

April 16, 2009

**Prepared for Marquette University**

# **Norris Park Athletic Field Redevelopment**

**Engineering Services**



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## **Project Overview**

Graef-USA, Inc (GRAEF), at the request of Marquette University, has analyzed the Norris Park parcel located at 936 N. 19<sup>th</sup> Street for redevelopment. Marquette University's intent is to lease the parcel from the City of Milwaukee and re-develop it into a recreational sports venue to support their expanding intramural sports programs as well as providing an alternate practice location for various club sports programs.

The site has been in intermittent use as a playground and park since the mid-1950's and was recently updated in late 2007. Marquette's goal is to use the existing site to create a playable and cost effective multi-sport venue within the neighborhood to support their increased needs while maintaining the ability to support programs from outside of Marquette. The intent is for this facility to support soccer, lacrosse, softball, and field hockey activities during the fall semester from August-November and during the spring semester from March-May. It is anticipated that these activities will typically utilize the site 6 days per week for 4-6 hours per day during these timeframes.

The existing 250' x 340' site consists of a 1,200 square foot (SF) field house with restrooms, an 11,250 SF paved area for basketball, and the remaining 1.65 acres as open green space. In late 2007 the site was re-configured by the City of Milwaukee's Department of Public Works. At this time the field house facility and restrooms were returned to an operational condition, the majority of the site was stripped of pavement and base material, the site was re-graded to a low point at the center of the site where new drain tile was installed, and the site was restored with 3" of topsoil and grass.

The size, shape, and layout of the existing site limit the playability of the site in its current configuration. GRAEF has reviewed the site and prepared preliminary field layout plans for the site. The layouts utilize the existing site features while maximizing the playable field surface. Included in this analysis are descriptions of recommended improvements and sample field layouts.

## **Facility Analysis: Update Existing Site with Natural Grass Turf**

The exhibits on the following pages provide sample layout options of the playing fields for the multiple sports that will utilize the site.

The proposed plan will maintain the existing field house facility and general site configuration. However, by doing so the site is limited to a 195'x340' useable area between the field house and fence. This space would be able to accommodate a regulation size field hockey, lacrosse, and soccer field. However, due to the location of the field house, much of the clear zone surrounding the playing fields would not meet regulation sizes. Due to the reduced clear zone and proximity to public ways it is recommended that fence heights be increased to 20' in areas indicated to keep errant sports equipment within the site. The fencing plan will need to be reviewed with the City of Milwaukee for compliance with the applicable zoning ordinances.

The existing field house location presents some challenges in accommodating a softball diamond. A diamond could be accommodated in either the northeast or southwest corners of the site. The northeast corner location limits the right field distance as well as creates a conflict with the field house in center field. We recommend locating the diamond in the southwest corner to eliminate the center field conflict as well as provide an area for team benches and equipment. This layout still presents a similar shortened right field scenario. With both layout options it is recommended that the first base line and right field fences be increased to 20' to protect pedestrians and private property.

We also recommend that the field be re-graded with a center crown. This grading scenario creates a field with a consistent grade to the north and south while maintaining consistent centerline elevation to enhance playability. It also offers a preferred drainage scenario in which the drainage is directed away from the center of the field. This will help to reduce damage to the field during wet playing conditions and will increase the life expectancy of the field.

Other grading options can be reviewed in order to save costs. The field could be graded to an interior low point with a uniform cross slope. This scenario creates less than ideal playing conditions because of the elevation changes and required flow paths for runoff. However, the volume of fill and length of drain tile required could be reduced.

We recommend the following additional site alterations/reconstruction:

- Remove all remaining pavements and base materials, fencing, and storm drain tile. (400 CY, 300 LF 4" drain tile)
- Update existing field house and restrooms to support patrons and university staff (as necessary). Install a new hose bib on the north and south sides of the existing field house for irrigation. A 1.5" connection is required with a minimum of 45 psi for a "water reel" irrigation system.
- Remove existing 3" of topsoil (665 CY), screen to remove rocks, and blend with additional topsoil and sand to replace on-site at a 6" depth (1550 CY). Sand to be approximately 30% of overall topsoil mix.

