



Reuse and Remedial Design Considerations

Douglass Little League Site in Indianapolis, Indiana

December 2008

EPA Region 5
Superfund Redevelopment Initiative

funded by
United States Environmental Protection Agency

prepared for
Jireh Sports
Indiana Dept. of Environmental Management

prepared by
E² Inc.

Forward

EPA's primary responsibility at Superfund sites is to ensure the protection of human health and the environment. EPA's cleanup programs have also set a national goal of returning formerly contaminated sites to long-term, sustainable, and productive use. By engaging local stakeholders in a collaborative decision-making process about a site's future use, EPA can help ensure the long-term effectiveness and permanence of site remedies.

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Former little league site during removal action

I. Introduction

EPA contractor E² Inc. has been engaged at the Douglass Little League Field Site in Indianapolis, Indiana to determine how future land use considerations could help inform ongoing response activities at the site and the long-term effectiveness and permanence of the site's remedy. The purpose of this report is to:

- provide reuse information to those parties responsible for making clean up decisions; and
- provide the property owner with information to ensure that future uses are consistent with cleanup activities.

At the Douglass Little League site, it may be possible to develop a cleanup action plan that supports future use plans without creating additional cleanup tasking. This report supports this goal by providing:

- an overview of future use plans;
- reuse scenarios that align future uses with potential cleanup actions; and
- remedial considerations to ensure compatibility between clean up outcomes and future use of the site.

II. Background

The Douglass Little League Field Site is located in the Martindale-Brightwood neighborhood, northeast of downtown Indianapolis. Former activities at the site resulted in contaminated soils and ground water. From 1951 to 1994, the site was home to the Douglass Little League, however the field was closed and the league relocated after elevated levels of lead were detected in the soil. In February 2007, Jireh Sports—a non-profit, faith-based youth development center—purchased the property. Jireh Sports offers sports and academic programs to underserved youth. Appendix A provides more information on the site's history and Jireh Sports.

In response to the environmental issues at the site, a time-critical removal action was completed by ExxonMobil in summer 2007 to address lead contaminated soils in the southern portion of the site. ExxonMobil is currently in negotiations with the Indiana Department of Environmental Management (IDEM) to determine a course of action for cleaning up the northern portion of the site. A full site characterization is underway to determine the extent of contamination and inform a cleanup action plan. Figure 1 highlights site conditions and completed cleanup activities.

Additional information is provided in the Appendices, including:

- information on the site and Jireh Sports in Appendix A;
- a recreational land use analysis in Appendix B; and
- a copy of the site restoration considerations developed by E² Inc. to inform the 2007 time-critical removal action as Appendix C.

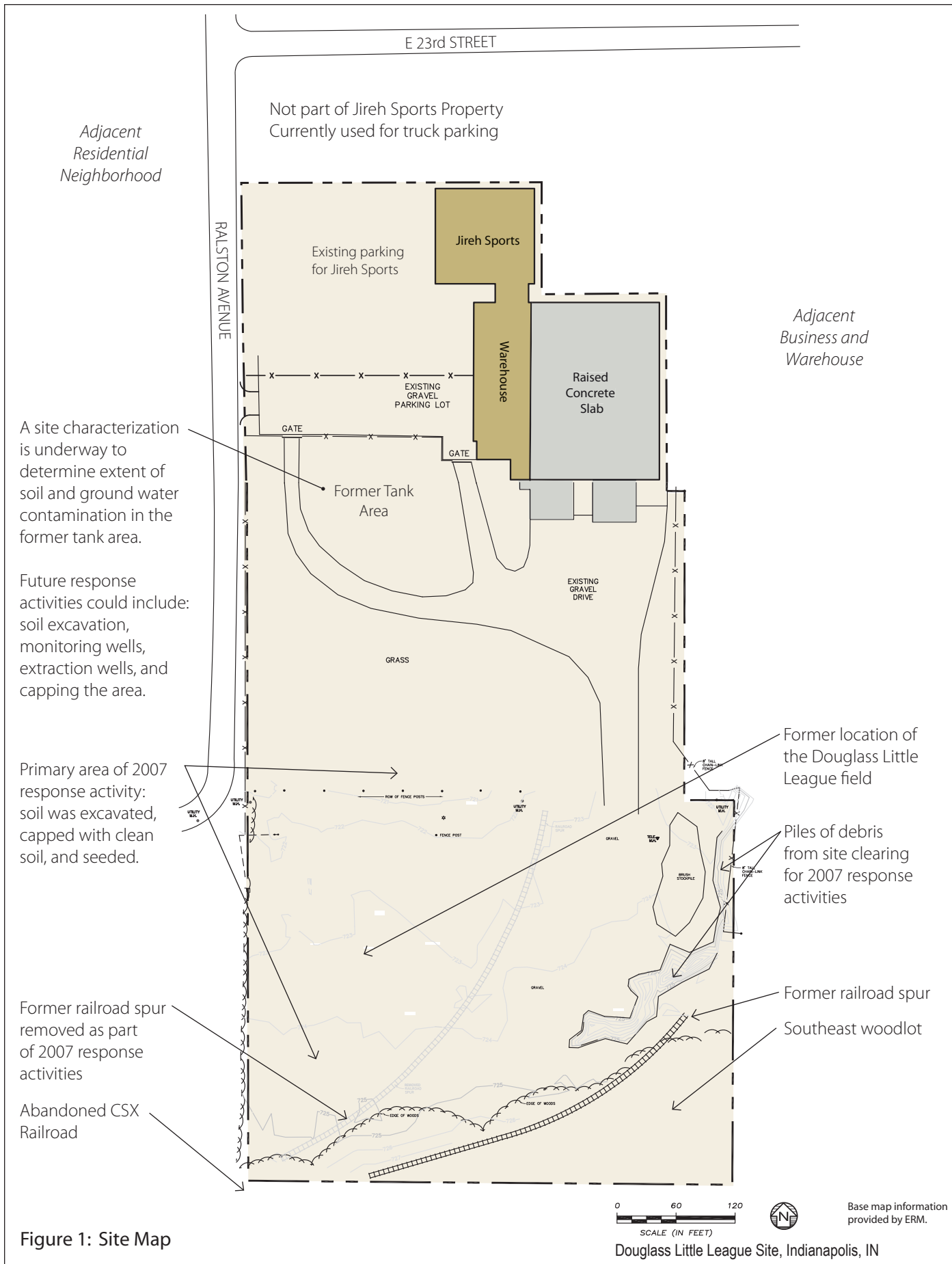


Figure 1: Site Map

III. Future Use Goals

Jireh Sports is interested in developing their property into an urban sports complex and have identified the following recreational uses they would like to develop on site:

- 2/3 Diamond Little League Park
- 1 multipurpose field
- 1 rock climbing tower
- 15,000 sf skate park

Additional facilities could include on-site parking, restrooms, and ¼ mile track. Indoor facilities in the complex will include opportunities for gymnastics, wrestling, rock climbing, dance, tae kwon do, fencing, boxing, and team handball.

Jireh Sports is also interested in exploring other sports and recreation-based activities that could be included on their property that would provide inner city youth an opportunity not currently offered in Martindale-Brightwood and adjacent neighborhoods. An analysis of public recreational resources currently available to residents of the Martindale-Brightwood neighborhood is provided in Appendix B.

Figure 2 shows a conceptual plan provided by Jireh Sports representing a potential layout of their desired facilities.

This plan does not yet account for cleanup activities and associated site constraints. The reuse scenarios on the following pages highlight different recreational reuse configurations that could be consistent with the potential clean up approaches.



Figure 2: Conceptual Reuse Diagram, Jireh Sports

IV. Future Use Scenarios

This section presents four future use scenarios that anticipate potential clean up actions and a potential land swap between Jireh Sports and an adjacent property owner.

- Scenario A illustrates recreational uses configured on site with a potential soil replacement remedy.
- Scenario B illustrates recreational uses configured on site with a potential paved cap remedy.
- Scenario C is based on Scenario A and also includes the potential land swap.
- Scenario D is based on Scenario B and also includes the potential land swap.

These scenarios demonstrate how clean up decisions such as cover medium can support different future use configurations on the site. In addition to the scenarios, reuse considerations are outlined below to help inform the cleanup plan to ensure compatibility between the remedial outcomes and the future use of the site.

Remedy Selection and Reuse Considerations

- Gathering input from the site owner regarding these future use scenarios could help align the clean up process to better support future use of the site.
- Most of the recreational uses considered for the site would require minimal soil disturbance or grading and would likely be consistent with a range of cleanup approaches. Recreational uses could be aligned with different cleanup approaches for addressing soil contamination. For example, it may be possible to locate field-based recreational uses in areas where contaminated soils have been removed and replaced with clean fill. Alternately, hard court recreational uses or paved areas, including parking or a skate park, may be able to be located in areas where a cap is selected as the remedy.
- Cleanup implementation may require temporary construction entrances or circulation routes on site, such as haul routes, staging areas, gravel pads for cleaning equipment. It may be possible to align or reuse these features for future uses. For example, a temporary construction entrance or road could be coordinated to provide long-term future access. Additionally, any haul roads or gravel pads could become the foundation for future recreational uses, such as a trail bed or a pad for parking or other structures.
- It is likely that the remedy will include installing monitoring wells, which could be located in a manner that achieves sampling collection goals without unnecessarily limiting future use opportunities.
- If on-site ground water treatment is needed, it may be possible to locate treatment components in a way that does not unnecessarily restrict future uses.
- Most of the site is level and provides a range of opportunities for recreational uses that would require minimal grading. Cleanup activities could consider maintaining areas of level grade, which would be consistent with future use plans of the site.

