Appendix D

Relocation Plan - Conceptual Stage

Michigan Department of Transportation
Real Estate Division
Relocation Plan - Conceptual Stage

Control Section 25071 & 63071, Job Number 49153
M-15 from I-75 to I-69
Metro District and Bay Region
November 2001

GENERAL AREA AND PROJECT INFORMATION

The proposed project involves the improvement of M-15, a predominately rural two-lane highway, for a twenty-mile section between I-75 and I-69 in Oakland and Genesee counties.

The primary purpose of the proposed project is to increase capacity on M-15. Travel demand is exceeding capacity today at the south end of the corridor and by 2025, all of the corridor is projected to be over the capacity of a rural, two-lane road, if no improvements are made. Analysis has found the most prudent, feasible and practicable alternative is to widen the existing roadway along its existing alignment.

There are two alternatives, the No–Build Alternative and the Technically and Environmentally Preferred Alternative. The Technically and Environmentally Preferred Alternative combines five-lane and boulevard sections to provide a minimum of four through lanes over the 20-mile length of the corridor. For continuity, the cross section cannot change frequently from five-lane to boulevard and back. Thus, the alternative reflects an effort to provide boulevard sections of reasonable length, with five-lane construction in locations where constraining circumstances, such as existing development, wetlands, historic resources and/or a combination of these factors did not favor boulevard construction.

Historically M-15 has served a low-density rural corridor with development focused around the communities of Ortonville in Oakland County and Goodrich in Genesee County. The general corridor is a mixture of single-family residential and commercial properties. Many of the fronting residential lots are very deep. The existing right-of-way of M-15 varies between 66 feet and 120 feet in width.

DISPLACEMENTS

A residential displacement is defined as the relocation of a single-family unit. A four-unit building would count as four displacements.

A business displacement means each and every business, so one business in three buildings counts as one business. Three businesses in one building count as three businesses.

No displacements are necessary for the No–Build Alternative. The table below shows possible displacements for the Technically and Environmentally Preferred Alternative for Oakland and Genesee counties.

Type of Parcel	Oakland County	Genesee County	Total
Residential Single-Family	19	19	38
Commercial	26	14	40
Total	45	33	78

Residential and commercial property displacees affected by this transportation project are subject to the federal Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act), as amended.

RESIDENTIAL AND COMMERCIAL PROPERTY

RESIDENTIAL – The project could cause approximately nineteen (19) displacements of single-family units in Oakland County and nineteen (19) in Genesee County for a total of 38. A thorough study of the availability of replacement dwellings for displaced persons indicates a sufficient supply of homes exist for the project. It is anticipated that the corridor will be able to absorb the number of residential displacements projected under the Technically and Environmentally Preferred Alternative. Replacement housing must meet the criteria of being decent, safe, and sanitary (DSS), otherwise the house will not be offered as replacement housing to displaced individuals.

In view of the number of houses in the general project area, it appears that there will be an adequate number of housing units to ensure an efficient and complete relocation of all displaced persons given an adequate relocation time of twelve to twenty-four months for the process to take place. It is customary for a project to take place in phases or segments, which will allow for a more gradual relocation process and, subsequently, ensures that there are adequate replacement single-family housing units on the open market at any given time.

COMMERCIAL – The project could cause the displacement of twenty-six (26) businesses in Oakland County and fourteen (14) businesses in Genesee County, for a total of 40. Businesses in the corridor are primarily service-orientated with a local client base. They are likely to relocate within the corridor, minimizing job loss. Commercial space for lease and vacant commercial sites available for development will allow for relocation. It has been determined that the business displacements will not have a major economic or otherwise generally disruptive effect on the community. There will be sufficient commercial facilities in the marketplace to provide for replacement property for any eligible commercial or industrial displacement.

ASSURANCES

All eligible businesses and residents displaced by the project will be provided with relocation assistance and services in accordance and compliance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act). The Michigan Department of Transportation will, in accordance with applicable regulations, make every reasonable effort to inform individuals, businesses and not-for-profit organizations of the impact, if any, of the project on their property. Every effort will be made, through relocation assistance, to lessen any impact when it occurs.

In summary, the State Relocation Program is realistic and will provide orderly, timely, and efficient relocation of all displaced persons in accordance with Federal and state requirements.

Metro Region for Oakland County

PREPARED BY:

DATE: NOVEMBER 7, 2001 Ted Stone

REVIEWED BY:

DATE: December 5, 2001 Tom Jay

Property Manager

Bay Region for Genesee County

PREPARED BY:

DATE: NOVEMBER 7, 2001 Ted Stone

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DATE: December 3, 2001 Donna Fowler

Property Manager

Appendix E

Air Quality Analysis Report Summary

M-15 EIS
Air Quality Analysis Report Summary

The Air Quality Analysis Report, provided under separate cover, is a companion document to the Environmental Impact Statement for the M-15 project between I-75 and I-69 in Oakland and Genesee Counties.

In accordance with Michigan Department of Transportation (MDOT), Federal Highway Administration (FHWA), and U.S EPA procedures, this is a microscale analysis of carbon monoxide (CO) concentrations. The criterion for adverse impact is an exceedance of the National Ambient Air Quality Standards (NAAQS) (Table E-1) for CO at a sensitive receptor modeled for the year of opening (2010) and design year (2025).

Based on an examination of traffic counts in the corridor at all major intersections and projections of future traffic volumes, a worst-case intersection was identified for air quality analysis. The intent is to identify the intersection with the highest volumes and a potentially sensitive receptor on one corner. That intersection is Deer Ridge Road and M-15. Deer Ridge Road approaches M-15 from the east. Hubbard Road is its complement on the west of M-15. On the southeast corner is a home. This home is considered the sensitive receptor.

The prediction of future CO concentrations requires the input of geometric and traffic data into a software program developed jointly by EPA and FHWA. This program, called CAL3QHC includes elements of a line source dispersion model that estimates CO concentrations and elements of capacity analysis from the Highway Capacity Manual, the standard text for determining volume-to-capacity relationships and the resultant delay at an intersection's signals. The model considers through vehicle movements at speed, and idling vehicles that stop for the signal, then combines the concentrations from the two conditions. Emission rates for vehicles operating at various speeds and at idle (grams of CO per mile traveled or per minute of idling) are drawn from a separate EPA-sponsored model called MOBILE, in this case version MOBILE5a.

Input assumptions for the CAL3QHC model were as follows: Stability Class 4 (D); Wind Speed of 1 meter/second, with a wind search at 10 degree increments around a full 360 degrees; Minimum Temperature (an input to MOBILE5a) of 19 degrees Fahrenheit; background CO level of 2 parts per million; and a travel speed for through movements of 35 miles per hour.

The results of the CAL3QHC analysis follow this text, including its graphical output. The worst-case one-hour CO concentration in 2010, the year of opening, is estimated to be 3.3 parts per million (ppm), well below the NAAQS of 35 ppm. Converting to an eight-hour value using a persistency of 0.6 results in an eight-hour forecast of 2.8 ppm compared to the standard of 9 ppm. One- and eight-hour concentrations in 2025 are estimated to be 3.2 and 2.7 ppm, respectively. This project should have a positive impact on air quality by reducing congestion.

Future no-action conditions would be essentially the same as those with the project, as the right-of-way and lane positions in this roadway section will not change in any appreciable way. M-15 is in a five-lane section in this area, and would remain so. To compare future conditions with present conditions, CAL3QHC was run for 2000. The combination of lower traffic volumes and higher emission factors resulted in concentrations in 2000 that match those of 2010, 3.3 ppm for one hour and 2.8 ppm for eight hours.

Table E-1

National Ambient Air Quality Standards			
POLLUTANT	**STANDARD VALUE**		**STANDARD TYPE**
Carbon Monoxide (CO)			
8-hour Average	9 ppm	(10 mg/m^3) [2]	Primary
1-hour Average	35 ppm	(40 mg/m^3) [2]	Primary
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m^3) [2]	Primary & Secondary
Ozone (O_3)			
1-hour Average [1]	0.12 ppm	(235 µg/m^3) [2]	Primary & Secondary
8-hour Average	0.08 ppm	(157 µg/m^3) [2]	Primary & Secondary
Lead (Pb)			
Quarterly Average		1.5 µg/m^3	Primary & Secondary
Particulate < 10 micrometers (PM-10)			
Annual Arithmetic Mean		50 µg/m^3	Primary & Secondary
24-hour Average		150 µg/m^3	Primary & Secondary
Particulate < 2.5 micrometers (PM-2.5)			
Annual Arithmetic Mean		15 µg/m^3	Primary & Secondary
24-hour Average		65 µg/m^3	Primary & Secondary
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m^3) [2]	Primary
24-hour Average	0.14 ppm	(365 µg/m^3) [2]	Primary
3-hour Average	0.50 ppm	(1300 µg/m^3) [2]	Secondary

[1] The ozone 1-hour standard applies only to areas that were designated nonattainment when the ozone 8-hour standard was adopted in July 1997. This does not include the Detroit area. This provision allows a smooth, legal, and practical transition to the 8-hour standard.

[2] Parenthetical value is an approximately equivalent concentration.

1 CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992 PAGE 1

JOB: M-15 2025 SE Corner M-15 and Deer Ridge RUN: M-15 @ Deer Ridge, SE Corner 2010

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.0 PPM

LINK VARIABLES

	LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1.	M-15 NB Approach	80.8	18.3	690.4	18.3	610.	90.	AG	1703.	13.7	.0	13.4		
2.	M-15 NB Queue	86.9	18.3	145.6	18.3	59.	90.	AG	783.	100.0	.0	3.7	.87	9.8
3.	M-15 NB Queue Left	6.1	12.2	16.9	12.2	11.	90.	AG	1050.	100.0	.0	3.7	.83	1.8
4.	M-15 NB Depart	80.8	18.3	-570.0	18.3	651.	270.	AG	1673.	13.7	.0	13.4		
5.	M15 SB Approach	-609.6	.0	.0	.0	610.	90.	AG	697.	13.7	.0	13.4		
6.	M-15 SB Queue	-9.1	.0	-32.4	.0	23.	270.	AG	783.	100.0	.0	3.7	.35	3.9
7.	M-15 SB Queue Left	67.1	6.1	64.3	6.1	3.	270.	AG	1050.	100.0	.0	3.7	.28	.5
8.	M-15 SB Depart	.0	.0	609.6	.0	610.	90.	AG	781.	13.7	.0	13.4		
9.	Hubbard EB Approach	.0	.0	.0	-609.6	610.	180.	AG	63.	20.0	.0	9.8		
10.	Hubbard EB Queue	.0	-12.2	.0	-21.6	9.	180.	AG	1021.	100.0	.0	3.7	.50	1.6
11.	Hubbard EB Queue Le	-3.0	-12.2	-3.0	-14.0	2.	180.	AG	1021.	100.0	.0	3.7	.09	.3
12.	Deer Ridge Approach	69.2	18.3	69.2	640.1	622.	360.	AG	94.	20.0	.0	9.8		
13.	Deer Ridge Queue	69.2	18.3	69.2	23.6	5.	360.	AG	1021.	100.0	.0	3.7	.28	.9
14.	Deer Ridge Queue Le	73.2	30.5	73.2	41.9	11.	360.	AG	1021.	100.0	.0	3.7	.60	1.9

1 PAGE 2

JOB: M-15 2025 SE Corner M-15 and Deer Ridge RUN: M-15 @ Deer Ridge, SE Corner 2010

ADDITIONAL QUEUE LINK PARAMETERS

	LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
2.	M-15 NB Queue	120	41	4.0	1703	1600	427.00	2	3
3.	M-15 NB Queue Left	120	110	4.0	44	1600	427.00	2	3
6.	M-15 SB Queue	120	41	4.0	682	1600	427.00	2	2
7.	M-15 SB Queue Left	120	110	4.0	15	1600	427.00	2	2
10.	Hubbard EB Queue	120	107	3.0	53	1600	427.00	2	3
11.	Hubbard EB Queue Le	120	107	3.0	10	1600	427.00	2	3
13.	Deer Ridge Queue	120	107	3.0	30	1600	427.00	2	3
14.	Deer Ridge Queue Le	120	107	3.0	64	1600	427.00	2	3

RECEPTOR LOCATIONS

	RECEPTOR	COORDINATES (M) X	Y	Z
1.	REC 1 SE Corner M-1	111.3	47.2	1.8

1 PAGE 3

JOB: M-15 2025 SE Corner M-15 and Deer Ridge RUN: M-15 @ Deer Ridge, SE Corner 2010

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) * REC1
0.	2.0
10.	2.0
20.	2.0
30.	2.0
40.	2.0
50.	2.0
60.	2.0
70.	2.0
80.	2.1
90.	2.4
100.	2.5
110.	2.7
120.	2.7
130.	2.9
140.	3.1
150.	3.1
160.	3.1
170.	3.1
180.	3.1
190.	3.1
200.	3.1
210.	3.0
220.	3.0
230.	3.0
240.	3.2
250.	3.3
260.	3.0
270.	2.6
280.	2.2
290.	2.0
300.	2.0
310.	2.0
320.	2.0
330.	2.0
340.	2.0
350.	2.0
360.	2.0
MAX	3.3
DEGR.	250

THE HIGHEST CONCENTRATION IS 3.30 PPM AT 250 DEGREES FROM REC1

1 CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992 PAGE 1

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10. Hubbard EB Queue	.0	-12.2	.0	-21.6	9.	180.	AG	945.	100.0	.0	3.7	.50	1.6
11. Hubbard EB Queue Le	-3.0	-12.2	-3.0	-14.0	2.	180.	AG	945.	100.0	.0	3.7	.09	.3
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7. M-15 SB Queue Left	120	110	4.0	15	1600	395.00	2	2
10. Hubbard EB Queue	120	107	3.0	53	1600	395.00	2	3
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JOB: M-15 2025 SE Corner M-15 and Deer Ridge RUN: M-15 @ Deer Ridge, SE Corner

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1
0.	2.0
10.	2.0
20.	2.0
30.	2.0
40.	2.0
50.	2.0
60.	2.0
70.	2.0
80.	2.1
90.	2.4
100.	2.5
110.	2.5
120.	2.7
130.	2.9
140.	3.0
150.	3.1
160.	3.1
170.	3.1
180.	3.1
190.	3.1
200.	3.0
210.	2.9
220.	2.8
230.	2.8
240.	3.2
250.	3.2
260.	3.0
270.	2.6
280.	2.2
290.	2.0
300.	2.0
310.	2.0
320.	2.0
330.	2.0
340.	2.0
350.	2.0
360.	2.0
MAX DEGR.	3.2 240

THE HIGHEST CONCENTRATION IS 3.20 PPM AT 240 DEGREES FROM REC1 .

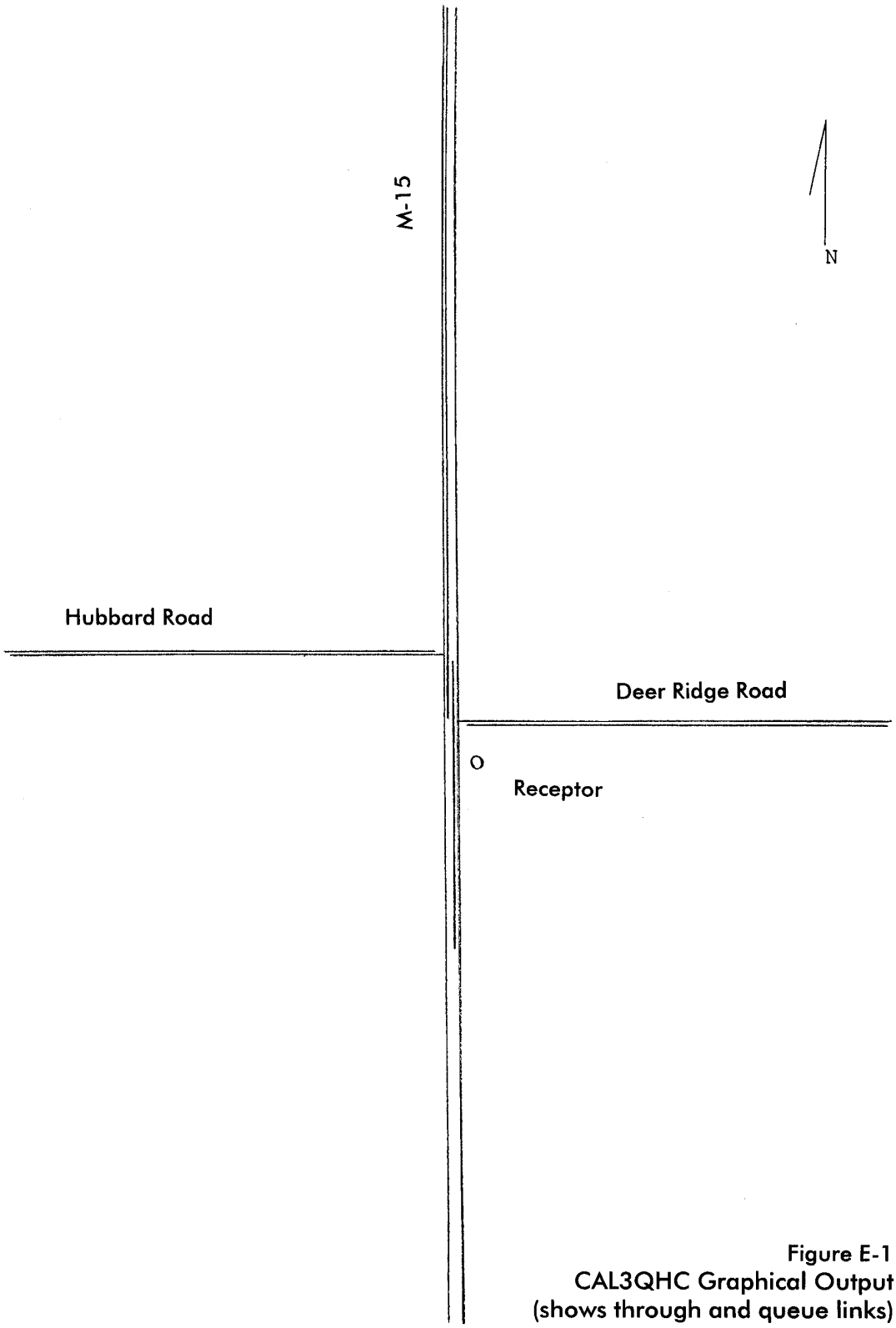


Figure E-1
CAL3QHC Graphical Output
(shows through and queue links)

Appendix F

Noise Study Report Summary

M-15 EIS
Noise Study Report Summary

The Noise Study Report, provided under separate cover, is a companion document to the Environmental Impact Statement for the M-15 project between I-75 and I-69 in Oakland and Genesee Counties. The analysis was completed in compliance with the Federal Highway Administration (FHWA) noise regulation 23 CFR 772. The analysis was performed using the Transportation Noise Model – TNM1.1.

Traffic noise levels are expressed in decibels using an A weighted scale (dBA). That scale discriminates both high and low frequency sounds in a manner similar to the human hearing process. Traffic noise analysis use the descriptor $L_{Aeq1h,}$ which can be thought of as the average noise level over a given time period, in this case, one hour.

The abatement criteria shown in Table F-1 were developed by FHWA. The noise levels in column 2 are defined by FHWA as those that should not be "approached or exceeded" at the exterior of residences, churches, hospitals, parks and libraries. "Approach" is defined in Michigan as 1 dBA, so the effective criterion is 66 dBA for consideration of mitigation. Noise mitigation must also be considered if a project results in a substantial increase (10 dBA or more) in noise levels.

Table F-1
Noise Abatement Criteria
(Hourly A-Weighted Sound Level-decibels [dBA])

Activity Category	Abatement Level (in L_{Aeq})		Description of Activity Category
	FHWA	MDOT	
A	57	56 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and where the preservation of those qualities is essential, if the area is to continue to service its intended purpose.
B	67	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72	71 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	--	--	Undeveloped lands.
E	52	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Source: Based on Table 1 of 23 CFR 772 as found in MDOT's Noise Policy.

In most noise studies the applicable criterion is for exterior activity in Category B, which includes residential uses, recreation areas, schools, churches, and the like. Outside activity is emphasized because the shielding provided by a typical structure reduces exterior noise levels by more than 15 dBA, which is the difference in Categories B (exterior) and E (interior). This means that exterior noise levels are much more likely to be exceeded than interior levels. Thus, the test for the M-15 corridor is Category B (residential, church, and school) areas exposed to noise levels at

or above 66 dBA and with a density sufficient to potentially warrant noise mitigation. A review of aerial mapping and field review allowed the identification of all potentially sensitive areas that might reasonably be examined for noise mitigation.

Computer modeling was performed to predict the loudest hour noise levels based on the forecast 2025 traffic. The modeled noise levels discussed in the following paragraphs represent the noise conditions anticipated to be the loudest hourly levels based on the 2025 traffic forecast; they are not average conditions.

The TNM uses estimated traffic, by vehicle type, traffic speeds and geometry to determine future noise levels. Traffic was drawn from a separate technical effort that relied upon input from MDOT's statewide traffic model, the Southeast Michigan Council of Governments traffic model, and the Genesee County Metropolitan Planning Commission traffic model. Speeds on M-15 were determined by noting travel speeds during various field efforts, and, looking to the future, using anticipated posted speeds. For most of the corridor the posted speed is and will be 55 mph.

A simplified way of considering noise impacts is to understand that, as a rule, doubling the energy of sound (twice as much traffic, half as much distance to the traffic) results in about a 3 dBA sound level increase, a level undetectable by most people unless they are in a controlled laboratory setting. Thus, noticeable noise impacts typically result from a road project when the road is moved substantially closer to sensitive receptors, or if traffic more than doubles. Traffic is expected to increase on the order of 30 percent at the south end of the corridor and up to 80 percent in the north. This means that, all things being equal, noise levels would increase from current noise levels from 1 to just under 3 decibels under the No-Build Alternative; in other words at a level barely detectable or not detectable at all. Sensitivity is more likely to arise when the road is moved closer to sensitive receptors, in combination with higher traffic volumes.

The frontage of M-15 is mostly residential with some commercial uses, plus several schools as noted. The 66 dBA criterion applies through the residential areas of the corridor and to the schools. Noise modeling for the project found that many homes are exposed to noise levels exceeding abatement criteria today and more will be in the future as traffic volumes grow. While the schools along M-15 are sufficiently distant from the road that interior noise effects are not an issue; exterior noise may be. The Montessori Center and the Louhelen Baha'i Center will be discussed separately below.

The TNM1.1 predicts noise levels based on roadway geometry, the location of sensitive receptors, and traffic information such as speed and the mix of vehicles. The corridor was divided into sections that have consistent roadway geometry and traffic. Table F-2 lists the average daily traffic by section that was drawn from the computer modeling. (TNM output follows this text in Attachment 1.)

The peak hour volumes (Table F-3) assume a 10 percent peak hour percentage (peak hour traffic is 10 percent of daily traffic). Also assumed is that peak hour traffic will be split 60 percent in one direction on M-15 and 40 percent in the other. Traffic volumes in the peak direction were used in the modeling to show the worst case. Heavy trucks (more than six tires) were assumed to represent 3 percent of traffic in the peak hour, while medium trucks (six tires) represent 1 percent. Buses and motorcycle volumes were considered to be negligible. For build conditions, traffic volumes on M-15 were considered to be free flowing where speed is not constrained by lack of capacity. Heavy congestion reduces travel speed and reduces noise levels. Free flow speeds accurately reflect the loudest hour.

Table F-2
24-Hour Traffic Base for Transportation Noise Model

	Average Daily Traffic	Existing	2025		
		2-lane	No-Action	5-Lane	Narrow
A1	I-69 to S. of Lippincott	12400	21900	22700	22700
A2	S. of Lippincott to Hill	12600	20800	21400	21400
B1	Hill to N. of E. Hegel	11300	18400	18800	18800
B2	N. of E. Hegel to Green	12100	18500	20200	20200
B3	Green to Kipp	12100	18500	20200	20200
C1	Kipp to Auten	12500	18600	20700	20700
C2	Auten to Groveland	12500	18600	20700	20700
D	Groveland to Wolfe	17000	21900	22900	22900
E	Wolfe to Oak Hill	19000	25100	25100	25100
F1	Oak Hill to N. of Hubbard	19000	25100	25100	25100
F2	N. Of Hubbard to I-75	27300	35200	35200	35200

Source: The Corradino Group

A "critical distance" was established using the TNM for each section of M-15. It represents the distance from the centerline of the road to the point where the projected noise level would drop below 66 dBA. Applying these distances to aerial mapping allowed a determination of how many homes would fall within the critical distance under 2025 build and no-build conditions.

The proposed alternative is a mix of 5-lane and narrow boulevard construction. Table F-4 shows the estimated critical distance for each link of M-15 under No-Action, 5-lane, and Boulevard conditions. The table contents reflect the type of road proposed for each section, so that when totaled, the sum is the total impact for the full project length.

The result of this analysis found that 145 houses would be exposed to noise levels exceeding the 66 dBA criterion under 2025 no-build conditions compared to 175 homes with the proposed project. Because the future traffic is closer to more residences with the wider typical section of the proposed road, the number of affected residences is expected to be higher. The higher number is offset by the fact that some of the houses affected under no-build conditions would be subject to relocation under the proposed action. Noise abatement was then considered for those homes expected to be exposed to 66 dBA or more.

The test of whether noise mitigation should be pursued rests on whether such mitigation is "reasonable" and "feasible." The "reasonable" test addresses whether noise mitigation makes sense. The "feasible" test relates to whether a measure is physically or institutionally possible.

A number of potential mitigation measures may be considered to reduce noises levels. These include lowering the roadway profile, prohibiting truck traffic, reducing traffic speeds, and constructing noise barriers. Lowering the roadway profile makes driveway access difficult in areas like the M-15 corridor, where much of the corridor is lined with single-family use or commercial nodes with direct driveway connections. Lowering the road may also require more right-of-way. For these reasons, lowering the roadway profile is not considered feasible or reasonable.

Prohibiting truck traffic is not feasible because M-15 is a state trunkline. It is specifically designed to accommodate commercial traffic. Similarly, lowering the speed limits along M-15 for noise reduction runs counter to the purpose of moving people and goods in an efficient manner over the state highway system. M-15 already has a number of speed restrictions that are reflected in the noise modeling. Because M-15 is a state trunkline, MDOT is committed to maintaining speeds limits that allow safe and efficient travel, which means maintaining a 55 mph speed limit where possible.

Noise barriers consist of earthen berms or walls, or combinations of the two. Unless right-of-way is available for berms, noise walls are normally the mitigation technique of choice. Berms are cost-effective and can substantially reduce noise levels. However, they take up a lot of space. In the M-15 corridor such space does not exist. Right-of-way is not available for berms without additional relocations, historic impacts, and wetland impacts, so noise walls were evaluated.

In most cases noise walls are feasible unless they become so tall that wind loads become an engineering concern, so feasibility is generally not an issue. However, for M-15, reasonableness is difficult to achieve. Homes are not sufficiently dense to meet the reasonable test, which is based on a cost per dwelling unit protected (6 dBA reduction or more). In addition, experience indicates that noise barriers are not effective when they have gaps. Along most of M-15, gaps would have to be left in any noise barrier for driveway access. Finally, the general reaction to walls in front yards is often negative. For these reasons construction of berms and/or noise walls along M-15 is not considered reasonable at any location along the project and no noise mitigation is recommended.

Two locations have specials conditions that need to be addressed – the Montessori Center in Ortonville and the Louhelen Bahái Center south of Atherton Road. The playground of the Montessori Center is now less than 100 feet from the driving lanes of M-15. The proposed project, as planned, could take property on the west side of M-15 in this area, such that the right-of-way limit would pass through the playground. Conversation with the owners/operators of the Center indicates that they had planned to remain, if the project is built. However, they had independently considered moving the playground to the rear of the building. It is believed that the playground may be moved or the Center may relocate to a more suitable location before design of the project begins. If the Center were unable to move the playground to the rear of the property, the Center would likely be acquired, if nothing else changed the situation first, as the lack of a playground compromises their Center's ability to function at the present location. Therefore, either the playground would be relocated or the Center would become a relocation.

The Louhelen Bahái Center represents a location where individuals and groups go to learn about faith. The grounds include meditative areas. These are generally located several hundred feet to the west of M-15. To keep noise in perspective, it is noted that the proposed roadway widening would occur to the east of the existing centerline, away from the Louhelen Center. If nothing were done, traffic volumes in this area are expected to increase in the neighborhood of 70 percent, which translates to about a two-decibel increase in noise from today's conditions. By placing the additional lanes proposed for M-15 on the opposite side of the Bahái Center, noise is not an additional impact. Therefore, mitigation at the Louhelen Center is not considered as part of this proposed project.

