BIOPHYSICAL IMPACT ASSESSMENT

and

WATER COURSE SETBACK DETERMINATION

Business Park Development - NE section of 24-29-01 WM5

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[1] Candidatus scientiarum, equivalent of M.Sc. from the University of Oslo, Norway (2003).

1 Introduction

Omnia Ecological Services (Omnia) was commissioned by Appin Developments Inc. (Appin) to complete the terrestrial and wetland ecological components of a Biophysical Impact Assessment (BIA), as well as a Watercourse Setback Determination, for the proposed subdivision of a property into industrial lots southeast of the Town of Carstairs, Alberta (Figure 1). Development activities on portions of the property are anticipated to begin in the summer of 2027.

Omnia was originally retained to complete the ecological assessment in 2020, and field surveys were conducted during the 2020 growing season. The Project was subsequently placed on hold and resumed in 2026. A reconnaissance site visit completed in July 2026 confirmed that no material changes to vegetation communities, riparian areas, or wildlife habitat had occurred that would affect the conclusions of this assessment.

Specific tasks of this assessment were as follows:

Vegetation cover type supply assessment

- Complete field site reconnaissance visits to classify, map and describe vegetation cover types and land use characteristics.
- Review scientific literature review as appropriate.

Ecological significance assessment of vegetation cover types

- Assess the floristic and structural diversity and the native habitat integrity of each mapped vegetation cover type.
- Assess the suitability of each vegetation cover type for vertebrate species at risk.
- Assess the potential of each vegetation cover type to harbor rare plants and rare plant communities.

Ecological significance assessment at the regional/landscape level

- Assess the regional rarity of each of the vegetation cover types present on the property.
- Assess the level of habitat fragmentation in and adjacent to the property.
- Assess the potential of the property as a wildlife movement route.
- Assess if the property is situated within Terrestrial Environmentally Significant Areas (ESAs)

Water Course Setback Determination

- Gather sufficient evidence for the Crown to determine potential claim of the drainage course.
- *If* the drainage course is claimed by the crown:
    - Determine the watercourse banks with assistance from a certified Alberta Land Surveyor (ALS)
    - Determine appropriate setbacks from the watercourse.

Impact assessment

- Assess the potential effects of land development on vegetation cover types, wildlife habitat supply and landscape-level attributes of the property.
- Recommend mitigation measures to avoid, lessen, or compensate for project specific impacts.

2 Regulatory Information Requirements

Development activities within the project area are governed by several federal, provincial and municipal legislations and/or guidelines. The regulatory requirements that are applicable to this project are detailed below.

2.1 Federal

Development in Alberta must comply with relevant federal legislation and regulations that address land use, environmental protection, recreation, and public safety. These frameworks ensure that projects are planned and executed in a manner that aligns with national standards for sustainability and public interest. Table 1 provides an overview of key federal legislation applicable to development in the project area.

2.2 Provincial

Provincial legislation plays a critical role in guiding land use and environmental management within Alberta. Provincial acts and regulations establish specific requirements for recreational development, environmental stewardship, and land management practices. Table 2 outlines the principal provincial legislation that governs development in the region.

3.0 Habitat Supply Assessment

3.1 Review of Regional Ecological Information Sources

The following inventory, assessment and planning information sources were obtained and reviewed to assist in assessing the local and regional ecological significance of the subject lands:

- Alberta Conservation Information Management System list of tracked and watched elements (ACIMS 2026).
- Alberta Conservation Information Management System's Ecological Community Tracking List (Allen 2014).
- Range plant communities and range health assessment guidelines for the Foothills Fescue Subregion of Alberta (Adams *et al*. 2003).
- Fish and Wildlife Management Information System elements of occurrence database (FWMIS 2026).
- Landscape Analysis Tool (LAT 2026).
- Natural Regions and Subregions of Alberta (Natural Regions Committee 2006).
- Ecodistricts of Alberta – Summary of Biophysical Attributes (Strong and Thompson 1995).
- Environmental Sensitive Area Mapping 2014 (Fiera 2014).

3.2 Field Visits

As described in Section 1, the original ecological field program was completed during the 2020 growing season, and a reconnaissance site visit was completed in July 2026 to confirm existing site conditions. No material changes to vegetation communities, wetlands, wildlife habitat, or evidence of additional disturbance were observed that would affect the conclusions of this assessment.

The original field program included a site visit on June 19, 2020 to classify and map vegetation communities and wetlands within the Study Area and to assess ecological features. The Study Area was surveyed on foot, and information was collected on vegetation communities, wildlife habitat, and ecological conditions, including vegetation composition and structure based on dominant vascular plant species. Representative photographs were taken, and vegetation community boundaries were delineated on approximately 1:2,000-scale colour aerial photography. Additional field surveys targeting vertebrate wildlife and rare plant species were completed on May 15, June 19, and July 16, 2020.

3.3. Ecological Region, Landforms, and Soils

3.3.1 Ecological Region

The project area straddles two Natural Regions, the Foothills Fescue Subregion of the Grassland Natural Region and the Central Parkland Subregion of the Parkland Natural Region (Figure 2) (Natural Regions Committee 2006, Adams *et al*. 2003). The Foothills Fescue Subregion occurs as a narrow band between the Mixedgrass Subregion and the Foothills Parkland Subregion. Topography

is subdued and characterized by morainal, glaciolacustrine and outwash surficial deposits along the lower flanks of the Foothills Geologic Belt. In native condition, Foothills Fescue vegetation is dominated by grasslands including Rough Fescue (*Festuca scabrella)*, Idaho Fescue (*Festuca idahoensis*), Parry's Oatgrass (*Danthonia parry*) and Intermediate Oatgrass (*Danthonia intermedia*) (Adams *et al*. 2003). According to mapping by Strong and Thompson (1995), the portion of the project area that is situated within the Foothills Fescue Subregion occurs within the Delacour Plain Ecodistrict. This Ecodistrict is characterized by:

- 70% grassland (includes cultivated and pasture) vegetation on undulating (0% to 0.5%) morainal plain with moderately well drained, loam-textured black chernozem soils.
- 20% grassland (includes cultivated and pasture) on undulating (0.5% to 2.5%) morainal plain with moderately well drained, silty loam-textured black chernozem soils.
- 10% grassland (includes cultivated and pasture) vegetation on rolling (6.0% to 9.0%), morainal deposits with well drained, sandy loam-textured dark brown chernozem soils.

As of the mid-1990s. approximately 90% of the Delacour Plain Ecodistrict had been cleared for agriculture (Strong and Thompson 1995). Adams *et al*. (2003) reported that as of the early 2000's 16.8% of the original grassland area of the Foothills Fescue Subregion remained intact with most of this area occurring south of Nanton.

The Central Parkland Natural Subregion is mostly cultivated, and in the southern part. plains rough fescue is the dominant vegetation with clumps of aspen present but restricted to moist sites (with mosaic of aspen and prairie vegetation on remnant native parkland areas (Natural Regions Committee 2006).

3.3.2 Environmentally Significant Areas

Terrestrial Environmentally Significant Areas (ESAs) in Alberta are areas containing rare or unique environments, or ecological features that warrant special management because of their conservation value (Fiera 2014). Provincial ESA mapping is a regional screening tool that identifies areas of elevated ecological significance using a spatial modelling approach, whereby higher scores indicate greater ecological value. The provincial threshold for ESA designation is a score greater than 0.189 (Fiera 2014).

The portion of the provincial ESA mapping intersecting the Study Area has a score of 0.1274 and, therefore, does not meet the provincial threshold for designation as an Environmentally Significant Area. The closest provincially designated ESA occurs approximately 800 m north of the Study Area (Figure 3).

3.3.3 Wetlands

One (1) wetland is mapped within the property boundaries by the Alberta Mapped Wetland Inventory (AMWI) (Figure 4). Based on a desktop review of historical aerial imagery and site visits, the AMWI mapping is not accurate. Refined wetland mapping is presented in Figure 5. The wetland mapped by the AMWI was determined to be an upland disturbed grassland with an approximately 19° slope and does not meet the definition of a wetland.

Four anthropogenic wetlands were identified within the Study Area. Three of these wetlands have formed where road embankments have impounded surface water and occur along roadside ditches within cultivated fields. The fourth wetland was created through excavation within the riparian area, resulting in a permanent open-water feature (Figure 5). Anthropogenic wetlands are not subject to Alberta's Wetland Policy or Wetland Mitigation Directive; therefore, impacts to these wetlands do not require wetland replacement or compensation.

A drainage course extends from south to north through the centre of the Study Area (Figure 5). For most of its length, the drainage course is characterized by steep banks and a rapid transition from the channel edge to adjacent upland areas. However, broader sections, primarily in the northern portion of the Study Area, support hydrophytic vegetation and soil characteristics consistent with seasonal wetlands. Review of historical aerial imagery (Appendix 1) indicates that the drainage course does not contain surface water during all years or seasons (e.g., 1992 and 2000; Appendix 1f and Appendix 1g), suggesting that flow is intermittent and seasonal.

Historical aerial imagery indicates that a dugout was excavated within the drainage course between 1983 (Appendix 1e) and 1992 (Appendix 1f). A road crossing constructed between 2007 (Appendix 1i) and 2010 (Appendix 1j) subsequently impounded flow within the drainage course, creating a larger pond immediately south of the crossing.

A watercourse setback assessment is provided in Section 6. The proposed development has been designed to avoid disturbance within the drainage course and associated setback, with the exception of widening the existing road crossing. Any required Water Act approvals associated with the crossing upgrades will be obtained separately from this BIA.

3.3.4 Soils

The Agricultural Region of Alberta Soil Inventory Database (AGRASID 2017) was used to determine the soil landscape(s) within the study area. Three soil series, the Antler, Delacour and Misc. Undiff. overlap the property, with the Antler accounting for approximately 77%, Delacour 11%, and Misc. Undiff. 12% of the study area. The Antler and Delacour consists of orthic black chernozem, while the Misc. Undiff. is an orthic humic gleysol soil.

3.4 Land Cover Type Distribution (ha)

Land cover mapping was completed through field observations of vegetation composition, vegetation structure, hydrology (where applicable), and evidence of anthropogenic disturbance. Vegetation

community boundaries were delineated in the field on aerial photography and subsequently digitized in GIS. Representative photographs and qualitative descriptions of each land cover type are provided in Appendix 2.

Most of the property is highly disturbed, with 53.8 ha (85.3% of the property) consisting of cultivated fields (46.8%), anthropogenic areas (e.g., residential development, gravel pits, and roads) (16.8%), and disturbed grasslands (21.7%) (Figure 6). Small remnant patches of native prairie occur primarily in the northwestern portion of the property and adjacent to the drainage course. Although these communities represent the highest-quality upland vegetation within the Study Area, they are limited in extent. Portions of the drainage corridor, particularly in the southern section, have been altered by historical livestock grazing, dugout excavation, gravel extraction, and road construction.

Eight land cover types were identified and mapped within the Study Area:

- Disturbed Grassland – 13.68 ha (21.7%)
- Native Grassland – 4.70 ha (7.5%)
- Tall Shrub – 0.03 ha (<0.1%)
- Aspen forest – 0.63 ha (1.0%)
- Poplar forest – 0.25 ha (0.4%)
- Stream/Riparian – 3.40 ha (5.4%)
- Cultivated field – 29.49 ha (46.8%)
- Anthropogenic – 10.87 (17.2%)

Representative photographs and qualitative descriptions of each land cover type are provided in Appendix 2.

4.0 Ecological Significance Assessment - Habitat/Local Level

A fundamental principle of conservation biology is to prioritize and protect sites that support relatively high levels of local "species richness" (the number of organisms present in an area) (Council on Environmental Quality 1993, Noss 1993). Ecosystems that support a high diversity of plant species tend to be structurally diverse and productive (Meffe *et al*. 1997). These areas in turn support a wide variety and abundance of insect and animal forms.

The structural complexity of a plant community is positively correlated with the diversity of animal life (Meffe *et al*. 1997). This is especially true for vertebrate wildlife species that require unique and variable reproductive, forage and cover opportunities or "niches" for survival and reproduction. Short (1986) explained the disproportionate importance of vertical vegetation structure in prairie and rangeland environments where such habitats area in limited supply. These habitats provide only a few layers and fewer niches. More structurally diverse habitats (e.g., more layers) provide the potential for more niches. Other studies completed in similar environments within the Foothills Fescue Natural Sub-region have shown that habitats with the highest structural diversity indices are native forests and especially riparian mixed-wood forests with robust shrub understory (Sentar 1993, Collister and Kansas 2004, Charlebois and Kansas 2008).

Invasion of native habitats by non-indigenous or "introduced" species of plants can result in a loss of native plant species, changes in community structure and function and alterations in the physical structure of the system (Drake *et al*. 1989, Desserud and Naeth 2010).

4.1 Methods

An assessment of the ecological significance of each vegetation cover type mapped on the property was completed taking into consideration the following five factors:

- Floristic diversity of vegetation cover types.
- Structural diversity of vegetation cover types.
- Native habitat integrity of vegetation cover types based on an informed, subjective assessment of the current level of disturbance.
- Wildlife habitat suitability of cover types for vertebrate species at risk.
- Potential of vegetation cover types to support rare plants.

The five factors were rated as high, medium or low for each mapped vegetation cover type, and each factor was equally weighted. Ratings were informed by professional expertise (study area and region) and empirical data obtained from several quantitative wildlife and botanical assessments completed in the area (e.g., Collister and Kansas 2004, Amec 2006, Charlebois and Kansas 2008).

4.1.1 Vegetation Composition and Structure Assessment

The floristic and structural diversity of vegetation cover types were rated as high, medium or low based on empirical data from consultant reports (Collister and Kansas 2004, Amec 2006, Charlebois and Kansas 2008), the authors' knowledge of plant species richness/diversity in the project area and region, and field visits completed to the property in support of this project.

4.1.2 Disturbance/Native Habitat Integrity Assessment

The amount of current human disturbance/non-native land cover within vegetation cover types was subjectively rated as high, medium or low based on evidence of human use (agricultural harvesting, non-native grass cover, etc.) and the proportion of vegetation cover that supported introduced (non-native) plant species. Areas and vegetation cover with high levels of human disturbance and high proportions of introduced plant species were considered to have low levels of native integrity.

4.1.3 Rare Plant Assessment

Each mapped cover type's potential to harbor rare plants was assessed according to known habitat requirements of potential rare plants and the observed native ecological integrity of each cover type. A literature review was completed to identify rare plants that could occur in and adjacent to the project lands. Primary sources of information used to develop a list of potential rare plants and associated habitats included Packer and Bradley (1984), Wallis (1987) and the Alberta Conservation Information Management System's Tracked and Watched Elements Lists (ACIMS 2020). In addition, a rare plant element occurrence report for the property was requested. Habitat affiliations of the rare plants with potential to occur in the study area were determined when sufficient background information was available (Moss 1983, Johnson *et al*. 1995 and Kershaw *et al*. 2001).

A rank is assigned to each rare plant in Alberta based on the status codes described below, at the sub-national Status level. The sub-national status rank (SRank) definitions were adapted from those used by NatureServe because in many instances the only available information upon which to base a rank assessment is the number of occurrences (Kemper 2009). Rank definitions follow:

> SX: Taxon is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
>
> SH: Known from only historical records but still some hope of rediscovery. There is evidence that the taxon may no longer be present, but not enough to state this with certainty.
> S1: Known from five or fewer occurrences, or especially vulnerable to extirpation because of other factor(s).

S2: Known from twenty or fewer occurrences, or vulnerable to extirpation because of other factors.

S3: Known from 100 or fewer occurrences, or somewhat vulnerable due to other factors, such as restricted range, relatively small population sizes, or other factors.

S4: Apparently Secure – taxon is uncommon but not rare; potentially some cause for long term concern due to declines or other factors.

S5: Secure – taxon is common, widespread, and abundant.

Variant Sub-national Conservation Status Ranks are described below:

S#S#: A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the taxon. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

SU: Taxon is currently not rankable due to lack of information or due to substantially conflicting information (e.g., native vs. non-native stats not resolved).

SNR: Not ranked - conservation status not yet assessed.

SNA: Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., introduced species).

Rare Plant Habitat Suitability Ratings

Each mapped vegetation cover type was rated as having a high, medium or low potential to harbor rare plant species according to the cover type affiliations of potential rare plants species and the native integrity of the habitat. Vegetation cover types with potential to support the highest number of rare plants were most important.

4.1.4 Vertebrate Species at Risk Habitat Suitability Assessment

The wildlife habitat suitability assessment was completed following three steps. First, a vertebrate species at risk [potential] occurrence and status list was generated for the property using the authors' experience and consulting the Alberta Fisheries and Wildlife Management Information System (FWMIS 2020). Second, a Landscape Analysis Tool (LAT) Report was generated, to identify which surveys (if any) would have to be completed prior to construction activities. Finally, the suitability of each cover type was rated to quantify its potential to harbor potential species at risk considering the level of native integrity of the vegetation cover on the property. Detailed methods associated with each of the two steps follows.

Wildlife Species Occurrence and Status

A list detailing the status and abundance of vertebrate wildlife species known, or expected to be resident during some portion of the year within the study area and buffered by setback distances provided by SRD (2011) was developed using local, regional and provincial references (Federation of Alberta Naturalists 2007, Fisher *et al*. 2007, Russell and Bauer 2000, Smith 1993, Pattie and Fisher 1999, Fisher and Acorn 1998) and the authors' experience. From this list, vertebrate species at risk were identified based on current regulatory status documents (COSEWIC 2020, AEP 2000, 2010 and SARA 2020). Status and abundance definitions are presented below, and at-risk definitions are described in Table 3.

Status

Summer resident:	migrates out of study area for the winter.
Winter resident:	present only during late fall, winter and early spring.
Resident:	present year-round although not necessarily active during winter.
Migrant:	passes through area during spring and/or fall, not normally resident at any time of the year.
Transient:	expected to occur only in passing, not normally resident at any time of the year.

Abundance

Common:	detected whenever suitable habitat is investigated during an appropriate season.
Uncommon:	detected often, but not always, whenever suitable habitat is investigated during an appropriate season.
Scarce:	detected occasionally, but not usually, even when suitable habitat is investigated during an appropriate season.
Rare:	unexpected but could occur in any given year, would not generally be considered a regular component of the study area fauna.

Wildlife Habitat Suitability Ratings

The suitability of each mapped vegetation cover type for vertebrate species at risk with potential to occur on the property was assessed based on scientific literature and consultant reports, first-hand knowledge resulting from the site visits, and the authors' knowledge of wildlife-habitat relationships in the Foothills Fescue Natural Sub-region.

4.2 Results

4.2.1 Floristic Diversity

Vegetation cover types (in native condition) that support the highest plant species richness in the region are seepage tall willow, native grasslands and moist mixed-wood forests (Sentar 1993, Collister and Kansas 2004, Charlebois and Kansas 2008). The lowest levels of plant diversity are generally found in non-native grasslands, disturbed sites and dry low and tall shrub habitat types. A patch of native grassland occurs in the Northwestern portion of the property. This area was considered to have high floristic diversity. The aspen forest, balsam poplar forest, tall shrub and riparian areas were considered to have moderate floristic diversity. All other areas were comprised of disturbed/harvested grasslands, disturbed wetlands or anthropogenic areas and were considered to have low floristic diversity (Table 4).

4.2.2 Structural Diversity

The structural diversity of each vegetation cover type on the property was rated using reference literature (Collister and Kansas 2004, Amec 2006, Charlebois and Kansas 2008). Treed areas on the property were relatively small, isolated patches and generally (except for the poplar forest) did not support robust or diverse shrub under stories due to heavy grazing by cattle. The balsam poplar stand was considered to be highly structurally diverse, the aspen stand and the tall shrub stand were considered to be moderately structurally diverse and the remaining cover types were all rated as low (Table 4).

4.2.3 Disturbance/Native Integrity Assessment

Remnants of native prairie in the northwest portion of the property were largely undisturbed. However, most of the subject lands had very low native integrity due to extensive disturbance resulting from past agricultural practices (grazing, hay production, and crops) and gravel extraction in the center of the parcel. These practices tend to introduce agronomic and invasive plants and reduce the occurrence and diversity of native species over time.

As a result, the only cover type that was rated as having high native habitat integrity was the native grassland. The tall shrub, aspen forest, poplar forest, and riparian areas were rated as having moderate native habitat integrity. All other cover types were rated as having low native habitat integrity (Table 4).

4.2.4 Rare Plant Assessment

A query was submitted to the to the Alberta Conservation Information Management System (ACIMS) database on May 13, 2020 (and again on July 28, 2026) to determine if previous rare plant and rare plant community occurrences were found in the vicinity of the project site (ACIMS 2020). There were no records of rare vascular plant species and no rare plant communities within 6 km of the study area (Appendix 3).

The rare plant survey yielded no detections of rare plant species on the property. Remnants of native prairie in the north-western portion of the property as well as within the riparian areas in the northern part of the property had moderate potential to support rare plants. However, based on the overall level of disturbance of the area, all cover types were rated as having low potential to support rare plants.

4.2.5 Vertebrate Species at Risk and Habitat Suitability Assessment

Based on known habitat requirements and species distribution, 13 vertebrate wildlife species of conservation concern have the potential to occur within the Study Area or within the applicable species-specific search distances (typically up to 1 km), as identified by the Government of Alberta (2026).These species are listed in Table 5 and include one amphibian, three reptiles, two mammals and seven avian species.

The FWMIS search indicated that one species of conservation concern, Sandhill Crane (Antigone canadensis), had been recorded within 1 km of the Study Area (Appendix 4). (Appendix 4). The LAT database search flagged the area as: sensitive raptor range; an area requiring sharp-tailed grouse surveys (depending upon construction timing); other sensitive and endangered species; and, within grassland and parkland natural region (Appendix 5).

The suitability of each vegetation cover type on the property for vertebrate wildlife species at risk was rated using reference literature (Collister and Kansas 2004, Amec 2006, Charlebois and Kansas 2008), species occurrence and status, first-hand knowledge gained from field visits and the authors' experience in the region. No cover types were considered to have the high suitability to harbor wildlife species at risk due to their limited native habitat integrity and/or small size and did not adequately fulfill species habitat requirements. The tall shrub, aspen forest, balsam poplar forest and riparian cover types were rated as having moderate potential to support wildlife species at risk in the study area. All remaining cover types were rated as having low potential to support wildlife species at risk.