Future Use Considerations

In addition to remedy and reuse considerations, there are also future use considerations that may inform future use plans for the site.

- Majority of the site is relatively level area and could accommodate a variety of uses including parking or recreational uses.
- Additional recreational uses could be located on the southeastern portion of the site provided debris piles are removed.
- The existing raised concrete slab located behind the existing building could potentially be resurfaced to accommodate a skate park or hard court recreational uses. Similarly, the slab may also be able to accommodate building expansion. Further examination would be needed to determine structural integrity for future uses.
- The abandoned railroad located along the southern portion of the property could provide a Rails-to-Trails opportunity and a potential expansion of the existing Monon Trail. Additionally, the former rail spur that extends into the site provides an interior trail opportunity as well as a potential connection to the larger trail network.
- Multipurpose fields could be co-located within a baseball outfield to maximize space.
- A ¼ mile track could be accommodated on site with other recreational uses located within the track's infield.
- A potential land swap between Jireh Sports and with the adjacent property owner would create a contiguous property from 22nd Street to the abandoned railroad. This new property configuration would also extend the property's road frontage along Ralston Avenue and 22nd Street. Additional recreational uses, parking, or event venue space could be located in this northern parcel.



A potential land swap could include Jireh Sports transferring Area A in exchange for Area B. Resulting property boundary shown on the right.

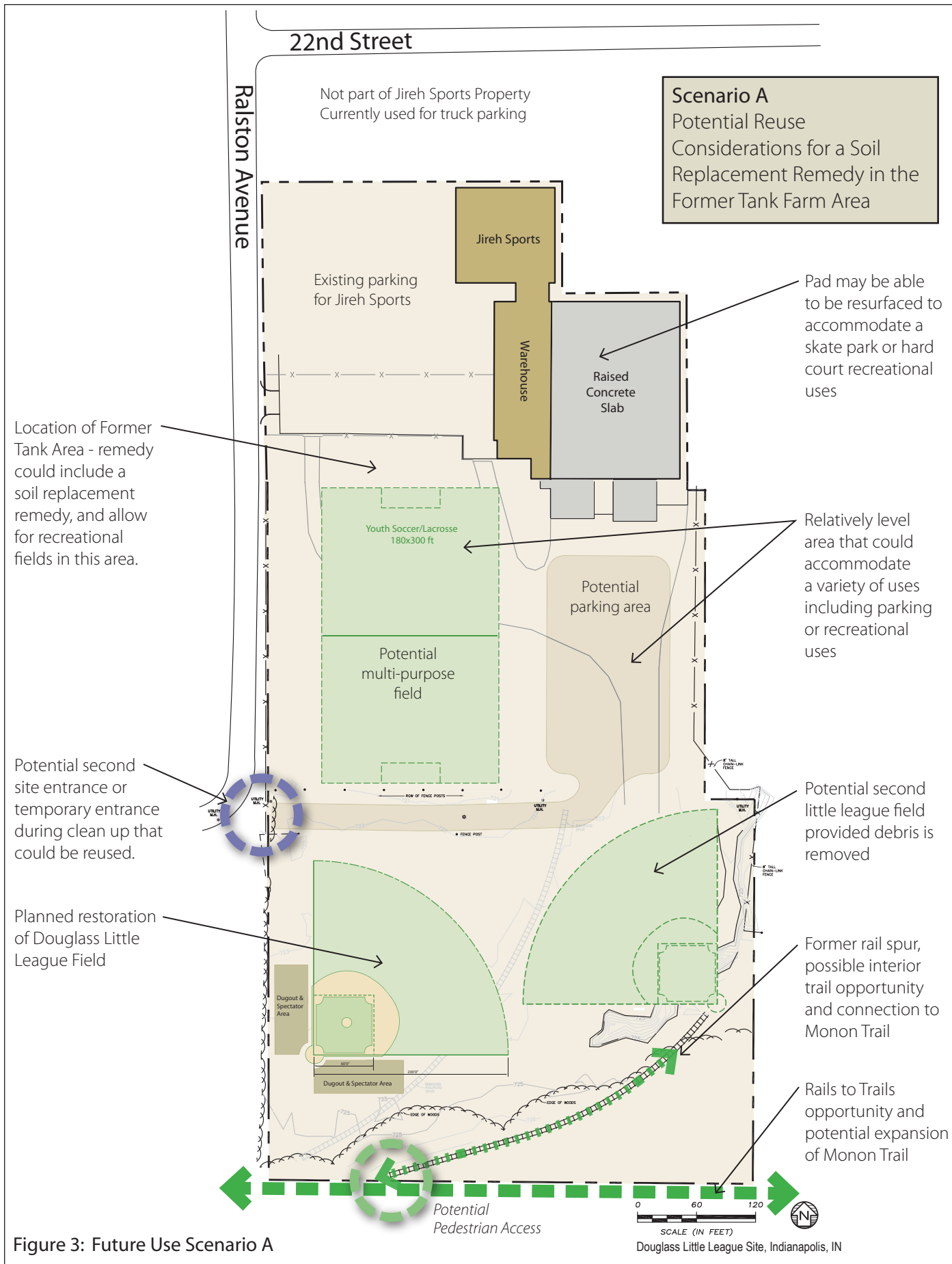


Figure 3: Future Use Scenario A

SCALE (IN FEET)
Douglass Little League Site, Indianapolis, IN

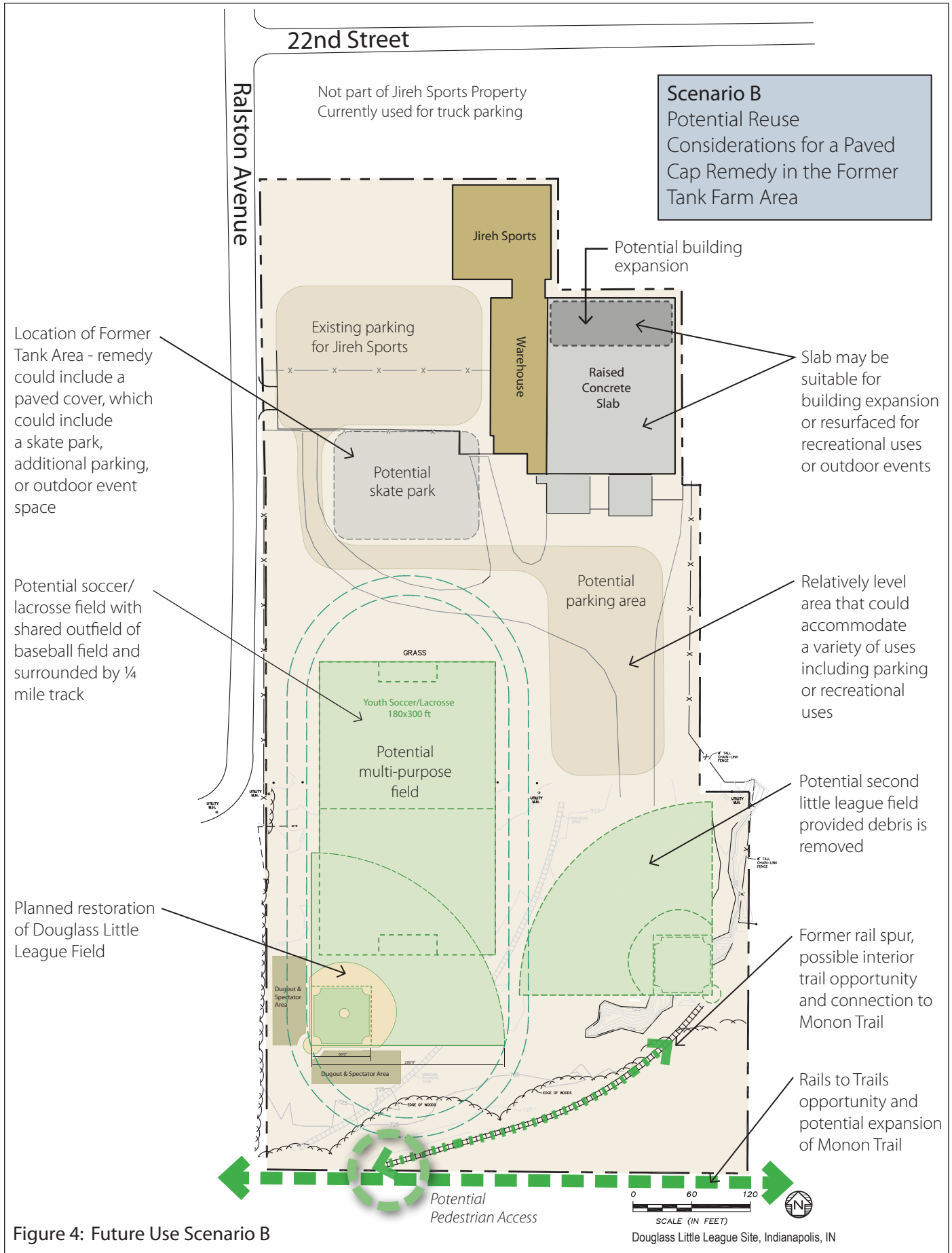


Figure 4: Future Use Scenario B

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Douglass Little League Site, Indianapolis, IN

