Appendix A

Summary of 2011, 2012 and 2013 Raptor Migration Surveys – Henvey Inlet Wind Energy Centre Study Area

Henvey Inlet Wind LP

Henvey Inlet Wind

Summary of 2011, 2012 and 2013 Raptor Migration Surveys ±Henvey Inlet Wind Energy Centre Study Area

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August 2015

Statement of Qualifications and Limitations

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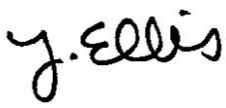
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Appendices

Appendix A. Field Notes and Documentation
Appendix B. Work Plans
Appendix C. Results of 2011, 2012 and 2013 Field Studies

1. Introduction

In 2011 and 2012, LGL Limited (LGL) collected field data to determine baseline conditions within the Henvey Inlet Wind Energy Centre (HIWEC) study area. The data collected by LGL included:

- Raptor Migration;
- Passerine Migration;
- Breeding Birds;
- Herpetological Surveys; and
- Bat Acoustic Monitoring.

In 2013, Stantec Consulting Ltd. (Stantec) continued field data collection within the HIWEC study area. The data collected by Stantec included:

- Raptor Migration;
- Passerine Migration;
- Waterfowl Migration;
- Breeding Birds;
- Herpetological Surveys;
- Bat Acoustic Monitoring;
- Ecosite Classification and Rare Flora;
- Herpetological Incidental Observations; and
- Other Incidental Wildlife Observations.

This report has been prepared by AECOM to summarize the 2011, 2012 and 2013 Raptor Migration survey field data for the HIWEC study area. This is based on raw field and GIS collected by LGL and Stantec during the 2011, 2012 and 2013 seasons. This information was provided to AECOM by Stantec in October 2014 and by WSP for the LGL data in May 2015. The following provides the work plans written by LGL and Stantec which outline data collection methods as well as AECOM's summary and analysis of the data collected, and assumptions made concerning the data.

LGL and Stantec provided AECOM with the following documents that were used to produce this report:

2011
- $Q ([FHO VSUHDGVKHHW VXPPDUL]LQJ 2011-2012 HawkWatchData&Vspring.xlsx´
- An Excel spreadsheet summarizing ILHOG UHVXOWV HawkWatchData-2011-2012-ARD.xlsx´

2012
- $Q ([FHO VSUHDGVKHHW VXPPDUL]LQJ 2011-2012 HawkWatchData&V HQ spring.xlsx´
- $Q ([FHO VSUHDGVKHHW VXPPDUL]LQJ HawkWatchData-2011-2012-ARD.xlsx´ HQ and
- $Q ([FHO VSUHDGVKHHW VXPPDUL]LQJ 2012Spring HawkCallPlayback.xlsx´ HQ

2013
- 6FDQQHG KDQGZULWWHQ 60824_DigitalRaptorPdf´ HQDWLYH ILOHG [3]
- An Excel spreadsheet indicating all VXUYH\ ORFDWLRQV AllSurveyHQWLWOHG locations_UTM_MC_07112013.xlsx´ [3]

Copies of the above files are provided in Appendix A [1].

1. Records of Species At Risk considered to be restricted are not being made public due to the threat of poaching experienced by these species. These records will be provided under a separate cover to the Ministry of Natural Resources and Forestry (MNRF) and / or Environment Canada ±Canadian Wildlife Service (EC-CWS) for permitting purposes.

2. Methods

2.1 Work Plan

The following sections provide a description of work plan methods written by LGL and Stantec for the Raptor Migration surveys. This description is taken directly from LGL ¶ Work plan for the Nigig Power Wind Farm Project Background Ecological Studies (LGL, 2011) and Stantec ¶ Terrestrial Survey Work Program (Stantec, 2013), respectively.

Complete copies of LGL ¶ Work plan for the Nigig Power Wind Farm Project Background Ecological Studies (LGL, 2011) and Stantec ¶ Terrestrial Survey Work Program (Stantec, 2013) are provided in Appendix B [2].

2.1.1 2011 and 2012 Raptor Migration Survey

[3] 5 D S W R U V
Raptor observation posts have been established in three locations along the Inlet. Regular visual watches during spring and fall migration are a straightforward method to determine magnitude of use and species involved. Diurnally migrating passerines such as Blue Jays and blackbirds will also be observed by this method.:

Monitored Species / Behaviour	Sampling Method	Timing and Frequency
Raptors and Diurnal Migrants	Standardized watches from 3 sites along the inlet.	September & October; 3 to 4 days per Z H H N ´

2.1.2 2013 Raptor Migration Survey

1 Spring raptor migration (Ten surveys, early March to end of April):
Monitoring will consist of ten surveys throughout the spring migration period (March to end of April) to record presence of diurnal migrant raptors. Surveys will be comprised of six-hour point counts starting at 9:00 am, conducted by two observers stationed at two appropriate vantage points within the Project Location. When site access allows, survey stations will be situated in the east and west portions of the Project Location. However, during times of year when site access is limited (i.e., late winter, early spring) alternative locations may be used with efforts to maximize spatial coverage.

All raptors observed during the surveys will be recorded and mapped. Behaviour of the raptors will be noted with emphasis on flight height and determining which individuals were actively migrating as opposed to staging (e.g., K X Q W L Q J S H U F K L Q J H W F) R U D F W L Y H O \ P L J U D W L Q J U D S W R U V I O L J K W

1 Fall raptor m igration (Ten surveys, September to October):
Monitoring will consist of ten surveys throughout the fall migration period (September to October) to record presence of diurnal migrant raptors. Surveys will be comprised of six-hour point counts starting at 9:00 am, conducted by two observers stationed at two appropriate vantage points within the Project Location. When site access allows, surveys stations will be situated in the east and west portions of the Project Location.

2. Records of Species At Risk considered to be restricted are not being made public due to the threat of poaching experienced by these species. These records will be provided under a separate cover to the Ministry of Natural Resources and Forestry (MNRF) and / or Environment Canada ±Canadian Wildlife Service (EC-CWS) for permitting purposes.

All raptors observed during the survey will be recorded and mapped. Behaviour of the raptors will be noted with emphasis on flight height and determining which individuals were actively migrating as opposed to staging (e.g., hunting, perching, etc.). For actively migrating raptors, fligh W S D W K V Z L O O E H P D S S H G ´

2.2 2012 Spring Hawk Call Playback Survey

Based on correspondence with Sarah Richer (a Biologist who conducted surveys on behalf of LGL in 2011 and 2012), in addition to the above raptor migration surveys, specific surveys for hawks were conducted using call playback over a period of approximately two (2) weeks (April 30 to May 16, 2012) at thirty-five survey stations located across Henvey Inlet and the surrounding landscape.

Surveyors spent an average of 20 minutes per station, broadcasting calls from any of a subset of five (5) hawk species that preferred the habitat types present at the stations (which varied the amount of time needed per station), and recorded species ¶responses. Those species included Broad-winged Hawk (Buteo platypterus), Cooper ¶ Hawk (Accipiter cooperi), Northern Goshawk (Accipiter gentilis), Red-shouldered Hawk (Buteo lineatus) and Sharp-shinned Hawk (Accipiter striatus).

3. Results

3.1 Study Area

3.1.1 2011 and 2012 Raptor Migration Surveys

Based on the data provided, the 2011 spring raptor migration surveys were conducted at a total of three (3) stations: Hawk 1, Hawk 2 and Hawk 3. Fall raptor migration surveys were completed at the same three (3) stations, as well as an additional station (Hawk 4). These raptor migration survey locations are shown in Figure 3 -1. All four were located on the south side of Henvey Inlet.

Based on the data provided, two stations were added in the spring of 2012, resulting in a total of six (6) stations surveyed. In addition to the four (4) stations surveyed in 2011, Hawk 5 and Hawk 6 were both surveyed only during the spring 2012 survey. These raptor migration survey locations are also shown in Figure 3 -1. Hawk 5 was located on the south side of Henvey Inlet, whereas Hawk 6 was located on the north side of Henvey Inlet. Based on correspondence with Sarah Richer, the two (2) new stations were placed inland adjacent to large wetlands to examine the utility of having migration survey points further inland.

Based on the data provided, fall raptor migration surveys were not completed in 2012.

3.1.2 2012 Spring Hawk Call Playback Surveys

Based on the data provided, the 2012 spring hawk call playback surveys were conducted at a total of 34 locations (Hawk Flash 1 and Hawk Flash 2 were the same location). These survey locations are shown in Figure 3 -1. Four (4) stations were located on the north side of Henvey Inlet, and the remaining stations were located on the south side of Henvey Inlet.

3.1.3 2013 Raptor Migration Surveys

Based on the data provided, the 2013 spring and fall raptor migration surveys were conducted at a total of five (5) locations. These survey locations are shown in Figure 3 -2. Based on correspondence with Sarah Richer, the West, East and Boat Launch stations were the primary surveys locations, whereas Hawk Watch Station 1 and Hawk Watch Station 2 were used as alternative locations when the primary sites were inaccessible. The West station was located at the mouth of Henvey Inlet on the north side. The remaining four (4) stations were located on the south side of Henvey Inlet.

3.2 Raptor Migration Survey Results

3.2.1 2011 Spring Raptor Migration Surveys

Based on the data provided for the 2011 spring raptor migration surveys, a total of three (3) stations (Hawk 1, Hawk 2, and Hawk 3) were surveyed twice each between May 9 and 18, 2011 (approximately 1.5 weeks). Based on correspondence with Sarah Richer, surveys consisted of four-hour point counts (from 10:00 a.m. to 2:00 p.m.), conducted by one observer accompanied by an additional person for transportation and safety.

Figure 3-1: 2011 ±2012 LGL Spring and Fall Raptor Migration Survey and Call Playback Stations

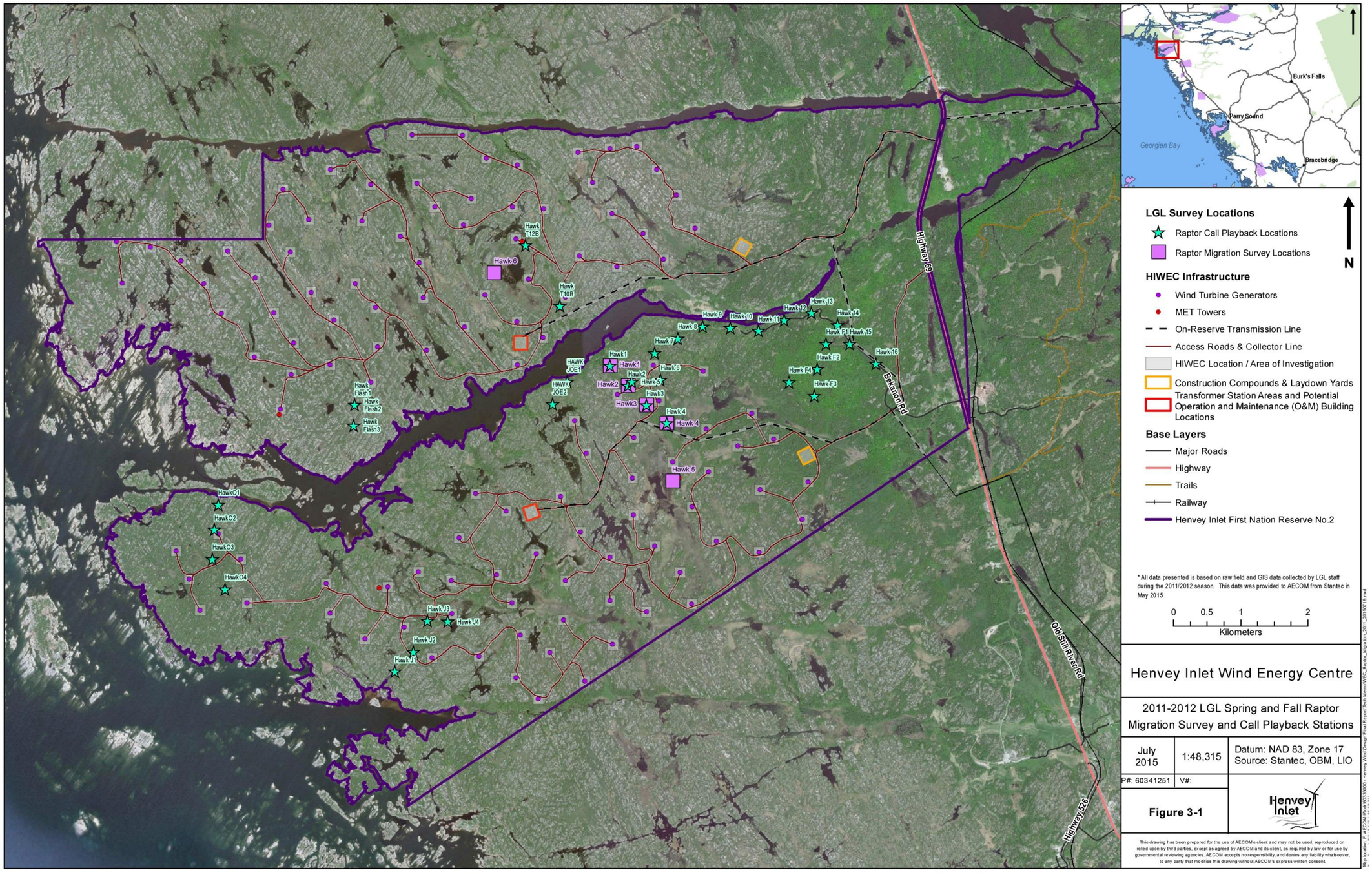
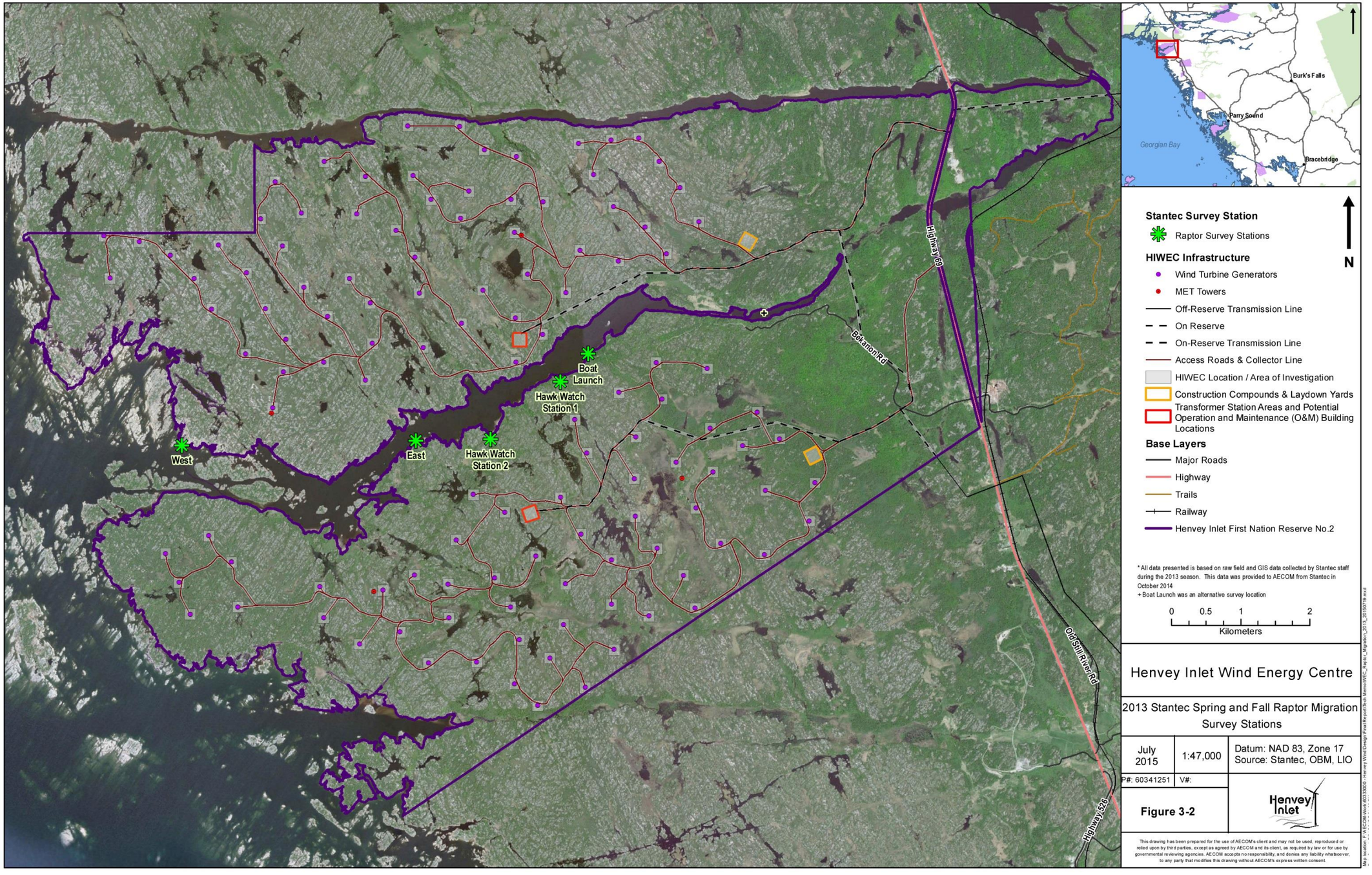


Figure 3-2: 2013 Stantec Spring and Fall Raptor Migration Survey Stations



Based on the field notes provided for the 2011 spring raptor migration surveys, a total of six (6) surveys were conducted on six (6) different dates, totalling 24 hours. A summary of the survey effort by station is provided in Tables 3-1.

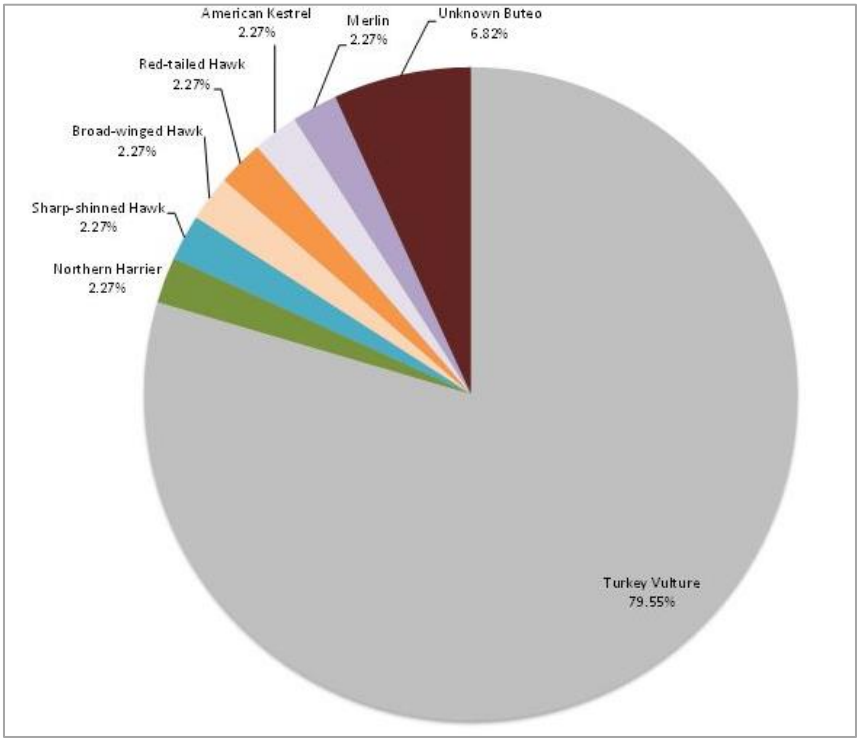
Table 3-1: Summary of 2011 Spring Raptor Migration Survey Effort

Survey Station	Dates Surveyed	Total Number of Survey Visits	Total Hours Surveyed
Hawk 1	May 11, May 16	2	8
Hawk 2	May 9, May 12	2	8
Hawk 3	May 10, May 18	2	8
Total	6 separate dates surveyed	6	24

In the spring of 2011, field observation records included survey location, surveyor ¶ names, date and weather conditions including wind direction, wind speed, temperature and cloud cover. When a migrating bird was observed, the time interval of the observation, species, number of individuals, flight direction and other pertinent behaviour was recorded. Other bird species including waterfowl were also recorded as incidental wildlife observations. The raptor migration data for the 2011 spring surveys are provided in Appendix A .

The field data for the 2011 spring raptor migration surveys are summarized in Table C-1 in Appendix C . A total of 44 raptors from seven (7) species, plus one unknown raptor, were observed over the course of the surveys. The most common species observed was Turkey Vulture (Cathartes aura, 35 individuals). The other observations included one each of Northern Harrier (Circus cyaneus), Sharp-shinned Hawk, Red-tailed Hawk (Buteo jamaicensis), Broad-winged Hawk, American Kestrel (Falco sparverius), and Merlin (Falco columbarius). A total of three individuals, too far away to identify to species, were recorded to genus level as unknown Buteo. The proportions of each raptor species observed during the 2011 spring migration survey are presented in Figure 3-3. None of the species recorded are Species at Risk or Species of Conservation Concern.

Figure 3-3: 2011 Spring Raptor Migration Survey Results



3.2.2 2011 Fall Raptor Migration Surveys

For the 2011 fall raptor migration surveys, a total of four (4) survey stations were sampled between September 5 and October 28, 2011 (approximately 8 weeks). The survey stations included the three stations surveyed in spring 2011, plus an additional station (Hawk 4). Based on correspondence with Sarah Richer, survey efforts consisted of point counts that varied between half an hour (0.5) and six and a half (6.5) hours in duration; however, an effort was made to evenly distribute the season ¶ total survey hours per station. Two observers concurrently surveyed two locations along Henvey Inlet; in order to minimize the probability of the two observers recording the same migrating individuals twice, surveyors chose stations without overlapping fields of view.

Based on the field notes provided for the 2011 fall raptor migration surveys, a total of 43 surveys were conducted on 30 separate dates, totalling 121.75 hours. A summary of the survey effort by station is provided in Table 3-2. Refer to Figure 3-1 for survey station locations.

Table 3-2: Summary of 2011 Fall Raptor Migration Survey Effort

Survey Station	Dates Surveyed	Total Number of Survey Visits	Total Hours Surveyed
Hawk 1	September 5, 9, 14, 16, 21, 23, 26 and 30; October 5, 13, 18, 19, 26, 27 and 28	15	38.25
Hawk 2	September 6, 8, 12, 15, 20 and 27; October 6, 14 and 26	9	30
Hawk 3	September 6, 7, 12, 15, 20, 21, 22 and 27; October 4, 12, 21, 25	12	31
Hawk 4	September 6, 7, 12, 14, 22 and 29; October 5	7	22.5
Total	30 separate dates surveyed; 43 surveys total (difference due to there occasionally being two (2) surveyors at two (2) separate stations on the same day)	43	121.75

In the fall of 2011, field observation records included survey location, surveyor ¶ names, date and weather conditions including wind direction, wind speed, temperature and cloud cover. When a migrating bird was observed, the time interval of the observation, species, number of individuals, flight direction and other pertinent behaviour was recorded. Other bird species including waterfowl were also recorded as incidental wildlife observations. The raptor migration data for the 2011 fall surveys are provided in Appendix A .

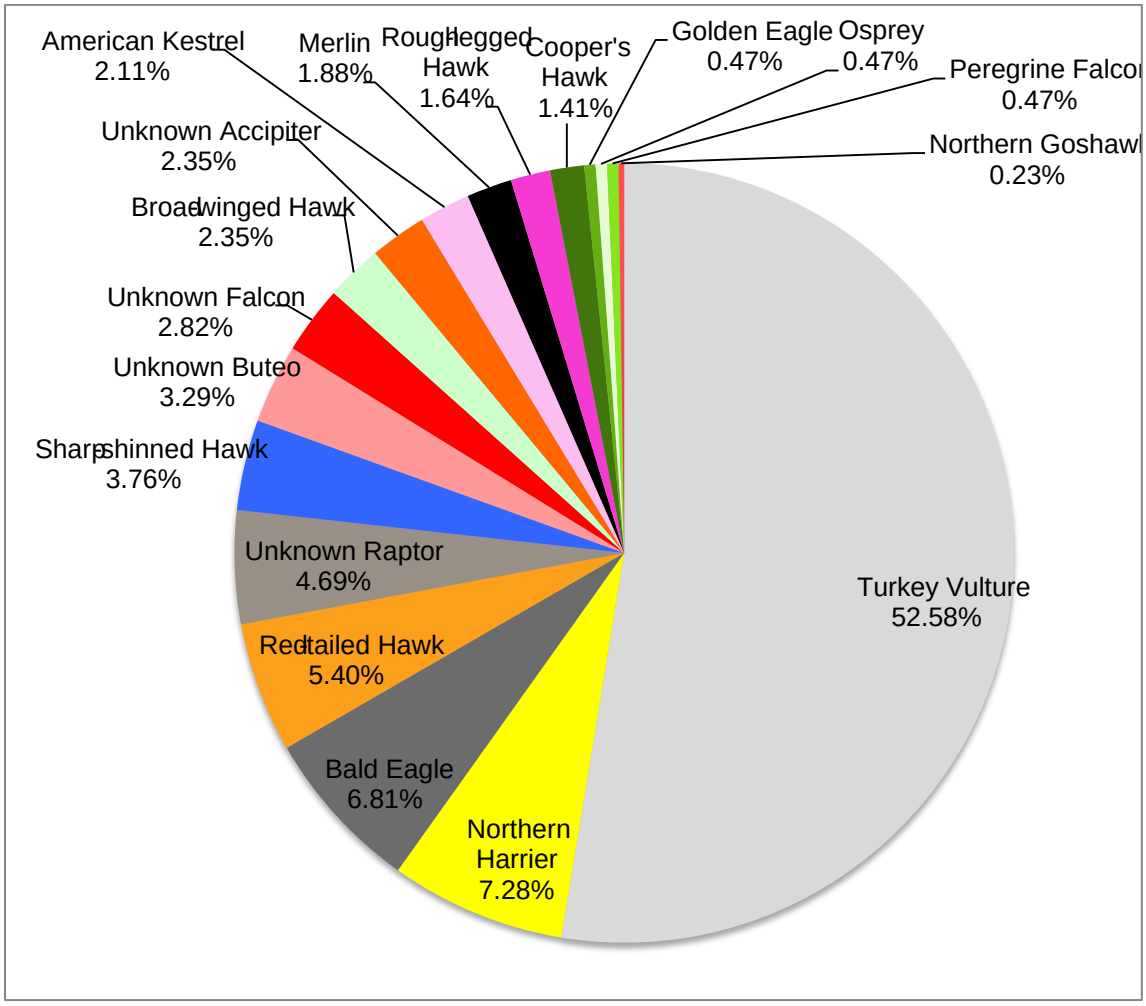
The field data for the 2011 fall raptor migration surveys are summarized in Table C-2 in Appendix C . A total of 426 raptors, comprised of 14 species and four (4) categories representing observations that could only be recorded to the genus level (Buteo sp., Accipter sp., falcon sp., raptor sp.), were observed. The most common species observed were Turkey Vulture (224 individuals), Northern Harrier (31 individuals), Bald Eagle (Haliaeetus leucocephalus, 29 individuals) and Red-tailed Hawk (23 individuals).

Other observed raptor species include American Kestrel, Broad-winged Hawk, Cooper ¶ Hawk (Accipiter cooperi), Golden Eagle (Aquila chrysaetos), Merlin, Northern Goshawk (Accipiter gentilis), Osprey (Pandion haliaetus), Peregrine Falcon (Falco peregrinus), Rough-legged Hawk (Buteo lagopus) and Sharp-shinned Hawk. The percentage of individuals comprised of each species observed is presented in Figure 3-4. A greater number of raptor species were observed during the 2011 fall migration survey compared to the 2011 spring migration survey, although the survey effort in the fall was greater than in the spring (Tables 3-1 and 3-2).

One (1) Provincial Species At Risk, Golden Eagle, was observed during the 2011 fall migration survey; this species is listed as Endangered under the provincial Endangered Species Act, 2007. In addition, two (2) raptor Species of Conservation Concern, Bald Eagle and Peregrine Falcon, were observed during the 2011 fall migration survey.

Both of these species are listed as Special Concern in Ontario under the provincial Endangered Species Act, 2007. Peregrine Falcon is also listed as Special Concern under Schedule 1 of the federal Species At Risk Act. Two (2) provincially rare species, Great Black-backed Gull (Larus marinus) and Lapland Longspur (Calcarius lapponicus), were also observed incidentally during the 2011 fall migration survey.

Figure 3-4: 2011 Fall Raptor Migration Survey Results



3.2.3 2012 Spring Migration Surveys

Based on the data provided for the 2012 spring raptor migration surveys, a total of six (6) locations were surveyed between April 5 and May 16, 2012 (approximately 6 weeks). These included the four (4) stations surveyed in the fall of 2011, as well as two (2) additional stations (Hawk 5 and Hawk 6). Based on correspondence with Sarah Richer, survey effort consisted of point counts that varied between one and a half hours (1.5) and five (5) hours in length; however, an effort was made to evenly distribute the total survey hours across stations. Generally, two observers concurrently surveyed two locations; to minimize the probability of the two observers recording the same migrating individuals twice, surveyors chose stations without overlapping fields of view.

Based on the data provided for the 2012 spring raptor migration surveys, a total of 26 survey visits were conducted on 19 separate dates, totalling 78.5 hours. A summary of the survey effort by station is provided in Table 3-3. Refer to Figure 3-1 for survey station locations.

Table 3-3: Summary of 2012 Spring Raptor Migration Survey Effort

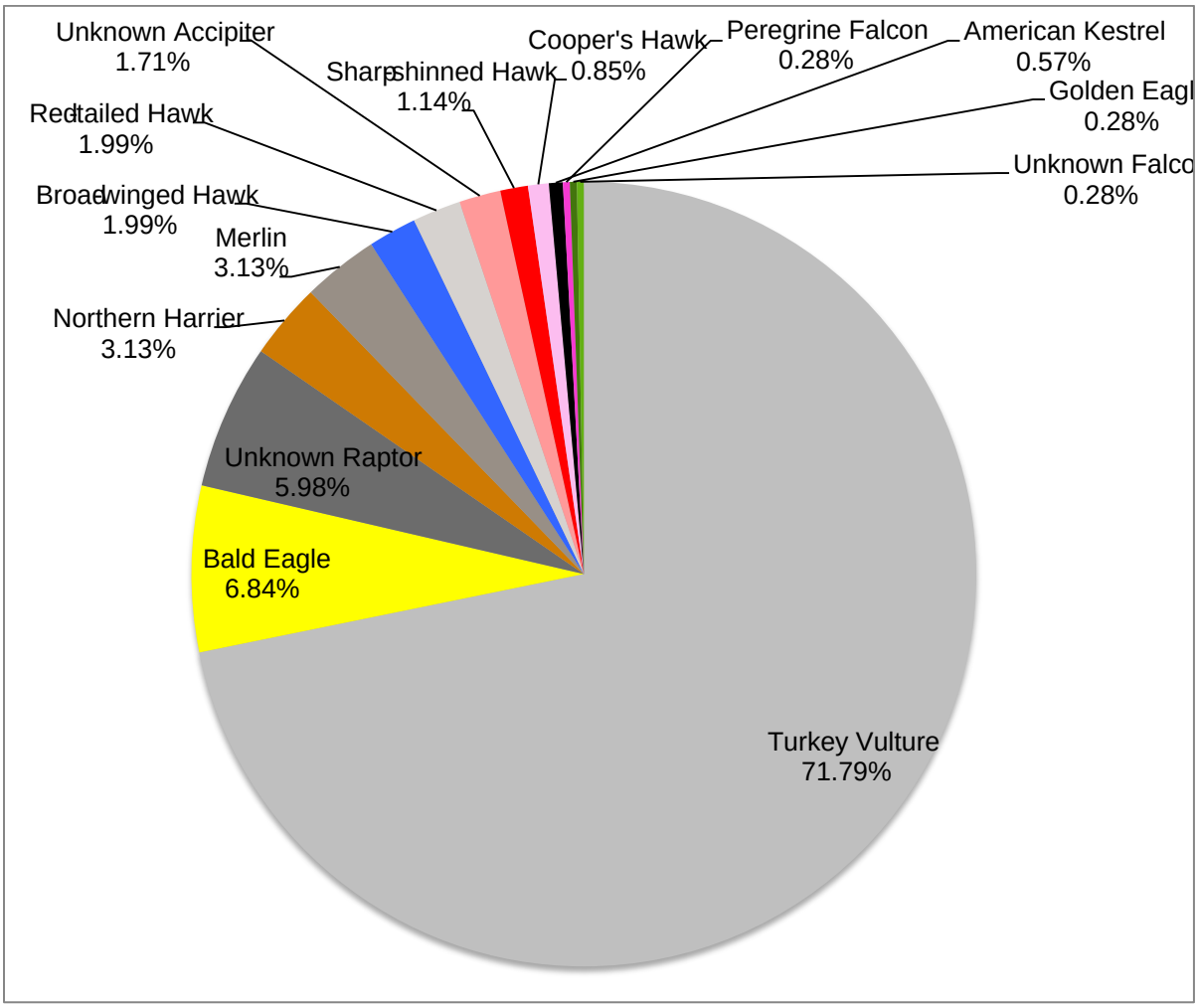
Survey Station	Dates Surveyed	Total Number of Survey Visits	Total Hours Surveyed
Hawk 1	April 8 and 11; May 1, 8, 14 and 15	6	19.25
Hawk 2	April 5, 13 and 30; May 1, 2, 9 and 11	7	18.25
Hawk 3	April 6, 13 and 19; May 2 and 16	5	17.50
Hawk 4	April 9, 18, 25 and 30; May 1 and 11	6	17.50
Hawk 5	May 7	1	3
Hawk 6	May 8	1	3
Total	19 separate dates surveyed; 26 surveys total (difference due to there occasionally being 2 surveyors at 2 separate stations on the same day)	26	78.5

In the spring of 2012, field observation records included survey location, surveyor's names, date and weather conditions including wind direction, wind speed, temperature and cloud cover. When a migrating bird was observed, the time interval of the observation, species, number of individuals, flight direction and other pertinent behaviour was recorded. Other bird species including waterfowl were also recorded as incidental wildlife observations. The raptor migration data for the 2012 spring surveys are provided in Appendix A.

The field data for the 2012 spring raptor migration surveys are summarized in Table C-3 in Appendix C. A total of 351 raptors comprised of 11 species and three (3) categories representing observations that could only be recorded to the genus level (Accipter sp., falcon sp. and raptor sp.), were observed. The most common species observed were Turkey Vulture (252 individuals), Bald Eagle (24 individuals), Northern Harrier (11 individuals) and Merlin (11 individuals). Other species observed included American Kestrel, Broad-winged Hawk, Cooper's Hawk, Golden Eagle, Peregrine Falcon, Red-tailed Hawk and Sharp-shinned Hawk. A total of 28 individuals could be identified only to the genus level (Accipter sp., falcon sp., or raptor sp.). The percentage of individuals comprised of each species observed is presented in Figure 3-5.

One (1) Provincial Species At Risk, Golden Eagle, was observed during the 2012 spring migration survey; this species is listed as Endangered under the provincial Endangered Species Act, 2007. In addition, two (2) Species of Conservation Concern, Bald Eagle and Peregrine Falcon, were observed during the 2012 spring migration survey. Both of these species are listed as Special Concern in Ontario under the provincial Endangered Species Act, 2007. Peregrine Falcon is also listed as Special Concern under Schedule 1 of the federal Species At Risk Act. Two (2) provincially rare species, Lapland Longspur and Caspian Tern (Hydroprogne caspia), were also observed incidentally during the 2012 spring migration survey.

Figure 3-5: 2012 Spring Raptor Migration Survey Results



3.2.4 2012 Spring Hawk Call Playback Surveys

Based on the data provided for the 2012 spring hawk call playback surveys, a total of 35 locations were surveyed between April 30 and May 16, 2012 (approximately 2 weeks). The survey effort consisted of a total of 35 surveys conducted over 8 survey days, with each location having been surveyed once. A summary of the 2012 spring hawk call playback survey effort by station is presented in Table 3-4. Refer to Figure 3-1 for survey station locations.

Table 3-4: Summary of 2012 Spring Hawk Call Playback Survey Effort

Survey Station	Dates Surveyed	Total Number of Survey Visits
Hawk Joe 1	April 30, 2012	1
Hawk Joe 2	April 30, 2012	1
Hawk 1	May 7, 2012	1
Hawk 2	May 7, 2012	1
Hawk 3	May 7, 2012	1

Survey Station	Dates Surveyed	Total Number of Survey Visits
Hawk 4	May 7, 2012	1
Hawk 5	May 8, 2012	1
Hawk 6	May 8, 2012	1
Hawk 7	May 8, 2012	1
Hawk 8	May 8, 2012	1
Hawk 9	May 8, 2012	1
Hawk 10	May 8, 2012	1
Hawk 11	May 8, 2012	1
Hawk 12	May 8, 2012	1
Hawk 13	May 8, 2012	1
Hawk 14	May 8, 2012	1
Hawk 15	May 8, 2012	1
Hawk 16	May 8, 2012	1
Hawk J1	May 10, 2012	1
Hawk J2	May 10, 2012	1
Hawk J3	May 10, 2012	1
Hawk J4	May 10, 2012	1
Hawk Flash 1	May 11, 2012	1
Hawk Flash 2	May 11, 2012	1
Hawk Flash 3	May 11, 2012	1
Hawk F1	May 14, 2012	1
Hawk F2	May 14, 2012	1
Hawk F3	May 14, 2012	1
Hawk F4	May 14, 2012	1
Hawk T10B	May 15, 2012	1
Hawk T12B	May 15, 2012	1
Hawk O1	May 16, 2012	1
Hawk O2	May 16, 2012	1
Hawk O3	May 16, 2012	1
Hawk O4	May 16, 2012	1
Total	8 separate dates surveyed; 35 survey days total (difference due to there frequently being multiple surveys occurring on a single day)	35 surveys

The field data for the 2012 spring hawk call playback surveys are summarized in Table C-4 in Appendix C . Of the five (5) hawk species called using call playback, two (2) responded: Broad-winged Hawk (4 observations) and Sharp-shinned Hawk (2 observations, including 1 pair). In addition, Red-tailed Hawk, Osprey and unidentified Accipiter species were recorded during the surveys. None of the raptor species observed during the 2012 spring hawk call playback surveys are Species at Risk or Species of Conservation Concern.

3.2.5 2013 Spring Raptor Migration Surveys

Based on the data provided for the 2012 spring raptor migration surveys, a total of 20 spring raptor migration surveys were conducted between March 18 and May 1, 2013 across five (5) different survey stations. Surveys were generally six (6) hours in duration. A summary of the survey effort by station is provided in Table 3-5. Refer to Figure 3-2 for survey station locations.

Table 3-5: Summary of 2013 Spring Raptor Migration Survey Effort

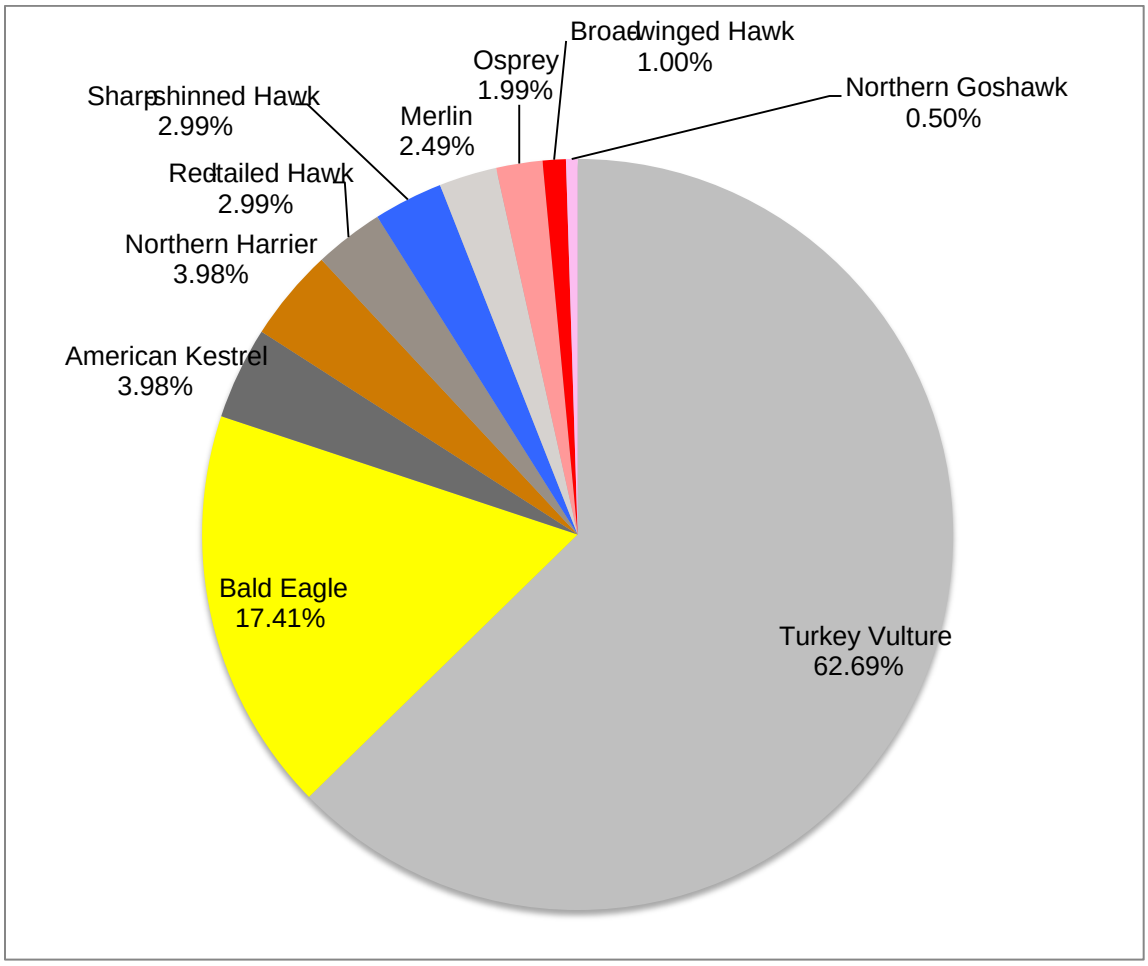
Survey Station	Dates Surveyed	Total Number of Survey Visits	Total Hours Surveyed
West	April 28; May 1, 2013	2	12
East	March 27; April 3, 9, 16 and 17; May 1, 2013	6	35.5
Boat Launch	March 27; April 3, 9, 16, 23 and 28, 2013	6	36
Hawk Watch Point 1	March 18 and 22; April 17 and 23, 2013	4	24
Hawk Watch Point 2	March 18 and 22, 2013	2	12
Total	10 separate dates surveyed; 20 survey days total (difference due to there frequently being multiple surveys occurring on a single day)	20	119.5

In general, the 2013 spring raptor migration field data were recorded in the following manner. Date and weather conditions were recorded. When a migratory raptor was observed, the observation was marked on the field map with an identification code and the direction of flight was recorded. On the field sheets, the field map identification code, time of observation, four (4)-letter species code, number of individuals including age class and gender, height and behaviour were recorded. Other bird species, including non-migratory raptors, and other wildlife observations were also recorded as incidental wildlife observations. The 2013 spring raptor migration survey field notes are provided in Appendix A .

The field data for the 2013 spring raptor migration surveys are summarized in Table C-5 in Appendix C . Greater than 201 raptors, comprised of ten (10) raptor species, were observed over the course of the 2012 spring migration surveys. The most common species observed were Turkey Vulture (greater than 126 individuals) and Bald Eagle (35 individuals). Other species recorded include American Kestrel, Broad-winged Hawk, Merlin, Northern Goshawk, Northern Harrier, Osprey, Red-tailed Hawk, and Sharp-shinned Hawk. The proportions of each species observed are presented below in Figure 3-6.

No raptor Species at Risk were recorded during the 2013 spring raptor migration surveys. One (1) raptor Species of Conservation Concern, Bald Eagle, was recorded. Bald Eagle is listed as Special Concern in Ontario under the provincial Endangered Species Act, 2007. In addition, two (2) Species of Conservation Concern, Eastern Wolf (Canis lupus lycaon), and Caspian Tern, were recorded incidentally during the 2013 spring raptor migration surveys. Eastern Wolf is listed as Special Concern under the federal Species At Risk Act and the provincial Endangered Species Act, 2007.

Figure 3-6: 2013 Spring Raptor Migration Survey Results



3.2.6 2013 Fall Raptor Migration Surveys

Based on the field notes provided by Stantec, a total of 20 fall raptor migration surveys were conducted between September 5 and November 12, 2013 across five (5) different stations. The same stations were surveyed during the 2013 spring and fall raptor migration surveys. Surveys were generally six (6) hours in duration. A summary of the survey effort by station is provided in Table 3-6. Refer to Figure 3-2 for survey station locations.

Table 3-6: Summary of 2013 Fall Raptor Migration Survey Effort

Survey Station	Dates Surveyed	Total Number of Survey Visits	Total Hours Surveyed [1]
West	September 5 and 23; October 8, 14, 24 and 29; November 8, 2013	7	42
East	September 3, 12 and 18; October 8, 11 and 19; November 12, 2013	7	> 28.75
Boat Launch	September 19; October 24 and 29, 2013	3	16.75
Hawk Watch Point 1	October 11, 2013	1	6
Hawk Watch Point 2	September 12 and 23, 2013	2	12.25
Total	11 separate dates surveyed; 20 survey days total (difference due to there occasionally being multiple surveys occurring on a single day)	20	> 105.75

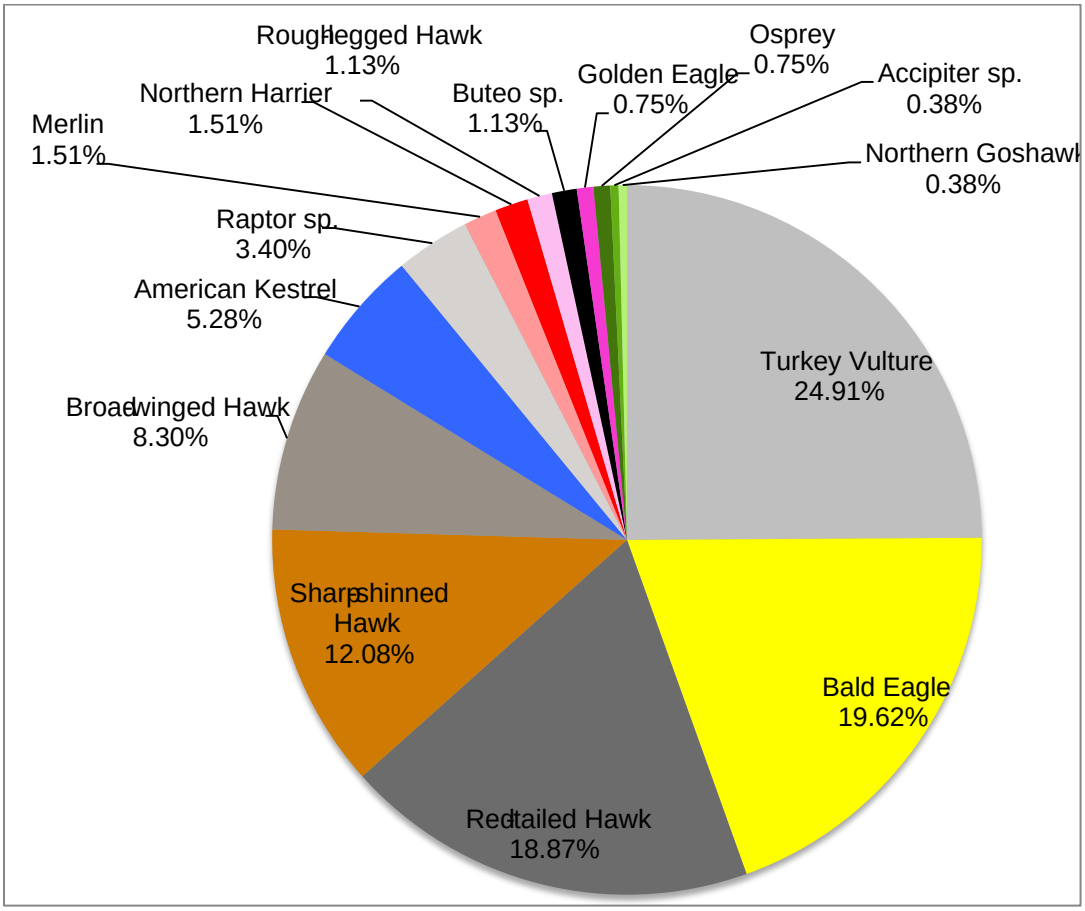
Notes: 1. Some survey start and end times were not recorded.

In general, the 2013 spring raptor migration field data were recorded in the following manner. Date and weather conditions were recorded. When a migratory raptor was observed, the observation was marked on the field map with an identification code and the direction of flight was recorded. On the field sheets, the field map identification code, time of observation, four (4)-letter species code, number of individuals including age class and gender, height and behaviour were recorded. Other bird species, including non-migratory raptors, and other wildlife observations were also recorded as incidental wildlife observations. The 2013 fall raptor migration survey field notes are provided in Appendix A .

The 2013 fall raptor migration survey field data are summarized in Table C-6 in Appendix C . A total of 265 raptors, comprised of 12 raptor species and three categories of raptors that were not identified beyond the genus level (Buteo sp., raptor sp. and Accipiter sp.), were observed over the course of the 2013 fall migration surveys. The most common species observed were Turkey Vulture (greater than 66 individuals), Bald Eagle (52 individuals) and Red-tailed Hawk (50 individuals). Other species observed include American Kestrel, Broad-winged Hawk, Golden Eagle, Merlin, Northern Goshawk, Northern Harrier, Osprey, Rough-legged Hawk and Sharp-shinned Hawk. The proportions of each species observed are presented in Figure 3 -7.

One (1) Provincial Species At Risk, Golden Eagle, was observed during the 2013 fall migration surveys. Golden Eagle is listed as Endangered under the provincial Endangered Species Act, 2007. In addition, one (1) raptor Species of Conservation Concern, Bald Eagle, was recorded. Bald Eagle is listed as Special Concern in Ontario under the provincial Endangered Species Act, 2007. A provincially rare species, Lapland Longspur, was also recorded incidentally during the 2013 fall migration survey.

Figure 3-7: 2013 Fall Raptor Migration Survey Results



4. Summary

LGL conducted the following raptor migration surveys in 2011 and 2012 within the HIWEC study area:

- In the spring of 2011, a total of six (6) raptor migration surveys were completed at three (3) survey stations, across 6 days between May 9 and 18, 2011. No Species at Risk or Species of Conservation Concern were recorded.
- In the fall of 2011, a total of 43 raptor migration surveys were completed at four (4) survey locations, across 30 days between September 5 and October 28, 2011. One (1) Provincial Species At Risk, Golden Eagle (listed as Endangered under the Endangered Species Act, 2007), and two Species of Conservation Concern, Bald Eagle and Peregrine Falcon (both listed as Special Concern under the Endangered Species Act, 2007), were observed. Peregrine Falcon is also listed as Special Concern under Schedule 1 of the federal Species At Risk Act. Two (2) provincially rare species, Great Black-backed Gull and Lapland Longspur, were also observed incidentally during the 2011 fall migration survey.
- In the spring of 2012, a total of 26 raptor migration surveys were completed at six (6) survey locations, across 19 days between April 5 and May 16, 2012. One (1) Provincial Species At Risk, Golden Eagle, and two (2) Species of Conservation Concern, Bald Eagle and Peregrine Falcon, were observed. Two (2) provincially rare species, Lapland Longspur and Caspian Tern, were also observed incidentally during the 2012 spring migration survey.
- In the spring of 2012, a total of 35 hawk call playback surveys were completed at 35 survey locations, across eight (8) days between April 30 and May 16, 2013. No raptor Species at Risk or Species of Conservation Concern were recorded.

Stantec conducted the following raptor migration surveys in 2013 within the HIWEC study area:

- In the spring of 2013, a total of 20 raptor migration surveys were completed at five (5) survey locations, across ten (10) days between March 18 and May 1, 2013. No raptor Species at Risk were recorded; however, one (1) Species of Conservation Concern, Bald Eagle, was recorded. Two (2) Species of Conservation Concern, Eastern Wolf and Caspian Tern, were recorded incidentally during the 2013 spring raptor migration surveys.
- In the fall of 2013, a total of 20 raptor migration surveys were completed at five (5) survey locations, across 11 days between September 5 and November 12, 2013. One (1) Provincial Species At Risk, Golden Eagle, and one (1) raptor Species of Conservation Concern, Bald Eagle, were observed. A provincially rare species, Lapland Longspur, was also recorded incidentally during the 2013 fall migration survey.

5. Assumptions and Clarif ications

Sarah Richer (a Biologist who conducted surveys on behalf of LGL in 2011 and 2012), provided further clarification regarding the 2011 and 2012 spring and fall raptor migration survey methods. Whenever possible, raptor migration surveys were conducted on days with conditions suitable for migrating diurnal raptors in order to maximize observations. This included conducting surveys during periods with no precipitation, and with winds considered advantageous for seasonal migration (i.e., southerly during spring migration, northerly during fall migration). Survey stations were chosen according to both their accessibility and the vantage point offered.

6. References

LGL Limited, 2011:

Work plan for the Nigig Power Wind Farm Project Background Ecological Studies. Prepared for Genivar on behalf of Nigig Power Corporation, 17 p.

