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July 26, 2016

TO: Brian Van Straten, Outagamie County Recycling & Solid Waste Department
CC: Chris Anderson, Foth Infrastructure & Environment, LLC
FR: Marty Sturzl, Foth Infrastructure & Environment, LLC
RE: Northwest Landfill – Preliminary Layout

The purpose of the memorandum is to present a summary of preliminary engineering performed to define potential landfill airspace and earthwork volumes associated with development of a Northwest Landfill on the current Outagamie County Landfill property. The contents of this memorandum should be considered preliminary. Further refinement will be required based on site limitations which may not be known at this time.

Background

The Outagamie County Landfill property consists of approximately 450 acres and includes two closed landfills (West Landfill and East Landfill) and one active landfill (Northeast Landfill [NELF]).

The NELF serves as the regional landfill for Brown, Outagamie, and Winnebago Counties (BOW) and is estimated to have capacity until 2022 based on an annual airspace utilization of ~730,000 cubic yards (cy) per year.

The current regional plan includes a transition of landfilling to the future Brown County South Landfill once the NELF reaches capacity.

The Outagamie County Landfill property has area which could be used for additional landfilling. The remainder of this memorandum discusses the potential for expansion of waste disposal capacity at the Outagamie County Landfill property.

Preliminary Layout

The potential limits of waste for the Northwest Landfill is shown on Figure 1. The limits are based on minimum setbacks (from property lines, existing waste limits, highways, etc.) established for the NELF. The total acreage of the potential waste limits shown is ~83.7 acres.

The landfill siting requirements in Wisconsin require notification of affected communities which are defined as cities, towns, or villages within 1,500 feet of the proposed waste limits. As shown on Figure 1, the affected communities consist of the city of Appleton and the villages of Little Chute and Grand Chute.

Preliminary Capacity

The potential capacity of the Northwest Landfill was estimated using a base (top of clay liner elevation) of 705 feet based on design of the NELF. The maximum airspace assuming a base elevation of 705 feet and 4H:1V slopes to a peak is estimated to be 12.3 million cy (Figure 2).

Wisconsin Department of Natural Resources (WDNR) regulations limit landfill site life to 15 years. Therefore, the area shown on Figure 2 should be able to provide the maximum site life allowed based on current airspace utilization rates (730,000 cy x 15 years = ~11 million cy). A “needs” analysis will be required as part of a feasibility report to justify the design airspace.

Preliminary Earthwork

Figure 3 summarizes preliminary excavation volumes based on a bottom of liner elevation of 701 feet and a surface water sedimentation basin excavation in the southwest corner of the site. The total in-place volume of excavation is ~4.7 million cy.

Figure 4 shows potential uses of the excavated materials which include:

- ◆ Clay liner material;
- ◆ Final cover material;
- ◆ Daily/intermediate material; and
- ◆ Stockpiled material.

The overall preliminary soil balance shows all excavated soils can be used on-site as summarized below:

| Item | Volume (in-place cy) |
|---|-------------------------|
| 1. Soils Available From Construction of Northwest Landfill (Figure 3) | |
| a. Excavation to Subbase Grades (701 feet, includes existing soil stockpiles) | 4,620,000 |
| b. Excavation of Sedimentation Basin | 78,000 |
| Totals = | 4,698,000 |
| 2. Soils Uses (Figure 4) | |
| a. NELF Final Cover (5 feet over 55.3 acres) | 446,000 |
| b. Northwest Landfill Clay Liner (4 feet over 83.7 acres) | 540,000 |
| c. Northwest Landfill Final Cover (5 feet over 83.7 acres) | 701,000 |
| d. Stockpile A | 1,640,000 |
| e. Stockpile B | 410,000 |
| f. Stockpile C | 431,000 |
| g. Stockpile D | 40,000 |
| h. Daily and Intermediate Cover (10%) of Airspace | 615,000 |
| Totals = | 4,823,000 |
| Net Balance | -125,000 |

The negative balance indicates less material may be required to be stockpiled.

