussion, the seven members present unanimously approved the motion.

5. MINOR TEXT AMENDMENTS TO THE ENVISION KIRKWOOD 2035 COMPREHENSIVE PLAN: 5-YEAR REVIEW

(Subcommittee – Commissioners Eagleton, Evens, Feiner, and Salzer-Lutz)
City Initiated

Commissioner Evens read the underlined sections of the Subcommittee Report recommending approval:

[INSERT REPORT]

Motion was made by Commissioner Klippel and seconded by Commissioner Eagleton to approve the minor text amendments to the EnVision Kirkwood 2035 Comprehensive Plan as set forth in the subcommittee report and to approve the corresponding resolution set forth therein as well as to amend the report changing “devoted” to “dedicated” in #13 on page 4 of the report with regard to staff. The motion was unanimously approved by the seven members present.

3. DEVELOPMENT PROJECT UPDATE

Mr. Raiche informed the Commission that the City Council held public hearings on October 6 for the proposed Kirkwood Apartments project at 300 N. Kirkwood Road and the staff-initiated text amendment related to the “Country Club” use.

There being no further business, motion was made by Commissioner Feiner and seconded by Commissioner Washington to adjourn at 7:45 p.m. The next meeting will be held on November 2, 2022, at 7 p.m.

Tom Feiner, Vice Chair

David Eagleton, Secretary/Treasurer

Upon request, these minutes can be made available within three working days in an alternate format, such as CD, by calling 314-822-5822. Minutes can also be downloaded from the City's website at www.kirkwoodmo.org, then click on City Clerk, Boards & Commissions, Planning & Zoning Commission.

DRAFT

**CITY OF KIRKWOOD
PLANNING AND ZONING COMMISSION
SUBCOMMITTEE REPORT
November 16, 2022**

PETITION NUMBER: PZ-05-23

ACTION REQUESTED: MAJOR SITE PLAN PARTIAL AMENDMENT FOR SPECIAL USE PERMIT

PROPERTY OWNER: GREENBRIAR HILLS COUNTRY CLUB

APPLICANT: AIDAN DELGADO, MCCONNELL & ASSOCIATES

PROPERTY LOCATION: 12665 BIG BEND BLVD

ZONING: R-3, SINGLE-FAMILY RESIDENTIAL DISTRICT, SUBJECT TO A SPECIAL USE PERMIT

DOCUMENTS SUBMITTED: SITE PLAN PACKET (13 SHEETS) PREPARED BY WEIS DESIGN GROUP STAMPED "RECEIVED NOVEMBER 3, 2022, CITY OF KIRKWOOD PUBLIC SERVICES DEPARTMENT"

TREE PROTECTION PLAN AND LANDSCAPE PLAN STAMPED "RECEIVED NOVEMBER 4, 2022, CITY OF KIRKWOOD PUBLIC SERVICES DEPARTMENT"

PHOTOMETRIC SITE PLAN (2 SHEETS) PREPARED BY G&W ENGINEERING STAMPED "RECEIVED NOVEMBER 3, 2022, CITY OF KIRKWOOD PUBLIC SERVICES DEPARTMENT"

ACOUSTICCONTROL REPORT H1709 REVISED (DATED OCTOBER 12, 2022) AND ACOUSTICCONTROL SITE VISIT COMMENT REPORT (DATED SEPTEMBER 19, 2022), BOTH STAMPED "RECEIVED NOVEMBER 3, 2022, CITY OF KIRKWOOD PUBLIC SERVICES DEPARTMENT"

DESCRIPTION OF PROJECT:

The applicant is requesting approval for a major site plan partial amendment to construct four pickle ball courts and to expand the swimming pool deck at the Greenbriar Hills Country Club as amenities for the existing membership. The property is zoned R-3, Single-family Residential and currently holds a Special Use Permit for a country club/golf course. Additional detail of the proposed site plan is provided later in this report.

COMPREHENSIVE PLAN, LAND USE AND ZONING:

The site is designated as General Residential on the EnVision Kirkwood 2035 Future Land Use Map. Single-family residential (3-6 dwelling units per acre) and Parks and Public Spaces are listed as appropriate development types. The Country Club was part of the Osage Hills Subdivision Plat from its

creation and recording in 1926. There is no request to change the existing zoning or land use for the subject property.

Surrounding land uses and zoning include the following:

To the north: Across the BNSF railroad tracks, the Greenbriar Hills golf course continues in the City of Des Peres.

To the south, east, & west: The property surrounding the Country Club is occupied by single-family homes, zoned R-3.

DEPARTMENTAL/AGENCY COMMENTS:

Electric: Not in service area.

Water: No comments

Engineering: No comments.

Building/Fire: The construction documents should be updated with information regarding emergency ballast or power that will automatically turn on to permit evacuation of the pool in the event of power failure to provide the required minimum 0.1 footcandle of illumination at any point on the water surface or walking surface of the deck, and not less than an average of 1 footcandle.

Forestry: The landscape plan must be signed and sealed and should provide adequate replacement of trees removed from the February 7, 1995 approved landscape plan. The caliper of trees to be planted should be delineated on the landscape plan.

SITE ELEMENTS ANALYSIS:

Four concrete pickle ball courts are proposed to be constructed to the west of the current tennis pro shop and tennis courts and to the east of the pool area. The courts will be raised to the level of the tennis pro shop with a modular block retaining wall stretching on the north to the tennis courts and around the pickle ball courts on the west and south, with the wall also encompassing a new patio to the north of the tennis pro shop. The pickle ball courts will be surrounded by a 10' tall fence with the acoustic treatment of "Acoustifence" on the north and south sides. The golf cart path north of the pickle ball courts and tennis pro shop will be re-routed slightly and re-built; a new golf cart path to the south with cart parking will be constructed. The pool deck will be expanded to the north, east, and west with new modular block retaining wall, decorative pool barrier fencing, and new lighting. The applicant proposes a new 14' by 100' bio retention swale BMP directly north of the pickle ball courts and tennis pro shop, and a new overland berm and swale system north of the BMP to direct storm water runoff to an existing storm inlet. MSD will review and approve the proposed storm water plans.

Landscaping

The landscaping in the pool area is governed by the landscape plan dated February 7, 1995 that was approved by City Council in Ordinance 8509 in conjunction with site plan review approval of building additions to the clubhouse. The new landscape plan for the pool area should provide adequate replacement of trees that will be or have been removed. The pickle ball court project does not require

new landscaping, however, staff believes the additional proposed trees are appropriate and encourages the retention of these trees. Once the landscape plan for this project has been approved by the City Forester, it shall be the responsibility of the property owner to provide continued maintenance of all trees included on the plan in the pickle ball court and pool deck areas. A condition regarding these items has been added to the recommendation section of this report.

Lighting

The site photometric plans appear to meet the City's lighting regulations; however, the light poles cannot exceed 24' when measured from the finished grade to the top of the fixture. The height of the pedestal is proposed at 2' so the poles cannot be taller than 22'. A revised plan clarifying that the maximum mounting height of the fixtures, including the concrete pedestal, shall not exceed 24' from the adjacent finished grade shall be required. Additionally, the lighting plan must be slightly revised to meet the minimum lighting requirements of the international swimming pool and spa code. A condition regarding these items has been added to the recommendation section of this report.

Sound

In response to questions from the Planning and Zoning Commission at the Commission meeting on September 7, 2022 with regard to the sound effect of the pickle ball play on the adjacent residential properties, the applicant provided an initial acoustical report by AcoustiControl dated September 19, 2022. The report created a model using the location of the proposed pickle ball courts to simulate (1) a single pickle ball hit in the middle of the proposed courts; (2) two pickle ball hits at the same time in the middle of the proposed courts; (3) two pickle ball hits at the same time in the middle of the proposed courts with a 10-foot tall acoustic sound barrier on both ends of the courts; and (4) a single pickle ball hit in the middle of the proposed courts with densely packed evergreen shrubbery planting. In each model, the St. Louis County daytime noise limit of 55 dBA was not exceeded at the residential property lines according to the report, and in models (3) and (4), the sound pressure level was 45 dBA or less. Owners of adjacent residential properties provided a letter dated September 28, 2022 from R. Lance Willis of Spendiarian & Willis Acoustics & Noise Control countering the AcoustiControl report, especially with regard to the sound produced by the impact of the hard plastic ball on the paddles. Mr. Willis contends that contact produces an impulsive sound that can cause significant noise effect on nearby residents. Mr. Willis wrote that due to the close proximity to homes, the elevation difference between the homes and the courts, and his experience at similar pickle ball sites, a sound wall noise abatement system would not provide sufficient noise mitigation.

In response to the first subcommittee meeting (see discussion below), the applicant provided AcoustiControl Report H1709 Revised dated October 12, 2022, and AcoustiControl Site Visit Comment Report dated September 19, 2022. Within the revised report, Acoustic Model 5 (with pickle ball hits simultaneously on two different courts and with 10-foot high fencing with Acoustifence acoustical sound barriers along the north and south ends of the pickle ball courts) indicates the sound pressure level at the nearest residential property lines to be 45 dBA or less. The Site Visit Comment Report clarified data and assumptions of the AcoustiControl reports. It was also clarified that the models accounted for relative changes in topography between the proposed courts and the adjacent residential properties.

DISCUSSION:

A Zoning Matters sign was placed on the property on September 2, 2022. The request was introduced at the Planning & Zoning Commission meeting on September 7, 2022. A subcommittee meeting was held on site on September 30, 2022. A list of attendees of the subcommittee meeting may be viewed in Exhibit B. At the subcommittee meeting, the following items were discussed:

- 1) As an accessory structure, the new wading pool must be located behind the front line of the clubhouse building. The proposed new wading pool location will not meet this regulation; therefore, the applicant has decided only to expand the pool deck with the wading pool to remain in its current location.
- 2) The pickle ball courts will match the grade of the tennis pro shop with a new retaining wall. The golf cart path will be re-routed.
- 3) Although the existing tennis courts have been converted at times for pickle ball play, the Country Club does not want to permanently replace any of the tennis courts.
- 4) Jim Holtrop of AcoustiControl stated that the permissible noise for daytime hours under the St. Louis County noise ordinance is 55 dBA or less for residential properties, but if the noise is considered “impulsive”, then the permissible noise must be 50 dBA or less. In his opinion, the sound from pickle ball play falls short of the impulsive noise definition.
- 5) Mr. Holtrop said that noise may be controlled with a vertical barrier such as a windscreen of the fence or a concrete block wall. The Country Club is considering a 10’ tall barrier with Acoustifence attached, but will need to evaluate the cost of sound dampening measures such as vertical barriers and different paddle and ball materials.
- 6) The subcommittee requested that the AcoustiControl report be updated with the Country Club’s chosen mitigation controls.
- 7) The subcommittee asked for clarification from the City Attorney as to whether the St. Louis County noise ordinance applies in the City or takes precedence over the City’s nuisance ordinance.
- 8) The proposed hours of the pickle ball courts would be the same as the tennis courts: 8:00 a.m. to sunset with no lights in either area.
- 9) The Country Club is open to listening to the neighbors as evidenced by meeting with them before applying to the Planning and Zoning Commission and will take into consideration requests for closing earlier on weekends when neighbors may be entertaining.

After the subcommittee meeting, the City Attorney clarified that the County noise ordinance does apply in Kirkwood and the City ordinances regarding peace disturbance and disturbing noises (Code of Ordinances Chapter 17, Article V, Sections 17-66 through 17-70) apply as well, however, compliance with the permissible noise level standards set forth in the County ordinance has been previously determined by courts as an absolute defense to any claim of peace disturbance or a similar noise complaint.

A second subcommittee meeting was held at Kirkwood City Hall on November 10, 2022. A list of attendees of the second subcommittee meeting may be viewed in Exhibit B. In advance of the subcommittee meeting, the applicant provided revised plans dated November 3 and 4, 2022. At the second subcommittee meeting, the following items were discussed:

- 1) The applicant confirmed that the pickle ball courts will be surrounded by a 10’ high fence with Acoustifence material proposed for the north and south fences.
- 2) Mr. Holtrop of AcoustiControl confirmed that all of the SoundPlan Models in the AcoustiControl Report Amended considered the topography of both the site and adjacent residential sites. The Country Club confirmed that Acoustic Model 5 includes the treatment chosen for the pickle ball courts.

- 3) The landscape plan has been revised to include additional trees around the pickle ball courts and the pool deck expansion; however, the trees are mainly for replacement and aesthetic purposes, and not intended for sound mitigation.
- 4) The wading pool will remain in its current location.
- 5) Commissioner Evens commented that he believes efforts to mitigate the sound of pickle ball play are reasonable with the following conditions:
 - a. Hours are restricted from 8:00 a.m. to sunset.
 - b. No lights shall be installed on the pickle ball courts.
 - c. No music or speakers shall be allowed.
- 6) Commissioner Feiner commented that the AcoustiControl Report indicates compliance with the County noise ordinance.
- 7) Commissioner Salzer-Lutz commented that she hopes the Country Club will voluntarily restrict play on the courts on Friday and Saturday evenings and Sunday afternoons.
- 8) The subcommittee concluded that the requirements of Site Plan Review criteria in Section 25-19(h) have been met subject to the conditions summarized by Commissioner Evens

RECOMMENDATION:

The Subcommittee recommends that this application be **approved** with the following conditions:

1. The project shall be constructed and maintained in accordance with the plans referenced in the Drawings Submitted portion of this report, except as noted herein.
2. A building permit shall be obtained and substantial construction commenced within 12 months of approval of this Major Site Plan Amendment by the City Council. Failure to comply with this timing may result in the expiration of the site plan approval.
3. The north and south barrier fences of the pickle ball courts shall be 10 feet tall and include the Acoustifence acoustical barrier. Thereafter, such acoustical barrier be maintained at all times in good order, condition and state of repair.
4. The hours of operation for the pickle ball courts shall be restricted to 8:00 a.m. to sunset, Sunday through Saturday.
5. No lights shall be installed on the pickle ball courts.
6. A revised lighting plans shall be submitted prior to issuance of permits that addresses the following items: 1) the proposed new lighting poles in the pool area shall not exceed 24' when measured from the finished grade to the top of the fixture, and 2) the lighting levels of the pool area shall comply with the international swimming pool and spa code.
7. Outside entertainment, whether by band, orchestra, instrument, musician, singer, radio, television, loudspeaker, microphone, recital, or any other individual, group or mechanical device; or other amplified sound shall not be permitted for the pickle ball courts.
8. The Landscape Plan shall be signed and sealed by a landscape professional and updated to provide adequate replacement of trees removed from the February 7, 1995 approved landscape plan. The caliper of trees to be planted should be delineated on the plan. The City Forester shall approve the revised Landscape plan prior to City Council approval.

9. The applicant shall comply with all standard conditions as listed in Exhibit A.

Respectfully submitted,

Ron Evens

Tom Feiner

Mary Lee Salzer-Lutz

EXHIBIT A
STANDARD CONDITIONS

1. A performance guarantee in the form of a cash deposit or letter of credit in an amount approved by the Public Services Department and an administrative fee (10% of the first \$10,000 and 2% of the remaining balance of the performance guarantee) shall be submitted within one year of final development plan approval and prior to the issuance of a foundation letter or building permit to insure the completion of the proposed improvements, utilities, and landscaping; to replace public improvements damaged by construction activities (sidewalks, curbs, etc.); and to guarantee significant trees designated to be saved. The letter of credit shall be in effect for a minimum of two years and may be extended in minimum six-month intervals as approved by the Department of Public Services.
2. Storm water management plans for the proposed site plan shall be submitted to Metropolitan Sewer District (MSD) and City for review and approval prior to the issuance of a grading, foundation or building permit. Storm water greater than one c.f.s. shall not be directed across the public sidewalk or driveway entrances.
3. The water system shall meet the requirements of the Kirkwood Fire and Water Departments. The Fire Department shall approve the water flow for the project. If satisfactory water flow is not available from the existing water system in accordance with City policy, the applicant shall install the necessary mains and accessories.
4. If applicable, proper ground disturbance permits through MDNR shall be obtained prior to issuance of permits from the City.
5. If applicable, a grading permit shall be obtained from the Public Services Department in accordance with the Kirkwood Code of Ordinances prior to any grading on the site. The grading permit shall include a grading plan in accordance with the Code of Ordinances.
6. Erosion and sediment control devices shall be sufficient to protect all off-site property from siltation and shall be installed prior to beginning of any grading or construction. The siltation control measures shall be installed and approved by the Public Services Department prior to issuance of a building permit. These devices shall be maintained during the construction activities.
7. During excavation and construction activities, the area of the site that is disturbed for this project shall be fully enclosed by a 6-foot high chain link fence to prevent the entry of unauthorized persons. The gate for the fence shall be locked during non-working hours.
8. No parking of construction trailers, material storage, equipment storage or construction equipment is authorized on the public streets at any time.

EXHIBIT B
Subcommittee Meeting 1 Attendees

P&Z Subcommittee Meeting

Project:

Date:

Location:

PZ-5-22 Greenbriar Hills CC
9/30/22
12605 Big Bend Rd

Name	Organization
Allen Kupper	P&Z
Jonathan Rader	City
Julie Miskay	neighbor
Derek Stephens	neighbor
Jack Scherck	City
Danielle Johnson	city
Josiah Vaughn	McConnell
Aidan Delgado	McConnell
Mary Lee Salzer	P&Z
Tom Fornax	P&Z
Ron Evans	P&Z
Jeffrey Murrett	Trustee, Greenbriar
John Bickel	GHCC + RESIDENT
Matt Laceyfield	GHCC GM
Jim Holtrop	Acoust Control
Bill Downey Jr	W&D GHCC
Martha Conway	neighbor
Michael Shultz	WETS DESIGN GROUP

Subcommittee Meeting 2 Attendees

P&Z Subcommittee Meeting

Project:

Date:

Location:

PZ-5-23

Greenbriar Hills CC

11/10/22

City Hall

Name	Organization
Jonathan Riche	City
Alex Klippel	P&Z
MATT Laceyfield	GHCC
Patricia Smith	Resident
TERRY O'Connell	Resident
Cathy Converse	Resident
Martha Conway	Resident
Aidan Delgado	McConnell & Associates
James Holtrop	Acoustic Control
Bill Downey	Resident
Mark Lawder	GHCC
Karen Gender	Resident 128 Sweetbriar
Jim Gender	Resident 128 Sweetbriar
Kathleen Brassil	Resident 140 Sweetbriar
Josh Schuck	KINKWOOD
Shane	GHCC
Amy Lowry	City
Tom Ferner	PZ
RON EVENS	
Cheryl Lee Sager	



APPLICATION FOR PLANNING AND ZONING REVIEW

DATE: 08/02/2022

CASE NUMBER: PZ-05-23

ZONING DISTRICT:

LOCATOR NUMBER: 240310992

PROJECT ADDRESS: 12665 Big Bend Rd, Kirkwood, MO 63122

PROJECT NAME: Greenbriar Hills Country Club Pickleball/ Pool deck improvements

ACTION REQUESTED

☐ CUP, Development Plan or Final Site Plan (circle one)

☐ Development Plan, B4, B5, or R6 (circle one)

☐ Final Site Plan, B4, B5, or R6 (circle one)

☒ Site Plan Review, Minor or Major (circle one)

☐ Site Plan Modification

☐ Alternative Equivalency

☒ Special Use Permit, Category: Country Club/Golf Course

☐ Subdivision, Major

☐ Subdivision Modification

☐ Text Amendment

☐ Vacation, Right-of-Way or Easement (circle one)

☐ Zoning Map Amendment, From _____ to _____

Comments: _____

PETITIONER INFORMATION

I (We) hereby certify that I (we) have legal interest in the hereinabove described property and that all information given herein is true and a statement of fact

Name (Print): GREENBRIAR HILLS Signature: [Signature] Phone No.: 314-855-3211

Mailing Address: 12665 BIG BEND RD City: KIRKWOOD State: MO Zip: 63122

E-mail Address: BILLGILCO@SARTHYLINK.NET

Petitioner's Status: ☒ Corporation ☐ Partnership ☐ Individual

Relationship of Petitioner to Property: ☒ Owner ☐ Tenant ☐ Option Holder (Attach Copy of Contract) ☐ Other

AGENT INFORMATION

Agent's Name: McConnell & Associates Signature: [Signature] Phone No.: 314-973-3082

Mailing Address: 9241 Manchester Rd City: Rock Hill State: MO Zip: 63144

E-mail Address: a.delgado@mcconnellassociates.org

(NOTE: The petitioner's agent, if listed, shall receive all official communication)

PROPERTY OWNERS

Signature required or submit proof petitioner has legal interest in property.

Name: _____ Name: _____

Signature: _____ Signature: _____

Address: _____ Address: _____

City/State/Zip: _____ City/State/Zip: _____

Phone: _____ Phone: _____

FOR CITY USE ONLY

Date Received: _____ Total Received: \$ _____ Agenda Date: _____

☐ B-4/B-5 Development Plan: \$1,000 + _____ Acres @ \$25/Acre or portion over one acre) = \$ _____

☐ B-4/B-5 Final Site Plan: \$1,000

☐ B-4/B-5 Final Site Plan Amendment (when public hearing is not required): \$500

☐ CUP (Single family), Dev Plan/Preliminary Plat: \$1,000 + _____ Lots @ \$500/Lot = \$ _____

☐ CUP (Single family), Final Site Plan/Final Plat: _____ Lots @ \$100/Lot = \$ _____ + 1-1/4% of \$ _____ = \$ _____

☐ CUP, (Multi family), Development Plan/Prel. Plat: \$1,000 + _____ Dwelling units @ \$20/Each = \$ _____

☐ CUP, (Multi family), Final Site Plan/Final Plat: \$500 + 1-1/4% of _____ = \$ _____

☐ CUP, Final Site Plan/Final Plat Amendment: Public Hearing required \$800, Public Hearing not required \$500

☐ CUP, Final Site Plan Time Extension: \$300

☐ Mixed Use in B2 Development Plan: \$1,000 (includes SPR fee) + \$25/acre or portion over one acre

☐ Mixed use in B2 Final Site Plan: \$500

☐ Mixed use in B2 Final Site Plan Amendment: Public Hearing required \$800, Public Hearing not required \$500

☐ R6 Development Plan: \$1,000 + _____ Dwelling units @ \$20/Unit = \$ _____

☐ R6 Final Site Plan: \$500

☐ Sidewalk Waiver on _____ feet @ \$30/Foot = \$ _____ = \$ _____

☐ Site Plan Review (Major): \$1,000

☒ Site Plan Review (Major): Amendment \$800 or Extension: \$300

☐ Site Plan Review (Minor): \$500

☐ Site Plan Review (Minor) Amendment \$500 or Extension: \$300

☐ Special Use Permit: \$1,000 (waived if submitted with Site Plan Review)

☒ Special Use Permit Amendment: \$800 (waived if submitted with Site Plan Review) or Extension: \$300

☐ Subdivision (Major), Preliminary Plat _____ Lots @ \$500/Lot = \$ _____

☐ Subdivision (Major), Final Plat/Improvement Plans: _____ Lots @ \$100/Lot + 1.25% of \$ _____ = \$ _____

☐ Subdivision (Major) Amendment to Final Plat or Improvement Plans: \$200

☐ Subdivision Modification (Boundary Adjustment): \$300

☐ Vacation, Easement: \$100

☐ Vacation, Right-of-way: \$200

☐ Zoning Code Text Amendment: \$1,000

☐ Zoning Map Amendment: \$1,000

SUBCOMMITTEE (_____)



Greenbriar Hills Country Club

12665 BIG BEND BLVD.
KIRKWOOD, MISSOURI 63122
(314) 822-3011

Nov. 2, 2022

Mr. Jonathan Raiche
Director of Planning & Development
City of Kirkwood
139 S. Kirkwood Rd.
Kirkwood, MO 63122

Re: Greenbriar Hills Country Club
Pickleball Court & Pool Deck Improvements

Dear Mr. Raiche,

The Greenbriar Hills Country Club (GHCC) at #12665 Big Bend Boulevard wishes to construct four pickleball courts, and expand the existing pool decking area. The pickleball courts are planned for the vacant lawn area west of the existing tennis courts, and east of the existing pool area. The pool deck expansion will occur along the northern edge, as well as the southern edge of the existing pool deck area. The hours of operation for the pickleball courts will be from 8 a.m. to sunset.

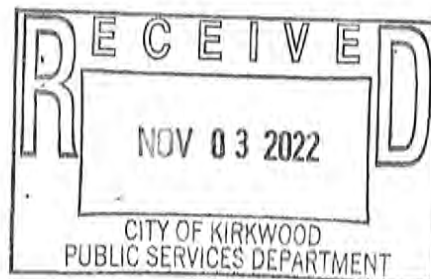
As an amenity to the City, GHCC realizes the need to replace aging improvements, and make upgrades where necessary to maintain this municipal attraction. This plan will not increase GHCC membership, but will create an additional amenity for existing members. The overall GHCC property contains approximately 128.66 acres, and is bounded on the south by Briargate Lane, on the north by Greenbriar Ridge Drive, and on the east by Hwy. 270. The immediate area of interest, or "project area" is located just inside the entrance to the GHCC, and at the south end of the property. Other minor improvements include the replacement of the patio at the existing tennis hut.

The new improvements represent approximately 15,246 square feet of new impervious area, or 0.35 acres. Including reasonable working space around the proposed improvements, the disturbed area for the project is approximately 34,151 square feet, or 0.784 acres. Drainage patterns will not change, and an MSD approved storm sewer system is in-place immediately downstream of the project area, and will adequately receive the project runoff.

While the disturbed area is under one acre, the differential runoff is less than 2 cubic feet per second, and the total site imperviousness is well under the 25% threshold, the City considers the GHCC a "commercial" development, and has requested GHCC submit plans to MSD. For a small project such as this, MSD would not typically require "Best Management Practices" (BMP's) for treatment of runoff for water quality, but stricter City requirements necessitate the installation of a BMP, such as the proposed bio-retention cell.

Thank you,

Greenbriar Hills Country Club





Greenbriar Hills Country Club

12665 BIG BEND BLVD.
KIRKWOOD, MISSOURI 63122
(314) 822-3011

October 28, 2022

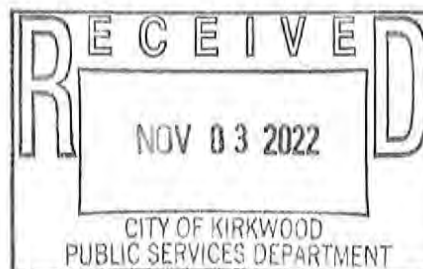
To the members of the City of Kirkwood Planning & Zoning Commission and City Council,

We the undersigned are part of the 125 Kirkwood families who are also members of Greenbriar Hills Country Club. We are writing to provide our full support of the long-overdue facility improvements at our club and specifically the completion of a dedicated pickleball court adjacent to our existing racquet complex. This is the project plan that has already been presented to the Commission on September 7, 2022 and reviewed on-site with the commission sub-committee on September 30, 2022. Prior to submission to the commission, we invited our Osage Hills neighbors to a reception at the club on August 11, 2022 to introduce, review, and provide our neighbors an open and inclusive forum to ask questions about our projects.

Since its inception in 1927, the Club has continuously served as the centerpiece and anchor of the Osage Hills neighborhood. It remains the only country club in the City of Kirkwood. Our commitment to continued stewardship of the club, neighborhood, and our city is stronger today than ever before.

Existence as a private country club in our extremely competitive market is possible only through attracting and retaining dedicated members. The club of yesterday was one used almost exclusively by golfers. Today's club is a whole-family environment. The expectation of members, spouses, and their children is that it will serve as the social, dining, entertainment & recreational center of the family. As times and membership demands have changed, so has the club. Over the past 95 years, structures, dining options, recreation opportunities, and golf amenities have been added to the club and directly funded exclusively by the financial contributions of the members. While these investments have maintained adequate facilities on our property, the lack of certain amenities has placed Greenbriar Hills Country Club at a significant disadvantage in our competitive set.

Beginning in 2018, facing dwindling membership rolls, the club contracted with internationally recognized private club Membership consultants, and then with Facilities consultants & engineers. Their findings were unanimous: Greenbriar Hills Country Club was not competitive in the St. Louis club market. We were unable to attract the membership levels necessary to drive day-to-day operating revenue. Our lack of amenities denied the club the level of initiation fees that our competitors were garnering, and which provide the ability to reinvest in the club. The club sold precious property to reduce debt loads and provide capital to the club. The spiral had to be stopped. In June of 2022, the current membership voted overwhelmingly to invest a very significant amount of our personal funds to bring the club into a more competitive footing.