Table F-3
Peak Hour/Peak Direction Traffic by Vehicle Type

	Peak Hour / Peak Direction	(10% pk. hr. and 60% peak dir.)				2-lane					No-Action					
		2-lane	No-Action	5-Lane	Narrow	A	MT	HT	B	M	A	MT	HT	B	M	A
A1	I-69 to S. of Lippincott	744	1314	1362	1362	714	7	22	1	1	1261	13	39	1	1	13
A2	S. of Lippincott to Hill	756	1248	1284	1284	726	8	23	1	1	1198	12	37	1	1	12
B1	Hill to N. of E. Hegel	678	1104	1128	1128	651	7	20	1	1	1060	11	33	1	1	10
B2	N. of E. Hegel to Green	726	1110	1212	1212	697	7	22	1	1	1066	11	33	1	1	11
B3	Green to Kipp	726	1110	1212	1212	697	7	22	1	1	1066	11	33	1	1	11
C1	Kipp to Auten	750	1116	1242	1242	720	8	23	1	1	1071	11	33	1	1	11
C2	Auten to Groveland	750	1116	1242	1242	720	8	23	1	1	1071	11	33	1	1	11
D	Groveland to Wolfe	1020	1314	1374	1374	979	10	31	1	1	1261	13	39	1	1	13
E	Wolfe to Oak Hill	1140	1506	1506	1506	1094	11	34	1	1	1446	15	45	1	1	14
F1	Oak Hill to N. of Hubbard	1140	1506	1506	1506	1094	11	34	1	1	1446	15	45	1	1	14
F2	N. Of Hubbard to I-75	1638	2112	2112	2112	1572	16	49	1	1	2028	21	63	1	1	20

	Peak Hour / Off-Peak Dir.	(10% pk. hr. and 40% off-peak dir.)				2-lane					No-Action					
		2-lane	No-Action	5-Lane	Narrow	A	MT	HT	B	M	A	MT	HT	B	M	A
A1	I-69 to S. of Lippincott	496	876	908	908	476	5	15	1	1	841	9	26	1	1	87
A2	S. of Lippincott to Hill	504	832	856	856	484	5	15	1	1	799	8	25	1	1	82
B1	Hill to N. of E. Hegel	452	736	752	752	434	5	14	1	1	707	7	22	1	1	72
B2	N. of E. Hegel to Green	484	740	808	808	465	5	15	1	1	710	7	22	1	1	77
B3	Green to Kipp	484	740	808	808	465	5	15	1	1	710	7	22	1	1	77
C1	Kipp to Auten	500	744	828	828	480	5	15	1	1	714	7	22	1	1	79
C2	Auten to Groveland	500	744	828	828	480	5	15	1	1	714	7	22	1	1	79
D	Groveland to Wolfe	680	876	916	916	653	7	20	1	1	841	9	26	1	1	87
E	Wolfe to Oak Hill	760	1004	1004	1004	730	8	23	1	1	964	10	30	1	1	96
F1	Oak Hill to N. of Hubbard	760	1004	1004	1004	730	8	23	1	1	964	10	30	1	1	96
F2	N. Of Hubbard to I-75	1092	1408	1408	1408	1048	11	33	1	1	1352	14	42	1	1	13

Table F-4
Noise – Critical Distance and Affected Receptors

				No-Build		5-Lane		Nar. Blvd.	
Section[a]	**From**	**To**	**Sheet[b]**	**Dist.**	**#**	**Dist.**	**#**	**Dist.**	**#**
F2	I-75	Hubbard	1	114	0	129	2		
			2	114	3	129	11		
Subtotal					**3**		**13**		
F1	Hubbard	Oak Hill	3	127	5			156	4
			4	127	12			156	9
			5	127	8			156	6
			6	127	2			156	3
Subtotal					**27**				**22**
E2	Oak Hill	Seymour L.	7	127	0			156	0
			8	127	3			156	2
Subtotal					**3**				**2**
E1	Seymour L.	Brandon H.S.	9	127	3	141	4		
			10	127	14	141	14		
			11	127	17	141	17		
			12	127	1	141	1		
Subtotal					35		36		
D	Brandon H.S.	Groveland	13	87	0			121	0
			14	87	0			121	0
			15	87	1			121	1
Subtotal					1				1
C2	Groveland	Auten	16	123	1	123	0		
Subtotal					1		0		
C1	Auten	Kipp	17	123	3			160	3
			18	123	4			160	4
			19	123	1			160	6
Subtotal					8				13
B3	Kipp	Green	20	123	2			159	13
Subtotal					2				13
B2	Green	E. Hegel	21	80	0	99	0		
			22	80	4	99	5		
			23	80	13	99	11		
Subtotal					17		16		
B1	E. Hegel	Hill	24	123	2			154	0
			25	123	4			154	5
			26	123	2			154	2
Subtotal					8				7
A2b	Hill	Maple	27	131	1			163	1
			28	131	6			163	4
Subtotal					**7**				**5**
A2a	Maple	Montague	29	131	16	148	18		
			30	131	6	148	13		
			31	131	6	148	13		
			32	131	2	148	2		
Subtotal					**30**		**46**		
A1	Montague	I-69	32	105	1	105	1		
			33	105	2	105	0		
Subtotal					**3**		**1**		

TOTAL	**145**	**175**

[a] See Figure 1-5 for sections

[b] See Engineering Report for sheet numbers.

Attachment 1
Transportation Noise Model Output

TCG
rnewman

6 March 2001
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS
PROJECT: M-15
RUN: Do Nothing 2025
BARRIER DESIGN: None

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Critical Noise	Increase over existing Calculated	Crit. Noise Subst. Incr	Type Impact
			(dBA)	(dBA)	(dBA)	(dB)	(dB)	
RF2-60'	1	1	0	70.9	66	70.9	0	Snd Lvl
RF2-70'	2	1	0	69.7	66	69.7	0	Snd Lvl
RF2-114'	**3**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RF1-60'	6	1	0	74.7	66	74.7	0	Snd Lvl
RF1-70'	7	1	0	73.4	66	73.4	0	Snd Lvl
RF1-127'	**8**	**1**	**0**	**65.8**	**66**	**65.8**	**0**	----
RE-60'	10	1	0	72	66	72	0	Snd Lvl
RE-70'	11	1	0	70.7	66	70.7	0	Snd Lvl
RE-127'	**12**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RD-60'	14	1	0	68.9	66	68.9	0	Snd Lvl
RD-70'	15	1	0	67.6	66	67.6	0	Snd Lvl
RD-87'	**16**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RC2-60'	18	1	0	71.9	66	71.9	0	Snd Lvl
RC2-70'	19	1	0	70.6	66	70.6	0	Snd Lvl
RC2-123'	**20**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RC1-60'	22	1	0	71.9	66	71.9	0	Snd Lvl
RC1-70'	23	1	0	70.6	66	70.6	0	Snd Lvl
RC1-123'	**24**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RB3-60'	26	1	0	71.9	66	71.9	0	Snd Lvl
RB3-70'	27	1	0	70.6	66	70.6	0	Snd Lvl
RB3-123'	**28**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RB2-33'	30	1	0	73.5	66	73.5	0	Snd Lvl
RB2-53.5'	31	1	0	69.1	66	69.1	0	Snd Lvl
RB2-80'	**32**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RB1-60'	34	1	0	71.9	66	71.9	0	Snd Lvl
RB1-70'	35	1	0	70.6	66	70.6	0	Snd Lvl
RB1-123'	**36**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RA2-60'	38	1	0	72.4	66	72.4	0	Snd Lvl
RA2-70'	39	1	0	71.1	66	71.1	0	Snd Lvl
RA2-131'	**40**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RA1-60'	42	1	0	71.8	66	71.8	0	Snd Lvl
RA1-70'	43	1	0	70.1	66	70.1	0	Snd Lvl
RA1-105'	**44**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----

TCG
mewman

6 March 2001
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS
PROJECT: M-15
RUN: Five Lane 2025
BARRIER DESIGN: None

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Critical Noise	Increase over existing Calculated	Crit. Noise Subst. Incr	Type Impact
			(dBA)	(dBA)	(dBA)	(dB)	(dB)	
RF2-60'	1	1	0	70.9	66	70.9	0	Snd Lvl
RF2-70'	2	1	0	69.7	66	69.7	0	Snd Lvl
RF2-114'	**3**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RF1-60'	6	1	0	77.7	66	77.7	0	Snd Lvl
RF1-70'	7	1	0	75.9	66	75.9	0	Snd Lvl
RF1-141'	8	1	0	65.9	66	65.9	0	----
RE-60'	10	1	0	75	66	75	0	Snd Lvl
RE-70'	11	1	0	73.2	66	73.2	0	Snd Lvl
RE-141'	**12**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RD-60'	14	1	0	71.8	66	71.8	0	Snd Lvl
RD-70'	15	1	0	70.1	66	70.1	0	Snd Lvl
RD-105'	16	1	0	65.9	66	65.9	0	----
RC2-60'	18	1	0	71.9	66	71.9	0	Snd Lvl
RC2-70'	19	1	0	70.6	66	70.6	0	Snd Lvl
RC2-123'	**20**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RC1-60'	22	1	0	75.4	66	75.4	0	Snd Lvl
RC1-70'	23	1	0	73.6	66	73.6	0	Snd Lvl
RC1-145'	**24**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RB3-60'	26	1	0	75.3	66	75.3	0	Snd Lvl
RB3-70'	27	1	0	73.5	66	73.5	0	Snd Lvl
RB3-143'	28	1	0	65.9	66	65.9	0	----
RB2-60'	30	1	0	71.3	66	71.3	0	Snd Lvl
RB2-70'	31	1	0	69.6	66	69.6	0	Snd Lvl
RB2-99'	**32**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RB1-60'	34	1	0	75	66	75	0	Snd Lvl
RB1-70'	35	1	0	73.2	66	73.2	0	Snd Lvl
RB1-140'	36	1	0	65.9	66	65.9	0	----
RA2-60'	38	1	0	75.5	66	75.5	0	Snd Lvl
RA2-70'	39	1	0	73.8	66	73.8	0	Snd Lvl
RA2-148'	**40**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----
RA1-60'	42	1	0	71.8	66	71.8	0	Snd Lvl
RA1-70'	43	1	0	70.1	66	70.1	0	Snd Lvl
RA1-105'	**44**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	----

TCG
mewman

6 March 2001
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS
PROJECT: M-15
RUN: Narrow Boulevard 2025
BARRIER DESIGN: None

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Critical Noise	Increase over existing Calculated	Crit. Noise Subst. Incr	Type Impact
			(dBA)	(dBA)	(dBA)	(dB)	(dB)	
RF2-86'	1	1	0	72.7	66	72.7	0	Snd Lvl
RF2-96'	2	1	0	71.1	66	71.1	0	Snd Lvl
RF2-143'	3	1	0	65.9	66	65.9	0	----
RF1-86'	6	1	0	76.6	66	76.6	0	Snd Lvl
RF1-96'	7	1	0	74.9	66	74.9	0	Snd Lvl
RF1-156'	**8**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RE-86'	10	1	0	73.9	66	73.9	0	Snd Lvl
RE-96'	11	1	0	72.2	66	72.2	0	Snd Lvl
RE-156'	**12**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RD-86'	14	1	0	70.8	66	70.8	0	Snd Lvl
RD-96'	15	1	0	69.2	66	69.2	0	Snd Lvl
RD-121'	**16**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RC2-86'	18	1	0	74.3	66	74.3	0	Snd Lvl
RC2-96'	19	1	0	72.6	66	72.6	0	Snd Lvl
RC2-160'	**20**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RC1-86'	22	1	0	74.3	66	74.3	0	Snd Lvl
RC1-96'	23	1	0	72.6	66	72.6	0	Snd Lvl
RC1-160'	**24**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RB3-86'	26	1	0	74.2	66	74.2	0	Snd Lvl
RB3-96'	27	1	0	72.5	66	72.5	0	Snd Lvl
RB3-159'	**28**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RB2-86'	30	1	0	70.3	66	70.3	0	Snd Lvl
RB2-96'	31	1	0	68.7	66	68.7	0	Snd Lvl
RB2-118.5	32	1	0	65.9	66	65.9	0	----
RB1-86'	34	1	0	73.9	66	73.9	0	Snd Lvl
RB1-96'	35	1	0	72.2	66	72.2	0	Snd Lvl
RB1-154'	**36**	**1**	**0**	**65.9**	**66**	**65.9**	**0**	**----**
RA2-86'	38	1	0	74.5	66	74.5	0	Snd Lvl
RA2-96'	39	1	0	72.8	66	72.8	0	Snd Lvl
RA2-163'	40	1	0	65.9	66	65.9	0	----
RA1-86'	42	1	0	70.8	66	70.8	0	Snd Lvl
RA1-96'	43	1	0	69.2	66	69.2	0	Snd Lvl
RA1-121'	44	1	0	65.9	66	65.9	0	----

Appendix G

Threatened and Endangered Species Report Summary

M-15 EIS
Threatened and Endangered Species Report Summary

The Biology/Threatened and Endangered Species Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project between I-75 and I-69 in Oakland and Genesee counties.

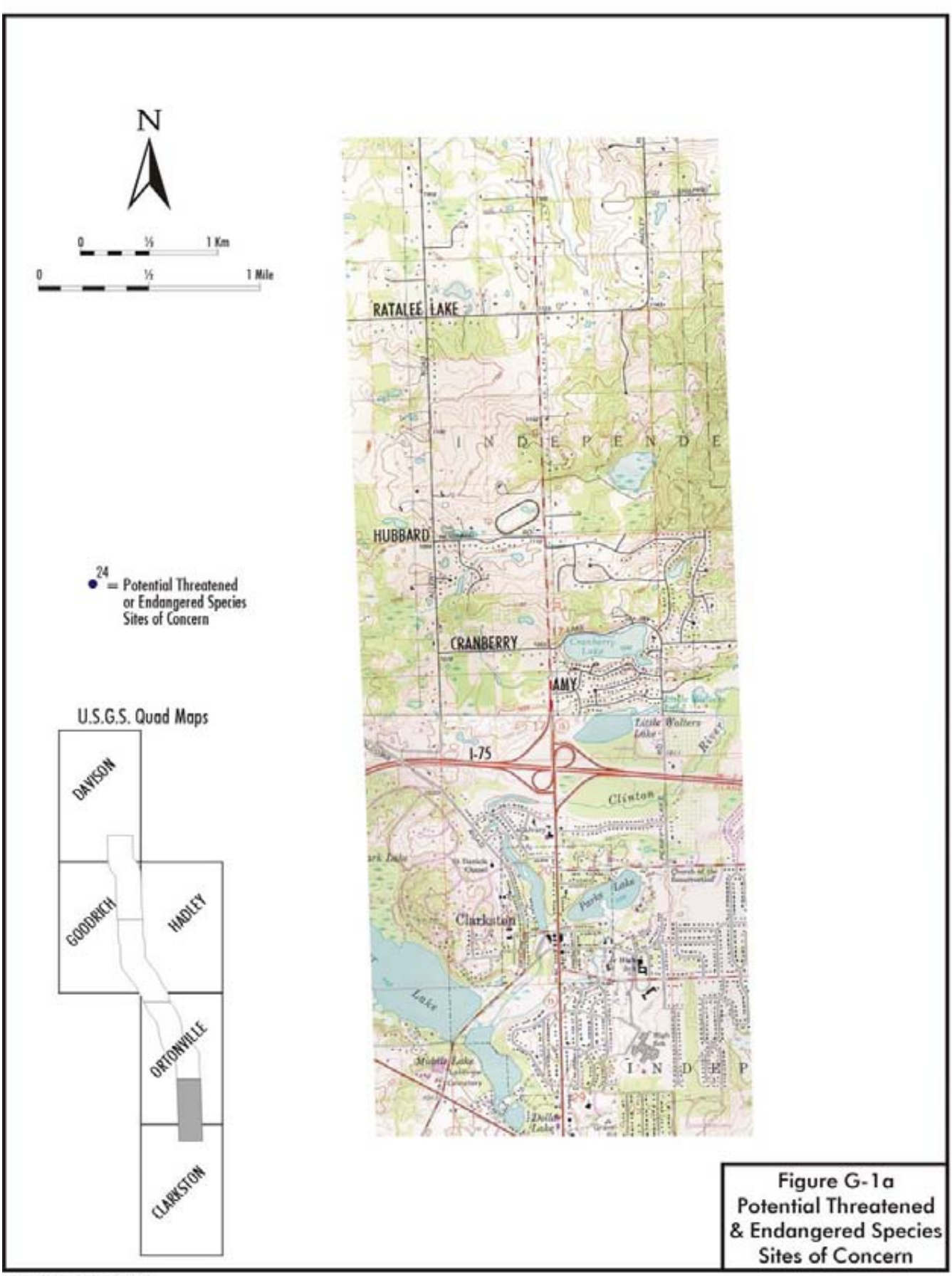
An investigation for listed species (that is, threatened, endangered, or state special concern) was conducted during two periods August 14 to 18, 2000 and May 14 to 18, 2001. Because the proposed project calls for reconstruction of the current M-15 alignment, the specific area investigated during this biological survey was a linear strip that paralleled the highway right-of-way (ROW) to a width of approximately 200 feet for plants, and up to 500 feet for wildlife or wildlife habitats. Urban areas, suburban yards, and actively farmed areas were not investigated because none of the listed species was identified as using these habitats.

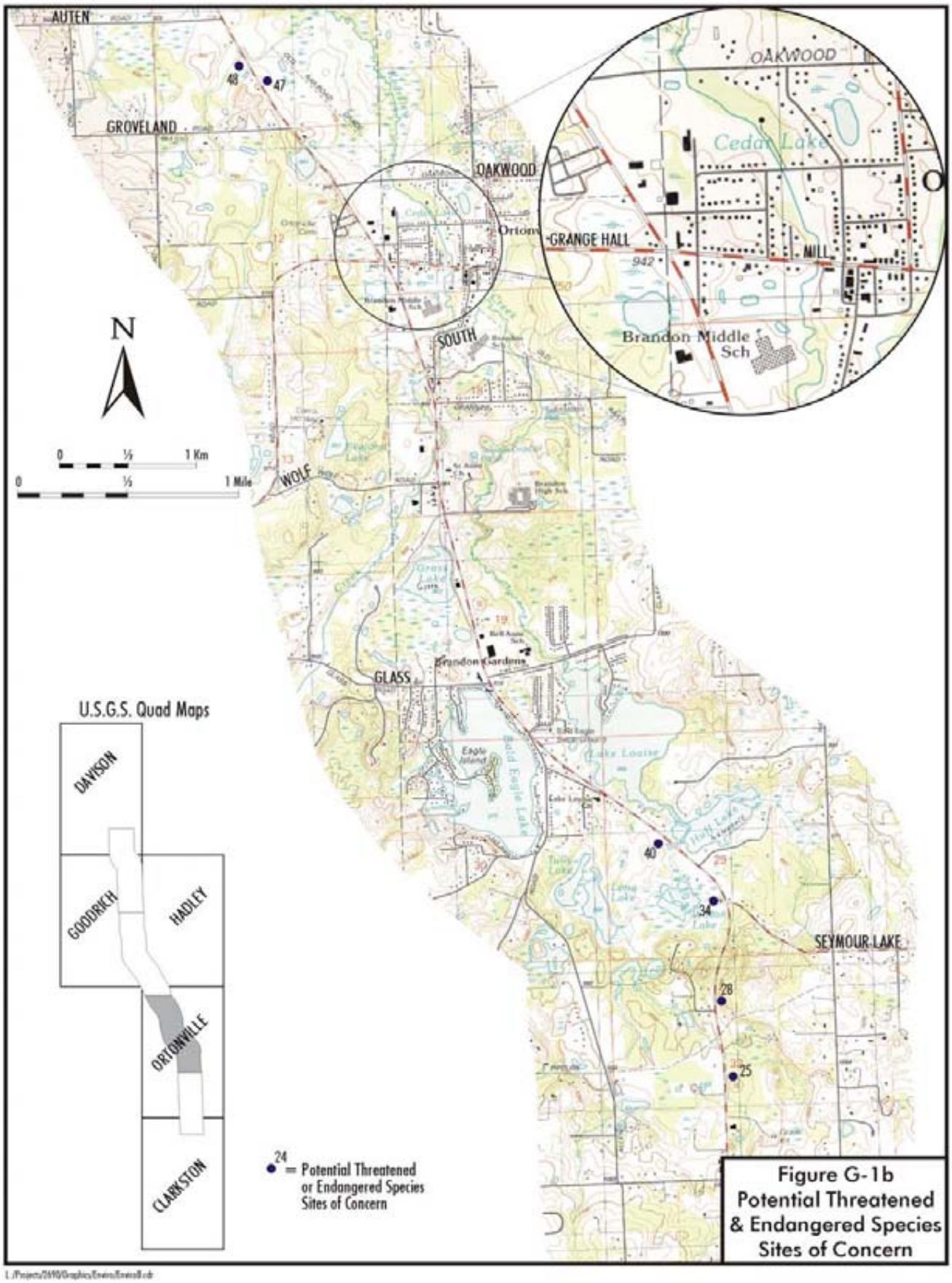
No federally threatened or endangered plant or animal species was identified within the study area. State-listed species found were: the red mulberry (Site 34, state special concern); the plant species wahoo (Sites 25 and 28, state special concern); Blanding's turtle (Site 40, state special concern); and, the spotted turtle (Sites 47 and 48, state threatened).

The Technically and Environmentally Preferred Alternative consists of a blend of roadway types of varying widths. In many areas, a narrower roadway type was used and/or the alignment was shifted to avoid or minimize impacts to wetlands and to habitats containing listed plant and animal species. The resultant Technically and Environmentally Preferred Alternative represents a practicable effort to meet future traffic capacity needs, provide a safe road, and cause the least impact to the social and natural environments.

The relationships of the sites of concern to the Technically and Environmentally Preferred Alternative are listed below (Figure G-1 and Table G-1):

- **Site 25 - site avoided** (wahoo, *Euonymus atropurpurea*, state special concern).
- **Site 34 – site avoided** (red mulberry, *Morus rubra*, state special concern). The proposed alignment would not likely affect this species because of its distance from the existing alignment and its location within a wetland area to be avoided.
- **Site 40 – site avoided** (Blanding's turtle, *Emydoidea blandingii*, state special concern).
- **Site 47 – habitat avoided** (spotted turtle, *Clemmys guttata*, state threatened). Preferred habitat for the spotted turtle at Site 47 is removed from the road by 200 feet and will not likely be affected. This section, between Groveland Road and Auten Road was recognized as a high-quality wetland area. Consequently, the cross section of the Technically and Environmentally Preferred Alternative was minimized to a very narrow boulevard with a 120-foot right-of-way width. The proposed alignment is centered on existing M-15, as the wetlands exist on both sides of M-15. Approximate right-of-way needs are 1.45 acres on the east (Site 47) and 0.34 acres on the west (Site 48, see below).
- **Site 48** – **habitat avoided** (spotted turtle, *Clemmys guttata*, state threatened). Approximate right-of-way needs are 0.34 acres on the west (Site 48), but preferred habitat for the spotted turtle at Site 48 is removed from the road by 300 feet and will not likely be affected.
- **Site 28** – **affected** (wahoo, *Euonymus atropurpurea*, state special concern). The proposed alignment was shifted to the east side of M-15 into Site 28 to avoid impacts to the wetland habitat of Site 34, north of Site 28. At Site 28, additional right-of-way of approximately 50 feet (0.05 acres) is proposed.


N
0 ½ 1 Km
0 ½ 1 Mile
24 = Potential Threatened or Endangered Species Sites of Concern
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
RATALEE LAKE
HUBBARD
CRANBERRY
AMY
I-75
Clinton
Clarkston
Little Walters Lake
River
Lake
I N D E P
Figure G-1a
Potential Threatened
& Endangered Species
Sites of Concern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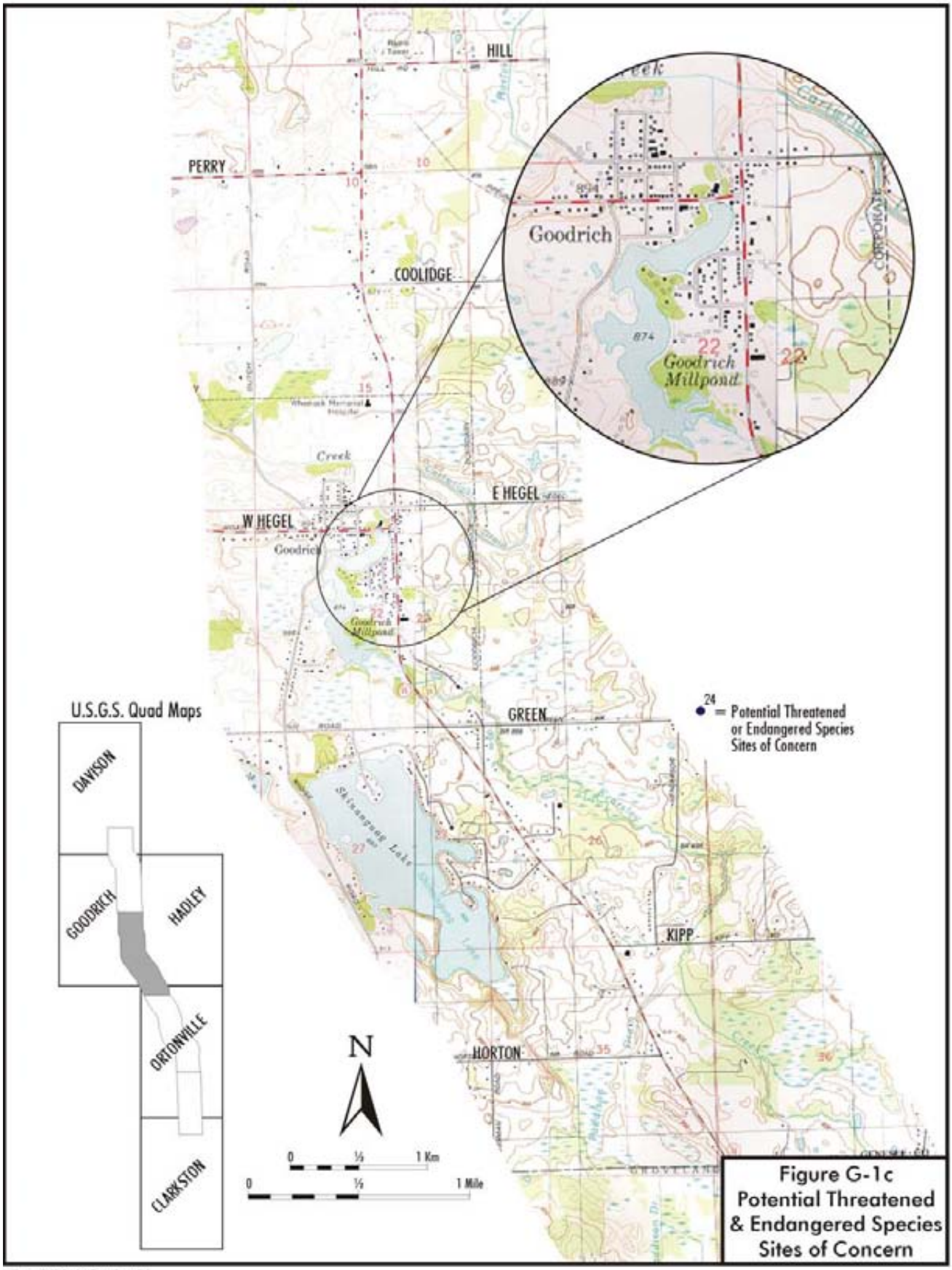
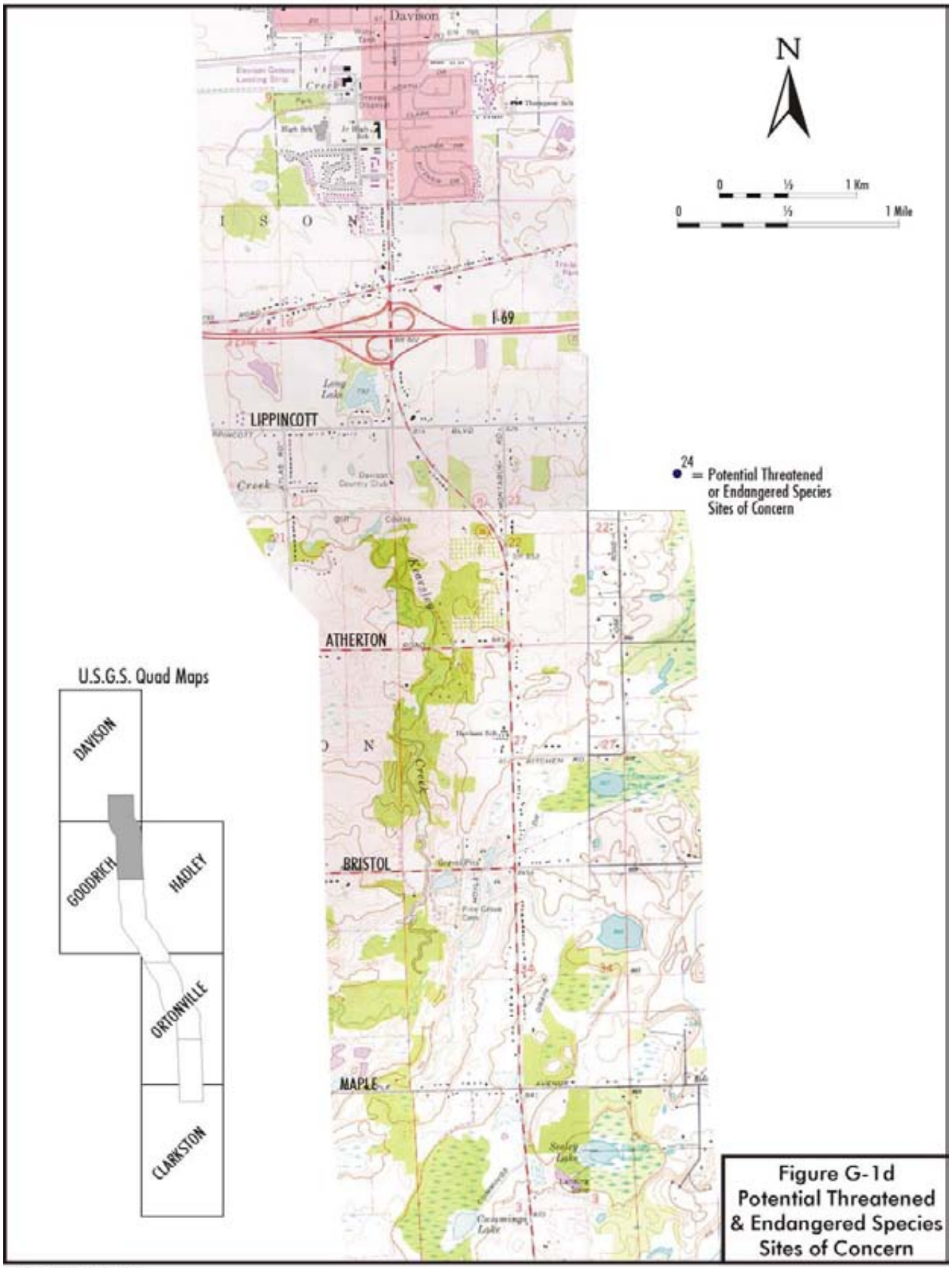
GROVELAND
OAKWOOD
Orton
SOUTH
WOLF
GLASS
Brandon Gardens
SEYMOUR LAKE
OAKWOOD
Cedar Lake
GRANGE HALL
MILL
942
Brandon Middle Sch
N
0 ½ 1 Km
0 ½ 1 Mile
U.S.G.S. Quad Maps
DAVISON
GODDRICH
HADLEY
ORTONVILLE
CLARKSTON
24 = Potential Threatened or Endangered Species Sites of Concern
Figure G-1b
Potential Threatened & Endangered Species Sites of Concern


HILL
PERRY
COOLIDGE
Goodrich
Goodrich Millpond
E HEGEL
W HEGEL
GREEN
KIPP
HORTON
Shiawassee Lake
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
N
0 ½ 1 Km
0 ½ 1 Mile
24 = Potential Threatened or Endangered Species Sites of Concern
Figure G-1c
Potential Threatened & Endangered Species Sites of Concern


Davison
N
0 ½ 1 Km
0 ½ 1 Mile
I-69
LIPPINCOTT
ATHERTON
BRISTOL
MAPLE
24 = Potential Threatened or Endangered Species Sites of Concern
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
Figure G-1d
Potential Threatened & Endangered Species Sites of Concern

In summary, a very small section of Site 28 (0.05 acres), which contains the wahoo will be affected. Sections of Sites 47 and 48 will be affected, but the preferred habitat for the spotted turtle at both sites is distant from the road and would not likely be affected.

