

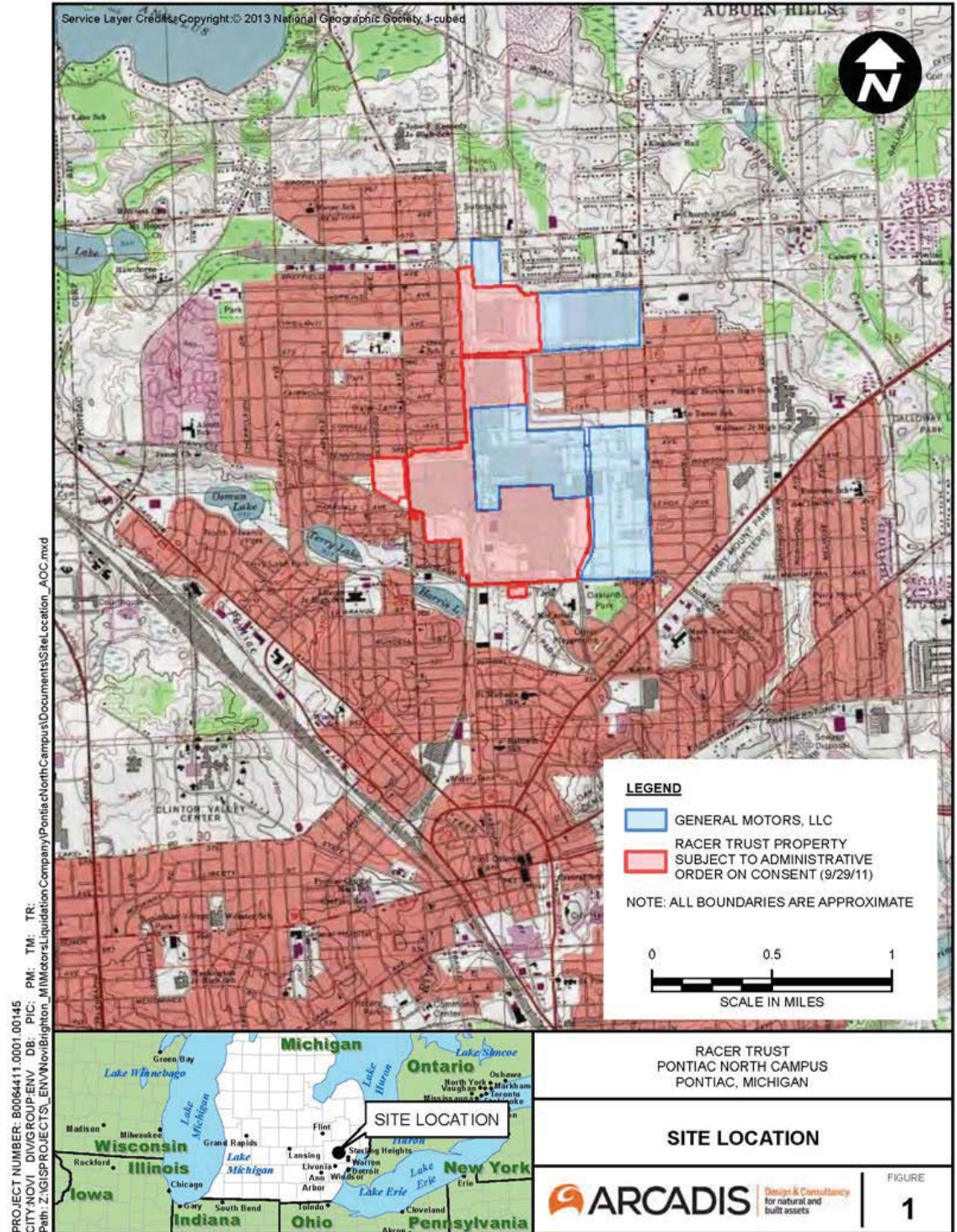
RACER PONTIAC NORTH

USPS Property - Overview **Through 2006**

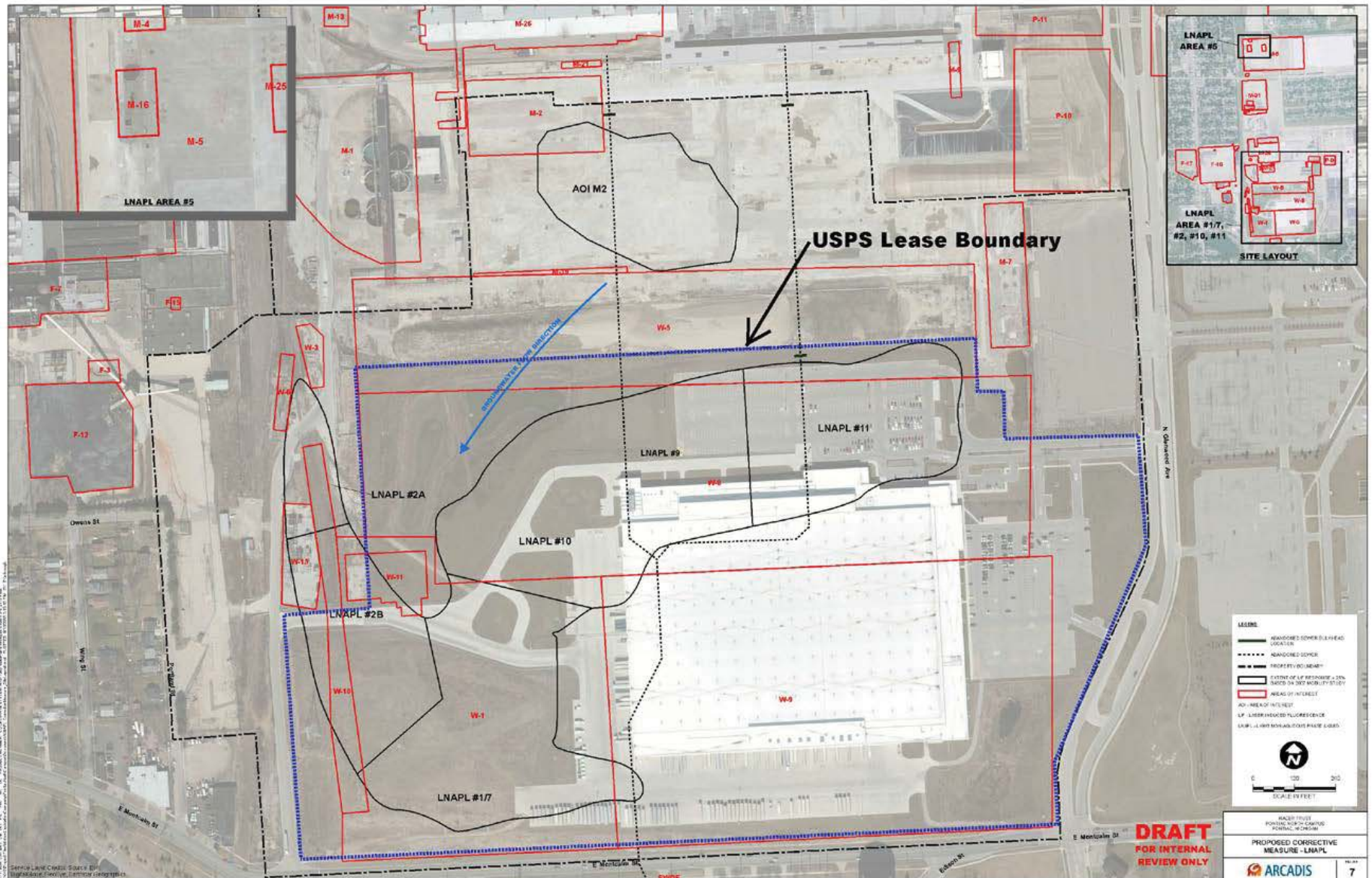
March 21, 2016

Preliminary Draft – For Discussion Purposes Only

RACER Pontiac North Campus Site Location



USPS Property & LNAPL Areas

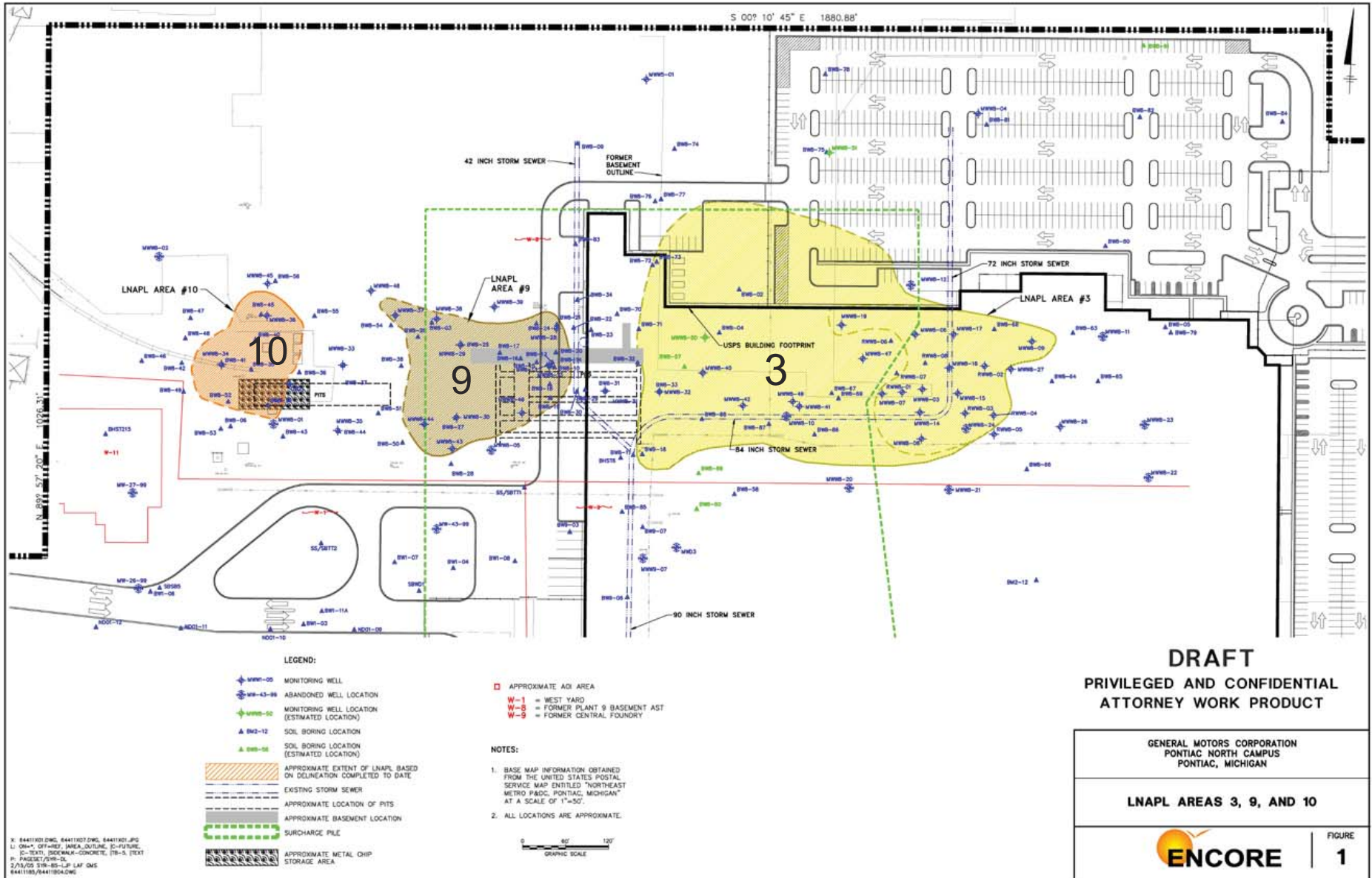


Redevelopment Activities (USPS Property) – completed by GM/ENCORE

- IM – LNAPL Area No. 3 LNAPL recovery (2004 – 2005)*
- Concrete/soil characterization sampling (2004 – 2005)
- Former Plant 6 basement backfill material investigation (2005)
- AOI W-8 vadose zone soil NAPL investigation (2005)
- ***Methane evaluation & conceptual venting system design (2005 – 2006)****
- ROST investigation in LNAPL Area Nos 1, 2, 7, 9, 10, and 11 (2006 – 2007) (Note – LNAPL Area No. 3 was not included)
- IM – Former Plant 6 basement PCB-impacted soil removal (2007)
- ***USPS building construction (2007-2008)***