Stantec Consulting Ltd., 2013:

2013 Terrestrial Survey Work Program. Prepared for Nigig Power Corp., 25 p.

Appendix A

Field Notes and Documentation

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
6	9	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Turkey Vulture	2	SE	
6	9	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Bald Eagle	1		adult, soaring in circles overhead
6	9	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Cooper's Hawk	1	S	Across inlet, from north
6	9	2011	SR	HAWK 4	13:45	14:45	NE	3	20	30		Turkey Vulture	3		same three as previous hour
6	9	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Turkey Vulture	3		
6	9	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Unknown Raptor	2		Too high to ID; soaring on thermal
6	9	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Unknown Accipiter	2	S	Too high to ID; soaring on thermal
6	9	2011	SR	HAWK 4	throughout survey period							Canada Goose	125	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Song Sparrow	1	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	4	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Herring Gull	2	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Northern Flicker	1	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Common Raven	1	SW	
6	9	2011	SR	HAWK 4	throughout survey period							Hermit Thrush	1	SW	
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	14	60		Bald Eagle	1	N	caught fish from inlet, flew north out of sight; minimum 2nd year bird
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Blue Jay	13		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Ring-billed Gull	3		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Herring Gull	3		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Song Sparrow	2		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		American Goldfinch	1		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Canada Goose	3		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Loon	2		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		American Crow	19		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Raven	1		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Belted Kingfisher	1		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Northern Flicker	2		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Grackle	2		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Yellowthroat	1		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Sandpiper sp	1		
7	9	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Duck sp	4		
7	9	2011	SR	HAWK 3	11:05	12:05	NE	3	18	85		Turkey Vulture	1		circling around inlet
7	9	2011	SR	HAWK 3	11:05	12:05	NE	3	18	85		Sharp-shinned Hawk	1	SW	
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Turkey Vulture	3		
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Bald Eagle	1		minimum 2nd year bird, perched
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Northern Harrier	1	SW	
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Sharp-shinned Hawk	1	SW	
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Broad-winged Hawk	1	SW	
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		American Kestrel	1	SW	
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Unknown Accipiter	4	SW	Too high to ID; soaring on thermal
7	9	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Unknown Buteo	1		Too high to ID; soaring on thermal
7	9	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Turkey Vulture	4		three are same three as previous hour
7	9	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Bald Eagle	1		same eagle as previous hour
7	9	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		American Kestrel		SW	
7	9	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Unknown Falcon	3	SW	Too high to ID; soaring on thermal
7	9	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	4		
7	9	2011	SR	HAWK 3	throughout survey period							Herring Gull	3		
7	9	2011	SR	HAWK 3	throughout survey period							Common Grackle	150		
7	9	2011	SR	HAWK 3	throughout survey period							Sandhill Crane	2		
7	9	2011	SR	HAWK 3	throughout survey period							Blue Jay	7		
7	9	2011	SR	HAWK 3	throughout survey period							American Crow	2		
7	9	2011	SR	HAWK 3	throughout survey period							White-throated Sparrow	1		
12	9	2011	SR	HAWK 3	10:40	11:40	W	4	26	50		Turkey Vulture	3		
12	9	2011	SR	HAWK 3	10:40	11:40	W	4	26	50		Sharp-shinned Hawk	1		foraging on island
12	9	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Turkey Vulture	5		three are same birds as first hour
12	9	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Sharp-shinned Hawk	1	SE	
12	9	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Red-tailed Hawk	1		thermal
12	9	2011	SR	HAWK 3	12:40	12:45	W	4	26	40		Turkey Vulture	10		7 in one kettle, 3 in another
12	9	2011	SR	HAWK 3	12:40	12:45	W	4	26	40		Sharp-shinned Hawk	1	SE	
12	9	2011	SR	HAWK 3	throughout survey period							American Crow	3		
12	9	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	2		
12	9	2011	SR	HAWK 3	throughout survey period							Great Blue Heron	1		
12	9	2011	SR	HAWK 3	throughout survey period							Blue Jay	18		
12	9	2011	SR	HAWK 3	throughout survey period							Great Black-backed Gull	1		
12	9	2011	SR	HAWK 3	throughout survey period							Double-crested Cormorant	1		
12	9	2011	SR	HAWK 3	throughout survey period							Herring Gull	3		
12	9	2011	SR	HAWK 3	throughout survey period							Belted Kingfisher	1		
12	9	2011	SR	HAWK 3	throughout survey period							Northern Flicker	8		
12	9	2011	SR	HAWK 3	throughout survey period							American Robin	2		Hawk watch ended early due to presence of Black Bear, not afraid of bear bangers

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
12	9	2011	SR	HAWK 2	9:04	10:10	W	4	21	15		Turkey Vulture	1		soaring, south side of inlet
12	9	2011	SR	HAWK 2	9:04	10:10	W	4	21	15		Merlin	1	SW	
12	9	2011	SR	HAWK 2	throughout survey period							Blue Jay	80		
12	9	2011	SR	HAWK 2	throughout survey period							American Crow	9		
12	9	2011	SR	HAWK 2	throughout survey period							Common Raven	1		
12	9	2011	SR	HAWK 2	throughout survey period							Canada Goose	935	W/SW	predominantly along south side of inlet; all separate flocks; 43, 32, 38, 80, 57, 24, 12, 27, 40, 34, 51, 19, 68, 19, 27, 26, 43, 60, 55, 14, 18, 50, 42, 22, 31, 3;
12	9	2011	SR	HAWK 2	throughout survey period							Northern Flicker	1		
12	9	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	5		
12	9	2011	SR	HAWK 2	throughout survey period							Herring Gull	2		
12	9	2011	SR	HAWK 2	throughout survey period							Common Merganser	2		
12	9	2011	SR	HAWK 2	throughout survey period							Common Loon	1		
12	9	2011	SR	HAWK 2	throughout survey period							American Goldfinch	1		
12	9	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	1		
12	9	2011	SR	HAWK 2	throughout survey period							Mallard	4		
12	9	2011	SR	HAWK 2	throughout survey period							Scaup sp	2		
14	9	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Turkey Vulture	1		thermal
14	9	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Bald Eagle	1	SE	minimum 3 year old
14	9	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Red-tailed Hawk	1	W	along north side of inlet
14	9	2011	SR	HAWK 4	9:45	10:45	W	6	15	60		Turkey Vulture	3		fighting winds
14	9	2011	SR	HAWK 4	9:45	10:45	W	6	15	60		Bald Eagle	1		same bird as first hour
14	9	2011	SR	HAWK 4	10:45	11:30	W	6	15	60		0 raptors			
14	9	2011	SR	HAWK 4	throughout survey period							Herring Gull	4		
14	9	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	2		
14	9	2011	SR	HAWK 4	throughout survey period							American Crow	3		
14	9	2011	SR	HAWK 4	throughout survey period							Common Raven	1		
14	9	2011	SR	HAWK 4	throughout survey period							Duck sp	3		
15	9	2011	SR	HAWK 2	10:35	11:35	W/NW	4	10	80		Turkey Vulture	1	W	
15	9	2011	SR	HAWK 2	11:35	12:35	W/NW	4	10	100		Turkey Vulture	8		in one kettle
15	9	2011	SR	HAWK 2	11:35	12:35	W/NW	4	10	100		Broad-winged Hawk	2	S	
15	9	2011	SR	HAWK 2	12:35	1:35	NW	4	10	80		Turkey Vulture	5		same kettle as previous hour
15	9	2011	SR	HAWK 2	12:35	1:35	NW	4	10	80		Northern Harrier	1		thermal, high into clouds
15	9	2011	SR	HAWK 2	1:35	2:35	NW	4	10	80		Unknown Raptor	1		Too high to ID; soaring on thermal
15	9	2011	SR	HAWK 2	throughout survey period							Common Loon	1		
15	9	2011	SR	HAWK 2	throughout survey period							Herring Gull	2		
15	9	2011	SR	HAWK 2	throughout survey period							American Crow	2		
15	9	2011	SR	HAWK 2	throughout survey period							Northern Flicker	1		
15	9	2011	SR	HAWK 2	throughout survey period							American Goldfinch	1		
15	9	2011	SR	HAWK 2	throughout survey period							Blue Jay	8		
15	9	2011	SR	HAWK 2	throughout survey period							Canada Goose	18		
15	9	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	1		
15	9	2011	SR	HAWK 2	throughout survey period							Common Raven	3		
16	9	2011	SR	HAWK 1	11:45	12:45	W	3	15	0		Turkey Vulture	5		soaring around inlet, remaining local
16	9	2011	SR	HAWK 1	11:45	12:45	W	3	15	0		Unknown Buteo	1	S	Too high to ID; soaring on thermal
16	9	2011	SR	HAWK 1	12:45	1:45	W	3	15	0		Turkey Vulture	3		three are same birds as first hour
16	9	2011	SR	HAWK 1	12:45	1:45	W	3	15	0		Unknown Raptor	1		Too high to ID; soaring on thermal
16	9	2011	SR	HAWK 1	1:45	2:45	W	3	15	0		Turkey Vulture	3		three are same birds as first hour
16	9	2011	SR	HAWK 1	1:45	2:45	W	3	15	0		Unknown Buteo	1		Too high to ID; soaring on thermal
16	9	2011	SR	HAWK 1	throughout survey period							Black-capped Chickadee	2		
16	9	2011	SR	HAWK 1	throughout survey period							Herring Gull	1		
16	9	2011	SR	HAWK 1	throughout survey period							Common Raven	1		
16	9	2011	SR	HAWK 1	throughout survey period							Ring-billed Gull	1		
16	9	2011	SR	HAWK 1	throughout survey period							Nashville Warbler	3		
16	9	2011	SR	HAWK 1	throughout survey period							Black-throated Green Warbler	2		
16	9	2011	SR	HAWK 1	throughout survey period							Blue Jay	12		
16	9	2011	SR	HAWK 1	throughout survey period							Canada Goose	23		two flocks; one of 21, one of 2
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Turkey Vulture	4		
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	1	S	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	1	S	low
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Pectoral Sandpiper	3	SE	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	1	E	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	1	S	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	American Goldfinch	1		
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Yellow-rumped Warbler	1	S	fly over
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Turkey Vulture	20	S	
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Northern Harrier	1		female
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	American Pipit	1	S	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Turkey Vulture	2		
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	1	E	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	2	W	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Unknown Falcon	1	W	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Common Raven	3		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Northern Harrier	1	W	female, low flying
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	N	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	3		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	N	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Pine Sisken	1		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	4	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	SW	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	5	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	3	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	2	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	1	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Pipit	2		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Goldfinch	1	NE	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Mallard	3	NE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Merlin	1		perched
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Warbler sp.	2		
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	3	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	11	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	1	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	2	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	American Goldfinch	2	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Black-backed Woodpecker	1		on south side, then over to the N side
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	4	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	1	E	
20	9	2011	ARD	HAWK 2	10:05	10:35	W	1	15	5	cirrus	Blue Jay	2	E	
20	9	2011	ARD	HAWK 2	11:15	12:15	NE	2	22	40	high				
20	9	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Turkey Vulture	2		
20	9	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Bald Eagle	1		obs same as ARD
20	9	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Unknown Buteo	1	S	Too high to ID; soaring on thermal
20	9	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Turkey Vulture	5		two are same as previous hour
20	9	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Merlin	1	S	
20	9	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Unknown Accipiter	1		Too high to ID; soaring on thermal
20	9	2011	SR	HAWK 2	12:35	13:35	SW	3	20	50		Turkey Vulture	4		same as previous hour
20	9	2011	SR	HAWK 2	12:35	13:35	SW	3	20	50		Red-tailed Hawk	1	S	
20	9	2011	SR	HAWK 2	13:35	14:35	SW	3	19	10		Turkey Vulture	5		four are same as previous hour
20	9	2011	SR	HAWK 2	throughout survey period							Herring Gull	3		
20	9	2011	SR	HAWK 2	throughout survey period							Great Blue Heron	1		
20	9	2011	SR	HAWK 2	throughout survey period							Duck sp	1		
20	9	2011	SR	HAWK 2	throughout survey period							Common Grackle	2		
20	9	2011	SR	HAWK 2	throughout survey period							Blue Jay	149		separate flocks of 20, 52, 18, 26, 10, 23
20	9	2011	SR	HAWK 2	throughout survey period							Canada Goose	18	W	Along south side of inlet
20	9	2011	SR	HAWK 2	throughout survey period							Northern Flicker	2		
20	9	2011	SR	HAWK 2	throughout survey period							White-throated Sparrow	1		
20	9	2011	SR	HAWK 2	throughout survey period							Double-crested Cormorant	1		
20	9	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	3		
20	9	2011	SR	HAWK 2	throughout survey period							Sandpiper sp	1	S	
20	9	2011	SR	HAWK 2	throughout survey period							Common Loon	1		
20	9	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	1		
20	9	2011	SR	HAWK 2	throughout survey period							Common Raven	2		
21	9	2011	SR	HAWK 3	11:00	12:00	SE	3	19	90		Turkey Vulture	2		
21	9	2011	SR	HAWK 3	11:00	12:00	SE	3	19	90		Red-tailed Hawk	1		
21	9	2011	SR	HAWK 3	12:00	13:00	SE	3	19	90		Turkey Vulture	3		same two as first hour
21	9	2011	SR	HAWK 3	12:00	13:00	SE	3	19	90		Northern Harrier	1		female, flew to north side of inlet
21	9	2011	SR	HAWK 3	13:00	14:00	SE	4	20	90		Northern Harrier	5		1 male, four either juveniles or females
21	9	2011	SR	HAWK 3	throughout survey period							Northern Flicker	3		
21	9	2011	SR	HAWK 3	throughout survey period							Common Loon	1		
21	9	2011	SR	HAWK 3	throughout survey period							American Crow	2		
21	9	2011	SR	HAWK 3	throughout survey period							Common Raven	1		
21	9	2011	SR	HAWK 3	throughout survey period							Blue Jay	1		
21	9	2011	SR	HAWK 3	throughout survey period							American Robin	1		
21	9	2011	SR	HAWK 3	throughout survey period							American Goldfinch	12		
21	9	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	1		
21	9	2011	SR	HAWK 3	throughout survey period							Herring Gull	3		

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
21	9	2011	SR	HAWK 3	throughout survey period							Greater Yellowlegs	5	S	
21	9	2011	SR	HAWK 3	throughout survey period							Belted Kingfisher	1		
22	9	2011	SR	HAWK 3	9:35	10:35	S	3	15	100		American Kestrel	1	S	
22	9	2011	SR	HAWK 3	10:35	11:35	S	3	16	100		0 raptors			precipitation 2, sprinkling rain
22	9	2011	SR	HAWK 3	11:35	12:35	SW	3	15	100		0 raptors			no rain
22	9	2011	SR	HAWK 3	throughout survey period							Common Loon	1		
22	9	2011	SR	HAWK 3	throughout survey period							Sandpiper sp	1		
22	9	2011	SR	HAWK 3	throughout survey period							Pileated Woodpecker	1		
22	9	2011	SR	HAWK 3	throughout survey period							Herring Gull	2		
22	9	2011	SR	HAWK 3	throughout survey period							Black-capped Chickadee	2		
22	9	2011	SR	HAWK 3	throughout survey period							Northern Flicker	4		
22	9	2011	SR	HAWK 3	throughout survey period							Song Sparrow	2		
22	9	2011	SR	HAWK 3	throughout survey period							American Robin	1		
22	9	2011	SR	HAWK 3	throughout survey period							American Crow	1		
22	9	2011	SR	HAWK 3	throughout survey period							Double-crested Cormorant	1		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		0 raptors			
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Ring-billed Gull	1		steady drizzle; ends hawk watch
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Myrtle Warbler	7		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Unknown warbler	1		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Song Sparrow	2		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Pileated Woodpecker	1		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Belted Kingfisher	1		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Canada Goose	4		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		American Crow	6		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Common Raven	3		
23	9	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Blue Jay	2		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Turkey Vulture	3		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	N	same as previous??
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Buteo	1	W	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Falcon	1		chase bird from perch
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Raptor	1	W	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	2	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	3	SE	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	5	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	20	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	5	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	6	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	26		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	34	SW	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	14	SW	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Common Raven	5		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Sandhill Crane	3	N	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Turkey Vulture	4		
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Bald Eagle	1		2 yr old; thermal, northside
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Broad-winged Hawk	1	E	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Red-tailed Hawk	1		thermal, north side
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		American Kestrel	1		northside, foraging
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1	E	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1		thermal, north side
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1		thermal
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Raptor	1		
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	7	S	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	2	S	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Great Blue Heron	1		south side of inlet, foraging
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	2		
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Sharp-shinned Hawk	1	SE	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	1	E	thermal
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	1	SE	thermal
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		American Pipit	1	W	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Blue Jay	3	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Passerine sp.	11	S	
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	8	SSW	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	63		
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	30	SW	
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	31	SW	land on inlet
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	25		
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Common Merganser	4	W	
27	9	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	American Pipit	3		
27	9	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	Canada Goose	50	S	low over water
27	9	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Turkey Vulture	1		soaring, south side of inlet
27	9	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Bald Eagle	1		adult, perched at south side
27	9	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Unknown Accipiter	1	S	Too high to ID; soaring on thermal
27	9	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Turkey Vulture	1		same as previous hour
27	9	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Bald Eagle	1		same as previous hour
27	9	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		American Kestrel	1		perched, south side of inlet
27	9	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Northern Harrier	1	S	female or juvenile
27	9	2011	SR	HAWK 2	13:15	14:15	S	2	20	100		0 raptors			
27	9	2011	SR	HAWK 2	throughout survey period							Unknown flyovers	48	S	separate flocks of 12, 9, 4, 9, 7, 7
27	9	2011	SR	HAWK 2	throughout survey period							Hairy Woodpecker	1		
27	9	2011	SR	HAWK 2	throughout survey period							Common Raven	3		
27	9	2011	SR	HAWK 2	throughout survey period							Northern Flicker	1		
27	9	2011	SR	HAWK 2	throughout survey period							Sandhill Crane	1		
27	9	2011	SR	HAWK 2	throughout survey period							Canada Goose	112		separate flocks of 20, 18, 36, 5, 28, 5
27	9	2011	SR	HAWK 2	throughout survey period							Blue Jay	34		separate flocks of 4, 14, 8, 3, 5
27	9	2011	SR	HAWK 2	throughout survey period							American Pipit	26		separate flocks of 15, 7, 4
27	9	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	3		
27	9	2011	SR	HAWK 2	throughout survey period							Wood Duck	1		
27	9	2011	SR	HAWK 2	throughout survey period							Black-capped Chickadee	6		
27	9	2011	SR	HAWK 2	throughout survey period							Golden-crowned Kinglet	3		
27	9	2011	SR	HAWK 2	throughout survey period							American Crow	2		
27	9	2011	SR	HAWK 2	throughout survey period							Common Loon	1		
27	9	2011	SR	HAWK 2	throughout survey period							Duck sp	17		
27	9	2011	SR	HAWK 2	throughout survey period							American Goldfinch	14		
27	9	2011	SR	HAWK 2	throughout survey period							Greater Yellowlegs	3		
29	9	2011	SR	HAWK 4	11:00	12:00	SW	2	17	60		Turkey Vulture	4		soaring around inlet, staying local
29	9	2011	SR	HAWK 4	12:00	13:00	SW	2	17	90		Turkey Vulture	7		4 same as previous hour
29	9	2011	SR	HAWK 4	12:00	13:00	SW	2	17	90		Bald Eagle	1		adult, soaring on thermal
29	9	2011	SR	HAWK 4	13:00	14:00	SW	2	18	30		Unknown Buteo	1	E	Too high to ID; soaring on thermal
29	9	2011	SR	HAWK 4	throughout survey period							Common Raven	5		
29	9	2011	SR	HAWK 4	throughout survey period							American Crow	3		
29	9	2011	SR	HAWK 4	throughout survey period							Blue Jay	1		
29	9	2011	SR	HAWK 4	throughout survey period							American Goldfinch	1		
29	9	2011	SR	HAWK 4	throughout survey period							American Pipit	7		
29	9	2011	SR	HAWK 4	throughout survey period							American Robin	3		
29	9	2011	SR	HAWK 4	throughout survey period							White-crowned Sparrow	3		
29	9	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	2		
29	9	2011	SR	HAWK 4	throughout survey period							Herring Gull	1		
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	14	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	9		
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Bald Eagle	1	E	adult
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Canada Goose	2	E	flying low
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Common Loon	1	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	4	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	28	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Mallard	1	NE	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Yellow-rumped Warbler	1		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Scaup sp.	5	NW	
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Crow	1		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Pipit	10		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Lapland Longspur	1		fly over, calling
29	9	2011	ARD	HAWK 4	10:35	10:55	SW	3	19	30	cumulus/cirrus	Blue Jay	7	SE	
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Bald Eagle	1	W	adult, flying low
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Common Raven	3		
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Blue Jay	1	N	
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Herring Gull	1		
4	10	2011	SR	HAWK 3	8:50	9:50	NW	2	8	15		Turkey Vulture	1	N	thermals
4	10	2011	SR	HAWK 3	9:50	10:50	NW	1-2	13	10		Turkey Vulture	1	N	Thermal
4	10	2011	SR	HAWK 3	10:50	11:20	NW	1-2	13	10		Turkey Vulture	3		1 perched
4	10	2011	SR	HAWK 3	throughout survey period							Double-crested Cormorant	3		
4	10	2011	SR	HAWK 3	throughout survey period							American Goldfinch	34		
4	10	2011	SR	HAWK 3	throughout survey period							Pine Siskin	137		

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
4	10	2011	SR	HAWK 3	throughout survey period							Bufflehead	12		
4	10	2011	SR	HAWK 3	throughout survey period							American Robin	1		
4	10	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	1		
4	10	2011	SR	HAWK 3	throughout survey period							Gull sp	4		
4	10	2011	SR	HAWK 3	throughout survey period							Unknown passerine	22		
4	10	2011	SR	HAWK 3	throughout survey period							Hooded Merganser	2		female
4	10	2011	SR	HAWK 3	throughout survey period							Pileated Woodpecker	1		
4	10	2011	SR	HAWK 3	throughout survey period							Black-capped Chickadee	2		
4	10	2011	SR	HAWK 3	throughout survey period							Common Raven	5		
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Turkey Vulture	2	N	
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Red-tailed Hawk	2	SW	
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Ring-billed Gull	1		
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Gull sp	4		
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Black-capped Chickadee	3		
5	10	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Common Raven	3		
5	10	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Turkey Vulture	2		thermals
5	10	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Bald Eagle	1	N	3 -yrs old
5	10	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Red-tailed Hawk	2	SW	
5	10	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Unknown Raptor	1	SW	Too high to ID, soaring on thermal
5	10	2011	SR	HAWK 4	12:00	13:00	NE	4	15	0		Turkey Vulture	7		thermals
5	10	2011	SR	HAWK 4	throughout survey period							Common Raven	1		
5	10	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	3		
5	10	2011	SR	HAWK 4	throughout survey period							Gull sp	2		
5	10	2011	SR	HAWK 4	throughout survey period							American Goldfinch	1		
5	10	2011	SR	HAWK 4	throughout survey period							Double-crested Cormorant	1		
5	10	2011	SR	HAWK 4	throughout survey period							Common Loon	1		Juvenile
5	10	2011	SR	HAWK 4	throughout survey period							White-crowned Sparrow	3		
5	10	2011	SR	HAWK 4	throughout survey period							Blue Jay	2		
5	10	2011	SR	HAWK 4	throughout survey period							Unknown passerine	22		
5	10	2011	SR	HAWK 4	throughout survey period							Duck sp	19		
5	10	2011	SR	HAWK 4	throughout survey period							Unknown passerine	10		
6	10	2011	SR	HAWK 2	12:35	13:35	SW	1-2	15	0		Turkey Vulture	4		2 not visible to ARD. On thermals
6	10	2011	SR	HAWK 2	13:35	14:35	SW	1	15	0		Turkey Vulture	7		3 possible visible to ARD
6	10	2011	SR	HAWK 2	throughout survey period							Black-capped Chickadee	4		
6	10	2011	SR	HAWK 2	throughout survey period							Song Sparrow	1		
6	10	2011	SR	HAWK 2	throughout survey period							Blue Jay	1		
6	10	2011	SR	HAWK 2	throughout survey period							American Crow	3		
6	10	2011	SR	HAWK 2	throughout survey period							Common Raven	1		
6	10	2011	SR	HAWK 2	throughout survey period							Mallard	2		1 male and 1 female
6	10	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	1		
6	10	2011	SR	HAWK 2	throughout survey period							Slate-coloured Junco	2		
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Red-tailed Hawk	1	NE	1 Adult perched for 45 minutes
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		American Goldfinch	25		
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Hooded Merganser	2		Female
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Double-crested Cormorant	3		
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Bufflehead	7		
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Belted Kingfisher	1		
12	10	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Common Raven	1		
13	10	2011	SR	HAWK 1	9:50	10:20	E/SE	2	14	100	low overcast	0 raptors			
13	10	2011	SR	HAWK 1	10:00	11:00	S/SE	2	13	100		0 raptors			Light drizzle on-off
13	10	2011	SR	HAWK 1	11:00	12:00	S/SE	2	13	100		0 raptors			Light drizzle on-off
13	10	2011	SR	HAWK 1	12:00	13:00	S/SE	2-3	14	100		Turkey Vulture	1		soaring
13	10	2011	SR	HAWK 1	13:00	14:00	S/SE	2-3	14	100		Turkey Vulture	1	N	
13	10	2011	SR	HAWK 1	13:00	14:00	S/SE	2-3	14	100		Northern Harrier	1	S	Female
13	10	2011	SR	HAWK 1	throughout survey period							Common Raven	2		
13	10	2011	SR	HAWK 1	throughout survey period							Common Loon	1		
13	10	2011	SR	HAWK 1	throughout survey period							Black-capped Chickadee	3		
13	10	2011	SR	HAWK 1	throughout survey period							American Robin	2		
13	10	2011	SR	HAWK 1	throughout survey period							Gull sp	4		
13	10	2011	SR	HAWK 1	throughout survey period							Ruby-crowned Kinglet	2		
13	10	2011	SR	HAWK 1	throughout survey period							Pileated Woodpecker	1		
13	10	2011	SR	HAWK 1	throughout survey period							Common Loon	3		
13	10	2011	SR	HAWK 1	throughout survey period							American Robin	4		
13	10	2011	SR	HAWK 1	throughout survey period							White-crowned Sparrow	3		
13	10	2011	SR	HAWK 1	throughout survey period							Golden-crowned Kinglet	2		
13	10	2011	SR	HAWK 1	throughout survey period							Black-capped Chickadee	2		
14	10	2011	SR	HAWK 2	11:30	12:30	SW	2-3	13	100		Unknown Falcon	1	S	Too high to ID, soaring on thermal; showers on - off
14	10	2011	SR	HAWK 2	12:30	13:30	SW	2-3	13	100		0 raptors			showers on - off
14	10	2011	SR	HAWK 2	throughout survey period							White-crowned Sparrow	1		

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
14	10	2011	SR	HAWK 2	throughout survey period							Common Merganser	3		
14	10	2011	SR	HAWK 2	throughout survey period							Common Loon	2		
14	10	2011	SR	HAWK 2	throughout survey period							Herring Gull	2		
14	10	2011	SR	HAWK 2	throughout survey period							Duck sp	7	SW	High and Far away
18	10	2011	SR	HAWK 1	12:00	13:00	W	2-3	8	50		Turkey Vulture	2	S	
18	10	2011	SR	HAWK 1	12:00	13:00	W	2-3	8	50		Red-tailed Hawk	1	NW-SE	
18	10	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Red-tailed Hawk	3	SE	
18	10	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Bald Eagle	1	N	
18	10	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Northern Harrier	2	SE	
18	10	2011	SR	HAWK 1	throughout survey period							Common Loon	2		
18	10	2011	SR	HAWK 1	throughout survey period							Double-crested Cormorant	2		
18	10	2011	SR	HAWK 1	throughout survey period							Herring Gull	1		
18	10	2011	SR	HAWK 1	throughout survey period							Gull sp	3		
18	10	2011	SR	HAWK 1	throughout survey period							Golden-crowned Kinglet	2		
18	10	2011	SR	HAWK 1	throughout survey period							Ruby-crowned Kinglet	1		
18	10	2011	SR	HAWK 1	throughout survey period							American Crow	22		
18	10	2011	SR	HAWK 1	throughout survey period							Common Raven	3		
19	10	2011	SR	HAWK 1	9:00	10:00	E/NE	2	5	80		Red-tailed Hawk	1		perched on North side
19	10	2011	SR	HAWK 1	10:00	11:00	E/NE	2	6	95		Northern Harrier	1	S	Female
19	10	2011	SR	HAWK 1	11:00	11:30	E/NE	3	6	100		0 raptors			some precipitation
19	10	2011	SR	HAWK 1	throughout survey period							Common Raven	1		
19	10	2011	SR	HAWK 1	throughout survey period							Double-crested Cormorant	6		
19	10	2011	SR	HAWK 1	throughout survey period							American Tree Sparrow	12		
19	10	2011	SR	HAWK 1	throughout survey period							Slate-coloured Junco	7		
19	10	2011	SR	HAWK 1	throughout survey period							Herring Gull	1		
19	10	2011	SR	HAWK 1	throughout survey period							Unknown passerine	203	S	Flying over inlet, several hundred metres away from survey point, north to south
19	10	2011	SR	HAWK 1	throughout survey period							Common Loon	1		
21	10	2011	SR	HAWK 3	9:45	10:45	NW	3	5	100		Rough-legged Hawk	1		Foraging low over treetops
21	10	2011	SR	HAWK 3	10:45	11:45	NW	2-3	5	95		Rough-legged Hawk	1		Same one observed in previous hour
21	10	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Rough-legged Hawk	1		Same one observed in previous 2 hours
21	10	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Bald Eagle	1	SE	Immature
21	10	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Red-tailed Hawk	1	S	
21	10	2011	SR	HAWK 3	throughout survey period							White-winged Scoter	17		
21	10	2011	SR	HAWK 3	throughout survey period							Common Loon	1		
21	10	2011	SR	HAWK 3	throughout survey period							White-crowned Sparrow	1		
21	10	2011	SR	HAWK 3	throughout survey period							Greater Yellowlegs	2		
25	10	2011	SR	HAWK 3	9:30	10:30	W	6	5	25		Golden Eagle	1	E	
25	10	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Northern Harrier	1	S	
25	10	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Golden Eagle	1	N	Thermals
25	10	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Unknown Falcon	1		Too high to ID, soaring on thermal
25	10	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Unknown Raptor	1		Too high to ID, soaring on thermal
25	10	2011	SR	HAWK 3	11:30	12:30	W	6	5	40		Rough-legged Hawk	1	S	Foraging
25	10	2011	SR	HAWK 3	throughout survey period							Black Scoter	13		
25	10	2011	SR	HAWK 3	throughout survey period							Common Raven	5		
25	10	2011	SR	HAWK 3	throughout survey period							Common Loon	2		
25	10	2011	SR	HAWK 3	throughout survey period							American Tree Sparrow	2		
25	10	2011	SR	HAWK 3	throughout survey period							Northern Flicker	1		
25	10	2011	SR	HAWK 3	throughout survey period							Slate-coloured Junco	1		
25	10	2011	SR	HAWK 3	throughout survey period							Bufflehead	6		
25	10	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	1		
25	10	2011	SR	HAWK 3	throughout survey period							Herring Gull	2		
25	10	2011	SR	HAWK 3	throughout survey period							Black-capped Chickadee	1		
26	10	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Bald Eagle	1		Immature foraging
26	10	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Northern Harrier	1	S	
26	10	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Rough-legged Hawk	1		foraging, light morph
26	10	2011	SR	HAWK 2	10:50	11:50	NE	2-3	7	100		Bald Eagle	1		Immature foraging same individuals as previous hour
26	10	2011	SR	HAWK 2	11:50	12:50	NE	3	5	100		0 raptors			
26	10	2011	SR	HAWK 2	throughout survey period							Ruffed Grouse	2		
26	10	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	2		
26	10	2011	SR	HAWK 2	throughout survey period							Common Raven	9		
26	10	2011	SR	HAWK 2	throughout survey period							American Tree Sparrow	22		
26	10	2011	SR	HAWK 2	throughout survey period							American Goldfinch	9		
26	10	2011	SR	HAWK 2	throughout survey period							Herring Gull	3		
26	10	2011	SR	HAWK 2	throughout survey period							Unknown passerine	74		
26	10	2011	SR	HAWK 2	throughout survey period							American Robin	14		
26	10	2011	SR	HAWK 2	throughout survey period							Duck sp	14		
26	10	2011	SR	HAWK 2	throughout survey period							Common Loon	1		
26	10	2011	SR	HAWK 2	throughout survey period							Black Scoter	8		
26	10	2011	SR	HAWK 2	throughout survey period							White-winged Scoter	12		

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud Cover	Cloud Type (if recorded)	Species	Number	Direction	Notes
26	10	2011	SR	HAWK 2	throughout survey period							Canada Goose	4		
26	10	2011	SR	HAWK 2	throughout survey period							Blackbird sp	1		
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Turkey Vulture	2	S	FLYING OVER Joe's camp
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Unknown Raptor	1	S	Too high to ID, soaring on thermal
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Hairy Woodpecker	1		
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Unknown passerine	53		
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Common Loon	1		
26	10	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Red-breasted Merganser	1		Female
27	10	2011	SR	HAWK 1	12:00	13:00	NE	2	6	80		Unknown Raptor	4		Too high to ID, soaring on thermal
27	10	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Northern Harrier	2	N	Thermals
27	10	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Rough-legged Hawk	1	S	
27	10	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Unknown Raptor	1		Too high to ID, soaring on thermal
27	10	2011	SR	HAWK 1	throughout survey period							American Tree Sparrow	1		
27	10	2011	SR	HAWK 1	throughout survey period							Common Loon	1		
27	10	2011	SR	HAWK 1	throughout survey period							Common Goldeneye	1		
27	10	2011	SR	HAWK 1	throughout survey period							American Goldfinch	42		
27	10	2011	SR	HAWK 1	throughout survey period							Common Merganser	1		
27	10	2011	SR	HAWK 1	throughout survey period							Duck sp	24		Too far away to ID
28	10	2011	SR	HAWK 1	10:20	11:20	E	1	3	15		Rough-legged Hawk	1		Thermal, harrassed by raven
28	10	2011	SR	HAWK 1	11:20	12:20	E	1	4	20		Bald Eagle	2		
28	10	2011	SR	HAWK 1	throughout survey period							Black Scoter	8		Frost!
28	10	2011	SR	HAWK 1	throughout survey period							White Winged Scoter	7		
28	10	2011	SR	HAWK 1	throughout survey period							Common Loon	7		
28	10	2011	SR	HAWK 1	throughout survey period							Three-toed Woodpecker	1		
28	10	2011	SR	HAWK 1	throughout survey period							Unknown passerine	31		
28	10	2011	SR	HAWK 1	throughout survey period							American Goldfinch	2		
28	10	2011	SR	HAWK 1	throughout survey period							Snow Bunting	4		
28	10	2011	SR	HAWK 1	throughout survey period							Pine Siskins	17		
28	10	2011	SR	HAWK 1	throughout survey period							Common Raven	1		
28	10	2011	SR	HAWK 1	throughout survey period							Common Merganser	2		

SR Sarah Richer
DN Dave Norman
NH Neil Herbert
MR Mike Ranger

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
9	May	2011	SR, DN	HAWK 2	10:00	11:00	E	2	6	1		0 raptors	0		
9	May	2011	SR, DN	HAWK 2	11:00	12:00	E	3	10	1		0 raptors	0		
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1		Northern Harrier	1	E	female, south side of inlet, foraging low over treetops, against wind
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1		American Kestrel	1	NE	female, north side of inlet
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1		Merlin	1	N	flying just above treetops, zooms across inlet
9	May	2011	SR, DN	HAWK 2	13:00	14:00	E	4	15	1		Sharp-shinned Hawk	1	N	
9	May	2011	SR, DN	HAWK 2	13:00	14:00	E	4	15	1		Unknown Buteo	1	N	south side of Henvey, to high to ID
9	May	2011	SR, DN	HAWK 2	before survey period							Broad-winged Hawk	1		flew across Beckanon Road en route in
9	May	2011	SR, DN	HAWK 2	throughout survey period							Black-and-white Warbler	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Winter Wren	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Common Merganser	2		both male
9	May	2011	SR, DN	HAWK 2	throughout survey period							Great Blue Heron	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Herring Gull	2		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Double-crested Cormorant	19		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Turkey Vulture	11		in one kettle, soaring around inlet
9	May	2011	SR, DN	HAWK 2	throughout survey period							Bufflehead	2	E	
9	May	2011	SR, DN	HAWK 2	throughout survey period							Common Loon	2		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Caspian Tern	1		calling, trolling back and forth along the inlet
9	May	2011	SR, DN	HAWK 2	throughout survey period							Spotted Sandpiper	1	N	low along water's surface
9	May	2011	SR, DN	HAWK 2	throughout survey period							Common Raven	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period							Sandhill Crane	1		circling overhead
10	May	2011	SR, DN	HAWK 3	10:00	11:00	E	0-1	15	100		0 raptors	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	11:00	12:00	E	0-1	16	100		0 raptors	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	12:00	13:00	E	0-1	16	100		0 raptors	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	13:00	14:00	E	0-1	17	100		0 raptors	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	throughout survey period							Double-crested Cormorant	2		Blackflies started to bite today
10	May	2011	SR, DN	HAWK 3	throughout survey period							Common Loon	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period							Canada Goose	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period							Herring Gull	2		
10	May	2011	SR, DN	HAWK 3	throughout survey period							Blue Jay	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period							Tree Swallow	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period							Common Raven	4		
11	May	2011	SR	HAWK 1	10:00	11:00	E/SE	0-1	15	80		Turkey Vulture	4		one kettle, circling, along north shore
11	May	2011	SR	HAWK 1	11:00	12:00	SE	0-1	19	90		Turkey Vulture	10		one kettle circling, 4 are same as previous hour
11	May	2011	SR	HAWK 1	12:00	13:00	W	4	20	60		Red-tailed Hawk	1	E	along south side of inlet, clrcling
11	May	2011	SR	HAWK 1	13:00	14:00	W	4	20	60		Unknown Buteo	1	E	north side of inlet, circled 15 sec before disappearing, 1:34 pm winds disappeared
11	May	2011	SR	HAWK 1	13:00	14:00	W	1	20	60		Turkey Vulture	3		same as in previous hours
11	May	2011	SR	HAWK 1	throughout survey period							Sandhill Crane	2	E	along north shore of inlet
11	May	2011	SR	HAWK 1	throughout survey period							Caspian Tern	2		trolling over water
11	May	2011	SR	HAWK 1	throughout survey period							Pileated Woodpecker	1		
11	May	2011	SR	HAWK 1	throughout survey period							Double-crested Cormorant	5		
11	May	2011	SR	HAWK 1	throughout survey period							Common Merganser	1		
11	May	2011	SR	HAWK 1	throughout survey period							Spotted Sandpiper	1		
11	May	2011	SR	HAWK 1	throughout survey period							Herring Gull	1		
11	May	2011	SR	HAWK 1	throughout survey period							Common Loon	1		
11	May	2011	SR	HAWK 1	throughout survey period							Blue Jay	1		
11	May	2011	SR	HAWK 1	throughout survey period							Canada Goose	7		
12	May	2011	SR, NH	HAWK 2	10:00	11:00	SE	2	17	100		Turkey Vulture	2		circling over south side of inlet
12	May	2011	SR, NH	HAWK 2	11:00	12:00	SE	2	18	80		Unknown Buteo			south side of inlet, too high to ID
12	May	2011	SR, NH	HAWK 2	11:00	12:00	SE	1	20	80		Turkey Vulture	3		2 same as previous hour
12	May	2011	SR, NH	HAWK 2	12:00	13:00	SE	1	20	50		0 raptors			
12	May	2011	SR, NH	HAWK 2	13:00	14:00	SE	1	20	50		0 raptors			
12	May	2011	SR, NH	HAWK 2	throughout survey period							Canada Goose	2		
12	May	2011	SR, NH	HAWK 2	throughout survey period							Double-crested Cormorant	15		

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Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
12	May	2011	SR, NH	HAWK 2	throughout survey period							Herring Gull	1		
12	May	2011	SR, NH	HAWK 2	throughout survey period							Ring-billed Gull	2		
12	May	2011	SR, NH	HAWK 2	throughout survey period							Caspian Tern	2		
12	May	2011	SR, NH	HAWK 2	throughout survey period							Common Raven	3		
16	May	2011	SR	HAWK 1	10:00	11:00	SE	5-6	6	50		Turkey Vulture	2		circling around inlet, struggling against wind at south side of inlet
16	May	2011	SR	HAWK 1	11:00	12:00	SE	5-6	7	50		0 raptors			
16	May	2011	SR	HAWK 1	12:00	13:00	SE	5-6	9	50		0 raptors			
16	May	2011	SR	HAWK 1	13:00	14:00	SE	5-6	9	50		0 raptors			
16	May	2011	SR	HAWK 1	throughout survey period							Pileated Woodpecker	1		
16	May	2011	SR	HAWK 1	throughout survey period							Herring Gull	2		
16	May	2011	SR	HAWK 1	throughout survey period							Mallard	2		1 male, 1 female
16	May	2011	SR	HAWK 1	throughout survey period							Sandhill Crane	1		over north side of inlet, struggling against wind briefly while calling
16	May	2011	SR	HAWK 1	throughout survey period							Double-crested Cormorant	8		
16	May	2011	SR	HAWK 1	throughout survey period							Common Raven	1		1 soaring/flying against wind across from landing on north side of inlet
16	May	2011	SR	HAWK 1	throughout survey period							Canada Goose	4		two pairs
18	May	2011	SR, MR	HAWK 3	10:00	11:00	E	1	16	100		0 raptors			light spitting rain
18	May	2011	SR, MR	HAWK 3	11:00	12:00	E	1	17	100		0 raptors			light spitting rain
18	May	2011	SR, MR	HAWK 3	12:00	13:00	E	1	18	100		0 raptors			light spitting rain
18	May	2011	SR, MR	HAWK 3	13:00	14:00	E	1	18	100		0 raptors			light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							Great Blue Heron	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							Double-crested Cormorant	3		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							Ring-billed Gull	2		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							Herring Gull	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							American Robin	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period							American Crow	4		light spitting rain

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
5	4	2012	SR	HAWK 2	11:30	12:30	N/NE	3	10	0	Turkey Vulture	1	S	soaring against wind
5	4	2012	SR	HAWK 2	12:30	1:30	NE	2	10	0	Turkey Vulture	5		soaring together on thermals, one is same from previous hour
5	4	2012	SR	HAWK 2	1:30	2:30	NE	3	10	0	Turkey Vulture	3		these 3 are the same from the previous five
5	4	2012	SR	HAWK 2	1:30	2:30	NE	3	10	0	Bald Eagle	1		on thermal
5	4	2012	SR	HAWK 2	2:30	3:30	NE	4	10	0	Turkey Vulture	4		same four as from previous hours
5	4	2012	SR	HAWK 2	throughout survey period						Bufflehead	31		several small flocks, not more than 5 together, more males than females
5	4	2012	SR	HAWK 2	throughout survey period						Canada Goose	4		2 pairs
5	4	2012	SR	HAWK 2	throughout survey period						Common Merganser	4		2 pairs
5	4	2012	SR	HAWK 2	throughout survey period						Song Sparrow	1		singing
5	4	2012	SR	HAWK 2	throughout survey period						Ring-billed Gull	2		
5	4	2012	SR	HAWK 2	throughout survey period						Herring Gull	3		
5	4	2012	SR	HAWK 2	throughout survey period						Double-crested Cormorant	3		
5	4	2012	SR	HAWK 2	throughout survey period						Common Raven	1		
5	4	2012	SR	HAWK 2	throughout survey period						Northern Flicker	1		
5	4	2012	SR	HAWK 2	throughout survey period						Sandhill Crane	2		pair, flying against wind south to north, just above trees
6	4	2012	SR	HAWK 3	9:25	10:25	N	3-4	2	0				
6	4	2012	SR	HAWK 3	10:25	11:25	N	3-4	3	0	Turkey Vulture	3		
6	4	2012	SR	HAWK 3	11:25	12:25	NW	3-4	3	0	Turkey Vulture	3		same 3 as previous hour
6	4	2012	SR	HAWK 3	throughout survey period						Song Sparrow	8		
6	4	2012	SR	HAWK 3	throughout survey period						Canada Goose	9		
6	4	2012	SR	HAWK 3	throughout survey period						Double-crested Cormorant	4		
6	4	2012	SR	HAWK 3	throughout survey period						Scaup sp	1		
6	4	2012	SR	HAWK 3	throughout survey period						Ring-billed Gull	1		
6	4	2012	SR	HAWK 3	throughout survey period						Bufflehead	52		
6	4	2012	SR	HAWK 3	throughout survey period						Tree Swallow	6		flying north against the wind together
6	4	2012	SR	HAWK 3	throughout survey period						Common Goldeneye	17		
6	4	2012	SR	HAWK 3	throughout survey period						American Crow	4		
6	4	2012	SR	HAWK 3	throughout survey period						Common Merganser	19		
6	4	2012	SR	HAWK 3	throughout survey period						Common Raven	2		
6	4	2012	SR	HAWK 3	throughout survey period						Herring Gull	3		
6	4	2012	SR	HAWK 3	throughout survey period						Golden-crowned Kinglet	2		
6	4	2012	SR	HAWK 3	throughout survey period						Sandhill Crane	2		
8	4	2012	SR	HAWK 1	10:00	11:00	W	2-3	10	80	Turkey Vulture	2		Soaring on thermals
8	4	2012	SR	HAWK 1	11:00	12:00	W	3	10	80	Turkey Vulture	2		same two as previous hour, soaring on thermals
8	4	2012	SR	HAWK 1	11:00	12:00	W	3	10	80	Bald Eagle	1		Adult, flying low over the trees on the south side of the inlet
8	4	2012	SR	HAWK 1	11:00	12:00	W	3	10	80	Unknown Accipiter	1	N	too high to ID
8	4	2012	SR	HAWK 1	12:00	1:00	W	4	10	70	Turkey Vulture	5		
8	4	2012	SR	HAWK 1	12:00	1:00	W	4	10	70	Bald Eagle	1		same as previous hour
8	4	2012	SR	HAWK 1	1:00	2:00	W	4	10	60	Turkey Vulture	5		
8	4	2012	SR	HAWK 1	1:00	2:00	W	4	10	60	Bald Eagle	1		same as previous hour
8	4	2012	SR	HAWK 1	1:00	2:00	W	4	10	60	Unknown Raptor	1	N	too high to ID
8	4	2012	SR	HAWK 1	throughout survey period						Sandhill Crane	5	SW	3 flying against wind over hawkwatch point; 2 foraging in inlet
8	4	2012	SR	HAWK 1	throughout survey period						Common Raven	2		
8	4	2012	SR	HAWK 1	throughout survey period						Herring Gull	12		
8	4	2012	SR	HAWK 1	throughout survey period						Song Sparrow	3		singing
8	4	2012	SR	HAWK 1	throughout survey period						Winter Wren	2		
8	4	2012	SR	HAWK 1	throughout survey period						Dark-eyed Junco	4		
8	4	2012	SR	HAWK 1	throughout survey period						American Robin	8		
8	4	2012	SR	HAWK 1	throughout survey period						Hairy Woodpecker	3		
8	4	2012	SR	HAWK 1	throughout survey period						Common Merganser	1		
8	4	2012	SR	HAWK 1	throughout survey period						Red-breasted Nuthatch	1		singing
8	4	2012	SR	HAWK 1	throughout survey period						Double-crested Cormorant	2	NE	
8	4	2012	SR	HAWK 1	throughout survey period						Great Blue Heron	2	N & NE	
8	4	2012	SR	HAWK 1	throughout survey period						Canada Goose	23	NE	2 flocks of 14 & 9
8	4	2012	SR	HAWK 1	throughout survey period						Bufflehead	28	N & NE	different flocks
8	4	2012	SR	HAWK 1	throughout survey period						Northern Flicker	2		pair; male displaying to female

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
8	4	2012	SR	HAWK 1	throughout survey period						Wood Duck	2		male and female
8	4	2012	SR	HAWK 1	throughout survey period						European Starling	100+	S	in one flock
8	4	2012	SR	HAWK 1	throughout survey period						American Tree Sparrow	1		
8	4	2012	SR	HAWK 1	throughout survey period						Black-capped Chickadee	2		singing
8	4	2012	SR	HAWK 1	throughout survey period						Brown Creeper	1		singing
8	4	2012	SR	HAWK 1	throughout survey period						Eastern Phoebe	1		
9	4	2012	SR	HAWK 4	10:15	11:15	NW	4	3	90	Turkey Vulture	2		
9	4	2012	SR	HAWK 4	11:15	12:15	W	4	4-5	95	Turkey Vulture	2		same two as previous hour
9	4	2012	SR	HAWK 4	12:15	12:45	W	5-6	6	100	Turkey Vulture	4		2 are same as previous hour
9	4	2012	SR	HAWK 4	throughout survey period						Canada Goose	4		1 nest with 5 eggs on same island as hawkwatch point
9	4	2012	SR	HAWK 4	throughout survey period						Common Merganser	4		2 pairs
9	4	2012	SR	HAWK 4	throughout survey period						Herring Gull	5		
9	4	2012	SR	HAWK 4	throughout survey period						Ring-billed Gull	2		
9	4	2012	SR	HAWK 4	throughout survey period						Double-crested Cormorant	6		
9	4	2012	SR	HAWK 4	throughout survey period						Wood Duck	1		
9	4	2012	SR	HAWK 4	throughout survey period						American Crow	2		
9	4	2012	SR	HAWK 4	throughout survey period						Common Raven	3		
9	4	2012	SR	HAWK 4	throughout survey period						Bufflehead	6		
11	4	2012	SR	HAWK 1	10:30	11:30	N	2-3	7	50	Turkey Vulture	2		soaring around inlet, remaining in area
11	4	2012	SR	HAWK 1	11:30	12:30	NE	3	9	50	Turkey Vulture	2		same two as previous
11	4	2012	SR	HAWK 1	12:30	1:30	NE	3	10	50	Turkey Vulture	1		1 is same as previous
11	4	2012	SR	HAWK 1	1:30	2:30	NE	3	10	100	Turkey Vulture	1		1 is same as previous
11	4	2012	SR	HAWK 1	throughout survey period						Double-crested Cormorant	3		
11	4	2012	SR	HAWK 1	throughout survey period						Herring Gull	2		
11	4	2012	SR	HAWK 1	throughout survey period						Bufflehead	9		
11	4	2012	SR	HAWK 1	throughout survey period						American Crow	3		
11	4	2012	SR	HAWK 1	throughout survey period						Common Raven	2		
11	4	2012	SR	HAWK 1	throughout survey period						Canada Goose	2		
11	4	2012	SR	HAWK 1	throughout survey period						Black-capped Chickadee	1		
11	4	2012	SR	HAWK 1	throughout survey period						Brown Creeper	1		
11	4	2012	SR	HAWK 1	throughout survey period						American Robin	1		
13	4	2012	SR	HAWK 2	9:30	10:30	W/SW	3	9	0	Turkey Vulture	1		
13	4	2012	SR	HAWK 2	9:30	10:30	W/SW	3	9	0	Bald Eagle	1	W	adult, flying west along inlet
13	4	2012	SR	HAWK 2	10:30	11:30	W/SW	3	10	5	Turkey Vulture	5		together on thermal; one is same as previous
13	4	2012	SR	HAWK 2	11:30	12:30	W/SW	3	13	5	Turkey Vulture	4		four are same from previous hour
13	4	2012	SR	HAWK 2	11:30	12:30	W/SW	3	13	5	Red-tailed Hawk	1	N	
13	4	2012	SR	HAWK 2	12:30	1:30	W/SW	3-4	14	0	Turkey Vulture	3		3 are same from previous hour
13	4	2012	SR	HAWK 2	12:30	1:30	W/SW	3-4	14	0	Bald Eagle	1		adult, back and forth along south side of inlet
13	4	2012	SR	HAWK 2	throughout survey period						Herring Gull	4		
13	4	2012	SR	HAWK 2	throughout survey period						Sandhill Crane	2		pair, flying together
13	4	2012	SR	HAWK 2	throughout survey period						Northern Flicker	7		singing
13	4	2012	SR	HAWK 2	throughout survey period						Song Sparrow	2		
13	4	2012	SR	HAWK 2	throughout survey period						Winter Wren	1		
13	4	2012	SR	HAWK 2	throughout survey period						Canada Goose	66	N	two flocks, one of 57 and one of 8, one single
13	4	2012	SR	HAWK 2	throughout survey period						Common Loon	1		
13	4	2012	SR	HAWK 2	throughout survey period						Double-crested Cormorant	13		
13	4	2012	SR	HAWK 2	throughout survey period						Bufflehead	4		
13	4	2012	SR	HAWK 2	throughout survey period						Common Merganser	4		
13	4	2012	SR	HAWK 2	throughout survey period						Great Blue Heron	4		
13	4	2012	SR	HAWK 2	throughout survey period						Ruffed Grouse	1		drumming
13	4	2012	SR	HAWK 2	throughout survey period						Ring-billed Gull	1		
13	4	2012	SR	HAWK 2	throughout survey period						Common Merganser	2		pair, male and female
13	4	2012	SR	HAWK 2	throughout survey period						Bufflehead	2		pair, male and female
18	4	2012	SR	HAWK 4	10:00	11:00	S/SW	3	3	0	Turkey Vulture	3		
18	4	2012	SR	HAWK 4	11:00	12:00	S/SW	3	6	0	Turkey Vulture	4		3 are same as previous
18	4	2012	SR	HAWK 4	11:00	12:00	S/SW	3	6	0	Bald Eagle	1		adult soaring on thermal
18	4	2012	SR	HAWK 4	12:00	1:00	S/SW	3	8	5	Turkey Vulture	3		same as previous

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
18	4	2012	SR	HAWK 4	12:00	1:00	S/SW	3	8	5	Bald Eagle	1		same as previous hour
18	4	2012	SR	HAWK 4	12:00	1:00	S/SW	3	8	5	Northern Harrier	1	N	adult female
18	4	2012	SR	HAWK 4	1:00	2:00	S/SW	3	9	5	Turkey Vulture	5		3 are same as previous
18	4	2012	SR	HAWK 4	1:00	2:00	S/SW	3	9	5	Bald Eagle	1		2nd year immature
18	4	2012	SR	HAWK 4	throughout survey period						Canada Goose	110	N	
18	4	2012	SR	HAWK 4	throughout survey period						Herring Gull	2		
18	4	2012	SR	HAWK 4	throughout survey period						Pileated Woodpecker	100+		
18	4	2012	SR	HAWK 4	throughout survey period						Bufflehead	9		
18	4	2012	SR	HAWK 4	throughout survey period						Sandhill Crane	4		two separate pairs
18	4	2012	SR	HAWK 4	throughout survey period						Common Merganser	1		
18	4	2012	SR	HAWK 4	throughout survey period						Song Sparrow	2		
18	4	2012	SR	HAWK 4	throughout survey period						Double-crested Cormorant	21		
18	4	2012	SR	HAWK 4	throughout survey period						Common Raven	3		
18	4	2012	SR	HAWK 4	throughout survey period						Northern Flicker	1		
18	4	2012	SR	HAWK 4	throughout survey period						Scaup sp	3		2 male, one female
18	4	2012	SR	HAWK 4	throughout survey period						White-throated Sparrow	1		
18	4	2012	SR	HAWK 4	throughout survey period						Eastern Phoebe	1		
18	4	2012	SR	HAWK 4	throughout survey period						American Robin	3		
18	4	2012	SR	HAWK 4	throughout survey period						Myrtle Warbler	1		
18	4	2012	SR	HAWK 4	throughout survey period						Black-capped Chickadee	1		
18	4	2012	SR	HAWK 4	throughout survey period						Ruffed Grouse	2		
19	4	2012	SR	HAWK 3	10:00	11:00	W/SW	4	8	10	Turkey Vulture	2		
19	4	2012	SR	HAWK 3	10:00	11:00	W/SW	4			Bald Eagle	1		2nd year plumage immature
19	4	2012	SR	HAWK 3	11:00	12:00	W/SW	4	10	10	Turkey Vulture	1		
19	4	2012	SR	HAWK 3	12:00	1:00	W/SW	4	12	10	Turkey Vulture	6		in same kettle together
19	4	2012	SR	HAWK 3	12:00	1:00	W/SW	4	12	10	Bald Eagle	1		2nd year immature, likely same as prior hour
19	4	2012	SR	HAWK 3	1:00	2:00	W/SW	4	12	10	Turkey Vulture	6		in same kettle together
19	4	2012	SR	HAWK 3	1:00	2:00	W/SW	4	12	10	Northern Harrier	2	E/NE	one male and one female
19	4	2012	SR	HAWK 3	2:00	3:00	W/SW	4	12	10	Turkey Vulture	5		five same as previous
19	4	2012	SR	HAWK 3	2:00	3:00	W/SW	4	12	10	Bald Eagle	1		2nd year immature, likely same as prior hour
19	4	2012	SR	HAWK 3	throughout survey period						Pileated Woodpecker	1		
19	4	2012	SR	HAWK 3	throughout survey period						Northern Flicker	2		
19	4	2012	SR	HAWK 3	throughout survey period						Ruby-crowned Kinglet	1		
19	4	2012	SR	HAWK 3	throughout survey period						Myrtle Warbler	3		
19	4	2012	SR	HAWK 3	throughout survey period						Pine Warbler	2		
19	4	2012	SR	HAWK 3	throughout survey period						American Crow	1		
19	4	2012	SR	HAWK 3	throughout survey period						Common Raven	1		
19	4	2012	SR	HAWK 3	throughout survey period						Sandhill Crane	2		
19	4	2012	SR	HAWK 3	throughout survey period						Herring Gull	4		
19	4	2012	SR	HAWK 3	throughout survey period						Double-crested Cormorant	29		
19	4	2012	SR	HAWK 3	throughout survey period						Canada Goose	6		
19	4	2012	SR	HAWK 3	throughout survey period						Song Sparrow	3		
19	4	2012	SR	HAWK 3	throughout survey period						Purple Finch	1		
19	4	2012	SR	HAWK 3	throughout survey period						Ring-necked Duck	22		
19	4	2012	SR	HAWK 3	throughout survey period						Common Goldeneye	3		
19	4	2012	SR	HAWK 3	throughout survey period						Redhead	5		
19	4	2012	SR	HAWK 3	throughout survey period						Scaup sp	48		
19	4	2012	SR	HAWK 3	throughout survey period						Bufflehead	38		
19	4	2012	SR	HAWK 3	throughout survey period						Mallard	4		
19	4	2012	SR	HAWK 3	throughout survey period						American Black Duck	1		
19	4	2012	SR	HAWK 3	throughout survey period						Duck sp	500+		mix of Scaup sp;, Ring-necked, Redhead, Bufflehead, Common Goldeneye; approximately 90% are Scaup sp and Ringneck, moving too quickly and in too great of numbers out to the bay to individually identify numbers per species; ducks counted and numbered per species on this day are those that did not fly away but remained behind
25	4	2012	SR	HAWK 4	2:00	3:00	W/SW	2	10	0	Turkey Vulture	5		

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
25	4	2012	SR	HAWK 4	2:00	3:00	W/SW	2	10	0	Bald Eagle	1		adult, soaring high on thermal
25	4	2012	SR	HAWK 4	2:00	3:00	W/SW	2	10	0	Northern Harrier	1	N	adult female, foraging low over trees
25	4	2012	SR	HAWK 4	3:00	4:00	SW	2-3	10	0	Turkey Vulture	6		5 are same from previous hour
25	4	2012	SR	HAWK 4	3:00	4:00	SW	2-3	10	0	Northern Harrier	1	N	adult female, not same as previous hour
25	4	2012	SR	HAWK 4	3:00	4:00	SW	2-3	10	0	Red-tailed Hawk	1	N	Adult
25	4	2012	SR	HAWK 4	throughout survey period						American Kestrel	1		on the drive down Beckanon
25	4	2012	SR	HAWK 4	throughout survey period						Sandhill Crane	4		
25	4	2012	SR	HAWK 4	throughout survey period						Common Loon	1		
25	4	2012	SR	HAWK 4	throughout survey period						Surf Scoter	1		
25	4	2012	SR	HAWK 4	throughout survey period						Wood Duck	2		pair, male and female
25	4	2012	SR	HAWK 4	throughout survey period						Bufflehead	200		approximately
25	4	2012	SR	HAWK 4	throughout survey period						Scaup sp	250		approximately
25	4	2012	SR	HAWK 4	throughout survey period						Double-crested Cormorant	52		all together in one raft on the inlet
25	4	2012	SR	HAWK 4	throughout survey period						Greater Yellowlegs	2	N	
25	4	2012	SR	HAWK 4	throughout survey period						Common Goldeneye	3		
25	4	2012	SR	HAWK 4	throughout survey period						Mallard	6		
25	4	2012	SR	HAWK 4	throughout survey period						Canada Goose	8		
25	4	2012	SR	HAWK 4	throughout survey period						American Wigeon	6		one a male/female pair, another flock of 3 males 1 female
25	4	2012	SR	HAWK 4	throughout survey period						Ring-necked Duck	80		approximately
25	4	2012	SR	HAWK 4	throughout survey period						American Robin	2		
25	4	2012	SR	HAWK 4	throughout survey period						Northern Flicker	6		
25	4	2012	SR	HAWK 4	throughout survey period						Redhead	4		
25	4	2012	SR	HAWK 4	throughout survey period						American Black Duck	1		
25	4	2012	SR	HAWK 4	throughout survey period						Hairy Woodpecker	1		
25	4	2012	SR	HAWK 4	throughout survey period						Common Raven	7		
25	4	2012	SR	HAWK 4	throughout survey period						American Crow	4		
25	4	2012	SR	HAWK 4	throughout survey period						Black-capped Chickadee	2		
25	4	2012	SR	HAWK 4	throughout survey period						Ruby-crowned Kinglet	1		
25	4	2012	SR	HAWK 4	throughout survey period						White-throated Sparrow	3		singing
30	4	2012	SR	HAWK 2	10:30	11:30	SE	2-3	9	100	Turkey Vulture	6		in same kettle together
30	4	2012	SR	HAWK 2	10:30	11:30	SE	2-3	9	100	Bald Eagle	1		too far away to determine age
30	4	2012	SR	HAWK 2	10:30	11:30	SE	2-3	9	100	Broad-winged Hawk	2	NW	
30	4	2012	SR	HAWK 2	10:30	11:30	SE	2-3	9	100	Merlin	1	NW	
30	4	2012	SR	HAWK 2	10:30	11:30	SE	2-3	9	100	Unknown Raptor	3	NW	
30	4	2012	SR	HAWK 2	11:30	12:30	SW	3-4	10	100	Turkey Vulture	1		
30	4	2012	SR	HAWK 2	11:30	12:30	SW	3-4	10	100	Northern Harrier	1	N	male
30	4	2012	SR	HAWK 2	throughout survey period						Herring Gull	1		
30	4	2012	SR	HAWK 2	throughout survey period						Double-crested Cormorant	27		
30	4	2012	SR	HAWK 2	throughout survey period						Bufflehead	14		
30	4	2012	SR	HAWK 2	throughout survey period						Sandhill Crane	1		
30	4	2012	SR	HAWK 2	throughout survey period						Mallard	2		both male
30	4	2012	SR	HAWK 2	throughout survey period						Common Raven	2		
30	4	2012	SR	HAWK 2	throughout survey period						American Crow	1		
30	4	2012	SR	HAWK 4	12:40	1:40	S	3	10	100	Turkey Vulture	4		
30	4	2012	SR	HAWK 4	1:40	2:40	S	3	10	100	Turkey Vulture	3		
30	4	2012	SR	HAWK 4	1:40	2:40	S	3	10	100	Unknown Raptor	2		
30	4	2012	SR	HAWK 4	throughout survey period						Song Sparrow	2		
30	4	2012	SR	HAWK 4	throughout survey period						Common Loon	2		pair
30	4	2012	SR	HAWK 4	throughout survey period						Double-crested Cormorant	11		
30	4	2012	SR	HAWK 4	throughout survey period						Canada Goose	1		on nest
30	4	2012	SR	HAWK 4	throughout survey period						Herring Gull	2		
30	4	2012	SR	HAWK 4	throughout survey period						Ring-billed Gull	1		
30	4	2012	SR	HAWK 4	throughout survey period						Common Raven	3		
30	4	2012	SR	HAWK 4	throughout survey period						Great Blue Heron	3		flyovers, going north
30	4	2012	SR	HAWK 4	throughout survey period						American Crow	2		
30	4	2012	SR	HAWK 4	throughout survey period						Passerine sp	200	N	
1	5	2012	SR	HAWK 2	9:00	10:00	W/NW	1-2	5	100				hazy and overcast, poor visibility