Greenbriar Hills Country Club

12665 BIG BEND BLVD.
KIRKWOOD, MISSOURI 63122
(314) 822-3011

Among other amenities these funds will provide is hard-court surface at our racquet complex on which pickleball can safely and properly be played. Pickleball is the fastest growing sport in the U.S., and in our competitive set, pickleball is an available amenity provided to the current and potential members at our nearest direct competitors: Sunset Country Club in Sunset Hills, Algonquin Golf Club in Webster Groves, MAC West in Des Peres, & Forest Hills Country Club in Chesterfield. Greenbriar is alone in the St. Louis district as a club without a hardcourt for pickleball play.

The City of Kirkwood has also embraced the game of pickleball like no other community. In Kirkwood there are no fewer than 15 private pickleball courts, all at homes in residential areas, and soon to be a total of 21 available public pickleball courts provided by the Parks & Recreation department at Kirkwood Park, also located adjacent to a densely populated residential area. These counts do not include the countless gyms, sport courts, driveways, cul-de-sacs, and parking lots that serve as makeshift pickleball courts as this game gains popularity.

One Kirkwood private court that has been used for years as a pickleball court is the Osage Hills neighborhood hardcourt located on Briargate Lane and adjacent to the Greenbriar parking lot. Likewise, the club has been playing pickleball on our 4 existing clay courts for 3 years. However, our irrigated clay surface is insufficient and unsafe for pickleball play. Pickleball is a prevailing presence in and around the Osage Hills neighborhood that has existed for years and has been a game enjoyed by the club and our neighbors without a single incident or complaint from either party.



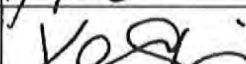
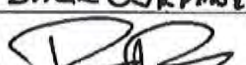

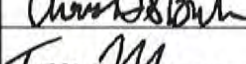



One consideration the club identified early in the process was the potential of sound concerns of our neighbors. To resolve that potential concern, the club took several definitive steps. First, the club and our civil engineers selected a court location that moves pickleball from our existing clay courts to an area closer to the pool and club proper, and adjacent to the fewest possible number of homes on Briargate and Sweetbriar Lanes. Second, the club commissioned a professional acoustical study to understand any potential impact. The results of that study conclusively confirm that the sound from courts in this location falls beneath the required thresholds of St. Louis County ordinances. Third, despite the results of the acoustic study, to further limit any potential sound impact to our neighbors, the club has revised our plans for the area and at great cost is increasing the height and structure of the fences surrounding the courts and adding sound barriers on the north and south sides of the new court to further mitigate any potential sound. Finally, there will be no lights on the courts, there will be no play after twilight, and there are no additional food or beverage additions to the area. This abundance of care demonstrates the club's ongoing commitment to being a good neighbor, and to continue to add value to our Osage Hills neighborhood as we have done for nearly a century.

We appreciate your consideration and request that this project be recommended for approval by both the Commission and the Council as soon as the required submissions and hearings are complete.

Sincerely,

Greenbriar Hills Country Club Members, Kirkwood Residents

	NAME	SIGNATURE	NAME	SIGNATURE
①	John Bickel	John Bickel	(2) CHRISTINE DENNETT THOMAS	Christine Denney
②	Tim McGRAIL	Tim McGrail	(22) BERNARDSEN	Thomas Bernsen
③	Kevin McLaughlin	Kevin McLaughlin	(23)	
④	Tammy McGrail	Tammy McGrail	(24)	
⑤	Laura McLaughlin	Laura McLaughlin	(25) Cantelli	
⑥	EDWARD MOLONEY	Edward Moloney	(26) Andy Anderson	Andy Anderson
⑦	Rob Schaeckel	Rob Schaeckel	(27) DANIEL MCGEE	Daniel McGee
⑧	SCOTT LARSON	Scott Larson	(28) Lukas Bridenbark	Lukas Bridenbark
9	Garretto O'Connell	Garretto O'Connell	(29) WADDI BRIDENBECK	Waddi Bridenbeck
10	Katie O'Connell	Katie O'Connell	(30) KEVIN GRIGSEMER	Kevin Grigsemmer
11	STEVE GRIGONE	Steve Grigone	(31) KILIAN GRIGSEMER	Kilian Grigsemmer
12	Lynn Grigone	Lynn Grigone	(32) Ian Varley	Ian Varley
13	JOHN RIGGS	John Riggs	(33) Greg Shoenker	Greg Shoenker
14	JENNIFER RIGGS	Jennifer Riggs	(34) Becky Shoenker	Becky Shoenker
15	Jodi Edwards	Jodi Edwards	(35) LYNN BRANDT	Lynn Brandt
16	BILL STOBBS	Bill Stobbs	(36) DAVE BRANDT	Dave Brandt
17	SARA STOBBS	Sara Stobbs	(37) Robert Hardy	Robert Hardy
18	Joe Harvath	Joe Harvath	(38) Nancy Hardy	Nancy Hardy
19	Chandrika Christie	Chandrika Christie	(39)	
20	Ryan Denney	Ryan Denney	(40) PETE AVERY	Pete Avery

NAME	SIGNATURE	NAME	SIGNATURE
(41) Pete Avery		(42) Melodie Avery	
(43) Chris Leuz		(44) Katie Leuz	
(45) Ron Key		(46) Peggy Key	
(47) Steve Berenz		(48) Jackie Berenz	
(48) Jim Schulte		(49) Bianca Gundagnoli	
(50) Cindy Schulte		(52) Ryan Quinn	
(51) Michael Gundagnoli		(53) Kelly Quinn	
(54) Catherine Sotirich		(55) Evan Sotirich	
(56) Patrick S. Carr		(57) Ellen Carr	
(58) 	DALE WEPNER	(59) Kasey Leanne	
(60) Blake Bradshaw		(61) Amy Bradshaw	
(62) Matthew Birke		(63) Christine Birke	
(64) KEN MERSMANN		(65) TOMER MERSMANN	
(66) Lou Hezmesco		(67) Amy Hezmesco	
(68) Mary Shortal		(69) Thomas Shortal	
DAVID CAMPBELL			
Holly Campbell			
David Hacks			
Phoebe Hacks			

SIGNED BY:

Andrew		Anderson	364 S. Ballas Rd	Kirkwood	MO	63122
Peter		Avery	2381 Maybrook Lane	Kirkwood	MO	63122
Melanie		Avery	2381 Maybrook Lane	Kirkwood	MO	63122
Thomas	G	Berndsen	1815 Brookcreek Ln	Kirkwood	MO	63122
Linda		Berndsen	1815 Brookcreek Ln	Kirkwood	MO	63122
Steven		Berecz	128 Embassy Lane	Kirkwood	MO	63122
Jackie		Berecz	128 Embassy Lane	Kirkwood	MO	63122
John	T	Bickel Jr.	75 West Glenwood	Kirkwood	MO	63122
Matthew		Birke	2008 Hunters Field Rd	Kirkwood	MO	63122
Christine		Birke	2008 Hunters Field Rd	Kirkwood	MO	63122
Blake	A	Bradshaw	857 Stable Ridge Lane	Kirkwood	MO	63122
Amy		Bradshaw	857 Stable Ridge Lane	Kirkwood	MO	63122
David	R	Brandt	710 Wessel Farm Ct.	Kirkwood	MO	63122
Lynn		Brandt	710 Wessel Farm Ct.	Kirkwood	MO	63122
Holly		Campbell	605 Essex Ct.	Kirkwood	MO	63122
David		Campbell	605 Essex Ct.	Kirkwood	MO	63122
Lukas		Bridenbeck	23 Sweetbriar Lane	Kirkwood	MO	63122
Maddi		Bridenbeck	23 Sweetbriar Lane	Kirkwood	MO	63122
Holly		Campbell	605 Essex Ct.	Kirkwood	MO	63122
David		Campbell	605 Essex Ct.	Kirkwood	MO	63122
Patrick		Carr	119 N. Kirkwood Road	Kirkwood	MO	63122
Ellen		Carr	119 N. Kirkwood Road	Kirkwood	MO	63122
Ryan	T	Denney	1207 Oakshire Lane	Kirkwood	MO	63122
Christine		Denney	1207 Oakshire Lane	Kirkwood	MO	63122
Michael		Edwards	1314 West Adams	Kirkwood	MO	63122
Jodi		Edwards	1314 West Adams	Kirkwood	MO	63122
Kevin	S	Griesemer	1804 Cheswick Place	Kirkwood	MO	63122
Eileen		Griesemer	1804 Cheswick Place	Kirkwood	MO	63122
Steven		Grigone	1805 Cheswick Pl.	Kirkwood	MO	63122
Lynn		Grigone	1805 Cheswick Pl.	Kirkwood	MO	63122
Michael		Guadagnoli	1026 Station Bend Rd	Kirkwood	MO	63122
Bianca		Guadagnoli	1026 Station Bend Rd	Kirkwood	MO	63122
Bob		Hardy	716 Huntwood Lane	Kirkwood	MO	63122
Nancy		Hardy	716 Huntwood Lane	Kirkwood	MO	63122
Dave		Harke	12 Lemp Road	Kirkwood	MO	63122
Phoebe		Harke	12 Lemp Road	Kirkwood	MO	63122
Joe		Harvath	48 West Glenwood	Kirkwood	MO	63122
Chandrika (Christie)		Harvath	48 West Glenwood	Kirkwood	MO	63122
Lou		Helmsing	1933 Grassy Ridge Rd.	Kirkwood	MO	63122
Amy		Helmsing	1933 Grassy Ridge Rd.	Kirkwood	MO	63122
Ronald	P	Key	85 Wildwood Lane	Kirkwood	MO	63122
Peggy		Key	85 Wildwood Lane	Kirkwood	MO	63122
Scott		Larson	307 Weston Oaks Ct.	Kirkwood	MO	63122
Michelle		Larson	307 Weston Oaks Ct.	Kirkwood	MO	63122
Daniel	J	McGee	119 N. Kirkwood Road	Kirkwood	MO	63122
Nancy		McGee	119 N. Kirkwood Road	Kirkwood	MO	63122
Tim	J	McGrail	226 E. Washington	Kirkwood	MO	63122
Tammy		McGrail	226 E. Washington	Kirkwood	MO	63122
Kevin	T	McLaughlin	240 East Jefferson Ave	Kirkwood	MO	63122
Laura		McLaughlin	240 East Jefferson Ave	Kirkwood	MO	63122
Jack		Meiners	668 Clear Brook Drive	Kirkwood	MO	63122
Caitlin		Meiners	668 Clear Brook Drive	Kirkwood	MO	63122
Ken	M	Mersmann	2107 Briargate	Kirkwood	MO	63122
Tomea		Mersmann	2107 Briargate	Kirkwood	MO	63122
Ted	J	Moloney	1527 Sommet Place	Kirkwood	MO	63122
Garrett		O'Connell	408 West Argonne Drive	Kirkwood	MO	63122
Kathleen		O'Connell	408 West Argonne Drive	Kirkwood	MO	63122
Ryan		Quinn	456 Clemens Ave.	Kirkwood	MO	63122
Kelly		Quinn	456 Clemens Ave.	Kirkwood	MO	63122
Katie		Renz	2120 Briargate Lane	Kirkwood	MO	63122
Chris		Renz	2120 Briargate Lane	Kirkwood	MO	63122
John	C	Riggs	801 Craig Forest Lane	Kirkwood	MO	63122
Jennifer		Riggs	801 Craig Forest Lane	Kirkwood	MO	63122
Robert		Schenck	1521 Frances Road	Kirkwood	MO	63122
Lynn		Schenck	1521 Frances Road	Kirkwood	MO	63122
Tim		Schulze	659 N. Clay Ave	Kirkwood	MO	63122
Cindy		Schulze	659 N. Clay Ave	Kirkwood	MO	63122
Greg		Shoemaker	1705 Winesap Lane	Kirkwood	MO	63122
Becky		Shoemaker	1705 Winesap Lane	Kirkwood	MO	63122
Thomas		Shortal	1901 Sunny Drive	Kirkwood	MO	63122
Mary		Shortal	1901 Sunny Drive	Kirkwood	MO	63122
Katie		Sotiriou	221 Lindeman Rd	Kirkwood	MO	63122

Evan		Sotiriou	221 Lindeman Rd	Kirkwood	MO	63122
Bill		Stobbs	106 Wildwood Lane	Kirkwood	MO	63122
Sara		Stobbs	106 Wildwood Lane	Kirkwood	MO	63122
Ian		Varley	114 West Glenwood Lane	Kirkwood	MO	63122
Kate		Varley	114 West Glenwood Lane	Kirkwood	MO	63122
Dale	M	Weppner	404 S. Harrison Ave.	Kirkwood	MO	63122
Katherine		Weppner	404 S. Harrison Ave.	Kirkwood	MO	63122

Prepared for:



ST. LOUIS COUNTY, MISSOURI

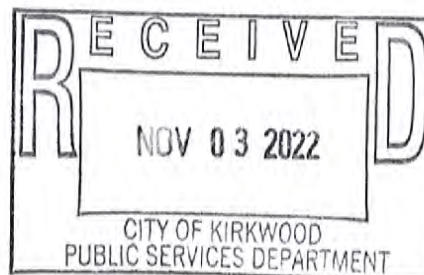
**SPORT COURT RENOVATIONS
AT GREENBRIAR COUNTRY CLUB
#12665 Big Bend Blvd.
Kirkwood, MO 63122**

HYDROLOGICAL ANALYSIS & REPORT

Prepared By:



Issue Date: Nov. 1, 2022
E/A Proj. No. 1802-22-1
MSD #: 22MSD-0000
Revised:



HYDROLOGICAL ANALYSIS & REPORT

Prepared For:



PICKLEBALL COURT ADDITIONS at GREENBRIAR HILLS COUNTRY CLUB KIRKWOOD, MISSOURI

WDG Project No. 1802-22-1
November 1, 2022

INTRODUCTION

The Greenbriar Hills Country Club (GHCC) wishes to construct four pickleball courts, and replace the concrete patio surrounding the existing tennis building at #12665 Big Bend Boulevard, in the City of Kirkwood, MO. The overall GHCC property contains approximately 128.66 acres, and is bounded on the south by Briargate Lane, and on the north by Greenbriar Ridge Drive. The current percentage of imperviousness for the GHCC has been estimated at approximately 7.8%. In 2018, GHCC reconstructed a patio at the northeast corner of the main Country Club building, and in doing so, added a covered bar. Plans were prepared and submitted to MSD under project #18MSD-00012. Since no additional impervious surfaces were added, and since the differential runoff for this 2018 project was 0.00 cubic feet per second (cfs), detention and water quality treatment were not required. While this patio reconstruction could have been termed "maintenance", MSD began the "tracking" of land disturbance with this 2018 project, which disturbed 0.19 acres. As such, this project and any future project by GHCC must acknowledge the previous projects that affect the overall site coverage and associated stormwater runoff, and must submit to MSD for plan review and approval.

For this project, the immediate area of interest, or "project area" is located just inside the entrance to the GHCC, at the south end of the overall property, and immediately north of Big Bend Blvd. The project involves the construction of four new pickleball courts between the existing tennis courts and the existing swimming pool. Other minor improvements include the replacement of the patio (maintenance) at the existing tennis hut, an expanded pool deck at the northeast corner of the existing swimming pool, and an expanded pool deck immediately south of the existing swimming pool. The new improvements represent approximately 15,246 square feet of new impervious area, or 0.35 acres. In the effort to include the input from the neighboring residents, a project meeting was held at the Country Club on August 11, 2022, during which the residents north of, and downhill from the project

area requested improved collection of surface runoff. It was agreed upon by all parties at this meeting, that an effort will be made along the "shared" property line to re-establish the berm/swale system to better collect the surface runoff, and direct the flow to the existing area inlet immediately downstream of the project area.

The proposed, "new" impervious surfaces to be constructed amounts to 15,246 square feet, or approximately 0.35 acres. Including reasonable working space around the proposed improvements increases the disturbed area to approximately 34,238 square feet, or 0.786 acres.

On 5/12/22, Mr. Jonathan Raiche, the Director of Planning with the City of Kirkwood, having reviewed the conceptual Site Plan, indicated that while the disturbed area is under one acre, the differential runoff is less than 2 cubic feet per second, and the total site imperviousness is well under the 25% threshold, the City considers the GHCC a "commercial" development, and will expect the GHCC to submit to MSD.

The following information summarizes the metrics typically considered by MSD and by the municipality:

Water Quality:

Disturbed Area less than 1 acre.....No BMP requirement by MSD
Additional Impervious Area greater than 1,000 sq. ft.....**BMP required by City**

Stormwater Detention:

In looking at the proposed improvements, the differential runoff is.....

$$Q \text{ diff} = 0.35 \text{ acres} (3.54 \text{ cfs/ac} - 1.7 \text{ cfs/ac}) = 0.64 \text{ cfs}$$

With a differential runoff less than 2 cfs, MSD would typically not require detention. It is noted that two existing lakes are currently providing stormwater detention for GHCC, and upon the GHCC property. Should future projects by GHCC warrant detention, and should GHCC wish to utilize these existing basins to satisfy the detention requirements, **GHCC may be required by MSD to modify these existing basins to meet current design criteria.** These lakes are located at the northern limits of the property, and release the attenuated runoff into the un-named tributary in the Grand Glaize Creek sub-watershed, which ultimately flows into the Meramec River.

Based upon this approach to the project area, the GHCC shall be required to construct an acceptable BMP. Additionally, the **Owner/Contractor shall be responsible for installing and maintaining for the duration of the project, all erosion control devices, and shall provide inspection report(s) to City for compliance.** Any future land disturbance and/or increase in impervious area on this site may require additional stormwater management per MSD regulations in place at that time (including total land disturbance and/or imperviousness added by this project).

DRAINAGE CONDITIONS

The "project area" generally slopes from the south to the north and ultimately drains to the existing area inlet (MSD structure #24O3-185D), all within the GHCC property. The **current** tributary area and **runoff to the existing area inlet** is approximately.....

2.11 acres @ 40% imperviousness (CI-15 yr. factor = 2.39).....Q15=5.04 cfs
 0.513 acres @ 10% (CI-15 yr. factor = 1.7).....Q15=0.87 cfs
 Q15=5.91 cfs

2.11 acres @ 40% imperviousness (CI-100 yr. factor = 3.33).....Q100=7.03 cfs
 0.513 acres @10% (CI-100 yr. factor = 2.37).....Q100=1.22 cfs
 Q100=8.25

The proposed runoff is as follows.....

2.11 acres @ 48% imperviousness (CI-15 yr. factor = 2.54).....Q15=5.36 cfs
 0.513 acres @ 10% (CI-15 yr. factor = 1.7).....Q15=0.87 cfs
 Q15=6.23 cfs

2.11 acres @ 48% imperviousness (CI-100 yr. factor = 3.53).....Q100=7.45 cfs
 0.513 acres @10% (CI-100 yr. factor = 2.37).....Q100=1.22 cfs
 Q100=8.67

It is noted that the intended berm and swale system along the residential property line is poorly defined in some areas, and the entire amount of the surface runoff is not captured by the existing area inlet, with some of the surface runoff "leaking" onto the residential properties. While not in the original scope, it is this condition and concern voiced by the residents that can be, and will be addressed by this project.

With a restored 12" high berm on the downstream side of the existing area inlet, the structure has the capacity to accept and convey without overtopping the berm, and that capacity is approximately 16.6 cfs. It is noted that an existing 8" diameter storm drain pipe connects to this existing area inlet, and appears to collect a large portion of the Country Club's eastern roof area. The western limits of the existing pool deck appears to be collected via a small width trench drain, which discharges along the northern edge of the pool area, and then drains via an 8" pipe to the east, and into the area inlet. This flow has been estimated as

0.45 acres @ 95% imperviousness (CI-15 yr. factor = 3.45).....Q15=1.55 cfs

0.45 acres @ 95% imperviousness (CI-100 yr. factor = 4.80).....Q100=2.16 cfs

These flows shall be added to the surface runoff flow that enters the throat of the existing area inlet, for a proposed, total pipe discharge of Q15 = 7.78 cfs, and a Q100 = 10.83 cfs.

The area collected by the proposed BMP is approximately 91,912 square feet, or 2.11 acres. Of that area, approximately 1.01 acres will be impervious once improvements are completed. The sub-drain pipe from the proposed Bioretention Basin (BMP) will daylight at the throat of the existing area inlet.


The existing area inlet has all four throats open, and has the capacity to accept the 15-year, and the 100-year rainfall event without overtopping the re-established berm. The existing 15" pipe from the existing area inlet to the stormsewer system along Sweetbriar Lane has a 4.2% slope and capacity to convey the 15-year (9.3 cfs) and 100-year event (12.9 cfs).

Should the existing downstream 15" pipe become incapacitated, or blocked, the overland flow path of the 100-year rainfall event has been plotted between lots #9 and #10 of Osage Hills to confirm the high water level does not adversely impact the low sill elevations of these two homes. It is noted that a 34' wide parcel of ground (owned by the City) separates these 2 lots, and helps in providing a safe corridor for the runoff to flow to additional inlets located on Sweetbriar Lane.

The proposed improvements will not change the drainage patterns, and may use the existing storm sewer systems, or portions thereof, already in-place, and will not adversely exceed original runoff rates.

See attachments

Greenbriar Hills		STORMWATER MANAGEMENT TRACKING DATA						11/1/2022	
Country Club									
MSD PROJECT NO.	APPLICATION DATE	COMMENTS	ADDITIONAL IMPERVIOUS AREA (ACRES)	DIFFERENTIAL RUNOFF (CFS)	FLOOD PROTECTION Q _p Y/N	DISTURBED AREA (ACRES)	WATER QUALITY W _q Y/N	CHANNEL PROTECTION PROVIDED CP _a Y/N	BEST MANAGEMENT PRACTICE (BMP)
18MSD-00012	JAN. 2018	PATIO REPLACEMENT & COVERED BAR	0.00	0.00	N	0.19	N	N	SILTATION CONTROL
22CNCPB-00069	ACTIVE	PICKLEBALL COURT & POOLDECK EXPANSION	0.35	0.64	N	0.786	Y	N	BIORETENTION BASIN
BMP TABLE									
AREA DESIGNATION	TRIBUTARY AREA	IMPERVIOUS AREA	PERVIOUS AREA	BMP	WATER QUALITY VOLUME REQD.	WATER QUALITY VOL. PROVIDED	CHANNEL PROTECT. VOLUME REQD.	CHANNEL PROTECT. VOL. PROVIDED	
BMP-1	2.11	0.84	1.27	BIORETENTION RAIN GARDEN	1032	1400	N	N	
18MSD-00012	0.19	0.18	0.01	UNTREATED BYPASS	N	N	N	N	
$WQ_v = (P)(R_v)(A)/12$ water quality volume (ft³) 1.14 = rainfall depth (in) volumetric rainfall coefficient = 0.05 + 0.009(I) % impervious cover = (AI/A) x 100 site area (ac) impervious area (ac)									
required cubic feet acre-feet 0.0315875 1375.9515 WQv required = 75% of WQv prior to filtration = 1,032 cu ft WQv provided = 100' x 14' x 2.5' x 40% void space = 1,400 cu. ft.									
Area of Filter Bed Af=(WQv x df) / k (hf+df) tf df = depth of filter bed (ft) - 2.5 ft. k = filter permeability coefficient - 0.1 ft/day hf = avg. ht. of water above filt bed (ft) - 0.5 ft. tf = filter bed drain time (days) - 2 days for biocell									
differential runoff (square feet) (acres) (cfs)									
media sand bio soil bio soil									
ft/day inch/hr 3.5 0.5 0.1									
New Improvements Only									



Weis Design Group
ENGINEERS / ARCHITECTS / PLANNERS
16296 Westwoods Business Park Drive | Elliptical, MO | 63021
636.207.0832 (O) | 618.874.0320 (IL O) | 636.207.0328 (F)
www.weisdesigngroup.com | wdg@weisdesigngroup.com

Kirkwood Pickleball

Write a description for your map.

Legend

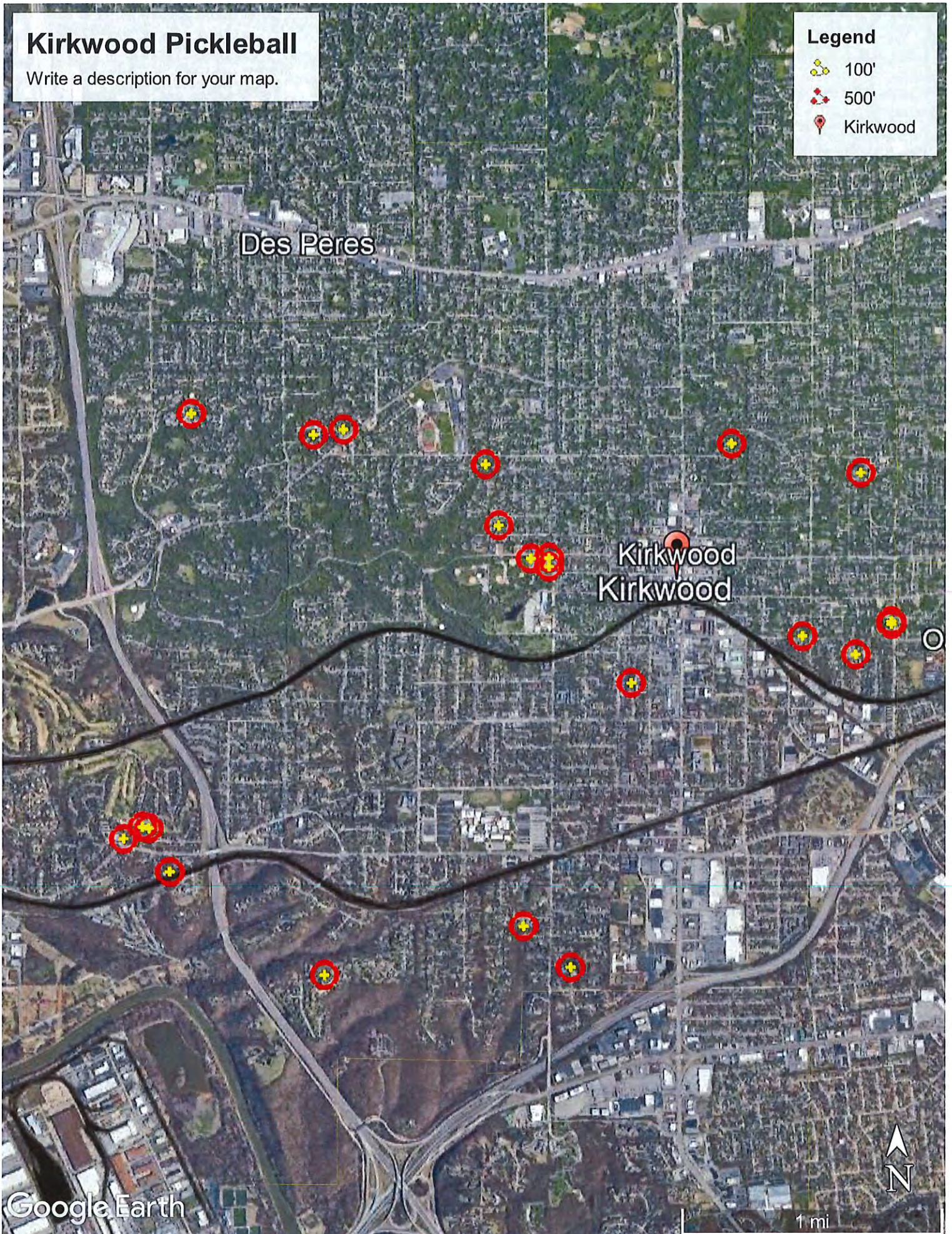
- 100'
- 500'
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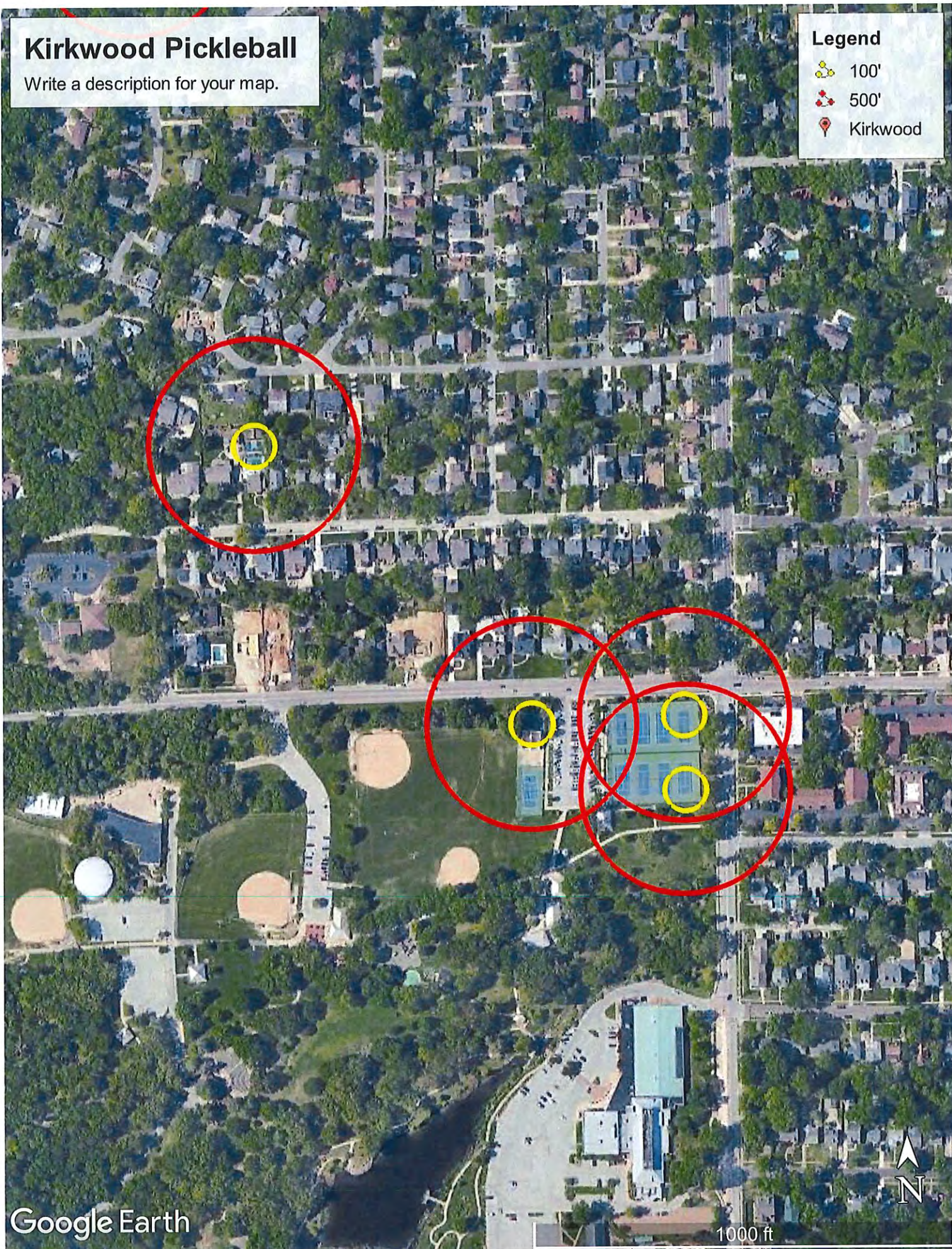


Kirkwood Pickleball

Write a description for your map.