Table G-1
Potential Threatened or Endangered Species and Species of Special Concern
(Sites Shown on Figure G-1)

Site #	Avoided/Affected	Species	Listing Status
Site 25	Site avoided	Wahoo, *Euonymus atropurpurea*	State special concern
Site 28	Site affected	Wahoo, *Euonymus atropurpurea*	State special concern
Site 34	Site avoided	Red mulberry, *Morus rubra*	State special concern
Site 40	Site avoided	Blanding's turtle, *Emydoidea blandingii*	State special concern
Sites 47 & 48	Site affected, but turtle habitat avoided	Spotted turtle, *Clemmys guttata*	State threatened

Source: V3 Consultants, Inc.

Appendix H

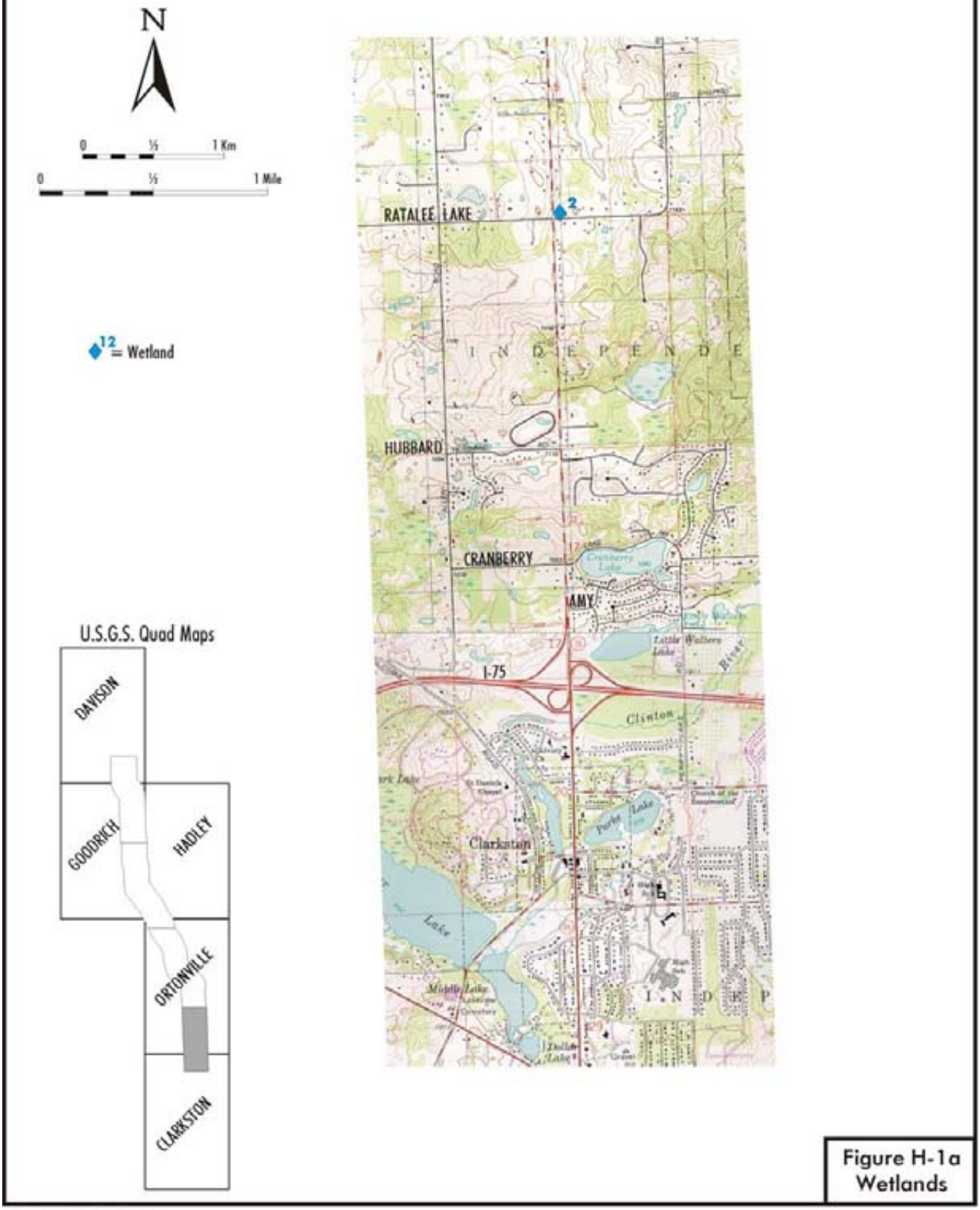
Wetlands Report Summary

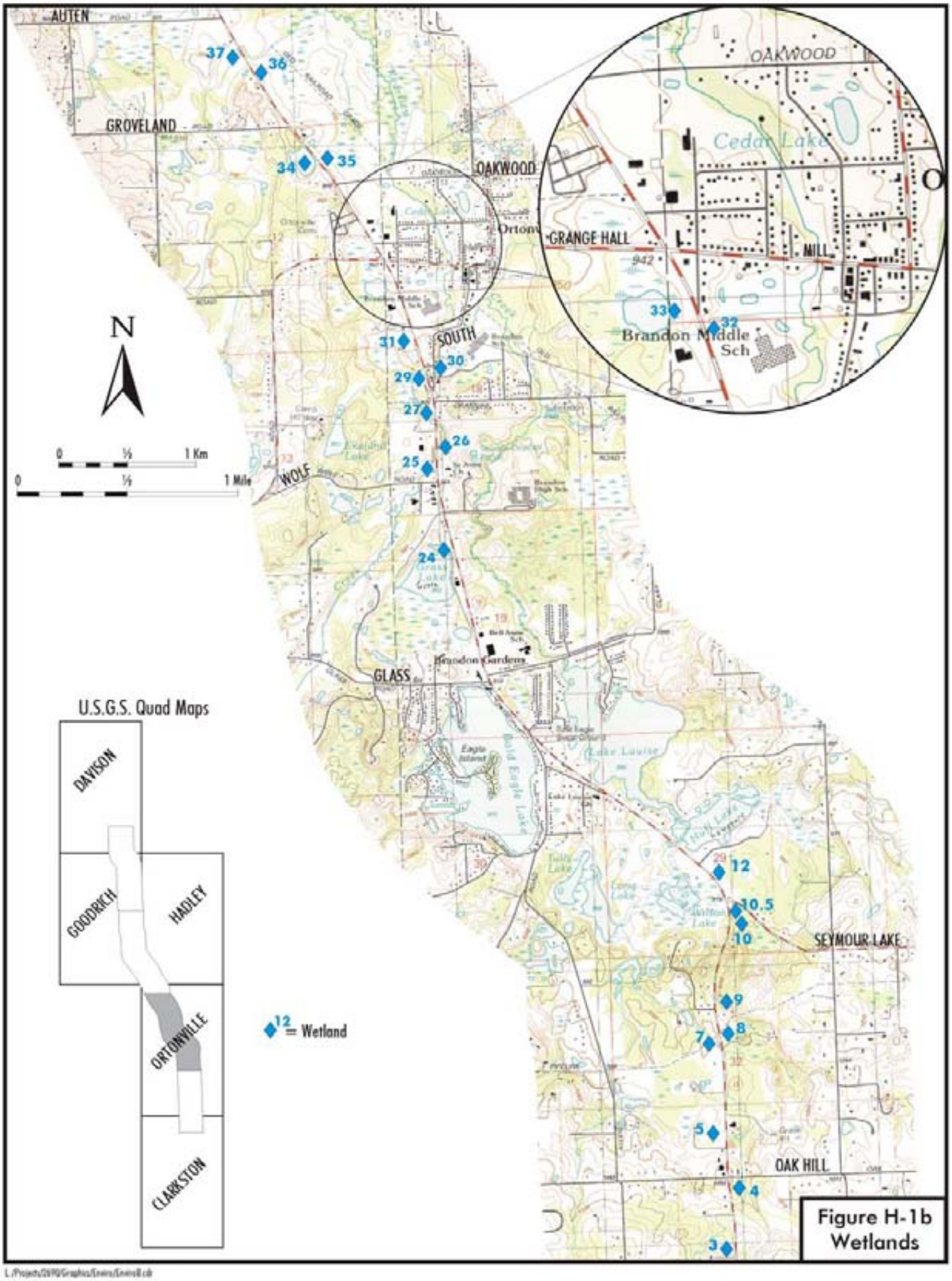
M-15 EIS
Wetlands Report Summary

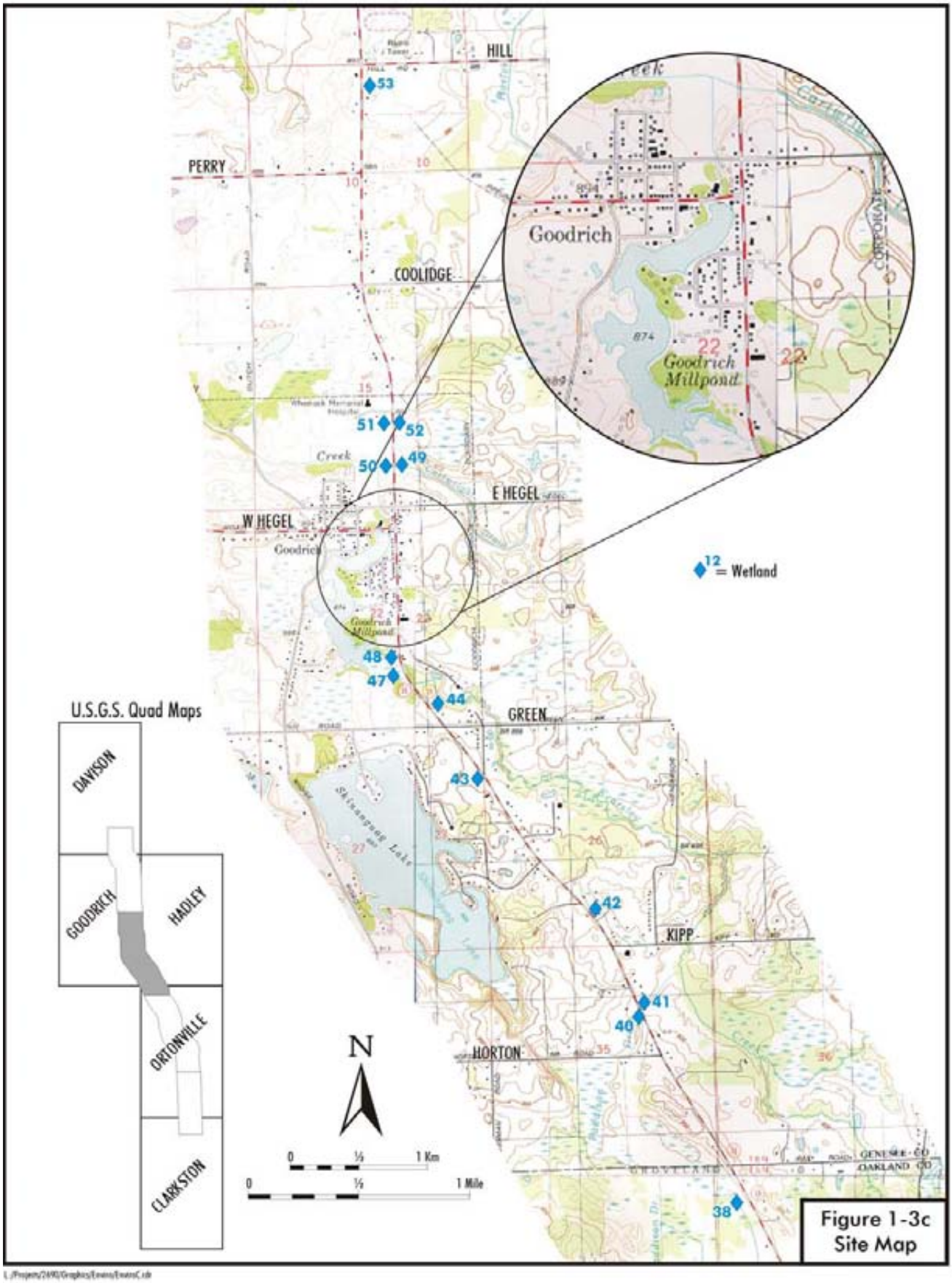
The Wetlands Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project. The purpose of the report is to present preliminary wetland determinations for those areas potentially impacted by construction of M-15 between I-75 and I-69 in Oakland and Genesee counties.

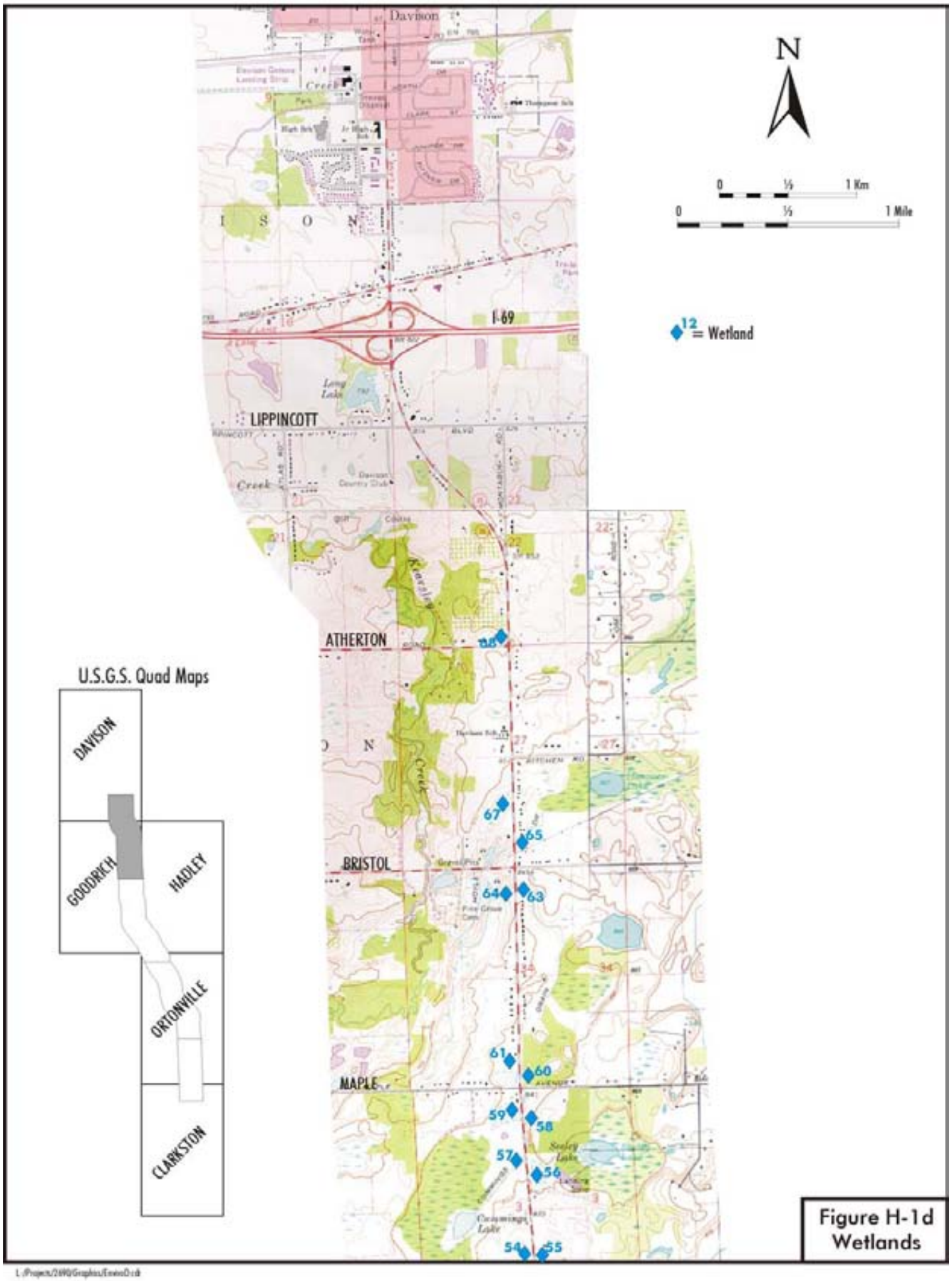
Fifty-one wetlands occur within the proposed right-of-way (Figure H-1). Twenty-one wetlands include at least some forested wetland communities, 40 contain some emergent communities, 13 contain scrub-shrub communities, and 17 contain open water. All wetlands along the proposed right-of-way provide wildlife habitat, water storage capacity, water quality improvement, and aesthetic enhancement to the surrounding communities. In addition, all the impacted wetlands are imbedded in a landscape experiencing mounting development pressures, increasing their potential future value to society.

State and federal laws protect wetlands and require that: 1) they be avoided to the extent feasible and prudent; 2) if unavoidable, impacts be minimized; and, 3) mitigation be provided in the form of wetland replacement, generally as close to the impact area as possible. When practical alternatives for the M-15 improvement project were developed, avoidance of wetlands was a primary consideration. In many areas, the proposed alignment was shifted and/or a narrower roadway type was proposed to avoid or minimize wetland impacts. Additionally, where the road is adjacent to wetlands, the standard ditch will be modified. The incline to the waterline/wetland will be steeper than normal, and a guardrail will be installed at the edge of the roadway's shoulder. The resultant "Technically and Environmentally Preferred Alternative" represents a practicable effort to recommend improvements that meet the future traffic capacity needs, are safe, and cause the least impacts to the social and natural environment, including wetlands.


N
0 ½ 1 Km
0 ½ 1 Mile
12 = Wetland
RATALEE LAKE
2
I N D E P E N D E
HUBBARD
CRANBERRY
AMY
I-75
Clinton
Clarkston
I N D E P
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
Figure H-1a
Wetlands


AUTEN
GROVELAND
OAKWOOD
Cedar Lake
GRANGE HALL
MILL
Brandon Middle Sch
SOUTH
WOLF
GLASS
Brandon Gardens
SEYMOUR LAKE
OAK HILL
37
36
34
35
33
32
31
30
29
27
26
25
24
12
10.5
10
9
8
7
5
4
3
N
0 ½ 1 Km
0 ½ 1 Mile
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
12 = Wetland
Figure H-1b
Wetlands


HILL
PERRY
COOLIDGE
Goodrich
Goodrich Millpond
E HEGEL
W HEGEL
GREEN
KIPP
HORTON
53
51
52
50
49
48
47
44
43
42
41
40
38
12 = Wetland
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
N
0 ½ 1 Km
0 ½ 1 Mile
Figure 1-3c
Site Map


N
0 ½ 1 Km
0 ½ 1 Mile
12 = Wetland
I-69
LIPPINCOTT
ATHERTON
BRISTOL
MAPLE
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
Figure H-1d
Wetlands

Appendix I

Phase I Above-ground Resources Survey Summary

M-15 EIS
Phase I Above-ground Resources Survey Summary

The Phase I Above-ground Resources Survey Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project between I-75 and I-69 in Oakland and Genesee counties.

The M-15 survey work initially consisted of a windshield survey of project alternatives and a literature search conducted at the Michigan State Historic Preservation Office (SHPO) in order to document the locations of previously recorded above-ground (architectural) resources. Once the Area of Potential Effect was determined, a field survey of above-ground resources was implemented. This work was conducted over a two-month period between February 2, 2001 and April 4, 2001, and included all properties located within the Area of Potential Effect (APE).

The survey work resulted in the identification of 101 properties, including 180 buildings or structures constructed prior to 1940. An additional 136 properties, with 161 buildings and structures, were constructed during the 1940s and 1950s. The southern portion of the survey corridor has experienced a great amount of new development, beginning as early as 1940. This development and the large amount of wetlands in the area have resulted in a larger number of single structure properties, and the greatest loss of overall integrity. At the northern end of the project, the area has retained a higher level of its rural character, resulting in the preservation of a greater number of entire farmsteads.

There are no sites in the APE already listed on the *National Register of Historic Places*. The nearest such site is the Goodrich Historic District, about 400 feet west of M-15 along West Hegel. *National Register* sites also exist in Ortonville, east of and away from M-15. There would be "no effect" on these sites. Twelve sites are considered potentially eligible for listing on the *National Register* (Figure 1-5 and Table I-1). Land could be required from a number of these. For six there would be an "adverse effect." As a consequence, the preparation of a MOA is necessary and is included in Appendix L of this FEIS. The final MOA spells out conditions that mitigate impacts to those properties adversely affected.

Table I-1
Summary of Project Effects on Potential
National Register Eligible Cultural Resources

Site Name	Location	Description	Eligibility Criteria	Effect
Dawley Residence / Stone Store[1]	850 Ortonville. West side M-15 north of Wolfe Road	Former residence, now gift shop with stone pillars in existing right-of-way, circa 1916	C	New right-of-way would be about 40' into yard for wider road.
Ortonville West District	Mill Street, clustered at Narrin Street	Queen Anne style house built on George Narrin's land	A & C	New right-of-way will demolish 46 Mill Street garage.
Michigan Milk Producers Receiving Station[1]	126 N Ortonville Road. East side M-15 N of Myron Street	Example of small Art Moderne style industrial facility	A & C	New right-of-way line would be about 10' from building.
Ortonville Cemetery	West side M-15 south of Oak Wood Road	Cemetery, circa 1840-1940	C	Existing pavement edge would be maintained. No effect on historic portion of cemetery.
Mills Farmstead	610 N Ortonville Road. East side M-15 at Groveland Road	Circa 1860 well preserved farm	A & C	Existing right-of-way line maintained.
J. Westerby Farmstead	1215 N Ortonville Road	Example of popular trend in fieldstone cladding, circa 1880	C	Existing right-of-way line maintained.
Rhodes-Green Farm Historic District[1]	10448 Green Road. West side M-15	Association with an early settler and agriculture, circa 1860/1881	A	New right-of-way would be about 20' to 30' into yard for wider road.
Henry Hawes Residence Historic District[1]	8083 State Street. East side M-15 in Goodrich	Italianate architectural example, circa 1870	A & C	New right-of-way would be about 30' into front yard, including two large trees.
Kitchen School House	4010 State Road. SW corner M-15 and Bristol	Early school, circa 1870	A & C	Existing right-of-way line maintained.
Freeman Sweers Residence / Louhelen Baha'i Center[1]	3208 State Road. West side M-15 north of Bristol Road	House circa 1885. Retreat founded in 1931 as Baha'i faith school and center	A & C	Existing right-of-way line maintained, but trees may be removed.
Goodenough Townsend Residence[1]	2430 State Road	Example of residential Gabled-Ell architecture, circa 1875	C	New right-of-way would be 20'+ into front yard with smaller trees likely removed, but larger yard trees remaining.
Seelye House	2224 Montague backing up to M-15	Example of residential brick Gabled-Ell architecture, circa 1875	A, B, & C	New right-of-way would be about 30' into back yard.

[1] Sites that suffer an adverse effect. See Section 6.
Source: Commonwealth Cultural Resources Group

Appendix J

Phase I Archaeological Survey Summary

M-15 EIS
Phase I Archaeological Survey Summary

The Phase I Archaeological Survey Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project between I-75 and I-69 in Oakland and Genesee counties.

The M-15 archaeological work initially consisted of a windshield survey of project alternatives and a literature search conducted at the Michigan State Historic Preservation Office (SHPO) in order to document the locations of previously recorded archaeological sites. Once the Area of Potential Effect was determined, a field survey was implemented of those areas likely to be directly impacted by the project within the existing and proposed expanded M-15 right-of-way. Detailed right-of-way maps were used. Survey work in Oakland County was carried out between April 18, 2001 and May 2, 2001. The Genesee County segment was surveyed between May 7, 2001 and May 18, 2001.

The archaeological survey identified 9 site locations within or spanning the margins of the extended M-15 right-of-way. Five of these, all historic in age, were located in Oakland County and consist of a house depression (20OK478); a stone house/cellar foundation (20OK479); a stone and concrete farmhouse/cellar foundation along with a cistern/well, structural depression, and concrete foundation of an outbuilding (20OK480); a domestic artifact scatter (20OK481); and, a grouping of ancillary farmstead structure remnants (20OK482). Four sites, one prehistoric and three historic in age, were identified in Genesee County. They include an isolated find spot that produced four sherds of a blue edge plate (20GS125); an isolated find spot that produced a Late Woodland period Madison projectile point (20GS126); a concrete rubble and brick pile with a possible structural depression and surface scatter of historic artifacts (20GS127); and, a stone and concrete cellar foundation (20GS128).

One site, 20OK480, may be potentially eligible for inclusion on the NRHP because it may represent one of the earlier intact sites within the M-15 survey corridor. Most of the site would appear to be located east of the proposed right-of-way, and impacts would be restricted to the front yard and a portion of the farmhouse foundation. While it is unlikely that significant historical deposits would be present in the front yard, which would have been kept free from debris and structures commonly associated with trash and refuse disposal (e.g., privies, trash pits, trash dumps) deposits are more likely to occur in side or rear yards. The farmhouse foundation will likely be impacted, if not demolished, by the proposed project. This would adversely affect the integrity of the site as a whole. Therefore, if impacts to the house cannot be avoided, it is recommended that Phase II testing be conducted to determine the precise boundary of the site and whether significant deposits exist.

Two additional archaeological sites, 20GS123 and 20GS124, were reported by local property owners. Based on intensive survey of the areas adjacent to these sites, it was conclusively demonstrated that neither site is located within the survey area.

Finally, two remnants of old State Road were identified. Both are located in the Atlas Township (T6N/R8E), Genesee County segment of the project. Upon study it was determined that neither section of the old State Road is eligible for inclusion on the NRHP.

Appendix K

Contamination Survey Summary

M-15 EIS
Contamination Survey Summary

The Project Area Contamination Survey (PACS), provided under separate cover, is a companion document to the Environmental Impact Statement for the M-15 project between I-75 and I-69 in Oakland and Genesee counties. The PACS was prepared in accordance with the appropriate sections of MDOT's Guidance Manual for Preparing Environmental Documents. The methodology used was generally consistent with the American Society for Testing and Materials (ASTM) Standard E 1527-97 Phase I Environmental Site Assessment. A list of commercial/industrial sites within the project corridor was developed from field reconnaissance data and public record reviews. Residential and institutional properties were not included in this PACS unless they were listed on an environmental sites list.

The assessment for contamination included: field reconnaissance; interviews with business owners and governmental agency's representatives; review of federal and state environmental databases; and, review of historical land use records.

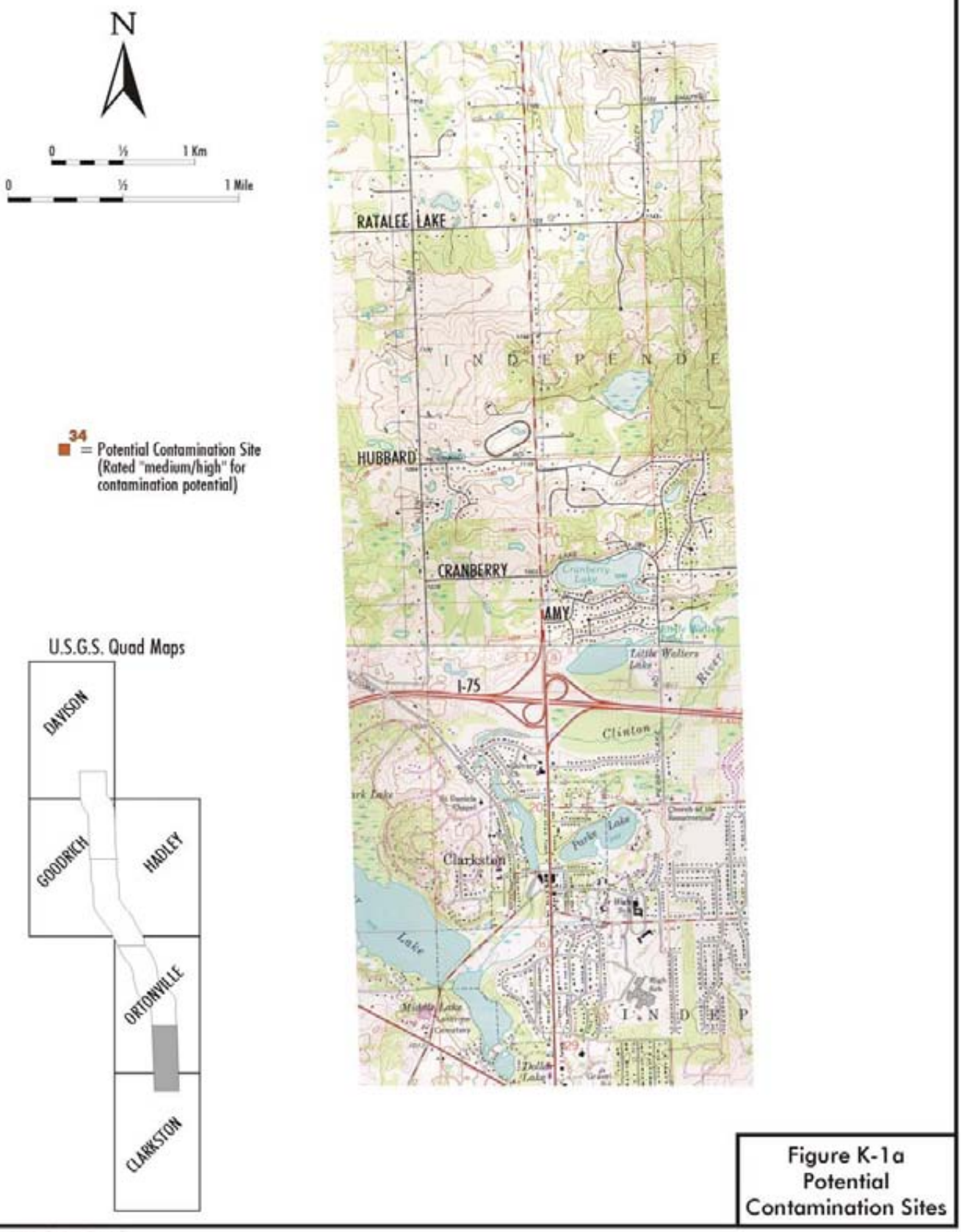
Review of the following federal environmental databases did not identify any listed sites within one mile of the project corridor: CERCLIS (Comprehensive Environmental Response, Compensation, and Liability, Information System); NPL (National Priorities List (Superfund); and, RCRIS-TSDs (Resource Conservation and Recovery Information System hazardous waste Treatment, Storage and Disposal facilities).