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
1	5	2012	SR	HAWK 2	10:00	11:00	W	2	6	100				hazy and overcast, poor visibility
1	5	2012	SR	HAWK 2	throughout survey period						Hooded Merganser	4		at landing
1	5	2012	SR	HAWK 2	throughout survey period						White-throated Sparrow	4		
1	5	2012	SR	HAWK 2	throughout survey period						Herring Gull	3		
1	5	2012	SR	HAWK 2	throughout survey period						Myrtle Warbler	2		
1	5	2012	SR	HAWK 2	throughout survey period						Winter Wren	2		
1	5	2012	SR	HAWK 2	throughout survey period						Double-crested Cormorant	9		
1	5	2012	SR	HAWK 2	throughout survey period						Northern Flicker	2		
1	5	2012	SR	HAWK 2	throughout survey period						Sandhill Crane	1		
1	5	2012	SR	HAWK 2	throughout survey period						Hermit Thrush	1		
1	5	2012	SR	HAWK 2	throughout survey period						Mallard	1		
1	5	2012	SR	HAWK 2	throughout survey period						Canada Goose	5		2 pairs, plus one single
1	5	2012	SR	HAWK 2	throughout survey period						Common Raven	2		
1	5	2012	SR	HAWK 2	throughout survey period						Song Sparrow	1		
1	5	2012	SR	HAWK 2	throughout survey period						American Robin	2		
1	5	2012	SR	HAWK 2	throughout survey period						Pileated Woodpecker	1		
1	5	2012	SR	HAWK 2	throughout survey period						Great Blue Heron	1	N	
1	5	2012	SR	HAWK 2	throughout survey period						Pine Warbler	1		
1	5	2012	SR	HAWK 2	throughout survey period						Common Loon	3	N	one pair and one flyover
1	5	2012	SR	HAWK 1	11:20	12:20	W/SW	3	7	100	Turkey Vulture	1		soaring along North Shore
1	5	2012	SR	HAWK 1	11:20	12:20	W/SW	3	7	100	Merlin	2	W	just above trees, along north side of inlet
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Turkey Vulture	3		soaring along both north and south sides of inlet
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Northern Harrier	1		
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Sharp-shinned Hawk	2		
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Broad-winged Hawk	1		calling at landing
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Red-tailed Hawk	1		along north shore
1	5	2012	SR	HAWK 1	12:20	1:20	W/SW	3	10	60	Merlin	1		calling at landing; possibly on territory
1	5	2012	SR	HAWK 1	1:20	2:20	W	3	10	50	Turkey Vulture	3		soaring along both north and south sides of inlet
1	5	2012	SR	HAWK 1	1:20	2:20	W	3	10	50	Red-tailed Hawk	2	E/NE	on a thermal along north shore
1	5	2012	SR	HAWK 1	1:20	2:20	W	3	10	50	Unknown Raptor	1		
1	5	2012	SR	HAWK 1	2:20	3:20	W	3	10	25	Turkey Vulture	1		
1	5	2012	SR	HAWK 1	throughout survey period						Common Raven	2		
1	5	2012	SR	HAWK 1	throughout survey period						Bay-breasted Warbler	1		
1	5	2012	SR	HAWK 1	throughout survey period						Double-crested Cormorant	4		
1	5	2012	SR	HAWK 1	throughout survey period						Eastern Phoebe	2		
1	5	2012	SR	HAWK 1	throughout survey period						Northern Flicker	2		
1	5	2012	SR	HAWK 1	throughout survey period						Yellow-bellied Sapsucker	1		
1	5	2012	SR	HAWK 1	throughout survey period						Ruffed Grouse	1		
1	5	2012	SR	HAWK 1	throughout survey period						Myrtle Warbler	5		
1	5	2012	SR	HAWK 1	throughout survey period						Brown Creeper	1		
1	5	2012	SR	HAWK 1	throughout survey period						Common Loon	1		
1	5	2012	SR	HAWK 1	throughout survey period						White-throated Sparrow	3		
1	5	2012	SR	HAWK 1	throughout survey period						Pileated Woodpecker	1		
1	5	2012	SR	HAWK 1	throughout survey period						Belted Kingfisher	1		
1	5	2012	SR	HAWK 1	throughout survey period						Red-breasted Nuthatch	1		
1	5	2012	SR	HAWK 1	throughout survey period						Canada Goose	1		
1	5	2012	SR	HAWK 1	throughout survey period						Blue-headed Vireo	1		
1	5	2012	SR	HAWK 1	throughout survey period						Sandhill Crane	1		north shore, flying west
1	5	2012	SR	HAWK 1	throughout survey period						Pine Warbler	1		
1	5	2012	SR	HAWK 1	throughout survey period						Common Merganser	1		
1	5	2012	SR	HAWK 1	throughout survey period						Common Tern	1		
1	5	2012	SR	HAWK 1	throughout survey period						Winter Wren	1		
1	5	2012	SR	HAWK 1	throughout survey period						Herring Gull	1		
2	5	2012	SR	HAWK 2	12:45	1:45	SW	3	20	80	Merlin	1		calling from south side of inlet
2	5	2012	SR	HAWK 2	12:45	1:45	SW	3	20	80	Turkey Vulture	2		
2	5	2012	SR	HAWK 2	1:45	2:45	SW	3-4	20	100	Turkey Vulture	4		two same as previous hour
2	5	2012	SR	HAWK 2	1:45	2:45	SW	3-4	20	100	Bald Eagle	1		adult plumage, foraging in Milton's Bay

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
2	5	2012	SR	HAWK 2	1:45	2:45	SW	3-4	20	100	Unknown Raptor	4		in one kettle, too far away to ID
2	5	2012	SR	HAWK 2	2:45	3:00	SW	3	16	100	Turkey Vulture	2		same
2	5	2012	SR	HAWK 2	throughout survey period						White-throated Sparrow	1		
2	5	2012	SR	HAWK 2	throughout survey period						Black-capped Chickadee	2		
2	5	2012	SR	HAWK 2	throughout survey period						Pine Warbler	1		
2	5	2012	SR	HAWK 2	throughout survey period						Chipping Sparrow	1		
2	5	2012	SR	HAWK 2	throughout survey period						Northern Flicker	2		
2	5	2012	SR	HAWK 2	throughout survey period						Herring Gull	6		
2	5	2012	SR	HAWK 2	throughout survey period						Ring-billed Gull	2		
2	5	2012	SR	HAWK 2	throughout survey period						Common Raven	2		
2	5	2012	SR	HAWK 2	throughout survey period						Winter Wren	1		
2	5	2012	SR	HAWK 2	throughout survey period						Ring-necked Duck	1		
2	5	2012	SR	HAWK 2	throughout survey period						Double-crested Cormorant	6		
2	5	2012	SR	HAWK 2	throughout survey period						Myrtle Warbler	1		
2	5	2012	SR	HAWK 2	throughout survey period						American Crow	1		injured foot
2	5	2012	SR	HAWK 2	throughout survey period						Canada Goose	11		2 flocks of 8 and 3, both going north
2	5	2012	SR	HAWK 2	throughout survey period						Yellow-bellied Sapsucker	1		
8	5	2012	SR	HAWK 1	11:25	12:25	E/NE	2-3	18	60	Turkey Vulture	3		
8	5	2012	SR	HAWK 1	11:25	12:25	E/NE	2-3	18	60	Merlin	1		likely on territory, at landing, singing/calling
8	5	2012	SR	HAWK 1	11:25	12:25	E/NE	2-3	18	60	Unknown Accipiter	2		circling together, too high to ID
8	5	2012	SR	HAWK 1	12:25	1:25	N	2-3	20	100	Turkey Vulture	8		3 are same as previous
8	5	2012	SR	HAWK 1	12:25	1:25	N	2-3	20	100	Bald Eagle	1		2nd year immature, foraging by landing
8	5	2012	SR	HAWK 1	12:25	1:25	N	2-3	20	100	Sharp-shinned Hawk	1	SW	flying along south side of inlet
8	5	2012	SR	HAWK 1	1:25	2:25	W	4	20	90	Turkey Vulture	6		are part of same group in previous hour
8	5	2012	SR	HAWK 1	1:25	2:25	W	4	20	90	Bald Eagle	2		1 is same 2nd year bird as previous hour, other is adult that flew W
8	5	2012	SR	HAWK 1	1:25	2:25	W	4	20	90	Cooper's Hawk	1	E	
8	5	2012	SR	HAWK 1	1:25	2:25	W	4	20	90	Broad-winged Hawk	2	E & S	1 flying east along inlet, another flew south over landing
8	5	2012	SR	HAWK 1	1:25	2:25	W	4	20	90	Unknown Falcon	1		flying over Joe's camp
8	5	2012	SR	HAWK 1	2:25	3:10	W	3	18	90	Turkey Vulture	2		part of same group in previous hours
8	5	2012	SR	HAWK 1	2:25	3:10	W	3	18	90	Northern Harrier	1	E	female
8	5	2012	SR	HAWK 1	throughout survey period						Herring Gull	3		
8	5	2012	SR	HAWK 1	throughout survey period						Double-crested Cormorant	4		
8	5	2012	SR	HAWK 1	throughout survey period						Common Raven	2		
8	5	2012	SR	HAWK 1	throughout survey period						Canada Goose	3		
8	5	2012	SR	HAWK 1	throughout survey period						Common Tern	1		
8	5	2012	SR	HAWK 1	throughout survey period						Ruffed Grouse	1		
8	5	2012	SR	HAWK 1	throughout survey period						Great Blue Heron	1	S	
8	5	2012	SR	HAWK 1	throughout survey period						Sandhill Crane	1	W	
8	5	2012	SR	HAWK 1	throughout survey period						Blue Jay	3		
8	5	2012	SR	HAWK 1	throughout survey period						Common Loon	1		
8	5	2012	SR	HAWK 1	throughout survey period						American Crow	1		
8	5	2012	SR	HAWK 1	throughout survey period						Black and white Warbler	1		
8	5	2012	SR	HAWK 1	throughout survey period						Mallard	1		male
8	5	2012	SR	HAWK 1	throughout survey period						Belted Kingfisher	1		
8	5	2012	SR	HAWK 1	throughout survey period						Song Sparrow	1		
8	5	2012	SR	HAWK 1	throughout survey period						Shorebird sp	1		
8	5	2012	SR	HAWK 1	throughout survey period						Passerine sp	20	N	tight flock
11	5	2012	SR	HAWK 4	10:45	11:45	W/NW	1-2	13	0	Turkey Vulture	4		remaining in inlet area
11	5	2012	SR	HAWK 4	10:45	11:45	W/NW	1-2	13	0	Bald Eagle	1		adult, soaring on thermal over Milton's Bay
11	5	2012	SR	HAWK 4	10:45	11:45	W/NW	1-2	13	0	Northern Harrier	1		adult male, foraging over trees south side of Milton's Bay
11	5	2012	SR	HAWK 4	10:45	11:45	W/NW	1-2	13	0	American Kestrel	1	W	
11	5	2012	SR	HAWK 4	10:45	11:45	W/NW	1-2	13	0	Unknown Accipiter	1	E	
11	5	2012	SR	HAWK 4	11:45	12:45	W/SW	2	15	0	Turkey Vulture	3		same as previous
11	5	2012	SR	HAWK 4	11:45	12:45	W/SW	2	15	0	Bald Eagle	1	W	adult, likely same as prior hour
11	5	2012	SR	HAWK 4	12:45	1:45	SW	2-3	16	0	Turkey Vulture	4		same as previous
11	5	2012	SR	HAWK 4	12:45	1:45	SW	2-3	16	0	Bald Eagle	1		immature, likely 3rd year bird, foraging in Milton's Bay
11	5	2012	SR	HAWK 4	1:45	2:45	SW	2	16	0	Turkey Vulture	6		same group remaining in inlet area

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Species	Number	Direction	Notes
11	5	2012	SR	HAWK 4	1:45	2:45	SW	2	16	0	Northern Harrier	1	N/NE	foraging low over trees, north side of inlet
11	5	2012	SR	HAWK 4	throughout survey period						Double-crested Cormorant	3		
11	5	2012	SR	HAWK 4	throughout survey period						Chipping Sparrow	1		
11	5	2012	SR	HAWK 4	throughout survey period						Herring Gull	2		
11	5	2012	SR	HAWK 4	throughout survey period						Canada Goose	10		6 adults and four young-of-year
11	5	2012	SR	HAWK 4	throughout survey period						Song Sparrow	1		
11	5	2012	SR	HAWK 4	throughout survey period						Common Tern	1		
11	5	2012	SR	HAWK 4	throughout survey period						Mallard	2		pair, male and female together
11	5	2012	SR	HAWK 4	throughout survey period						Common Merganser	2		pair, male and female together
11	5	2012	SR	HAWK 4	throughout survey period						Common Raven	3		
11	5	2012	SR	HAWK 4	throughout survey period						Common Loon	1		
11	5	2012	SR	HAWK 4	throughout survey period						Ring-billed Gull	1		
11	5	2012	SR	HAWK 4	throughout survey period						American Crow	1		
11	5	2012	SR	HAWK 4	throughout survey period						Ruby-throated Hummingbird	1		
14	5	2012	SR	HAWK 1	1:45	2:45	SW	2	22	0	Turkey Vulture	2		
14	5	2012	SR	HAWK 1	1:45	2:45	SW	2	22	0	Bald Eagle	1		adult, foraging by landing
14	5	2012	SR	HAWK 1	1:45	2:45	SW	2	22	0	Broad-winged Hawk	1	NE	
14	5	2012	SR	HAWK 1	2:45	3:45	SW	2	22	10	Turkey Vulture	2		same as previous hour
14	5	2012	SR	HAWK 1	throughout survey period						American Redstart	1		
14	5	2012	SR	HAWK 1	throughout survey period						Herring Gull	2		
14	5	2012	SR	HAWK 1	throughout survey period						Mallard	2		pair, male and female together
14	5	2012	SR	HAWK 1	throughout survey period						Canada Goose	6		
14	5	2012	SR	HAWK 1	throughout survey period						Northern Flicker	2		
14	5	2012	SR	HAWK 1	throughout survey period						Song Sparrow	1		
14	5	2012	SR	HAWK 1	throughout survey period						Chestnut-sided Warbler	1		
14	5	2012	SR	HAWK 1	throughout survey period						Pileated Woodpecker	1		

Hawk Watch	Total	Thursday April 5	Friday April 6	Sunday April 8	Monday April 9	Wednesday April 11	Friday April 13	Wednesday April 18	Thursday April 19	Wednesday April 25	Monday April 30	Tuesday May 1	WednesdayMay 2	Monday May 7	Tuesday May 8	Friday May 11	Monday May 14	Tuesday May 15	Wednesday May 16
1	19.25			4		4						4			3.75		2	1.5	
2	17.25	4					4				2	2.5	2.25			2.5			
3	20.50		3				3		5				3.5					3	3
4	17.50				2.5			4		2	2	3				4			
"5"	3.00													3					
"6"	3.00														3				

	April 30 2012				May 7 2012																	
	HAWK JOE1		HAWK JOE2		Hawk1		Hawk2		Hawk3		Hawk 4		Hawk 5		Hawk 6		Hawk 7		Hawk 8		Hawk 9	
Survey time	10:15		10:47		9:54		10:12		10:36		10:58		8:05		8:24		8:36		8:55		9:09	
Easting	528174		527953		528805		529078		529350		529651		529135		529560		529473		529821		530190	
Northing	5077967		5077632		5078200		5077903		5077614		5077348		5077964		5077994		5078389		5078610		5078790	
Species	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response
Accipiter sp						appeared soaring overhead after calls ended																
Broad-winged Hawk	X	none			X	Appears, calls back repeatedly; BWHA pair observed copulating			X	none					X	none			X	none		One flew low over surveyor
Cooper's Hawk	X	none	X	none			X	none			X	none	X	none			X	none			X	none
Merlin																						
Northern Goshawk			X	none			X	none			X	none	X	none			X	none			X	none
Northern Harrier																						
Osprey																						
Red-shouldered Hawk							X	none			X	none	X	none			X	none			X	none
Red-tailed Hawk																						
Sharp-shinned Hawk	X	none	X	none	X	none			X	none					X	none			X	none		
Red-headed Woodpecker																						

	May 8 2012														May 10 2012					
	Hawk 10		Hawk 11		Hawk 12		Hawk 13		Hawk 14		Hawk 15		Hawk 16		Hawk J1		Hawk J2		Hawk J3	
Survey time	9:30		9:42		10:01		10:14		10:30		10:45		10:58		10:08		10:49		4:04	
Easting	530598		531018		531399		531802		532191		532374		532765		525607		525886		526095	
Northing	5078763		5078719		5078881		5078987		5078810		5078529		5078230		5073659		5073951		5074415	
Species	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response
Accipiter sp																				
Broad-winged Hawk	X	none			X	none			X	none			X	none	X	observed before surveys started over Sandy Bay			X	none
Cooper's Hawk			X	none			X	none			X	none					X	none		
Merlin																				
Northern Goshawk			X	none			X	none			X	none			X	none	X	none		
Northern Harrier																				
Osprey																observed before surveys started over Sandy Bay				
Red-shouldered Hawk			X	none			X	none			X	none								
Red-tailed Hawk																				one soared close overhead after calls ended
Sharp-shinned Hawk	X	none			X	none			X	none			X	Pair (m & f) take wing overhead, circling, calling	X	none	X		X	1 flew in after BWHA call broadcast ended
Red-headed Woodpecker															X	none; habitat is perfect though				

			May 11 2012						May 14 2012								May 15 2012					
	Hawk J4		Hawk Flash1		Hawk Flash2		Hawk Flash3		Hawk F1		Hawk F2		Hawk F3		Hawk F4		Hawk T10B		Hawk T12B		HawkO1	
Survey time	2:20[		8:33		9:21		9:40		7:59		8:46		9:11		10:09		9:21		10:50		9:31	
Easting	526397		525013		525013		524995		532024		531892		531848		531472		528066		527551		522981	
Northing	5074401		5077622		5077622		5077317		5078527		5078151		5077754		5077958		5079089		5079991		5076140	
Species	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response	Species played	Response
Accipiter sp																						
Broad-winged Hawk	X	none	X	none	X	none	X	none	X	none		Broad-winged Hawk flew in when COHA call played	X	none	X	none	X	none	X	none	X	none
Cooper's Hawk	X	none	X	none	X	none	X	none			X	none			X	none	X	none	X	none	X	none
Merlin																						
Northern Goshawk	X	none									X	none							X	none		
Northern Harrier																						
Osprey																						
Red-shouldered Hawk									X	none			X	none								
Red-tailed Hawk																						
Sharp-shinned Hawk			X	none	X	none	X	none	X	none			X	none	X	none	X	none	X	none	X	none
Red-headed Woodpecker																						

May 16 2012						
	HawkO2		HawkO3		HawkO4	
Survey time	10:24		10:53		11:26	
Easting	522924		522893		523080	
Northing	5075766		5075331		5074881	
Species	Species played	Response	Species played	Response	Species played	Response
Accipiter sp						one flew overhead
Broad-winged Hawk					X	none
Cooper's Hawk	X	none	X	none	X	Accipiter sp flew overhead
Merlin						
Northern Goshawk	X	none	X	none, but one observed at this point on return to boat	X	none
Northern Harrier						
Osprey						
Red-shouldered Hawk						
Red-tailed Hawk						
Sharp-shinned Hawk	X	none	X	none	X	Accipiter sp flew overhead
Red-headed Woodpecker						

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	14	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	9		
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Bald Eagle	1	E	adult
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Canada Goose	2	E	flying low
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Common Loon	1	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	4	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	28	S	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Mallard	1	NE	
29	9	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Yellow-rumped Warbler	1		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Scaup sp.	5	NW	
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Crow	1		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Pipit	10		
29	9	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Lapland Longspur	1		fly over, calling
29	9	2011	ARD	HAWK 4	10:35	10:55	SW	3	19	30	cumulus/cirrus	Blue Jay	7	SE	
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Bald Eagle	1	W	adult, flying low
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Common Raven	3		
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Blue Jay	1	N	
30	9	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Herring Gull	1		
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	8	SSW	
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	63		
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	30	SW	
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	31	SW	land on inlet
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	25		
27	9	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Common Merganser	4	W	
27	9	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	American Pipit	3		
27	9	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	Canada Goose	50	S	low over water
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Turkey Vulture	3		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	N	same as previous??
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Buteo	1	W	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Falcon	1		chase bird from perch
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Raptor	1	W	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	2	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	3	SE	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	5	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	20	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	5	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	6	S	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	1	E	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	26		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	34	SW	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	14	SW	
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Common Raven	5		
26	9	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Sandhill Crane	3	N	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Turkey Vulture	4		
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Bald Eagle	1		2 yr old; thermal, northside
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Broad-winged Hawk	1	E	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Red-tailed Hawk	1		thermal, north side
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		American Kestrel	1		northside, foraging
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1	E	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1		thermal, north side
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	1		thermal
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Raptor	1		
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	7	S	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	2	S	
26	9	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Great Blue Heron	1		south side of inlet, foraging
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	2		
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Sharp-shinned Hawk	1	SE	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	1	E	thermal
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	1	SE	thermal
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		American Pipit	1	W	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Blue Jay	3	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	1	S	
26	9	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Passerine sp.	11	S	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Turkey Vulture	4		
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	1	S	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	1	S	low
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Pectoral Sandpiper	3	SE	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	1	E	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	1	S	
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	American Goldfinch	1		
20	9	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Yellow-rumped Warbler	1	S	fly over
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Turkey Vulture	20	S	
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Northern Harrier	1		female
20	9	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	American Pipit	1	S	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Turkey Vulture	2		
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	1	E	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	2	W	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Unknown Falcon	1	W	
20	9	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Common Raven	3		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Northern Harrier	1	W	female, low flying
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	N	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	3		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	1	N	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Pine Sisken	1		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	4	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	SW	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	5	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	1	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	3	W	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	2	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	1	S	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Pipit	2		
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Goldfinch	1	NE	
20	9	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Mallard	3	NE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Merlin	1		perched
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Warbler sp.	2		
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	3	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	11	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	1	SE	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	2	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	American Goldfinch	2	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Black-backed Woodpecker	1		on south side, then over to the N side
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	4	S	
20	9	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	1	E	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
20	9	2011	ARD	HAWK 2	10:05	10:35	W	1	15	5	cirrus	Blue Jay	2	E	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Turkey Vulture	1	W	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Sharp-shinned Hawk	1	S	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Buteo	2	SW	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Falcon	2		
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Raptor	1	E	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Common Loon	1	W	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Common Raven	1	S	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Blue Jay	4	E	
5	9	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Canada Goose	32	S	
5	9	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Turkey Vulture	1	W	
5	9	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Bald Eagle	1		adult, local??
5	9	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	American Kestrel	1	NE	
5	9	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Unknown Falcon	1	SW	
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Turkey Vulture	2	W	
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Merlin	1	S	
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Raven	1	W	
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Raven	1	W	
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Canada Goose	5	SW	high
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Canada Goose	19	S	high
5	9	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Grackle	1	W	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	1	SE	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	2	SE	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	1	E	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Cooper's Hawk	1	S	high
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Broad-winged Hawk	1		kettling
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Common Raven	1	E	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Mallard	3	E	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Canada Goose	73	SW	
8	9	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Sandhill Crane	2	S	low over inlet
8	9	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Turkey Vulture	1	N	
8	9	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Turkey Vulture	5	E	
8	9	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Sharp-shinned Hawk	1	E	
8	9	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Common Raven	6	W	
8	9	2011	ARD	HAWK2	13:15	14:15	NE	3	25	35		Sharp-shinned Hawk	1	E	through trees
8	9	2011	ARD	HAWK2	13:15	14:15	NE	3	25	35		American Kestrel	1	S	cross inlet, then turned E
7	9	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	8	SE	
7	9	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	2	SE	
7	9	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	1	SE	
7	9	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	7	SE	
7	9	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	5	SE	
7	9	2011	ARD	HAWK4	11:00	12:00	NE	1	17	75	cirrus	Unknown accipiter	1	S	
7	9	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Merlin	1	E	tree height
7	9	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Unknown Falcon	1		sitting, N shore
7	9	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Unknown Raptor	1		circle, distant
7	9	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Turkey Vulture	1		circle, distant
7	9	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Turkey Vulture	1		circle at 2nd level of MET1
7	9	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Cooper's Hawk	1	SW	50-100m height
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Turkey Vulture	1		circle/N, seen often, local
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Bald Eagle	1		circle
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	32	S	
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	45	S	
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	27	S	
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	42	S	
6	9	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Blue Jay	1	N	landed in tree
6	9	2011	ARD	HAWK3	12:30	13:30	NE	3	15	45	low cumulus	nil			

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
6	9	2011	ARD	HAWK3	13:30	14:30	NE	3	15	25	low, broken	Turkey Vulture	1		circle, likely same as previous
6	9	2011	ARD	HAWK3	13:30	14:30	NE	3	15	25	low, broken	Common Raven	1	NE	
6	9	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Merlin	1	N	~20m alt.
6	9	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	American Robin	5	E	along tree tops
6	9	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Canada Goose	7	SW	
6	9	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Sandhill Crane	3	SE	20m alt
6	9	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Cooper's Hawk	1	S	<10m
6	9	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Canada Goose	1	N	
6	9	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Hooded Merganser	1	E	female
6	9	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Killdeer	1	SW	call
6	9	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	American Crow	4	E	
6	9	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Sharp-shinned Hawk	2	W	
6	9	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Common Loon	2	NW	
6	9	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Common Loon	3	W	2 ad, 1 juv.
5	9	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Turkey Vulture	1		circle, likely same as previous
5	9	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Broad-winged Hawk	1		circled at trees, then back in
5	9	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Double-crested Cormorants	1	SW	
5	9	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Great Blue Heron	1	E	tree height
5	9	2011	ARD	HAWK1	13:30	14:00	NNE	4	16	95	low overcast	Turkey Vulture	3		circle, Joe's (S) & 1 land?
5	9	2011	ARD	HAWK1	13:30	14:00	NNE	4	16	95	low overcast	Unknown Raptor	1	SE	small, high
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Turkey Vulture	1	E	
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Bald Eagle	1		juv., thermal
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Bald Eagle	1		adult, thermal
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Northern Harrier	1		low, ~30m
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Sharp-shinned Hawk	1		thermal
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Canada Goose	27	W	@ 60m, follow inlet
9	9	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Common Merganser	2	E	low over inlet
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Turkey Vulture	1	NE	low (above trees)
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Osprey	1	S	~30m
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Northern Harrier	1	SW	~50m
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Northern Harrier	1		thermal, high
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Sharp-shinned Hawk	1	SW	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Cooper's Hawk	1	SW	riding thermal
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Broad-winged Hawk	1	S	tree level
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Red-tailed Hawk	1		thermal
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Unknown accipiter	1	SW	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Unknown Raptor	1		thermal
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	30	W	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	4	SW	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	11	S	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	5	SW	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	American Crow	4	SW	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Blue Jay	2	W	
9	9	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Blue Jay	5	E	
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Bald Eagle	1	W	
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Blue Jay	2	W	
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Blue Jay	1	W	
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Northern Flicker	6	E	at the rock, then flew east
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Mallard	4	NE	
9	9	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Common Loon	1	S	100m
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	2	W	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	1	E	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	1	N	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	5	E	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	1	N	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Northern Flicker	1	W	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Canada Goose	2	W	40m
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	American Robin	2	NE	
9	9	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Spotted Sandpiper	1	S	call, fly over
15	9	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Kestrel	1	SW	
15	9	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Crow	3	N	
15	9	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Pipit	2		call
15	9	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Northern Harrier	1		thermal high
15	9	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Broad-winged Hawk	1	SE	
15	9	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Common Raven	2	N	
15	9	2011	ARD	HAWK3	13:40	14:40	NW	3	13	70	low cumulus	nil			
12	9	2011	ARD	HAWK4	12:35	13:05	SW	2	30	10	light cumulus	Turkey Vulture	4	S	
12	9	2011	ARD	HAWK4	12:35	13:05	SW	2	30	10	light cumulus	Blue Jay	14	W	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Bald Eagle	1		imm.
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Unknown Buteo	1	E	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	2		
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	16	S	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	13	S	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	American Pipit	1		
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Pine Sisken	2		
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Northern Flicker	3		
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Mallard	2	W	females
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Herring Gull	3	W	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Sandhill Crane	2	S	
15	9	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Common Raven	2	E	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Turkey Vulture	1		circle
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		American Kestrel	1	W	along shore
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Peregrine Falcon	1	W	along treetops, probable
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	53	S	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	6	N	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	4	SW	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	3	N	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Magnolia Warbler	1	N	
15	9	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Ruby-throated Hummingbird	1	W	
15	9	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Turkey Vulture	1		circle, same as previous
15	9	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Broad-winged Hawk	2		thermal
15	9	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Merlin	1		thermal, chase BWHA
15	9	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Unknown Raptor	1		thermal
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Turkey Vulture	1		circle
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Turkey Vulture	1	E	
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Merlin	1	W	
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Greater Yellowlegs	1		call
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Canada Goose	30	S	
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Canada Goose	4	W	then joined other flock and went SW
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	American Pipit	1	S	
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Blue Jay	5	W	
12	9	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Blue Jay	3	S	
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	1	NE	same?, local?
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	5		circle
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	3		circle
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Bald Eagle	1	NW	juv.
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Greater Yellowlegs	1		
12	9	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Blue Jay	1	W	
14	9	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Turkey Vulture	1		
14	9	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Unknown Buteo	1	E	
14	9	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Blue Jay	5	S	
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Kestrel	1		harass jays

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Unknown Falcon	1		
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Crow	2		
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	8	W	
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	13	E	
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	1	E	
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Pipit	1		
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Canada Goose	6	N	
14	9	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Common Loon	1	E	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Turkey Vulture	1	E	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sharp-shinned Hawk	1	S	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sharp-shinned Hawk	1	E	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Unknown Raptor	1	S	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Blue Jay	3	W	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Blue Jay	1	W	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	American Pipit	1		
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Common Loon	1	W	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sandhill Crane	1	W	
14	9	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	American Robin	2	E	
14	9	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Turkey Vulture	2		
14	9	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Northern Harrier	1	W	
14	9	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Northern Goshawk	1	S	
14	9	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Blue Jay	20	SE	
21	9	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	Turkey Vulture	2	N	
21	9	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	American Pipit	1	S	
21	9	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	Blue Jay	8	SE	
21	9	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Turkey Vulture	6		
21	9	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Osprey	1	W	thermal
21	9	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Northern Harrier	1		female, thermal
21	9	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Blue Jay	1	E	
21	9	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Canada Goose	14	W	
21	9	2011	ARD	HAWK1	13:00	14:00	S	3	25	95	nimbostratus	Unknown Buteo	1		thermal
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Bald Eagle	1	W	juv.
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Peregrine Falcon	1	E	along trees
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Blue Jay	14	S	
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	American Pipit	1		
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Plover sp.	1		call, fly over
22	9	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Warbler sp.	1	S	
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Turkey Vulture	1		circle
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Bald Eagle	1		adult, thermal
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Sharp-shinned Hawk	1	W	
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Cooper's Hawk	1	W	adult
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Blue Jay	2	S	
22	9	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Warbler sp.	6		circle above inlet & back to shore
22	9	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Turkey Vulture	1		circle
22	9	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Turkey Vulture	2		
22	9	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Red-tailed Hawk	1		thermal
22	9	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	American Crow	5		
22	9	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Belted Kingfisher	1		
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	Turkey Vulture	1	S	
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	Red-tailed Hawk	1		
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	Unknown accipiter	1	SE	
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	Common Grackle	2	S	
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	Common Grackle	1	E	
3	10	2011	ARD	HAWK1	9:30	10:30	NE	3	11	10	altocumulus	American Crow	12	SE	
3	10	2011	ARD	HAWK1	10:30	11:30	NE	4	13	0	-	Unknown Buteo	1		thermal, N side inlet
3	10	2011	ARD	HAWK1	10:30	11:30	NE	4	13	0	-	Turkey Vulture	3		thermal, N side inlet

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
3	10	2011	ARD	HAWK1	11:30	12:30	NE	4	17	0	-	Turkey Vulture	2		thermal
3	10	2011	ARD	HAWK1	11:30	12:30	NE	4	17	0	-	Turkey Vulture	2	SW	
3	10	2011	ARD	HAWK1	11:30	12:30	NE	4	17	0	-	Unknown Buteo	2	SW	
3	10	2011	ARD	HAWK1	12:30	13:15	NE	4	17	0	-	Turkey Vulture	3	SSW	
3	10	2011	ARD	HAWK1	12:30	13:15	NE	4	17	0	-	Northern Harrier	1		thermal, N side inlet
3	10	2011	ARD	HAWK1	12:30	13:15	NE	4	17	0	-	Red-tailed Hawk	2	SW	south side of inlet
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	Northern Harrier	1		thermal
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	Common Raven	1	W	
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	Common Raven	1	S	
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	American Pipit	7		
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	American Crow	3	NW	
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	American Crow	5	S	
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	American Crow	3	S	
4	10	2011	ARD	HAWK3	11:40	12:40	W	4	16	15	cirrocumulus	American Crow	5	SE	
6	10	2011	ARD	HAWK4	12:45	13:45	S	3	15	0	-	Turkey Vulture	2	S	
6	10	2011	ARD	HAWK4	12:45	13:45	S	3	15	0	-	American Pipit	1		
6	10	2011	ARD	HAWK4	12:45	13:45	S	3	15	0	-	Blue Jay	1	E	
6	10	2011	ARD	HAWK4	13:45	14:15	S	3	16	5		nil			
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Northern Harrier	3		thermal
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Sharp-shinned Hawk	1	E	low
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Robin	70	S	high
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Robin	5	W	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Canada Goose	6	S	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Crow	1	SW	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Pine Sisken	3		
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Pipit	2	S	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Pipit	2	S	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	American Pipit	2	S	
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Common Merganser	2	W	just over water
12	10	2011	ARD	HAWK4	9:15	10:15	S	1	15	70	altocumulus	Blue Jay	1	E	
12	10	2011	ARD	HAWK4	10:15	11:15	S	2	17	80	cumulus / cirrus	American Robin	28	E	
12	10	2011	ARD	HAWK4	10:15	11:15	S	2	17	80	cumulus / cirrus	Canada Goose	1	S	
12	10	2011	ARD	HAWK4	11:15	12:15	S	2	20	90	stratus	Northern Harrier	1	S	
12	10	2011	ARD	HAWK4	11:15	12:15	S	2	20	90	stratus	American Pipit	1	S	
12	10	2011	ARD	HAWK4	12:15	13:15	S	1	22	100	stratus	Unknown Falcon	1		on snag
12	10	2011	ARD	HAWK4	12:15	13:15	S	1	22	100	stratus	Common Loon	2		adult & juv swim
12	10	2011	ARD	HAWK4	12:15	13:15	S	1	22	100	stratus	Warbler sp.	1	N	
12	10	2011	ARD	HAWK4	13:15	14:15	S	2	24	100	stratus	American Pipit	3		
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Turkey Vulture	1		
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Bald Eagle	1	NE	adult
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Bald Eagle	1	SE	adult
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Northern Harrier	1	S	female
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Red-tailed Hawk	1		snag
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Unknown Falcon	1	S	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Canada Goose	5	N	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	American Pipit	1		
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	American Robin	1		
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	American Robin	51	NW	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Mallard	5	E	along inlet then in
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Mallard	3	S	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Belted Kingfisher	1		
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Turkey Vulture	2	W	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Bald Eagle	1	E	imm.
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Bald Eagle	1		imm. In tree
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Double-crested Cormorants	1	E	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Common Raven	1	W	
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Bonaparte's Gull	1	E	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
13	10	2011	ARD	HAWK2	11:45	12:45	SE	2	15	100	stratus	Great Blue Heron	1	NE	
14	10	2011	ARD	HAWK3	10:45	11:45	SW	2	16	95	stratus	Turkey Vulture	1	E	
14	10	2011	ARD	HAWK3	10:45	11:45	SW	2	16	95	stratus	Common Loon	2		
14	10	2011	ARD	HAWK3	10:45	11:45	SW	2	16	95	stratus	Merganser sp.	3	E	
14	10	2011	ARD	HAWK3	10:45	11:45	SW	2	16	95	stratus	American Pipit	1		
14	10	2011	ARD	HAWK3	11:45	12:45	S	3	16	100	stratus	Pileated Woodpecker	1	SW	
14	10	2011	ARD	HAWK3	11:45	12:45	S	3	16	100	stratus	Double-crested Cormorants	1	N	
14	10	2011	ARD	HAWK3	12:45	13:15	S	3	16	100	altostratus	American Pipit	1		
21	10	2011	ARD		9:30	10:30	N	1	5	100	stratus	Turkey Vulture	1	S	
21	10	2011	ARD		10:30	11:30	N	2	5	100		Northern Goshawk	1	S	
21	10	2011	ARD		10:30	11:30	N	2	5	100		Green-winged Teal	1	E	low over inlet
21	10	2011	ARD		10:30	11:30	N	2	5	100		Crossbill sp.	2		call
21	10	2011	ARD		11:30	12:30	N	2	8	95		Turkey Vulture	1	S	
21	10	2011	ARD		11:30	12:30	N	2	8	95		Red-tailed Hawk	1	S	
21	10	2011	ARD		11:30	12:30	N	2	8	95		Canada Goose	2	N	
21	10	2011	ARD		11:30	12:30	N	2	8	95		American Pipit	2	S	
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Turkey Vulture	1		
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Cooper's Hawk	1	NW	
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Unknown accipiter	1	W	
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Unknown Raptor	1	W	
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Unknown Raptor	2		
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Blue Jay	1	E	
7	5	2012	ARD/SNR	HAWK5	11:20	12:20	SE	1	21	90	cumulostratus	Blue Jay	2	SE	
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Turkey Vulture	3	W	
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Turkey Vulture	2		
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Unknown Raptor	2		
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Unknown Raptor	1	NW	
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Northern Flicker	1	E	
7	5	2012	ARD/SNR	HAWK5	12:20	13:20	SE	2	23	90	cumulostratus	Waxwing sp.	100		very distant flock/cloud of birds
7	5	2012	ARD/SNR	HAWK5	13:20	14:20	SE	2	20	100		Bald Eagle	1	NW	unknown age, high
7	5	2012	ARD/SNR	HAWK5	13:20	14:20	SE	2	20	100		Unknown Raptor	1	NE	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Turkey Vulture	7		
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Pine Sisken	1	N	fly over
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Canada Goose	5	N	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Common Raven	8	NE	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Common Raven	2	E	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Common Raven	1	W	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Herring Gull	4	N	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Double-crested Cormorants	3	SE	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Yellow-rumped Warbler	1	S	
2	5	2012	ARD	HAWK3	11:05	12:05	S	1	18	40	cirrus	Common Loon	1	SE	calling
2	5	2012	ARD	HAWK3	12:05	13:05	S	2	19	80	cirrus/stratus	Turkey Vulture	7		
2	5	2012	ARD	HAWK3	12:05	13:05	S	2	19	80	cirrus/stratus	Double-crested Cormorants	1	W	
2	5	2012	ARD	HAWK3	12:05	13:05	S	2	19	80	cirrus/stratus	Yellow-rumped Warbler	3	N	
2	5	2012	ARD	HAWK3	12:05	13:05	S	2	19	80	cirrus/stratus	Yellow-rumped Warbler	1	SE	
2	5	2012	ARD	HAWK3	12:05	13:05	S	2	19	80	cirrus/stratus	Ring-necked Duck	2		male&female
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Turkey Vulture	4		
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Cooper's Hawk	1	W	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Peregrine Falcon	1	N	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Common Raven	1	W	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Double-crested Cormorants	1	W	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Double-crested Cormorants	1	E	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Yellow-rumped Warbler	1	N	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Blue Jay	1	NW	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Common Goldeneye	10		fly, first W, land on bay - 3 ad male, 2 subad male, 5 female

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Northern Flicker	1	E	
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Lesser Scaup	2	E	male&female
2	5	2012	ARD	HAWK3	13:05	14:05	S	2	20	70	cirrus/stratus	Lapland Longspur	1	SE	calling
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Turkey Vulture	2		
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Bald Eagle	1	S	carrying stick; flying S over E end of the island, seemed to head to S side of inlet
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Herring Gull	3	N	
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Double-crested Cormorants	1	E	
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Double-crested Cormorants	1	E	
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Common Merganser	1	W	male
2	5	2012	ARD	HAWK3	14:05	???	S	2	14	100	stratus/nimbus	Great Blue Heron	1	NW	
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Turkey Vulture	1	E	
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Unknown Raptor	1	E	
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Double-crested Cormorants	1		
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Common Raven	2		
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Pine Sisken	1		fly over, call
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	American Pipit	1		fly over, call
8	5	2012	ARD	HAWK6	10:30	11:30	E	1	20	30	cumulus	Herring Gull	1	E	
8	5	2012	ARD	HAWK6	11:30	12:30	E	3	21	40	cumulus/cirrus	Turkey Vulture	1	SE	
8	5	2012	ARD	HAWK6	11:30	12:30	E	3	21	40	cumulus/cirrus	Unknown Raptor	2	NE	
8	5	2012	ARD	HAWK6	11:30	12:30	E	3	21	40	cumulus/cirrus	Pine Sisken	1	E	call, fly over
8	5	2012	ARD	HAWK6	11:30	12:30	E	3	21	40	cumulus/cirrus	Pine Sisken	12	SE	
8	5	2012	ARD	HAWK6	11:30	12:30	E	3	21	40	cumulus/cirrus	American Pipit	2	SE	call, fly over
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Turkey Vulture	3		circling
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Turkey Vulture	7		circling
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Common Raven	2		circling and calling to N
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Pine Sisken	1	S	
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Pine Sisken	16	S	
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	American Pipit	1	SE	
8	5	2012	ARD	HAWK6	12:30	13:30	N	1	21	100	cumulus/stratus	Mallard	2	N	male
9	5	2012	ARD	HAWK2	8:20	9:20	N	2	9	100	light rain	Double-crested Cormorants	1	E	low over inlet
9	5	2012	ARD	HAWK2	8:20	9:20	N	2	9	100	light rain	Sandhill Crane	2	NW	low
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Pine Sisken	5	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Pine Sisken	12	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Pine Sisken	10	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Pine Sisken	15	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	American Pipit	1	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	American Pipit	3	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Purple Finch	1	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Yellow-rumped Warbler	1	N	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Great Blue Heron	1	NE	high
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	American Goldfinch	1	NE	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Blue Jay	2	NE	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Blue Jay	1	E	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	American Crow	1	E	
11	5	2012	ARD	HAWK2	8:00	9:00	-	-	12	0	-	Double-crested Cormorants	1	E	low over inlet
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Turkey Vulture	1	S	high
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Pine Sisken	2	N	
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Pine Sisken	11		
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	American Goldfinch	1	N	
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Double-crested Cormorants	1	E	low
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Double-crested Cormorants	2	E	low
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Caspian Tern	1	W	along inlet
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Common Raven	1	E	
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Herring Gull	2	E	

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp	Cloud cover (%)	Cloud Type (if recorded)	Species	Number	Direction	Notes
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Mallard	3	E	low over trees, then W
11	5	2012	ARD	HAWK2	9:00	10:00	E	1	14	0	-	Tree Swallows	1	E	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Turkey Vulture	3	W	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Turkey Vulture	1	N	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Unknown accipiter	1	W	low
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Pine Sisken	1	N	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Blue Jay	1	NE	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Double-crested Cormorants	1	E	medium altitude
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Herring Gull	1	E	
11	5	2012	ARD	HAWK2	10:00	10:30	SW	1	16	0	-	Herring Gull	1	E	
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Turkey Vulture	1	W	
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Broad-winged Hawk	1	E	med/high
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Merlin	1		call, up the inlet
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Double-crested Cormorants	1	E	
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Herring Gull	2	W	
15	5	2012	ARD	HAWK1	12:30	13:30	W	3	22	50	altocumulus	Sandhill Crane	1	SE	high
15	5	2012	ARD	HAWK1	13:30	14:00	W	4	22	60		Red-tailed Hawk	2	NE	med/high
15	5	2012	ARD	HAWK1	13:30	14:00	W	4	22	60		Double-crested Cormorants	1	W	low over water
15	5	2012	ARD	HAWK1	13:30	14:00	W	4	22	60		Gull sp.	2	E	
15	5	2012	ARD	HAWK1	13:30	14:00	W	4	22	60		Caspian Tern	1	W	high
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Turkey Vulture	1		
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Turkey Vulture	2		
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Pine Sisken	1	SE	
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Pine Sisken	1	SE	
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Double-crested Cormorants	1	W	
16	5	2012	ARD	HAWK3	9:30	10:30	NW	4	10	95		Double-crested Cormorants	1	W	
16	5	2012	ARD	HAWK3	10:30	11:30	NW	5	11	90		Turkey Vulture	1		
16	5	2012	ARD	HAWK3	10:30	11:30	NW	5	11	90		Pine Sisken	1	SE	
16	5	2012	ARD	HAWK3	10:30	11:30	NW	5	11	90		Double-crested Cormorants	1	NW	
16	5	2012	ARD	HAWK3	10:30	11:30	NW	5	11	90		Mallard	2	S	male
16	5	2012	ARD	HAWK3	11:30	12:30	NW	5	11	100		Double-crested Cormorants	1	W	
16	5	2012	ARD	HAWK3	11:30	12:30	NW	5	11	100		Sandhill Crane	1	NE	low
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Turkey Vulture	1		circle
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Turkey Vulture	1	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Northern Harrier	1	NE	female
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Golden Eagle	1	N	adult, 'thermalling up', N
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Merlin	1		call on tree, next island to W
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Double-crested Cormorants	1	W	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Ring-billed Gull	1	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Ring-billed Gull	4	W	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Ring-billed Gull	3	E	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Ring-billed Gull	2	W	
1	5	2012	ARD	HAWK4	11:55	12:55	0	0	16	40	low cumulus	Yellow-rumped Warbler	1	S	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Turkey Vulture	3	W	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Turkey Vulture	1	E	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Turkey Vulture	1	E	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Turkey Vulture	1		
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Double-crested Cormorants	1	W	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Double-crested Cormorants	1	W	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Double-crested Cormorants	1	SW	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Ring-billed Gull	1	W	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Ring-billed Gull	1	W	

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1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Common Merganser	1	W	female
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Common Merganser	4	S	1 male / 3 female
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Sandhill Crane	5	S	
1	5	2012	ARD	HAWK4	12:55	13:55	SW	1	18	50	cumulus/cirrus	Tree Swallows	1	E	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Turkey Vulture	1	W	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Turkey Vulture	2		
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Turkey Vulture	1	N	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Double-crested Cormorants	1	NE	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Double-crested Cormorants	1	W	low over inlet
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Double-crested Cormorants	1	E	
1	5	2012	ARD	HAWK4	13:55	14:55	SW	2	18	20	cumulus/cirrus	Ring-billed Gull	1	W	
1	5	2012	ARD	HAWK2	11:05	11:35	SW	1	10	100	overcast	Double-crested Cormorants	1	E	up inlet
1	5	2012	ARD	HAWK2	11:05	11:35	SW	1	10	100	overcast	Yellow-rumped Warbler	2	N	fly over
1	5	2012	ARD	HAWK2	11:05	11:35	SW	1	10	100	overcast	Merlin	2		in tree, N side of inlet, calling & chasing each other around a bit and hanging out in the general area across creek from Flash's, sometimes in same tree
1	5	2012	ARD	HAWK2	11:05	11:35	SW	1	10	100	overcast	Turkey Vulture	1	W	
1	5	2012	ARD	HAWK2	11:05	11:35	SW	1	10	100	overcast	Ring-billed Gull	1	W	high over inlet
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Turkey Vulture	1	NE	
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Turkey Vulture	2		circle over inlet
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Merlin	1	N	
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Killdeer	1	NE	fly over, call
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Great Blue Heron	1	NW	
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Double-crested Cormorants	1	E	high
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Double-crested Cormorants	2	N	medium altitude
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Common Merganser	1	S	male, low
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Sandhill Crane	1	N	medium altitude
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Turkey Vulture	2	N	circle med.
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Turkey Vulture	3	N	
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Common Goldeneye	1	W	male
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		Mallard	1	W	male
13	4	2012	ARD	HAWK3	10:20	11:20	SW	1	12	0		American Black Duck	2	W	
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		Common Merganser	2	S	male&female
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		Common Merganser	1	E	male, fly up bay
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		Bufflehead	3	E	1 male, 2 female; fly up bay, low
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		Scaup sp.	3	E	2 male, 1 female; fly up bay, low
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		American Robin	2	N	fly over, high
13	4	2012	ARD	HAWK3	11:20	12:20	SW	2	14	0		Canada Goose	48	N	high
13	4	2012	ARD	HAWK3	12:20	13:20	SW	3	14	0		Turkey Vulture	1	S	circle, low
13	4	2012	ARD	HAWK3	12:20	13:20	SW	3	14	0		Turkey Vulture	6		on south side, circling
13	4	2012	ARD	HAWK3	12:20	13:20	SW	3	14	0		Sharp-shinned Hawk	1	N	

		Area A				First Visit	Second Visit
			Point Counts				
	Code	Site	Zone	Easting	Northing		
1	A1	PC201	17T	526702	5078127	4-Jun-13	24-Jun-13
2	A2	PC203	17T	526173	5078766	4-Jun-13	24-Jun-13
3	A3	PC204	17T	526055	5079242	4-Jun-13	24-Jun-13
4	A4	PC206	17T	525618	5079954	4-Jun-13	24-Jun-13
5	A5	PC207	17T	525194	5080508	4-Jun-13	24-Jun-13
6	A6	Marsh 1	17T	525860	5079203	4-Jun-13	24-Jun-13
7	A7	V1	17T	524660	5076679	16-Jun-13	26-Jun-13
8	A8	V2	17T	524778	5077164	16-Jun-13	26-Jun-13
9	A9	V3	17T	524635	5077455	16-Jun-13	26-Jun-13
10	A10	W01	17T	523585	5077154	7-Jun-13	21-Jun-13
11	A11	W02	17T	523365	5077772	7-Jun-13	21-Jun-13
12	A12	W03	17T	523059	5078254	7-Jun-13	21-Jun-13
13	A13	W04	17T	523133	5078765	7-Jun-13	21-Jun-13
14	A14	W05	17T	523320	5079223	7-Jun-13	21-Jun-13
15	A15	W06	17T	523693	5079796	7-Jun-13	21-Jun-13
		Area B					
			Point Counts				
		Site	Zone	Easting	Northing		
16	B1	PC216	17T	528618	5079111	7-Jun-13	20-Jun-13
17	B2	PC217	17T	528666	5079514	7-Jun-13	20-Jun-13
18	B3	PC218	17T	528361	5079267	7-Jun-13	20-Jun-13
19	B4	PC222	17T	528063	5079633	7-Jun-13	20-Jun-13
20	B5	PC233	17T	527935	5080068	7-Jun-13	20-Jun-13
21	B6	PC224	17T	527602	5080573	7-Jun-13	20-Jun-13
22	B7	PC225	17T	527283	5081020	7-Jun-13	20-Jun-13
23	B8	PC226	17T	527388	5080346	7-Jun-13	20-Jun-13
24	B9	PC232	17T	529216	5079462	8-Jun-13	25-Jun-13
25	B10	PC233	17T	528979	5079939	8-Jun-13	25-Jun-13
26	B11	PC234	17T	528937	5080074	8-Jun-13	25-Jun-13
27	B12	PC235	17T	528809	5080360	8-Jun-13	25-Jun-13
28	B13	PC236	17T	528682	5080494	8-Jun-13	25-Jun-13
29	B14	PC237	17T	528532	5080879	8-Jun-13	25-Jun-13
30	B15	PC238	17T	528438	5081043	8-Jun-13	25-Jun-13
31	B16	PC239	17T	528256	5081418	8-Jun-13	25-Jun-13
		Area C					
			Point Counts				
		Site	Zone	Easting	Northing		
32	C1	PC209 (forest)	17T	533565	5081897	6-Jun-13	18-Jun-13
33	C2	X1	17T	530013	5078948	6-Jun-13	20-Jun-13
34	C3	X2	17T	530558	5079625	6-Jun-13	20-Jun-13
35	C4	X3	17T	530764	5080346	6-Jun-13	20-Jun-13
36	C5	X4	17T	531110	5080754	6-Jun-13	20-Jun-13
		Area D					

			Point Counts				
		Site	Zone	Easting	Northing		
37	D1	PC210	17T	533332	5079992	6-Jun-13	18-Jun-13
38	D2	PC211	17T	532871	5078133	6-Jun-13	18-Jun-13
39	D3	PC212	17T	532092	5078861	6-Jun-13	18-Jun-13
40	D4	PC214	17T	529757	5078310	6-Jun-13	18-Jun-13
41	D5	D1 (?) T01	17T	529201	5077915	17-Jun-13	28-Jun-13
42	D6	D2 (?) T02	17T	529411	5077454	17-Jun-13	28-Jun-13
43	D7	D3 (?) T03	17T	529783	5077131	17-Jun-13	28-Jun-13
44	D8	D4 (?) T04	17T	529758	5076540	17-Jun-13	28-Jun-13
45	D9	D5 (?) T05	17T	530275	5076494	17-Jun-13	28-Jun-13
46	D10	D6 (?) T06	17T	530830	5076637	17-Jun-13	28-Jun-13
47	D11	D7 (?) T07	17T	530650	5077108	17-Jun-13	28-Jun-13
48	D12	Z1	17T	532946	5080021	4-Jun-13	18-Jun-13
49	D13	Z2	17T	532736	5079563	4-Jun-13	18-Jun-13
50	D14	Z3	17T	532482	5079124	4-Jun-13	18-Jun-13
51	D15	Z4	17T	532289	5078660	4-Jun-13	18-Jun-13
52	D16	Z5	17T	531989	5078254	4-Jun-13	18-Jun-13
53	D17	Z6	17T	531846	5077768	4-Jun-13	18-Jun-13
54	D18	Z7	17T	531934	5077271	4-Jun-13	18-Jun-13
55	D19	Z8	17T	532418	5077061	4-Jun-13	18-Jun-13
56	D20	Z9	17T	532493	5076815	4-Jun-13	18-Jun-13
57	D21	Z10	17T	532678	5076615	4-Jun-13	18-Jun-13
		Area E					
			Point Counts				
		Site	Zone	Easting	Northing		
58	E1	PC10 (swd-ash)	17T	524945	5075396	5-Jun-13	25-Jun-13
59	E2	PC11 (marsh/fom)	17T	525437	5075483	5-Jun-13	25-Jun-13
60	E3	PC12 (swt/fom)	17T	526475	5075295	5-Jun-13	25-Jun-13
61	E4	PC8 (jack pine/red maple)	17T	526691	5075204	5-Jun-13	
62	E5	PC9 (pine)	17T	527088	5075214	5-Jun-13	
63	E6	PC7 (mas/oa/swc)	17T	527537	5074800	5-Jun-13	
64	E7	PC15(fom/poplar,spruce)	17T	525853	5076584	6-Jun-13	27-Jun-13
65	E8	PC13 (jack pine)	17T	526185	5076403	6-Jun-13	27-Jun-13
66	E9	PC14 (swt)	17T	526451	5076545	6-Jun-13	27-Jun-13
67	E10	PC16 (lowland spruce forest)	17T	527005	5076650	6-Jun-13	27-Jun-13
68	E11	PC17 (pine barren)	17T	527537	5076352	6-Jun-13	27-Jun-13
69	E12	PC18 (pine barren)	17T	527765	5075981	6-Jun-13	27-Jun-13
70	E13	PC1 (fom-pin/maple/oak)	17T	528208	5077811	7-Jun-13	24-Jun-13
71	E14	PC2 (bog)	17T	529355	5075881	7-Jun-13	24-Jun-13
72	E15	PC5 (pine barren)	17T	528224	5077357	7-Jun-13	24-Jun-13
73	E16	PC6 (pine barren)	17T	528325	5076931	7-Jun-13	24-Jun-13
74	E17	PC3 (pine barren)	17T	528789	5076454	7-Jun-13	24-Jun-13
75	E18	PC4 (bog)	17T	529180	5076307	7-Jun-13	24-Jun-13
76	E19	U1	17T	526702	5073100	15-Jun-13	26-Jun-13
77	E20	U2	17T	526797	5073664	15-Jun-13	26-Jun-13
78	E21	U3	17T	526621	5074132	15-Jun-13	26-Jun-13

79	E22	U4	17T	526118	5074163	15-Jun-13	26-Jun-13
80	E23	U5	17T	525769	5073789	15-Jun-13	26-Jun-13
		Area F					
			Point Counts				
		Site	Zone	Easting	Northing		
81	F1	Y1	17T	523131	5076211	5-Jun-13	19-Jun-13
82	F2	Y2	17T	522657	5076058	5-Jun-13	19-Jun-13
83	F3	Y3	17T	522275	5075719	5-Jun-13	19-Jun-13
84	F4	Y4	17T	522185	5075226	5-Jun-13	19-Jun-13
85	F5	Y5	17T	522697	5075239	5-Jun-13	19-Jun-13
86	F6	Y6	17T	523055	5074843	5-Jun-13	19-Jun-13
87	F7	Y7	17T	523375	5074421	5-Jun-13	19-Jun-13
88	F8	Y8	17T	523625	5074854	5-Jun-13	19-Jun-13
89	F9	Y9	17T	523294	5075229	5-Jun-13	19-Jun-13
		Area MTO					
			Point Counts				
		Site	Zone	Easting	Northing		
	TL01	TL01	17T	533352	5083133	10-Jun-13	30-Jun-13
	TL02	TL02	17T	533608	5080784	10-Jun-13	30-Jun-13
	TL03	TL03	17T	533598	5079442	10-Jun-13	30-Jun-13
	TL04	TL04	17T	534022	5078237	10-Jun-13	30-Jun-13
	TL05	TL05	17T	534484	5076512	10-Jun-13	30-Jun-13
	TL06	TL06	17T	534777	5075251	10-Jun-13	30-Jun-13
	TL07	TL07	17T	535302	5074024	10-Jun-13	30-Jun-13
	TL08	TL08	17T	535857	5072690	10-Jun-13	30-Jun-13
	TL09	TL09	17T	536392	5071361	10-Jun-13	30-Jun-13
	TL10	TL10	17T	537424	5070118	10-Jun-13	30-Jun-13
	TL11	TL11	17T	538725	5069753	10-Jun-13	30-Jun-13
	TL12	TL12	17T	539262	5068545	10-Jun-13	30-Jun-13
	TL13	TL13	17T	539804	5066946	10-Jun-13	30-Jun-13
	TL14	TL14	17T	540363	5065728	10-Jun-13	30-Jun-13
	TL15	TL15	17T	540917	5064486	10-Jun-13	30-Jun-13
	TL16	TL16	17T	541501	5063176	10-Jun-13	1-Jul-13
	TL17	TL17	17T	541923	5061938	10-Jun-13	1-Jul-13
	TL18	TL18	17T	542520	5060781	10-Jun-13	1-Jul-13
	TL19	TL19	17T	543198	5059275	12-Jun-13	1-Jul-13
	TL20	TL20	17T	544066	5058149	12-Jun-13	1-Jul-13
	TL21	TL21	17T	544941	5057268	12-Jun-13	1-Jul-13
	TL22	TL22	17T	545943	5056213	12-Jun-13	1-Jul-13
	TL23	TL23	17T	546861	5054959	12-Jun-13	1-Jul-13
	TL24	TL24	17T	547179	5053667	12-Jun-13	1-Jul-13
	TL25	TL25	17T	547588	5052527	12-Jun-13	1-Jul-13
	TL26	TL26	17T	548249	5051310	12-Jun-13	1-Jul-13
	TL27	TL27	17T	548537	5050090	12-Jun-13	1-Jul-13
	TL28	TL28	17T	549682	5048337	12-Jun-13	2-Jul-13
	TL29	TL29	17T	550511	5047371	12-Jun-13	2-Jul-13
	TL30	TL30	17T	551720	5046617	12-Jun-13	2-Jul-13

TL31	TL31	17T	552831	5046119	12-Jun-13	2-Jul-13
TL32	TL32	17T	554042	5045491	12-Jun-13	2-Jul-13
TL33	TL33	17T	555293	5044758	12-Jun-13	2-Jul-13
TL34	TL34	17T	556389	5043937	12-Jun-13	2-Jul-13
TL35	TL35	17T	557486	5043000	12-Jun-13	2-Jul-13
TL36	TL36	17T	558569	5041932	12-Jun-13	2-Jul-13
TL37	TL37	17T	559620	5040841	12-Jun-13	2-Jul-13
TL38	TL38	17T	560672	5039756	13-Jun-13	2-Jul-13
TL39	TL39	17T	561721	5038694	13-Jun-13	3-Jul-13
TL40	TL40	17T	562680	5037847	13-Jun-13	3-Jul-13
TL41	TL41	17T	563686	5036949	13-Jun-13	3-Jul-13
TL42	TL42	17T	564664	5035972	13-Jun-13	3-Jul-13
TL43	TL43	17T	565706	5034882	13-Jun-13	3-Jul-13
TL44	TL44	17T	566384	5034183	13-Jun-13	3-Jul-13
TL45	TL45	17T	573208	5029393	13-Jun-13	3-Jul-13
TL46	TL46	17T	572989	5029419	13-Jun-13	3-Jul-13
TL47	TL47	17T	568664	5031923	13-Jun-13	3-Jul-13
TL48	TL48	17T	564173	5036499	13-Jun-13	3-Jul-13
TL49	TL49	17T	561024	5039420	13-Jun-13	3-Jul-13
TL50	TL50	17T	558024	5042490	13-Jun-13	3-Jul-13
TL51	TL51	17T	540651	5065085	13-Jun-13	4-Jul-13
TL52	TL52	17T	572659	5030346	14-Jun-13	4-Jul-13
TL53	TL53	17T	578307	5022423	14-Jun-13	4-Jul-13
TL54	TL54	17T	581614	5020363	14-Jun-13	4-Jul-13
TL55	TL55	17T	581561	5020624	14-Jun-13	4-Jul-13
TL56	TL56	17T	582693	5018280	14-Jun-13	4-Jul-13
TL57	TL57	17T	582226	5019032	14-Jun-13	4-Jul-13
TL58	TL58	17T	582508	5016960	14-Jun-13	4-Jul-13
TL59	TL59	17T	583330	5016881	14-Jun-13	4-Jul-13
TL60	TL60	17T	582287	5018595	14-Jun-13	4-Jul-13

Watch Station 1

Stantec

Mar 18, 2013

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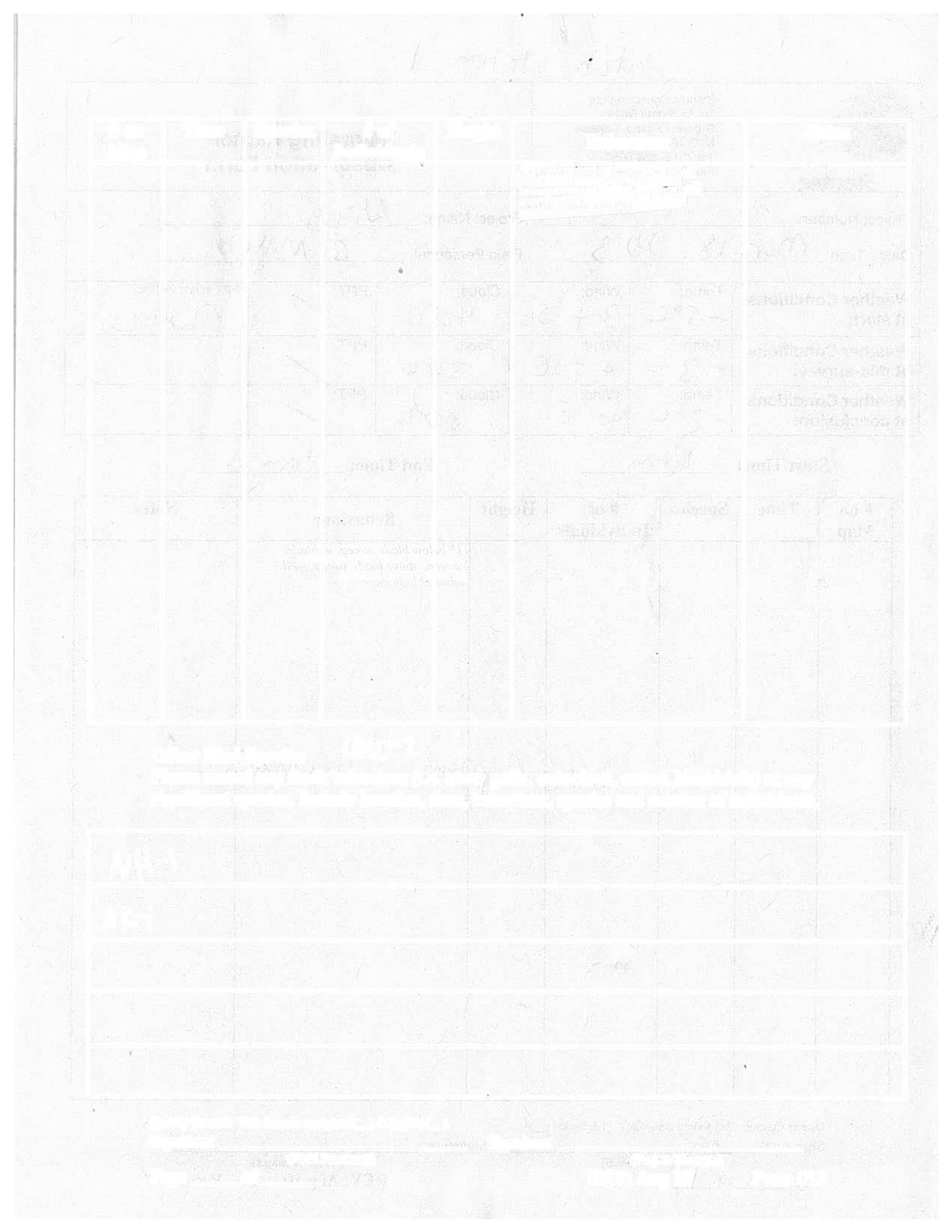
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			No Raptors Observed			

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Watch Station 2.

