Rose & Westra
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

The Widdicomb Building
601 Fifth Street NW
Suite 102
Grand Rapids, MI 49504
T: 616.956.6123
F: 616.288.3327
www.rosewestra.com
www.gza.com

Sent Via Email: hendershotta@michigan.gov

August 3, 2018
File: 16.0062677.81

Ms. Abigail Hendershott
Michigan Department of Environmental Quality
5th Floor – Unit 10
350 Ottawa Avenue NE
Grand Rapids, MI 49503

Re: Wolverine World Wide, Inc.
Revised Lamoreaux Farms Soil Investigation Work Plan

Dear Ms. Hendershott:

Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA) is presenting this Lamoreaux Farms Soil Investigation Work Plan (WP) on behalf of Wolverine World Wide, Inc. (Wolverine). This WP pertains to a portion of the property located at 2105 10 Mile Road, Rockford, Michigan ("Site").

Based on a review of historical aerials, it appears that a portion of a gravel pit was previously located on the northern portion of the Site. The MDEQ has indicated that Wolverine waste may have been disposed at the gravel pit. This WP outlines the planned soil investigation for this Site being undertaken to look for evidence of historical waste disposal in the southern portion of the former gravel pit. Figure 1 presents a Site Plan which includes the overlay of the historical gravel pit on a current aerial photograph.

Based on a review of aerial photographs, it appears that disturbances in the gravel pit area had ceased by 1965. A 1953 aerial photograph shows the delineation of the gravel pit north of the Site, likely in the area of the Lady Lauren cul-de-sac of the Wellington Ridge Development. The 1955 aerial photograph shows the gravel pit extended to the south onto the Site as well as roads providing access to the gravel pit from the south (traversing the Site). The 1965 aerial photograph shows significant vegetative growth in the former gravel pit area (including both the northern area shown on the 1953 aerial photograph and the southern expansion shown on the 1955 aerial photograph). Accordingly, it appears if Wolverine waste was disposed of on the Site, it would have ceased by the early 1960s.

Waste streams from the Wolverine tannery would not have contained Scotchguard™ (PFAS) until 1958. Therefore, waste disposal potentially containing PFAS would have been limited to approximately 1958 through circa 1965. During that period, Scotchguard™ was applied by spray application. Overspray of Scotchguard™ and waste materials from the spray operation would have been discharged via the wastewater treatment plant. As such, these wastes would have been disposed of at on off-site facility in the wastewater solids. The Scotchguard™ waste would have been comingled with colorants, solvents, and other waste from the tanning and finishing process.

Soil Investigation

R&W/GZA will utilize a triangular grid approach to the soil investigation, as shown on Figure 2. The grid points are located 60 feet apart. The 60-ft grid interval was selected based on the EPA statistical model and reflects a 95% confidence level of finding a source if it is present.

The investigation will be conducted starting in the northwest corner of the grid shown on Figure 2 and working southeasterly. This approach was selected as the most significant gravel pit operations appear to have been conducted in the northernmost portion of the Site.

Borings will be advanced using direct push methods to approximately 20-feet below ground surface (bgs). This depth was selected based on our experience with the identified waste depths at the former House Street Disposal site. Consistent with the approved Work Plan for the House Street investigation, the soil will be logged as well as screened at 2-foot intervals using a photoionization detector (PID) and XRF. If observable waste is present, the screening interval will be reduced to one foot. If no visual, XRF, or PID screening indicates the likely presence of waste, two samples will be collected from the boring for laboratory analysis. One boring will be collected from a random depth within the top 10 feet and submitted for full laboratory analysis (as listed below). The second sample will be collected from a random interval in the lower 10 ft of the boring and submitted for PFAS analysis only. The depths may be modified based on field conditions and lithology.

If visible waste is identified in a boring or if either PID or XRF screening suggests constituents of concern may be present, soil samples will be collected from within the identified waste interval and from approximately 2 ft below the waste.

These samples will be analyzed for the following analytes in accordance with both the Quality Assurance Project Plan (QAPP) developed by R&W/GZA for the EPA and the PFAS QAPP developed for MDEQ:

- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Metals Al, Sb, As, Ba, Be, B, Cd, Cr Total, Cr VI, Co, Cu, Fe, Pb, Mg, Hg, Mo, Ni, Se, Ag, Na, Ti, Tl, V, and Zn (TAL metals);
- Acetate;
- Total ammonia, nitrate, and nitrite;
- Chloride;
- Cyanide (total and available);
- Formate;
- Acetate;
- Total phosphorus;
- Sulfate and sulfide.
- Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by DOD QSM v1.1.

Excess soil will be containerized in 55-gallon open-top steel drums and temporarily stored in a designated area. Containerized soil will be disposed of at an appropriate off-site, licensed disposal facility.

The findings of the soil investigation tasks will be summarized in a letter report.