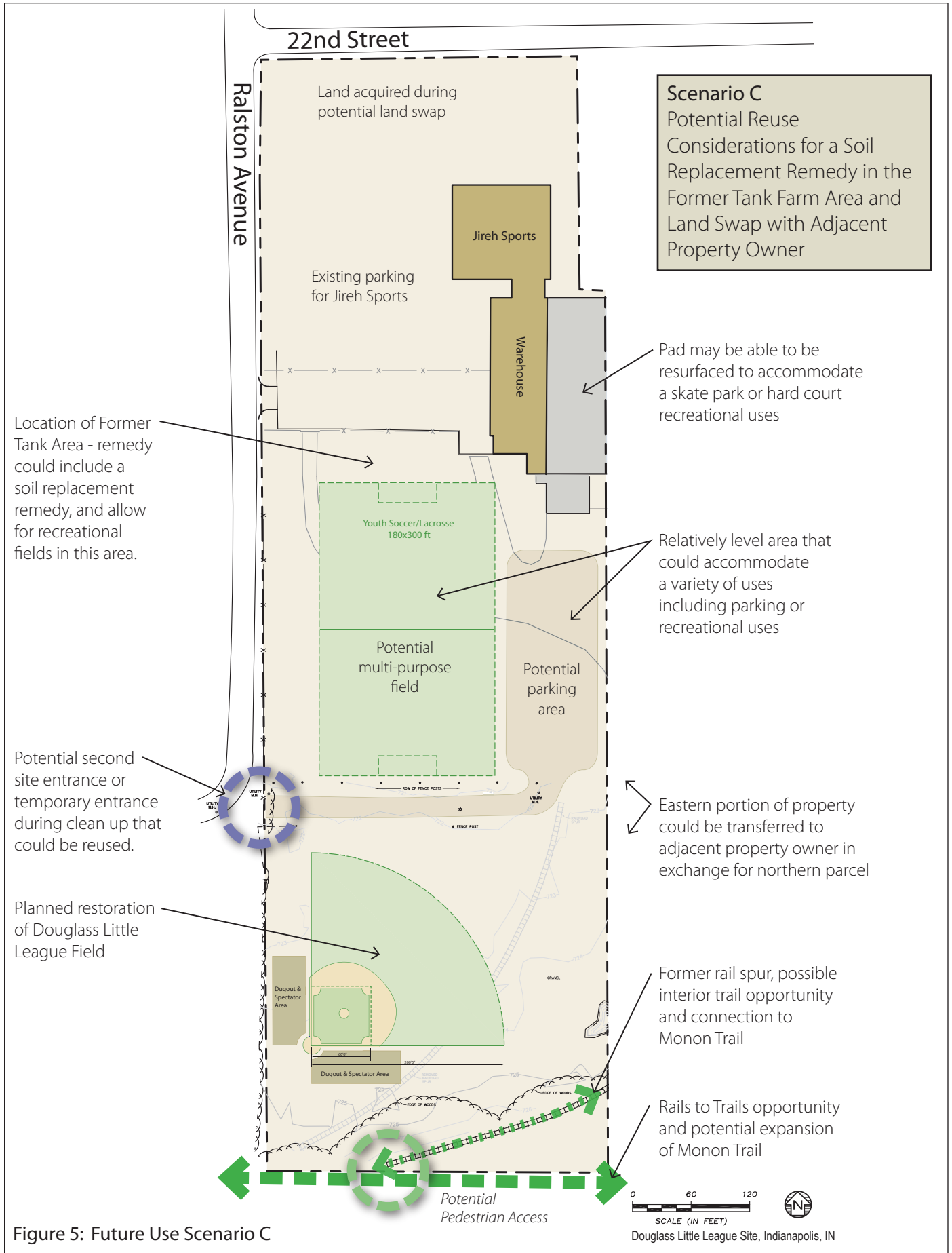


Figure 5: Future Use Scenario C

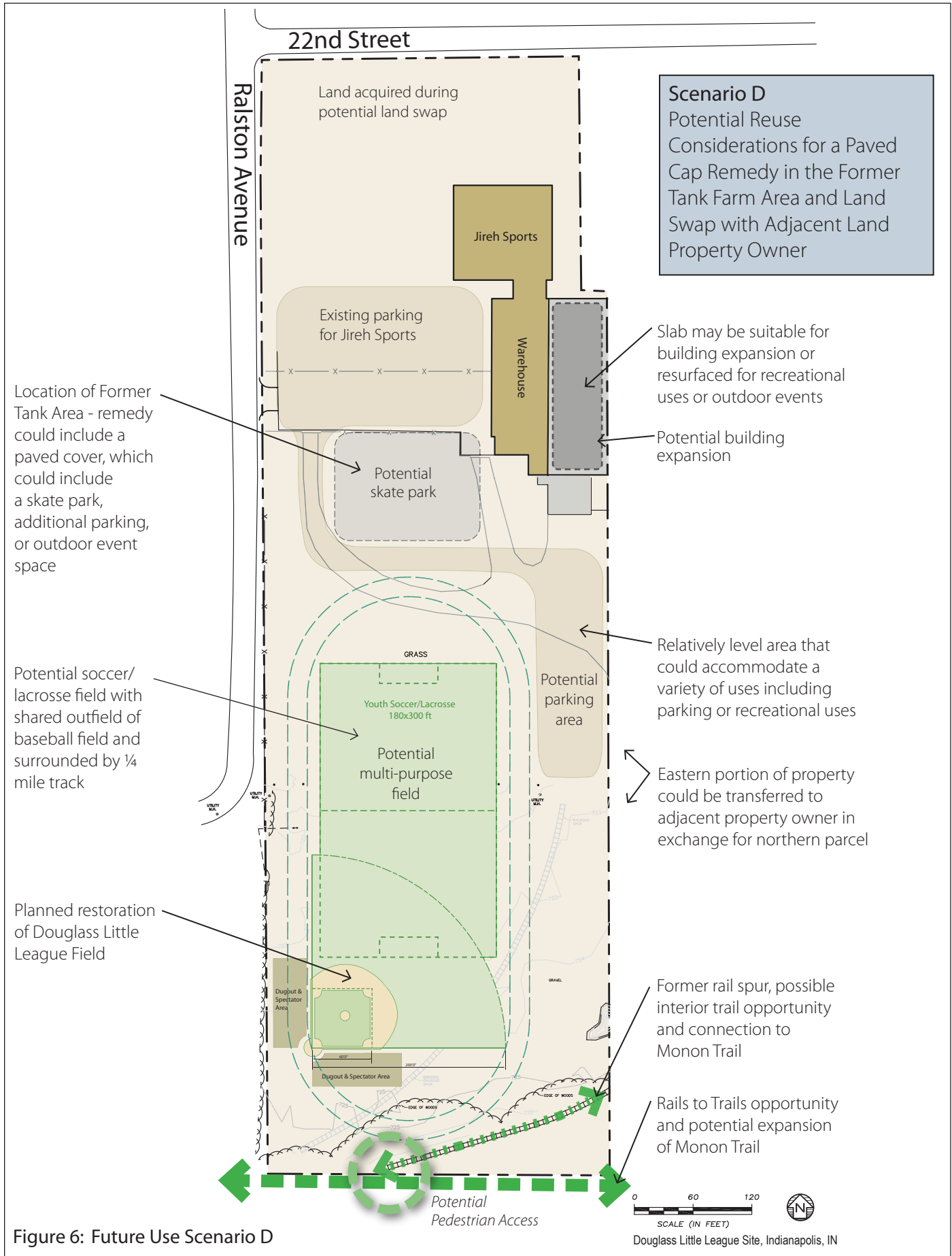


Figure 6: Future Use Scenario D

Appendices

Appendix A: Site History and Property Owner Information

Appendix B: Recreational Land Use Analysis

Appendix C: Site Restoration Considerations Report

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Appendix A: Site History and Property Owner Information

Site History

The Douglass Little League Site is located at 2255 Ralston Avenue at the intersection of 22nd Street and Ralston Avenue in Indianapolis, Indiana. The little league field site is part of a larger property currently owned by Jireh Sports – a non-profit, faith-based youth development center. The southern portion of the property had been used as a little league field since 1951; however it was closed by Marion County Health Department in 1994 after elevated lead concentrations were discovered in surface soil samples.