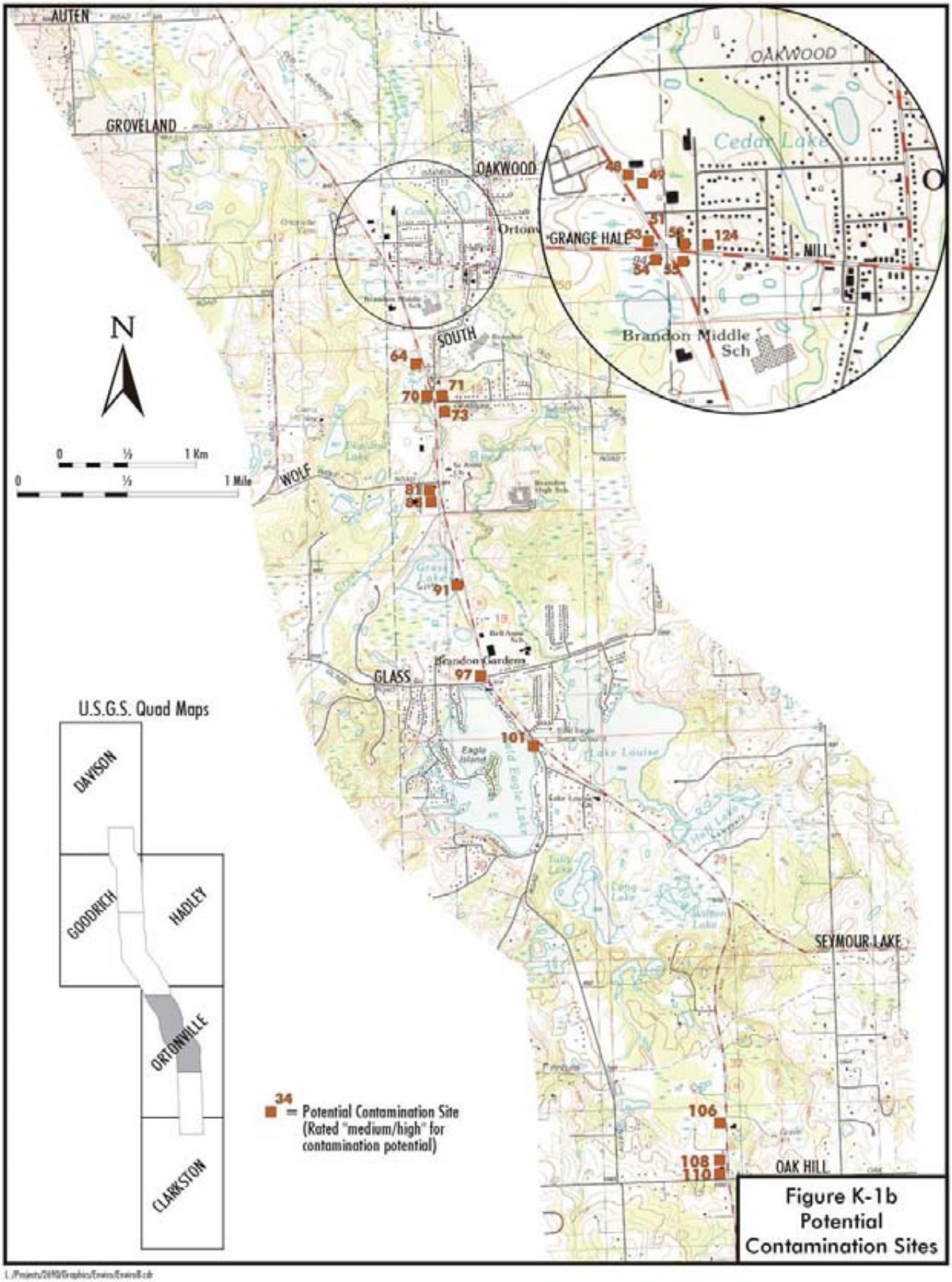
The Michigan Contaminated Sites list, the equivalent of a state superfund list, contained one site within the project corridor. A site known as the Mill Street Residential Wells in Ortonville involved a contaminated groundwater plume that apparently extends from the Mill Street area in Ortonville west to M-15. The depth to groundwater in this area is less than ten feet in some locations; therefore, contaminated groundwater could be encountered during construction. Other state environmental databases and records reviewed included permitted hazardous waste generators, underground and aboveground storage tank sites, and landfills/solid waste facilities. Twenty-six permitted hazardous waste generators were identified along M-15 within the project corridor. Most of these facilities were registered for disposal of tank sludge and waste liquids generated during the removal of underground storage tanks (USTs) and are not currently generating hazardous wastes.

The potential contamination sites were assigned a unique Site Identification No. (SID No.). The SID numbering system begins with No. 1 at the north end of the project and increases sequentially toward the south end of the project corridor. The potential contamination sites were categorized according to their relative contamination risk. The categories were N (no), L (low) and M/H (medium or high) contamination potential (Figure K-1 and Table K-1).

Seven non-underground storage tank sites were classified as "medium/high" for contamination potential because of their handling of hazardous materials or wastes, and the presence of an on-site septic system. These sites should be tested for soil and groundwater impacts in the next level of assessment.

No permitted solid waste/landfill facilities were identified within the project corridor.


N
0 ½ 1 Km
0 ½ 1 Mile
34 = Potential Contamination Site (Rated "medium/high" for contamination potential)
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
RATALEE LAKE
HUBBARD
CRANBERRY
AMY
I-75
Clinton
Clarkston
Lake
I N D E P
Figure K-1a
Potential
Contamination Sites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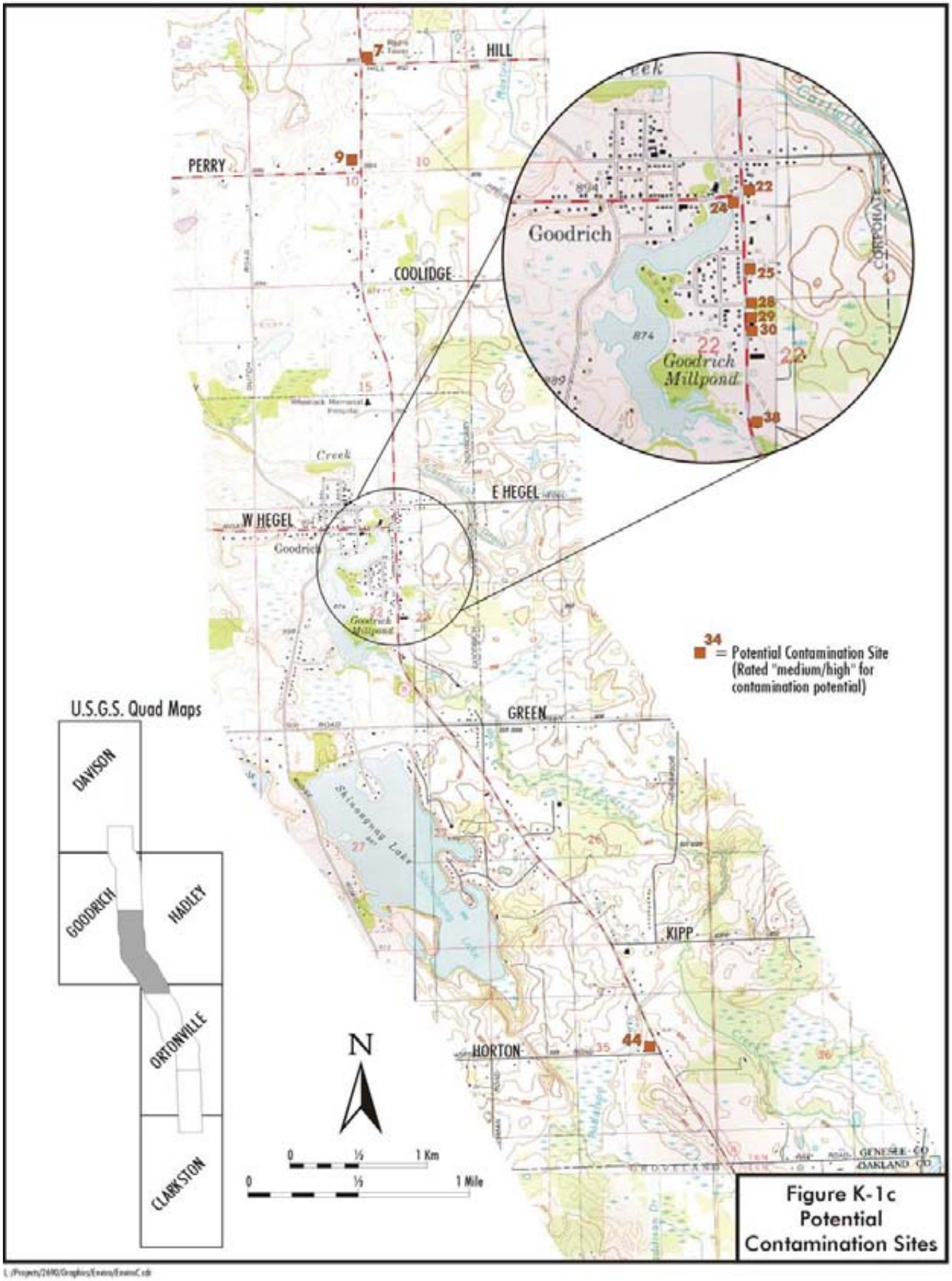
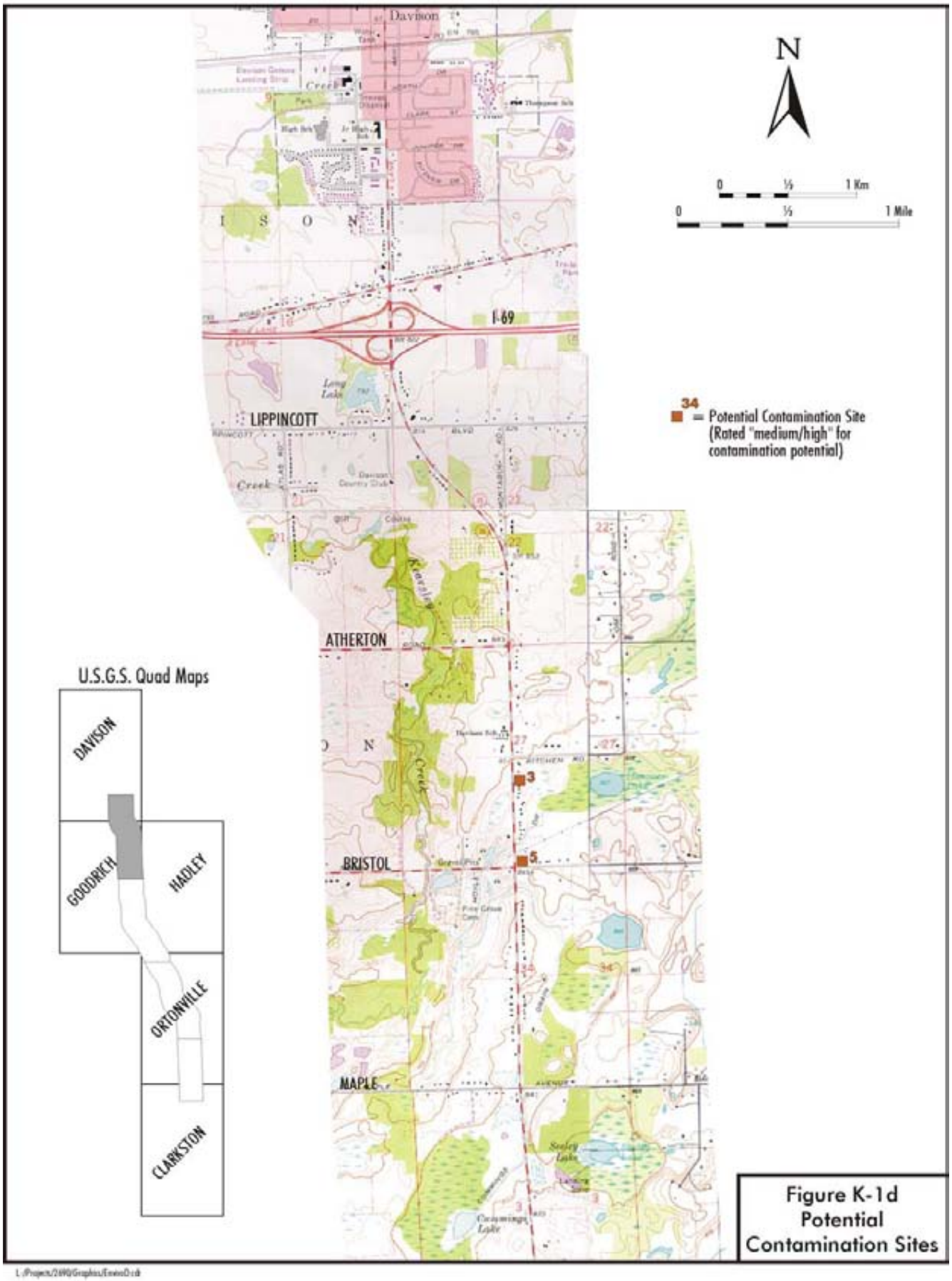
GROVELAND
OAKWOOD
Orton
SOUTH
WOLF
GLASS
Brandon Gardens
Cedar Lake
GRANGE HALL
MILL
Brandon Middle Sch
SEYMOUR LAKE
OAK HILL
N
0 ½ 1 Km
0 ½ 1 Mile
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
34 = Potential Contamination Site (Rated "medium/high" for contamination potential)
Figure K-1b
Potential
Contamination Sites


HILL
PERRY
COOLIDGE
Goodrich
Goodrich Millpond
E HEGEL
W HEGEL
GREEN
KIPP
HORTON
Skinaugung Lake
34 = Potential Contamination Site (Rated "medium/high" for contamination potential)
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
N
0 ½ 1 Km
0 ½ 1 Mile
GENESEE CO
OAKLAND CO
Figure K-1c
Potential
Contamination Sites


Davison
N
0 ½ 1 Km
0 ½ 1 Mile
I-69
LIPPINCOTT
ATHERTON
BRISTOL
MAPLE
34 = Potential Contamination Site (Rated "medium/high" for contamination potential)
U.S.G.S. Quad Maps
DAVISON
GOODRICH
HADLEY
ORTONVILLE
CLARKSTON
Figure K-1d
Potential
Contamination Sites

SID No.	Site Name (Former Name or Use)	Address or Location	City	Five-Lane Alternative		Narrow M
				ROW W or A	Contamination Potential Rating	ROW W or A
34	D.J. Mfr. Co.	8234 State Rd	Goodrich	W	N	A
35	Goodrich Mfg. Co.	8267 S State Rd	Goodrich	W	L	A
36	U.S. Post Office	8283 S State Rd	Goodrich	W	N	A
37	Area Real Estate/Margies Pizza	8331 State Rd	Goodrich	W	N	W
38	Nu View Auto Glass/Car Wash	8355 State Rd	Goodrich	W	M/H	W
39	Goodrich Auto Parts/RJs TV Repair	8359-65 S State Rd	Goodrich	W	L	W
40	The Village Greenery	8340 State Rd	Goodrich	W	L	W
41	Atlas RealEstate (Germaines Corvettes)	8491 State Rd	Goodrich	W	L	W
42	Marcle Chiropractor	9037 State Rd	Goodrich	W	N	W
43	Rainbow Day Care Center, Inc.	11303 Kipp Rd	Goodrich	W	N	W
44	Vacant Commercial Bldg	Horton Rd & M-15	Goodrich	A	L	W
45	Bedrock Express	1290 M-15	Ortonville	A	L	W
46	Oak Square Parking Lot	360 N Ortonville Rd	Ortonville	A	N	W
47	POH Medical Center (Ortonville Family Medicine)	180 N Ortonville Rd	Ortonville	A	N	W
48	Recovery Systems Int. (Allflo Products)	160 N Ortonville Rd	Ortonville	A	N	W
49	Engineering Tube Specialties (former dairy)	Ortonville Rd	Ortonville	A	L	W
50	The Filling Station Café	39 N Ortonville Rd	Ortonville	A	N	W
51	Rite Aid (Waterlock Solvents)	1 Mill Street	Ortonville	A	L	W
52	Ace Hardware (Waterlock Solvents)	4 N Ortonville Rd.	Ortonville	A	L	W
53	Marathon Station (CMS/Boron)	15 N Ortonville Rd.	Ortonville	W	M/H	W
54	Closed Garage (Futura Collision)	12 M-15	Ortonville	W	M/H	W
55	Little Caesars (former gas station)	11 S Ortonville Rd	Ortonville	W	M/H	W
56	Active Homes by Lorcon	20 S Ortonville Rd	Ortonville	A	N	W
57	Narrin Place (Shops)	50 S Ortonville Rd	Ortonville	A	N	W
58	Vacant Comm. Bldg.	105 S Ortonville Rd	Ortonville	A	L	W
59	Brandon Schools	817 Ortonville Rd	Ortonville	A	N	W
60	Simms Chevrolet (Owen Motors, Inc.)	110 S Ortonville Rd	Ortonville	A	N	W
61	C & J Oil Change	150 S Ortonville Rd	Ortonville	A	N	W
62	Ortonville Montisorri Center	S Ortonville Rd	Ortonville	A	N	W
63	Hamiltons Propane, Inc.	300 Ortonville Rd	Ortonville	A	N	W
64	Vacant Commercial Bldg (Bell Auto Parts)	384 Ortonville Rd	Ortonville	A	L	W
65	Oxford Bank	345 S Ortonville Rd	Ortonville	A	N	W
66	Willowpointe Flowers & Gifts	425 M-15	Ortonville	W	N	W

Note: ROW - Right-of-Way: W - Within; A - Adjacent

M/H - Medium or High contamination potential.

N/L - No or Low contamination potential.

* - The one-way pair option was evaluated at these properties instead of the narrow boulevard.

Potential Contamination Sites (Continued)

SID No.	Site Name (Former Name or Use)	Address or Location	City	Five-Lane Alternative		Narrow Me
				ROW W or A	Contamination Potential Rating	ROW W or A
67	A & W Restaurant	470 South Street	Ortonville	W	N	W
68	Village Hair & Nails (Arbor Drugs)	440 Ortonville Rd	Ortonville	A	N	W
69	Office Bldg. - Jayco Roofing	456 S Ortonville Rd	Ortonville	A	N	W
70	Country Countertops	490 S Ortonville Rd	Ortonville	A	L	W
71	Clark Station	495 S Ortonville Rd	Ortonville	W	M/H	W
72	Seelbinder Insurance	507 S Ortonville Rd	Ortonville	A	N	W
73	Brandon Tire & Auto Center	595 S Ortonville Rd	Ortonville	A	L	W
74	Mid State General Contractors	610 S Ortonville Rd	Ortonville	A	N	A
75	Countryside Realtors	630 S Ortonville Rd	Ortonville	A	N	W
76	Macfees Restaurant	650 S Ortonville Rd	Ortonville	A	N	W
77	Vacant Shopping Center	S Ortonville Rd	Ortonville	A	N	W
78	Bank one	761 S Ortonville Rd	Ortonville	A	N	W
79	Brandon Family Dentist Office	830 S Ortonville Rd	Ortonville	A	N	W
80	Stone House Collectibles	850 S Ortonville Rd	Ortonville	A	N	W
81	Forster Auto Wash	880 S Ortonville Rd	Ortonville	A	L	W
82	Office Bldg- Century 21	S Ortonville Rd	Ortonville	A	N	W
83	James Lumber Co. (Brandon Building Center, Oxford Lumber))	910 S Ortonville Rd	Ortonville	A	L	W
84	McDonalds	925 S Ortonville Rd	Ortonville	A	N	W
85	Frosty Boy	955 M-15	Ortonville	A	N	W
86	Brandon Medical Center	M-15	Ortonville	A	N	W
87	Arrants Ford	968 Ortonville Rd	Ortonville	A	L	A
88	Commercial Site (under construction)	Ortonville Rd	Ortonville	A	N	W
89	Office Bldg - Ortonville Foot & Ankle/Williams Health Care	1221 S Ortonville Rd	Ortonville	A	N	W
90	Office Bldg. - Dentist/Medical/Insurance	1201 S Ortonville Rd	Ortonville	A	N	W
91	J & F Collision. Inc.	1342 S Ortonville Rd	Ortonville	W	M/H	W
92	Smooth Finish Concrete/Harrison Hoe, Inc. (Greenlake Meats)	1358 S Ortonville Rd	Ortonville	A	N	W
93	Pet's Supply/Restaurant/Tobacco Shop/Dance Studio	1575-05 S Ortonville Rd	Ortonville	A	N	W
94	Closed Sunburst Florist & Nursery	1660 S Ortonville Rd	Ortonville	A	L	W
95	Masterack (Eng. Comp Sys/AutoFab, Inc./Autocomp/Legget & Platt)	1695 S Ortonville Rd	Ortonville	A	L	W
96	Shell Food Mart	1765 S Ortonville Rd	Ortonville	A	L	W
97	Eagle Point Shopping Center (former gas station)	1764-76 S Ortonville Rd	Ortonville	W	M/H	W
98	Horton Renn Insurance	1839 S Ortonville Rd	Ortonville	A	N	W
99	Tri-Mountain Water	1963 S Ortonville Rd	Ortonville	A	L	W

Note: ROW - Right-of-Way: W - Within; A - Adjacent

M/H - Medium or High contamination potential.

N/L - No or Low contamination potential.

* - The one-way pair option was evaluated at these properties instead of the narrow boulevard.

Potential Contamination Sites (Continued)

SID No.	Site Name (Former Name or Use)	Address or Location	City	Five-Lane Alternative		Narrow
				ROW W or A	Contamination Potential Rating	ROW W or A
100	Dor-Ray Grocery	1890 M-15	Ortonville	A	N	A
101	Alderman Animal Hospital (former gas station)	2140 S Ortonville Rd	Ortonville	W	M/H	W
102	Kountry Coney Restaurant	2195 S Ortonville Rd	Ortonville	W	N	W
103	Bullfrogs Restaurant	2225 S Ortonville Rd	Ortonville	A	L	W
104	Mike's Auto Repair (Woody & Rays Marathon)	2200 S Ortonville Rd	Ortonville	A	L	W
105	Real Estate One/Team One	2245 S Ortonville Rd	Ortonville	A	L	W
106	Former Dump (near Solley's Appliances)	S Ortonville Rd	Clarkston	W	M/H	W
107	Solley's Appliances & Fireplace Center	3779 S Ortonville Rd	Clarkston	A	N	W
108	Oakhill Auto Parts/MVA Contr/City Press	3960-80 S Ortonville Rd	Clarkston	W	M/H	W
109	Office Bldg (StateFarm/Harrell Builder/Hair Salon)	3983 S Ortonville Rd	Clarkston	A	N	W
110	And I Do (Oakhill Auto Restoration)	3994 S Ortonville Rd	Ortonville	W	M/H	W
111	Oakhill Corners Office Bldgs.(Kendrick Corp/Flotronics)	10435-39 Ortonville Rd	Clarkston	A	N	W
112	Nicoleodon Restaurant	1081 S Ortonville Rd	Ortonville	A	L	A
113	Clarkston Citco	7650 S Ortonville Rd	Clarkston	A	L	A
	OTHER SITES NEAR THE CORRIDOR					
114	Marathon #8403	1177 State Rd	Davison	-	N	-
115	Al Bennett Ford of Davidson	15095 State Rd	Davison	-	N	-
116	Genesee County Road Commision	80165 Gale Rd	Goodrich	-	N	-
117	Bus Garage	10377 Erie Street	Goodrich	-	N	-
118	Village of Goodrich/DPW Garage	10295 Hegel Rd	Goodrich	-	N	-
119	Croup Road Contamination	1090 Croup Rd	Ortonville	-	N	-
120	Township of Brandon	395 Mill Street	Ortonville	-	N	-
121	Brandon Fire and Police Board	53 South Street	Ortonville	-	N	-
122	Clark Oil Store # 1361	495 South Street	Ortonville	-	N	-
123	Hamilton's of Ortonville	350 Mill Street	Ortonville	-	N	-
124	Mill Street Residential Wells	Mill Street	Ortonville	-	M/H	-
125	Clarkston Road Area	6440 Clarkston Rd	Ind Twp	-	N	-
126	Clarkston Shell Station	7251 Ortonville Rd	Clarkston	-	N	-
127	Former Texaco	7320 Ortonville Rd	Clarkston	-	N	-
128	Main Street Residential Wells	154 N Main St	Clarkston	-	N	-

Note: ROW - Right-of-Way: W - Within; A - Adjacent

M/H - Medium or High contamination potential.

N/L - No or Low contamination potential.

* - The one-way pair option was evaluated at these properties instead of the narrow boulevard.

One former municipal landfill along M-15 was reported in interviews with local governmental representatives. The reports indicated that a low-lying area of approximately 20 acres on the west side of M-15, approximately one mile north of Oak Hill Road, was used as a municipal landfill by Brandon and Independence Townships. The landfill site was reportedly acquired by private owners in the late 1960s or early 1970s and the operation ceased. No records regarding this site were available from MDEQ. The proposed project would acquire approximately a 50-foot strip along the eastern edge of this property. A Preliminary Site Investigation (PSI) consisting of soil and groundwater testing should be performed prior to acquisition by MDOT.

By far the most common potential environmental problem for the project is UST sites. There are eight operating gas stations and 19 former gas stations/UST sites along M-15 within the corridor. Twenty-one properties that are within the right-of-way of the proposed project have or had USTs. MDEQ UST records show that there are sixteen registered UST facilities within the corridor. Seven of these were identified as Leaking UST (LUST) sites. Of the seven LUST sites, MDEQ records indicate four are "open" meaning they are being investigated or remediated.

Several of the former gas stations/UST sites closed before 1988, which is when comprehensive federal and state UST regulations went into effect. Because they were not subject to the current UST regulations, there are no public records available for these older sites. Due to the potential for soil and/or groundwater contamination, associated with USTs, on-site testing should be performed at all current and former UST sites that are within the project corridor during the PSI.

In total, 31 sites are recommended for further testing including: one dump; seven sites potentially affected by hazardous material handling; and, 23 underground storage tank sites.

Appendix L

Memorandum of Agreement with SHPO

**MEMORANDUM OF AGREEMENT BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
THE MICHIGAN STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE WIDENING OF M-15 BETWEEN I-75 AND I-69,
GENESEE AND OAKLAND COUNTIES, MICHIGAN
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR PART 800.6(b)(1)**

WHEREAS, the Federal Highway Administration (FHWA) of the U.S. Department of Transportation has determined that the widening of M-15 in Oakland and Genesee Counties, Michigan (Project) will have an adverse effect on the following six historic properties (Historic Properties) which appear to meet the criteria for listing in the National Register of Historic Places (NRHP):

- Dawley Residence/Stone Store, 850 Ortonville Road, Ortonville
- Henry Hawes Residence, 8083 State Road, Goodrich
- Michigan Milk Producers Receiving Station, 126 N. Ortonville Road, Ortonville
- Rhodes-Green Farm Historic District, 10448 Green Road, Atlas Township
- Freeman Sweers Residence/Louhelen Baha'i center, 8203 State Road, Davison Township
- Goodenough Townsend Residence, 2430 State Road, Davison Township

WHEREAS, archaeological site 20OK480, in Independence Township, will be affected by the Project but its national register eligibility has not been determined because the current property owner has not granted access to the site for study purposes; and

WHEREAS, the FHWA has consulted with the Michigan State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) (the Act); and

WHEREAS, the Michigan Department of Transportation (MDOT) has participated in the consultation and has been invited to concur in this Memorandum of Agreement (MOA); and

NOW, THEREFORE, the FHWA and the SHPO agree that the Project shall be implemented in accordance with the following stipulations to take into account the effect of this action on historic properties.

STIPULATIONS

The FHWA shall ensure that the following stipulations are carried out:

I. Recordation

MDOT shall prepare photographic documentation and a historical overview of the Historic Properties according to the SHPO *Documentation Guidelines* attached hereto as **Attachment A**. MDOT shall ensure that all documentation is completed and accepted by the SHPO for

deposit in the State Archives of Michigan prior to the initiation of construction activities that will affect the Historic Properties. The SHPO may require MDOT to also provide original copies of the documentation to appropriate local archives designated by the SHPO.

II. Design

MDOT shall ensure that the frontages of the Historic Properties are landscaped in accordance with a landscape plan designed in consultation with and approved by the SHPO and the property owners. MDOT will retain a historian meeting the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44738-39) and trained in historic landscape analysis and design to assist in plan development.

III. Archaeological Site 20OK480

A. The FHWA and MDOT shall first attempt to avoid and protect archaeological site 20OK480, using measures determined in consultation with the SHPO, while implementing the Project.

B. In the event archaeological site 20OK480 cannot be avoided and protected while implementing the Project, the FHWA and MDOT shall consult with the SHPO to develop a scope of work to complete Phase II archaeological investigations. Phase II investigation may be initiated after right-of-way acquisition, but must be completed prior to initiating any construction activity.