4.2.6 Ecological Significance Assessment Summary Ratings

Vegetation cover types on the property were rated for the five ecological factors as discussed above. These ratings assessed the local ecological significance of cover types present within the study area. No cover types were considered to have high overall ecological significance at the local level due to their limited native habitat integrity and/or small size since and/or past/current disturbance and non-native plant dominance have reduced the overall ecological significance of the property. The native grassland, tall shrub, aspen and balsam poplar forests cover types were rated as having moderate overall ecological significance at the local level (Table 4). All other cover types were considered to have low overall ecological significance.

5.0 Rare Vascular Plant and Vertebrate Species at Risk Surveys

5.1 Historical Information

A query was submitted to the Alberta Conservation Information Management System (ACIMS) database to determine previous rare plant and rare plant community occurrences found in the vicinity of the project site (6 km). Historical record searches for tracked wildlife species in the project site and a suitable buffer area (1.0 km) were also completed. Two databases/tools were used to address this. First, a search of the Fish and Wildlife Management Information System (FWMIS). Second, a search of the Landscape Analysis Tool (LAT).

Database searches were completed in May 2020 (and again in July 2026). There were no previous rare plant occurrences documented in the ACIMS database within 6 km of the subject property (Appendix 3). One tracked wildlife species were identified in the FWMIS search (Sandhill crane, Appendix 4). The LAT database search flagged the area as: sensitive raptor range; an area requiring sharp-tailed grouse surveys (depending upon construction timing); other sensitive and endangered species; and, within grassland and parkland, foothills fescue and chinook grasslands natural regions (Appendix 5).

5.2 Site Visits

Several site visits were completed to inventory and assess wildlife and vegetation elements of the site. Data pertaining to vegetation cover, wildlife habitat potential, rare plant, rare plant communities, species at risk and relevant wildlife observations were recorded.

Field visits and surveys were completed on:

May 15, 2020 – sharp-tailed grouse survey and raptor survey.
June 19, 2020 – breeding songbird, grassland bird surveys and visual amphibian survey.
July 16, 2020 – rare plant survey.

5.3 Rare Plant Assessment and Survey

5.3.1 Methods

Field work

The rare plant survey was completed within the Study Area in accordance with the Alberta Native Plant Council guidelines (Lancaster 2000) and established Alberta Conservation Information Management System (ACIMS) survey protocols. Owing to the extensive and ongoing anthropogenic

disturbance associated with agricultural practices, cultivated lands, gravel extraction, and the high abundance of agronomic and invasive plant species, a single survey was considered appropriate for the Project.

The Study Area was surveyed on foot, and all vascular plant species encountered were recorded, with particular attention given to species listed by ACIMS. Survey effort was focused on habitats with the greatest potential to support rare plant species, including riparian areas, remnant native prairie, and other relatively undisturbed vegetation communities (Figure 7). The location, abundance, and habitat characteristics of any rare plant species or invasive non-native species were documented. Plant identification was completed in the field where possible, while specimens requiring further examination were collected for office confirmation using appropriate taxonomic references. Plant nomenclature follows the most recent ACIMS database (ACIMS 2018).

Post Fieldwork

The identification of all potential rare plants was verified using additional references (Kershaw et al. 2001; Moss 1994) and online databases, including the BC E-Flora database (Klinkenberg 2011). Plant specimens with subtle distinguishing characteristics (e.g., grasses and aquatic plants) were examined using a dissecting microscope where necessary to confirm identification.

5.3.2 Results

Rare Plants

No rare plant species were identified within the Study Area. The remnant native prairie in the northwestern portion of the property and the relatively undisturbed riparian and wetland complex in the northern portion of the Study Area provided the greatest potential to support rare plant species and therefore received the greatest survey effort. Despite their comparatively higher habitat quality, no rare plant species were detected.

The remainder of the Study Area has low potential to support rare plant species due to extensive historical disturbance associated with cultivated agriculture, livestock grazing, and gravel extraction, which have resulted in widespread establishment of agronomic and invasive plant species and reduced native plant diversity.

Plant Communities and Plant Inventory

Native Prairie Remnants

Small remnant patches of native prairie were identified primarily west of the riparian corridor in the northern portion of the Study Area. Seventy (70) native vascular plant species and seven non-native agronomic species were recorded within these remnants (Appendix 6). Although these remnant communities represent the highest-quality upland vegetation within the Study Area, they are limited

in extent and occur within a landscape that has been extensively modified by cultivated agriculture, livestock grazing, and other anthropogenic land uses.

The pasture in the southern portion of the property supported fewer plant species due to intensive livestock grazing, and many plants could not be identified to species because they had been grazed to ground level.

Riparian Areas
The riparian corridor in the northern portion of the Study Area supported 34 native plant species and one agronomic species (Appendix 6). Native wetland and riparian plant diversity decreased in the southern portion of the drainage course, where historical livestock grazing and associated disturbance have altered vegetation composition.

Invasive Non-native Plants

Twelve invasive non-native plant species were recorded within the Study Area (Appendix 6). Two species, Canada thistle (*Cirsium arvense*) and perennial sow-thistle (*Sonchus arvensis*), are designated as noxious under the Alberta Weed Control Act. The remaining ten species are classified as nuisance weeds (Appendix 6). These species generally occurred at low cover within upland habitats adjacent to the riparian corridor.

5.4 Avian Species-at-Risk Survey

5.4.1 Methods

Breeding songbird, raptor, grassland bird, and sharp-tailed grouse surveys were undertaken for the project area to document the diversity and abundance of breeding songbirds and the presence of avian species-at-risk. Survey point counts were established at locations with at least some natural vegetation cover.

Breeding Songbird/grassland Birds Survey

Point counts were completed on June 19, 2020 between approximately 06:15 and 08:30 hours, and followed standards outlined in Government of Alberta (2013). Each point count consisted of a two-minute calming period followed by a five-minute detection period (auditory and visual). Surveys were completed under low wind conditions with no significant precipitation. All birds seen and heard within the 100 m radius plot were recorded and identified to species. Species detected outside the survey plot were also recorded and noted as such. Descriptive weather data (temperature, sky condition, wind – Beaufort wind scale (WMO 1970, Government of Alberta 2013) was recorded at the beginning and end of the sampling bout. A total of nine survey plots were completed (Figure 8).

Sharp-tailed Grouse Lek and Raptor Survey

Survey methods followed the Sensitive Species Inventory Guidelines (Government of Alberta 2013). Surveys were conducted on May 15, 2020 between the hours of 06:00 and 08:30 hours. Surveys were completed under low wind conditions with no significant precipitation. A search area including a buffer of 500 m was surveyed. The search was centered on the proposed development areas. Survey points (look and listen) were established at intervals where topographical relief was optimal (uplifted terrain). The survey route was recorded using a hand-held GPS (Figure 8).

The entire property, including a buffer of 1,000 m, was also surveyed for raptor's nests.

5.4.2 Results

Thirty-five (35) different wildlife and avian species were detected (observed/heard) during the breeding songbird and sharp-tail grouse lek and raptor surveys, including 22 different species during the formal survey and 13 outside this window or beyond the plot boundary (Table 6). Of these species, only Eastern Kingbird (*Tyrannus tyrannus*) and great blue heron (*Ardea herodias*) were listed species (listed as Sensitive in Alberta and not listed Federally) (Table 6).

Two active Swainson's hawk nests were detected approximately 300 and 370 meters from the property. An active Canada goose nest was observed 390 meters from the property. Lastly, a great blue heron nesting colony containing at least five active nests was observed approximately 820 meters from the property. (Figure 8). No sharp-tailed grouse and/or grouse leks or other sensitive grassland species were observed.

5.5 Amphibian Visual Survey

5.5.1 Methods

A visual amphibian search was completed to document the presence of known species at risk and the diversity/relative abundance of amphibian species on the property. Survey methods were adapted from Government of Alberta (2013). Open water areas were surveyed, and all amphibians detected (auditory or visual) were recorded. Amphibian visual surveys were completed on May 15 and June 19, 2020.

5.5.2 Results

No amphibian species were detected during surveys of the project lands. However, several boreal chorus frogs were detected in an adjacent land parcel east of the property.

6 Permanency Assessment and Crown Ownership

6.1 Historical Precipitation Analysis and Aerial Photography Acquisition

Aerial photographs for this assessment were obtained from the Government of Alberta's Aerial Photographic Records System (APRS) as well as recent Google Earth Imagery as a substitute for recent years where availability from APRS was limited.

Yearly precipitation tables for Mountain View, AB were exported from beginning of record (1950) to 2019 using the Alberta Agriculture and Rural Development's AgroClimatic Information Service (ACIS) (Table 7). Aerial images were selected to represent the range of seasons and variations in yearly precipitation over as long a period of time as possible. In addition, the amount of precipitation in days and months prior to photograph date were taken into consideration. Photographs from 11 different years were used for the assessment (Table 8).

6.2 Historical Aerial Photograph Analysis

The historical photographs for all 11 years of analysis were overlaid and geo-corrected for the property and are presented in Appendix 1. The photographic record was used for analysis of disturbance across the property, and the drainage course in particular, over time (1950 to Present), as well as the permanency assessment of the drainage course.

6.2.1 Human activity in/adjacent to project area: 1950 to Present.

Analysis of the photographic records revealed extensive change in use and increased disturbance levels of the project area over time since earliest record (1950). A detailed description of alterations from 1950 to 2019 is provided in Table 9. The *key* alterations affecting the drainage course on the property include:

- 1962: New road along the Northern border of the property potentially altering the drainage pattern.
- 1992: Dugout excavated within the drainage course potentially altering timing of water input and drainage.
- 2010: A road crossing the property from West to East has dammed up the water course, causing wetter conditions and the area surrounding the dugout to be flooded.

6.2.2 Identification and Permanency Assessment of the Drainage Course

Three man-made wetlands and a riparian area/drainage course were identified and delineated by the historical review and several site visits. The boundary for all wetlands on the site were identified and digitized using Photographs from all 11 years.

The drainage course drains from South to North through the center of the property. The banks of this drainage course have steep slopes for most stretches but some wider areas (predominantly in the Northern portion) have wetland vegetation and soil profiles consistent with Seasonal wetlands. Based on the review of the historical photographs, this drainage course does not appear to have water in it during all years, e.g. 1992 and 2000 (Appendix 1f and Appendix 1g), or at least not in all seasons across all years, suggesting intermittent seasonal flow.

Under Section 3 of the Public Lands Act, the title to the bed and shore of all permanent and naturally occurring bodies of water and all naturally occurring rivers, streams, watercourses and lakes is vested in the Crown in right of Alberta. In cases of streams and watercourses, water does not have to be continuously present in the channel to support the permanence of the watercourse, it is the natural occurrence of that watercourse is the most important factor to consider (Sid Parseyan, Water Boundaries Unit, pers. comm.). Water within a watercourse is dynamic and flows; as long as the regular flow of water creates a distinguishable bed within the channel of that watercourse, it proves the permanence of that watercourse.

6.3 Crown Ownership

The assessment, including historical aerial photographs, was submitted to the Water Boundaries Unit at Alberta Environment and Parks (AEP) on July 8th, 2022 to determine the potential for a Crown claim. The decision from AEP was received on the same day.

AEP did confirm an ownership claim to the bed and shore of the drainage course within the gully (not the entire gully) running through the property since it meets the criteria for Crown ownership. As a result, the Crown in right of Alberta, asserted ownership of the bed and shore of the drainage course. They stated further that any flooded areas beyond its normal bed and shore which has occurred due to man-made activities are not considered to be part of the Crown-owned bed and shore.

6.4 Identification of Drainage Course Banks

To identify the extent of the Crown-owned banks, as a natural ownership boundary, an authorized Alberta Land Surveyor (ALS) was required. The drainage course was surveyed by Pat Maloney (Alberta Land Surveyor) using a desk top review and two site visits on November 15, 2018 and September 9, 2022. The mapped bank of the drainage course was provided as a shape file, and has been used to establish the required setbacks (Figure 9).

6.5 Establishment of Riparian Setback

Property subdivision authorities have the authority to establish building development setbacks, or dedicate environmental strips, for the purpose of maintaining riparian areas in a healthy state (Government of Alberta 2012). The *Stepping Back from the Water* guidelines (Government of Alberta 2012) outline the approach for establishing riparian setbacks based on variables such as the type of waterbody, soil substrate, topography and slope.

6.5.1 Methods

Per the riparian setback requirements, a 6m buffer was generated around the stream bank. In addition, along the length of the stream, at 10 m intervals, lines running perpendicular to the stream were generated. Using the stream course (i.e., the center of the buffer) and these perpendicular lines, the 6m stream buffer was segmented (Figure 10). Within each of these segments, the average slope was calculated. These averages were derived using 1x1m resolution slope raster data[2], and measured in percentage units. For each of these segments, a buffer (originating from the stream) was generated based on the following criteria (Government of Alberta 2012):

1) Where the average slope in a segment was less than 5%: Add a 6m buffer (i.e., vegetated filter strip).
2) Where the average slope in a segment was 6-25%: Add a slope factor (additional buffer) to the vegetated filter strip based on the equation:

   $$6 + 1.5\ (Average\ Slope - 5)$$

   Buffers in this scenario are not allowed to extend further than 6m from the crest of the gully.

3) Slopes >25% are not credited toward the filter strip (Government of Alberta 2012), therefore, where the average slope in a segment was greater than 25%: Add a buffer that extends to 6m beyond the crest of the gully.

This buffering was done separately for the true left and true right side of the steam, and the final result was clipped so that the buffers did not cross the stream. The gully crest was manually digitized using 0.5m resolution contour polyline data, and 1x1m resolution slope raster data. A 6m buffer was generated around this gully boundary, and clipped to the property boundary.

6.5.2 Results

A riparian buffer ranging from 6 to 79m from the drainage course bank was established based on the criteria outlined in Section 3.1. The resulting setbacks are displayed in Figure 11.

[2] slope_dtm_1m_utm11_e_20_170 from the High Resolution Digital Elevation Model (HRDEM) dataset from the Government of Canada.

7.0 Impact Assessment and Recommendations

This section of the report assesses potential ecological impacts of development with an emphasis on recommendations for avoiding and/or mitigating/compensating impacts on ecologically significant habitats. This assessment is based on current conditions.

7.1 Impact Assessment at the Habitat/Local Level

- The majority of the property is highly disturbed, with 53.8 ha (85.3% of the property) consisting of cultivated fields (46.8%), anthropogenic areas (e.g., residential development, gravel pits, and roads) (16.8%), and disturbed grasslands (21.7%). The proposed development will directly affect 56.4 ha (89.5% of the property) (Figure 10), most of which comprises cultivated fields, disturbed grasslands, and other anthropogenic land cover. Although a small remnant native prairie community and the drainage course represent the highest ecological value habitats within the Study Area, they occupy a relatively small proportion of the property. As discussed in Section 6, a drainage course assessment and watercourse setback determination were completed in accordance with Stepping Back from the Water (AEP 2012), and the recommended setback has been incorporated into the site design. Consequently, the drainage course, associated riparian area, and setback will remain largely undisturbed, with the exception of widening the existing road crossing (Figure 12).
- The Stormwater Management Plan (Osprey Engineering 2021) outlines the proposed commercial/industrial development, which will be completed in four phases and includes the construction of three stormwater management ponds (Figure 12). The anticipated ecological effects associated with each development phase are summarized below.

Phase 1: Northwestern portion of the property

- With the exception of a patch of remnant native prairie in the northwestern corner of the property, Phase 1 is located entirely within previously disturbed areas, consisting of cultivated fields and disturbed grassland.
- **Impact**: This phase includes the only remnant native prairie community that will be directly affected by the Project. Although this community represents the highest-quality upland vegetation within the Study Area, it is limited in extent and occurs within a landscape otherwise dominated by cultivated land and other anthropogenic disturbance. Assuming the proposed stormwater management pond incorporates wetland enhancement features, it has the potential to provide ecological benefits through the creation of wetland habitat, partially offsetting the loss of disturbed upland habitat.

Phase 2: Southwestern portion of the property

- The area is currently highly disturbed and consists primarily of a former gravel pit and cultivated field.

- **Impact**: Given the existing level of disturbance, development of this phase is expected to result in negligible to minor adverse ecological effects.

Phase 3: Eastern and Southern portions of the property

- The area is currently highly disturbed and consists primarily of a former gravel pit and cultivated field. This phase also includes construction of a stormwater management pond.
- **Impact**: Given the existing level of disturbance, development of this phase is expected to result in negligible to minor adverse ecological effects. Assuming the proposed stormwater management pond incorporates wetland enhancement features, it has the potential to provide ecological benefits through the creation of wetland habitat, partially offsetting the loss of disturbed upland habitat.

Phase 4: Northeastern portion of the property

- The area is currently highly disturbed and consists of a cultivated field and disturbed grassland.
- **Impact**: Given the existing level of disturbance, development of this phase is expected to result in negligible to minor adverse ecological effects.

7.1.1 Mitigation Measures

Riparian Areas

- As discussed in Section 6, a drainage course assessment and watercourse setback determination were completed in accordance with Stepping Back from the Water (AEP 2012), and the recommended setback has been incorporated into the site design. Consequently, the drainage course, associated riparian area, and setback will remain largely undisturbed, with the exception of widening the existing road crossing (Figure 12).

Rare Plants

- Rare vascular plant species or plant communities were not found on the property. No further mitigation is required to offset construction effects on this aspect of vegetation at the habitat/local level.

Re-vegetation of storm ponds following construction activities

- Reclamation with native wetland/aquatic plants at the water margin; willow staking from the top of the bank towards the water level, as well as a mix of shrub and grass species at the crest and top of

the will be implemented. Seed mix selection will be guided by the vegetation inventory completed along the drainage course as part of the rare plant surveys (Appendix 6).
- The constructed storm ponds will have sides sloped at a ratio of 4:1 to prevent fine particles from entering the pond and will be re-loamed and re-seeded to allow for and encourage colonization of naturally occurring wetland species.
- Vegetation complexity and diversity will be enhanced along the storm ponds to create vegetation cover that is lacking on the property.

Wildlife Species at Risk

As per the generated LAT report (Appendix 5) some conditions pertaining to wildlife species at risk apply, including:

- The proponent is required to complete a wildlife sweep of the immediate area (site plus 100 metres) prior to entry and construction to identify important wildlife features.
- During wildlife surveys completed in 2020, a Great Blue Heron colony was documented approximately 820 m east of the property. Active Great Blue Heron colonies are typically subject to a 1,000 m setback. During a roadside reconnaissance completed in July 2026, no Great Blue Herons or evidence of active nesting were observed from publicly accessible viewpoints. As access to the property was not available, the current occupancy status of the previously documented colony could not be confirmed. Accordingly, consultation with APEA should occur prior to construction to confirm whether setback requirements apply. Based on the colony's location within a lower valley, outside the line of sight of the proposed development, and the presence of several existing residences and farmsteads closer to the colony, the colony is not anticipated to represent a significant constraint to the proposed development should it remain active.

Migratory Bird Convention Act (MBCA)

- To avoid impacts to migratory birds, and their nests in the southern Parkland and Prairie ecozone of Alberta, Environment and Climate Change Canada advises that habitat destruction activities (e.g., vegetation clearing, flooding, draining, construction, etc.) in upland areas attractive to migratory birds carry a particularly high risk of disturbing or destroying migratory bird nests or eggs between May 1 and August 20. In wetland areas attractive to migratory birds, there is a high risk between April 15 and August 25. To avoid such impacts, we recommend timing land clearing activities outside this window or to ensure that a pre-disturbance nest sweep be completed. The nest sweep must be completed by a qualified environmental specialist (e.g., P. Biol) within 7 days of the commencement of construction activities.

7.2 Impact Assessment at the Landscape/Regional Level

At the landscape scale, the Study Area has limited ecological value due to extensive historical and ongoing anthropogenic disturbance. The property is dominated by cultivated fields, gravel pits, roads, and other disturbed land cover, resulting in limited habitat for wildlife species at risk and rare plants. Although the Study Area contains a small remnant native prairie community and an associated drainage course with riparian habitat, these features are limited in extent within a landscape that has been extensively modified by agriculture and other human activities. Consequently, the proposed

development is expected to result in negligible additional habitat loss or fragmentation at the regional scale.

As discussed in Section 6, the drainage course, associated riparian area, and watercourse setback have been retained within the site design, with the exception of widening the existing road crossing. As a result, north-south habitat connectivity will be maintained, and the Project is not expected to contribute substantially to regional habitat fragmentation or impede movement of wildlife species.

8.0 Summary and Conclusions

8.1 Habitat/Local Level

- Most of the property is comprised of disturbed or highly modified habitat types with low ecological integrity. Although the Project will affect a small remnant native prairie community, the majority of the development footprint occurs within previously disturbed land cover. Retention of the drainage course, associated riparian area, and recommended watercourse setback further reduces ecological effects at the habitat/local scale.

- Rare vascular plant species and rare plant communities were not detected within the Study Area. No additional mitigation is required to address potential effects on rare vegetation.

- A drainage course assessment and watercourse setback determination were completed to inform project design. The drainage course, associated riparian area, and recommended setback have been retained within the site layout, with the exception of widening the existing road crossing.

- Nest and den sweeps will be completed immediately prior to construction. If an active or occupied nest or den is identified, appropriate setbacks will be established, and the feature will not be disturbed until it is no longer active or authorization has been obtained from the appropriate regulatory authority.

8.2 Landscape/Regional Level

- Existing land use within and surrounding the Study Area has resulted in extensive habitat loss and fragmentation. Given the predominance of previously disturbed land cover within the Project footprint, the proposed development is expected to make only a negligible contribution to habitat fragmentation at the regional scale.

- Retention of the drainage course, associated riparian area, and watercourse setback will maintain north-south habitat connectivity through the Study Area. Consequently, the Project is not expected to substantially affect regional wildlife movement or ecological connectivity.

9.0 Literature Cited

Adams, B.W., R. Ehlert, D. Moisey and R.L. McNeil. 2003. Rangeland Plant Communities and Range Health Assessment Guidelines for the Foothills Fescue Natural Subregion of Alberta. Rangeland Management Branch, Public Lands Division, Alberta Sustainable Resource Development, Lethbridge, Pub. No. T/038 85 pp.

Adams, L.W. and L.E. Dove. 1989. Wildlife reserves and corridors in the urban environment - a guide to ecological planning and resource conservation. National Institute for Urban Wildlife, Columbia, MD. 91 pp.

Alberta Conservation Information Management System (ACIMS). 2017. List of Tracked and Watched Elements. Alberta Tourism Parks and Recreation, Parks Division, Edmonton Alberta.