Legend

- 100'
- 500'
- Kirkwood



Google Earth

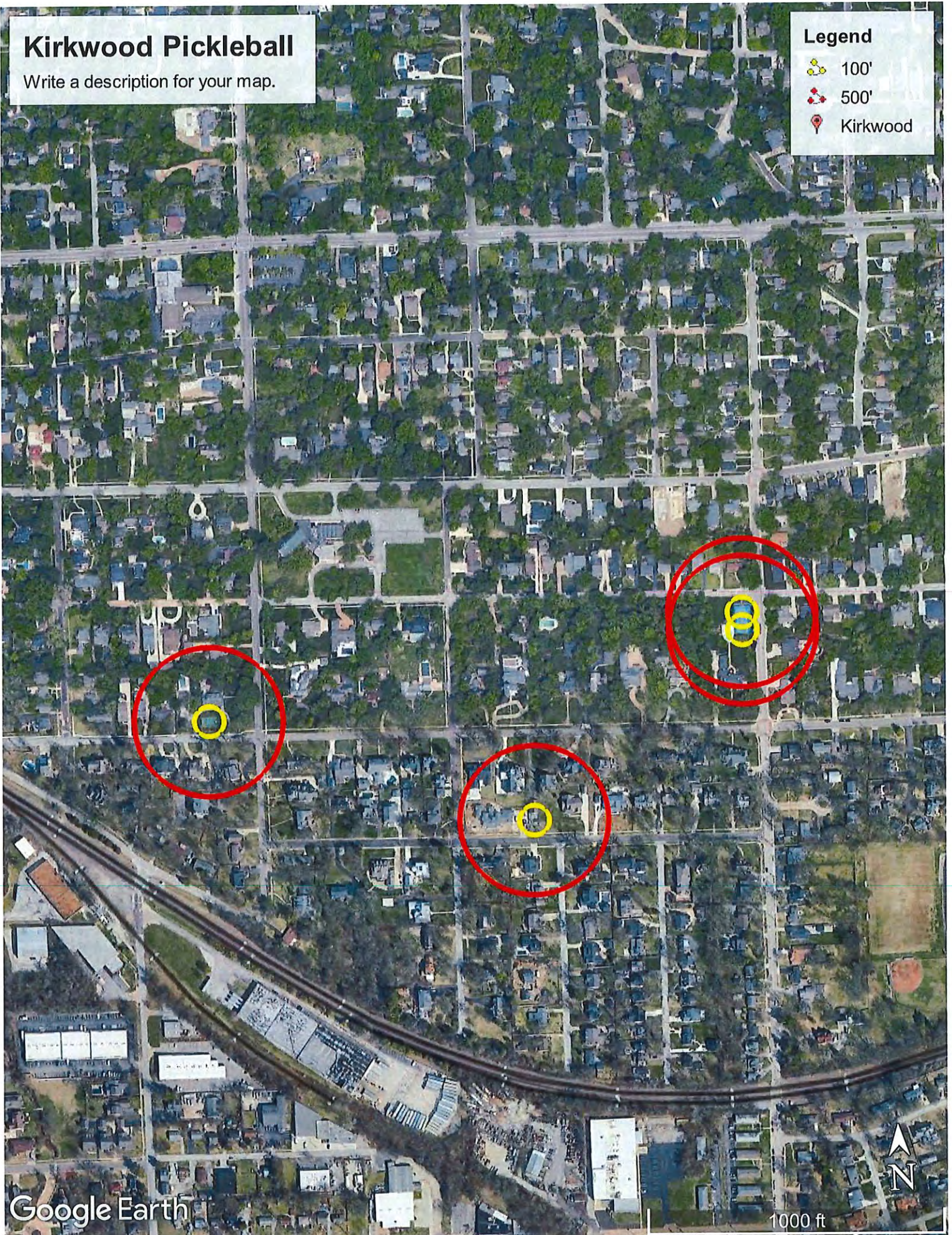
1000 ft

Kirkwood Pickleball

Write a description for your map.

Legend

- 100'
- 500'
- Kirkwood



Kirkwood Pickleball

Write a description for your map.

Legend

100'

500'

Kirkwood



Google Earth



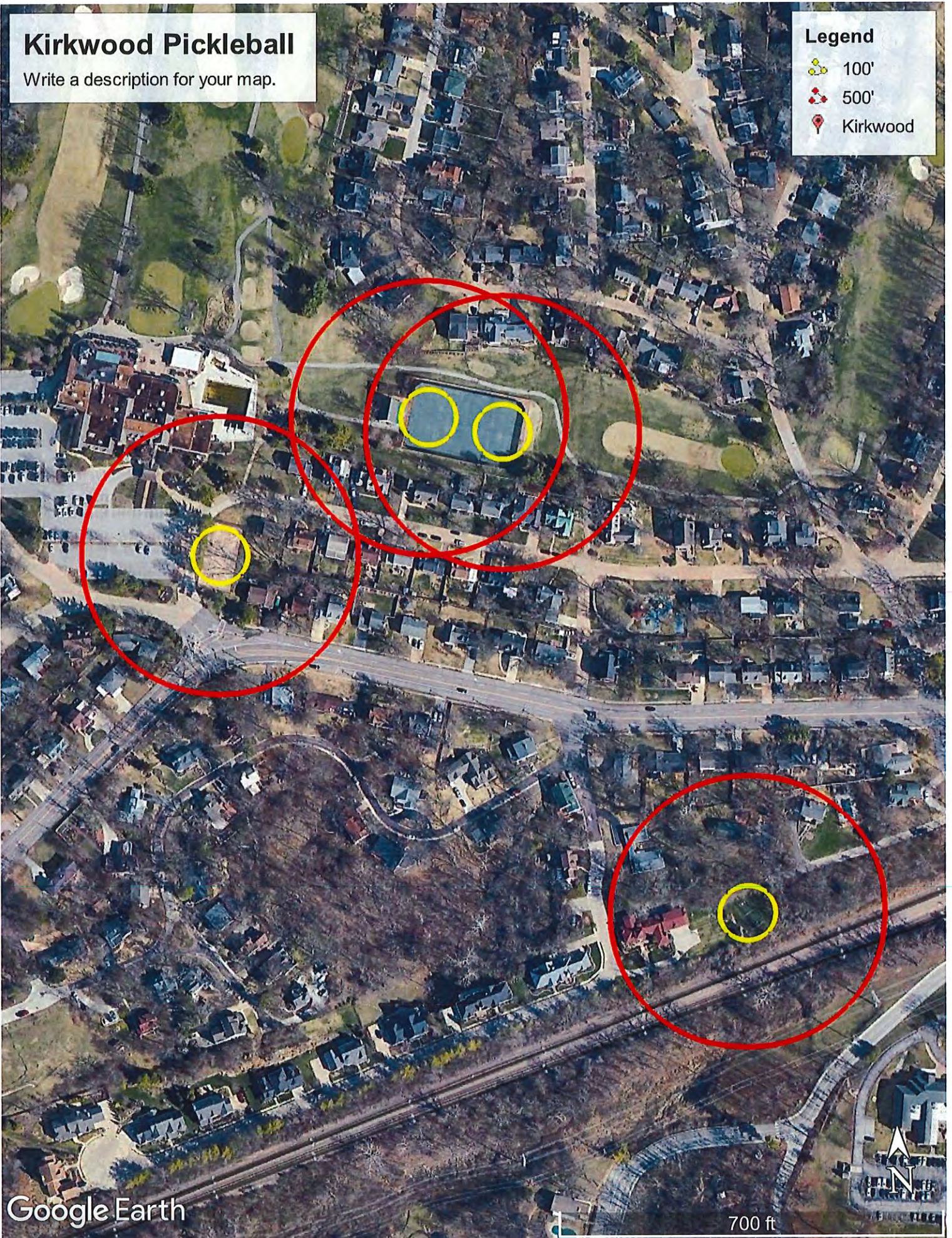
1000 ft

Kirkwood Pickleball

Write a description for your map.

Legend

- 100'
- 500'
- Kirkwood





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AcoustiControl Report H1709 Revised

Greenbriar Hills Country Club Pickleball Courts Project

12665 Big Bend Road

Kirkwood, Missouri 63122

Report Date: October 12, 2022

Decibel: (also referred to as dB, dBA, dBC)

A decibel is a measurement of sound. The higher the decibel number, the louder the sound.

Outdoor Background Noise Level (sometimes referred to as Ambient Noise)

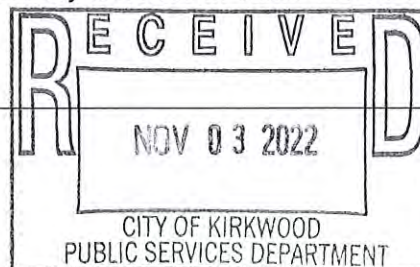
The amount of sound generated by lawnmowers, road traffic, construction, industrial noise, human and animals sources, outdoor mechanical equipment, train whistles, airplane noise etc.

Sound Pressure Level (LAeq)

A-Weighted equivalent sound pressure level in dB (decibels measured over a period of time.)

Sound Level A - Weighted (dBA)

The A-Weighted is the most common single number measure of loudness. This standard scale in decibels is a measure of the human response to noise which correlates to judgments of loudness from a broad band noise characteristic of the environment. In addition, a-weighting considers the frequency of the sound, which relates to how people notice the noise. The A-weighting was used in the noise assessment for its prevalent use for environmental noise assessments and the large body of correlations of A-weighted sound levels and people's sensitivity to noise. In Table 1 is a list of some everyday noises and their levels recorded in dBA.



Proposal H1709 Revised

Nearest Residential Property Line(s)

The property line(s) that separates the Greenbriar Hills Country Club property located at 12665 Big Bend Road and the residential properties on both Briargate Lane and SweetBriar Lane.

Examples of Human Responses to Changes in Noise Levels

There is variation in individual perception of the power of a sound; studies have shown that the changes in noise levels of less than 3 dBA are barely perceptible to most people.

However, a 10 dBA change are reported by people as either a doubling (halving) of noise by a normal human ear. This means that the listener perceives a 10 dBA reduction as a reduction of $\frac{1}{2}$ the noise. The average ability of a listener to detect changes in noise levels is outlined in Table 2.

(All Tables and Figures may be found in the Appendix at the bottom of this report.)

St. Louis County Noise Control Code

This parcel of land falls within the noise ordinance of St Louis County, Chapter **625-Noise Control Code**.

The St. Louis County, Missouri Noise Control Code has Chapter 625.050 titled – Permissible Noise Levels (See Appendix A for Permissible Noise Levels). The Permissible Noise Level for daytime hours of 7:00 AM to 10:00 PM is 55 dBA or less for the Residential Land Use Category. Greenbriar Hills Country Club and surrounding properties on Briargate Lane and SweetBriar Lane are in the Residential Land Use Category per the St. Louis County Noise Code.

Environmental Noise Study and Acoustical Model and Analysis

A: Environmental Noise Study was performed at the adjacent property line of Greenbriar Hills Country Club and 2143 Briargate Lane.

Conditions:

AcoustiControl conducted continuous environmental noise monitoring from 1 PM on Wednesday, August 31, 2022 through 8 PM on Monday September 5, 2022.

The purpose of this noise study was to determine what the existing average ambient background noise levels are at this site. This noise study captured all current nearby environmental noise, including the traffic generated on Interstate 270 and Big Bend Road and from Greenbriar Hills Country Club.

Environmental noise was monitored at 1 location on the property. (Please see Figure 1 for the location of noise monitoring equipment and the location of proposed Pickleball courts.)

Results of the Environmental Noise Study:

The average measured 1-hour sound pressure levels (LAeq) at the location of the acoustical monitoring equipment varied from 51 dBA to 70 dBA. The LAeq of 70 occurred during the hour that mowing occurred. If the 70 dBA is excluded the range of the hourly LAeq was 51 to 59 dBA. (Please see Table 3 for the daily average measurements).

B: Equipment and Methodology

The measurement procedures conform to ANSI Standard S1.13-1971 (R2010).

All measurements were made on the A-scale (dBA).

A windscreen was used during all measurements.

A B&K Model 2250 Sound Level Meter

A B&K Type 4231 Sound Level Calibrator

A B&K Type 4231 sound-level calibrator was used to calibrate the B&K 2250 Sound Meter before and after noise measurements were taken.

C: Pickleball Sound Assessment Model

An acoustic model was created in SoundPLAN® using the location of the proposed Pickleball Courts at Greenbriar Hills Country Club. Based on published acoustic data, both the spectrum of a Pickleball hit and the sound pressure level of a Pickleball hit with a paddle ranged from a low of 56 dBA to a high of 68 dBA at 25 feet. The hitting of the Pickleball with the Pickleball paddle is what is called the "pop" sound of the ball hitting the paddle. The pop of the ball based on published data is at a frequency of 1000 hertz.

For all SoundPLAN® Scenarios, the sound pressure level used was 68 dBA. To simulate a Pickleball hit in a SoundPLAN® model, the above sound pressure level and frequency spectrum

were converted to a sound power spectrum and placed in the model as a point source in the middle of the Pickleball court.

The above range of sound pressure level for Pickleball hits was also similar to measurements made by AcoustiControl during a Pickleball event in which three courts were being used. It is well known in the industry that Pickleball paddles vary in both sound pressure level and frequency.

D: SoundPlan Acoustic Model 1 (Figure 2)

Acoustic Model 1 simulates a single Pickleball hit in the middle of the proposed Pickleball courts. Figure 2 shows that at the nearest residential property lines the sound pressure level is 50 decibels or less, which is below the current environmental measured background noise level of 54-55 dBA and is 5 decibels below the St. Louis County Noise Code daytime noise limit of 55 dBA.

E: SoundPlan Acoustic Model 2 (Figure 3)

Acoustic Model 2 simulates two Pickleball hits in the middle of the proposed Pickleball courts. This would be a worst-case scenario as it is highly unlikely that two Pickleball hits would occur at precisely the same second.

Figure 3 shows that at the nearest residential property lines the sound pressure level is 55 dBA or less. This is at or just the current measured environmental background noise level of 54-55 dBA and is in compliance with the St. Louis County Noise Code daytime noise limit of 55 dBA.

F: SoundPlan Acoustic Model 3 (Figure 4)

Acoustic Model 3 simulates two Pickleball hits in the middle of the proposed Pickleball courts and adds a 10-foot tall acoustic sound barrier on both ends of the Pickleball courts.

Figure 4 shows that at the nearest residential property lines the sound pressure level is 45 dBA or less. This is significantly below the St. Louis County Noise Code daytime noise limit of 55 dBA.

G: SoundPlan Acoustic Model 4 (Figure 5)

Acoustic Model 4 simulates a single Pickleball hit in the middle of the proposed Pickleball courts. Between the Pickleball court and the adjacent South residential property line has been placed 10 feet in height, 50 feet in depth, and 150 feet long by 100 feet wide, with densely packed evergreen shrubbery planting. The planting should be staggered. As a result, the sound pressure level at the property line is reduced by 3-5 dBA.

The results are in Figure 5 below, showing that the sound pressure level is 45 dBA or less at the nearest residential property lines, and is well below the current measured environmental background noise level of 55 dBA.

H: SoundPlan Acoustic Model 5 (Figure 6)

Acoustic Model 5 simulates two Pickleball hits in the middle of the 2 proposed Pickleball courts with two 450 foot long and 10 foot high Acoustifence acoustic sound barriers along the north and south ends of the Pickleball courts. The acoustic sound barrier selected by Greenbriar Hills Country Club is Acoustifence.

Figure 6 shows the sound pressure level at the nearest residential property lines is 45 dBA or less. This is 10 dBA below the St. Louis County Noise Code daytime noise limit of 55 dBA and is also well below the current measured environmental background noise level of 55 dBA.

Conclusion

Based on the predictions of the SoundPlan Acoustic Models, the operation of the proposed Pickleball courts at Greenbriar Hills Country Club will be in compliance with the St. Louis County Daytime Noise Code of 55 dBA or less.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Jim Holtrop".

Jim Holtrop, INCE ASA ASHRAE

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Appendix : Tables, Figures and St. Louis County Noise Code

Table 1: Common Noise Levels

Sound Source	(dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concert (Rear Seats) On	110
Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night Typical	40-50
Rural Area at Night	30-40
<p>Note: A change in 3 dB(A) is just noticeable change in SPL. A change in 10 dB(A) is perceived as a doubling or halving in SPL.</p> <p>Source: Cowan, James P. Handbook of Environmental, Acoustics. Van Nostrand Reinhold, New York, 1994.</p> <p>Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.</p>	

Table 2: Average Ability of a Person to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound
Source: Bolt Beranek and Neuman, Inc., <i>Fundamentals and Abatement of Highway Traffic Noise</i> , Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.	

Table 3: Environmental Noise Measured During Noise Study

	September 1, 2022	September 2, 2022	September 3, 2022	September 4, 2022	September 5, 2022
	LA _{eq} (dBA)*	LA _{eq} (dBA)*	LA _{eq} (dBA)*	LA _{eq} (dBA)*	LA _{eq} (dBA)*
Location A	54	55	54	53	55.5

*Average Daytime LA_{eq}

Figure 1: Location of Noise Monitoring Equipment



SoundPlan Graphics

Figure 2:
Model 1 / One Single Pickleball Hit

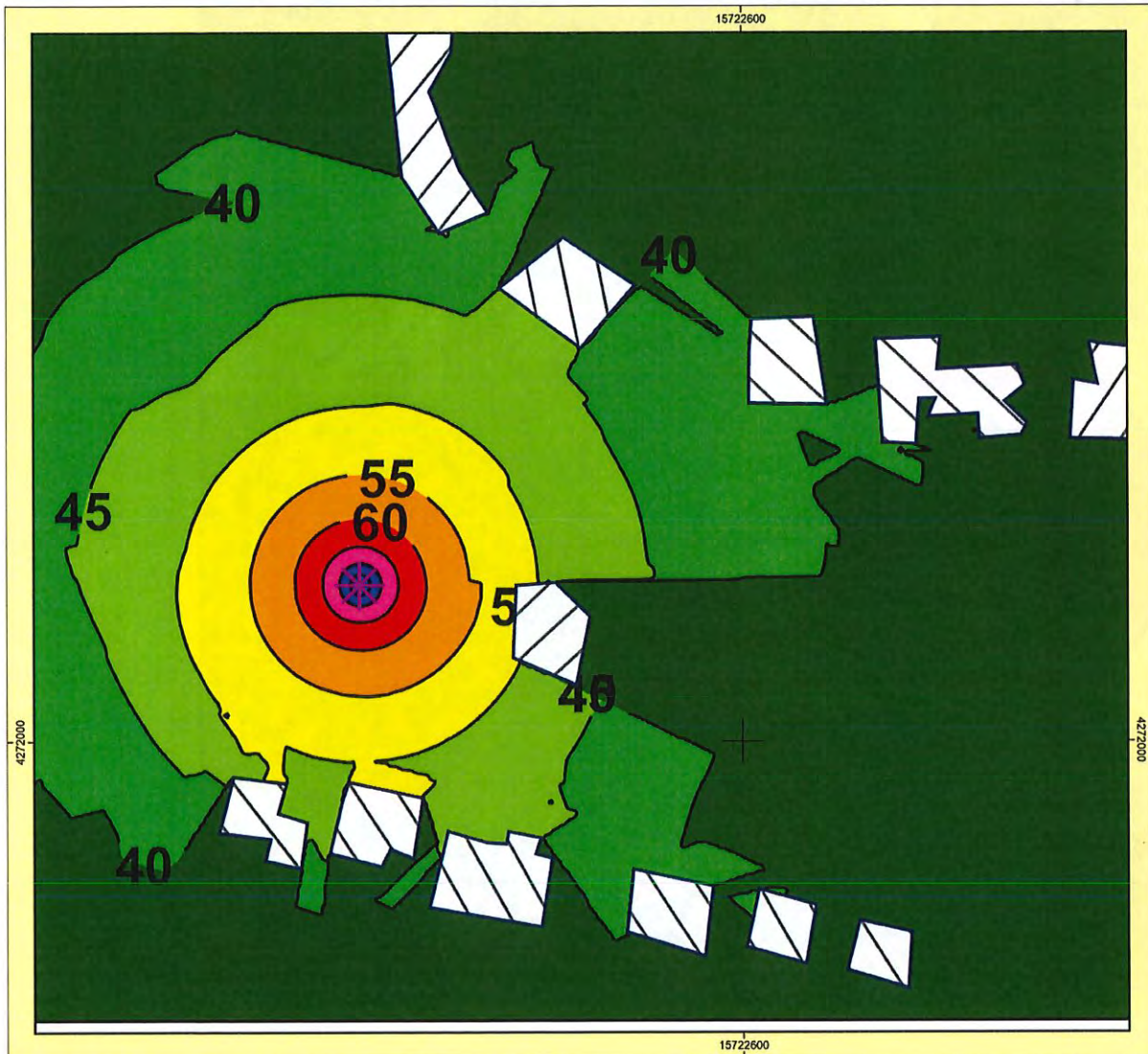


Figure 3:
Model 2 / Two Pickleball hits at the same time on two different Courts

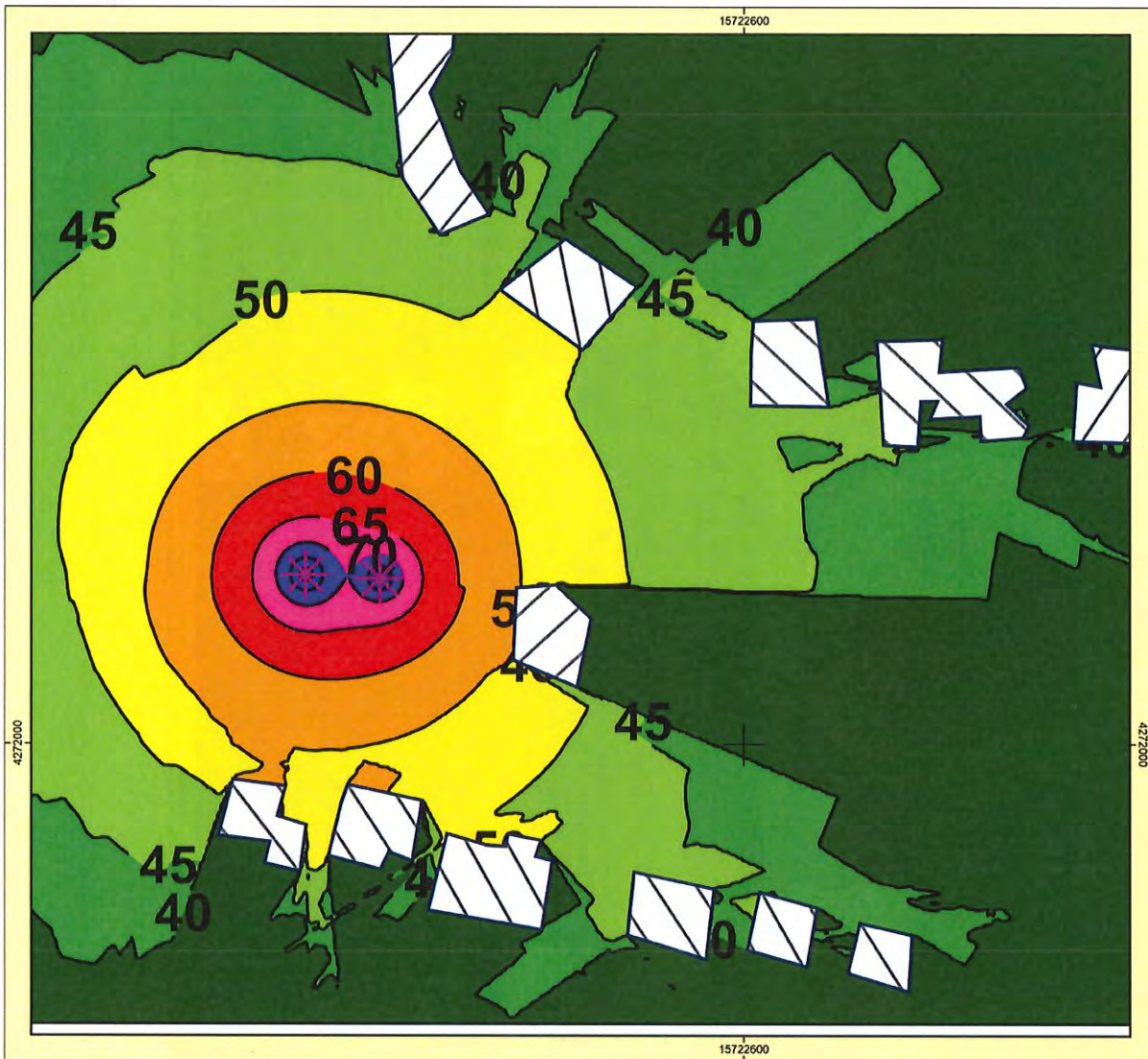


Figure 4:
Model 3 / Two Man-Made Acoustical Barrier
with Pickleball hits at the same time on two different Courts

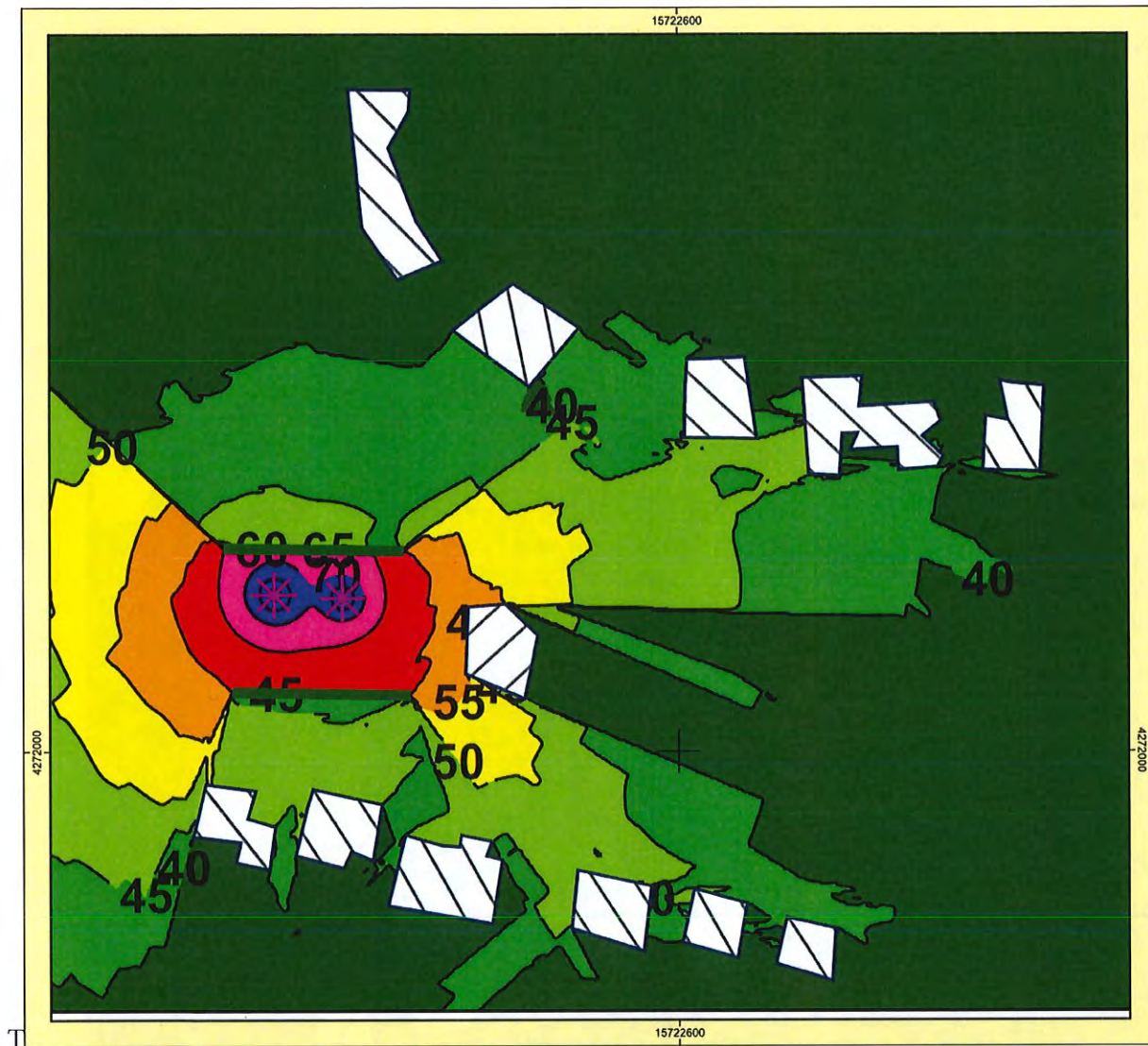


Figure 5:
Model 4 / With Densely Packed Evergreen Shrubbery Plantings 10 Feet in Height and 50 Feet in Depth & 150 Feet in Width. Plantings should be staggered.