C. If the FHWA, in consultation with the SHPO, determines that site 20OK480 appears to meet the criteria for listing in the National Register of Historic Places following Phase II investigations, the FHWA shall consult with the SHPO to develop a program for mitigating any adverse effects upon site 20OK480 resulting from the Project. The mitigation program shall be amended to this agreement in accordance with Stipulation IV.

D. If site 20OK480 appears to meet the criteria for listing in the National Register of Historic Places, the FHWA and SHPO agree that the site is important for the information it may yield (National Register Criterion D) and not for preservation in place.

IV. Amendment

Any party to this MOA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36 CFR800.6(c)(7) to consider such an amendment.

V. Dispute Resolution

Should the SHPO or MODT object within 30 (thirty) days to any actions proposed pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (Council). Within 45 (forty-five) days after receipt of all pertinent documentation, the Council will either:

A. provide the FHWA with recommendations, which the FHWA will take into account in reaching a final decision regarding the dispute; or

B. notify the FHWA that it will comment pursuant to 36 CFR 800.7(c) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

Execution and implementation of this Memorandum of Agreement and submission to the Council evidences that FHWA has afforded the Council a reasonable opportunity to comment on the Project and that the FHWA has taken into account the effects of the project on historic properties.

FEDERAL HIGHWAY ADMINISTRATION

By: _____ Date: _____
James J. Steele, Division Administrator

MICHIGAN STATE HISTORIC PRESERVATION OFFICE

By: _____ Date: _____
Brian Conway, State Historic Preservation Officer

Concur:

MICHIGAN DEPARTMENT OF TRANSPORTATION

By: _____ Date: _____
Susan Mortel, Deputy Director, Bureau of Transportation Planning

Attachment A

MICHIGAN STATE HISTORIC PRESERVATION OFFICE
DOCUMENTATION GUIDELINES

The following guidelines provide instruction for producing permanent documentation of historic properties. Following submittal to the State Historic Preservation Office, the photos produced will be transferred to the State Archives, where they will be maintained and made available to the public for research purposes. In many cases, this documentation will constitute the only visual public record of a resource. It is therefore important that reports, drawings and photographs adequately depict the salient visual characteristics of the resource, and that they be produced using archivally-stable materials and procedures.

The specifications outlined in this memorandum are intended to ensure that the material will be of high quality and remain in usable condition for many years to come. The guidelines were adapted from those used for submitting nominations to the National Register of Historic Places, as described in **National Register Bulletin 16:** ***Guidelines for Completing National Register of Historic Places Forms***. The complete text of this and other National Register Bulletins may be found on the web at *http://www.cr.nps.gov/nr/publications/bulletins.htm*.

I. REPORTS - GENERAL INSTRUCTIONS

Reports should be printed on archival paper and be 8 1/2 by 11 inches in size.

II. DESCRIPTIVE AND HISTORICAL NARRATIVES

The report should contain a descriptive and historical narrative about the resource(s). The descriptive overview should concisely but thoroughly describe the resource, including discussion of its site and setting; overall design and form, dimensions, structural character, materials, decorative or other details, and alterations. The historical narrative should provide an account of the resource's history and explain its significance in terms of the national register criteria (information about the criteria for listing a resource in the national register may be found on the web at *http://www.cr.nps.gov/nr/listing.htm*). Published and unpublished sources should be used as needed to document the resource's significance. For bridges and public structures, public records and newspapers should be used for information concerning the historical background and construction of the resource and to identify those involved in its design and construction. All sources of information (including author, title, publisher, date of publication, volume and page number) should be listed in a bibliography.

III. DRAWINGS - GENERAL INSTRUCTIONS

Drawings should be drawn or printed on archival paper and folded to fit an archival folder approximately 8 1/2 by 11 inches. Use coding, crosshatching, numbering, transparent overlays, or other standard graphic techniques to indicate the information. Do not use color because it can not be reproduced by microfilming or photocopying. Drawings should be used to document the existing condition of the resource, the evolution of a resource, alterations to a building or complex of buildings, floor plans of interior spaces. Site plans should have a graphic north arrow and include locations and types of trees, shrubs and planting beds. All architectural and site plans should

include dimensions indicating the overall size of buildings, sizes of major interior spaces and distances between major site features. If original drawings of the resource(s) exist, add a graphic scale the drawings and reproduce them to fit on 8 1/2 by 11 inch archival paper. Photographic reductions are permissible provided they meet the photographic requirements specified in these guidelines.

IV. PHOTOGRAPHS - GENERAL INSTRUCTIONS

Submit clear and descriptive black and white photographs and negatives in acid-free envelopes. Photographs should provide a clear visual representation of the historic integrity and significant features of the resource. The number of photographs needed will vary according to the project and the nature of the resource. The attached article by David Ames, *A Primer on Architectural Photography and the Photo Documentation of Historic Structures* (Vernacular Architecture Forum News, no date) provides helpful information for photographing buildings and structures. This article is available on the web at *http://www.vernaculararchitecture.org/Features/Photography/article.htm.*

GUIDELINES FOR PHOTOGRAPHIC COVERAGE

The number of photographic views required depends on the size and complexity of the resource. Submit as many photographs as needed to depict the current condition and significant aspects of the resource. When available, prints of historic photographs may supplement documentation.

Buildings, Structures and Objects

- Submit one or more views to show the principal facades and the environment or setting in which the resource is located;
- Additions, alterations, intrusions, and dependencies should appear in the photographs;
- Include views of interiors, outbuildings, landscaping, or unusual details if the significance of the resource is entirely or in part based on them.

Historic and Archaeological Sites

- Submit one or more photographs to depict the condition of the site and any above-ground or surface features and disturbances;
- If they are relevant to the site's significance, include drawings or photographs that illustrate artifacts that have been removed from the site;
- At least one photograph should show the physical environment and configuration of the land making up the site.

BASIC REQUIREMENTS

Photographs must be:

- at least 5 x 7 inches, preferably 8 x 10 inches, unmounted (do not affix the photographs to paper, cards, or any other material); photographs with borders are preferred;

- printed on double or medium-weight black-and-white paper having a matte, glossy, or satin finish; fiber-based papers are preferred; resin-coated papers that have been processed automatically will be accepted provided they have been properly processed and thoroughly washed; we recommend the use of a hypo-clearing or neutralizing agent, and toning in selenium or sepia to extend the useful life of the photographs;

- submitted in acid free envelopes; the envelopes should be labeled in pencil (see labeling instructions below).

ENVELOPE LABELING INSTRUCTIONS

Neatly print the following information on the upper right corner of the envelope in soft **lead pencil**:

1. Name of the resource;
2. Street Address, township, county, and state where the resource is located;
3. Name of photographer;
4. Date of photograph;
5. Description of view indicating direction of camera;
6. Photograph number.

Do not use adhesive labels for this information.

NEGATIVE SUBMISSION INSTRUCTIONS

The negatives must be submitted with the prints. Each strip of negatives should be submitted in acid free envelopes that have the following information submitted in soft lead pencil in the upper right corner of the envelope.

1. Name of the resource;
2. Name of the photographer;
3. Date of photograph;
4. Negative numbers

V. ADDITIONAL ITEMS

In addition to the items described in these guidelines, the SHPO may request additional documentation, depending on the nature and significance of a particular resource.

If you have any questions, please contact the Environmental Review Coordinator at 517-335-2721.

State Historic Preservation Office
Michigan Historical Center
717 W. Allegan
Lansing, MI 48918-1800

Appendix M

Final Wetland Mitigation and Monitoring Plan

WETLAND MITIGATION AND MONITORING PLAN

The following is a summary of the mitigation and monitoring requirements for the Oakwood Road and Little Prairie Hunt Club wetland restoration and creation sites. These sites will serve as mitigation for impacts to wetlands from the construction of M-15 within the Flint River watershed. This monitoring plan provides a basis to assure that the wetland mitigation site is accurately assessed by the Michigan Department of Transportation (MDOT) for evaluation by the Michigan Department of Environmental Quality (MDEQ) throughout the monitoring period. MDOT is in the process of modifying its monitoring procedures for "banked" mitigation sites. Therefore, some of the procedures outlined below may be modified to be consistent with the new, evolving procedures.

Numerous wetlands occur along the project corridor and many contain more that one community type. These potential wetland community impacts have been quantified and are listed as follows:

TABLE M-1
IMPACTS AND MITIGATION NEEDS BY COMMUNITY CLASS

Wetland Locations	Impact Area by Wetland Type[1] (acres)							
	PEM	PSS	PFO	POW	REM	ROW	LEM	LOW
W2, W5, W7, W8, W10, W10.5, W12, W31, W32, W33, W35, W35, W36A, W36B, W36C, W37, W38, W40, W41, W42, W48, W49, W50, W51, W52, W53, W54, W55, W56, W59, W61, W63, W64, W65, W67, W68	5.34							
W3, W5, W26, W27, W31, W36A, W36B, W38, W43, W48, W56, W57, W59, W61		1.70						
W2, W3, W4, W9, W24, W26, W27, W36A, W43, W44, W47, W48, W52, W53, W54, W55, W56, W57, W58, W60, W63			3.11					
W33, W35, W47				0.20				
W29, W27, W26					0.66			
W44, W30, W29, W27, W26, W25						0.71		
W34							0.04	
W34								0.69
Total impact: 12.45 acres								

Source: Tilton Associates, Inc.
[1] P – Palustrine FO – Forested OW – Open Water
R – Riverine SS – Scrub-shrub
L – Lacustrine EM – Emergent

These wetlands, which represent 12.45-acres of anticipated construction impact, have valuable ecological functions. They filter pollutants and sediment, cycle nutrients, store runoff, provide wildlife habitat, recharge groundwater (or discharge filtered water into lakes and streams), and add to the scenic character of the highway. Wetland impacts, which are also depicted according to position along the highway corridor in Exhibit M-3, will be updated and verified during the final plan process.

Tables M-1 and M-2 list all wetlands affected by the Technically and Environmentally Preferred Alternative. Note that the wetlands identified as Lacustrine and Riverine Open Water are regulated under Part 301 of Michigan Public Act 451. Mitigation for these wetlands will be

defined at the time modifications brought by the project are permitted. So, no mitigation acreage is included in this plan.

TABLE M-2
M-15 WETLAND IMPACTS – TECHNICALLY AND ENVIRONMENTALLY PREFERRED ALTERNATIVE

Wetland	Type[1]	Overall Wetland Area		Take		% Take[2]	Contiguous Body of Water[3]
		Hectares	Acres	Hectares	Acres		
W68	PEMY	4.05	10.00	0.004	0.01	0.10	Not contiguous
W67	PEMY	3.24	8.00	0.065	0.16	2.00	Not contiguous
W65	PEMY	39.57	97.70	0.004	0.01	0.01	Hoyle Drain
W64	PEMY	8.34	20.60	0.002	0.005	0.02	Cummings Drain
W63	PFOY	0.53	1.30	0.028	0.07	6.15	Cummings Drain
	PEM			0.004	0.01		
W61	PEM	1.82	4.50	0.089	0.22	7.33	Cummings Drain
	PSSY			0.045	0.11		
W60	PFOY	7.29	18.00	0.211	0.52	2.89	Cummings Drain
W59	PEM	0.903	2.23	0.032	0.08	6.73	Cummings Drain
	PSSY			0.028	0.07		
W58	PFOY	89.51	221.00	0.170	0.42	0.19	Cummings Drain
W57	PFO	89.51	221.00	0.008	0.02	0.10	Cummings Drain
	PSSY			.077	0.19		
W56	PFO	40.70	100.50	0.004	0.01	0.22	Cummings Drain
	PEM			0.057	0.14		
	PSSY			0.028	0.07		
W55	PFO	0.45	1.10	0.073	0.18	18.18	Not contiguous
	PEMY			0.008	0.02		
W54	PFO	0.10	0.24	0.02	0.05	54.17	Not contiguous
	PEMY			0.032	0.08		
W53	PEMY	0.45	1.10	0.041	0.1	10.00	Not contiguous
	PFO			0.004	0.01		
W52	PEM	0.16	0.40	0.057	0.14	47.50	Cartwright Drain
	PFOY			0.02	0.05		
W51	PEMY	10.17	25.10	0.008	0.02	0.08	Cartwright Drain
W50	PEMY	10.17	25.10	0.004	0.01	0.04	Cartwright Drain
W49	PEMY	0.37	0.90	0.008	0.02	1.11	Cartwright Drain
W48	PEM	42.04	103.80	0.10	0.25	0.48	Kearsley Creek
	PSS			0.081	0.20		
	PFOY			0.02	0.05		
W47	PFO	41.84	103.30	0.073	0.18	0.29	Kearsley Creek
	PEMY			0.049	0.12		
W44	ROW	45.40	112.10	0.030	0.073	0.65	Kearsley Creek
	PFOY			0.265	0.66		
W43	PSS	0.37	0.90	0.006	0.014	3.11	Not contiguous
	PFOY			0.006	0.014		
W42	PEMY PEMY	0.07	0.16	0.024	0.06	37.50	Not contiguous
W41	PEMY	0.06	0.15	0.004	0.01	6.67	Paddison Drain
W40	PEMY	0.08	0.19	0.004	0.01	5.26	Paddison Drain
W38	PEM	1.36	3.35	0.02	0.05	2.99	

	PSSY			0.02	0.05		Paddison Drain
W37	PEMY	5.67	14.00	0.138	0.34	2.43	Harris Creek
W36C	PEMY	65.61	162.00	0.182	0.45	0.28	Harris Creek
W36B	PEM	65.61	162.00	0.109	0.27	0.29	Harris Creek
	PSSY			0.081	0.20		
W36A	PFO	4.46	11.00	0.045	0.11	4.91	Harris Creek
	PSS			0.093	0.23		
	PEMY			0.081	0.2		
W35	POW	0.065	0.16	0.02	0.05	100.0	Unnamed lake
	PEMH			0.045	0.11		
W34	LOW	3.24	6.58	0.279	0.69	11.09	Unnamed lake
	LEMH			0.016	0.04		
W33	POW	11.06	27.30	0.012	0.03	0.33	Kearsley Creek
	PEMY			0.024	0.06		
W32	PEMY	1.01	2.50	0.053	0.13	5.20	Kearsley Creek
W31	PEM	22.52	55.60	0.057	0.14	0.49	Duck Creek
	PSSY			0.053	0.13		
W30	ROWH	8,421 m	27,789 ft	0.049	0.12	0.37	Duck Creek
W29	REM/	8,421 m	27,789 ft	0.142	0.35	1.08	Duck Creek
	ROWH			0.008	0.02		
W27	PFOY	3.078	7.60	0.004	0.01	2.50	Duck Creek
	PSS			0.024	0.06		
	REM	8,421 m	27,789 ft	0.045	0.11	0.88	
	ROWH			0.004	0.01		
W26	REM	8,421 m	27,789 ft	0.081	0.20	2.49	Duck Creek
	ROW			0.016	0.04		
	PSS	0.93	2.30	0.061	0.15	18.70	
	PFOY			0.016	0.04		
W25	ROW	8,421 m	27,789 ft	0.182	0.45	1.90	Duck Creek
W24	PFO	30.17	74.50	0.041	0.10	0.13	Green Lake
W12	PEMH	4.90	12.10	0.365	0.90	7.44	Lawrence (Huff) Lake
W10.5	PEMY	0.06	0.14	0.032	0.08	57.14	Lawrence (Huff) Lake
W10	PEMY	0.57	1.40	0.292	0.72	51.43	Lawrence (Huff) Lake
W9	PFOY	0.02	0.05	0.020	0.05	100.00	Wilson Lake
W8	PEMY	13.45	33.20	0.101	0.25	0.75	Wilson Lake
W7	PEMY	35.52	87.70	0.061	0.15	0.17	Wilson Lake
W5	PEM/	1.42	3.50	0.053	0.13	7.43	Not contiguous
	PSSY			0.053	0.13		
W4	PFOY	0.08	0.02	0.077	0.19	95.00	Wilson Lake
W3	PFO	1.09	2.70	0.151	0.37	17.26	Wilson Lake
	PSSY			0.038	0.09		
W2	PFO	0.41	1.00	0.004	0.01	2.00	Not contiguous
	PEMY			0.004	0.01		
Total		**739.24**	**1825.29**	**5.04**	**12.45**	**0.68**	

Source: Tilton Associates, Inc.

[1] P – Palustrine FO – Forested OW – Open Water
R – Riverine SS – Scrub-shrub H - Permanent
L – Lacustrine EM – Emergent Y – Saturated/Semipermanent/Seasonal (Cowardin et al., 1979).

[2] Percent take for palustrine wetlands is based on aerial photo measurements for smaller wetlands and National Wetland Inventory (NWI) data for larger wetlands. Total lacustrine areas are based on MIRIS data. Area data is not

available for riverine wetland. Percent take for riverine impact is based on length of impact compared to overall stream length, which is available in the MIRIS database.
[3] "Contiguous," as defined in Part 303 Wetlands Protection of 1994 PA 451, as amended, includes wetlands existing within 500 feet of a lake, river, pond, or stream.

Wetland Mitigation

The MDOT is proposing to mitigate the wetland impacts for M-15 in-kind within the Flint River Watershed at two sites: 1) the Oakwood Road site in Brandon Township (T5N, R9E, Section 7) in Oakland County (Exhibit B-1); and, 2) the Little Prairie Hunt Club in Spaulding Township (T11N, R4E, Sections 31 and 32) in Saginaw County (Exhibit B-2).

The plan is to create a combination of emergent/open water, scrub-shrub, and forested wetlands to replace those kinds of wetland take, according to the mitigation replacement ratios required by the MDEQ and the legal authority of Part 303 Wetlands Protection of the 1994 PA 451, as amended. In addition to wetland mitigation, the floodplain (as well as wetland and preserved upland) would be protected in perpetuity with a conservation easement. Wetland impacts, mitigation ratios, and the replacement mitigation wetland are summarized in Table M-3.

TABLE M-3
ANTICIPATED MITIGATION NEEDS

Wetland Community	Take (acres)	Mitigation Ratio	Mitigation to Create or Restore (acres)
Palustrine Forested	3.11	2 to 1	6.22
Palustrine Scrub-shrub	1.70	1.5 to 1	2.55
Palustrine Emergent	5.34	1.5 to 1	8.00
Palustrine Open Water	0.20	1.5 to 1	0.30
Riverine Emergent	0.66	1.5 to 1	0.99
Riverine Open Water	0.71	NA[1]	NA[1]
Lacustrine Emergent	0.04	2 to 1	0.08
Lacustrine Open Water	0.69	NA[1]	NA[1]
Total	**12.45**		**18.14**

Source: Tilton Associates, Inc.
[1] NA means Not Applicable, as these wetlands are regulated under Part 301. Mitigation requirements will be decided at the time of permitting..

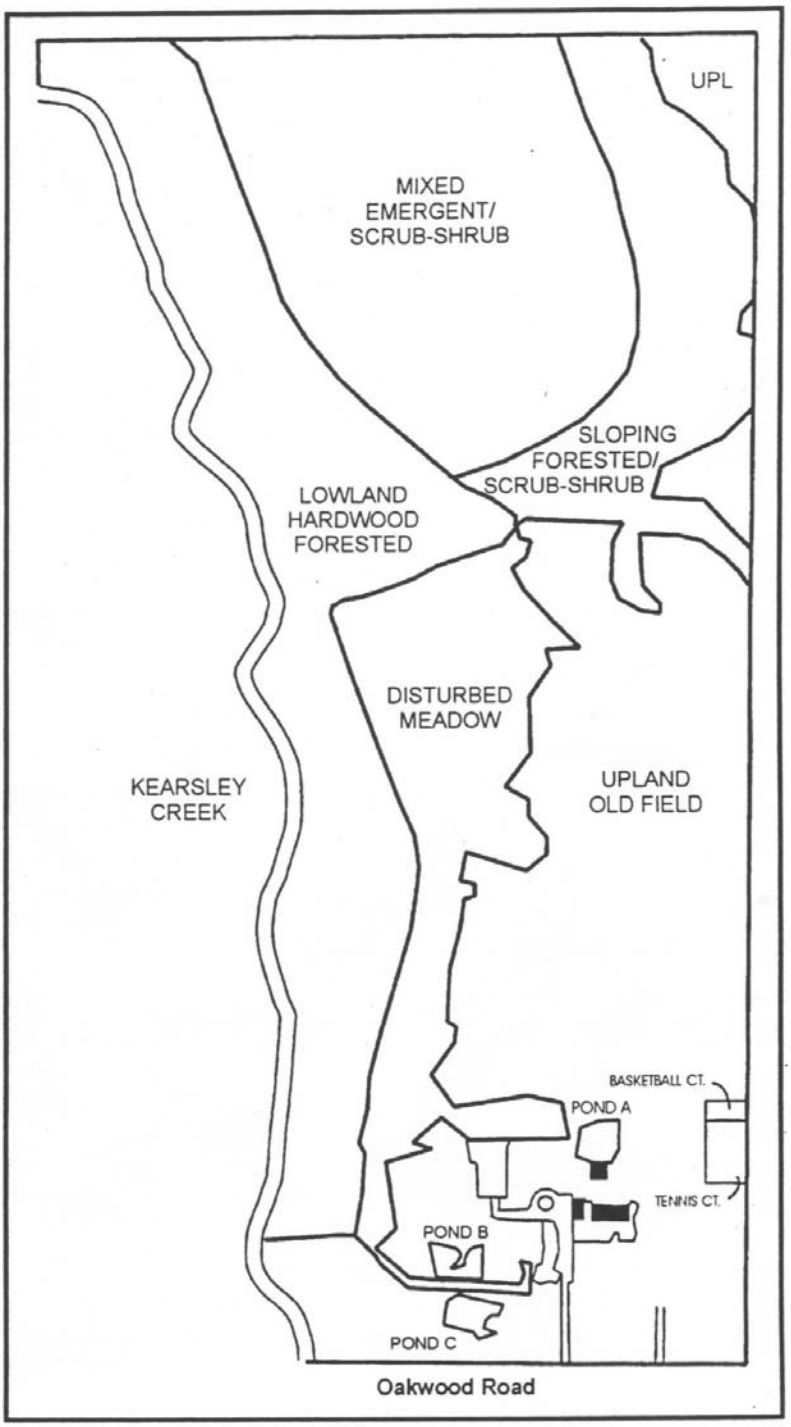
Oakwood Road Site, Brandon Township

The Oakwood Road site (Exhibit M-1) is currently owned by the MDOT and is located adjacent to Kearsley Creek, north of Oakwood Road. Kearsley Creek is classified as a cold/cool-water trout stream (Leonardi and Gruhn, 2001). Wetlands restored or created at this site would be directly contiguous to the creek. The site was a former private estate with facilities for pleasure horses, emus, swimming, tennis, basketball, and golf. Based on soil studies it appears that some filling and grading was done to enhance the golf course. A long open drain had also been dug to increase drainage in lower topographic positions. The mitigation plan would return these modified surfaces to their approximate former topographic and hydrologic condition.

Approximately 19-acres of preserved, restored or created mitigation wetland is planned for the Oakwood Site. This amount assumes that a portion (about three acres) of the property containing

existing buildings will be sold and unavailable for wetland mitigation. Restoration or creation of successful mitigation will depend on the establishment of wetland hydrology upland o**n** former wetland areas. Water to maintain wetland hydrology in the proposed mitigation site would come from multiple sources. In addition to precipitation and direct runoff, the site would receive floodwaters from the creek and groundwater seepage from adjacent higher-elevation landscapes.

Exhibit M-1
Oakwood Road Wetland Mitigation Site
Brandon Township, Oakland County



Ground water wells have been installed to collect hydrologic data and identify soil stratigraphy. This information is necessary to complete a detailed design for the construction of the proposed wetlands.

Construction and/or restoration of a mixed emergent/scrub-shrub/forested wetland at this site would increase wetland connectivity and heterogeneity, enhance wildlife habitat, and increase flood storage capacity. The resulting wetland area adjacent to Kearsley Creek, including preserved floodplain, pre-existing wetland, and mitigation wetland will be placed into permanent conservation easement and protected in perpetuity. This natural area will provide significantly expanded and enhanced habitat as well as preclude and buffer future impacts to Kearsley Creek.

Preservation credits allowing for reduced mitigation needs at the Oakwood Road site were allowed (see letter and email from the MDEQ in Appendix C of the FEIS).

Existing Site Conditions, Oakwood Road Site

Conditions at the proposed mitigation site are very favorable for successful wetland development. Approximately five acres of the M-15 mitigation would be done at a site along Kearsley Creek. Some of this area would have restored wetland within the floodplain. Minimal excavation would be required to restore the site to elevations suitable for wetland development. Appropriate wetland hydrology can be developed at the site by blocking a drainage ditch and excavating soils down to a grade necessary to achieve hydrologic conditions suitable for wetland habitat. Development of such a wetland complex at this site would increase wetland size, heterogeneity, and connectivity in the Kearsley Creek corridor. Collateral benefits of increased connectivity and heterogeneity at this site include increased habitat value for waterfowl, fish, and amphibian species, increased flood storage capacity, and increased aesthetic and recreational value.

The area of investigation is located in the regional landscape ecosystem called the "Jackson Interlobate" sub-subsection (Albert, 1995). Landforms typical of this ecological unit include sandy and gravelly ground moraine, end moraine, and kettle and kame topography. Wetlands are found in depressions, outwash channels and adjacent lakes and streams. During pre-settlement times, "calcareous seepages often supported fens. Tamarack grew near the upland margins of the fens" (Ibid). Lowland Hardwood Forested Wetland (vegetation code 414) was evidently the presettlement vegetation occupying this parcel of land, based on interpretation of General Land Office Surveys between 1816 and 1856 (Comer et al., 1995). Today, most of the surrounding land-use adjacent the Oakwood Road property is a natural area stream corridor to the north and west, low-density residential to the east, and small-town commercial and residential to the south.

Upland found on the property mostly consists of abandoned turfgrass, with dandelion, Queen Anne's lace, and small areas of upland forest consisting of white pine, red oak, and beech. Soils in these upland areas are sandy, with the soils supporting the abandoned turfgrass brownish and showing little horizon development, an indication of recent soil disturbance. This area, approximately 19 acres, is slated for compensatory wetland mitigation through restoration and construction.

The Soil Survey of Oakland County, Michigan (Feenstra, 1982) shows the dominant soil types for this area are Houghton-Adrian mucks, Granby loamy sand, and Oshtemo-Boyer loamy sand. The Houghton-Adrian and Granby soils are hydric. The upland Oshtemo-Boyer soil has a calcareous subsoil. On-site assessment of both upland and hydric (wetland) soils essentially corroborated the mapped soil descriptions, however some soil disturbance, possibly including soil redistribution and fill are apparent in upland areas currently dominated by turf grass.

Approximately 19 acres of upland were determined by field inspection and GPS measurement. Five wetlands, extending approximately 27 acres, Wetlands A, Pond A, Pond B, Pond C, and

Pond D were identified, using pink and black "Wetland Delineation" tape. A brief description of each follows:

Wetland A: A Large Multi-community Wetland Complex
Wetland A is a large multi-community wetland complex consisting of four parts: (1) sloping forested/scrub-shrub wetland, (2) mixed emergent/scrub-shrub wetland, (3) lowland hardwood forested wetland and (4) disturbed wet meadow/emergent wetland. A description of each community follows.

Sloping forested/scrub-shrub wetland community
The northeast portion of the property has sandy or muck-over-sand soils and a high water table that gradually slope westward toward Kearsley Creek. A mixed upland wooded community on the adjoining property on the east side includes beech (*Fagus grandifolia*), red oak (*Quercus rubrum*), and white pine (*Pinus strobus*). This community grades westward into a transitional upland/wetland zone that includes tamarack (*Larix laricina*), northern white cedar (*Thuja occidentalis*), white pine (*Pinus strubus*), eastern ninebark (*Physocarpus opulifolius*), shrubby cinquefoil (*Potentilla fruticosa*), and small pockets of sedges (*Carex spp*.). The tamarack, white cedar, eastern ninebark and shrubby cinquefoil area are frequently associated with calcareous groundwater conditions typical of fens.

Mixed emergent/scrub-shrub wetland
This community is located in the north-central portion of the property and includes cattail (*Typha spp.*), blue-flag iris (*Iris versicolor*), red osier dogwood (*Cornus stolonifera*) and a minor component of shrubby cinquefoil (*Potentilla fruticosa*). This wetland has organic-rich soils and floods during peak flows from Kearsley Creek. The water table appears to remain near to (within 12 inches) or above the ground surface for most of the time.

Lowland hardwood forested wetland adjacent to Kearsley Creek
This forested wetland community, approximately 10 acres in area, is located on the east side of Kearsley Creek and extends along the entire west side of the property. Dominant vegetation includes silver maple (*Acer sacharinum*), red maple (*Acer rubrum*), eastern cottonwood (*Populus tremuloides*), black ash (*Fraxinus nigra*) and American elm (*Ulmus americana*). Understory vegetation includes forget-me-not (*Myosotis sp.*) and Trillium (*Trillium sp*.). The soils in this community are dark, silty, and have hydric soil indicators, due to frequent flooding during peak flows of Kearsley Creek, which borders to the west. Tree trunks typically display watermarks and buttressed roots, which are also signs of flooding.

Disturbed meadow
This community appears to have been modified or "landscaped" to build a small golf course on the property. A large linear drainage ditch cuts through this community and has apparently modified the former hydrology of this community. The dominant vegetation is currently turf grass (*Poa spp*.), however some wetland species are also present in small depressions, including wheel ruts) together comprising about 20 % or less, or about 1-acre of the meadow area. These wetland species include blue vervain (*Verbena hastata*), curly dock (*Rumex crispus*), silky dogwood (*Cornus amomum*), reed canary grass (*Phalaris arundinaceae*) and red-osier dogwood (*Cornus stolonifera*). Soils in this community are variable, some hydric (Granby loamy sand) others disturbed through grading and, possibly, filling. Wetland restoration and construction are planned for this community.

Upland Old Field
This area also shows signs of re-grading. Soils consist of fairly uniform fine sands. Topsoil exists but appears thin with relatively little organic matter. Herbaceous upland graminoids and grassland forbs comprise the species of this plant community. Dry grasslands occur on the upper elevation eastern portion of the mitigation site, and in scattered patches in the lower elevation western portion of the site near Kearsley Creek. Dominant species include various upland grasses (*Poa spp*.) and spotted knapweed (*Centaurea maculosa*). A few scattered shrubs and trees, including Scots or Red pine (*Pinus sylvestris*) , Russian olive (*Elaeagnus angustifolia*), White or Green ash (*Fraxinus pennsylvanica*), and Quaking aspen (*Populus tremuloides*) occur as individual specimens or in small groups in this area.