Alberta Conservation Information Management System. Online data accessed June 28 2017. Alberta Environment & Parks, Edmonton, Alberta.

Alberta. 2008. *Weed Control Act*, SA 2008 cW-5.1

AEP (Alberta Environment and Parks). 2020. Landscape Analysis Tool (LAT). Web Enabled Geo-Spatial Mapping Tool.

Alberta Environmental Protection (AEP). 2015. The general status of Alberta wild species 2015. Alberta Environment/Alberta Sustainable Resource Development and Alberta Conservation Association.

Alberta Environmental Protection (AEP). 2000. First report of the Alberta endangered species conservation committee. Pub. No. T/56. Government of Alberta, Edmonton. 24 pp.

Allen, L. 2014. Alberta Conservation Information Management System. Ecological Community Tracking List. Alberta Tourism, Parks and Recreation. Edmonton, AB.

Amec. 2006. Environmental Assessment Screening for the Southwest Calgary Ring Road. Consultant Report.

Charlebois, M.L. and J.L. Kansas. 2008. Biophysical inventory and analysis for the proposed City of Calgary Paskapoo Slopes Park. Prep. by URSUS Ecosystem Management Ltd. for the City of Calgary, Parks.

Collister, D.M. and J.L. Kansas. 2004. Southwest Connector Phase 1 Biophysical Inventory. Prep. for City of Calgary by URSUS Ecosystem Management Ltd. Calgary, AB. 35 pp.

Council on Environmental Quality. 1993. Incorporating biodiversity considerations into environmental impact analysis under the National Environmental Policy Act. Council on Environmental Quality, Executive Office of the President. Washington, D.C. 29 pp.

Desserud, P.A. and M. A. Naeth. 2010. Smooth brome: An unexpected response to straw-amended soil (Alberta). Ecological Restoration 28(2):133-135.

Downing. D. J. and W.W. Pettapiece. Government of Alberta Pub. No. T/852.

Drake, J.A., H.A. Mooney, F. Di Castri, R.H. Groves, F.J. Kruger, M. Rejmanek, and M. Williamson (eds.). 1989. Biological invasions: a global perspective. John Wiley and Sons, New York.

Fawcett, M.D., L.W. Turchenek, R.A. MacMillan, W.L. Nikiforuk, R. Delorme and B. Dejong. 1994. Soil survey of the Municipal District of Rocky View No. 44, Alberta (excluding Calgary Urban Perimeter). Alberta Soil Surveys Report No. 53. Alberta Research Council, Environmental Research and Engineering Department, Edmont, Alberta, Canada. 131 pp.

Fiera (Fiera Biological Consulting Ltd.). 2014. Environmentally Significant Areas in Alberta: 2014 Update. Report prepared for the Government of Alberta, Edmonton, Alberta. Fiera Biological Consulting Report Number 1305. Pp. 51.

Fish and Wildlife Management Information System 2020. FWMIS database – Element of Occurrence Search May 2020.

Government of Alberta. 2012. Stepping back from the Water: A beneficial Management Practices Guide for New Development Near Water Bodies in Alberta's Settled Region. Regional Science and Planning. Alberta Environment and Parks. Edmonton, AB.

Government of Alberta. 2013. Sensitive Species Inventory Guidelines. Environment and Sustainable Resource Development. Edmonton, AB.

Government of Alberta. 2015. Alberta Wetland Classification System. Water Policy Branch, Policy and Planning Division, Alberta Environment and Sustainable Resource Development. Edmonton, AB.

Johnson, D., L. Kershaw, A. McKinnon, and J. Pojar. 1995. Plants of the western Boreal Forest and Aspen Parkland. Lone Pine Publishing and the Canadian Forest Service. 392 pp.

Kemper, J.T. 2009. Alberta Natural Heritage Information Centre Vascular and Non-vascular Plant Tracking and Watch Lists. Alberta Tourism, Parks and Recreation, Parks Division, Edmonton, Alberta.

Kershaw, L., J. Gould, D. Johnson, and J. Lancaster. 200.1 Rare vascular plants of Alberta. University of Alberta Press. 484 pp.

Klinkenberg, Brian. (Editor) 2011. E-Flora BC: Electronic Atlas of the Plants of British Columbia [eflora.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. [July 25, 2017].

Lancaster, J. 2000. Guidelines for rare plant surveys. Alberta Native Plant Council. 12pp.

Meffe, G.K., C.R. Carroll and contributors. 1997. Principles of conservation biology 2nd edition. Sinauer Associates, Inc. Sunderland, MA. 729 pp.

Moss, E.H. 1994. Flora of Alberta (Second Edition). University of Toronto Press. 687 pp.

Natural Regions Committee. 2006. Natural Regions and sub-regions of Alberta

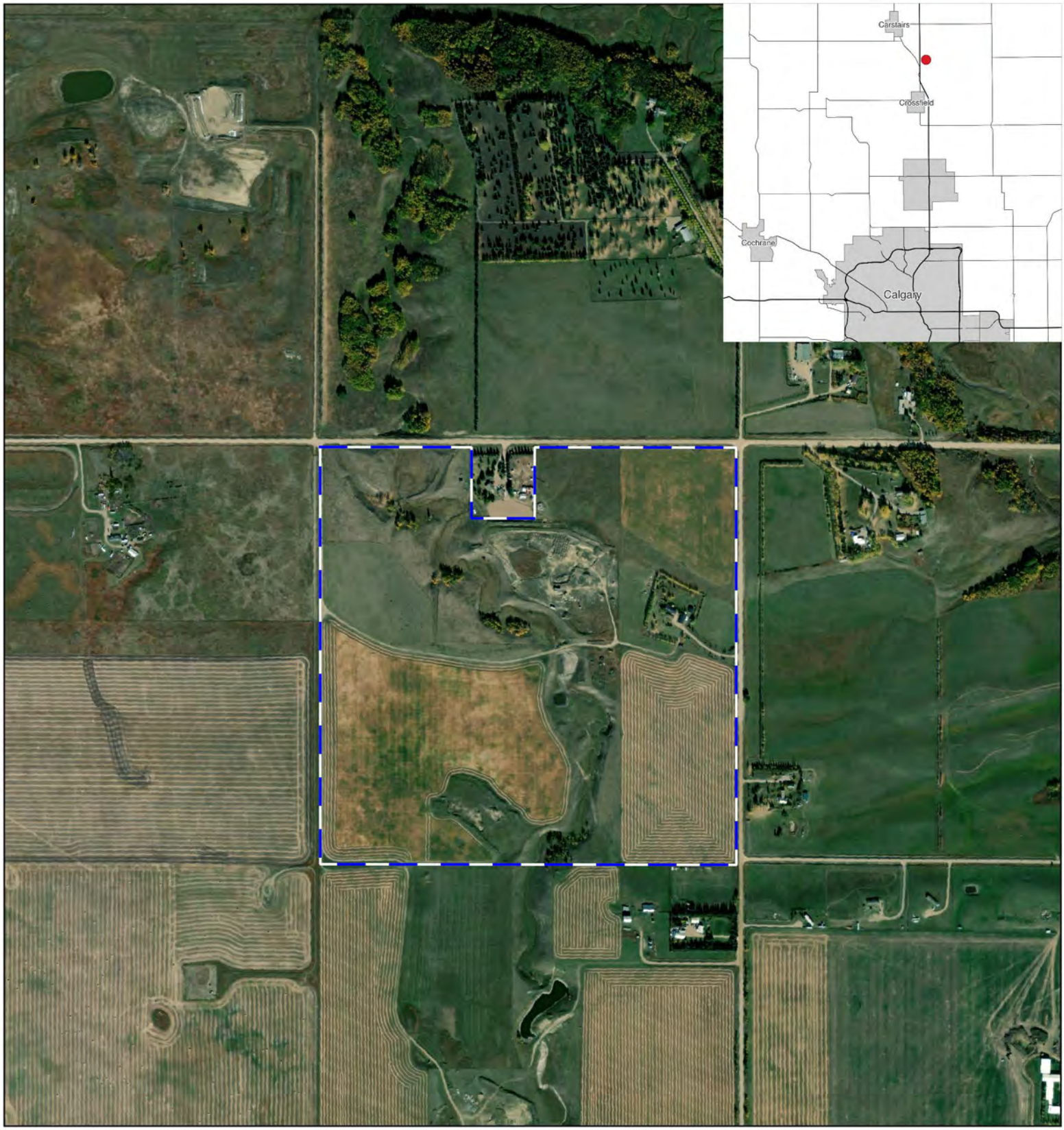
Noss, R.F. and A. Cooperrider. 1994. Saving nature's legacy: protecting and restoring biodiversity. Defenders of Wildlife Press, Washington, D.C.

Packer, J. and C. Bradley. 1984. A checklist of the rare vascular plants of Alberta. Natural History Occasional Paper No. 5, Provincial Museum of Alberta, Edmonton.

Theobald, D.M., J.K. MIller, and N.T. Hobbs. 1997. Estimating the cumulative effects of development on wildlife habitat. Landscape and urban planning Volume 39 (1):25-36.

Wallis, C. 1987. The rare vascular flora of Alberta Vol. II – a summary of the taxa occurring in the Canadian Shield, Boreal Forest, Aspen Parkland and Grassland Natural Regions. Cottonwood Consultants Ltd., Calgary, Alta.

Figures



Legend

Property Boundary

N
W E
S

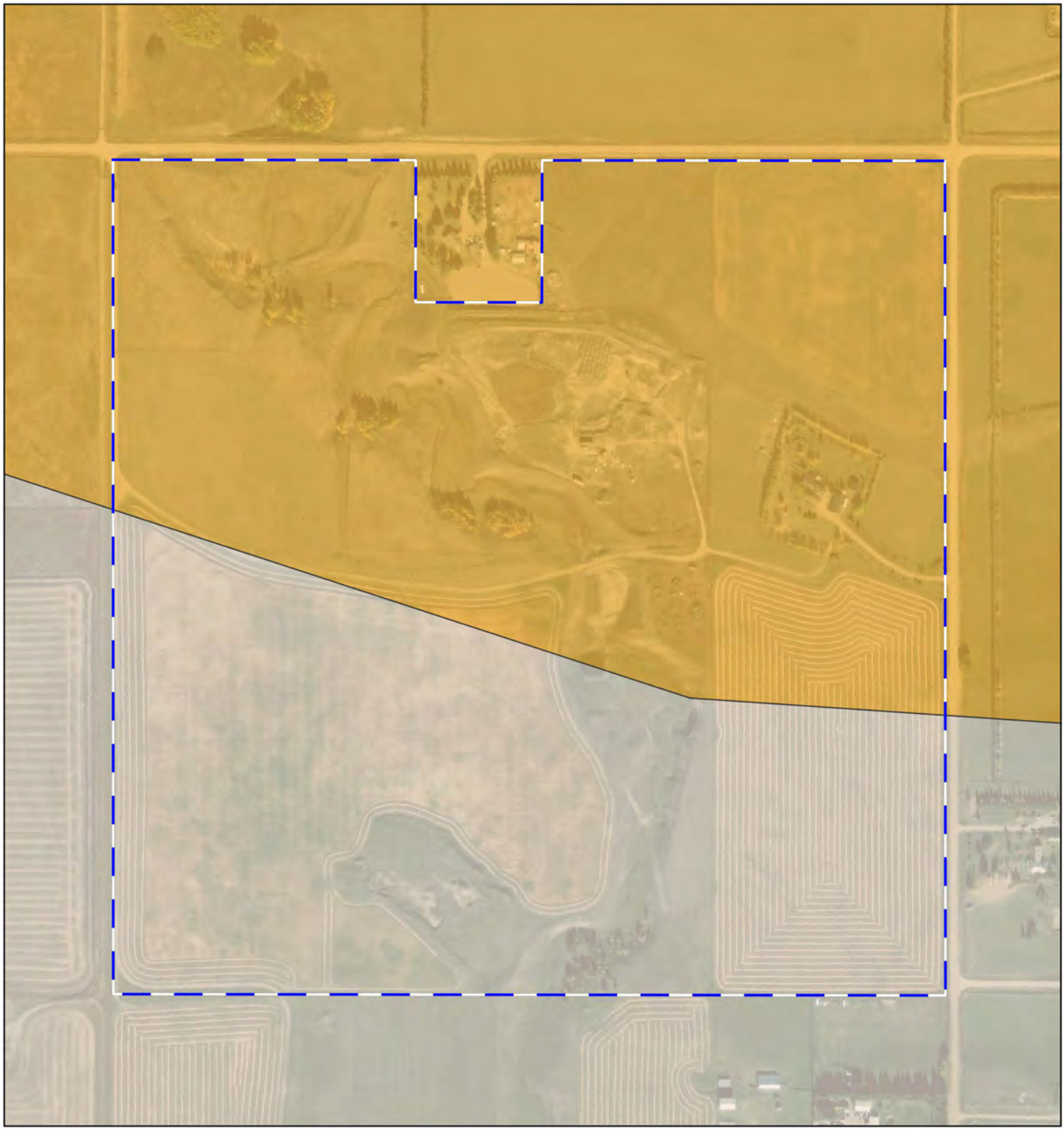
0 100 200 300 400 500 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Project Location

DATE	Figure 1
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- Central Parkland
- Foothills Fescue

N
W E
S

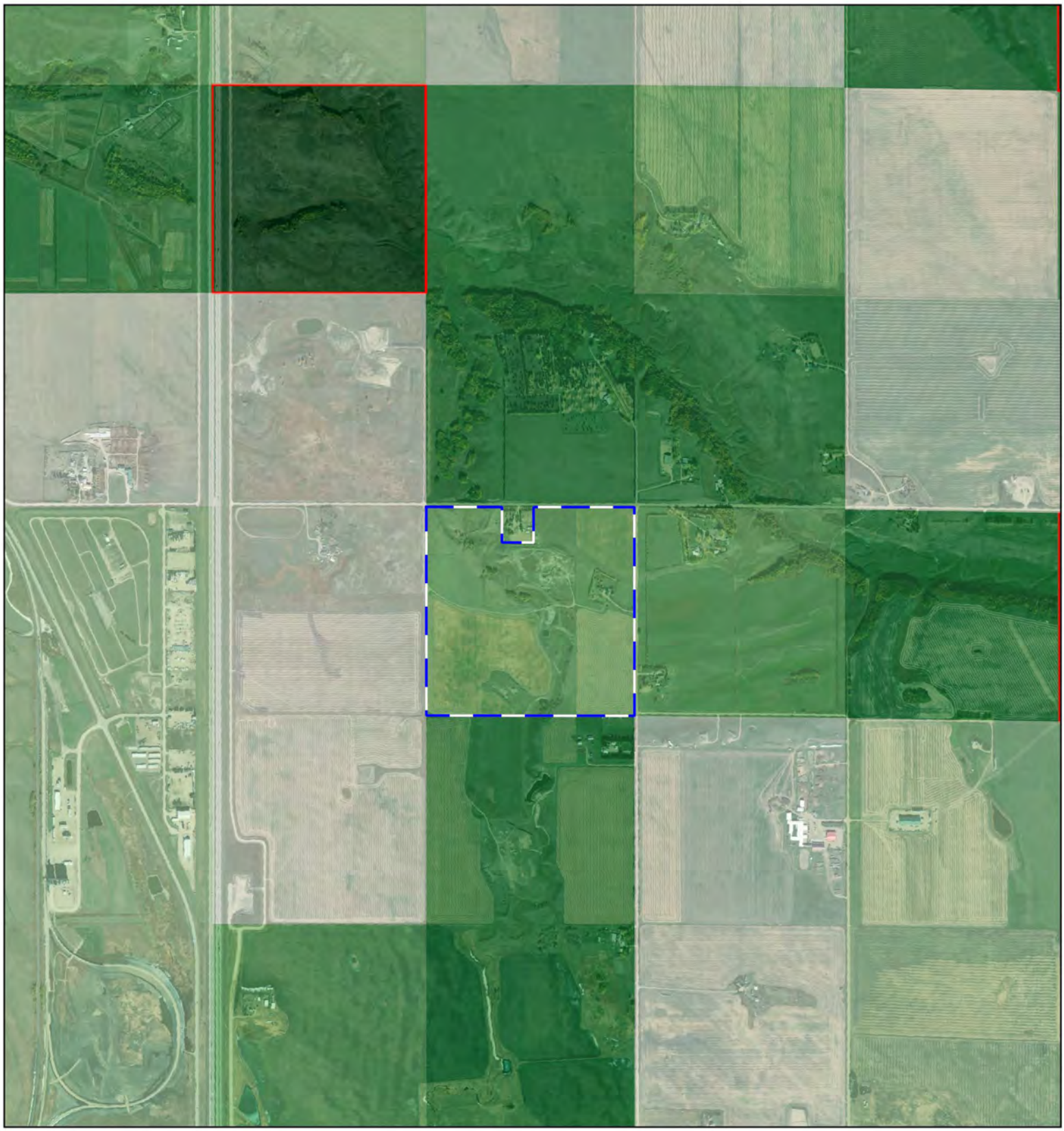
0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Natural Subregions

DATE	Figure 2
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

Property Boundary

Environmentally Significant Areas

- > 0.189: ESA
- 0.129 - 0.189
- 0.095 - 0.129
- 0.045 - 0.095
- 0 - 0.045

N W E S

0 200 400 600 800 1,000 m

OMNIA ECOLOGICAL SERVICES	NE-24-29-1-W5
Appin Developments Inc. **Environmentally Significant Areas**	
DATE JULY, 2026 Ver.1.01	**Figure 3**
PROVIDED BY Bruce McIntosh	PROJECTION/DATUM UTM zone 11 NAD83
PROJECT ID 2605-05	CREATED BY HS / QA / QC: MC

Legend

Property Boundary

Alberta Merged Wetland Inventory

Marsh

Open Water

N

W E

S

0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Previously Mapped Wetlands
(Alberta Merged Wetland Inventory)

DATE	Figure 4
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC

Legend

- Property Boundary
- Riparian Area
- Anthropogenic Wetland

N
W E
S

0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Verified Wetlands and Riparian Areas
(Based on Desktop and Field Analysis)

DATE: JULY, 2026 Ver.1.01	**Figure 5**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC

Legend

Property Boundary

Code	Type	Area	%
DG	Disturbed Grassland	13.68 ha	21.7
NG	Native Grassland	4.70 ha	7.5
TS	Tall Shrub	0.03 ha	<0.1
Aw	Aspen forest	0.63 ha	1
Pb	Poplar forest	0.25 ha	0.4
RP	Riparian	3.40 ha	5.4
CF	Cultivated field	29.49 ha	46.8
AN	Anthropogenic	10.87 ha	17.2

N W E S

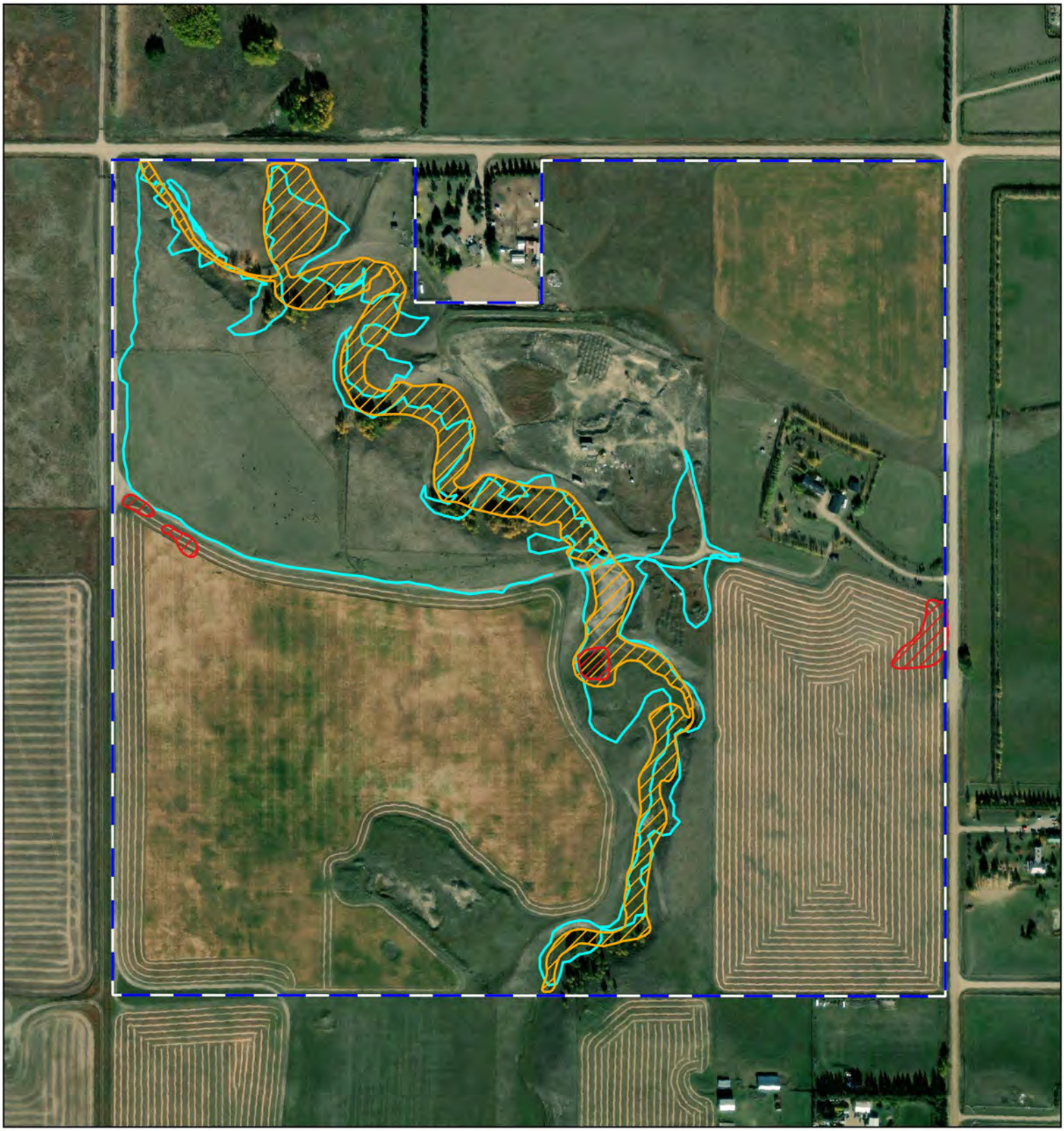
0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Land Cover Types

DATE	Figure 6
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- Riparian Area
- Anthropogenic Wetland
- Survey Route