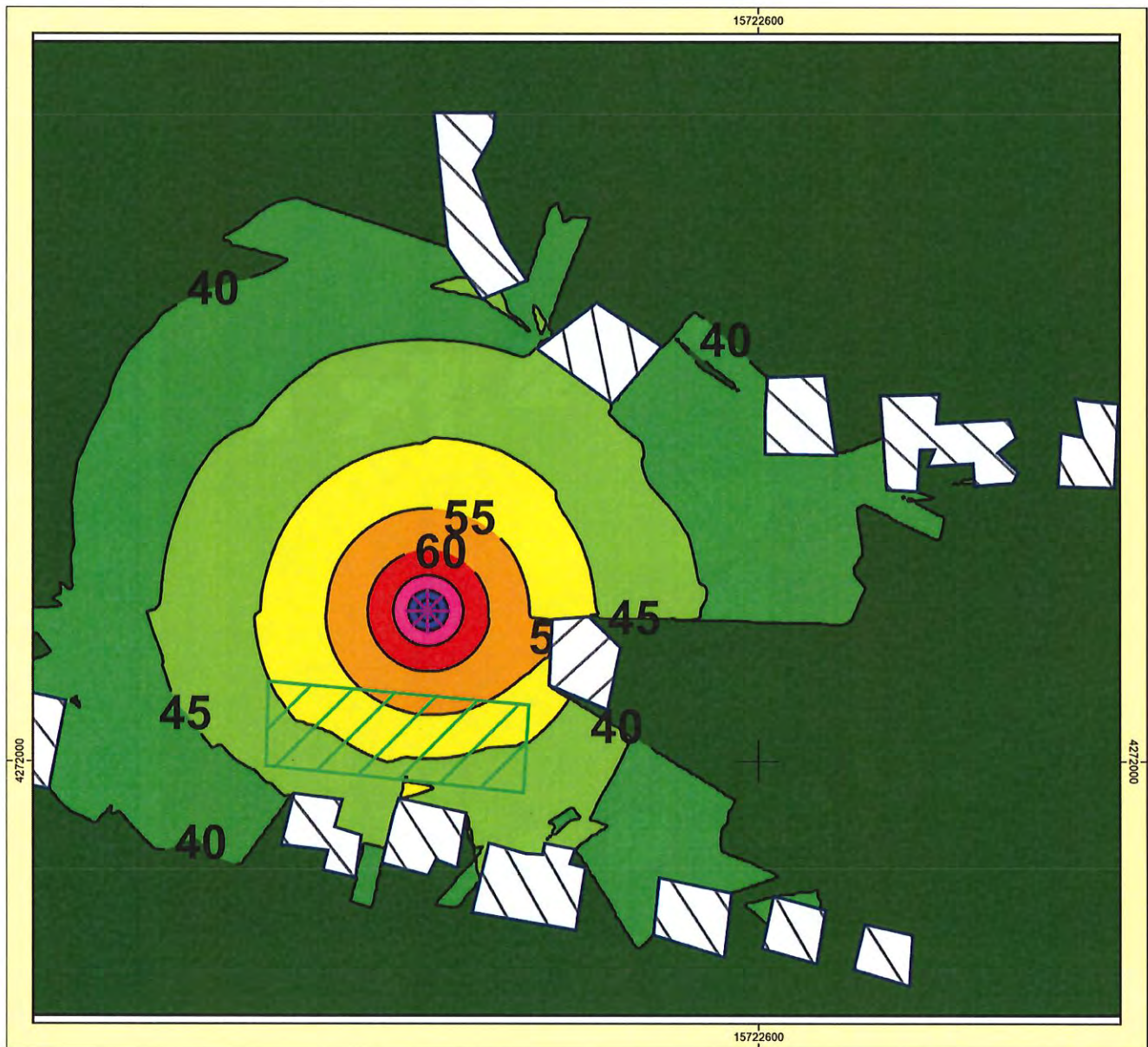
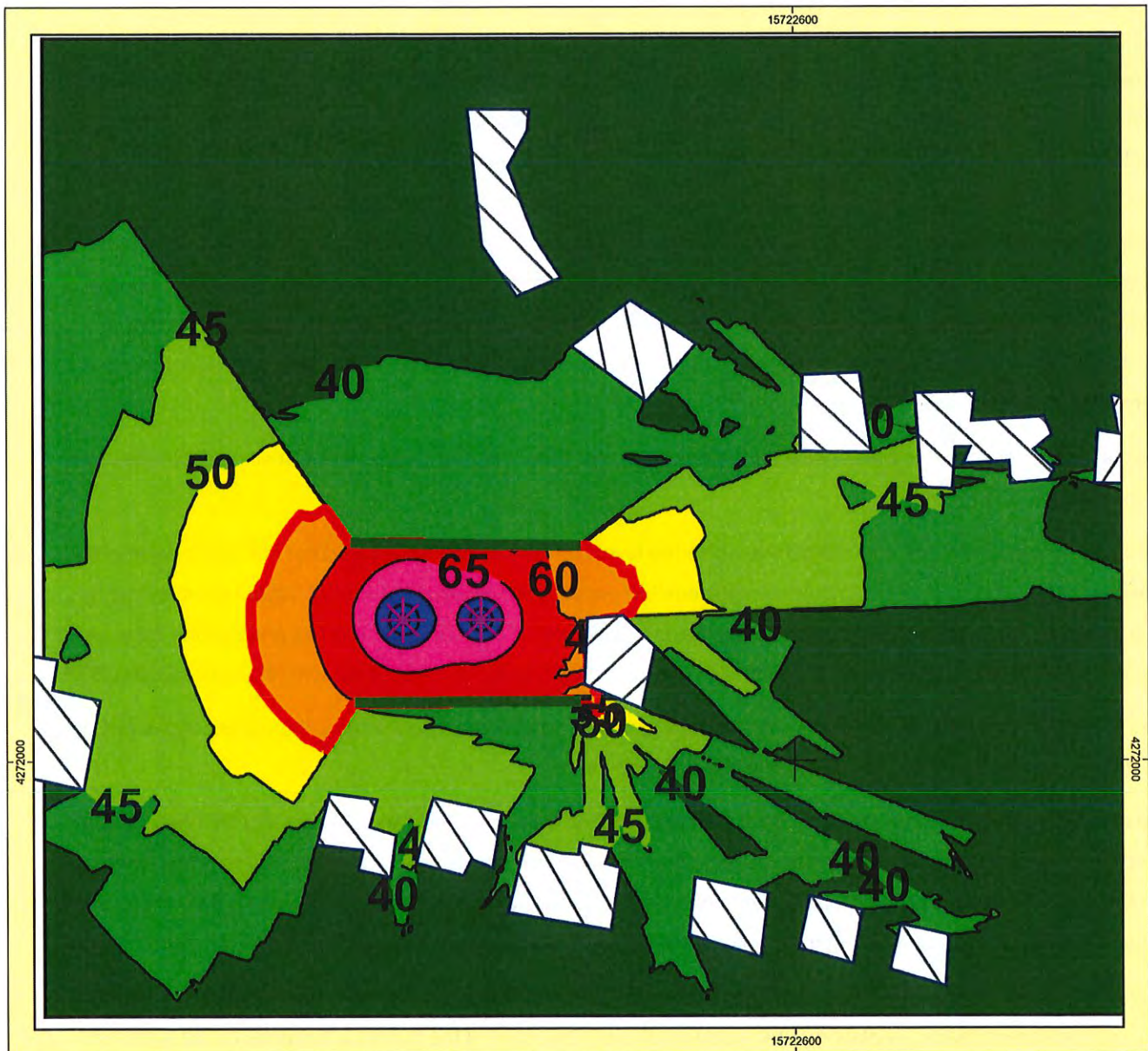


Figure 6:
Model 5 / Acoustifence Acoustical Barriers
with Pickleball hit simultaneously on two different Courts



St. Louis County Noise Code (dated 2017)

The following standard is provided below for your information

St. Louis County, MO Noise Control Code- Chapter 625.050

625.050 - Permissible Noise Levels—Standards.—

1. No person shall operate or permit to be operated and stationary noise source which emits noise in such a manner that the level of the noise emitted, when measured at any point outside the boundary of the property upon which the stationary noise source is located using the slow meter characteristic and the A-weighting network of the sound level meter, exceeds the levels set forth in Table I below or exceeds the limit set forth in Section 626.050.6. When the noise emitted is measured upon property which is located in a different land use category than the property upon which the stationary noise source is located, the levels applicable to the property where the noise emitted is measured shall be used to determine if a violation exists. If more than one use exists on the property where the noise emitted is measured such that more than one land use category would be applicable to the property, then the levels set forth in the least restrictive applicable land use category of Table I shall be used to determine if a violation exists.

If the stationary noise source emits noise containing a discrete tone, the permissible levels shall be 5dB lower than the applicable levels of Table I.

If the stationary noise source emits impulsive noise the levels of Table I shall be lowered by 5dB. A violation of this Code shall exist if the level of the impulsive noise emitted exceeds the applicable levels of Table I, as modified by this subsection, when the measurement is made using the fast meter characteristic and the A-weighting network of the sound level meter or if the level of the impulsive noise emitted exceeds the limit set forth in Section 625.0550.6.

In the event the stationary noise source emits impulsive noise containing a discrete tone, the modifications of Table I set forth in subsections 2. and 3. herein shall be cumulative.

If the ambient noise level exceeds the level of the noise emitted from the stationary noise source for one or more periods of time during the period of measurement, then for any such period of time the level of the noise emitted from the stationary noises ource shall be deemed to be lower than the level which isp ermitted for sixty (60)minutes during the period of measurement in the applicable land use category and for the applicable time of day.

If, during the period of measurement, noise shall be emitted from a stationary noise source for periods of time at two (2) or more different levels, a violation of this code shall exist if the sum of the following fractions $C_1/T_1 + C_2/T_2 + \dots C_n/T_n$ exceeds the unit number 1. For purposes of this calculation C_n shall equal the actual time period that noise is emitted at each measured noise level and T_n shall equal the period of time that noise is permitted under Table I to

be emitted at each measured noise level. Provided, however, if: (1) the ambient noise level exceeds the level of noise emitted from the stationary noise source for one or more periods of time during the period of measurement; or, (2) the level of the noise emitted from the stationary noise source is lower than the level of noise which is permitted in Table I for sixty (60) minutes during the period of measurement in the applicable land use category and for the applicable time of day for one or more periods of time during the period of measurement, then for the purpose of the calculation set forth in this subsection, for each such period of time, the term C_n shall be deemed to be zero (0) and the fraction; $\frac{C_n}{T_n}$; shall be zero (0).

Table – 1 Residential Land Use Category -Daytime Hours

T_n^*	(dB(A))**
60	55 or less
30	56-58
15	59-61
8	62-64
4	65-67
2	68-70
0	71 or greater

*Total Duration of Time Noise to be Emitted from Noise Source During Period of Measurement (Minutes)

**A-Weighted Sound Pressure Level



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AcoustiControl Site Visit Comment Report



Greenbriar Hills Country Club Pickleball Courts Project

12665 Big Bend Road

Kirkwood, Missouri 63122

Report Date: October 26, 2022

AcoustiControl Comments on Spendiarian & Willis Acoustics & Noise Control LLC (Spendiarian) Report Dated September 28, 2022.

1. What published data was used to establish the range from 56 dBA to 68 dBA at 25 feet? Were any adjustments applied to correct for greater noise impact of impulsive sounds (e.g. 5dBA referenced in County's code)?

AcoustiControl Response – The data that established the range is a public record to the City of Clarkson Valley “Acoustical Report Forest Hills Country Club Pickleball Sound Study, MuClure Project No. 104242.000 April 3, 2020, page 7. All measurements reported were LAmax.

Pickleball measured data by AcoustiControl but not published after the Forest Hills Country Club Pickleball was built, which showed a similar range of 54 dBA to 66 LAmax dBA with all three courts in use.

2. Impulsive Noise

AcoustiControl Response - St. Louis County Chapter 625 Noise Code has a definition for Impulsive Noise, which is different from that defined by the Spendiarian report; thus, a pickleball hit measured at the property line is not considered Impulsive. Therefore, a 5 dB reduction would not be applicable.

3. Noise Barrier on North and South End of Pickleball Court

AcoustiControl Response – Greenbriar Hills Country Club, has decided to place a 10-foot-tall acoustical barrier on both the north and south ends of the pickleball courts to reduce the impact of



noise on the adjacent residential neighborhoods. The SoundPlan® predicted sound pressure level at the nearest residential property lines is 45 dBA or less. This is 10 dBA below the St. Louis County Noise Code daytime noise limit of 55 dBA and well below the current measured environmental background noise level of 55 dBA. If measured after built, the predicted noise level is also 5 dBA below the impulse noise level defined by the St. Louis County Noise Code.

4. Topography

AcoustiControl Response -The SoundPlan® model includes all the Pickleball Courts and surrounding area typography.

A section of the St. Louis County Chapter 625 Noise Code is attached for reference.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Jim Holtrop".

Jim Holtrop, INCE ASA ASHRAE

AcoustiControl / **AcoustiControl is a 100% Woman Owned Enterprise**

Appendix : St. Louis County Noise Code

St. Louis County Noise Code (dated 2017)

The following standard is provided below for your information

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625.050 - Permissible Noise Levels—Standards.—

1. No person shall operate or permit to be operated and stationary noise source which emits noise in such a manner that the level of the noise emitted, when measured at any point outside the boundary of the property upon which the stationary noise source is located using the slow meter characteristic and the A-weighting network of the sound level meter, exceeds the levels set forth in Table I below or exceeds the limit set forth in Section 626.050.6. When the noise emitted is measured upon property which is located in a different land use category than the property upon which the stationary noise source is located, the levels applicable to the property where the noise emitted is measured shall be used to determine if a violation exists. If more than one use exists on the property where the noise emitted is measured such that more than one land use category would be applicable to the property, then the levels set forth in the least restrictive applicable land use category of Table I shall be used to determine if a violation exists.

If the stationary noise source emits noise containing a discrete tone, the permissible levels shall be 5dB lower than the applicable levels of Table I.

If the stationary noise source emits impulsive noise the levels of Table I shall be lowered by 5dB. A violation of this Code shall exist if the level of the impulsive noise emitted exceeds the applicable levels of Table I, as modified by this subsection, when the measurement is made using the fast meter characteristic and the A-weighting network of the sound level meter or if the level of the impulsive noise emitted exceeds the limit set forth in Section 625.0550.6.

In the event the stationary noise source emits impulsive noise containing a discrete tone, the modifications of Table I set forth in subsections 2. and 3. herein shall be cumulative.

If the ambient noise level exceeds the level of the noise emitted from the stationary noise source for one or more periods of time during the period of measurement, then for any such period of time the level of the noise emitted from the stationary noises ource shall be deemed to be lower than the level which isp ermitted for sixty (60)minutes during the period of measurement in the applicable land use category and for the applicable time of day.

If, during the period of measurement, noise shall be emitted from a stationary noise source for periods of time at two (2) or more different levels, a violation of this code shall exist if the sum of the following fractions $C_1/T_1 + C_2/T_2 + \dots + C_n/T_n$ exceeds the unit number 1. For purposes of this calculation C_n shall equal the actual time period that noise

is emitted at each measured noise level and Tn shall equal the period of time that noise is permitted under Table I to be emitted at each measured noise level. Provided, however, if: (1) the ambient noise level exceeds the level of noise emitted from the stationary noise source for one or more periods of time during the period of measurement; or, (2) the level of the noise emitted from the stationary noise source is lower than the level of noise which is permitted in Table I for sixty (60) minutes during the period of measurement in the applicable land use category and for the applicable time of day for one or more periods of time during the period of measurement, then for the purpose of the calculation set forth in this subsection, for each such period of time, the term Cn shall be deemed to be zero (0) and the fraction; $\frac{C_n}{T_n}$; shall be zero (0).

Table – 1 Residential Land Use Category -Daytime Hours

Tn*	(dB(A))**
60	55 or less
30	56-58
15	59-61
8	62-64
4	65-67
2	68-70
0	71 or greater

*Total Duration of Time Noise to be Emitted from Nois Source During Period of Measurement (Minutes)

**A-Weighted Sound Pressure Level



**APPLICATION FOR PLANNING AND ZONING REVIEW
LANDSCAPE PLAN CHECKLIST
MARCH 2021**

INFORMATION TO BE SHOWN ON DRAWING

All applications submitted to the Planning and Zoning Commission that are subject to Chapter 25, Article VIII, Landscaping and Buffering Standards, shall submit a Landscaping Plan in conjunction with the submittal application. All other applications that are not subject to Planning and Zoning Commission review yet are subject to Chapter 25, Article VIII, shall submit a Landscape Plan in conjunction with the administrative site plan review and building permit application. The Landscaping Plan shall include the following:

- (1) Location map, north arrow, scale and date;
- (2) Name, signature, and contact information of preparer;
- (3) Proposed buildings, additions, and other improvements on site including parking and driveway layout and refuse container, including trash and recycling, location with appropriate screening drawn to scale;
- (4) Location of all existing and proposed trees, shrubs, and plants, including those to be removed from the site;
- (5) Planting schedule;
- (6) Ground cover type and location;
- (7) Location and dimensions of proposed landscape buffers;
- (8) Tree study;
- (9) Tree preservation plan;
- (10) Irrigation plan; and
- (11) Calculations including lot size, proposed open space-square footage, proposed landscape buffer square footage and proposed impervious area square footage





Petitioner/Engineer

9/14/2022

Date

ISA CERT# MW5724A

These are the minimum submittal requirements needed for review. Failure to provide all information will result in application being returned.



APPLICATION FOR PLANNING AND ZONING REVIEW TREE STUDY

PROPERTY LOCATION: Greenbriar Hills Country Club

***TREE/LANDSCAPE LOCATIONS SHALL BE INDICATED ON SITE SURVEY
(SCALED) AND ATTACHED TO THIS STUDY SHEET**

List all significant trees (live, healthy trees, of a species suitable for the urban environment having a diameter of eight inches or greater) on premises, on abutting public rights-of-way, and on private property within ten feet of all property lines.

KEY TO DRAWING	TREE SPECIES	DIAMETER	SAVE YES/NO IF NO, EXPLAIN IN NOTES	PROTECTION METHODS EXPLAIN IN NOTES, PROVIDE DRAWINGS	DOLLAR VALUE FROM GUIDE FOR TREE APPRAISAL	NOTES
A						
B						
C						
D						
E						
F						
G						
H						

NOTE: Public trees abutting the site shall not be removed and require tree protection fencing.

I hereby certify that I have viewed the premises and provide this professional opinion regarding the survivability of significant trees on the site and abutting the site and the appropriateness of proposed tree replacement and landscaping. Attached is a landscape plan prepared by me or under my direction.

 MW 5724A 9/14/22
Name/Signature/Certification/Date

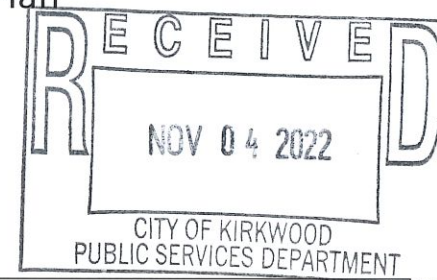
** Copy this form as needed for additional trees.

Greenbriar Hills Country Club Tree Preservation and Protection Plan

August 2022

Revised November 2022

Pool Renovation and Pickleball Court Installation



Key to Drawing	Tree Species	Diameter	Save Yes/No If No, explain in notes	Dollar Value from Guide for Tree Appraisal	NOTES
A	<i>Prunus hybrid (cultivar unknown)</i>	4"	No	\$250	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Prunus serrulata</i> 'Yoshino' on the southwest corner of the new pool pad.
B	<i>Acer rubra</i>	5"	No	\$368	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Thuja</i> 'Green Giant' along the east side of the new pool pad.
C	<i>Acer rubra</i>	5"	No	\$368	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Picea orientalis</i> 'Golden Start' along the southeast corner of the pickleball court.
D	<i>Acer rubra</i>	5"	No	\$368	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Picea orientalis</i> 'Golden Start' along the southeast corner of the pickleball court.
E	<i>Acer rubra</i>	5"	No	\$368	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Picea abies</i> along the southwest corner of the pickleball court.
F	<i>Acer rubra</i>	5"	No	\$368	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Prunus serrulata</i> 'Yoshino' on the southwest corner of the new pool pad.

G	<i>Cercis canadensis</i>	3"	No	\$150	Removal for concrete pad for pickleball construction. Tree will be replaced with a <i>Prunus serrulata</i> 'Yoshino' on the southwest corner of the new pool pad.
H	<i>Fraxinus pennsylvanica</i>	22"	No	\$12,167	Removal for Pickleball court addition. Tree will be replaced with a <i>Metasequoia glyptostroboides</i> on north side of new pickleball courts.
I	<i>Picea abies</i>	10"	Yes	\$11,828	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
J	<i>Picea abies</i>	8"	Yes	\$10,335	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
K	<i>Picea abies</i>	10"	Yes	\$11,828	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
L	<i>Acer rubra</i>	10"	Yes	\$13,223	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
M	<i>Liriodendron tulipifera</i>	7"	Yes	\$18,788	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
N	<i>Juniperus virginiana</i>	24"	No	\$10,560	Removal for sidewalk for children's pool. Tree will be replaced with a <i>Metasequoia glyptostroboides</i> on north side of new pickleball courts.
O	<i>Juniperus virginiana</i>	24"	Yes	\$10,560	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots. *
P	<i>Pinus strobus</i>	8"	No	NA	Dead tree, will be replaced with a <i>Metasequoia glyptostroboides</i> on north side of new pickleball courts.
Q	<i>Pinus strobus</i>	12"	No	NA	Dead tree, will be replaced with a <i>Metasequoia glyptostroboides</i> on north side of new pickleball courts.

R	<i>Taxodium distichum</i>	6"	Yes	\$11,877	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots.*
S	<i>Taxodium distichum</i>	7"	Yes	\$15,655	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots.*
T	<i>Zelkova serrata</i>	12"	No	\$8,439	Removal for concrete pad for pool expansion. Tree will be replaced with a <i>Metasequoia glyptostroboides</i> on north side of new pickleball courts.
U	<i>Picea abies</i>	12"	Yes	\$12,347	Tree will be protected with green fencing just beyond dripline. Mulch will be placed 3' beyond fence to protect any additional surface roots.*
X	<i>Acer sp.</i>	4"	No	NA	This plant is an overgrown "volunteer seedling" it was neither intended for this site or planned. Its presence was a result of poor horticultural practices that have since been rectified. Tree will be replaced with a <i>Nyssa sylvatica</i> 'Wildfire' east of the new children's pool.
Z	<i>Acer sp.</i>	9"	No	NA	This plant is an overgrown "volunteer seedling" it was neither intended for this site or planned. Its presence was a result of poor horticultural practices that have since been rectified. Tree will be replaced with a <i>Picea abies</i> along the southwest corner of the pickleball court.
AA	<i>Pyrus calleryana</i> 'Aristocrat'	16"	No	NA	Listed as an invasive species by the Missouri Botanical Garden. This tree will be removed and replaced with a native <i>Nyssa sylvatica</i> 'Wildfire'
BB	<i>Acer tataricum subsp. ginnala</i>	6"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
CC	<i>Acer tataricum subsp. ginnala</i>	6"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and

					replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
DD	<i>Acer tataricum subsp. ginnala</i>	5"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
EE	<i>Acer tataricum subsp. ginnala</i>	6"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
FF	<i>Acer tataricum subsp. ginnala</i>	7"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
GG	<i>Acer tataricum subsp. ginnala</i>	6"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
HH	<i>Acer tataricum subsp. ginnala</i>	6"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool deck.
II	<i>Acer tataricum subsp. ginnala</i>	5"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.
JJ	<i>Acer tataricum subsp. ginnala</i>	7"	No	NA	Plant is listed as a noxious weed by the Missouri Botanical Garden. This tree will be removed and replaced with a <i>Thuja</i> 'Green Giant' located in the new hedge on the east side of the new pool pad.

*See Tree Protection Plan below

Protection Plan for trees:

All trees listed above that are scheduled to be “protected” will have three (3) foot high green mesh fencing affixed to five (5) foot long heavy-duty steel, green painted T- posts driven into the ground to a depth of a minimum of one (1) foot six (6) inches (18 inches minimum). Posts will be spaced no more than eight (8) feet apart. A Tree Protection Zone warning sign shall be affixed to tree protection fencing and prominently displayed at 20 foot intervals and visible from all directions.

Additionally, mulch will be added to areas along paths and roadways as an extra layer of protection to ensure surface tree roots are not compacted by foot or vehicular traffic.