Little Prairie Hunt Club

The Little Prairie Hunt Club (Exhibit M-2) contains approximately 80 acres of potential wetland mitigation. It is currently in the process of MDOT real estate acquisition. The property is currently managed for row-crop agriculture and hunting. Unlike the Oakwood Road site, which contains a variety of high quality cover types, the plant community composition at the Hunt Club is essentially uniform and typical farmland. The land surface is low-relief, and has been drained historically to make the land suitable to farm. The Flint River borders the site, as do major drains. These drains would be modified to restore wetland hydrology to the site. Little, if any, excavation is anticipated to be necessary to restore successful wetland at the site. The Hunt Club is situated about ¼ mile south of the Shiawassee National Wildlife Refuge and about two miles east of the Shiawassee River State Game Area. These places are major wildfowl production areas associated with Saginaw Bay.

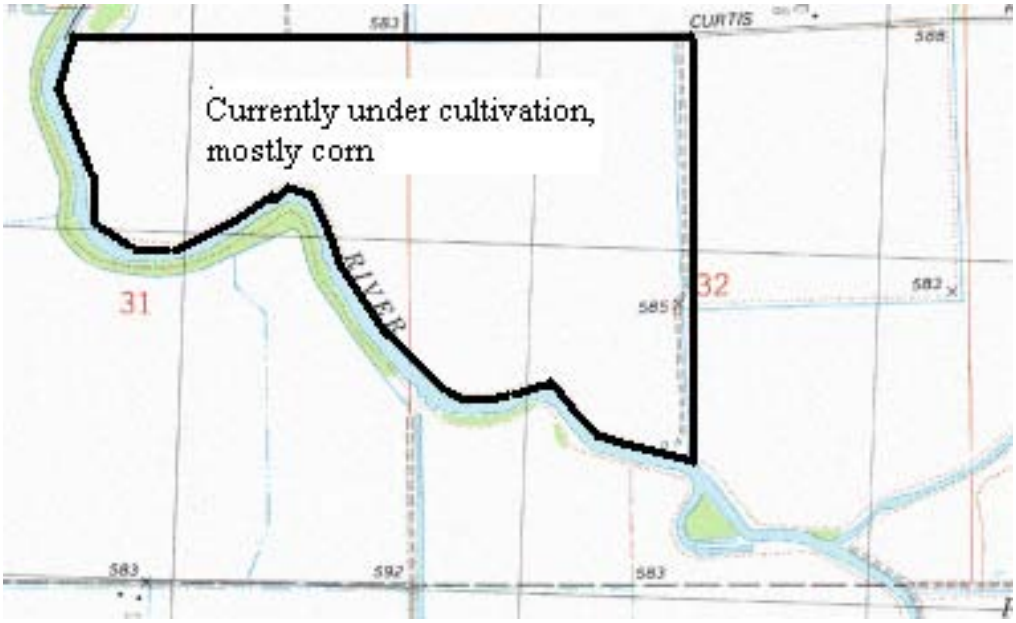
The Regional Landscape Ecosystem for this site is the Saginaw Bay Lake Plain Subsection (Albert, 1995). The Lake Plain consists of flat, wave-worked till plain. The presettlement vegetation in this subsection consisted of extensive marshes, along Saginaw Bay, wet prairies, lowland hardwoods dominated by elm (*Ulmus americana*), basswood (*Tilia americana*) and black ash (*Fraxinus nigra*), and lowland conifer swamps dominated by tamarack (*Larix laricina*).

Soils at the site mostly consist of Zilwaukee-Misteguay (poorly-drained) and Sloan Ceresco Complex (very poorly drained) soils. All of these soils are considered “hydric,” that is, soils that developed under conditions saturated long enough to be anaerobic in the upper part during at least a significant portion of the growing season. Hydric soils are nearly always associated with wetlands and former wetlands.

Site Preparation

For the Oakwood Road site, construction would begin by blocking an artificial drain. This is expected to be the only modification needed to restore approximately six acres of wetland. At higher elevations, topsoil would be stripped and stockpiled, and subsoils would be excavated and removed to a depth necessary to reach a depth near the seasonal high water table. Excavation depths would range between one and three-feet, or as needed to restore appropriate topographic

Exhibit M-2
M-15 Proposed Wetland Mitigation Site
Spaulding Township, Saginaw County



contours across the site. Post-excavation grading and topsoil placement would then be undertaken to establish suitable conditions for wetland vegetation development. During construction, soil erosion prevention measures would be taken as required by the soil erosion and sedimentation control permit to be obtained by the construction contractor.

At the Little Prairie Hunt Club, construction would begin by breaking or removing field tiles and modifying drain outlets to capture and divert water to the restored wetland. Little or no excavation or re-grading is anticipated.

Planting Plans

For both the Oakwood Road and Little Prairie Hunt Club sites, a mixture of trees, shrubs, and herbaceous plant species typical of local emergent, shrub-scrub, and forested wetlands would be seeded and/or planted upon completion of drain modification and earth-working operations. Local ecotypes would be utilized wherever possible when selecting seed mixes and vegetative propagules. The proposed cover crop seed mix will be selected to provide fast, temporary vegetative cover that will minimize erosion and limit colonization by invasive species.

Depending on the availability and cost of plant materials at the time of construction, species such as Silver Maple (*Acer sacharinum*), Red Maple (*Acer rubrum*), Swamp White Oak (*Quercus bicolor*), and Sycamore (*Platanus occidentalis*) would be planted in restored floodplain wetland near Kearsley Creek. Tamarack (*Larix laricina*), again, if feasible, would be planted in portions

of the created wetland near the eastern property line, or other suitable area of the wetland where the tree roots would be saturated for a portion of the growing season, but would not be saturated or inundated for prolonged periods of time. The trees would be planted approximately 0.5 to 1.5 foot above the ordinary high water mark of the wetland.

Native wetland shrubs, such as Grey Dogwood (*Cornus racemosa*), High-bush Cranberry (*Viburnum trilobum*), Eastern Ninebark (*Physocarpus opulifolius*), and Buttonbush (*Cephalanthus occidentalis*) would be planted along the next wetter zone (approximately 0.5 foot above to 0.5 foot below the ordinary high water mark) (PEM/PSS) between the wettest portion of the wetland, and the forested wetland. Selection of exact species will depend on cost and availability.

An emergent wetland seed mix containing appropriate species such as soft-stem bulrush (*Scirpus validus*), hard-stem bulrush (*Scirpus acutus*), Pickerel weed (*Pontederia cordata*), Spike rush (*Eleocharis* spp.), sedges (*Carex* spp.), and various wetland grasses and forbs would be spread in portions of the wetland occurring between 0.5 and 1.0 foot below the expected ordinary high water mark. Small, vegetated islands of emergent vegetation could be interspersed with deeper, open water habitat (PEM/POW), which is a pattern favorable to use by waterfowl and amphibians. At the Oakwood Road site, no open water would be situated near enough to Kearsley Creek to risk discharging sun-heated surface water directly to the creek during the summer.

Overall, the planting plan is expected to produce aesthetically attractive vegetated community complexes that would function to polish runoff and provide food and cover for a variety of songbirds, waterfowl, small mammals and amphibians. The planting zones will be designed to maximize the length of "edge" zones, which favors a number of wildlife "edge species." Trails will be included in the design for access, maintenance and monitoring activities. If the future ownership of the wetland changes to a public nature center or private conservation agency, the infrastructure will be in place to accommodate potential visitors.

MONITORING

Monitoring Period

The wetlands will be monitored for a period of six to ten years, depending upon climatologic conditions. The depth of water in the wetland will vary due to fluctuations in the groundwater table, vegetative cover, microclimate, and distribution of annual precipitation.

At the end of the monitoring period, one of the goals for the two mitigation sites is to meet the definition of a wetland as defined in both Section 404 of the federal Clean Water Act and Part 303 Wetlands Protection, under the State of Michigan's Natural Resources and Environmental Protection Act 1994 PA 451, as amended.

The state definition of a wetland is as follows: "(Wetland) means land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh."

At the end of the monitoring period, the wetland boundaries will be delineated per the MDEQ 2001 Wetland Delineation Manual to determine the amount of successful wetland creation. At that time, the MDEQ may authorize cessation of monitoring if it is determined that the wetland has fulfilled its performance standards and ecological functions as outlined within this document.

Monitoring Procedures

The following procedures will be used to monitor the mitigation sites:

1. Soils – Upon completion of the mitigation site construction, the soil profile will be examined using hand soil borings. The soil profile morphology will be documented using the Munsell soil color chart (Kollmorgen, 1994) to a depth of two feet. At the end of the monitoring period, the soils will be re-examined using hand soil borings and the soil profile will be documented to a depth of two feet and compared to the original results. If soil amendments are used, documentation of the placement of the amendments will be supplied to the MDEQ in the first monitoring report.
2. Hydrology – At a minimum, one groundwater monitoring well will be installed in each of the wetland types (PEM, PFO, PSS) within the mitigation sites. Readings will be taken in the spring and fall in order to document the hydrologic regime. Primary and secondary indicators of hydrology (Environmental Laboratory, 1987; MDEQ 2001) will be used to determine water elevations if standing water is not present, and to supplement the well data. If the ground water monitoring wells are installed incorrectly, or missing, then shovel test pits will be dug to a determine the depth to saturated groundwater.
3. Vegetation – A predominance (greater than 50%) of wetland vegetation will be required in each stratum to meet the definition of wetland.
4. Wildlife – The wildlife will be assessed using both direct and indirect observations. Species encountered, quantity, and activity observed will be recorded during each field review. These will be listed in the annual monitoring report.

Performance Criteria for Both the Oakwood Road and Little Prairie Hunt Club Sites

1. **Palustrine Forested**
   Hydrology – in the spring, ranging from saturation within 12.0 inches of the surface to approximately 6.0 inches of standing water; in the summer, variable, but should be saturated within 12.0 to 24.0 inches of the surface.

   Vegetation – the forested wetland areas will be planted with the tree species mentioned previously. In addition to plantings, the tree layer may also be colonized by other volunteer wetland species including red maple, elm, green ash, and willow. At the end of the monitoring period, the tree layer will support a predominance of Hydrophytic species including obligate (OBL), facultative-wet (FACW), and facultative (FAC) wetland plants (Environmental Laboratory, 1987; Reed, 1988; MDEQ, 2001.

2. **Palustrine Emergent**
   Hydrology – standing water depths will vary from approximately 0-18 inches. It is anticipated that water depths will not exceed 18 inches for and extended period of time.

   Vegetation – the wetland will be vegetated from the existing seedbed in the soil, and the seed mixture planted by MDOT as described in the Planting Plan, above. The emergent layer will support a predominance of hydrophytes (OBL, FACW, and FAC) by the end of

the monitoring period. The percent areal cover by wetland vegetation will be 70 percent or more by the sixth year.

3. **Palustrine Scrub- Shrub**
   Hydrology – in the spring, ranging from saturation within 12 inches of the surface to approximately 6.0 inches of standing water. During the summer, depths may vary, but should be saturated within 12.0 to 24.0 inches of the ground surface.

   Vegetation – the scrub-shrub areas will be planted with shrub species in accordance with the wetland mitigation Planting Plan. Over time, the shrub layer should be colonized by volunteer wetland shrub species. The shrub layer will support a predominance of hydrophytic species by the end of the monitoring period at a density of at least 150 free-standing shrubs per acre. The scrub-shrub boundary will be delineated to make sure that the acreage requirement is met.

By the end of the monitoring period, there will be a predominance of wetland vegetation represented within each vegetation community type.

MDOT will try to control invasive species within our wetland creation sites by implementing the following control measures:

1. The wetland mitigation sites have been selected in an area not dominated by invasive/non-native species.
2. Soil amendments containing invasive/non-native plant species will not be allowed within the wetland.
3. The mitigation sites will be re-vegetated with a variety of wetland seed mixes and plantings (depending on the type of wetland created) in order to provide fast ground cover and deter the germination and growth of invasive plant species.

Monitoring Schedule

Monitoring will begin the first full year after construction, most likely in the spring. Yearly reports will be submitted to the Michigan Department of Environmental Quality on or before October 1st of each of the monitoring years. Copies of the report will be submitted to other agencies upon request. Monitoring during years 7 through 10 will be determined by MDOT and will be based on the need for data regarding each individual monitoring component.

Upon completion of the monitoring, the wetland will be delineated and mapped using GPS. The map will include all the major plant communities at the sites. The map will be submitted with the final monitoring report which will include a discussion regarding acreage requirements as described within the MDEQ permit(s), versus those achieved at the site.

If the mitigation wetland fails to meet the established performance standards and ecological functions outlined within the proposal by the end of the sixth year, or, if it is apparent that these wetland functions will not be achieved with the current wetland design, MDOT shall:

1. Assess the problems and list probable causes;
2. Develop reasonable and necessary corrective measures as a revision to the original plan;
3. Implement corrective measures and additional monitoring as mutually agreed upon by the MDEQ and MDOT (Environmental Section) to assure the proper acreage for each vegetative community type is created for this project.

In the event all or a portion of wetland is destroyed due to uncontrollable natural disasters (fire, tornados, severe floods, human interference, etc., outside MDOT's control), MDOT will take corrective action only after consultation with resource agencies. This consultation will ensure corrective actions are feasible expenditure of public funds.

This mitigation plan is subject to review and concurrence from the regulatory agencies involved with permit oversight. In this case, those agencies include the Michigan Department of Environmental Quality (MDEQ), the U.S. Environmental Protection Agency (USEPA), and the U.S. Fish and Wildlife Service (USFWS).

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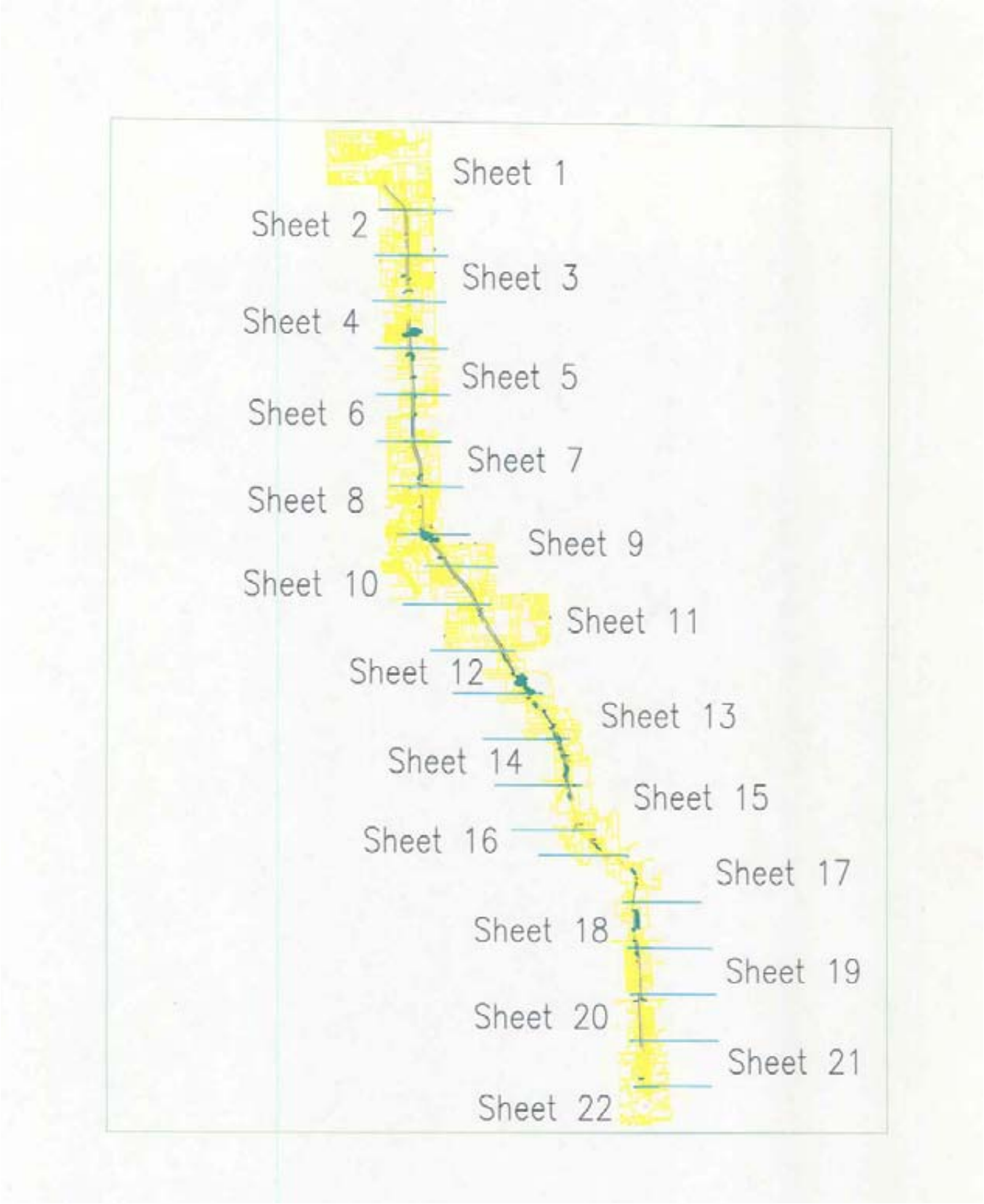
Exhibit M-3

Planimetric Maps Showing
Wetland Impact Locations along the M-15 Corridor

(attachments)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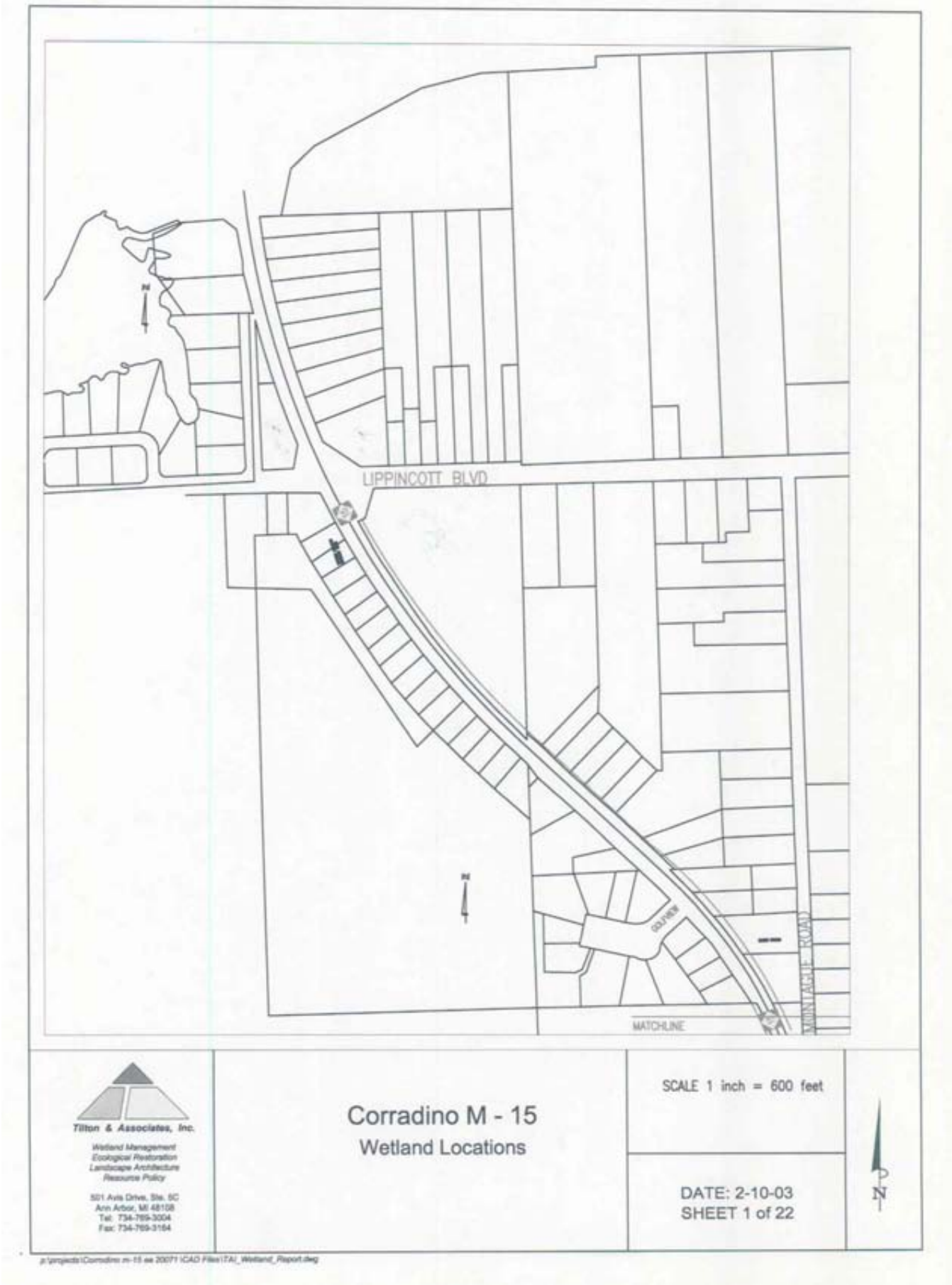
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Tilton & Associates, Inc.
Wetland Management
Ecological Restoration
Landscape Architecture
Resource Policy
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Ann Arbor, MI 48108
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Wetland Locations
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DATE: 2-10-03
SHEET 1 of 22
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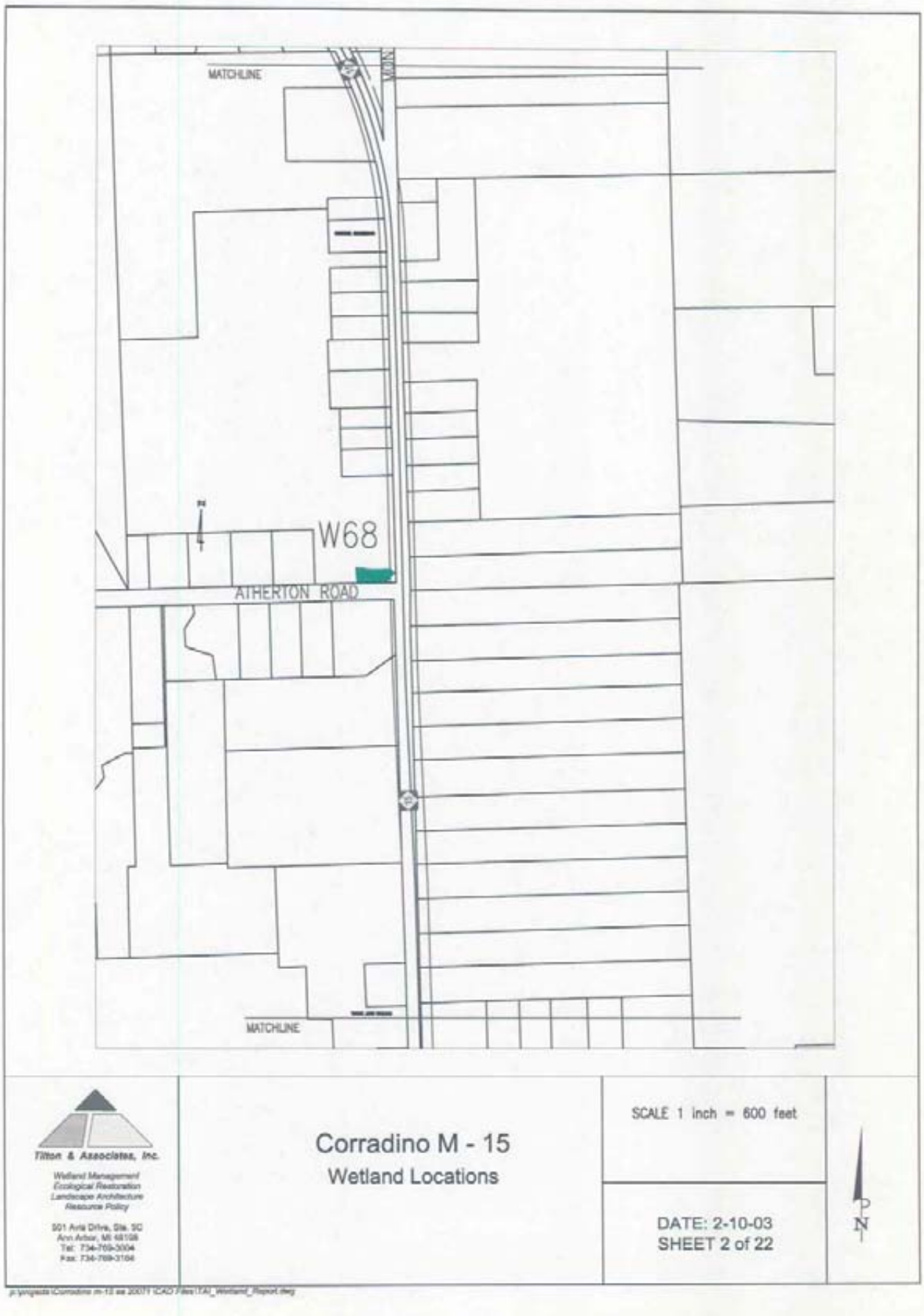
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SHEET 2 of 22
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BRISTOL ROAD
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W63
MATCHLINE
Tilton & Associates, Inc.
Wetland Management
Ecological Restoration
Landscape Architecture
Resource Policy
501 Avis Drive, Ste. 5C
Ann Arbor, MI 48108
Tel: 734-769-3004
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Wetland Locations
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SHEET 3 of 22
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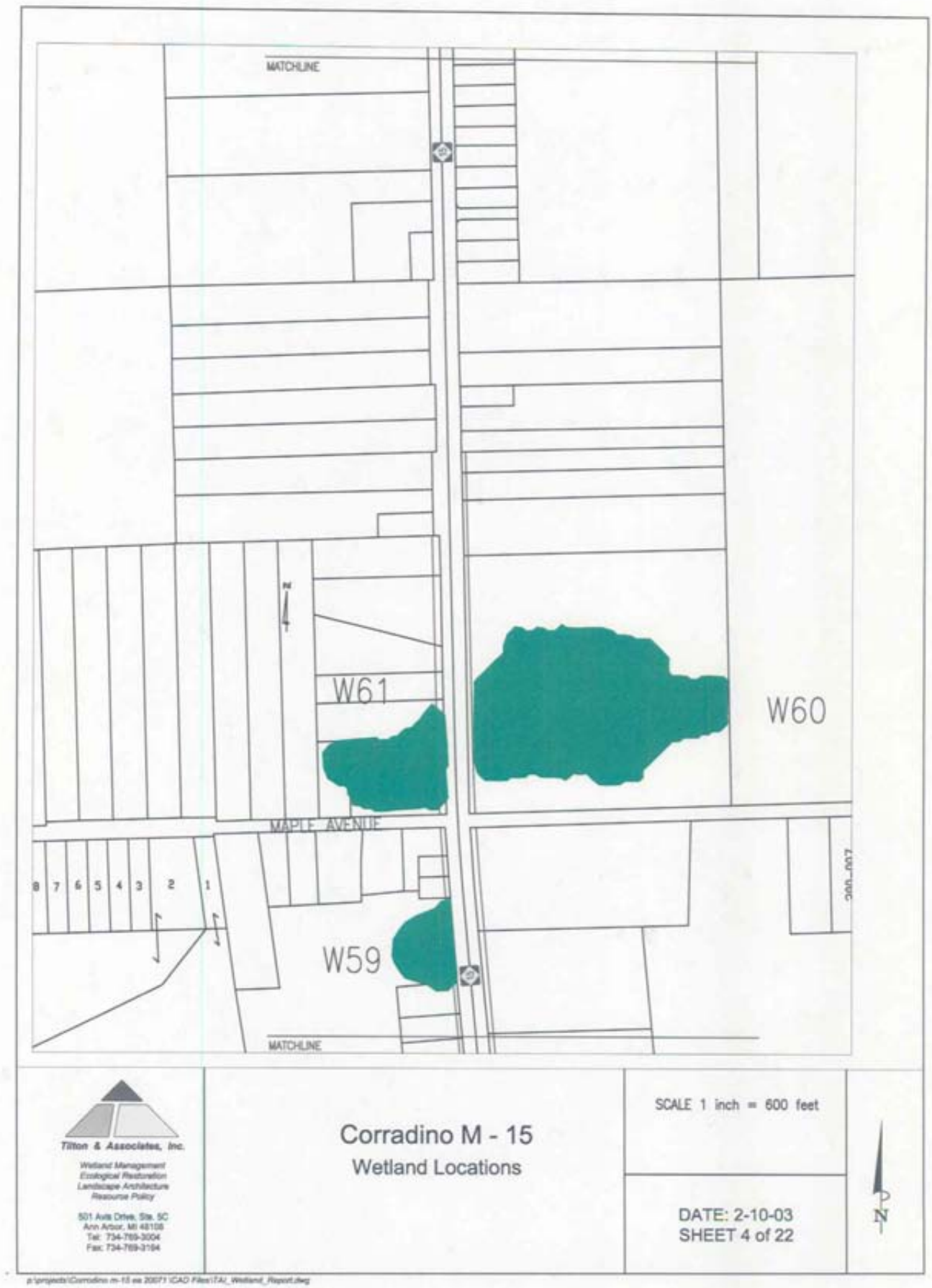
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MAPLE AVENUE
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MATCHLINE
Tilton & Associates, Inc.
Wetland Management
Ecological Restoration
Landscape Architecture
Resource Policy
501 Avis Drive, Ste. SC
Ann Arbor, MI 48108
Tel: 734-769-3004
Fax: 734-769-3164
Corradino M - 15
Wetland Locations
SCALE 1 inch = 600 feet
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SHEET 4 of 22
N