N
W E
S

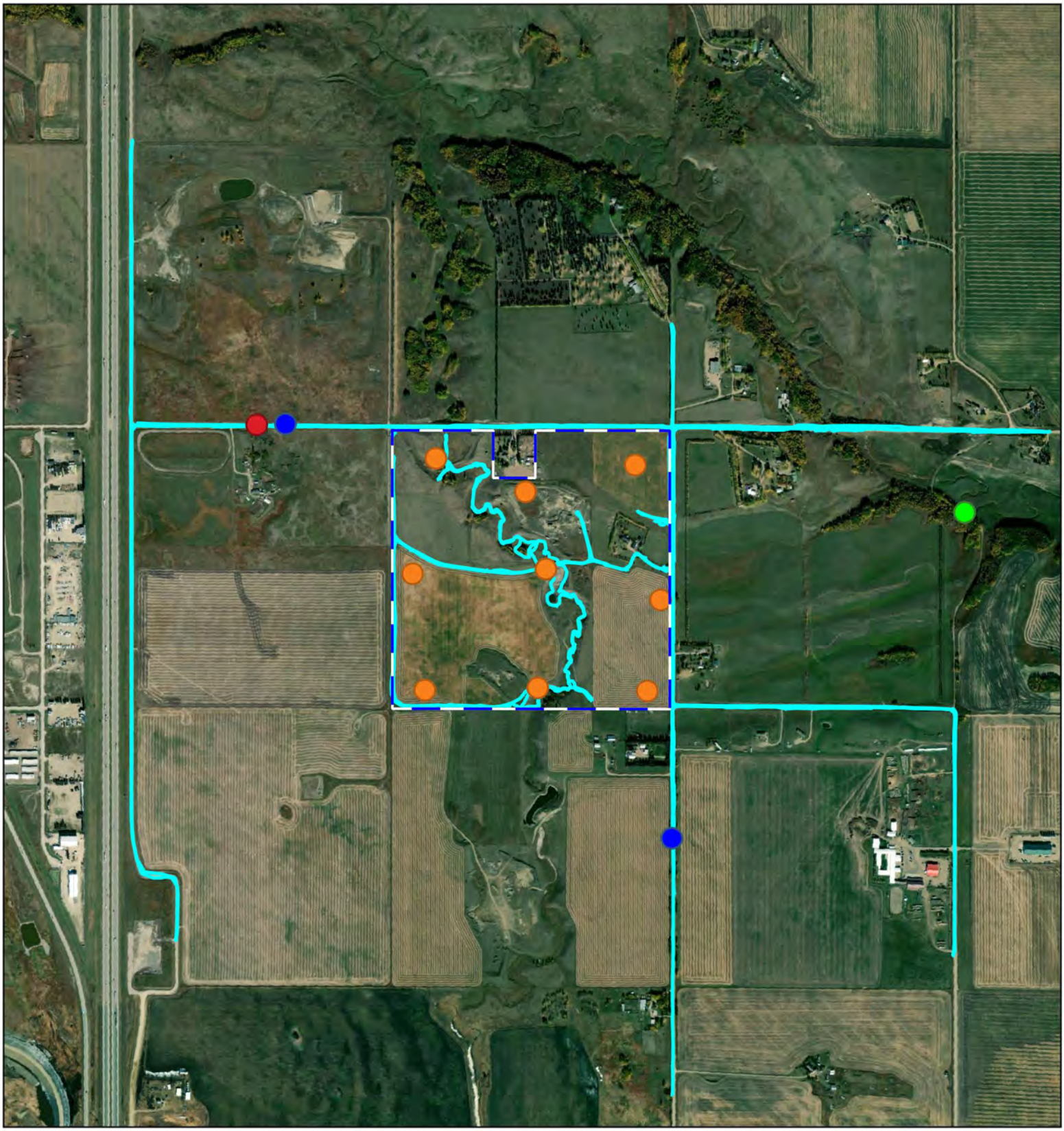
0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Rare Plant Survey

DATE	Figure 7
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- Survey Route
- CAGO nest
- GBHE Colony
- SWHA nest
- Avian Plot

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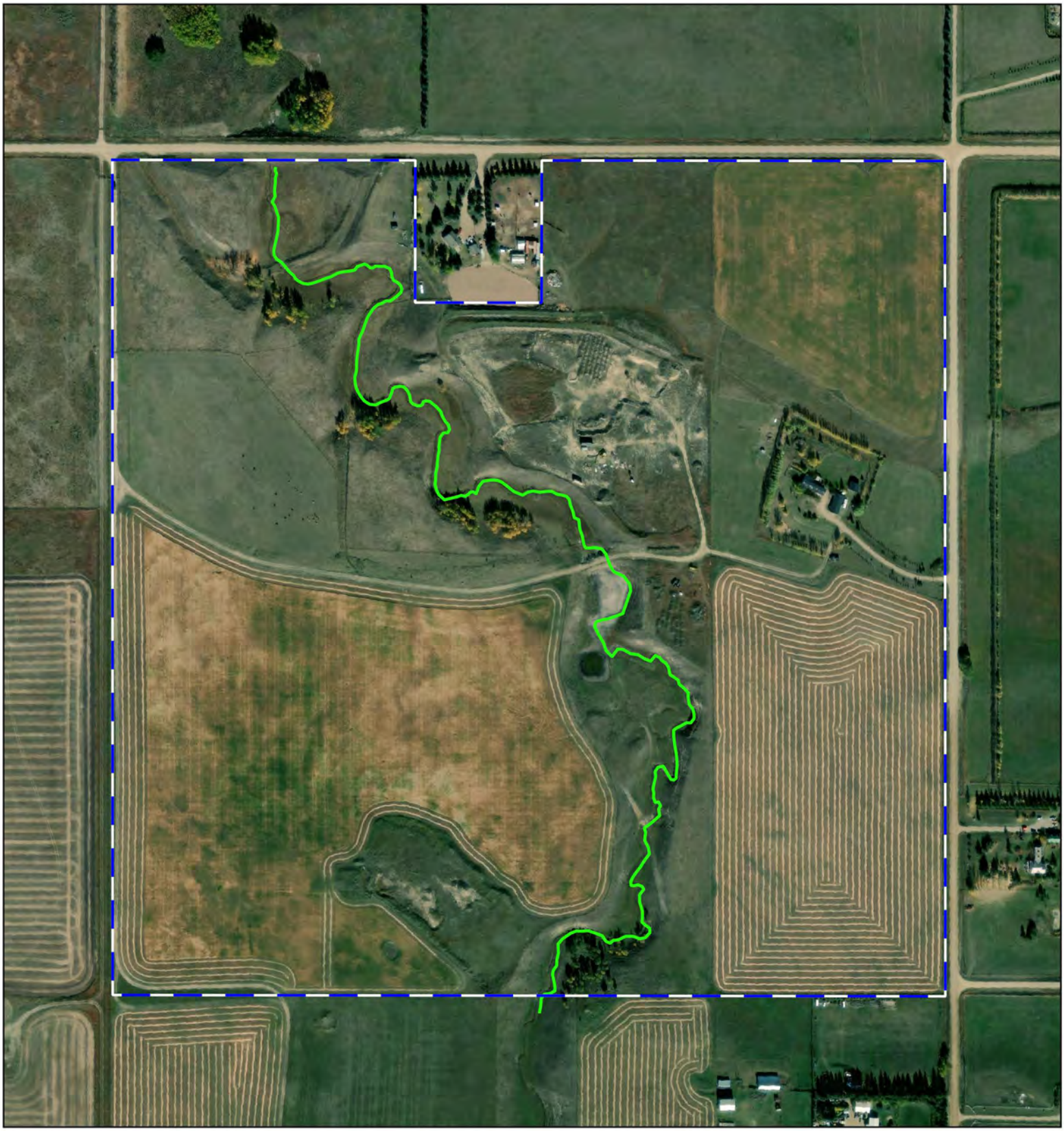
0 250 500 750 1,000 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Vertebrate Species at Risk Surveys

DATE	Figure 8
JULY, 2026 Ver.1.01	
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- ALS Surveyed Drainage Course

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OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
ALS Surveyed Drainafe Course

DATE: JULY, 2026 Ver.1.01	**Figure 9**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC

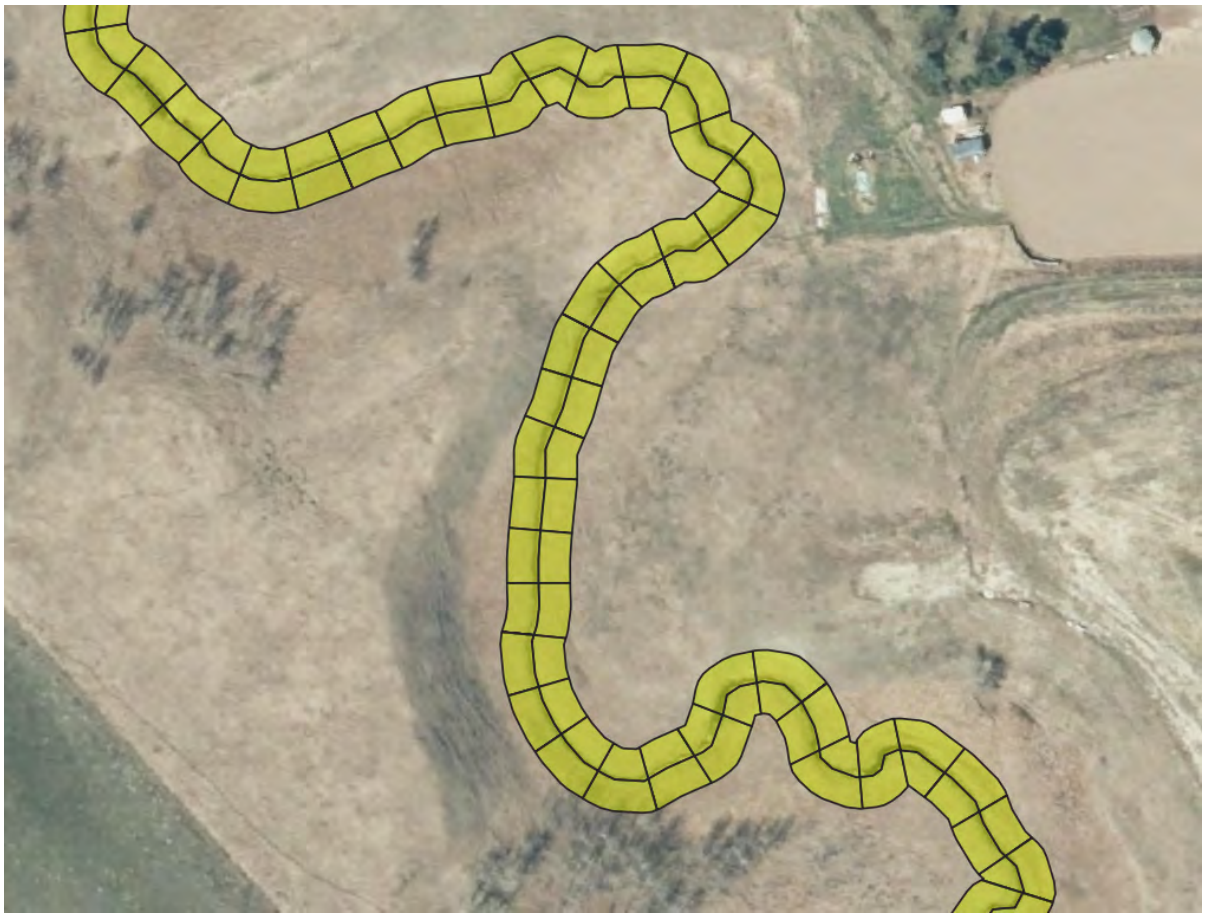

Figure 10 Segmentation of the 6m stream buffer for calculation of average slope percentages.

Legend

- Property Boundary
- ALS Surveyed Drainage Course
- Contour Line (0.5 m interval)
- Riparian Setback

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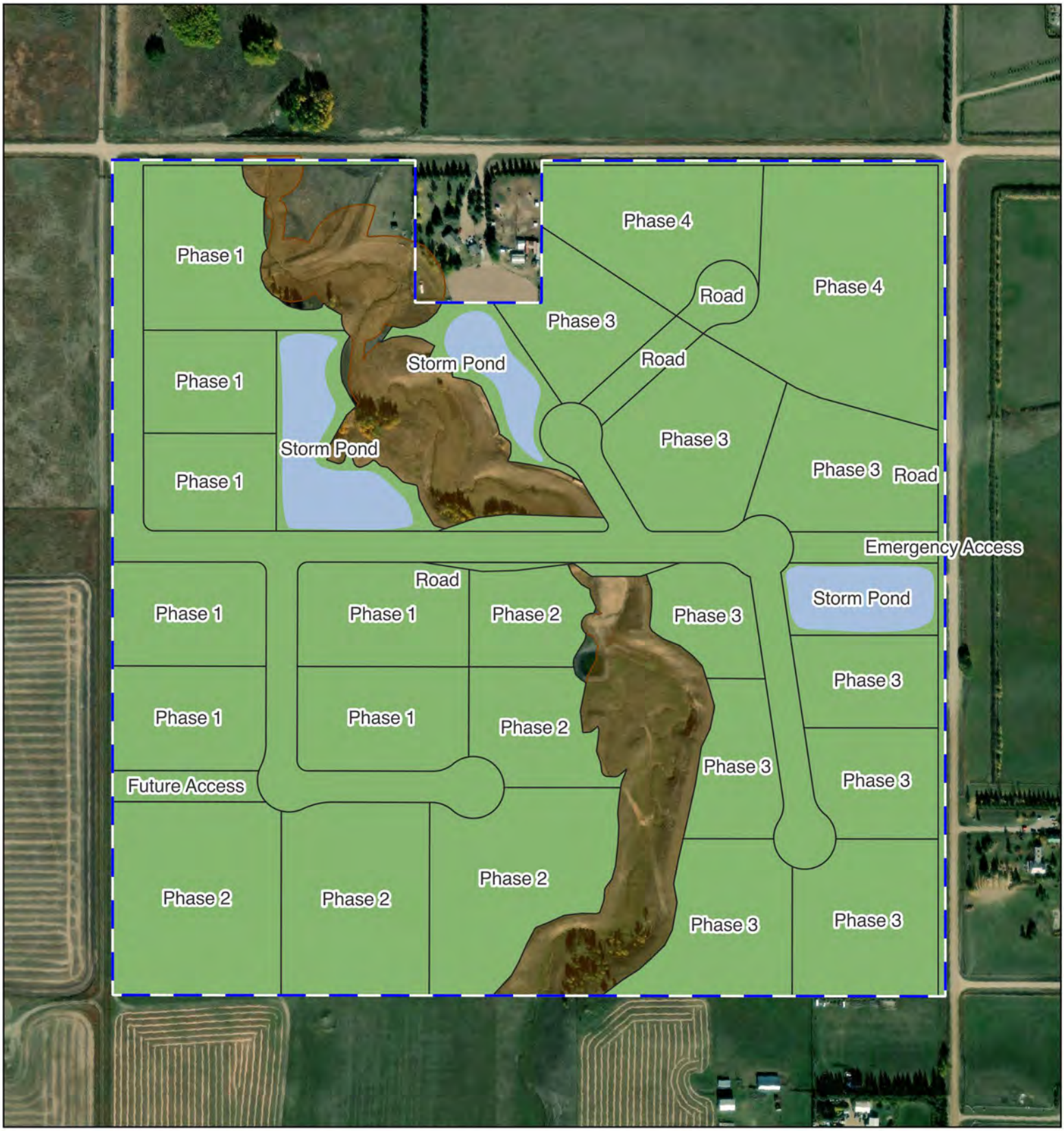
OMNIA ECOLOGICAL SERVICES		NE-24-29-1-W5
Appin Developments Inc. ALS Surveyed Drainafe Course and Riparian Setback		
DATE JULY, 2026 Ver.1.01		**Figure 11**
PROVIDED BY Bruce McIntosh		PROJECTION/DATUM UTM zone 11 NAD83
PROJECT ID 2605-05	CREATED BY HS	QA / QC: MC



Legend

- Property Boundary
- Riparian Setback
- Project Phases

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OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Proposed Development Footprint

DATE: JULY, 2026 Ver.1.01	**Figure 12**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC

Tables

Table 1 Federal Legislation with Potential Relevance to the proposed Project.

Legislation/Policy	Description	Relevance
Migratory Birds Convention Act	The Act prohibits any activity that could harm migratory birds or their nests unless specifically authorized by legislation.	Clearing should occur outside the peak breeding and nesting season. If clearing is necessary during this period, a nest sweep must be conducted beforehand.
Species at Risk Act	Establishes federal protection for listed endangered and threatened species, and their critical habitats. It aims to prevent extinction and support recovery of at-risk wildlife.	Species at risk surveys must be conducted by qualified professionals prior to construction to identify any listed plant or vertebrate species within the project area.

Table 2 Provincial Legislation with Potential Relevance to the proposed Project.

Legislation/Policy	Description	Relevance
Public Lands Act	Governs access to and use of Alberta's public lands through authorizations or dispositions, including ownership of beds and shores of permanent, naturally occurring waterbodies.	Activities on public land or within waterbody beds and shores (e.g., realignment, material placement, erosion control) require prior authorization from Alberta Environment and Parks.
Alberta Water Act	Provides the legislative framework for the management and protection of Alberta's water resources, including waterbodies such as rivers, streams, lakes, wetlands, and groundwater. The Act regulates activities that may alter the bed, bank, flow, vegetation, or natural environment of a waterbody.	Any works within or adjacent to a waterbody, including wetlands, watercourse crossings, bank stabilization, drainage modifications, or other activities that may alter a waterbody, may require a Water Act approval, authorization, or notification prior to construction. Appropriate setbacks and mitigation measures may also be required to protect aquatic resources.
Alberta Wetland Policy	Guides wetland conservation in Alberta through avoidance, minimization, and compensation of wetland loss, with an emphasis on maintaining wetland function and value.	Wetland assessments and approvals are required for any activities that may impact wetlands. Projects must follow the mitigation hierarchy and, where applicable, provide compensation for permanent loss.
Alberta Wildlife Act	Provides legal protection for wildlife species in Alberta, including prohibitions on disturbing, destroying, or endangering wildlife or their dens, nests, or eggs without proper authorization.	Wildlife surveys may be required prior to development. If species or active nests/dens are identified, activity restrictions or mitigation measures may apply.
Alberta Weed Control Act	Regulates the management of prohibited and noxious weed species in Alberta to prevent their spread and protect native ecosystems and land use.	Landholders are responsible for controlling listed weed species. Surveys and management plans may be required prior to or during project activities to prevent the spread of regulated weeds.
Environmental Protection and Enhancement Act	Establishes the framework for environmental stewardship in Alberta, including requirements for approvals, monitoring, and reporting to prevent or mitigate adverse environmental impacts.	Projects that may release substances into the environment, disturb land, or affect air, water, or soil quality may require an EPEA approval or registration prior to proceeding.
Historical Resources Act	Protects sites and objects of historical, archaeological, and paleontological significance in Alberta. Development activities must not disturb such resources without appropriate clearance.	A Historical Resources Application (HRA) may be required. If the area has high potential for historical resources, approvals or mitigation measures must be in place prior to ground disturbance.

Table 3 General Status Categories Used in Alberta and COSEWIC Status Definitions (Government of Alberta 2020; COSEWIC 2025).

Definition	Government of Alberta – General Status of Alberta Wild Species
At Risk	Any species known to be "At Risk" after formal detailed status assessment and legal designation as "Endangered" or "Threatened" in Alberta.
May Be At Risk	Any species that "May Be At Risk" of extinction or extirpation, and is therefore a candidate for detailed risk assessment.
Sensitive	Any species that is not at risk of extinction or extirpation but may require special attention or protection to prevent it from becoming at risk.
Secure	A species that is not "At Risk," "May Be At Risk" or "Sensitive."
Undetermined	Any species for which insufficient information, knowledge or data is available to reliably evaluate its general status.
Not Assessed	Any species that has not been examined during this exercise.
Exotic/Allen	Any species that has been introduced as a result of human activities.
Extirpated/ Extinct	Any species no longer thought to be present in Alberta ("Extirpated") or no longer believed to be present anywhere in the world ("Extinct").
Accidental/ Vagrant	Any species occurring infrequently and unpredictably in Alberta, i.e., outside its usual range. (These species may be in Alberta due to unusual weather occurrences, an accident during migration, or unusual breeding behaviour by a small number of individuals. If a species appears in Alberta with increasing predictability and more frequently, it may eventually be given a different rank. Changes in "Accidental/Vagrant" species may be a good indicator of general ecosystem or climatic changes.)

Definition	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
Endangered	A wildlife species facing imminent extirpation or extinction
Threatened	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Not at Risk	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

Table 4 Relative ecological significance of land cover types.

		Land Cover Type							
		Disturbed grassland	Native grassland	Tall Shrub	Aspen Forest	Poplar Forest	Riparian	Cultivated Field	Anthropogenic
CRITERIA	Floristic Diversity	L	H	M	M	M	M	L	L
	Structural Diversity	L	L	M	M	H	L	L	L
	Native Habitat Integrity	L	H	M	M	M	M	L	L
	Rare Plant Potential	L	M	L	L	L	M	L	L
	Vertebrate Species at Risk Potential	L	M	M	M	M	M	L	L
	Total number of criteria rated H	0	2	0	1	1	0	0	0
	Total number of criteria rated M	0	2	4	3	3	4	0	0
	Total number of criteria rated L	5	1	1	1	1	1	5	5
	Overall Relative Significance	L	M	M	M	M	M	L	L

L=Low, M=Moderate, H=High

Table 5 Vertebrate species at risk with potential for residency on the property.

Common name	Scientific name	Status	Abundance	At Risk Designations			
				Alberta	COSEWIC	Schedule	SARA
Amphibians							
Northern leopard frog	*Lithobates pipiens*	R	R	At Risk	Special concern	Schedule 1	Special concern
Reptiles							
Wandering Garter Snake	*Thamnophis elegans*	R	U	Sensitive			
Plains Gartersnake	*Thamnophis radix*	R	U	Sensitive			
Red-sided Garter Snake	*Thamnophis sirtalis*	R	U	Sensitive			
Mammals							
Long-tailed weasel	*Mustela frenata*	R	U	May be at risk	Special concern	Schedule 1	Special concern
American badger	*Taxidea taxus*	R	S	Sensitive	Special concern	Schedule 1	Special concern
Birds							
Sharp-tailed grouse	*Tympanuchus phasianellus*	R	R	Sensitive			
Great blue heron	*Ardea herodias*	S	U	Sensitive			
Sandhill crane	*Antigone canadensis*	S	U	Sensitive			
Common nighthawk	*Chordeiles minor*	S	U	Sensitive	Special concern	Schedule 1- Threatened	Special concern
Least flycatcher	*Empidonax alnorum*	S	U	Sensitive			
Eastern kingbird	*Tyrannus tyrannus*	S	U	Sensitive			
Barn swallow	*Hirundo rustica*	S	U	Sensitive	Threatened	Schedule 1	Special concern

Table 6 Species observed in the avian species at risk surveys.