Stantec

Mar 18, 2013

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B. Holden

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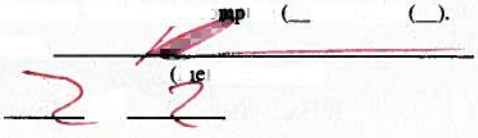
1 2

CO'A, Ht BCUH, Dow, TWO, COR

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I Wee sp, Otte, Moose, Red fox,

W Dee, N flying q re, Rec gunnel, Crater We



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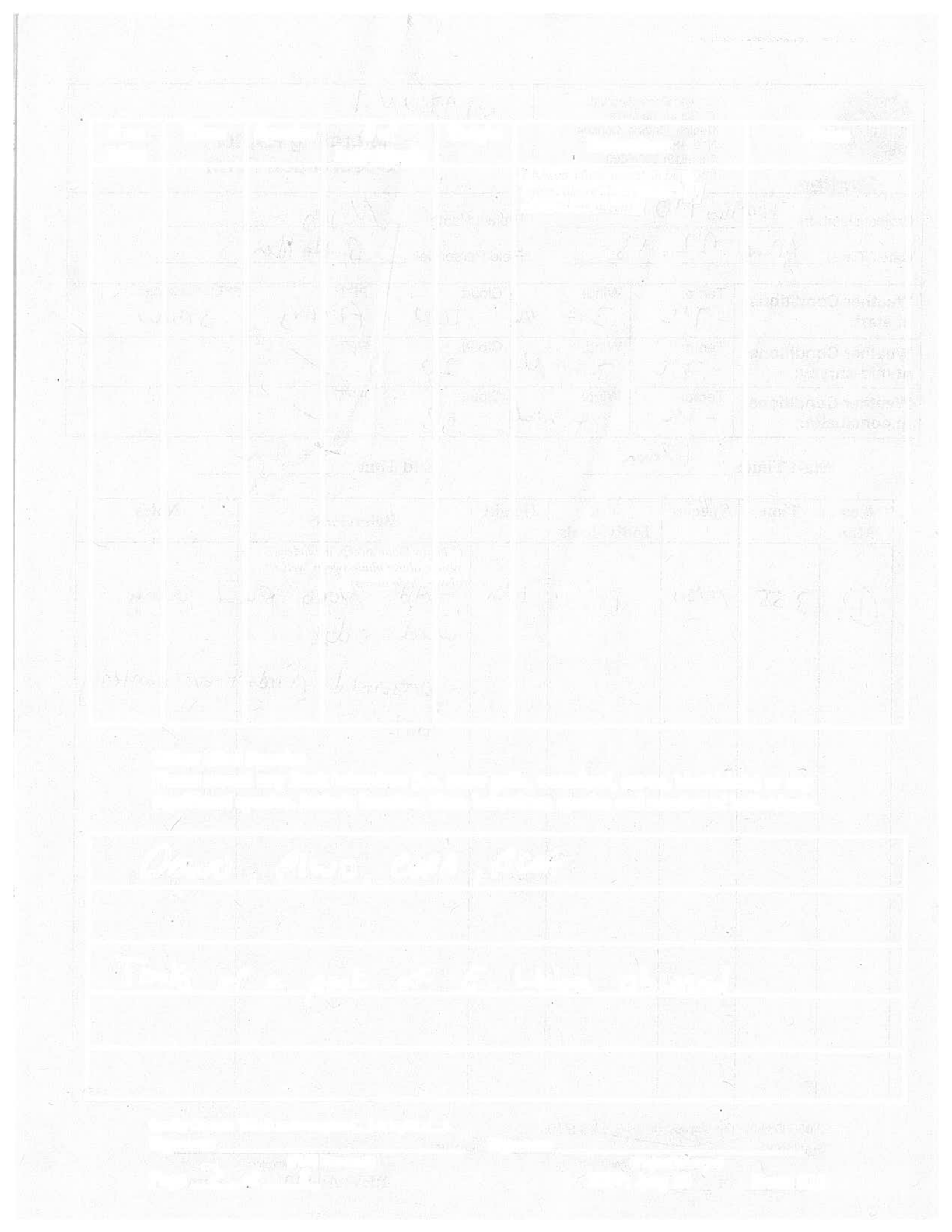
ing Ra tor M is

M 203

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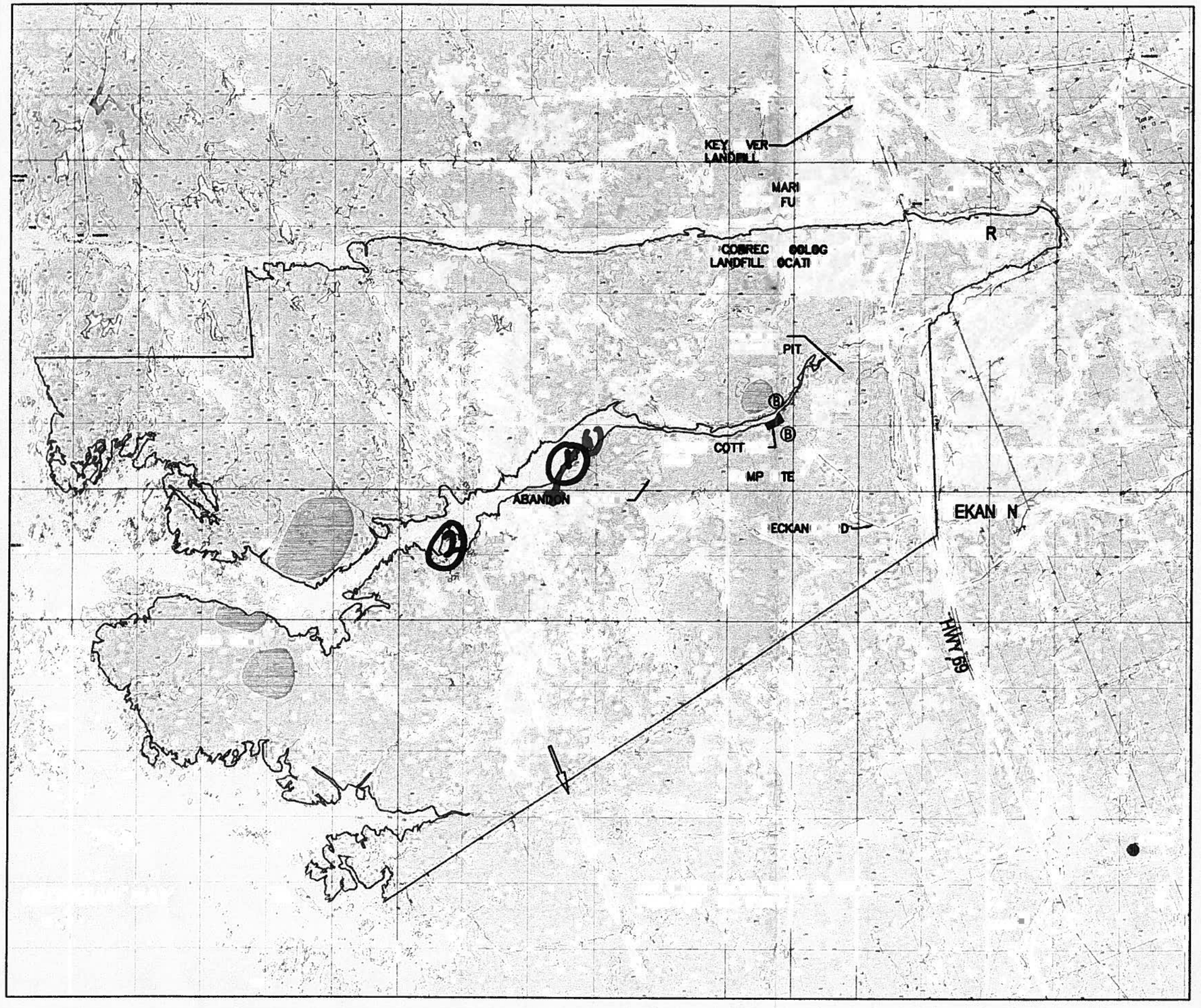
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) TC W.

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R on Muley Pt Road.

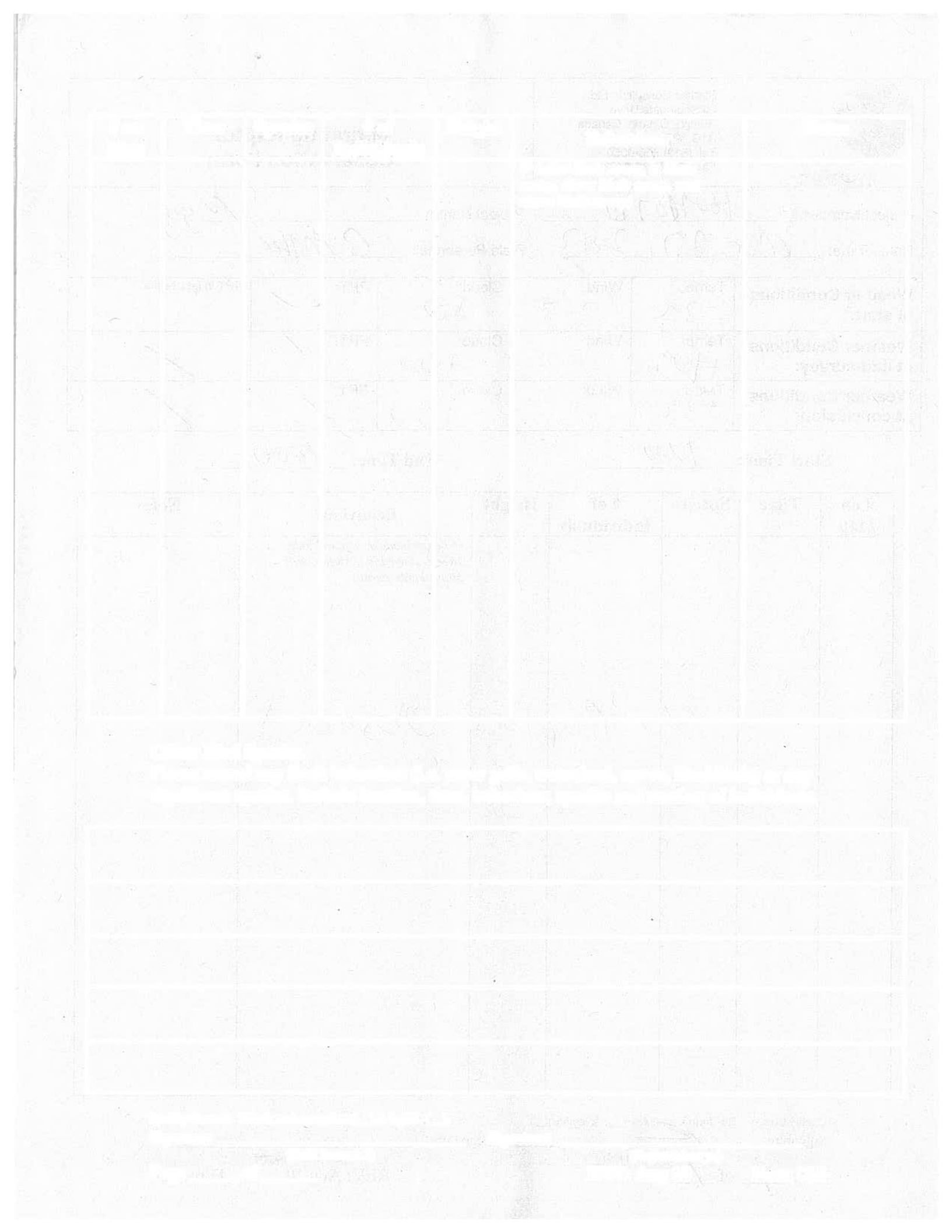
Nigig
Spring Raptor
Mar 22, 203
BH, BM.

Stantec

	-9C	2-3	80	✓	
	[redacted]	"	100	✓	✓
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[redacted]						

No Raptors Observed



Stantec

W Station

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Mar 27, 23	B. Holden

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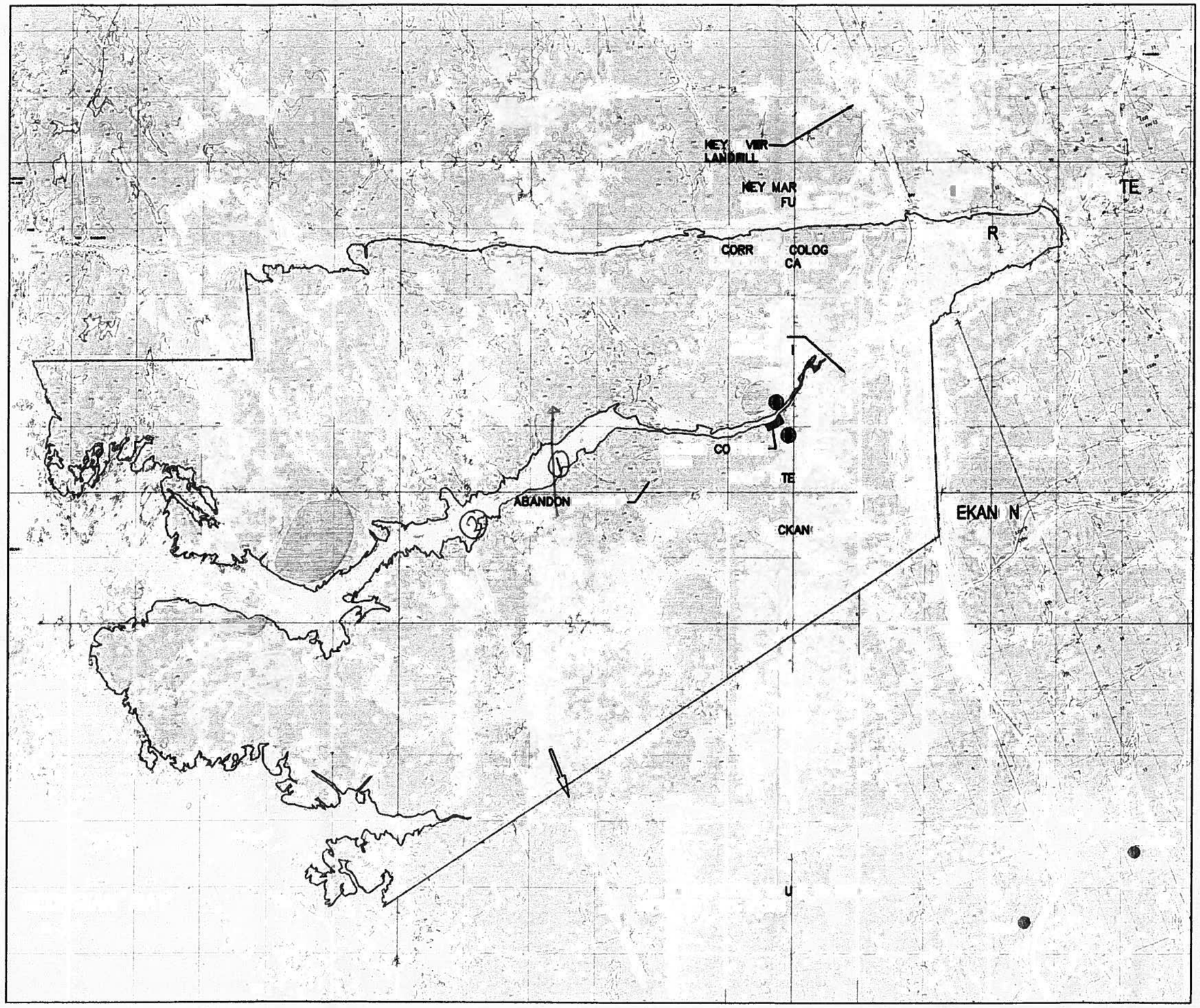
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Time Apr 3, 2013

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Apr 3, 203

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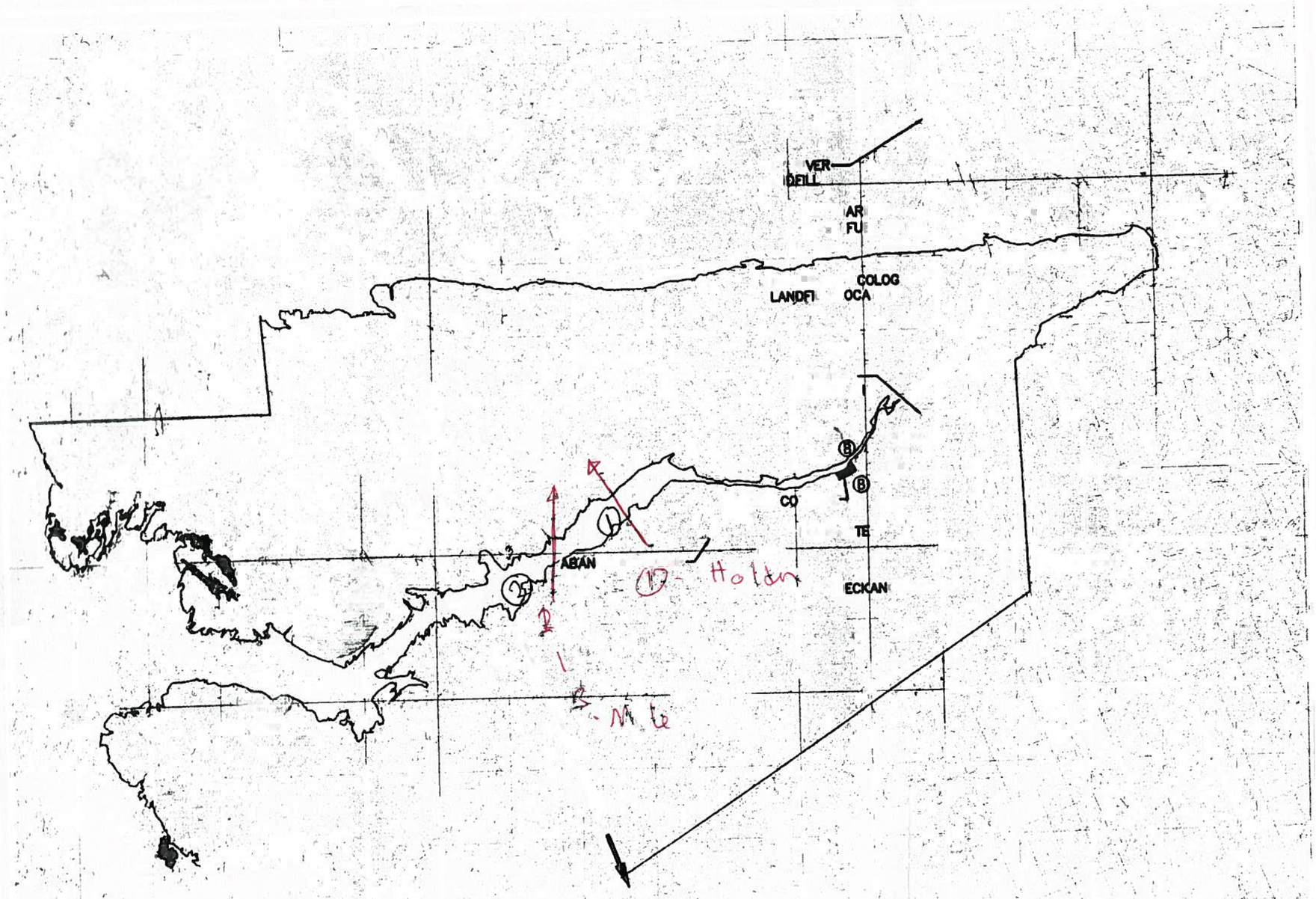
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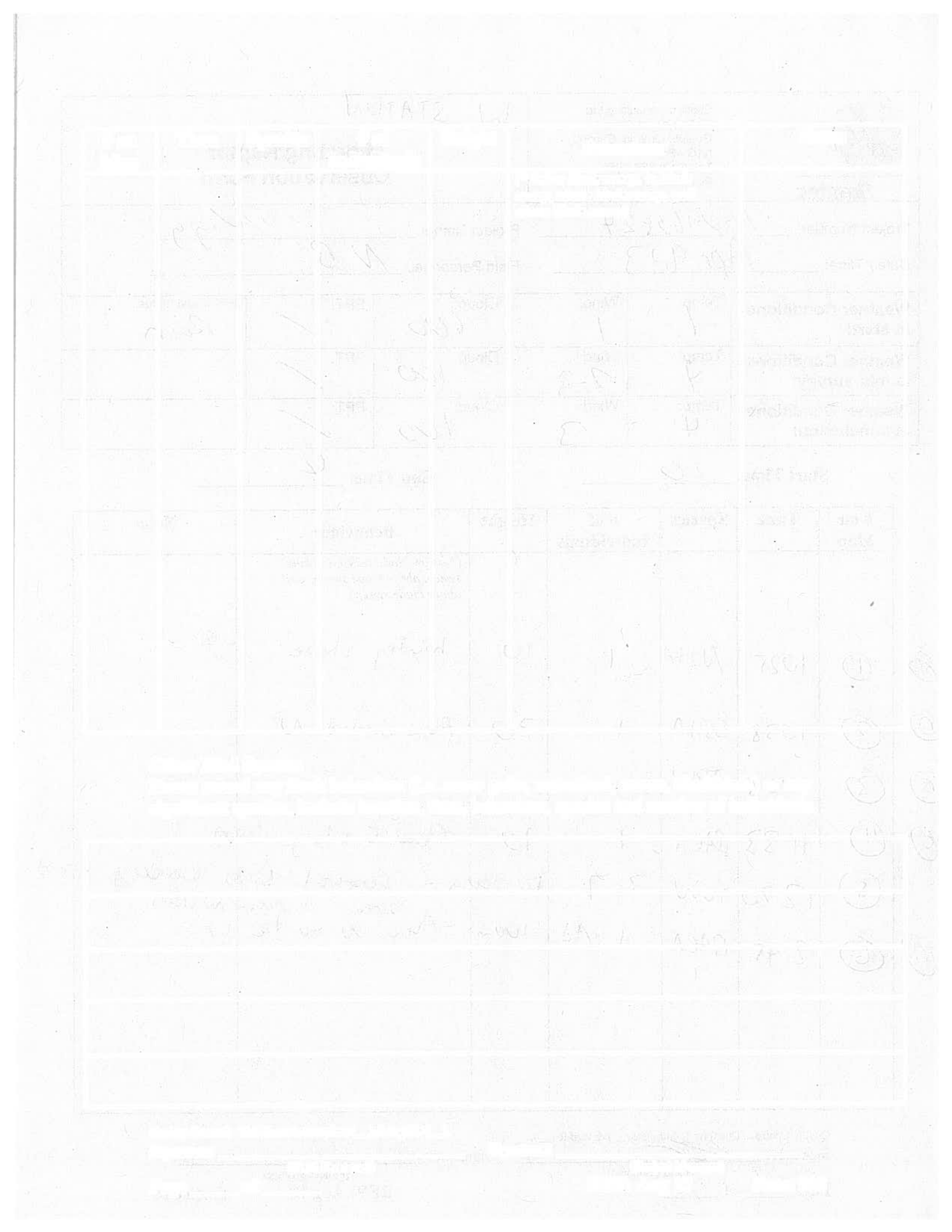
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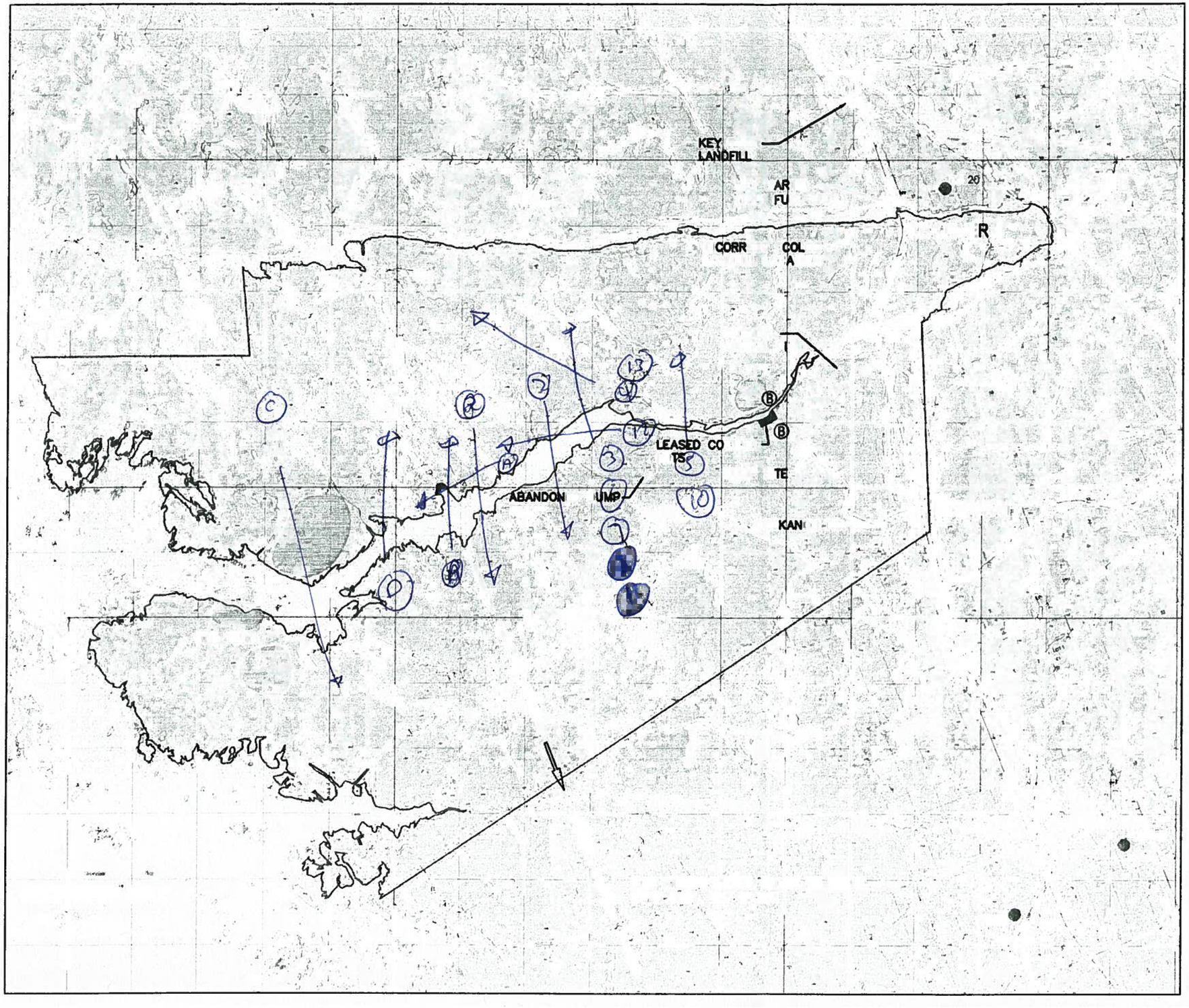

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Spring Raptors
Apr 2013

Stantec

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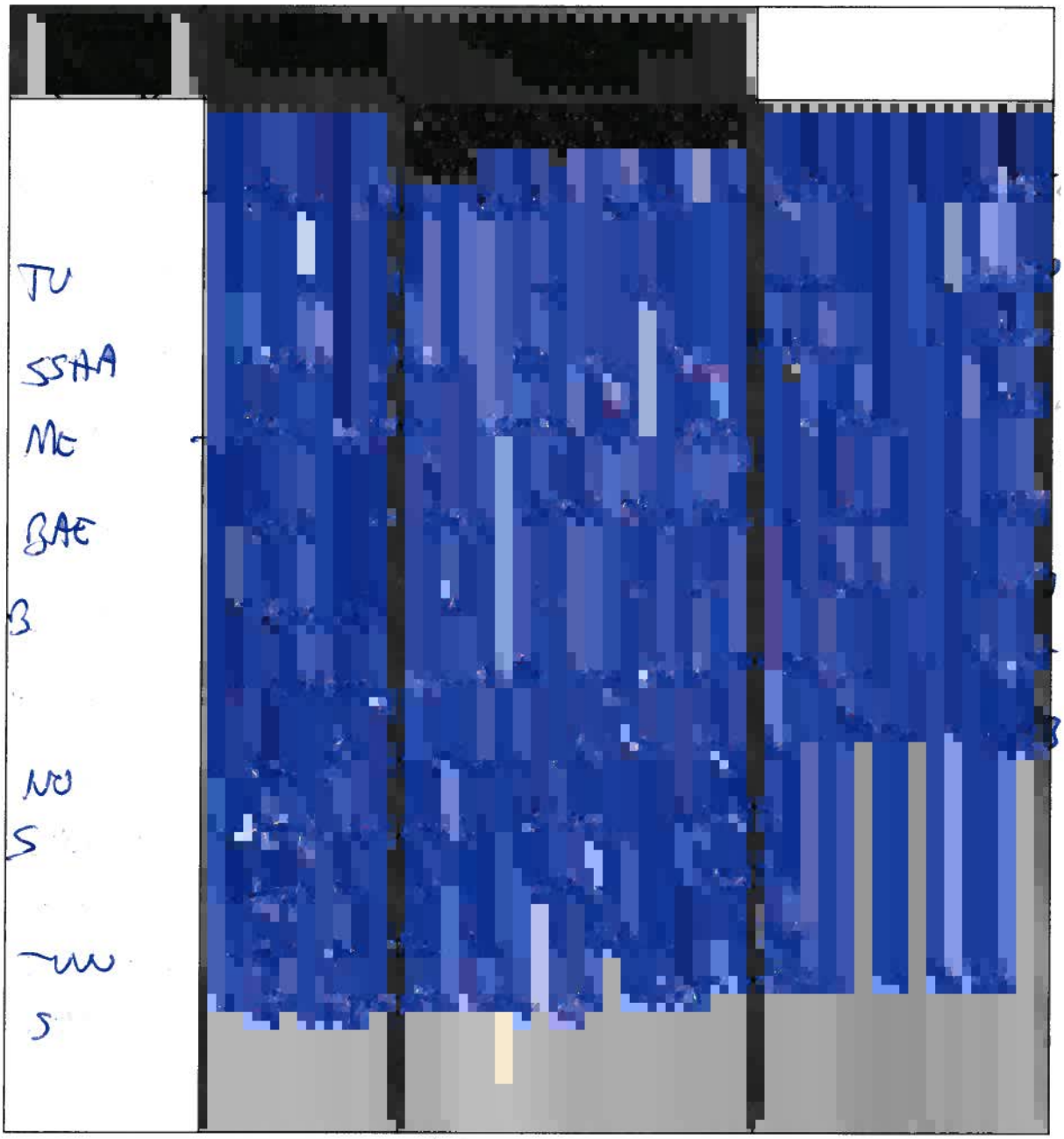
Spring Raptors

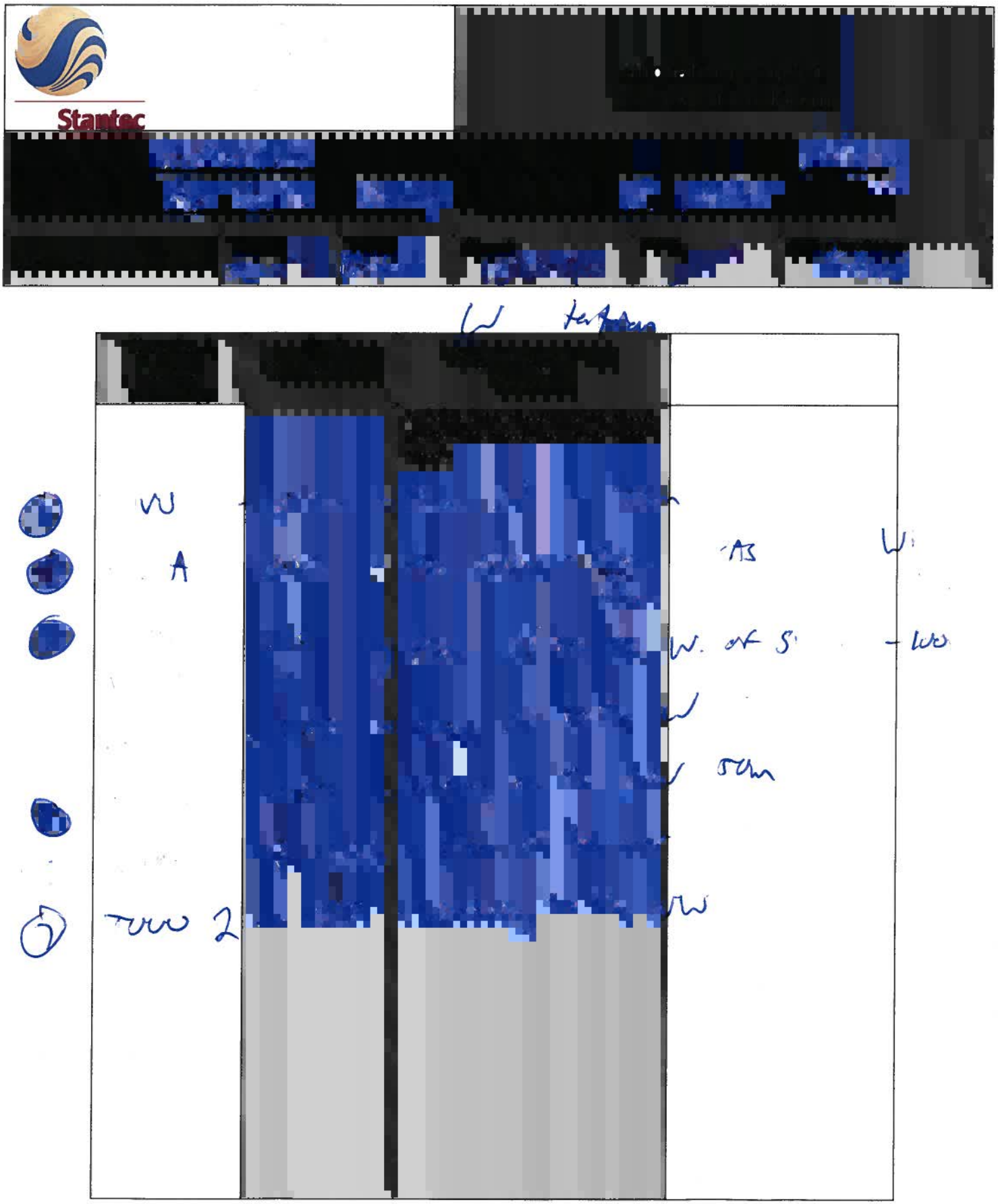
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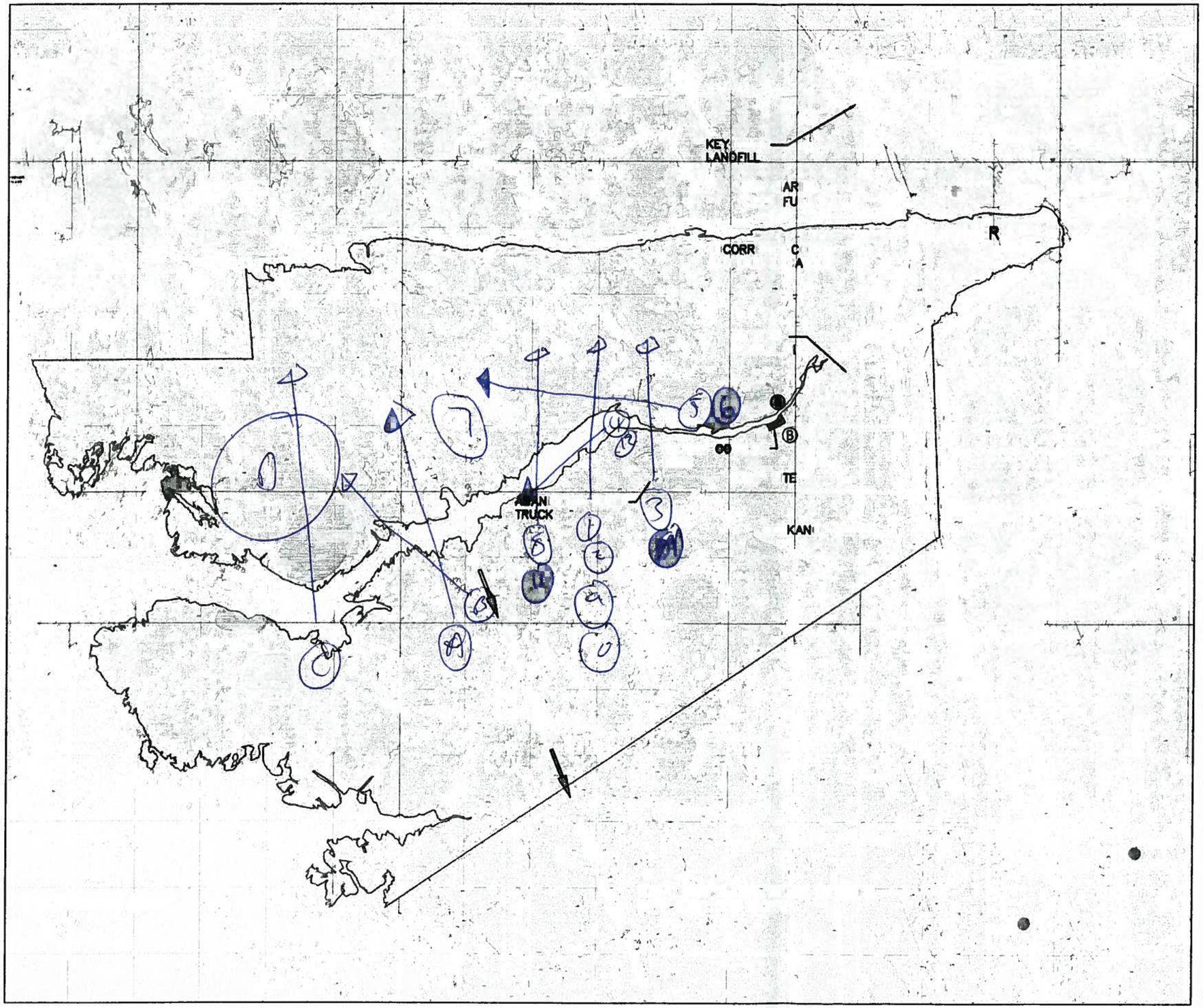
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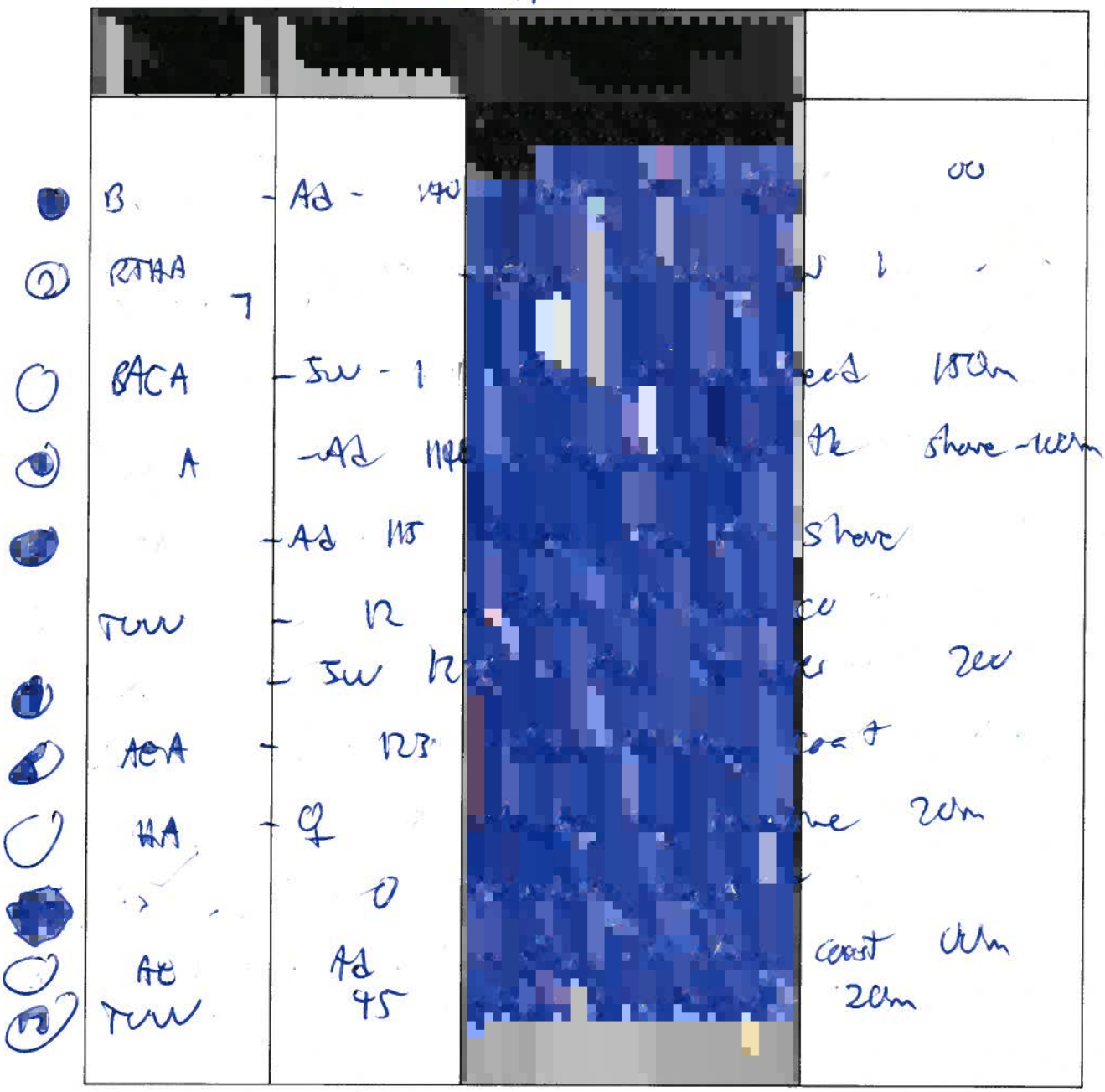
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Apr , 2013

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10am - 4pm

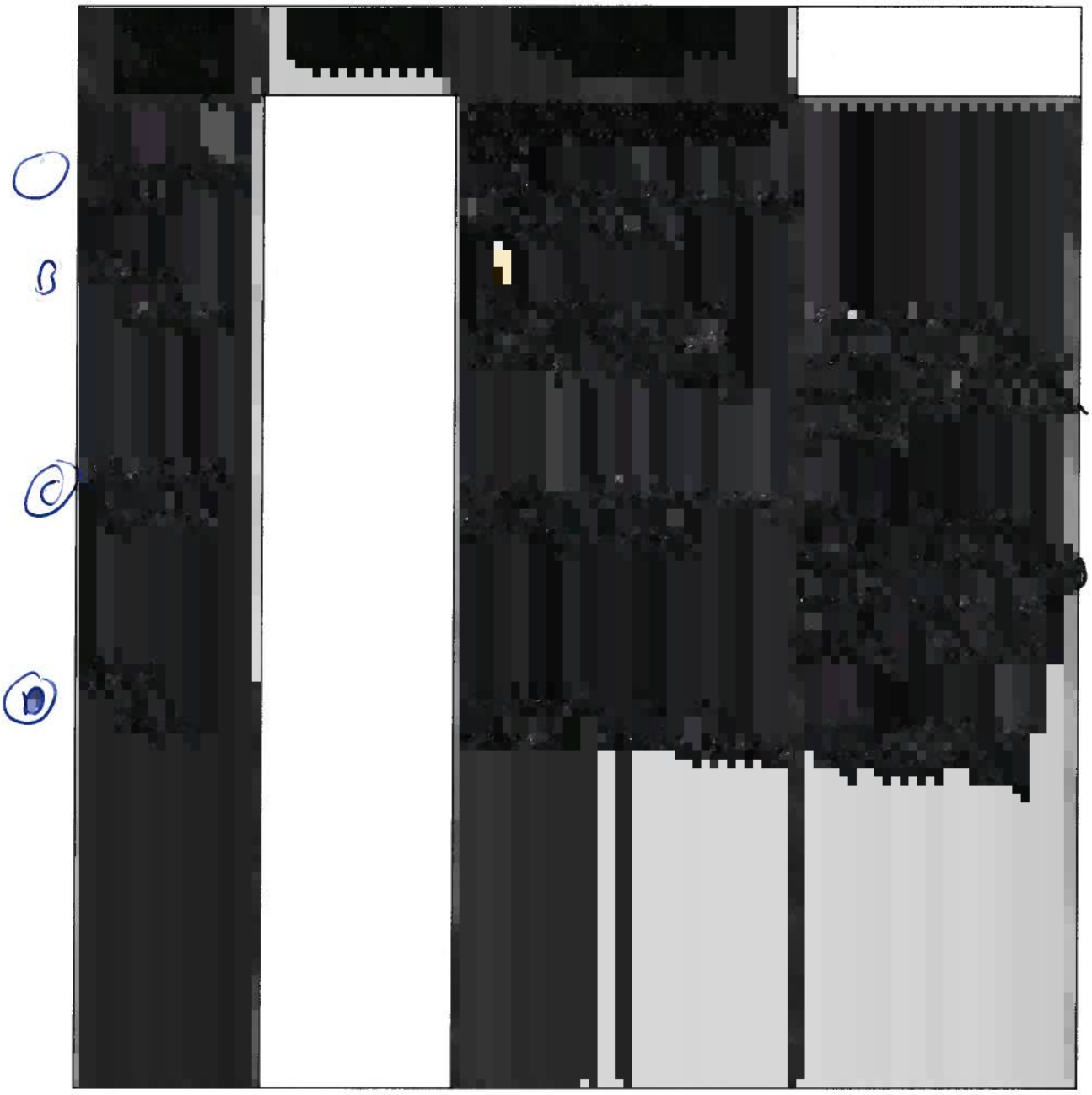


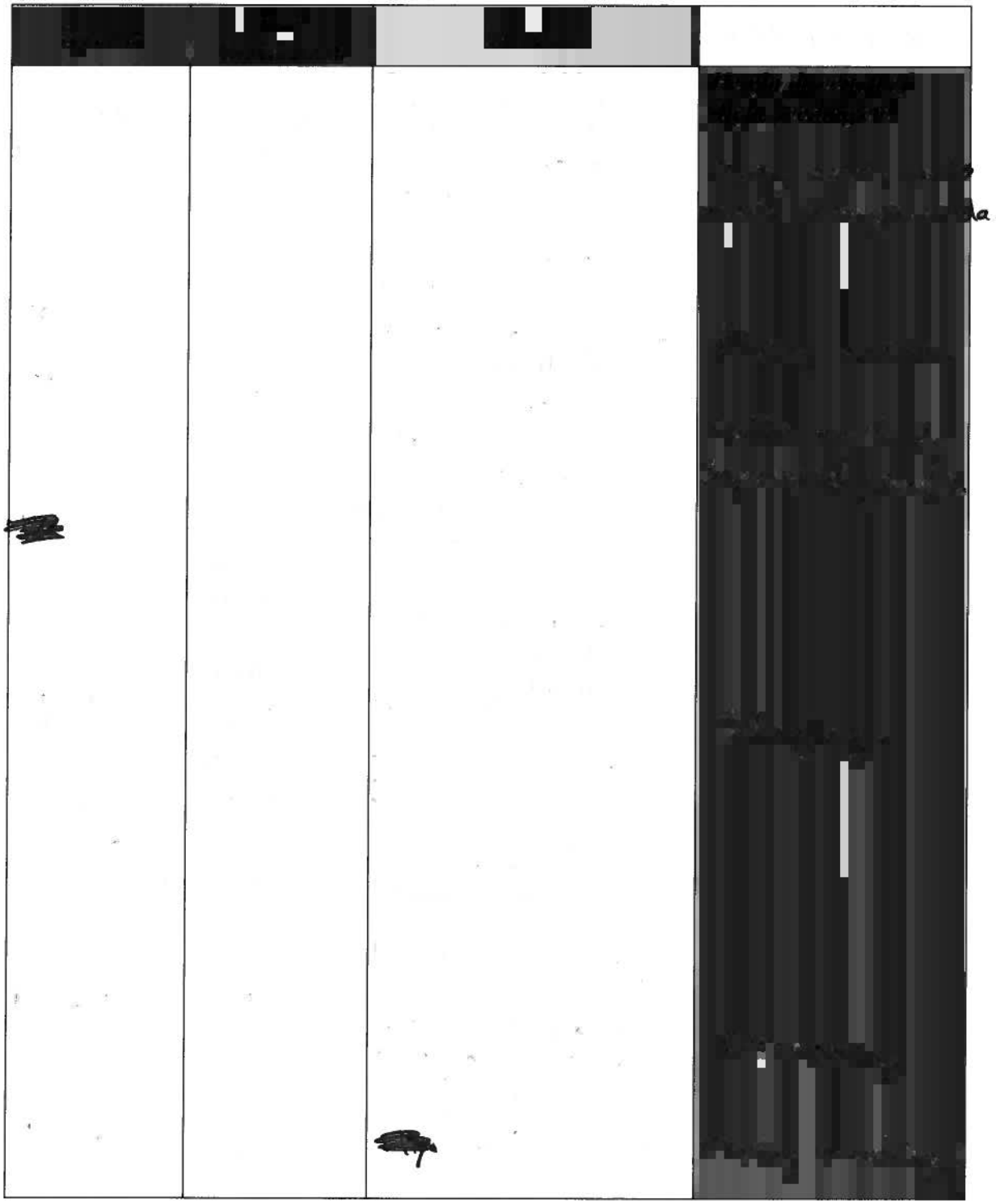
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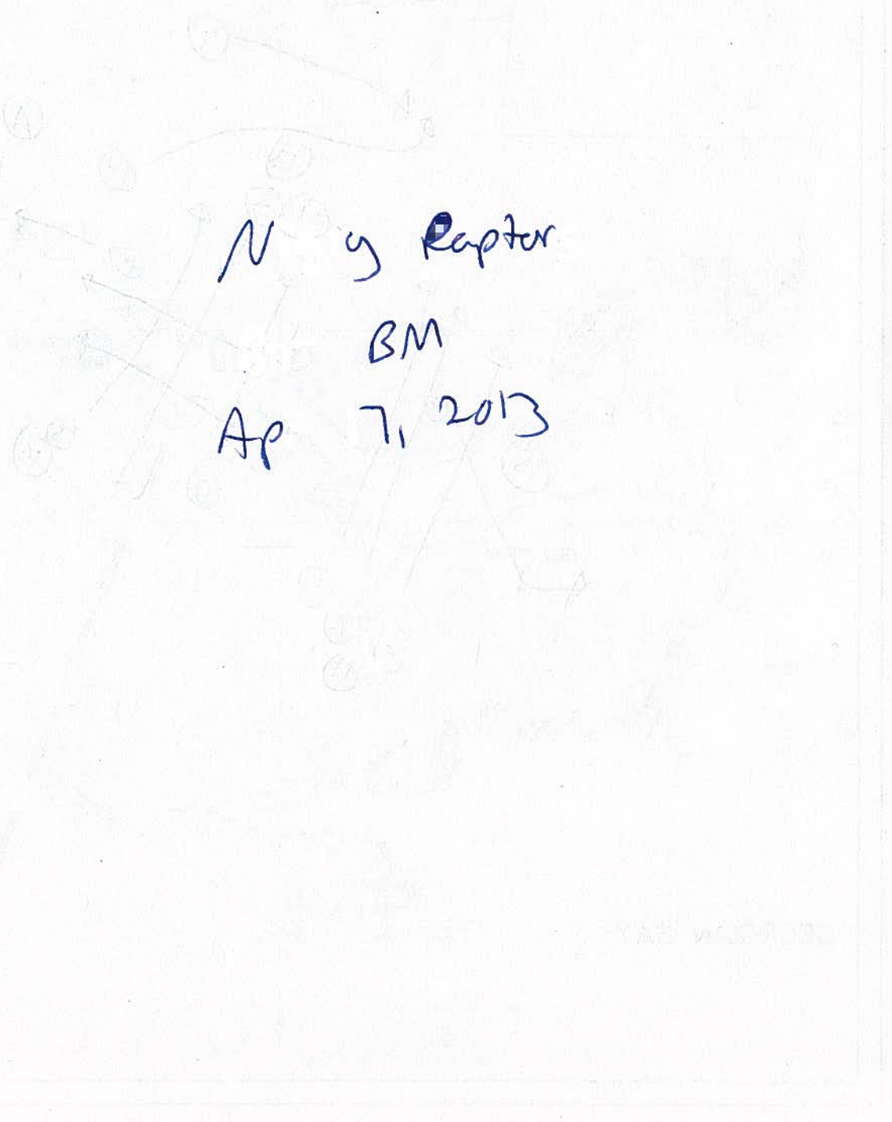
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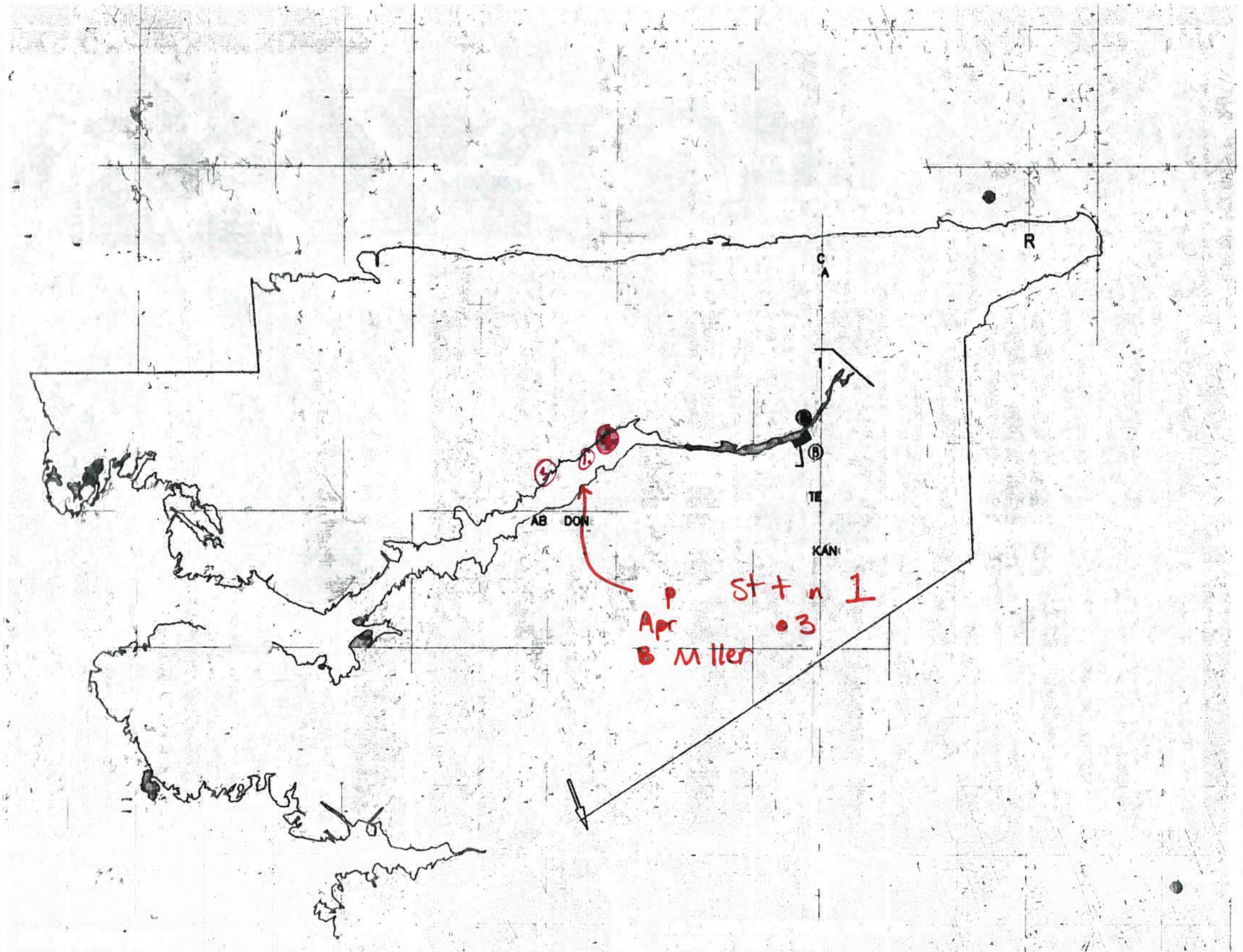
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Mixed Woodland. It ea[illegible] ta[illegible] Notes fl[illegible] re scattered and poo[illegible] No map ng