Schedule

R&W/GZA anticipates beginning the on-Site investigation on September 4, 2018. A summary report will be submitted within 30 days of receipt of all the analytical reports (EDD format).

Sincerely,

Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

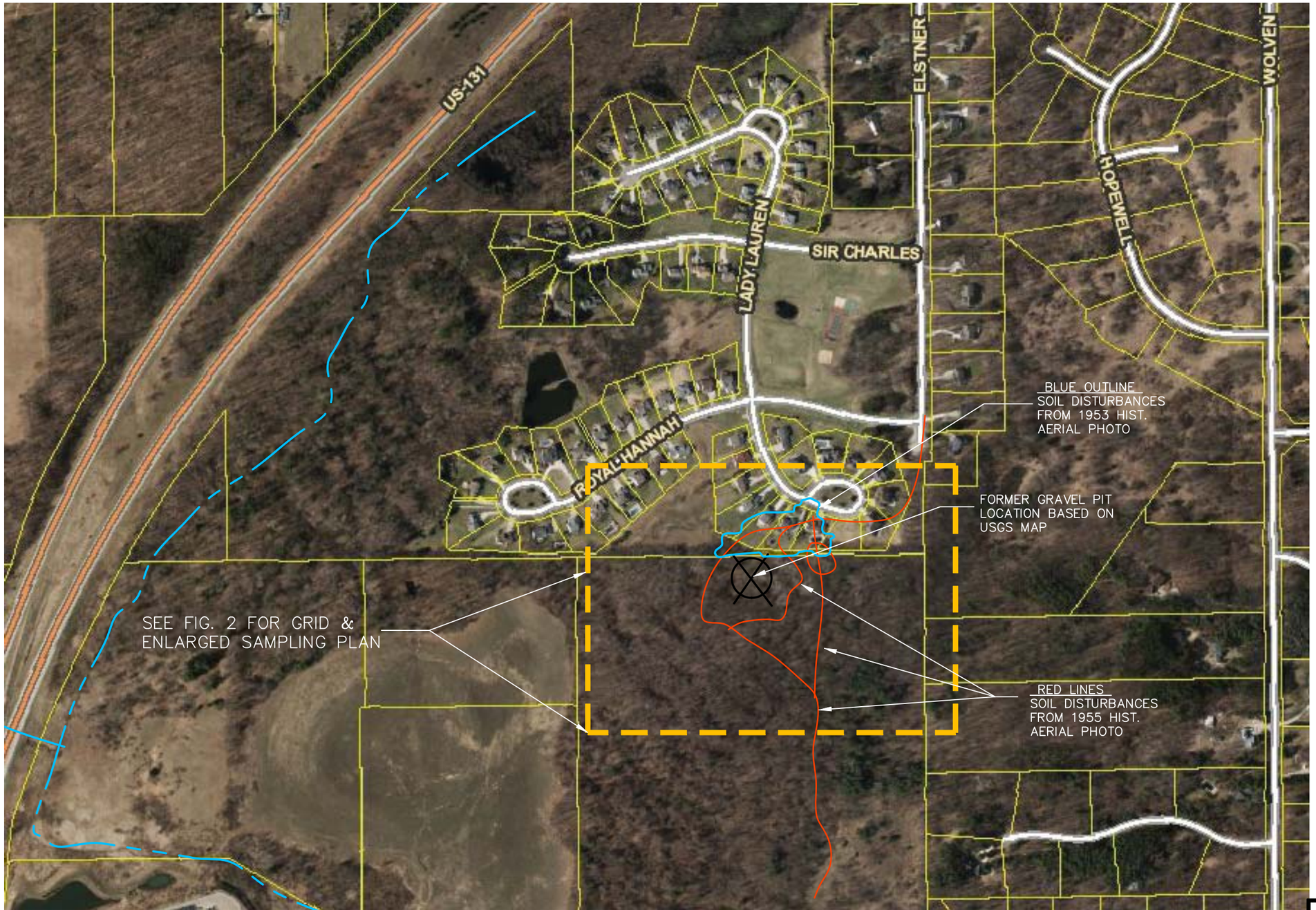
Leslie M. Nelson, P.E.
Senior Project Manager

Mark A. Westra
Associate Principal

lmn/maw

c/enc: Mr. Dave Latchana – Wolverine World Wide, Inc. *via email David.Latchana@wwwinc.com*
Mr. John V. Byl – Warner Norcross & Judd LLP *via email* jbyl@wnj.com

j:\62000\626xx\62677.81 - wolven-jewell investigation\lamoreaux farms property\62677_81_lamoreaux sow_r1.doc



DRAFT COPY

SCALE: 1" = 400'

0' 400'

