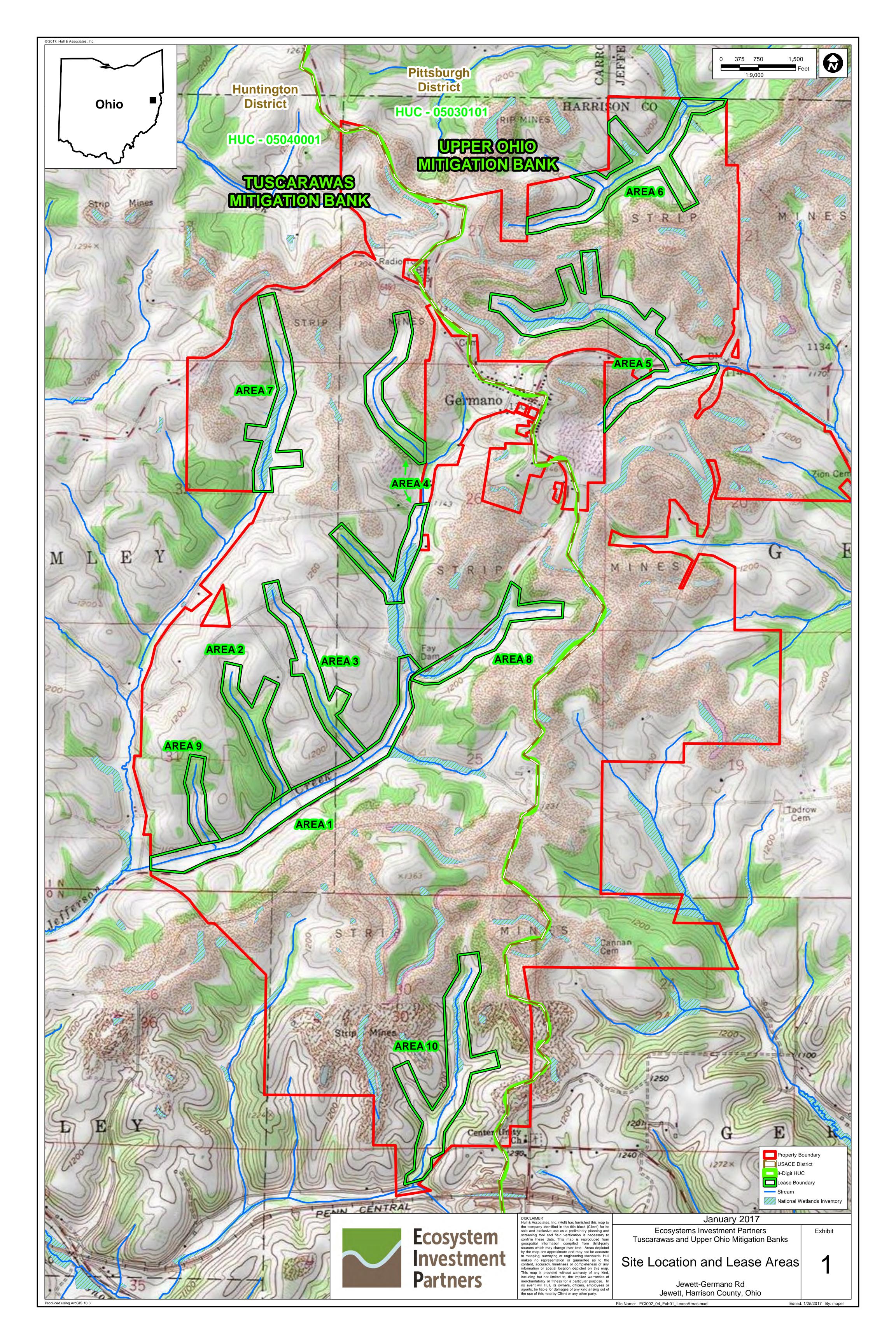
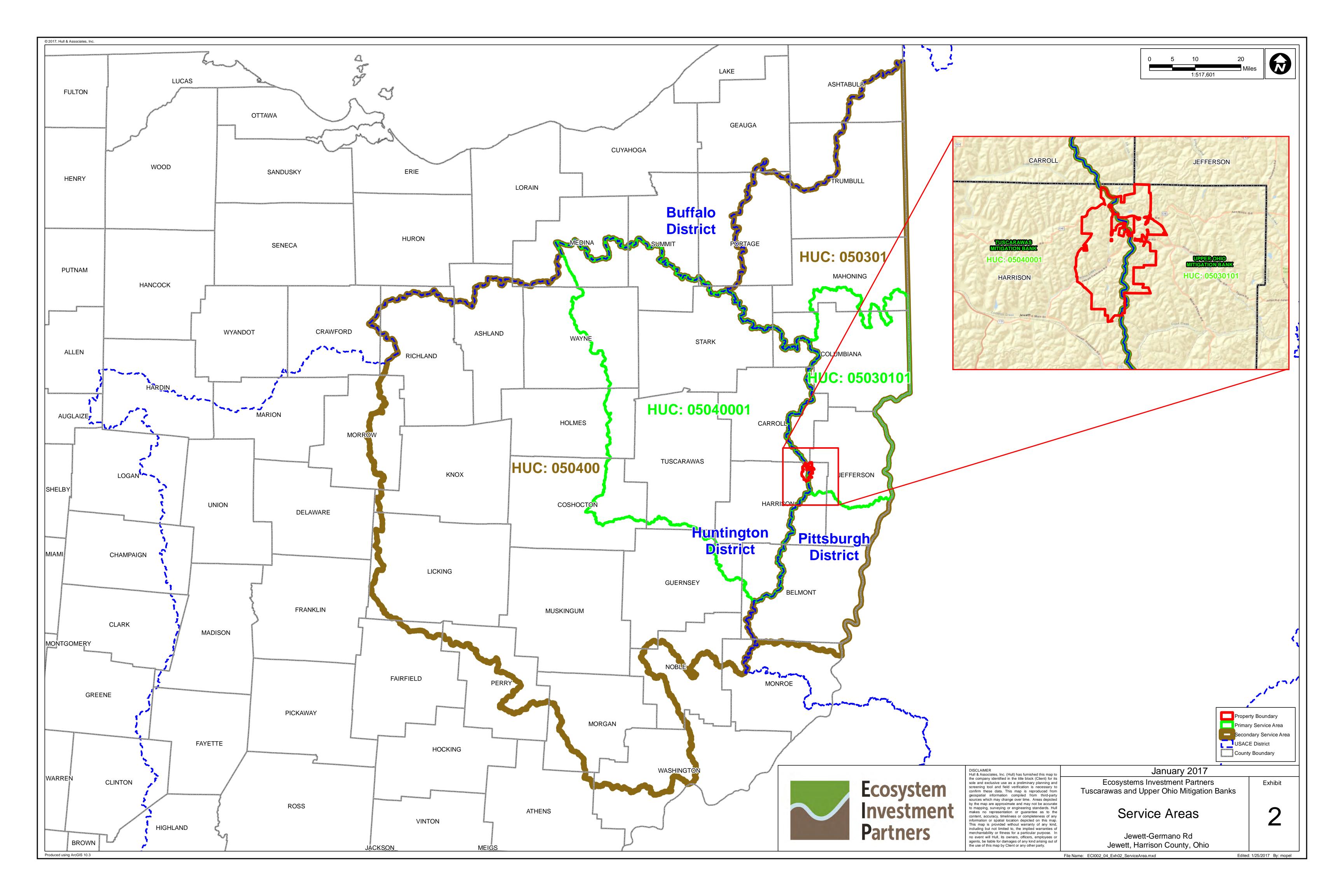