#	Group	Common name	Scientific name	Observed in plot	Incidental	Provincial status	COSEWIC status	Schedule	MBCA protected
1	Ducks, Geese and Swans	Canada Goose	*Branta canadensis*		√				√
2		Mallard	*Anas platyrhynchos*	√					√
3		Northern Shoveler	*Spatula clypeata*	√					√
4		Blue-winged Teal	*Spatula discors*		√				√
5	Sandpipers, phalaropes and allies	Spotted sandpiper	*Actitis macularius*	√					√
6		Wilson's snipe	*Gallinago delicata*	√					√
7	Crows and Jays	Black-billed Magpie	*Pica hudsonia*	√					
8		American Crow	*Corvus brachyrhynchos*	√					
9		Common raven	*Corvus corax*		√				
10	Tyrant Flycatchers	Eastern Kingbird	*Tyrannus tyrannus*	√		Sensitive			√
11	New World Sparrows and Towhees	Clay-colored Sparrow	*Spizella pallida*	√					√
12		Savannah Sparrow	*Passerculus sandwichensis*	√					√
13		LeConte's sparrow	*Ammodramus leconteii*	√					√
14		Song Sparrow	*Melospiza melodia*	√					√
15	Wrens	House Wren	*Troglodytes aedon*	√					√
16	Kites, Eagles and Hawks	Red-tailed hawk	*Buteo jamaicensis*		√				
17		Swainson's Hawk	*Buteo swainsoni*		√				
18		Northern Harrier	*Circus hudsonius*		√				
19	Thrushes	American Robin	*Turdus migratorius*	√					√
20	Old World Sparrows	House Sparrow	*Passer domesticus*	√		Exotic			
21	Finches	American Goldfinch	*Spinus tristis*		√				√
22	Blackbirds	Red-winged Blackbird	*Agelaius phoeniceus*	√					
23		Brown-headed Cowbird	*Molothrus ater*	√					
24		Western Meadowlark	*Sturnella neglecta*		√				√
25	Lapwings and plovers	Killdeer	*Charadrius vociferus*	√					√
26	Pigeons and Doves	Rock Dove	*Columba livia*		√	Exotic			
27		Mourning Dove	*Zenaida macroura*	√					√
28	Bitterns, Herons and Egrets	Great Blue Heron	*Ardea herodias*		√	Sensitive			√
29	Gulls, Terns and Skimmers	Franklin's Gull	*Leucophaeus pipixcan*		√				√
30	Starlings	European Starling	*Sturnus vulgaris*		√	Exotic			
31	Avocets and Stilts	American Avocet	*Recurvirostra americana*		√				√
32	Grouse, Quail, and Allies	Ring-necked Pheasant	*Phasianus colchicus*		√	Exotic			
33	Amphibians	Boreal Chorus Frog	*Pseudacris maculata*	√					N/A
34	Mammals	Muskrat	*Ondatra zibethicus*	√					N/A
35		White-tailed Deer	*Odocoileus virginianus*	√					N/A

Table 7 Historical precipitation records for Mountain View, AB for Sec. 24 - 29 - 01 W5, exported from Alberta Agriculture and Rural Development's AgroClimatic Information Service (ACIS).

Township	Year	Precip. (mm)
T029R01W5	1955	450.3
T029R01W5	1956	434.9
T029R01W5	1957	413.0
T029R01W5	1958	383.4
T029R01W5	1959	449.3
T029R01W5	1960	369.7
T029R01W5	1961	432.6
T029R01W5	1962	468.7
T029R01W5	1963	498.2
T029R01W5	1964	496.0
T029R01W5	1965	697.1
T029R01W5	1966	513.7
T029R01W5	1967	395.1
T029R01W5	1968	479.9
T029R01W5	1969	501.5
T029R01W5	1970	496.5
T029R01W5	1971	443.7
T029R01W5	1972	542.9
T029R01W5	1973	512.4
T029R01W5	1974	410.3
T029R01W5	1975	405.1
T029R01W5	1976	489.6
T029R01W5	1977	482.9
T029R01W5	1978	650.5
T029R01W5	1979	347.5
T029R01W5	1980	563.5
T029R01W5	1981	563.1
T029R01W5	1982	473.7
T029R01W5	1983	347.1
T029R01W5	1984	491.6
T029R01W5	1985	430.9
T029R01W5	1986	554.4
T029R01W5	1987	368.9
T029R01W5	1988	432.7
T029R01W5	1989	487.0
T029R01W5	1990	548.2
T029R01W5	1991	478.2
T029R01W5	1992	512.8
T029R01W5	1993	451.2
T029R01W5	1994	460.6
T029R01W5	1995	536.2
T029R01W5	1996	490.1
T029R01W5	1997	427.1
T029R01W5	1998	526.4
T029R01W5	1999	465.7
T029R01W5	2000	458.1
T029R01W5	2001	318.7
T029R01W5	2002	399.1
T029R01W5	2003	424.7
T029R01W5	2004	441.2
T029R01W5	2005	595.1
T029R01W5	2006	430.8
T029R01W5	2007	501.4
T029R01W5	2008	485.0
T029R01W5	2009	288.3
T029R01W5	2010	376.3
T029R01W5	2011	427.9
T029R01W5	2012	401.5
T029R01W5	2013	514.9
T029R01W5	2014	438.4
T029R01W5	2015	413.0
T029R01W5	2016	429.6
T029R01W5	2017	320.0
T029R01W5	2018	328.5
T029R01W5	2019	476.9
	AVG	459.1
	MAX	697.1
	MIN	288.3

Table 8 Details of the historical aerial photographs selected for this assessment from the Government of Alberta's Aerial Photographic Records System (APRS) and Google Earth Imagery (for 2019).

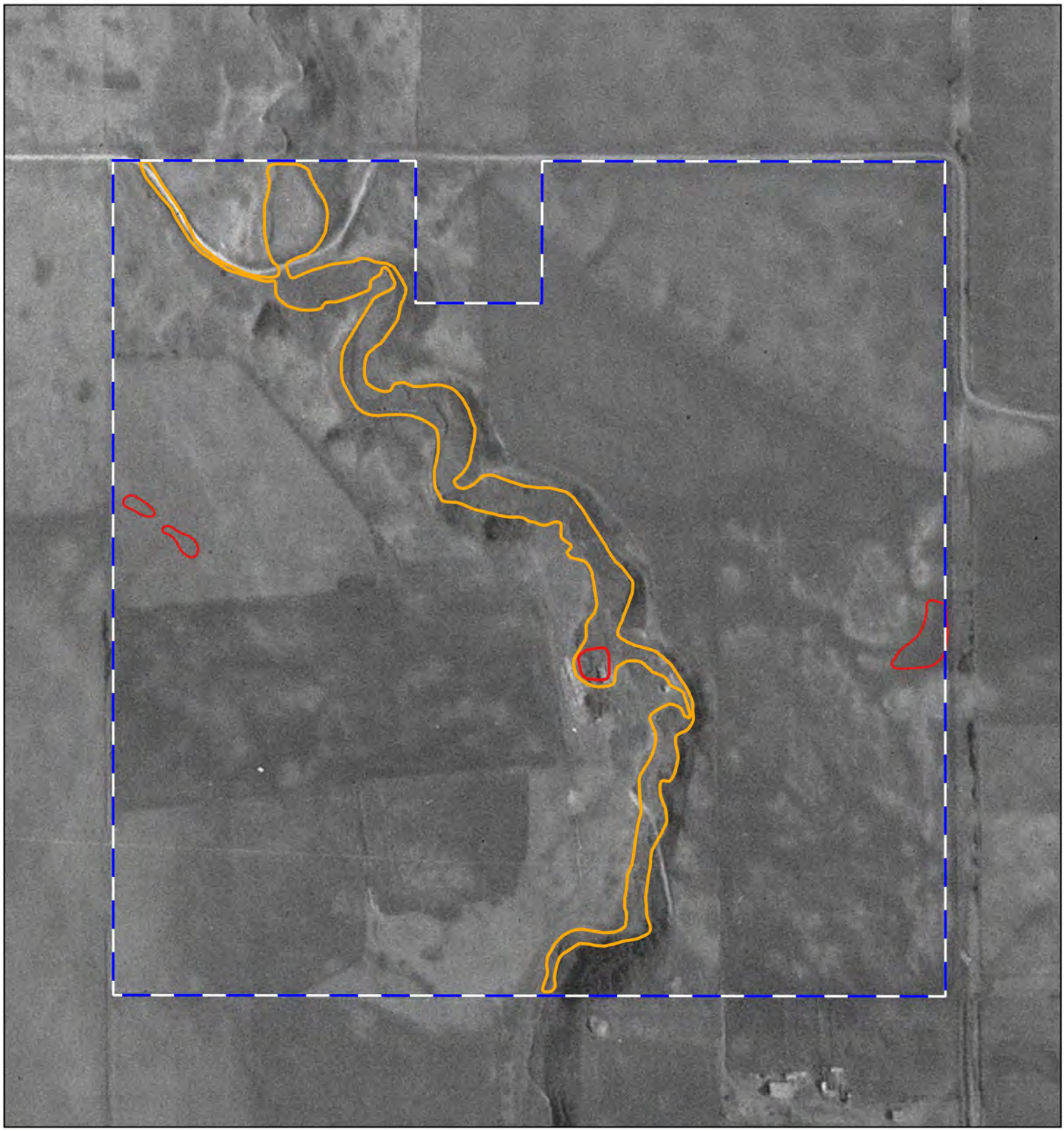
Photo #	Year	Season	Precipitation
1	1950	Summer	N/A
2	1962	Fall	Normal
3	1966	Summer	Wet
4	1971	Fall	Normal
5	1983	Spring	Dry
6	1992	Summer	Wet
7	2000	Summer	Normal
8	2005	Fall	Wet
9	2007	Spring	Wet
10	2010	Summer	Dry
11	2019	Spring	Normal

Table 9 Overview of human activity in/adjacent to project area drainage course and corresponding landscape changes: 1950 to Present.

Year	Photo ID	Status of Property	Potential effect of human disturbance on Drainage Course
1950	Appendix 1a	Relatively low disturbance in the area. A road crosses the drainage course in the NW corner of the property, and a narrow road crosses drainage course in the south. Most of the upland areas appear to be used for agricultural purposes (hay/cultivation). Neither of the three currently existing wetlands are visible.	Apart from the two roads crossing, minimal disturbance to the drainage course currently.
1962	Appendix 1b	New road created along the Northern border of property. Old road appears still intact with culvert. New road along the Eastern border.	No visible change to drainage course drainage or shape. New road has created a wetland along the Eastern border by disrupting the natural grade of the area.
1966	Appendix 1c	Old County road in the NW and road in the south no longer intact, culverts removed. New road created along Western border.	No visible change to drainage or shape.
1971	Appendix 1d	Gravel extraction operation in the SE, accessed from the road along the Western border. Trailers parked in the NW. Majority of upland area continues to be cultivated.	No visible change to drainage or shape.
1983	Appendix 1e	Gravel pit in the SE appears reclaimed, but access road to pit is still present, trailers in the NW are removed.	No visible change to drainage or shape.
1992	Appendix 1f	A residential/farmstead developed along the Northern border (outside of the property). A dugout with open water is excavated in the drainage course. Two dugouts visible in reclaimed gravel pit.	The dugout has created an open pond, which may have altered timing of water input and drainage.
2000	Appendix 1g	The property appears similar to the 1992 conditions.	No visible change to drainage or shape.
2005	Appendix 1h	A residential/farmstead was built in the Eastern portion of the property. The rest of the property appears similar to the conditions present in the year 2000.	No visible change to drainage or shape.
2007	Appendix 1i	The property appears similar to 2005.	No visible change to drainage or shape.
2010	Appendix 1j	A gravel extraction pit occurs in the Northern portion of the property, as well as a smaller gravel pit in the Southern portion of the property. An access road to the gravel pit was created intersecting the property from west to east connecting to the residential property on the Eastern portion of the property.	The damming of the water course has altered the water levels and timing of water drainage and has caused the area surrounding the dugout (first observed in 1992) to be flooded. The access road has dammed the water course and also created two smaller wetlands in the Western portion of the property by disrupting the natural grade of the area.
2019	Appendix 1k	The property appears similar to prevalent condition in the year 2010.	No visible change to drainage or shape.

Appendices

Appendix 1 Historical Aerial Photographs



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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0 50 100 150 200 250 m

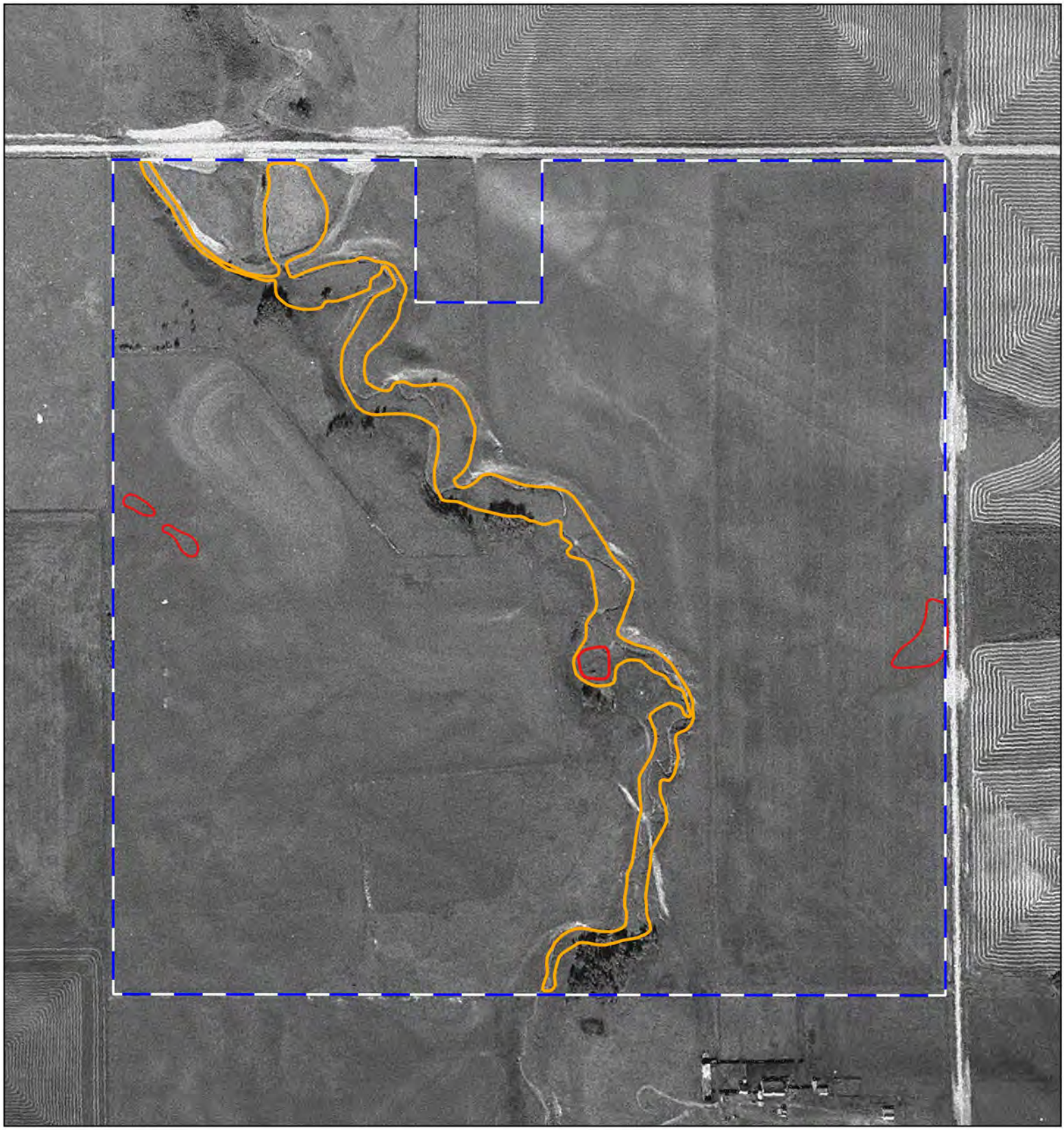
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(June 5 1950)

DATE: JULY, 2026 Ver.1.01	**Appendix 1a**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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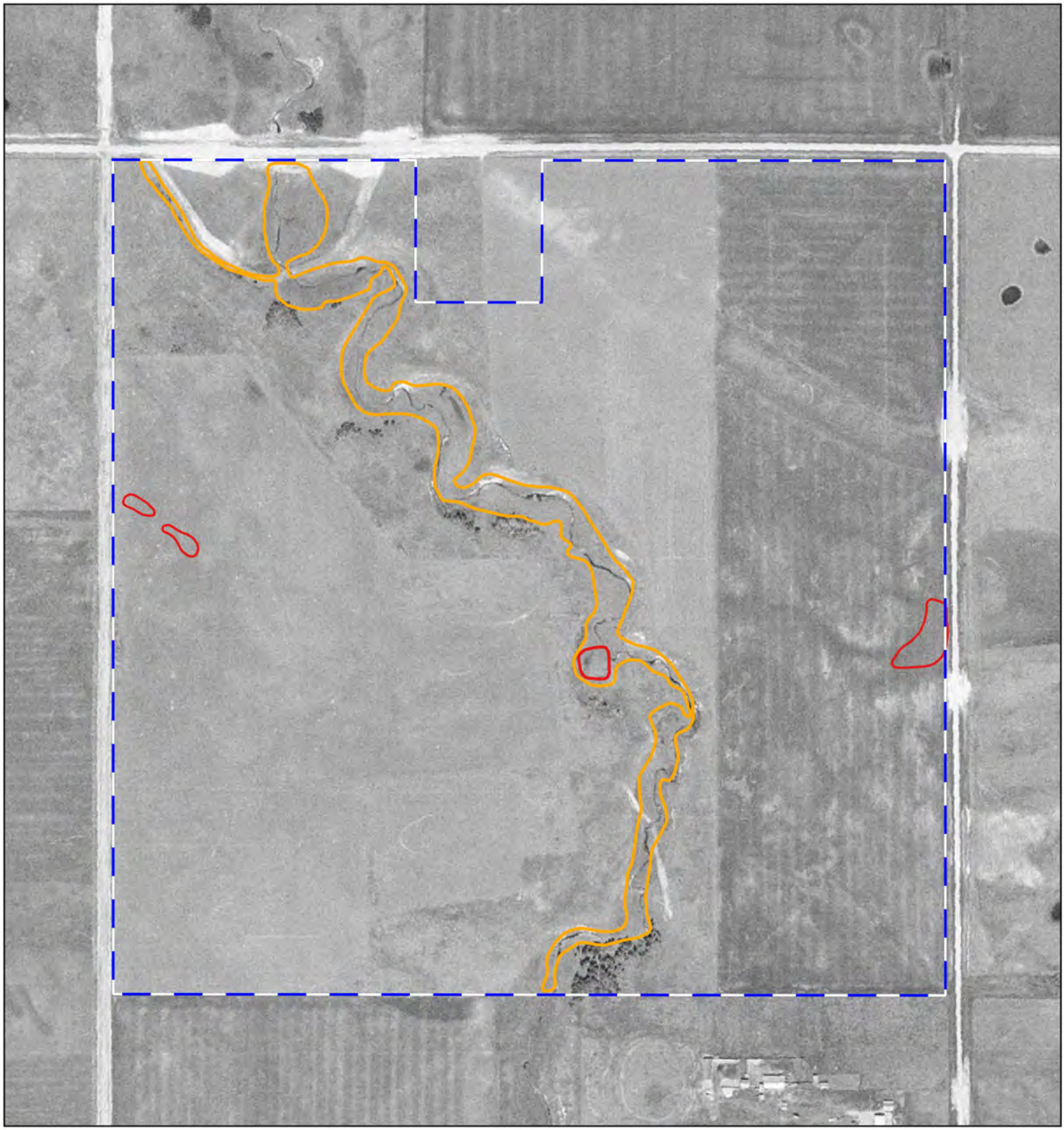
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(September 17 1962)