Long-Term Expansion Potential

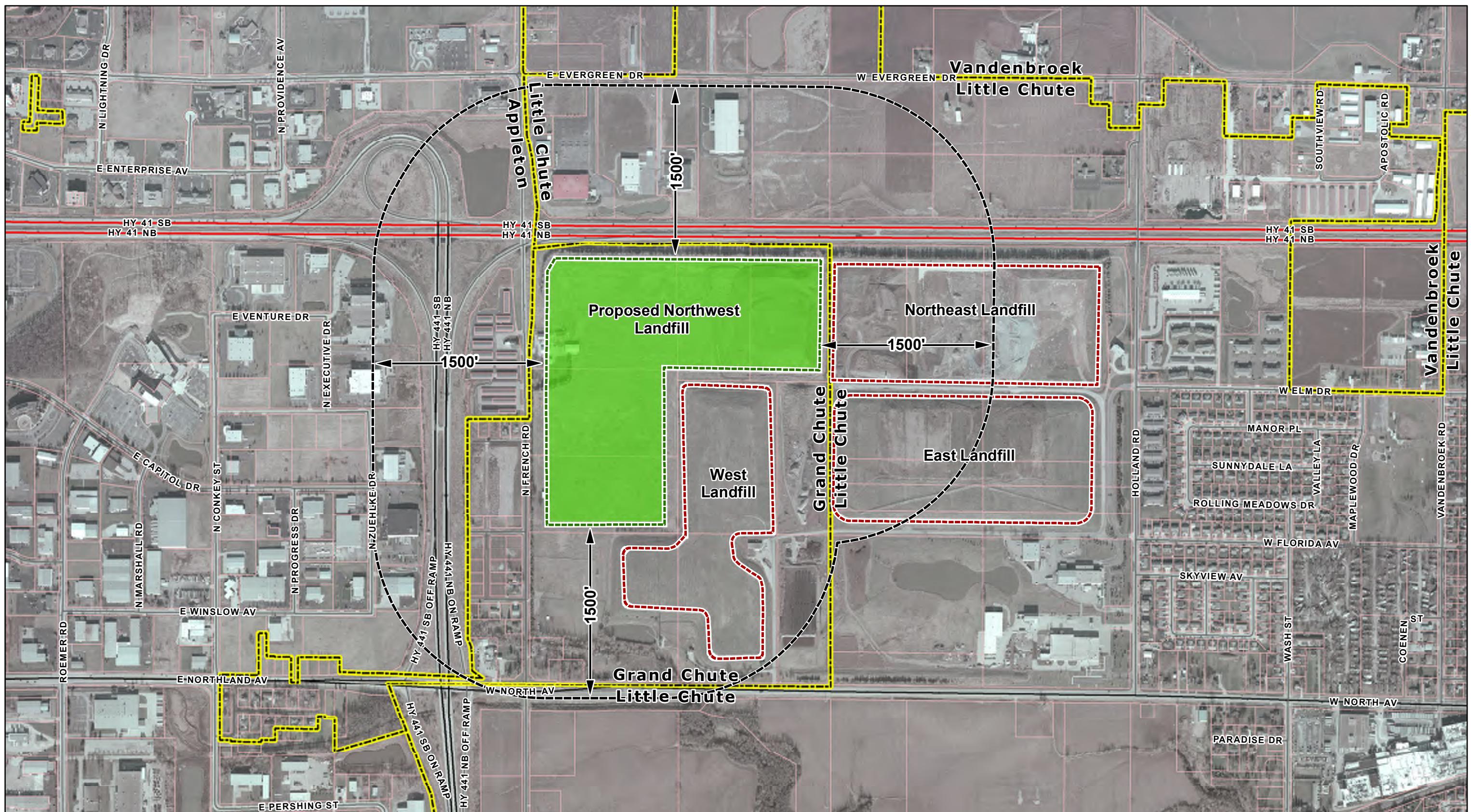
The Outagamie County property would have additional long-term airspace capacity if a portion of the West Landfill could be relocated into the Northwest Landfill. An estimated 1.8 million cy of waste would need to be relocated (Figure 5) to provide an additional ~39 acres of liner expansion to the Northwest Landfill. It is estimated the expansion would provide an additional potential airspace capacity of ~13 million cy (Figures 2 through 6). The net additional airspace would be 13 million cy minus the 1.8 million cy of relocated airspace or 11.2 million cy.

Summary

There is potential airspace available on the Outagamie County Landfill property based on this preliminary engineering analysis. A Northwest Landfill could provide up to 15 years of site life (based on current filling rates). In addition, relocation of waste in the West Landfill could extend the site life of the Northwest Landfill by an additional 15 years (based on current filling rates).