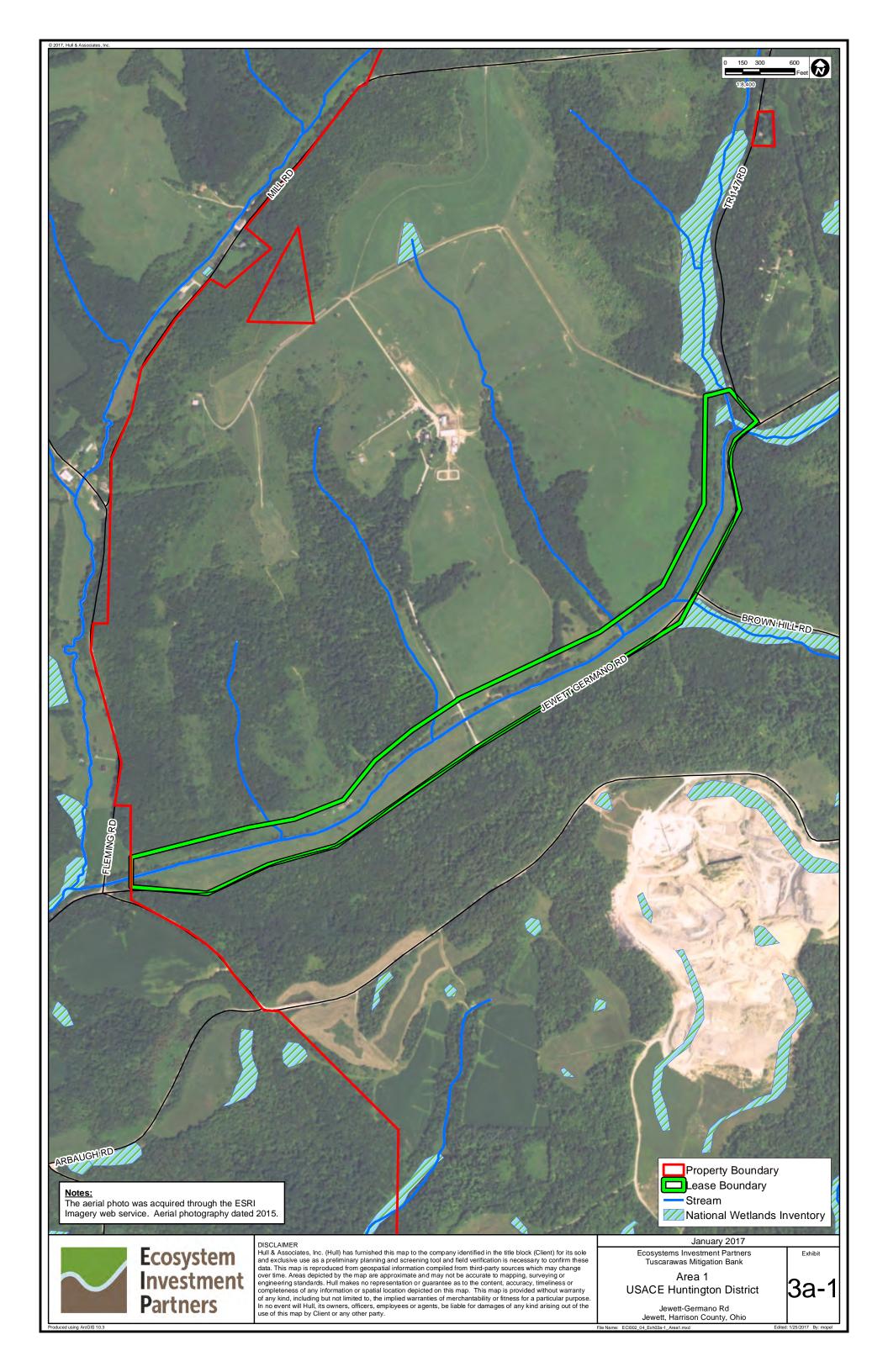
Public Notice: 17-15

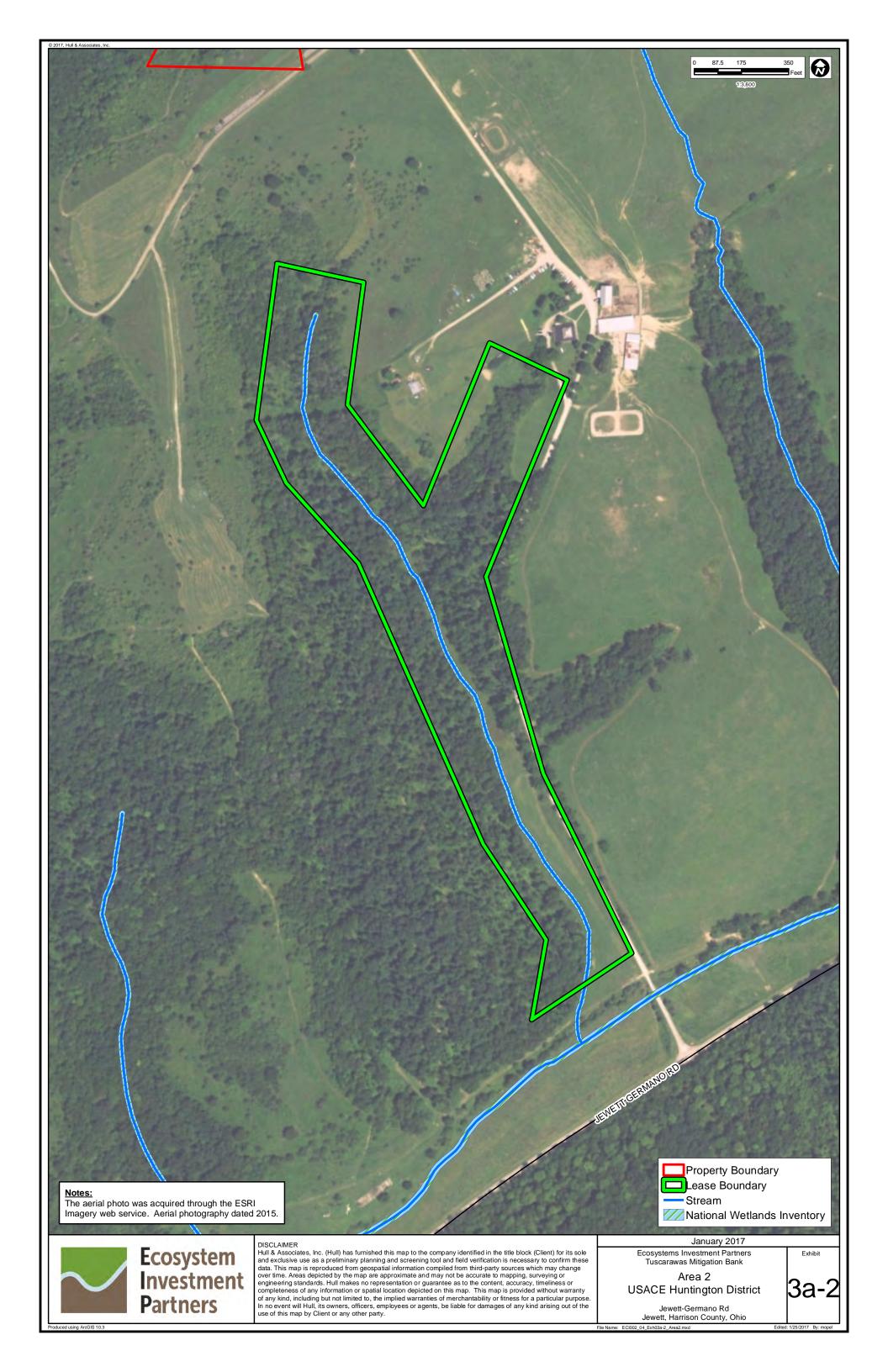


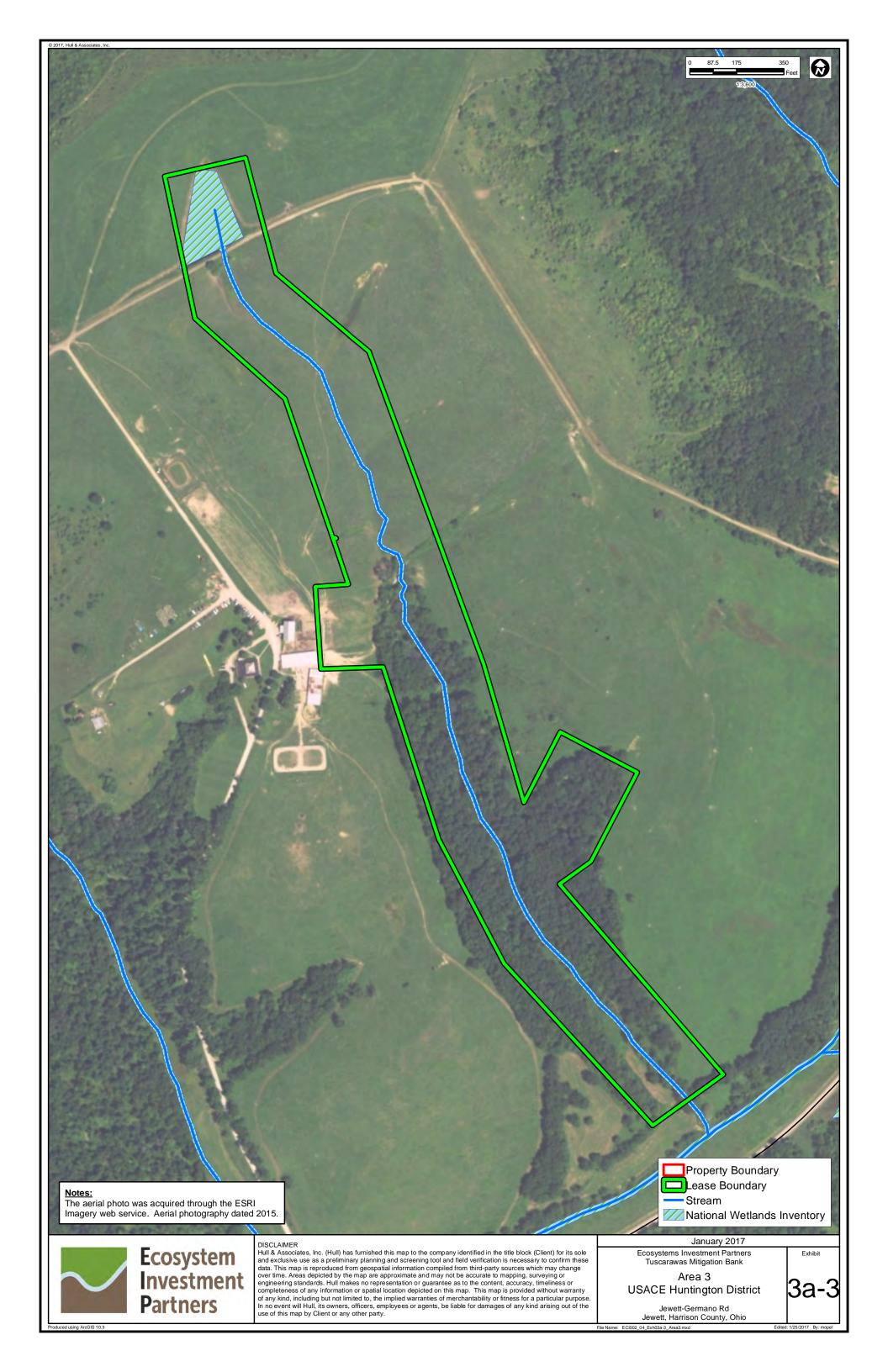


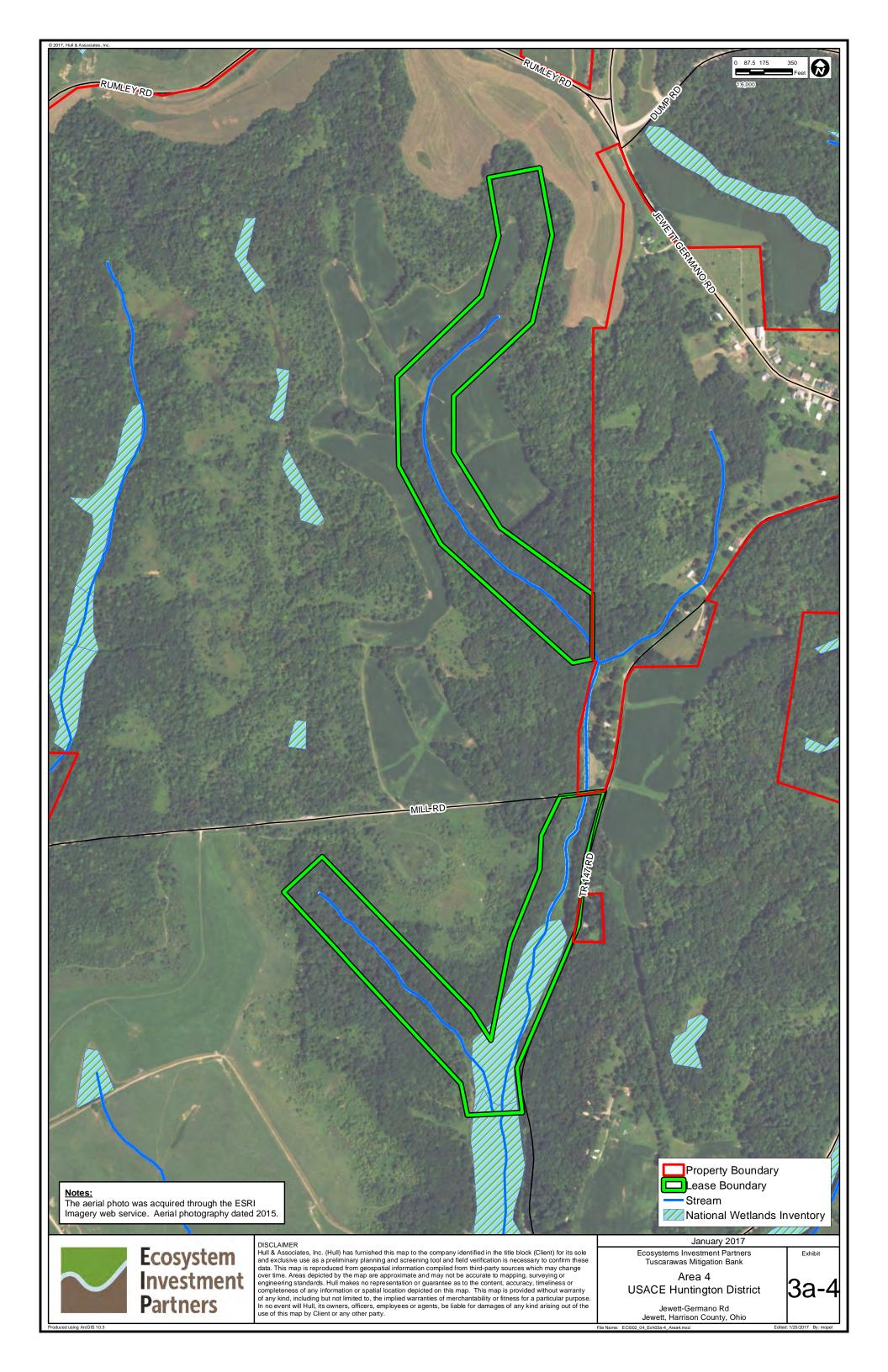


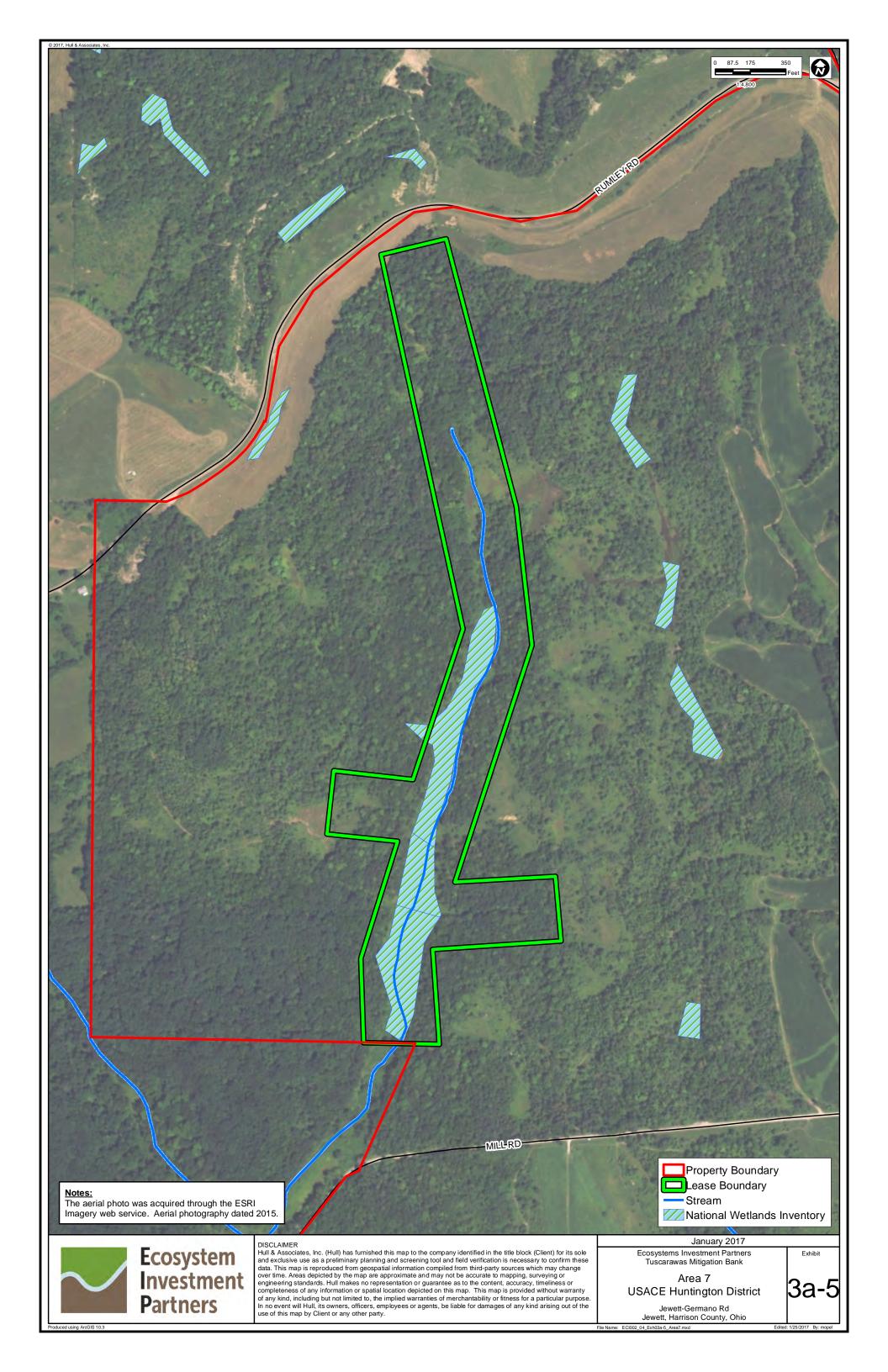


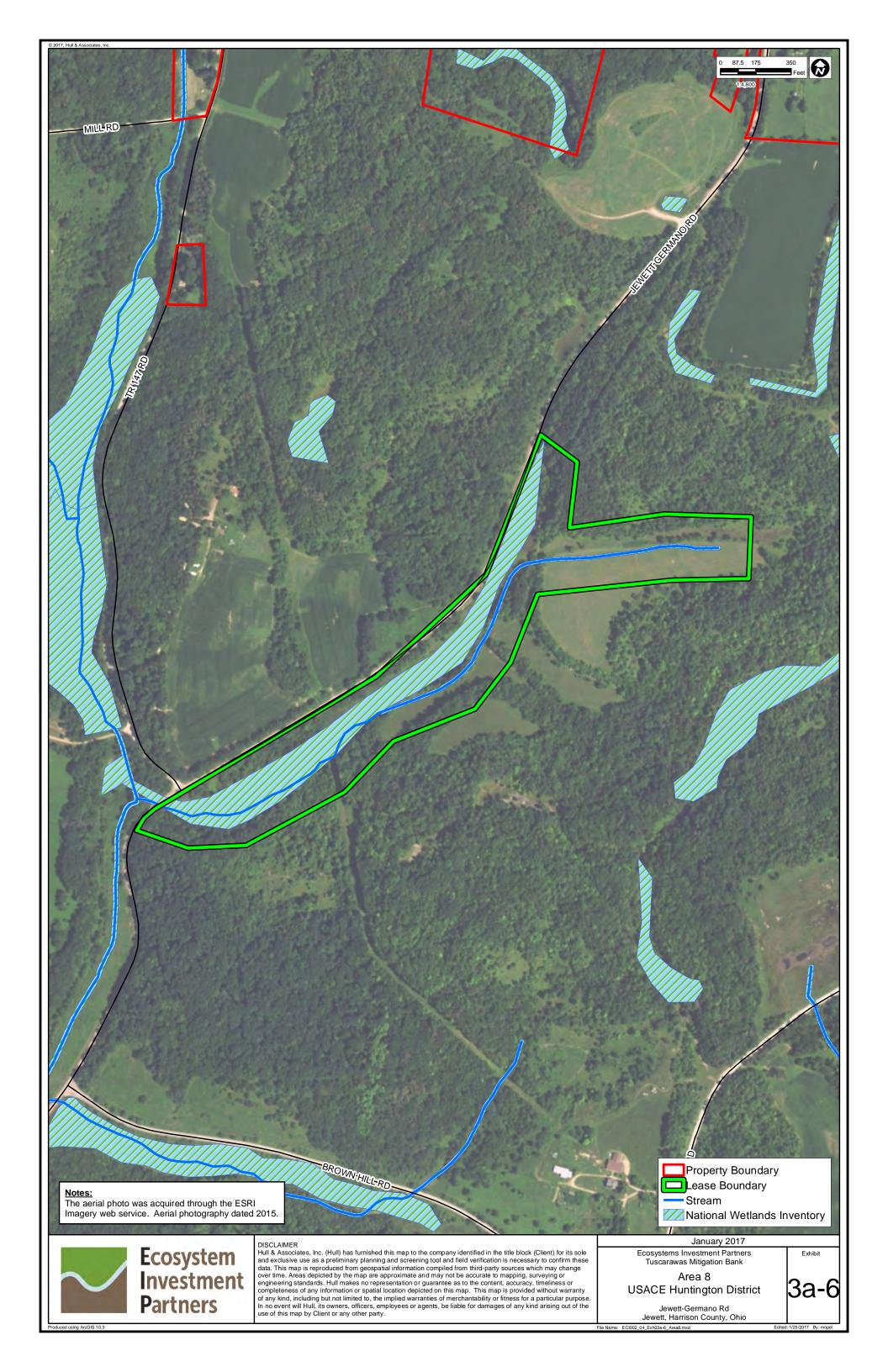


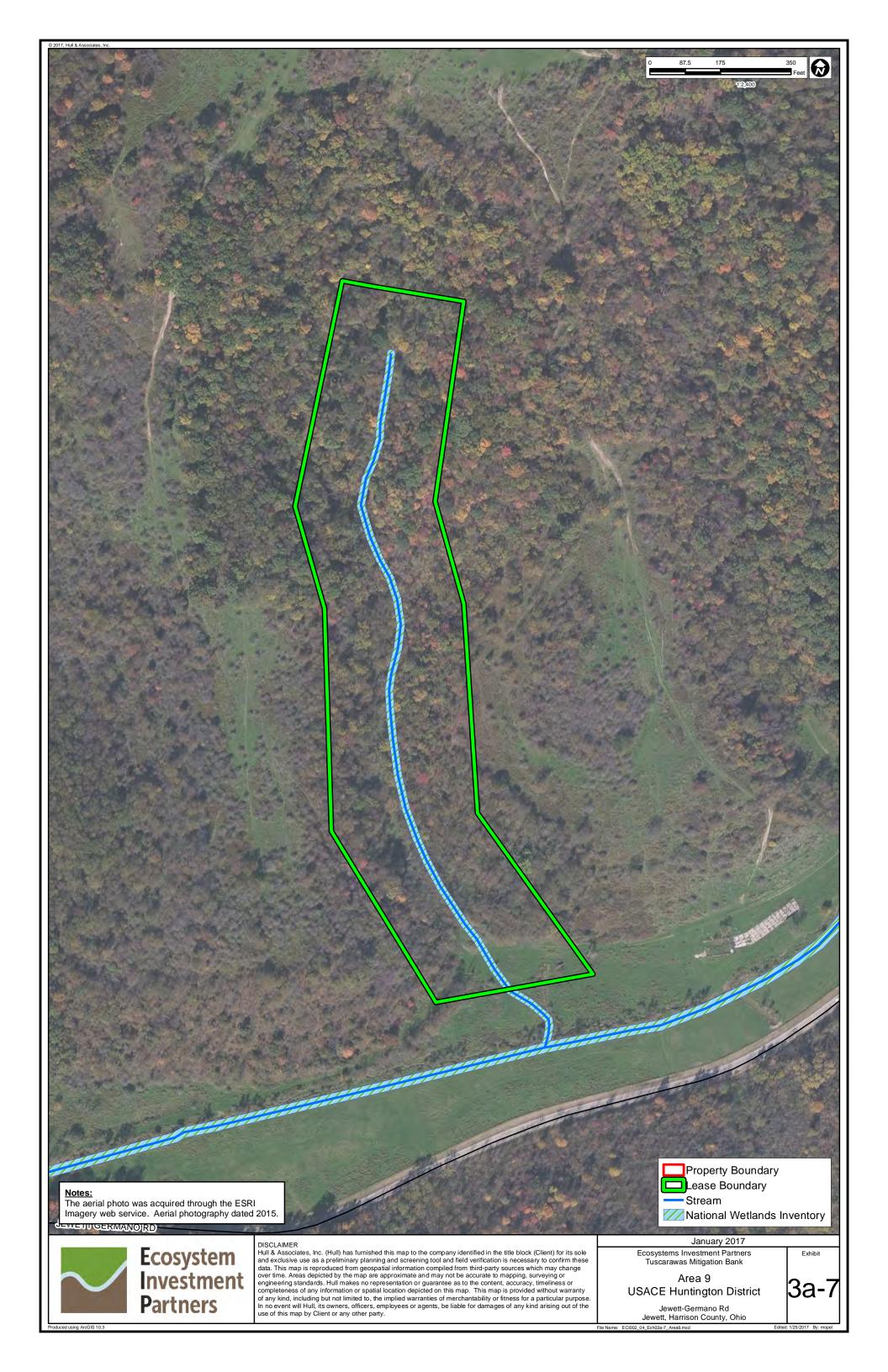