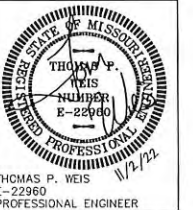
MAC
McConnell & Associates

GREENBRIAR HILLS COUNTRY CLUB
NEW PICKLEBALL COURTS
#12665 BIG BEND ROAD
KIRKWOOD, MO 63122
ST. LOUIS COUNTY, MISSOURI



CHICAGO

**GREENBRIAR HILLS
COUNTRY CLUB
NEW PICKLEBALL COURTS
KIRKWOOD, MO, 63122**



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COVER

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 BASE MAP(S)

ISSUE DATE: 11-2-22
MSD P-
SHEET NO.
1
OF
WDG # 1802-22-1

	EXISTING		NEW	
	○	SANITARY MANHOLE	●	
	◊	STORM MANHOLE	●	
	□	STORM INLET	■	
	▷	FLARED END	▷	
A/W	OR ◊ W/M	WATER METER		
A/W	OR ◊ W/V	WATER VALVE		
G/V	OR ◊ G/V	GAS VALVE		
M/B	OR ◊ M/B	MAILBOX		
	←	GUY WIRE		
X 450.05		SPOT ELEVATION	X 450.05	
OR —		STREET LIGHT	OR —	
◊ FH		FIRE HOB	◊ FH	
		LIGHT STANDARD	★	
U/P	OR ◊	UTILITY POLE	✱	
□		YARD LIGHT	✱	
☀	OR ☀	EVERGREEN TREE	☀ OR ☀	
◯	OR ◯	DECIDUOUS TREE	◯ OR ◯	
(A)		SANITARY SEWER IDENTIFICATION NUMBER	(A)	
(S)		STORM SEWER IDENTIFICATION NUMBER	(S)	
		PARCEL IDENTIFICATION NUMBER	(35)	
		ADDRESS NUMBER	(16290)	
—450—		GRADING LIMITS	—(450)—	
X		TREE LINE	X	
E		CONTOUR LINE	E	
F		FENCE	F	
FO		ELECTRIC LINE	FO	
Z'G		FIBER OPTIC CABLE	Z'G	
		GAS LINE	T	
OT		TELEPHONE LINE		
		SANITARY SEWER MAIN		
		STORM SEWER MAIN		
8"W		WATER LINE	8"W	

AI	AREA INLET	HGL	HYDRAULIC GRADE LINE
ASPH	ASPHALT	INV	INVERT
ATG	ADJUST TO GRADE	LS	LIGHT STANDARD
BC	BACK OF CURB	MH	MANHOLE
BM	BENCHMARK	N/F	NOW OR FORMERLY
BO	BY OTHERS	NIC	NOT IN CONTRACT
BW	BOTTOM OF WALL	OE	OVEROID ELECTRIC
CA	CABLE TELEVISION	OT	OVERHEAD TELEPHONE
CFS	CUBIC FEET PER SECOND	PT	PEDESTRIAN TRAFFIC
CI	CURB INLET	PL	PROPERTY LINE
CL	CENTERLINE	PR	PROPOSED
CON	CLEANOUT	PVC	POLYVINYL CHLORIDE PIPE
CONC	CONCRETE	PVMT	PAVEMENT
CMP	CORRUGATED METAL PIPE	RCP	REINFORCED CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE	R/W, ROW	RIGHT OF WAY
DAI	DOUBLE AREA INLET	STA	STATION
DCI	DOUBLE CURB INLET	T	TOP
DND	DO NOT DISTURB	TBA	TO BE ABANDONED
DS	DOWNSPOUT	TBR	TO BE REMOVED
DT	DRAINILE	TBRR	TO BE REMOVED & REPLACED
ELEV	ELEVATION	TC	TOP OF CURB
EOP	EDGE OF PAVEMENT	TCE	TEMPORARY CONSTRUCTION EASEMENT
ESMT	EASEMENT	TSCL	TEMPORARY SLOPE & CONSTRUCTION LICENSE
EX	EXISTING	TW	TOP OF WALL
FE	FLARED END	TYP	TYPICAL
FF	FINISHED FLOOR	UE	UNDERGROUND ELECTRIC
FH	FIRE HYDRANT	UIP	USE IN PLACE
FL	FLOWLINE	UP	UTILITY POLE
FO	FIBER OPTIC	UT	UNDERGROUND TELEPHONE
G	GUTTER	WM	WATER METER
GI	GRATE INLET	WV	WATER VALVE



CALL "MISSOURI ONE CALL" TO HAVE LOCATIONS MARKED IN THE FIELD AND "MODOT" FOR UNDERGROUND LOCATES WITHIN THE RIGHT-OF-WAY. SUBSCRIBING UTILITIES REQUIRE 48 HOURS NOTICE PRIOR TO CONSTRUCTION. CALL MODOT CUSTOMER SERVICE AT 314-340-4100 TWO WORKING DAYS BEFORE YOU DIG



PROJECT LOCATION:
GREENBRIAR HILLS COUNTRY CLUB



LOCATION MAP
N.T.S.



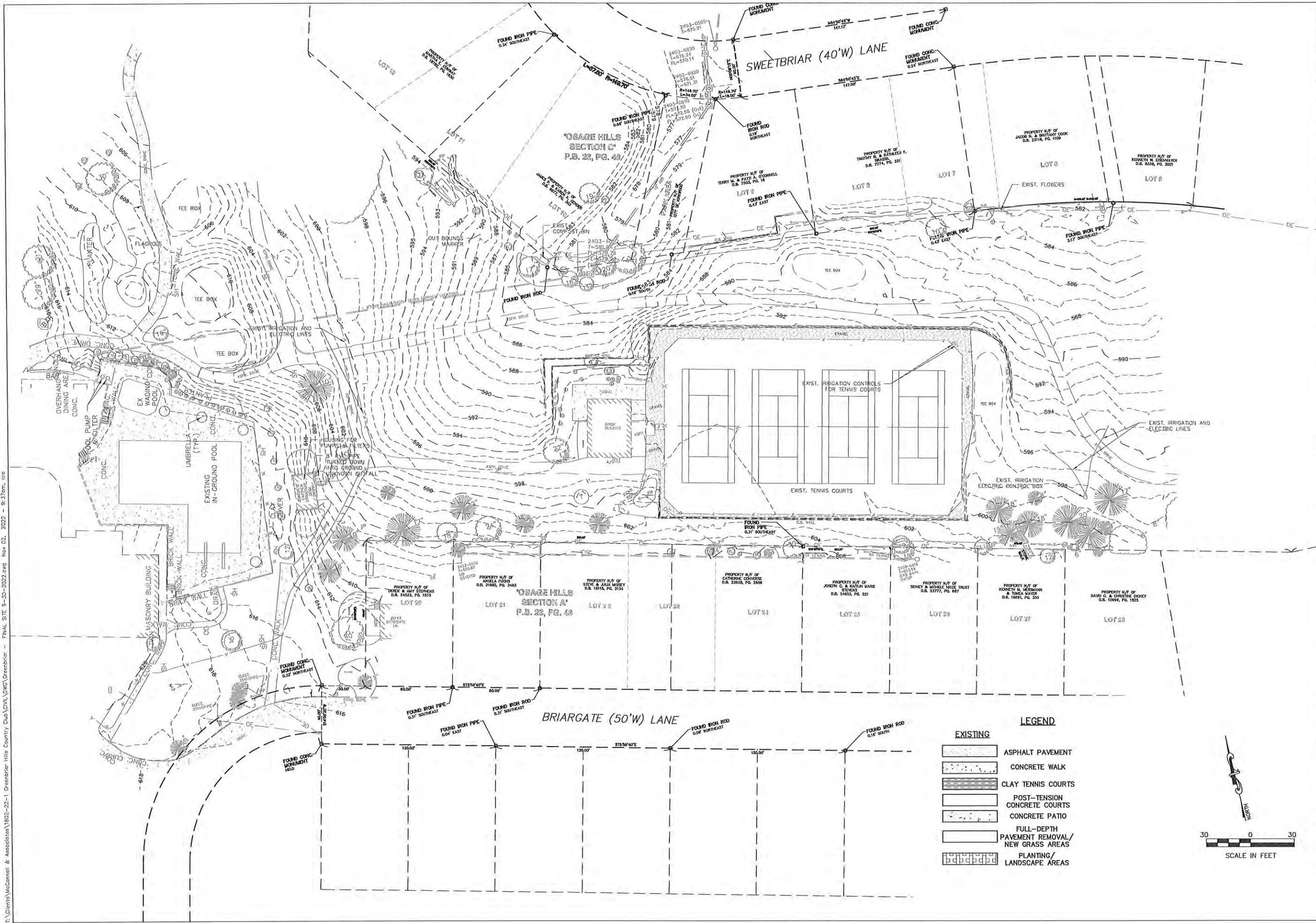
AMEREN MISSOURI 1901 CHOUTEAU AVE. ST. LOUIS, MO 63166	MSD 2350 MARKET ST. ST. LOUIS, MO 63103
AT&T 402 N. 3RD ST. CHARLES, MO 63301	MISSOURI AMERICAN WATER COMPANY 727 CRAIG RD. ST. LOUIS, MO 63141
CHARTER COMMUNICATIONS 941 CHARTER COMMONS ST. LOUIS, MO 63017	
SPIRE GAS COMPANY 3950 FOREST PARK AVE. ST. LOUIS, MO 63108	

SHEET INDEX

1	COVER SHEET
2	EXISTING CONDITIONS
3	OVERALL SITE PLAN
4	SITE PLAN - PICKLEBALL COURTS
5	SITE PLAN - POOL DECK
6	GRADING PLAN - PICKLEBALL COURTS
7	GRADING PLAN - POOL DECK
8	DRAINAGE AREA MAP
9	STORMSEWER PLAN
10-13	CIVIL DETAILS
14-15	LANDSCAPE PLANS
E1.0	LIGHTING PLAN

MSD RECORD #:
BASE MAP: 240

T:\Clients\McCannell & Associates\1802-22-1 Greenbriar Hills Country Club\DWG\Greenbriar - FINAL SITE 9-30-2022.dwg Nov 02, 2022 - 9:37am, cto



REVISIONS

**GREENBRIAR HILLS
COUNTRY CLUB
NEW PICKLEBALL COURTS
KIRKWOOD, MO, 63122**

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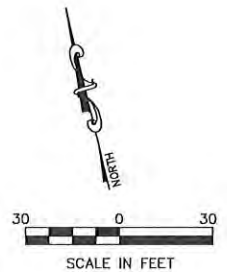
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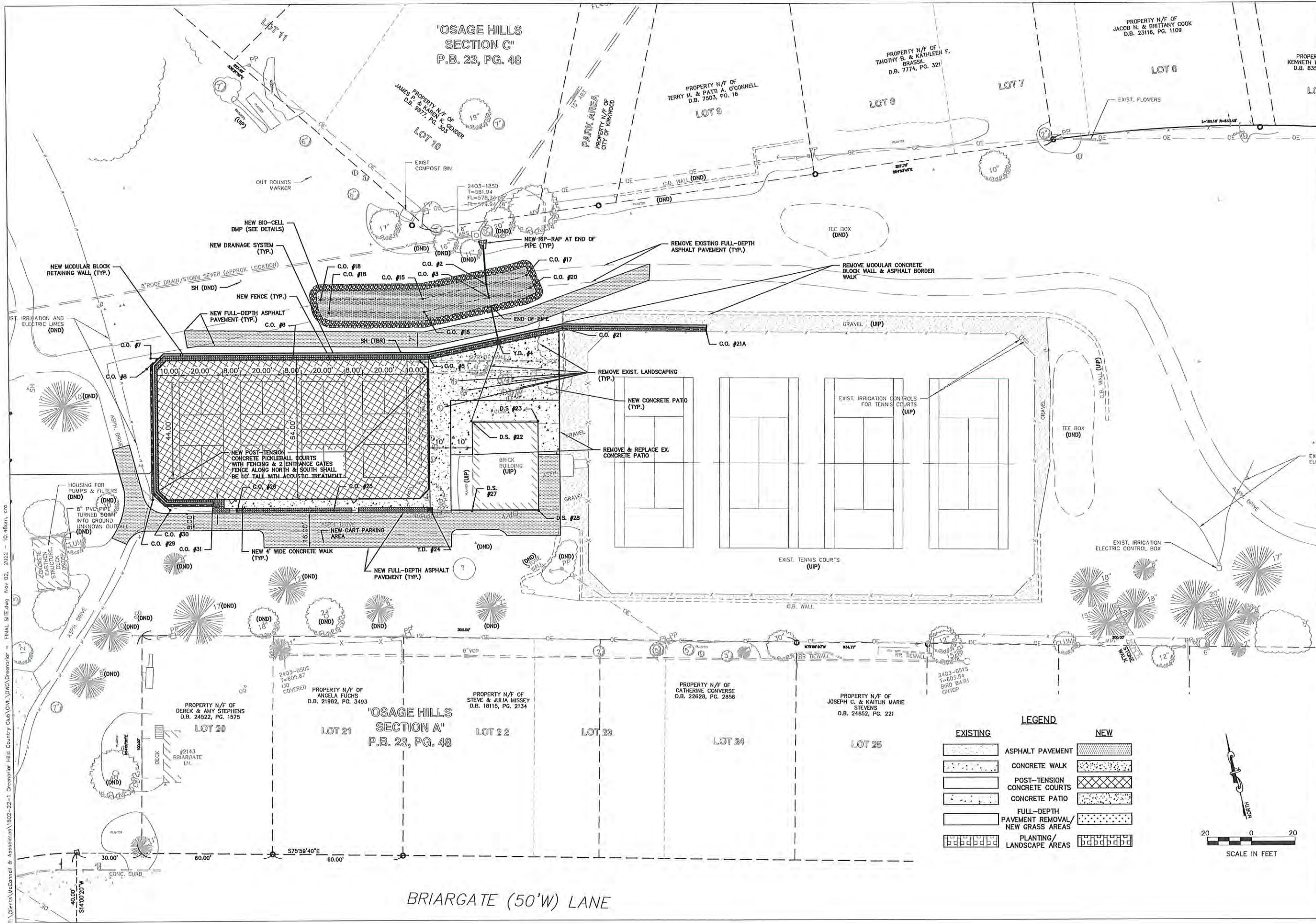
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WDG #1802-22-1

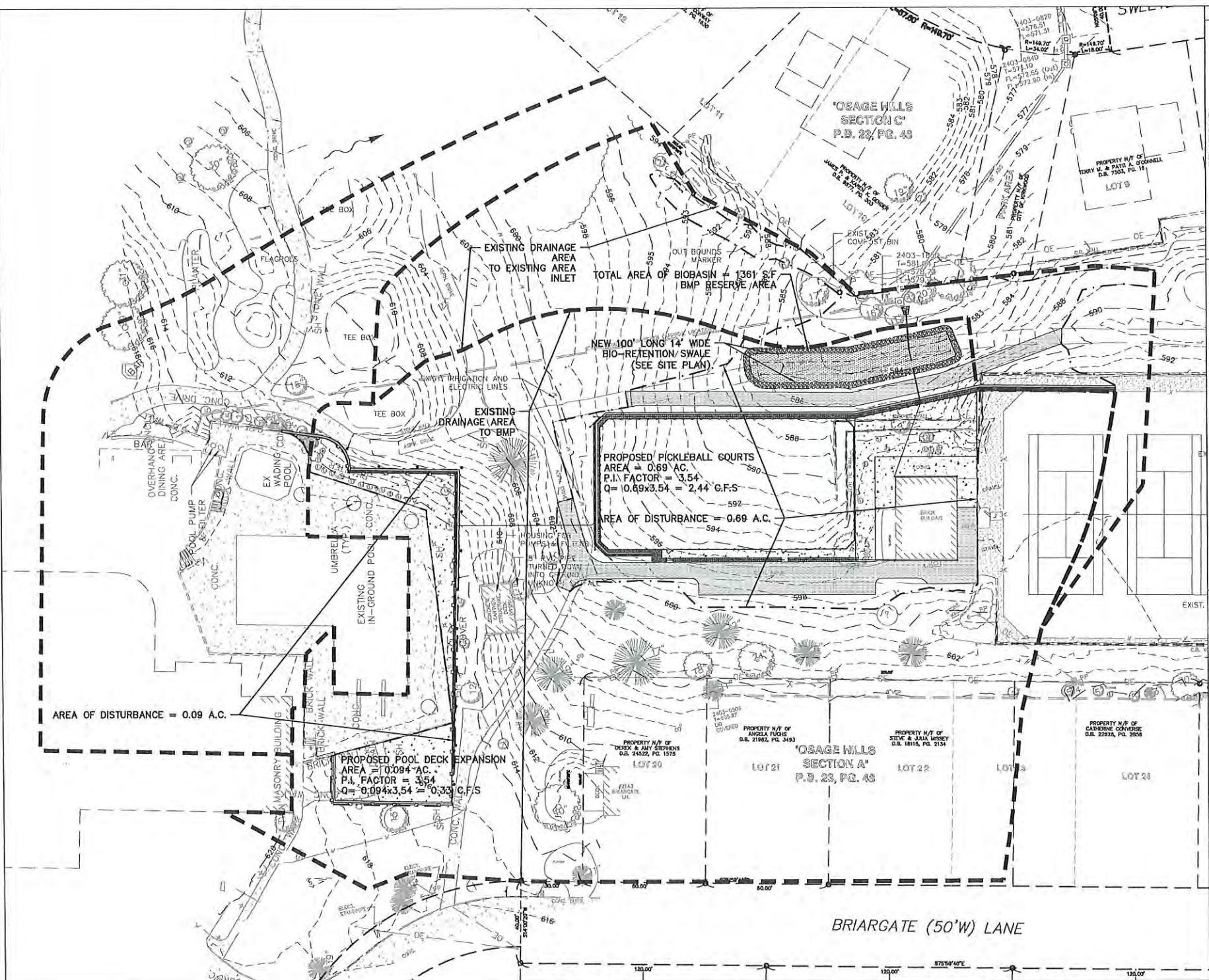
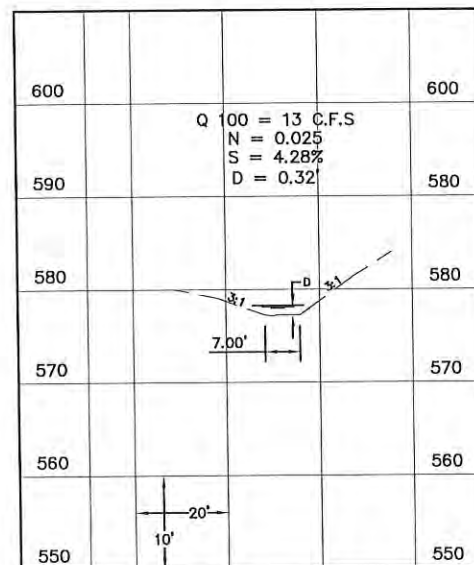
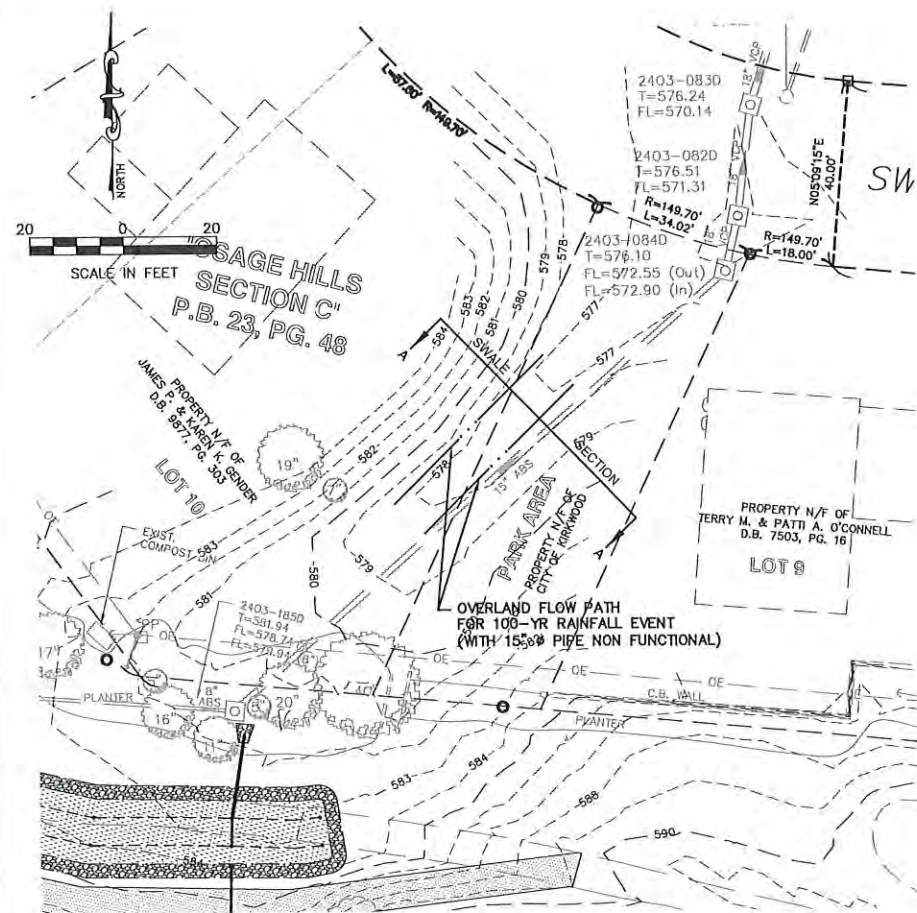
**EXISTING
CONDITIONS**

- LEGEND**
- EXISTING**
- ASPHALT PAVEMENT
 - CONCRETE WALK
 - CLAY TENNIS COURTS
 - POST-TENSION CONCRETE COURTS
 - CONCRETE PATIO
 - FULL-DEPTH PAVEMENT REMOVAL/NEW GRASS AREAS
 - PLANTING/LANDSCAPE AREAS





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PICKLEBALL COURTS SITE PLAN	
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WDG # 1802-22-1	



PROJECT RUNOFF DIFFERENTIAL:















PROJECT RUNOFF DIFFERENTIAL (THIS PROJECT ONLY) = 0.64 CFS

DISTURBED AREA (THIS PROJECT ONLY) = 0.784 AC.

NEW IMPERVIOUS SURFACES:

AREA	SF	AC
PICKLEBALL COURTS	7,900.00	0.181
EXPANDED TENNIS HUT PATIO	2046.89	0.046
GOLF CART PARKING AREA	313.39	0.007
PICKLEBALL COURT SIDEWALK	395.09	0.009
EXPANDED POOL DECK	3,563.50	0.081
	TOTAL	14,218.87
		0.324

LEGEND

EXISTING		NEW
	ASPHALT PAVEMENT	
	CONCRETE WALK	
	CLAY TENNIS COURTS	
	POST-TENSION CONCRETE COURTS	
	CONCRETE PATIO	
	FULL-DEPTH PAVEMENT REMOVAL/ NEW GRASS AREAS	
	PLANTING/ LANDSCAPE AREAS	

REVISIONS

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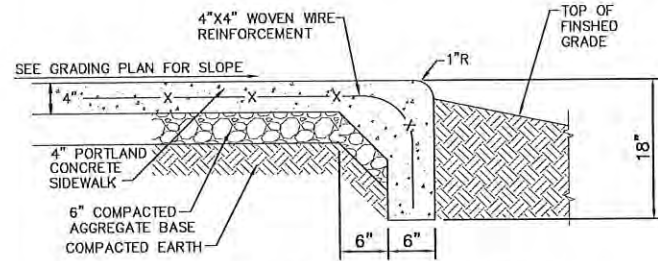
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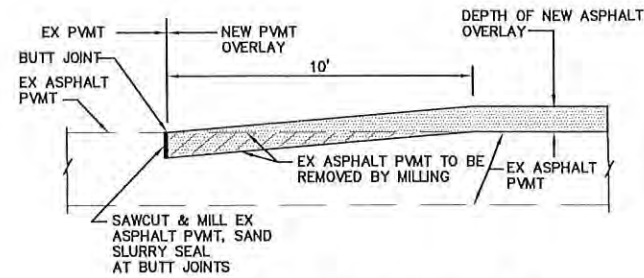
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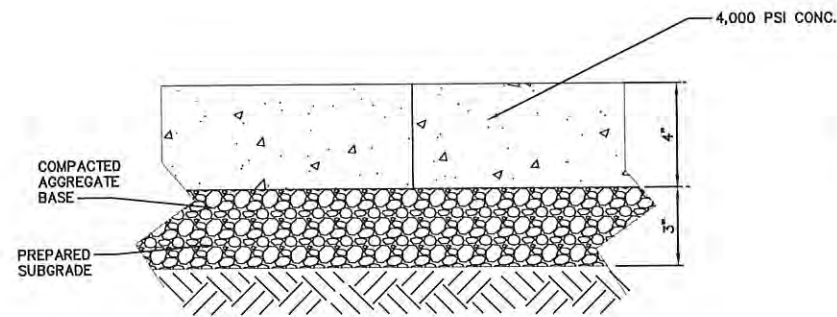


NOTE: APPLY SMOOTH FINISH IN DIRECTION OF SLOPE

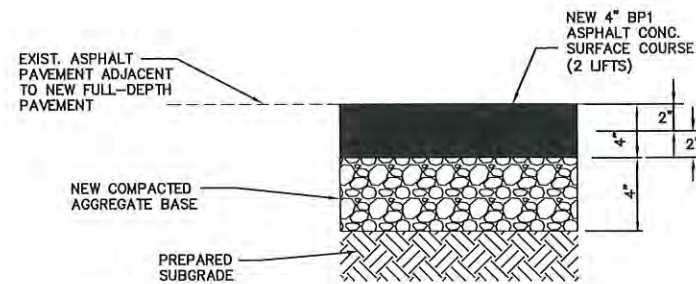
**TURNDOWN EDGE FOR
POOL CONCRETE PAD**
NOT TO SCALE



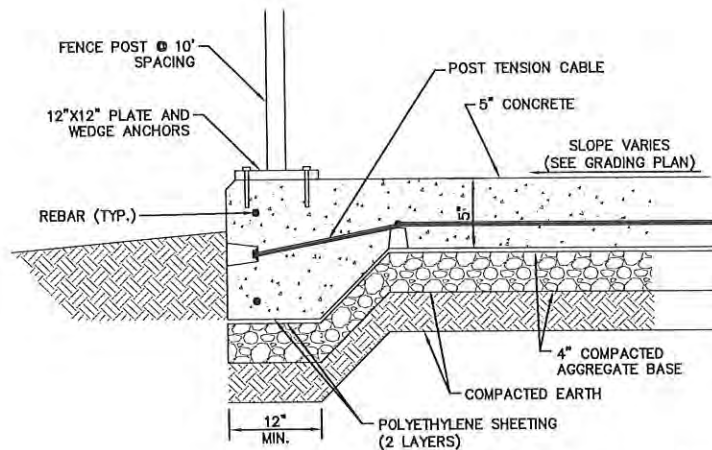
PAVEMENT BUTT-JOINT DETAIL
NOT TO SCALE



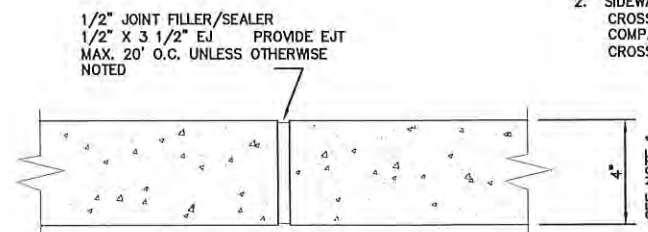
**TYPICAL CONCRETE
SIDEWALK CROSS SECTION**
NOT TO SCALE



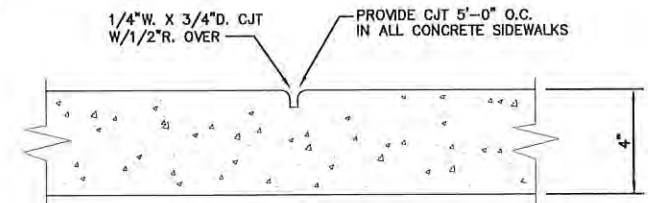
**TYPICAL FULL-DEPTH
PAVEMENT SECTION**
NOT TO SCALE



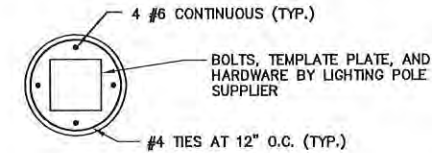
POST TENSION CONCRETE EDGE DETAIL
NOT TO SCALE



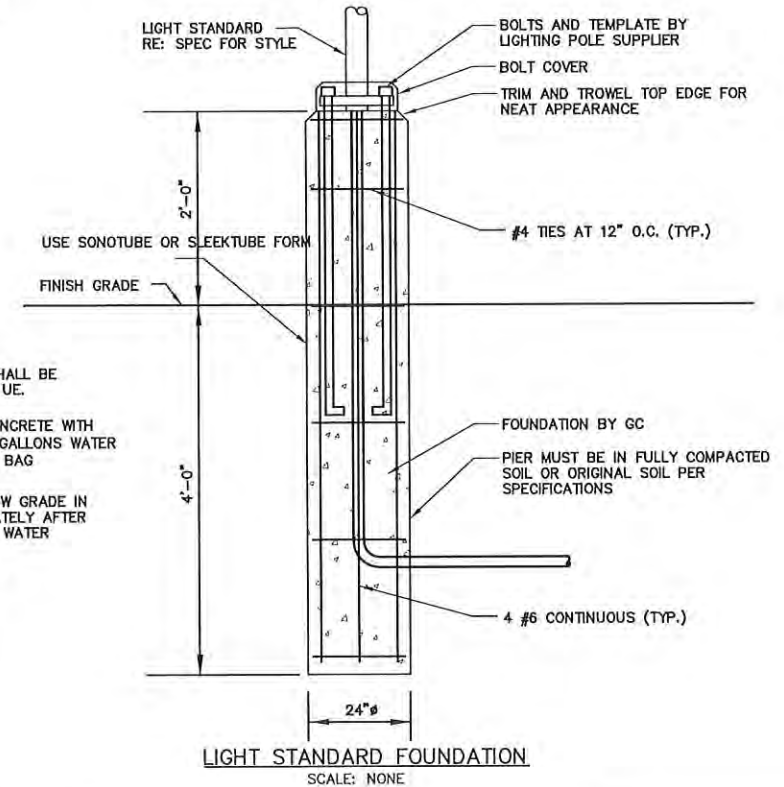
EXPANSION JOINT (EJT)
NOT TO SCALE



CONTROL JOINT (CJT)
NOT TO SCALE



PLAN



NOTE:
ELECTRICAL SUPPLY SHALL BE
PROVIDED BY AMEREN UE.