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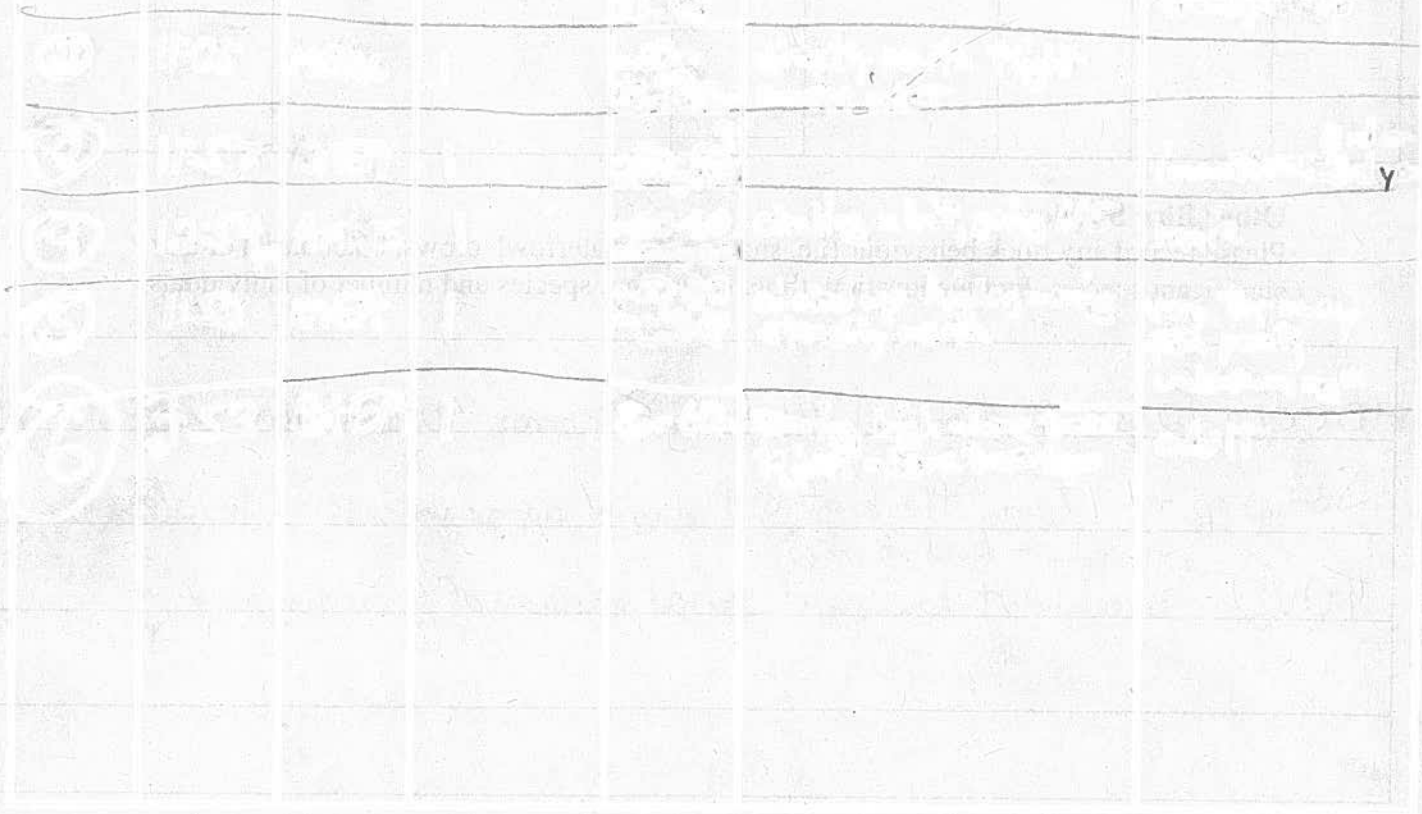
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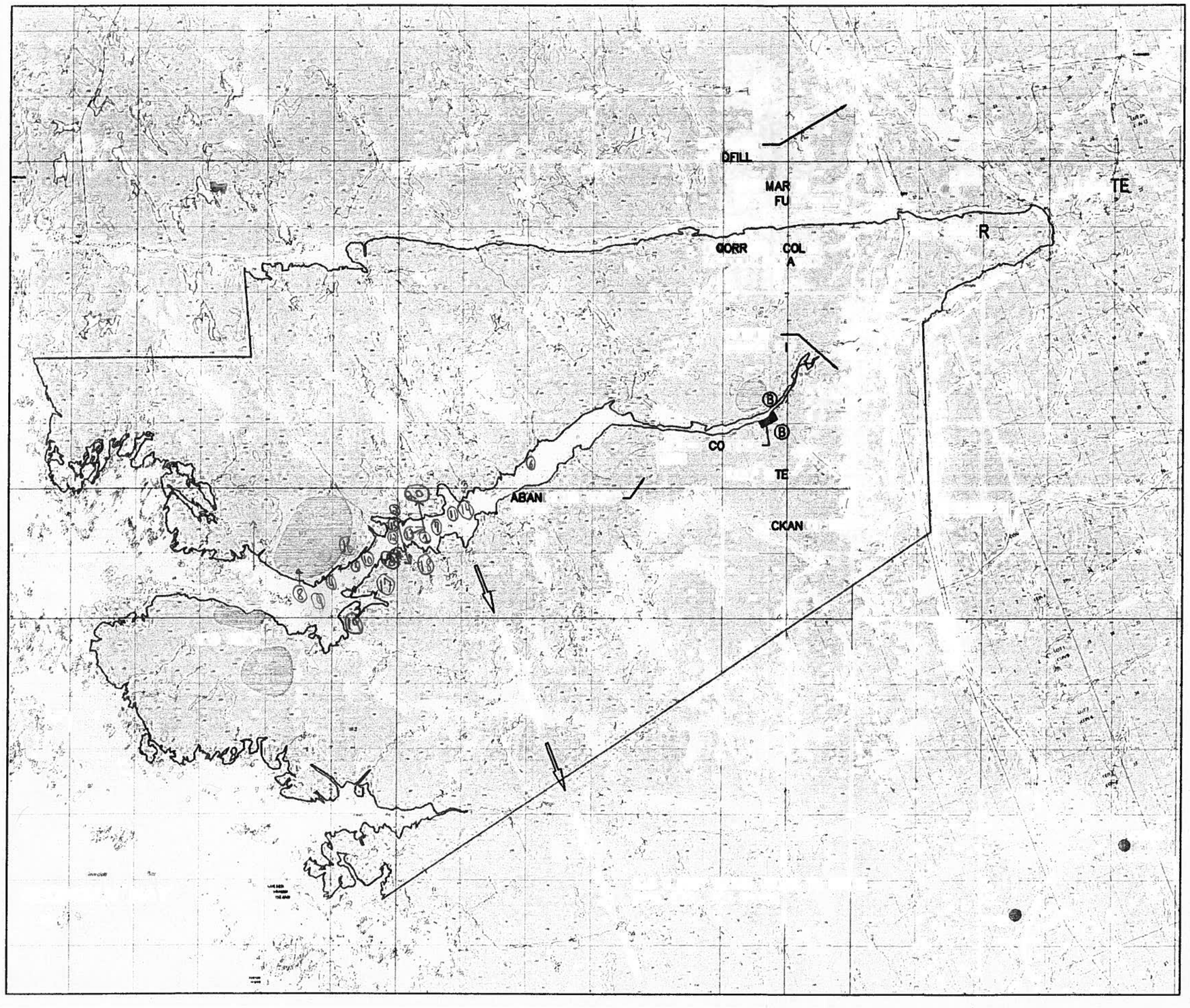
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		least South	a crs	None	
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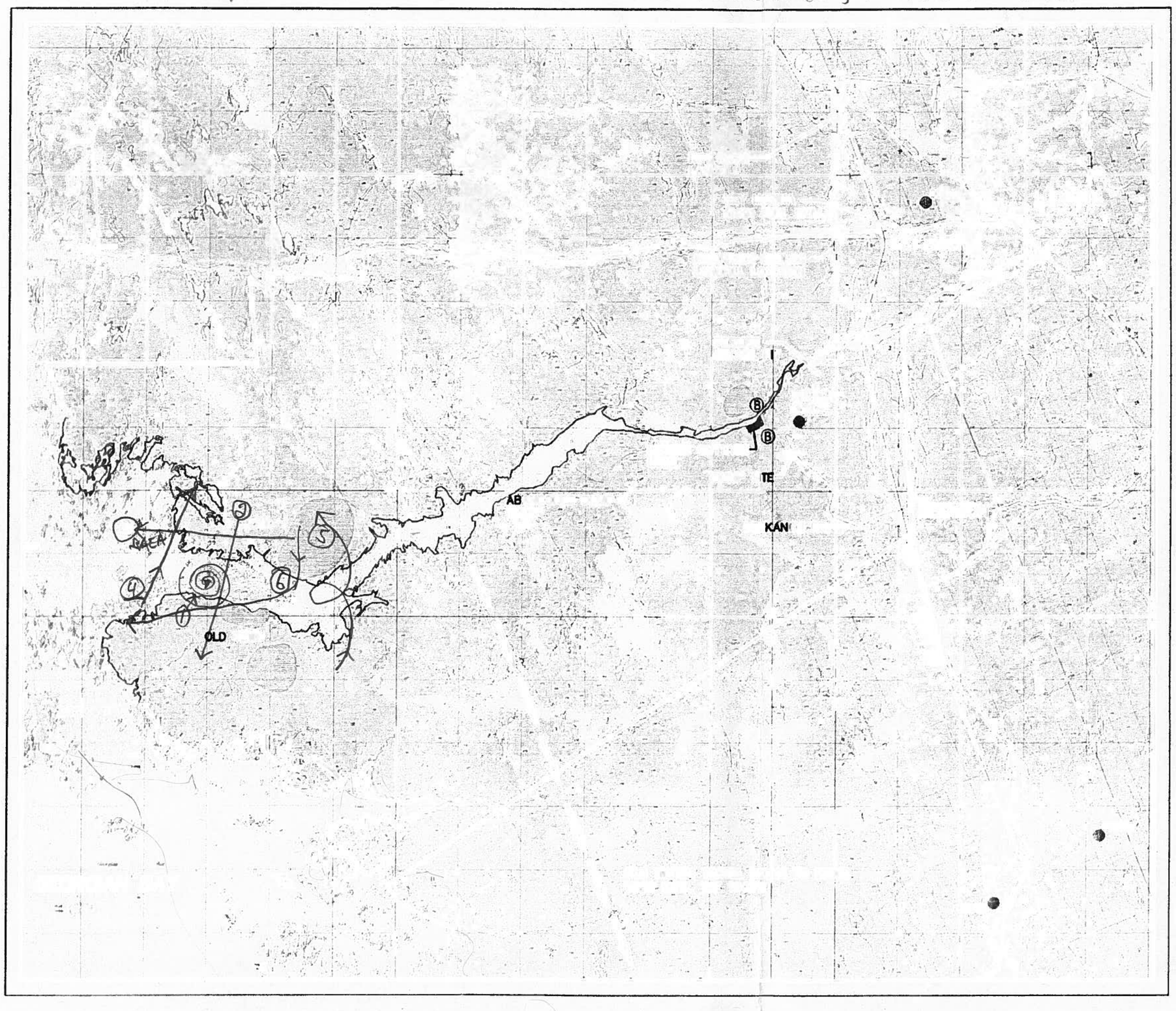
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	. 5	T			flying North.	
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Wed May 1 2013 Hawk watch pt 3 - Sarah Richer, 10:10am → 4:10am



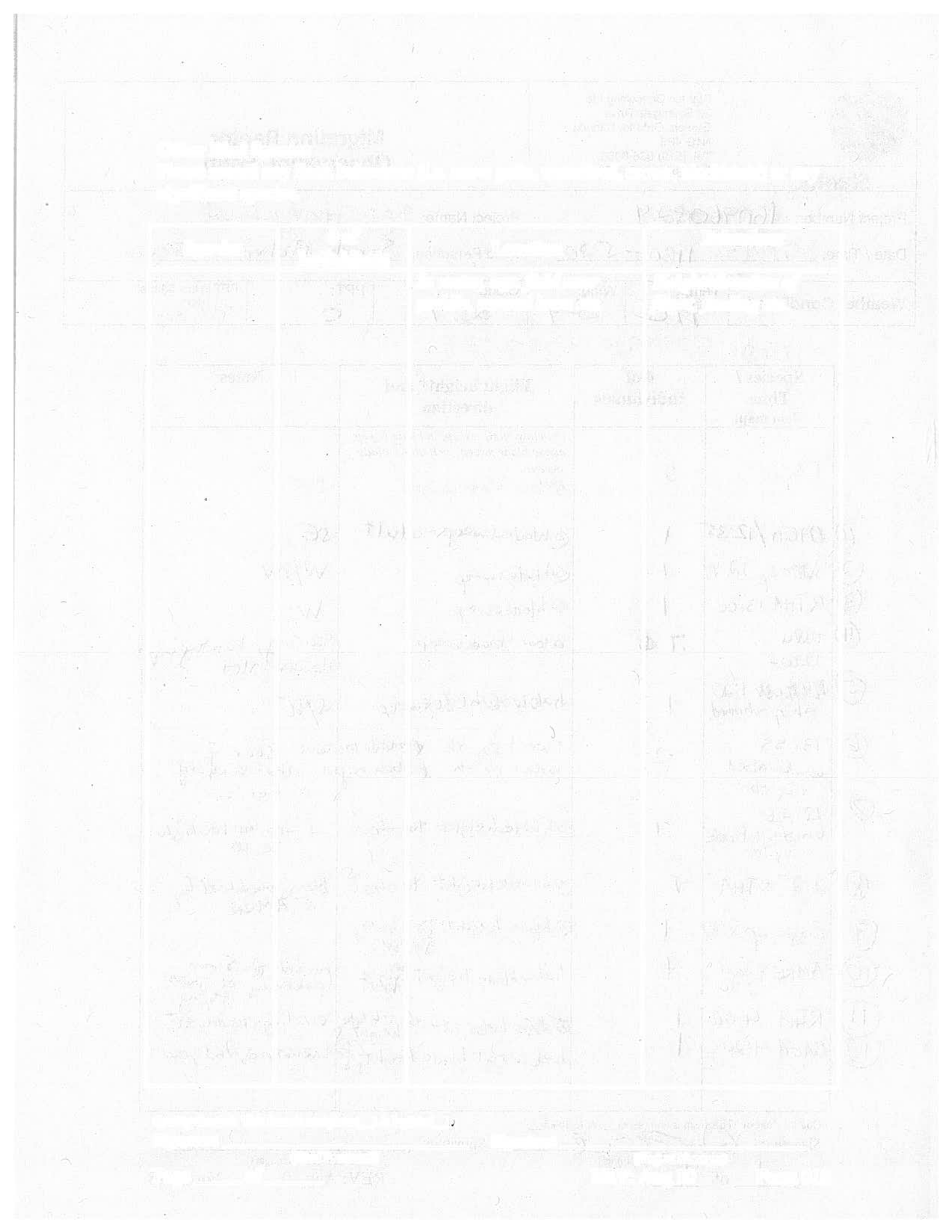
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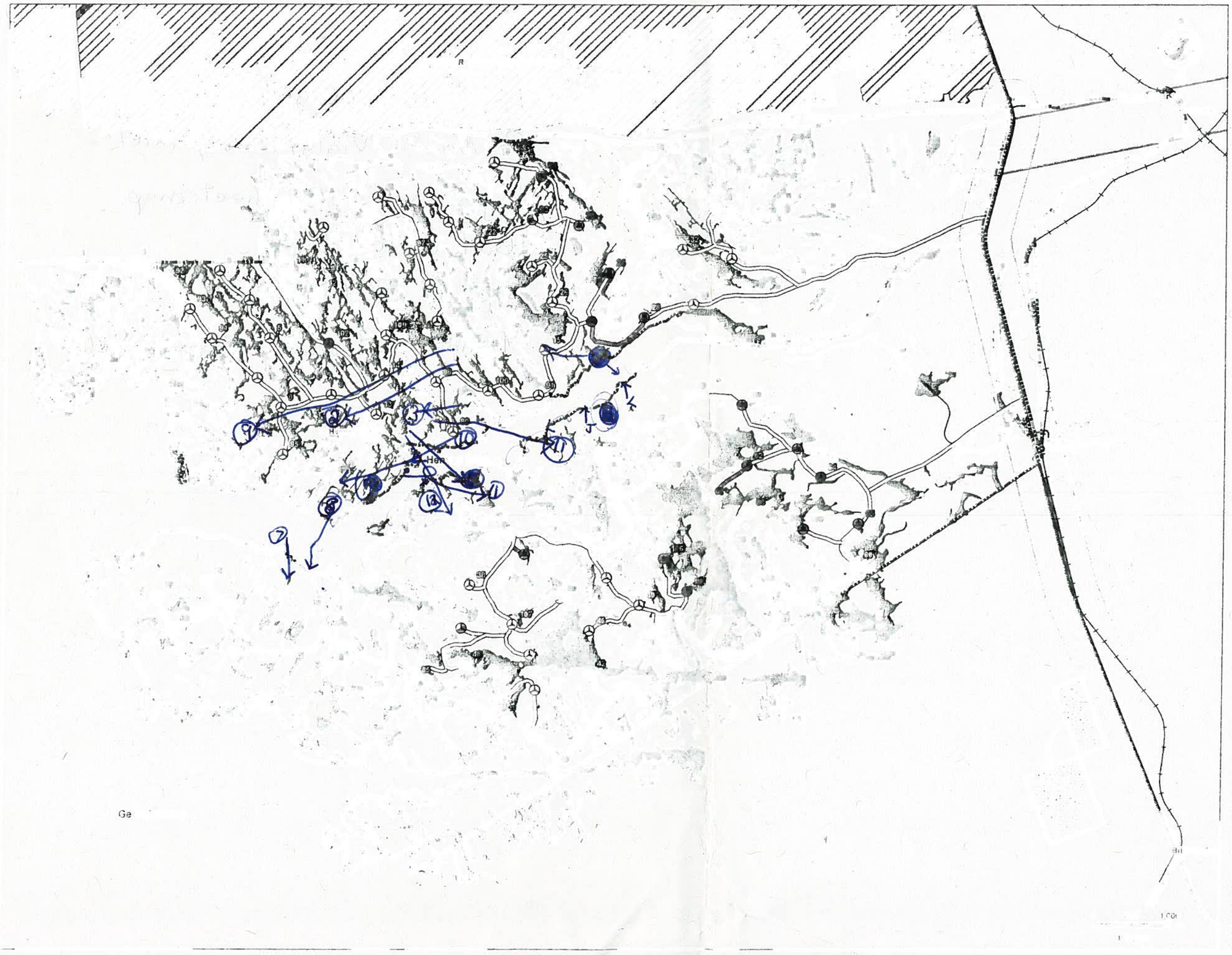
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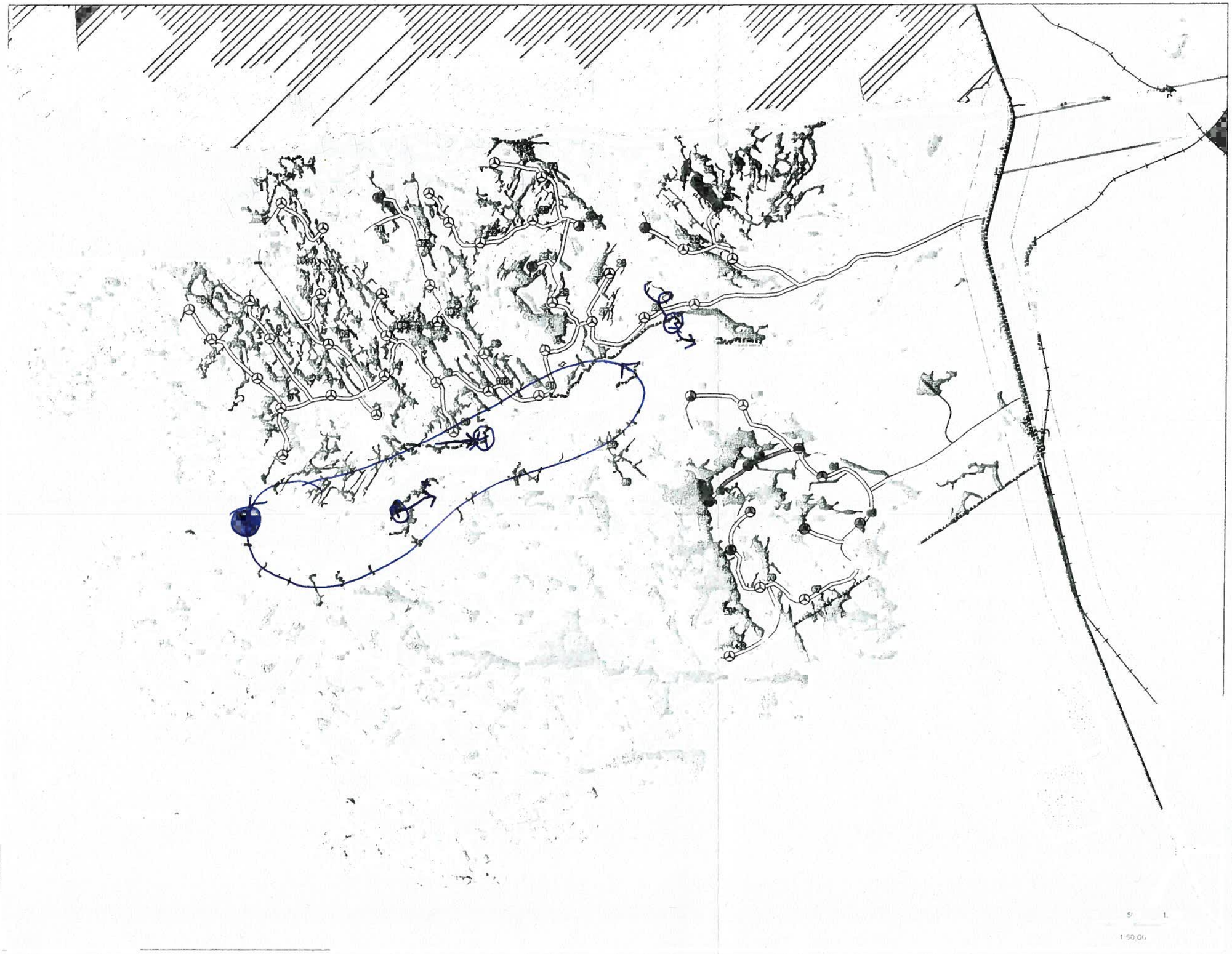
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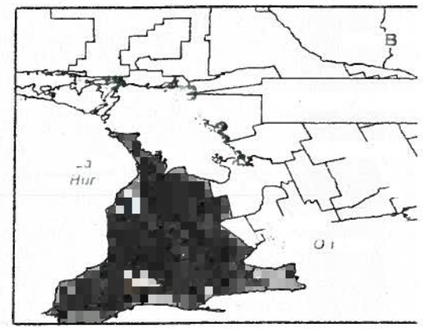
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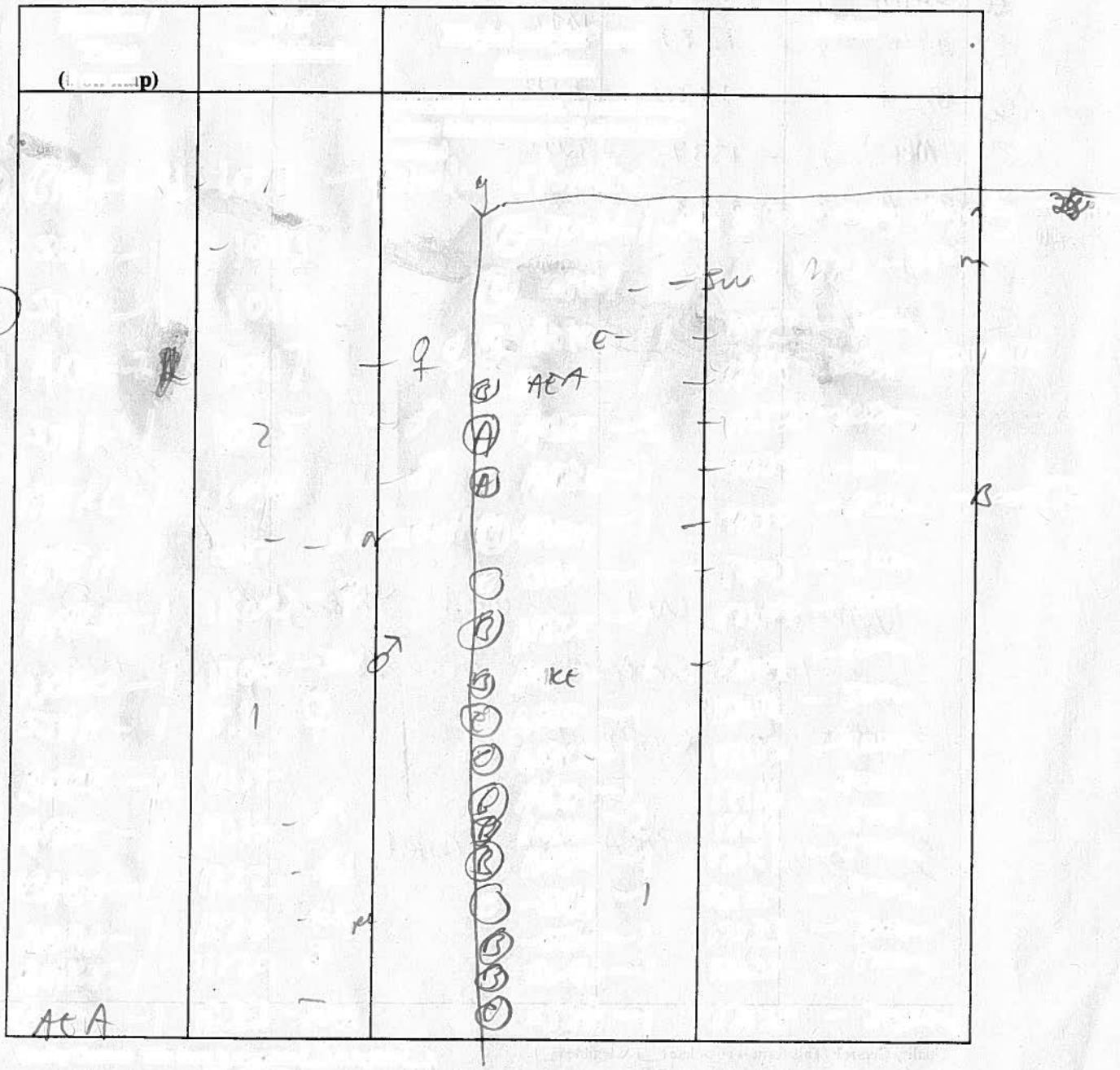
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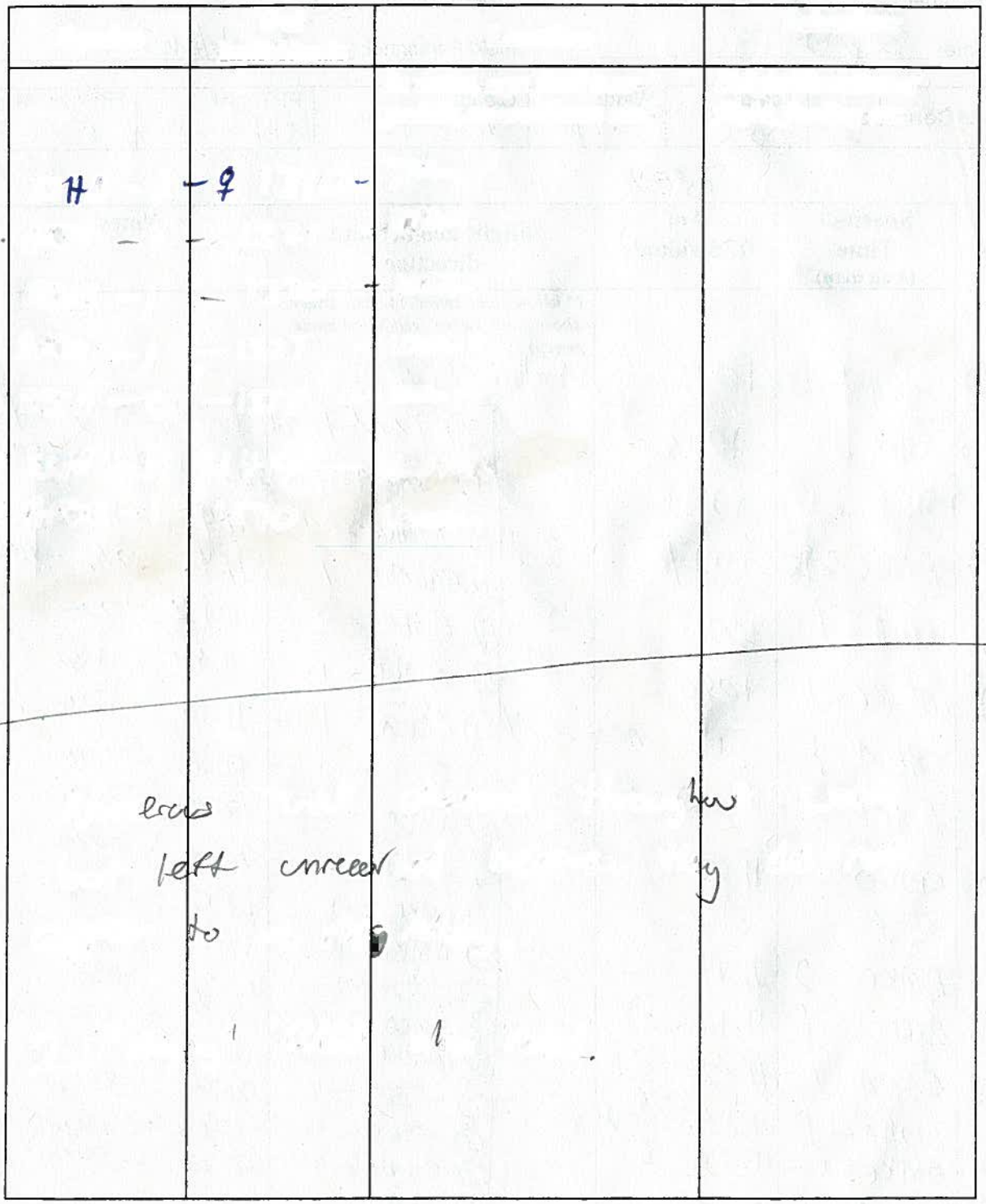




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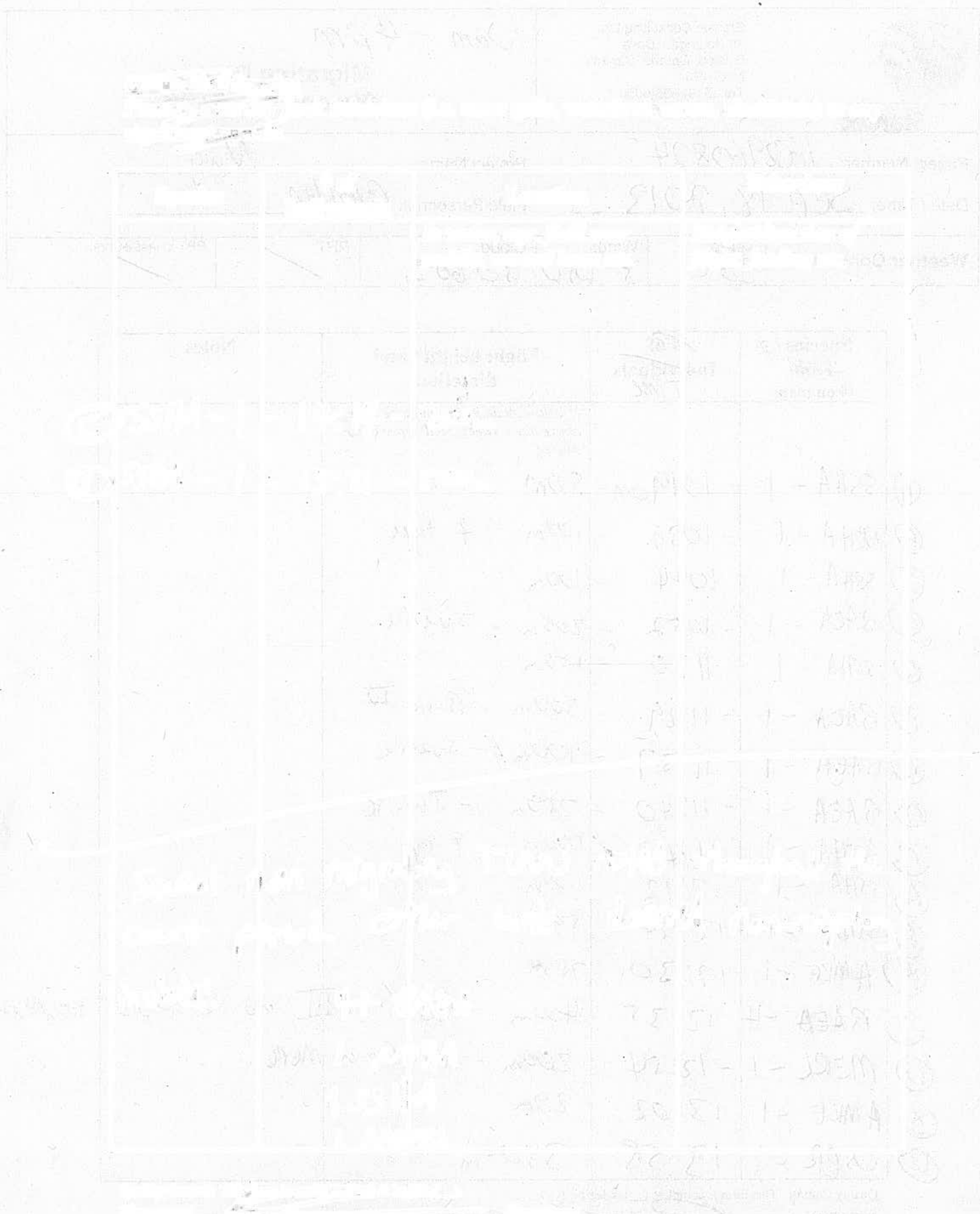
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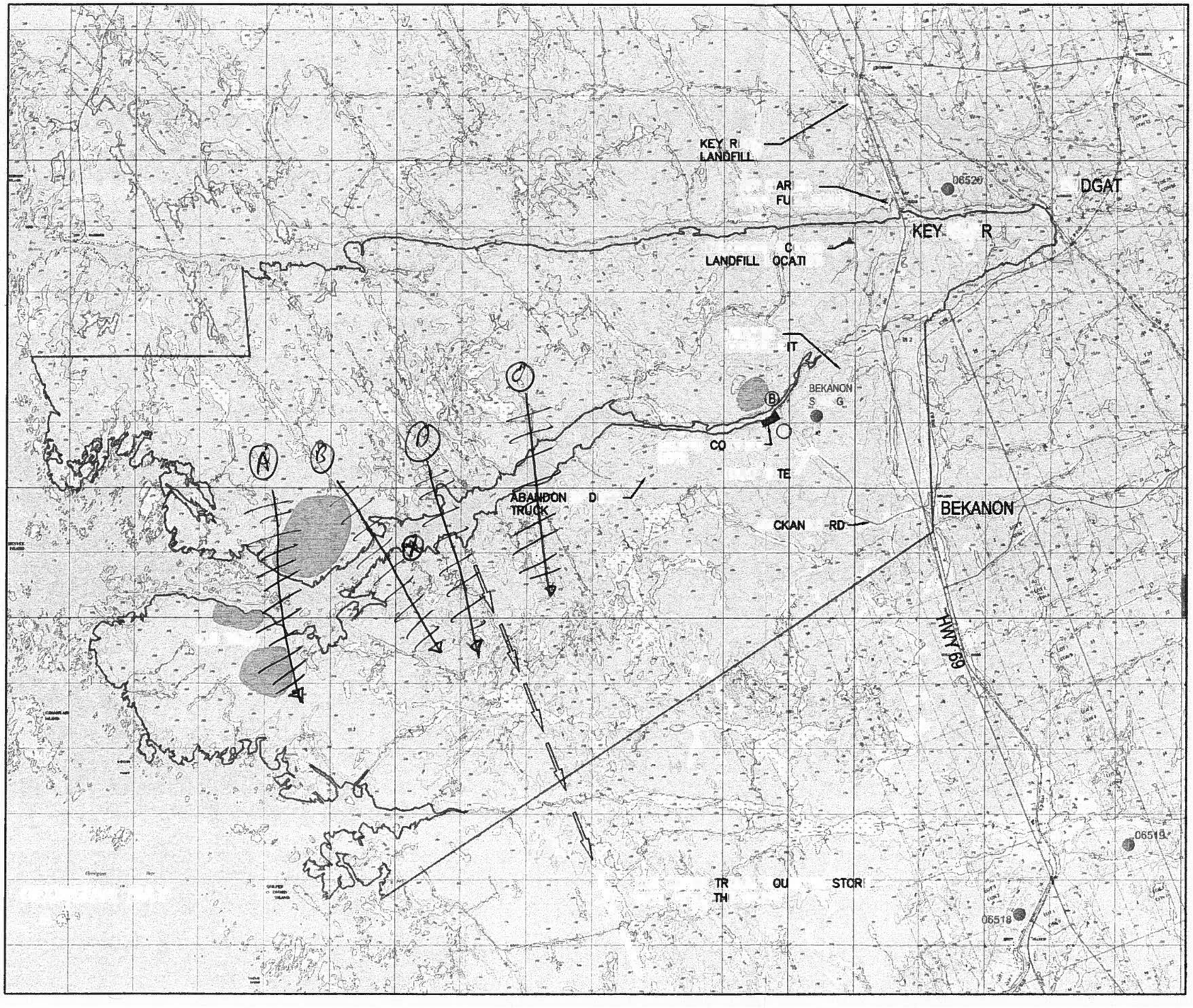
Report

B. Hayden

Sept 12, 2013

Tattoo





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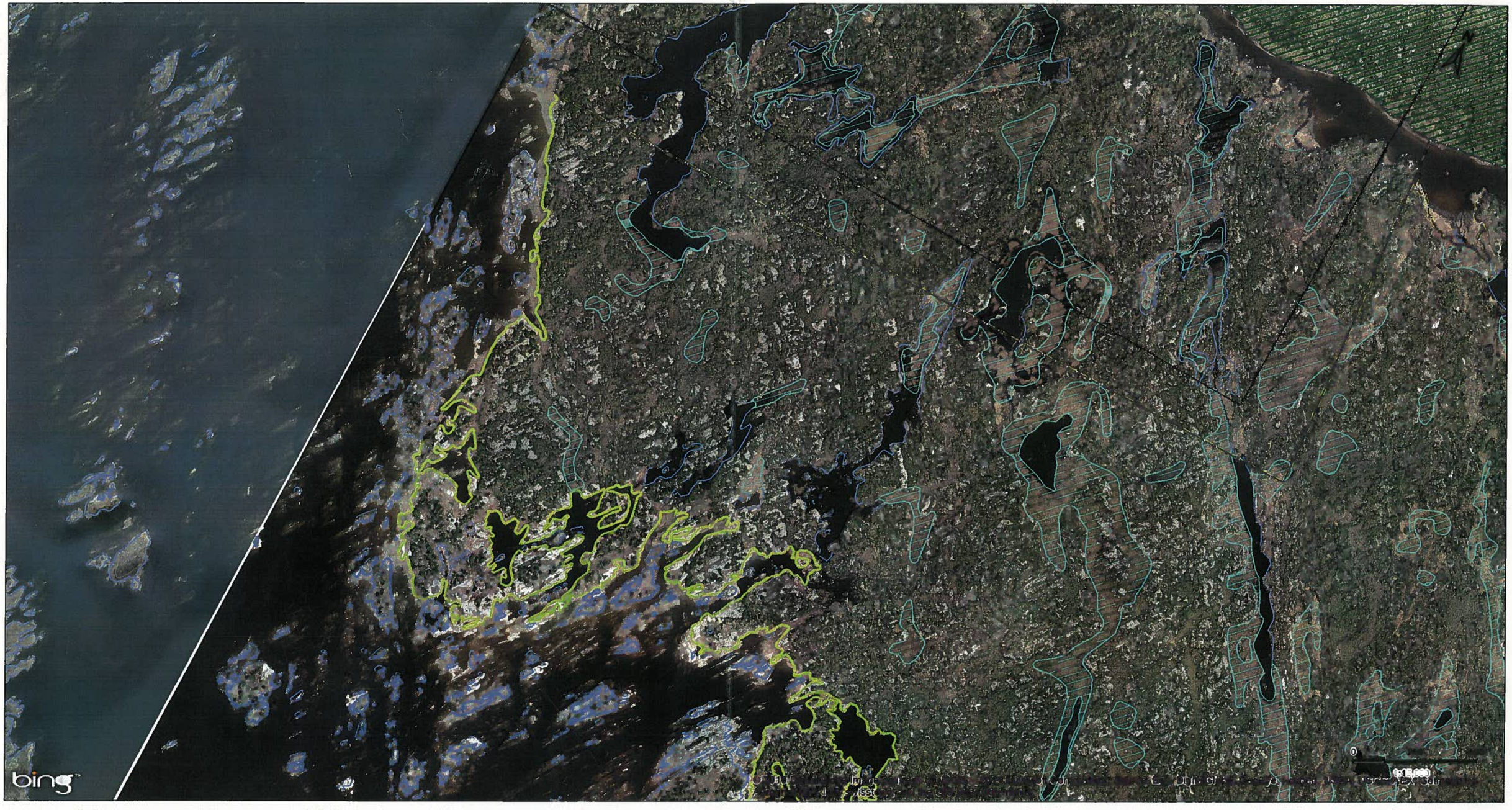
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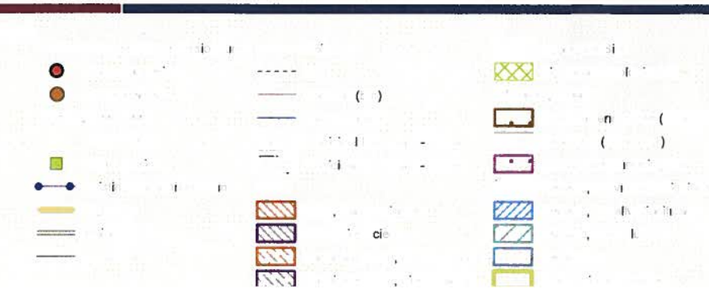
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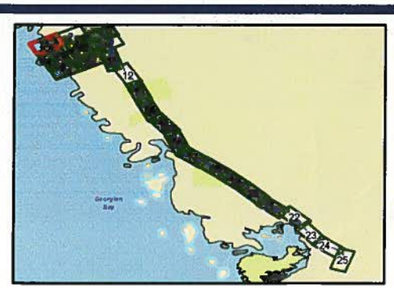
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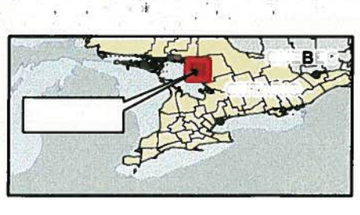
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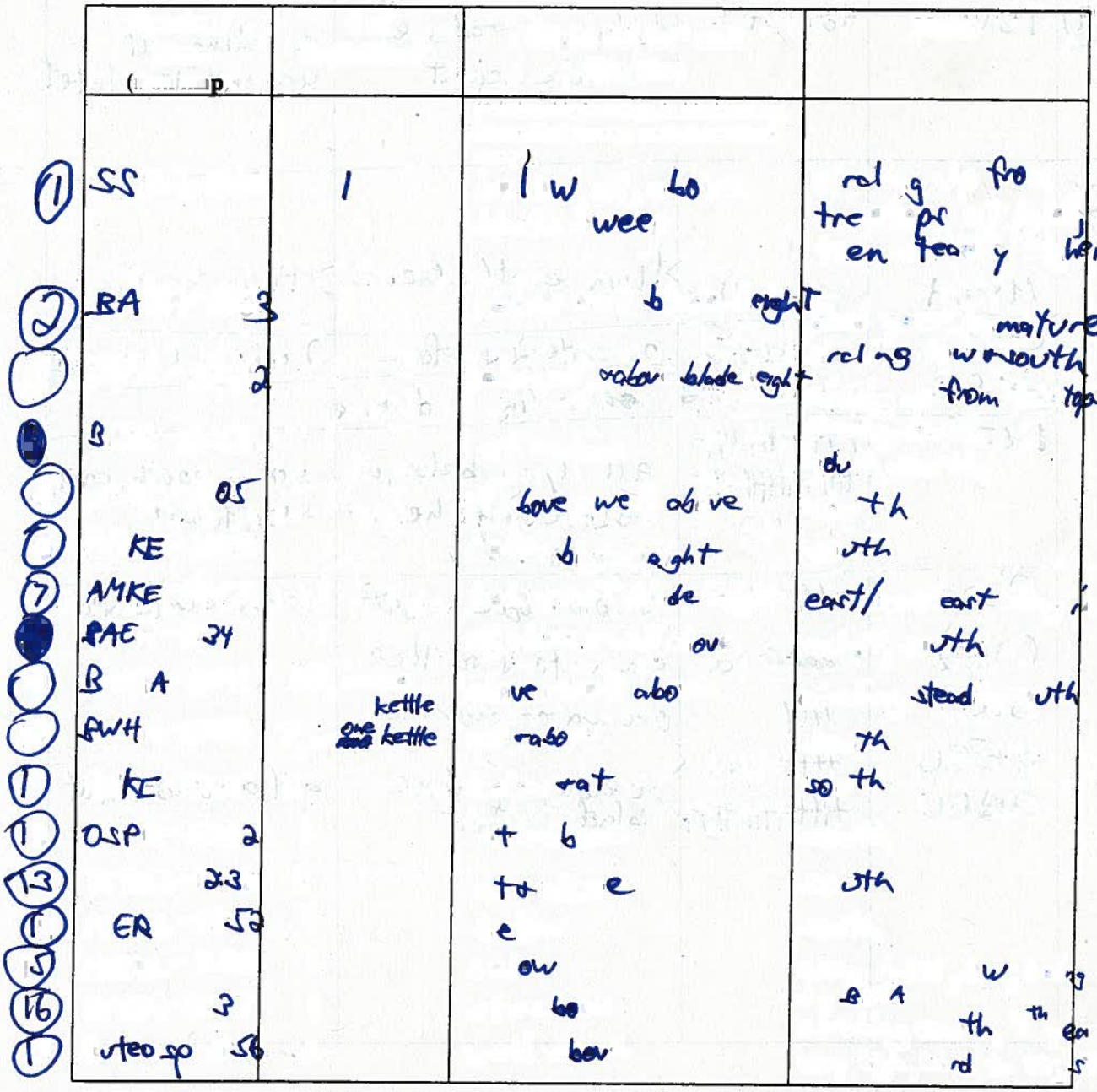
Nugig/Henvey Inlet

Sept. 23 2018

Start 9:50 end 4:00pm

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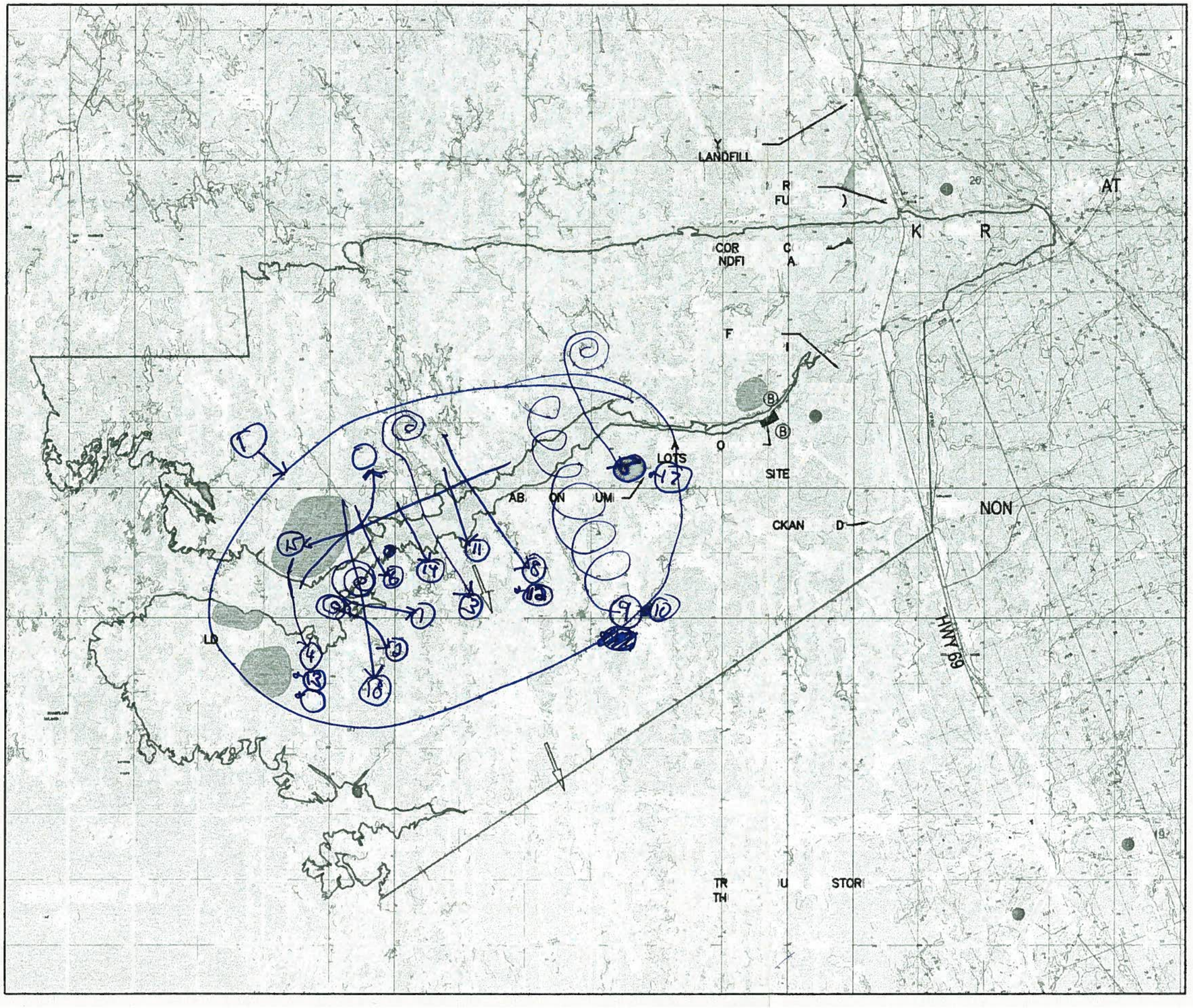
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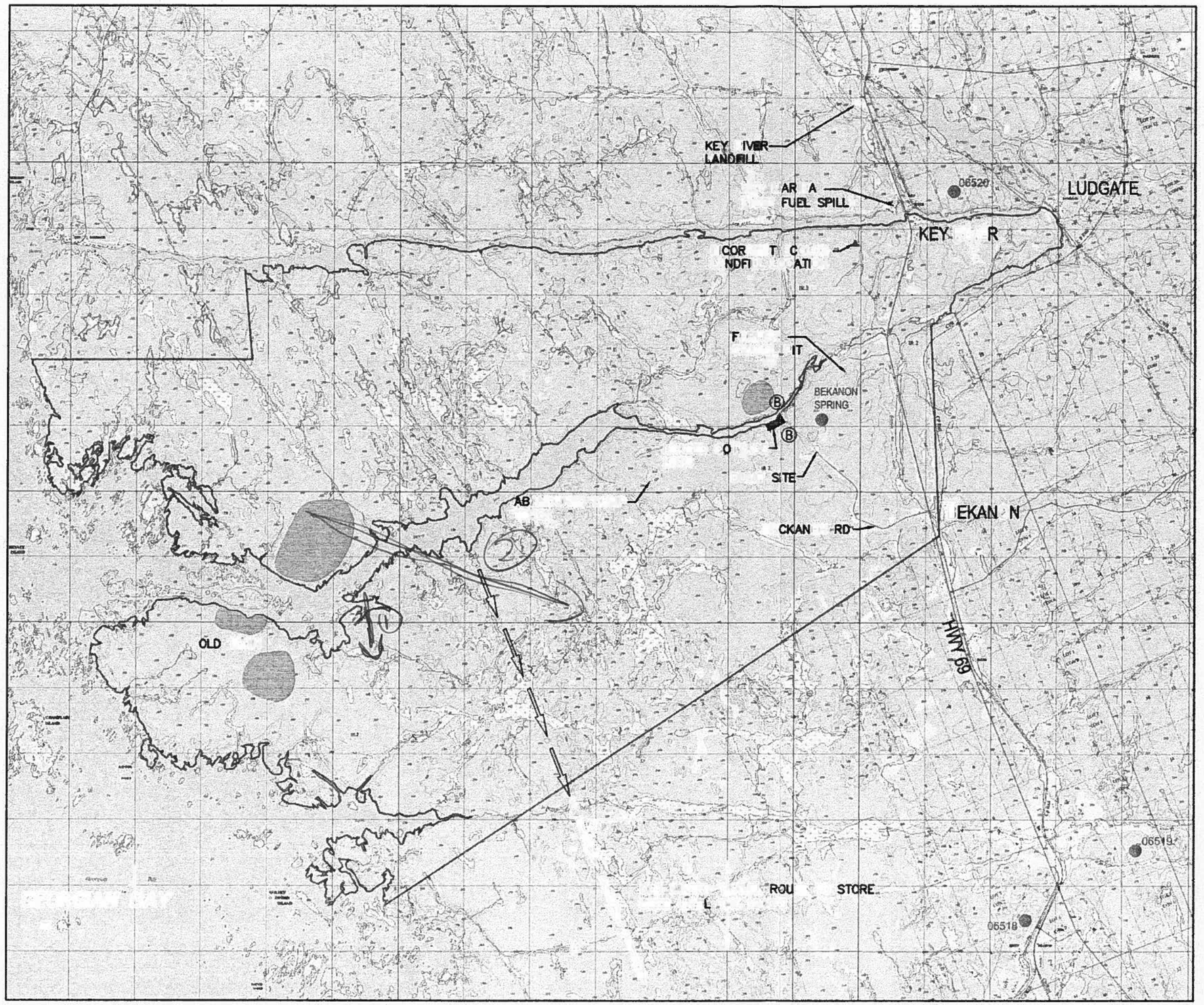
~~Other Bird Species~~

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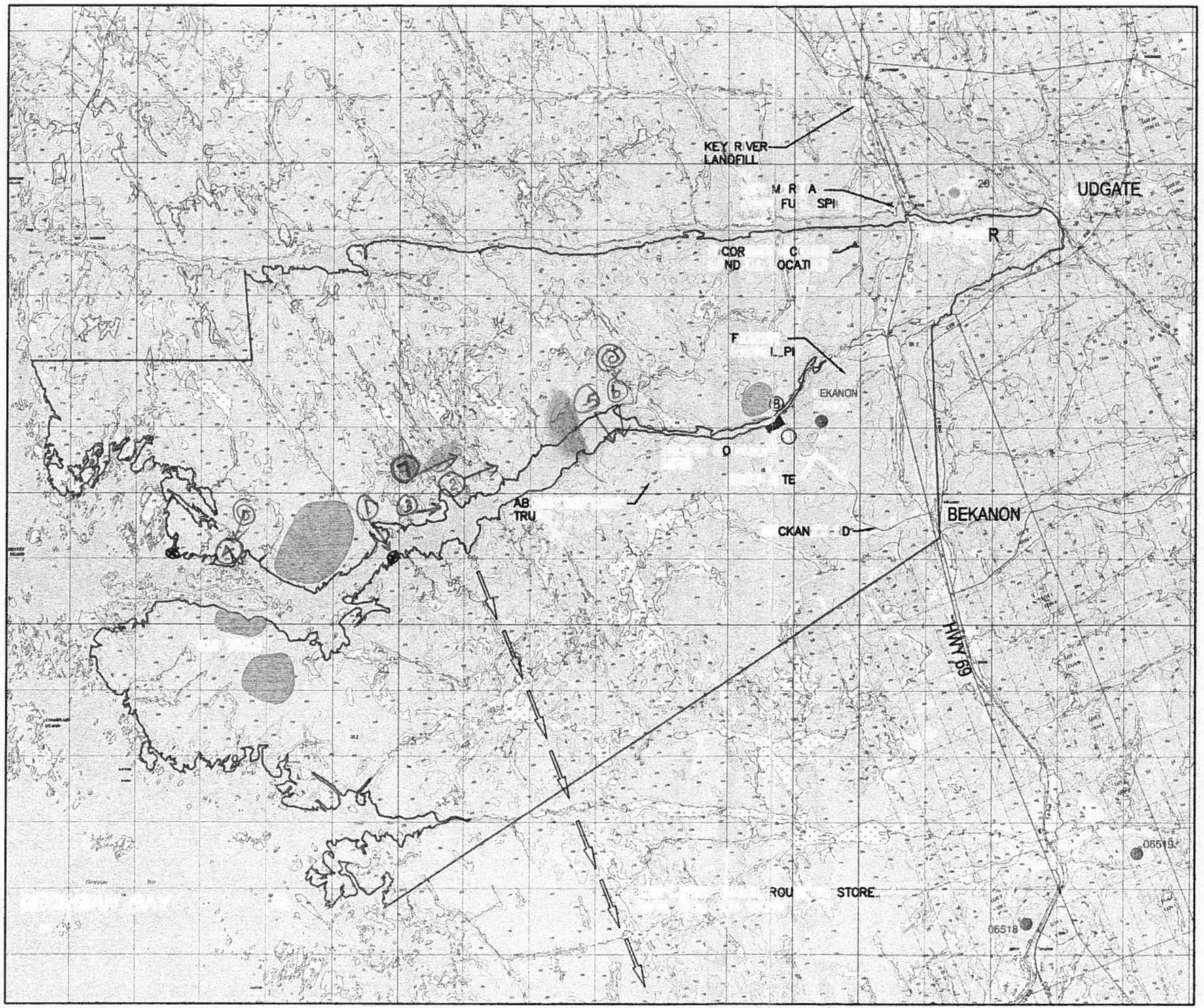
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C. atersa

none none
to SW @ 2:25 PM B-1/2

	(p			
(1)	ACCIPITER SP (10:00)	1	below blade ~~height~~ sweep	flying over STN just as we arrived.
(2)	TUVU (11:40)	1	at and above blade sweep.	
(3)	AMKE (11:54)	1	@ in blade sweep and below.	perched on snag then flying.
(4)	unknown Raptors (11:25)	2	well above blade height/sweep.	very high + far to SW - 'riding' thermals + drifting south
(5)	unknown raptor (12:24)	1	at blade height/ blade sweep	very far away
(6)	14:08 unknown Raptor	1	~~at~~ above blade height/ sweep	V. far, v. high and circling to the SE.
(7)	14:46 AMKE	1	above blade sweep	

	| HHT IIII	South side inlet across from station → fly over
	|	
B.	II	south side inlet behind ~~Stn.~~ trees
	|	behind (SE of STN) trees
	(	" (call in trees)
CARO	HHT III	fly over STN. @ ~ 30 ft height
	III (~3)	flying SE high overhead — Didn't see them - only calls.
N	|	SW of STN inland - calling. from trees.