- Re-grade entire site to have a 2% center crown located approximately 100' from the 18<sup>th</sup> Street fence line. (1200 CY import, not including topsoil). See exhibit A1.
- Install 4" drain tile in a 1'x2' section of clear stone (1100 LF) with 6 cleanouts and re-connect to existing storm structure. Existing storm structure shall be buried at an elevation 6" below finished grade and shall have the existing cover replaced with a gasketed frame and grate. It is recommended that tracer wire be included over all drain tile and the buried catch basin.
- Re-seed site with a high Fescue percentage turf mix for increased durability against surface wear and a higher drought tolerance.
- Provide a "water reel" for irrigation in lieu of a site irrigation system.

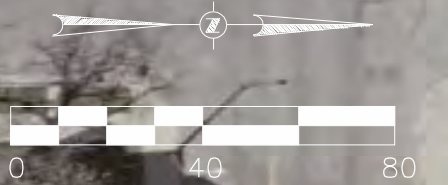






- NOTES:
1. AERIAL BACKGROUND REPRESENTS SITE CONDITION AS OF SPRING 2007. SITE HAS SINCE BEEN ALTERED BY THE CITY OF MILWAUKEE.
  2. GATE AND SECURITY CONTROLS TO BE COORDINATED BY MARQUETTE UNIVERSITY.

19TH STREET



8' SECURITY FENCE

15'

EXISTING FIELD  
HOUSE (TO REMAIN)

SOCCER FIELD  
330'x185'

5'

NATURAL GRASS  
PLAYING SURFACE

20' FENCE

15'

18TH STREET

**GR**<sub>ae</sub>**EF**

PROJECT NUMBER: 20080415.00  
DATE: 2/1/09  
SCALE: 1"=40'  
DRAWN BY: FKO  
CHECKED BY: SJF  
APPROVED BY: BTP  
REFERENCE SHEET:

PROJECT TITLE: MARQUETTE UNIVERSITY  
NORRIS PARK REDEVELOPMENT

SHEET TITLE: SOCCER FIELD LAYOUT

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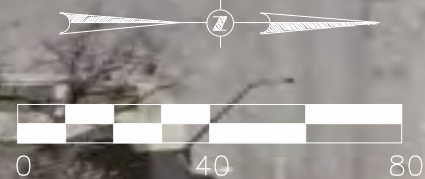
**A2**



NOTES:

1. AERIAL BACKGROUND REPRESENTS SITE CONDITION AS OF SPRING 2007. SITE WAS MODIFIED BY THE CITY OF MILWAUKEE IN FALL 2007.
2. GATE AND SECURITY CONTROLS TO BE COORDINATED BY MARQUETTE UNIVERSITY.
3. SEE SOFTBALL DIAMOND LAYOUTS FOR PLACEMENT OF ADDITIONAL 20' FENCE.

19TH STREET



EXISTING 8'  
SECURITY FENCE

10'

FIELD HOUSE  
TO REMAIN

FIELD HOCKEY  
(300'x180')

NATURAL GRASS  
PLAYING SURFACE

20' FENCE

5'

25'

25'

KILBOURN AVENUE

STATE STREET

18TH STREET

**GR**äEF

PROJECT NUMBER: 20080415.00  
DATE: 2/2/09  
SCALE: 1"=40'  
DRAWN BY: FKO  
CHECKED BY: SJF  
APPROVED BY: BTP  
REFERENCE SHEET:

PROJECT TITLE: MARQUETTE UNIVERSITY  
NORRIS PARK REDEVELOPMENT

**A3**

SHEET TITLE: FIELD HOCKEY LAYOUT

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NOTES:

1. AERIAL BACKGROUND REPRESENTS SITE CONDITION AS OF SPRING 2007. SITE WAS MODIFIED BY THE CITY OF MILWAUKEE IN FALL 2007.
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3. SEESOFTBALL DIAMOND LAYOUTS FOR PLACEMENT OF ADDITIONAL 20' FENCE.