PORTLAND CEMENT CONCRETE WITH
5-1/2 SACK MIX 4.6 GALLONS WATER
(MAX) PER 94 POUND BAG

POUR CONCRETE BELOW GRADE IN
DRILLED HOLE IMMEDIATELY AFTER
DRILLING TO PREVENT WATER
PROBLEMS

SEE LIGHTING PLANS

NOTES:

Contractor to include the following materials per
Light Standard:
CONDUIT/CABLE INSTALLATION

- 1-#4 THHN, Light Poles
- 1-#8 THHN, Ground
- 2-#8 THHN, White Red, GFI REC
- 1 1/2" Conduit

REVISIONS

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NEW PICKLEBALL COURTS**
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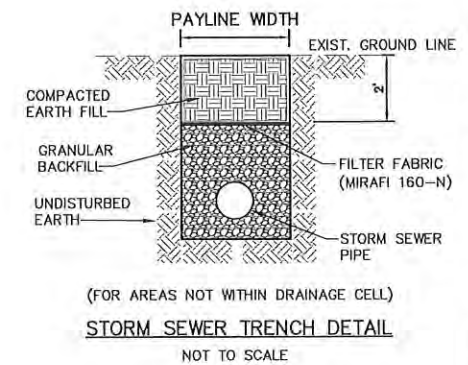
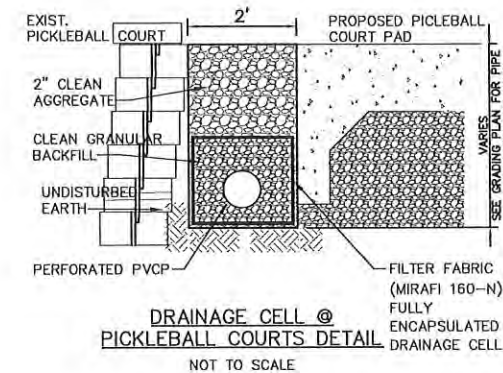
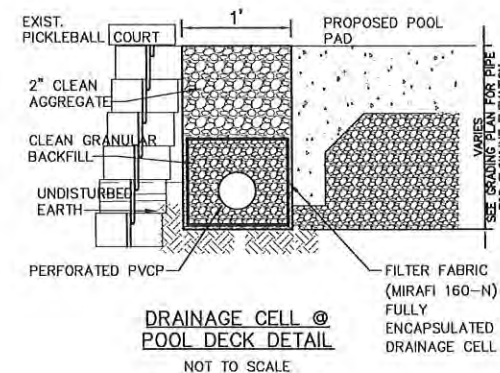
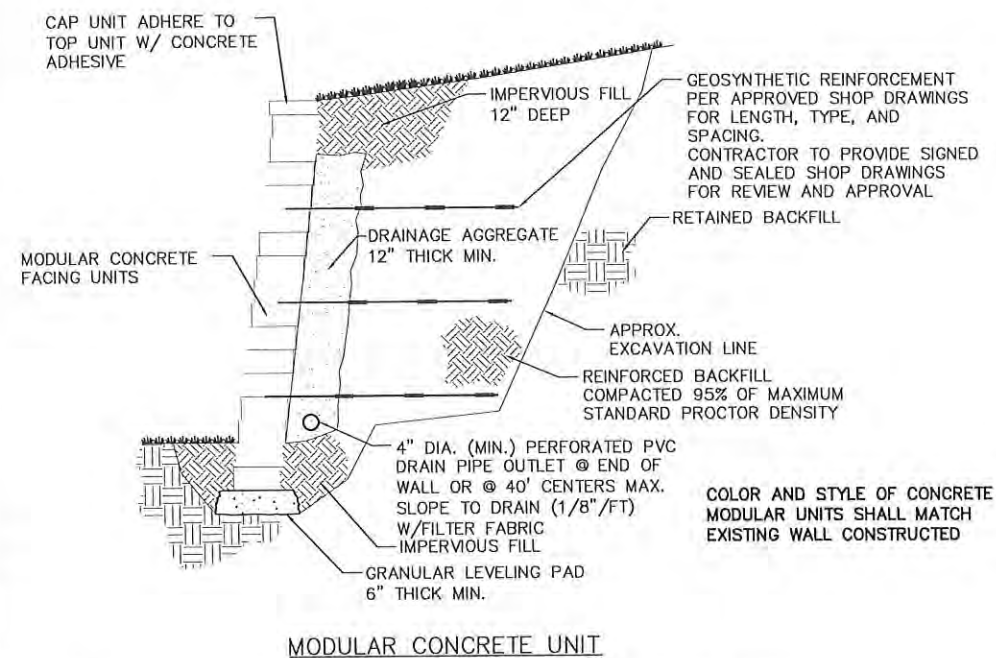
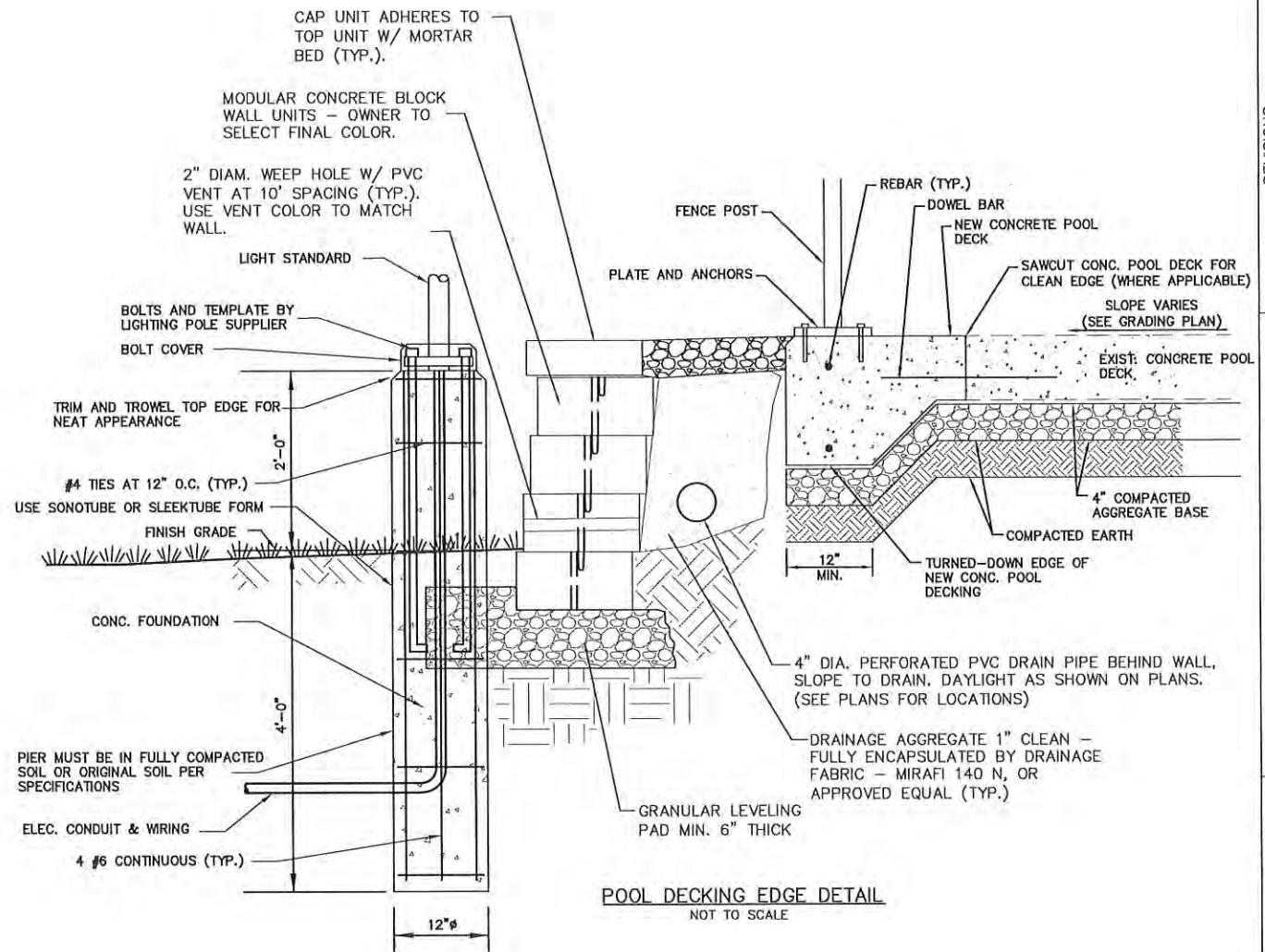
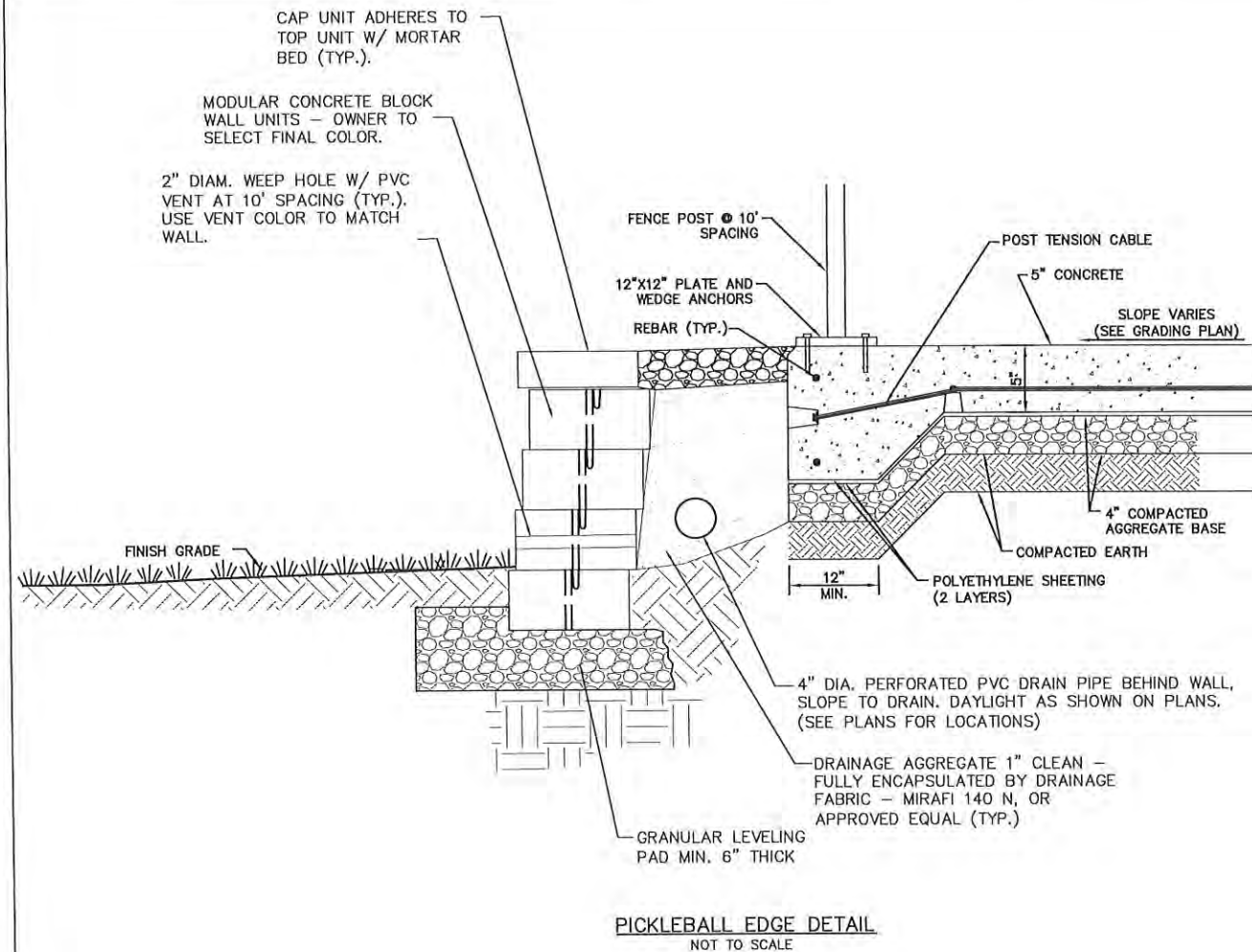
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**GREENBRIAR HILLS
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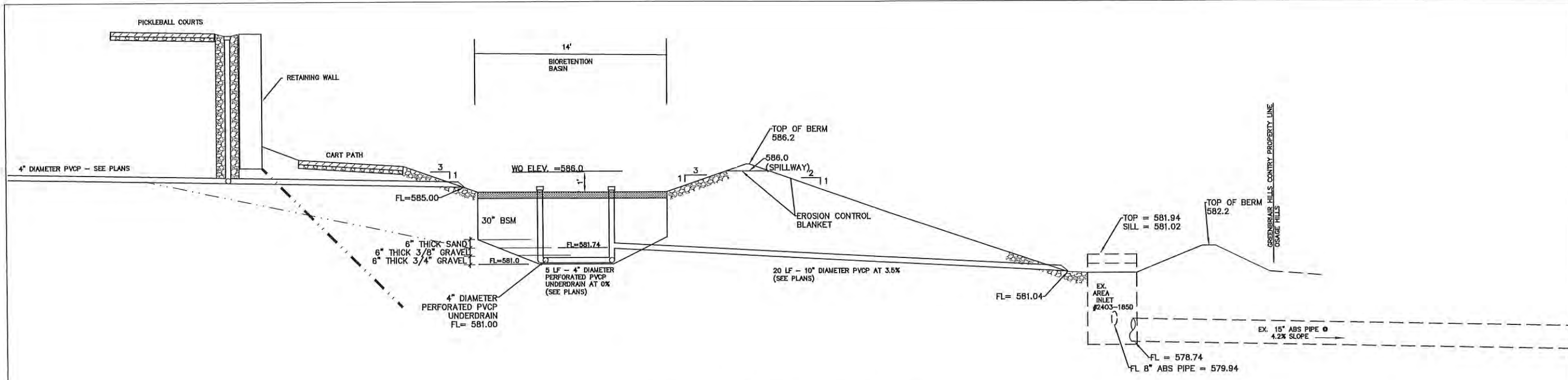
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OF
WDG #1802-22-1

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BIORETENTION SWALE CLEANOUT DETAIL
NOT TO SCALE

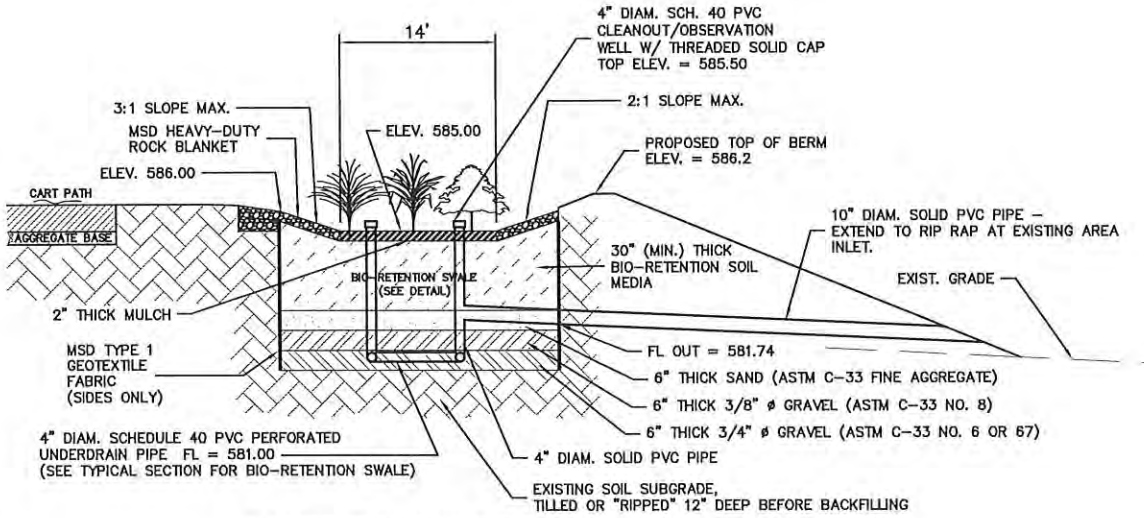
Table 3: Planting, Water and Mulch Requirements

Water Availability	Required Planting Period	Minimum Container Size	Water Requirement First 3 Weeks*	Water Requirement After 3 Weeks*	Maximum Mulch Depth***
No ability to water after	Late Feb. - April only	2.25' x 3.75' or larger	Water each plug immediately		1.5' for plugs
Manual watering with standard sprinkler	Late Feb. - Early June Sept. - October	4.5' x 5' (quart) or larger in summer & fall	1" (60 min) every 4 days	1" (60 min) every 7 days until plants established***	1.5' for plugs 2.5' for quarts
Automatic irrigation (not to water more frequently than normal during first two months after planting)	Late Feb. - Early Oct.	2.25' x 3.75' (plug) or larger in spring 4.5' x 5' (quart) or larger in summer & fall	1" (60 min) every 4 days in spring and fall 1" (60 min) every 3 days in summer	1" (60 min) every 7 days until plants established***	1.5' for plugs 2.5' for quarts

*This water amount includes natural rainfall. If you get a 1/2 inch of natural rain then you will need to add a 1/4 inch of water to meet the 1 inch requirement.
**Requires transport of water to the planting site in large containers and pouring enough water onto each plant (after planting) to moisten the entire planting pit.
***Plants are established when roots have grown out of the container soil and into the native soil by 3-5 inches. This normally takes 3-4 months for most perennials and grasses and up to 6-7 months for trees and shrubs.
****Shredded leaf compost is recommended for use with perennials and grasses. Shredded bark mulch is recommended for tree and shrub plantings at a depth of 3 inches.

CONSTRUCTION NOTES FOR BIO-RETENTION CELL

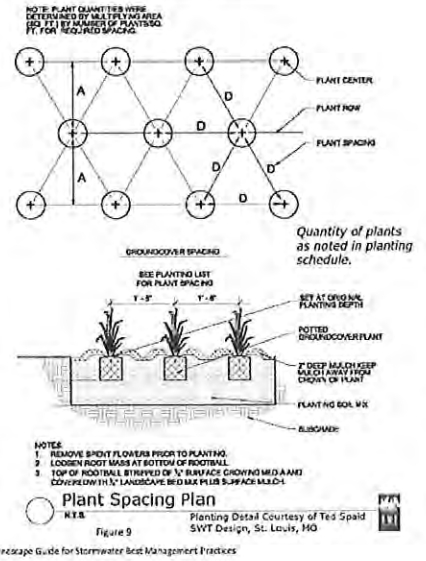
- IF ON-SITE INSITU SOILS ARE TO BE USED FOR THE BIO-RETENTION CELL(S), THE CONTRACTOR SHALL AVOID COMPACTING THE SOILS IN AND AROUND THE CELL(S) DURING CONSTRUCTION BY DIRECTING VEHICULAR AND PEDESTRIAN TRAFFIC AWAY FROM THE AREA(S). TEMPORARY CONSTRUCTION FENCING CAN BE USED TO RESTRICT THE AREA(S). IF SITE CONDITIONS DO NOT ALLOW FOR AVOIDANCE OF TRAFFIC AND COMPACTION OF SOILS, THE CONTRACTOR SHALL COMPLETE ALL OTHER WORK, AND EXCAVATE THE AREA OF THE BIO-RETENTION CELL(S), AND CONSTRUCT THE CELL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- ALL MATERIALS (SAND, PLANTING SOILS, AND GRAVEL) USED TO CONSTRUCT THE CELL(S) SHALL BE CLEAN AND FREE OF DELETERIOUS MATERIALS, AND SEEDS FROM OTHER PLANTS AND WEEDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING A QUALIFIED AND EXPERIENCED HORTICULTURALIST TO TEST THE SOILS FOR DETERMINING THE ACCEPTABILITY OF THE MATERIAL, AND THE NEED FOR ANY SOIL AMENDMENTS/ADDITIVES. THE PH LEVEL OF THE PLANTING SOIL MIX SHALL BE BETWEEN 5.5 AND 6.5.
- IF INSITU SOILS ARE UTILIZED, THE CONTRACTOR SHALL LOOSEN THE AREAS TO A DEPTH OF FOUR INCHES. HARD SOILS MAY REQUIRE DISCING, OR OTHER MEASURES TO SCARIFY AND LOOSEN THE MATERIAL.
- ALL FILTER FABRIC SHALL BE INSTALLED TO COMPLETELY PREVENT MIXING, OR INFILTRATION OF A MATERIAL INTO THE ADJACENT MATERIAL.
- THE PLANTING SOIL SHALL BE A UNIFORM MIX, AND SHALL INCLUDE SANDY LOAM, OR LOAMY SAND (SHOULD CONTAIN A MINIMUM OF 35 TO 60 PERCENT SAND, BY VOLUME). THE CLAY CONTENT SHALL BE LESS THAN 10 PERCENT BY VOLUME. LEAF COMPOST CONTENT SHALL BE 20 TO 30 PERCENT, AND TOPSOIL SHALL COMPRISE 20 TO 30 PERCENT OF THE MIX.
- IF SOILS ARE PREPARED ELSEWHERE AND TRANSPORTED TO THE SITE, THE HORTICULTURALIST/QUALIFIED SPECIALIST SHALL CERTIFY PRIOR TO TRANSPORTING, THE SOIL MIX MEETS THE CRITERIA.
- PLACEMENT OF MATERIALS SHALL BE DONE SO WITH EQUIPMENT THAT PREVENTS COMPACTION OF THE MATERIAL. PLACEMENT OF THE PLANTING SOIL SHALL BE DONE IN LIFTS OF 12 TO 18 INCHES. RAKE SOIL MATERIAL AS NEEDED TO MAINTAIN A LEVEL SURFACE.
- OVERFILL ABOVE THE PROPOSED SURFACE ELEVATION TO ACCOMMODATE NATURAL SETTLEMENT OF THE MATERIAL TO THE PROPER ELEVATION. SOAKING THE PLACED SOIL IS ACCEPTABLE TO ACHIEVE THE REQUIRED SETTLEMENT TO THE DESIRED SURFACE ELEVATION.
- TOP SOIL FOUR INCHES DEEP SHALL BE PLACED UPON THE FINISHED SURFACE OF EACH CELL.



BIORETENTION SWALE DETAIL
NOT TO SCALE

- NOTES:
- SEE MSD LANDSCAPE GUIDE FOR BIORETENTION SOIL SPECIFICATIONS.
 - AS SHOWN, MAXIMUM DRAINAGE AREA = 0.5 ACRES, ADDITIONAL PRETREATMENT (FOREBAY OR VERTICAL SAND LAYER & COBBLE DIAPHRAGM) REQUIRED FOR LARGER DRAINAGE AREAS.
 - SEE MSD LANDSCAPE GUIDE FOR MULCH & SUGGESTED PLANT LIST.
 - ALL SAND & GRAVEL TO BE NATURAL, UNCRUSHED.
 - SLOPES SHOWN ARE MAXIMUM. 12" WIDE BENCHES ARE ALLOWED IN LIEU OF 1:1 SUBGRADE SIDE SLOPE.
 - MUST BE PROVIDED WITH OVERFLOW INLET OR OVERLAND FLOW PATH.