* Details provided in subsequent sections

LNAPL Area No. 3 Recovery (2004 – 2005)



LNAPL Area No. 3 Investigation/Recovery (2001 – 2005)

2001 – LNAPL Area No. 3 discovered during RFI activities

- Depth to LNAPL – 25' below grade
- Groundwater constituents – no VOC exceedances (MDEQ Part 201 criteria) in wells in LNAPL Area Nos. 3, 9, 10 & 11
- Soil constituents – no VOC exceedances (MDEQ Part 201 criteria) in borings in LNAPL Area Nos. 3, 9, 10 & 11

2002 – RFI Baseline Risk Assessment determined no need for corrective measures to protect workers

2003/2004 – GM/ENCORE and USPS agree that GM/ENCORE would conduct aggressive LNAPL recovery to recover as much LNAPL as practically feasible up to USPS starting construction

2004 – LNAPL Area No. 3 - LNAPL recovery via pneumatic skimming (8 month duration, 588 gallons recovered)

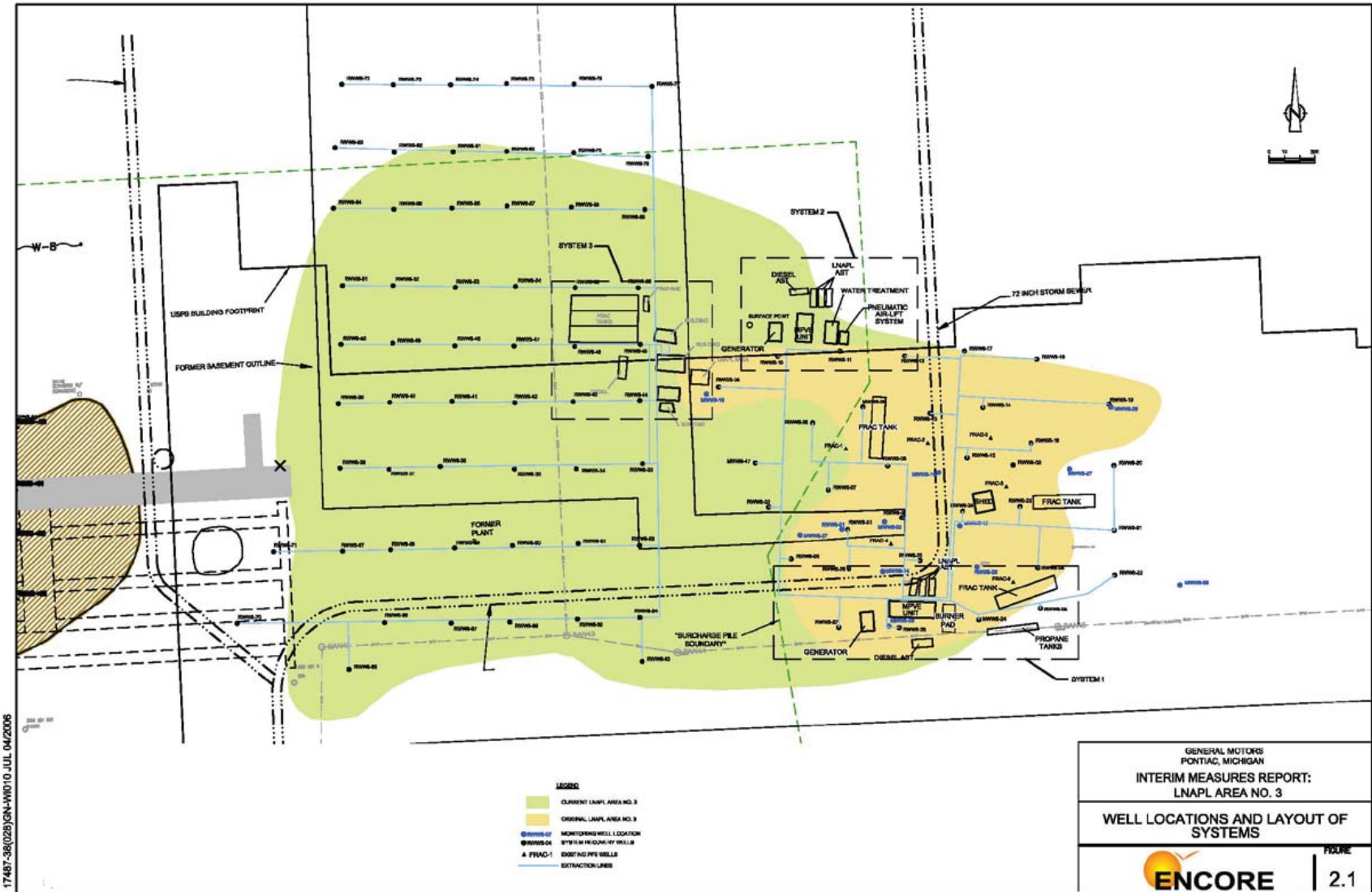
2004 – LNAPL Area No. 3 - MPE pilot study conducted (2 week duration, 147 gallons recovered)