The cleanup of the southern portion of the site – a time-critical removal action – was completed in summer 2007. Under a Unilateral Agreement Order, cleanup activities were funded by Exxon Mobil and included the removal and replacement of lead-contaminated site soils with clean fill dirt, the placement of a fabric barrier under the clean fill dirt, and two feet of additional soil on top of the backfilled areas. The ground was leveled and seeded to complete the response activities.

As of fall 2008, Exxon Mobil is in negotiations with the Indiana Department of Environmental Management (IDEM) to determine a course of action for cleaning up the remainder of the property. Surface soils have shown greater than 400ppm of lead, which exceeds the clean up level. A full site characterization is underway to determine the extent of contamination.



Site prior to removal action, former dugout in background



Site during removal action, structures removed

Douglass Little League

From the early 1950's through the mid 1990's the Elsie Clark Field, located on the southeast corner of 22nd Street and Ralston Avenue, served as the home of the Douglass Little League (the League) and one of the gathering places for residents of the Martindale-Brightwood neighborhood. In 1994 lead was discovered in the soil and the ball field was closed down. The League relocated to Washington Park, where it still operates today.

The League and Jireh Sports are working together to return the League to the former Elsie Clark Field and collect a definitive history of the League. The League is the 2nd oldest African-American run Little League in existence today. The League and Jireh Sports are asking community members to share their stories, provide photographs, and help identify players in archived images. A brochure is being circulated throughout the community to collect stories about the League.

It has been suggested that in the early 1950s during two days of exhibition games in Indianapolis, Hank Aaron and Satchel Paige may have played on the former Elsie Clark Field.



Community members, date unknown. Photo courtesy of Jireh Sports.



Douglass Little League team, date unknown. Photo courtesy of Jireh Sports.

Jireh Sports

In February 2007, Jireh Sports purchased the property at 2255 Ralston Avenue, which contains the former Elsie Clark Field. As mentioned earlier, Jireh Sports is a non-profit, faith-based youth development center.

Jireh Sports' mission is to meet the spiritual, physical, mental and emotional needs of urban youth in the Martindale-Brightwood neighborhood and adjacent communities through significant relationships with mentoring adults developed around unique sports, recreation, and educational opportunities.

Jireh Sports offers sports that are commonly underserved in inner city neighborhoods like Martindale-Brightwood. Competitive and recreational gymnastics, competitive and recreational wrestling, rock climbing and Tae Kwon Do are provided on site as well as academic assistance through tutoring and summer camp.

In late 2007, Jireh Sports and Shepherd Community began moving into a merger between the two organizations. Similar to Jireh Sports, Shepherd Community is a non-profit, faith based organization that supports inner city youth and families. Jay Height, executive director of Shepherd Community will serve as executive director after the merger and Tim Streett will continue managing Jireh Sports.



Youth development activities at Jireh Sports. Photos courtesy of Jireh Sports.

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Appendix B: Recreational Land Use Analysis

Introduction

A recreational land use analysis was conducted to assess public recreational resources currently available to residents of the Martindale-Brightwood neighborhood and within a 2-mile radius of the Douglass Little League site. The purpose of the recreational analysis is to provide EPA Region 5 and IDEM with information to support its efforts to identify reasonable anticipated future land uses for the site.

Recreational Context

The 2004 Indianapolis – Marion County Open Space Plan (OSP) identifies a broad range of publicly available recreational resources. Five categories of public parkland identified in the OSP are applicable to this analysis: 1) Community Parks, 2) Neighborhood Parks, 3) Greenways, 4) Environmental Education Parks, and 4) Sports Complexes. Below are park-type descriptions, and summaries of the programmatic goals outlined for each type of park in the 2004 OSP. Figure 3 on page 9 illustrates recreational resources available in the Martindale-Brightwood neighborhood and the surrounding area.

Community Parks

- Community parks generally provide recreational opportunities for multiple neighborhoods, serve a population within a radius of one-half to three miles, and range in size from 25-50 acres.
- Preserving open space and valuable natural resources, and combining active and passive recreational uses are two important priorities for Community Parks.
- Within Community Parks, programs are available to support both active and passive recreation, and many parks of this type combine both indoor and outdoor recreation opportunities.
- There are 21 Community Parks in Indianapolis-Marion County.

Neighborhood Parks

- Neighborhood Parks typically serve as the recreational and social focus of individual neighborhoods. They provide active and passive recreation opportunities that are tailored to needs of a neighborhood's population, and range in size from five to ten acres.
- Recreation opportunities at Neighborhood Parks are typically available for children, adults, and senior citizens within walking distance of neighborhood residences.
- Facilities for court sports, field sports, walking, picnicking, and children's play – amenities that neighborhood residents are likely to gather at frequently – are generally available at Neighborhood Parks. These informal spaces are an important part of the fabric the community.
- There are 68 Neighborhood Parks in Indianapolis-Marion County.

Greenways

- Greenways are trail systems that link multiple parks, neighborhoods, and activity centers together. Greenway trails are typically located along rivers, streams, and abandoned railroad corridors and range in width from 25-50 feet. Trail surfaces are either paved with asphalt or gravel.
- Greenway trails allow for safe and uninterrupted pedestrian movement within and between neighborhoods, help form a cohesive open space system, and provide residents and visitors with natural resource-based outdoor recreation opportunities and experiences. Greenway systems have also been shown to help increase property values for adjacent residential and commercial properties.
- There are currently 10 Greenways in Indianapolis-Marion County. The Indianapolis Greenway System (IGS) currently includes over 29 miles of gravel and paved trails. When complete the IGS will provide over 150 miles of planned pedestrian trails linking 125 parks and destinations.

Environmental Education Parks

- Environmental Education Parks are typically neighborhood, community, or regional parks located within significant natural resource areas, where park-staffed naturalists are available to provide educational programs that interpret natural ecosystems in order to broaden public knowledge and understanding of the natural environment.
- Environmental Education parks generally encompass natural habitats such as fields, prairies, forests, wetlands, rivers, streams, ponds, and reservoirs.
- Environmental Education parks generally provide passive recreational opportunities such as hiking, walking, or biking but may also include opportunities for active recreation.
- The OSP identifies 37 Environmental Education Parks within Indianapolis-Marion County.

Sports Complexes

- Sports Complexes are large parks where multiple active recreation facilities are combined together to provide a venue for organized recreational sports and serve populations from multiple neighborhoods throughout the City, County, and Region. Sports Complexes include facilities for field sports (e.g., soccer, baseball, softball, football), and court sports (basketball, tennis, racquetball) and range in size from 10 to 40 acres.
- Sports Complexes are designed to be located in non-residential areas to reduce the impacts of large events, such as traffic congestion and noise.
- There are currently seven Sports Complexes in Indianapolis – Marion County.

Martindale-Brightwood Neighborhood

The following parkland is available within the Martindale-Brightwood Neighborhood:

- Two community parks, comprising approximately 38 acres;
- One 22-acre neighborhood park;
- Zero greenways;
- Zero environmental education parks; and
- Zero sports complexes

REUSE AND REMEDIAL DESIGN CONSIDERATIONS FOR THE DOUGLASS LITTLE LEAGUE SITE

Recreational opportunities available at public parks within the Martindale-Brightwood Neighborhood include:

- 2 baseball fields;
- 3 softball fields;
- 1 soccer fields;
- 3 basketball courts;
- 4 tennis courts;
- 1 volleyball courts;
- 3 horseshoe pits
- 2 swimming pools;
- 2 family centers and indoor recreation facilities;
- 3 play grounds;
- 6 picnic shelters;
- 1 nine-hole golf course; and
- approximately 1 mile of pedestrian trails.