SPACING (FT)	ROW (IN)	NUMBER OF PLANTS/50 FT
30"	30"	150
24"	20"	75
18"	15"	450
12"	12"	600
12"	10"	1,000
10"	8.66"	1,440
8"	6.92"	2,250



PLANTING REQUIREMENTS

THE TOTAL REQUIRED SURFACE AREA OF THE CELL = 1400.00 SF
FOR PLANTINGS. USING A RATIO OF 0.16 FOR NUMBER OF PLANTINGS/SF:

1360.58 SF X 0.16 = 224 PLANTINGS (REQUIRED)
220 PLANTINGS PROVIDED

PROPOSED PLANTINGS:

- 30 EA TOLLWAY SEDGE - CAREX PRAEGRACILIS
- 30 EA SHORT'S SEDGE - CAREX SHORTIANA
- 30 EA RIVER OATS - CHASMANTHIUM LATIFOLIUM
- 30 EA RATTLESNAKE MASTER - ERYNGIUM YUCCIFOLIUM
- 30 EA SLENDER MOUNTAIN MINT - PYCNANTHEMUM TENUFOLIUM
- 30 EA YELLOW/GREY CONEFLOWER - RATIBIDA PINNATA
- 20 EA ORANGE CONEFLOWER - RUDBECKIA FULGIDA
- 20 EA FUZZY WUZZY SEDGE - CAREX HIRSUTELLA

REVISIONS

GREENBRIAR HILLS
COUNTRY CLUB
NEW PICKLEBALL COURTS
KIRKWOOD, MO, 63122

PRELIMINARY, NOT FOR
CONSTRUCTION,
RECORDING PURPOSES
OR IMPLEMENTATION

THOMAS P. WEIS
E-22960
PROFESSIONAL ENGINEER

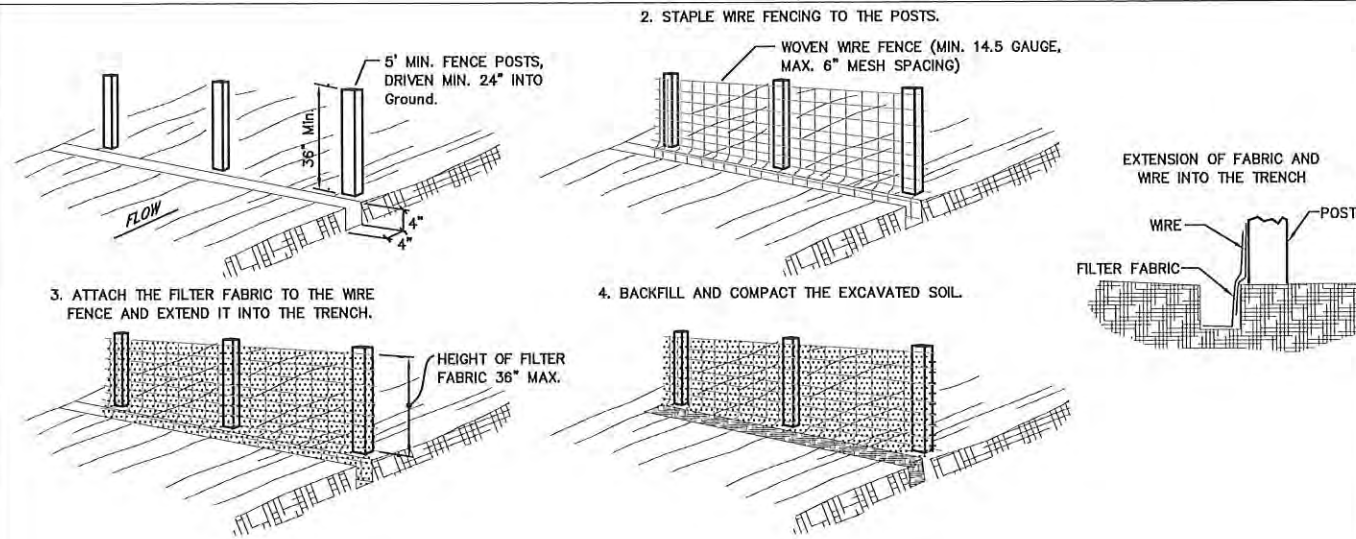
WEIS Design Group
ENGINEERS / ARCHITECTS / PLANNERS
16236 Weiswood Business Park Drive
Ellisville, MO 63021
www.weisdesigngroup.com

PROFESSIONAL ENGINEERING CORP.
LICENSE NO. 525

DETAILS

ISSUE DATE: 11-2-22
MSD P-
SHEET NO.
12
OF
WDG #1802-22-1

F:\Clients\McCormick & Associates\1802-22-1 Greenbriar Hills Country Club\Civil\DWG\Greenbriar - Final DETAIL.dwg Nov 02, 2022 - 4:36pm. arc

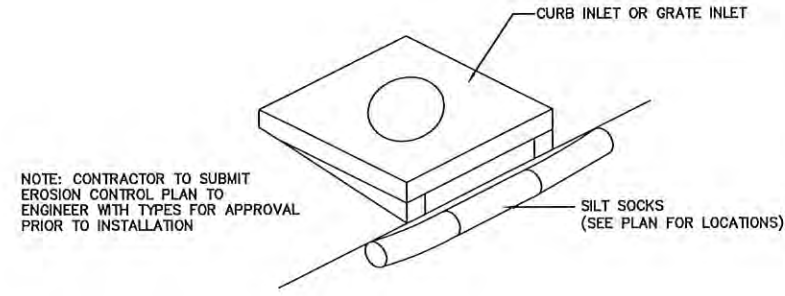


CONSTRUCTION NOTES FOR FABRIC FENCES

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 - FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
 - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
 - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
 - FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- POSTS: 1.33 POUNDS PER LINEAR FOOT STEEL—EITHER T OR U TYPE OR 4" HARDWOOD—MIN. LENGTH 5'.
- FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING.
- FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
- PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE DETAIL

NOT TO SCALE



SILTATION CONTROL AT CURB STRUCTURES

NOT TO SCALE

REVISIONS

GREENBRIAR HILLS
COUNTRY CLUB
NEW PICKLEBALL COURTS
KIRKWOOD, MO, 63122

PRELIMINARY, NOT FOR
CONSTRUCTION,
RECORDING PURPOSES
OR IMPLEMENTATION

THOMAS P. WEIS
E-22960
PROFESSIONAL ENGINEER

TPW Weis Design Group
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Ellisville, MO 63021
www.weisdesigngroup.com
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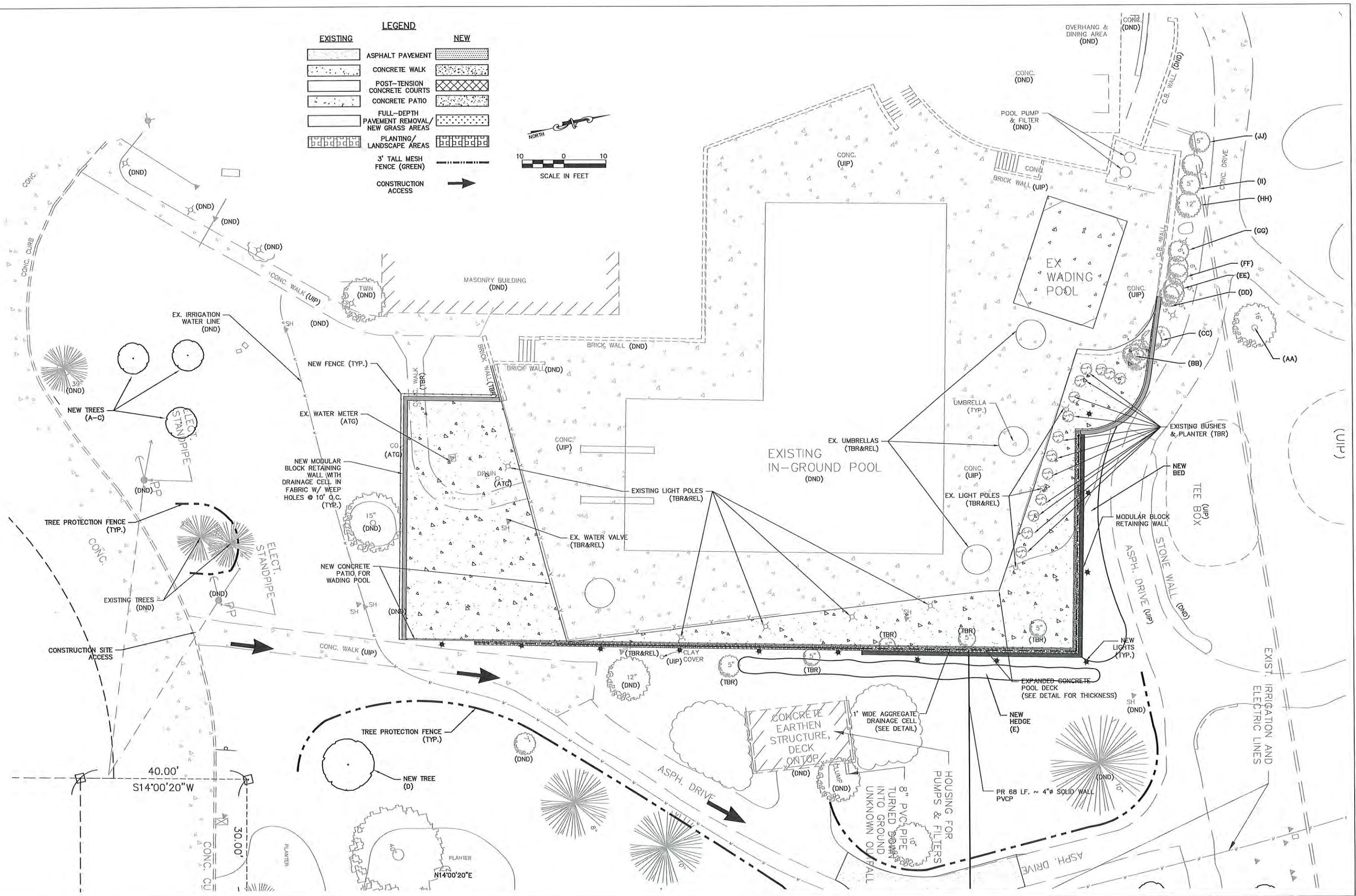
DESIGNED BY:
MJS
DRAWN BY:
CRO
CHECKED BY:
TPW
BASE MAP(S)

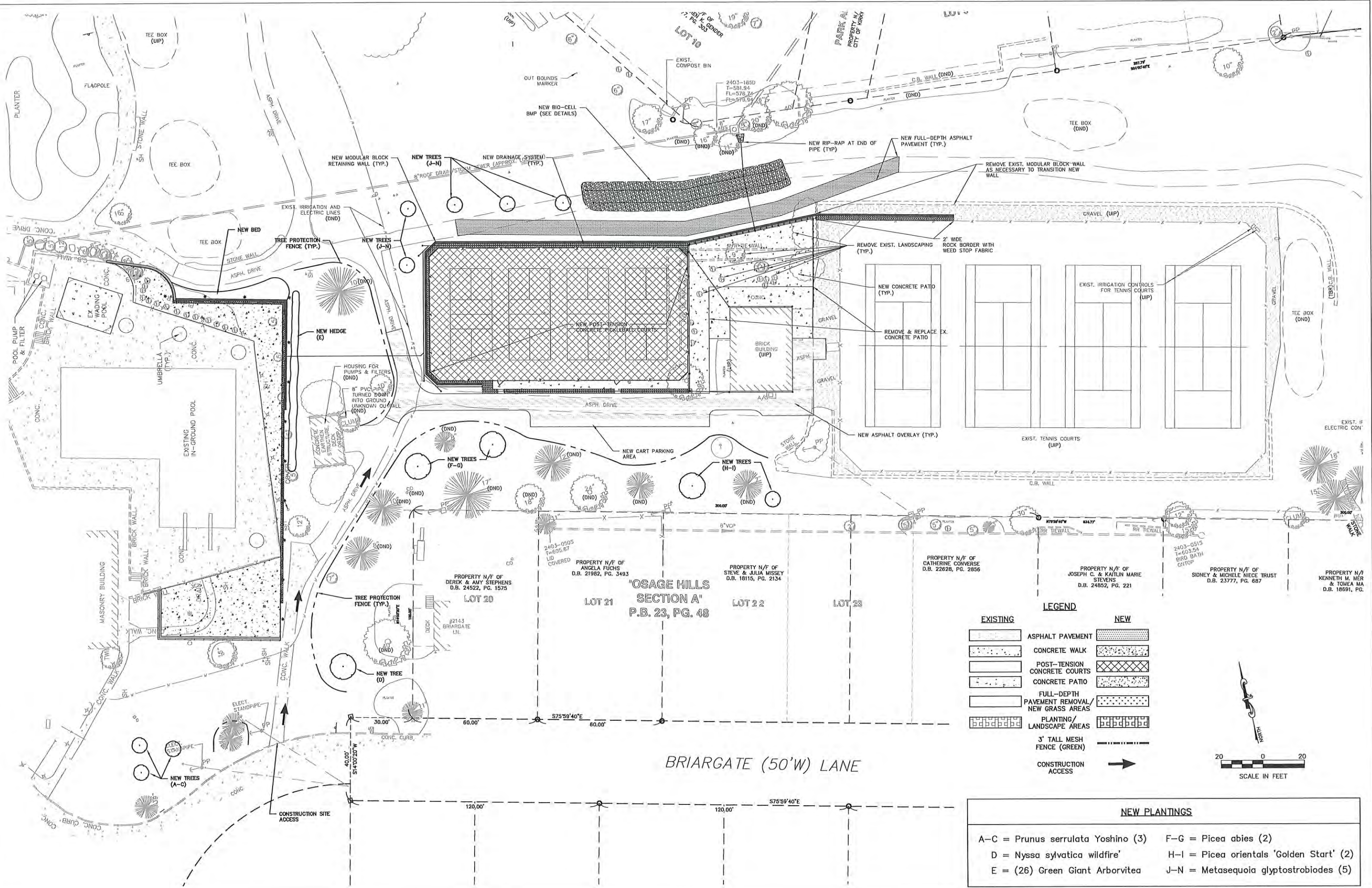
ISSUE DATE: 11-2-22

MSD P-

SHEET NO.
13
OF
WDG # 1802-22-1

DETAILS





LEGEND

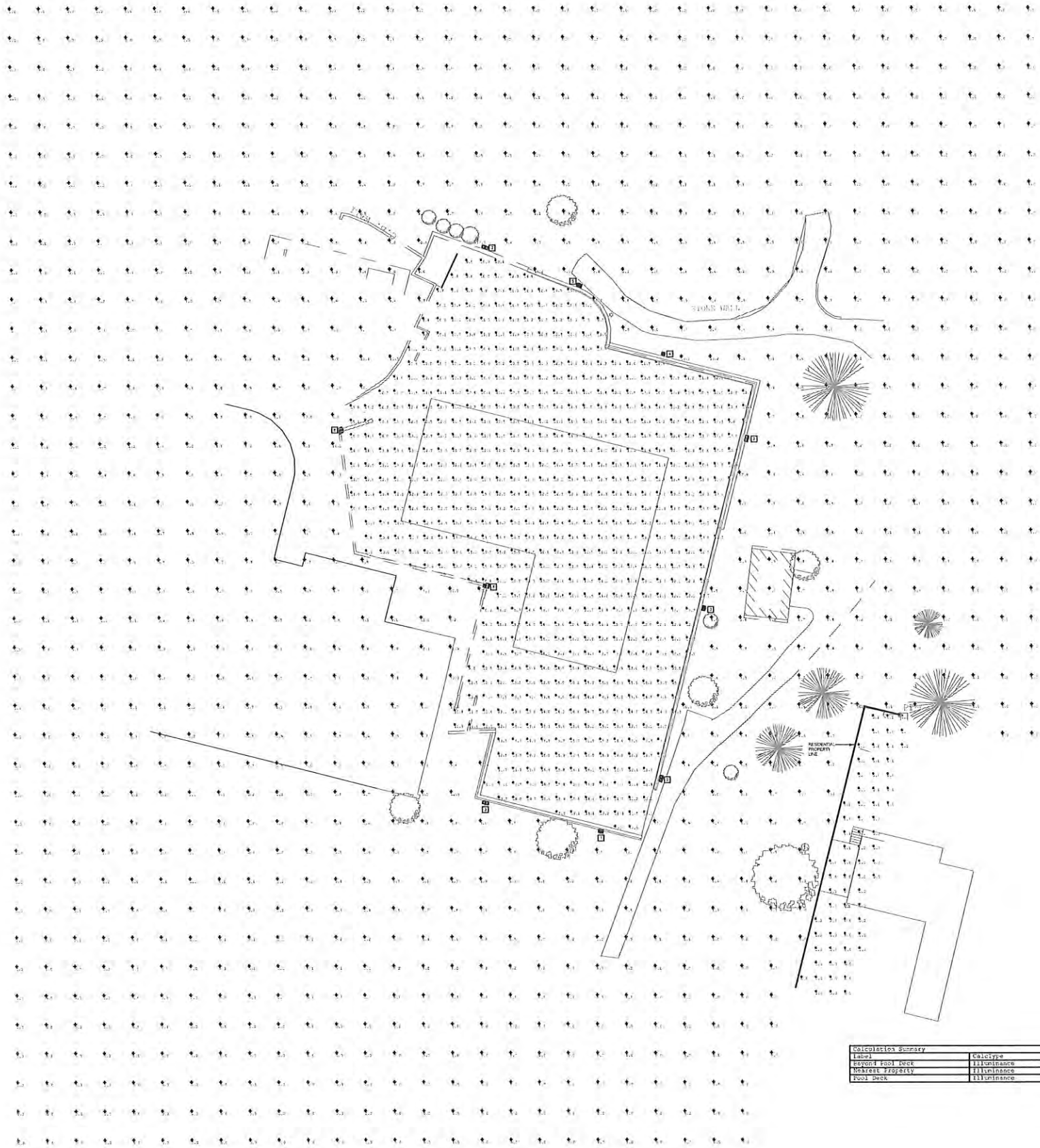
EXISTING

NEW

- ASPHALT PAVEMENT
- CONCRETE WALK
- POST-TENSION CONCRETE COURTS
- CONCRETE PATIO
- FULL-DEPTH PAVEMENT REMOVAL/ NEW GRASS AREAS
- PLANTING/ LANDSCAPE AREAS
- 3' TALL MESH FENCE (GREEN)
- CONSTRUCTION ACCESS

NEW PLANTINGS

- A-C = Prunus serrulata Yoshino (3)
- D = Nyssa sylvatica wildfire
- E = (26) Green Giant Arborvitea
- F-G = Picea abies (2)
- H-I = Picea orientalis 'Golden Start' (2)
- J-N = Metasequoia glyptostroboides (5)



PLAN NOTES - PHOTOMETRIC

1. 24' TALL POLE WITH COOPER GALLEON SASA-740-T4FT-HSS.
2. 24' TALL POLE WITH COOPER GALLEON SA7D-740-T4FT-HSS.
3. 24' TALL POLE WITH COOPER GALLEON SAS5C-740-SL4-HSS.
4. 24' TALL POLE WITH COOPER GALLEON SAMD-740-T4FT-HSS.
5. 24' TALL POLE WITH COOPER GALLEON SA6B-740-T4FT-HSS.
6. 24' TALL POLE WITH (2) COOPER GALLEON SA6B-740-MQ ORIENTED 90 DEGREES APART.

PHOTOMETRIC SITE PLAN
SCALE: 1" = 20'-0"

This electronic drawing file is released under the authority of KEVIN S. GRIESEMER, Missouri License # PE-23628, who maintains the original file and whose registration expires on December 31, 2023. This electronic drawing file may be used as a background drawing. Pursuant to State of Missouri Regulations of the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors, and Landscape Architects, the user of this electronic drawing file agrees to assume all responsibility for any modification or use of the drawing and to indemnify and hold the Engineer harmless from and against all claims, damages, costs and expenses, including reasonable attorneys' fees, that may be incurred by the Engineer or the Engineer's firm as a result of any such modification or use of the drawing. No person may make any modifications to this electronic drawing file without the Engineer's express written permission.

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GREENBRIAR HILLS
COUNTRY CLUB
NEW PICKLEBALL COURTS
KIRKWOOD, MO, 63122



REVISIONS	
JOB NO:	2022-0491.00
DRAWN BY:	MHK
CHECKED BY:	KSG
DATE:	11/04/2022
SHEET NO.	

E1.0

PHOTOMETRIC SITE PLAN



APPLICATION FOR PLANNING AND ZONING REVIEW

DATE: October 28, 2022 CASE NUMBER: P2-7-23
ZONING DISTRICT: B-3 LOCATOR NUMBER: 22M241326 (a/k/a 22M241317)
PROJECT ADDRESS: 10320 Manchester Rd., Kirkwood, MO 63122
PROJECT NAME: NVA Clark Animal Hospital

ACTION REQUESTED

- | | |
|---|--|
| <input type="checkbox"/> CUP, Development Plan or Final Site Plan (circle one)
<input type="checkbox"/> Development Plan, B4, B5, or R6 (circle one)
<input type="checkbox"/> Final Site Plan, B4, B5, or R6 (circle one)
<input type="checkbox"/> Site Plan Review, Minor or Major (circle one)
<input type="checkbox"/> Site Plan Modification
<input type="checkbox"/> Alternative Equivalency
<input checked="" type="checkbox"/> Special Use Permit, Category: <u>Animal Facility, Major</u> | <input type="checkbox"/> Subdivision, Major
<input type="checkbox"/> Subdivision Modification
<input type="checkbox"/> Text Amendment
<input type="checkbox"/> Vacation, Right-of-Way or Easement (circle one)
<input type="checkbox"/> Zoning Map Amendment, From _____ to _____
Comments: <u>with outdoor use</u> |
|---|--|

PETITIONER INFORMATION

I (We) hereby certify that I (we) have legal interest in the hereinabove described property and that all information given herein is true and a statement of fact

Name (Print): NVA Clark Veterinary Management, LLC Signature: Erica Scales Phone No.: (864) 346-3068
Mailing Address: 29229 Canwood St., Ste. 100 City: Agoura Hills State: CA Zip: 91301
E-mail Address: Erica.Scales@nva.com

Petitioner's Status: ☒ Corporation ☐ Partnership ☐ Individual

Relationship of Petitioner to Property: ☐ Owner ☒ Tenant ☐ Option Holder (Attach Copy of Contract) ☐ Other

AGENT INFORMATION

Agent's Name: Patrick T. Wittenbrink Signature: [Signature] Phone No.: (314) 854-8600
Mailing Address: 120 S. Central Ave., Ste. 1800 City: St. Louis State: MO Zip: 63105
E-mail Address: ptw@carnodymacdonald.com and seb@carnodymacdonald.com
(NOTE: The petitioner's agent, if listed, shall receive all official communication)

PROPERTY OWNERS

Signature required or submit proof petitioner has legal interest in property.

Name: <u>BROWN & SONS' FOODLINER, INC., c/o Novus Properties Co.</u>	Name: _____
Signature: <u>[Signature]</u>	Signature: _____
Address: <u>20 Allen Ave., Ste. 400</u>	Address: _____
City/State/Zip: <u>Webster Groves, MO 63119</u>	City/State/Zip: _____
Phone: <u>(314) 281-1502</u>	Phone: _____

FOR CITY USE ONLY

Date Received: _____ Total Received: \$ _____ Agenda Date: _____

- ☐ B-4/B-5 Development Plan: \$1,000 + _____ Acres @ \$25/Acre or portion over one acre) = \$ _____
- ☐ B-4/B-5 Final Site Plan: \$1,000
- ☐ B-4/B-5 Final Site Plan Amendment (when public hearing is not required): \$500
- ☐ CUP (Single family), Dev Plan/Preliminary Plat: \$1,000 + _____ Lots @ \$500/Lot = \$ _____
- ☐ CUP (Single family), Final Site Plan/Final Plat: _____ Lots @ \$100/Lot = \$ _____ + 1-1/4% of \$ _____ = \$ _____
- ☐ CUP, (Multi family), Development Plan/Prel. Plat: \$1,000 + _____ Dwelling units @ \$20/Each = \$ _____
- ☐ CUP, (Multi family), Final Site Plan/Final Plat: \$500 + 1-1/4% of _____ = \$ _____
- ☐ CUP, Final Site Plan/Final Plat Amendment: Public Hearing required \$800, Public Hearing not required \$500
- ☐ CUP, Final Site Plan Time Extension: \$300
- ☐ Mixed Use in B2 Development Plan: \$1,000 (includes SPR fee) + \$25/acre or portion over one acre
- ☐ Mixed use in B2 Final Site Plan: \$500
- ☐ Mixed use in B2 Final Site Plan Amendment: Public Hearing required \$800, Public Hearing not required \$500
- ☐ R6 Development Plan: \$1,000 + _____ Dwelling units @ \$20/Unit = \$ _____
- ☐ R6 Final Site Plan: \$500
- ☐ Sidewalk Waiver on _____ feet @ \$30/Foot = \$ _____ = \$ _____
- ☐ Site Plan Review (Major): \$1,000
- ☐ Site Plan Review (Major): Amendment \$800 or Extension: \$300
- ☐ Site Plan Review (Minor): \$500
- ☐ Site Plan Review (Minor) Amendment \$500 or Extension: \$300
- ☒ Special Use Permit: \$1,000 (waived if submitted with Site Plan Review)
- ☐ Special Use Permit Amendment: \$800 (waived if submitted with Site Plan Review) or Extension: \$300
- ☐ Subdivision (Major), Preliminary Plat _____ Lots @ \$500/Lot = \$ _____
- ☐ Subdivision (Major), Final Plat/Improvement Plans: _____ Lots @ \$100/Lot + 1.25% of \$ _____ = \$ _____
- ☐ Subdivision (Major) Amendment to Final Plat or Improvement Plans: \$200
- ☐ Subdivision Modification (Boundary Adjustment): \$300
- ☐ Vacation, Easement: \$100
- ☐ Vacation, Right-of-way: \$200
- ☐ Zoning Code Text Amendment: \$1,000
- ☐ Zoning Map Amendment: \$1,000

SUBCOMMITTEE (_____)

Carmody MacDonald

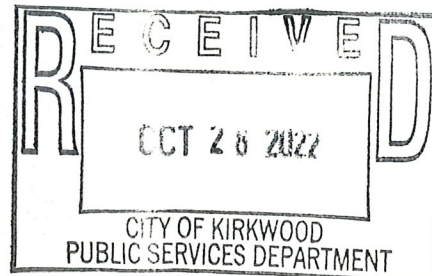
Patrick T. Wittenbrink
ptw@carmodymacdonald.com
Direct Dial: (314) 854-8618

Carmody MacDonald P.C.
120 S. Central Avenue, Suite 1800
St. Louis, Missouri 63105-1705
314-854-8600 Fax 314-854-8660
www.carmodymacdonald.com

October 28, 2022

HAND DELIVERED

City of Kirkwood
Planning and Zoning Commission
139 S. Kirkwood Rd.
Kirkwood, MO 63122



**Re: Proposed Use - 10320 Manchester Rd., Kirkwood, MO 63122
Relocation of Clark Animal Hospital**

Dear Members of the Planning and Zoning Commission:

The demised premises located within Greentree Center at 10320 Manchester Rd., Kirkwood, MO 63122 (the “**Premises**”), is currently vacant and was formerly occupied by Gold’s Gym. The Premises is located along the Manchester Road commercial corridor, is presently zoned B-3, Highway Business District, and the surrounding properties include various businesses, including a car dealership, a tree nursey, and restaurants. Petitioner, NVA Clark Veterinary Management, LLC, d/b/a Clark Animal Hospital (“**CAH**”), seeks to relocate from its current facility located at 10510 Manchester Rd, Kirkwood, MO 63122 to the Premises and seeks a Special Use Permit for the Premises for the operation of a veterinary care office and animal hospital, which, per §§ 25-35 and 25-104 of the City of Kirkwood Zoning and Subdivision Code, Ch. 25 of the Code of Ordinances, City of Kirkwood, Missouri (the “**Zoning Code**”), qualifies as “Animal facility, major” use and is a special use in B-3, Highway Business District.

CAH has been serving the City of Kirkwood for decades. In 1960, Dr. Bill Clark founded CAH as a single-doctor, house-call practice. In the 1970s, Dr. Clark was joined by two of his younger brothers, Drs. Thom and John Clark, and the group expanded the practice and moved to CAH’s current location on Manchester Road. In 1997, longtime associates, Dr. Tim Pennington and Dr. Jeff Coggan purchased CAH and the animal hospital and made it what it is today. Indeed, over time, CAH and the animal hospital grew to its current level of thirty (30) employees, including six (6) staff veterinarians. Although Dr. Pennington has since retired, Dr. Coggan is still practicing with CAH. Dr. Ellen Cole, CAH’s Managing DVM, grew up in the City of Kirkwood and completed her undergrad and graduate specifications at CAH. With several clients having been with CAH since 1960 and large percentage of CAH clients being residents of the City of Kirkwood, CAH now desires to relocate to the Premises to expand its practice and continue to operate in a way that is beneficial to the City of Kirkwood and its pet owning residents.

As the Premises is currently vacant, the use proposed by CAH on the Premises will significantly improve the current visual aesthetics of the Greentree Center and the surrounding area. The hours of operation for the Premises for CAH are proposed to be 7:00 a.m. to 7:00 p.m. every day of the week. There will be no commercial boarding at the Premises as any animal

overnight is there for post-operation recovery purposes only after a surgery. Further, as noted, CAH currently has thirty (30) employees. The proposed floor plan of the Premises is being designed under the assumption that CAH could, eventually, employ ten (10) doctors. Assuming ten (10) doctors were employed, the maximum daily number of employees would be approximately thirty (30) in any single work shift.

In sum, CAH has a proven track record of supporting the community with veterinary services and desires to remain in the City of Kirkwood by relocating to the Premises in order to serve its current clients and continue to grow its practice. They are excited for a future in the Greentree Center with a modern build out and amenities to serve clients.

Please feel free to contact me prior to the November 16, 2022, meeting if you have any questions.

Sincerely,

CARMODY MacDONALD P.C.



Patrick T. Wittenbrink

Enclosures



WHERE COMMUNITY AND SPIRIT MEET®

November 10, 2022

Patrick T. Wittenbrink
Carmody MacDonald
120 S. Central Avenue, Suite 1800
St. Louis, MO 63105

SENT VIA EMAIL: ptw@carmodymacdonald.com and seb@carmodymacdonald.com

SUBJECT: PZ-07-23, 10320 MANCHESTER ROAD (GREENTREE CENTER) – NVA
CLARK VETERINARY MANAGEMENT, LLC, REQUEST FOR SPECIAL
USE PERMIT (ANIMAL FACILITY, MAJOR)

Dear Mr. Wittenbrink:

The City of Kirkwood Public Services Department is in receipt of your petition for a Special Use Permit for an Animal Facility, Major, for a proposed veterinary practice at 10320 Manchester Road. This item will be placed on the Planning and Zoning Commission agenda for its **7:00 p.m. meeting Wednesday, November 16** at Kirkwood City Hall, 139 South Kirkwood Road. City Staff will make an introduction presentation regarding the request at this meeting. You, or your representative, should attend this meeting to present your information to the Commission and answer any questions the Commission members may have.

The Planning and Zoning Commission will review the application in accordance with the Zoning Code. The Public Services Department has the following comments concerning the application:

1. Provide the location of drainage for the pet relief area.
2. Indicate the petitioner's response to the Results and Conclusion of the Sound Assessment.
3. Exterior alterations and signage must be approved by the Architectural Review Board.
4. All work related to this petition must comply with all Kirkwood Ordinances including, but not limited to, building/sign and fire codes.