MATCHLINE
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Resource Policy
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Ann Arbor, MI 48108
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Wetland Locations
SCALE 1 inch = 600 feet
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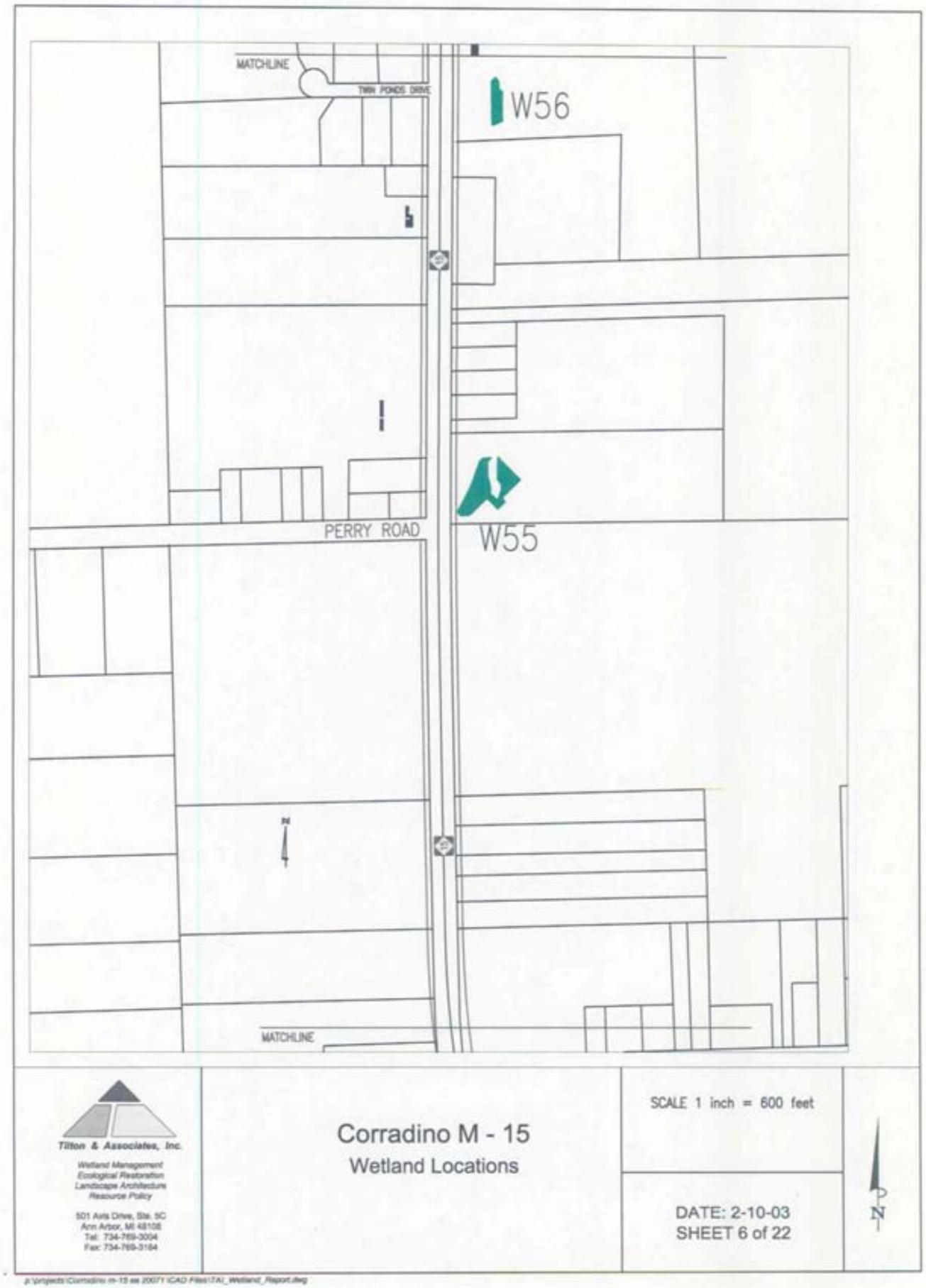
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TWIN PONDS DRIVE
W56
PERRY ROAD
W55
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Tilton & Associates, Inc.
Wetland Management
Ecological Restoration
Landscape Architecture
Resource Policy
501 Avis Drive, Ste. 5C
Ann Arbor, MI 48108
Tel: 734-769-3004
Fax: 734-769-3164
Corradino M - 15
Wetland Locations
SCALE 1 inch = 600 feet
DATE: 2-10-03
SHEET 6 of 22
N


MATCHLINE
COOLIDGE ROAD
SCUDNER DRIVE
WM F. HUFSTADER DRIVE
W52
W51
W50
W49
MATCHLINE
Tilton & Associates, Inc.
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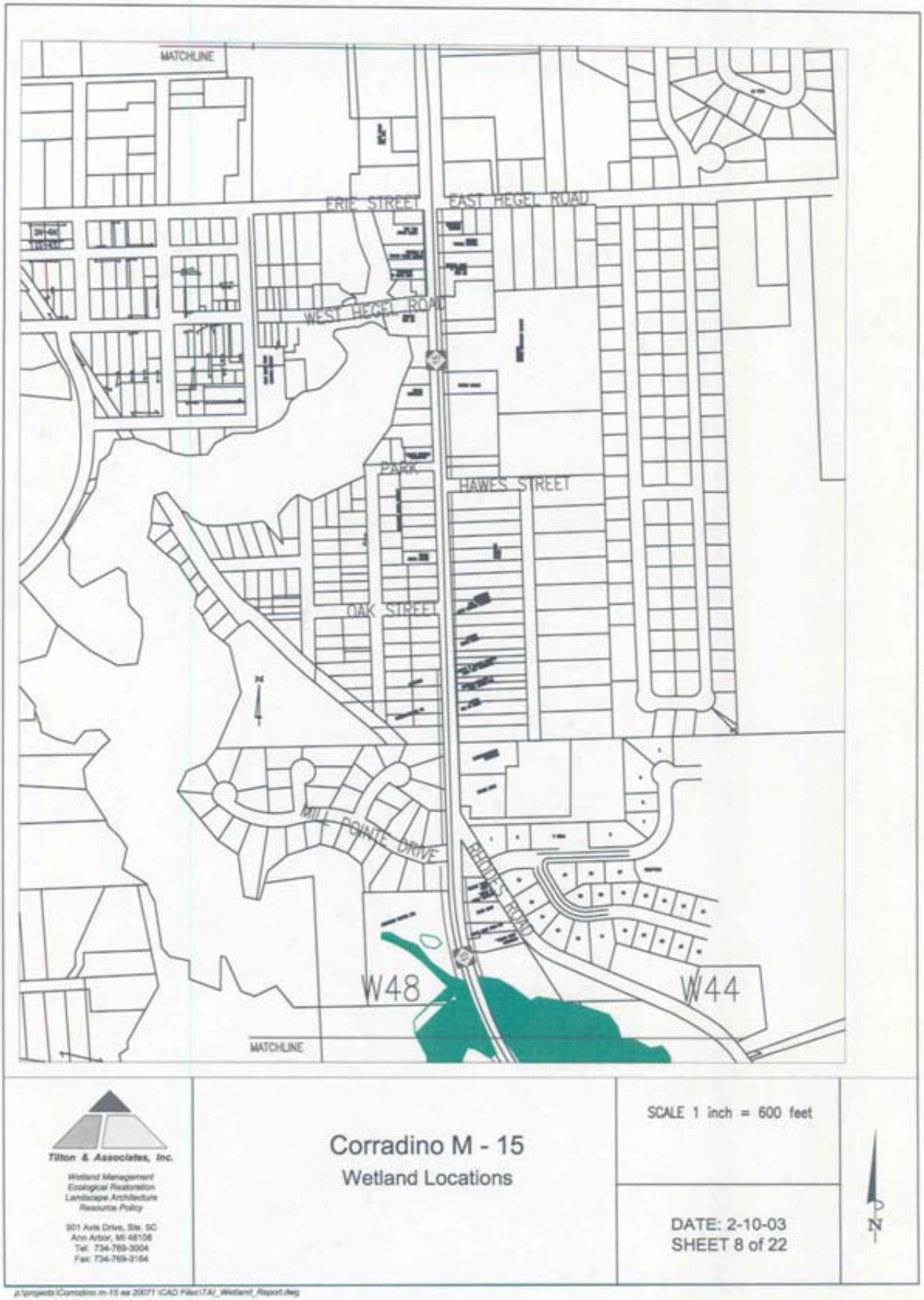
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EAST HEGEL ROAD
WEST HEGEL ROAD
PARK
HAWES STREET
OAK STREET
MILL POINTE DRIVE
RIDGE ROAD
W48
W44
MATCHLINE
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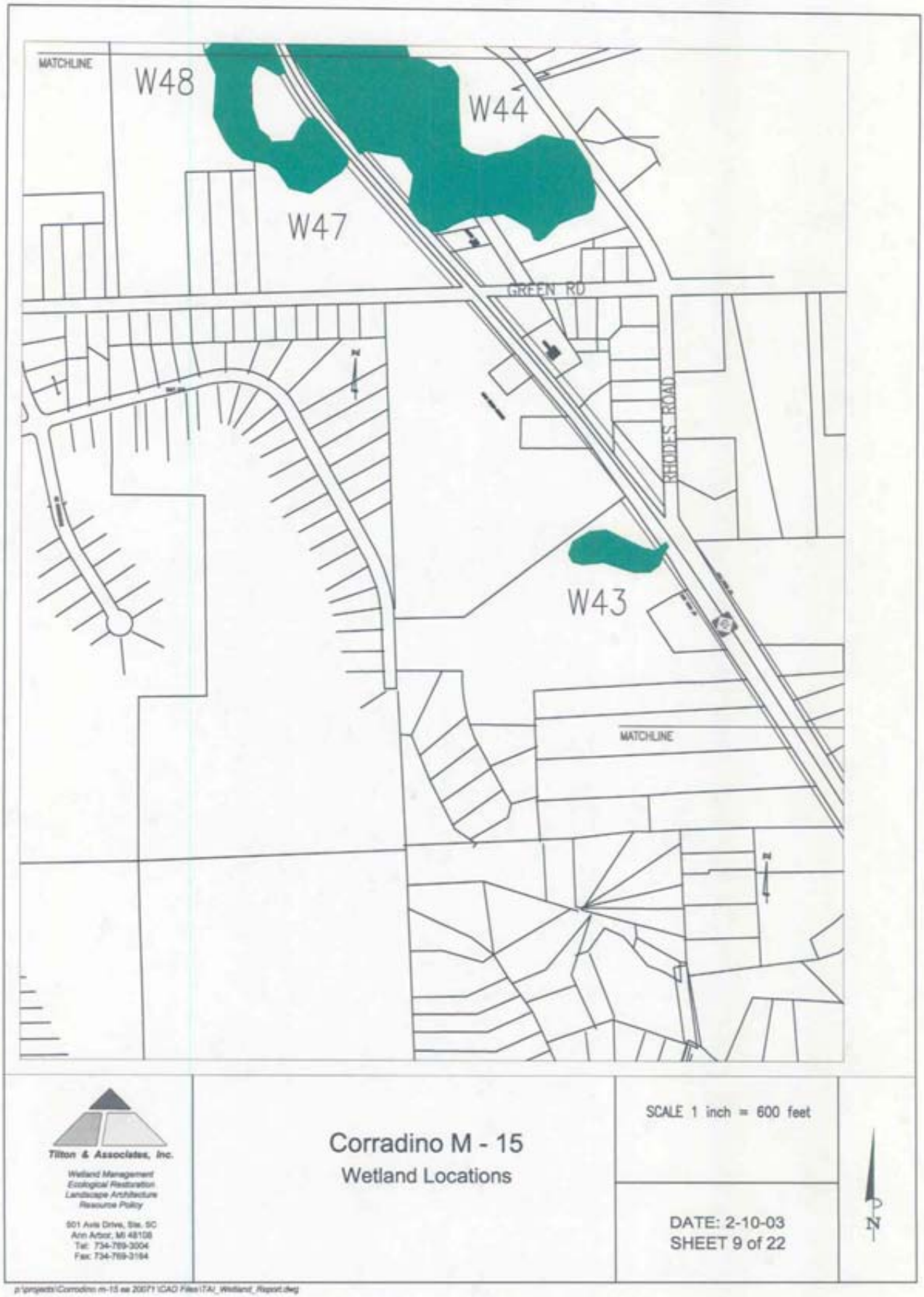
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W43
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MATCHLINE
BENDIX DRIVE
HILLS LANE
W42
KIPP ROAD
W41
5
LINDA KAY DR
MATCHLINE
CATHY DR
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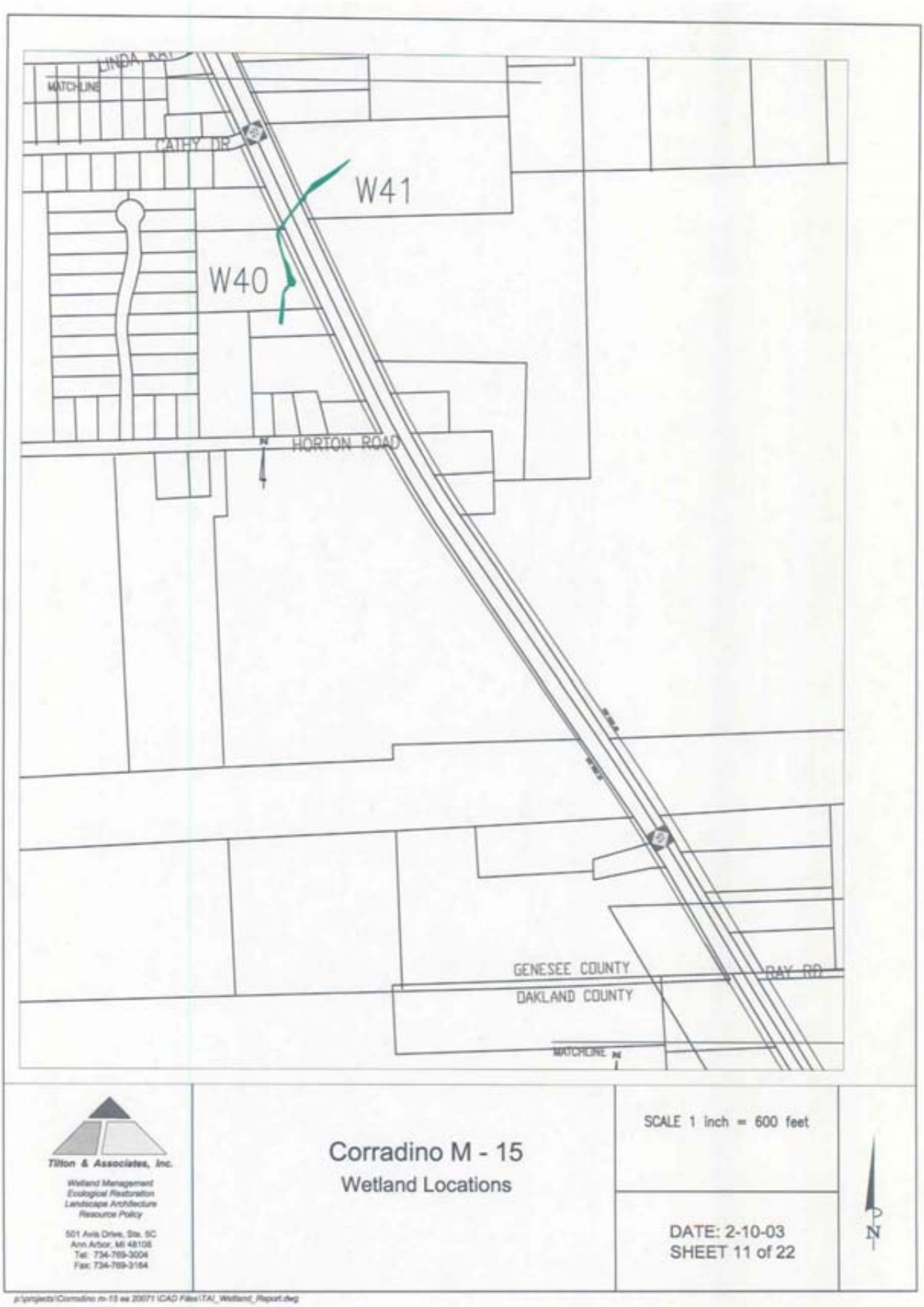
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GENESEE COUNTY
OAKLAND COUNTY
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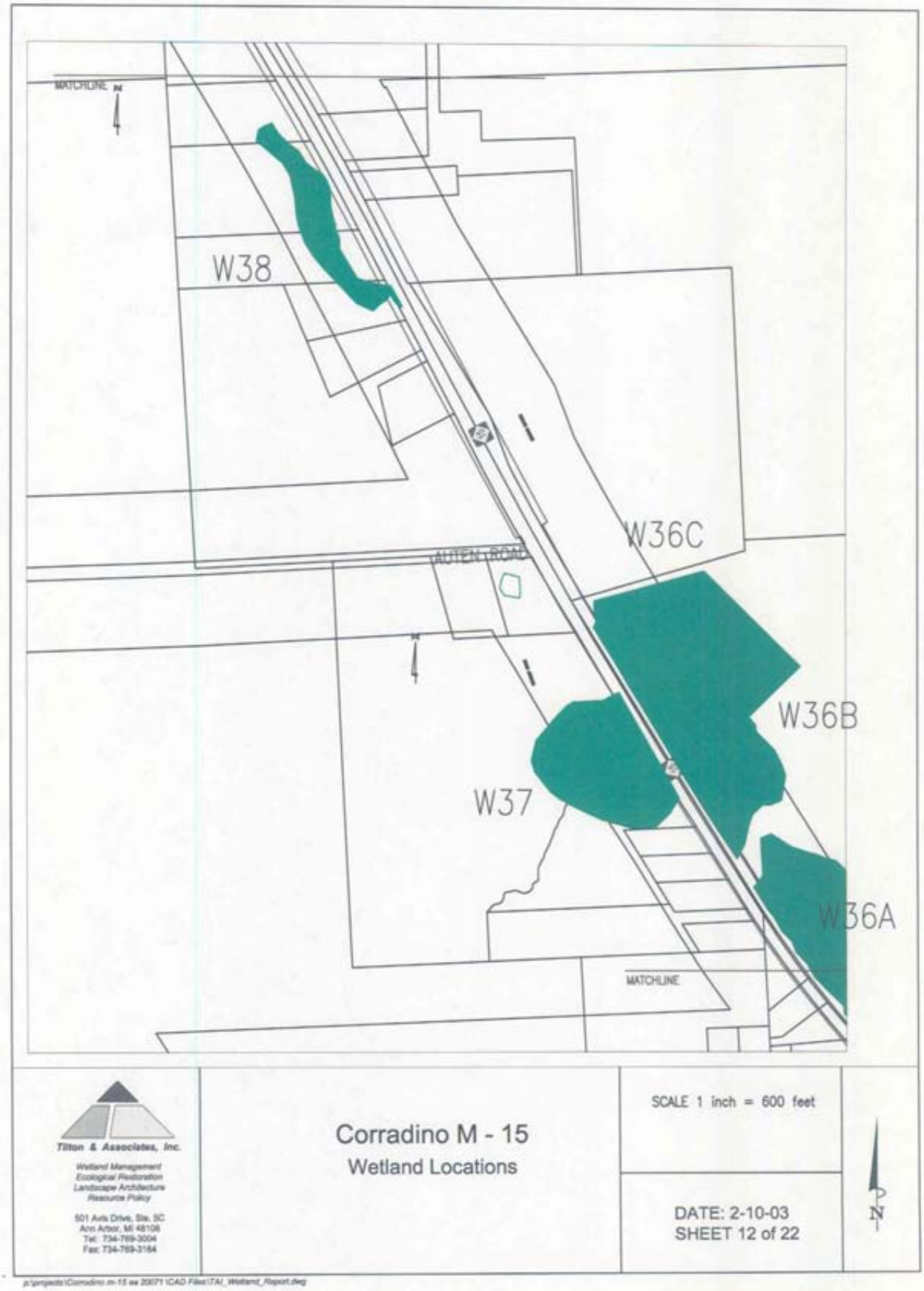
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W36A
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W35
W34
OAKWOOD ROAD
MARRIN STREET
MYRON STREET
GRANGE HALL ROAD
MILL STREET
W32
W33
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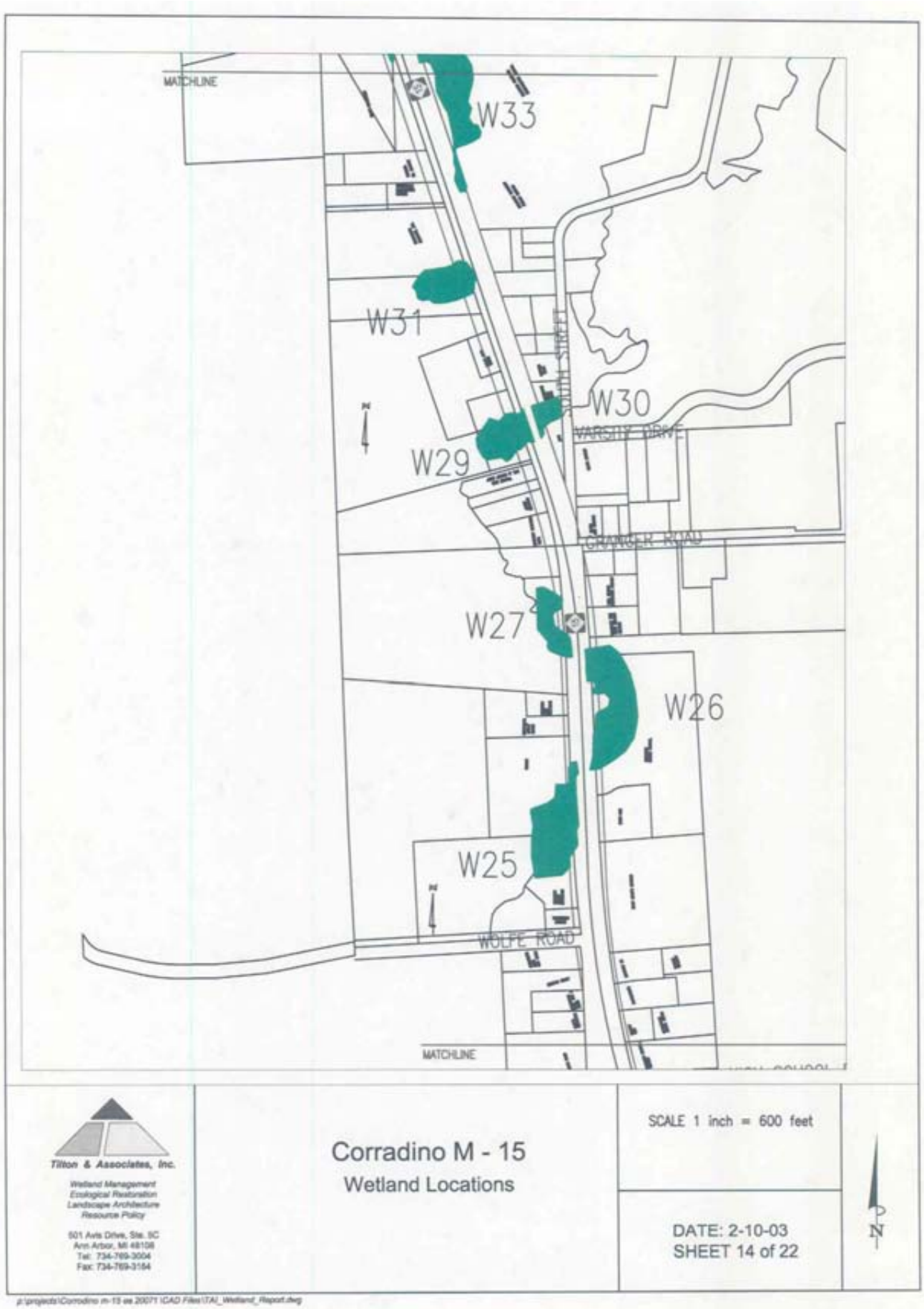
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WOLPE ROAD
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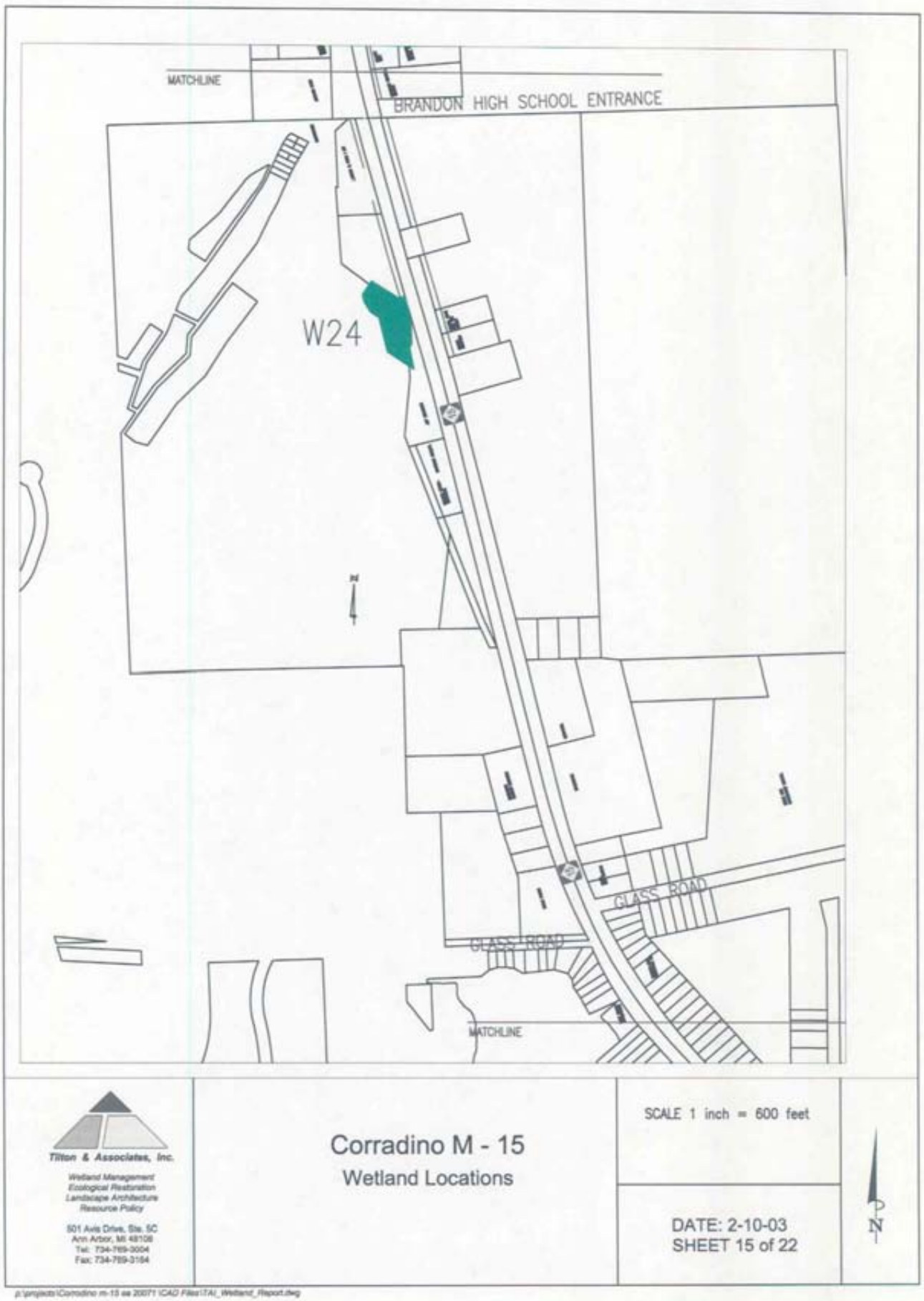
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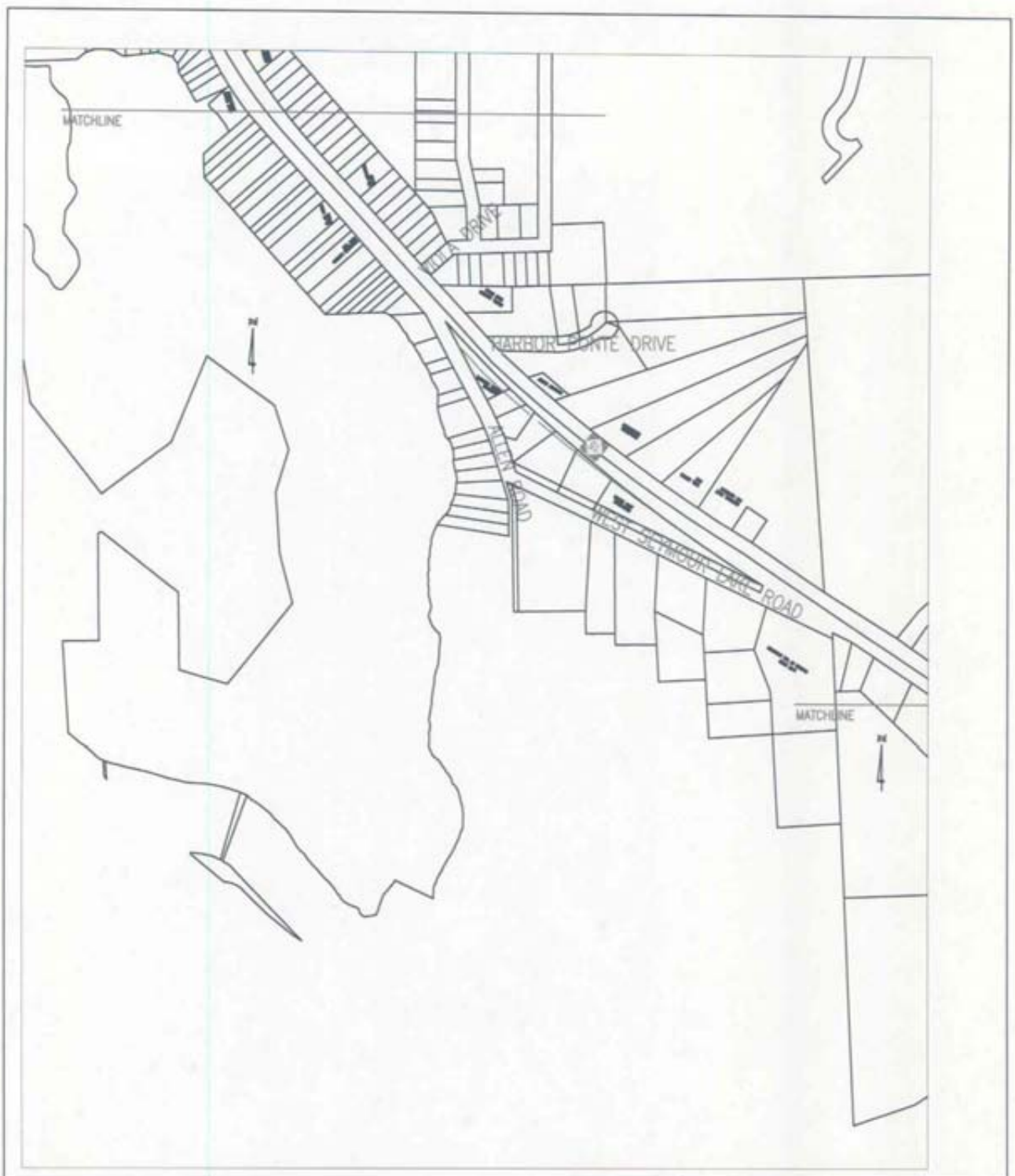