DATE: JULY, 2026 Ver.1.01	**Appendix 1b**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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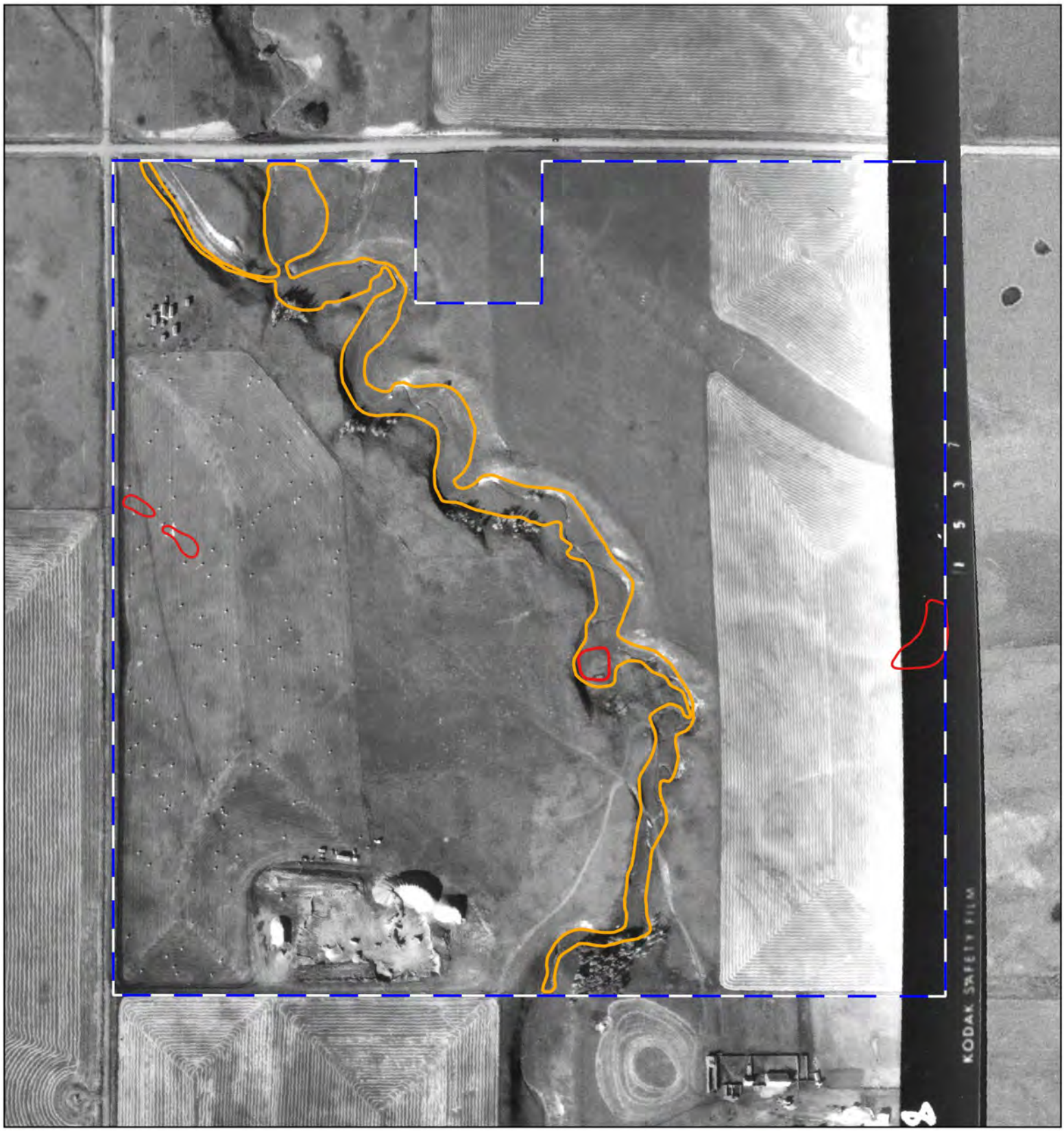
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(August 1 1966)

DATE: JULY, 2026 Ver.1.01	**Appendix 1c**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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0 50 100 150 200 250 m

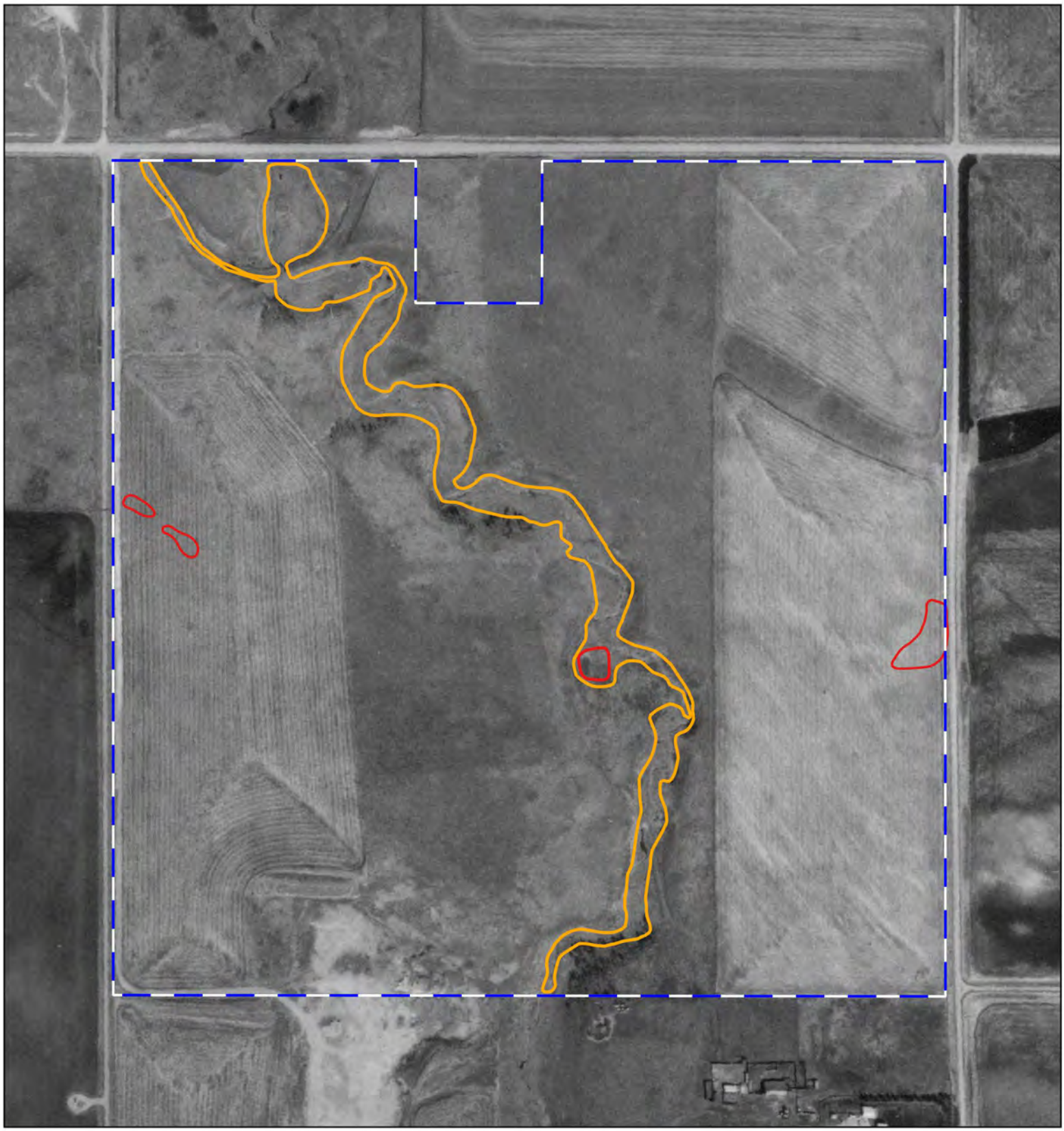
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(October 1 1971)

DATE: JULY, 2026 Ver.1.01	**Appendix 1d**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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0 50 100 150 200 250 m

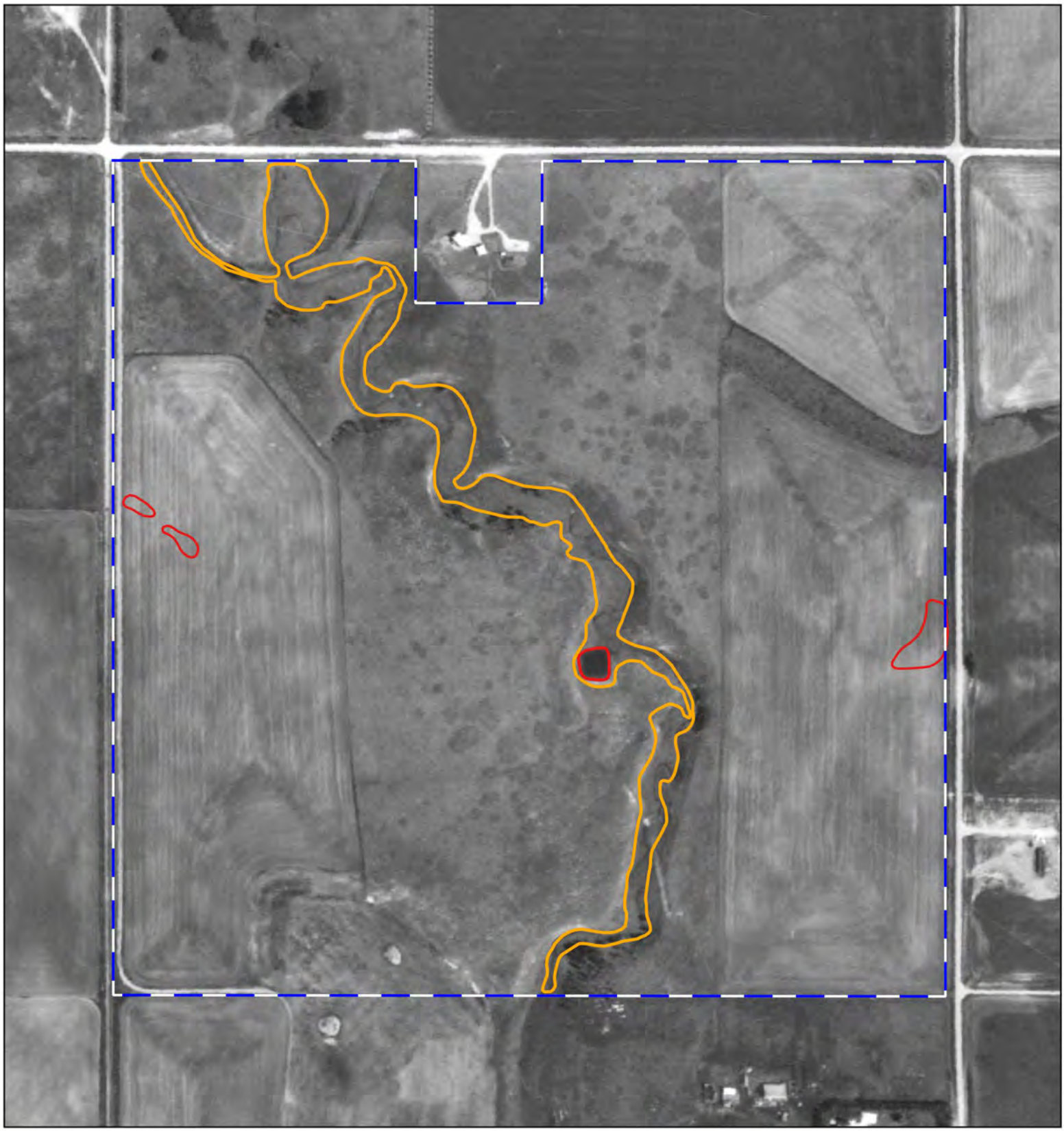
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(April 22 1983)

DATE: JULY, 2026 Ver.1.01	**Appendix 1e**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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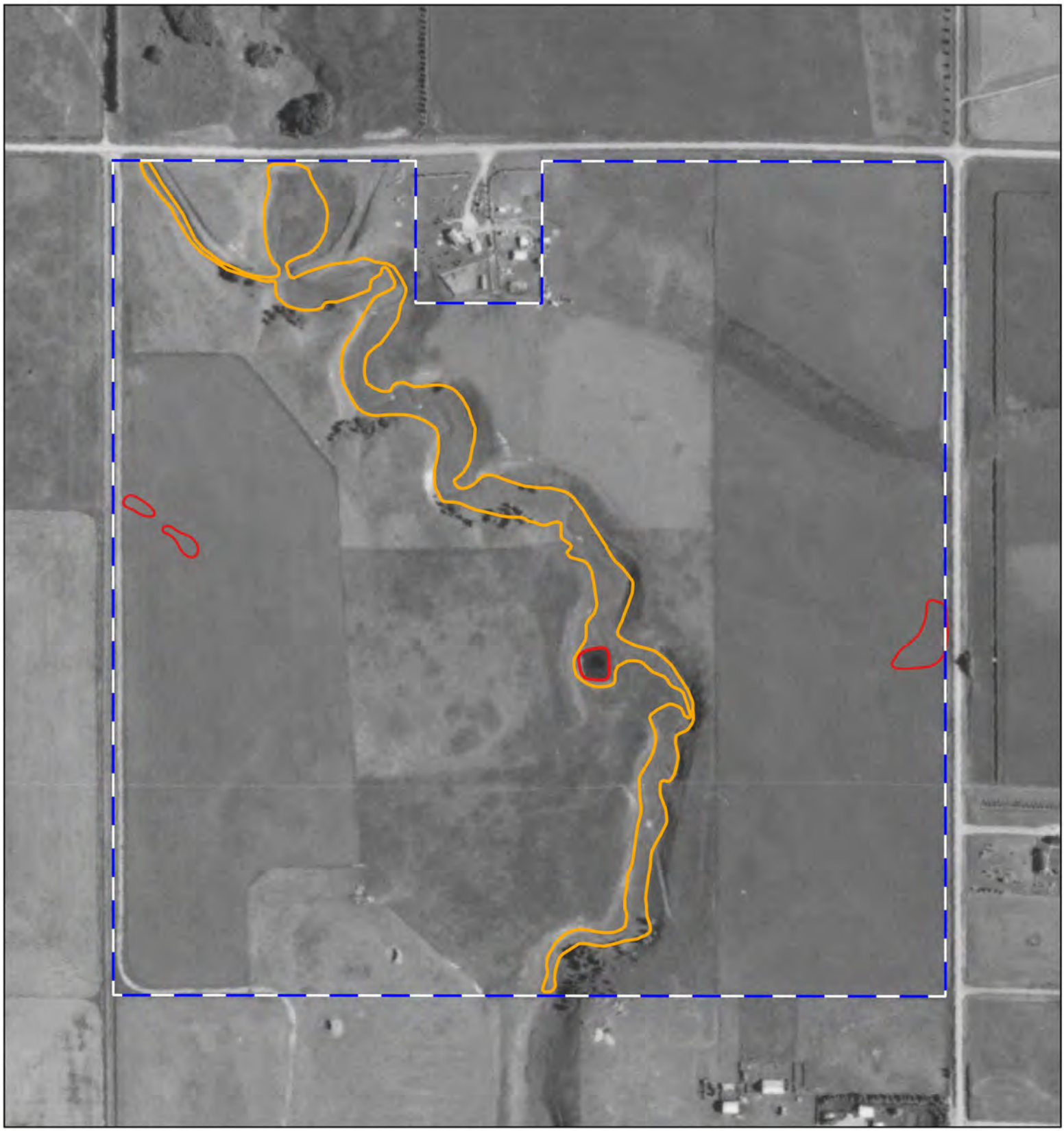
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(June 26 1992)

DATE: JULY, 2026 Ver.1.01	**Appendix 1f**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

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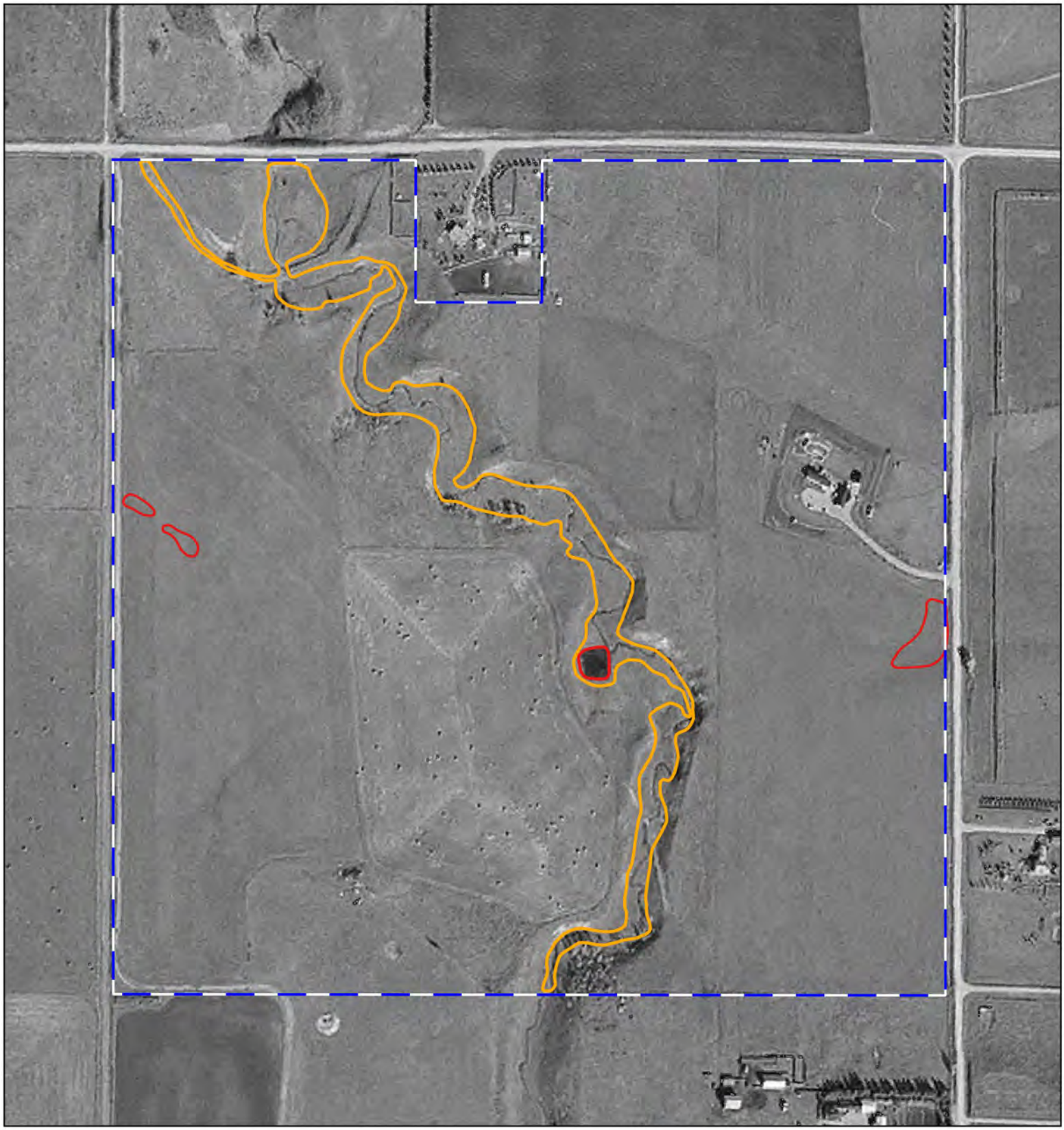
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(July 26 2000)

DATE: JULY, 2026 Ver.1.01	**Appendix 1g**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

N
W E
S

0 50 100 150 200 250 m

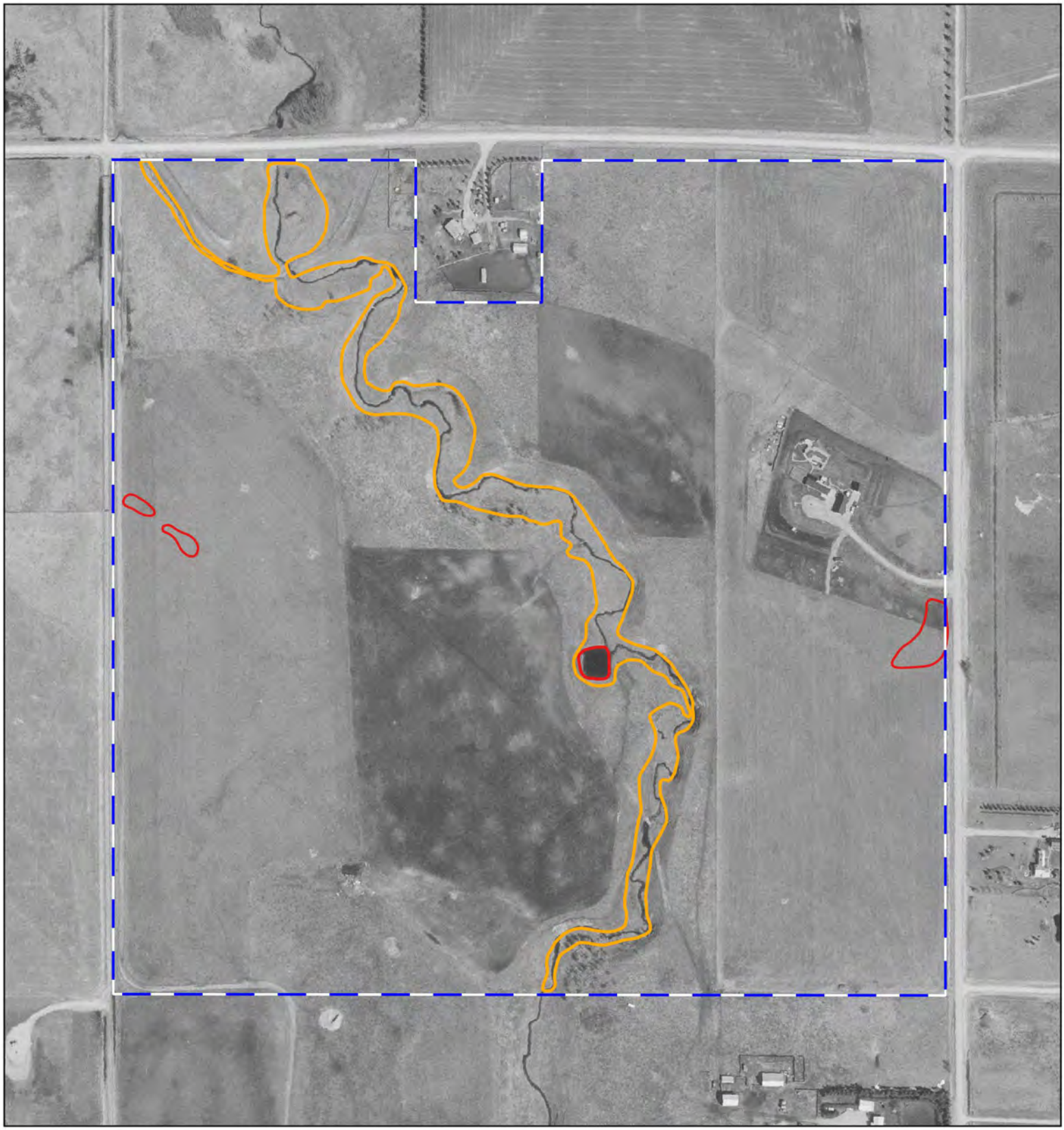
OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(October 9 2005)

DATE: JULY, 2026 Ver.1.01	**Appendix 1h**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

N
W E
S

0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(April 26 2007)

DATE: JULY, 2026 Ver.1.01	**Appendix 1i**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC

Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

N
W E
S

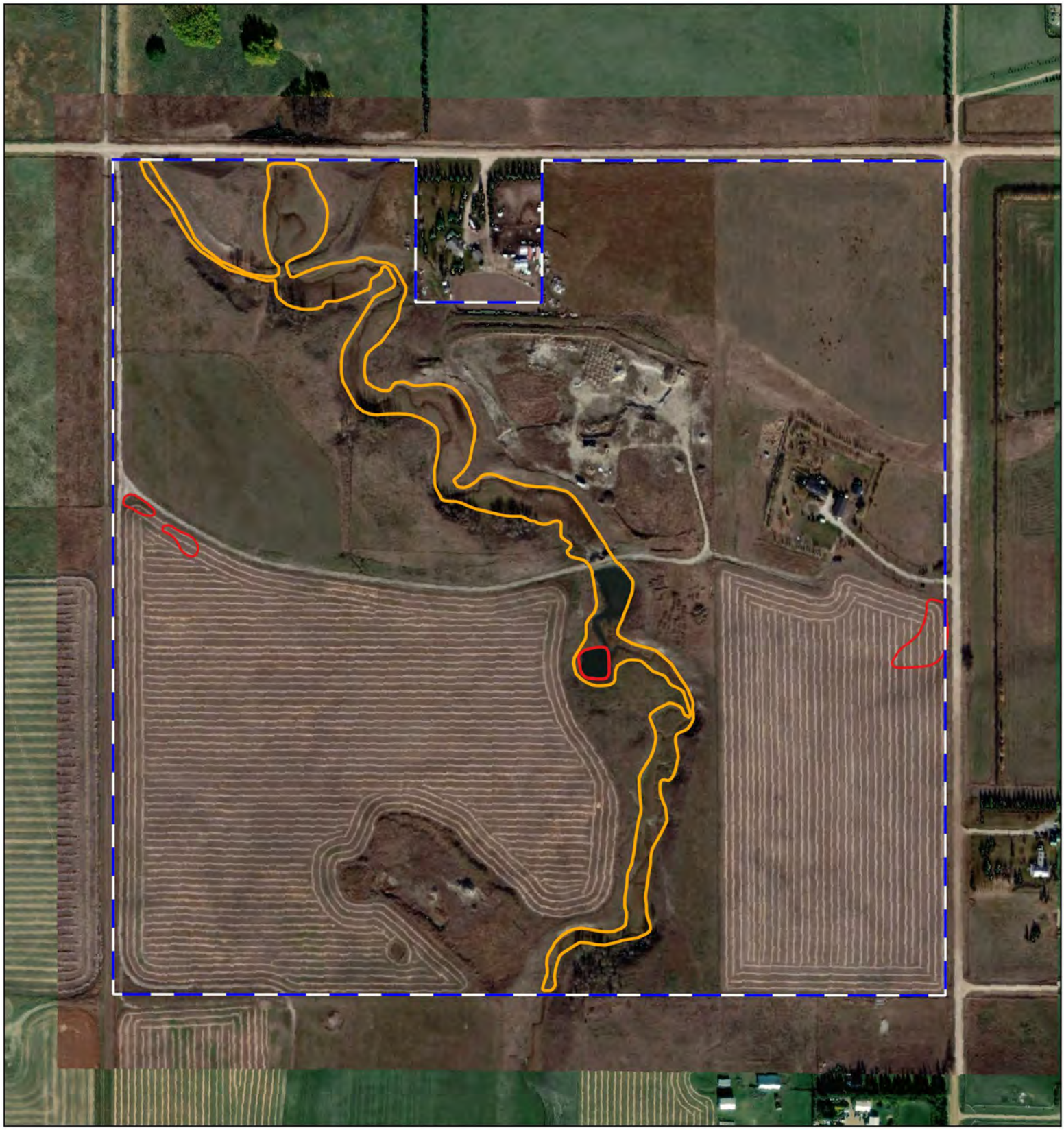
0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(June 2 2010)

DATE: JULY, 2026 Ver.1.01	**Appendix 1j**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83
PROJECT ID: 2605-05	CREATED BY: HS / QA / QC: MC



Legend

- Property Boundary
- Anthropogenic Wetland
- Riparian Area

N
W E
S

0 50 100 150 200 250 m

OMNIA ECOLOGICAL SERVICES

NE-24-29-1-W5

Appin Developments Inc.
Historical Photography Assessment
(April 3 2019)

DATE: JULY, 2026 Ver.1.01	**Appendix 1k**
PROVIDED BY: Bruce McIntosh	PROJECTION/DATUM: UTM zone 11 NAD83

PROJECT ID	CREATED BY	QA / QC:
2605-05	HS	MC

Appendix 2 Vegetation Community Descriptions

Disturbed Grassland

- Comprises 13.7 ha (21.7%) of the study area.
- Heavily disturbed by annual harvesting (hay).
- Dominated by non-native species such as smooth brome (*Bromus inermis*), dandelion (*Taraxacum officinale*) and Canada thistle (*Cirsium arvense*).

Native Grassland

- Comprises 4.7 ha (7.5%) of the study area.
- Small remnant areas of native prairie were located primarily west of the riparian areas in the northern half of the property. There were 70 species of native plants recorded in this area (Appendix 6) and seven non-native agronomic species.

Tall Shrub

- Comprises <0.1 ha (<0.1%) of the study area.
- One patch recorded along the banks of the drainage course.
- Composed of an abundant cover of chokecherry (*Prunus virginiana*), as well as buffalo berry (*Shepherdia canadensis*) and wild rose (*Rosa acicularis*).

Aspen Forest

- Comprises 0.6 ha (1.0%) of the study area.
- The habitat type is dominated by patches of aspen trees (*Populus tremuloides*) scattered in the study area.
- Understory is heavily grazed, particularly in the southern portion of the property.
- Shrubs in the understory consist of snowberry (*Symphoricarpos albus*), buffalo berry, and wild rose.

Balsam Poplar Forest

- Comprises 0.3 ha (0.4%) of the study area.
- The habitat type is characterized by patches of balsam poplar trees (*Populus balsamifera*), with shrubs of the same species in the understory.
- Ground layer is dominated by disturbed grasslands including non-native species such as smooth brome and dandelion.

Riparian

- Comprises 3.4 ha (5.4%) of the study area.
- In the northern half of the property the riparian area contain 34 species of native plants and one agronomic species (Appendix 6).
- The number of wetland/riparian species decreased in the southern portion of the property due to extensive livestock grazing and disturbance.

Cultivated Field

- Comprises 29.5 ha (46.8%) of the study area.

Anthropogenic

- Comprises 10.6 ha (16.8%) of the study area.
- Include area used as gravel pits, dugouts, roads, parking areas, houses, and manicured lawns.

Appendix 3 ACIMS Data Base Search Results

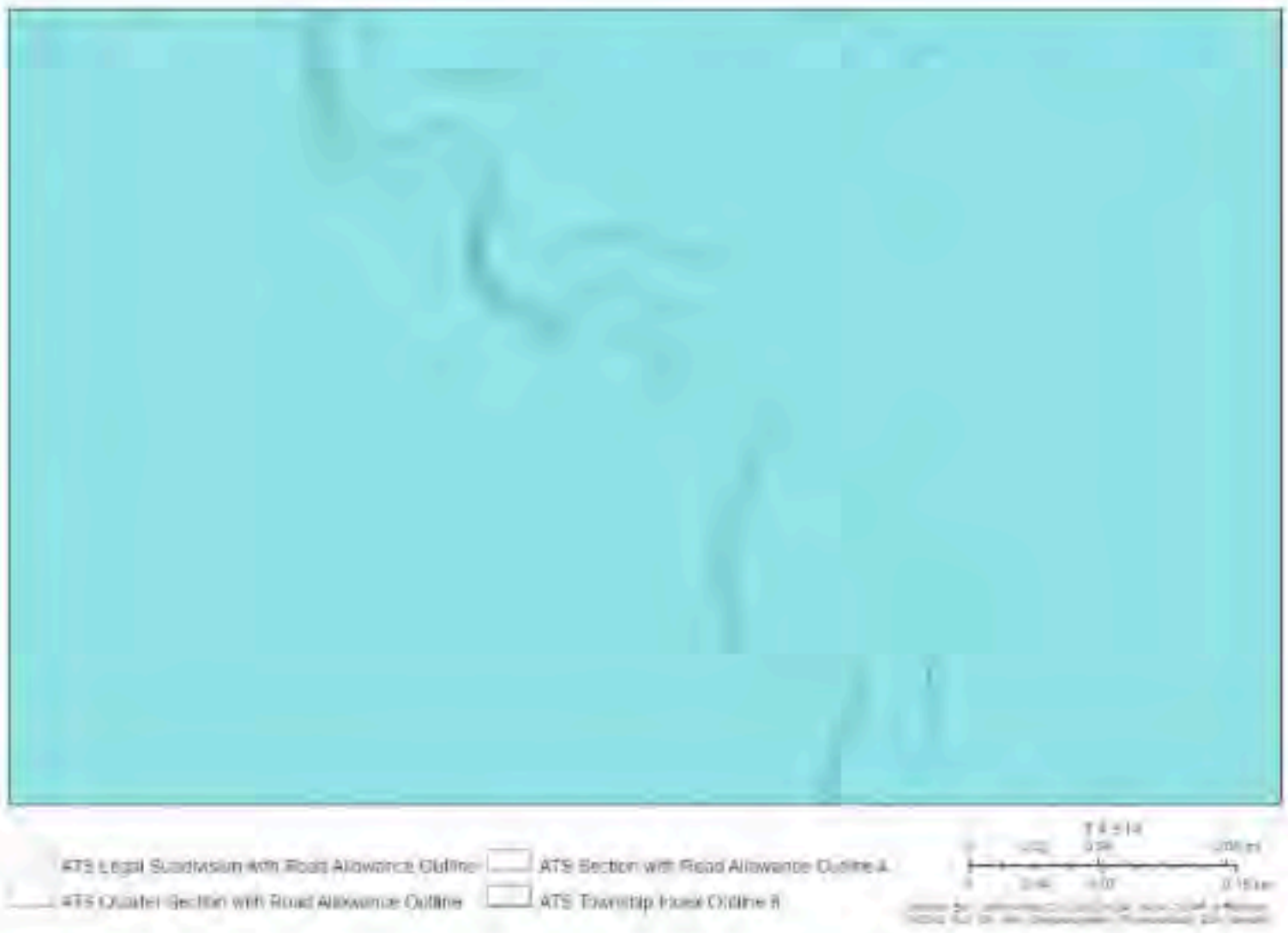
Alberta Government

ACIMS Data Screening Report

Area of Interest (AOI) Information

Area : 632,563.98 m²

Jul. 28 2026 10:26:50 Mountain Daylight Time



Enter comments here

Summary

Name	Count	Area(m²)	Length(m)
Sensitive EO	0	0	N/A
Non Sensitive EO	0	0	N/A

Appendix 4 FWMIS Data Base Search Results

Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

Species Summary Report

Report Date: 28-Jul-2026 10:22

Species present within the current extent

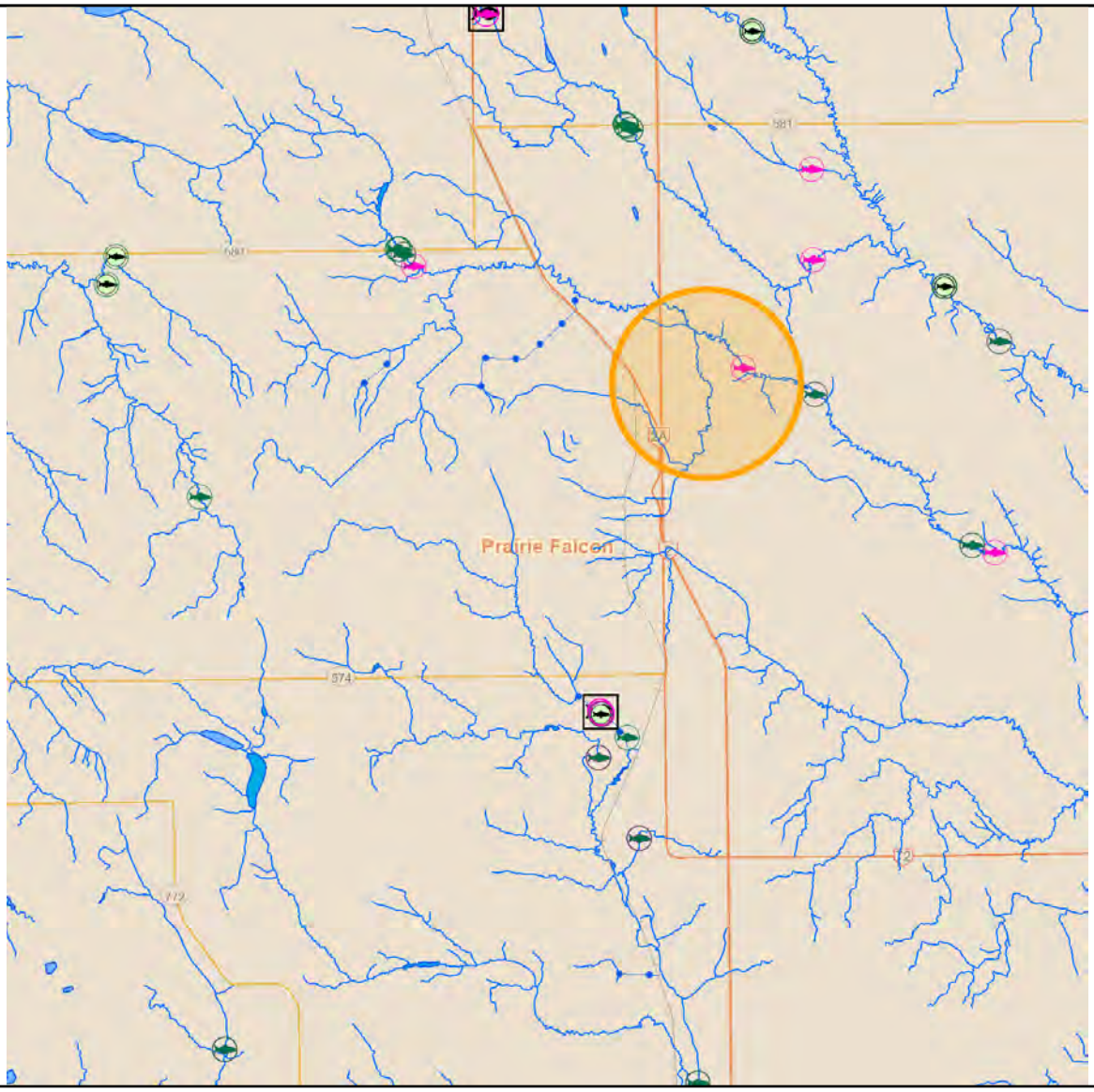
Fish Inventory	Wildlife Inventory	Stocked Inventory
No Species Found in Search Extent	SANDHILL CRANE	No Species Found in Search Extent

Buffer Extent

Centroid (X,Y)	Projection	Centroid (Qtr Sec Twp Rng Mer)	Radius or Dimensions
568843, 5703627	10-TM AEP Forest	NE 24 29 1 5	2.5 kilometers

Contact Information

For contact information, please visit:
https://www.alberta.ca/fisheries-and-wildlife-management-contacts.aspx



Appendix 5 LAT Report

Landscape Analysis Tool (LAT) Report

LAT Number:	000006677F	**LAT Date:** 2026-07-28	10:32:26
Project Name:	Appin BIA		
Project Description:			
Disposition Type:	DML	Miscellaneous Lease	
Purpose Type:	CMDV	Commercial Development	
Activity Type:	CMDV02DMLP	Commercial Facility	

Responsibility of Applicants:

It is the applicant's responsibility to conduct a full review of the generated LAT Report, ensuring that you are aware and have a full understanding of the identified standards and conditions, and any additional limitations that may also be imposed by an approved higher level plan, reservation or notation or any other law or Order of the Province or the Government of Canada that may impact the placement, construction or operation of the proposed disposition, purpose and activity.

The applicant must assess if the proposed disposition, purpose and activity can meet the applicable standards, conditions and any limitations which will subsequently determine if the application can be submitted to the regulatory body. Applicants should complete a thorough review of regulatory and application processes including supporting procedural documents and the generated LAT Reports prior to making this determination.

Where the applicant chooses not to meet, or is not able to meet, one or more Approval Standards or higher level plans within the generated LAT Report as submitted as part of the application, or any affected reservations as identified within the land status report, the applicant is required to complete the appropriate mitigation as part of their supplement submission that addresses individually each of the items not being met.

The information provided within the LAT Tool is a spatial representation of features provided to the applicant for activity and land use planning. The accuracy of these layers varies depending on the resource value being represented. The regulatory body insists that site visits, wildlife surveys and groundtruthing efforts are completed to ensure that you, the applicant can meet the procedures detailed within the *Pre-Application Requirements for Formal Dispositions*, the identified approval standards, operating conditions and *Best Management Practices* as represented within the *Master Schedule of Standards and Conditions*.

Proximity to Watercourse/Waterbodies:

Applicants will ensure that standards or conditions for Watercourse/Waterbody features as identified within the generated LAT Report are followed. It is the responsibility of the applicant to ensure the identified setbacks and buffers are properly established through a pre-site assessment and maintained.

NOTE: Be aware that the submission of a LAT Report as part of an application submission does not imply approval of the activity. The standards and conditions identified within the LAT Report may be subject to change based on regulatory review.

Base Features

Green/White Area	White Area
Municipality	Mountain View County
FMA	
FMU	
Provincial Grazing Reserve	
Rocky Mountain Forest Reserve	
PLUZ Areas	
Protected Areas	

Provincial Sanctuaries

Wildlife Corridors	
Restricted Area	
Game Bird	Zone 6
Seasonal	

Higher Level Plans

Integrated Resource Plan (Local)	
Integrated Resource Plan (Subregional)	
Access Management Plan	
Landscape Management Plan	

Reservation Listing

Reservation #	Holder Name	Purpose	Reason	Contact Information

Note:
* Information displayed in these tables is only a summary of Crown Land Reservation (CLR) information as intersected within the "Reservation - Active" data layer.
* For more detailed information regarding reservation intent, an applicant can reference this information as contained within the "Reservation - Active" data layer

For more information, please review the Land Use Reservation Program Procedures Guide for guidance on how Crown land Reservations are addressed when applying for an activity on Alberta's Crown lands.

Reservation ToDos

Action	Reservation #	Application Requirement

Additional Application Requirements

Wildlife Survey	Yes	DND Area	

Historical Resources

HRV Rating	Category

Historic Resources Application Required: No

While no specific historic resource concerns have been identified within the proposed activity area, Section 31 of the *Historical Resources Act* states that "a person who discovers a historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the Minister of the discovery." Should a historic resource be encountered with the construction or operation of this disposition, information on who to contact can be found on the Ministry of Culture and Tourism's website in; Standard Requirements under the Historical Resources Act: Reporting the Discovery of Historic Resources.

Sensitive Features

Wildlife and Other Sensitive Species

	Intersected
Burrowing Owl Range	
Caribou Range	
Caribou Range - Zone A	
Caribou Range - Zone B	
Colonial Nesting Birds	
Critical Habitat of Aquatic Species at Risk	
Endangered and Threatened Plants Ranges	
Greater Short-horned Lizard Habitat	
Greater Short-horned Lizard Range	
Greater Sage Grouse Core Area	
Greater Sage Grouse Recovery Area	
Greater Sage Grouse Leks and Buffer	
Grizzly Bear Core Access Management Area	
Grizzly Bear Habitat Linkage	
Grizzly Bear Secondary Access Management Area	
Grizzly Bear Support Zone	
High Risk Watersheds	

	Intersected
Key Wildlife and Biodiversity Areas	
Mountain Goat and Sheep Areas Disease Buffer	
Mountain Goat and Sheep Zone	
Ord's Kangaroo Rat Range	
Ord's Kangaroo Rat Key Habitat Area	
Piping Plover Waterbodies	
Provincial Hibernacula Buffer	
Sensitive Amphibian Ranges	
Sensitive Raptor Range	Yes
Sensitive Snake Habitat	
Sensitive Snake Hibernacula Range	
Sharp-tailed Grouse Leks and Buffer	
Sharp-tailed Grouse Survey	Yes
Special Access Area	
Swift Fox Range	
Trumpeter Swan Waterbodies/Watercourse	
Trumpeter Swan Watercourse Buffer	

Federal Orders:

	Intersected
Greater Sage Grouse	

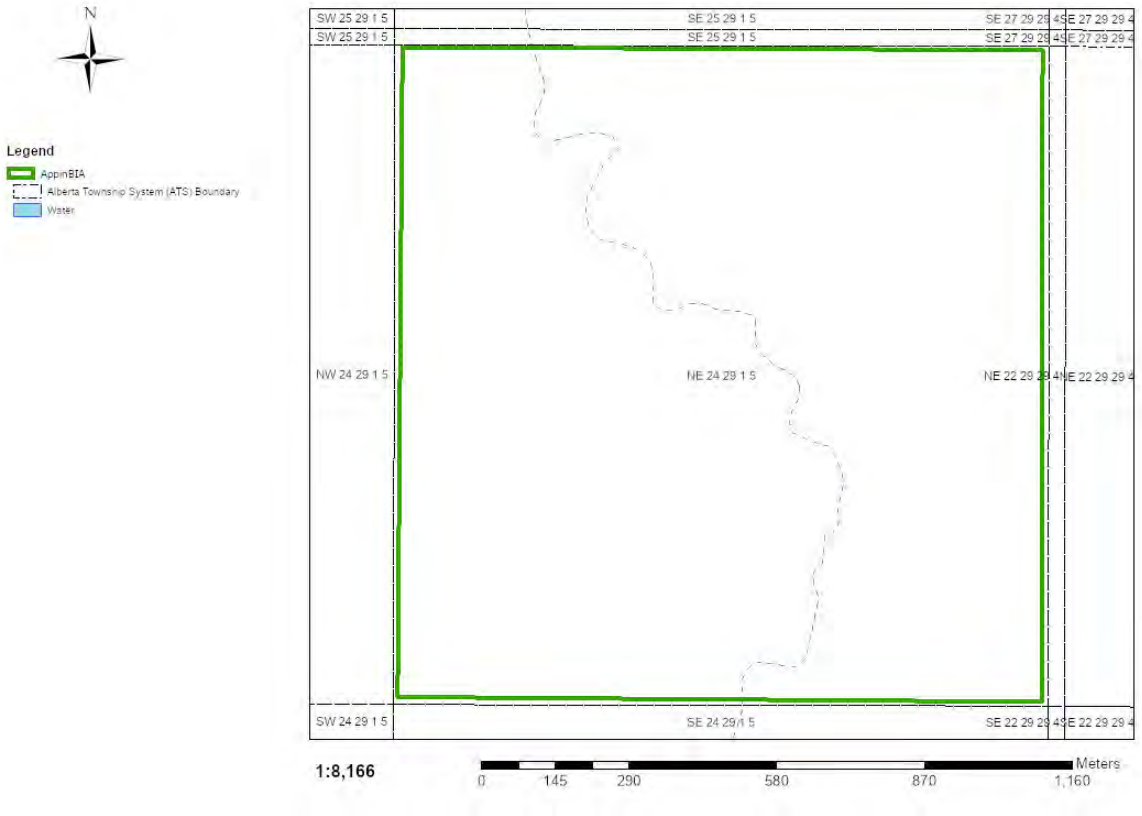
Grassland and Natural Regions:

	Intersected
Central Parkland	Yes
Central Parkland and Northern Fescue	
Chinook Grasslands	Yes
Dry Mixed Grass	
Foothills Fescue	Yes
Foothills Parkland Grasslands	
Grassland and Parkland Natural Region	Yes

	Intersected
Mixed Grass Sub-region layer	
Montane	
Northern Fescue	
Peace River Parkland	
Permafrost	
Rough Fescue PNT	
Subalpine or Alpine	

Alberta Township System (ATS) Land List

Quarter	Section	Township	Range	Meridian	Road Allow.	Sensitive Features Identified
NE	24	29	1	5		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Chinook Grasslands, Foothills Fescue, Central Parkland, Green / White Area


N
Legend
ApprnBIA
Alberta Township System (ATS) Boundary
Water
SW 25 29 1 5
SE 25 29 1 5
SE 27 29 29 4
SE 27 29 29 4
NW 24 29 1 5
NE 24 29 1 5
NE 22 29 29 4
NE 22 29 29 4
SW 24 29 1 5
SE 24 29 1 5
SE 22 29 29 4
SE 22 29 29 4
1:8,166
0
145
290
580
870
1,160
Meters

Land Management

Report ID	Approval	Condition
1	1030-AS	Where a higher level plan* or reservation identifies a greater set back, the greater set back will prevail.
2	1031-AS	Where a Higher Level Plan* exists, the Disposition Holder must follow any direction provided within that plan.
3	1033-AS	With the exception of pipelines, for activities that fall within any reservation with a purpose code of Fish and Wildlife Resources and encompassing a section of land (259 hectares) or less, located in the Provincial White Area, the Disposition Holder must construct all activities within lands previously disturbed or cleared. Where no previous disturbance exists, activities must occur within 100 metres of the reservation perimeter.
4	1040	The Disposition Holder must repair or replace any improvements immediately that were damaged as a result of the Activity on the Lands to pre-existing dispositions to the pre-existing condition. Damages to tame pastures must be repaired within one growing season.
5	1041	The Disposition Holder must maintain proper drainage of surface water.
6	1044-AS	The Disposition Holder must not locate activities within 45 metres from the top of any coulees* with the exception of activities such as; access, pipelines and linear easements crossing those features.
7	1049	The Disposition Holder must remove all garbage and waste material from this site.
8	1053	The Disposition Holder must not enter the boundaries of any research or sample plot unless consent is received from the reservation holder.
9	1061	Where FireSmart activities are considered, the Disposition Holder must follow Information Letter- “Authorization of FireSmart Activities on Public Land” as amended from time to time.