This is a preliminary review of the application. The Planning and Zoning Commission and Public Services Department will review the application in detail and provide further comments as necessary. This preliminary review is not an approval or acceptance of any part of the application submitted.

The applicant is further advised that it is your responsibility to follow the petition through the entire process and to satisfy all submittal requirements and deadlines. Also note, this application

and review does not grant the applicant any special rights, privileges, or immunities, and that all provisions of the Kirkwood Code of Ordinances shall apply.

Sincerely,

CITY OF KIRKWOOD



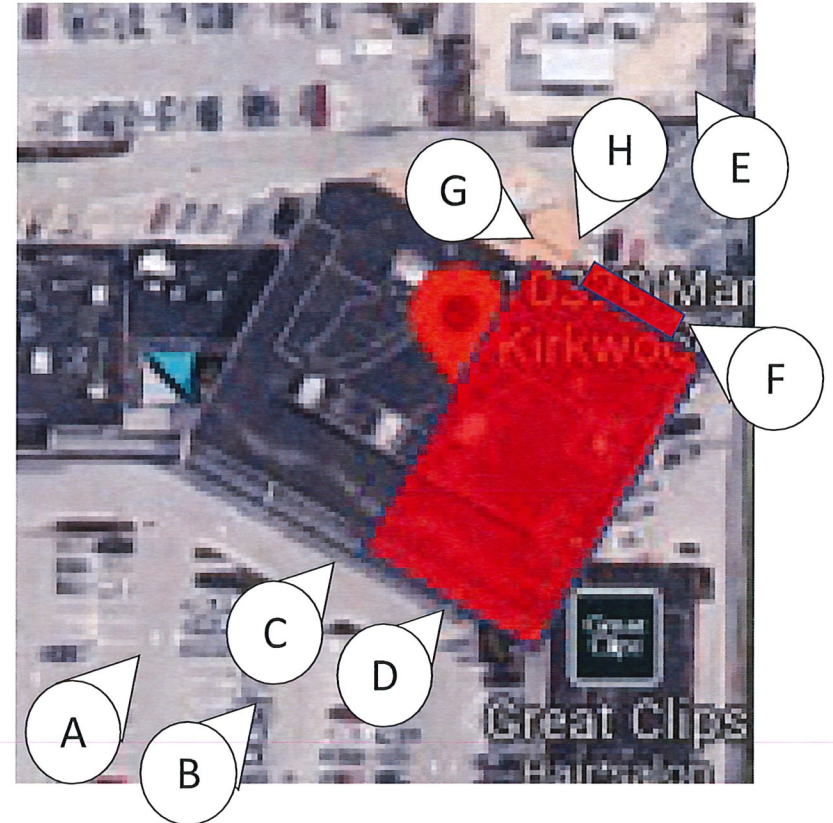
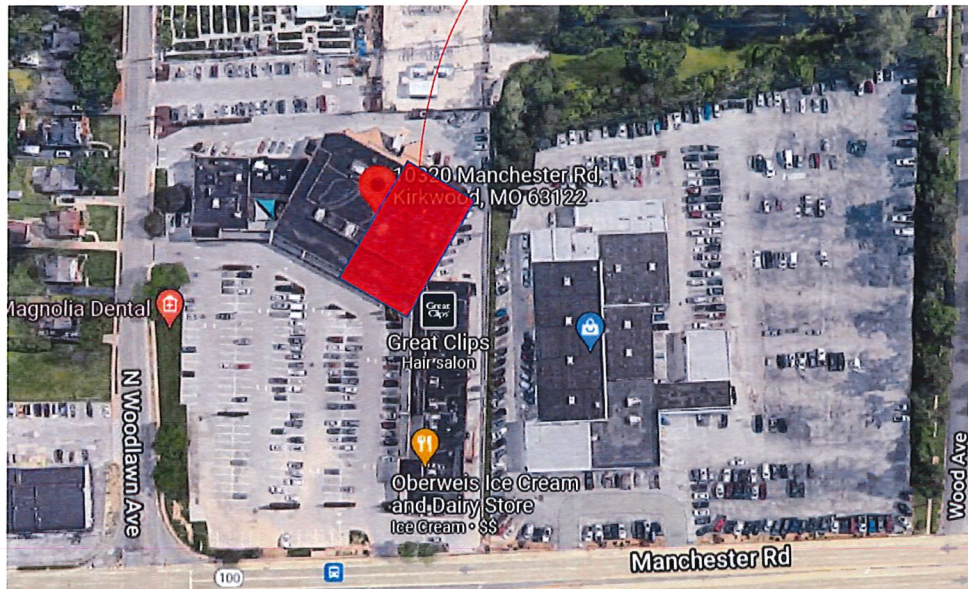
Christie Voelker

Planner I

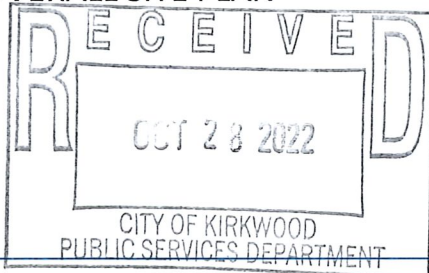
314-822-5899

voelkece@kirkwoodmo.org

SUBJECT SPACE



OVERALL SITE PLAN



PROPOSED CLARK ANIMAL HOSPITAL / PHOTO REVIEW

GREENTREE CENTER

10320 MANCHESTER RD. KIRKWOOD, MO. 63122

PAGE 1 of 3

10/20/2022

PHOTO INDEX PLAN



A



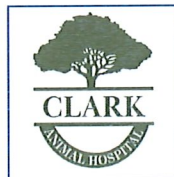
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C

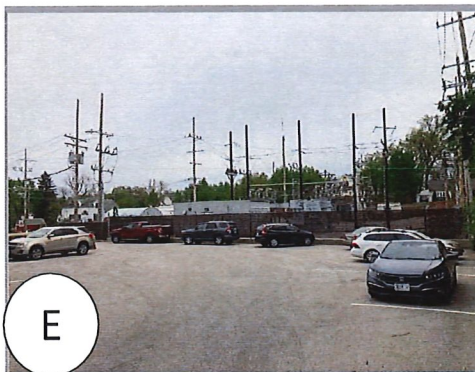


D



PROPOSED CLARK ANIMAL HOSPITAL / PHOTO REVIEW
GREENTREE CENTER
10320 MANCHESTER RD. KIRKWOOD, MO. 63122

PAGE 1 of 3
10/20/2022



PROPOSED CLARK ANIMAL HOSPITAL / PHOTO REVIEW
 GREENTREE CENTER
 10320 MANCHESTER RD. KIRKWOOD, MO. 63122

PAGE 1 of 3
 10/20/2022

Sondare Acoustics
5110 Butler Spur Ct
St Louis, MO. 63128
314-568-8042

Oct.27, 2022

Patrick T. Wittenbrink
Principal- Carmody MacDonald P.C.
129 S. Central Ave., Suite 1800
St Louis, MO. 63105



Subject: Sound Assessment for Clark Animal Hospital

Patrick

Per your request, Sondare Acoustics has performed the following sound assessment for a new Clark Animal Hospital to be located at 10320 Manchester Road in Kirkwood, MO. This is an analysis with no actual sound measurements taken.

Background Information-

1. The proposed facility is to be located in the east section of the building at 10320 Manchester Road as shown in fig.1. The hospital plans to have an outdoor area, with a roof and fenced side walls, for dogs to occupy during hospital hours. It is assumed that two dogs could occupy the outdoor area at the same time. The plan is to cover the fenced side walls with vinyl (1/2in-1in thick). Due to the potential for the dogs barking in the outdoor area, creating a noise annoyance, an acoustic analysis is required.

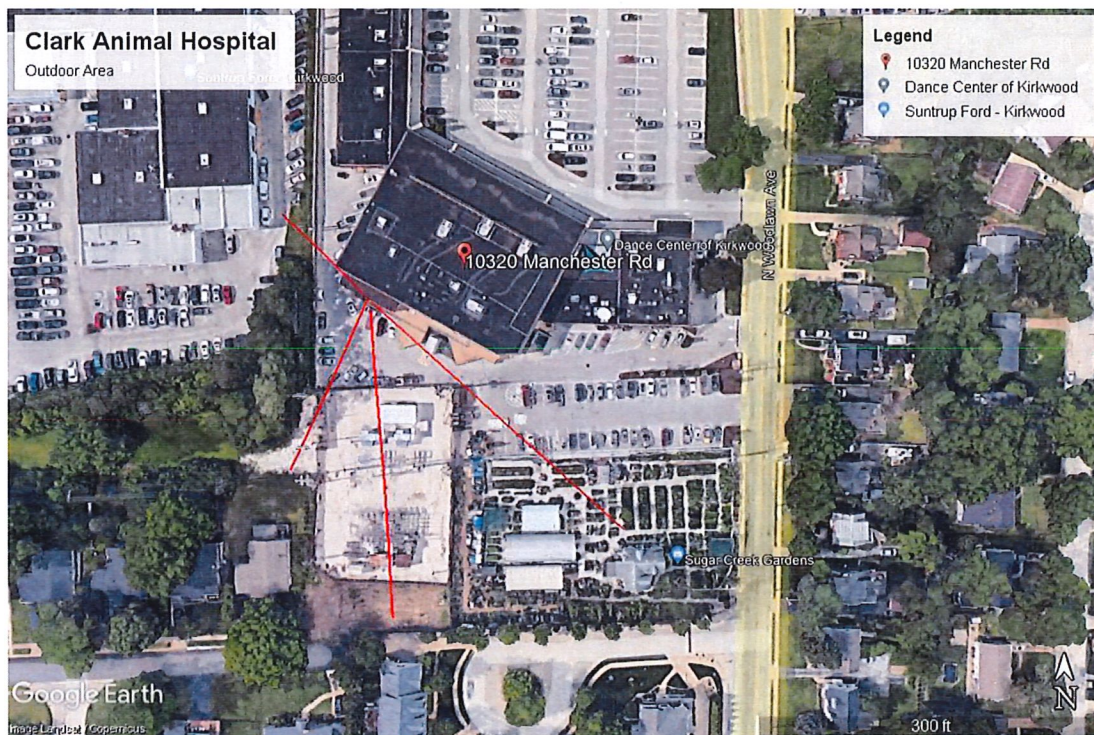


Fig.1

2. Surrounding area- The area surrounding the building and facility is both commercial and residential. Suntrup Automotive is to the northeast, power equipment is to the south, Sugar Creek Garden is to the southwest and there are residential properties to the south and southeast as shown in fig 1.

3. Ordinances and Guidelines –

a. Since the property is located in Kirkwood, it is assumed that their ordinances would apply. “Chapter 17. Offenses, Miscellaneous, Article v. Offenses Concerning Public Peace, section 17-70 Conduct Constituting Disturbing Noises, paragraph (e)” states that “ The keeping of any animal or bird which will disturb the comfort or repose of any persons in the vicinity by making long, continual or frequent noise.” is a violation. Zoning A-220 Site Plan Review 220.7 (5) states “Visual and sound buffering should be provided for property located in surrounding areas.”

b. St. Louis County has a more quantitative noise control code in the “Noise Related Ordinance, Chapter 625 Noise Control Code, section 625.050” which list permissible noise levels for different types of noise sources. The permissible levels also vary by land use and day and night. The permissible levels are provided for length of time the noise exists during a 60 minute measurement period. The shorter duration the higher the level allowed.

For a 60 minute measurement period the daytime permissible level, when measured at any point outside the boundary of a commercial property where the noise source is located is 65dB or less. If the commercial property is adjacent to a residential property, the permissible level is 55dB. In each case if the sound source is impulsive the permissible levels are 5dB less or 60dB and 50 dB respectively.

The St Louis County Animal Control also issued SLCRO 716.075 Disturbance of the Peace (unincorporated) – Public Nuisance – Dog Barking that states “....a habitually barking dog that disturbs the peace is considered a public nuisance.”

These ordinances can be found online.

c. The World Health Organization (WHO) Guidelines on Community Noise, dated Jan. 10, 2001, includes the following sound level guidelines

- a. Bedroom – sleep disturbance- 30dBA
- b. Dwelling Room- Annoyance , speech disturbance- 50dBA
- c. Outdoor (day) – serious annoyance- 55dBA

Reference Sound Information-

1. Outdoor sound can travel outward in all directions. The level of sound received from a sound source can be impacted by the distance between the source and receiver. In theory the sound decreases 6dB per double the distance for a spherical or hemispherical spreading sound source. The temperature, wind, and absorption of the air can also influence the received sound level. Barriers between the source and receiver can also influence the received level of sound. The sound can also reflect and increase from surrounding walls and the ground. A conservative estimate for the decrease in sound level from the source to the receiver is 5dB for double the distance.

2. Sound from barking-

Dog barking is an impulsive sound that can vary in level (dB) and frequency (high and low pitch). The sound level can be between 60-100dBA at 1 meter or 3.3 feet. The sound level can vary during the bark. The bark sound is mainly between 550Hz and 4000 Hz depending on the size and type of dog. For this study an estimate of the sound level for one dog barking will be 80dBA at 1m. Two dogs barking at the same time would be at a level of 83dBA at 1m. ("A" is a weighting scale used to correlate with how humans perceive sound).

Clark Animal Hospital Operating Assumptions-

1. There will be one (1) outdoor area located at the south east side of the building. It will have a roof and chained link fence walls. The plan is to cover the chain linked fencing with vinyl.
2. A solid door will separate the indoor area from the outside area.
3. The outdoor area can accommodate many dogs but only two (2) dogs will be outside at one time.
4. The dogs will be supervised when in the outdoor area and brought inside if barking is excessive.
5. Dogs will only be in the outside area during daytime hospital business hours.

Analysis-

1. Given the surrounding commercial area, it is assumed that the daytime ambient level could be 50dBA or greater.
2. It is assumed that the sound from dog barking will be blocked by the south wall of the building and will mainly travel to the east, west and south. The estimated distances from the outdoor area to four locations to the east, west and south are as follows

Suntrup Automotive – 100ft

Sugar Creek Garden Building- 291ft

Residence to the south east- 162ft

Residence to the south – 260ft

3. Assuming two dogs barking at a sound level of 83dBA at 1m and a decrease of 5dB for double distance from the outdoor area, the estimated sound levels at the four locations are as follows-

Suntrup Automotive- 59dBA

Sugar Creek Garden- 51dBA

Residence to southeast- 55dBA

Residence to south – 52dBA

4. The estimated sound levels for the two commercial locations would meet the St. Louis County daytime permissible impulsive level of 60dBA.
5. The estimated sound levels for the two residential locations would be 2-5 dB higher than the daytime permissible impulsive level of 50dBA.
6. The estimated residential levels would meet or be below the WHO daytime level of 55dB.

Results and Conclusion

1. It is assumed that dog barking from the outdoor area located at the south of the building will be blocked by the roof of the area and the south wall of the building and not be an annoyance to receivers on the north side of the building. It is not clear as to what business will be adjacent to the hospital, inside the building, but it should have a good exterior sound blocking door at the rear of the building in order to reduce the level of the barking sound level from entering the building (example 83dBA-35dBA= 48dBA inside the building)

2. The estimated sound levels at the adjacent commercial businesses meet the St. Louis County Ordinance.

3. Although the estimated sound levels for the closest residences are very close to meeting the St. Louis County permissible sound level, it is recommended that additional sound blocking be installed around the existing outdoor area. It should have a minimum sound blocking of 10dB.

The planned vinyl slats could provide additional sound blocking if installed with no gaps between slats. This can be accomplished by overlapping the slats. There should also be no gaps between the fence and the ground and the fence and the roof. The fence should be 6-8ft above the source of the sound. If there is a gate for the outside area, there should be no gaps between the gate and the fence.

Please let me know if you have any questions about the above information.

Mike Biffignani
President Sondare Acoustics
314-568-8042



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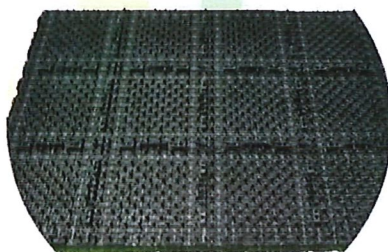
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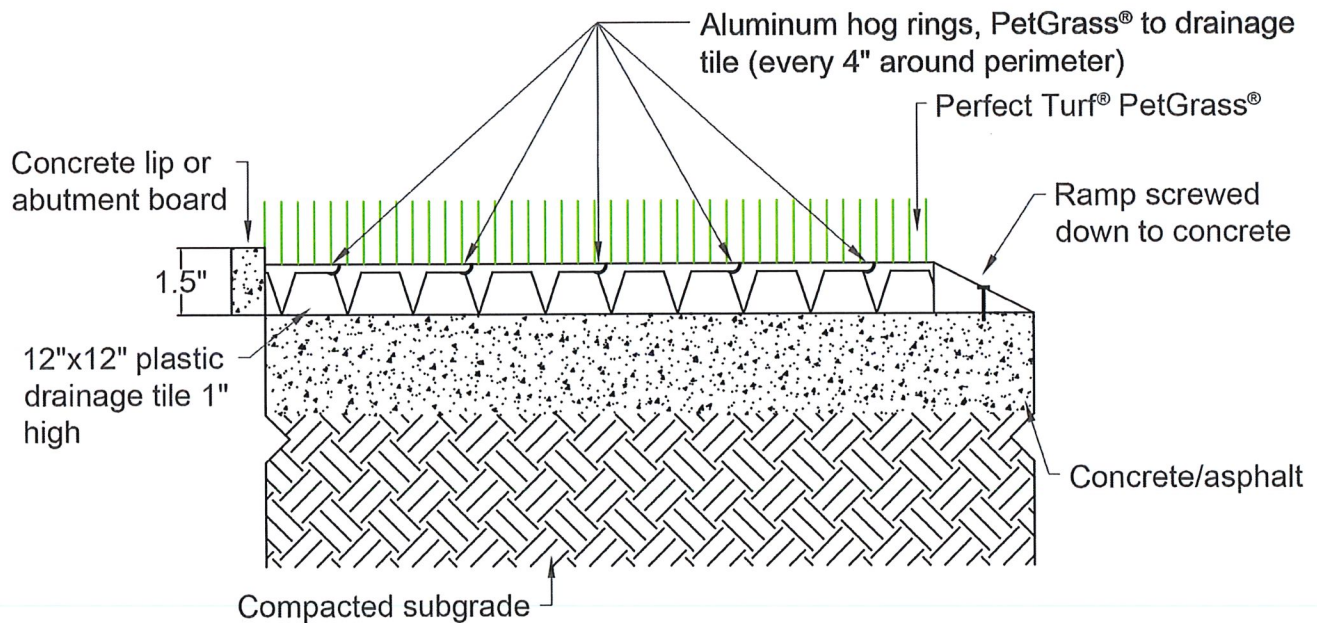
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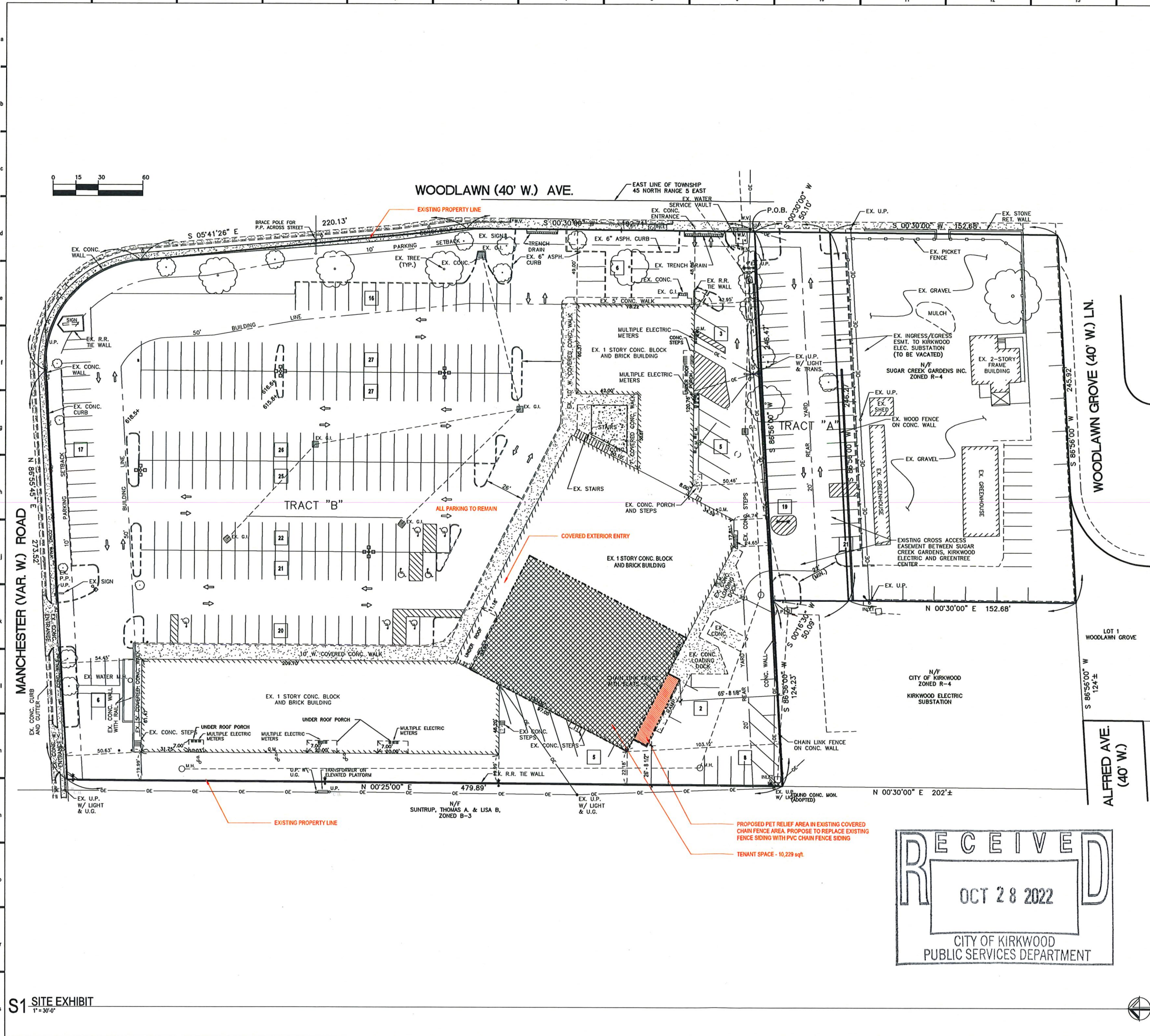


- ① Concrete/asphalt must be pitched at a minimum of 1" per 10' to allow for water to drain under the POD system. Perimeter or channel drains recommended throughout turf area.
- ② Sealing concrete/asphalt is recommended prior to installation.



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NOT TO SCALE



SHEET NOTES

- 1. NO EXTERIOR FACADE CHANGES U.O.N.
- 2. EXISTING PARKING LAYOUT TO REMAIN.
- 3. EXTERIOR LANDSCAPING TO REMAIN.
- 4. EXISTING SITE LIGHTING TO REMAIN.
- 5. SIGNAGE BY OTHERS.

SITE DATA

WATERSHEDS UTILITIES
-DEER CREEK
-MISSOURI-AMERICAN WATER COMPANY
-METROPOLITAN ST. LOUIS SEWER DISTRICT
-LACLEDE GAS COMPANY
-SOUTHWESTERN BELL TELEPHONE COMPANY
-AMEREN UE
-KIRKWOOD FIRE DEPARTMENT

PARKING DATA

TOTAL EXISTING PARKING SPACES - 276
(INCLUDING 8 HANDICAP SPACES)
NO PARKING CHANGES PROPOSED

Oculus Inc.
CONCEPT • DESIGN • PLANNING
ARCHITECTURE • INTERIOR DESIGN • PLANNING
ONE SOUTH MEMORIAL DRIVE | SUITE 1000 ST. LOUIS, MO 63102
(314) 357-4100



CLARK ANIMAL HOSPITAL
10320 Manchester Rd
Kirkwood, MO 63122

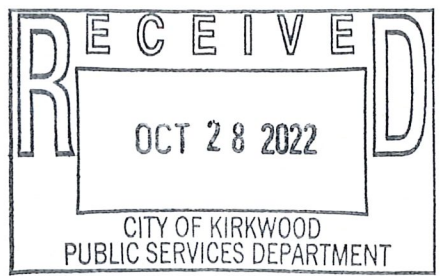
#	Description	Date
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Client Approval

SITE EXHIBIT

Project # NVA22-PP01
Issue Date 10/27/22
Scale As indicated
Drawn by ZTM
Checked by Checker

AS100



S1 SITE EXHIBIT
1" = 30'-0"



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CITY OF KIRKWOOD
PUBLIC SERVICES DEPARTMENT

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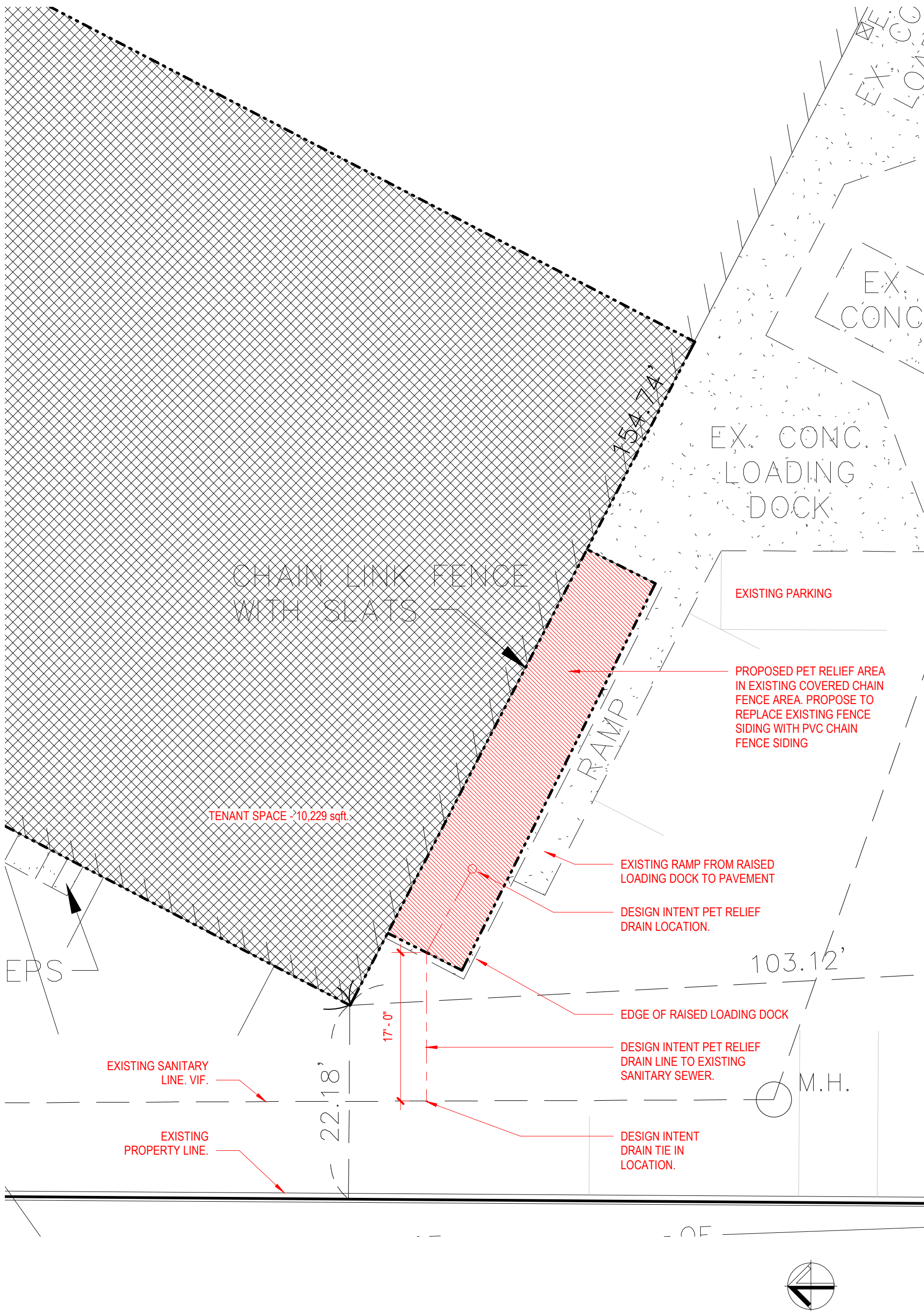
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