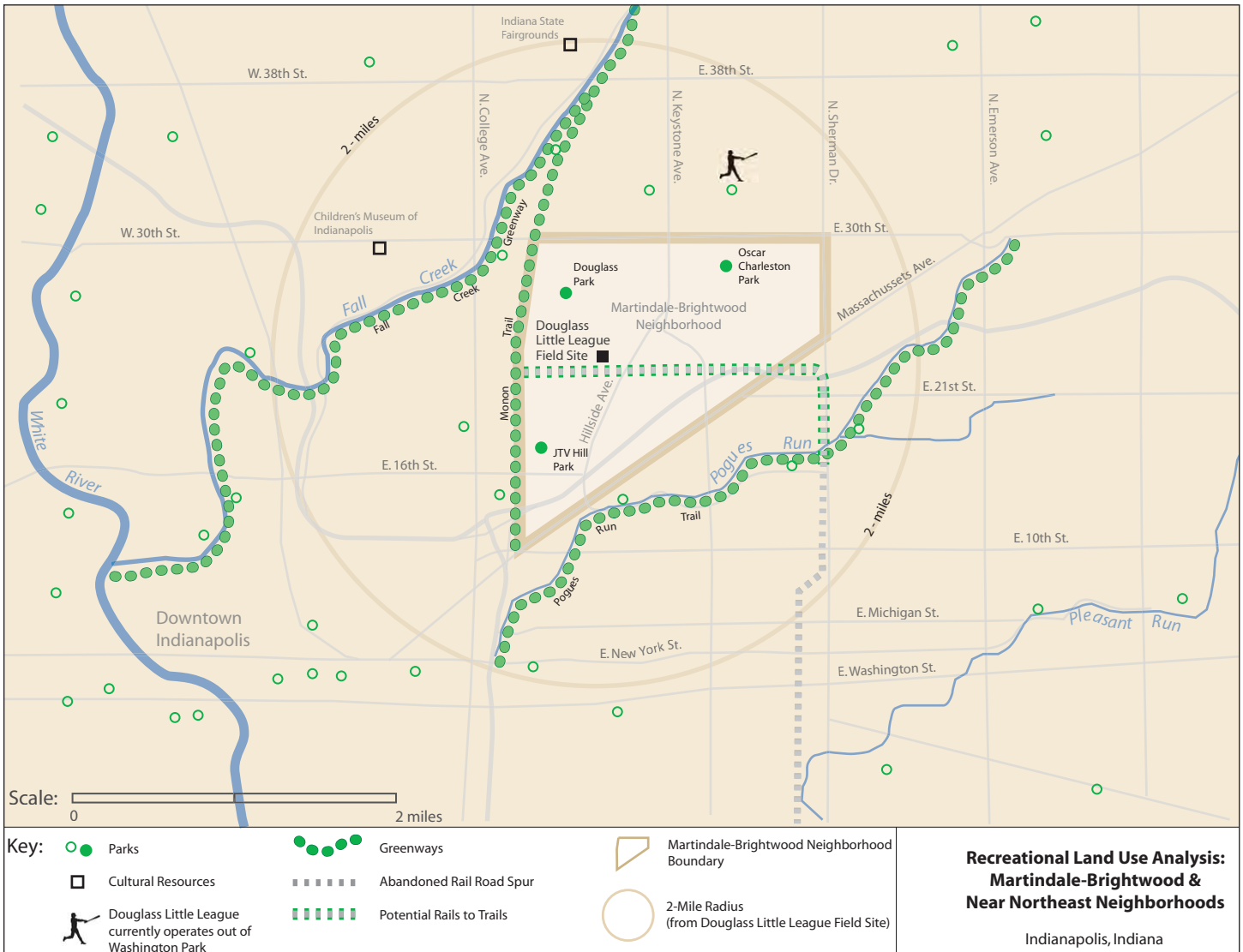


Figure 1: Recreational Land Use Figure

2-mile Radius of Douglass Little League Site

In addition to this neighborhood scale recreational analysis, a larger scale analysis was also conducted to identify recreational resources within a two-mile radius of the Douglass Little League site. A two-mile radius was selected to be consistent with the parameters used in the 2004 Indianapolis - Marion County Open Space Plan.

Recreational resources including community parks, neighborhood parks, greenways, environmental education parks, and sports complexes located within a two-mile radius of the Douglass Little League site are highlighted below.

The following parkland is available within two miles of the site:

- Four community parks, comprising approximately 265 acres;
- Nine neighborhood parks, totaling 116 acres;
- Three greenways, providing over 23 miles of pedestrian trails;
- Two environmental education programs located within existing community parks; and
- One sports complex that includes five soccer fields on 10-acres.

Recreational opportunities available at public parks within two miles of the site include:

- 8 baseball fields;
- 12 softball fields;
- 7 soccer fields;
- 21 basketball courts;
- 16 tennis courts;
- 3 volleyball courts;
- 6 horseshoe pits
- 2 swimming pools;
- 4 family centers and indoor recreation facilities;
- 15 play grounds;
- 15 picnic shelters;
- 2 disc golf courses;
- 1 nine-hole golf course;
- approximately 26 miles of pedestrian trails.

In addition to the active recreational opportunities, there are also several greenways located within two-miles of the site.

- Fall Creek Parkway - The Fall Creek Parkway currently includes a 5.2 mile paved pedestrian trail that connects Barton Park, Fall Creek Parkway and 30th Park, and North Park. Planned trail extensions would increase the Fall Creek Parkway trails to a total of 12 miles, linking the Geist Reservoir to the White River.
- Monon Trail – The Monon Trail Greenway is an urban pedestrian trail extending from 10th Street in Downtown Indianapolis north to the Marion County boundary. Located on an abandoned railroad bed, the Monon Trail forms the western boundary of the Martindale-Brightwood neighborhood and provides a safe pedestrian route for the neighborhood’s residents linking several parks in the Near Northeast neighborhoods, including the Old Northside Soccer Park, JTV Hill Park, Douglass Park, and Fall Creek Parkway & 30th Park.
- Pogues Run – Currently, a 2.4 mile paved trail extends through existing parkland along Pogues Run. Paved trail surfaces are located within Spades Park, and Brookside Park. When complete, a 5.2 mile trail will extend the entire length of Pogues Run from Massachusetts Avenue and New York Avenue.

Adaptive Reuse of Abandoned Rail Spur

In addition to the existing recreational opportunities available in the Martindale-Brightwood Neighborhood and within close proximity to the site, community members have identified a potential recreational trail opportunity that would help to link parkland within the neighborhood, as well as provide a safe, pedestrian-only route through the neighborhood.

An existing, abandoned railroad abutting the Douglass Little League Field site to the south could potentially provide a new pedestrian trail for the residents of the Martindale-Brightwood Neighborhood. The railroad extends east from Monon Trail through the neighborhood, passing under I-70, before turning south near the intersection of E. 21st Street and North Sherman Ave. While further characterization of the railroad would likely be needed to determine the feasibility of a railtrail conversion, an east-west pedestrian route connecting the site with the Monon Trail would provide a valuable link between the site and residential areas immediately to the west, and an existing Pogues Run Trail. The railtrail conversion would also connect the Monon Trail to Brookside Park and form an almost complete recreational loop in Indianapolis by connecting the Fall Creek Greenway to the Pogues Run Trail.



Abandoned rail spur along southern boundary of Jireh Sports property.

Recreational Reuse Summary

Recreational uses in the Martindale-Brightwood Neighborhood are limited to those currently located in community parks. As Figure 1 illustrates, the Douglass Little League site is centrally located within the Martindale-Brightwood Neighborhood. The recreational uses proposed at Jireh Sports for the Douglass Little League site would add an additional multipurpose field and one-two baseball fields to the recreational opportunities currently available in the neighborhood. The proposed plan would also provide space for activities such as a skate park and ¼ mile track not offered elsewhere in the neighborhood. In addition, a railtrail conversion of the abandoned rail spur adjacent to the site would link the neighborhood to the larger greenway network, including five parks within a two-mile radius along the greenway.

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Appendix C: Site Restoration Considerations Report

The following report was completed in June 2007 to inform the removal action that was in progress to address the southern portion of the Douglass Little League site.

Douglas Little League Field Site: Indianapolis, Indiana Site Restoration Considerations: June 2007 (DRAFT)

I. Introduction

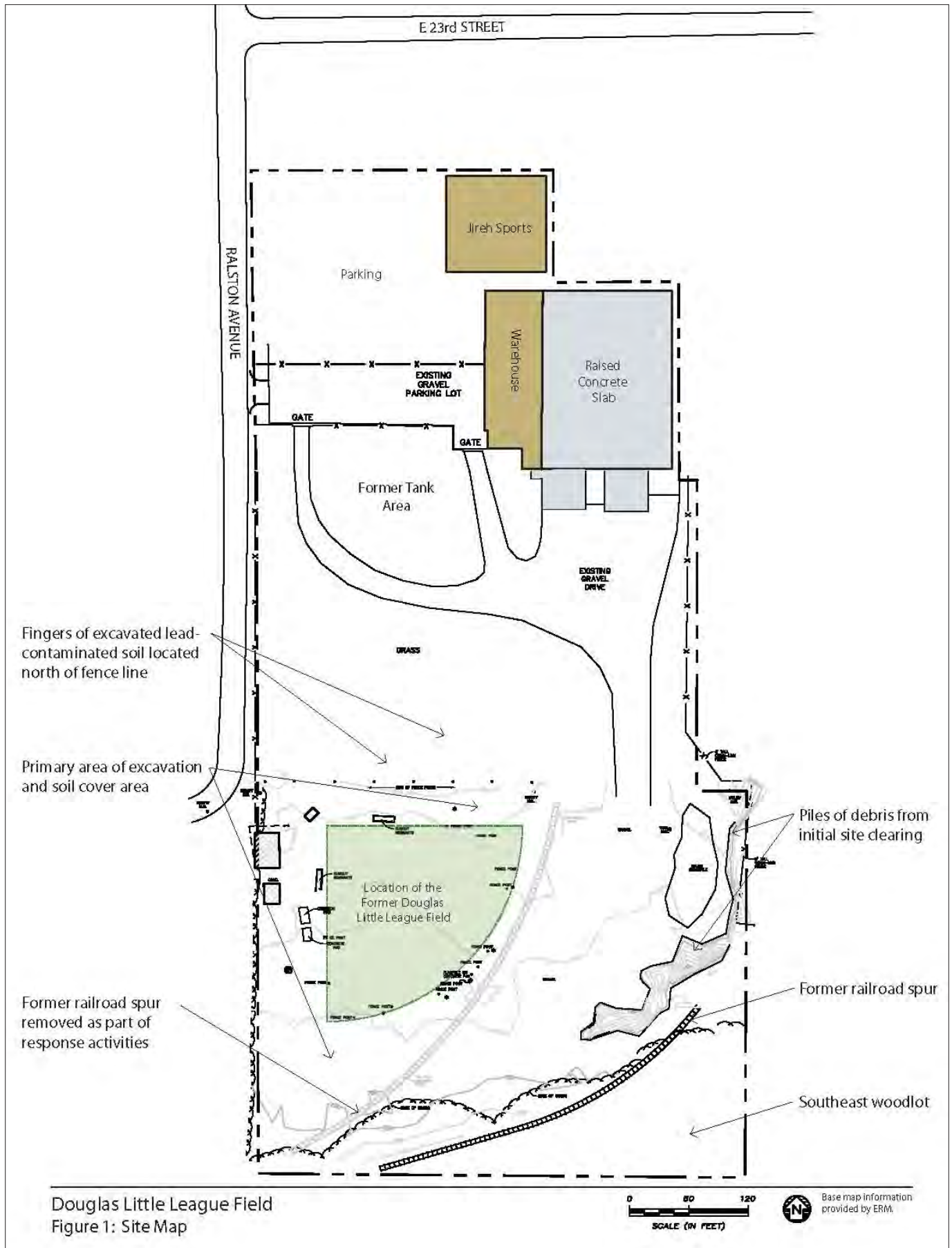
EPA contractor E² Inc. gathered information and conducted a site visit at the Douglas Little League Field site in May 2007 to determine how future land use considerations could help inform ongoing response activities at the site and the long-term effectiveness and permanence of the site's remedy.