NORTH

NORTH ORIENTATION

VICINITY PLAN

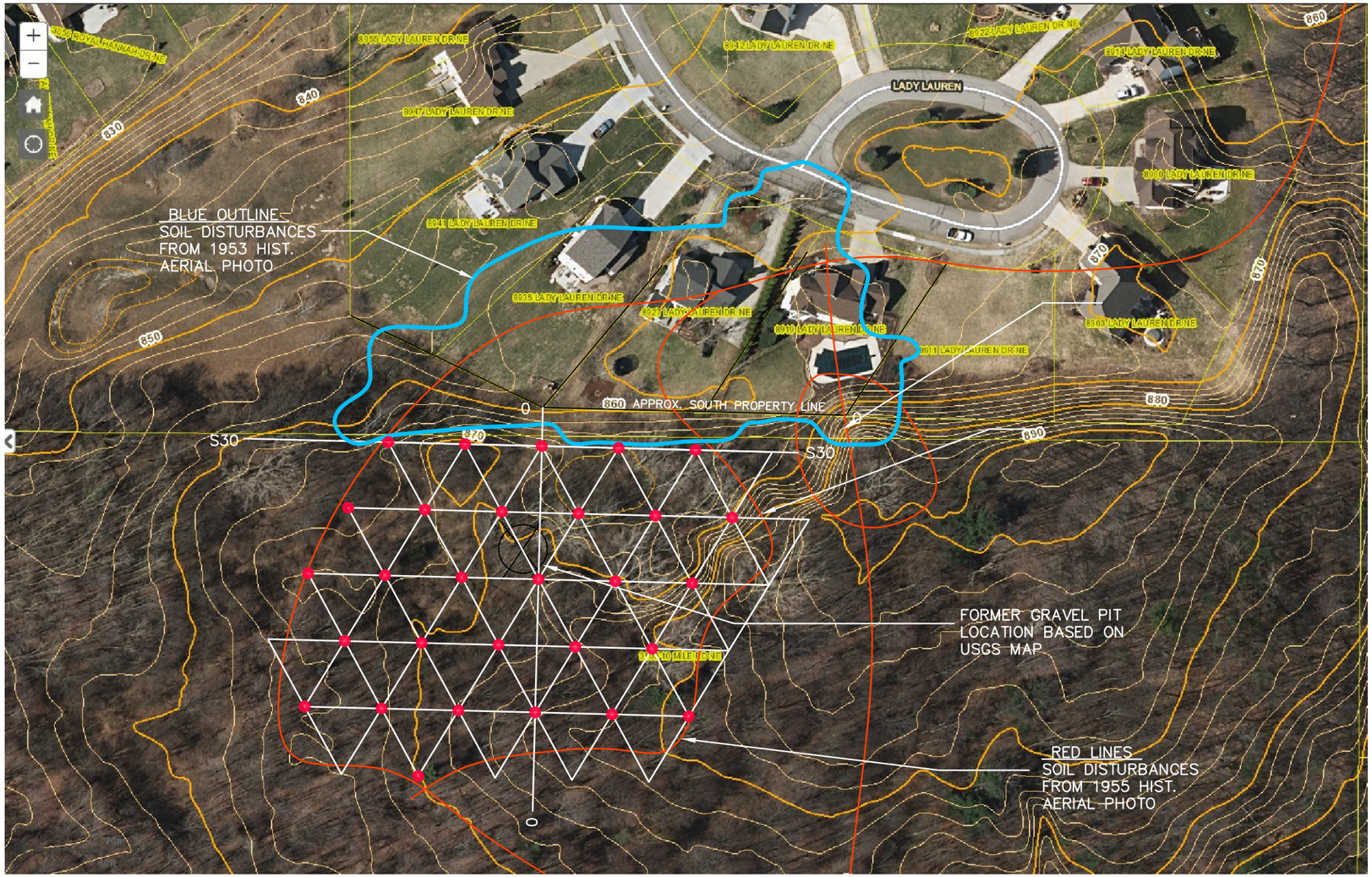
ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL—ENVIRONMENTAL—ECOLOGICAL
WATER—CONSTRUCTION MANAGEMENT

WN & J/WNW
FORMER LAMOREAUX FARMS PROPERTY
FORMER GRAVEL PIT INVESTIGATION

PROJECT NO. 16.0062677.81

1
FIGURE NO.

CREATED BY: KJB APPROVED BY: LMN DATE: 7/31/18 FILE NAME: 62677_81_LAM_FIG1



DRAFT COPY

LEGEND

● = SOIL BORING LOCATION

SCALE: 1" = 100'

0' 100'

NORTH

NORTH ORIENTATION

ENLARGED PLAN W/ SAMPLING LOCATIONS

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL–ENVIRONMENTAL–ECOLOGICAL
WATER–CONSTRUCTION MANAGEMENT

WN&J/WWW
FORMER LAMOREAUX FARMS PROPERTY
FORMER GRAVEL PIT INVESTIGATION

PROJECT NO.
16.0062677.81

FIGURE NO.
2

CREATED BY: KJB APPROVED BY: LMN DATE: 8/1/18 FILE NAME: 62677_81_LAM_FIG2_TRANG