Vegetation

Report ID	Approval	Condition
10	1300	The disposition holder must manage all regulated weeds to the satisfaction of the regulatory body.
11	1302	The Disposition Holder must remove all deciduous or coniferous merchantable timber from the Activity as per the following utilization standards; - Deciduous Timber: 15 cm Base/10 cm Top - Coniferous Timber: 15 cm Base/11cm Top and haul said timber to the location of end use.
12	1304	For fire control purposes on forested lands, the Disposition Holder must dispose of excess coarse woody debris* not utilized for rollback* or stockpiled for reclamation*.
13	1305	Within FireSmart Community Zones*, the Disposition Holder must dispose of coarse woody debris* by burning unless a Debris Management Plan has been approved under the Forest and Prairie Protection Act.

Soil

Report ID	Approval	Condition
14	1356	The Disposition Holder must not conduct the Activity during adverse ground conditions*.
15	1357	The Disposition Holder must prevent erosion* and sedimentation on to adjacent* Lands or Water bodies * that results from the activity.
16	1359-AS	The Disposition Holder must not remove from the Lands topsoil* or subsoil* unless approved in writing by the Regulatory Body.
17	1360	Where activities have occurred on the Lands that do not involve minimal disturbance* construction, the Disposition Holder must salvage topsoil* for land reclamation as follows: a. Salvage all topsoil* from: i. Mineral soils ii. Shallow organic soils* iii. Reclaimed soils b. Where the depth of the topsoil* is less than 15 cm, the topsoil* and part of the subsoil* to a total depth of 15 centimetres must be salvaged, unless the upper subsoil* is considered chemically unsuitable*.
18	1363	All reclamation material* must be considered suitable as defined in the May 2001 Salt Contamination Assessment Guidelines and meet the February 2016 Alberta Tier 1 Soil and Groundwater Remediation Guidelines, as amended or replaced from time to time.
19	1365	The Disposition Holder must store reclamation material* in accordance with all of the following: a. reclamation material* must not be placed beneath the ground surface or buried in any way; b. coarse woody debris* stored for reclamation purposes for greater than 12 months must be mixed with topsoil*; and c. topsoil* and subsoil* must be stored separately.
20	1367	The Disposition Holder must not mix wood chips with any reclamation material*.
21	1368	The Disposition Holder must not apply wood chips to the lands at a depth greater than five (5) centimeters.
22	1369	The Disposition Holder must manage wood chips in accordance with the directive ID 2009-01 Management of Wood Chips on Public Land as amended from time to time.
23	1370	The Disposition Holder must not store piles or windrows of reclamation material* within standing timber.
24	1371	The Disposition Holder must not use soil sterilant on the Lands.

Watercourse / Waterbody

Report ID	Approval	Condition
25	1402-AS	The Disposition Holder must not conduct the Activity* within the following water body* setbacks. a) intermittent watercourses* including springs must have a setback of at least 45 metres from the top of the breaks. b) Small permanent watercourses* must have a setback of at least 45 metres from the top of the breaks. c) large permanent watercourses* must have a setback of at least 100 metres from the top of the breaks. d) semi-permanent and permanent ponds, shallow open water ponds and lakes must have setback of 100 metres from the bed and shore*.
26	1412	The Disposition Holder must acquire an authorization for access (off-disposition) for water withdrawal activities.
27	1419	For use of equipment within the bed of a water body*, the Disposition Holder must prior to operations follow the “Decontamination Protocol for Work in or Near Water”, as amended from time to time.
28	1420	The Disposition Holder must provide a completed Record of Decontamination form as proof of decontamination to the Regulatory Body upon request.

Reclamation

Report ID	Approval	Condition
29	1451	For progressive reclamation* on forested lands*, the Disposition Holder must replace all reclamation materials* that have been salvaged in accordance with all of the following: a. all salvaged subsoil* must be replaced, then all salvaged topsoil*; and b. reclamation materials* must be replaced over the entire progressive reclamation area*; unless otherwise approved in writing by the Regulatory Body.
30	1453	The Disposition Holder must complete temporary reclamation* on the Lands within 1 growing season of construction phase* for all topsoil* and subsoil* stockpiles required for final reclamation*.

31	1454	The Disposition Holder must prior to seeding herbaceous seed in forested* or peatlands* submit a Request for Seeding in writing to the Regulatory Body that contains all of the following: a. rationale for conducting seeding of herbaceous species*; b. a description of the proposed site for seeding including information with respect to the following: i. whether the Lands are subject to high erosion* and; ii. whether the Lands are prone to invasion from agronomic or weed species. c. a proposed seed mix composition for re-vegetation of the Lands in accordance with the Native Plant Revegetation Guidelines for Alberta, 2001 as amended or replaced from time to time or a rationale for alternate species; d. provide a seed certificate in accordance with the Seed Act for the seed mixed mix to be used for re-vegetation* and; any other information requested by the Regulatory Body.
32	1455	The Disposition Holder must only conduct seeding in accordance with the written authorization of the Regulatory Body.
33	1456	The Disposition Holder must when seeding cultivated lands*; a. use agronomic or forage seed that meets or exceeds Certified #1 as outlined in the Seeds Act and Seeds Regulations; b. use seed mixes that are free of species listed in the Weed Control Act and; c. provide a seed certificate to the Regulatory Body within 30 days of request.
34	1457	Within the Green Area* of the Province, the Disposition Holder must re-vegetate the Lands with trees or shrubs that meet the requirements of the December 2016 Alberta Forest Genetic Resource Management and Conservation Standards document, as amended or replaced from time to time.
35	1459	The Disposition Holder must not have slash and rollback* accumulations within five (5) metres of the perimeter of the disposition boundary, greater than the percent ground cover on the surrounding undisturbed forest floor.
36	1461	The Disposition Holder must complete progressive reclamation* on forested lands* for all related and incidental disturbances to the Disposition.
37	1462	The following activities are excluded from progressive reclamation* requirement on forested lands*: a) Lands that have received authorization for clay pad construction; and b) Lands with a 4:1 or steeper slopes where a cut and fill has been constructed to level the ground surface.

38	1463	For final reclamation*, the Disposition Holder must complete all of the following: a. contour the disturbed land to the pre-disturbance landform or to the landform approved by the Regulatory body; b. replace all stockpiled subsoil*, then replace all stockpiled topsoil*; c. spread all coarse woody debris* on forested lands* and; d. reclamation materials* must be replaced over the entire area from which they were removed unless otherwise approved in writing by the Regulatory Body.
39	1464	The Disposition Holder must reclaim the Lands to the pre-disturbance land use type* unless otherwise authorized in writing by the Regulatory Body.

Wildlife

Report ID	Approval	Condition
40	1600	The Disposition Holder must conduct a complete and immediate Wildlife Sweep* of the Lands subject to the disposition prior to any activity, as per the “Wildlife Sweep Protocol”.
41	1601	The Disposition Holder must submit observations from a Wildlife Sweep* to the Fisheries and Wildlife Management Information System (FWMIS) and notify the issuing Regulatory Body in writing upon request that the Wildlife Sweep* was completed.
42	1602-AS	The Disposition Holder must incorporate a buffer* zone of a minimum width of 100m undisturbed vegetation, where an established buffer* does not already exist for any and all key habitat features including, but not limited to leks*, nests, dens and houses identified in the Wildlife Sweep*.
43	1603	When Wildlife Surveys* are required, the Disposition Holder must submit results as defined by the sensitive species inventory guidelines from Wildlife Survey* to the Fisheries and Wildlife Management Information System (FWMIS).
44	1608	The Disposition Holder must incorporate buffers*, setbacks and activity timing restrictions for any and all key habitat features including, but not limited to leks*, nests, dens and houses identified in the wildlife survey*.
45	1611-AS	The Disposition Holder must conduct appropriate pre-application wildlife* surveys as per the direction of the Sensitive Species inventory Guidelines as amended from time to time where you intersect any of the following sensitive species; • Sensitive Raptor Range • Burrowing Owl Range • Sensitive Snake Hibernacula Range • Sharp-tailed Grouse Survey • Swift Fox Range • Ords Kangaroo rat Range • Piping Plover Waterbodies • Endangered and Threatened plant Ranges • Grassland and Parkland Natural Regions (Grassland Bird Surveys)

Sensitive Raptor Range

Report ID	Approval	Condition
46	1650-AS	The Disposition Holder must not conduct any activities within 1000 metres of a sensitive raptor active nest*.

Sharp-Tailed Grouse Survey / Leks and Buffers

Report ID	Approval	Condition
47	1740-AS	The Disposition Holder must not conduct any activities* within 500 metres of the perimeter of any known or identified active sharp-tailed grouse lek* sites.

Other Sensitive and Endangered Species

Report ID	Approval	Condition
48	1880-AS	Between April 15 and August 15, the Disposition Holder must not conduct any activities* within 100 metres of an active nest site for Federally listed species.

Grassland and Parkland Natural Region

Report ID	Approval	Condition
49	2051-AS	From December 16th to July 31st, the Disposition Holder must not conduct activities on Fescue Grasslands* in the Montane, Foothills Parkland and Foothills Fescue Natural subregions.
50	2054	On native grasslands*, the Disposition Holder must not crimp straw* subject to the following exceptions: a) The straw* used for crimping must be sourced from a native species* from the same ecological range site* as the Lands; b) The weed analysis for the straw* used for crimping must comply with the Weed Control Act, as amended or replaced from time to time.

51	2056	In native grasslands* as identified by the Foothills Fescue Subregion Layer that requires Assisted Natural Recovery*, the Disposition Holder must submit a request for Assisted Natural Recovery in writing to the Regulatory Body that contains all of the following: 1. Rationale for conducting Assisted Natural Recovery*; 2. A description of the proposed site for Assisted Natural Recovery* including information with respect to the following: a) Whether the Lands are subject to high erosion*; b) Whether the soil on the Lands has been disturbed to an area greater than 50m2; c) Whether the Lands are prone to invasion from agronomic or weed species; 3. A proposed seed mix composition for re-vegetation of the Lands: a) That is consistent with native plant communities that are adjacent* to and in the immediate vicinity of the Lands as determined by the Range Plant Communities and Range Health Assessment Guideline for the Foothills Fescue Grass Natural Subregion of Alberta, as amended or replaced from time to time; b) That is consistent with the seed mix composition for the ecological range site* of the Lands as provided in the Recovery Strategies For Industrial Development in Native Grassland* for the Foothills Fescue, Foothills Parkland and Montane Natural Subregions of Alberta, as amended or replaced from time to time 4. Provide a seed certificate in accordance with the Seed Act for the seed mix to be used for Assisted Natural Recovery*; and 5. Any other information requested by the Regulatory Body.
52	2062	For activities that fall within native grasslands* as identified by the Central Parkland Subregion that requires Assisted Natural Recovery*, the Disposition Holder must submit a request for Assisted Natural Recovery in writing to the Regulatory Body that contains all of the following: 1. Rationale for conducting Assisted Natural Recovery*; 2. A description of the proposed site for Assisted Natural Recovery* including information with respect to the following: a. whether the Lands are subject to high erosion; b. whether the soil on the Lands has been disturbed to an area greater than 50m2; c. whether the Lands are prone to invasion from agronomic or weed species; 3. A proposed seed mix composition for re-vegetation of the Lands: a. that is consistent with native plant communities that are adjacent to and in the immediate vicinity of the Lands as determined by the A Preliminary Classification of Plant Communities in the Central Parkland Natural Subregion of Alberta, as amended or replaced from time to time; b. provide a seed certificate in accordance with the Seed Act for the seed mix to be used for Assisted Natural Recovery* and; c. any other information requested by the Regulatory Body.
53	2068	The Disposition Holder must not construct activities on native grassland* within the Grassland and Parkland Natural Region between April 15th and August 15th, unless grassland bird surveys are completed as per the Sensitive Species Inventory Guidelines Protocol as amended.

54	2069	The Disposition Holder must not conduct any activities within 100 metres of an active nest site between April 15th and August 15th for the following species: • short-eared owl • mountain plover • long-billed curlew • upland sandpiper • Sprague's pipit • Chestnut-collared longspur • Loggerhead Shrike • Bank Swallow
55	2070-AS	On native grasslands* identified in the Central Parkland and Northern Fescue layer, the Disposition Holder must conduct a conservation assessment as outlined in Conservation Assessments in Native Grassland Strategic Siting and Pre-disturbance Site Assessment Methodology for Industrial Disturbances as amended or replaced from time to time. Upon request by the Regulatory Body, the Disposition Holder must submit the conservation assessment report in writing to the Regulatory Body within 30 days of the request.
56	2071-AS	The Disposition Holder must not conduct activities on loamy soils* in the Central Parkland and Northern Fescue layer as confirmed by the Disposition Holder through the required Conservation Assessment, subject to the following exceptions; a) using existing disturbances* for activities; and b) locating activities adjacent* to existing occupied dispositions and non-native vegetation areas.

Appendix 6 Plants Recorded during the Rare Plant Survey

Appendix 6. Plants recorded during the rare plant survey on July 3, 2020 (plant nomenclature as in 2018 ACIMS plant element database). A=agronomic species, NN= non-native weeds, all other species are native**.**

Native prairie remnants

Common Name	Latin Name
agrimony	*Agrimonia striata*
alfalfa (A)	*Medicago sativa*
alpine bistort	*Bistorta vivipara*
alpine goldenrod	*Solidago multiradiata*
alpine hedysarum	*Hedysarum alpinum*
alsike clover (A)	*Trifolium hybridum*
ascending purple milk-vetch	*Astragalus laxmannii var. robustior*
balsam poplar	*Populus balsmaifera*
black medick (A)	*Medicago lapulina*
bracted bog orchid	*Coeloglossum viride*
buckbrush	*Symphoricarpos occidentalis*
Canada anemone	*Anemone canadensis*
chokecherry	*Prunus virginiana*
common blue-eyed grass	*Sisyrinchium montanum*
common yarrow	*Achillea millefolium*
cream-colored vetchling	*Lathyrus ochroleucus*
early yellow locoweed	*Oxytropis sericea*
field mouse-ear chickweed	*Cerastium arvense*
gaillardia	*Gaillardia aristata*
golden bean	*Thermopsis rhombifolia*
graceful cinquefoil	*Potentilla gracilis*
green needle grass	*Nasella viridula*
harebell	*Campanula rotundifolia*
heart-leaved Alexanders	*Zizia aptera*
inland bluegrass	*Poa interior*
Kentucky bluegrass (A)	*Poa pratensis*
low goldenrod	*Solidago missouriensis*
mountain rough fescue	*Festuca campestris*
narrow-leaved dock	*Rumex triangulivalvis*

Common Name	Latin Name
needle-and-thread	*Hesperostipa comata*
northern bedstraw	*Galium boreale*
northern gooseberry	*Ribes oxyacanthoides*
northern hedysarum	*Hedysarum boreale*
northern willowherb	*Epilobium ciliatum*
pasture sagewort	*Artemisia frigida*
plains cinquefoil	*Potentilla bipinnatifida*
plains wormwood	*Artemisia campestris*
prairie crocus	*Anemone patens*
prairie groundsel	*Packera cana*
prairie sagewort	*Artemesia ludoviciana*
prickly rose	*Rosa acicularis*
purple milk-vetch	*Astragalus agrestis*
Rocky Mountain fescue	*Festuca saximontana*
rough cinquefoil	*Potentilla norvegica*
saskatoon	*Amelanchier alnifolia*
scarlet butterflyweed	*Oenothera suffrutescens*
shrubby cinquefoil	*Dasiphora fruticosa*
silverberry	*Elaeagnus commutata*
slender wheatgrass	*Elymus trachycaulus ssp. trachycaulus*
small bottle sedge	*Carex utriculata*
small-leaved everlasting	*Antennaria parvifolia*
smooth aster	*Symphyotrichum laeve*
smooth brome (A)	*Bromus inermis*
star-flowered Solomon's seal	*Maianthemum stellatum*
sticky alumroot	*Heuchera cylindrica*
sticky purple geranium	*Geranium viscosissimum*
tall goldenrod	*Solidago altissima*
three-flowered avens	*Geum triflorum*
timber milk vetch	*Astragalus miser*
timothy (A)	*Phleum pratense*
trembling aspen	*Populus tremuloides*
tufted fleabane	*Erigeron caespitosus*

Common Name	Latin Name
tufted hair grass	*Deschampsia cespitosa*
two-grooved milkvetch	*Astragalus bisulcatus var. bisulcatus*
veiny meadow-rue	*Thalictrum venuosum*
water smartweed	*Polygonum amphibium*
western willow aster	*Symphyotrichum lanceolatum*
white camas	*Zigadenus elegens*
wild bergamot	*Monarda fistulosa*
wild blue flax	*Linum lewisii*
wild licorice	*Glycyrrhiza lepidota*
wild strawberry	*Fragaria virginiana*
wild vetch	*Vicia americana*
woolly gromwell	*Lithospermum ruderale*
yellow false dandelion	*Agoseris glauca*
yellow flax	*Linum rigidum*
yellow sweet-clover (A)	*Melilotus officinalis*
absinthe wormwood (NN)	*Artemisia absinthium*
annual hawk's-beard (NN)	*Crepis tectorum*
bluebur (NN)	*Lappula squarosa*
common goat's beard (NN)	*Tragopogon dubius*
common plantain (NN)	*Plantago major*
creeping thistle (NN)	*Cirsium arvense*
dandelion (NN)	*Taraxacum officinale*
lamb's quarters (NN)	*Chenopodium album*
perennial sow-thistle (NN)	*Sonchus arvensis*
redtop (NN)	*Agrostis stolonifera*
stinkweed (NN)	*Thlaspi arvense*
tall hedge mustard (NN)	*Sisymbrium loesellii*

Riparian area (northern portion of property and pond in center of property)

Common Name	Latin Name
creeping spike-rush	*Eleocharis palustris*
fowl manna grass	*Glyceria striata*
wire rush	*Juncus balticus*
woolly sedge	*Carex pellita*
Sartwell's sedge	*Carex sartwelli*
water sedge	*Carex aquitilis*
small bottle sedge	*Carex utriculata*
Kentucky bluegrass (A)	*Poa pratensis*
common horsetail	*Equisetum arvense*
silverweed	*Potentilla anserina*
water parsnip	*Sium suave*
western dock	*Rumex occidentalis*
water smartweed	*Polygonum amphibium*
seaside arrow-grass	*Triglochin maritima*
wild mint	*Mentha arvensis*
tufted hair grass	*Deschampsia cespitosa*
Bebb's willow	*Salix bebbiana*
fleshy stitchwort	*Stellaria crassifolia*
marsh hedge-nettle	*Stachys pilosa*
swamp horsetail	*Equisetum fluviatile*
Macoun's horsetail	*Ranunculus macounii*
sweet grass	*Anthoxanthum hirtum*
kidney-leaved violet	*Viola renifolia*
mealy primrose	*Primula incana*
balsam groundsel	*Packera paupercula*
saline shooting star	*Dodecatheon pulchellum*
pale blue-eyed grass	*Sisyrinchium septentrionale*
common tall manna grass	*Glyceria grandis*
ivy-leaved duckweed	*Lemna triscula*
slough grass	*Beckmannia syzigachne*
toad rush	*Juncus bufonius*
seaside buttercup	*Ranunculus cymbalaria*

Common Name	Latin Name
celery-leaved buttercup	*Ranunculus scleratus*
spiked water-milfoil	*Myriophyllum sibiricum*
narrow reed grass	*Calamagrostis stricta spp. stricta*