EPA's primary responsibility at Superfund sites is to ensure the protection of human health and the environment. EPA's cleanup programs have also set a national goal of returning formerly contaminated sites to long-term, sustainable, and productive use. By engaging local stakeholders in a collaborative decision-making process about a site's future use, EPA can help ensure the long-term effectiveness and permanence of site remedies.

The May 2007 information gathering and site visit in Indianapolis indicated that community interest in the reuse of the southern portion of the site for a little league baseball field could provide an opportunity to integrate reuse and remedial considerations. Future land use considerations could inform existing response activities at no additional cost in time or resources to ensure the effectiveness and permanence of the site's remedy and that the site's remedy does not create unnecessary obstacles to the future use of the site. Most of the site property is currently owned by Jireh Sports, a non-profit, faith-based youth development center.

The cleanup of the southern portion of the site – a time-critical removal action – is ongoing and will be completed by early Summer 2007. Cleanup activities are funded by Exxon-Mobil and include the removal and replacement of lead-contaminated site soils with clean fill dirt, the placement of a fabric barrier under the clean fill dirt, and two feet of additional soil on top of the backfilled areas. The ground will be leveled and seeded to complete the response activities.

EPA contractor E² Inc. has developed this Site Restoration Considerations document to address the specific areas – including location, grading and drainage, soils and subsoils, compaction, seeding, and site surroundings – where reuse considerations could directly inform ongoing response activities at the site. Consideration and implementation of these considerations will need to happen rapidly, by early June 2007, to fit with the scheduled timeframe of the removal action and would involve coordination among multiple site stakeholders, including EPA Region 5, IDEM, Exxon-Mobil, and Jireh Sports.



Douglas Little League Field
Figure 1: Site Map

II. Site Restoration Considerations: Little League Baseball Field

Field Location, Dimensions, and Orientation

The site is located at 2255 North Ralston Avenue in the city’s Martindale-Brightwood neighborhood. A little league baseball field was located on the southern and southwestern portions of the site where response activities are currently taking place. Youth baseball games were played on the field from 1952 until 1994.

Figure 1 presents key site features, the location of response activities at the site, and the former location of the Douglas Little League field.

Little League Field Characteristics

Little League fields typically require approximately 60,000 square feet of space. The distance from the back of home plate to outfield fences is 200 feet and the distance between bases is 60 feet. These distances can vary, depending on players’ ages and the division of youth baseball; Figure 2 below lists general dimensions for different youth baseball divisions. Where possible, baseball fields are oriented so that a line running from home plate to second base points east-northeast. With this orientation, batters avoid having to face the sun.

Response Activity Implications

Today, in terms of field location, dimensions, and orientation, a little league baseball field could once again be located on the southwestern portion of the site. A little league field could fit in the southwestern corner of the site and could be optimally oriented so that home plate faces east-northeast. In the future, this orientation would also mean that field lighting could be installed without creating negative nighttime lighting impacts for the adjacent neighborhood. Figure 3 provides an up-close illustration of the orientation and dimensions of a little league baseball field located at the site.

Figure 2: Youth Baseball Field Dimensions Table

Age Group	League Division	Left Field	Center Field	Right Field	Pitching Distance	Distance Between Bases	Space Requirement
Ages 17 and older	Big	321 ft.	400 ft.	321ft.	60 ft. 6 in.	90 ft.	115,000 sq. ft.
Ages 15-16	Senior	280 ft.	350 ft.	280 ft.	60 ft. 6 in.	90 ft.	90,000 sq. ft.
Ages 13-14	Junior	250 ft.	315 ft.	250 ft.	54 ft.	80 ft.	90,000 sq. ft.
Ages 11-12	Little or “Majors”	200 ft.	200 ft.	200 ft.	46 ft.	60 ft.	60,000 sq. ft.
Ages 7-11	Minor	200 ft.	200 ft.	200 ft.	46 ft.	60 ft.	60,000 sq. ft.
Ages 5-6	Tee-Ball	200 ft.	200 ft.	200 ft.	n/a	50 ft. or 60 ft.	60,000 sq. ft.