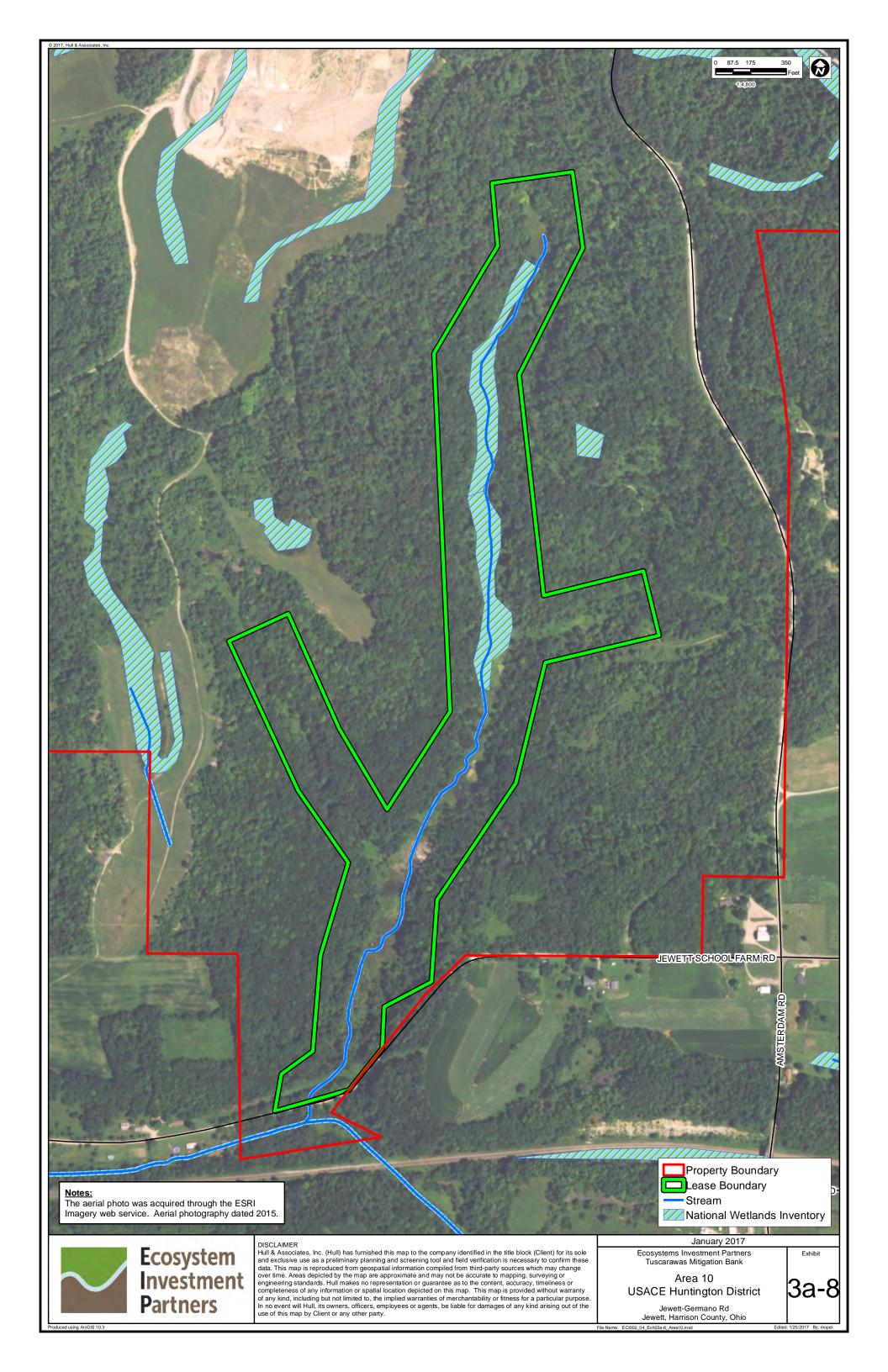


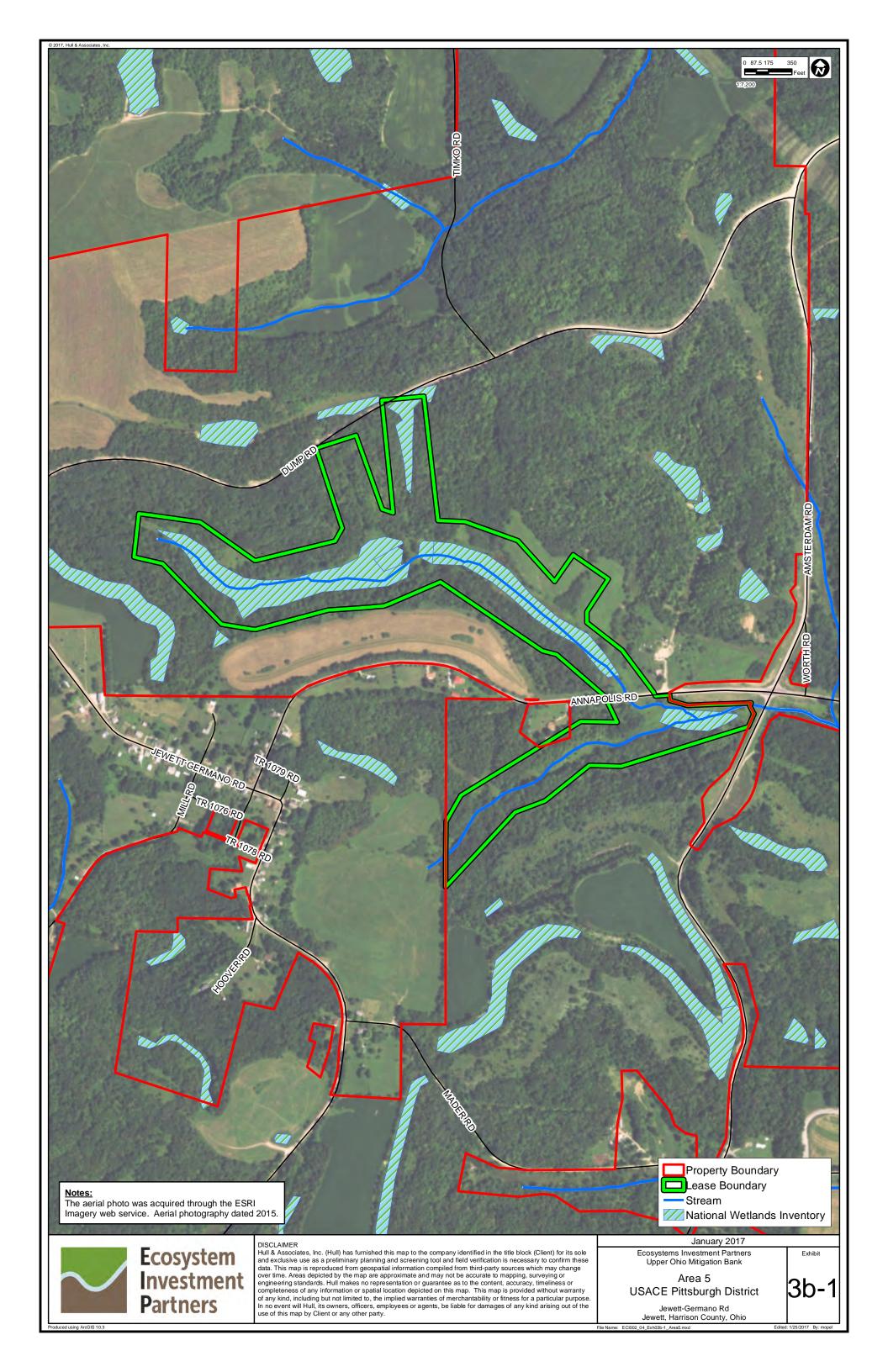


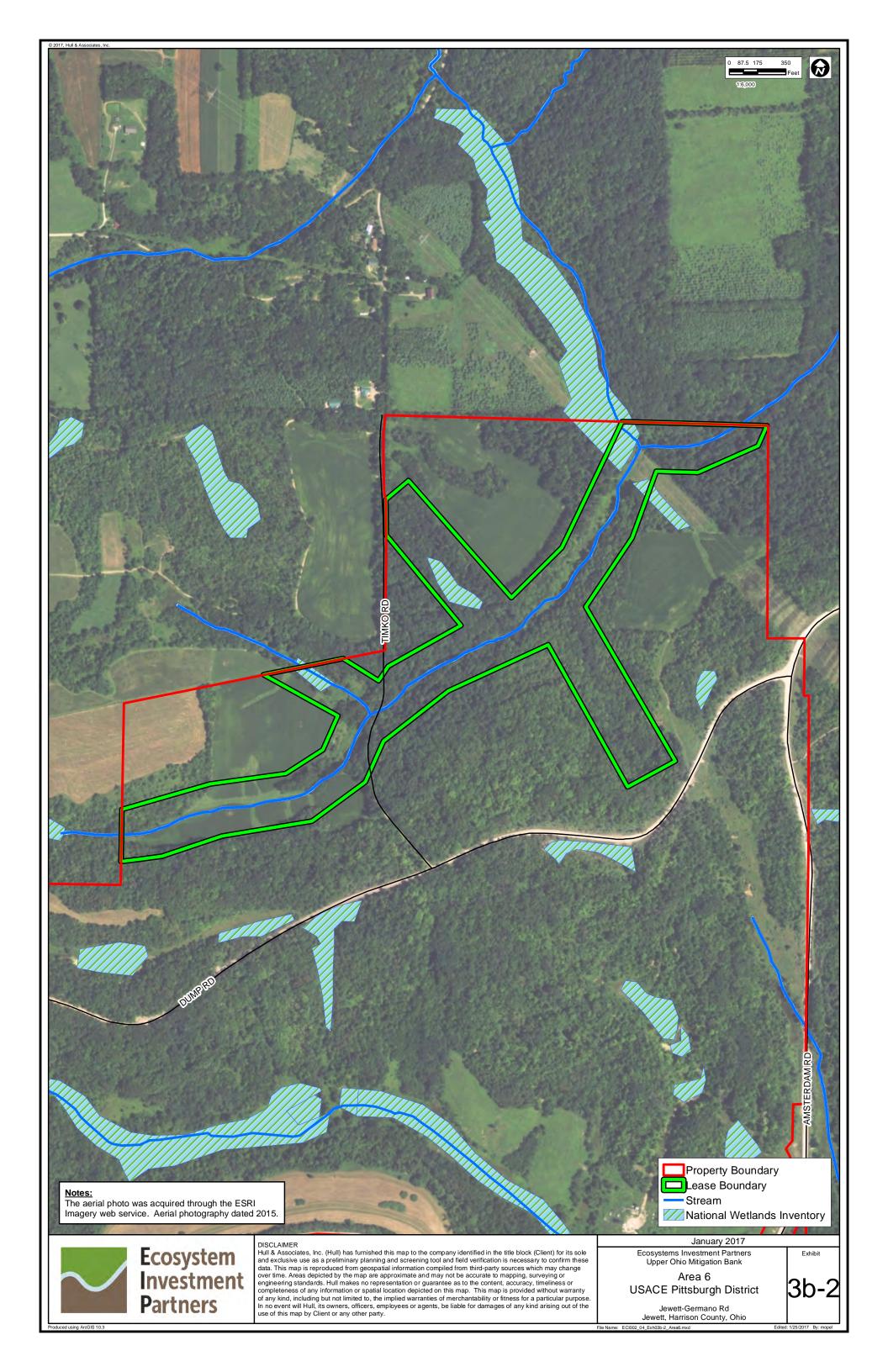




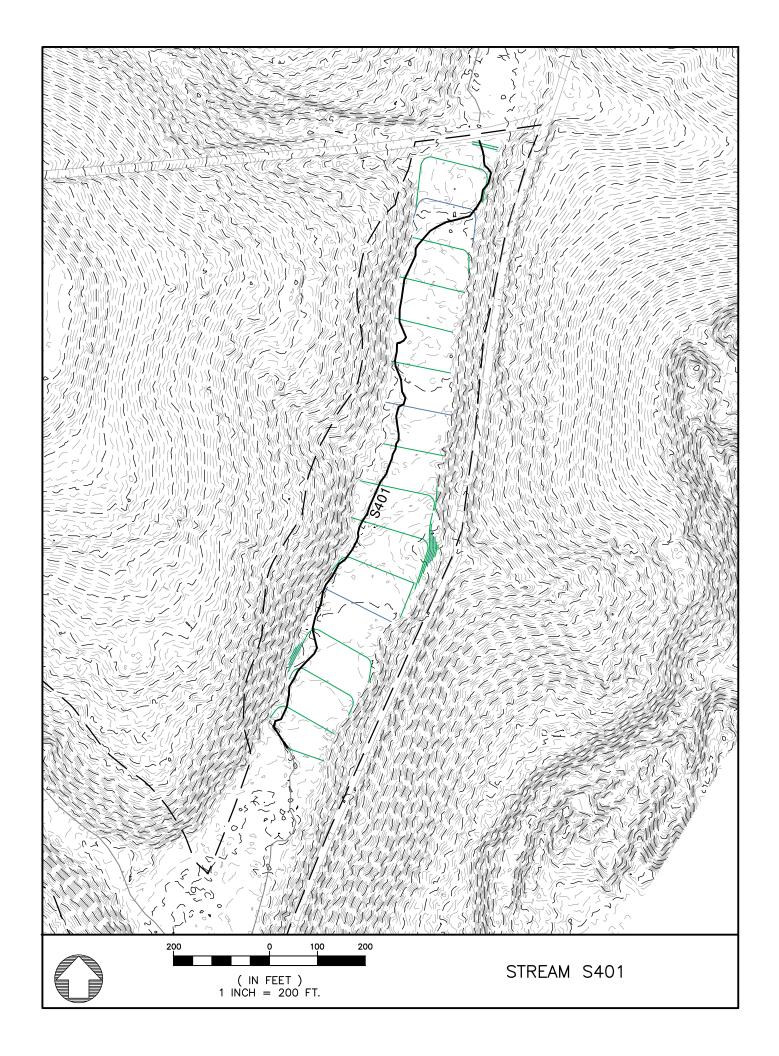


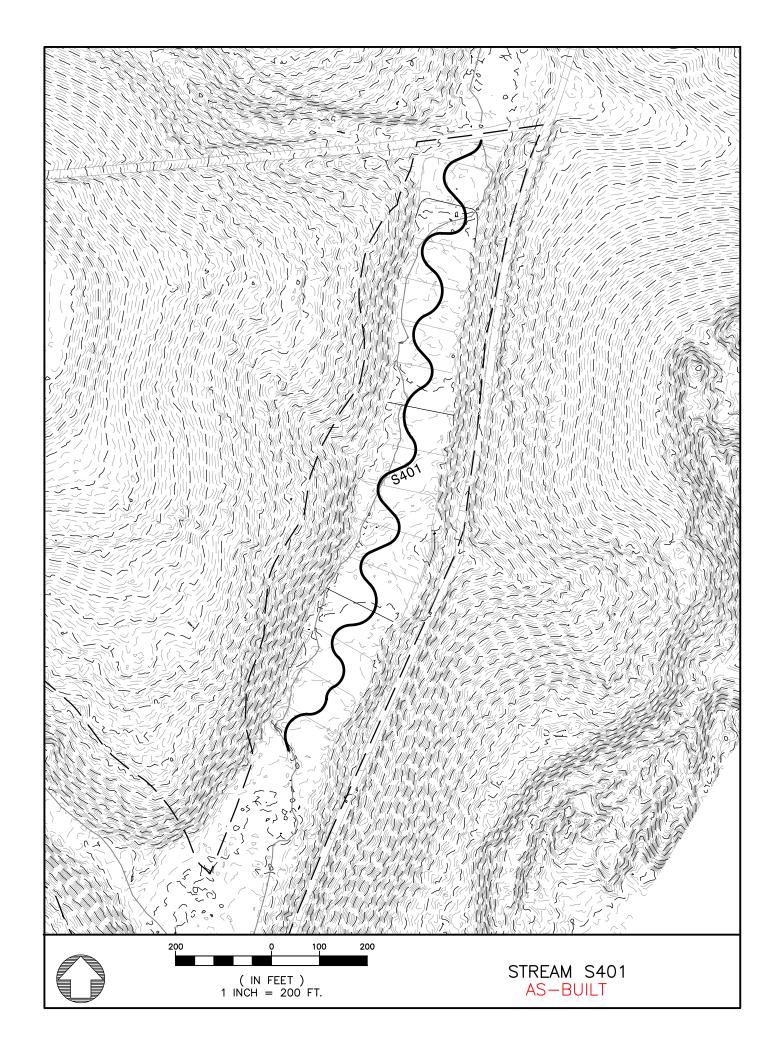


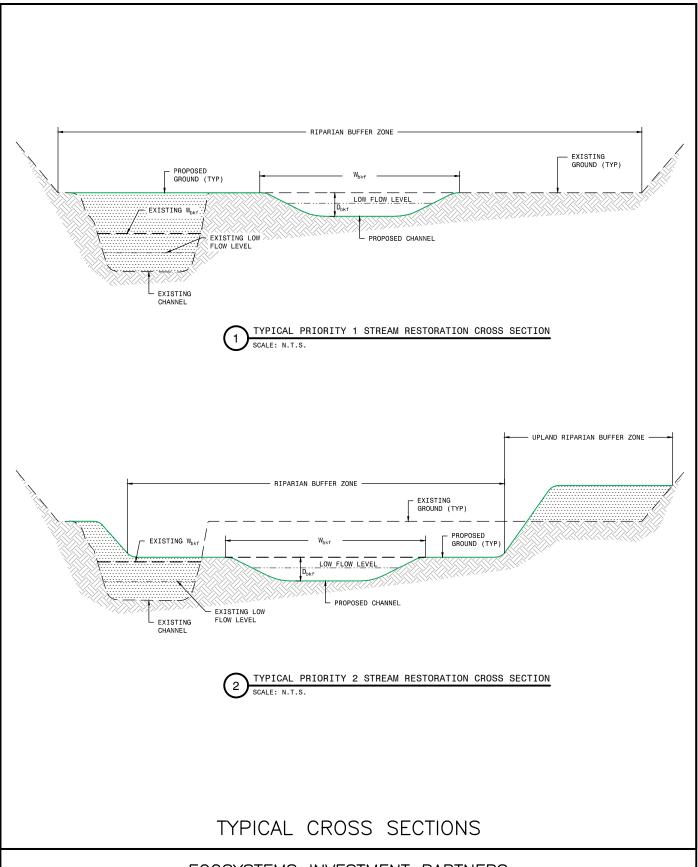












ECOSYSTEMS INVESTMENT PARTNERS