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Corradino M - 15

Wetland Locations

SCALE 1 inch = 600 feet

DATE: 2-10-03
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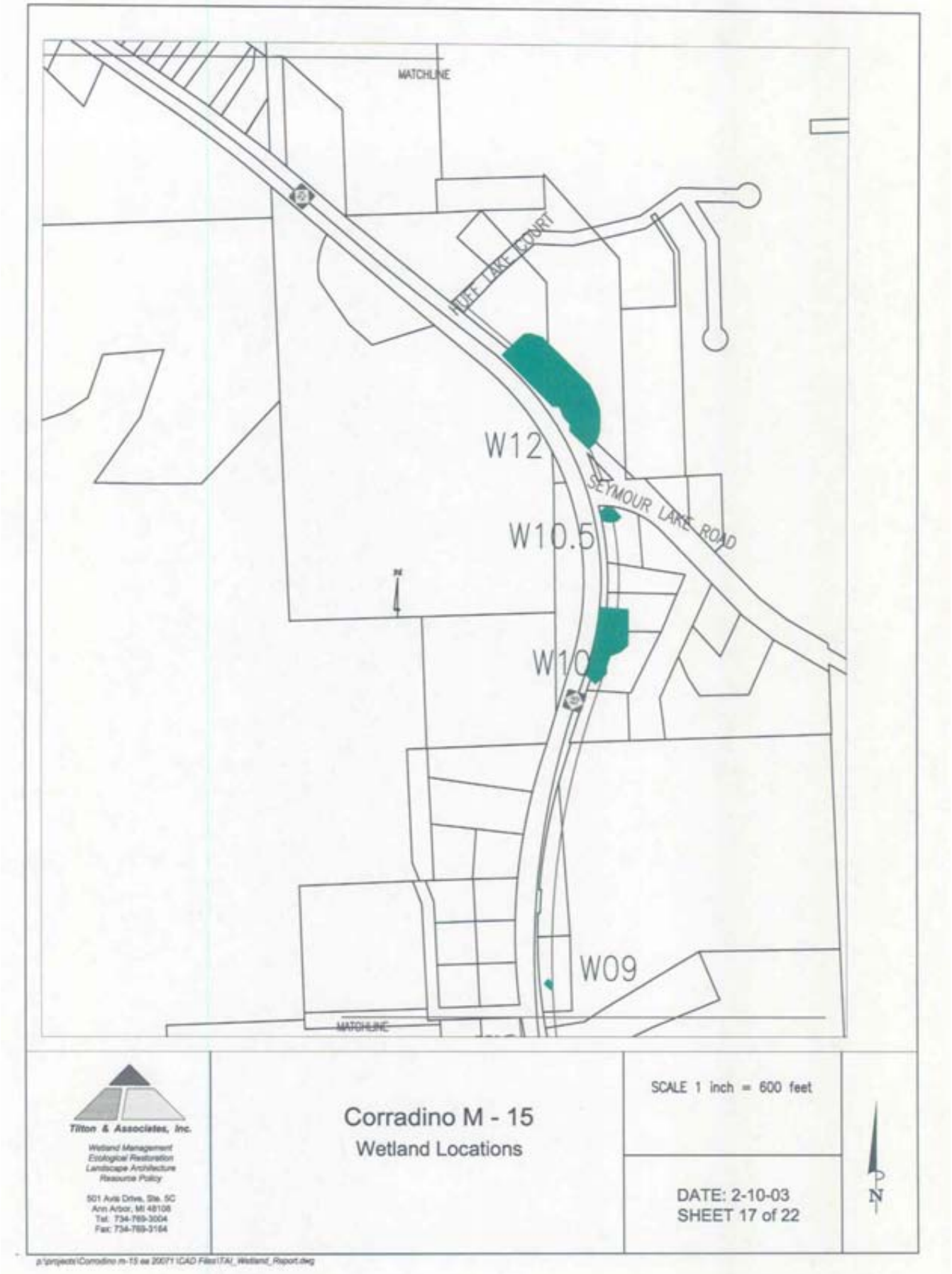
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W10.5
W10
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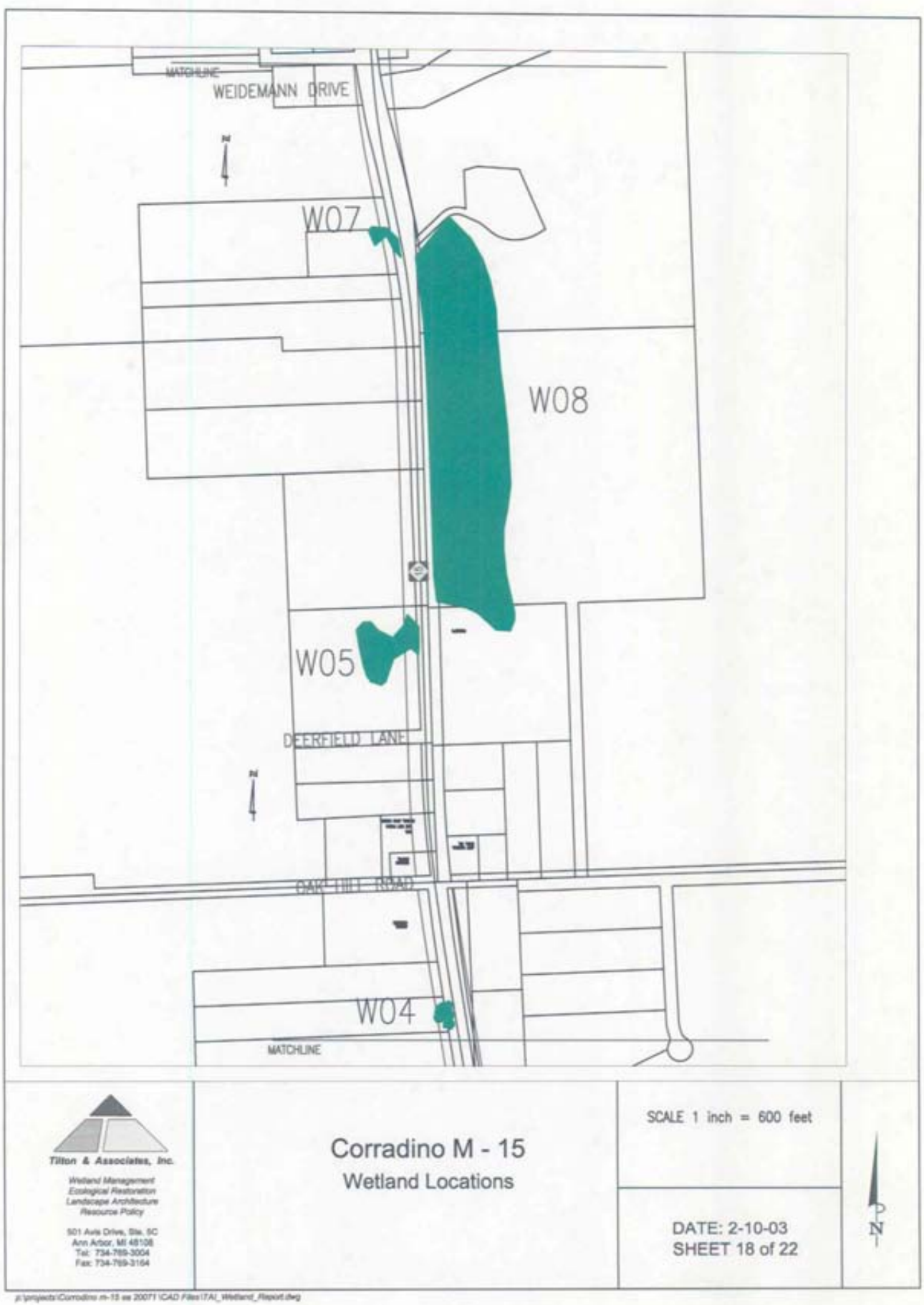
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W07
W08
W05
DEERFIELD LANE
OAK HILL ROAD
W04
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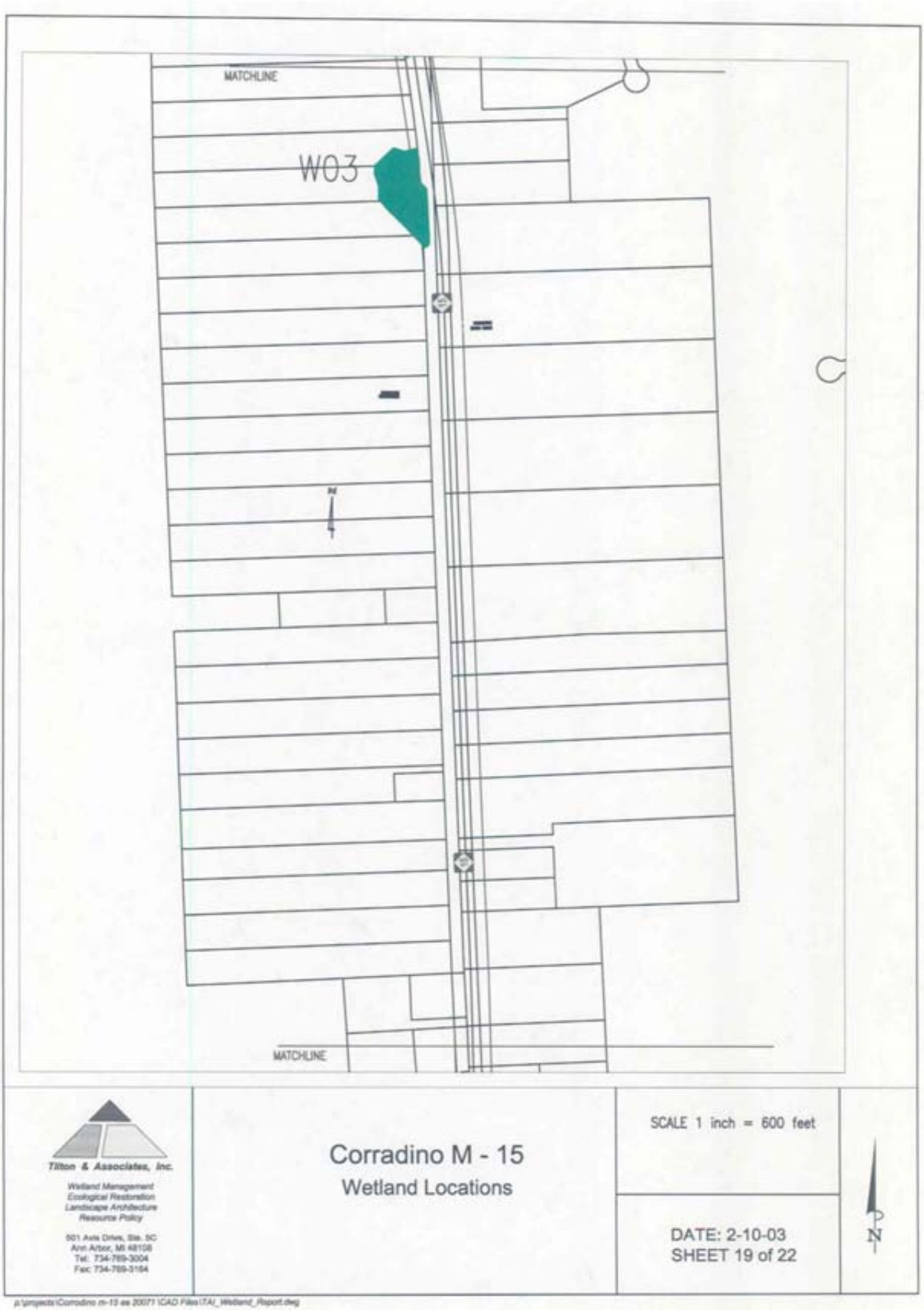
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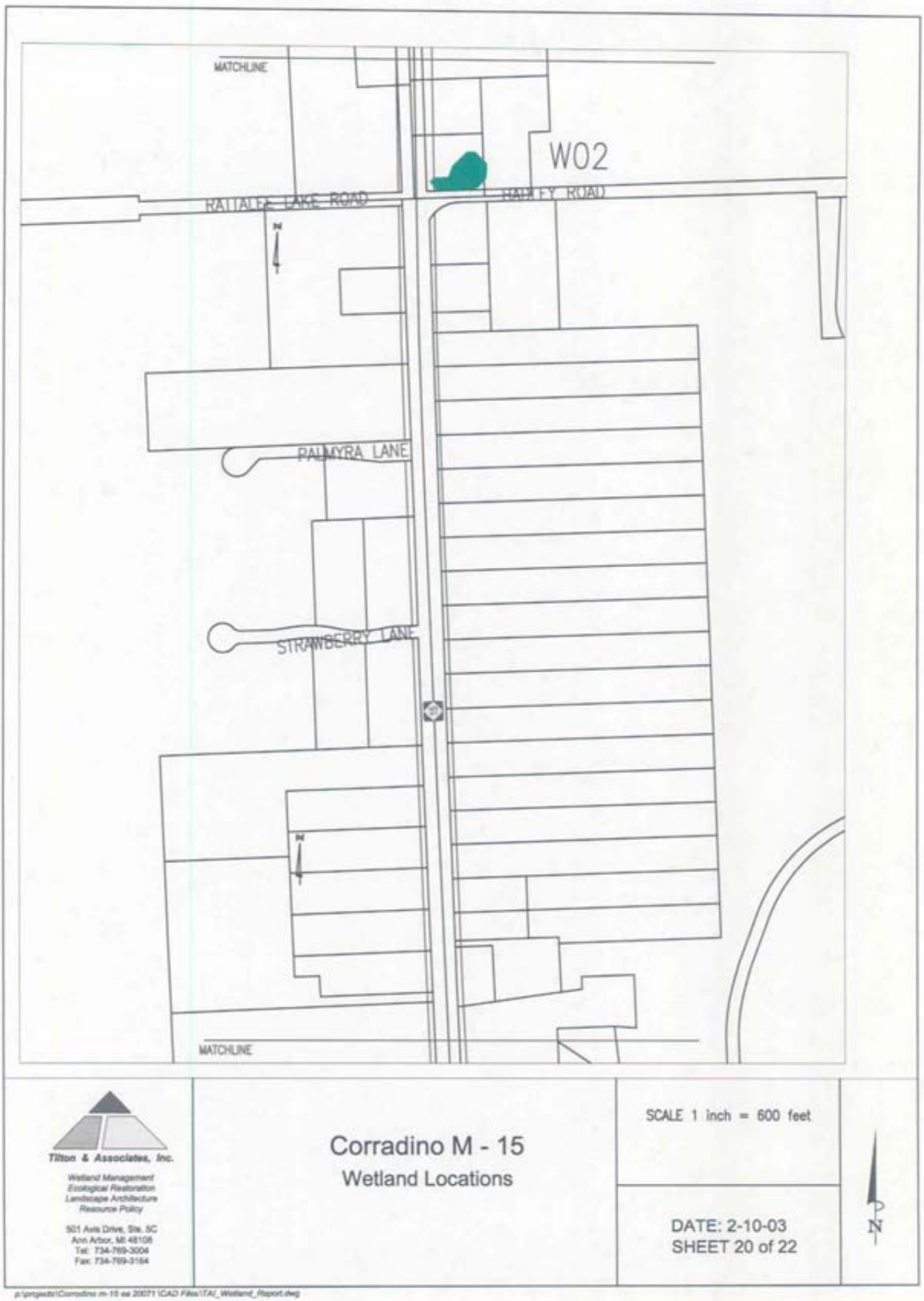
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HADLEY ROAD
PALMYRA LANE
STRAWBERRY LANE
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Tilton & Associates, Inc.
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Corradino M - 15
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MATCHLINE
HUBBARD ROAD
DEER RIDGE DRIVE
BERRY POINTE
CRANBERRY LAKE ROAD
MATCHLINE
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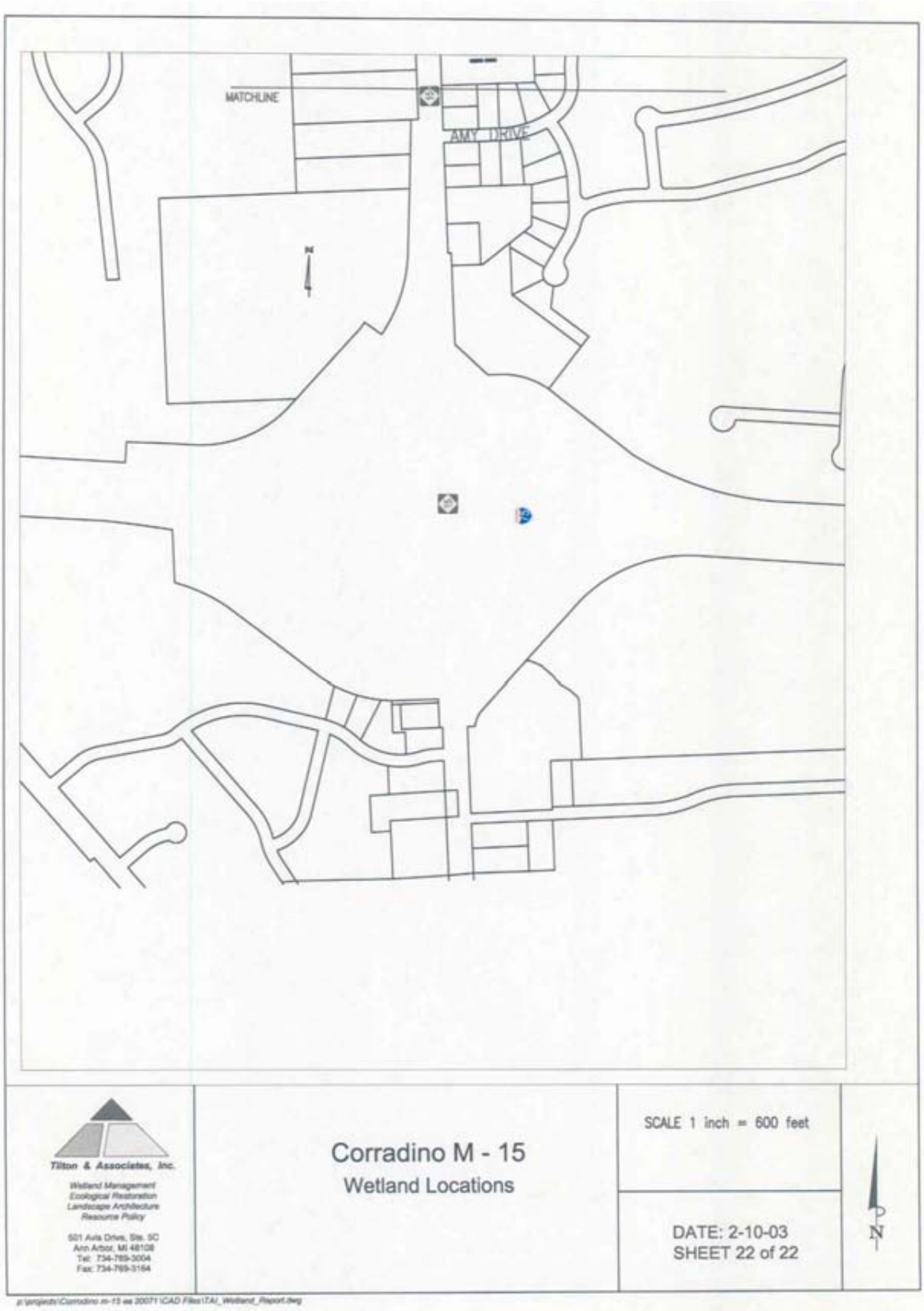
MATCHLINE
AMY DRIVE
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Tilton & Associates, Inc.
Wetland Management
Ecological Restoration
Landscape Architecture
Resource Policy
921 Avis Drive, Ste. 5C
Ann Arbor, MI 48108
Tel: 734-769-3004
Fax: 734-769-3164
Corradino M - 15
Wetland Locations
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SHEET 22 of 22
N

Appendix N

Categorical Exclusion for Little Prairie Hunt Club Wetland Mitigation Site

MDOT
Michigan Department of Transportation

OFFICE MEMORANDUM

DATE: February 18, 2003

TO: Mike Pennington
Design Engineer

FROM: Kurt Densmore
Environmental Clearance Coordinator
Environmental Section

SUBJECT: JN: 72911 CS: 73051
West of M-13, south side of Curtis Road, Saginaw County, Bay Region.

Please note the special concerns listed below. These concerns, also listed on the back of the study form, must be addressed for mitigation follow-up.

Factor 3 refers to Section 4(f), 6(f) lands. There are recreational properties adjacent to this project limits. **It must be noted on the plans that the contractor shall not park any vehicles nor store any materials on public recreational area property.** Please see the statement on the 1775 for more detailed information.

Factor 5 refers to Wetlands. This project will involve work in wetlands and steps should be taken to minimize and avoid wetland impacts during the design phase. Please see the study form for more details. **A permit will be required**.

Factor 8 refers to the NPDES permit. If five acres of land or more are being disturbed during this project a NPDES construction site storm water permit will be needed

Please forward the final plans so that we can review them for changes that may have occurred in the final stages of design.

Attached is your copy of the cleared environmental study form for the above listed project. If you have any questions or concerns regarding any portion of this project, please do not hesitate to call me at (517) 241-0071.

Kurt Densmore
Environmental Clearance Coordinator

cc: Cary Rouse
Brent Brooks
Mike Christensen

Michigan Department Of
Transportation (1775)

Environmental Study
For Project Classification

PCD : 05-12-2003	Control Section : 73051	Route Number M-13
	Job Number : 72911	

Job Number 72911 Control Section 73051 Version Number 1

Route Number M-13 PCD 05/12/03

Clearance Code FCEC.7 Finish Date 00/00/00 Date Out For Review 00/00/00

Contact For Project Information MIKE PENNINGTON 335-2619

Location WEST OF M-13, SOUTH SIDE OF CURTIS ROAD, SAGINAW COUNTY, BAY REGION

Description PURCHASE OF CONSERVATION EASEMENT, DESIGN AND CONSTRUCTION OF PROPOSED 80 ACRE WETLAND MITIGATION SITE, BREAK DRAINAGE TILE, CONSTRUCT A DIKE, EXCAVATE A FEW DUGOUTS, SITE IS CURRENTLY IN ACTIVE AGRICULTURE EXCEPT FOR A SMALL AREA OF BRUSH

Quad
Alicia

Wetlands: Adjacent To Project — Floodplains Included: No Map Available

Blueline Watercourse: Adjacent To Project

Right Of Way ☑ Work Outside Existing Shoulders/Curbs ☑

Grading Permit ☐ Major New Construction ☐

T.11N R.04E Sec : 31,32,

Review Of Environmental Factors (Refer to Impact Evaluation for Additional Information)

IDENTIFICATION		FACTORS	IMPACT		REVIEWED BY	
Does Not Apply	Needs Review		No	Yes	FOLLOW UP / SIGN OFF	Date
☐	☑	1.Social ☐ Displacement ☐ Environmental Justic ☐ Soc Other:	●	○	☐ C. Wagner	9/27/02
☐	☑	2.Agricultural	●	○	☐ K. Densmore	2/11/03
☐	☑	3.Section4(f),6(f) Lands	●	○	☑ Ann Fawcett	9/26/02
☐	☑	4.Cultural Resources Historic	◎	○	☐ [illegible]	9/12/02
		Archaeological	●	○	☐ [illegible]	1/7/03
☐	☑	5.Wetlands Permit ☐ Sec.404 ☐ Part303 ☐ Sec.10	○	⊗	☒ Sam Pack	1/15/03
☐	☑	6.Streams/Lakes/Drains Permit ☐ Part 301 ☐ Sec.10	⊗	○	☐ Sam Pack	1/15/03
☐	☑	7.Floodplains Permit ☐ Part 31	⊗	○	☐ Sam Pack	1/15/03
☐	☑	8.NPDES	○	●	☑ K. Densmore	09/17/02
☑	☐	9.Coastal Zone	○	○	☐	
☐	☑	10.Endangered Species				
		☒ Flora	⊗	○	☐ DW. Schuh 9-30-02	
		☒ Fauna	⊗	○	☐ DW. Schuh 9-30-02	
☑	☐	11.Tree Removal	○	○	☐	
☑	☐	12.Detour or temporary closure of road or ramp	○	○	☐	
☑	☐	13.Noise	○	○	☐	
☑	☐	14.Air Quality	○	○	☐	
☑	☐	15.Migratory Birds	○	○	☐	
☑	☐	16.Controversy	○	○	☐	
☑	☐	17.Bridge Painting	○	○	☐	
☑	☐	18.Any Other Issue	○	○	☐	

Classification ☒ This Project Requires FHWA Concurrence Received 2/18/03

☐ Class I Action /Environmental Impact Statement

☐ Class III Action/Environmental Assessment

☒ Class II Action/Categorical Exclusion No C.7

☐ Blanket Classification This Project has no environmental consequences as stipulated in MDOT's 12/14/87 letter to the FHWA.

Therefore this project is clsssified as a categorical exclusion in accordance with the blanket classification concurred in by FHWA on 12/18/87 as modified on 03/03/90

Environmental Review Coordinator Date

Kurt Densmore 2/11/03

PROJECT UPDATES (Reviewed and Classification still applies.)

8. NPDES CONSTRUCTION SITE PERMIT

It appears from the description of this project that a NPDES construction site storm water permit will be required . The condition that five acres or greater of land disturbance has been met. All The appropriate information including a complete notice of Coverage(NOC) form will be need to be submitted to Joe Rios at the Secondary Complex, Construction & Technology, for submittal to the MDEQ prior to initiation of construction to insure coverage.

#3. The Shiawassee National Wildlife Refuge, a Section 4(f) site is located adjacent to the project. **It must be noted in the plans that the contractor shall not park any vehicles nor store any materials on public recreational property.** According to Mike Pennington, no ROW or grading permits are needed from the wildlife refuge and access will be maintained to the site. No impact anticipated. If these items change for any reason, the project will need to be reevaluated.

1. ROW acquisition is for conservation easement for wetland mitigation bank. Per *Survey of Saginaw County, Michigan–Sheet Number 75*, no buildings are immediately adjacent to the proposed wetland mitigation site. No displacements or other social impacts are anticipated.

5. MDEQ permits maybe required for impacts on an existing wetland

607 MDEQ permits are not required.

4. Archaeolgy
Performed Phase I Survey w/ "No Properties" finding.

2. Agriculture
Coordination has taken place w/ USDA/NRCS. No conflicts w/ PA116 per a database check made on 9/17/02. Also, No Fee ROW will be required.

From: John Wiesner
To: MIDot:DensmoreK@MIDOT.MICHTRANS8
Date: 2/18/03 9:25AM
Subject: Re: JN72911/CS73051 M-13

We concur in your determination that his project is a Class II (Categorical Exclusion) Action. Your Department may proceed with further project development.

>>> Kurt Densmore 02/11/03 10:02AM >>>
Your concurrence is sought in the classification of the following project as a Class II (categorical exclusion) Action. The environmental study form will be forwarded.

Wetland Mitigation site for the M-15 major action.
Located west of M-13, south side of Curtis road, T11N R04E Sec:32

1. Purchase conservation easement.
2. Design
3. Construction will include drain tile breakage, dike construction, excavate a few dugouts.
4. Site is currently being farmed except for a small brushy area.

If you have any questions please contact me at 241-0071.

Thanks,
Kurt

PCD: 11/17/02

Job Number: 72911 **Control Section:** 73051 **Route:** M-13

Region: Bay
County: Saginaw
Quad: Alicia

T 11 N R 4 E Sec: 31, 32
T R Sec:
T R Sec:

NWI Wetland adjacent to area? yes
Flood Plain adjacent to area? no map

Blue line watercourse adjacent? yes

Contact Engineer: Mike Pennington 335-2699

Information needed for environmental review:

Is there work being done outside existing shoulders/curbs? yes Work outside existing toe of slope? yes

ROW/ Grading permit or Drainage Easement required (roadway widening or geometric improvements)? yes
probable ~~easement~~ Conservation Easement

NPDES Permit required (Over 5 acres of exposed soil)? yes - probable

Drainage work? yes - Break Tile, Make a berm, ~~cut~~ dig a few dug outs
1. Culvert extensions/Replacement/Liners/Cleanout:
2. Ditching:
3. Water main/storm sewer:
4. Drain/Stream relocation:

Tree or shrub removal? No Near a Building? -

Detours or temporary closure of roads or ramps? No
1. Upgrades needed for the detour route:
2. Has the route been coordinated with local officials:
3. Have public meetings taken place:

Over 3 months of detour expected?
4. What is the route:
5. Controversies:
6. Do locals agree with route:

Bridge work associated with this project? No
1. Water Crossing:
2. Bridge Painting:
3. Widening/Replacement:
4. Work within water (Riprap scour protection):
5. Historic Bridge List:
6. Federal Scenic River:
7. Bird Nests Observed:

Guardrail work associated with this project or Slope flattening to eliminate guardrail? No

Parks, Boat launches, Recreation areas, Trails or other 4(f) lands adjacent to the project area? yes
Federal & State land nearby

Coastal Zone? No ROW fencing replacement? No

When will there be a copy of the plans available for review? ?
Enhancement projects included? No

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