Figure 3: Little League Field Dimensions and Layout

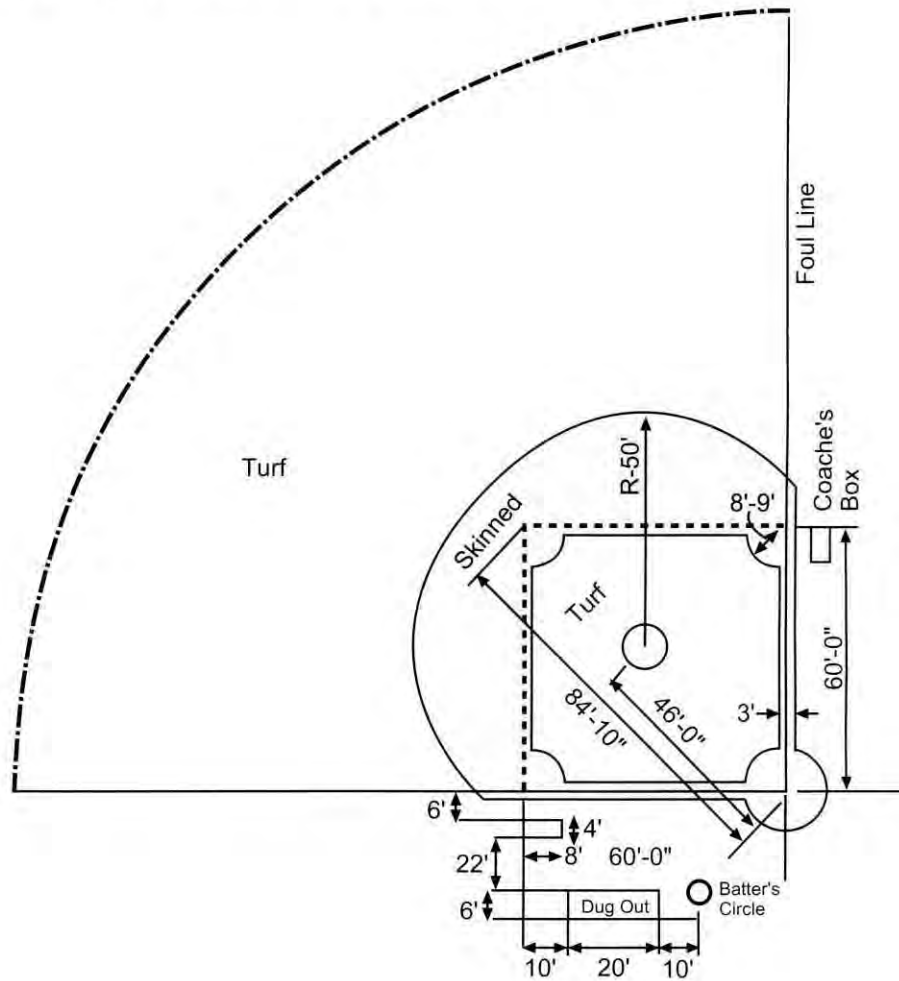
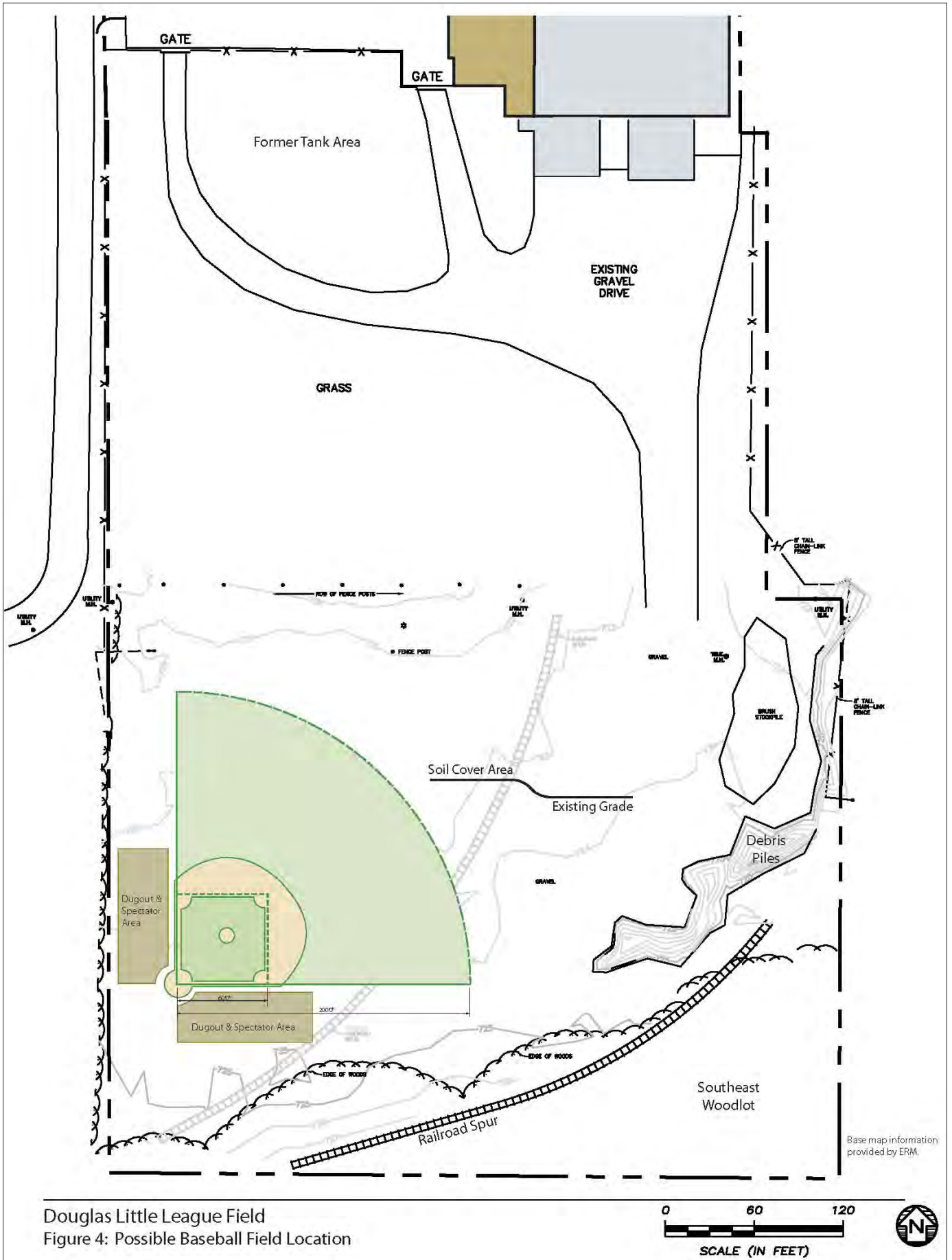


Figure 4 on the adjacent page illustrates how a little league field could fit in the southwestern corner of the site and could be optimally oriented so that home plate faces east-northeast



Field Drainage and Grading

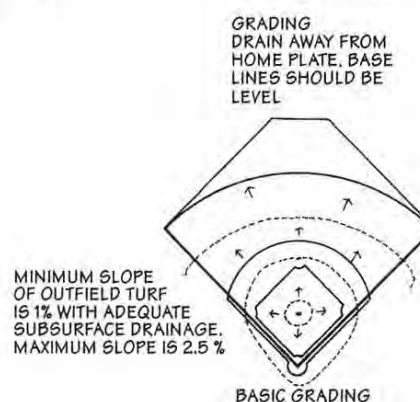
Little League Field Characteristics

Typical little league baseball field drainage patterns drain infield areas away from the pitchers mound and drain outfield areas away from infield areas. The orientation of the baseball field as illustrated in Figure 5 below would enable the field's drainage pattern to work with the site's original natural contours. The minimum slope of outfield turf is 1% with adequate subsurface drainage, while the maximum slope that still supports adequate drainage is 2.5%. Grading the site's soil cover area to maintain sheet flow to the north and not exceed a 2.5% slope would create optimal conditions for a little league baseball field to be located in the southwestern corner of the site.

Response Activity Implications

Baseball fields require a uniform, well-drained playing surface. Grading and positive drainage will be addressed as part of response activities at the site to ensure that the final topsoil cover is smooth, uniform, and well-drained. Given that the location of a little league baseball field on the southwest portion of the site would not require significant alterations to the site's surface area, it appears likely that site grading could follow the slope guidelines outlined in Figure 5 to ensure the protectiveness of the site's remedy and optimize conditions that would support the future location of a little league baseball field at the site.

Figure 5: Basic Grading Pattern



Soil and Subsoil

Little League Field Characteristics

Youth baseball fields are typically native-soil fields – fields established on top of existing local soils and subsoils. It is anticipated that the restoration of the Douglas Little League field site will include fill from a local source, which will result in the establishment of a native-soil field on the southern portion of the site.

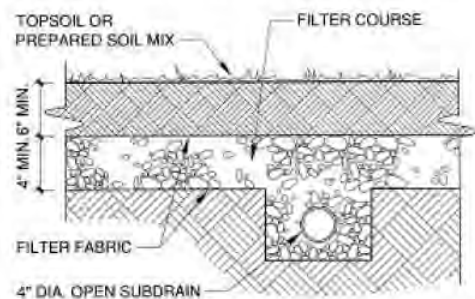
While native-soil fields adequately support baseball fields, additional steps could be taken during subgrade construction and rootzone preparation in the soil cover area to optimize the capacity of the area's soil and subsoil to support future recreational use. First, the incorporation of a layer of aggregate material between the compacted fill and topsoil could improve field drainage, as shown in Figure 6. Second, soil amendments could optimize the establishment of turf grass in the soil cover area. A soil test would determine which specific soil amendments would be most appropriate, as well as provide additional information about the soil's drainage capacity and capacity to support anticipated future traffic.

In the longer-term, there are also additional future use considerations related to soil and subsoil that parties interested in locating a little league baseball field at the site will need to keep in mind. Specifically, future site users may be interested in creating a skinned infield area, where base paths and the pitchers mound consist of sandy soil rather than turf grass. A skinned infield area is often created naturally, from foot traffic on base paths, as a field is used over time. If future site users are interested in creating an installed skinned infield area, Appendix A provides additional information.

Response Activity Implications

Youth baseball fields commonly require a native-soil field, which will be installed as part of restoration activities on the southern portion of the site. Local stakeholders could coordinate with Exxon-Mobil to determine if there might be additional opportunities to optimize field soil and subsoil conditions, including the incorporation of an aggregate material-drainage layer, soil testing, and soil amendments, to support the location of a baseball field in the southwestern corner of the site.

Figure 6: Cross-section Soil Profile (sub-drain not needed for native-soil field)



Compaction

Little League Field Characteristics

Soil at new baseball fields needs to be compacted to ensure a uniform, well-drained playing surface. To optimize fill soil compaction for the location of a baseball field, fill soil should be placed in layers at depths of 6-12 inches and mechanically compacted with appropriate machinery to a density of 95%. Clay soils may require compaction using a sheeps-foot roller, as vibration may liquefy the soil. High-density compaction may require multiple passes (8-12 passes) for each layer (6"-12").

Response Activity Implications

Compaction is needed to create a level playing field. As outlined in the Time Critical Removal Action Work Plan, compaction will also be conducted as part of response activities at the site to ensure that the final topsoil cover in the soil cover area is smooth, uniform, and settles evenly. Given that the location of a little league baseball field on the southwestern portion of the site would not require significant alterations to the site's surface area, it appears likely that site compaction could follow the guidelines outlined above to ensure the protectiveness of the site's remedy and optimize conditions that would support the future location of a little league baseball field at the site.

Seeding

Little League Field Characteristics

Baseball fields located in northern United States are typically seeded with a blend of cool season turfs, such as Bluegrass, fescues, and rye grasses. Coordination with a local agricultural extension office or the Indy Parks and Recreation Department would assist in determining the best grass or grasses to support a baseball field located in the southwestern corner of the Douglas Little League Field site.