OCT 11/13 . .


KEY RIVER
LANDFILL
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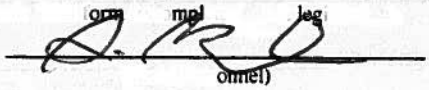
TV 10.00 am 12.00 pm

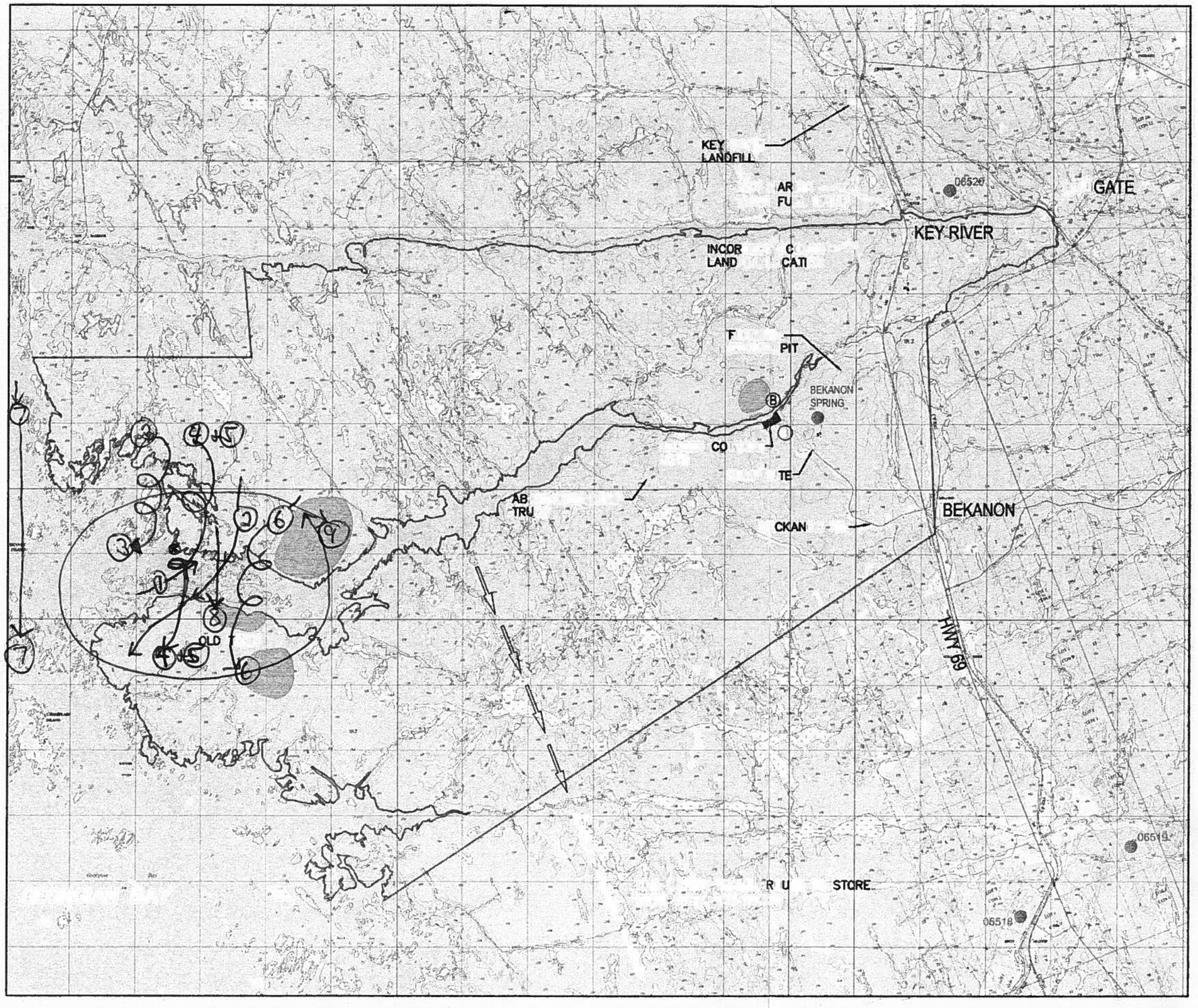
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FIGURE 3

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NIGIG POWER CORP/HENVEY INLET PROJECT
PRELIMINARY ENVIRONMENTAL CONSTRAINTS ANALYSIS

REGIONAL PLAN

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BEKANON SPRING
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DUMP SITE
ABANDONED DUMP TRUCK
BECKANON RD.
BEKANON
HWY 69
OLD TOWN
GEORGIAN BAY
OLD WINTER TRAVEL ROUTE TO STORE USED UNTIL THE 1940'S

Legend

- APPROXIMATE HENVEY INLET INDIAN RESERVE NO. 2 BOUNDARY
- 06520 — ABANDONED MINE INFORMATION SYSTEM RECORD NUMBER. *(Data for AMIS record locations obtained from The Ministry of Northern Development Mines.)*
- THE POINT — WATER TESTING LOCATIONS
- FORMER AREAS OF SETTLEMENT
- Ⓑ — BURIAL GROUND

Map Source:
Background 1:10,000 Ontario Base Mapping obtained from First Base Solutions Inc.

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September 2011
Project Number: FEA020521

Projection: UTM Zone 17
Datum: NAD83

Prepared by: Z. Nevar
Verified by: Z. Nevar

NEEGAN BURNSIDE

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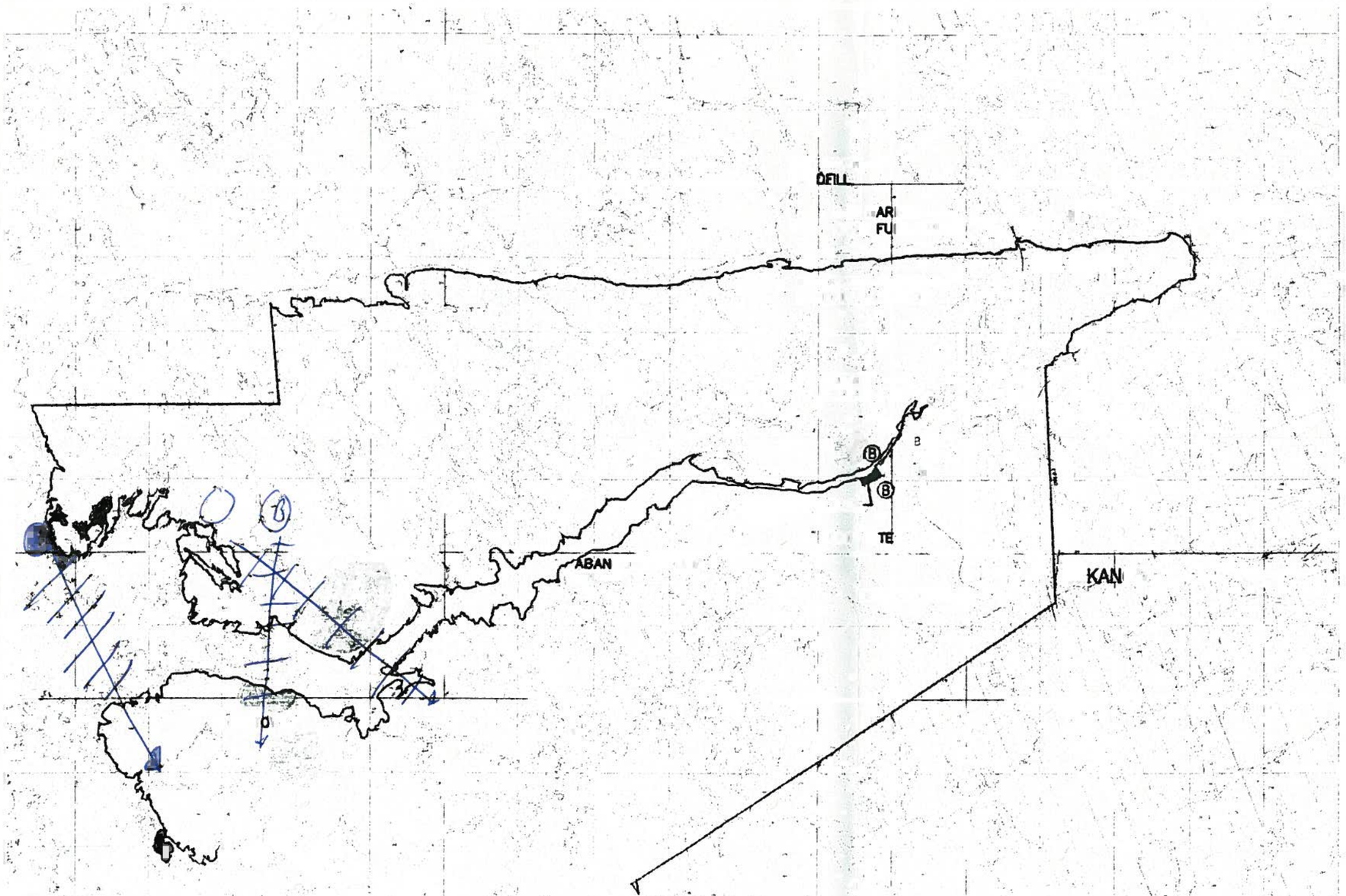
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Fa Raptors

Stantec Consulting Ltd.
70 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Migrating Raptor Observation Form

Project Number: 160960824 Project Name: Nisig / Henvey Inlet

Date / Time: Oct 24th 2013 Thurs Field Personnel: S Richer

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	3°C feels like 0	NW 19 km/hr, gusts of 27 km/hr	30	None	snow pellets, melted today

start time 10:20am

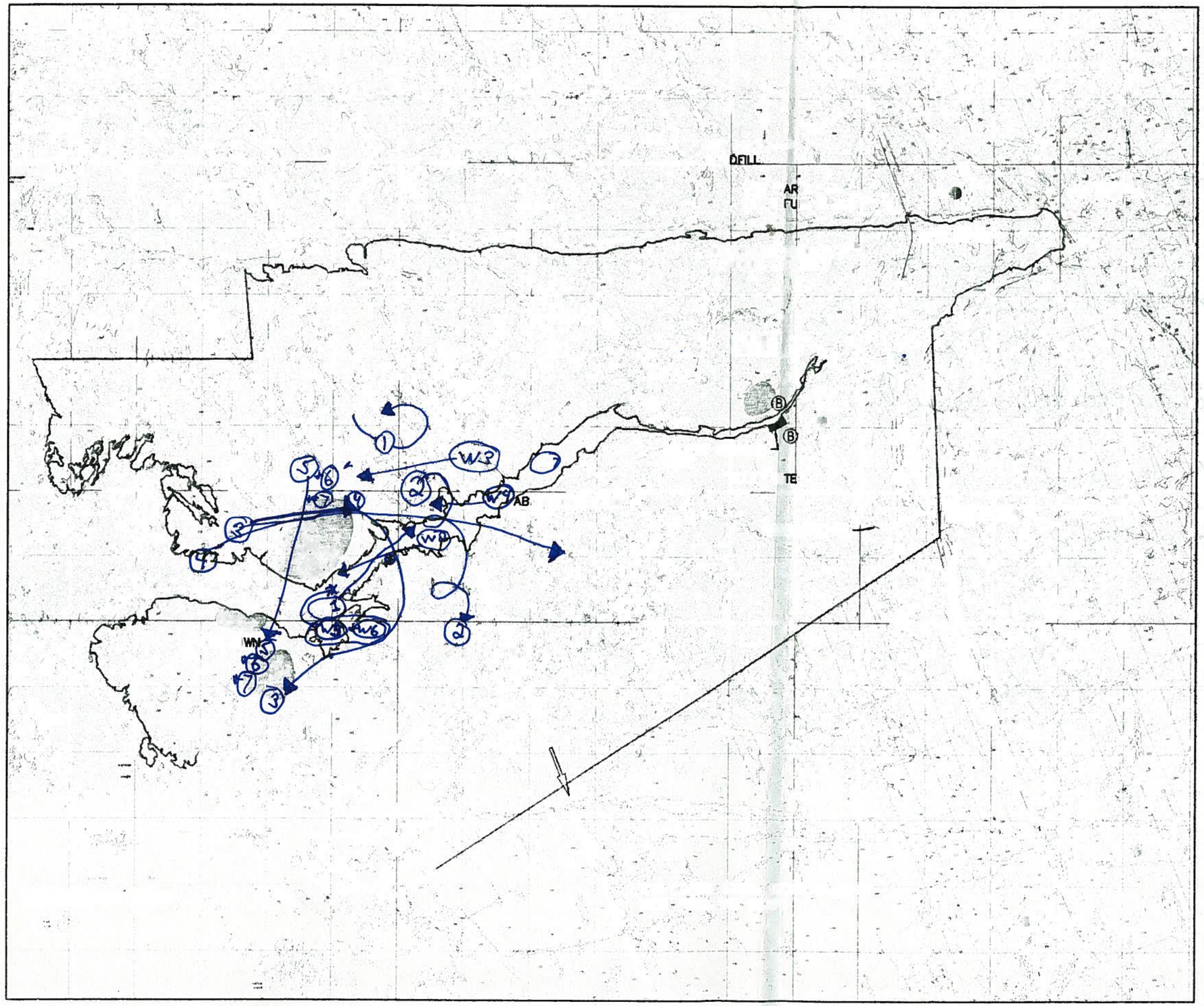
	Species / Time (# on map)	# of Individuals	Flight height* and direction (* below blade sweep, in blade sweep, above blade sweep, well above blade sweep)	Notes
1	10:30am BAEA	1	at + below blade sweep	unknown age; too far to tell
2	1:25pm ~~Accipiter~~ ~~Sp.~~ Sharp-shinned Hawks	3	below, at, + above blade sweep	circled up together, moving south; ~~Harry~~ ~~Sharp-shinned~~ confirmed SSHA
3	1:25 BAEA	1	below + at blade sweep	adult; flew in from west, landed NW of station; @ 2:15 reappeared + flew south
4	1:45 GOEA immature	1	~~below~~ at, + above blade sweep	moved from low spot when 1st obs + climbed higher as it moved east/inland
5	RLHA 2:20	1	at + above blade sweep	+ moving/soaring south
6	RLHA 2:55	1	at + above blade sweep	" " "
7	RLHA 3:01	1	at + above blade sweep	" "

Quality Control: This form is complete (✓) & legible (✓).

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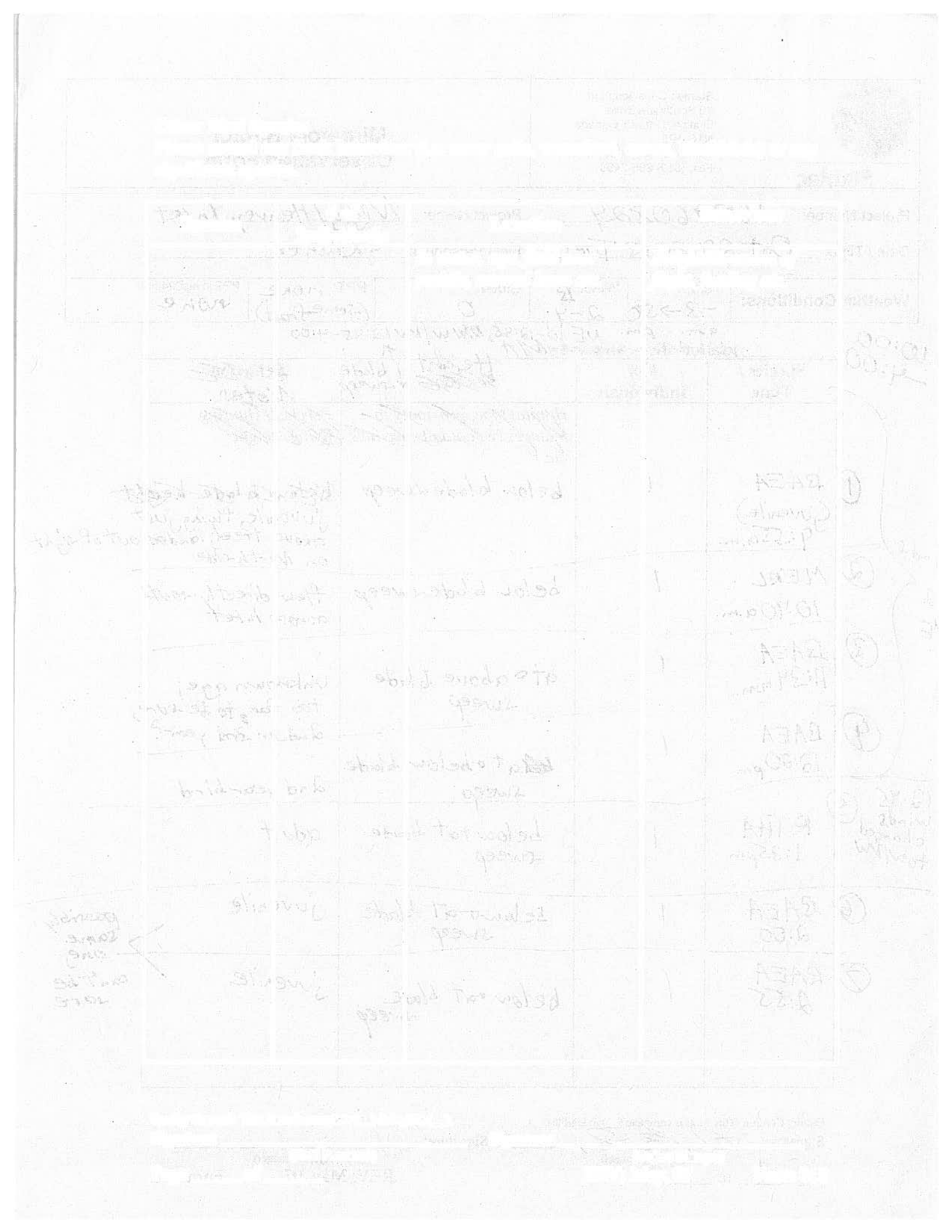
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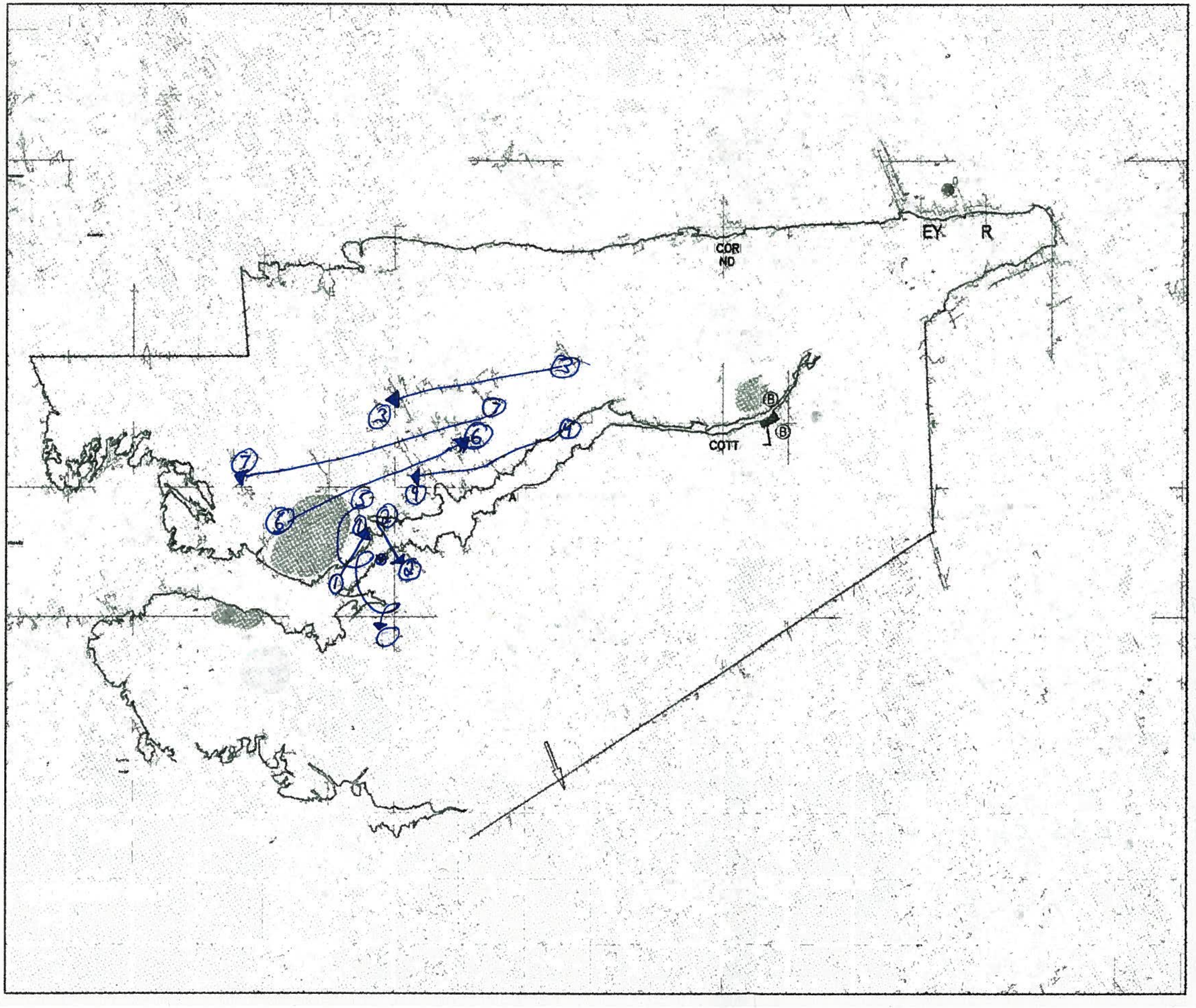
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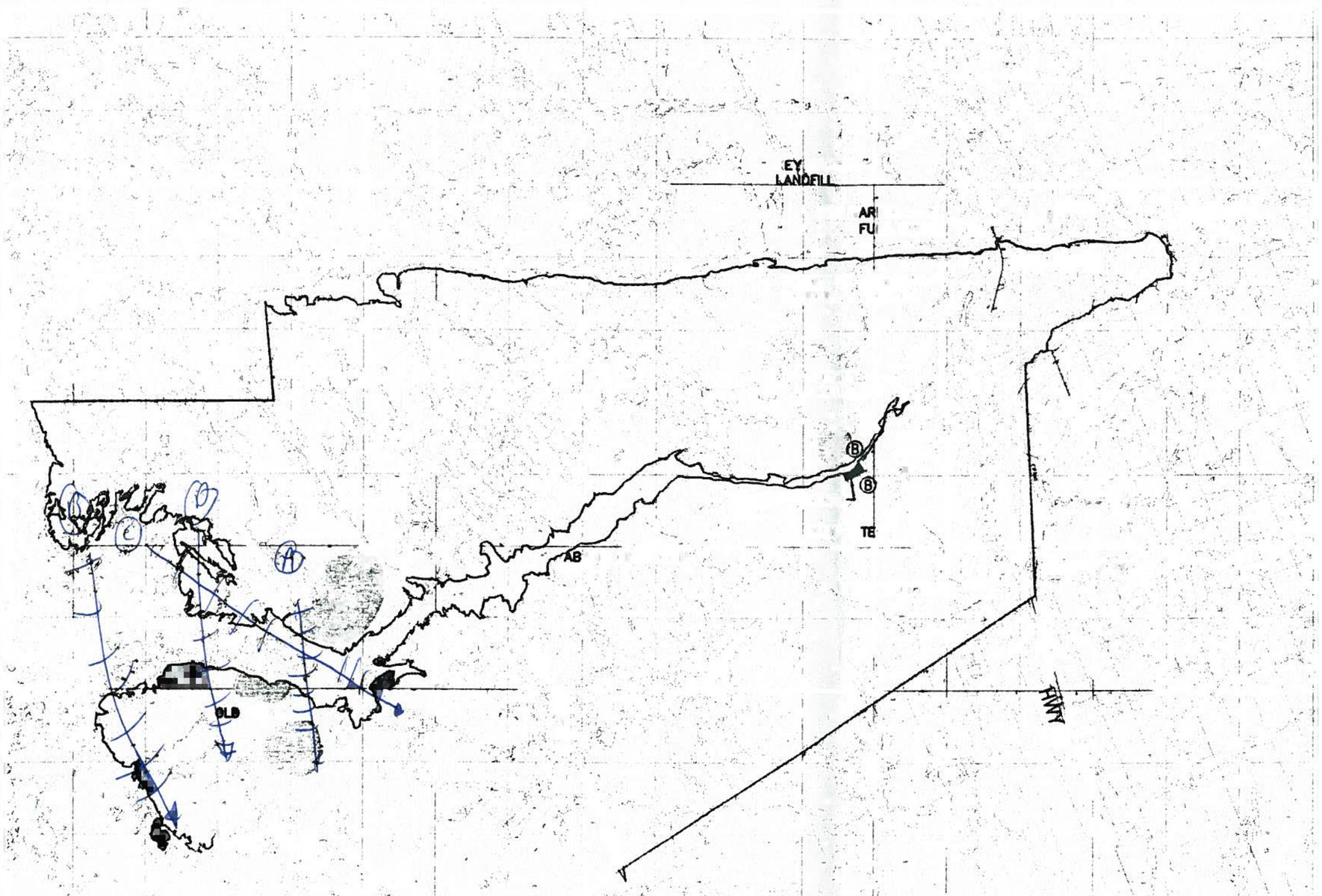
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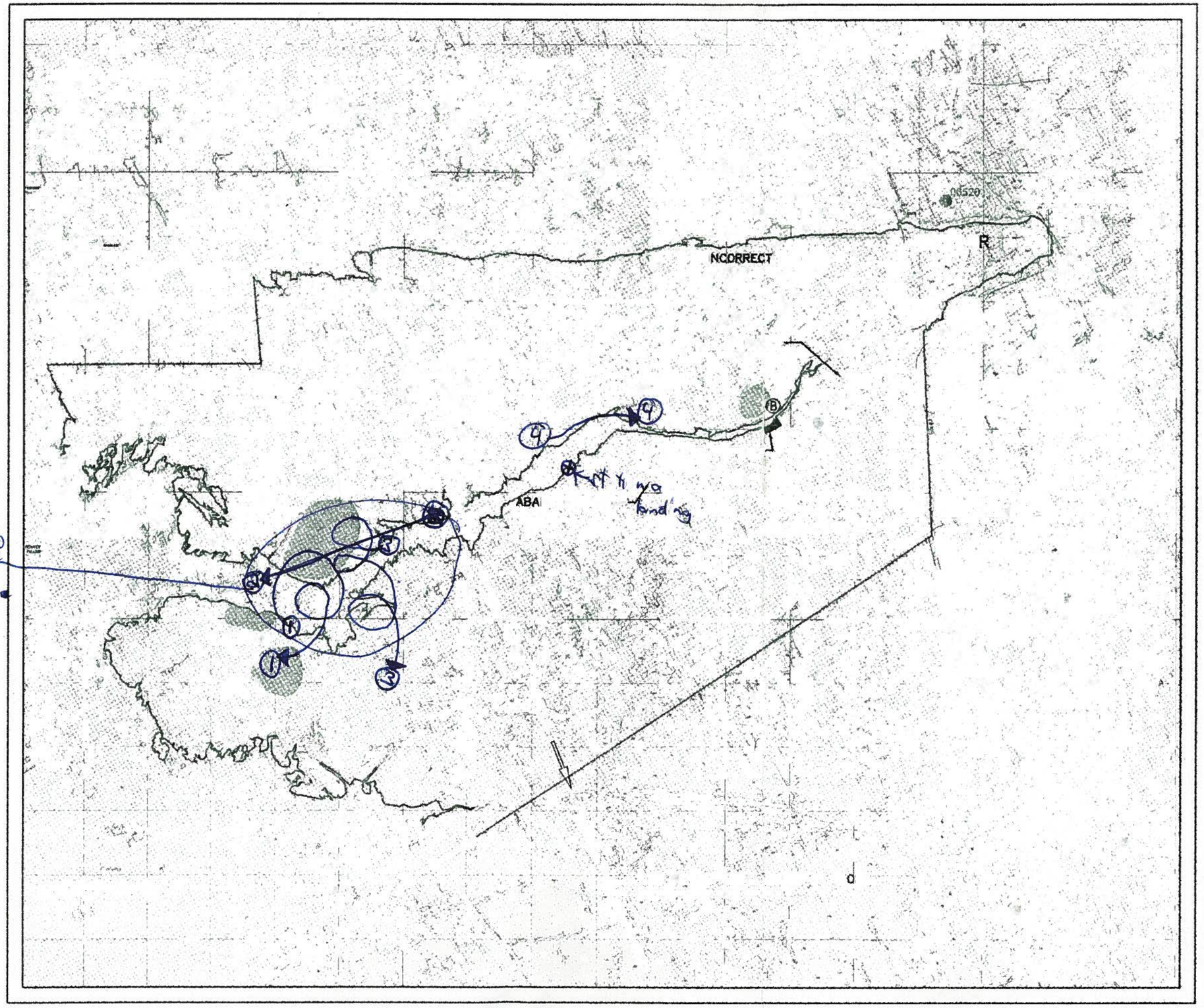
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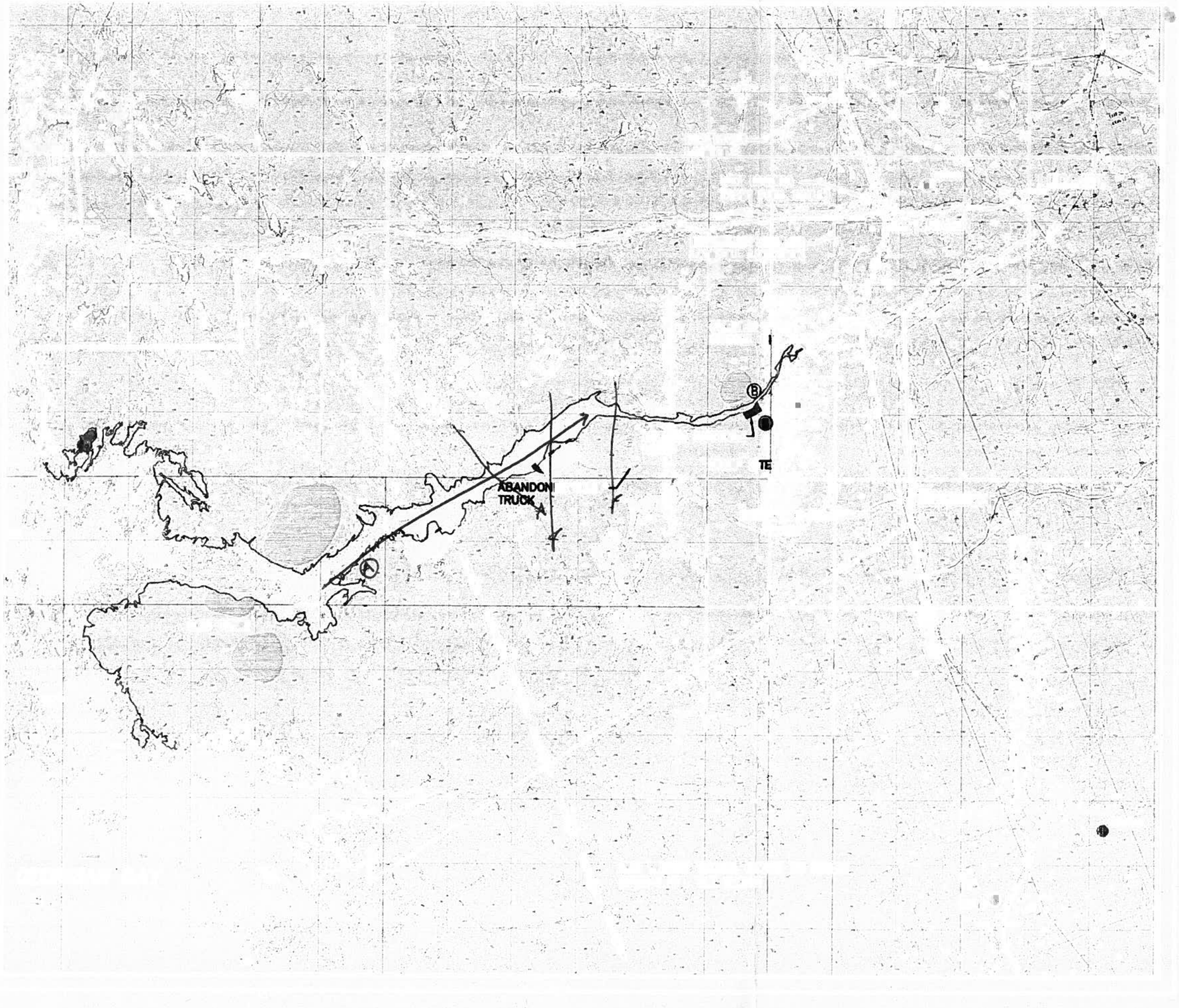
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Appendix B

Work Plans

WORK PLAN FOR THE NIGIG POWER WIND FARM PROJECT BACKGROUND ECOLOGICAL STUDIES

HENVEY INLET FIRST NATION
PICKEREL RIVER, ONTARIO

prepared for

GENIVAR

on behalf of

NIGIG POWER CORPORATION

by

LGL LIMITED
environmental research associates

JULY 2011
LGL PROJECT TA8027

WORKPLAN FOR THE NIGIG POWER WIND FARM PROJECT BACKGROUND ECOLOGICAL STUDIES

HENVEY INLET FIRST NATION
PICKEREL RIVER, ONTARIO

prepared by:

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Digital signature

Barry Myler, B.Sc.
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JULY 2011
LGL PROJECT TA8027

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1.0 INTRODUCTION

In 2011, the Nigig Power Corporation was awarded a Feed-In Tariff (FIT) Program contract to construct a Wind Power Project at Henvey Inlet on Georgian Bay in the province of Ontario (Figure 1). With a total proposed rating of 300MW, the Nigig Power Wind Farm Project is the largest wind power project FIT contract awarded in Ontario. The expected Commercial Operation Date (COD) is February 2014. The Project study area encompasses the Reserve Lands of approximately 80 square kilometres (Figure 2). The major components of the Project including all of the project infrastructure are proposed to be located on Henvey Inlet First Nation Reserve No. 2 (Reserve No. 2). A transmission line that is part of the Project will be located off of Reserve No. 2 and a transformer station may be located off reserve in order to enable an interconnection with the Hydro One Transmission System. Vehicular access is limited to the unpaved Bekanon Road, which leads to a boat ramp in the eastern end of the Inlet. The remainder of the study area is accessible only by boat during the open water season and, to some extent, by snowmobile during the winter.

The study area consists of rocky outcrops that form shallow, longitudinal ridges, oriented in a northwest to the southeast direction. Intervening pockets of wetlands, alder thickets, poplar and jack pine stands make up the balance of the site. Topographic relief decreases from the east to west direction with elevations ranging from a high of 216m at the eastern portions near Highway 69 to a low of 176m at the western shoreline at Georgian Bay.

2.0 WORK PLAN OVERVIEW

The background ecological studies were developed to address pathways of effect between the Project and the natural heritage resources that are known to occur in the study area and surrounding region. The study area is large and, given its location on the Georgian Bay shore, it may include migratory routes of birds and bats. Interaction with migratory species is considered to be of primary importance, as it has the potential to profoundly affect Project design, extent and operational strategies to effectively mitigate harm. As such, the background ecological studies include considerable focus on migratory studies.

On the ground, development of the Project will involve watercourse and wetland crossings, and the construction of access roads, overhead electrical collector lines and turbines that may displace some terrestrial habitat. There is considerable scope for identification and avoidance of sensitive habitats and implementation of effective and proven mitigation strategies where limited intrusion is unavoidable. The baseline ecological studies include elements of desktop and site evaluation that are tailored to the various wildlife groups based on their habitats and habits.

The documented effects of wind power projects have been largely focused on impacts to migrating and resident birds and bats. Accordingly, wind farms should be located, designed and managed so that there are no significant adverse impacts on seasonal migrants, including those species that are of acknowledged national and international importance, or their habitats. In terms of the location of the project study area, the major physiographic features include the Georgian Bay coastline and Henvey Inlet, which may be used to some degree as migratory pathways by birds and bats. Of secondary concern are the terrestrial and aquatic flora and fauna, which are affected largely by the location of specific Project components in and around their habitats. The following potential effects have been documented in literature with respect to development of wind farms:

- Collision with the moving turbine blades, with the turbine tower or associated infrastructure such as overhead power lines, or the wake behind the rotors causing injury, leading to direct mortality to migrating birds and bats;
- Disturbance or displacement from around the turbines or exclusion from the whole wind farm. Reduced reproductive success or reduced survival may result if birds are displaced from preferred habitat and are unable to find suitable alternatives;
- Barriers to movement disrupting ecological links between feeding, wintering, breeding and moulting areas and extended flights around wind clusters; and,
- Change to or loss of habitat due to wind turbines and associated infrastructure.

As part of effective planning, there is a need to identify migratory pathways and patterns in terms of level of activity across the study area throughout the migratory seasons. This information may be used to identify sensitive areas, seasons and weather conditions that can be used to guide design of the Project extent and operation. In addition, migratory stopover, breeding bird and acoustic bat surveys are being used to understand distribution of birds and bats that use site habitats and may therefore be affected by the Project.

With respect to birds and bats, the following guidance documents have influenced and guided the ongoing evaluation of the ecological baseline:

- Ontario Ministry of Natural Resources (2010) Birds and Bird Habitats: Guidelines for Wind Power Projects;
- Ontario Ministry of Natural Resources (2010) Bats and Bat Habitats: Guidelines for Wind Power Projects;
- Environment Canada and Canadian Wildlife Service (2007) Recommended Protocols for Monitoring Wind Impacts of Wind Turbines on Birds; and,
- Environment Canada and Canadian Wildlife Service (2007) Wind Turbines and Birds, A Guidance Document for Environmental Assessment.

It should be noted that the Province has no regulatory jurisdiction over the Henvey Inlet Pickerel River Reserve #2 lands and therefore the above noted MNR documents are being used for reference only.

With respect to resident plants and wildlife, and their habitats, specific approaches have been developed in relation to the known factors of habitat association, life history parameters and Project interactions. Existing ecological information, ranging from large-scale forest resource inventories to studies of specific reptile SAR, is available for the region surrounding the Study Area. This includes data collected in the Highway 400 corridor and within the several large parks on Georgian Bay. Much can be inferred from this information regarding the occurrence, distribution, habitats and habits of wildlife species in the Study Area. This will form the basis of effective mitigation strategies to reduce the interaction of plants and wildlife with the Project.

Table 1, below, summarizes the ecological receptors, pathways of effect and corresponding study approaches recommended, and currently underway, for Nigig Power Wind Farm Project.

Table 1: Summary of Ecological Receptors, Pathways of Effect and Ecological Baseline Studies for the Nigig Power Wind Farm Project

Ecological Receptor	Effects Pathways	Recommended Studies	Timing
Birds and Bats (SAR and non-SAR birds) (non-SAR bats only)	Collision with turbines (migratory and resident/seasonal). Habitat loss (migratory stopover and resident/seasonal	Visual/IR-assisted studies of spring and fall bird/bat migration across the study area, using Henvey Inlet as an east-west transect. Migratory stopover surveys include boat-based and aerial surveys of waterfowl, hawk-watch stations and terrestrial routes for other species. Breeding bird surveys using point-count survey protocol at sites distributed throughout the study area (spring and summer). Aerial surveys to investigate possible colonial waterbird, heron and raptor nesting sites. Acoustic detection of resident bats using automated Wildlife Acoustics SM2BAT detectors at sites distributed throughout the study area (spring/summer).	Migration (May 2011; Aug-Oct 2011; Mar-May 2012) Breeding birds (Jun-Jul 2011; May-Jun 2012) Bat Acoustic (Jun-Jul 2011; Jun-Jul 2012, if warranted following review of 2011 data)

Ecological Receptor	Effects Pathways	Recommended Studies	Timing
Game/furbearers (non-SAR only)	Habitat loss. Road effects (disturbance, hunting, predation, roadkill).	Incidental observations confirm species and distribution within study area. Traditional knowledge and cultural valu of wildlife species and their habitats. Aerial observations (moose/deer winter yards, wildlife trails). Desktop and field confirmation of key wildlife habitat (e.g., wetland, stands of mature trees, etc.) and seasonal biolog	Incidental (year round) Traditional (summer/fall/winter 2011) Aerial (winter 2011)
Reptiles (SAR and non-SAR)	Direct mortality during site preparation. Habitat loss. Road effects during operation (disturbance, roadkill).	Incidental observations confirm species and distribution within study area. Focused habitat identification within construction footprint of Project elements (e.g., road alignments, laydown and tower areas). General habitat identification (and avoidance) by ELC delineation of wetland communities as preliminary constraints. Desktop review of key reptile habitat (e.g., overwintering sites, nesting and incubation areas) and seasonal biology (e.g., timings of key life history element to inform spatial and temporal avoidanc and mitigation strategies.	Incidental (spring, summer and fall) Mitigation methods will be developed and focused habitat ID and implementation of avoidance/mitigation will occur during design, pre-construction and construction phases.
Amphibians (SAR and non-SAR)	Direct mortality during site preparation (watercourse & wetland crossings). Habitat loss. Sedimentation and erosion effects on aquatic and wetland habitats of amphibians. Road effects during operation (roadkill).	Incidental observations confirm species and distribution within study area. Focused habitat identification within construction footprint for Project elements (e.g., watercourse and wetland crossing General habitat identification (and avoidance) by ELC delineation of wetland communities as preliminary constraints. Desktop review of key amphibian habita (e.g., overwintering sites, breeding areas) and seasonal biology (e.g., overwinterin emergence, breeding) to inform spatial and temporal avoidance and mitigation strategies.	Incidental (spring, summer and fall) Mitigation methods will be developed and focused habitat ID and implementation of avoidance/mitigation will occur during design, pre-construction and construction phases.

Ecological Receptor	Effects Pathways	Recommended Studies	Timing
Fish (non-SAR only)	Harmful alteration, disruption, destruction (HADD) of fish habitat at watercourse crossings (minor tributaries only). Sedimentation and erosion during construction and operations.	Focused fish habitat and fish communit assessments within construction footprints (e.g., at watercourse crossing Includes descriptions of physical habita features (channel form, depth, flow, substrates, mig ation barriers, etc.), aquatic and riparian plant communities and fish community. Data to support selection of appropriate temporal, spati and physical mitigation measures to minimize effects on fish habitat.	Incidental (spring, summer fall) Focused assessment of watercourse crossings will be undertaken at design/permitting stage to support application to DFO for Fisheries Act Authorization if HADD to occur
Plants (SAR and non-SAR)	Direct loss/mortality of vegetation in cleared areas. Loss of vegetation communities during construction. Native plants may be used in traditional native medicine.	Desktop delineation of vegetation communities (aerial image interpretatio Forest Resource Inventory mapping). Supports assessment of effects on plan and basis for wildlife habitat assessmen Identification of wetlands and SAR plan as preliminary constraints. Focused assessment, including confirmation of significant species, within construction footprints. Traditional knowledge and cultural valu of wild plant species and their habitats. Aerial and ground-based confirmation of valued vegetation communities (e.g., large stands of white pine, wetlands).	Field observations and confirmation of SAR, etc. (spring, summer, fall) Traditional (summer, fall 2011) Focusedvegetation assessments may be required at design and pre construction phases to confirm SAR or significant plants or plant communities

3.0 ECOLOGICAL STUDY APPROACH

The ecological baseline study approach has been designed to determine sensitivities to the Project through a broad landscape-scale analysis using known ecological data and life history information, supplemented by new data collected within the study area. Sensitive areas will be identified as preliminary constraints on the basis of such criteria as habitat features, vegetation community, wildlife distribution and migratory patterns. Areas of lower sensitivity will emerge as preliminary opportunities for Project footprint, including access roads, transmission lines and turbine sites. Fine-tuning of the layout and configuration will involve focused wildlife habitat identification and avoidance, particularly for Species-at-Risk and plants and wildlife that have traditional cultural significance. These approaches allow for the parallel collection of seasonally dependent ecological information about the site, as well as allow for the design and development of the Wind Power Project within the FIT Program timelines. Consultation with the Responsible Authority is a key component of the plan and will be initiated early in the process to facilitate and incorporate meaningful feedback.

3.1 PRELIMINARY INFORMATION ACQUISITION AND DESKTOP REVIEW

Initial tasks of the baseline ecological studies were focused on compiling, reviewing and mapping aerial and satellite imagery and forest/ecological mapping available for the study area. Due to the isolation of the site and lack of established transportation routes within the study area, much of the data available for use in this study include studies that were initiated by HIFN to serve their needs and remote sensing information. Work plan components for preliminary information acquisition include:

- Identification of regional natural heritage features;
- Assessment of landscape component features;
- Forest Resource Inventory Mapping and Ecological Lands Mapping;
- Database query on all known records of birds, bats, and SAR from local band, other studies conducted in the vicinity of the project site, local agency, naturalist and Bird Studies Canada, and other expert records; and
- A literature review of relevant plant and wildlife species studies, conservation objectives and issues related to the pathways of effect identified for the Project

Assessment of landscape components utilized the following digital imagery sources:

- FRI aerial photo orthoimages;
- Geoeye-1 new satellite image (0.5 m pixel);
- IKONOS archived satellite image (1 m pixel);
- FRI classification mapping;
- FRI Colour Infrared images, and,
- FRI DEM.

The imagery listed above was used to identify and map discrete units of habitat and cover, and these are among the primary constraints to the wind farm layout. Raw satellite imagery (Figure 2) and Forest Resource Inventory (FRI) mapping (Figure 3) and its associated layers are used to obtain the necessary information regarding the topography and terrain associated with the site and was used to classify data into Ecological Lands Classification (ELC) Units. The ELC is used to delineate areas of landscape for sensitivity analysis based on vegetation community types and habitat associations for wildlife species and communities.

At present, the focus of the ELC-based analysis is identification and delineation of wetland units throughout the study area. The ELC analysis has been based on satellite and aerial photo images, supplemented by ground-truth surveys by the project botanist through reconnaissance of the study area by fixed wing aircraft, boat and pedestrian surveys. This has provided a preliminary constraint layer for the study area, as there are numerous ecological, engineering and economic justifications for avoiding intrusion of Project elements into wetlands. Specifically, minimizing intrusion into and crossing of wetland areas is a key mitigation strategy to limit Project effects on sensitive plant communities, potential SAR plants, fish and fish habitat, key amphibian habitats including breeding, nursery and overwintering areas, key reptile habitats including overwintering sites of SAR turtles and snakes and important breeding and feeding habitat for many other wildlife species.

3.2 FIELD INVESTIGATIONS

Screening level information will be obtained for the identification of major constraint areas, such as hibernaculae of bats and reptiles, major flyway corridors, waterfowl congregation areas, migratory stopover and areas of high quality vegetation communities (unique habitats such as fens, bogs, seepage zones, sand barrens, alvars) which have the potential for rare plants; and forested areas with high affinity for breeding birds and other wildlife. Once the major constraint areas are identified, it is anticipated that the information can be used to plan project components away from these areas. As constraints and Project design are considered in an iterative fashion, focused confirmation of plant and wildlife habitat, species and community characteristics will be undertaken on a site-specific basis within the project study area to support avoidance, mitigation and restoration strategies.

Because of the timeline associated with this project, preliminary field work collection was recommended to ensure that seasonally dependent data is collected in a timely manner to allow for fine tuning of the wind turbine layout. Biological fieldwork commenced in late April 2011 through reconnaissance investigations of the site and field observations of spring migratory birds, breeding birds, and bats. Incidental observations for other species and habitat features were also collected at that time.

3.2.1 Avian Surveys

Avian surveys have been targeted for migratory and breeding birds, as detailed in the following sections. The sections are separated by breeding bird consideration and field approach, and the migratory birds and field approach.

3.2.1.1 Breeding Bird Survey Considerations

- Waterfowl – breeding waterfowl are not expected to be abundant, however could be present in wetlands or small lakes and ponds
- Raptors – breeding raptors may be at increased risk of collision with turbines because they tend to fly high and traverse the area repeatedly on a daily basis
- Colonial Waterbirds – nesting colonies of species such as Double-crested Cormorant, Great Blue Heron, Black-crowned Night-Heron, gulls and terns may be present in the study area, and if so could be a concern depending on their location relative to the Project
- Passerines – although not expected to be at great risk of mortality from turbines, habitat of breeding passerines could be affected by the Project. At this point, field studies have focused on covering the study area well and covering representative habitats to obtain a landscape-level understanding of breeding bird community and distribution

3.2.1.2 Field Study Approach to Breeding Birds

- Waterfowl – incidental observations were made by field staff while in the study area during the 2011 breeding bird season.
- Raptors – An aerial survey was flown on June 9th to search for large nests (herons, hawks and eagles). Territories for more secretive species may be detected during breeding bird point counts (see below) or incidentally.
- Colonial Waterbirds – Aerial survey conducted to discover nesting colonies of Great Blue Heron. Gull and tern colonies will be investigated by a coastal survey conducted by boat, as well as observations from the air.
- Passerines – Point counts and incidental observations will be used as the effective means for developing a species list for the site. Point counts follow EC guidelines, and will be used for the purpose of contributing to existing knowledge of the use of the site by birds during the breeding season, and to facilitate comparisons with post-construction breeding bird community. Surveys were undertaken twice during the breeding season. Points were placed in representative habitats and distributed across the landscape to capture any habitat gradient which may be present across the study area.

Monitored Species / Behaviour	Sampling Method	Timing and Frequency
Waterfowl	Incidental observations from ground and aerial surveys	Throughout breeding season
Raptors	Aerial survey for large stick nests (Bald Eagle, Osprey), incidental observations.	Breeding season
Colonial Waterbirds	Aerial survey for heron nests, boat-based surveys of outer islands for other species	Breeding season
Passerines	A series of point counts established across the study area	Each point surveyed twice between May 30 and July 7, at least 10 days apart

3.2.1.3 Migratory Bird Considerations

- Waterfowl – migrating waterfowl may use Henvey Inlet or inlets to the north or south as stopover areas and this potential needs to be verified by field observations. Of particular concern would be overland flights by migratory waterfowl between Henvey Inlet and inlets to the north or south.
- Raptors – migrating raptors typically follow shorelines of Great Lakes. Field investigations will need to determine the magnitude of raptor migration through the site and where it is concentrated.
- Passerines (nocturnal migrants) – the majority of passerines migrate at night, at altitudes from close to ground level to well over 1 km. They are at risk of collision with towers and with the turbines, with an increased risk by lighting on the towers. Field investigations will need to determine the magnitude and altitude of nocturnal migrants across the study area. Nocturnal passerine migration generally occurs along a broad front, and flight altitude is largely determined by weather, however local features such as ridges or valleys may concentrate the number of migrants exposed to risk. Fortunately, the study area is characterized by relatively low relief.
- Passerines (stopover sites) – migration is energetically demanding for passerines and they require stopover habitat to feed and rest before continuing with migration. Habitat destruction in stopover areas is thought to be a primary cause of decline in migratory birds. This may not be as much of a concern for this project since the habitat in the surrounding area is fairly intact and the Project footprint would disturb only a small percentage of available natural habitat within the study area. However, shorelines can concentrate migrants so field investigations need to determine whether some areas are particularly important stopover sites.

3.2.1.4 Proposed Field Study Approach to Migratory Birds

- Waterfowl – visual monitoring, including passive IR camera techniques, and aerial observation surveys using fixed-wing aircraft will be used to determine the magnitude and extent of waterfowl migration. These techniques will be employed at the site during the Fall Migration period in 2011 and Spring Migration in 2012.
- Raptors – raptor observation posts have been established in three locations along the Inlet. Regular visual watches during spring and fall migration are a straightforward method to determine magnitude of use and species involved. Diurnally migrating passerines such as Blue Jays and blackbirds will also be observed by this method.
- Passerines (nocturnal migrants) – visual and passive IR surveys will be used to monitor the movement of passerines during the Fall Migration period in 2011 and Spring Migration in 2012. The survey will utilize a number of locations situated along an east-west transect, accessible by boat along Henvey Inlet.

- Passerines (stopover sites) – regular stopover counts will be undertaken along a series of transects which will be surveyed weekly during the migration period. All birds encountered will be recorded (species & number).

Monitored Species / Behaviour	Sampling Method	Timing and Frequency
Waterfowl	Fixed wing aerial surveys of the study area and the immediately surrounding region	3 aerial surveys of region spaced throughout the migration period
Raptors and Diurnal Migrants	Standardized watches from 3 sites along the inlet.	September & October; 3 to 4 days per week
Nocturnal Migrants	Thermal infrared camera will be used to observe nocturnal migrants. A number of acoustic monitoring units will be spaced along the inlet to record night migrating birds.	IR – 2 weeks in September Acoustic – September to October
Stopover sites (passerines)	A series of transects will be set up across the study area and surveyed weekly for migrants	Mid August to October; 2 to 3 times per week

3.2.2 Bat Surveys

A screening level survey will be implemented in 2011 to determine the level of use of the site by bats, to identify significant habitat, and important habitat features or high use areas in the project area. Acoustic monitors were deployed in June and July 2011. The results of the 2011 acoustic monitoring will be reviewed to determine if additional monitoring is warranted, perhaps in a more focused assessment based on initial data analysis and the emerging Project layout.

3.2.2.1 Acoustic Monitoring of Bats

GENIVAR and LGL have initiated preliminary acoustic monitoring in June and July 2011 to attempt to identify the relative levels of bat activity across the study area during the late spring and early summer. These surveys are not focused on any anticipated turbine layout, but are intended to achieve broad geographical coverage of the study area, utilizing the established breeding bird routes for logistic efficiency. This preliminary data will contribute to a landscape-level understanding of bat distribution throughout the study area. The work plan includes:

- Deployment of 10 automatic acoustic monitors (Wildlife Acoustics SM2BAT units) at sites throughout the study area;
- Deployment and retrieval along or adjacent to existing breeding bird study routes for logistic efficiency;
- Shifting monitors to a number of locations to increase coverage; and,
- Incidental observations of bats during field surveys.

3.2.2.2 Bat Migration Monitoring

Bat migration will be investigated concurrently with bird migration with the use of visual observations augmented by the use of passive IR camera. The fall migratory study period from August to October is intended to capture peak bat activity in August.

3.2.3 Wildlife Habitat, Fish Habitat, and Species-at-Risk

Unlike other wind farm projects where the majority of wind turbine components will be situated in remnant agricultural lands, the Nigig Power Wind Farm Project will be situated in relatively undisturbed lands. Accordingly, it can be assumed that the ultimate wind farm location will be within an area already occupied by native flora and fauna, including several SAR. % O D Q G L Q, JF Five-lined Skink, Fox Snake, Hognose Snake and Massasauga Rattlesnake have been confirmed in the study area. At least one SAR plant species may occur within wetlands in the study area, although it cannot be confirmed until August or September.