EXISTING 8'  
SECURITY FENCE

10'  
FIELD HOUSE  
TO REMAIN

LACROSSE FIELD  
(330'x180')

NATURAL GRASS  
PLAYING SURFACE

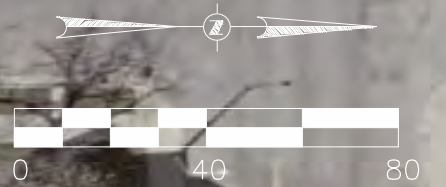
20' FENCE

19TH STREET

18TH STREET

KILBOURN AVENUE

STATE STREET



**GRaEF**

PROJECT NUMBER: 20080415.00  
DATE: 2/2/09  
SCALE: 1"=40'  
DRAWN BY: FKO  
CHECKED BY: SJF  
APPROVED BY: BTP  
REFERENCE SHEET:

PROJECT TITLE: MARQUETTE UNIVERSITY  
NORRIS PARK REDEVELOPMENT

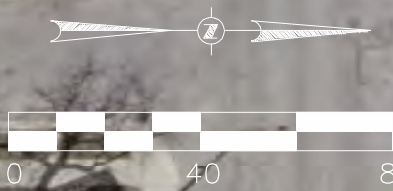
SHEET TITLE: LACROSSE LAYOUT

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**A4**



NOTES:  
1. AERIAL BACKGROUND REPRESENTS  
SITE CONDITION AS OF SPRING 2007.  
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OF MILWAUKEE IN THE FALL 2007.  
2. GATE AND SECURITY CONTROLS TO  
BE COORDINATED BY MARQUETTE UNIVERSITY.



19TH STREET

KILBOURN AVENUE

STATE STREET

18TH STREET

EXISTING 8'  
SECURITY FENCE

FIELD HOUSE  
TO REMAIN

NATURAL GRASS  
PLAYING SURFACE

20' FENCE

BACKSTOP  
(OPTIONAL)

300'

275'

275'

15'

197'

230'

15'

**GR**<sub>ae</sub>**EF**

PROJECT NUMBER: 20080415.00  
DATE: 2/2/09  
SCALE: 1"=40'  
DRAWN BY: FKO  
CHECKED BY: SJF  
APPROVED BY: BTP  
REFERENCE SHEET:

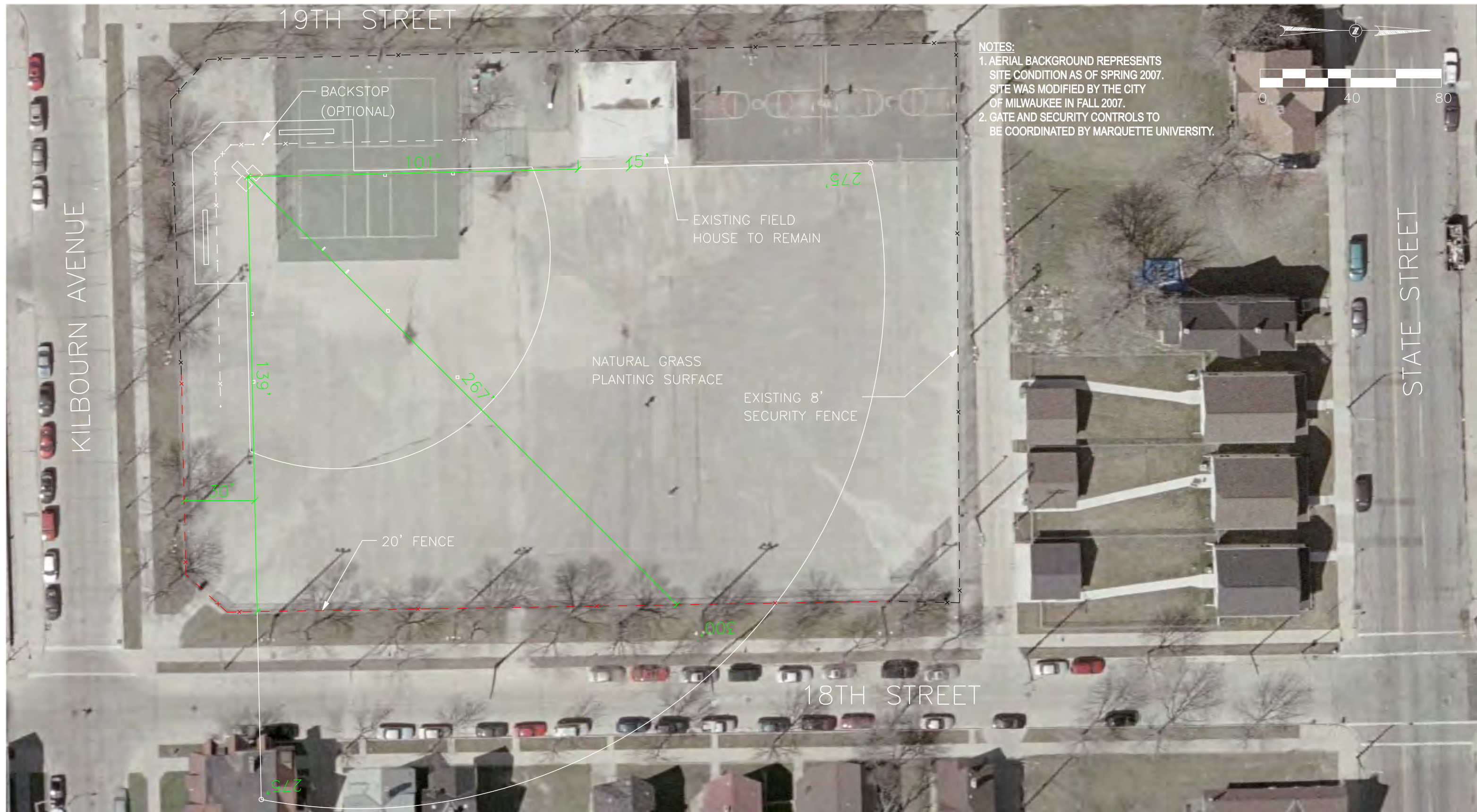
PROJECT TITLE: MARQUETTE UNIVERSITY  
NORRIS PARK REDEVELOPMENT

**A5**

SHEET TITLE: SOFTBALL DIAMOND "A" LAYOUT

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## **Conclusions:**

The goal of this report is to assist Marquette University with their evaluation of the redevelopment of Norris Park. In this report GRAEF has provided preliminary information regarding proposed upgrades to the park and sample playing field layouts that can be accommodated in order to increase the number of playing fields available to Marquette's programs. This information will be used by Marquette in obtaining preliminary estimates from contractors to perform the work so that Marquette can make an informed decision on whether to proceed with redevelopment.

Marquette must also consider that the recommended layouts presented in this analysis present challenges and compromises that must be acceptable to them prior to proceeding with the redevelopment. By utilizing the existing facilities and a natural grass playing surface, the recommended plan for redevelopment of the parcel is cost effective. However, the existing facilities will likely need future updates to its mechanical systems and structure to handle Marquette's increasing needs and a natural turf surface will require dedicated maintenance for the life of the field.

Additionally, the presented field layouts contain potential conflict points between people and obstructions as well as reduced safety areas surrounding the playing fields. These limitations cannot be overcome without a significant increase in investment by Marquette to allow for a total site reconfiguration and reconstruction.

In order to have playable surface in August 2010, it is recommended that the design work necessary to implement this project begin as soon as possible. To meet this deadline, construction will need to begin in early spring so that seeding can be completed in the first week of May. It is not recommended by GRAEF that Marquette utilize a natural grass playing surface in fall 2009 or spring 2010. It is necessary to give the grass surface an entire growing season to allow the turf to firmly establish itself. If this is not allowed the field will not be as durable and is likely to sustain more damage than an established surface. Commencing construction in spring 2009 will ensure a playable surface in August 2010 for natural grass.

We appreciate the opportunity to assist Marquette University in their recreational planning and look forward to the prospect of providing additional design services for the redevelopment of Norris Park. Please contact Brent Pitcher at 414-266-9269 with any questions or comments regarding this report.

## **Prepared By:**

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