6397 EMERALD PARKWAY SUITE 200 DUBLIN, OHIO 43016 PHONE: (614) 793–8777 FAX: (614) 793–9070 www.hullinc.com



BROWNFIELDS SHALE OIL & GAS WASTE MANAGEMENT ENVIRONMENTAL ALTERNATIVE ENERGY



STREAM S401 CONSTRUCTION SPECIFICATIONS

Existing Stream Overview		
Watershed	Jefferson Creek	
Drainage Area (Acres)	397	
Flow Regime	Perennial	
POB Northing	271866.2406	
POB Easting	2398564.6416	
POE Northing	270600.7000	
POE Easting	2398165.0444	
POB Elev. (ft)	1133.9	
POE Elev. (ft)	1114.0	
Existing Stream Conditions		
Channel Length (ft)	1472	
Valley Length (ft)	1325	
Sinuosity	1.11	
Valley Slope (ft/ft)	0.0150	

Proposed Conditions	
	_
Stream Type	С
Bed Type	Riffle/Pool
Channel Material	Mix 1
Manning's n	0.075
Velocity (f/s)	2.01
Discharge - Q (cfs)	28.53
Bankfull Width - Wbkf	13.33
Bankfull Depth - Dbkf	1.3300
Width to Depth Ratio - W/D	10.02
Channel Length (ft)	1723
Channel Slope (ft/ft)	0.010
Sinuosity	1.30
Valley Slope (ft/ft)	0.0120
Entrenchment Ratio - ER	>2.2
Bankfull Area - (sf)	14.22
Wavelength (ft)	166

Valley Grading Earthwork		
Cut - (cy)	1985	
Fill - (cy)	(1,966)	
Net - (cy)	19.00	

As-Built Conditions		
, is built don't		
POB Northing		
POB Easting		
POE Northing		
POE Easting		
POB Elev. (ft)		
POE Elev. (ft)		
Character (ft)		
Channel Length (ft)		
Valley Length (ft) Sinuosity		
Valley Slope (ft/ft)		
valley slope (11/11)		
Stream Type		
Bed Type		
Channel Material		
Manning's n		
Velocity (f/s)		
Discharge - Q (cfs)		
Bankfull Width - Wbkf		
Bankfull Depth - Dbkf		
Width to Depth Ratio - W/D		
Channel Length (ft)		
Channel Slope (ft/ft)		
Sinuosity		
Valley Slope (ft/ft)		
Entrenchment Ratio - ER		
Bankfull Area - (sf)		
Wavelength (ft)		

Construction Notes:	