All estimated potential capacities are contingent on the ability to obtain the necessary permits and approvals.

Attachments



NOTES:

1. 6" resolution air photo acquired on 11/28/15.
2. Tax parcel, municipal boundary and street data from Outagamie County Land Information.
3. Horizontal coordinate system is NAD 1983 Outagamie County Coordinate System, units in feet.

LEGEND

- Proposed Landfill
- Existing Landfill
- 1500' Radius from Proposed Landfill
- Tax Parcels
- Municipal Boundary
- Interstate Highway
- State Highway
- County Highway
- Local Streets

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.



OUTAGAMIE COUNTY - NORTHWEST LANDFILL

FIGURE 1

PROPOSED NORTHWEST LANDFILL
WITH MUNICIPAL BOUNDARIES
OUTAGAMIE COUNTY, WISCONSIN

0 400 800
Feet

Date: JULY 2016 Revision Date:
Drawn By: BJW1 Checked By: MRS Project: 16O002.30

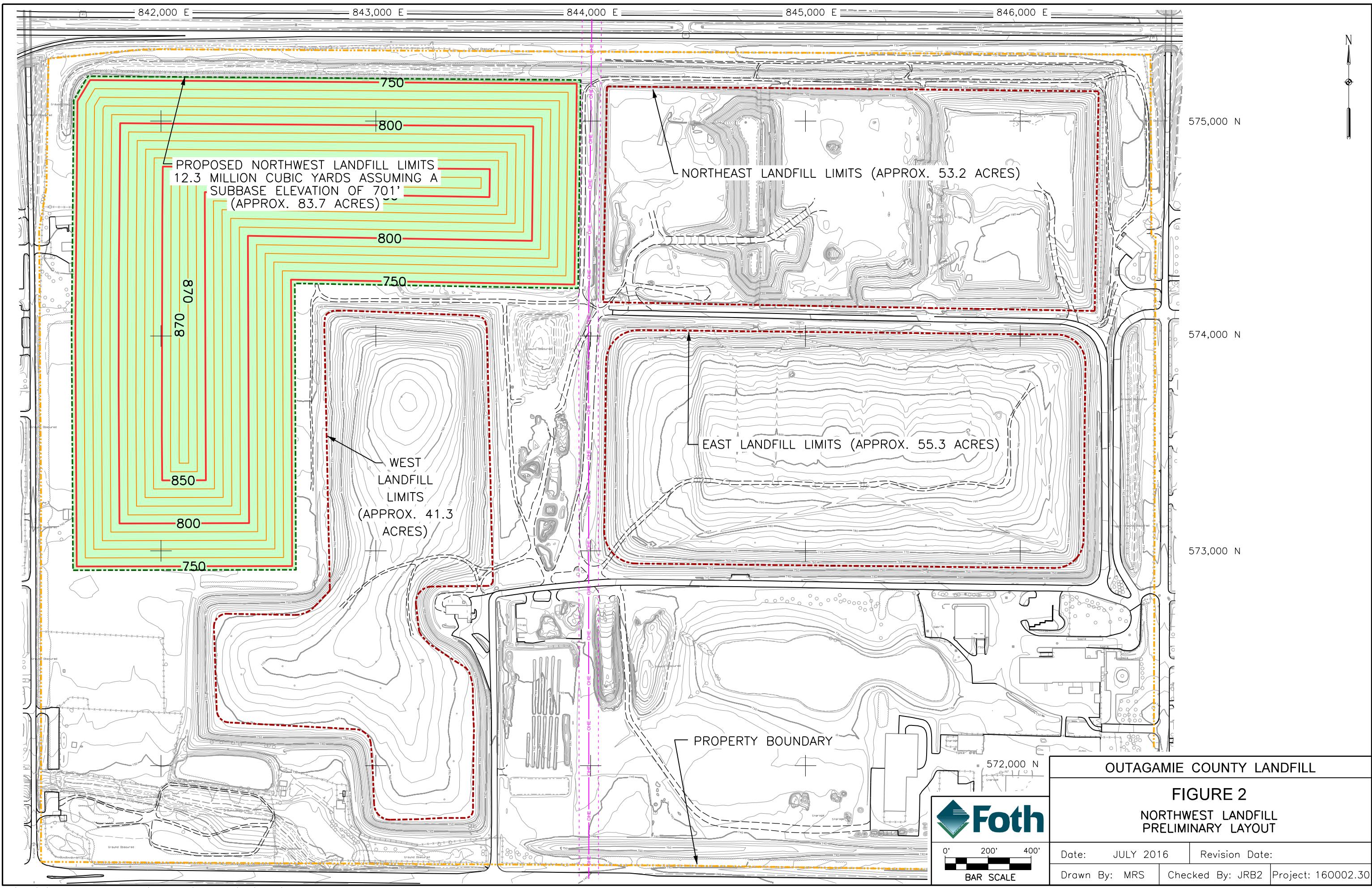


FIGURE 2
NORTHWEST LANDFILL
PRELIMINARY LAYOUT

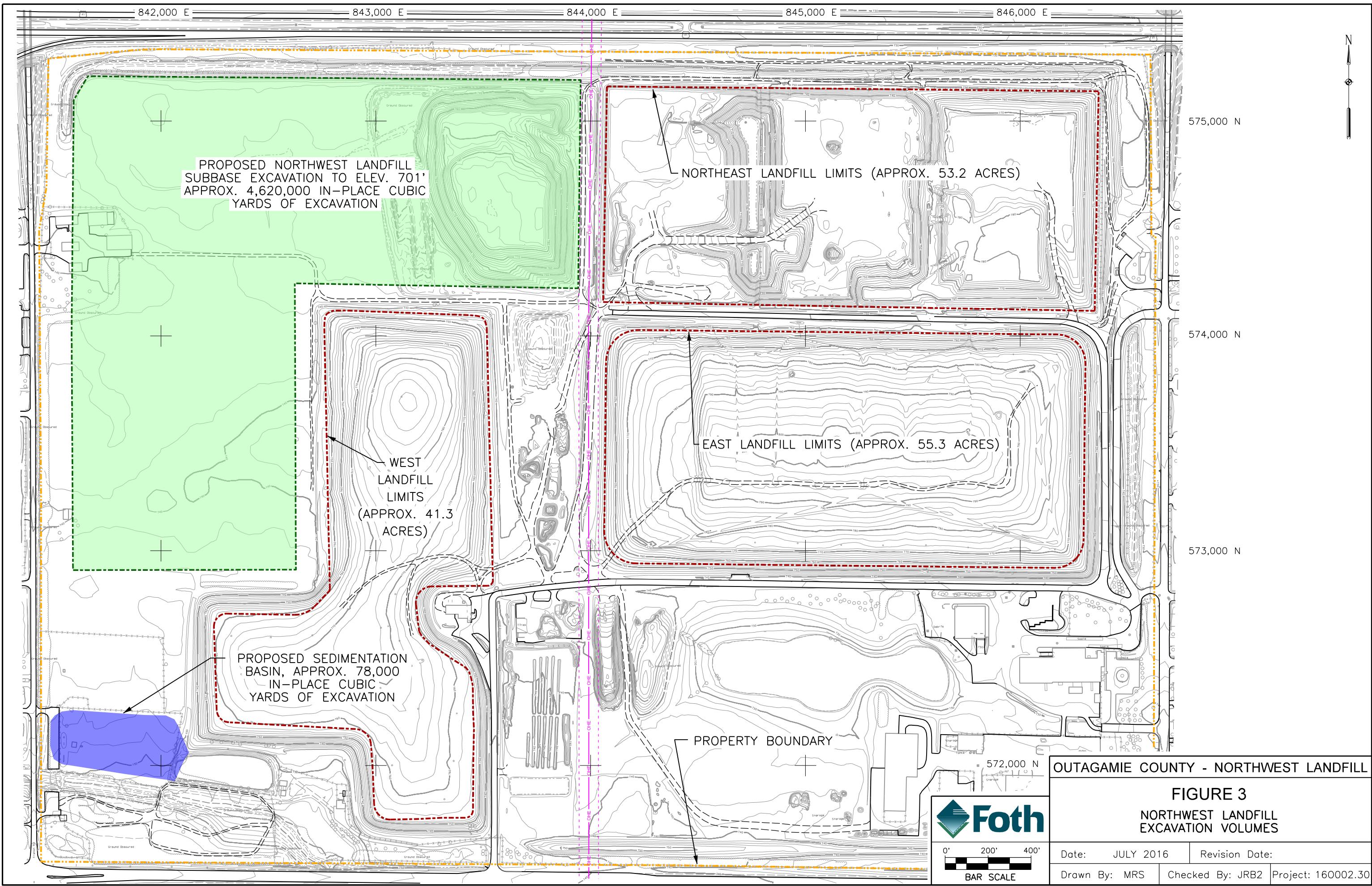
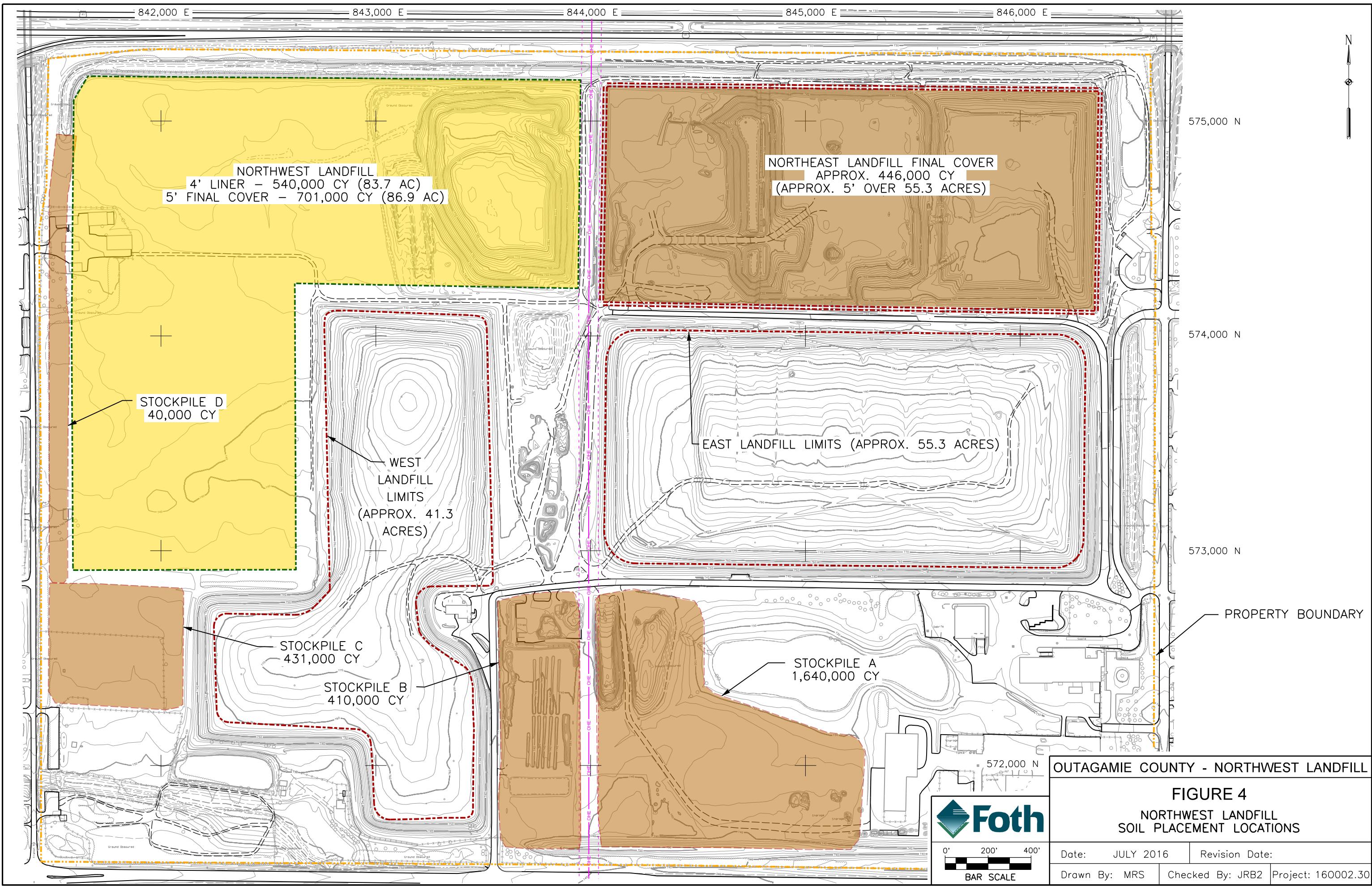
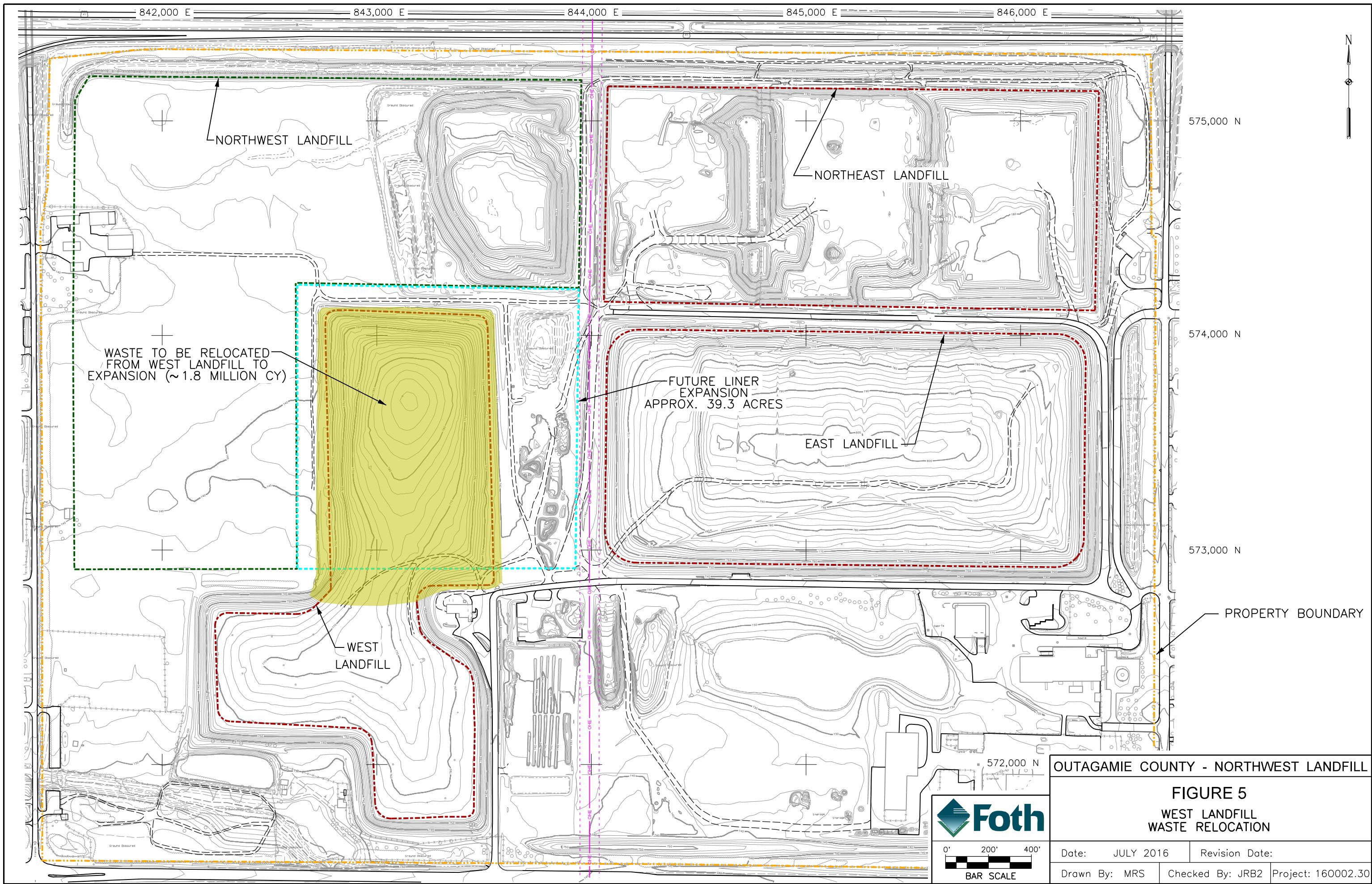
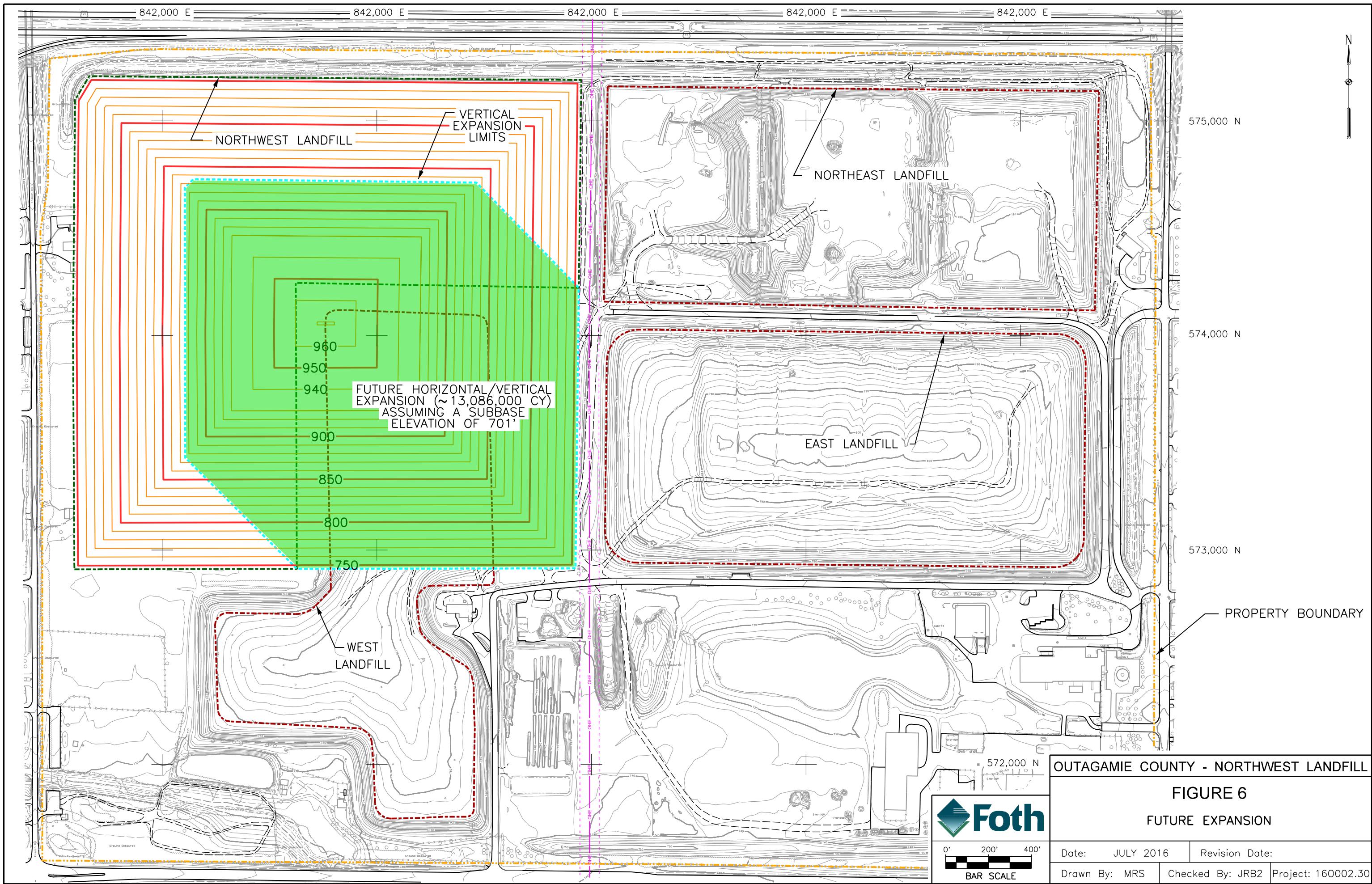


FIGURE 3
NORTHWEST LANDFILL
EXCAVATION VOLUMES







OUTAGAMIE COUNTY - NORTHWEST LANDFILL

FIGURE 6

FUTURE EXPANSION

Date: JULY 2016 Revision Date:

Drawn By: MRS Checked By: JRB2

For more information, contact the Office of the Vice President for Research and the Office of the Vice President for Student Affairs.