2005 – LNAPL Area No. 3 - Full scale MPE implementation (12 month duration, 4,023 gallons recovered)

2006 (February 13) – Last day of operation of MPE systems

2006 (April) – USEPA authorized termination of MPE activities (see *Interim Measures Report, LNAPL Area No. 3* dated February 2007)

LNAPL Area No. 3 – MPE System Layout



17497-38(025)GN-H010 JUL 04/2006

Methane Evaluation (2005 – 2006)

Methane Evaluation (2005-2006)

2005 – USPS expresses concern about methane production from the historic fill areas within the Area of Industrial Redevelopment (AIR)

2005 (March) – Initial methane investigation conducted (field measurements)

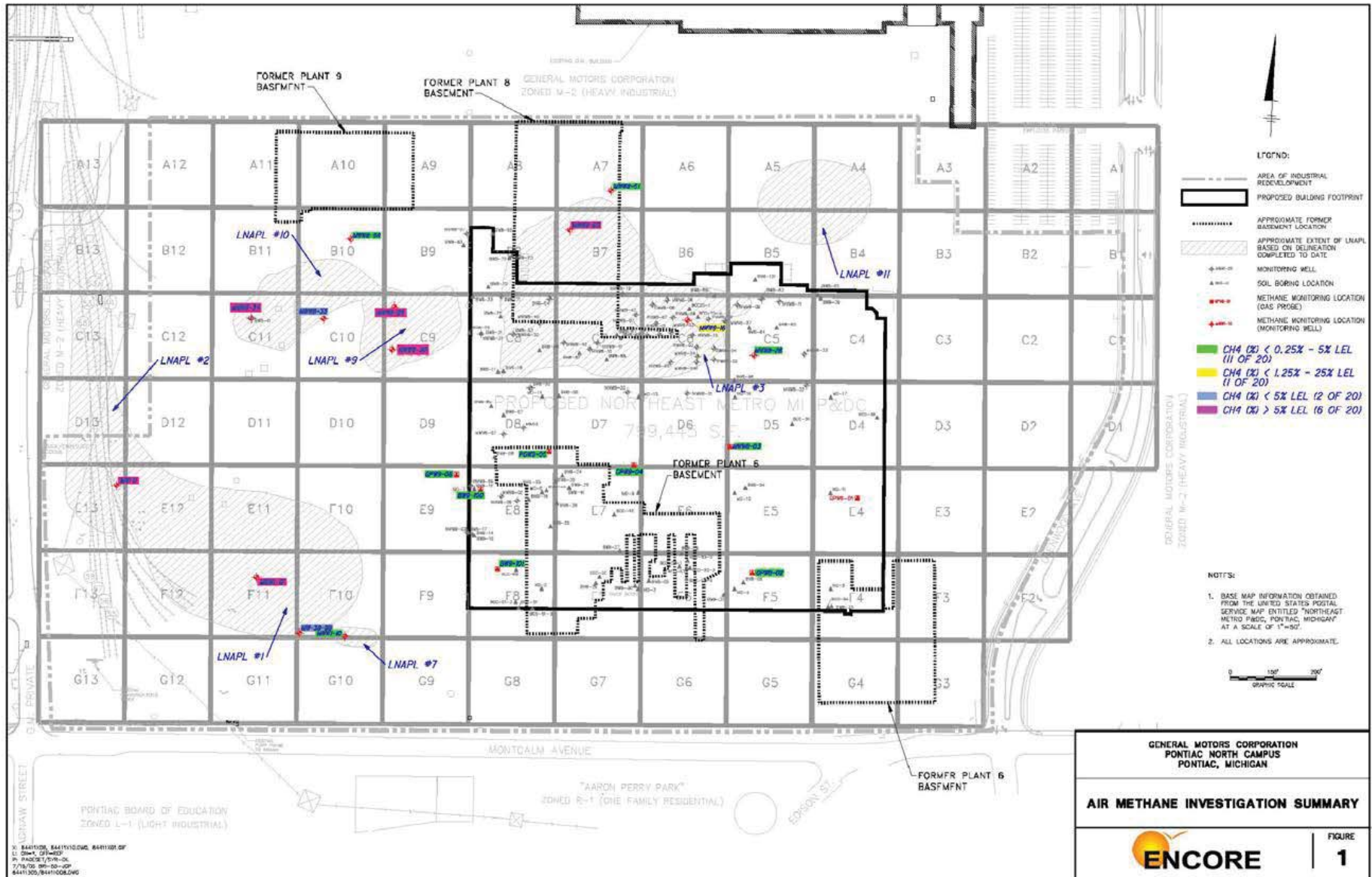
- 2 soil gas probes installed within the fill beneath the proposed building
- 12 existing wells within areas of fill located west of the proposed building