Early indications are that wildlife SAR may be broadly distributed throughout the study area, occupying specific suitable habitats within the mosaic of upland and wetland that characterizes the local terrain. Baseline ecological investigations may benefit from incidental and focused confirmation of species presence; however detailed identification of specific habitats and occurrences is likely to be focused GXULQJ DQ LWHUDWLYH GHWDLOHG GHVLJQ DQG ³WZHDNLQJ´ RI address fish habitat and wildlife habitat for plants, amphibians, reptiles, birds and mammals, as detailed avoidance and mitigation strategies are developed using known species-specific life history and habitat associations. Avoidance of critical habitats to the extent possible will be a key strategy, in combination with identification and use of timing windows to avoid harm to sensitive seasonal life stages (e.g., nests) or during vulnerable periods (e.g., hibernation, gestation). Where sensitive habitats may be disturbed, focused mitigation may include relocation of individual specimens and associated habitat features such as cover items (e.g., rocks and logs) outside of the work area. Mitigation/avoidance strategies throughout the Project phases will shift from early identification of broad preliminary constraints at a landscape level to the site-by-site implementation of mitigation plans during design, assessment and construction of access roads, watercourse crossings, turbines and transmission infrastructure. It is anticipated that ongoing consultation with CWS will occur throughout the project in relation to these species.

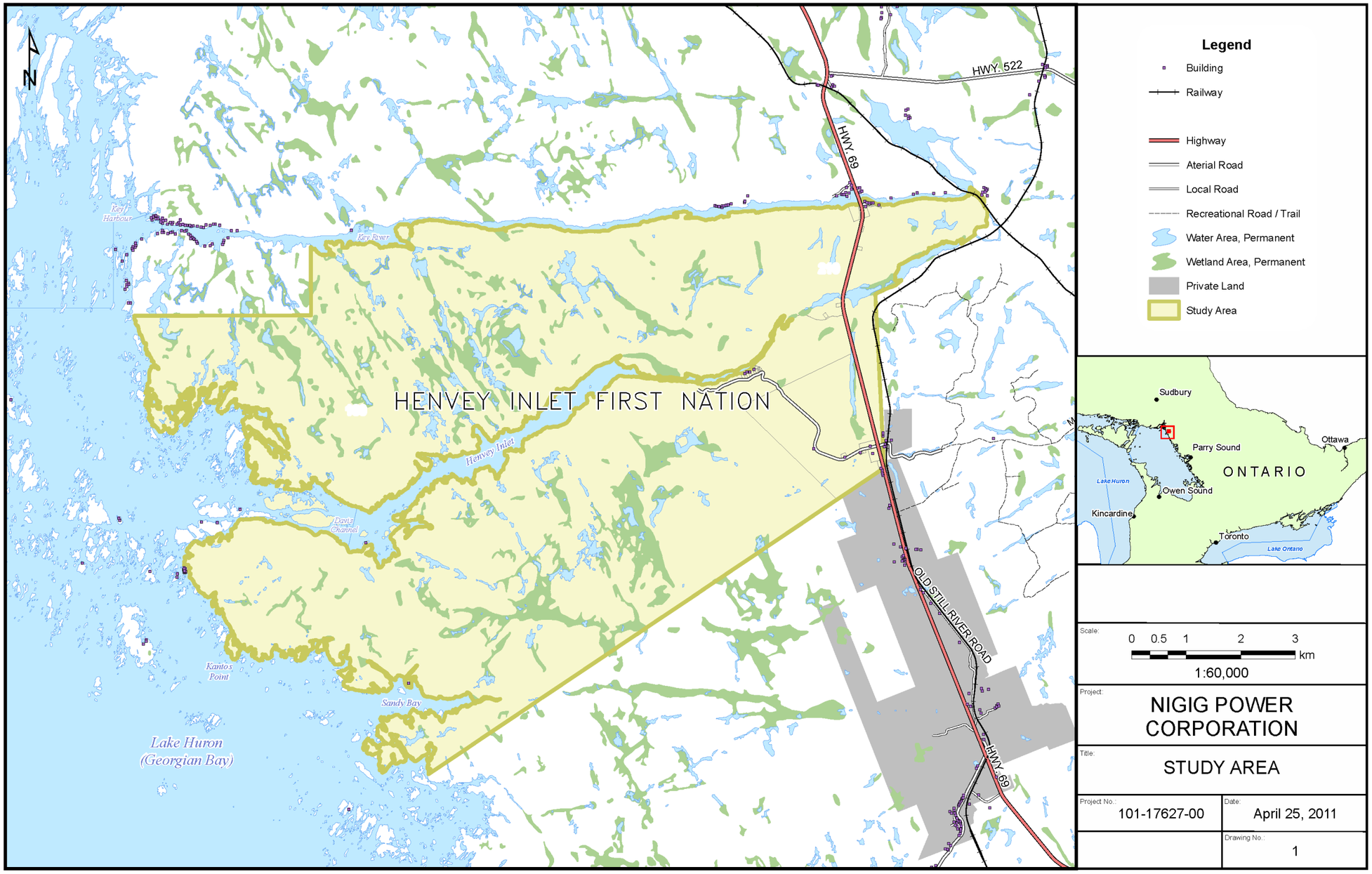
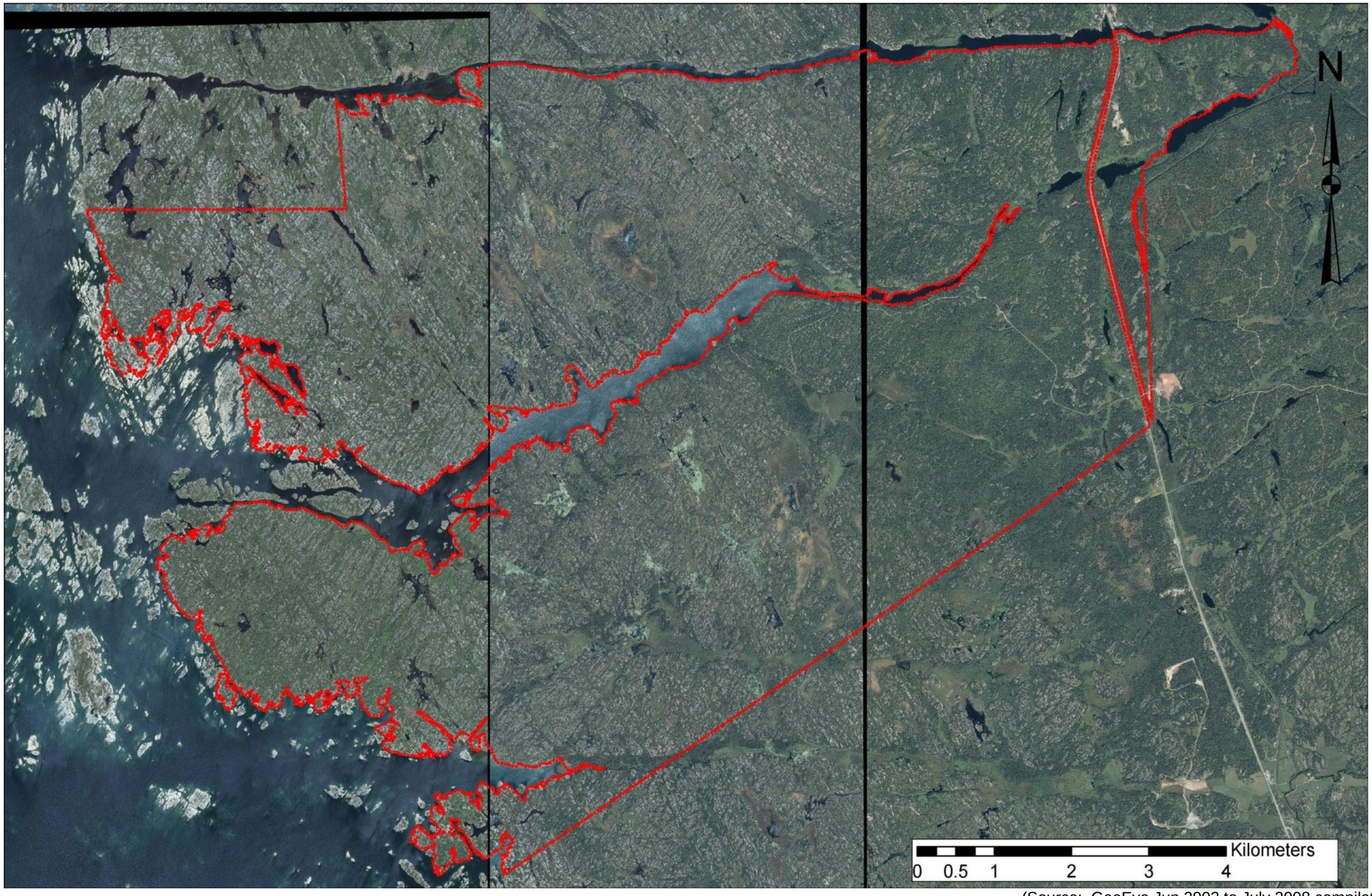
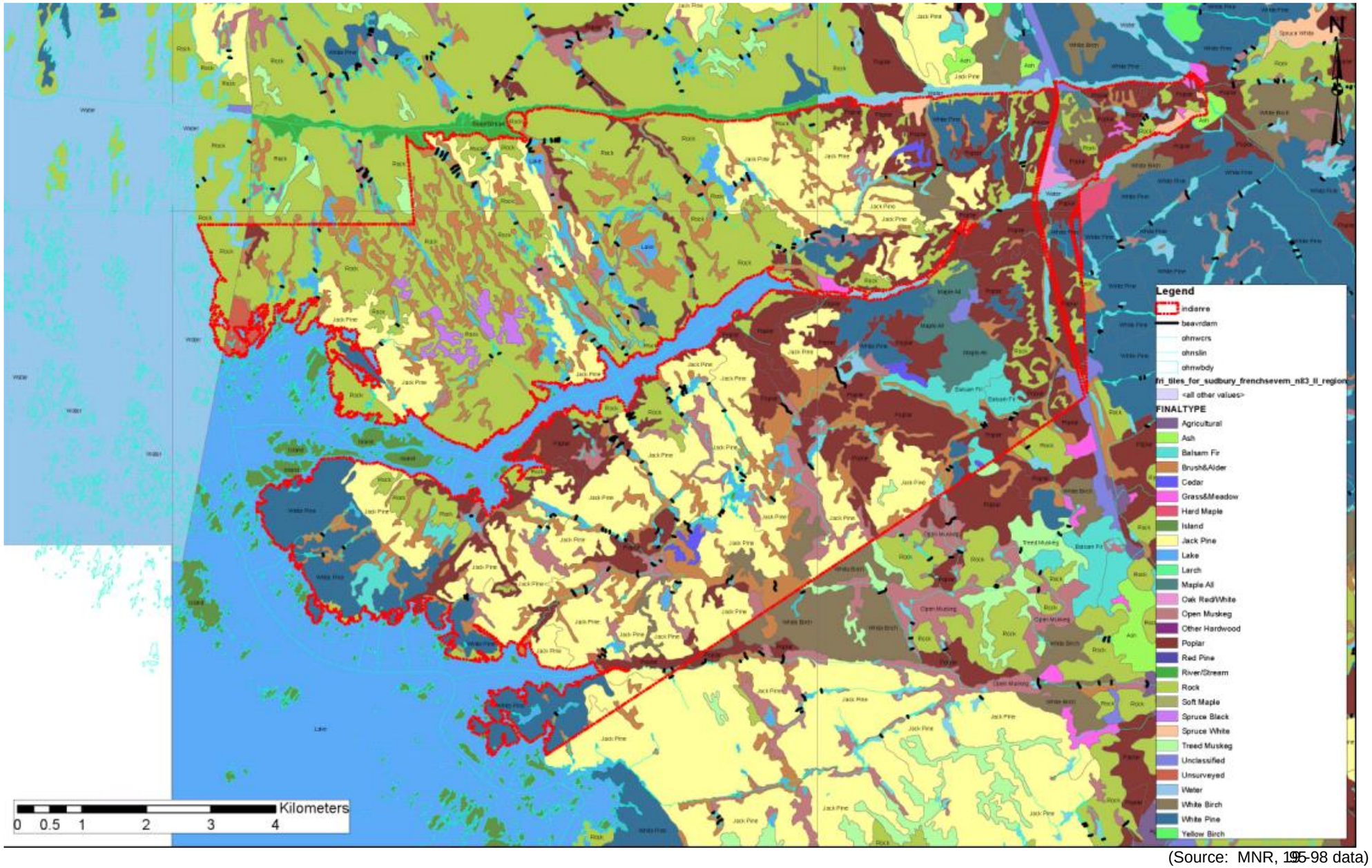


Figure 1 Location of Nigig Power Wind Farm Project Study Area



(Source: GeoEye Jun 2003 to July 2008 compilation)

Figure 2 Satellite Imagery of theNigig Power Wind Farm Project Area (Project Study Area shown in red)



(Source: MNR, 1995-98 data)

Figure 3 Forest Resource Inventory of the Nigig Power Wind Farm Project Area (Project Study Area shown in red)

2013 TERRESTRIAL SURVEY
WORK PROGRAM

File No. 160960770
March 2013

Prepared for:

Nigig Power Corp.
Henvey Inlet Wind Project

Prepared by:

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Figure 1: Study Area for the proposed Nigig Power Corp. Henvey Inlet Wind Project and Transmission Corridor

1.0 Terrestrial Field Program

Stantec Consulting Ltd. ("Stantec") is providing this work plan to Environment Canada for the terrestrial field investigations for the 300 MW, Feed-In Tariff ("FIT") Contracted, Henvey Inlet Wind Project (the "Project"). The key Project elements include:

i) *On-Reserve Facilities:* up to 120 wind turbines, a transformer station, operations and maintenance building, access roads, collector lines, and ancillary facilities on Henvey Inlet First Nation Lands (Reserve No. 2); and

ii) *Off-Reserve Facilities:* approximately 90 km of 230 kV, double circuit overhead transmission line from Reserve No. 2 to the Town of Parry Sound, Ontario where the project will interconnect with the provincial electricity grid at Hydro One Networks Inc.'s ("Hydro One") existing Parry Sound Transformer Station. The transmission line, as presently proposed, would be located within the current and future rights-of-way held by the Ontario Ministry of Transportation for King's Highway 69/400.

Save the Project's transmission line and interconnection works at the Parry Sound Transformer Station, all Project infrastructure will be located on Henvey Inlet First Nation Reserve Lands (Reserve No. 2). Preliminary siting of the wind turbines, collector lines, operations and maintenance building, transformer station, and access roads are in progress and are taking into account important cultural and environmental features as they are identified through field surveys, traditional ecological knowledge studies, and engagement efforts with the Henvey Inlet First Nation community.

For the transmission line, as proposed to be located within the current and future rights-of-way held by the Ontario Ministry of Transportation for King's Highway 69/400, the natural heritage field investigations for the majority of the transmission corridor fall under the requirements of Ontario Regulation 116/01 of Ontario's *Environmental Assessment Act* and will therefore be subject to review and approval by the Ministry of the Environment. However, portions of the highway corridor traverses roughly 35 ha of the Magnetewan First Nation Reserve (No. 1) and about 11 ha of the Shawanaga First Nation Reserve (No. 17), lands which are under federal jurisdiction.

Throughout this document, the wind project component on the Reserve Lands will be referred to as the Project Location and the transmission line corridor will be referred to as the Transmission Line. Collectively, these areas will be referred to as the Study Area for the purpose of the terrestrial survey work program.

The Project Location and Transmission Line alignment are shown on **Figure 1**.The purpose of the natural environment field program is to collect data relevant to vegetation communities (ecosites), wetlands, wildlife habitat, and Species at Risk. The objective of this work plan is to seek Environment Canada's agreement with the study methodologies and protocols set out herein for terrestrial investigations of the Project during the late winter, spring, summer and fall of 2013.

2.0 Field Program Overview

The Project Location is within the Henvey Inlet First Nation Reserve along the eastern shore of Georgian Bay, south of French River Provincial Park and directly north of North Georgian Bay Shoreline and Islands Conservation Reserve. Generally, the Project Location has shallow soils, with many rocky outcrops forming longitudinal ridges running on a northwest to southeast axis, and is divided roughly in half by Henvey Inlet. Numerous wetland pockets are located between the ridges and across the Project Location, with upland areas supporting forested areas of poplar and jack pine.

The characteristics of terrestrial habitat and areas of potential significance or sensitivity will first be identified as part of the early-on consultation with Henvey Inlet First Nations and relevant agencies, as well as a review of the available natural heritage information. Information gained through the consultation process and desktop review will be supplemented by general aerial and ground-level (by foot or boat) surveys of the Study Area to fine-tune the field program and assist in siting monitoring stations. Wildlife and vegetation surveys will begin in March, when raptors begin their spring migration and will continue into November, when the final fall migratory waterfowl are expected to move through the Study Area.

2.1 ECOSITE CLASSIFICATION AND WETLANDS

Ecosite classification forms the backbone of wildlife habitat assessment. For the Project, the Ecosites of Ontario classification system (Banton *et al.*, 2009) will be used as it includes forest and non-forest communities as well as wetlands.

A wetland is land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various kinds of biological activity which are adapted to a wet environment (The Federal Policy on Wetland Conservation (“FPWC”), Environment Canada, 1991). The protection and conservation of wetlands on federal lands is mandated by the FPWC. Mitigation of adverse environmental effects on wetlands is guided by the FPCW goal of achieving ‘no net loss of wetland functions’. The no net loss principal can be achieved by using a hierarchical sequence of mitigation alternatives: avoidance, minimization, and compensation. Wetlands on federal lands can be described using The Canadian Wetland Classification System (National Wetlands Working Group, Second Edition, 1997).

Provincially, the Ontario Wetland Evaluation System (Ministry of Natural Resources, 2002), is used to map and score wetlands based on biological productivity and diversity, human use, hydrologic functions, and unique characteristics such as geographical rarity. It is anticipated that no wetlands have been evaluated using the OWES on the Henvey Inlet First Nation Reserve Lands.

2.2 WILDLIFE HABITAT

Wildlife habitat is defined as an area where plants, animals and other organisms live, including areas where species concentrate at a vulnerable point in their life cycle and that are important to migratory and non-migratory species. The work program has been designed to capture those wildlife species and their habitats which may occur in the Study Area and may be influenced by the Project.

2.3 ENDANGERED, THREATENED AND SPECIAL CONCERN SPECIES

A desktop review of the MNR Natural Heritage Information Centre (NHIC) database, as well as provincial atlases for breeding birds, mammals, reptiles and amphibians, was conducted to identify species of conservation concern in the vicinity of the Study Area. Twenty-seven terrestrial species listed as endangered, threatened or special concern at the provincial and federal level have the potential to occur within the Study Area (**Table 1**). Several of these species were recorded within the Project Location during previous terrestrial field investigations by LGL Limited. Site investigations in the proposed 2013 terrestrial work program will assess the presence and identify preferred habitat of these species.

Table 1: Endangered, threatened and special concern terrestrial wildlife species potentially present within the Study Area

Type	Common Name	Scientific Name	S - Rank	COSSARO	COSEWIC
Reptile	Stinkpot / Eastern Musk Turtle	*Sternotherus odoratus*	S3	THR	THR
Reptile	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Reptile	Snapping Turtle	*Chelydra serpentina*	S3	SC	SC
Reptile	Northern Map Turtle	*Graptemys geographica*	S3	SC	SC
Reptile	Eastern Hog-nosed Snake	*Heterodon platirhinos*	S3	THR	THR
Reptile	Eastern Foxsnake (Georgian Bay)	*Pantherophis gloydi*	S3	THR	END
Reptile	Eastern Massasauga (Great Lakes/ St Lawrence)	*Sistrurus catenatus catenatus*	S3	THR	THR
Reptile	Eastern Ribbonsnake	*Thamnophis sauritus*	S3	SC	SC
Reptile	Milksnake	*Lampropeltis triangulum*	S3	SC	SC
Reptile	Five-lined Skink (Southern Shield population)	*Plestiodon fasciatus*	S3	SC	SC
Bird	Least Bittern	*Ixobrychus exilis*	S4B	THR	THR
Bird	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	THR	THR
Bird	Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR
Bird	Barn Swallow	*Hirundo rustica*	S4B	THR	THR (NS)
Bird	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR (NS)
Bird	Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR (NS)
Bird	Bald Eagle	*Haliaeetus leucocephalus*	S4B,S2N	SC	SC
Bird	Common Nighthawk	*Chordeiles minor*	S4B	SC	THR
Bird	Olive-sided Flycatcher	*Contopus borealis*	S4B	SC	THR
Bird	Eastern Wood-Pewee	*Contopus virens*	S4B	-	SC (NS)
Bird	Wood Thrush	*Hylocichla mustelina*	S4B	-	THR (NS)

Table 1: Endangered, threatened and special concern terrestrial wildlife species potentially present within the Study Area

Type	Common Name	Scientific Name	S - Rank	COSSARO	COSEWIC
Bird	Golden-winged Warbler	*Vermivora chrysoptera*	S4B	SC	THR
Bird	Canada Warbler	*Wilsonia canadensis*	S4B	SC	THR
Mammal	Little Brown Myotis	*Myotis lucifugus*	S5	END	END (NS)
Mammal	Northern Myotis	*Myotis septentrionalis*	S3?	END	END (NS)
Mammal	Tri-coloured Bat	*Perimyotis subflavus*	S3?	-	END (NS)

COSSARO: Committee on the Status of Species at Risk in Ontario
COSEWIC: Committee on the Status of Endangered Species in Canada
S2 – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
S#B: Breeding status rank
S#N – Non-breeding status rank
S? – Rank Uncertain
NAR: Not At Risk
END: Endangered
THR: Threatened
SC: Special Concern
N/A: not applicable
NS: Not on Species at Risk Act Schedule

3.0 Proposed Field Work Program

Due to the known presence of Species at Risk, the project is considered to have "Very High" site sensitivity and would be ranked as "Category 4" by Environment Canada's "Wind Turbines and Birds: A Guidance Document for Environmental Assessment" (2007a). Projects in this category usually require comprehensive baseline surveys; a requirement that has been considered in the development of this work program.

The survey protocols are consistent with Environment Canada's "Recommended Protocols for Monitoring Impacts on Wind Turbines on Birds" (Environment Canada, 2007b) and on Environment Canada's comments on LGL Limited's 2011 workplan for the Project. Recommended protocols for species at risk are based on Stantec's technical expertise and on experience with the Ministry of Natural Resources species-specific surveys requirements.

Detailed protocols of each survey type are outlined below. The suite of surveys proposed along the Transmission Line differs slightly than those within the Project Location, due to differences in potential environmental effects. For example, migratory bird surveys are not proposed along the Transmission Line. **Table 4** provides a summary of all proposed surveys, including a breakdown of which surveys are to be conducted within the Project Location and those to be conducted along the Transmission Line.

3.1 GENERAL RECONNAISSANCE (EARLY APRIL)

Given the limited access in and around the Project Location and the relatively rugged topography and abundance of wetlands in the Study Area, multi-purpose broad-scale surveys will be completed to obtain an overall understanding of the landscape, and to put the detailed field study locations in context.

An aerial survey by helicopter will be conducted in early April to observe the landscape without leaf cover and at a time of pronounced hydrological activity (i.e. spring melt). Leaf-off conditions will also allow a search for habitat features such as stick nests and wetland types. A reconnaissance survey of the Project Location by boat and foot will be undertaken in early April, guided by local members of the Henvey Inlet First Nations. The purpose of the reconnaissance survey will be to gain a better understanding of site access and points of interest, including locations of rare species, based in local knowledge.

3.2 SPRING MIGRATORY BIRD SURVEYS

3.2.1 Spring raptor migration (Ten surveys, early March to end of April):

Monitoring will consist of ten surveys throughout the spring migration period (March to end of April) to record presence of diurnal migrant raptors. Surveys will be comprised of six-hour point counts starting at 9:00 am, conducted by two observers stationed at two appropriate vantage

points within the Project Location. When site access allows, surveys stations will be situated in the east and west portions of the Project Location. However, during times of year when site access is limited (i.e. late winter, early spring) alternative locations may be used with efforts to maximize spatial coverage.

All raptors observed during the surveys will be recorded and mapped. Behaviour of the raptors will be noted with emphasis on flight height and determining which individuals were actively migrating as opposed to staging (e.g. hunting, perching, etc.). For actively migrating raptors, flight paths will be mapped.

3.2.2 Spring passerine migration (Eight surveys, early April to late May):

Natural habitat located in close proximity to the Georgian Bay shoreline provides stopover habitat for migrating passerine birds. Eight weekly surveys are proposed in April and May. Monitoring will consist of ten, 500m long transects distributed throughout the Project Location. Transects will be placed in different habitat types (i.e. woodland, rock barren and wetland). Given the variable nature of vegetation communities within the Project Location, it is likely most 500m transects will include more than one habitat type. A description of the habitat along each of the 10 transects will be recorded.

Surveys will be conducted in the morning, between dawn and approximately 10:00 am. A tally of all species observed will be recorded on each transect. These surveys will include characterizing the abundance and diversity of passerines within the Project Location.

3.2.3 Spring waterfowl migration (Four surveys, April to late May):

Spring monitoring for migrating waterfowl will be focused along Henvey Inlet and will consist of four bi-weekly surveys undertaken by boat in April and May. Surveys will include waterfowl counts to record species and number of individuals observed along the inlet, as well as characteristics of the wetlands to support migrating waterfowl (e.g. size, vegetation, permanence, etc.).

The use of scattered wetlands and ponds throughout the Project Location by staging waterfowl will be assessed through the spring passerine surveys.

3.3 BREEDING BIRD SURVEYS

3.3.1 Daytime breeding birds (Two surveys, late May to early July):

Two rounds of breeding bird surveys will be conducted in each major habitat type with the Study Area (woodland, rock barren and wetland). Surveys will consist of ten-minute point counts, in conjunction with area searches (wandering transects) between point count locations. The area searches will allow for collection a comprehensive species list, whereas point counts will provide information on species density.

Surveys would take place starting 30 minutes before sunrise and continue until approximately 10:00 am. As per Environment Canada guidance, a minimum of 20 point counts will be sited in each major habitat type. However, given the variability of habitat types that occur within the Study Area, it is anticipated that many point counts may cover more than one habitat type.

In marsh habitat, play-back call surveys for marsh breeding birds will be conducted following the ten-minute point count, to assist in detection or more secretive marsh bird species, specifically, the threatened Least Bittern.

Location of all species at risk observations will be geo-referenced using a hand-held GPS unit, mapped and compared to ecosite classification to develop habitat mapping for each species.

3.3.2 Crepuscular breeding birds (Two surveys, May and June):

Eastern Whip-poor-will surveys will be conducted in suitable open habitat within forested areas. Surveys will be conducted in May and June and will consist of six-minute point counts at stations spaced within the Project Location and Transmission Line corridor. Due to the remote location of much of the Study Area, survey locations may be selected with consideration to access and surveyor safety.

Surveys will begin approximately 30 minutes after sunset within appropriate weather conditions (not in high winds, persistent rain or an overcast sky) and will, if possible, coincide with the full moon. All individuals heard will be recorded, with an estimated direction and distance from the observer.

3.3.3 Owls (One survey, April):

Given the difficulty in detecting owl species, the use of playback calls to elect a response will be used. A single survey in April is proposed, and will include various stations throughout the Project Location. Due to the remote location of much of the Study Area, survey locations may be selected based on facility of access and surveyor safety.

Surveys will begin approximately 30 minutes after dark and will consist of 10 minute point counts incorporating playback and periods of silent listening. All individual heard will be recorded, with an estimated direction and distance from the observer.

3.3.4 Raptor and colonial nesting birds (Two surveys, April and June):

Searches for large stick nests or “nest bowls” in trees, typically exhibiting a DBH (diameter at breast height) of >50 cm, will be conducted during the aerial reconnaissance prior to leaf-out. Searches will target trees along watercourses, with special attention afforded to large white pines, and swamps along large bodies of water, as well as other appropriate habitat within the Study Area. If present, nests will be surveyed for activity concurrent with breeding bird point counts and area searches in June.

3.4 AMPHIBIAN AND REPTILE SURVEYS

3.4.1 Western Chorus Frog and Salamanders (April):

Western Chorus Frog surveys will consist of 3-minute call counts at potential breeding habitat conducted in April, during appropriate weather conditions. This species breeds in small or shallow aquatic habitats associated with moist, open terrestrial habitat (COSEWIC, 2008c). Males call from the water and are typically active when air temperatures are above 5°C, although calls have been detected at air temperatures as low as -1°C (COSEWIC, 2008c).

Unlike many anurans, Western Chorus Frogs are generally very active throughout the day. As such, daytime survey will be used to cover larger portions of the Study Area than evening call surveys would permit.

Surveys for amphibian egg masses will take place concurrent with calling surveys. These will consist of perimeter surveys of suitable breeding ponds by trained field personnel. Egg masses of different species are often characteristic based on features such as where they are laid, how many eggs are in the mass, density of the egg mass, and whether or not the eggs are encased in jelly.

3.5 REPTILE HABITAT AND TARGETED SURVEYS (MAY AND JUNE):

Reptile habitat and targeted species surveys will take place in three stages.

Preliminary surveys for reptiles will also take place throughout the migratory and breeding bird survey periods. Field biologists familiar with reptile species identification will be conducting area searches and wandering transect surveys in a variety of areas providing habitat for reptiles at both the Project Location, weekly from early April until early July, and along the Transmission Line, weekly from late May until early July. Any incidental observations of turtles, snakes or lizards, including shed skins or shells, will be recorded on survey forms and used to refine the field survey program proposed for June.

Potential snake or turtle habitat within the Study Area will also be identified during Ecosite surveys, beginning in May. The habitat assessment will involve identification of potential reptile habitat features, including:

- Turtle overwintering habitat and snake/skink hibernacula;
- Nesting sites; and,
- Foraging habitats.

Targeted field surveys for reptile species at risk will occur in June. Timing of these surveys will coincide with a period of high activity for reptiles (nesting and foraging), but also when air temperatures encourage basking behavior. Surveys for snake species at risk and Five-lined Skink will consist of wandering transects through all appropriate habitat types (**Table 2**).

Additional survey effort will be directed toward areas with previous observations of these species which may indicate high quality or limited habitat. To the extent possible, surveys will be conducted on sunny days when air temperatures are a minimum of 15°C (ideally 20°C). Surveys for turtles will consist of daytime basking surveys from land or boat in suitable wetland and open water habitat (**Table 2**), and evening nesting surveys in potential upland nesting sites identified during Ecosite surveys. Basking surveys will be conducted on sunny days when air temperatures are a minimum of 15°C (ideally 20°C). Nesting surveys will take place on warm evenings (daytime air temperature >20°C), ideally before or after rainfall. All surveys will record species, number, location and behaviour of observed reptiles.

The purpose of the targeted surveys is to confirm habitat used by the various reptile species at risk within the Study Area and provide information on general abundance and distribution. Survey results will be used to produce detailed mapping of reptile habitat features which will be used to guide the siting layout process and maximize avoidance of sensitive features.

Table 2: General Habitat Description and Use by Reptile Species at Risk

Common Name	General Habitat and Use*
Turtles	
[redacted]	[redacted]
Blanding's Turtle	Lakes, ponds and wetlands with clear shallow water and muck bottoms. Will move between habitats within active season; aerial basking; nesting in late May to early July, in open sandy soil up to 2.5km from primary wetland, but typically within 400m of water; overwinter in marsh, bog or fen with >0.5m water depth.
Stinkpot	Shallow water in rivers, lakes and ponds with slow current and soft bottom; aquatic basking, often under floating vegetation; nesting in June, in shallow soil near water, occasionally in or under leaf litter; overwinter in primary habitat with muck bottom.
Northern Map Turtle	Large rivers and lakes with soft bottom; aerial basking; nesting June and July in sandy soil; overwinter in general habitat in areas with >5m water depth.
Snapping Turtle	All aquatic habitats, but rarely in moving water, prefer large water bodies associated with marsh and/or swamp; aquatic basking
Snakes and Lizard	
Eastern Hog-nosed Snake	Open forest and forest edges with sandy soil in proximity to water; egg-laying in late June and July in nests excavated in sandy soil, often under cover objects; hibernation in mammal burrows.
Eastern Foxsnake	Georgian Bay populations inhabit rock barrens with sparse trees and shrubs in close proximity to shoreline; basking under or near rocks or in rock crevices; egg-laying late June to July in rock crevices or decaying vegetation; communal hibernation in rock crevices near shoreline.
Eastern Massasauga	Georgian Bay populations use rock barrens, wetlands and shorelines; viviparous, bearing young in late summer; communal gestation under rock cover; hibernation in rock crevices or animal burrows where water level is close to surface.
Eastern Ribbonsnake	Wetland edges with low vegetation and open basking areas; often seen swimming; viviparous, bearing young in late summer; hibernation in rock crevices and mammal burrows.

Table 2: General Habitat Description and Use by Reptile Species at Risk

Common Name	General Habitat and Use*
Milksnake	Forest edges and open meadow; bask under cover objects; egg-laying May to July in loose soil, decomposing wood or vegetation; hibernation in rock crevices and mammal burrows, often communally and with other species.
Five-lined Skink	Open forest and rock barren; abundance of cover objects (rocks and woody debris) is important, longer/larger cover is preferred; nesting in shallow soil under cover objects.

* Habitat description and use data obtained from COSEWIC assessment and status reports.

3.6 BAT SURVEYS (TWO SURVEYS, JUNE):

Bat surveys will be conducted in conjunction with Whip-poor-will surveys. A portable, hand-held broad band acoustic monitor will be used to detect bat calls. Recorded bat calls will be analysed to guild or species, where possible, following completion of the field program. The goal of the bat surveys will be to determine the presence and relative abundance of bat species at risk.

3.7 ECOSITE, WETLAND AND VEGETATION SURVEYS

3.7.1 Ecosite Classification, including Wetlands (May to July):

Vegetation communities within the Study Area will be delineated on aerial photographs and confirmed during field investigations. Community characterizations will be based on the Ecosites of Ontario system (Banton et al., 2009) and will be identified to the Vegetation Type unit level.

The Ecosites of Ontario classification system includes wetlands. Searches for wetlands not previously identified within the Study Area will be conducted as part of the Ecosite surveys. If encountered, previously unidentified wetlands will be recorded through field notes, photographs and geo-referenced using handheld GPS units.

3.7.2 Rare flora (May to July):

Searches for rare plants and habitat supporting these plants will be conducted concurrent with Ecosite surveys, where possible, but may also require spring assessments for ephemeral species or mid-summer assessments for species where identification is dependent on the flowering period of the species. If encountered, rare plants or habitat will be recorded through field notes, photographs and geo-referenced using handheld GPS units.

A review of the MNR Natural Heritage Information Centre (NHIC) database (NHIC, 2012) indicates that two provincially rare vegetation communities are known to occur within the Study Area:

- Atlantic Coastal Plain Shallow Marsh Type; and,
- Buttonbush Organic Thicket Swamp Type

The following rare plant species (**Table 3**) may also be encountered in the Study Area:

Table 3: Rare Plant Species and Flowering Period

Common Name	Scientific Name	Flowering Period
Flowering Plants		
St. Lawrence Grape Fern	*Botrychium rugulosum*	Mid-Spring
Thread-like Naiad	*Najas gracillima*	Summer to Fall, seeds important to ID so survey at end of period
Large Round-leaved Orchid	*Plantathera macrophylla*	June to August
Snailseed Pondweed	*Potamogeton bicupulatus*	Early Summer to Fall, seeds important to ID so survey at end of period
Alga Pondweed	*Potamogeton confervoides*	Summer, seeds important to ID so survey at end of period
Twin-stemmed Bladderwort	*Utricularia geminiscapa*	July to August
Liverworts		
Liverwort sp.		Unknown, best period for general identification is June-August

3.8 FALL MIGRATORY BIRD SURVEYS

3.8.1 Fall passerine migration (Eight surveys, end of August to mid October)

Natural habitat located in close proximity to shorelines provides stopover habitat for migrating birds. Eight weekly surveys are proposed between the end of August and mid October. Monitoring will consist of ten, 500 m long transects distributed throughout the Project Location. The same transects will be used as in the Spring Passerine Migration surveys.

Survey will be conducted in the morning, between dawn and approximately 10:00 am. A tally of all species observed will be recorded on each transect. These surveys will include characterizing the abundance and diversity of passerines within the Project Location.

3.8.2 Fall waterfowl migration (Six surveys, September to October):

Fall monitoring for migrating waterfowl will be focused along Henvey Inlet and will consist of four bi-weekly surveys undertaken by boat in September through October. Surveys will include waterfowl counts to record species and number of individuals observed along the inlet, as well as characteristics of the wetlands to support migrating waterfowl (e.g. size, vegetation, permanence, etc.).

The use of scattered wetlands and ponds throughout the Project Location by staging waterfowl will be assessed through the Fall Passerine surveys.

3.8.3 Fall raptor migration (Ten surveys, September to October):

Monitoring will consist of ten surveys throughout the fall migration period (September to October) to record presence of diurnal migrant raptors. Surveys will be comprised of six-hour point counts starting at 9:00 am, conducted by two observers stationed at two appropriate vantage points within the Project Location. When site access allows, surveys stations will be situated in the east and west portions of the Project Location.

All raptors observed during the survey will be recorded and mapped. Behaviour of the raptors will be noted with emphasis on flight height and determining which individuals were actively migrating as opposed to staging (e.g. hunting, perching, etc.). For actively migrating raptors, flight paths will be mapped.

3.9 INCIDENTAL OBSERVATIONS

In addition to targeted wildlife surveys described above, all incidental observations of terrestrial wildlife or other significant sightings made during surveys throughout the 2013 field season will be recorded. Notes will be taken on the species, number of individuals, locations and behavior. Observations made early in the field season may be used to refine the remainder of the field program.

STANTEC CONSULTING LTD.

Melissa Cameron, MSc, MLA
Ecologist / Landscape Architect

Andrew Taylor
Terrestrial Ecologist

Table 4: Summary of Natural Environment Field Program

Study	Mode	Frequency	Timing	Study Area
General Reconnaissance				
Aerial survey	Helicopter	Once	early April, prior to leaf-out	PL
Ground survey	Foot / boat survey with Henvey Inlet First Nations	Once	early April	PL
Bird Surveys				
Spring Migration				
Passerines	Ten, 500m long transects	Once per week, each transect (8 surveys)	Early April to late May	PL
Waterfowl Stopover and Staging	Henvey Inlet	Once every other week (4 surveys)	April to Late May	PL
Raptors	2 stations	Ten surveys	Early March to end April	PL
Breeding Birds				
Point Counts	Minimum of 20 stations in each major habitat type	Two rounds of surveys	Late May to early July	PL, TL
Area Searches	Wandering transect between point count stations	Two rounds of surveys	Late May to early July	PL, TL
Play-back call surveys	Stations in suitable habitat	Owls – once Marsh Birds – Two rounds of surveys	Owls – April Marsh Birds – May to July	PL, TL
Crepuscular surveys	In suitable Whip-poor-will habitat	Two round of surveys	May - June	PL, TL
Raptor and Colonial Bird Nests	Visual survey for raptor and colonial nesting bird nests	Twice – once to locate, once to confirm use	Concurrent with aerial reconnaissance, then with point counts to confirm use	PL, TL
Fall Migration				
Passerines	Ten, 500m long transects	Once per week, each transect (8 surveys)	End August to mid-October	PL
Waterfowl Stopover and Staging	Henvey Inlet only	Once every other week (4 surveys)	September to October	PL
Raptors	2 stations	Ten surveys	September to October	PL

Table 4: Summary of Natural Environment Field Program

Study	Mode	Frequency	Timing	Study Area
Bat Surveys				
Ultrasonic Recording Units	Handheld units	Twice	June, in conjunction with crepuscular surveys	PL, TL
Reptile Surveys				
General Habitat Survey	Habitat Assessment	Once	Concurrent with Ecosite and vegetation surveys	PL, TL
SAR Surveys	Targeted surveys for turtle, snake and lizard species at risk	Once	June	PL, TL
Amphibian Surveys				
Western Chorus Frog Call Counts	Daytime call surveys, including audio recordings	Once	April	PL, TL
Salamander Egg Mass	Daytime surveys in wetlands	Once	April, concurrent with frog call counts	PL, TL
FEC / Botanical Surveys				
Ecosite classification, including wetlands	Ground surveys	Once	May to July	PL, TL
Rare Plants – Spring Ephemerals	Ground surveys	Once	May and June	PL, TL
Rare Plants – Summer Botanical	Ground surveys	Once	July	PL, TL

PL – Project Location.

TL – Transmission Line.

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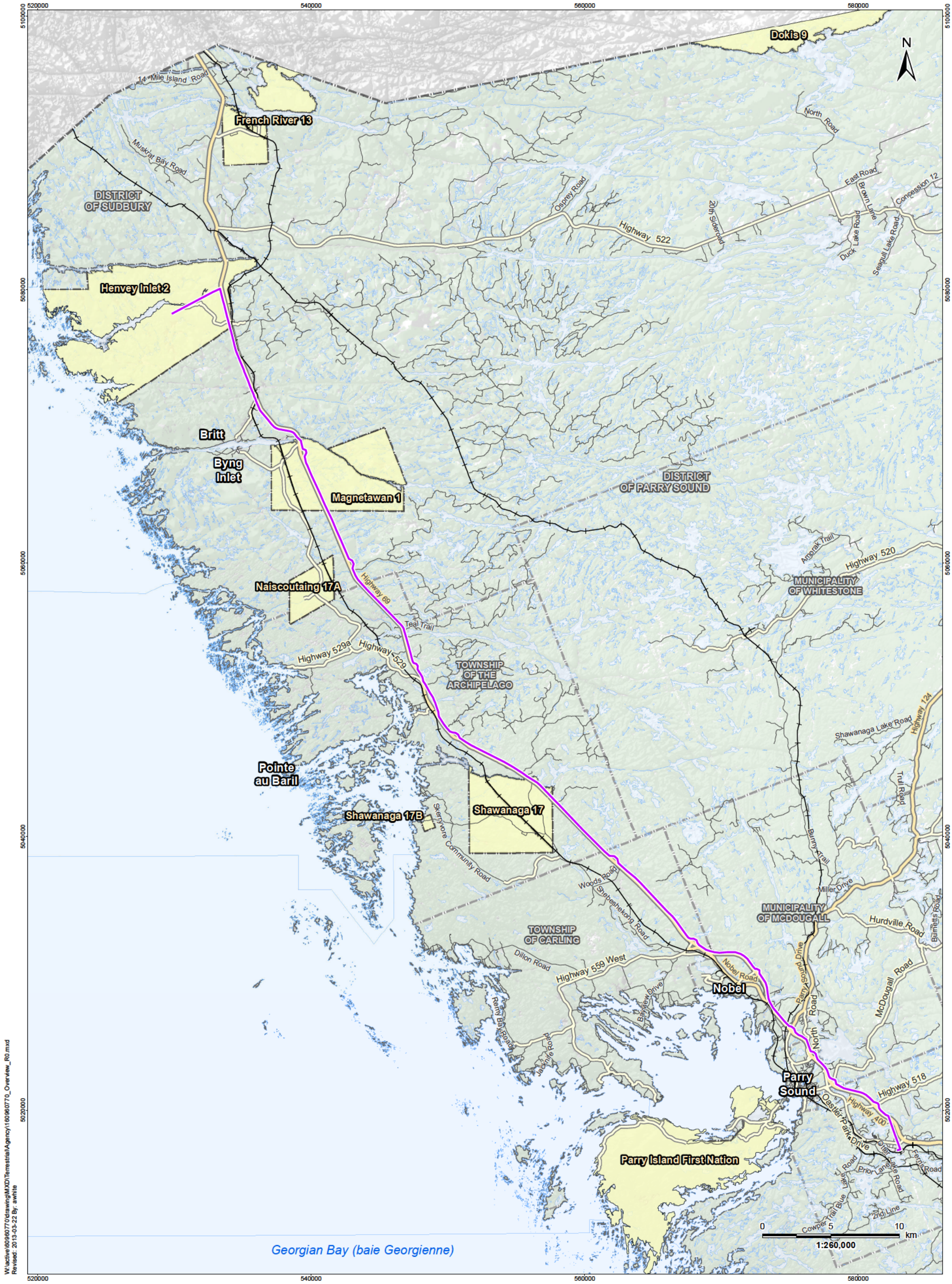
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Appendix A

Figures



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Revised: 2013-03-22 By: awhite

March 2013
160960770

Stantec

Legend

- Proposed Transmission Line
- Railway
- Watercourse

Existing Features

- Highway
- Major Road
- Local Road
- First Nation Reserve
- Upper Tier Boundary
- Lower Tier Boundary
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

*Precise location of transmission line within highway corridor to be determined

Client/Project
NIGIG POWER CORP.
HENVEY INLET WIND PROJECT

Figure No.
1

DRAFT

Title
Study Area Overview

Appendix C

Results of 2011, 2012 and 2013 Field Studies

Table C-1: Spring 2011 Raptor Migration Survey Results - HIWEC Study Area

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp.	Cloud Cover (%)	Common Name	Scientific Name	ESA Status	SARA Status	S-rank	Number	Direction	Notes
Raptors																		
9	May	2011	SR, DN	HAWK 2	10:00	11:00	E	2	6	1	0 raptors	-	-	-	-	0		
9	May	2011	SR, DN	HAWK 2	11:00	12:00	E	3	10	1	0 raptors	-	-	-	-	0		
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1	Northern Harrier	Circus cyaneus	-	-	S4	1	E	female, south side of inlet, foraging low over treetops, against wind
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1	American Kestrel	Falco sparverius	-	-	S4	1	NE	female, north side of inlet
9	May	2011	SR, DN	HAWK 2	12:00	13:00	E	4	13	1	Merlin	Falco columbarius	-	-	S5	1	N	flying just above treetops, zooms across inlet
9	May	2011	SR, DN	HAWK 2	13:00	14:00	E	4	15	1	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	N	
9	May	2011	SR, DN	HAWK 2	13:00	14:00	E	4	15	1	Unknown Buteo	Buteo sp.	-	-	-	1	N	south side of Henvey, too high to ID
9	May	2011	SR, DN	HAWK 2	before survey period						Broad-winged Hawk	Buteo platypterus	-	-	S5	1		flew across Beckanon Road en route in
9	May	2011	SR, DN	HAWK 2	throughout survey period						Turkey Vulture	Cathartes aura	-	-	S5	11		in one kettle, soaring around inlet
10	May	2011	SR, DN	HAWK 3	10:00	11:00	E	0-1	15	100	0 raptors	-	-	-	-	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	11:00	12:00	E	0-1	16	100	0 raptors	-	-	-	-	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	12:00	13:00	E	0-1	16	100	0 raptors	-	-	-	-	0		intermittent cloudburst rain, high humidity
10	May	2011	SR, DN	HAWK 3	13:00	14:00	E	0-1	17	100	0 raptors	-	-	-	-	0		intermittent cloudburst rain, high humidity
11	May	2011	SR	HAWK 1	10:00	11:00	E/SE	0-1	15	80	Turkey Vulture	Cathartes aura	-	-	S5	4		one kettle, circling, along north shore
11	May	2011	SR	HAWK 1	11:00	12:00	SE	0-1	19	90	Turkey Vulture	Cathartes aura	-	-	S5	10		one kettle circling, 4 are same as previous hour
11	May	2011	SR	HAWK 1	12:00	13:00	W	4	20	60	Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	E	along south side of inlet, clrcling
11	May	2011	SR	HAWK 1	13:00	14:00	W	4	20	60	Unknown Buteo	Buteo sp.	-	-	-	1	E	north side of inlet, circled 15 sec before disappearing, 1:34 pm winds disappeared
11	May	2011	SR	HAWK 1	13:00	14:00	W	1	20	60	Turkey Vulture	Cathartes aura	-	-	S5	3		same as in previous hours
12	May	2011	SR, NH	HAWK 2	10:00	11:00	SE	2	17	100	Turkey Vulture	Cathartes aura	-	-	S5	2		circling over south side of inlet
12	May	2011	SR, NH	HAWK 2	11:00	12:00	SE	2	18	80	Unknown Buteo	Buteo sp.	-	-	-	1		south side of inlet, too high to ID
12	May	2011	SR, NH	HAWK 2	11:00	12:00	SE	1	20	80	Turkey Vulture	Cathartes aura	-	-	S5	3		2 same as previous hour
12	May	2011	SR, NH	HAWK 2	12:00	13:00	SE	1	20	50	0 raptors	-	-	-	-			
12	May	2011	SR, NH	HAWK 2	13:00	14:00	SE	1	20	50	0 raptors	-	-	-	-			
16	May	2011	SR	HAWK 1	10:00	11:00	SE	5-6	6	50	Turkey Vulture	Cathartes aura	-	-	S5	2		circling around inlet, struggling against wind at south side of inlet
16	May	2011	SR	HAWK 1	11:00	12:00	SE	5-6	7	50	0 raptors	-	-	-	-			
16	May	2011	SR	HAWK 1	12:00	13:00	SE	5-6	9	50	0 raptors	-	-	-	-			
16	May	2011	SR	HAWK 1	13:00	14:00	SE	5-6	9	50	0 raptors	-	-	-	-			
18	May	2011	SR, MR	HAWK 3	10:00	11:00	E	1	16	100	0 raptors	-	-	-	-			light spitting rain
18	May	2011	SR, MR	HAWK 3	11:00	12:00	E	1	17	100	0 raptors	-	-	-	-			light spitting rain
18	May	2011	SR, MR	HAWK 3	12:00	13:00	E	1	18	100	0 raptors	-	-	-	-			light spitting rain
18	May	2011	SR, MR	HAWK 3	13:00	14:00	E	1	18	100	0 raptors	-	-	-	-			light spitting rain
Incidental Wildlife																		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Black-and-white Warbler	Mniotilta varia	-	-	S5	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Winter Wren	Troglodytes troglodytes	-	-	S5	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Common Merganser	Mergus merganser	-	-	S5	2		both male
9	May	2011	SR, DN	HAWK 2	throughout survey period						Great Blue Heron	Ardea herodias	-	-	S4	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Herring Gull	Larus argentatus	-	-	S5	2		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	19		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Bufflehead	Bucephala albeola	-	-	S4	2	E	
9	May	2011	SR, DN	HAWK 2	throughout survey period						Common Loon	Gavia immer	-	-	S5	2		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Caspian Tern	Sterna caspia	-	-	S3	1		calling, trolling back and forth along the inlet
9	May	2011	SR, DN	HAWK 2	throughout survey period						Spotted Sandpiper	Actitis macularia	-	-	S5	1	N	low along water's surface
9	May	2011	SR, DN	HAWK 2	throughout survey period						Common Raven	Corvus corax	-	-	S5	1		
9	May	2011	SR, DN	HAWK 2	throughout survey period						Sandhill Crane	Grus canadensis tabida	-	-	S5	1		circling overhead
10	May	2011	SR, DN	HAWK 3	throughout survey period						Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	2		Blackflies started to bite today
10	May	2011	SR, DN	HAWK 3	throughout survey period						Common Loon	Gavia immer	-	-	S5	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period						Canada Goose	Branta canadensis	-	-	S5	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period						Herring Gull	Larus argentatus	-	-	S5	2		
10	May	2011	SR, DN	HAWK 3	throughout survey period						Blue Jay	Cyanocitta cristata	-	-	S5	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period						Tree Swallow	Tachycineta bicolor	-	-	S4	1		
10	May	2011	SR, DN	HAWK 3	throughout survey period						Common Raven	Corvus corax	-	-	S5	4		
11	May	2011	SR	HAWK 1	throughout survey period						Sandhill Crane	Grus canadensis tabida	-	-	S5	2	E	along north shore of inlet
11	May	2011	SR	HAWK 1	throughout survey period						Caspian Tern	Sterna caspia	-	-	S3	2		trolling over water
11	May	2011	SR	HAWK 1	throughout survey period						Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	5		
11	May	2011	SR	HAWK 1	throughout survey period						Common Merganser	Mergus merganser	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Spotted Sandpiper	Actitis macularia	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Herring Gull	Larus argentatus	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Common Loon	Gavia immer	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Blue Jay	Cyanocitta cristata	-	-	S5	1		
11	May	2011	SR	HAWK 1	throughout survey period						Canada Goose	Branta canadensis	-	-	S5	7		
12	May	2011	SR, NH	HAWK 2	throughout survey period						Canada Goose	Branta canadensis	-	-	S5	2		

Table C-1: Spring 2011 Raptor Migration Survey Results - HIWEC Study Area

12	May	2011	SR, NH	HAWK 2	throughout survey period					Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	15		
12	May	2011	SR, NH	HAWK 2	throughout survey period					Herring Gull	Larus argentatus	-	-	S5	1		
12	May	2011	SR, NH	HAWK 2	throughout survey period					Ring-billed Gull	Larus delawarensis	-	-	S5	2		
12	May	2011	SR, NH	HAWK 2	throughout survey period					Caspian Tern	Sterna caspia	-	-	S3	2		
12	May	2011	SR, NH	HAWK 2	throughout survey period					Common Raven	Corvus corax	-	-	S5	3		
16	May	2011	SR	HAWK 1	throughout survey period					Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
16	May	2011	SR	HAWK 1	throughout survey period					Herring Gull	Larus argentatus	-	-	S5	2		
16	May	2011	SR	HAWK 1	throughout survey period					Mallard	Anas platyrhynchos	-	-	S5	2		1 male, 1 female
16	May	2011	SR	HAWK 1	throughout survey period					Sandhill Crane	Grus canadensis tabida	-	-	S5	1		over north side of inlet, struggling against wind briefly while calling
16	May	2011	SR	HAWK 1	throughout survey period					Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	8		
16	May	2011	SR	HAWK 1	throughout survey period					Common Raven	Corvus corax	-	-	S5	1		1 soaring/flying against wind across from landing on north side of inlet
16	May	2011	SR	HAWK 1	throughout survey period					Canada Goose	Branta canadensis	-	-	S5	4		two pairs
18	May	2011	SR, MR	HAWK 3	throughout survey period					Great Blue Heron	Ardea herodias	-	-	S4	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period					Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	3		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period					Ring-billed Gull	Larus delawarensis	-	-	S5	2		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period					Herring Gull	Larus argentatus	-	-	S5	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period					American Robin	Turdus migratorius	-	-	S5	1		light spitting rain
18	May	2011	SR, MR	HAWK 3	throughout survey period					American Crow	Corvus brachyrhynchos	-	-	S5	4		light spitting rain

SR Sarah Richer
DN Dave Norman
NH Neil Herbert
MR Mike Ranger

Glossary
ESA Status - Endangered Species Act (Provincial)
EXP - Extripated - a species that no longer exists in the wild in Ontario but still occurs elsewhere.
END - Endangered - a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act.
THR - Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC - Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events.
SARA Status - Species at Risk Act (Federal)
EXP - Extripated - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END - Endangered - wildlife species that is facing imminent extirpation or extinction..
THR - Threatened - wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC - Special Concern a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Schedule 1 - The official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2 - Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3 - Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
COSEWIC Status - Committee on the Stauts of Endangerd Wildlife in Canada
S-Rank
S1 - Critically Imperiled, often < 5 occurrences
S2 - Imperiled, often <20 occurences
S3 - Vulnerable, often 80 or fewer
S3S4 - Uncertain between S3 and S4
S4 - Aparently Secure, ncommon
S5 - Secure, common
6 1 $ 1 R W $ S S O L F D E O H ² $ F R Q V H U Y D W L R Q V W D W X V U D Q N L V Q R W D S S O L F D E O H E H F D X V H W K H V S H F L H V L V Q R W D V X L W D E O H W D U J H W I R U F R Q V H U Y D W L R Q D F W L Y L W L H V
SH - Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered.