Figure 7: Common Recreational Field Grasses and Mowing Height

Type of Grass	Optimal Height (inches)
Bluegrass	1 - 1.5
Tall Fescue	2
Zoysia	0.5 - 1
Bermuda	0.5 - 1

Response Activity Implications

The site’s Time Critical Removal Action Work Plan includes plans to seed the soil cover area with a grass seed mixture, such as rye, fescue, and blue grass seed. The selection of a turf blend specifically designed for recreational uses could optimize the area’s reuse as a little league baseball field.

III. Site Restoration Considerations: Adjacent Site Areas

The soil cover area, located in the southern portion of the Douglas Little League Field site, is the focus of the site’s ongoing time-critical removal action and could also serve as the potential location of a new little league baseball field. Response activities in this portion of the site – soil removal, backfilling, and replacement – will also have future land use implications for surrounding areas of the site. This section of the document considers and addresses these broader land use implications. Figure 8 illustrates potential future recreational land use considerations for these surrounding areas of the site.

Soil Cover Area

Future Land Use Considerations

As part of the time-critical removal action, excavated areas will be backfilled and capped with an additional two feet of soil above the area’s original grade. The change of grade between the

capped soil cover area and the existing grade of surrounding site areas to the north and east of the soil cover area could inadvertently create barriers to future recreational land uses located elsewhere on the site. Site owner Jireh Sports has developed a preliminary reuse plan for its property that includes a skate park, a soccer/lacrosse field, a running track, parking facilities, and a second baseball field.

Specifically, the backfilling and capping of the excavated area could result in an irregularly shaped plateau that could create a barrier to future site uses. The plateau could be irregularly shaped because of the fingers of lead-contaminated soil delineated north of the original baseball field's fence line. Accordingly, the remediation of these areas of the site could result in multiple smaller areas raised above the area's original surrounding grade, rather than the large level area that would be necessary for expanded recreational facilities at the site.

Response Activity Implications

To better accommodate future recreational uses at the site, the soil cover fingers and capped areas that will extend north of the fence could be connected to create a usable area. If the extent and coverage of these fingers are available, it would be possible to calculate the amount of additional fill needed to consolidate the fingers within a larger, contiguous raised area.

See Figure 8 which illustrates how a consolidated area could support expanded recreational opportunities like a soccer or lacrosse field that shares the outfield of the baseball field.

Debris Piles

Future Land Use Considerations

Several large piles of debris are located along the eastern edge of the site. If it remains on-site, this debris will not directly interfere with the location or operation of a baseball field on the southwestern portion of the site. However, the piles could pose a safety hazard to future site users, like children playing on the site, and would likely need to be fenced to restrict access. Any future land uses planned for the eastern portion of the site would require the removal of the debris piles.

Response Activity Implications

Given that the debris piles were created by initial site clearing activities for the time-critical removal action, do not provide any on-site benefits, and represent a potential safety hazard for future site users, site stakeholders could work together to remove or at minimum install fencing around the debris piles. The debris removal or fencing could be undertaken as part of ongoing response activities at the site or as an independent effort.

Former Rail Spur and Wooded Area

Future Land Use Considerations

The southeastern corner of the site is not being addressed by the time-critical removal action and is available for use. The area includes a former rail spur and is one of the few areas of the site that is partially forested. The area could host a range of recreational land uses. Some uses, like walking trails, environmental education areas, a ropes training course, or a climbing wall, would not require major changes to the area’s existing conditions.

In the longer-term, this area could also be large enough to support a second baseball field. This field could be located adjacent to the field located in the southwest corner of the site, in the area now occupied by the debris piles. A specially designed baseball field could provide children with disabilities with opportunities to play baseball. On average, these special fields are smaller than little league fields and are comparable to the size of a tee-ball field.

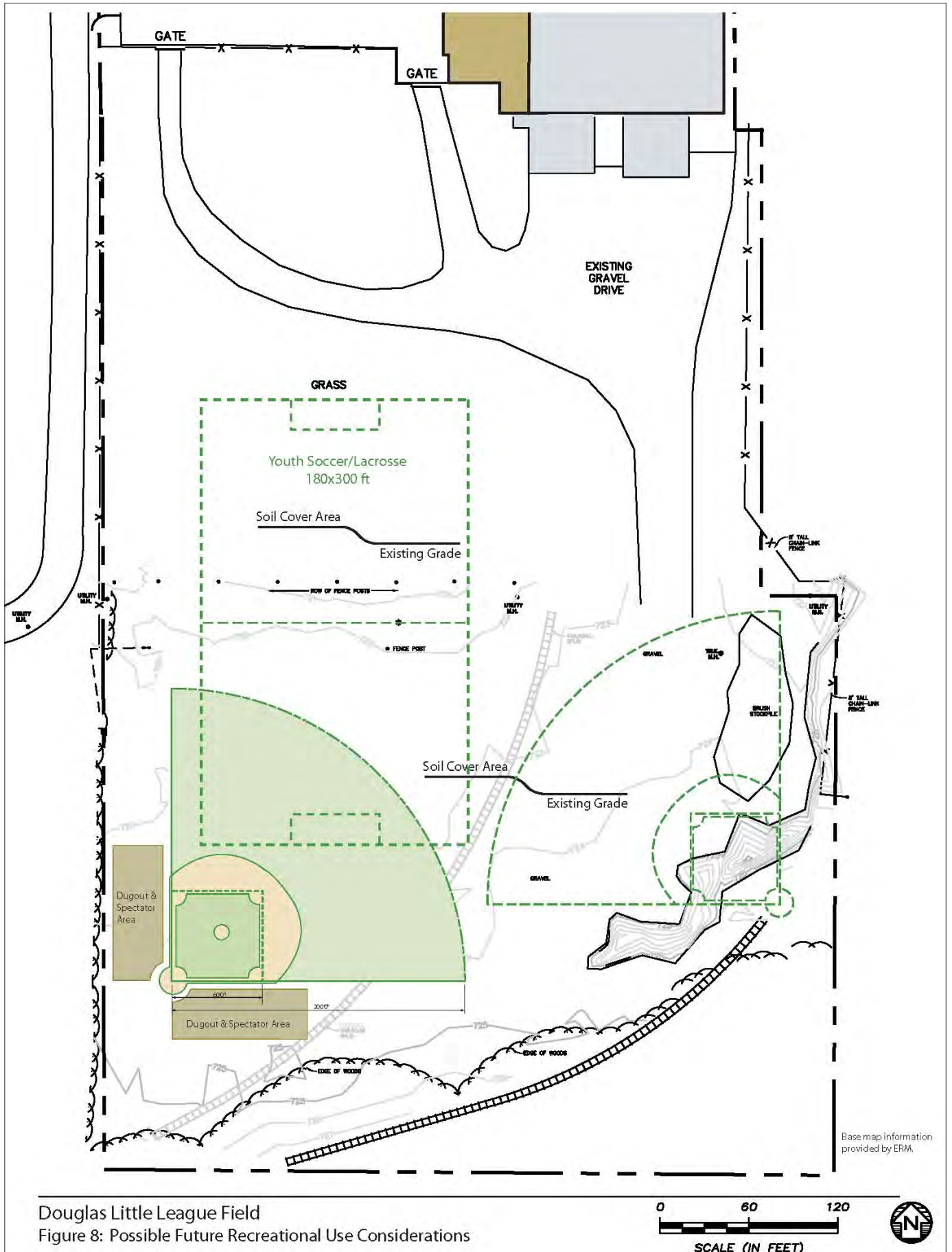
Figure 9: Youth Baseball Field Dimensions Table 2

Age Group	League Division	Left Field	Center Field	Right Field	Pitching Distance	Distance Between Bases	Space Requirement
Ages 5-6	Tee-Ball	200 ft.	200 ft.	200 ft.	n/a	50 ft. or 60 ft.	60,000 sq. ft.

Figure 8 on the adjacent page illustrates how a second baseball field designed for children with disabilities could be located on the eastern portion of the site.

Response Activity Implications

The installation of a second baseball field for children with disabilities in the eastern portion of the site would require removal of the debris piles. Given that the debris piles do not provide any on-site benefits and represent a potential safety hazard for future site users, site stakeholders could work together to remove the debris piles. The debris removal could be undertaken as part of ongoing response activities at the site or as an independent effort.



Appendix A: Skinned Infield Information

Skinned infield dirt areas around the base paths of a baseball field consist of a base soil layer 3-6 inches deep and a top-dressing layer of sand 0.25-0.5 inches deep. A good base soil ideally will be composed of:

- 50-60 percent sand (higher amounts will contribute to soil mobility). Sand composed of rounded or spherical particles should be avoided since they tend to be unstable.
- 15-30 percent clay. This is the glue that binds the soil.
- The silt and clay give the mix firmness. If the mix contains too much silt and clay, compaction and hardness become a problem.
- 15-20 percent silt (higher amounts will make the field slick when wet and dusty when dry).

At the Douglas Little League Field site, it would be possible to work with the existing soil base layer, remove turf located along site basepaths, and topdress with the sand layer described above.

Appendix B: References

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