2005 (June) – Additional methane investigation conducted

- 5 soil gas probes installed within the proposed footprint of the building (1 southeast portion, 4 south of LNAPL Area No. 3)
- 1 existing well east of LNAPL Area No. 3

March/June 2005 Methane Investigation Results

Some levels over 5% LEL (8 of 20) (purple) – none under footprint



Methane Evaluation (2005-2006)

2005 (November) – Additional gas probes installed beneath the building footprint (200 square-foot grid spacing), monitored by USPS in December 2005 and early 2006

2006 (May/June) – Additional monitoring conducted of existing gas probes and wells

Investigation results (2005 – 2006)

- 60 of 181 monitoring results > 5% methane (parcel-wide)
- Under building footprint – 4 of 61 monitoring results > 5% methane (all within LNAPL Area No. 3 boundary)

Methane Evaluation Findings (2005/2006)

- The monitoring wells within the building footprint that exhibited higher methane concentrations (>5% methane) were within LNAPL Area No. 3
- In general, gas probes and monitoring wells indicate methane levels above 5% only in areas with LNAPL
- Although methane has been detected in probes and wells that correspond to LNAPL areas, there is no indication that methane is migrating horizontally to the building footprint or vertically to the surface in appreciable quantities
- As native materials on-site are characterized predominantly as clays and clays with silt, this presents a natural barrier to the migration of gases

Methane Health Risks

Per MDEQ Vapor Intrusion Guidance Document (May 2013)

- Methane is not toxic – principle health and safety concerns are its explosive, flammable, and asphyxiant properties
- Since methane is a simple asphyxiant, no threshold limit value (TLV), permissible exposure limit (PEL) or recommended exposure limit value (REL) has been established
- Per MDEQ, methane concentrations must remain < 25% of LEL. LEL for methane is 5% by volume, therefore screening criteria is 1.25% by volume of methane
- Presence of methane > 0.52 ppm in groundwater or > 1.25 % by volume in soil gas represents conditions that must be further evaluated for the presence of acute-type hazards (i.e. explosivity, flammability, suffocation)

Methane Venting System

Methane Venting System Design (2006)

- Arcadis provided conceptual venting system design (active-mode only)
- USPS/URS reviewed conceptual active system and requested passive venting system design
- Walbridge-Teng (construction general contractor) replaced Arcadis with Mannik & Smith Group (MSG) for design
- MSG utilized the Los Angeles Department of Building and Safety (LADBS) empirical design approach as a template for the site SVE Vent/Membrane System design
 - USPS installed a 3' clay cap over the building footprint which also serves as an additional barrier to vertical migration of gases (per Mannik & Smith)
 - Parking lot – passive vent system
 - Building – passive vent/barrier system w/ active-mode expansion ability

MSG Methane Venting System Design Layout