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

Day	Month	Year	Observer	Station	Start Time	End Time	Wind Direction	Beaufort	Temp.	Cloud Cover (%)	Cloud Type (if recorded)	Common Name	Scientific Name	ESA Status	SARA Status	S-rank	Number	Direction	Notes
Raptors																			
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Turkey Vulture	Cathartes aura	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	S	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Buteo	-	-	-	-	2	SW	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Falcon	-	-	-	-	2		
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Unknown Raptor	-	-	-	-	1	E	
5	September	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Turkey Vulture	Cathartes aura	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, local??
5	September	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	American Kestrel	Falco sparverius	-	-	S4	1	NE	
5	September	2011	ARD	HAWK1	10:30	11:30	NE	4	15	100	low overcast	Unknown Falcon	-	-	-	-	1	SW	
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Turkey Vulture	Cathartes aura	-	-	S5	2	W	
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Merlin	Falco columbarius	-	-	S5	1	S	
5	September	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Turkey Vulture	Cathartes aura	-	-	S5	1		circle, likely same as previous
5	September	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Broad-winged Hawk	Buteo platypterus	-	-	S5	1		circled at trees, then back in
5	September	2011	ARD	HAWK1	13:30	14:00	NNE	4	16	95	low overcast	Turkey Vulture	Cathartes aura	-	-	S5	3		circle, Joe's (S) & 1 land?
5	September	2011	ARD	HAWK1	13:30	14:00	NNE	4	16	95	low overcast	Unknown Raptor	-	-	-	-	1	SE	small, high
6	September	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Turkey Vulture	Cathartes aura	-	-	S5	2	SE	
6	September	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, soaring in circles overhead
6	September	2011	SR	HAWK 4	11:45	12:45	N	3	16	100		Cooper's Hawk	Accipiter cooperi	-	-	S4	1	S	Across inlet, from north
6	September	2011	SR	HAWK 4	13:45	14:45	NE	3	20	30		Turkey Vulture	Cathartes aura	-	-	S5	3		same three as previous hour
6	September	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Turkey Vulture	Cathartes aura	-	-	S5	3		
6	September	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Unknown Raptor	-	-	-	-	2		Too high to ID; soaring on thermal
6	September	2011	SR	HAWK 4	12:45	13:45	NE	3	20	30		Unknown Accipiter	-	-	-	-	2	S	Too high to ID; soaring on thermal
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle/N, seen often, local
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		circle
6	September	2011	ARD	HAWK3	12:30	13:30	NE	3	15	45	low cumulus	nil	-	-	-	-			
6	September	2011	ARD	HAWK3	13:30	14:30	NE	3	15	25	low, broken	Turkey Vulture	Cathartes aura	-	-	S5	1		circle, likely same as previous
6	September	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Merlin	Falco columbarius	-	-	S5	1	N	~20m alt.
6	September	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Cooper's Hawk	Accipiter cooperi	-	-	S4	1	S	<10m
6	September	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	2	W	
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	14	60		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	N	caught fish from inlet, flew north out of sight; minimum 2nd year bird
7	September	2011	SR	HAWK 3	11:05	12:05	NE	3	18	85		Turkey Vulture	Cathartes aura	-	-	S5	1		circling around inlet
7	September	2011	SR	HAWK 3	11:05	12:05	NE	3	18	85		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SW	
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Turkey Vulture	Cathartes aura	-	-	S5	3		
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		minimum 2nd year bird, perched
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Northern Harrier	Circus cyaneus	-	-	S4	1	SW	
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SW	
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Broad-winged Hawk	Buteo platypterus	-	-	S5	1	SW	
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		American Kestrel	Falco sparverius	-	-	S4	1	SW	
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Unknown Accipiter	-	-	-	-	4	SW	Too high to ID; soaring on thermal
7	September	2011	SR	HAWK 3	12:05	1:05	NE	4	20	70		Unknown Buteo	-	-	-	-	1		Too high to ID; soaring on thermal
7	September	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Turkey Vulture	Cathartes aura	-	-	S5	4		three are same three as previous hour
7	September	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		same eagle as previous hour
7	September	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		American Kestrel	Falco sparverius	-	-	S4		SW	
7	September	2011	SR	HAWK 3	1:05	2:05	NE	4	20	70		Unknown Falcon	-	-	-	-	3	SW	Too high to ID; soaring on thermal
7	September	2011	ARD	HAWK4	11:00	12:00	NE	1	17	75	cirrus	Unknown Accipiter	-	-	-	-	1	S	
7	September	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Merlin	Falco columbarius	-	-	S5	1	E	tree height
7	September	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Unknown Falcon	-	-	-	-	1		sitting, N shore
7	September	2011	ARD	HAWK4	12:00	13:00	NE	2	19	60	cirrus	Unknown Raptor	-	-	-	-	1		circle, distant
7	September	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle, distant
7	September	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle at 2nd level of MET1
7	September	2011	ARD	HAWK4	13:00	14:00	NE	3	19	80	cirrus	Cooper's Hawk	Accipiter cooperi	-	-	S4	1	SW	50-100m height
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	Cathartes aura	-	-	S5	1	SE	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	Cathartes aura	-	-	S5	2	SE	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Turkey Vulture	Cathartes aura	-	-	S5	1	E	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Cooper's Hawk	Accipiter cooperi	-	-	S4	1	S	high
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Broad-winged Hawk	Buteo platypterus	-	-	S5	1		kettling
8	September	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Turkey Vulture	Cathartes aura	-	-	S5	1	N	
8	September	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Turkey Vulture	Cathartes aura	-	-	S5	5	E	
8	September	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	E	
8	September	2011	ARD	HAWK2	13:15	14:15	NE	3	25	35		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	E	through trees
8	September	2011	ARD	HAWK2	13:15	14:15	NE	3	25	35		American Kestrel	Falco sparverius	-	-	S4	1	S	cross inlet, then turned E

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	W	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Osprey	Pandion haliaetus	-	-	S5	1	S	~30m
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	SW	~50m
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1		thermal, high
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SW	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Cooper's Hawk	Accipiter cooperi	-	-	S4	1	SW	riding thermal
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Broad-winged Hawk	Buteo platypterus	-	-	S5	1	S	tree level
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		thermal
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Unknown Accipiter	-	-	-	-	1	SW	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Unknown Raptor	-	-	-	-	1		thermal
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Turkey Vulture	Cathartes aura	-	-	S5	1	NE	low (above trees)
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Turkey Vulture	Cathartes aura	-	-	S5	1	E	
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		juv., thermal
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, thermal
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Northern Harrier	Circus cyaneus	-	-	S4	1		low, ~30m
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1		thermal
12	September	2011	SR	HAWK 3	10:40	11:40	W	4	26	50		Turkey Vulture	Cathartes aura	-	-	S5	3		
12	September	2011	SR	HAWK 3	10:40	11:40	W	4	26	50		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1		foraging on island
12	September	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Turkey Vulture	Cathartes aura	-	-	S5	5		three are same birds as first hour
12	September	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SE	
12	September	2011	SR	HAWK 3	11:40	12:40	W	4	26	40		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		thermal
12	September	2011	SR	HAWK 3	12:40	12:45	W	4	26	40		Turkey Vulture	Cathartes aura	-	-	S5	10		7 in one kettle, 3 in another
12	September	2011	SR	HAWK 3	12:40	12:45	W	4	26	40		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SE	
12	September	2011	SR	HAWK 2	9:04	10:10	W	4	21	15		Turkey Vulture	Cathartes aura	-	-	S5	1		soaring, south side of inlet
12	September	2011	SR	HAWK 2	9:04	10:10	W	4	21	15		Merlin	Falco columbarius	-	-	S5	1	SW	
12	September	2011	ARD	HAWK4	12:35	13:05	SW	2	30	10	light cumulus	Turkey Vulture	Cathartes aura	-	-	S5	4	S	
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Turkey Vulture	Cathartes aura	-	-	S5	1		circle
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Turkey Vulture	Cathartes aura	-	-	S5	1	E	
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Merlin	Falco columbarius	-	-	S5	1	W	
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	1	NE	same?, local?
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	5		circle
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	3		circle
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	NW	juv.
14	September	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Turkey Vulture	Cathartes aura	-	-	S5	1		thermal
14	September	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	SE	minimum 3 year old
14	September	2011	SR	HAWK 4	8:45	9:45	W	6	15	60		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	W	along north side of inlet
14	September	2011	SR	HAWK 4	9:45	10:45	W	6	15	60		Turkey Vulture	Cathartes aura	-	-	S5	3		fighting winds
14	September	2011	SR	HAWK 4	9:45	10:45	W	6	15	60		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		same bird as first hour
14	September	2011	SR	HAWK 4	10:45	11:30	W	6	15	60		0 raptors	-	-	-	-			
14	September	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Turkey Vulture	Cathartes aura	-	-	S5	1		
14	September	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Unknown Buteo	-	-	-	-	1	E	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Kestrel	Falco sparverius	-	-	S4	1		harass jays
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Unknown Falcon	-	-	-	-	1		
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	1	E	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	S	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	E	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Unknown Raptor	-	-	-	-	1	S	
14	September	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Turkey Vulture	Cathartes aura	-	-	S5	2		
14	September	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Northern Harrier	Circus cyaneus	-	-	S4	1	W	
14	September	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Northern Goshawk	Accipiter gentilis	-	-	S4	1	S	
15	September	2011	SR	HAWK 2	10:35	11:35	W/NW	4	10	80		Turkey Vulture	Cathartes aura	-	-	S5	1	W	
15	September	2011	SR	HAWK 2	11:35	12:35	W/NW	4	10	100		Turkey Vulture	Cathartes aura	-	-	S5	8		in one kettle
15	September	2011	SR	HAWK 2	11:35	12:35	W/NW	4	10	100		Broad-winged Hawk	Buteo platypterus	-	-	S5	2	S	
15	September	2011	SR	HAWK 2	12:35	1:35	NW	4	10	80		Turkey Vulture	Cathartes aura	-	-	S5	5		same kettle as previous hour
15	September	2011	SR	HAWK 2	12:35	1:35	NW	4	10	80		Northern Harrier	Circus cyaneus	-	-	S4	1		thermal, high into clouds
15	September	2011	SR	HAWK 2	1:35	2:35	NW	4	10	80		Unknown Raptor	-	-	-	-	1		Too high to ID; soaring on thermal
15	September	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Kestrel	Falco sparverius	-	-	S4	1	SW	
15	September	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Northern Harrier	Circus cyaneus	-	-	S4	1		thermal high
15	September	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Broad-winged Hawk	Buteo platypterus	-	-	S5	1	SE	
15	September	2011	ARD	HAWK3	13:40	14:40	NW	3	13	70	low cumulus	nil	-	-	-	-			
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		imm.
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Unknown Buteo	-	-	-	-	1	E	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Turkey Vulture	Cathartes aura	-	-	S5	1		circle
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		American Kestrel	Falco sparverius	-	-	S4	1	W	along shore
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Peregrine Falcon	Falco peregrinus	SC	SC Schedule 1	S3	1	W	along treetops, probable

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

15	September	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle, same as previous
15	September	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Broad-winged Hawk	Buteo platypterus	-	-	S5	2		thermal
15	September	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Merlin	Falco columbarius	-	-	S5	1		thermal, chase BWHA
15	September	2011	ARD	HAWK2	9:55	10:30	N	2	8	25	low cumulus	Unknown Raptor	-	-	-	-	1		thermal
16	September	2011	SR	HAWK 1	11:45	12:45	W	3	15	0		Turkey Vulture	Cathartes aura	-	-	S5	5		soaring around inlet, remaining local
16	September	2011	SR	HAWK 1	11:45	12:45	W	3	15	0		Unknown Buteo	-	-	-	-	1	S	Too high to ID; soaring on thermal
16	September	2011	SR	HAWK 1	12:45	1:45	W	3	15	0		Turkey Vulture	Cathartes aura	-	-	S5	3		three are same birds as first hour
16	September	2011	SR	HAWK 1	12:45	1:45	W	3	15	0		Unknown Raptor	-	-	-	-	1		Too high to ID; soaring on thermal
16	September	2011	SR	HAWK 1	1:45	2:45	W	3	15	0		Turkey Vulture	Cathartes aura	-	-	S5	3		three are same birds as first hour
16	September	2011	SR	HAWK 1	1:45	2:45	W	3	15	0		Unknown Buteo	-	-	-	-	1		Too high to ID; soaring on thermal
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Turkey Vulture	Cathartes aura	-	-	S5	4		
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	S	
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	S	low
20	September	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Turkey Vulture	Cathartes aura	-	-	S5	20	S	
20	September	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	Northern Harrier	Circus cyaneus	-	-	S4	1		female
20	September	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Turkey Vulture	Cathartes aura	-	-	S5	2		
20	September	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	E	
20	September	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Red-tailed Hawk	Buteo jamaicensis	-	-	S5	2	W	
20	September	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Unknown Falcon	-	-	-	-	1	W	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Northern Harrier	Circus cyaneus	-	-	S4	1	W	female, low flying
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Merlin	Falco columbarius	-	-	S5	1		perched
20	September	2011	ARD	HAWK 2	11:15	12:15	NE	2	22	40	high		-	-	-	-			
20	September	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Turkey Vulture	Cathartes aura	-	-	S5	2		
20	September	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		obs same as ARD
20	September	2011	SR	HAWK 2	10:35	11:35	NW	3	17	10		Unknown Buteo	-	-	-	-	1	S	Too high to ID; soaring on thermal
20	September	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Turkey Vulture	Cathartes aura	-	-	S5	5		two are same as previous hour
20	September	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Merlin	Falco columbarius	-	-	S5	1	S	
20	September	2011	SR	HAWK 2	11:35	12:35	W	3	18	50		Unknown Accipiter	-	-	-	-	1		Too high to ID; soaring on thermal
20	September	2011	SR	HAWK 2	12:35	13:35	SW	3	20	50		Turkey Vulture	Cathartes aura	-	-	S5	4		same as previous hour
20	September	2011	SR	HAWK 2	12:35	13:35	SW	3	20	50		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	S	
20	September	2011	SR	HAWK 2	13:35	14:35	SW	3	19	10		Turkey Vulture	Cathartes aura	-	-	S5	5		four are same as previous hour
21	September	2011	SR	HAWK 3	11:00	12:00	SE	3	19	90		Turkey Vulture	Cathartes aura	-	-	S5	2		
21	September	2011	SR	HAWK 3	11:00	12:00	SE	3	19	90		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		
21	September	2011	SR	HAWK 3	12:00	13:00	SE	3	19	90		Turkey Vulture	Cathartes aura	-	-	S5	3		same two as first hour
21	September	2011	SR	HAWK 3	12:00	13:00	SE	3	19	90		Northern Harrier	Circus cyaneus	-	-	S4	1		female, flew to north side of inlet
21	September	2011	SR	HAWK 3	13:00	14:00	SE	4	20	90		Northern Harrier	Circus cyaneus	-	-	S4	5		1 male, four either juveniles or females
21	September	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	Turkey Vulture	Cathartes aura	-	-	S5	2	N	
21	September	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Turkey Vulture	Cathartes aura	-	-	S5	6		
21	September	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Osprey	Pandion haliaetus	-	-	S5	1	W	thermal
21	September	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Northern Harrier	Circus cyaneus	-	-	S4	1		female, thermal
21	September	2011	ARD	HAWK1	13:00	14:00	S	3	25	95	nimbostratus	Unknown Buteo	-	-	-	-	1		thermal
22	September	2011	SR	HAWK 3	9:35	10:35	S	3	15	100		American Kestrel	Falco sparverius	-	-	S4	1	S	
22	September	2011	SR	HAWK 3	10:35	11:35	S	3	16	100		0 raptors	-	-	-	-			precipitation 2, sprinkling rain
22	September	2011	SR	HAWK 3	11:35	12:35	SW	3	15	100		0 raptors	-	-	-	-			no rain
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	W	juv.
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Peregrine Falcon	Falco peregrinus	SC	SC Schedule 1	S3	1	E	along trees
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, thermal
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	W	
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Cooper's Hawk	Accipiter cooperi	-	-	S4	1	W	adult
22	September	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Turkey Vulture	Cathartes aura	-	-	S5	1		circle
22	September	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Turkey Vulture	Cathartes aura	-	-	S5	2		
22	September	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		thermal
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		0 raptors	-	-	-	-			
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Turkey Vulture	Cathartes aura	-	-	S5	3		
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	E	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	S	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	N	same as previous??
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Northern Harrier	Circus cyaneus	-	-	S4	1	E	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Buteo	-	-	-	-	1	W	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Falcon	-	-	-	-	1		chase bird from perch
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Unknown Raptor	-	-	-	-	1	W	
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Turkey Vulture	Cathartes aura	-	-	S5	4		
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		2 yr old; thermal, northside
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Broad-winged Hawk	Buteo platypterus	-	-	S5	1	E	

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		thermal, north side
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		American Kestrel	Falco sparverius	-	-	S4	1		northside, foraging
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	-	-	-	-	1	E	
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	-	-	-	-	1		thermal, north side
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Buteo	-	-	-	-	1		thermal
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Unknown Raptor	-	-	-	-	1		
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	Cathartes aura	-	-	S5	2		
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Turkey Vulture	Cathartes aura	-	-	S5	1	S	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Sharp-shinned Hawk	Accipiter striatus	-	-	S5	1	SE	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	E	thermal
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	SE	thermal
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	0 raptors	-	-	-	-			
27	September	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Turkey Vulture	Cathartes aura	-	-	S5	1		soaring, south side of inlet
27	September	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, perched at south side
27	September	2011	SR	HAWK 2	11:15	12:15	SE	3	20	100		Unknown Accipiter	-	-	-	-	1	S	Too high to ID; soaring on thermal
27	September	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Turkey Vulture	Cathartes aura	-	-	S5	1		same as previous hour
27	September	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		same as previous hour
27	September	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		American Kestrel	Falco sparverius	-	-	S4	1		perched, south side of inlet
27	September	2011	SR	HAWK 2	12:15	13:15	SE	2	20	100		Northern Harrier	Circus cyaneus	-	-	S4	1	S	female or juvenile
27	September	2011	SR	HAWK 2	13:15	14:15	S	2	20	100		0 raptors	-	-	-	-			
29	September	2011	SR	HAWK 4	11:00	12:00	SW	2	17	60		Turkey Vulture	Cathartes aura	-	-	S5	4		soaring around inlet, staying local
29	September	2011	SR	HAWK 4	12:00	13:00	SW	2	17	90		Turkey Vulture	Cathartes aura	-	-	S5	7		4 same as previous hour
29	September	2011	SR	HAWK 4	12:00	13:00	SW	2	17	90		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		adult, soaring on thermal
29	September	2011	SR	HAWK 4	13:00	14:00	SW	2	18	30		Unknown Buteo	-	-	-	-	1	E	Too high to ID; soaring on thermal
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	E	adult
30	September	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	W	adult, flying low
4	October	2011	SR	HAWK 3	8:50	9:50	NW	2	8	15		Turkey Vulture	Cathartes aura	-	-	S5	1	N	thermals
4	October	2011	SR	HAWK 3	9:50	10:50	NW	1-2	13	10		Turkey Vulture	Cathartes aura	-	-	S5	1	N	Thermal
4	October	2011	SR	HAWK 3	10:50	11:20	NW	1-2	13	10		Turkey Vulture	Cathartes aura	-	-	S5	3		1 perched
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Turkey Vulture	Cathartes aura	-	-	S5	2	N	
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	2	SW	
5	October	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Turkey Vulture	Cathartes aura	-	-	S5	2		thermals
5	October	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	N	3 -yrs old
5	October	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	2	SW	
5	October	2011	SR	HAWK 4	11:00	12:00	NE	4	16	0		Unknown Raptor	-	-	-	-	1	SW	Too high to ID, soaring on thermal
5	October	2011	SR	HAWK 4	12:00	13:00	NE	4	15	0		Turkey Vulture	Cathartes aura	-	-	S5	7		thermals
6	October	2011	SR	HAWK 2	12:35	13:35	SW	1-2	15	0		Turkey Vulture	Cathartes aura	-	-	S5	4		2 not visible to ARD. On thermals
6	October	2011	SR	HAWK 2	13:35	14:35	SW	1	15	0		Turkey Vulture	Cathartes aura	-	-	S5	7		3 possible visible to ARD
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	NE	1 Adult perched for 45 minutes
13	October	2011	SR	HAWK 1	9:50	10:20	E/SE	2	14	100	low overcast	0 raptors	-	-	-	-			
13	October	2011	SR	HAWK 1	10:00	11:00	S/SE	2	13	100		0 raptors	-	-	-	-			Light drizzle on-off
13	October	2011	SR	HAWK 1	11:00	12:00	S/SE	2	13	100		0 raptors	-	-	-	-			Light drizzle on-off
13	October	2011	SR	HAWK 1	12:00	13:00	S/SE	2-3	14	100		Turkey Vulture	Cathartes aura	-	-	S5	1		soaring
13	October	2011	SR	HAWK 1	13:00	14:00	S/SE	2-3	14	100		Turkey Vulture	Cathartes aura	-	-	S5	1	N	
13	October	2011	SR	HAWK 1	13:00	14:00	S/SE	2-3	14	100		Northern Harrier	Circus cyaneus	-	-	S4	1	S	Female
14	October	2011	SR	HAWK 2	11:30	12:30	SW	2-3	13	100		Unknown Falcon	-	-	-	-	1	S	Too high to ID, soaring on thermal; showers on - off
14	October	2011	SR	HAWK 2	12:30	13:30	SW	2-3	13	100		0 raptors	-	-	-	-			showers on - off
18	October	2011	SR	HAWK 1	12:00	13:00	W	2-3	8	50		Turkey Vulture	Cathartes aura	-	-	S5	2	S	
18	October	2011	SR	HAWK 1	12:00	13:00	W	2-3	8	50		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	NW-SE	
18	October	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	3	SE	
18	October	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	N	
18	October	2011	SR	HAWK 1	13:00	14:00	W	3-4	8	50		Northern Harrier	Circus cyaneus	-	-	S4	2	SE	
19	October	2011	SR	HAWK 1	9:00	10:00	E/NE	2	5	80		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1		perched on North side
19	October	2011	SR	HAWK 1	10:00	11:00	E/NE	2	6	95		Northern Harrier	Circus cyaneus	-	-	S4	1	S	Female
19	October	2011	SR	HAWK 1	11:00	11:30	E/NE	3	6	100		0 raptors	-	-	-	-			some precipitation
21	October	2011	SR	HAWK 3	9:45	10:45	NW	3	5	100		Rough-legged Hawk	Buteo lagopus	-	-	S4	1		Foraging low over treetops
21	October	2011	SR	HAWK 3	10:45	11:45	NW	2-3	5	95		Rough-legged Hawk	Buteo lagopus	-	-	S4	1		Same one observed in previous hour
21	October	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Rough-legged Hawk	Buteo lagopus	-	-	S4	1		Same one observed in previous 2 hours
21	October	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1	SE	Immature
21	October	2011	SR	HAWK 3	11:45	12:45	NW	2-3	5	95		Red-tailed Hawk	Buteo jamaicensis	-	-	S5	1	S	
25	October	2011	SR	HAWK 3	9:30	10:30	W	6	5	25		Golden Eagle	Aquila chrysaetos	END	-	S2	1	E	
25	October	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Northern Harrier	Circus cyaneus	-	-	S4	1	S	
25	October	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Golden Eagle	Aquila chrysaetos	END	-	S2	1	N	Thermals
25	October	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Unknown Falcon	-	-	-	-	1		Too high to ID, soaring on thermal
25	October	2011	SR	HAWK 3	10:30	11:30	W	6	5	25		Unknown Raptor	-	-	-	-	1		Too high to ID, soaring on thermal

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

25	October	2011	SR	HAWK 3	11:30	12:30	W	6	5	40		Rough-legged Hawk	Buteo lagopus	-	-	S4	1	S	Foraging
26	October	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		Immature foraging
26	October	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Northern Harrier	Circus cyaneus	-	-	S4	1	S	
26	October	2011	SR	HAWK 2	9:50	10:50	NE	4	6	100		Rough-legged Hawk	Buteo lagopus	-	-	S4	1		foraging, light morph
26	October	2011	SR	HAWK 2	10:50	11:50	NE	2-3	7	100		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	1		Immature foraging same individuals as previous hour
26	October	2011	SR	HAWK 2	11:50	12:50	NE	3	5	100		0 raptors	-	-	-	-			
26	October	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Turkey Vulture	Cathartes aura	-	-	S5	2	S	FLYING OVER Joe's camp
26	October	2011	SR	HAWK 1	13:10	14:10	NE	2-3	5	100		Unknown Raptor	-	-	-	-	1	S	Too high to ID, soaring on thermal
27	October	2011	SR	HAWK 1	12:00	13:00	NE	2	6	80		Unknown Raptor	-	-	-	-	4		Too high to ID, soaring on thermal
27	October	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Northern Harrier	Circus cyaneus	-	-	S4	2	N	Thermals
27	October	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Rough-legged Hawk	Buteo lagopus	-	-	S4	1	S	
27	October	2011	SR	HAWK 1	13:15	14:15	NE	2	5	60		Unknown Raptor	-	-	-	-	1		Too high to ID, soaring on thermal
28	October	2011	SR	HAWK 1	10:20	11:20	E	1	3	15		Rough-legged Hawk	Buteo lagopus	-	-	S4	1		Thermal, harrassed by raven
28	October	2011	SR	HAWK 1	11:20	12:20	E	1	4	20		Bald Eagle	Haliaeetus leucocephalus	SC	-	S2	2		
Incidental Wildlife																			
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Common Loon	Gavia immer	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Common Raven	Corvus corax	-	-	S5	1	S	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Blue Jay	Cyanocitta cristata	-	-	S5	4	E	
5	September	2011	ARD	HAWK1	9:30	10:30	NE	4	12	100	low overcast	Canada Goose	Branta canadensis	-	-	S5	32	S	
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Raven	Corvus corax	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Raven	Corvus corax	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Canada Goose	Branta canadensis	-	-	S5	5	SW	high
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Canada Goose	Branta canadensis	-	-	S5	19	S	high
5	September	2011	ARD	HAWK1	11:30	12:30	NE	4	15	100	low overcast	Common Grackle	Quiscalus quiscula	-	-	S5	1	W	
5	September	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	1	SW	
5	September	2011	ARD	HAWK1	12:30	13:30	NE	3	16	100	low overcast	Great Blue Heron	Ardea herodias	-	-	S4	1	E	tree height
6	September	2011	SR	HAWK 4	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	125	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Song Sparrow	Melospiza melodia	-	-	S5	1	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	4	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	2	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	1	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Common Raven	Corvus corax	-	-	S5	1	SW	
6	September	2011	SR	HAWK 4	throughout survey period							Hermit Thrush	Catharus guttatus	-	-	S5	1	SW	
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	Branta canadensis	-	-	S5	32	S	
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	Branta canadensis	-	-	S5	45	S	
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	Branta canadensis	-	-	S5	27	S	
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Canada Goose	Branta canadensis	-	-	S5	42	S	
6	September	2011	ARD	HAWK3	11:35	12:30	NE	3	15	85	low cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	1	N	landed in tree
6	September	2011	ARD	HAWK3	13:30	14:30	NE	3	15	25	low, broken	Common Raven	Corvus corax	-	-	S5	1	NE	
6	September	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	American Robin	Turdus migratorius	-	-	S5	5	E	along tree tops
6	September	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Canada Goose	Branta canadensis	-	-	S5	7	SW	
6	September	2011	ARD	HAWK2	8:00	9:00	NE	2	10	99	low overcast	Sandhill Crane	Grus canadensis tabida	-	-	S5	3	SE	20m alt
6	September	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Canada Goose	Branta canadensis	-	-	S5	1	N	
6	September	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Hooded Merganser	Lophodytes cucullatus	-	-	S5	1	E	female
6	September	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	Killdeer	Charadrius vociferus	-	-	S5	1	SW	call
6	September	2011	ARD	HAWK2	9:00	10:00	E	2	14	100	low overcast	American Crow	Corvus brachyrhynchos	-	-	S5	4	E	
6	September	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Common Loon	Gavia immer	-	-	S5	2	NW	
6	September	2011	ARD	HAWK2	10:00	11:00	E	2	15	100	low overcast	Common Loon	Gavia immer	-	-	S5	3	W	2 ad, 1 juv.
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Blue Jay	Cyanocitta cristata	-	-	S5	13		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Ring-billed Gull	Larus delawarensis	-	-	S5	3		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Herring Gull	Larus argentatus	-	-	S5	3		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Song Sparrow	Melospiza melodia	-	-	S5	2		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		American Goldfinch	Cardeulis tristis	-	-	S5	1		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Canada Goose	Branta canadensis	-	-	S5	3		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Loon	Gavia immer	-	-	S5	2		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		American Crow	Corvus brachyrhynchos	-	-	S5	19		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Raven	Corvus corax	-	-	S5	1		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Northern Flicker	Colaptes auratus	-	-	S4	2		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Grackle	Quiscalus quiscula	-	-	S5	2		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Common Yellowthroat	Geothlyphis trichas	-	-	S5	1		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Sandpiper sp.		-	-	-	1		
7	September	2011	SR	HAWK 4	9:00	9:50	NE	3	12	40		Duck sp.	-	-	-	-	4		
7	September	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	4		
7	September	2011	SR	HAWK 3	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	3		
7	September	2011	SR	HAWK 3	throughout survey period							Common Grackle	Quiscalus quiscula	-	-	S5	150		

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

7	September	2011	SR	HAWK 3	throughout survey period						Sandhill Crane	Grus canadensis tabida	-	-	S5	2		
7	September	2011	SR	HAWK 3	throughout survey period						Blue Jay	Cyanocitta cristata	-	-	S5	7		
7	September	2011	SR	HAWK 3	throughout survey period						American Crow	Corvus brachyrhynchos	-	-	S5	2		
7	September	2011	SR	HAWK 3	throughout survey period						White-throated Sparrow	Zonotrichia albicollis	-	-	S5	1		
7	September	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	8	SE	
7	September	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	SE	
7	September	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	SE	
7	September	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	7	SE	
7	September	2011	ARD	HAWK4	10:00	11:00	NE	1	16	75	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	5	SE	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Common Raven	Corvus corax	-	-	S5	1	E	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Mallard	Anas platyrhynchos	-	-	S5	3	E	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Canada Goose	Branta canadensis	-	-	S5	73	SW	
8	September	2011	ARD	HAWK2	11:15	12:15	NE	2	22	40	high altocumulus	Sandhill Crane	Grus canadensis tabida	-	-	S5	2	S	low over inlet
8	September	2011	ARD	HAWK2	12:15	13:15	NE	3	25	30		Common Raven	Corvus corax	-	-	S5	6	W	
9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	W	
9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	W	
9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Northern Flicker	Colaptes auratus	-	-	S4	6	E	at the rock, then flew east
9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Mallard	Anas platyrhynchos	-	-	S5	4	NE	
9	September	2011	ARD	HAWK1	7:30	8:30	-	0	11	40	cirrus	Common Loon	Gavia immer	-	-	S5	1	S	100m
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	W	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	E	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	N	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	5	E	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	N	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Northern Flicker	Colaptes auratus	-	-	S4	1	W	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Canada Goose	Branta canadensis	-	-	S5	2	W	40m
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	American Robin	Turdus migratorius	-	-	S5	2	NE	
9	September	2011	ARD	HAWK1	8:30	9:30	-	0	14	40	cirrus	Spotted Sandpiper	Actitis macularius	-	-	S5	1	S	call, fly over
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	Branta canadensis	-	-	S5	30	W	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	Branta canadensis	-	-	S5	4	SW	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	Branta canadensis	-	-	S5	11	S	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Canada Goose	Branta canadensis	-	-	S5	5	SW	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	American Crow	Corvus brachyrhynchos	-	-	S5	4	SW	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	W	
9	September	2011	ARD	HAWK1	10:30	11:30	W	1	20	30	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	5	E	
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Canada Goose	Branta canadensis	-	-	S5	27	W	@ 60m, follow inlet
9	September	2011	ARD	HAWK1	11:30	12:00	W	2	25	10		Common Merganser	Mergus merganser	-	-	S5	2	E	low over inlet
12	September	2011	SR	HAWK 3	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	3		
12	September	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	2		
12	September	2011	SR	HAWK 3	throughout survey period							Great Blue Heron	Ardea herodias	-	-	S4	1		
12	September	2011	SR	HAWK 3	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	18		
12	September	2011	SR	HAWK 3	throughout survey period							Great Black-backed Gull	Larus marinus	-	-	S2	1		
12	September	2011	SR	HAWK 3	throughout survey period							Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	1		
12	September	2011	SR	HAWK 3	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	3		
12	September	2011	SR	HAWK 3	throughout survey period							Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
12	September	2011	SR	HAWK 3	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	8		
12	September	2011	SR	HAWK 3	throughout survey period							American Robin	Turdus migratorius	-	-	S5	2		Hawk watch ended early due to presence of Black Bear, not afraid of bear bangers
12	September	2011	SR	HAWK 2	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	80		
12	September	2011	SR	HAWK 2	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	9		
12	September	2011	SR	HAWK 2	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
12	September	2011	SR	HAWK 2	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	935	W/SW	predominantly along south side of inlet; all separate flocks; 43, 32, 38, 80, 57, 24, 12, 27, 40, 34, 51, 19, 68, 19, 27, 26, 43, 60, 55, 14, 18, 50, 42, 22, 31, 3;
12	September	2011	SR	HAWK 2	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	1		
12	September	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	5		
12	September	2011	SR	HAWK 2	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	2		
12	September	2011	SR	HAWK 2	throughout survey period							Common Merganser	Mergus merganser	-	-	S5	2		
12	September	2011	SR	HAWK 2	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
12	September	2011	SR	HAWK 2	throughout survey period							American Goldfinch	Cardeulis tristis	-	-	S5	1		
12	September	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
12	September	2011	SR	HAWK 2	throughout survey period							Mallard	Anas platyrhynchos	-	-	S5	4		
12	September	2011	SR	HAWK 2	throughout survey period							Scaup sp.	-	-	-	-	2		
12	September	2011	ARD	HAWK4	12:35	13:05	SW	2	30	10	light cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	14	W	
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Greater Yellowlegs	Tringa melanoleuca	-	-	S4	1		call
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Canada Goose	Branta canadensis	-	-	S5	30	S	

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Canada Goose	Branta canadensis	-	-	S5	4	W	then joined other flock and went SW
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	American Pipit	Anthus rubescens	-	-	S4	1	S	
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Blue Jay	Cyanocitta cristata	-	-	S5	5	W	
12	September	2011	ARD	HAWK4	10:35	11:35	SW	1	25	20	mixed	Blue Jay	Cyanocitta cristata	-	-	S5	3	S	
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Greater Yellowlegs	Tringa melanoleuca	-	-	S4	1		
12	September	2011	ARD	HAWK4	11:35	12:35	SW	1	30	20	low cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	1	W	
14	September	2011	SR	HAWK 4	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	4		
14	September	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	2		
14	September	2011	SR	HAWK 4	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	3		
14	September	2011	SR	HAWK 4	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
14	September	2011	SR	HAWK 4	throughout survey period							Duck sp.	-	-	-	-	3		
14	September	2011	ARD	HAWK1	11:00	12:00	W	6	15	90	light rain	Blue Jay	Cyanocitta cristata	-	-	S5	5	S	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Crow	Corvus brachyrhynchos	-	-	S5	2		
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	8	W	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	13	E	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	1	E	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	American Pipit	Anthus rubescens	-	-	S4	1		
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Canada Goose	Branta canadensis	-	-	S5	6	N	
14	September	2011	ARD	HAWK1	8:00	9:00	SW	1	12	60	cumulus	Common Loon	Gavia immer	-	-	S5	1	E	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	3	W	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Blue Jay	Cyanocitta cristata	-	-	S5	1	W	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	American Pipit	Anthus rubescens	-	-	S4	1		
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Common Loon	Gavia immer	-	-	S5	1	W	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	Sandhill Crane	Grus canadensis tabida	-	-	S5	1	W	
14	September	2011	ARD	HAWK1	9:00	10:00	W	4	15	50	low cumulus	American Robin	Turdus migratorius	-	-	S5	2	E	
14	September	2011	ARD	HAWK1	10:00	11:00	W	5	17	95	nimbocumulus	Blue Jay	Cyanocitta cristata	-	-	S5	20	SE	
15	September	2011	SR	HAWK 2	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
15	September	2011	SR	HAWK 2	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	2		
15	September	2011	SR	HAWK 2	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	2		
15	September	2011	SR	HAWK 2	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	1		
15	September	2011	SR	HAWK 2	throughout survey period							American Goldfinch	Cardeulis tristis	-	-	S5	1		
15	September	2011	SR	HAWK 2	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	8		
15	September	2011	SR	HAWK 2	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	18		
15	September	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	1		
15	September	2011	SR	HAWK 2	throughout survey period							Common Raven	Corvus corax	-	-	S5	3		
15	September	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Crow	Corvus brachyrhynchos	-	-	S5	3	N	
15	September	2011	ARD	HAWK3	11:40	12:40	NW	4	11	95	low overcast	American Pipit	Anthus rubescens	-	-	S4	2		call
15	September	2011	ARD	HAWK3	12:40	13:40	NW	4	13	60	low cumulus	Common Raven	Corvus corax	-	-	S5	2	N	
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	Cyanocitta cristata	-	-	S5	2		
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	Cyanocitta cristata	-	-	S5	16	S	
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Blue Jay	Cyanocitta cristata	-	-	S5	13	S	
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	American Pipit	Anthus rubescens	-	-	S4	1		
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Pine Siskin	Cardeulis pinus	-	-	S4	2		
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Northern Flicker	Colaptes auratus	-	-	S4	3		
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Mallard	Anas platyrhynchos	-	-	S5	2	W	females
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Herring Gull	Larus argentatus	-	-	S5	3	W	
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Sandhill Crane	Grus canadensis tabida	-	-	S5	2	S	
15	September	2011	ARD	HAWK2	7:55	8:55	N	3	6	5	on horizon	Common Raven	Corvus corax	-	-	S5	2	E	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	Cyanocitta cristata	-	-	S5	53	S	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	Cyanocitta cristata	-	-	S5	6	N	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	Cyanocitta cristata	-	-	S5	4	SW	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Blue Jay	Cyanocitta cristata	-	-	S5	3	N	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Magnolia Warbler	Setophaga magnolia	-	-	S5	1	N	
15	September	2011	ARD	HAWK2	8:55	9:55	N	3	7	5		Ruby-throated Hummingbird	Archilochus colubris	-	-	S5	1	W	
16	September	2011	SR	HAWK 1	throughout survey period							Black-capped Chickadee	Poecile atricapillus	-	-	S5	2		
16	September	2011	SR	HAWK 1	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	1		
16	September	2011	SR	HAWK 1	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
16	September	2011	SR	HAWK 1	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	1		
16	September	2011	SR	HAWK 1	throughout survey period							Nashville Warbler	Oreothlypis ruficapilla	-	-	S5	3		
16	September	2011	SR	HAWK 1	throughout survey period							Black-throated Green Warbler	Setophaga virens	-	-	S5	2		
16	September	2011	SR	HAWK 1	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	12		
16	September	2011	SR	HAWK 1	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	23		two flocks; one of 21, one of 2
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Pectoral Sandpiper	Calidris melanotos	-	-	SH	3	SE	
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	Corvus corax	-	-	S5	1	E	
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Common Raven	Corvus corax	-	-	S5	1	S	
20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	American Goldfinch	Cardeulis tristis	-	-	S5	1		

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

20	September	2011	ARD	HAWK 3	10:55	11:55	SW	2	20	10	cirrus	Yellow-rumped Warbler	Setophaga pensylvanica	-	-	S5	1	S	fly over
20	September	2011	ARD	HAWK 3	11:55	12:55	SW	2	22	10	cumulus	American Pipit	Anthus rubescens	-	-	S4	1	S	
20	September	2011	ARD	HAWK 3	12:55	13:55	S	2	22	20	cumulus	Common Raven	Corvus corax	-	-	S5	3		
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	-	-	-	-	1	N	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	-	-	-	-	1	W	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	-	-	-	-	3		
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Warbler sp.	-	-	-	-	1	N	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Pine Siskin	Cardeulis pinus	-	-	S4	1		
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	1	W	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	4	S	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	1	SW	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	5	S	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	1	W	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Blue Jay	Cyanocitta cristata	-	-	S5	3	W	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	Quiscalus quiscula	-	-	S5	2	S	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Common Grackle	Quiscalus quiscula	-	-	S5	1	S	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Pipit	Anthus rubescens	-	-	S4	2		
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		American Goldfinch	Cardeulis tristis	-	-	S5	1	NE	
20	September	2011	ARD	HAWK 2	8:05	9:05	0	0	14	1		Mallard	Anas platyrhynchos	-	-	S5	3	NE	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Warbler sp.	-	-	-	-	2		
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	3	SE	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	11	SE	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	SE	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	S	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	American Goldfinch	Cardeulis tristis	-	-	S5	2	S	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Black-backed Woodpecker	Picoides arcticus	-	-	S4	1		on south side, then over to the N side
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	4	S	
20	September	2011	ARD	HAWK 2	9:05	10:05	W	1	16	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	E	
20	September	2011	ARD	HAWK 2	10:05	10:35	W	1	15	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	2	E	
20	September	2011	SR	HAWK 2	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	3		
20	September	2011	SR	HAWK 2	throughout survey period							Great Blue Heron	Ardea herodias	-	-	S4	1		
20	September	2011	SR	HAWK 2	throughout survey period							Duck sp.	-	-	-	-	1		
20	September	2011	SR	HAWK 2	throughout survey period							Common Grackle	Quiscalus quiscula	-	-	S5	2		
20	September	2011	SR	HAWK 2	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	149		separate flocks of 20, 52, 18, 26, 10, 23
20	September	2011	SR	HAWK 2	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	18	W	Along south side of inlet
20	September	2011	SR	HAWK 2	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	2		
20	September	2011	SR	HAWK 2	throughout survey period							White-throated Sparrow	Zonotrichia albicollis	-	-	S5	1		
20	September	2011	SR	HAWK 2	throughout survey period							Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	1		
20	September	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	3		
20	September	2011	SR	HAWK 2	throughout survey period							Sandpiper sp.	-	-	-	-	1	S	
20	September	2011	SR	HAWK 2	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
20	September	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
20	September	2011	SR	HAWK 2	throughout survey period							Common Raven	Corvus corax	-	-	S5	2		
21	September	2011	SR	HAWK 3	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	3		
21	September	2011	SR	HAWK 3	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
21	September	2011	SR	HAWK 3	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	2		
21	September	2011	SR	HAWK 3	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
21	September	2011	SR	HAWK 3	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	1		
21	September	2011	SR	HAWK 3	throughout survey period							American Robin	Turdus migratorius	-	-	S5	1		
21	September	2011	SR	HAWK 3	throughout survey period							American Goldfinch	Cardeulis tristis	-	-	S5	12		
21	September	2011	SR	HAWK 3	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	1		
21	September	2011	SR	HAWK 3	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	3		
21	September	2011	SR	HAWK 3	throughout survey period							Greater Yellowlegs	Tringa melanoleuca	-	-	S4	5	S	
21	September	2011	SR	HAWK 3	throughout survey period							Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
21	September	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	American Pipit	Anthus rubescens	-	-	S4	1	S	
21	September	2011	ARD	HAWK1	11:00	12:00	S	2	21	30	stratocumulus	Blue Jay	Cyanocitta cristata	-	-	S5	8	SE	
21	September	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Blue Jay	Cyanocitta cristata	-	-	S5	1	E	
21	September	2011	ARD	HAWK1	12:00	13:00	S	3	23	85	nimbostratus	Canada Goose	Branta canadensis	-	-	S5	14	W	
22	September	2011	SR	HAWK 3	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
22	September	2011	SR	HAWK 3	throughout survey period							Sandpiper sp.	-	-	-	-	1		
22	September	2011	SR	HAWK 3	throughout survey period							Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
22	September	2011	SR	HAWK 3	throughout survey period							Herring Gull	Larus argentatus	-	-	S5	2		
22	September	2011	SR	HAWK 3	throughout survey period							Black-capped Chickadee	Poecile atricapillus	-	-	S5	2		
22	September	2011	SR	HAWK 3	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	4		
22	September	2011	SR	HAWK 3	throughout survey period							Song Sparrow	Melospiza melodia	-	-	S5	2		
22	September	2011	SR	HAWK 3	throughout survey period							American Robin	Turdus migratorius	-	-	S5	1		

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

22	September	2011	SR	HAWK 3	throughout survey period						American Crow	Corvus brachyrhynchos	-	-	S5	1		
22	September	2011	SR	HAWK 3	throughout survey period						Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	1		
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Blue Jay	Cyanocitta cristata	-	-	S5	14	S	
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	American Pipit	Anthus rubescens	-	-	S4	1		
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Plover sp.	-	-	-	-	1		call, fly over
22	September	2011	ARD	HAWK4	10:30	11:30	SW	2	18	75	spitting rain	Warbler sp.	-	-	-	-	1	S	
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Blue Jay	Cyanocitta cristata	-	-	S5	2	S	
22	September	2011	ARD	HAWK4	11:30	12:30	W	3	18	60	nimbostratus	Warbler sp.	-	-	-	-	6		circle above inlet & back to shore
22	September	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	American Crow	Corvus brachyrhynchos	-	-	S5	5		
22	September	2011	ARD	HAWK4	12:30	13:00	W	2	20	50	cumulus	Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Ring-billed Gull	Larus delawarensis	-	-	S5	1		steady drizzle; ends hawk watch
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Yellow-rumped Warbler	Setophaga coronata	-	-	S5	7		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Unknown Warbler	-	-	-	-	1		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Song Sparrow	Melospiza melodia	-	-	S5	2		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Canada Goose	Branta canadensis	-	-	S5	4		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		American Crow	Corvus brachyrhynchos	-	-	S5	6		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Common Raven	Corvus corax	-	-	S5	3		
23	September	2011	SR	HAWK 1	8:20	9:30	N/A	0	13	100		Blue Jay	Cyanocitta cristata	-	-	S5	2		
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	Anthus rubescens	-	-	S4	2	E	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	Anthus rubescens	-	-	S4	3	SE	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	Anthus rubescens	-	-	S4	5	S	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	American Pipit	Anthus rubescens	-	-	S4	20	E	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	5	S	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	6	S	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	1	E	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	26		
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	Branta canadensis	-	-	S5	34	SW	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Canada Goose	Branta canadensis	-	-	S5	14	SW	
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Common Raven	Corvus corax	-	-	S5	5		
26	September	2011	ARD/SNR	HAWK 1	11:05	12:05	E	4	24	5	cirrus	Sandhill Crane	Grus canadensis tabida	-	-	S5	3	N	
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	Cyanocitta cristata	-	-	S5	7	S	
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Blue Jay	Cyanocitta cristata	-	-	S5	2	S	
26	September	2011	ARD/SNR	HAWK 1	12:05	13:05	E	4	24	5		Great Blue Heron	Ardea herodias	-	-	S4	1		south side of inlet, foraging
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		American Pipit	Anthus rubescens	-	-	S4	1	W	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Blue Jay	Cyanocitta cristata	-	-	S5	3	S	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	Corvus corax	-	-	S5	1	S	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Common Raven	Corvus corax	-	-	S5	1	S	
26	September	2011	ARD/SNR	HAWK 1	13:05	14:05	E	4	27	5		Passerine sp.	-	-	-	-	11	S	
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	Anthus rubescens	-	-	S4	8	SSW	
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	Anthus rubescens	-	-	S4	63		
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	Branta canadensis	-	-	S5	30	SW	
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Canada Goose	Branta canadensis	-	-	S5	31	SW	land on inlet
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	American Pipit	Anthus rubescens	-	-	S4	25		
27	September	2011	ARD	HAWK 3	12:40	13:40	0	0	23	100	nimbus	Common Merganser	Mergus merganser	-	-	S5	4	W	
27	September	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	American Pipit	Anthus rubescens	-	-	S4	3		
27	September	2011	ARD	HAWK 3	13:40	14:10	0	0	23	100	nimbus	Canada Goose	Branta canadensis	-	-	S5	50	S	low over water
27	September	2011	SR	HAWK 2	throughout survey period							Unknown flyovers	-	-	-	-	48	S	separate flocks of 12, 9, 4, 9, 7, 7
27	September	2011	SR	HAWK 2	throughout survey period							Hairy Woodpecker	Picoides villosus	-	-	S5	1		
27	September	2011	SR	HAWK 2	throughout survey period							Common Raven	Corvus corax	-	-	S5	3		
27	September	2011	SR	HAWK 2	throughout survey period							Northern Flicker	Colaptes auratus	-	-	S4	1		
27	September	2011	SR	HAWK 2	throughout survey period							Sandhill Crane	Grus canadensis tabida	-	-	S5	1		
27	September	2011	SR	HAWK 2	throughout survey period							Canada Goose	Branta canadensis	-	-	S5	112		separate flocks of 20, 18, 36, 5, 28, 5
27	September	2011	SR	HAWK 2	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	34		separate flocks of 4, 14, 8, 3, 5
27	September	2011	SR	HAWK 2	throughout survey period							American Pipit	Anthus rubescens	-	-	S4	26		separate flocks of 15, 7, 4
27	September	2011	SR	HAWK 2	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	3		
27	September	2011	SR	HAWK 2	throughout survey period							Wood Duck	Aix sponsa	-	-	S5	1		
27	September	2011	SR	HAWK 2	throughout survey period							Black-capped Chickadee	Poecile atricapillus	-	-	S5	6		
27	September	2011	SR	HAWK 2	throughout survey period							Golden-crowned Kinglet	Regulus satrapa	-	-	S5	3		
27	September	2011	SR	HAWK 2	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	2		
27	September	2011	SR	HAWK 2	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		
27	September	2011	SR	HAWK 2	throughout survey period							Duck sp.	-	-	-	-	17		
27	September	2011	SR	HAWK 2	throughout survey period							American Goldfinch	Cardeulis tristis	-	-	S5	14		
27	September	2011	SR	HAWK 2	throughout survey period							Greater Yellowlegs	Tringa melanoleuca	-	-	S4	3		
29	September	2011	SR	HAWK 4	throughout survey period							Common Raven	Corvus corax	-	-	S5	5		

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

29	September	2011	SR	HAWK 4	throughout survey period						American Crow	Corvus brachyrhynchos	-	-	S5	3		
29	September	2011	SR	HAWK 4	throughout survey period						Blue Jay	Cyanocitta cristata	-	-	S5	1		
29	September	2011	SR	HAWK 4	throughout survey period						American Goldfinch	Cardeulis tristis	-	-	S5	1		
29	September	2011	SR	HAWK 4	throughout survey period						American Pipit	Anthus rubescens	-	-	S4	7		
29	September	2011	SR	HAWK 4	throughout survey period						American Robin	Turdus migratorius	-	-	S5	3		
29	September	2011	SR	HAWK 4	throughout survey period						White-crowned Sparrow	Zonotrichia leucophrys	-	-	S4	3		
29	September	2011	SR	HAWK 4	throughout survey period						Ring-billed Gull	Larus delawarensis	-	-	S5	2		
29	September	2011	SR	HAWK 4	throughout survey period						Herring Gull	Larus argentatus	-	-	S5	1		
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	Anthus rubescens	-	-	S4	14	S	
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Pipit	Anthus rubescens	-	-	S4	9		
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Canada Goose	Branta canadensis	-	-	S5	2	E	flying low
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Common Loon	Gavia immer	-	-	S5	1	S	
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	Corvus brachyrhynchos	-	-	S5	4	S	
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	American Crow	Corvus brachyrhynchos	-	-	S5	28	S	
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Mallard	Anas platyrhynchos	-	-	S5	1	NE	
29	September	2011	ARD	HAWK 4	8:35	9:35	W	2	16	97	low overcast	Yellow-rumped Warbler	Setophaga pensylvanica	-	-	S5	1		
29	September	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Scaup sp.	-	-	-	-	5	NW	
29	September	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Crow	Corvus brachyrhynchos	-	-	S5	1		
29	September	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	American Pipit	Anthus rubescens	-	-	S4	10		
29	September	2011	ARD	HAWK 4	9:35	10:35	SW	3	19	30	cumulus/cirrus	Lapland Longspur	Calcarius lapponicus	-	-	S3	1		fly over, calling
29	September	2011	ARD	HAWK 4	10:35	10:55	SW	3	19	30	cumulus/cirrus	Blue Jay	Cyanocitta cristata	-	-	S5	7	SE	
30	September	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Common Raven	Corvus corax	-	-	S5	3		
30	September	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Blue Jay	Cyanocitta cristata	-	-	S5	1	N	
30	September	2011	ARD/SNR	HAWK 1	8:30	9:00	NE	6	7	100	rain	Herring Gull	Larus argentatus	-	-	S5	1		
4	October	2011	SR	HAWK 3	throughout survey period						Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	3		
4	October	2011	SR	HAWK 3	throughout survey period						American Goldfinch	Cardeulis tristis	-	-	S5	34		
4	October	2011	SR	HAWK 3	throughout survey period						Pine Siskin	Cardeulis pinus	-	-	S4	137		
4	October	2011	SR	HAWK 3	throughout survey period						Bufflehead	Bucephala albeola	-	-	S4	12		
4	October	2011	SR	HAWK 3	throughout survey period						American Robin	Turdus migratorius	-	-	S5	1		
4	October	2011	SR	HAWK 3	throughout survey period						Ring-billed Gull	Larus delawarensis	-	-	S5	1		
4	October	2011	SR	HAWK 3	throughout survey period						Gull sp.	-	-	-	-	4		
4	October	2011	SR	HAWK 3	throughout survey period						Unknown Passerine	-	-	-	-	22		
4	October	2011	SR	HAWK 3	throughout survey period						Hooded Merganser	Lophodytes cucullatus	-	-	S5	2		female
4	October	2011	SR	HAWK 3	throughout survey period						Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
4	October	2011	SR	HAWK 3	throughout survey period						Black-capped Chickadee	Poecile atricapillus	-	-	S5	2		
4	October	2011	SR	HAWK 3	throughout survey period						Common Raven	Corvus corax	-	-	S5	5		
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Ring-billed Gull	Larus delawarensis	-	-	S5	1		
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Gull sp.	-	-	-	-	4		
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Black-capped Chickadee	Poecile atricapillus	-	-	S5	3		
5	October	2011	SR	HAWK 1	13:20	14:20	NE	4	15	0		Common Raven	Corvus corax	-	-	S5	3		
5	October	2011	SR	HAWK 4	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
5	October	2011	SR	HAWK 4	throughout survey period							Ring-billed Gull	Larus delawarensis	-	-	S5	3		
5	October	2011	SR	HAWK 4	throughout survey period							Gull sp.	-	-	-	-	2		
5	October	2011	SR	HAWK 4	throughout survey period							American Goldfinch	Cardeulis tristis	-	-	S5	1		
5	October	2011	SR	HAWK 4	throughout survey period							Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	1		
5	October	2011	SR	HAWK 4	throughout survey period							Common Loon	Gavia immer	-	-	S5	1		Juvenile
5	October	2011	SR	HAWK 4	throughout survey period							White-crowned Sparrow	Zonotrichia leucophrys	-	-	S4	3		
5	October	2011	SR	HAWK 4	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	2		
5	October	2011	SR	HAWK 4	throughout survey period							Unknown Passerine	-	-	-	-	22		
5	October	2011	SR	HAWK 4	throughout survey period							Duck sp.	-	-	-	-	19		
5	October	2011	SR	HAWK 4	throughout survey period							Unknown Passerine	-	-	-	-	10		
6	October	2011	SR	HAWK 2	throughout survey period							Black-capped Chickadee	Poecile atricapillus	-	-	S5	4		
6	October	2011	SR	HAWK 2	throughout survey period							Song Sparrow	Melospiza melodia	-	-	S5	1		
6	October	2011	SR	HAWK 2	throughout survey period							Blue Jay	Cyanocitta cristata	-	-	S5	1		
6	October	2011	SR	HAWK 2	throughout survey period							American Crow	Corvus brachyrhynchos	-	-	S5	3		
6	October	2011	SR	HAWK 2	throughout survey period							Common Raven	Corvus corax	-	-	S5	1		
6	October	2011	SR	HAWK 2	throughout survey period							Mallard	Anas platyrhynchos	-	-	S5	2		1 male and 1 female
6	October	2011	SR	HAWK 2	throughout survey period							Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
6	October	2011	SR	HAWK 2	throughout survey period							Slate-coloured Junco	Junco hyemalis	-	-	S5	2		
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		American Goldfinch	Cardeulis tristis	-	-	S5	25		
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Hooded Merganser	Lophodytes cucullatus	-	-	S5	2		Female
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	3		
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Bufflehead	Bucephala albeola	-	-	S4	7		
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Belted Kingfisher	Ceryle alcyon	-	-	S4	1		
12	October	2011	SR	HAWK 3	13:05	14:05	SE	2	18	100		Common Raven	Corvus corax	-	-	S5	1		
13	October	2011	SR	HAWK 1	throughout survey period							Common Raven	Corvus corax	-	-	S5	2		

Table C-2: Fall 2011 Raptor Migration Survey Results - HIWEC Study Area

13	October	2011	SR	HAWK 1	Common Loon	Gavia immer	-	-	S5	1		
13	October	2011	SR	HAWK 1	Black-capped Chickadee	Poecile atricapillus	-	-	S5	3		
13	October	2011	SR	HAWK 1	American Robin	Turdus migratorius	-	-	S5	2		
13	October	2011	SR	HAWK 1	Gull sp.	-	-	-	-	4		
13	October	2011	SR	HAWK 1	Ruby-crowned Kinglet	Regulus calendula	-	-	S4	2		
13	October	2011	SR	HAWK 1	Pileated Woodpecker	Dryocopus pileatus	-	-	S5	1		
13	October	2011	SR	HAWK 1	Common Loon	Gavia immer	-	-	S5	3		
13	October	2011	SR	HAWK 1	American Robin	Turdus migratorius	-	-	S5	4		
13	October	2011	SR	HAWK 1	White-crowned Sparrow	Zonotrichia leucophrys	-	-	S4	3		
13	October	2011	SR	HAWK 1	Golden-crowned Kinglet	Regulus satrapa	-	-	S5	2		
13	October	2011	SR	HAWK 1	Black-capped Chickadee	Poecile atricapillus	-	-	S5	2		
14	October	2011	SR	HAWK 2	White-crowned Sparrow	Zonotrichia leucophrys	-	-	S4	1		
14	October	2011	SR	HAWK 2	Common Merganser	Mergus merganser	-	-	S5	3		
14	October	2011	SR	HAWK 2	Common Loon	Gavia immer	-	-	S5	2		
14	October	2011	SR	HAWK 2	Herring Gull	Larus argentatus	-	-	S5	2		
14	October	2011	SR	HAWK 2	Duck sp.	-	-	-	-	7	SW	High and Far away
18	October	2011	SR	HAWK 1	Common Loon	Gavia immer	-	-	S5	2		
18	October	2011	SR	HAWK 1	Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	2		
18	October	2011	SR	HAWK 1	Herring Gull	Larus argentatus	-	-	S5	1		
18	October	2011	SR	HAWK 1	Gull sp.	-	-	-	-	3		
18	October	2011	SR	HAWK 1	Golden-crowned Kinglet	Regulus satrapa	-	-	S5	2		
18	October	2011	SR	HAWK 1	Ruby-crowned Kinglet	Regulus calendula	-	-	S4	1		
18	October	2011	SR	HAWK 1	American Crow	Corvus brachyrhynchos	-	-	S5	22		
18	October	2011	SR	HAWK 1	Common Raven	Corvus corax	-	-	S5	3		
19	October	2011	SR	HAWK 1	Common Raven	Corvus corax	-	-	S5	1		
19	October	2011	SR	HAWK 1	Double-crested Cormorant	Phalacrocorax auritus	-	-	S5	6		
19	October	2011	SR	HAWK 1	American Tree Sparrow	Spizella arborea	-	-	S4	12		
19	October	2011	SR	HAWK 1	Slate-coloured Junco	Junco hyemalis	-	-	S5	7		
19	October	2011	SR	HAWK 1	Herring Gull	Larus argentatus	-	-	S5	1		
19	October	2011	SR	HAWK 1	Unknown Passerine	-	-	-	-	203	S	Flying over inlet, several hundred metres away from survey point, north to south
19	October	2011	SR	HAWK 1	Common Loon	Gavia immer	-	-	S5	1		
21	October	2011	SR	HAWK 3	White-winged Scoter	Melanitta fusca	-	-	S4	17		
21	October	2011	SR	HAWK 3	Common Loon	Gavia immer	-	-	S5	1		
21	October	2011	SR	HAWK 3	White-crowned Sparrow	Zonotrichia leucophrys	-	-	S4	1		
21	October	2011	SR	HAWK 3	Greater Yellowlegs	Tringa melanoleuca	-	-	S4	2		
25	October	2011	SR	HAWK 3	Black Scoter	Melanitta nigra	-	-	S4	13		
25	October	2011	SR	HAWK 3	Common Raven	Corvus corax	-	-	S5	5		
25	October	2011	SR	HAWK 3	Common Loon	Gavia immer	-	-	S5	2		
25	October	2011	SR	HAWK 3	American Tree Sparrow	Spizella arborea	-	-	S4	2		
25	October	2011	SR	HAWK 3	Northern Flicker	Colaptes auratus	-	-	S4	1		
25	October	2011	SR	HAWK 3	Slate-coloured Junco	Junco hyemalis	-	-	S5	1		
25	October	2011	SR	HAWK 3	Bufflehead	Bucephala albeola	-	-	S4	6		
25	October	2011	SR	HAWK 3	Ring-billed Gull	Larus delawarensis	-	-	S5	1		
25	October	2011	SR	HAWK 3	Herring Gull	Larus argentatus	-	-	S5	2		
25	October	2011	SR	HAWK 3	Black-capped Chickadee	Poecile atricapillus	-	-	S5	1		
26	October	2011	SR	HAWK 2	Ruffed Grouse	Bonasa umbellus	-	-	S4	2		
26	October	2011	SR	HAWK 2	Ring-billed Gull	Larus delawarensis	-	-	S5	2		
26	October	2011	SR	HAWK 2	Common Raven	Corvus corax	-	-	S5	9		
26	October	2011	SR	HAWK 2	American Tree Sparrow	Spizella arborea	-	-	S4	22		
26	October	2011	SR	HAWK 2	American Goldfinch	Cardeulis tristis	-	-	S5	9		
26	October	2011	SR	HAWK 2	Herring Gull	Larus argentatus	-	-	S5	3		
26	October	2011	SR	HAWK 2	Unknown Passerine	-	-	-	-	74		
26	October	2011	SR	HAWK 2	American Robin	Turdus migratorius	-	-	S5	14		
26	October	2011	SR	HAWK 2	Duck sp.	-	-	-	-	14		
26	October	2011	SR	HAWK 2	Common Loon	Gavia immer	-	-	S5	1		
26	October	2011	SR	HAWK 2	Black Scoter	Melanitta nigra	-	-	S4	8		
26	October	2011	SR	HAWK 2	White-winged Scoter	Melanitta fusca	-	-	S4	12		
26	October	2011	SR	HAWK 2	Canada Goose	Branta canadensis	-	-	S5	4		
26	October	2011	SR	HAWK 2								